New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492
Daniel Salerno, *Acting Chair* | Cate O'Keefe, PhD, *Executive Director*

MEMORANDUM

DATE: August 8, 2025

TO: Scientific and Statistical Committee

FROM: Scallop Plan Development Team (PDT)

SUBJECT: **PDT input regarding the use of Atlantic sea scallop biological reference points for setting catch specifications**

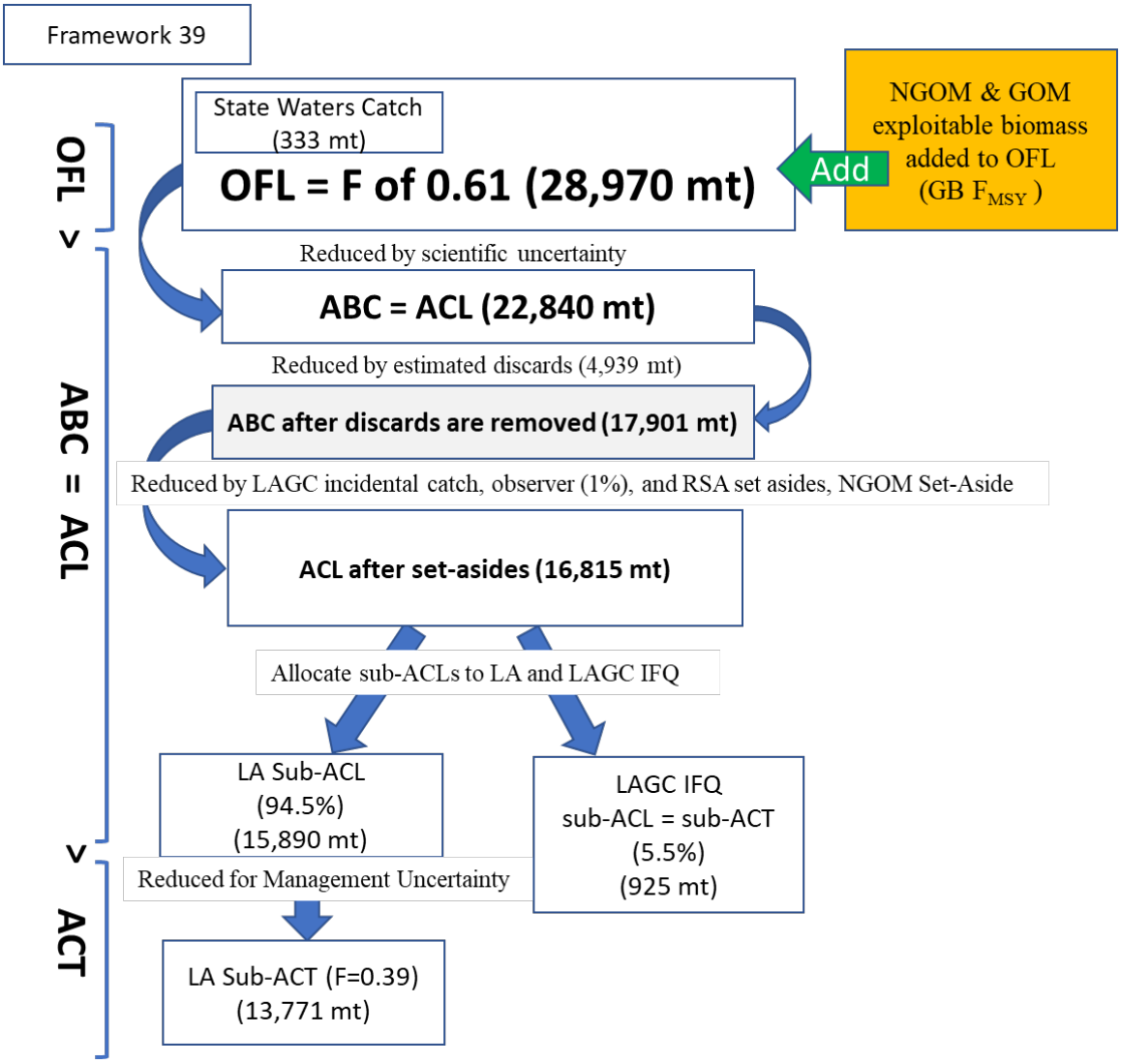
This memorandum forwards information to support recommendations by the Scientific and Statistical Committee (SSC) on the appropriate use of biological reference points from the 2025 Atlantic Sea Scallop Research Track Assessment (Research Track assessment) for setting the overfishing limit (OFL) and acceptable biological catch (ABC) for Atlantic sea scallops. The PDT met on July 24, 2025, and developed this memo by correspondence. Table 1 below describes the definition of each reference point within the Scallop FMP as well as the value of each reference point from the past 5 stock assessments. For the upcoming specifications cycle (FY 2026 and FY 2027), input from the SSC is requested to guide the development of possible OFL and ABC recommendations for the SSC to consider at their October 8, 2025 meeting.

Table 1. Atlantic sea scallop biological reference points and status determination criteria from recent assessments.

	Definition in Scallop FMP		SAW 50 (2010)	SARC 59 (2014)	SARC 65 (2018)	2020 Management Track	2025 Research Track
OFL	F_{MSY}	Mid-Atlantic	$F_{MSY\ MA} = 0.47$	$F_{MSY\ MA} = 0.74$	$F_{MSY\ MA} = 0.73$	$F_{MSY\ MA} = 0.72$	$F_{MSY\ MA} = 1.56$
		Georges Bank	$F_{MSY\ GB} = 0.21$	$F_{MSY\ GB} = 0.30$	$F_{MSY\ GB} = 0.57$	$F_{MSY\ GB} = 0.46$	$F_{MSY\ GB} = 0.36$
		Combined Regional	$F_{MSY} = 0.38$	$F_{MSY} = 0.48$	$F_{MSY} = 0.64$	$F_{MSY} = 0.61$	$F_{MSY} = 0.49$
ABC=ACL	25% probability of exceeding the OFL		F=0.32	F=0.38	F=0.51	F = 0.45	F = 0.36
B_{MSY}	B_{TARGET}		125,358 mt	96,480 mt	116,766 mt	102,657 mt	93,282 mt
½ B_{MSY}	$B_{THRESHOLD}$		62,679 mt	48,240 mt	58,383 mt	51,329 mt	46,641 mt
MSY			24,975 mt	23,798 mt	46,531 mt	32,079 mt	28,402 mt

Overfished?	B < $B_{THRESHOLD}$	No	No	No	No	No
Overfishing?	F < $F_{THRESHOLD}$=F_{MSY}	No	No	No	No	No

Figure 1. Overview of Annual Catch Limit setting process from Scallop Framework 39



Overview

At the Council's request, (July 20, 2023 letter from NEFMC to NEFSC), the NRCC accepted a proposed change to the Research Track assessment's Terms of Reference to provide status determination for the scallop stock to inform immediate management actions. The updated reference points from the Research Track assessment, which passed peer review on April 24, 2025, are described in Table 1. Following the process outlined in Figure 1, the Scallop PDT applies the F_{MSY} from the most recent stock assessment to the projected scallop exploitable biomass to calculate the OFL. Following the ABC control rule, the F_{ABC} is calculated as the fishing mortality rate associated with a 25% probability of overfishing, accounting for scientific uncertainty. This value is then further reduced by estimated discards, incidental catch, observer set-aside, Research set-aside, and the Northern Gulf of Maine set-aside, and split between the

Limited Access and Limited Access General Category IFQ fishery components. Fishery allocations are informed by projected landings based on the most recent survey data.

To develop input on the appropriate use of the reference points from the Research Track assessment for setting specifications, the PDT reviewed information from the recent Research Track assessment and peer review report, prior SSC and PDT reports, and recent survey information. Based on concerns raised in the peer review report, specifically the lack of a well-defined Mid-Atlantic F_{MSY} and the additional risk of overfishing on Georges Bank from the use of a combined regional reference point for the Mid-Atlantic and Georges Bank, the PDT considered several possible approaches to reduce the risk of exceeding the Georges Bank F_{MSY}. As the use of the combined regional F_{MSY} in setting the OFL and ABC for the stock is explicitly defined in 50 CFR 648.53(a), there is little flexibility for the Council to modify the ABC control rule to account for additional scientific uncertain and reduce that risk without initiating an Amendment to the Scallop FMP.

While concerns remain about the reliability of the combined regional reference points for management, the PDT acknowledges that the scallop specifications are typically set well below the OFL and ABC values (Figure 1), but agreed it would be prudent to address concerns over the updated biological reference points and develop an approach to reduce the risk of overfishing on Georges Bank. Two options were discussed to modify how the F_{ABC} is determined based on the combined regional F_{MSY}: 1) Apply the Georges Bank F_{MSY} and F_{ABC} values for the entire stock in place of the combined reference points for setting the OFL and ABC (Table 2), or 2) Develop measures to modify the ABC control rule to specify a different percentage of 'p*', or the probability of overfishing associated with the ABC (currently 25%). These approaches were determined to require the use of an Amendment to modify the ABC control rule, and therefore impractical to implement in the short term.

The PDT discussed an additional concern, that while specifications may cap the overall fishing mortality on Georges Bank at F=0.36 and the fishing mortality in the open area of Georges Bank to F=0.29, without binding catch limits in place, the Council could allocate Days-at-Sea that correspond to a fishing mortality rate on Georges Bank of greater than F=0.36.

Input from the SSC regarding the appropriateness of the combined regional reference points for use in developing the OFL and ABC would help to guide future research and management decisions in the short and long term. The PDT notes that if the SSC is uncomfortable with the degree of risk associated with the use of the existing combined reference points, the "SSC may recommend an ABC that differs from the result of the ABC control rule calculation, based on factors such as data uncertainty, recruitment variability, declining trends in population variables, and other factors..." (50 CFR 600.310(f)(3)).

Rationale

The Scallop PDT's concern about the appropriateness of the updated reference points for use in management reflects the positions that the Scallop Research Track Assessment Peer Review Panel (Panel) outlined in their summary report. While the Panel believed that the approach to establishing reference points was reasonable and that the reference points were appropriate for providing management advice, they raised concerns regarding the scallop stock structure and the risk of overfishing on Georges Bank posed by using a single combined reference point for the Mid-Atlantic and Georges Bank.

The Mid-Atlantic F_{MSY} is not well-defined (Figure 3). Initial simulations of the Mid-Atlantic resulted in non-credible reference points due to a pattern of consistently negative residuals in the

stock recruitment pattern from 2016-2021 that was not seen for Georges Bank. Recruitment in the Mid-Atlantic during that period was 59% lower than the stock-recruitment model estimates, and recruitment in the Mid-Atlantic Stochastic Yield Model (SYM) model was reduced by 41% accordingly.

Use of a combined regional reference point, given the lack of a defined Mid-Atlantic $F_{MSY,}$ increases the risk of allowing overfishing on Georges Bank. The Review Panel noted concerns about the reliability of the combined reference point, and indicated that strong evidence had been presented to the Panel that suggested assessing Georges Bank and the Mid-Atlantic separately would be necessary to fully represent the range of dynamics present throughout the stock range, given that the different regions appeared to be experiencing substantially different environmental conditions, different rates and temporal patterns of natural mortality, growth, and recent patterns of exploitation. Combined use of regional reference points, although done in a mathematically correct way, introduces the additional and unquantified risk of not identifying overfishing on Georges Bank. We note that, if status determination criteria were to be used regionally, Georges Bank would have been considered to have been experiencing overfishing in 2023. As the scallop resource is declining in the inshore and southern extent of the Mid-Atlantic region (Figure 4), the Scallop PDT continues to expect that most fishing effort will take place on Georges Bank in FY 2026.

In summary, the PDT has concerns regarding the appropriateness of the combined regional reference point for use in management due to the additional, unquantified risk of overfishing on Georges Bank. The PDT also agrees that fishery allocations in FY 2026 should limit the fishing mortality rate on Georges Bank to below F=0.36, and the fishing mortality rate on the open area of Georges Bank to below 0.29, and supports working towards biological and management stock units that reflect the underlying population dynamics and environmental conditions facing scallops across their range. The SSC's input on the appropriateness of these reference points for use in management is invaluable to support the PDT's implementation of the updated reference points and decisions regarding appropriate fishing mortality rates on Georges Bank in FY 2026.

Table 2. Select biological reference points for Atlantic Sea Scallop derived from the SAMS model developed for the 2025 Atlantic Sea Scallop Research Track Assessment.

Region	MSY (mt)	F_{MSY}	F_{ABC}	B_{MSY} (mt)	½ B_{MSY} (mt)	B_{2023} (mt)	F_{2023}
Mid-Atlantic	7,941	1.56	1.24	15,909		20,556	0.06
Georges Bank	22,706	0.36	0.29	83,414		49,400	0.47
Combined	28,402	0.49	0.36	93,282	46,641	69,596	0.33

Figure 2. Recent OFL (red) and ABC/ACL (green) values relative to the APL (purple) and fishery landings (blue).

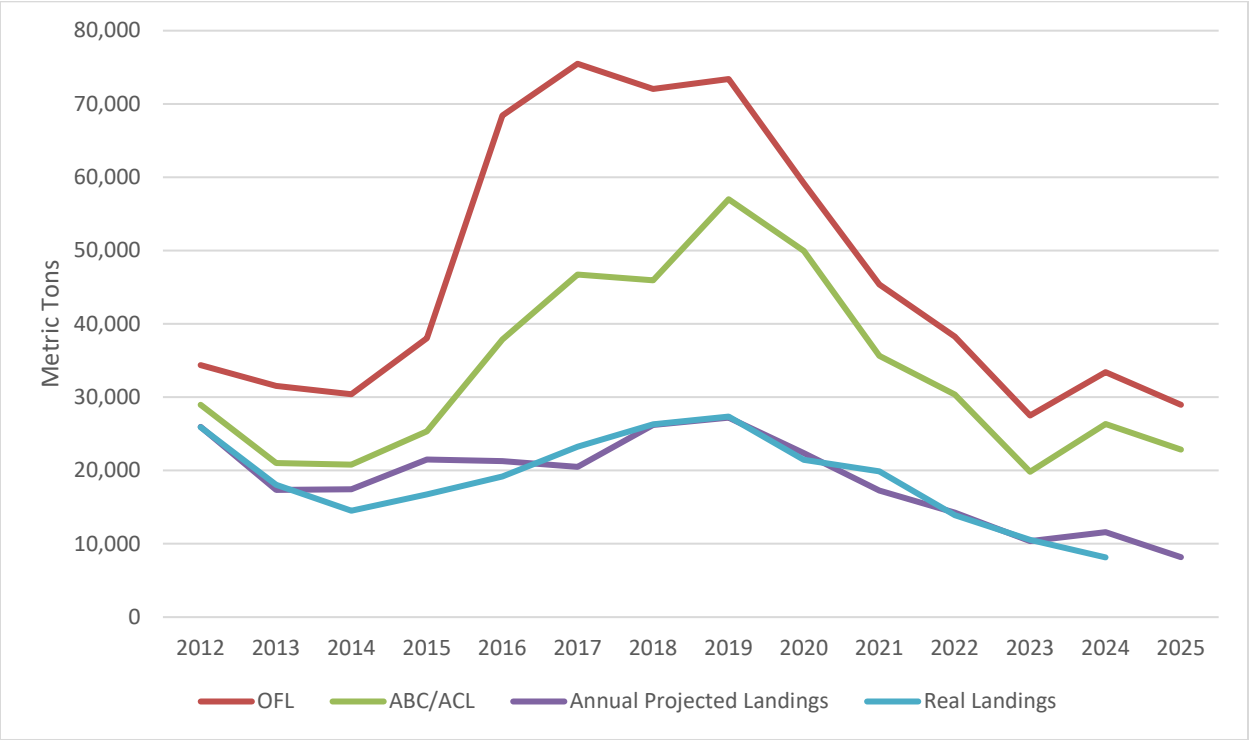


Figure 3. Trimmed mean yield curves for the Mid-Atlantic, Georges Bank and combined. The green vertical line indicates the combined $F_{MSY} = 0.49$.

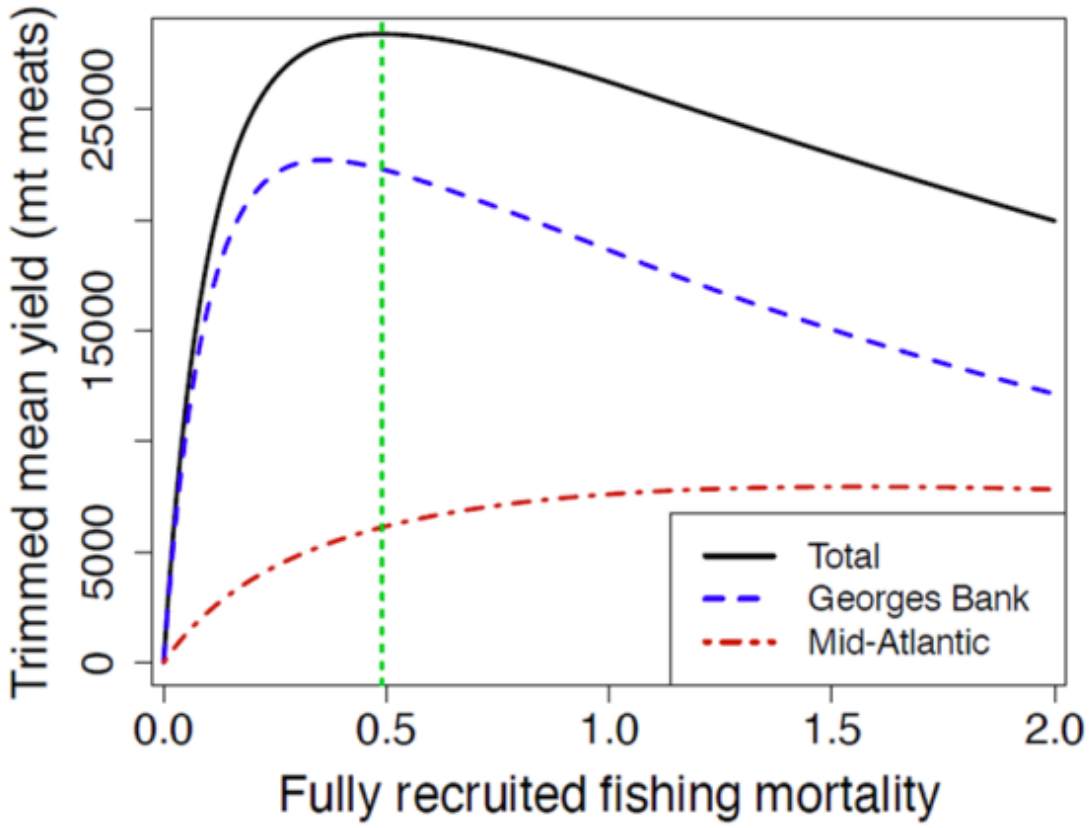


Figure 4. Stacked plot showing CASA estimated biomass over time for the Mid-Atlantic, Georges Bank Closed and Open, and HabCam estimates for the "Peter Pan" southeastern Nantucket Lightship area. The black dashed line indicates the target biomass B_{MSY} and the red dashed line the threshold biomass ½ B_{MSY}.