October 2023 Council Meeting

Tuesday, October 3 – Thursday, October 5, 2023

Yotel New York
(570 Tenth Avenue, New York, NY, 10036; 646-449-7772)
or via Webex webinar

This meeting will be an in-person meeting with a virtual option. Council members, other meeting participants, and members of the public will have the option to participate in person at the Yotel New York or virtually via Webex webinar. Webinar connection instructions and briefing materials will be available at: https://www.mafmc.org/briefing/october-2023.

Tuesday, October 3rd

1:00 p.m. – 3:00 p.m.	**Executive Committee – Open Session** – Review progress on 2023 Implementation Plan – Review and approve draft 2024 deliverables	**(Tab 1)**
3:00 p.m.	***Council Convenes***	
3:00 p.m. – 4:30 p.m.	**Monkfish and Dogfish Joint Framework to Reduce the Bycatch of Atlantic Sturgeon** – Review joint Dogfish and Monkfish Committee recommendations – Review and approve range of Dogfish and Monkfish alternatives	**(Tab 2)**
4:30 p.m. – 5:30 p.m.	***Illex* Hold Framework #2: Final Action** – Review recommendations from the Committee and Advisory Panel – Select preferred alternatives and take final action	**(Tab 3)**

Wednesday, October 4th

9:00 a.m. – 10:00 a.m.	**Northeast Fishery Science Center (NEFSC) Federal Surveys: Survey Performance, Issues, and Planning for the Future – Dr. Kathryn Ford and Peter Chase, NEFSC** – Overview of NOAA Ship Henry B. Bigelow bottom trawl survey, R/V Hugh R. Sharp Scallops Survey, and other NEFSC surveys – Past survey performance, 2023 survey issues, contingency plans, and future scheduling	**(Tab 4)**
10:00 a.m. – 11:00 a.m.	**Policy/Process for Reviewing Exempted Fishing Permit Applications for Unmanaged Forage Amendment Ecosystem Component Species** – Review draft policy/process document – Review recommendations from EOP Committee and Advisory Panel – Approve policy/process	**(Tab 5)**

11:00 a.m. – 12:00 p.m.	**Offshore Wind Energy Development** – Updates from the Bureau of Ocean Energy Management – Updates from the New York State Energy Research and Development Authority (NYSERDA) – Offshore Wind Master Plan 2.0 (Deepwater)	**(Tab 6)**
12:00 p.m. – 1:00 p.m.	**---------- LUNCH ----------**	
1:00 p.m. – 2:00 p.m.	**Ecosystem Approach to Fisheries Management (EAFM) Risk Assessment Review** – Review recommendations from EOP Committee and Advisory Panel – Approve modifications to EAFM risk assessment	**(Tab 7)**
2:00 p.m. – 2:30 p.m.	**Private Recreational Tilefish Permitting and Reporting** – Receive update from GARFO on recreational tilefish permitting and reporting – Discuss communication and outreach efforts	**(Tab 8)**
2:30 p.m. – 3:00 p.m.	**Habitat Activities Update – Karen Greene, Greater Atlantic Regional Fisheries Office Habitat and Ecosystem Services Division** – Presentation on activities of interest (aquaculture, wind, and other projects) in the region	**(Tab 9)**
3:00 p.m. – 3:30 p.m.	**NEFSC Observer Program Update – Katherine McArdle, NEFSC** – Review recent program performance and modifications – Review recent changes in tasked seadays resulting from the first Standardized Bycatch Reduction Methodology (SBRM) discard analysis conducted since COVID-19 disruptions – Review planned outreach	**(Tab 10)**
3:30 p.m. – 4:00 p.m.	**NEFSC Cooperative Research Update – Dr. Anna Mercer, NEFSC** – Review the Cooperative Research Branch's portfolio, focusing on new research and outreach initiatives	**(Tab 11)**
4:00 p.m. – 5:00 p.m.	**Assessment and Peer Review Overviews – Spiny Dogfish and Atlantic Mackerel** – Review recent developments that will inform Council actions in December 2023	**(Tab 12)**
5:00 p.m. – 5:30 p.m.	**NEFSC Presentation on Maternal Effects (i.e. the potential importance of larger females for resilient fisheries) - Mark Wuenschel and Richard McBride, NEFSC** – Review relevant NEFSC research activities – Consider potential implications for assessment and management	**(Tab 13)**

Thursday, October 5th

9:00 a.m. – 1:00 p.m. **Business Session**

Committee Reports: **(Tab 14)**

- Scientific and Statistical Committee
- Monkfish Committee
- Surfclam and Ocean Quahog Committee
- Northeast Trawl Advisory Panel (NTAP)

Executive Director's Report – Dr. Chris Moore **(Tab 15)**

Organization Reports:

- NOAA Fisheries Greater Atlantic Regional Fisheries Office, NOAA Fisheries Northeast Fisheries Science Center, NOAA Office of General Counsel, NOAA Office of Law Enforcement, US Coast Guard

Liaison Reports: **(Tab 16)**

- New England Council, South Atlantic Council

Other Business and General Public Comment

This meeting will be recorded. Consistent with 16 USC 1852, a copy of the recording is available upon request.

The above agenda items may not be taken in the order in which they appear and are subject to change, as necessary. Other items may be added, but the Council cannot take action on such items even if the item requires emergency action without additional public notice. Non-emergency matters not contained in this agenda may come before the Council and / or its Committees for discussion, but these matters may not be the subject of formal Council or Committee action during this meeting. Council and Committee actions will be restricted to the issues specifically listed in this agenda. Any issues requiring emergency action under section 305(c) of the Magnuson-Stevens Act that arise after publication of the Federal Register Notice for this meeting may be acted upon provided that the public has been notified of the Council's intent to take final action to address the emergency. The meeting may be closed to discuss employment or other internal administrative matters.

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

Stock Status of MAFMC-Managed Species

(as of 9/21/23)

SPECIES	STATUS DETERMINATION CRITERIA		Stock Status	Most Recent Assessment
	Overfishing $F_{threshold}$	Overfished ½ B_{MSY}		
Summer Flounder 	$F35\%_{MSP}$=0.451	54.63 million lbs	Overfishing Not overfished	Most recent management track assessment was 2023.
Scup 	$F40\%_{MSP}$=0.19	86.64 million lbs	No overfishing Not overfished	Most recent management track assessment was 2023.
Black Sea Bass 	$F40\%_{MSP}$=0.46	15.92 million lbs	No overfishing Not overfished	Most recent management track assessment was 2021.
Bluefish 	$F_{35\%SPR}$=0.239	97.15 million lbs	No overfishing Not overfished*	Most recent management track assessment was 2023. *Note: The stock is no longer overfished but has not rebuilt to target reference points and will remain under a rebuilding plan.
***Illex* Squid (short finned)** 	Unknown	Unknown	Unknown Unknown	2022 research track assessment failed, but peer review agreed likely "lightly fished in 2019," though with cautions.
Longfin Squid 	Unknown	46.7 million lbs	Unknown Not overfished	Most recent management track assessment was 2023; not able to determine current exploitation rates.
Atlantic Mackerel 	$F_{40\%}$=0.21	169.9 million pounds	No overfishing* Overfished	Most recent management track assessment was 2023. *Pending September 2023 peer review finalization.
Butterfish 	F_{Proxy}=2/3M =0.81	43.5 million lbs	No overfishing Not overfished	Most recent management track assessment was 2022.

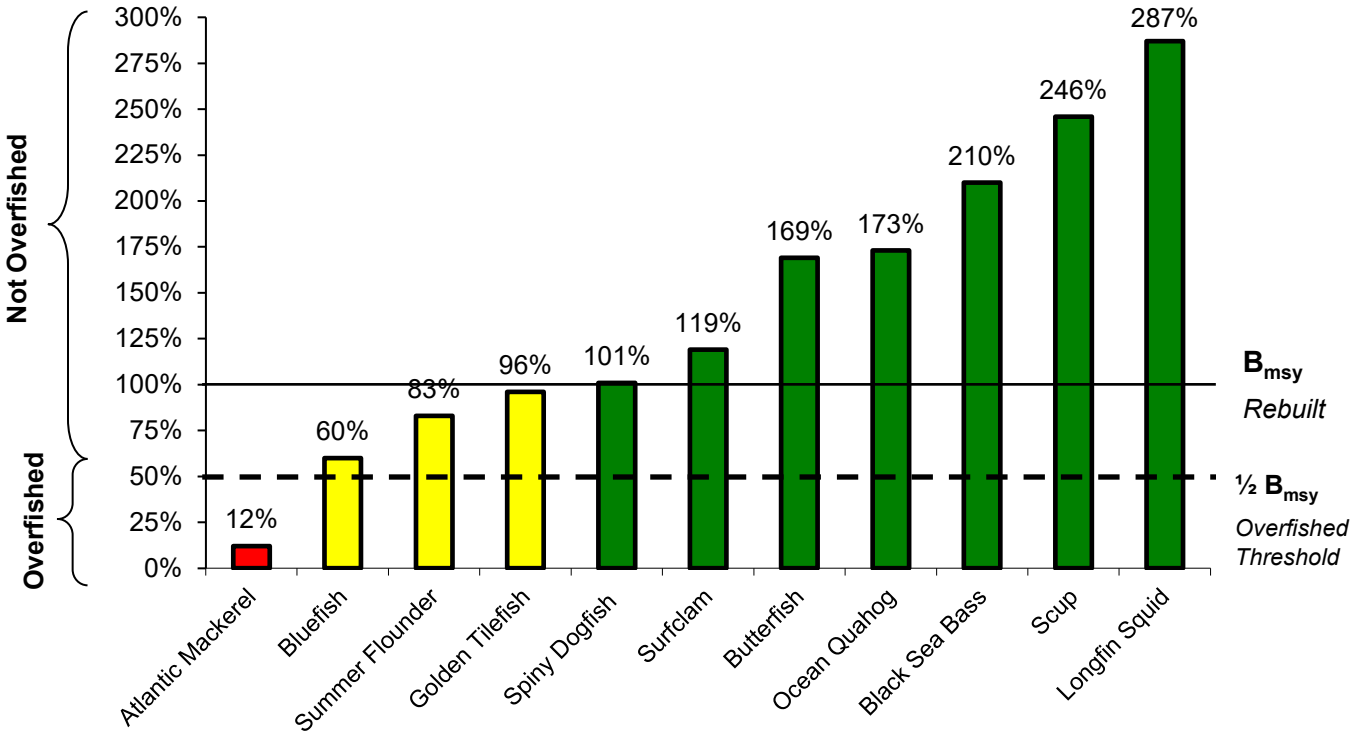
SPECIES	STATUS DETERMINATION CRITERIA		Stock Status	Most Recent Assessment
	Overfishing $F_{threshold}$	**Overfished** ½ B_{MSY}		
Chub Mackerel 	At least 3,026 MT of catch per year	At least 3,026 MT of catch three years in a row	No overfishing Not overfished	No stock assessment.
Surfclam 	$F/F_{threshold} = 1$ [a]	$SSB/SSB_{threshold} = 1$ [b]	No overfishing Not overfished	Most recent management track assessment was 2020.
Ocean Quahog 	$F/F_{threshold} = 1$ [c]	$SSB/SSB_{threshold} = 1$ [d]	No overfishing Not overfished	Most recent management track assessment was 2020.
Golden Tilefish 	$F_{40\%MSP}$=0.261	12.12 million lbs	No overfishing Not overfished	Most recent management track assessment was 2021.
Blueline Tilefish 	Unknown	Unknown	South of Cape Hatteras: No overfishing Not overfished North of Cape Hatteras: Unknown Unknown	Most recent benchmark assessment was 2017.
Spiny Dogfish (Joint mgmt with NEFMC) 	Fproxy = 0.025	94 million pups spawning output	No overfishing Not overfished	Most recent management track assessment was 2023. *Pending September 2023 peer review finalization.
Monkfish (Joint mgmt with NEFMC) 	Unknown	Unknown	Unknown Unknown	Survey biomass trends evaluated in 2022 Management Track Assessment.

SOURCES: Office of Sustainable Fisheries - Status Report of U.S. Fisheries; SAW/SARC, SEDAR, TRAC Assessment Reports, NEFSC Research and Management Track Stock Assessments.

[a] $F_{threshold}$ is calculated as 4.136 times the mean F during 1982 – 2015.
[b] $SSB_{threshold}$ is calculated as $SSB_0/4$.
[c] $F_{threshold}$ is 0.019.
[d] $SSB_{threshold}$ is calculated as $0.4*SSB_0$.

Stock Size Relative to Biological Reference Points

(as of 9/21/23)



Notes:

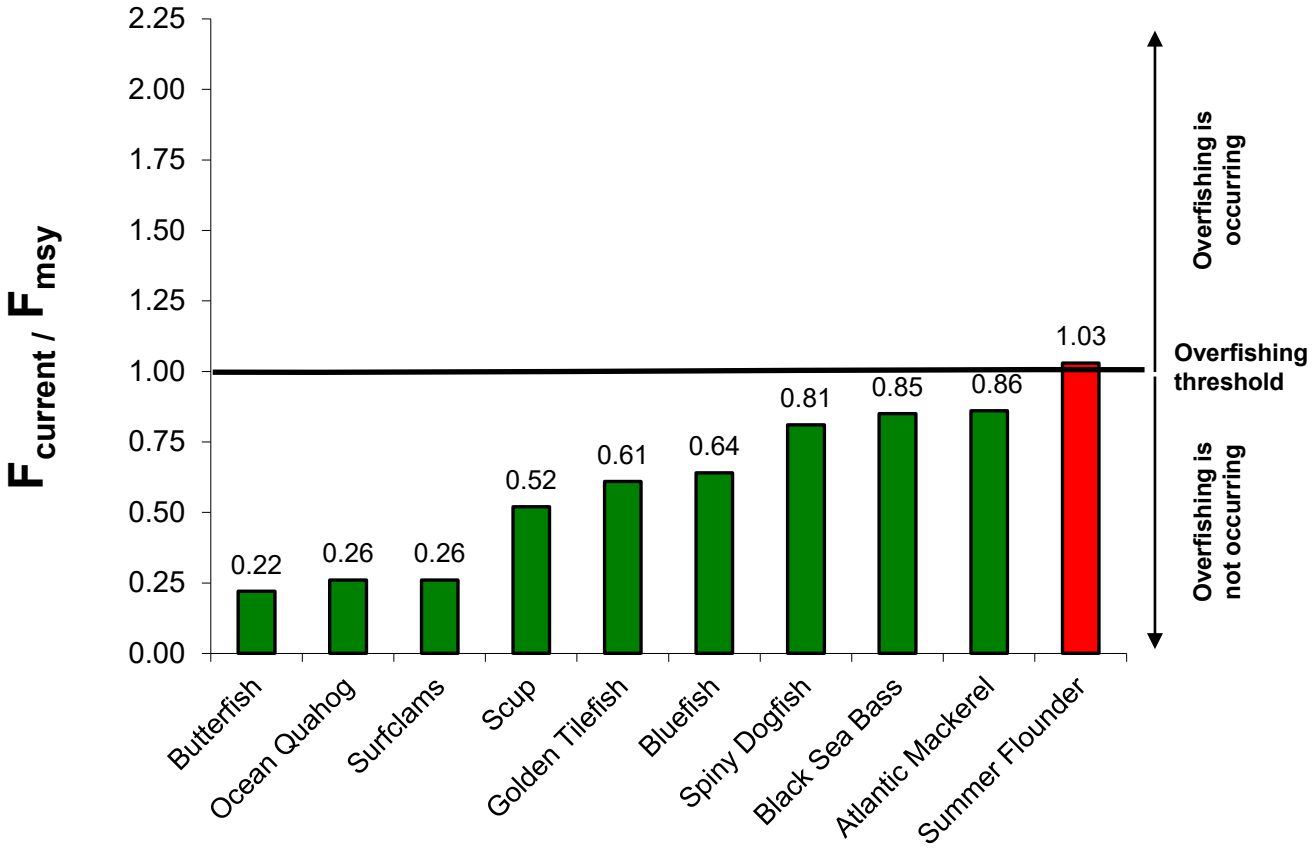
- Unknown B_{msy} - *Illex* squid, monkfish (Northern and Southern Fishery Management Areas), blueline tilefish (North of Cape Hatteras), and chub mackerel.
- Of the 15 species managed by the Council, 7 are above B_{MSY}, 4 are below B_{MSY}, and 4 are unknown.

Year of data used to determine stock size	
Atlantic Mackerel	2022
Black Sea Bass	2019
Bluefish	2022
Butterfish	2021
Golden Tilefish	2020
Longfin Squid	2021-2022 (average)
Ocean Quahog	2019
Spiny Dogfish	2022
Surfclam	2019
Scup	2022
Summer Flounder	2022

MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

Fishing Mortality Ratios for MAFMC-Managed Species

(as of 9/21/23)



Year of data used to determine fishing mortality	
Atlantic Mackerel	2022
Black Sea Bass	2019
Bluefish	2022
Butterfish	2021
Golden Tilefish	2020
Ocean Quahog	2019
Spiny Dogfish	2022
Surfclam	2019
Scup	2022
Summer Flounder	2022

Notes:

- Unknown fishing mortality: *Illex* squid, Longfin squid, monkfish (Northern and Southern Fishery Management Areas), blueline tilefish (North of Cape Hatteras), and chub mackerel.
- Of the 15 species managed by the Council, 9 are below F_{msy}, 1 is above F_{msy}, and 5 are unknown.

Status of Council Actions Under Development

AS OF 9/21/23

FMP	Action	Description	Status	Staff Lead
Summer Flounder, Scup, Black Sea Bass *and* Bluefish	Recreational Measures Setting Process Framework/Addenda	The Recreational Harvest Control Rule Framework modified the process for setting recreational management measures for summer flounder, scup, black sea bass, and bluefish (once bluefish is no longer in a rebuilding plan). The new "Percent Change Approach" will sunset no later than the end of 2025. This action considers a new process to be implemented in time for use in setting 2026 recreational measures. https://www.mafmc.org/actions/hcr-framework-addenda	The FMAT/PDT is working on development and analysis of alternatives. The Council and ASMFC's Policy Board will receive an update and discuss next steps at the December 2023 meeting.	Beaty
	Recreational Sector Separation and Catch Accounting Amendment	This amendment considers (1) options for managing for-hire recreational fisheries separately from other recreational fishing modes and (2) options related to recreational catch accounting, such as private angler reporting and enhanced vessel trip report requirements for for-hire vessels. https://www.mafmc.org/actions/recreational-reform-initiative	An FMAT is being formed to begin development of issues for consideration and a draft scoping document. The Council and ASMFC's Policy Board are tentatively scheduled to review a draft scoping document in Spring 2024.	Dancy/Hart
Mackerel, Squid, Butterfish	*Illex* Vessel Hold Capacity Framework	This framework will consider measures to restrict future increases in capacity in the *Illex* squid fishery. Specifically, this framework will consider implementing a volumetric vessel hold baseline requirement and an upgrade restriction for all *Illex* limited access permits. https://www.mafmc.org/actions/illex-vessel-hold-capacity-framework	Final action planned for October 2023.	Didden

FMP	Action	Description	Status	Staff Lead
Surfclam and Ocean Quahog	Surfclam and Ocean Quahog Species Separation Requirements Amendment	As surfclams have shifted toward deeper water in recent years, catches including both surfclams and ocean quahogs have become more common. Current regulations do not allow surfclams and ocean quahogs to be landed on the same trip or in the same tagged cage. The Council is developing and Amendment to modify species separation requirements in these fisheries in the short-term. In addition, staff/NEFSC will explore longer term solutions for monitoring (such as electronic monitoring testing on the clam survey). https://www.mafmc.org/actions/scoq-species-separation	In December 2022 the Council reviewed public comments and agreed to postpone final action to allow time for development of additional alternatives. The FMAT is continuing to work on alternative development in 2023.	Coakley/ Montañez
Omnibus	Omnibus Essential Fish Habitat Amendment	This action is an opportunity to utilize the best available fish habitat science to improve EFH designations and support the Council's fish habitat conservation efforts while supporting the EFH consultation process. The consultation process plays an important role in addressing the impacts of non-fishing projects (such as wind energy projects) on fish habitat. This action will concurrently conduct the 5-year EFH review required under the Magnuson Stevens Act while amending fishery management plans for the Council, as needed. https://www.mafmc.org/actions/omnibus-efh-amendment	An FMAT was formed in January 2023. The FMAT will begin the EFH Review and development work for EFH and HAPC designations alternatives. The EOP Committee and Advisory Panel will meet to review technical approaches being considered in early 2024.	Coakley
Dogfish and Monkfish	Framework to Reduce the Bycatch of Atlantic Sturgeon	This action was initiated due to the 2021 Biological Opinion (BiOp) that considered the effects of ten FMPs on ESA listed species. The BiOp requires that sturgeon bycatch be reduced in federal large mesh gillnet fisheries, however it does not prescribe specific measures or a target percentage of bycatch reduction. https://www.mafmc.org/actions/sturgeon-bycatch-framework	Initiated in December 2022. NEFMC and MAFMC staff are co-leading the FMAT/PDT. The Councils are continuing to develop this action, and the MAFMC will approve a range of alternatives at their October Meeting.	Cisneros

Timeline and Status of Recent MAFMC Actions and Amendments/Frameworks Under Review

As of 9/21/23

The table below summarizes the status of actions after they have been approved by the Council. For information about the status of Council actions under development, please see the document titled "Status of Council Actions Under Development."

Title	Action Number	Council Approval	Initial Submission	Final Submission	NOA Published	Proposed Rule	Approval/ Disapproval Letter	Final Rule	Regs Effective	Notes
Black Sea Bass Commercial State Allocation Amendment	SFSBSB Amd 23	8/4/21	11/19/21	9/14/22	5/4/23	5/15/23	8/2/23			EA updated July 2023 only for ESA section due to change in sturgeon info.

Timeline and Status of Current and Upcoming Specifications for MAFMC Fisheries

As of 9/21/23

Current Specifications	Year(s)	Council Approval	Initial Submission	Final Submission	Proposed Rule	Final Rule	Regs Effective	Notes
Golden Tilefish	2022-2024	8/11/21	10/7/21	4/22/22	9/14/22	11/10/22	11/9/22	
Blueline Tilefish	2022-2024	4/7/21	10/20/21	5/5/22	8/2/22	11/3/22	12/5/22	
Surfclam and Ocean Quahog	2021-2026	8/12/20	9/2/20	2/24/21	2/17/21	5/13/21	6/14/21	
Longfin Squid	2024-2026	8/10/23						SIR anticipated, status quo
Butterfish	2023-2024	6/8/22	9/8/22	2/17/23	3/7/23	7/27/23	7/27/23	SIR updated June 2023 only for ESA section due to change in sturgeon info.
Illex Squid	2024-2025	4/5/23						SIR anticipated, status quo
Atlantic Mackerel (including RH/S cap)	2024-2025	8/10/23						December review after peer-review
Chub mackerel	2023-2025	6/8/22	9/8/22	2/17/23	3/7/23	7/27/23	7/27/23	SIR updated June 2023 only for ESA section due to change in sturgeon info.
Bluefish	2023	8/8/22	9/22/22	10/26/22	11/15/22	12/21/22	1/1/23	
Bluefish	2024-2025	8/9/23						
Summer Flounder, Scup, Black Sea Bass	2023	8/9/22	9/28/22	10/26/22	12/6/22	1/3/23	1/1/23	
Summer Flounder and Scup	2024-2025	8/8/23						
Black Sea Bass	2024	8/8/23						
Spiny Dogfish	2023	10/5/22	1/13/23	3/7/23	3/9/23	5/3/23	5/1/23	

Recreational Management Measures

Current Management Measures	Year(s)	Council Approval	Initial Submission	Final Submission	Proposed Rule	Final Rule	Regs Effective	Notes
Summer flounder rec measures	2023	12/13/22	2/21/23	2/21/23	3/30/23	8/15/23	8/15/23	
Black sea bass rec measures	2023	12/13/22	2/21/23	2/21/23	3/30/23	8/15/23	8/15/23	
Scup rec measures	2023	12/13/22	2/21/23	2/21/23	3/30/23	8/15/23	8/15/23	
Bluefish rec measures	2020-2024	12/13/19	1/23/20	3/19/20	5/25/20	6/29/20	6/29/20	Reviewed in 2023. No changes from prevous year's measures.
Blueline tilefish rec measures	2024 and beyond	6/6/23	9/1/23					

Mid-Atlantic Fishery Management Council
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P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 22, 2023

To: Executive Committee

From: Chris Moore, Executive Director

Subject: 2024 Implementation Plan – Draft Deliverables

The Executive Committee will meet in an open session on Tuesday, October 4 at 1:00 p.m. to receive an update on the 2023 Implementation Plan and discuss proposed actions and deliverables for 2024. The Council will review and approve a complete 2024 Implementation Plan in December. The following items are enclosed for Committee review:

1. 2023 Proposed Actions and Deliverables – End-of-Year Updates
2. Draft 2024 Proposed Actions and Deliverables
3. Staff Memo: Next Steps for Black Sea Bass Commercial State Allocation Amendment

2023 Actions and Deliverables

End-of-Year Updates

The table below provides an update on the status of proposed actions and deliverables from the Council's 2023 Implementation Plan. This document reflects the expected status of each item by the end of 2023 (tasks may be marked as "Completed" if they will be addressed at the October or December meetings).

- **Completed:** The task is expected to be completed by the end of 2023. Amendments, frameworks, and specifications are considered "Completed" once the Council has taken final action.
- **In Progress:** The task is on track, and work will carry over into the following year.
- **Ongoing:** The task is part of the Council's routine activities and does not have an expected end point.
- **Delayed** or **Postponed:** The original timeline has shifted.

(A) before an item signifies that it is an addition to the deliverables originally approved for 2023

Deliverable	Expected status by end of 2023	Notes
Summer Flounder, Scup, Black Sea Bass		
1. Develop 2024-2025 specifications for summer flounder, scup, and black sea bass	Completed	Given assessment timing, black sea bass specifications only adopted for 2024.
2. Develop 2024-2025 recreational management measures for summer flounder, scup, and black sea bass	Completed	Will be presented at the December meeting. Given assessment timing, black sea bass recreational measures will only be developed for 2024.
3. Evaluate commercial scup discards and gear restricted areas	Completed	Evaluation completed and presented at the August meeting. Next steps as a result of the evaluation may include additional research and a Framework Action to be prioritized in 2024.
4. Review and potentially revise commercial minimum mesh size regulations and exemptions for summer flounder, scup, and black sea bass	Completed	Will be presented at the December meeting.
5. Initiate development of action to replace Recreational Harvest Control Rule after sunset period, including enhanced use of the Recreational Demand Model and/or Recreational Fleet Dynamics Model	Completed	Recreational Measures Setting Process Framework/Addenda has been initiated. Development of this action will continue through 2025.
6. Continue development of amendment to consider recreational sector	Delayed	Delayed until 2024

Deliverable	Expected status by end of 2023	Notes
separation and recreational catch accounting for summer flounder, scup, black sea bass, and bluefish		
7. Facilitate development of summer flounder, scup, black sea bass advisory panel fishery performance reports	Completed	
8. Support black sea bass research track assessment	Completed	Peer review to occur in October 2023
9. Support 2023 management track assessments for summer flounder, scup, and black sea bass	Completed for summer flounder and scup; delayed for black sea bass	
(A) Support development of Recreational Demand Model Decision Support Tool	In Progress	
(A) Develop comments on the agency's proposed partial disapproval of the Black Sea Bass Commercial State Allocation Amendment	Completed	
Bluefish		
10. Develop 2024-2025 specifications for bluefish	Completed	
11. Develop 2024-2025 recreational management measures for bluefish	Completed	
12. Facilitate development of bluefish advisory panel fishery performance report	Completed	
13. Support 2023 bluefish management track assessment	Completed	
(A) Develop bluefish management uncertainty tool	Completed	
Golden and Blueline Tilefish		
14. Review 2024 specifications for golden tilefish	Completed	
15. Review 2024 specifications for blueline tilefish	Completed	
16. Complete and review Golden Tilefish Individual Fishing Quota Program Review	Completed	The Council will receive a presentation of the final report in December.
17. Facilitate development of advisory panel fishery performance reports	Completed	

Deliverable	Expected status by end of 2023	Notes
18. Review performance of private recreational tilefish permitting and reporting	Completed	Will be presented at the October meeting.
19. Work with the South Atlantic Fishery Management Council to support the upcoming 2024 blueline tilefish operational assessment	In Progress	A stock assessment working group has been formed, and TORS and a schedule has been approved. Initial working group will take place in early 2024.
20. Coordinate the 2023 golden tilefish survey pending approval of funding/logistics	Completed	The Council will receive a presentation in December.
21. Support 2024 golden tilefish research track assessment	In Progress	RTA to be completed in Spring of 2024.
(A) Coordinate and collaborate with the SEFSC, NEFSC, SAFMC, and South Carolina DNR to expand the South Atlantic Deepwater Longline (SADL) Survey north into the Mid-Atlantic region.	In Progress	The expansion of this survey will help collect catch and age information on blueline tilefish within the Mid-Atlantic. The first year of data will be available and shared with the Council in December.
Mackerel, Squid, Butterfish (MSB)		
22. Develop 2024-2025 Atlantic mackerel specifications	Completed	
23. Develop 2024-2026 longfin squid specifications	Completed	
24. Review 2023 specifications for *Illex*	Completed	
25. Develop 2024-2025 specifications for *Illex*	Completed	
26. Review 2024 specifications for butterfish	Completed	
27. Review 2024 specifications for chub mackerel	Completed	
28. Facilitate development of mackerel, squid, butterfish advisory panel fishery performance reports	Completed	
29. Support 2023 management track assessments for Atlantic mackerel and longfin squid	Completed	
(A) Initiate contract for longfin squid biological data (collection and ageing)	Completed/In Progress	Contract initiated. Associated project extends to 2025.
(A) Initiate contracts for squid modeling (support of larger project)	Completed/In Progress	Contract initiated. Associated project extends through 2024.

Deliverable	Expected status by end of 2023	Notes
(A) Initiate contract for longfin squid research track assessment support	Completed/In Progress	Contract initiated. Associated project extends to early 2026.
(A) Complete Atlantic mackerel emergency action closure request	Completed	
(A) Complete extended *Illex* contract in support of *Illex* ABC-setting	Completed	
River Herring and Shad (RH/S)		
30. Develop 2024-2025 river herring and shad cap (paired with Atlantic mackerel specifications), including consideration of the river herring assessment	Completed	
(A) Initiate RH/S Run Portal contract	Completed/In Progress	Contract initiated. Associated project extends to 2025.
Spiny Dogfish		
31. Develop 2024-2026 specifications and/or a rebuilding plan (possibly including trip limit changes), as appropriate given outcome of research and management track assessments	Completed	New England will take action in early 2024 due to assessment delay.
32. Facilitate development of spiny dogfish advisory panel fishery performance report	Completed	
33. Support 2023 spiny dogfish management track assessment	Completed	
(A) Initiate contract for dogfish ageing project	Completed/In Progress	Contract initiated. Associated project extends to 2025.
Surfclam and Ocean Quahog		
34. Review 2024 specifications for surfclam and ocean quahog	Completed	
35. Facilitate development of surfclam and ocean quahog advisory panel fishery performance reports	Completed	
36. Oversee SCOQ Electronic Monitoring Project	In Progress	
37. Develop alternatives for the Surfclam and Ocean Quahog Species Separation Requirements Amendment	In Progress	
(A) Manage Supplemental Surfclam Genetics Project with Cornell University testing additional federal	In Progress	To be completed in early 2024.

Deliverable	Expected status by end of 2023	Notes
survey surfclam samples that were obtained in 2022.		
Science and Research		
38. Conduct biennial review of the 2020-2024 research priorities document	Completed	Council will review at December meeting.
39. Approve Scientific and Statistical Committee (SSC) membership	Completed	
40. Review outcomes and recommendations from the SSC Ecosystem Work Group	In Progress	Work Group continues to address a number of short and long term projects and analyses that will extend into 2024.
41. Review past action and consider possible redevelopment of a revised Research Set-Aside program	Completed	
42. Review results and determine potential application of the research project on short-term forecasts of species distributions	Completed	
43. Support the 2023 Applying State Space Models Research Track Assessment	Completed	Peer review scheduled for November 2023.
44. Coordinate and facilitate the Northeast Trawl Advisory Panel	Ongoing	
(A) Initiate contract for supplemental port biological sampling	Completed/In Progress	Contract initiated. Associated project extends to 2024.
(A) Initiate contract for ageing of Mid-Atlantic species	Completed/In Progress	Contract initiated. Associated project extends to 2024.
Ecosystem and Ocean Planning/Habitat		
45. Continue development of Essential Fish Habitat Amendment	In Progress	
46. Maintain and integrate Northeast Regional Habitat Assessment products	Ongoing	
47. Oversee National Fishing Effects Database Project	In Progress	Expected to be completed in 2024.
48. Maintain joint MAFMC and New England Fishery Management Council offshore wind web page	Ongoing	
49. Develop habitat- and fishery-related comments on offshore energy development	Ongoing	
50. Complete comprehensive review and update to Ecosystem Approach to Fisheries Management risk assessment	In Progress	Council will consider changes to risk assessment in October and an

Deliverable	Expected status by end of 2023	Notes
		updated report will be provided in April 2024.
51. Complete East Coast Climate Change Scenario Planning Initiative and identify priorities for resulting action	Completed	
52. Continue to track thread herring Exempted Fishing Permit (EFP) application and develop comments, if needed	Completed	Development of comments was not needed as the applicants have not re-submitted their application.
53. Develop a policy and/or process for reviewing EFP applications for new or expanding fisheries as it relates to the unmanaged forage amendment	Completed	Expected to be completed during the October Council meeting.
General		
54. Review commercial landings of unmanaged species	Completed	
55. Participate on Council Coordination Committee Working Groups and Subcommittees (Habitat, Area-Based Management, Legislative, ESA/MSA Coordination, Equity and Environmental Justice)	Ongoing	Climate Change Work Group formed following May CCC meeting
56. Respond to requests for information associated with Marine Stewardship Council (MSC) certification or audits for MSC-certified fisheries (Atlantic surfclam, ocean quahog, Illex squid, longfin squid, spiny dogfish, scup)	Ongoing	
57. Track relevant legislation and provide comments as requested	Ongoing	
58. Continue to participate on marine mammal take reduction teams and protected resources working groups, and initiate necessary actions in response to protected resource issues	Ongoing	
59. Initiate action in response to the action plan developed by the Atlantic Sturgeon Bycatch Working Group to reduce sturgeon bycatch in gillnet fisheries	Completed	A joint framework action to reduce sturgeon bycatch in the dogfish and monkfish gillnet fisheries was initiated. Final action on this framework is scheduled for spring 2024.
(A) Collaborate on three-year SBRM report (joint Center, GARFO, MAFMC, NEFMC effort)	Completed	Expected completion by end of 2023

Deliverable	Expected status by end of 2023	Notes
(A) Develop comments on draft NMFS climate governance policy; coordinate development of Council Coordination Committee (CCC) comments; conduct outreach to promote stakeholder awareness of the draft policy	Completed	Council comments will be submitted before the November 17 comment deadline.
(A) Develop comments on NMFS Advanced Notice of Proposed Rulemaking for National Standards 4,8,9	Completed	
(A) Initiate contract for program review of Council/GARFO processes for fishery management action development	In Progress	
Communication and Outreach		
60. Continue to inform and engage stakeholders using a variety of communication tools and channels, including the Council website, email updates, press releases, YouTube, webinars, face-to-face meetings, and a variety of printed and digital communication materials	Ongoing	
61. Conduct outreach to increase stakeholder awareness and understanding of Council actions under development	Ongoing	
62. Further develop and refine the Council's website content and structure to increase usefulness and functionality	Ongoing	
63. Develop fact sheets and outreach materials as needed	Ongoing	
64. Continue additional outreach to improve awareness of, and compliance with, private recreational tilefish reporting requirements	Ongoing	Applied for an ACCSP grant for funds to coordinate and conduct a variety of eFIN application improvements and outreach efforts in coordination with Harbor Light. Staff is also working with a contractor to develop an outreach campaign for winter/spring 2024.
Staff Wrap-Up on Completed Council Actions		
65. Finalize and submit any outstanding specifications packages for 2023	Completed	

Deliverable	Expected status by end of 2023	Notes
Possible Additions *The items below were included in the 2023 Implementation Plan to be considered if time and resources allowed.*		
66. Develop framework to allow quota transfer between commercial and recreational sectors for summer flounder, scup, and black sea bass		
67. Initiate amendment to address disapproved portions of *Illex* Permit Amendment	Completed	
68. Initiate action to implement "did not fish" reports for commercial, for-hire, and private tilefish permit holders		
69. Initiate action to implement a possession limit for frigate and bullet mackerel in the Mid-Atlantic		
70. Explore the use of unused ACL carryover for the Council's fisheries		
71. Develop an action to authorize an experimental Atlantic surfclam fishery in the Great South Channel Habitat Management Area (HMA)		
72. Develop spatial management options for Atlantic surfclam open water aquaculture in the New York Bight and central Atlantic.		

DRAFT 2024 Actions and Deliverables

For Executive Committee Review – October 2023 Council Meeting

This document provides an overview of the activities, amendments, frameworks, specifications, and other projects the Council expects to initiate, continue, or complete during the year. These activities are organized by Fishery Management Plan (FMP) and topic area.

Note: Asterisks (*) denote contractor-supported projects.

SUMMER FLOUNDER, SCUP, BLACK SEA BASS

1. 2025 black sea bass specifications
2. 2025 summer flounder and scup specifications review
3. 2025 black sea bass recreational management measures
4. 2025 summer flounder and scup recreational management measures review
5. Recreational Measures Setting Process Framework/Addenda (continuing)
6. Recreational Sector Separation and Recreational Catch Accounting Amendment (continuing)
7. Advisory panel fishery performance reports
8. Black sea bass management track assessment support
9. Framework action to consider modifications to the commercial scup Gear Restricted Areas (GRA) or other measures to help reduce scup discards (initiation)
10. Scup bycatch prediction and avoidance modeling and research*
11. Black sea bass commercial state allocations (consider options for addressing disapproved portions of Amendment 23)

BLUEFISH

12. 2025 bluefish specifications review
13. 2025 bluefish recreational management measures review
14. Advisory panel fishery performance report

Note: Items 5 and 6 in the previous section will also address bluefish recreational management issues

GOLDEN AND BLUELINE TILEFISH

15. 2025-2027 golden and blueline tilefish specifications
16. Advisory panel fishery performance reports
17. Update on private recreational tilefish permitting and reporting performance
18. Outreach to improve awareness of, and compliance with, private recreational tilefish reporting requirements
19. Blueline tilefish operational assessment support
20. Golden tilefish research track assessment support
21. Golden tilefish management track assessment support
22. South Atlantic Deepwater Longline Survey expansion into Mid-Atlantic waters*

MACKEREL, SQUID, BUTTERFISH (MSB)

23. 2025-2026 butterfish specifications
24. 2025 Atlantic mackerel, chub mackerel, longfin squid, and *Illex* squid specifications review
25. Advisory panel fishery performance reports
26. Butterfish management track assessment support
27. Longfin squid research track assessment support*

Asterisks (*) denote contractor-supported projects.

28. Longfin squid biological sampling project*
29. Squid modeling project*

RIVER HERRING AND SHAD (RH/S)

30. RH/S run data portal development project*
31. RH/S bycatch prediction and avoidance modeling and research*

SPINY DOGFISH

32. 2025 spiny dogfish specifications review
33. Advisory panel fishery performance report
34. Spiny dogfish ageing project*
35. Spiny dogfish ageing workshop
36. Joint framework action to reduce Atlantic sturgeon bycatch in the monkfish and spiny dogfish fisheries (final action)

SURFCLAM AND OCEAN QUAHOG (SCOQ)

37. 2025 surfclam and ocean quahog specifications review
38. Advisory panel fishery performance reports
39. Atlantic surfclam management track assessment support
40. SCOQ electronic monitoring project*
41. Supplemental surfclam genetics project*
42. Surfclam and Ocean Quahog Species Separation Requirements Amendment (continuing)

SCIENCE AND RESEARCH

43. 2025-2029 Council research priorities
44. Updates to the SSC's Overfishing Limit (OFL) Coefficient of Variation (CV) Guidance Document
45. Supplemental port biological sampling*
46. Mid-Atlantic fish ageing project*
47. Northeast Trawl Advisory Panel (NTAP) coordination and facilitation

ECOSYSTEM AND OCEAN PLANNING/HABITAT

48. Joint Mid-Atlantic and New England Fishery Management Council offshore wind web page management
49. Council comments on habitat and fishery issues related to offshore energy development
50. 2024 Ecosystem Approach to Fisheries Management (EAFM) risk assessment report
51. National Fishing Effects Database project*
52. Omnibus Essential Fish Habitat Amendment (continuing)
53. Northeast Regional Habitat Assessment (NRHA) maintenance and integration of products
54. Thread herring Exempted Fishing Permit (EFP) application review

GENERAL

55. 2025-2029 Strategic Plan
56. Reappointment of all advisory panels
57. Update on commercial landings of unmanaged species (including consideration of possible landings thresholds for further evaluation for management)

Asterisks (*) denote contractor-supported projects.

58. Participation on Council Coordination Committee Working Groups and Subcommittees (Habitat, Area-Based Management, Climate Change, Legislative, ESA/MSA Coordination, Equity and Environmental Justice, Council Member Ongoing Development)
59. Participation on marine mammal take reduction teams and protected resources working groups
60. Activities related to Marine Stewardship Council (MSC) certifications/audits for Council-managed fisheries (i.e., respond to requests for information)
61. Legislative issue tracking (including development of comments upon request)

CLIMATE RESILIENCE AND GOVERNANCE

62. Program review of Council/GARFO processes for fishery management action development*
63. Evaluation of Council committee structure, use, and decision making (in collaboration with other East coast Councils; addresses scenario planning potential action G1)
64. Activities related to Inflation Reduction Act funded-projects for climate-ready fisheries (proposal development and project management)

COMMUNICATION AND OUTREACH

65. Ongoing communication activities to support understanding and awareness of the Council and its managed fisheries (development of web resources, email announcements, press releases, YouTube videos, webinars, face-to-face meetings, printed and digital communication materials, etc.)
66. Outreach campaigns to increase stakeholder awareness and understanding of Council actions under development and opportunities for participation
67. Council website improvements (continuing)

STAFF WRAP-UP ON COMPLETED ACTIONS

The following actions have been, or are expected to be, approved by the Council by the end of 2023 but will require staff work in 2024 to finalize for submission to NMFS:

68. Completion/submission of any outstanding specifications packages for 2024

POSSIBLE ADDITIONS

To be considered for addition to the 2024 implementation plan if time and resources allow:

69. Comments on EFP applications for Forage Amendment Ecosystem Component species
70. Action to authorize an experimental Atlantic surfclam fishery in the Great South Channel Habitat Management Area (HMA)
71. Development of spatial management options for Atlantic surfclam open water aquaculture in the New York Bight and central Atlantic
72. Framework to allow quota transfer between commercial and recreational sectors for summer flounder, scup, and black sea bass
73. Action to implement "did not fish" reports for commercial, for-hire, and private tilefish permit holders

Mid-Atlantic Fishery Management Council
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Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 19, 2023

To: Chris Moore, Executive Director

From: Julia Beaty

Subject: Next Steps for Black Sea Bass Commercial State Allocation Amendment (Amendment 23)

On August 2, 2023, the Council received a letter from NOAA Fisheries announcing partial approval of the Black Sea Bass Commercial State Allocation Amendment (Summer Flounder, Scup, Black Sea Bass Amendment 23). The agency approved the portions of the amendment which modified the commercial in-season closure trigger and disapproved adding the state commercial quota allocations to the Council's Fishery Management Plan (FMP). Although not implemented through the Council's FMP, the state allocation percentages were modified based on the recommendations of the Council and the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board. These changes are effective as of January 2022 through the Commission's Addendum XXXIII.

The August 2, 2023 letter from NOAA Fisheries states:

> *When a Council FMP or amendment is disapproved based on inconsistencies with the Magnuson-Stevens Act or other applicable laws, section 304(a)(3) of the Magnuson-Stevens Act requires the Secretary to recommend actions the Council could take to conform the amendment to the relevant legal requirements. Section 304(a)(4) provides Councils the opportunity to revise and resubmit amendments for Secretarial review after addressing the relevant legal requirements.*
>
> *However, the Council is not required to take further action on the disapproved measures. If the Council chooses to revise and resubmit the amendment, the Magnuson-Stevens Act indicates that the Council must either:*
>
> - *Adequately explain how adding the commercial state allocations to the Federal FMP: (1) Promotes conservation, as required by National Standard 4 of the Magnuson-Stevens Act; (2) achieves efficiency in administration and enforcement, as required by National Standard 5; (3) provides for an efficient and responsive process to address variations and contingencies in fisheries, including climate change, as required by National Standard 6; and (4) minimizes costs to the extent practicable, as required by National Standard 7; or*

- *Reconsider adding the commercial state allocations to the Federal FMP and revise the amendment to adopt different measures that address a management need consistent with the National Standards.*

However, given the fundamental flaws identified above, a simple revision to the document to attempt to articulate compliance with the National Standards seems unlikely to survive additional review.

If desired by the Council, Council staff can work with NOAA Fisheries and Atlantic States Marine Fisheries Commission staff to consider potential options for addressing the disapproved aspects of Amendment 23. Given the workload required to evaluate the feasibility of any potential next steps, this should be considered during the 2024 implementation planning discussions.

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 21, 2023

To: Council

From: Karson Cisneros, Staff

Subject: Joint Sturgeon Bycatch Framework Action

On Tuesday, October 3, the Council will review the Joint Monkfish and Dogfish Committee and FMAT/PDT recommendations and approve the range of alternatives to be considered for the joint framework action to reduce the bycatch of Atlantic Sturgeon. This joint action with the New England Fishery Management Council was initiated in response to recommendations made by the Atlantic Sturgeon Bycatch Working Group, as described in the Action Plan to Reduce Atlantic Sturgeon Bycatch in Federal Large Mesh Gillnet Fisheries. Final action for both Councils is scheduled for April 2024. Materials listed below are provided for the Council's consideration of this agenda item.

1) Joint Monkfish and Spiny Dogfish Committee meeting summary from September 20, 2023 *(to be posted once available)*
2) Staff memo to the Joint Monkfish and Spiny Dogfish Committee dated September 13, 2023
3) FMAT/PDT meeting summary from September 7, 2023
4) NMFS Summary on Data Loggers

New England Fishery Management Council

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

MEMORANDUM

DATE: September 13, 2023

TO: Joint Monkfish and Dogfish Committee

FROM: Karson Cisneros, Robin Frede, and Jenny Couture, co-chairs of the Sturgeon Bycatch Fishery Management Action Team/Plan Development Team (FMAT/PDT)

SUBJECT: **Considerations for the Range of Alternatives for the Sturgeon Framework Action**

The NEFMC and MAFMC are working on joint actions to reduce interactions with sturgeon by the monkfish and spiny dogfish gillnet fisheries. The attachment details development of the action, including recommendations by the FMAT/PDT and the NEFMC and MAFMC.

Committee Meeting Objectives

1) Review updated information presented by staff on enforcement considerations and FMAT/PDT recommendations.
2) Refine range of alternatives as appropriate.

MAFMC June Meeting Outcomes

The MAFMC planned to adopt a range of alternatives at its June meeting. During the June 6-8 MAFMC meeting, the NMFS Regional Administrator shared a previously unknown finding that the amount of sturgeon caught in the gillnet fishery in the most recent 5-year period had exceeded the allowed levels under the Endangered Species Act (ESA). This overage triggers a requirement to develop a new Biological Opinion (BiOp) that will address sturgeon bycatch in gillnet fisheries. The new BiOp will be developed alongside this action, however the outcomes and timeline are unknown, and the Councils are still held to the timeline of the previous 2021 BiOp.

The MAFMC discussed the range of alternatives and recommended that 1) dogfish remain in the framework action and 2) the dogfish and monkfish committee should further discuss alternatives related to soak time restrictions and 10-minute square areas with new information provided by enforcement.

NEFMC June Meeting Outcomes

At its June meeting, the NEFMC approved the range of alternatives for the monkfish fishery with the understanding that alternatives will be further refined by the Joint Monkfish and Dogfish Committee with input from Office of Law Enforcement and the Coast Guard. The NEFMC also recommended retaining spiny dogfish as part of this action (< 7" mesh size) per the MAFMC's recommendation.

Next Steps

Based on input from the Joint Committee with invited enforcement representatives, if the MAFMC approves the narrowed range of alternatives for the spiny dogfish and monkfish fisheries during its October meeting and the NEFMC approves the range of alternatives for the spiny dogfish fishery during its December meeting, then the full suite of alternatives for both fisheries can be approved by both Councils by December. Following this approval, the FMAT/PDT will analyze the alternatives and prepare a final action document. In March 2024, the joint Spiny Dogfish and Monkfish Advisory Panel and the joint Spiny Dogfish and Monkfish Committee will meet to recommend preferred alternatives for final action. The NEFMC and MAFMC are scheduled to take final action at their April meetings.

Enforcement Considerations

The FMAT/PDT used the Sturgeon Action Plan as a basis for developing a range of alternatives for the monkfish and dogfish fisheries to reduce sturgeon bycatch. Measures were also added by the joint Monkfish and Dogfish Committee at their May 2023 meeting. Staff reached out to enforcement representatives from the Coast Guard and Office of Law Enforcement before the June Council meetings for preliminary feedback based on concerns with soak time restrictions and how to draw small closure/restricted areas raised at the May Committee meeting. Some of these measures may not be able to be enforced, as described below. The Joint Committee is encouraged to weigh in on the following considerations as well.

- **Gillnet soak time restrictions** for dogfish and monkfish permit holders
    - For fisheries where VMS is not currently required, can soak time restrictions or maximum amount of time gear can be in the water be feasibly enforced?
    - How would sunrise and sunset soak time restrictions work?
    - What would be required to reasonably include soak time restrictions as part of the monkfish and dogfish range of alternatives?
    - Would data loggers or another technology (VMS, etc.) be required to enable enforceability of soak time restrictions?

      <u>Summary of enforcement concerns:</u>
        - Coast Guard: Soak times are not feasible without something like electronic monitoring.

- Office of Law Enforcement: soak times are most likely unenforceable, especially in fisheries with limited VMS use; could have soak time restriction for daylight hours only (e.g., sunrise to sunset only provision in specific location, time); problematic in the monkfish fishery given longer soak time use further from shore.

Data loggers as a tool for enforcement: Council and GARFO staff spoke with Carrie Upite and Ellen Keane (GARFO Protected Resources Division) on August 22nd and provided the following input:

- Technology has progressed since the 2015 Matzen, et al. paper, cited in the Sturgeon Action Plan
- NMFS had additional funding to develop this tool and effort is planned for implementation on trawl vessels for possible sea turtle measures.
- Theoretically, the technology should also apply to gillnet gear, however, no initial testing has occurred. For example, additional information needs to be researched on how to secure the data logger to the gillnet gear, the housing for the data logger, and how the data loggers handle longer soaks. Tradeoffs between data collection frequency with data quantity and storage issues need to be considered as well.
- It is not viable to implement a requirement to use data loggers as part of this sturgeon action given the action timeline (final action expected in April 2024).
- Council staff and the FMAT/PDT recommend use of data loggers in gillnet gear as a research recommendation.

- **Area based restrictions or closures** around hotspot sturgeon bycatch areas: statistical areas are large and seem overly restrictive. Two alternatives to spatially define area-based restrictions/closures include 1) 10-minute squares or 2) straight lines that approximate the shoreline (targeting a range out to 6 or 9 miles offshore). Some of the regions of interest are in Southern New England, New Jersey, and the Delaware/Maryland/Virginia area.
  - Between these two alternative approaches, is one more enforceable?
  - Is there a minimum area size for closures or restrictions preferred by enforcement?
  - Are there any comments that should be considered for an approach using statistical areas?

  Summary of enforcement concerns:

  - Coast Guard: If there are distinct areas, the Coast Guard can enforce those areas.
  - Office of Law Enforcement: a single polygon with straight lines would be preferable to areas drawn by 10-minute squares. This would likely require multiple conjoined 10-minute squares and may create areas with more

than four sides which is harder to enforce than straight line approximating the shoreline.

Other enforcement concerns:

- If closures are implemented and there are only short periods to fish, this can lead to safety issues where vessels may go out in worse conditions.
- Need to be clear which mesh sizes restrictions should be applied to.

FMAT/PDT Recommendations

The FMAT/PDT met on September 7, 2023 to discuss the range of alternatives and provide further input for the Joint Committee to consider. The team discussed the need to refine the range of alternatives for analysis while maintaining several types of measures to address sturgeon bycatch. The FMAT/PDT ultimately recommended the following range of alternatives for the Committee and Councils' consideration (see meeting summary for detailed discussion and rationale):

Spiny Dogfish Action

Alternatives would be applied to mesh sizes of 5 inch and greater to accurately capture the dogfish fishery. The range of alternatives includes a variety of time/area restrictions or closures to address sturgeon bycatch hotspot areas.

Restriction options to be applied to selected time and area options (developed based on information provided in the Sturgeon Action Plan)

1. Soak time restrictions
    a. No overnight soaks
2. Closures

Area options (developed based on the figures provided in the Sturgeon Action Plan)

1. Smaller areas than statistical areas using straight lines that approximate the shoreline to encompass NJ, DE, MD, and VA hotspots (estimating 6-9 miles offshore)

Time options (developed based on observer data on sturgeon takes on spiny dogfish targeted trips)

1. NJ hotspot
    a. November 1 – December 31
    b. April 1- 30
    c. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b
2. DE/MD/VA hotspots
    a. December 1 – January 31
    b. March 1-31
    c. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b

Monkfish Action

Alternatives would be applied to vessels using a Monkfish day-at-sea (DAS) using gillnet gear.

Restriction options to be applied to selected time and area options (developed based on information provided in the Sturgeon Action Plan)

1. Gear restrictions: low profile gillnet as defined in draft alternatives document
    a. Only applicable to NJ hotspot
2. Closures

Area options (developed based on the figures provided in the Sturgeon Action Plan)

1. Smaller areas than statistical areas, using straight lines that approximate the shoreline to encompass hotspots (estimating 6-9 miles offshore)

Time options (developed based on observer data on sturgeon takes on monkfish targeted trips)

1. Southern New England
    a. May 1-31
    b. June 1-30
    c. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b
2. NJ hotspot
    a. December 1-31
    b. May 1- 31
    c. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b
    d. For low profile gear in NJ hotspot (e.g., not soak time restriction): year-round

Previous Outline of the Preliminary Range of Alternatives as Recommended by the Joint Dogfish and Monkfish Committee in May 2023

Spiny Dogfish Action

Alternatives would be applied to either 1) mesh size 7 inch or greater only or 2) apply to mesh 5 inch and greater (to the extent possible separating out by mesh size category).

The range of alternatives includes a variety of time/area restrictions or closures to address sturgeon bycatch hotspot areas.

Restriction options to be applied to selected time and area options

3. Soak time restrictions
    a. No overnight soaks
    b. Maximum of 24 hour soaks
    c. Maximum of 48 hour soaks
    d. Maximum of 72 hour soaks
4. Closures

Area options

2. Statistical area groups
    a. NJ hotspot: 612, 614, and 615
    b. DE/MD/VA hotspots: 621, 625, and 631
3. Smaller areas within statistical areas identified in 1a and 1b, using 10-minute squares to encompass NJ, DE, MD, and VA hotspots (estimating 6-9 miles offshore)
4. Smaller areas within statistical areas identified in 1a and 1b, using straight lines that approximate the shoreline to encompass NJ, DE, MD, and VA hotspots (estimating 6-9 miles offshore)

Time options

3. NJ hotspot
    a. November 1 – December 31
    b. April 1- 30
    c. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b
4. DE/MD/VA hotspots
    a. December 1 – January 31
    b. March 1-31
    c. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b

Monkfish Action

Alternatives would be applied to vessels using a Monkfish day-at-sea (DAS) using gillnet gear.

Restriction options to be applied to selected time and area options

3. Gear restrictions: low profile gillnet as defined in draft alternatives document

    a. Only applicable to NJ hotspot
4. Soak time restrictions
    a. Maximum of 48 hour soaks
    b. Maximum of 72 hour soaks
5. Closures

Area options

2. Statistical area groups
    a. Southern New England: 539
    b. NJ hotspot: 612, 614, and 615
3. Smaller areas within statistical areas identified in 1a and 1b, using 10-minute squares to encompass hotspots (estimating 6-9 miles offshore)
4. Smaller areas within statistical areas identified in 1a and 1b, using straight lines that approximate the shoreline to encompass hotspots (estimating 6-9 miles offshore)

Time options

3. Southern New England
    a. May 1-31
    b. June 1-30
    c. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b
4. NJ hotspot
    a. December 1-31
    b. May 1- 31
    c. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b
    d. For low profile gear in NJ hotspot (e.g., not soak time restriction): year-round

MEETING SUMMARY

Sturgeon Bycatch Fishery Management Action Team (FMAT) / Plan Development Team (PDT)

Webinar
September 7, 2023
1:00 – 4:00 p.m.

Agenda

The Fishery Management Action Team/Plan Development Team (referred to as Team) met to discuss 1) the draft alternatives, 2) updates on data loggers to use for enforcement purposes, 3) updates from GARFO on the re-initiation of the Biological Opinion and how Council and GARFO staff can work together, 4) further data needs, and 5) other business. This meeting was closed to the public due to the discussion of confidential data at various points in the meeting.

Meeting attendance

Team members included: Karson Cisneros (Co-Chair), Jenny Couture (Co-Chair), Robin Frede (Co-Chair), Sharon Benjamin, Jason Boucher, James Boyle, Jason Didden, Lynn Lankshear, Ashleigh McCord, Bridget St. Amand, and Spencer Talmage.

Joint Monkfish/Dogfish Framework to Reduce Atlantic Sturgeon Bycatch

The co-chairs reviewed the meeting agenda and meeting outcomes from the Mid-Atlantic and New England Fishery Management Councils' June meetings which included inclusion of spiny dogfish (< 7" mesh) as part of this action and to solicit feedback from the Office of Law Enforcement and the Coast Guard to narrow the range of alternatives based on enforceability considerations. Staff also reviewed an outline of the tentative timeline for the action. The goal of the FMAT/PDT meeting was to receive any update from GARFO on the re-initiation process of the Sturgeon Biological Opinion, discuss how Council and GARFO staff can work together on developing this Council framework action including sharing data and other pertinent information, and to identify any other considerations for alternative development. The Team also discussed data loggers as an enforcement tool for any soak time restrictions and concluded with a discussion on further data needs for alternative development and future analyses.

General Discussion on Council framework action, timeline, re-initiation of Biological Opinion

A GARFO team member noted there was no additional update regarding timing of the re-initiation of the Biological Opinion. He shared guidance to keep a reasonable range of alternatives, which should be broad enough to encompass several types of measures to enable a broad suite of tools to reduce sturgeon

bycatch. Removing any alternatives based on inability to enforce should be clearly documented with a clear rationale. The measures that are harder to enforce but result in a meaningful reduction in sturgeon bycatch should be retained. The overall focus of this action is to reduce sturgeon bycatch in order to meet the reasonable and prudent measures of the Biological Opinion. The team discussed the need to balance capturing a broad range of measures while also keeping the action timeline on track in terms of analysis workload and a spring 2024 deadline for final action. They also discussed that the measures need to be feasible so if there is good clear information that something isn't going to be enforceable, achieve a conservation benefit, or the outcome is unlikely to be what was envisioned by the action, those measures should be removed.

Monkfish:

Alternatives recommended for inclusion by the FMAT/PDT:

1) Closures
    - *Rationale*: The team discussed the importance of continuing to include multiple types of measures to address sturgeon bycatch, including the use of small time/area closures.
2) Gear restrictions: low profile gillnet gear in New Jersey (NJ) hotspot region
    - *Rationale:* Fishermen have provided mixed feedback on the use of low-profile gear in the monkfish gillnet fishery. Some have spoken in favor of it as an option to reduce sturgeon bycatch while many have said it is not viable. The team discussed that low profile gear has been tested specifically in the NJ area and studies show that this gear can reduce sturgeon bycatch in this area. To maintain multiple types of measures in the action, the team recommended including low profile gear within the range of alternatives for monkfish to be applied for specific bycatch hotspot areas, namely NJ. The gear restriction is not included for the Southern New England (SNE) hotspot area due to lack of testing in this region. The team recommended retaining the low-profile gear requirements in the NJ hotspot area as part of the range of alternatives and recommended additional discussion by the Joint Monkfish and Dogfish Advisory Panel and Committee to better understand feasibility of implementation. Given the gear has not been tested for the dogfish fishery or in SNE, the team recommended adding this to the team's research recommendations.
3) Area options (would apply to closures and gear restrictions)

    Area alternative 3: Smaller areas that encompass SNE and NJ hotspots, using straight lines that approximate the shoreline to encompass hotspots (estimating 6-9 miles offshore).
    - *Rationale:* The team discussed that this polygon approach that approximates the shoreline may allow more flexibility to fully capture hotspots. They discussed that the hotspot maps will need to be updated through 2022 (data are currently through 2020) and this may shift edges. This method was preferred over the 10-minute square approach by enforcement due to the potential for an area boundary with more than four sides if an odd number of squares captures a hotspot. The team felt that both methods are valid, however they are meant to achieve the same goal of creating a small area around a hotspot, so selecting one over the other is recommended rather than analyzing both. They discussed that the 10-minute square approach could be adapted to create four smooth sides, however based on the increased flexibility of the parallel lines to shore approach, it was selected as the better option. They also discussed that some buffer may be warranted to help prevent shifting effort or account for sturgeon seasonal behavior. Sturgeon are found offshore in late fall and winter and come

inshore and move up from the south to NJ estuaries. In the fall they move out to deeper waters but do not track south. Because of this, in the springtime a nearshore closure may capture the hotspot and in winter a broader area may be needed.

4) Time options (would apply to closures and gear restrictions)
   (a) Southern New England
      i) May 1-31
      ii) June 1-30
      iii) For closures: 1, 2, 3, or 4 week periods within timeframes in a-i and a-ii
   (b) NJ hotspot
      i) December 1-31
      ii) May 1- 31
      iii) For closures: 1, 2, 3, or 4 week periods within timeframes in b-i and b-ii
      iv) For low profile gear in NJ hotspot: year-round

      - *Rationale:* The team did not recommend changes to the previously recommended time options for gear restrictions or closures for monkfish alternatives. The time periods currently included in the range of alternatives were developed using observer data on sturgeon takes on monkfish targeted trips through 2022 so will likely not need to be updated.

Other Monkfish Considerations: The team noted that regulations for protected species (e.g., harbor porpoise) should be evaluated to inform any closures. Prior input from the Coast Guard included a caution to avoid only having short periods to fish between any closures given that can lead to safety issues with going out in worse conditions and potentially a race to fish. The team also recommended using updated data (when available) to determine which measures would apply to this federal Council action and which would be a recommendation to ASMFC for a state action.

Alternatives recommended for removal from range of alternatives:

1) Soak time restrictions
   - *Rationale*: The team discussed that soak times that are greater than 24 hours may not result in a reduction in sturgeon bycatch overall because it does not necessarily reduce the amount of gillnet effort or chance for interaction with sturgeon. For example, a fisherman may haul in their gear and immediately reset the gillnet back into the water. Longer soak times have been associated with increased sturgeon mortality, however the goal of the action is to reduce the bycatch of sturgeon overall, not the bycatch mortality. The team noted that a shorter than 24-hour soak time is not feasible for the monkfish fishery given the locations and processes of the fishery. In addition, prior input from the Coast Guard and OLE noted that soak times are most likely unenforceable, especially in fisheries with limited Vessel Monitoring System use.
2) Management area option #1 statistical areas
   - *Rationale*: The team discussed that statistical areas are very large and low-profile gear restrictions and/or closure would likely have a substantial impact to the monkfish fishery.
3) Management area option #2 10-minute square
   - *Rationale*: The rationale for removing the 10-minute square approach is described in more detail under the area options to be included above. The team thought the parallel lines to

shore approach created more flexibility to encompass the bycatch hot spots than the 10-minute square approach.

Spiny dogfish:

Alternatives recommended for inclusion by the FMAT/PDT:

1) Soak time restrictions: no overnight soaks
    - *Rationale*: based on preliminary data analysis based on observer data, restricting soak times to daytime only would likely achieve sturgeon bycatch reduction and would allow the spiny dogfish fishery to continue to operate within a hotspot area, as opposed to an area closure. The team discussed that this was the only soak time restriction that seemed likely to reduce sturgeon interactions because nets would be removed from the water overnight. They also noted that this soak time restriction was likely more enforceable than soak times of 24 hours or greater.
2) Closures
    - *Rationale*: The team discussed the importance of continuing to include multiple types of measures to address sturgeon bycatch, including the use of small time/area closures.
3) Area options (would apply to soak time options and closures):

    Area alternative 3: Smaller areas that encompass NJ and DE/MD/VA hotspots, using straight lines that approximate the shoreline to encompass hotspots (estimating 6-9 miles offshore).

    Rationale: As described under number 3 for monkfish above, the team discussed that this polygon approach that approximates the shoreline may allow more flexibility to fully capture hotspots. They discussed that the hotspot maps will need to be updated through 2022 (data are currently through 2020) and this may shift edges. This method was preferred over the 10-minute square approach by enforcement due to the potential for an area boundary with more than four sides if an odd number of squares captures a hotspot. The team felt that both methods are valid, however they are meant to achieve the same goal of creating a small area around a hotspot, so selecting one over the other is recommended rather than analyzing both. They discussed that the 10-minute square approach could be adapted to create four smooth sides, however based on the increased flexibility of the parallel lines to shore approach, it was selected as the better option. They also discussed that some buffer may be warranted to help prevent shifting effort or account for sturgeon seasonal behavior. Sturgeon are found offshore in late fall and winter and come inshore and move up from the south to NJ estuaries. In the fall they move out to deeper waters but do not track south. Because of this, in the springtime a nearshore closure may capture the hotspot and in winter a broader area may be needed.
4) Time options (would apply to soak time options and closures)
    (a) NJ hotspot
        i. November 1 – December 31
        ii. April 1 – 30
        iii. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b
    (b) DE/MD/VA hotspots
        i. December 1 – January 31
        ii. March 1-31
        iii. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b

- *Rationale*: The team did not recommend changes to the previously recommended time options for soak time restrictions or closures for spiny dogfish alternatives. The time periods currently included in the range of alternatives were developed using observer data on sturgeon takes on spiny dogfish targeted trips through 2022 so will likely not need to be updated.

Other Spiny Dogfish Considerations: The team noted that regulations for protected species (e.g., harbor porpoise) should be evaluated to inform any closures. Prior input from the Coast Guard included a caution to avoid only having short periods to fish between any closures given that can lead to safety issues with going out in worse conditions and potentially a race to fish. The team also recommended using updated data (when available) to determine which measures would apply to this federal Council action and which would be a recommendation to ASMFC for a state action.

Alternatives recommended for removal from range of alternatives:

2) Management area option #1 statistical areas
   - *Rationale*: Statistical areas that contain the hotspots are very large and any soak time restriction and/or closure would likely have a substantial negative impact to the spiny dogfish fishery.
3) Management area option #2 10-minute square
   - *Rationale*: The rationale for removing the 10-minute square approach is described in more detail under the area options to be included for dogfish above. The team thought the parallel lines to shore approach created more flexibility to encompass the bycatch hot spots than the 10-minute square approach.
4) 24-, 48-, and 72-hour soak time restrictions
   - *Rationale*: The team discussed that soak times that are greater than 24 hours may not result in a reduction in sturgeon bycatch overall because it does not necessarily reduce the amount of gillnet effort or chance for interaction with sturgeon. For example, a fisherman may haul in their gear and immediately reset the gillnet back into the water. Longer soak times have been associated with increased sturgeon mortality, however the goal of the action is to reduce the bycatch of sturgeon overall, not the bycatch mortality. In addition, prior input from the Coast Guard and OLE noted that soak times are most likely unenforceable, especially in fisheries with limited Vessel Monitoring System use.

Research recommendations

Council and GARFO staff provided an update to the team on the use of data loggers based on Council and GARFO staff conversation with Carrie Upite (NMFS Protected Resources) and her team on August 22. Data loggers have currently been tested on trawl vessels but the technology could be applied to the gillnet fishery. The team recommended exploring future use of this tool as a research recommendation given the tool is not yet viable to enforce gillnet soak times as a management measure at this time. This tool would be helpful in enforcing soak time restrictions which would address sturgeon mortality. The goal of the current action is to reduce overall bycatch, however, if a future ESA issue required the reduction of sturgeon bycatch mortality, data loggers may become a useful tool.

As previously stated, the team also suggested testing the low-profile gillnet gear in the spiny dogfish fishery and in the Southern New England region given the prior testing occurred in the monkfish fishery in New Jersey.

Dataset considerations

The Team recommended compiling a single, comprehensive dataset for all FMAT/PDT members to use for future analyses. The group discussed several considerations when pulling the data:

- Filter data by the ratio of the number of hauls that encountered sturgeon and the total number of hauls. The total number of hauls is defined by the total number of hauls where monkfish and spiny dogfish are caught and recorded by the observer as either TARG1 or TARG2 species for gillnet trips with mesh size ≥5" by week, overlaid by 10-minute squares. This approach will help account for any difference in observer coverage levels and will allow the FMAT/PDT to adjust management measures by other time intervals (e.g., monthly or by spring/fall) if weekly data pose confidentiality concerns. If there is time, the team recommended including the total number of sturgeon interactions by haul.
- Use TARG1 and TARG2 to define monkfish and spiny dogfish fisheries, as recorded by the observer. Monkfish and skate are caught on the same trip so it is important to include records where monkfish is not listed as the TARG1 species, for example. This is consistent with what was done in the Sturgeon Action Plan.
- Include only records that denote 'spiny dogfish' as target species and exclude records for 'smooth dogfish' and 'unknown' records. Spiny dogfish is the only dogfish species managed by the MAFMC.
- Subset data based on two mesh size groups: 1) ≥ 5" - < 7" and 2) ≥ 7" based on how the spiny dogfish and monkfish fisheries operate.
- For soak duration analyses, recommended using a 15-hour soak time to represent the longest day in summer. This can be further refined based on any development of seasonal measures.
- Include data from 2015 – 2023. The time period from 2015 to 2020 was used in the Sturgeon Action Plan and the team thought including more recent data would be helpful to account for recent fishing activity. Including the earlier years with the more recent data would be helpful to provide more confidence in the data and results. The group noted that 2023 observer data is only currently available through April, which represents a partial year. The longer time series can be used to evaluate whether bycatch trends have been consistent over time and could be refined as needed.

Further data needs

The Team identified the following as additional data needs:

- Differentiating sturgeon interactions between state and federal fishing

The Team also recommended reiterating to the Joint Committee and Councils the number of vessels responsible for sturgeon takes in the bycatch hotspot areas. The team noted that in general, sturgeon takes are occurring by a large number of vessels participating in these fisheries, it is not only a few vessels that are catching sturgeon. There are some occurrences where a specific haul may catch a lot of sturgeon, however, it was discussed that often fishermen let each other know when they catch sturgeon and will move away from the area to avoid further interaction. In terms of high numbers of sturgeon caught by a

small number of vessels it was discussed that 11 vessels had greater than 10 takes each in the NJ hotspot statistical areas. There were 30 vessels in New Jersey and 33 vessels in Delaware/Maryland/Virginia that had sturgeon takes in these hotspot areas from 2015-2022.

Follow up items

The Team agreed to the following next steps:

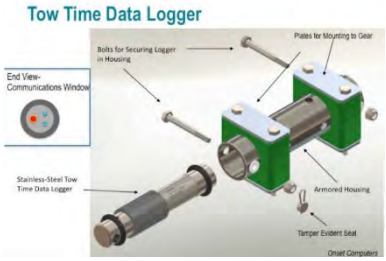
- FMAT/PDT to review summary of today's recommendations and to-do's
- Council staff will send outcomes of NEFMC and MAFMC September and October meetings, respectively, to FMAT/PDT in early October. After a range of alternatives is clear, the dataset can be compiled.
- Bridget to pull data and send to Jason B. in October
- Jason B. to begin analyzing data in November

Other business

None discussed. The Team meeting adjourned at approximately 4 p.m.

Consideration of data loggers to monitor gillnet soak durations
September 2023

Previous research (Matzen et al. 2015)



Data logger technology

- Developed to monitor and enforce trawl durations
- Detects when a tow has exceeded a specified threshold
- Takes depth measurement every 30 seconds
- "Alarm" event recorded in file when tow duration exceeded
- LED blinks every 4 sec to confirm the unit is operational
- LED can also indicate if alarm event has triggered
- Welded to trawl door in a housing made of polypropylene and stainless pipe clamps
- Tamper-evident seal placed in bolt; indicates if nut has been loosened to access the unit

Results

- Deployed on 9 trawl vessels with 7 different target species
- Tested short- and long-term deployments
- 954 hauls recorded over 897 days
- Battery lasted multiple years (longest deployment >3 yrs)
- Depth readings were tested dockside and found to be accurate
- Tow duration verified in study where tow times were kept in haul log and determined consistent
- Stored ~ 3 months of haul data
- No failure due to shock or vibration
- Only issue was pressure sensor clogged with silt substrate on deep deployments (~200 m). Corrected by installing a filter through the pressure access holes.

New research - second generation data logger

Specifications

- Measure time the unit is submerged below a specified depth
- Tamper resistant and tamper evident (physical unit and data)
- Expanded data storage (one year at a sampling rate of once every 30 seconds when submerged)
- Operate on iOS and potentially a limited number of android platforms
- Battery life of at least one year
- Means (alert) by which enforcement can determine if duration has been exceeded
- Unique serial number on the logger and the data recorded
- Final cost <1K per unit

Next steps

- Request proposals to develop logger with new technology
- Then will partner with trawl vessels to test the operational feasibility
- Once feasibility testing is complete, evaluate for potential management application

Items to be determined

- Location
    - Logger does not record location of the haul
    - Exploring options for linking logger data to location data:
        - Stand-alone GPS
        - Linking to AIS, VMS, or VTR

- Data collection and transfer
    - Exploring options:
        - On board wireless transfer to tablet/phone
        - On board transfer to tablet/phone using a shuttle (previously tested in Matzen et al.)
        - Autonomous data upload to cloud database via cellular or satellite
    - Once collection and transfer are determined, need to clarify how exceedances are reviewed

Applicability to gillnet fisheries

- Likely work for gillnet fisheries
- Would likely need to redesign the housing
- Consideration of the number of loggers required per net and/or string
- Consideration of whether there could be issues with transferring data from multiple loggers
- Ideally develop one technological approach/database across applications (e.g., trawl, gillnet, other) to reduce confusion and streamline data handling

Mid-Atlantic Fishery Management Council
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P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 22, 2023

To: Chris Moore

From: Jason Didden, Staff

Subject: *Illex* Hold Framework

Please find the following documents that support Council final action on the *Illex* Hold Framework:

-Summary of September 18, 2023 Mackerel, Squid, and Butterfish (MSB) joint Committee and Advisory Panel (AP) Meeting (including Committee Motions)

-Comments received for this agenda item before the briefing book deadline

-Draft Framework Document

Staff Recommendations

Staff supports the Committee recommendation to adopt Alternatives 3 and 4, which would require a non-binding hold declaration for directed *Illex* and longfin permits during annual permit applications. Staff consulted with NMFS regulatory staff and NMFS Science Center staff (including Cooperative Research Branch staff) to confirm that a systematic record of squid processing type would be useful. Such a record would not replace important discussions with industry about processing and other factors when developing Catch Per Unit of Effort (CPUE) analyses, but would be a useful starting point.

Regarding the hold baseline alternatives, the Committee did not express a preference for an alternative at the September 18, 2023 meeting. There are compelling arguments on each side of potentially adding a hold baseline or not. Fisheries in our region are negatively affected by both overcapacity (which baselines slow but do not eliminate) and lack of flexibility (which baselines make worse but are probably not the primary issue).

Fleet fishing capacity is very challenging to reduce once added through new or modified vessels. However, any baselines or associated restrictions could be removed or modified relatively easily by a future Council Framework action. This suggests there may be a benefit in adopting a hold baseline now, and then re-evaluating periodically.

Mackerel, Squid, and Butterfish (MSB)

Joint Committee and Advisory Panel (AP) Meeting Summary

September 18, 2023 (webinar)

The Mid-Atlantic Fishery Management Council's (Council) Mackerel, Squid, and Butterfish (MSB) Committee and Advisory Panel (AP) met jointly on September 18, 2023 at 10:30am. The purpose of this meeting was to review alternatives for the *Illex* Vessel Hold Capacity Framework (FW) Adjustment action, consider AP input, and develop Committee recommendations on preferred alternatives if appropriate.

MSB Committee Attendees: Peter Hughes (Chair), Joe Cimino**,** Michelle Duval**,** Dan Farnham**,** Kris Kuhn**,** Ken Neill**,** Adam Nowalsky**,** Robert Ruhle**,** Emily Gilbert (NMFS) Melanie Griffin (New England Fishery Management Council Committee member), and Eric Reid (New England Fishery Management Council Committee member).

MSB AP Attendees: Dan Farnham Jr, Emerson Hasbrouck, Gerry O' Neill, Greg DiDomenico, Jeff Kaelin, Katie Almeida, Meghan Lapp, Peter Kaizer, and Sam Martin.

Other Attendees: Jason Didden, Alan Bianchi, Carly Bari, Jessica Blaylock, and Maria Fenton.

After Committee Chair Hughes opened the meeting, Jason Didden of Council staff provided an overview of the FW's purpose, alternatives, previous AP input, and next steps. The AP and Committee discussed several items of clarification, including:

There are 76 *Illex* limited access permits. The focus of the action is establishing a hold baseline and upgrade restriction for all of these permits. Since 30 already have a hold baseline and upgrade restriction due to their mackerel permit, the requirement would be new for 46 permits. 2a and 2b only differ in whether a permit "on the shelf" in Confirmation of Permit History (CPH) when hold certifications would be due, could use a pre-existing survey from the last vessel the permit was on to establish a baseline when the permit is re-activated (2a = could use; 2b = could not use). There are currently 6 *Illex* permits in CPH. Follow-up with NMFS indicates none of the 6 *Illex* permits currently in CPH have an existing hold capacity limitation triggered by a mackerel permit. We believe at least one of the 6 has a survey from the last vessel the permit was on.

The processing type declaration would only be an indication of intent, and not binding within or between years. Follow up after the meeting between Council and NMFS staff (regulatory and science) confirmed broad agreement that having a systematic record of processing type could assist future Catch Per Unit of Effort (CPUE) analyses (and that ongoing discussions with industry would also be important for future refinements to CPUE analyses). There was concern voiced about whether such a declaration could become binding in the future and whether

regulations should be generally used to address a science need. Staff noted that whether or not the Council adopted such a declaration requirement now, a future Council could reconsider such a requirement and/or the details of the requirements.

AP comments summary:

There was AP input both in favor and against the hold baseline, with similar rationales as previously reported. The primary tension is concern about further overcapitalization by those in favor of versus concern about maintaining flexibility by those opposed. It was also noted that establishing hold sizes could help assessments in the future if used to standardize CPUE analyses.

The Committee passed the following motions:

1. I move that the Committee forward alternatives 2a and 2b to the Council for consideration. 7/1/2
2. I move that the Committee recommend to the Council that the Council adopt Alternatives 3 and 4. 8/0/0

Staff clarified during the meeting that staff interpreted the Committee's intent was not contrary to final Council action occurring in October 2023 (including possibly on 2a or 2b), but that the MSB Committee preferred to not make a recommendation during the September 18, 2023 MSB Committee meeting. No opposition to this interpretation was voiced by the Committee.

NMFS indicated during the meeting that baselines are checked during vessel replacements. Staff clarified after the meeting with NMFS staff, several related questions that came up during this or previous discussions:

Q: Can a vessel permanently relinquish one permit from a permit suite?
A: Yes, a vessel owner can relinquish one or more permits from a permit suite.

Q: Do all relevant Mack T1/T2 permits have fish hold baselines on file?
A: Yes, all suites with a limited access *Illex* and T1/T2 mackerel have a mackerel fish hold baseline measurement on file. We have fish hold determinations for the 30 *Illex* permits that have relevant mackerel permits

Q: Are all current vessels with Mack T1/T2 permits within their hold baselines + 10%?
A: It is collected once with their replacement application or it was collected once with their qualification application. Vessel owners are supposed to tell us if they alter or increase any of their baseline measurements so that we can assess if that alteration is within their specifications. We don't require vessels to provide their fish hold measurement every year.

Dear Council,

I am reaching out to oppose the Councils' framework on hold capacity for illex. We already have restrictions on how much we can upgrade our vessels by. If my vessel needs replacing, we need to be able to have a variety of vessels to choose from. Narrowing down our choices, which is what this action will do, will hamper that effort, and could delay or even prevent us from doing so. My vessel fishes in several fisheries and those fisheries shouldn't be held to these restrictions, which is what this will do. This framework has consequences that reach outside the illex fishery.

Thank you,

Jamie McCavanagh

F/V Suan Rose

1-302-674-5399

Dear Mid-Atlantic Council,

I am writing to oppose any further restrictions on the Illex permits. I oppose vessel hold capacity as it will make it much harder to replace the vessel I run. With vessels aging we need a wide range of vessel sizes, within the restrictions we are already held to, to choose from for replacement vessels.
Not only will this impact us with Illex, but we fish for other species as well.

Sincerely,
Dave Monahan
F/V Lightning Bay

Dear MAFMC,

I am not in favor of the Illex hold capacity framework. We have had increases in quota and have not even caught our quota the past two years. Any more restrictions on this fishery are unnecessary.

We are already held to length and horsepower restrictions on any upgrades. Illex is not the only fishery that I participate in and additional restrictions on illex can reduce the flexibility I need in other fisheries.

Thank you,
Jason Power
F/V Kassidy Lyn

From: Meghan Lapp
To: Moore, Christopher; Townsend, Wes
Cc: Didden, Jason; DiDomenico, Gregory
Subject: Freezer/Fresh vessel CPUE and Illex Framework
Date: Monday, September 18, 2023 12:13:29 PM
Attachments: Merceretal.2023_fmars-10-1144108.pdf

Hi Chris,

Just wanted to send you this for the Council meeting to include in the briefing materials/distribute to Council members. In today's MSB Committee meeting, there were quite a few people that didn't seem to know that this work existed re the freezer/fresh boat CPUE and existing as well as ongoing research on the topic of CPUE and illex/loligo science. Right now there is also continuing work, which Anna Mercer at the NEFSC and Mike Wilberg and Paul Rago from the SSC are also leading, if you wanted to reach out to them.

I don't think most people understood that science is going on already on this topic, cooperatively and without need for additional permit requirements. There seemed to be a disconnect between the regulatory folks and science folks at the agency as to what initiatives are ongoing and therefore what would be necessary as part of a Council action.

Thanks,
Meghan

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Bringing in the experts: application of industry knowledge to advance catch rate standardization for northern shortfin squid (*Illex illecebrosus*)

Anna J. M. Mercer[1]*, John P. Manderson[2], Brooke A. Lowman[3], Sarah L. Salois[1,4], Kimberly J. W. Hyde[1], Jeffrey Pessutti[5], Andrew W. Jones[1], Robert Ruhle[6], Bill Bright[7], Troy Sawyer[8], Meghan Lapp[9], Jeff Kaelin[10], Katie Almeida[11] and Greg DiDomenico[10]

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Sources of fisheries information outside of fishery-independent surveys (e.g. fishery-dependent data) are especially valuable for species that support productive fisheries and lack reliable biological information, such as the northern shortfin squid (*Illex illecebrosus*). Fishery-dependent data streams are available for most species, however collaboration with industry members is critical to ensure that these fishery-dependent data are collected, applied, and interpreted correctly. Despite the need for collaboration and the frequency that fishery data are used in scientific research, there is limited literature on the structure of interactions and knowledge sharing that inform the analysis and application of fishery data. Between 2019 and 2022, a group of researchers collaborated with members of the northern shortfin squid fishing industry to bring together research data sets and knowledge from harvesters and processors to better describe the fishery dynamics, distribution, life history, and oceanographic drivers of the species. The collaboration focused on developing custom standardized fishery catch per unit effort (CPUE) indices to provide indicators of population trends that accounted for the impacts of technical and economic aspects of harvesting, processing and marketing on fishing effort, selectivity and landings of northern shortfin squid. We describe the methods used to inform and interpret the CPUE analyses, focusing on novel structure of interactions we had with industry members, and suggest best practices for integrating industry knowledge into CPUE standardization. The information shared and research products produced through this science-

industry research collaboration advanced understanding of northern shortfin squid population and fishery dynamics, and contributed directly to the 2022 stock assessment and management process. Given the complex and stochastic nature of the northern shortfin squid population and fishery, we found it critical to maintain open communication and trust with processors and harvesters, who have unique insight into the factors that may be driving changes in catch, landings, and productivity of the valuable resource species.

KEYWORDS

shortfin squid, stock assessment, cooperative research, local ecological knowledge, northeast United States, catch per unit effort, fisheries dynamics

1 Introduction

For many marine resource species, it is infeasible to collect comprehensive fishery-independent data due to mismatches between survey scope and species distribution, phenology, or life history (short lived). For these species, fisheries science and management rely heavily on fishery-dependent data collected by harvesters, processors, and dealers, commonly included in the form of catch per unit effort (CPUE) indices in stock assessments (Hilborn and Walters, 1992; Maunder et al., 2006). These data sets contain valuable information about resource species, but are also influenced by the socioeconomic and technical aspects of fishing (Walters, 2003; Quirijns et al., 2008). Thus, it is essential to collaborate with the fishing industry to understand these data, inform analytical approaches, and interpret results (Steins et al., 2022; Calderwood et al., 2023). The statistical methods used for CPUE standardizations are well described (Maunder and Punt, 2004; Bishop et al., 2004; Bishop, 2006; Bentley et al., 2012; Cheng et al., 2023), however, the methods for effectively engaging with industry to identify relevant explanatory variables and interpret CPUE indices are rarely implemented and not well documented. Fishery data are used extensively in scientific research, but there is limited literature on the science-industry research collaborations that are key to informing the analysis and application of fishery data (Mangi et al., 2018; Steins et al., 2022; Calderwood et al., 2023). In this manuscript, we present recent research on the northern shortfin squid (*Illex illecebrosus*) that sought to establish best practices for gathering information from the fishing industry and integrating that information in CPUE standardizations.

Northern shortfin squid is a semi-pelagic squid with a lifecycle of less than a year that occupies Slope Sea and continental shelf habitats from Florida to northern Canada (Dawe and Hendrickson, 1998; Hendrickson, 2004; Jackson and O'Dor 2001). Their distribution and growth are highly variable, largely due to the impact of oceanographic dynamics on physiology and movements (Dawe and Warren, 1993; Boyle and Rodhouse, 2005; Salois et al., 2023). Northern shortfin squid are semelparous, with females dying shortly after they mate. Research suggests that they spawn throughout the year and produce multiple cohorts, but recruitment dynamics of northern shortfin squid are poorly understood (Hendrickson, 2004). Northern shortfin squid inhabit the Slope Sea (water mass between the Gulf Stream and the continental shelf) during the winter months and migrate onto the continental shelf during the late spring and early summer months (Dawe and Beck, 1985; Hatanaka et al., 1985; Perez and O'Dor, 1998). Spring and fall fishery-independent bottom trawl surveys of the continental shelf from Cape Hatteras, U.S. to Nova Scotia, Canada sample a portion of the population; however, these surveys do not occur during periods of peak northern shortfin squid abundance on the continental shelf (Hendrickson, 2004).

In the northeastern United States, northern shortfin squid are targeted by a bottom trawl fishery during summer months (May-September), with landings ranging from approximately 2,000 to 28,000 metric tons (Arkhipkin et al., 2015; Doubleday et al., 2016; Northeast Fisheries Science Center (NEFSC), 2021). Vessels targeting northern shortfin squid range from approximately 15 to 45 meters in length and harvest northern shortfin squid on the outer continental shelf at depths of 109-365 m (Lowman et al., 2021). The Mid-Atlantic Fishery Management Council sets an annual quota for northern shortfin squid that is shared by all permitted vessels.

Because of the species' variable abundance and its use of habitats beyond the range of fishery independent surveys, northern shortfin squid are difficult to assess and manage, as are many squid stocks around the world (Arkhipkin et al., 2021; Northeast Fisheries Science Center (NEFSC), 2006). In the absence of comprehensive survey data, many squid assessments rely upon fishery-dependent data to develop indicators of fishery and population dynamics and population condition (Pierce and Guerra, 1994; McAllister et al., 2004; Roa-Ureta, 2012; Arkhipkin et al., 2021). The interpretation of fishery CPUE as an indicator of population trend, however, is potentially confounded by global market drivers, management measures, technical constraints of fishing, and gear selectivity, among other factors (Maunder and Punt, 2004; Maunder et al., 2006). In order to identify the social and economic factors impacting catch rates and account for them in CPUE standardization, it is necessary to assimilate the experiential knowledge of harvesters and processors (Steins et al., 2020; Mackinson, 2022; Steins et al., 2022). Novel modeling tools, such

as spatiotemporal delta-generalized linear mixed models, structured additive distributional regression, and simulations further enable researchers to identify bias in and derive population trends from fishery dependent data (Mamouridis et al., 2017; Clegg et al., 2022; Ducharme-Barth et al., 2022; Karp et al., 2022).

Over the years, researchers have developed collaborations with the northern shortfin squid industry to address specific research needs including biological data collection (Johnson, 2011). Several recent research efforts associated with the 2021 Northern Shortfin Squid Research Track Stock Assessment focused on developing science-industry research collaborations (SIRC) to increase our understanding of the species and inform science-based management of the fishery (Northeast Fisheries Science Center (NEFSC), 2021). These recent collaborations are rooted in a mutual recognition of, and appreciation for, the valuable knowledge that the northern shortfin squid industry has accumulated over many decades. The research collaboration we describe here leveraged industry knowledge to better understand the dynamics of the northern shortfin squid population, fishery, and associated environment. Specifically, this paper details a SIRC that integrated the technical and economic knowledge of northern shortfin squid harvesters and processors into the development of standardized CPUE indices as measures of abundance for northern shortfin squid. We describe the approaches to industry collaboration that were utilized to inform the CPUE standardization process, including a northern shortfin squid summit with both industry and scientists, as well as a series of semi-structured conversations. We also discuss how the information shared by industry was integrated in the stock assessment process. In the absence of a model-based stock assessment, the management of northern shortfin squid is informed by other research products, including the work presented in this manuscript. By describing this SIRC process and the strategies used, we hope to provide a model for bringing industry knowledge into assessments of other stocks.

2 Phases and outcomes of northern shortfin squid science-industry research collaboration (SIRC)

2.1 Overview

Here we describe four layers of collaboration with the northern shortfin squid industry that helped to facilitate the development of robust and high-resolution CPUE series: 1) an initial summit with industry, scientists, and managers, 2) a subsequent series of structured conversations with individual processors and harvesters, 3) quantitative application of industry knowledge to CPUE standardizations, and 4) sustained communication throughout the stock assessment process. These interactions occurred in sequence, and represented an organized framework for developing scientific products from fishery-dependent knowledge and data sources.

2.2 Initiating collaborations through northern shortfin squid summit

A two-day "Northern Shortfin Squid Population Ecology and Fishery Summit" hosted by members of the northern shortfin squid fishing industry was held in November 2019 to discuss current understanding of the northern shortfin squid and its fishery, and to identify research priorities leading up to the 2022 stock assessment. The Summit brought together over 30 harvesters, processors, academic scientists, government scientists, and fishery managers to discuss the ecology, population dynamics, and management of northern shortfin squid. The summit was sponsored by the fishing industry and was held outside of formal stock assessment and management proceedings. The goal was to develop a framework for establishing collaborative research products in the near term that could reduce scientific uncertainties limiting responsive fishery management (Manderson, 2020). The priorities identified and relationships formed during this summit kickstarted several science-industry collaborations that ultimately informed northern shortfin squid stock assessment and management. The information detailed below was obtained explicitly through the Northern Shortfin Squid Population Ecology and Fishery Summit, which exemplifies the value of such forums for sharing knowledge and data, and building relationships.

One major summit product was the definition of the different fleets participating in the northern shortfin squid fishery and description of fishing operations characteristic of each fleet. Specifically, northern shortfin squid processors and harvesters emphasized that fleet type is a critical factor influencing fishing behavior and catch rates, with the freezer trawler fleet that catches and freezes squid at sea operating significantly differently than the "wet boat" fleet that temporarily stores squid in Refrigerated Seawater Systems (RSW) or on ice before offloading fresh squid at shoreside processing plants. While it is rare for vessels to switch from one fleet to another, two freezer vessels have been retrofitted with RSW systems since 2010 to enable operational flexibility. This information is well known by the fishing industry, but is not well documented in the scientific literature or previous stock assessments. While the hold type of individual vessels could not be documented during the summit, general differences between fleet types were discussed. Since the late 1990s, the wet boat fleet has dominated the northern shortfin squid fishery during periods when the species is widely available, while the freezer boat fleet has been a stable component of the fishery in all years (Figure 1). In recent years, the freezer trawler fleet (<10 vessels, 23 - 45m in length) has been approximately one-third the size of the wet boat fleet (>30 vessels, 15 - 30m in length). Because they process and freeze squid at sea, freezer trawlers typically remain at sea for longer periods of time and search over larger areas compared to wet boats. Freezer trawler catch, effort, and landing rates are largely driven by the relatively long handling times associated with freezing squid at sea; freezer trawlers can only freeze a certain quantity of squid at a time, and thus, have to stop fishing to process squid after a certain amount are caught. Freezer trawler operations are less influenced by

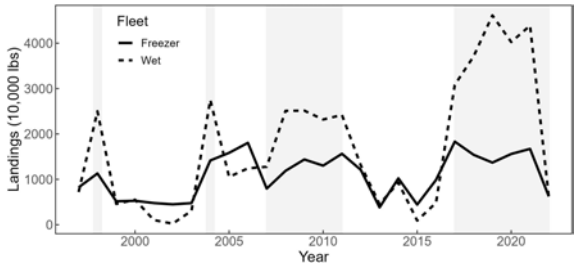

FIGURE 1
Northern shortfin squid (*Illex illecebrosus*) landings from 1997 to 2022. Dashed line represents wet boat landings. Solid line represents freezer trawler landings. Shaded grey areas highlight years in which the 'Wet Boat' fleet reported higher annual landings than Freezer Trawlers.

price than the wet boat fleet and are unlikely to switch species if northern shortfin squid are less available or if prices are low. Conversely, wet boats have short handling times and catch, effort, and landing rates can be high if northern shortfin squid, which are highly perishable, are available at locations less than about 72 hours from shoreside processing plants. Trip durations of the wet boat fleet are short, and effort is strongly driven by the price and availability of squid. Wet boats are more likely to switch to other species if northern shortfin squid prices or availability are low. An action item moving forward from the summit, and now being considered by the Mid-Atlantic Fishery Management Council (MAFMC) as a management requirement, was to document individual vessel hold types to be able to formally account for fleet type in CPUE calculations and other data analyses.

Another important summit product was the description of the global market dynamics that impact the northern shortfin squid fishery. Specifically, northern shortfin squid from the Northwest Atlantic compete in the global market with Argentine shortfin squid (*Illex argentinus)* squid caught in the Southwest Atlantic (Falkland Islands to Southern Brazil) and Japanese flying squid (*Todarodes pacificus)* caught in the North Pacific. Annual landings of squid in the Southwest Atlantic and North Pacific are typically 30-35 times larger than northern shortfin squid production in the Northwest Atlantic. The Argentine shortfin squid fishery in the Southwest Atlantic occurs during the austral summer and closes just before the beginning of the northern shortfin squid fishery season in the northwest Atlantic, which begins when northern shortfin squid migrate onto the continental shelf. As a result, the supply of squid from the Southwest Atlantic fishery regulates demand, and sets the baseline price and risk appetite for inventory for the U.S. northern shortfin squid fishery. Documenting annual trends and scale of landings of Argentine shortfin squid and Japanese flying squid for integration into CPUE standardizations and further analyses was, therefore, identified at the summit as an important next step (Table 1).

The summit also provided a valuable opportunity for members of the fishing industry and science community to share information about the dynamics of the northern shortfin squid population and fishery, develop priorities for research efforts going forward, and form industry-science relationships to facilitate ongoing collaboration. The research efforts prioritized at the summit included 1) quantify the overlap between the U.S. northern shortfin squid fishery and stock distribution to better estimate availability, escapement and the impact of fishery removals (Lowman et al., 2021); 2) define the hold type (freezer, RSW, ice) of each vessel participating in the fishery to enable explicit integration of the impacts of differences in handling in CPUE standardization and stock assessment modeling; 3) explore methods to quantify market dynamics impacting fishing behavior and include in CPUE standardizations; 4) explore how environmental conditions affect the distribution and productivity of northern shortfin squid; and 5) develop a streamlined mechanism to compile northern shortfin squid mantle length and body weight data collected by processors and use data to better understand northern shortfin squid movement, growth, and environmental drivers. In order to address these research priorities, additional conversations with individual harvesters and processors were required for data collection, hypothesis formulation, and interpretation purposes.

2.3 Documenting knowledge through targeted conversations with industry

Following the summit, we held semi-structured conversations with representatives of six northern shortfin squid processors and 17 northern shortfin squid harvesters. The six processors have been responsible for processing and marketing 75-90% of the total landings of northern shortfin squid in U.S. waters since 1997. Most of the 17 harvesters had participated in the northern shortfin squid fishery for at least a decade. The harvesters collectively represented all ports participating in the fishery and included six that fish out of New Jersey, eight that fish out of Rhode Island, and three that fish out of Massachusetts. Of the 17 harvesters consulted, four operate vessels that freeze squid at sea, seven operate vessels that store squid on ice, and six operate vessels with RSW systems. Thus, all vessel/processing types described above were represented. In addition to the 23 industry members consulted *via* semi-structured conversations, an additional 63 harvesters were contacted to characterize the hold type for each vessel that had participated in the fishery since 1997.

Conversations with harvesters were guided by a list of standard questions about technical and economic factors influencing catch and effort in the fishery developed collaboratively by members of

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TABLE 1 Food and Agriculture Organization (FAO) capture production for northern shortfin squid, Argentine shortfin squid in the southwestern Atlantic and Japanese flying squid in the north Pacific and the relative scale of northern shortfin squid capture production to these fisheries (capture production ratio).

	FAO Capture Production (metric tons)			Capture Production Ratio	
Year	Northern Shortfin	Argentine Shortfin	Japanese Fying	Argentine Shortfin/ Northern Shortfin	Japanese Flying/ Northern Shortfin
1997	34,561	991,799	603,367	29	17
1998	26,989	700,443	378,605	26	14
1999	5,667	1,153,279	497,887	204	88
2000	6,245	984,589	570,427	158	91
2001	2,296	750,452	528,523	327	230
2002	3,044	540,414	504,438	178	166
2003	4,437	503,625	487,576	114	110
2004	18,234	178,974	447,820	10	25
2005	10,841	287,590	411,644	27	38
2006	16,868	703,804	388,087	42	23
2007	5,132	955,044	429,162	186	84
2008	9,526	837,935	403,722	88	42
2009	11,727	261,227	408,188	22	35
2010	20,654	189,967	359,322	9	17
2011	23,821	187,822	414,100	8	17
2012	14,696	311,754	350,381	21	24
2013	10,991	496,211	337,925	45	31
2014	7,568	862,867	339,685	114	45
2015	4,355	1,011,356	295,304	232	68
2016	9,094	146,645	197,252	16	22
2017	24,431	335,998	155,573	14	6
2018	28,350	301,157	97,180	11	3
			Median	35.5	33
			Minimum	8	3
			Maximum	327	230

Data from http://www.fao.org/fishery/statistics/global-capture-production/en.

the Northern Shortfin Squid Research Track Stock Assessment Working Group. The questions were sent to harvesters to review before conversations were held either by telephone, video meeting, or in person. Notes were compiled for each conversation, which were provided to each harvester to review for accuracy and completeness. Follow up conversations to clarify responses and mechanisms were *ad hoc* and numerous.

During semi-structured conversations with industry members, further details about freezer trawler and wet boat fleet dynamics were identified by the industry and discussed. For example, industry members described how the availability of northern shortfin squid and alternative stocks, changes in the global market, and investment in shoreside processing have caused the northern shortfin squid fishery to change from one dominated by trawlers freezing squid at sea, to a fishery in which vessels store squid in RSW systems or on ice and sell them to shoreside processor/dealers (Figure 1). Freezer trawlers can store up to 650,000 pounds of frozen squid in a 7-10 day fishing trip and usually complete around 12 fishing trips per year. Freezer trawlers generally make fewer trips in years when the global market is saturated with squid, prices are low, and large inventories are held in cold storage. While catch rates of freezer trawlers are limited by shipboard freezing rates, capacities to store large quantities of frozen squid shipboard allow the vessels to fish grounds distant from shoreside facilities. Alternatively, large RSW vessels can land up to 300,000 pounds in a 1-2 day fishing trip, usually completing well over 20 trips per fishing season. Since northern shortfin squid are highly perishable and the vessels generally need to return to port within 72 hours of first catch,

RSW and ice vessels are profitable when the squid are concentrated on fishing grounds near enough to shoreside processing plants so that vessels can reach plants before squid begin to spoil. Rapid transit from fishing grounds to processing plants is particularly critical for vessels that store squid on ice, which is less effective than RSW at quickly reducing product temperature to maximize product quality. Thus, the perishability of squid combined with market demand for high quality product imposes constraints on the duration of fishing trips, location of fishing grounds, and the timing of landings for ice and RSW vessels that deliver to shoreside processors. Wet boats and shoreside processing are profitable when squid are persistently available in large quantities.

Beyond fleet type and market dynamics, industry members identified several other factors that impact northern shortfin squid catch and effort: fuel price, hold/tank capacity, length of time catch remains fresh, gear conflicts, recent increases in participation in the northern shortfin squid fishery, weather, time of day, and environmental conditions.

Fuel price was cited by several harvesters as an important determinant of fishing behavior. Specifically, when fuel price is high, harvesters are less likely to search over large areas, as the potential benefit of more productive fishing grounds is outweighed by the high cost of fuel. Thus, in years or weeks when fuel price is high, catch or landings per unit effort indices may be decoupled from the condition of the northern shortfin squid population, as vessels are more likely to continue to fish on lower densities of squid to conserve fuel.

Hold or tank capacity was also described as a major driver of fishing behavior. Vessels with larger hold or tank capacities are more likely to steam farther from port to fish in areas where northern shortfin squid densities are highest. This is particularly true for freezer vessels, which are not constrained by the perishability of fresh squid. RSW vessels with larger hold capacities can also benefit from larger area searches, as the benefit of highly productive tows outweighs the cost of the extra steam time as long as the squid can be kept from spoiling. Vessels with lower tank or hold capacity are more likely to fish closer to port where squid densities are lower, as they do not require high densities of squid to fill their hold/tanks.

The length of time that catch remains fresh was specifically identified as impacting fishing location, likelihood of changing fishing locations, and limits to catch per tow for ice and RSW vessels. As described above, the length of time that catch remains fresh depends on the vessel type, with ice vessels having the shortest time that catch remains fresh (48 hours), followed by RSW (72 hours), and freezer (weeks). Thus, wet boats are more likely to fish closer to port, even if northern shortfin squid are less productive in those areas. Wet boats are also less likely to change fishing locations, as time spent steaming between fishing grounds is time when squid quality is degrading and no additional catch is occurring. Finally, total catch per tow is limited by the amount that can be processed while staying cold enough to maintain quality.

In addition to the vessel-specific factors impacting northern shortfin squid catch and fishing effort described above, harvesters also identified several management-related factors that drive when, how, and where they fish. Restricted Gear Areas, which are intended to separate mobile gear and fixed gear, preclude mobile gear vessels from fishing along the shelf break from the northern edge of Hudson Canyon to Atlantis Canyon during the northern shortfin squid fishing season (Figure 2). Fishing regulations (e.g. small mesh restricted areas) and technical constraints also limit northern shortfin squid fishing throughout most of the Gulf of Maine.

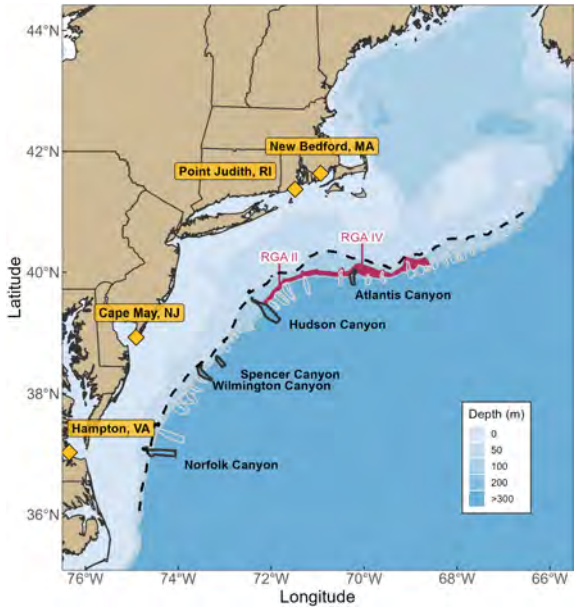

FIGURE 2
Map of the general extent of northern shortfin squid fishing grounds (dotted black line), Restricted Gear Areas (RGA - solid maroon polygons), ports with squid processing facilities (yellow diamonds), and major canyons (solid lines of black or grey) along the continental shelf (approximately 200 m isobath).

Thus, lack of landings from these areas are not due to the absence of northern shortfin squid, but due to the exclusion of mobile gear or all fishing. In addition to formal gear restricted areas, there are also areas where the density or location of fixed gear makes it impossible to fish mobile gear and harvest northern shortfin squid. These areas vary by year, following the distribution of the offshore lobster and crab fisheries.

As mentioned previously, there has been a significant change in the composition and number of participants in the northern shortfin squid fishery in recent years. The static and common quota for northern shortfin squid has always resulted in some level of competitive fishing. In 2017-2021, with more vessels harvesting northern shortfin squid and a limited and common quota, the quota was harvested faster. This has changed the dynamics of the fishery substantially.

Another factor affecting fishing behavior of northern shortfin squid harvesters is weather. Severe weather (strong winds, high seas) can impede vessels from safely sailing, from keeping their gear on the bottom, or from effectively catching squid. Severe weather also makes it difficult to maintain ship stability on RSW and ice boats when they transport large volumes of fresh squid to shoreside processing plants in rough conditions. Squid are also sensitive to the conditions of the water column and often disperse during large storms. Thus, northern shortfin squid catch and landings may decline or cease for weeks during years in which large storms have impacted the Mid-Atlantic or offshore Southern New England. Weather plays into a harvester's decision about whether to fish, but it is variable by vessel type, vessel size, port, and captain. Further research is needed on the threshold of weather conditions that prevent fishing or scatter northern shortfin squid, and therefore effectively shut the fishery down temporarily.

Many harvesters noted that the catch rate of individual tows varied greatly throughout the day. The most productive tows most commonly occur at dawn or dusk, with midday tows yielding lower catch rates. This is likely related to the diel vertical migration of northern shortfin squid, with squid more strongly associated with the seabed, and thus more available to bottom trawling, during daylight. Aggregation near the seabed is especially pronounced during morning and evening twilight on the outer edge of the shelf during the summer months (Benoit-Bird and Moline, 2021). In addition, harvesters noted that northern shortfin squid fishing is typically less productive on and around the full moon.

Finally, harvesters largely agreed that there are oceanographic drivers of northern shortfin squid. Specific oceanographic drivers discussed by harvesters included Gulf Stream position, Gulf Stream warm core rings, eddies, filaments, streamers, southerly winds, and upwelling zones. Although hypotheses were abundant, the harvesters consulted were not confident that pre-season oceanographic conditions could be used to forecast the productivity or availability of northern shortfin squid in a given year. While oceanographic features may be observed to be associated with high or low quantities of northern shortfin squid at one time, the relationships are often not consistent (Dawe et al. 2007; Rodhouse et al. 2014; Moustahfid et al. 2021). Harvesters recommended that additional research is needed on this topic to identify and test hypotheses related to the oceanographic drivers of northern shortfin squid.

2.4 Applying industry knowledge to Catch Rate standardization

The knowledge shared by members of the northern shortfin squid fishing industry were used to define how fishery dependent data were handled and which covariates were applied in the development of CPUE indices. For example, we used information provided by industry members to define and differentiate freezer trawler and wet boat fleets within the data, which enabled discrete CPUE modeling of the two fleets. We used a stepwise approach to prioritize the other factors that industry members described as important in driving catch and effort for inclusion as covariates in CPUE standardization. First, we determined which factors were consistently identified by members of the fishing industry. Second, we determined which factors were likely to be correlated due to similar underlying drivers. Third, we determined which factors were quantifiable with available data. These factors were then used as covariates in the CPUE standardizations.

Ultimately, three fishery dependent data sets maintained by the Northeast Fishery Science Center (NEFSC) were used for the landings and CPUE standardizations: dealer/logbook, Observer program, and Study Fleet program (Figure 3). The dealer/logbook data set is a census of landings that comprehensively describes northern shortfin squid landings, as they have been collected for every northern shortfin squid fishing trip since 1996 as part of federal reporting requirements. The spatial resolution and time step of the data set, however, are relatively coarse, with landed catch information recorded at the sub-trip level (i.e. one record of total landed catch per statistical area per fishing trip). As part of routine data auditing procedures, mandatory dealer reports are compared to the self-reported logbooks to verify reported landings. The Observer program data set comprises catch, bycatch, and fishing effort information for individual tows collected by independent observers through the Northeast Fisheries Observer Program during a subset of randomly selected northern shortfin squid fishing trips since 2011 (Wigley and Tholke, 2020). The observer data set covers 4-10% of northern shortfin squid fishing trips in a given year, with lower coverage in recent years, especially during the COVID-19 pandemic. Finally, the Study Fleet data set is composed of detailed catch, bycatch, fishing effort, and bottom water temperature data for individual tows that are self-reported by harvesters participating in the Study Fleet program (Jones et al., 2022). The Study Fleet data set covers up to 45% of northern shortfin squid fishing trips in recent years.

We used conventional statistical methods for building standardized CPUE indices. All statistical analyses were performed using R version 3.6.2 (R Core Team, 2019). Generalized additive models (GAMs) were fitted using the mgcv package (Wood, 2011). Based on histograms of CPUE and LPUE, we investigated several error distributions: lognormal, gamma (with log link), and negative binomial (with log link). Based on the most

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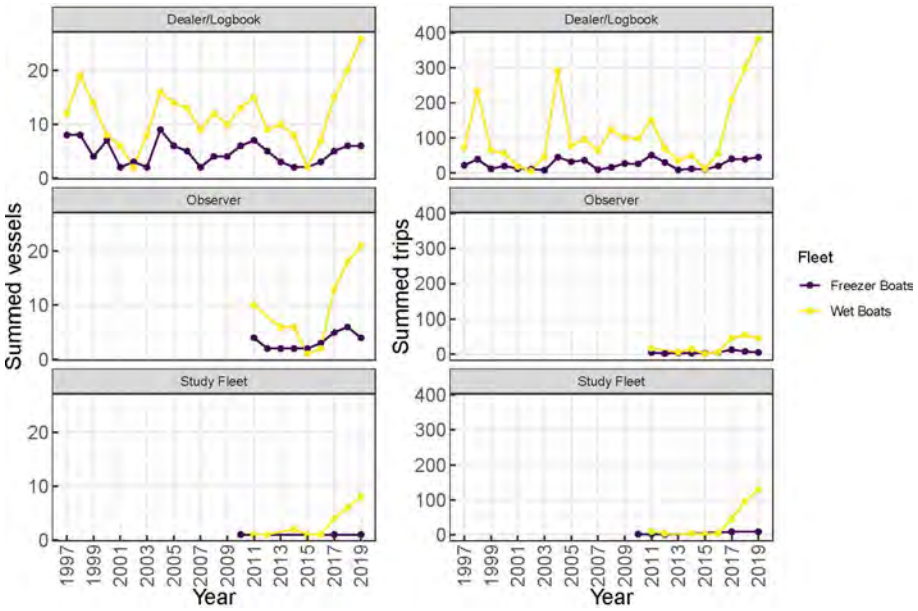

FIGURE 3
Time series of northern shortfin squid fishery participation (number of vessels, left panels) and effort (number of trips, right panels) across the Dealer/Logbook, Observer, and Study Fleet data sets. Purple lines indicate freezer vessels. Yellow lines indicate wet boats (ice and refrigerated sea water).

promising set of diagnostics (quantile-quantile plots, Cook's distance, and residuals), we built GAMs with the corresponding distribution using forward stepwise selection of explanatory variables with AIC and percent deviance explained as the selection criteria. For further detail on statistical methods, see Supplementary Material. Additional information is also available as a working paper supplement to the 2022 Illex Research Track Assessment (available online through the NEFSC Stock Assessment Support Information portal at https://apps-nefsc.fisheries.noaa.gov/saw/sasi.php).

A variety of social and environmental factors identified by the fishing industry at the summit and during individual conversations were considered as covariates in the CPUE standardization. These included year and week effects, weekly domestic squid and fuel

TABLE 2 Factors that impact northern shortfin squid catch and effort identified by industry collaborators and considered in CPUE standardization.

Factor	Source	Freezer Fleet CPUE		Wet Boat Fleet CPUE		
		Dealer/ Logbook	Observer	Dealer/ Logbook	Observer	Study Fleet
Fleet (freezer or wet boat)	Summit, Conversations	X	X	X	X	X
Year - factor	Summit	X	X	X	X	X
Weekly domestic price of Illex - smooth	Summit	X	X	X	X	X
Landing port - factor	Conversations	X		X		
Days absent - linear	Conversations	X		X		
Fishing location - two-dimensional smooth	Summit	X	X	X	X	X
Week of the year - factor	Summit					X
Distance (straight line, km) from fishing grounds to landing port - linear	Conversations		X			
Landing port state - factor (aggregated due to low sample size in individual ports)	Conversations				X	
Weekly diesel price	Conversations					
Global Ommastrephid landings	Summit					

The source of factors included in final CPUE models are marked with an X in the corresponding model column. Comparison of top catch rate standardization models for each fleet in each data set.

prices, the state and port where squid were landed, the number of days a vessel was absent from port, the location of the fishing activity, the distance from the landing port to the fishing location (a straight line distance estimate), and global Ommastrephid production. A subset of these variables were ultimately included in final models to each data set for each vessel hold type (freezer or wetboat: see Table 2). Models were fit to each data set, rather than a combined data set, due to differences in spatiotemporal resolution across data sets. For example, the Observer and Study Fleet data sets contain northern shortfin squid catches for individual fishing tows, while the dealer/logbook data set contains total northern shortfin squid catch from a fishing trip. Additionally, not all data sets include records of discarded catch, therefore we used landings per unit effort (LPUE) as the response variable in modeling. Because discards are negligible in the northern shortfin squid fishery, landings are nearly equivalent to catch and we therefore use the terms LPUE and CPUE interchangeably.

Domestic prices for northern shortfin squid by week are included in the CPUE and LPUE standardizations because some harvesters noted that they modified their fishing behavior based on fluctuations in price. For example, when price is high they may stay on a less dense aggregation of squid and accept a lower LPUE, when they would otherwise move on to search for denser fishing ground when prices are lower. Domestic price is calculated based on total landed value divided by the total landings (pounds) for each week. Prices were adjusted for inflation by standardizing to 2019 USD, using the Gross Domestic Product Implicit Price Deflator from the Federal Reserve Economic Data (U.S. Bureau of Economic Analysis). Prices from the week preceding a fishing trip were used to reflect the fact that fishing decisions are made based on the information available when boats leave the dock, not the price when they land.

Global harvest of Ommastrephids was consistently reported by industry members as a major factor affecting northern shortfin squid LPUE. Therefore, annual global landings of Argentine shortfin squid (*Illex argentinus*) and Japanese flying squid (*Todarodes pacificus)* were included in the CPUE and LPUE standardizations as indicators of the global Ommastrephid squid market (Tables 1; 2). The Argentine shortfin squid fishery occurs primarily in the first half of the year before the U.S. northern shortfin squid fishery, so Argentine shortfin squid landings were not lagged during covariate development. Conversely, the Japanese flying squid fishery occurs primarily in the second half of the year, so Japanese flying squid landings were used from the year previous to the northern shortfin squid fishing year.

Fuel price was reported by harvesters to impact fishing behavior in a similar way to the domestic northern shortfin squid price. When fuel is more expensive, harvesters are less willing to search or move off a moderately productive spot. Diesel price for the New England region of the U.S. was pulled from the Energy Information Administration and prices were adjusted for inflation by standardizing to 2019 USD using the Gross Domestic Product Implicit Price Deflator from Federal Reserve Economic Data.

Landing port and days absent (trip duration) were also included as covariates in the CPUE and LPUE standardizations, as harvesters noted longer trips were often associated with lower CPUE. In addition, the distance to fishing grounds was calculated as the straight line distance between the reported fishing location and the landing port.

Using the data sets described above and covariates highlighted by industry, we developed GAMs using forward stepwise selection with Akaike's Information Criterion (AIC) and percent deviance explained as the selection criteria (Wood, 2017). Ongoing discussions with fishing industry collaborators and the stock assessment working group produced suggestions for model adjustments, insight into the CPUE trends produced, and explanation of the non-linear effects of covariates. Feedback was received during one-on-one or small group conversations with fishing industry collaborators as well as during stock assessment working group meetings. The process was iterative, with the CPUE models and outputs taking many shapes along the way. Ultimately, the CPUE and LPUE indices developed were utilized to assess the general trends in northern shortfin squid abundance across years (Figure 4). Each distinct CPUE and LPUE series provided useful insight into the dynamics of the northern shortfin squid fishery in addition to species abundance. Further, congruence between these CPUE and LPUE with other indices developed for the northern shortfin squid stock assessment, provided confidence in the accuracy of the trends (Figure 5). For additional information on CPUE model building, see Supplementary Materials.

2.5 Integration of fishery knowledge into the stock assessment

Several members of our research team formally and informally participated in the Northern Shortfin Squid Research Track Stock Assessment Working Group, which was initiated several months after the summit. Industry members also regularly participated in stock assessment working group meetings, which were open to the public. To ensure that industry knowledge gathered both at the summit and through individual conversations was integrated into the stock assessment process, we developed a working paper detailing the technical and economic dynamics of the northern shortfin squid fishery, as well as the ecology and environmental drivers of the species, as reported by industry (Northeast Fisheries Science Center (NEFSC), 2021). This information was referenced regularly throughout the stock assessment process. We also engaged the Northern Shortfin Squid Research Track Stock Assessment Working Group in progressing application of industry knowledge to CPUE modeling. This enhanced the quality of the standardized CPUE model.

The knowledge shared and documented throughout this SIRC was also critical to the development, parameterization, and interpretation of a generalized depletion model for the northern shortfin squid stock assessment (Northeast Fisheries Science Center (NEFSC), 2021; Arkhipkin et al., 2021). Depletion modeling requires robust fishery dependent data, including documentation of the socioeconomic and technical factors that impact catch (Roa-Ureta, 2012; Roa-Ureta et al., 2015). The knowledge that industry shared during this SIRC was essential to determining the structure of the generalized depletion modeling and in interpreting the

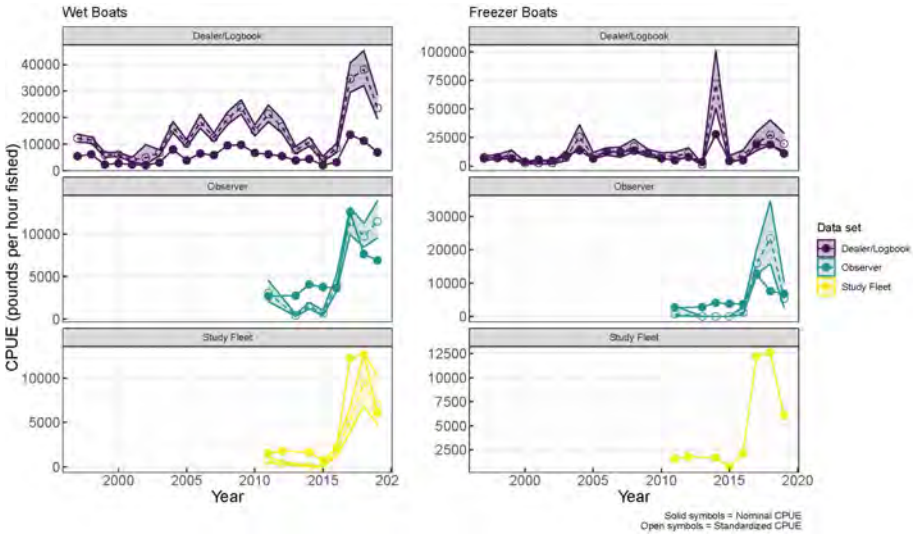

FIGURE 4
Nominal (solid symbols) and standardized CPUE (open symbols) series for the Wet Boat fleet and the Freezer Boat fleet. The shaded region indicates +/- SE. Top panel shows the dealer/logbook data, middle panel shows the observer data, and bottom panel shows the Study Fleet data.

outputs. Industry knowledge about gear selectivity and species catchability were also applied in the development of a mass balance model, an envelope model, and an escapement model for northern shortfin squid (Rago 2020; Northeast Fisheries Science Center (NEFSC), 2021).

The SIRC developed during this research evolved and expanded to cover several other topics that were identified as priorities during the stock assessment process. For example, it became clear throughout the stock assessment process that enhanced data on northern shortfin squid body size and weight are essential for understanding the structure of the population as well as the movement of cohorts onto and off of the continental shelf. In response to this need, industry collaborators shared insight on northern shortfin squid growth throughout the fishing season as well as squid body size and weight data collected by processors. This exchange of information initiated a formal research initiative to develop an electronic data collection system for use by the region's northern shortfin squid processors to collect individual squid size and weights during the vessel offload process. In 2021 and 2022, six northern shortfin squid processors collected over 60,000 northern shortfin squid mantle lengths and weights through this initiative.

Further research to evaluate the oceanographic drivers of northern shortfin squid was also prioritized during the stock assessment process. Thus, a team of researchers and industry members formed the "Squid Squad" to share observations and develop hypotheses to explore analytically. The "Squid Squad" collectively developed a conceptual model and identified oceanographic features and fishery data to explore, resulting in new hypotheses and areas for research (Salois et al., 2023). Regular (~weekly) meetings provided industry, scientists, and managers

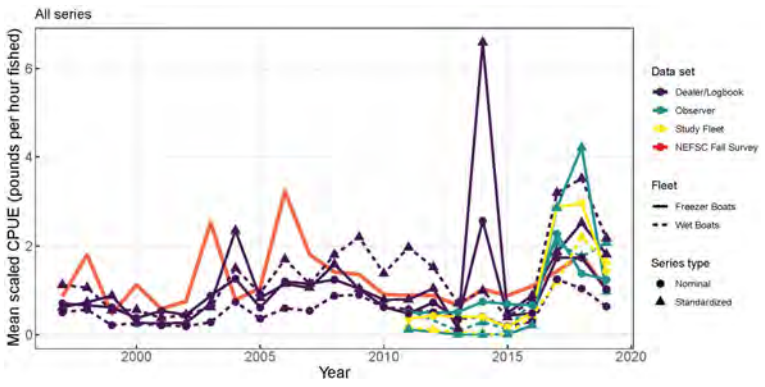

FIGURE 5
Comparison of standardized northern shortfin squid Catch Per Unit Effort (triangles), nominal northern shortfin squid Catch Per Unit Effort (circles), and NEFSC Fall Bottom Trawl Survey index (red line) from 1997 to 2019. For standardized CPUE time series, line color indicates data set (Purple = Dealer/logbook, Blue = Observer, Yellow = Study Fleet) and dash type indicates standardization approach (Short dashed = Freezer boat CPUE standardization; Long dashed = Wet boat CPUE).

with an informal opportunity to discuss the status of the fishery and the surrounding ecosystem. These meetings continue to be an effective tool for progressing this collaboration and pursuing multiple research questions related to the northern shortfin squid. In 2022, the "Squid Squad" executed a novel process-oriented research cruise, with a commercial fishing vessel sampling for northern shortfin squid within and around a mid-depth salinity maximum intrusion that was simultaneously being mapped by an oceanographic research vessel (Gawarkiewicz et al., 2022). The relationships developed and results produced throughout this process have laid the foundation for meaningful collaborations between the scientific and fishing communities in the future.

The 2021 northern shortfin squid research track stock assessment did not produce an acceptable stock assessment model for the species (Northeast Fisheries Science Center (NEFSC), 2021). Thus, the research products described above are critically important for informing management of the northern shortfin squid fishery.

3 Summary recommendations

As exemplified through this research, the insights and knowledge of members of the fishing industry are essential to the proper application and interpretation of fishery dependent data. In the case of northern shortfin squid, industry collaborators played a key role in identifying the factors that impact fishing selectivity, effort, and landings, as well as refining CPUE models and interpreting results. Northern shortfin squid processors and harvesters identified many technical and economic factors that drive the catch and landings of northern shortfin squid. The most frequently identified factors impacting northern shortfin squid catch and landings were 1) vessel type (freezer or wet boat), 2) market dynamics (global production of Ommastrephids), 3) price for northern shortfin squid, and 4) availability of northern shortfin squid to the fishery (abundance of northern shortfin squid in fishable areas, and proximity of productive fishing grounds to ports). With these factors explicitly accounted for, we believe CPUE and other fishery-dependent data analyses can be useful tools for assessing the trends in and condition of the northern shortfin squid population. Frequent and meaningful dialogue with members of the northern shortfin squid fishery is necessary to ensure that technical and socio-economic factors are accounted for appropriately.

In addition to identifying the factors that are important to consider when analyzing and interpreting northern shortfin squid fishery data, this research also highlights the importance of using the appropriate effort metrics when calculating CPUE for northern shortfin squid. Given the highly variable tow times, catch handling techniques and technical constraints on trip length, we suggest using tow time, rather than days absent or number of tows, as an effort metric in CPUE analyses. Accompanied with precise fishing locations and data on squid sizes and weights, CPUE indices can be a powerful tool for understanding the northern shortfin squid population and fishery.

Catch rate standardizations can be challenging to construct, as they require a nuanced understanding of fishing behavior and the fishery-dependent data sets collected within a region, which researchers and managers often do not independently possess. As demonstrated by this research, documenting and incorporating industry knowledge can be an effective means to advance catch rate standardizations. Furthermore, several existing CPUE standardization methods suggest enhanced integration of local ecological knowledge, but the types of approaches for engaging with industry members are not well described (Bishop, 2006; Bentley et al, 2012). In the research presented here, three phases of collaboration contributed to the effective integration of industry knowledge: 1) a summit of scientists and industry members, 2) a series of semi-structured conversations, and, 3) application of industry knowledge to CPUE standardization, and 4) ongoing discussions throughout the stock assessment process.

Each phase of collaboration provided insight into different aspects of the northern shortfin squid fishery and the biology of the species, together providing the comprehensive understanding needed for accurate catch rate standardization. The continued and constructive communication between science and industry partners throughout all phases was essential to building trust and laid the groundwork for information sharing. The summit allowed us to gain important insights into general trends in catch through time and high-level factors that may be important to collect at a higher resolution. For example, vessel hold type, which became a key variable in stratifying the data, was identified at this stage. Following this event, it was clear that follow up conversations were needed to generate data on vessel hold type for each vessel participating in the fishery, and while soliciting this information, additional questions about fishing practices could be asked as well. These follow up conversations allowed us to get more detailed information about the factors influencing catch rates and ensured that a diversity of perspectives was documented. Following the individual conversations, working through model development and iterative fitting during the stock assessment process allowed considerations about time series length, data set coverage, and other logistical considerations to be worked through such that insights from industry could best be translated into time series of catch or landings per unit effort. The industry's belief in the value of this research and trust in scientific collaborators grew throughout all phases of this research and was paramount to its success.

4 Conclusion

Overall, this work exemplifies the value of engaging the fishing industry in research to inform stock assessments and fisheries management. Members of the fishing industry hold valuable experiential knowledge that can inform data treatment and analysis, offer unique data collection opportunities to meet research needs, and have unique insights into and hypotheses about the environmental drivers of resource species that are derived from many years on the water. Initial focus on building

trust and open communication and identification of mutually beneficial research products are essential to science and industry collaborations. Proper application and interpretation of fishery dependent data requires the insights and knowledge of members of the fishing industry.

This research highlights the unique benefits and outcomes of engaging with members of the fishing industry through large-group summits, one-on-one conversations, and during the formal stock assessment process. We suggest that large-group summits are most effective for developing initial relationships and trust between science and industry collaborators, gaining insight into the major factors influencing fishery dynamics, and identifying research priorities. Semi-structured conversations with individual industry members are immensely helpful to dig deeper into specific factors that influence fishery dynamics, identify potential covariates to be included in catch rate standardizations, and to review research results and identify areas for future work. Finally, bringing scientists and industry members together during the stock assessment process can be an effective method for refining catch rate standardization models and identifying other avenues for applying industry knowledge. Together, these approaches for building, maintaining, and applying science-industry research collaborations have been demonstrated to be highly effective at informing catch rate standardization and should be applied in this research area more regularly.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the animal study because there was no interaction with live animals for this research.

Author contributions

JM and AM conceived of the study in collaboration with industry partners. AM, JM, BL, JP, SS, and KH collected and documented the knowledge shared by industry. RR, BB, TS, ML, JK, KA, and GD contributed knowledge and assisted with documentation. BL, AM, and AJ completed the CPUE analyses. AM and JM contributed the original draft. All authors contributed to the editing. All authors contributed to the article and approved the submitted version.

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Conflict of interest

Author BL was employed by company ERT, Inc.. Author ML was employed by company SeaFreeze Shoreside. Authors JK and GD were employed by Lunds Fisheries. Author KA was employed by The Town Dock.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fmars.2023.1144108/full#supplementary-material

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Dear Director Moore,

I am writing regarding the *Illex Hold Framework Final Action*.

I am the owner of several Federally Permitted Illex Squid catching vessels. Also, The Town Dock has been a significant buyer and processor of illex squid for many years. We purchase illex from our owned fleet of illex permitted boats, independently owned illex permitted boats, and other shoreside processors of illex squid.

After careful review of the options that have been discussed to date, we support **5.1 Altermative 1: No Action / Status Quo = Current Baselines and Reporting Only.** We urge the council to reject all other options.

Maintaining fishing flexibility is critical to our vessels. There are already rules for vessel upgrades in place for length and horsepower. These changes may limit or eliminate our ability to upgrade our fleet at a future date. Several of our boats were constructed in the 1970s and 1980s. We, along with many others vessel owners, plan on retiring older vessels and upgrading our fleet in the future. It is extremely difficult to find newer boats that are an exact match to our existing fleet. The current rules allow for limited, but much needed, flexibility to upgrade our fleet to newer boats in future years. Upgrading to a safer or newer vessel that lies within the existing regulations provides enough safeguards and putting vessel hold capacity limitations on squid catching boats will make the ability to upgrade more difficult and would eliminate upgradable options for us.

Currently, there is no <u>legitimate</u> purpose or need to enact new hold capacity restrictions for Illex permitted vessels. Over the past two years we have only caught about 10 percent of the overall quota. To enact a new restriction in years of an *increasing* Illex quota and landings that are only a fraction of that quota does not make sense, and certainly the disadvantages for my fleet and some other Illex permitted vessels outweigh the benefits of any hold capacity restriction.

The cost of measuring each and every fish hold of east coast illex participants is unknown, however common sense dictates that this unneeded expense will total up to tens of thousands of dollars, which could be invested elsewhere to benefit the captains and crews of these vessels.

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Thank you for your consideration.

Sincerely,

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Dover, DE 19901

Dear Chairman Townsand and the MAFMC,

I am writing to oppose the Illex Hold Framework. The Town Dock supports **"No Action/Status Quo = Current Baselines and Reporting Only".**
As the alternative states, we already have restrictions on upgrading our vessels. We are being asked to restrict our vessels to a mackerel restriction, a fishery we do not prosecute. This will unfairly and unnecessarily restrict the flexibility needed when it comes to replacing a vessel.

The Town Dock does not support Alternative 2a, giving vessels in CPH the ability to choose whether they want to use a preexisting survey or not. As I mentioned in my verbal comment, if the Council is going to move towards capping effort, then they need to cap the effort and not make any special exemptions. The request and the reasoning for this exemption proves my point above on the need for flexibility. What 2a option is doing is allowing flexibility for a select few vessels, 6 as it was made clear on the Committee call, and the remaining 40 will be unfairly restricted. It was stated that the drive for option 2a is to "protect an investment", we are all trying to protect an investment and should be allowed to do so equally.

The Town Dock does not support Alt #3 or Alt #4. We don't see the need to require a declaration of gear use when we can provide it to those who need it when they need it. We successfully did this for the Illex Working Group.

The Town Dock still does not see the need to further restrict effort in a fishery that already has restrictions. This fishery hasn't caught its quota in the past 2 years and has received increases in the quota the past few years.

Thank you for hearing my concerns regarding this Framework.

Sincerely,

Katie Almeida
Sr. Representative, Government Relations & Sustainability

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Illex Hold Framework
MACKEREL, SQUID, AND BUTTERFISH (MSB) FISHERY MANAGEMENT PLAN

Measures to implement a volumetric vessel hold baseline and hold upgrade restriction; Measures to record expected processing types

Framework Draft Document 9/21/2023

Prepared by the

Mid-Atlantic Fishery Management Council (Council) in collaboration with the National Marine Fisheries Service (NMFS)

Council Address

Mid-Atlantic Fishery Management Council
Office 800 North State Street, Suite 201
Dover, DE 19901

NMFS Address

NMFS Greater Atlantic Regional Fisheries
55 Great Republic Drive
Gloucester, MA 01930

Framework Meeting 1: August 2023
Framework Meeting 2/final action: Planned October 2023

1.0 EXECUTIVE SUMMARY AND TABLE OF CONTENTS

This Framework would consider implementing a volumetric vessel hold baseline requirement and upgrade restriction for all *Illex* limited access permits. A similar volumetric requirement is in place for the directed mackerel fishery, and most regional (i.e. Mid-Atlantic and New England) limited access programs have other baselines (horsepower and length) to control increases in fishing power/capacity.

Overcapacity is a common characteristic of most fisheries except those managed with tradable quota systems (variously known as ITQ[1]s (e.g. surfclam/ocean quahog), IFQ[2]s (e.g. golden tilefish), and/or catch shares). Public perspectives on capacity in the *Illex* fishery have been consistently diverse starting from the early 2019 scoping of the largely disapproved *Illex* Permit Amendment[3] through to a recent November 2022 Joint MSB Committee/Advisory Panel (AP) Meeting that considered follow-up actions after the *Illex* Permit Amendment's disapproval. Comments have ranged from taking no action at all, to measures that would reduce the existing overcapacity by eliminating some existing limited access permits (overcapacity was indicated by NMFS' Northeast Fisheries Science Center staff technical analyses conducted as part of the *Illex* Permit Amendment).

The rationale/goal for baselines as described in the 1998 Consistency Amendment developed by NMFS is "capping fishing power." This aligns with issues mentioned in several national standards guidelines, especially #5 Efficiency: "Efficiency. In theory, an efficient fishery would harvest the OY with the minimum use of economic inputs such as labor, capital, interest, and fuel. Efficiency in terms of aggregate costs then becomes a conservation objective, where "conservation" constitutes wise use of all resources involved in the fishery, not just fish stocks." So capping additional vessel fishing power ("capital") to catch Optimum Yield (OY) becomes a conservation objective because the "wise use of all resources" is being addressed. (50 CFR 648.4(a)(5)(iii))

The objective of this action is therefore to consider requiring a volumetric vessel hold baseline requirement and upgrade restriction for all *Illex* limited access permits, with a similar purpose as other baseline requirements, i.e. to cap fishing power. There will be a tradeoff involved as the flexibility of the fleet is somewhat reduced, but the risks from uncontrolled fishing power in fishing fleets are well documented throughout fisheries literature and negative consequences of "increased fishing pressure" is a principal "finding" of Congress as enshrined in the Magnuson-Stevens Fishery Conservation and Management Act.

Two alternatives to add information collected during permit re-applications about vessel processing are also included for Council consideration – while they are not directly related to capacity issues, the relevant information has been discussed frequently as likely to be useful for various squid assessment analyses.

[1] ITQ = Individual Transferable Quota
[2] IFQ = Individual Fishing Quota
[3] This action would have reduced permits in the fishery based on updated catch-based qualification criteria

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2.0 LIST OF COMMON ACRONYMS AND ABBREVIATIONS

ABC	**Acceptable Biological Catch**
ACL	**Annual Catch Limit**
ACT	**Annual Catch Target**
ASMFC	**Atlantic States Marine Fisheries Commission or Commission**
B	**Biomass**
CFR	**Code of Federal Regulations**
CPH	**Confirmation of Permit History**
CV	**coefficient of variation**
DAH	**Domestic Annual Harvest**
DAP	**Domestic Annual Processing**
EEZ	**Exclusive Economic Zone**
EFH	**Essential Fish Habitat**
EIS	**Environmental Impact Statement**
ESA	**Endangered Species Act of 1973**
F	**Fishing Mortality Rate**
FMP	**Fishery Management Plan**
FR	**Federal Register**
GB	**Georges Bank**
GOM	**Gulf of Maine**
IOY	**Initial Optimum Yield**
M	**Natural Mortality Rate**
MAFMC	**Mid-Atlantic Fishery Management Council**
MMPA	**Marine Mammal Protection Act**
MSA	**Magnuson-Stevens Fishery Conservation and Management Act (as amended)**
MSB	**Atlantic Mackerel, Squid, Butterfish**
MSY	**Maximum Sustainable Yield**
MT (or mt)	**Metric Tons (1 mt equals about 2,204.62 pounds)**
NE	**Northeast**
NEFSC	**Northeast Fisheries Science Center**
NEPA	**National Environmental Policy Act**
NMFS	**National Marine Fisheries Service (NOAA Fisheries)**
NOAA	**National Oceanic and Atmospheric Administration**
OFL	**Overfishing Level**
PBR	**Potential Biological Removal**
SARC	**Stock Assessment Review Committee**
SAW	**Stock Assessment Workshop**
SNE	**Southern New England**
SSC	**Scientific and Statistical Committee**
US	**United States**
VTR	**Vessel Trip Report**

3.0 LISTS OF TABLES AND FIGURES

3.1 LIST OF TABLES

3.2 LIST OF FIGURES

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4.0 INTRODUCTION, BACKGROUND, AND PROCESS

The Council established management of *Illex* in 1978 and the management unit includes all federal East Coast waters.

Access is limited with about 76 moratorium permits; Between 5-40 permits may be active in a given year. Six permits are currently "on the shelf" in Confirmation of Permit History (CPH) status. Incidental permits are limited to 10,000 pounds per trip. Additional summary regulatory information is available at https://www.fisheries.noaa.gov/new-england-mid-atlantic/resources-fishing/resources-fishing-greater-atlantic-region.

The 2023 quota is 38,631 MT, based on a 40,000 MT Acceptable Biological Catch (ABC) and a set-aside for possible discards. The fishery closes when 96% of the quota is projected to be landed. In 2021 the fishery closed effective August 30, 2021 – there was not a closure in 2022 or 2023 and relatively small fraction of the quota was landed.

Recreational catch of *Illex* is believed to be negligible. There are no recreational regulations except for party/charter vessel permits and associated reporting.

A 2020 action to reduce *Illex* permits given overcapitalization in the fishery was disapproved: https://www.fisheries.noaa.gov/bulletin/amendment-22-mackerel-squid-and-butterfish-fishery-management-plan-decision. Good *Illex* availability and increased vessel participation in 2017-2021 triggered early closures, highlighting the issue of overcapacity in this fishery, which was also described in the disapproved *Illex* Permit Amendment via technical capacity analyses.

As a high volume fishery, vessel fishing power or "capacity" may be substantially increased within the existing length and horsepower restrictions by modifying the vessel's hold capacity, leading the Council to further consider vessel hold restrictions for the fishery.

4.1 OBJECTIVES, PURPOSE, AND NEED

The objective of this action is to consider requiring a volumetric vessel hold baseline requirement and upgrade restriction for all *Illex* limited access permits, with a similar purpose as other baseline requirements, i.e. to cap fishing power. There will be a tradeoff involved as the flexibility of the fleet is somewhat reduced, but the risks from uncontrolled fishing power in fishing fleets are well documented throughout fisheries literature and negative consequences of "increased fishing pressure" is a principal "finding" of Congress as enshrined in the Magnuson-Stevens Fishery Conservation and Management Act. This action is needed because effective caps on vessel fishing power in the *Illex* fishery do not currently exist.

4.2 REGULATORY AUTHORITY / PROCESS

The discretionary provisions of the MSA allow Councils to include measures that restrict the types of fishing vessels, and those provisions have led to the current baseline specifications.

The Council uses "framework adjustments" to amend measures previously used or considered, and permitting and vessel size restrictions are noted frameworkable options, as well as "Any other management measures currently included in the FMP." Vessel hold capacity restrictions are specifically used in the FMP already for the mackerel fishery. Vessel hold capacity restrictions were also considered specifically for the *Illex* fishery in the disapproved *Illex* Permit Amendment, so hold capacity restrictions are not a new concept for this FMP or fishery.

For frameworks, "The MAFMC shall develop and analyze appropriate management actions over the span of at least two MAFMC meetings. The MAFMC must provide the public with advance notice of the availability of the recommendation(s), appropriate justification(s) and economic and biological analyses, and the opportunity to comment on the proposed adjustment(s) at the first meeting and prior to and at the second MAFMC meeting."
[50 CFR 648.25(a)(1)]

Section 301 of the Magnuson-Stevens Fishery Conservation and Management Act requires that FMPs contain conservation and management measures that are consistent with the ten National Standards: *In General. – Any fishery management plan prepared, and any regulation promulgated to implement any such plan, pursuant to this title shall be consistent with the…national standards for fishery conservation and management.*

(1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The measures in this action should not affect the probability of overfishing, and the current fleet has more than enough capacity to catch the current quotas.

(2) Conservation and management measures shall be based upon the best scientific information available.

The data sources considered and evaluated during the development of this action include, but are not limited to: permit data, landings data from vessel trip reports, information from resource trawl surveys, sea sampling (observer) data, data from the dealer weighout purchase reports, peer-reviewed assessments including the recent *Illex* assessment, original literature, and descriptive information provided by fishery participants and the public. To the best of the MAFMC's knowledge these data sources constitute the best scientific information available.

(3) To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The FMP addresses management of *Illex* throughout the range of the species in U.S. waters.

(4) Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

None of the proposed measures would discriminate between residents of different States or assign/allocate fishing privileges among U.S. fishermen.

(5) Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

There is no allocation proposed. The proposed actions are efficient in that they should facilitate full utilization of the relevant quotas. National Standard 5 Guidelines also note: "Efficiency. In theory, an efficient fishery would harvest the OY with the **minimum use** of economic inputs such as labor, **capital**, interest, and fuel. Efficiency in terms of aggregate costs then becomes a conservation objective, where "conservation" constitutes wise use of all resources involved in the fishery, not just fish stocks." So capping additional vessel fishing power ("capital") to catch Optimum Yield (OY) becomes a conservation objective because the "wise use of all resources" is being addressed. (50 CFR 648.4(a)(5)(iii)). The proposed baselines should discourage additional capital being added to catch OY.

(6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

Changes in fisheries occur continuously, both as the result of human activity (for example, new technologies or shifting market demand) and natural variation (for example, oceanographic perturbations). In order to provide the greatest flexibility possible for future management decisions, the FMP includes a framework adjustment mechanism with an extensive list of possible framework adjustment measures that can be used to adjust the plan as conditions in the fishery change. Specifications are also reviewed annually and measures can and have been amended as appropriate.

(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The MAFMC considered the costs and benefits associated with the management measures proposed in the action when developing this action. This action should not create any duplications related to managing the MSB resources. A hold baseline is not duplicative of other baselines due to the high volume nature of the *Illex* fishery and the ability of permits to considerably expand fishing power despite the length and horsepower baselines via hold modifications.

(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

The human community impacts of the action are described in Section 7.5. No changes to quotas are proposed, which should enable ongoing participation by relevant communities. The baselines are designed to freeze the capacity footprint of the *Illex* fishery, and avoid additional overcapitalization, which should help sustain participation in the fishery.

(9) Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

There is minimal bycatch in the *Illex* fishery and this action should not change that.

(10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

Fishing is a dangerous occupation; participants must constantly balance the risks imposed by weather against the economic benefits. According to the National Standard guidelines, the safety of the fishing vessel and the protection from injury of persons aboard the vessel are considered the same as "safety of human life at sea." The safety of a vessel and the people aboard is ultimately the responsibility of the master of that vessel. Each master makes many decisions about vessel maintenance and loading and about the capabilities of the vessel and crew to operate safely in a variety of weather and sea conditions. This national standard does not replace the judgment or relieve the responsibility of the vessel master related to vessel safety. Any existing or new baseline potentially reduces flexibility to modernize vessels which could affect safety, but it is not practicable to avoid this effect while also using baselines to cap fishing power.

5.0 WHAT ALTERNATIVES ARE BEING CONSIDERED?

5.1 ALTERNATIVE 1: No Action/Status Quo = Current Baselines and Reporting Only

Vessel replacements/upgrades for *Illex* squid moratorium permits are limited relative to a vessel's baselines:

(1) The upgraded vessel's horsepower may not exceed the horsepower of the vessel's baseline specifications by more than 20 percent.

(2) The upgraded vessel's length overall may not exceed the vessel's baseline specifications by more than 10 percent.

The vessel baseline specifications are the respective specifications (length, horsepower) of the vessel that was initially issued a limited access permit as of the date the initial vessel applied for such permit (i.e. **not** the specifications of the current vessel), and the baseline specifications are recorded in NMFS databases.

Also, no changes would be made to the information collected during the annual permit re-application process for squid permits.

5.2 Hold Baselines

Alternatives 2a and 2b are nearly identical – they only differ whether a permit in Confirmation of Permit History (CPH) can use a pre-existing hold survey to establish its baseline.

ALTERNATIVE 2a: Additional Volumetric Vessel Hold Baseline, can use pre-existing survey

If a vessel possesses a volumetric hold baseline related to its Tier 1 or Tier 2 mackerel permit, that hold baseline would automatically be incorporated for its *Illex* moratorium permit also.

For other *Illex* moratorium permit vessels, NMFS would publish notice that:

In addition to other baseline specifications (which remain in force unchanged regardless of this action), the volumetric fish hold capacity of a vessel at the time it submits a hold baseline certification (a date would be published by NMFS, likely 12 months would be allowed for completion) will be considered a baseline specification. The fish hold capacity measurement must be certified by one of the following qualified individuals or entities: An individual credentialed as a Certified Marine Surveyor with a fishing specialty by the National Association of Marine Surveyors (NAMS); an individual credentialed as an Accredited Marine Surveyor with a fishing specialty by the Society of Accredited Marine Surveyors (SAMS); employees or agents of a classification society approved by the Coast Guard pursuant to 46 U.S.C. 3316(c); the Maine State Sealer of Weights and Measures; a professionally-licensed and/or registered Marine Engineer; or a Naval Architect with a professional engineer license. The fish hold capacity measurement submitted to NMFS must include a signed certification by the individual or entity that completed the measurement, specifying how they meet the definition of a qualified individual or entity.

If an *Illex* moratorium permit is "on the shelf" in Confirmation of Permit History (CPH) when hold certifications are due, the default hold capacity baseline for such CPH permits will be the hold capacity of the first replacement vessel after the permit is removed from CPH (the vessel would have to be measured as described above before fishing under the permit). See below for how CPH permits with pre-existing hold certifications (but no documented pre-existing hold baseline) would be treated.

Replacement/upgraded vessels' re-certified volumetric fish hold capacity may not exceed 110% of the permit's baseline hold specification (i.e. there can only be an increase of + 10% beyond the baseline). The modified fish hold, or the fish hold of the replacement vessel, must be resurveyed by a surveyor as described above unless the replacement vessel already had an appropriate certification on file with NMFS. All other baseline restrictions for the permit would apply in standard fashion.

If a permit in CPH happened to have an existing volumetric hold measurement for the vessel immediately preceding the permit's placement into CPH, which met the measurement certification requirements, that hold measurement **could** be used to establish a vessel hold baseline for the *Illex* permit within the 12-month implementation period (alternatively, the first replacement vessel could be certified for hold capacity – either option would be acceptable).

ALTERNATIVE 2b: Additional Volumetric Vessel Hold Baseline, cannot use pre-existing survey

If a vessel possesses a volumetric hold baseline related to its Tier 1 or Tier 2 mackerel permit, that hold baseline would automatically be incorporated for its *Illex* moratorium permit also.

For other *Illex* moratorium permit vessels, NMFS would publish notice that:

In addition to other baseline specifications (which remain in force unchanged regardless of this action), the volumetric fish hold capacity of a vessel at the time it submits a hold baseline certification (a date would be published by NMFS, likely 12 months would be allowed for completion) will be considered a baseline specification. The fish hold capacity measurement must be certified by one of the following qualified individuals or entities: An individual credentialed as a Certified Marine Surveyor with a fishing specialty by the National Association of Marine Surveyors (NAMS); an individual credentialed as an Accredited Marine Surveyor with a fishing specialty by the Society of Accredited Marine Surveyors (SAMS); employees or agents of a classification society approved by the Coast Guard pursuant to 46 U.S.C. 3316(c); the Maine State Sealer of Weights and Measures; a professionally-licensed and/or registered Marine Engineer; or a Naval Architect with a professional engineer license. The fish hold capacity measurement submitted to NMFS must include a signed certification by the individual or entity that completed the measurement, specifying how they meet the definition of a qualified individual or entity.

If an *Illex* moratorium permit is "on the shelf" in Confirmation of Permit History (CPH) when hold certifications are due, the default hold capacity baseline for such CPH permits will be the hold capacity of the first replacement vessel after the permit is removed from CPH (the vessel would have to be measured as described above before fishing under the permit). See below for how CPH permits with pre-existing hold certifications (but no documented pre-existing hold baseline) would be treated.

Replacement/upgraded vessels' re-certified volumetric fish hold capacity may not exceed 110% of the permit's baseline hold specification (i.e. there can only be an increase of + 10% beyond the baseline). The modified fish hold, or the fish hold of the replacement vessel, must be resurveyed by a surveyor as described above unless the replacement vessel already had an appropriate certification on file with NMFS. All other baseline restrictions for the permit would apply in standard fashion.

If a permit in CPH happened to have an existing volumetric hold measurement that met the measurement certification requirements, that hold measurement **could NOT** be used to establish a vessel hold baseline for *Illex* permits (the first replacement vessel would have to be certified for hold capacity).

5.3 ALTERNATIVE 3: Annual Processing Type Reporting: *Illex*

Information on processing has the potential to be used for catch per unit of effort (CPUE) analyses in squid fisheries (some processing types are not directly comparable for CPUE analyses). Each year when an *Illex* moratorium permit re-applies, it would have to state its intended primary processing type for *Illex* for that year. NMFS will specify relevant processing types, including freezing at-sea, refrigerated sea water, fresh/iced, etc. The statement of intent would not be limiting upon a vessel if it decides to change processing methods mid-year, and there would not be a requirement to notify NMFS of changes mid-year.

5.4 ALTERNATIVE 4: Annual Processing Type Reporting: Longfin

Information on processing has the potential to be used for catch per unit of effort (CPUE) analyses in squid fisheries (some processing types are not directly comparable for CPUE analyses). Each year when a Tier 1 longfin permit re-applies, it would have to state its intended primary processing type for longfin for that year. NMFS will specify relevant processing types, including freezing at-sea, refrigerated sea water, fresh/iced, etc. The statement of intent would not be limiting upon a vessel if it decides to change processing methods mid-year, and there would not be a requirement to notify NMFS of changes mid-year.

6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES

6.1 Description of the Managed Resource (*Illex*) and Non-Target Species

Illex

Illex is a semi-pelagic/semi-demersal schooling cephalopod species that lives less than one year and is distributed between Newfoundland and the Florida Straits. *Illex* is a semelparous, terminal spawner whereby spawning and death occur within several days of mating. The northern stock component (also highly variable) in NAFO Subareas 3 and 4, is assessed and managed separately by the Northwest Atlantic Fisheries Organization (NAFO). The southern/U.S. stock component is located in NAFO Subareas 5 and 6 between the Gulf of Maine and Cape Hatteras, NC and is managed by the Mid-Atlantic Fishery Management Council (the Council or MAFMC) and NMFS. Additional life history information is detailed in the EFH document for the species, located at: http://www.nefsc.noaa.gov/nefsc/habitat/efh/.

The 2021 research track assessment (RTA) was unable to develop a method to resolve stock status, so the stock will officially remain "unknown" with respect to being overfished or overfishing. The RTA Review Panel agreed with the RTA Working Group Report that indications from the various assessment approaches were that the stock was lightly fished in 2019. However, the review report stated that the term "lightly fished" should be interpreted with caution because it has no specific definition relating to sustainable exploitation. After evaluating related analyses, the MAFMC's Scientific and Statistical Committee (SSC) recommended continuing the 2022 40,000 metric ton (MT) *Illex* Acceptable Biological Catch (ABC) to start 2023. In March 2023 the SSC will review updated analyses and may revise their 2023 ABC recommendation

In light of the failure of the assessment to produce accepted reference points to guide ABC setting, the SSC had to rely on an ad-hoc approach to setting a 2023 ABC that would meet the Council's risk policy to avoid overfishing and achieve optimum yield. Alternative quotas were examined with respect to their consequences for risk of exceeding escapement targets ranging from 40% to 50%, as has been used for other squid fisheries. In addition, harvest rates of F=2/3 M (natural mortality) have been used for forage species in various assessments around the world. The methodology allowed the SSC to examine the probability of violating the reference point for various levels of catch limits ranging from 24,000 to 60,000 mt. A 40,000 MT ABC was associated with an approximately 5% chance of exceeding a ⅔ F:M generic guidance for data poor species. Model results suggested a 40,000 MT ABC provided greater than 50% escapement for *Illex* squid, and a catch of 60,000 MT increases the chance of less escapement in some years. Previous SSC review (March 2022) of the analyses allowed them to conclude that:

• Escapement has been relatively high over the last 10 years, suggesting a relatively small impact of the fishery on the component of the stock that is exploited.

• Assumptions regarding parameters that were inputs to the analyses were thought to lead to minimum likely estimates.

• Distributions of the joint estimate of F:M suggests that exploitation rate in the fishery is likely low.

• By comparison to empirical escapement reference points used to manage squid fisheries elsewhere globally, the current ABC levels are associated with low risks of exceeding those escapement standards.

• A 40,000 MT ABC will lead to a low risk of overfishing.

(MAFMC SSC 2022, MAFMC 2022b)

While *Illex* is biologically a unit stock, the U.S. and Canadian assessments and quotas are currently analyzed, set, and monitored independently (unlike for example Atlantic mackerel where U.S. and Canadian data are integrated into both assessments), so the focus is on the U.S. component of the fishery. More information on the Canadian component is available at https://www.nafo.int/Science/Stocks-Advice and the potential usefulness of the NAFO assessment for U.S. management was considered previously by the Council's SSC, e.g. https://www.mafmc.org/s/g_NAFO_Didden.pdf at https://www.mafmc.org/ssc-meetings/2020/may-12-13.

Landings and survey information developed for 2022 specifications setting is presented below (Table 1, Figures 1-4).

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Table 1. Illex catches and landings limits (TACs) (mt) in NAFO Subareas (SA) 5+6 (within the U.S. EEZ after 1976) and Subareas 3+4 (NAFO and Canadian waters) 1963-2021

	Cape Hatteras to the Gulf of Maine SA 5+6 Landings			SA 3+4	SA 3-6 Total	SA 5+6		SA 3-6 Total			SA 5+6		
Year	Domestic (mt)	International (mt)	**Total (mt)**	Landings (mt)	**Landings (mt)**	Discards (mt)	**Catches (mt)**	**Catches (mt)**	TAC (mt) SA 3+4	TAC (mt) SA 5+6	% of TAC Harvested	Fishery Closure Dates	% of SA 3-6 Landings
1963	810		**810**	2,222	**3,032**								
1964	358	2	**360**	10,777	**11,137**								
1965	444	78	**522**	8,264	**8,786**								
1966	452	118	**570**	5,218	**5,788**								
1967	707	288	**995**	7,033	**8,028**								
1968	678	2,593	**3,271**	56	**3,327**								
1969	562	975	**1,537**	86	**1,623**								
1970	408	2,418	**2,826**	1,385	**4,211**								
1971	455	6,159	**6,614**	8,906	**15,520**								
1972	472	17,169	**17,641**	1,868	**19,509**								
1973	530	18,625	**19,155**	9,877	**29,032**								
1974	148	20,480	**20,628**	437	**21,065**					71,000			98
1975	107	17,819	**17,926**	17,696	**35,622**					71,000			50
1976	229	24,707	**24,936**	41,767	**66,703**				25,000	30,000	83		37
1977	1,024	23,771	**24,795**	83,480	**108,275**				25,000	35,000	71		23
1978	385	17,207	**17,592**	94,064	**111,656**				100,000	30,000	59		16
1979	1,593	15,748	**17,341**	162,092	**179,433**				120,000	30,000	58		10
1980	299	17,529	**17,828**	69,606	**87,434**				150,000	30,000	59		20
1981	615	14,956	**15,571**	32,862	**48,433**				150,000	30,000	52		32
1982	5,871	12,762	**18,633**	12,908	**31,541**				150,000	30,000	62		59
1983	9,775	1,809	**11,584**	426	**12,010**				150,000	30,000	39		96
1984	9,343	576	**9,919**	715	**10,634**				150,000	30,000	33		93
1985	5,033	1,082	**6,115**	673	**6,788**				150,000	30,000	20		90
1986	6,493	977	**7,470**	111	**7,581**				150,000	30,000	25		99
1987	10,102	0	**10,102**	562	**10,664**	517	**10,619**	**11,181**	150,000	30,000	34		95
1988	1,958	0	**1,958**	811	**2,769**	100	**2,058**	**2,869**	150,000	30,000	7		71
1989	6,801	0	**6,801**	5,971	**12,772**	498	**7,299**	**13,270**	150,000	30,000	23		53
1990	11,670	0	**11,670**	10,975	**22,645**	341	**12,011**	**22,986**	150,000	30,000	39		52
1991	11,908	0	**11,908**	2,913	**14,821**	1,150	**13,058**	**15,971**	150,000	30,000	40		80
1992	17,827	0	**17,827**	1,578	**19,405**	248	**18,075**	**19,653**	150,000	30,000	59		92
1993	18,012	0	**18,012**	2,686	**20,698**	443	**18,455**	**21,141**	150,000	30,000	60		87
1994	18,350	0	**18,350**	5,951	**24,301**	354	**18,704**	**24,655**	150,000	30,000	61		76
1995	13,976	0	**13,976**	1,055	**15,031**	58	**14,034**	**15,089**	150,000	30,000	47		93
1996	16,969	0	**16,969**	8,742	**25,711**	243	**17,212**	**25,954**	150,000	21,000	81		66
1997	13,356	0	**13,356**	15,614	**28,970**	1,002	**14,358**	**29,972**	150,000	19,000	70		46
1998	23,568	0	**23,568**	1,902	**25,470**	586	**24,154**	**26,056**	150,000	19,000	124	8/28	93
1999	7,388	0	**7,388**	305	**7,693**	1,094	**8,482**	**8,787**	75,000	19,000	39		96
2000	9,011	0	**9,011**	366	**9,377**	106	**9,117**	**9,483**	34,000	24,000	38		96
2001	4,009	0	**4,009**	57	**4,066**	466	**4,475**	**4,532**	34,000	24,000	17		99
2002	2,750	0	**2,750**	260	**3,010**	157	**2,907**	**3,167**	34,000	24,000	11		91
2003	6,391	0	**6,391**	1,133	**7,524**	166	**6,557**	**7,690**	34,000	24,000	27		85
2004	26,097	0	**26,097**	2,574	**28,671**	1,402	**27,499**	**30,073**	34,000	24,000	109	9/21	91
2005	12,011	0	**12,011**	578	**12,589**	1,850	**13,861**	**14,439**	34,000	24,000	50		95
2006	13,944	0	**13,944**	6,981	**20,925**	1,556	**15,500**	**22,481**	34,000	24,000	58		67
2007	9,022	0	**9,022**	246	**9,268**	639	**9,661**	**9,906**	34,000	24,000	38		97
2008	15,900	0	**15,900**	534	**16,434**	1,529	**17,429**	**17,963**	34,000	24,000	66		97
2009	18,418	0	**18,418**	718	**19,136**	672	**19,090**	**19,808**	34,000	24,000	77		96
2010	15,825	0	**15,825**	120	**15,945**	569	**16,394**	**16,514**	34,000	24,000	66		99
2011	18,797	0	**18,797**	126	**18,923**	690	**19,487**	**19,613**	34,000	23,328	81		99
2012	11,709	0	**11,709**	47	**11,756**	502	**12,211**	**12,258**	34,000	22,915	51		100
2013	3,792	0	**3,792**	27	**3,819**	315	**4,107**	**4,134**	34,000	22,915	17		99
2014	8,767	0	**8,767**	21	**8,788**	575	**9,342**	**9,363**	34,000	22,915	38		100
2015	2,422	0	**2,422**	14	**2,436**	451	**2,873**	**2,887**	34,000	22,915	11		99
2016	6,684	0	**6,684**	152	**6,836**	320	**7,004**	**7,156**	34,000	22,915	29		98
2017	22,516	0	**22,516**	365	**22,881**	855	**23,371**	**23,736**	34,000	22,915	98	9/15	98
2018	24,117	0	**24,117**	1,545	**25,662**	1,407	**25,524**	**27,069**	34,000	22,915	105	8/15	94
2019	27,164	0	**27,164**	2,914	**30,078**	1,331	**28,495**	**31,409**	34,000	24,825	109	8/21	90
2020	28,447	0	**28,447**	3,099	**31,546**	1,365	**29,812**	**32,911**	34,000	28,644	99	8/31	90
2021	30,886	0	**30,886**	11,455	**42,341**	535	**31,421**	**42,876**	34,000	31,478	98	8/30	73

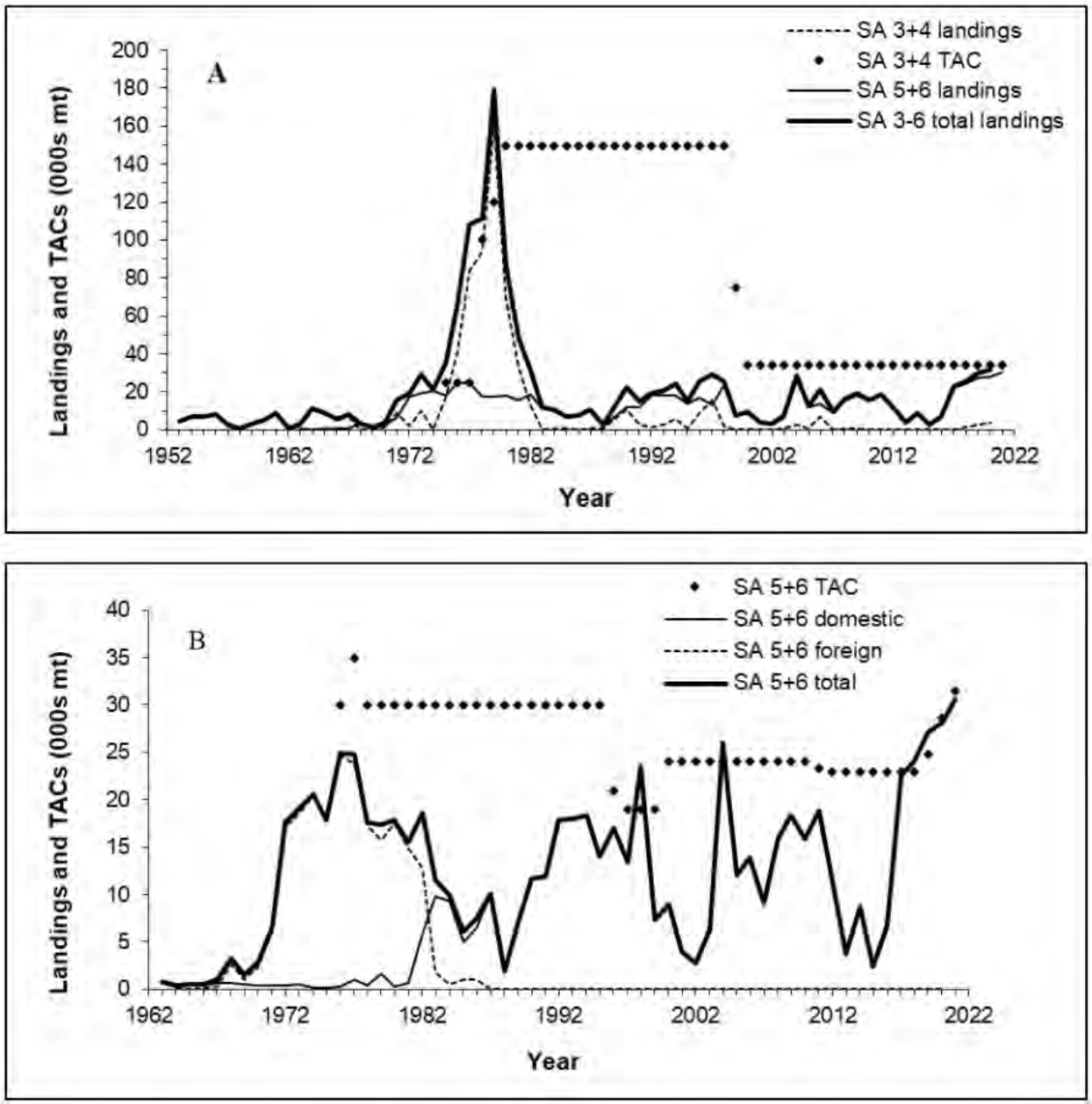

Figure 1. Landings of Illex illecebrosus in (A) NAFO Subareas 3-6 and (B) NAFO Subareas 5+6, with respect to landings limits 1963-2021.

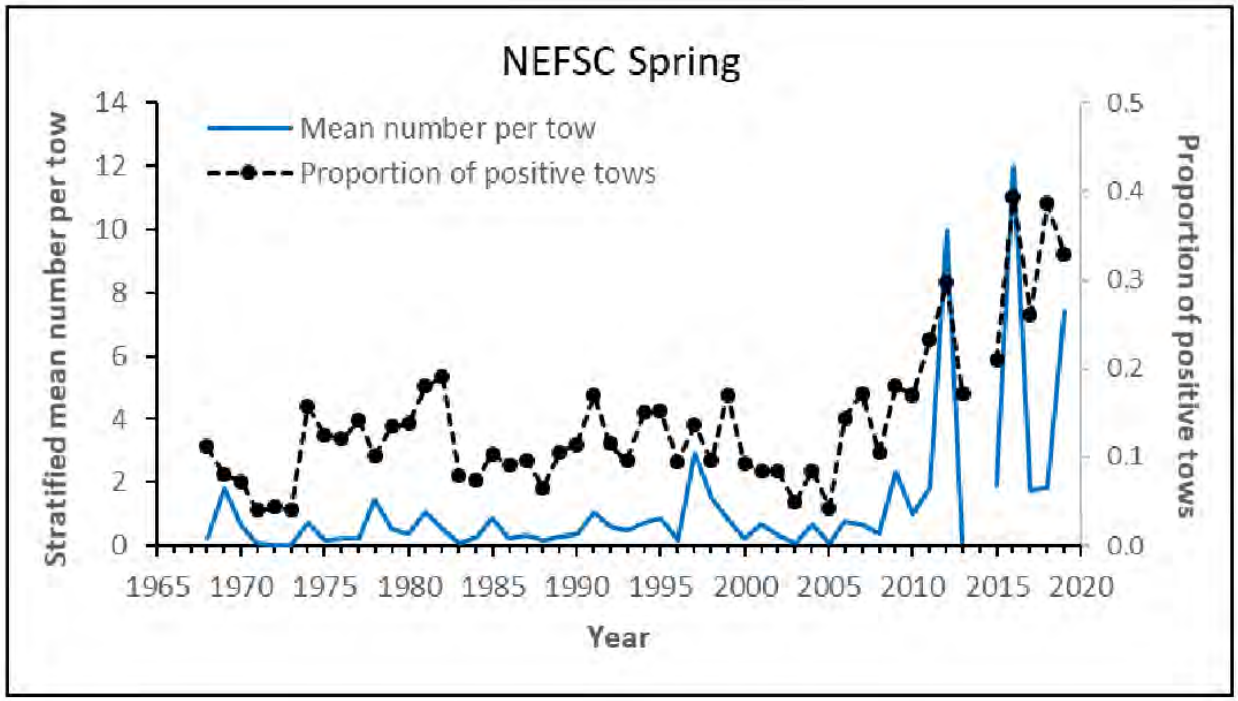

*Figure 2. Trends in Illex relative abundance indices and the proportion of positive tows derived with data from NEFSC **spring** bottom trawl surveys conducted on the U.S. shelf during 1968-2019.*

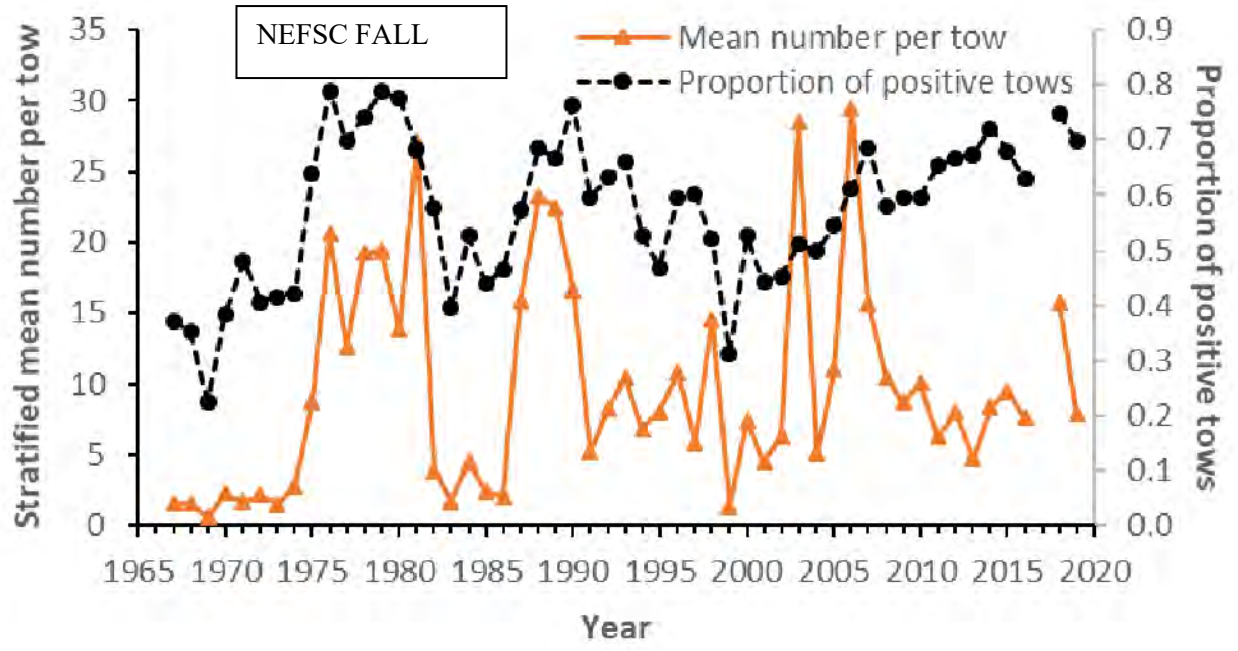

*Figure 3. Trends in Illex relative abundance indices and the proportion of positive tows derived with data from NEFSC **fall** bottom trawl surveys conducted on the U.S. shelf during 1967-2019.*

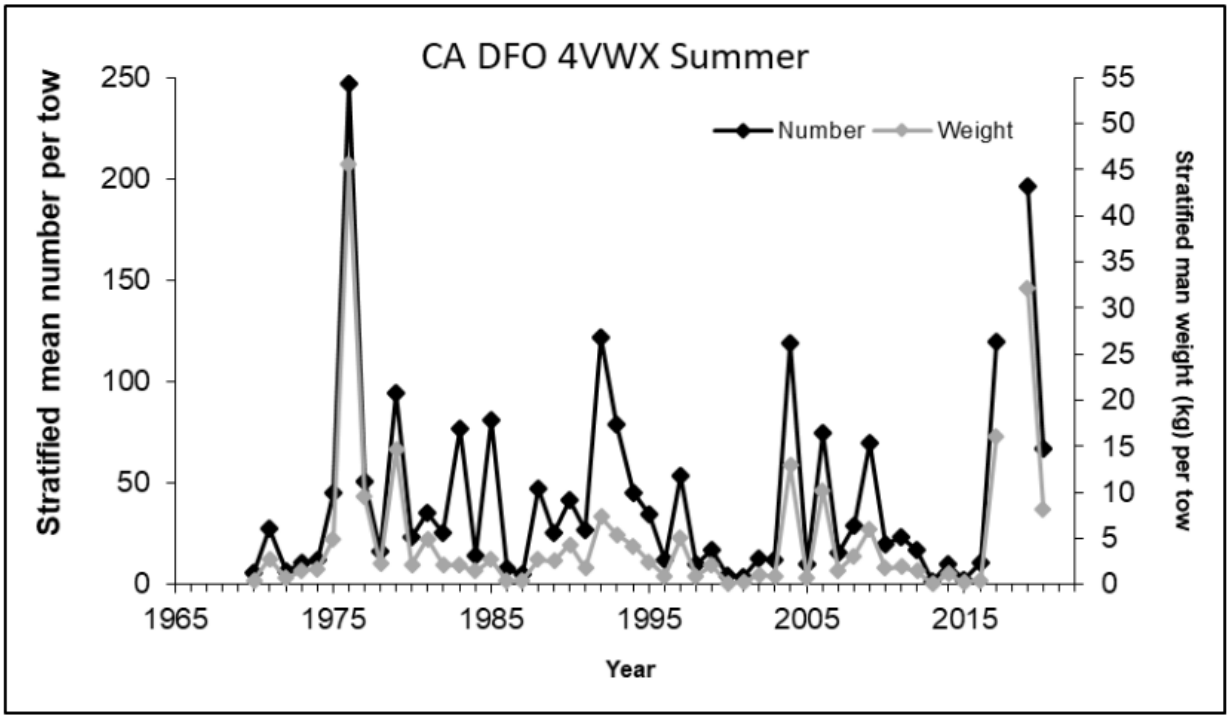

*Figure 4. Illex illecebrosus relative abundance (stratified mean number per tow) and biomass (stratified mean kg per tow) indices derived with data from the Canada DFO summer (July) bottom trawl surveys conducted in Division 4VWX during 1970-2019.**

*Indices were not computed for the 2018 survey because large areas of *Illex* habitat could not be sampled due to survey vessel mechanical problems.

Non-Target Species

Due to reduced observer coverage in 2020-2022 due to Covid-19, observer data from 2017-2019 still best describe incidental catch in the *Illex* fishery. On the *Illex* trips identified in this analysis, the 2017-2019 overall discard rate was 2%. For non-target species that are managed under their own FMP, incidental catch/discards are also considered as part of the management of that fishery.

The primary database used to assess discarding is the NMFS Observer Program database, which includes data from trips that had trained observers onboard to document discards. One critical aspect of using this database to describe discards is to correctly define the trips that constitute a given directed fishery. A flexible criteria of what captains initially intend to target, how they may adjust targeting over the course of a trip, and what they actually catch would be ideal but is impracticable. From 2017-2019 there were on average 61 observed trips annually where *Illex* accounted for at least 50% of retained catch, and those trips form the basis of the following analysis. These trips made 1,298 hauls of which 93% were observed. Hauls may be unobserved for a variety of reasons, for example transfer to another vessel without an observer, observer not on station, haul slipped (dumped) in the water before observing, etc.

The observed *Illex* kept on these trips accounted for approximately 15% of the total *Illex* landed (this is the overall coverage rate based on weight). While a very rough estimate, especially given non-accounting for spatial and temporal trends, one can use the information in the table immediately following and the fact that about 24,597 mt of *Illex* were caught annually 2017-2019 to

roughly estimate annual incidental catch and discards for the species in the table. Readers are strongly cautioned that while this is a reasonable approach for a quick, rough, and relative estimate given the available data, it is highly imprecise and does not follow the protocol used for official discard estimates. As a minimum threshold, only species estimated to be caught at a level more than 10,000 pounds per year are included (captures 92% of all discards). Species with a "*" are overfished, subject to overfishing, or otherwise considered depleted (none are caught in substantial quantities in the *Illex* fishery).

As listed in the table below the amounts of the various species (that are within this FMP or others) discarded in the *Illex* fishery, while rough approximations, are very low, including for the species noted to be overfished or otherwise depleted (Atlantic mackerel, bluefish, and red hake[4]). The amounts discarded for other species including those in the FMP (*Illex* squid, longfin squid, butterfish, and chub mackerel) all comprise a negligible portion of the catch and/or catch limits for those species.

Table 2. Incidental Catch and Discards in the Illex Squid Fishery.

NE Fisheries Science Center Common Name	Pounds Observed Caught	Pounds Observed Discarded	Of all discards observed, percent that comes from given species	Percent of given species that was discarded	Pounds of given species caught per mt Illex Kept	Pounds of given species discarded per mt Illex Kept	Rough Annual Catch (pounds) based on 3-year (2017-2019) average of Illex landings (24,597 mt)	Rough Annual Discards (pounds) based on 3-year (2017-2019) average of Illex landings (24,597 mt)
SQUID, SHORT-FIN	24,472,176	236,856	52%	1%	2,226	22	54,757,008	529,970
SQUID, ATL LONG-FIN	137,434	1,266	0%	1%	13	0	307,510	2,833
DORY, BUCKLER (JOHN)	59,564	15,045	3%	25%	5	1	133,275	33,663
MACKEREL, CHUB	50,659	18,909	4%	37%	5	2	113,349	42,310
BUTTERFISH	41,301	37,276	8%	90%	4	3	92,411	83,406
HAKE, SPOTTED	35,344	32,203	7%	91%	3	3	79,082	72,054
DOGFISH, SMOOTH	19,930	19,892	4%	100%	2	2	44,595	44,508
BEARDFISH	14,033	5,541	1%	39%	1	1	31,398	12,398
HAKE, SILVER (WHITING	9,919	8,168	2%	82%	1	1	22,194	18,275
FISH, NK	8,332	8,310	2%	100%	1	1	18,642	18,595
SEA ROBIN, NORTHERN	8,078	8,078	2%	100%	1	1	18,075	18,075
MACKEREL, ATLANTIC *	7,902	5,374	1%	68%	1	0	17,682	12,024
SCUP	7,774	5,561	1%	72%	1	1	17,395	12,443
SQUID, NK	6,020	6,020	1%	100%	1	1	13,470	13,470
BLUEFISH *	5,052	1,836	0%	36%	0	0	11,303	4,108
MONKFISH (GOOSEFISH)	4,742	2,211	0%	47%	0	0	10,609	4,947
HAKE, RED (LING) *	4,637	4,280	1%	92%	0	0	10,376	9,576

The observer program creates individual animal records for some fish species of interest, mostly larger pelagics and/or elasmobranchs, as well as tagged fish. Counts of these individual fish records from the same trips are provided in the table below.

[4] The 2023 ABC for Atlantic mackerel is over 17 million pounds, the 2023 bluefish ABC is over 30 million pounds, and the 2023 combined red hake ABCs are over 10 million pounds.

Table 3. Counts of fish in Individual Animal Records on observed Illex trips from 2017-2019

COMNAME	count
DOLPHINFISH (MAHI MAH	4
GROUPER, SNOWY	3
MARLIN, WHITE	1
MOLA, NK	4
MOLA, OCEAN SUNFISH	31
MOLA, SHARPTAIL	1
RAY, TORPEDO	37
SHARK, ATL ANGEL	1
SHARK, BASKING	14
SHARK, BLUE (BLUE DOG	1
SHARK, CARCHARHINID,N	4
SHARK, GREENLAND	2
SHARK, HAMMERHEAD, SC	14
SHARK, HAMMERHEAD,NK	7
SHARK, NIGHT	3
SHARK, NK	3
SHARK, SANDBAR (BROWN	48
SHARK, SPINNER	1
SHARK, THRESHER, BIGE	1
SHARK, TIGER	17
STINGRAY, ROUGHTAIL	19
SWORDFISH	108
TUNA, BLUEFIN	1
TUNA, LITTLE (FALSE A	9
TUNA, YELLOWFIN	3
WRECKFISH	1

6.2 Human Communities and Economic Environment

This section describes the performance of the *Illex* fishery to allow the reader to understand its socio-economic importance. The EA for the rejected *Illex* Permit Amendment contains additional detail about the *Illex* fishery, including demographic information on key ports – see https://www.mafmc.org/supporting-documents. Also see NMFS' communities page at: https://www.fisheries.noaa.gov/new-england-mid-atlantic/socioeconomics/socioeconomic-cultural-and-policy-research-northeast.

The most obvious way that human communities are affected by the *Illex* fishery is from the revenues generated, and the jobs created. The affected communities include both individuals directly involved in harvesting and processing as well as indirect support services (e.g. vessel maintenance, insurance, ice, etc.). While the direct data points that are most available are landings and revenues, it is important to keep in mind that by contributing to the overall functioning of and employment in coastal communities, the fishery has indirect social impacts as well. Social impacts are strongly aligned with changes to fishing opportunities and while difficult to measure can include impacts to families from income changes/volatility, safety-at-sea (related to changes in fishery operations due to regulation changes), job satisfaction, and/or frustration by individuals due to management's impacts (especially if they perceive management actions to be unreasonable or ill-informed).

Recent Fishery Performance

This section establishes a descriptive baseline for the fishery with which to compare actual and predicted future socio-economic changes that result from management actions. The 2022 *Illex*

Fishery Information Document and 2022 MSB Fishery Performance Report have details on recent commercial *Illex* fishing activity, summarized below. These are available at https://www.mafmc.org/msb. There is negligible recreational catch.

Figure 5 below, from a previous Science Center data update, describes *Illex* catch 1963-2019 and highlights the early foreign fishery and then domestication of the fishery. Figures 6-7 describe domestic landings, ex-vessel revenues, and prices (inflation adjusted) 1996-2022. Data since 1996 is more reliable than previous data due to improvements in reporting requirements. The Gross Domestic Product Implicit Price Deflator was used to report revenues/prices as "2022 dollars." Figure 8 illustrates preliminary weekly 2021 (yellow-orange) and 2022 (blue) landings through the year.

Most recent *Illex* landings occurred in RI, NJ, and MA, but further breakdown may violate data confidentiality rules. Table 4 provides preliminary information on *Illex* landings by statistical area for 2022. Table 5 describes vessel participation over time.

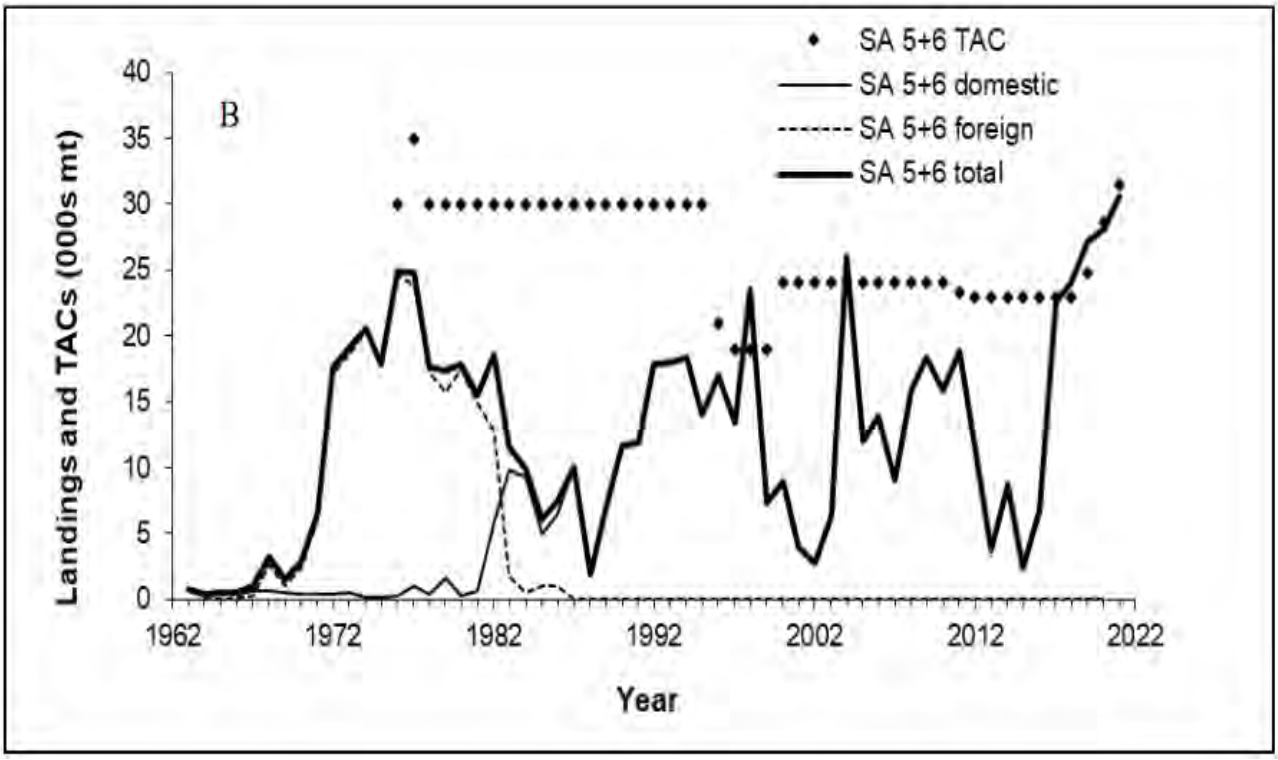

Figure 5. Total annual U.S. Illex catches (mt) by the U.S. and other countries for 1963-2021.

Sources: NEFSC Illex Data update, available at https://www.mafmc.org/ssc-meetings/2022/july-25-26 and NMFS unpublished dealer data.

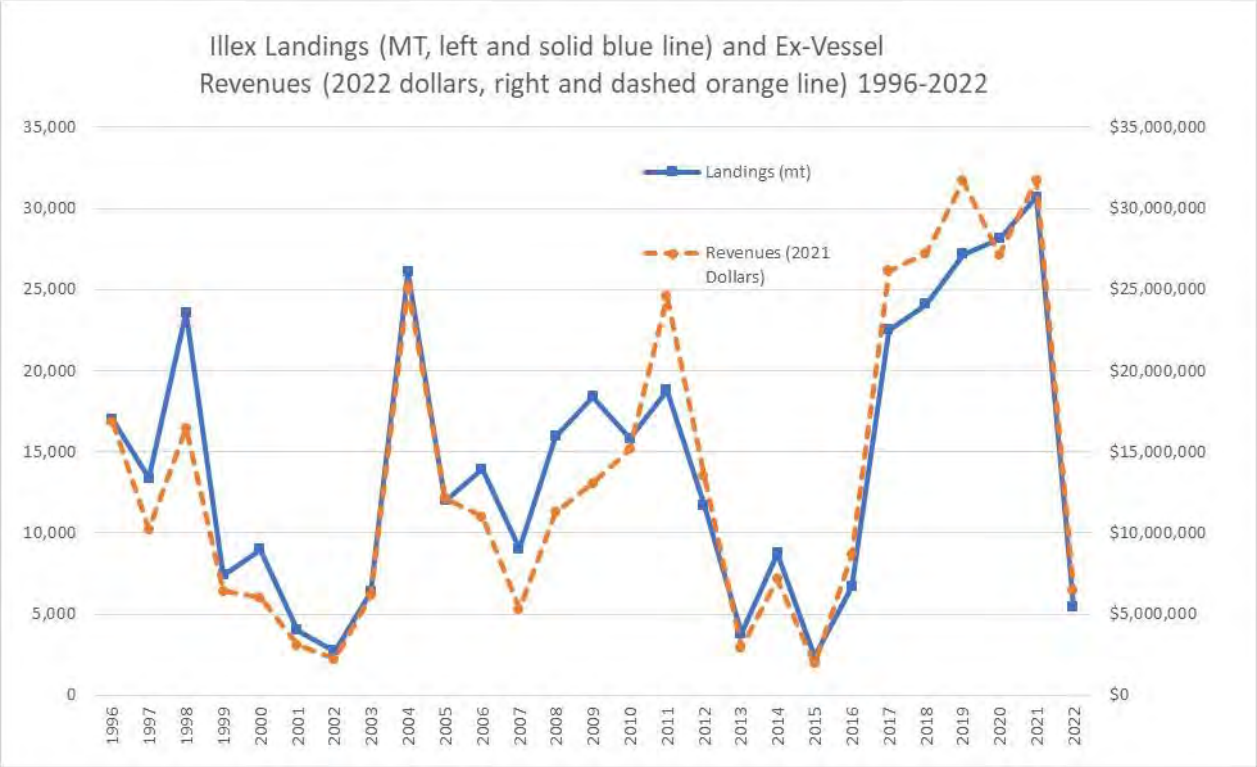

Figure 6. U.S. Illex Landings and Ex-Vessel Values 1996-2022. Source: NMFS unpublished dealer data.

Figure 7. Ex-Vessel Illex Prices 1996-2022 Adjusted to 2021 Dollars Source: NMFS unpublished dealer data.

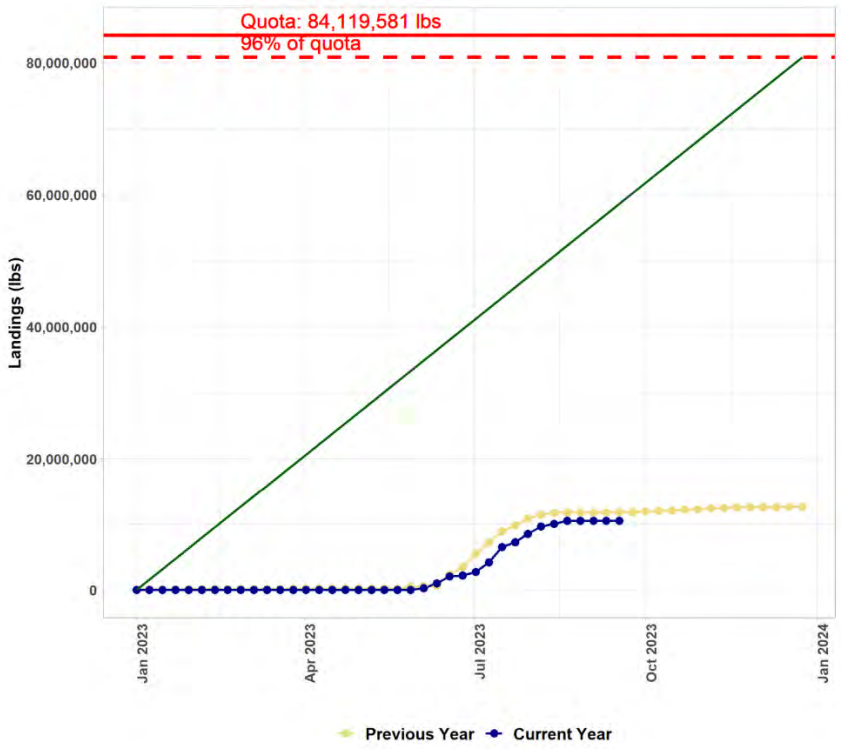

Figure 8. U.S. Preliminary Illex landings; 2023 in dark blue, 2022 in yellow-orange. Source: https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region

Table 4. Commercial Illex landings by statistical area in 2022. Source: NMFS unpublished VTR data.

Stat Area	MT
537	94
616	347
622	3,198
623	421
626	859
632	323
Other	168
Total	5,410

Table 5. Vessel participation over time in the Illex Fishery based on annual landings (pounds)

YEAR	Vessels landing more than 50,000 pounds in year
1982	14
1983	16
1984	23
1985	12
1986	18
1987	19
1988	7
1989	14
1990	15
1991	14
1992	17
1993	23
1994	33
1995	31
1996	35
1997	24
1998	30
1999	17
2000	14
2001	8
2002	6
2003	12
2004	30
2005	22
2006	18
2007	11
2008	17
2009	14
2010	18
2011	23
2012	13
2013	12
2014	10
2015	4
2016	10
2017	20
2018	26
2019	32
2020	31
2021	31
2022	13

6.3 Habitat, Including Essential Fish Habitat (EFH)

EFH information from recent squid specifications documents will be brought into the document during document finalization. See https://mafmc.squarespace.com/s/Illex-specs-2023-06-21.pdf.

6.4 Protected Species

Protected Species information from recent squid specifications documents will be brought into the document during document finalization. See https://mafmc.squarespace.com/s/Illex-specs-2023-06-21.pdf.

7.0 WHAT ARE THE IMPACTS (Biological and Human Community) FROM THE ALTERNATIVES CONSIDERED IN THIS DOCUMENT?

This action would primarily impact the *Illex* fishery. The permit information requirements would have no direct impacts except for possible future improvements to *Illex* and longfin squid assessments and some reporting burden for participants. Landings of the other species in the FMP (butterfish, longfin squid, Atl. mackerel, and chub mackerel) are monitored and controlled separately and should be negligibly affected by this action (https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region). These other FMP species are also not discarded in sufficient amounts by the *Illex* fishery to be substantially impacted by this action (see Non-Target data and discussion in Section 6.1 above). Because catch of the other FMP species will thus be negligibly affected by this action, they are not discussed further. Recent specifications actions and supporting documents for those other FMP species can be consulted for more information (https://www.mafmc.org/msb). Related to this action and its alternatives (see Section 5 for details), the key determinant of biological impacts on *Illex* is how much *Illex* is caught, and how that catch impacts stock status. The 2021 *Illex* RTA continued to note that discards are a small portion of catch compared to landings.

For habitat and non-target species impacts, the key determinant is the amount and character of the related effort, and the impact of that effort on the non-target's stock status and the quality/quantity of habitat. The availability of the target species can drive effort as much as any quota change, and as effort changes so would impacts on habitat, protected resources, and non-target species. Since limits on catch do cap effort however, measures that limit catch to varying degrees are a factor related to effort. For protected resources (i.e., ESA-listed, and MMPA protected), the key determinant is the status of the species, and the amount and character of effort. Even under reduced effort scenarios, some level of negative impacts are expected to ESA-listed species and non-listed MMPA protected species whose potential biological removal (PBR) levels have been exceeded (as any take can negatively impact the species recovery and/or sustainability). For MMPA protected species (non-ESA listed) with PBR levels that have not been exceeded, alternatives not expected to change fishing behavior or effort relative to no action may have positive impacts by maintaining takes below the PBR level and approaching the zero mortality rate goal. The table below summarizes the guidelines used for each VEC to determine the magnitude and direction of the impacts described in this section.

Table 6. General definitions for impacts and qualifiers relative to resource condition (i.e., baselines)

General Definitions				
VEC	**Resource Condition**	**Impact of Action**		
		Positive (+)	Negative (-)	No Impact (0)
Target and non-target Species	Overfished status defined by the MSA	Alternatives that maintain or are projected to result in a stock status above an overfished condition*	Alternatives that maintain or are projected to result in a stock status below an overfished condition*	Alternatives that do not impact stock / populations
ESA-listed protected species (endangered or threatened)	Populations at risk of extinction (endangered) or endangerment (threatened)	Alternatives that contain specific measures to ensure no interactions with protected species (i.e., no take)	Alternatives that result in interactions/take of listed species, including actions that reduce interactions	Alternatives that do not impact ESA listed species
MMPA protected species (not also ESA listed)	Stock health may vary but populations remain impacted	Alternatives that maintain takes below PBR and approaching the Zero Mortality Rate Goal	Alternatives that result in interactions with/take of marine mammals that could result in takes above PBR	Alternatives that do not impact MMPA protected species
Physical environment / habitat / EFH	Many habitats degraded from historical effort	Alternatives that improve the quality or quantity of habitat	Alternatives that degrade the quality/quantity or increase disturbance of habitat	Alternatives that do not impact habitat quality
Human communities (socioeconomic)	Highly variable but generally stable in recent years (see condition of the resources table for details)	Alternatives that increase revenue and social well-being of fishermen and/or communities	Alternatives that decrease revenue and social well-being of fishermen and/or communities	Alternatives that do not impact revenue and social well-being of fishermen and/or communities
	Impact Qualifiers			
A range of impact qualifiers is used to indicate any existing uncertainty	Negligible	To such a small degree to be indistinguishable from no impact		
	Slight (sl), as in slight positive or slight negative	To a lesser degree / minor		
	Moderate (M) positive or negative	To an average degree (i.e., more than "slight", but not "high")		
	High (H), as in high positive or high negative	To a substantial degree (not significant unless stated)		
	Significant (in the case of an EIS)	Affecting the resource condition to a great degree, see 40 CFR 1508.27.		
	Likely	Some degree of uncertainty associated with the impact		

*Actions that will substantially increase or decrease stock size, but do not change a stock status may have different impacts depending on the particular action and stock. Meaningful differences between alternatives may be illustrated by using another resource attribute aside from the MSA status, but this must be justified within the impact analysis.

7.1 Biological Impacts on the Managed Resource - *Illex*

Baseline condition: The 2021 *Illex* Research Track Assessment (RTA) was not able to develop a basis for stock status determination. The 2019 stock status designation resulting from the 2021 RTA was "Unknown" with respect to both overfished and overfishing, due to the lack of an accepted method of estimating F and B and the lack of appropriate Biological Reference Points for this subannual species. The RTA Review Panel agreed with the RTA WG Report that indications from the various assessment approaches were that the stock was lightly fished in 2019. However, their report stated that the term "lightly fished" should be interpreted with caution because it has no specific definition relating to sustainable exploitation.

This action would primarily affect the *Illex* fishery, which is predominantly a commercial fishery. As discussed above, the availability of the targeted species, market conditions, and input costs (especially fuel and labor) may drive effort (and catch and revenues) as much as any regulations, though quotas were limiting from 2017-2021. Given the lack of a defined formal stock status, in determining impacts to target species this analysis is also considering factors that affect the health and sustainability of the stock including relative escapement, mortality rates, overfishing risk, and general population size based on available information. Analyses described above in Section 6.1 suggest that recent catches are unlikely to have caused overfishing even though there is no formal overfishing definition.

All alternatives should restrict *Illex* squid catch at or below the SSC-recommended ABC, thus maintaining the baseline condition in an approximately similar fashion (SSC recommendations are designed by the MAFMC's risk policy to avoid overfishing and thus avoid development of an overfished condition. As such, all alternatives should have a slightly positive, if unquantifiable, impact on the *Illex* stock by maintaining the current condition.

7.2 Habitat Impacts

Impacts on the habitat for the managed species (7.2.1) and other species (7.2.2) are addressed separately. The word "habitat" encompasses essential fish habitat (EFH) for the purposes of this analysis. The MAFMC has already minimized to the extent practicable impacts to habitat from the MSB fisheries through closure of several canyon areas in MSB Amendment 9 (http://www.mafmc.org/fmp/history/smb-hist.htm) and Tilefish Amendment 1 (http://www.mafmc.org/fmp/history/tilefish.htm), and protections for Deep Sea Corals via Amendment 16 (http://www.mafmc.org/fmp/history/smb-hist.htm). As a baseline, many habitats in the area of operation of the MSB fisheries are degraded from historical fishing effort (both MSB and other) and from non-fishing activities (Stevenson et al. 2004).

7.2.1 Impacts on Managed Species Habitat

Illex fishing takes place mostly with bottom otter trawling and some mid-water trawling. Habitat for the managed species (MSB) generally consists of the water column, which is not significantly impacted by fishing activity. The exception to the habitat location being the water column is longfin squid eggs, which are attached to sand, mud, or bottom structure (manmade or natural). However, as determined in Amendment 9, there is no indication that squid eggs are preferentially attached to substrates that are vulnerable to disturbance from bottom trawling, so no impacts on habitat for

longfin squid eggs are expected from any increase or decrease in fishing effort by bottom trawls. Trawling won't impact the water column itself and there is no information to suggest that *Illex* trawling impacts on substrate will degrade it for purposes of longfin squid egg laying or survival. This means that bottom trawl effort is unlikely to further impact MSB species' habitat regardless of intensity.

7.2.2 Impacts on Other Federally Managed Species Habitat

The bottom trawling used in this fishery can adversely impact some habitat types. However, since the MAFMC has considered habitat impacts in the past and has already restricted MSB fishing to protect sensitive habitats (e.g. Tilefish habitat canyon closures and coral protections), the impact of maintaining the current fishery effort levels, which should occur in a similar fashion for all alternatives, is best characterized as overall slight negative, similar to past years, because effort is not expected to change based on this action.

7.3 Protected Resources Impacts

The impacts of the alternatives on protected species take into account impacts to ESA-listed species, as well as impacts to MMPA protected species in good condition (i.e., marine mammal stocks whose PBR level have not been exceeded) or poor condition (i.e., marine mammal stocks that have exceeded or are near exceeding their PBR level). For ESA-listed species, any action that results in interactions or take is expected to have negative impacts, including actions that reduce interactions. Actions expected to result in positive impacts on ESA-listed species include only those that contain specific measures to ensure no interactions (i.e., no take). By definition, all ESA-listed species are in poor condition and any take can negatively impact that species' recovery (impacts are negligible for species without interactions and not repeated for every alternative – the focus here is on species where there are interactions). The stock conditions for marine mammals not listed under the ESA varies by species; however, all are in need of protection. For marine mammal stocks that have their PBR level reached or exceeded, negative impacts would be expected from alternatives that result in the potential for interactions between fisheries and those stocks. For species that are at more sustainable levels (i.e., PBR levels have not been exceeded), alternatives not expected to change fishing behavior or effort may have positive impacts by maintaining takes below the PBR level and approaching the zero mortality rate goal.

In addition to taking into account the resource condition of ESA-listed and/or MMPA protected species, factors associated with the risk of an interaction between gear and protected species are also considered in assessing impacts of the alternatives proposed. Specifically, the risk of an interaction is strongly associated with the amount of gear in the water, the time the gear is in the water (e.g., tow time), and the presence of protected species in the same area and time as the gear, with risk of an interaction increasing with increases in of any of these factors.

Negligible changes to overall effort, or the character of that effort, are expected under all alternatives. Therefore the impacts for all alternatives are the same as No-action/status-quo, described below.

No-action: MMPA (Non-ESA Listed) Species Impacts

Aside from several stocks of bottlenose dolphin, the PBR level has not been exceeded for any of the non-ESA listed marine mammal species in the affected environment (section 6.4).

Taking into consideration the above information, and the fact that there are non- ESA listed marine mammal stocks/species whose populations may or may not be at optimum sustainable levels, impacts of no action, i.e. maintaining the current specifications, on non-ESA listed species of marine mammals are likely to range from slight negative to slight positive. As noted above, there are some bottlenose dolphin stocks experiencing levels of interactions that have resulted in exceedance of their PBR levels. These stocks/populations are not at an optimum sustainable level and therefore, are at risk. As a result, any potential for an interaction is a detriment to the species/stocks ability to recover from this condition. As provided above, the risk of an interaction is strongly associated with the amount of gear in the water, the time the gear is in the water (e.g., tow time), and the presence of protected species in the same area and time as the gear, with risk of an interaction increasing with increases in of any of these factors. The No Action Alternative or others are not expected to introduce new or elevated interaction risks to these non-ESA listed marine mammal stocks in poor condition. Specifically, the amount of gear in the water, gear tow duration, and the overlap between protected species and fishing gear (i.e., bottom trawl or mid-water trawl), in space and time, is not expected to change relative to current conditions. Given this information, and the information provided in section 6.4.3, this action is likely to result in slight negative impacts to non-ESA listed marine mammal stocks/species in poor condition (i.e., bottlenose dolphin stocks).

Alternatively, there are also many non-ESA listed marine mammals that, even with continued fishery interactions, are maintaining an optimum sustainable level (i.e., PBR levels have not been exceeded) over the last several years. For these stocks/species, it appears that the fishery management measures that have been in place over this timeframe have resulted in levels of effort that result in interaction levels that are not expected to impair the stocks/species ability to remain at an optimum sustainable level. These fishery management measures, therefore, have resulted in indirect slight positive impacts to these non-ESA listed marine mammal species/stocks. Should future fishery management actions maintain similar operating condition as they have over the past several years, it is expected that these slight positive impacts would remain. Given this, and the fact that the potential risk of interacting with gear types used in the fishery varies between non-ESA listed marine mammal species in good condition (see section 6.4), the impacts of no action or other alternatives on these non-ESA listed species of marine mammals in good condition are expected to be negligible to slight positive (i.e., continuation of current operating conditions is not expected to result in exceedance of any of these stocks/species PBR level).

Based on this information, the No Action Alternative or any others are expected to have slight negative to slight positive impacts on non-ESA listed species of marine mammals.

No-action: ESA Listed Species Impacts

The *Illex* fishery is prosecuted with mostly bottom and some mid-water trawl gear. As provided in section 6.4, reviewing the most recent 10 years (2010-2019) of observer data, Sea Turtle Disentanglement Network and GAR Marine Animal Incident database, and NMFS (2021a), interactions between mid-water trawl gear and ESA-listed species of whales, sea turtles, Atlantic sturgeon, and Atlantic salmon have not been observed or documented; only giant manta rays have been observed/documented in this gear type. In terms of bottom trawl gear, interactions with ESA-listed species of sea turtles, Atlantic sturgeon, Atlantic salmon and giant manta rays have been

observed/documented in this gear type.

Based on this information, the *Illex* fishery is likely to result in some level some level of negative impacts to ESA listed species. Taking into consideration fishing behavior/effort under the No Action or other alternatives, as well the fact that interaction risks with protected species are strongly associated with amount, time, and location of gear in the water (with vulnerability of an interaction increasing with increases in of any or all of these factors), we determined the level of negative impacts to ESA listed species to be slight. Under the No Action or other alternatives, the amount of trawl gear, tow times, and area fished are not expected change significantly from current operating conditions. As interactions risks with protected species are strongly associated with amount, time, and location of gear in the water, continuation of "status quo" fishing behavior/effort is not expected to change any of these operating conditions. Based on this, and the fact that the potential risk of interacting with gear types used in fishery varies between ESA listed species (e.g., listed species of large whales have never been documented/observed in bottom or mid-water trawl gear; 6.4) the impacts of the No Action Alternative or other alternatives on ESA-listed species are expected to be negligible to slight negative.

7.4 Socioeconomic Impacts

This action would primarily affect the *Illex* fishery, which is predominantly a commercial fishery. As discussed above, the availability of the targeted species, market conditions, and input costs (especially fuel and labor) may drive effort (and catch and revenues) as much as any regulations.

Illex Fishery Baseline Condition for Socioeconomic Impacts:

Where possible, effects on ex-vessel revenues are described. Although ex-vessel revenues are a useful indicator of relative importance for various fisheries, we note that the true economic importance of these fisheries comes from the overall economic activity, jobs, and community vitality that are supported by the ex-vessel revenues. In fact, when related impact multipliers are considered, the actual economic impact can be several times larger (Jacobsen 2014, Dyck and Sumaila 2010). This concept applies to each alternative, and is not repeated for each alternative. The socioeconomic contributions of *Illex* have been variable over time. Due to the year-to-year variation in catch and effort in the fishery, it is difficult to fully quantify human community impacts but the current fishery supports a number of vessels, as described in Section 6.2, and provides a variety of jobs related directly to fishing and also in associated support services. 33 vessels landed over 10,000 pounds of *Illex* in 2021, with total *Illex* landings valued at $29.7 million. From 2019-2021 *Illex* ex-vessel revenues varied from $25.3-$29.7 million, averaging $28.2 million. Given these contributions to the socioeconomics of fishing communities, the recent impacts are best summarized as moderate positive. While $25.3-$29.7 million annually is a small ex-vessel amount compared to some fisheries like scallops, it is larger than a number of other MAFMC-managed species ex-vessel values (e.g. golden tilefish, blueline tilefish, scup, butterfish, bluefish, mackerel, chub mackerel, and spiny dogfish). Especially considering the multiplier effects within communities from support services, a moderate impact qualifier appears reasonable.

7.4.1 ALTERNATIVE 1: NO ACTION, STATUS QUO

Alternative 1, which maintains the current baselines and permit information requirements, should maintain the current condition whereby relevant communities benefit from sustainable *Illex* fishing in a similar fashion as described above, so similar moderate positive impacts would be expected to continue, like recent years.

7.4.2 ALTERNATIVE 2A: NEW HOLD BASELINE, PERMITS IN CPH CAN USE EXISTING SURVEY

The overall socioeconomic impacts should be very similar to no action since the quota is not impacted. For the 46 permits that do not have mackerel hold documentations already, they would have to get a hold survey/certification. Previous informal contacts by council staff with a few marine surveyors revealed that a fish hold measurement could run approximately $10-$80 per foot of vessel length, which could range from $750 - $6,000 for a 75 foot vessel to $1,500 - $12,000 for a 150 foot vessel, depending on the surveyor, the boat design, and travel expenses. Public comments indicated that such surveys can be found for the lower of the above ranges. To the extent that surveys are already required for insurance purposes these costs may be already part of a vessel's operating costs. The vessel hold baseline upgrade restrictions also limits how vessels may be re-configured or replaced, but it is not possible to determine the nature of that cost for each vessel.

On the other hand, this baseline, just like the other (length and horsepower) baselines in use in most limited access fisheries in the region, could help avoid further overcapitalization of the fleet. The rationale/goal for baselines as described in the 1998 Consistency Amendment developed by NMFS is "capping fishing power." This aligns with issues mentioned in several national standards guidelines, especially #5 Efficiency: "Efficiency. In theory, an efficient fishery would harvest the OY with the minimum use of economic inputs such as labor, capital, interest, and fuel. Efficiency in terms of aggregate costs then becomes a conservation objective, where "conservation" constitutes wise use of all resources involved in the fishery, not just fish stocks." So capping additional vessel fishing power ("capital") to catch Optimum Yield (OY) also becomes a conservation objective because the "wise use of all resources" is being addressed. (50 CFR 648.4(a)(5)(iii))

There will be a tradeoff involved as the flexibility of the fleet is somewhat reduced, but the risks from uncontrolled fishing power in fishing fleets are well documented throughout fisheries literature and negative consequences of "increased fishing pressure" is a principal "finding" of Congress as enshrined in the Magnuson-Stevens Fishery Conservation and Management Act.

It would also be relatively easy to relax baseline upgrade restrictions in the future if warranted, but it is very hard to reduce capacity once it is added to the fleet, so management flexibility may be increased by capping capacity.

Compared to 2B, this Alternative would reduce costs for permits in CPH that already had a survey for the previous vessel, and adds some flexibility to put a permit on a smaller vessel (compared to

baselines) next without creating a mismatch between the other larger existing baselines and a smaller hold baseline when a permit is brought out of CPH.

7.4.3 ALTERNATIVE 2B: NEW HOLD BASELINE, PERMITS IN CPH CAN NOT USE EXISTING SURVEY

The overall socioeconomic impacts should be very similar to no action since the quota is not impacted. For the 46 permits that do not have mackerel hold documentations already, they would have to get a hold survey/certification. Previous informal contacts by council staff with a few marine surveyors revealed that a fish hold measurement could run approximately $10-$80 per foot of vessel length, which could range from $750 - $6,000 for a 75 foot vessel to $1,500 - $12,000 for a 150 foot vessel, depending on the surveyor, the boat design, and travel expenses. Public comments indicated that such surveys can be found for the lower of the above ranges. To the extent that surveys are already required for insurance purposes these costs may be already part of a vessel's operating costs. The vessel hold baseline upgrade restrictions also limits how vessels may be re-configured or replaced, but it is not possible to determine the nature of that cost for each vessel.

On the other hand, this baseline, just like the other (length and horsepower) baselines in use in most limited access fisheries in the region, could help avoid further overcapitalization of the fleet. The rationale/goal for baselines as described in the 1998 Consistency Amendment developed by NMFS is "capping fishing power." This aligns with issues mentioned in several national standards guidelines, especially #5 Efficiency: "Efficiency. In theory, an efficient fishery would harvest the OY with the minimum use of economic inputs such as labor, capital, interest, and fuel. Efficiency in terms of aggregate costs then becomes a conservation objective, where "conservation" constitutes wise use of all resources involved in the fishery, not just fish stocks." So capping additional vessel fishing power ("capital") to catch Optimum Yield (OY) also becomes a conservation objective because the "wise use of all resources" is being addressed. (50 CFR 648.4(a)(5)(iii))

There will be a tradeoff involved as the flexibility of the fleet is somewhat reduced, but the risks from uncontrolled fishing power in fishing fleets are well documented throughout fisheries literature and negative consequences of "increased fishing pressure" is a principal "finding" of Congress as enshrined in the Magnuson-Stevens Fishery Conservation and Management Act.

It would also be relatively easy to relax baseline upgrade restrictions in the future if warranted, but it is very hard to reduce capacity once it is added to the fleet, so management flexibility may be increased by capping capacity.

Compared to 2A, this Alternative would not reduce costs for permits in CPH that already had a survey for the previous vessel, and would not add some flexibility to put a permit on a smaller vessel (compared to baselines) next without creating a mismatch between the other larger existing baselines and a smaller hold baseline when a permit is brought out of CPH.

7.4.4 ALTERNATIVES 3/4: INTENDED PROCESSING TYPE DECLARATION

These alternatives would very slightly increase paperwork burden when re-applying for permits.

7.5 Non-Target Fish Species Impacts

Non-Target Fish Species Impacts information will be brought into the document during document finalization but are not expected to differ versus the last specifications Environmental Assessment. See https://mafmc.squarespace.com/s/Illex-specs-2023-06-21.pdf. There are very low non-target catches in the *Illex* fishery.

7.6 Cumulative Effects Assessment (CEA)

7.6.1 Introduction

The purpose of a CEA is to consider the combined effects of many actions on the human environment over time that would be missed if each action were evaluated separately. It is not practical to analyze the cumulative effects of an action from every conceivable perspective. Rather, the focus on those effects that are truly meaningful. A cumulative effects assessment makes effect determinations based on a combination of: 1) impacts from past, present, and reasonably foreseeable future actions; 2) the baseline conditions of the VECs (the combined effects from past, present, and reasonably foreseeable future actions plus the present condition of the VEC); and 3) impacts of the alternatives under consideration for this action.

Depending on what NEPA document is needed for this action, Cumulative Effects will be considered at the appropriate level.

8.0 WHAT OTHER LAWS APPLY TO THE ACTIONS CONSIDERED IN THIS DOCUMENT?

To be added during final NEPA-document development.

9.0 LITERATURE CITED AND SELECTED OTHER BACKGROUND DOCUMENTS

To be added during final NEPA-document development.

10.0 LIST OF AGENCIES AND PERSONS CONSULTED

To be added during final NEPA-document development.

11.0 LIST OF PREPARERS AND POINT OF CONTACT

To be added during final NEPA-document development.

THIS IS THE END OF THIS DOCUMENT

Mid-Atlantic Fishery Management Council
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Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 18, 2023

To: Council

From: Hannah Hart, Staff

Subject: Northeast Fishery Science Center Federal Survey: Survey Performance, Issues, and Planning for the Future

The Council will receive a presentation from the Northeast Fishery Science Center (NEFSC) on the federal bottom trawl survey and Atlantic Sea Scallop survey on Wednesday, October 4, 2023, from 9:00 a.m. to 10:00 a.m. This presentation will include an overview of each survey, as well as a review of past survey performance, recent issues, and future planning for each survey. Materials listed below are provided for the Council's consideration of this agenda item.

1) 2023 Northeast Spring Bottom Trawl Survey Summary

2) 2023 Spring Resource Survey Report: Bottom Trawl Survey

3) NOAA Press Release – 2023 Northeast Atlantic Sea Scallop Survey Canceled

#13c

2023 Northeast Spring Bottom Trawl Survey Summary

Shortened cruise covers Georges Bank stations.

The 2023 spring multispecies bottom trawl survey began on May 8 and completed operations on May 24 aboard the NOAA Ship *Henry B. Bigelow*.

The survey was originally scheduled for March 15 through May 26. Sailing was delayed by issues encountered during the ship's regular repair and maintenance period, reducing sea days by about 75 percent. Once at sea, operations were further reduced to from 24 to 12 hours per day owing to a shortage of experienced ship's crew.

The survey usually operates on the Northwest Atlantic continental shelf, sampling at stations from Cape Lookout, North Carolina to Canada's Scotian Shelf. To maximize use of available sea time in 2023, we focused on Georges Bank. We collected data critical to assessments for transboundary stocks. These assessments are conducted jointly with the Department of Fisheries and Oceans, Canada.

The Georges Bank stations accounted for 70 of the 377 planned trawl stations that would usually be sampled across the survey area (18.5 percent completion). Vertical temperature, depth, and salinity profiles were collected at all trawl stations. Plankton were also sampled at a subset of stations, with 29 bongo samples taken of the 116 planned for the full survey (25 percent completion).

The 70 trawl stations were sampled during daytime only, from 6 a.m. to 6 p.m. Combining these data with previous years' data collected during day and night will require additional evaluation.

NOAA Fisheries will work with the Office of Marine and Aircraft Operation to understand how the ship's maintenance and staffing issues resulted in forgoing the majority of the survey. The *Bigelow* is operated and maintained by OMAO. This evaluation will be critical to ensuring success for the upcoming autumn bottom trawl survey.

Further, NOAA Fisheries is considering options for ensuring continuity of the data collected during our trust resource surveys, as well as adapting our data collection within future wind energy development areas. This includes:

- Creating contingency plans for surveying when the *Bigelow* is not available
- Implementing additional data acquisition approaches, e.g., use of advanced technologies such as uncrewed systems

The Northeast Fisheries Science Center's bottom trawl surveys are the longest running of their kind in the world. They provide nearly 60 years of standardized data collected during a time of significant change in the ocean around us.

Data collected include fish age, length, weight, sex, maturity and food habits. All are critical data used in regional fish stock assessments. These assessments help inform fishery management decisions by the New England and Mid-Atlantic Fishery Management Councils, as well as the Atlantic States Marine Fisheries Commission.

Bottom Trawl Stations on Georges Bank

Percentage of Completed 2023 Spring Bottom Trawl and CTD Stations

Percentage of Completed 2023 Spring Bottom Trawl Plankton Stations

More Information

- 2022 Spring Bottom Trawl Summary

- Ecosystem Survey Branch
- Research Surveys
- Fishery Independent Survey System

Last updated by
Northeast Fisheries Science Center
on 06/09/2023

Resource Survey Report

2023 Spring Resource Survey Report

Bottom Trawl Survey

Georges Bank
09 May - 23 May 2023
NOAA Ship Henry B. Bigelow (FSV 225)

Submitted to: NOAA, NEFSC

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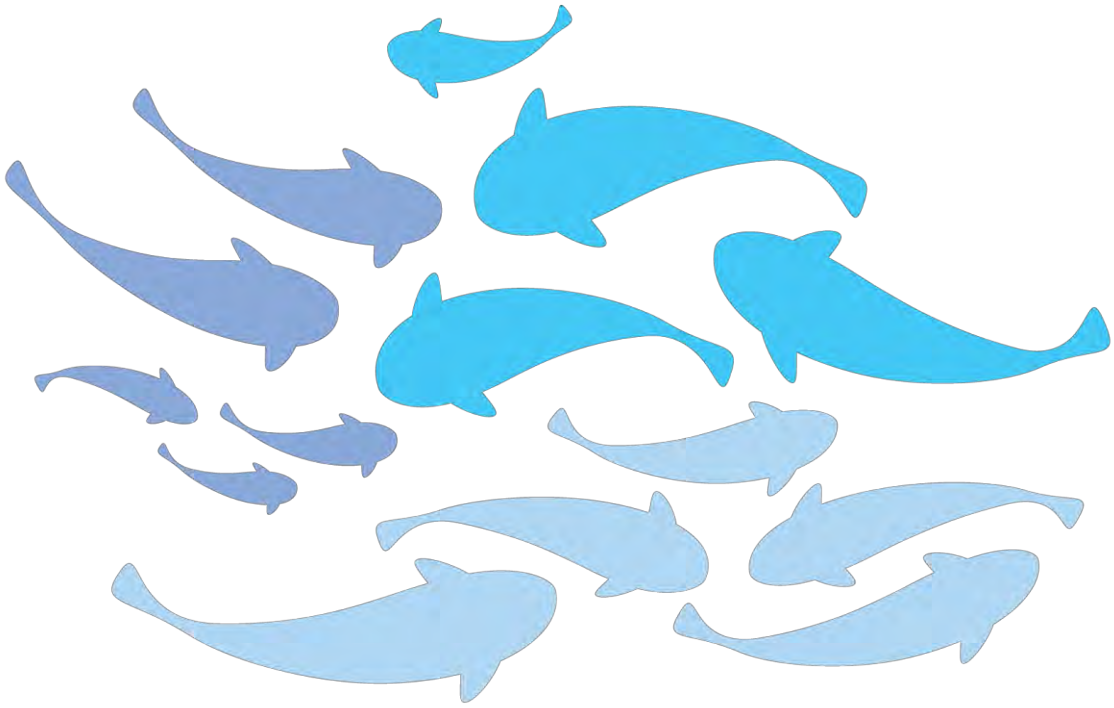
Date: 2023

2023 Spring Resource Survey Report



Bottom Trawl Survey

Georges Bank
09 May - 23 May 2023
NOAA Ship Henry B. Bigelow (FSV 225)

NOAA Fisheries
Northeast Fisheries Science Center
Woods Hole, MA 02543

Significant Changes to the NEFSC Multispecies Bottom Trawl Survey

Significant changes in survey methodology were implemented, beginning with the 2009 spring multispecies Bottom Trawl Survey, which have significant implications for the use of these data. Prior to 2009, multispecies bottom trawl surveys were conducted on the NOAA ship *Albatross IV*. In 2009, the survey was conducted on the NOAA Ship Henry B. Bigelow, which is equipped with an autotrawl winch system that equalizes port and starboard warp tensions throughout the duration of survey tows.

The survey bottom trawl sampling gear was also changed. Prior to 2009, the survey was conducted with a standardized Yankee 36 bottom trawl and 450kg Euronet, polyvalent trawl doors. Beginning in 2009, the trawl is conducted using a standardized 400 x 12cm, 4-seam bottom trawl and 2.2m2, 550kg, Poly-Ice oval trawl doors. The survey bottom trawl gear was designed and tested in collaboration between the NEFSC and regional fishing industry, fishery managers and academic stakeholders through the mid-Atlantic and New England Trawl Advisory Panel.

The standard survey towing speed was decreased from 3.8kn to 3.0kn, speed measured over ground, beginning in 2009. This towing speed was selected after extensive towing speed and warp to depth ratio trials conducted on the NOAA Ship Henry B. Bigelow. The standard tow duration was also changed from 30 minutes (timed from winch lock to winch reengage) to 20 minutes of actual time on-bottom (measured in real-time by acoustic trawl mensuration equipment). The decrease of both the towing speed and duration resulted in a decrease of average tow distance from 1.9nm to 1.0nm.

Station allocation also change significantly due to an increase of available vessel time from 48 to 60 sea days and a reduction in inshore sampling by the NOAA Ship Henry B. Bigelow. As a result, station density was increased in offshore strata. Inshore areas of the mid-Atlantic will continue to be sampled by the Northeast Area Monitoring and Assessment Program (NEAMAP) Southern New England/Mid-Atlantic Near Shore Trawl Survey.

In 2008 the NEFSC conducted an extensive study to estimate the relative catchability of the NOAA Ship Albatross IV, sampling with the standard Yankee 36 survey bottom trawl following historical protocols, and the NOAA Ship Henry B. Bigelow, sampling with the standard 400 x 12cm, 4-seam survey bottom trawl following revised protocols. Results of this study were peer-reviewed in August 2009 and can be found in the NEFSC reference document 10-05: Estimation of Albatross IV to Henry B. Bigelow Calibration Factors.

RESOURCE SURVEY REPORT

NOAA Fisheries
Northeast Fisheries Science Center

Spring Multispecies Bottom Trawl Survey
Georges Bank
09 May - 23 May 2023

Catch Summary

The NOAA Ship *Henry B. Bigelow* was delayed two months coming out of the shipyard repair period resulting in significant loss of sea days and survey area coverage. In addition, NOAA's Office of Marine and Aviation Operations was unable to properly staff the vessel to support full 24 hour operations, further limiting potential survey area coverage. The remaining sea days were conducted with only 12 hours per day of operation time available during the hours of 6am-6pm. The Northeast Fisheries Science Center prioritized sampling on Georges Bank with the limited sea time available. 70 of 377 planned stations were completed this season.

This long-running, fishery-independent, bottom trawl survey monitors fishery abundance and distribution of the Northwest Atlantic continental shelf from Cape Lookout, NC to the Scotian Shelf. Data collected include fish age, length, weight, sex, maturity and food habits information which are critical inputs to regional fish stock assessments helping to inform fishery management decisions by the New England and Mid-Atlantic Fishery Management Councils as well as Atlantic States Marine Fisheries Commission.

Attached are station and catch summaries and a series of geographical plots of commercially and recreationally important species caught during the Northeast Fisheries Science Center's (NEFSC) 2023 spring multispecies bottom trawl survey aboard the NOAA Ship *Henry B. Bigelow*. Details regarding NEFSC bottom trawl survey standard operating procedures can be found in the NEFSC reference document 14-06: NEFSC Bottom Trawl Survey Protocols for the NOAA Ship Henry B. Bigelow.

For further information, contact:

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To view this report, go to the Ecosystems Surveys Branch website and choose:

- Resource Survey Reports
- Bottom Trawl Survey (BTS) RSRs
- Year of interest

To access these data, visit the NOAA Fisheries InPort System Data Management Platform.

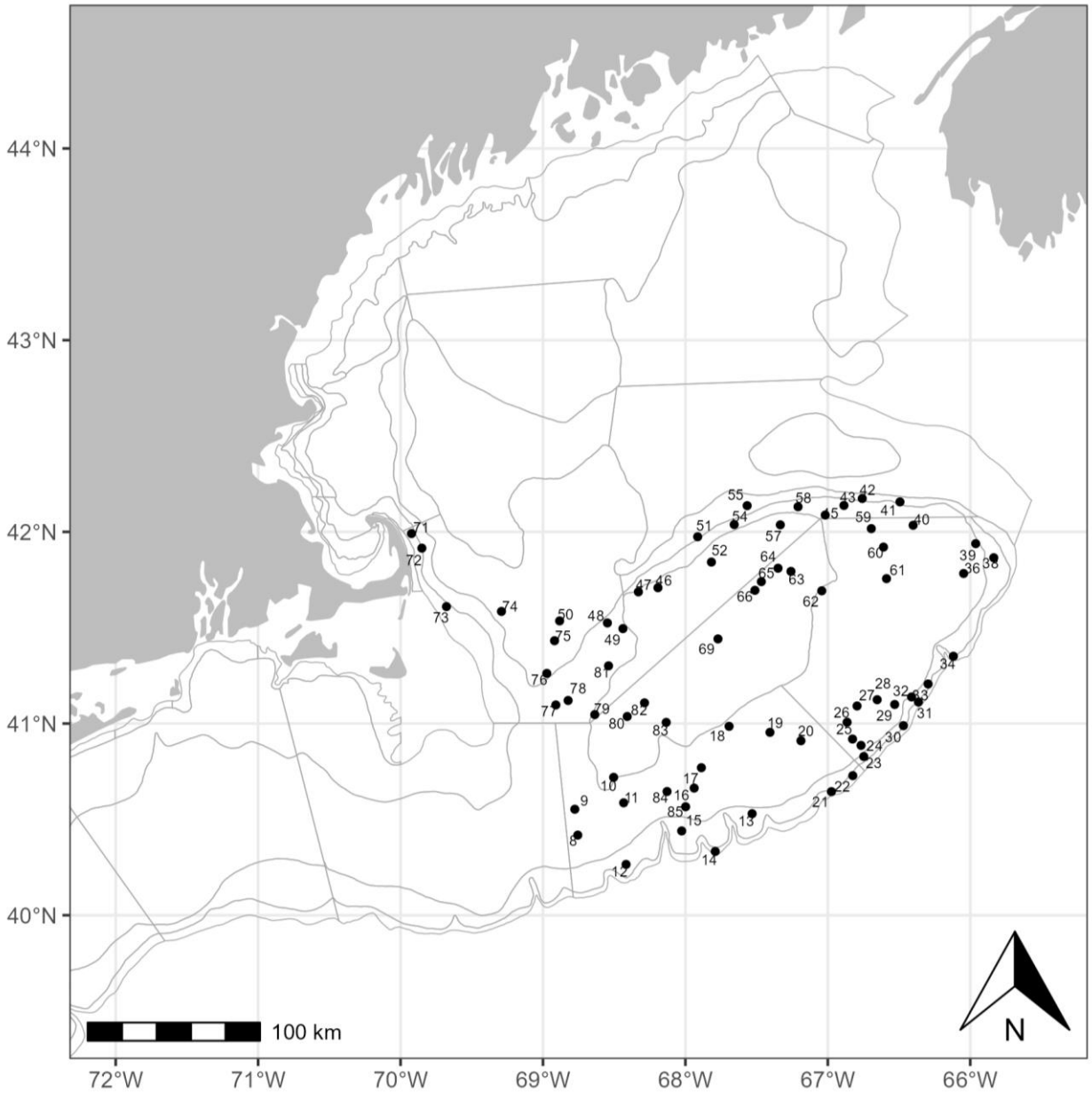

Figure 1: *Representative trawl hauls made from NOAA Ship Henry B. Bigelow during the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

Table 1. Station report of valid hauls from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023 - May 23, 2023.

Station	Date	Time	Begin Longitude	Begin Latitude	End Longitude	End Latitude	Mean Depth	Tow Duration	Tow Distance (nm)
8	09-May-2023	05:13:49	-68.75567	40.41800	-68.73867	40.42783	85	20.03	0.977
9	09-May-2023	07:07:31	-68.77650	40.55283	-68.75883	40.56183	68	20.02	0.972
10	09-May-2023	10:06:39	-68.50383	40.71933	-68.48217	40.71967	60	20.01	0.989
11	09-May-2023	12:32:04	-68.43367	40.58650	-68.43467	40.56933	83	20.45	1.030
12	09-May-2023	15:09:05	-68.41650	40.26517	-68.40133	40.27700	150	20.17	0.994
13	10-May-2023	04:50:48	-67.53150	40.52983	-67.51250	40.53717	124	20.13	0.974
14	10-May-2023	08:12:24	-67.79033	40.33300	-67.76983	40.33617	246	20.06	0.960
15	10-May-2023	11:04:08	-68.02600	40.43983	-68.00617	40.44900	142	20.95	1.062
16	10-May-2023	13:19:21	-67.93850	40.66333	-67.94300	40.64733	87	20.17	0.981
17	10-May-2023	15:01:15	-67.88783	40.76967	-67.90400	40.75900	72	20.00	0.976
18	11-May-2023	04:51:12	-67.69317	40.98550	-67.71517	40.98467	63	20.12	1.001
19	11-May-2023	07:34:12	-67.40617	40.95417	-67.42667	40.95933	75	20.00	0.982
20	11-May-2023	09:53:39	-67.18867	40.91033	-67.20950	40.91600	85	20.01	1.007
21	11-May-2023	14:37:13	-66.97467	40.64483	-66.99283	40.63617	196	20.01	0.979
22	12-May-2023	04:51:13	-66.82483	40.72817	-66.83883	40.71583	210	20.03	0.977
23	12-May-2023	06:59:15	-66.74733	40.82800	-66.73400	40.83967	122	20.00	0.926
24	12-May-2023	08:27:04	-66.76683	40.88600	-66.75200	40.89600	98	20.05	0.903
25	12-May-2023	09:59:01	-66.82650	40.91917	-66.80933	40.92750	92	20.02	0.927
26	12-May-2023	11:50:53	-66.86467	41.00683	-66.84583	41.01500	74	19.98	0.986
27	12-May-2023	13:20:50	-66.79467	41.09167	-66.77950	41.10333	73	20.06	0.981
28	12-May-2023	14:51:26	-66.65350	41.12433	-66.63817	41.13600	88	20.00	0.986

Table 1. Station report of valid hauls from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023 - May 23, 2023.

Station	Date	Time	Begin Longitude	Begin Latitude	End Longitude	End Latitude	Mean Depth	Tow Duration	Tow Distance (nm)
29	13-May-2023	04:48:35	-66.53050	41.09950	-66.54517	41.08750	94	20.01	0.980
30	13-May-2023	07:10:39	-66.46900	40.98900	-66.48217	40.97617	225	20.24	0.975
31	13-May-2023	09:50:35	-66.36367	41.11233	-66.37567	41.09967	208	20.03	0.934
32	13-May-2023	11:53:55	-66.41183	41.13867	-66.42783	41.12733	116	20.05	0.994
33	13-May-2023	14:27:24	-66.29567	41.20617	-66.30900	41.19367	138	20.03	0.963
34	14-May-2023	04:58:19	-66.11833	41.35117	-66.09983	41.35850	218	20.01	0.945
36	14-May-2023	08:59:27	-66.04650	41.78283	-66.04317	41.76533	97	19.98	1.060
38	14-May-2023	13:41:39	-65.83500	41.86500	-65.83317	41.88133	135	20.02	0.983
39	14-May-2023	15:26:31	-65.96167	41.93850	-65.96000	41.92350	103	20.02	0.903
40	15-May-2023	04:50:14	-66.40100	42.03433	-66.39633	42.02017	86	20.17	0.875
41	15-May-2023	07:07:48	-66.49350	42.15617	-66.51250	42.15983	149	20.03	0.876
42	15-May-2023	09:29:34	-66.75833	42.17400	-66.77867	42.17450	179	19.98	0.908
43	15-May-2023	12:02:24	-66.88683	42.13783	-66.90883	42.13850	78	20.00	0.983
45	15-May-2023	14:07:37	-67.01800	42.08767	-66.99650	42.08667	62	20.01	0.962
46	16-May-2023	04:46:30	-68.19267	41.70850	-68.21017	41.70100	24	20.02	0.906
47	16-May-2023	06:57:56	-68.33017	41.68683	-68.34500	41.67683	59	20.09	0.897
48	16-May-2023	09:27:24	-68.54767	41.52483	-68.56600	41.51567	102	19.99	0.992
49	16-May-2023	11:20:35	-68.43883	41.49517	-68.45383	41.48233	78	19.98	1.025
50	16-May-2023	14:53:27	-68.88317	41.53550	-68.89950	41.52533	156	20.18	0.956
51	17-May-2023	10:54:17	-67.91383	41.97450	-67.92417	41.98850	180	19.98	0.959
52	17-May-2023	13:40:48	-67.81733	41.84233	-67.81967	41.85767	38	20.01	0.926

Table 1. Station report of valid hauls from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023 - May 23, 2023.

Station	Date	Time	Begin Longitude	Begin Latitude	End Longitude	End Latitude	Mean Depth	Tow Duration	Tow Distance (nm)
54	18-May-2023	06:51:36	-67.65750	42.03800	-67.67767	42.03267	92	20.04	0.957
55	18-May-2023	09:22:57	-67.56633	42.13667	-67.58417	42.14617	182	20.01	0.979
57	18-May-2023	12:56:40	-67.33350	42.03667	-67.32217	42.02367	52	17.59	0.930
58	18-May-2023	15:01:58	-67.20917	42.13100	-67.23067	42.13000	81	20.01	0.962
59	19-May-2023	02:45:31	-66.69467	42.01700	-66.69433	42.03250	71	20.05	0.930
60	19-May-2023	04:38:36	-66.60917	41.92050	-66.60483	41.93683	74	20.05	0.999
61	19-May-2023	06:55:33	-66.58783	41.75600	-66.56633	41.75600	74	20.00	0.965
62	19-May-2023	10:43:14	-67.04250	41.69250	-67.05917	41.68217	63	20.13	0.972
63	19-May-2023	14:07:23	-67.25867	41.79367	-67.27817	41.79917	53	20.00	0.935
64	19-May-2023	15:40:28	-67.34950	41.81033	-67.35717	41.82517	62	20.00	0.954
65	20-May-2023	02:46:10	-67.46667	41.74033	-67.47417	41.75483	47	20.17	0.933
66	20-May-2023	04:09:38	-67.51167	41.69500	-67.52367	41.70800	51	20.00	0.948
69	20-May-2023	11:12:48	-67.77133	41.44150	-67.79150	41.43550	40	20.10	0.979
71	21-May-2023	04:45:12	-69.92300	41.99100	-69.91067	41.97817	50	20.08	0.947
72	21-May-2023	06:44:20	-69.85033	41.91500	-69.84550	41.89917	65	20.06	0.974
73	21-May-2023	09:09:36	-69.67767	41.61017	-69.65983	41.59917	48	20.00	1.039
74	21-May-2023	12:39:23	-69.29150	41.58483	-69.28917	41.56833	139	20.02	0.995
75	21-May-2023	15:38:18	-68.91883	41.43217	-68.91533	41.41483	145	20.01	1.051
76	22-May-2023	04:48:22	-68.97300	41.26150	-68.96650	41.27683	138	20.01	0.965
77	22-May-2023	07:08:34	-68.90950	41.09700	-68.89717	41.11067	84	20.00	0.992
78	22-May-2023	08:31:19	-68.82350	41.12033	-68.81200	41.13533	77	19.98	1.040

Table 1. Station report of valid hauls from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023 - May 23, 2023.

Station	Date	Time	Begin Longitude	Begin Latitude	End Longitude	End Latitude	Mean Depth	Tow Duration	Tow Distance (nm)
79	22-May-2023	12:33:23	-68.63633	41.04667	-68.64617	41.03217	62	20.30	0.977
80	22-May-2023	14:37:57	-68.40833	41.03683	-68.42217	41.04900	47	20.00	0.963
81	23-May-2023	04:44:01	-68.53967	41.30100	-68.52633	41.31417	64	20.01	0.993
82	23-May-2023	06:59:24	-68.28700	41.10800	-68.26700	41.11350	42	20.01	0.965
83	23-May-2023	09:16:26	-68.13450	41.00600	-68.11350	41.00967	46	19.97	0.979
84	23-May-2023	12:32:52	-68.12867	40.64550	-68.11750	40.65983	87	19.98	0.999
85	23-May-2023	14:48:30	-67.99850	40.56600	-67.99283	40.58133	96	20.01	0.955

Table 2: Catch summary (lbs.) of important species by haul from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.

Station	Acadian Redfish	American Lobster	American Plaice	Atlantic Cod	Atlantic Herring	Atlantic Mackerel	Butterfish	Goosefish	Haddock	Longfin Squid	Northern Shortfin Squid	Pollock	Red Hake	Silver Hake	Spiny Dogfish	Summer Flounder	White Hake	Windowpane	Winter Flounder	Witch Flounder	Yellowtail Flounder	Other	Total
8	0.0	0.0	0.0	0.0	0.0	0.0	1.2	3.5	0.0	0.5	0.0	0.0	5.3	9.3	1,057.6	0.0	0.0	0.4	0.0	0.0	0.0	178.0	1,263.8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.1	0.1	0.0	4.0	9.2	260.9	9.7	0.0	0.0	0.0	0.0	0.0	215.3	509.4
10	0.0	0.0	0.0	0.0	0.0	14.7	6.0	0.0	0.0	1.5	0.0	0.0	0.0	0.4	604.6	0.0	0.0	0.3	0.0	0.0	0.0	131.2	768.7
11	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.8	0.0	0.0	1.1	0.0	5.0	8.0	31.8	1.6	0.0	0.0	0.0	0.0	0.0	114.7	178.2
12	0.0	0.0	0.0	0.0	0.0	0.0	17.6	3.0	0.0	95.6	5.3	0.0	0.3	2.8	4.6	30.5	0.0	0.0	0.0	0.0	0.0	43.6	215.3
13	0.0	0.0	0.0	0.0	0.0	0.0	285.3	5.3	0.0	12.8	0.3	0.0	0.0	33.9	0.0	17.1	0.0	0.0	0.0	0.0	0.0	47.4	415.1
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	4.6	0.0	45.0	0.0	39.7	0.0	7.7	0.0	0.0	1.1	0.0	60.4	174.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3	0.0	29.4	3.4	0.0	0.5	3.0	3.0	35.6	0.0	0.0	0.0	0.0	0.0	97.0	210.2
16	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	6.5	0.6	0.0	32.5	37.0	503.6	11.2	0.0	0.0	0.0	0.0	0.0	485.7	1,093.7
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	0.0	0.2	0.0	0.0	0.6	9.8	57.5	4.2	0.0	0.0	0.0	0.0	0.0	181.9	278.6
18	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	255.3	0.7	0.0	0.0	6.6	21.1	722.8	0.0	0.0	0.3	0.0	0.0	0.6	124.4	1,153.1
19	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.5	0.0	0.0	6.9	32.0	0.0	0.0	0.5	2.2	0.0	0.0	0.0	111.3	172.8
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	65.8	31.4	0.0	2.4	0.0	0.0	0.0	0.0	0.0	169.9	290.6
21	0.0	0.0	0.0	0.0	0.0	0.0	18.4	0.0	0.0	3.1	1.0	0.0	9.0	6.9	48.5	0.0	0.0	0.0	0.0	0.4	0.0	165.9	274.2
22	0.0	0.0	0.0	0.0	0.0	0.0	485.1	0.0	0.0	10.8	7.7	0.0	34.9	44.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.8	640.2

Table 2: Catch summary (lbs.) of important species by haul from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.

Station	Acadian Redfish	American Lobster	American Plaice	Atlantic Cod	Atlantic Herring	Atlantic Mackerel	Butterfish	Goosefish	Haddock	Longfin Squid	Northern Shortfin Squid	Pollock	Red Hake	Silver Hake	Spiny Dogfish	Summer Flounder	White Hake	Windowpane	Winter Flounder	Witch Flounder	Yellowtail Flounder	Other	Total
23	0.0	0.0	0.0	0.0	0.0	0.0	29.2	0.0	0.0	0.9	0.7	0.0	2.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.8	101.4
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.8	0.2	0.0	6.8	5.5	0.0	2.4	0.0	0.0	0.0	0.0	0.0	75.3	119.8
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.8	0.0	0.1	0.6	0.0	13.0	36.5	0.0	3.4	8.1	0.0	0.0	1.1	0.0	263.1	383.7
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	1.9	11.2	0.0	3.3	0.0	0.0	0.0	0.0	0.0	147.0	189.9
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.9	0.0	7.8	6.3	0.0	5.0	0.0	0.0	0.0	0.0	0.0	184.2	272.2
28	0.0	2.7	0.0	3.8	0.0	0.0	0.0	15.0	0.0	0.7	0.2	0.0	17.2	32.2	0.0	0.0	0.0	0.0	0.0	0.0	7.8	89.5	197.1
29	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.7	0.1	0.0	11.1	82.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	699.0	822.4
30	0.0	0.0	0.0	0.0	0.0	0.0	38.7	0.0	0.0	0.4	2.9	0.0	16.6	35.9	0.0	0.0	0.0	0.0	0.0	1.4	0.0	81.3	207.2
31	0.0	9.0	0.0	0.0	0.0	1.5	247.3	0.0	0.0	1.4	1.6	0.0	8.1	7.1	0.0	0.0	0.0	0.0	0.0	5.1	0.0	56.0	368.1
32	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.6	0.0	0.2	0.0	0.0	44.1	83.8	0.0	0.0	0.0	0.0	0.0	2.9	0.0	142.5	308.8
33	0.0	14.1	0.0	0.0	0.0	0.0	4.5	0.0	0.0	10.8	1.1	0.0	3.6	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	196.7	268.8
34	0.0	135.3	0.0	0.0	0.0	0.7	2.7	0.0	0.0	0.9	0.5	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.0	220.8
36	0.0	21.5	1.5	37.4	0.0	0.0	0.3	0.0	4.1	0.0	0.0	0.0	3.6	4.6	0.0	0.0	0.0	0.4	5.6	0.0	1.3	966.0	1,082.3
38	0.5	55.2	0.0	7.8	0.0	0.0	0.7	6.5	258.8	0.0	0.1	0.0	3.3	17.8	66.9	0.0	0.0	0.0	0.0	0.0	0.0	95.5	551.1
39	0.0	84.9	0.0	39.9	0.0	0.0	0.1	8.7	384.9	0.0	0.7	0.0	0.0	8.1	3.4	0.0	0.0	0.0	2.3	0.0	0.0	211.1	783.1

Table 2: Catch summary (lbs.) of important species by haul from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.

Station	Acadian Redfish	American Lobster	American Plaice	Atlantic Cod	Atlantic Herring	Atlantic Mackerel	Butterfish	Goosefish	Haddock	Longfin Squid	Northern Shortfin Squid	Pollock	Red Hake	Silver Hake	Spiny Dogfish	Summer Flounder	White Hake	Windowpane	Winter Flounder	Witch Flounder	Yellowtail Flounder	Other	Total
40	0.0	8.5	0.0	49.1	12.1	83.7	0.2	0.0	656.4	0.2	0.0	0.0	0.0	9.8	0.0	0.0	0.0	0.0	6.3	0.0	0.0	310.6	1,176.9
41	0.0	43.5	0.0	31.6	17.5	0.6	0.0	42.9	9.5	0.2	0.2	268.6	87.4	108.4	3,147.7	0.0	2.6	0.0	0.0	0.9	0.0	398.9	4,201.5
42	0.0	25.8	0.0	11.4	0.0	5.5	0.0	95.4	2.5	0.0	0.1	3.2	71.3	146.7	184.8	0.0	0.8	0.0	0.0	6.6	0.0	131.9	728.0
43	0.0	10.1	0.0	164.0	0.0	0.0	0.0	0.0	575.9	0.0	0.0	0.0	0.0	0.3	75.0	0.0	0.0	0.0	0.0	0.0	0.0	523.6	1,391.9
45	0.0	4.2	0.0	11.7	1.3	101.9	0.0	0.0	619.8	0.0	0.0	0.0	0.0	19.0	0.0	0.0	0.0	0.0	44.1	0.0	0.0	613.6	1,460.6
46	0.0	0.0	0.0	0.0	0.7	33.0	2.2	0.0	0.0	13.7	0.0	0.0	0.0	1.8	3.5	0.0	0.0	0.4	0.0	0.0	0.0	143.4	244.7
47	0.0	1.9	0.6	0.0	1.8	0.0	1.0	0.0	1.6	0.2	0.0	0.0	4.4	227.9	6.1	0.0	0.0	0.0	3.9	0.0	0.0	94.6	391.0
48	0.0	4.5	5.6	0.0	19.8	3.1	0.7	4.0	41.6	0.0	0.0	0.0	37.9	67.0	134.8	0.0	0.0	0.0	0.0	0.4	0.0	101.7	469.1
49	0.0	0.0	2.2	0.0	7.2	0.0	0.5	5.6	4.3	0.0	0.0	0.6	12.2	210.3	97.0	0.0	0.0	0.0	1.1	0.0	0.0	99.5	489.5
50	43.9	74.4	1.0	37.1	1.9	0.6	0.0	3.7	20.4	0.0	0.0	0.0	242.5	393.0	319.1	0.0	0.0	0.0	1.6	1.3	0.0	84.1	1,274.6
51	1.0	3.2	4.3	0.0	1.8	1.2	1.7	28.6	1.1	0.0	0.0	0.0	214.8	414.0	2.5	0.0	0.0	0.0	0.0	5.2	0.0	71.6	802.0
52	0.0	22.8	0.0	0.0	0.0	0.0	0.0	0.0	141.2	14.2	0.0	0.0	1.9	26.7	0.0	0.0	0.0	0.0	16.0	0.0	0.0	320.2	595.0
54	0.0	3.7	8.4	0.0	35.4	0.5	0.2	0.0	60.1	0.8	0.0	0.0	22.5	604.9	0.0	0.0	0.0	0.0	0.0	3.1	0.0	532.6	1,326.2
55	22.2	41.8	0.9	0.0	0.8	0.0	0.2	71.8	30.3	0.1	0.0	73.3	106.9	1,548.9	0.0	0.0	52.0	0.0	0.0	3.1	0.0	46.8	2,054.1
57	0.0	2.7	0.0	132.7	0.0	2.6	0.0	14.5	1,532.5	1.0	0.0	0.0	0.0	8.6	7.8	0.0	0.0	0.7	85.0	0.0	0.0	1,002.6	2,847.7

Table 2: Catch summary (lbs.) of important species by haul from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.

Station	Acadian Redfish	American Lobster	American Plaice	Atlantic Cod	Atlantic Herring	Atlantic Mackerel	Butterfish	Goosefish	Haddock	Longfin Squid	Northern Shortfin Squid	Pollock	Red Hake	Silver Hake	Spiny Dogfish	Summer Flounder	White Hake	Windowpane	Winter Flounder	Witch Flounder	Yellowtail Flounder	Other	Total
58	0.0	10.1	0.0	24.7	1.2	0.0	0.0	16.6	102.8	1.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	23.1	0.0	0.0	337.1	578.9
59	0.0	1.8	0.0	47.8	10.4	2.6	2.1	0.0	284.6	0.4	0.1	0.0	0.0	77.7	4.0	0.0	0.0	0.0	15.9	0.0	0.4	373.2	880.0
60	0.0	1.8	0.0	133.9	3.3	2.5	2.2	0.0	1,938.6	0.4	0.1	0.0	0.8	38.8	0.0	0.0	1.2	0.0	130.5	0.0	0.0	170.3	2,484.4
61	0.0	9.7	0.5	3.9	0.0	0.0	1.0	0.0	1.4	0.0	0.0	0.0	1.8	3.0	9.3	0.0	0.0	0.4	0.0	0.0	0.0	85.8	177.8
62	0.0	0.0	1.1	0.0	0.3	55.9	0.8	0.0	0.0	0.4	0.1	0.0	0.0	1.9	0.0	0.0	0.0	0.0	1.0	0.0	0.0	123.8	247.3
63	0.0	1.2	0.0	73.5	0.0	0.0	0.0	0.0	230.1	4.0	0.0	0.0	0.9	2.0	4.3	0.0	0.0	0.0	13.4	0.0	0.0	174.8	567.2
64	0.0	8.1	0.0	0.0	0.0	0.0	0.1	0.0	548.2	11.6	0.0	0.0	6.0	20.1	0.0	0.0	1.6	0.0	168.2	0.0	0.0	317.0	1,144.9
65	0.0	0.0	0.0	0.0	1.3	0.0	0.2	0.0	3.1	0.9	0.0	0.0	0.0	32.2	7.7	0.0	0.0	16.5	0.1	0.0	0.0	297.9	424.9
66	0.0	1.3	0.0	0.0	1.1	0.0	2.8	0.0	0.0	9.5	0.0	0.0	5.1	40.2	4.7	0.0	0.0	3.7	9.5	0.0	0.0	781.4	925.3
69	0.0	0.0	0.0	0.0	0.3	0.5	0.8	0.0	0.0	13.4	0.0	0.0	0.0	10.8	11.3	0.0	0.0	0.0	0.0	0.0	0.0	225.7	331.8
71	0.0	1.4	0.0	0.6	7.9	1.3	0.0	1.0	0.0	0.2	0.0	0.0	1.4	186.9	0.0	0.0	0.2	0.0	7.9	0.0	22.6	143.7	446.1
72	0.3	19.4	0.0	0.7	18.7	0.0	0.0	0.1	0.0	0.6	0.0	0.0	0.7	149.4	0.0	0.0	0.2	0.0	1.5	0.0	6.3	132.4	402.3
73	0.0	0.0	0.0	0.0	485.3	26.8	0.1	0.0	0.0	0.4	0.0	0.0	0.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	91.1	684.4
74	57.8	27.7	2.1	65.9	0.0	0.0	0.0	22.2	202.0	0.0	0.0	0.0	1,732.3	324.9	7.8	0.0	1.2	0.0	0.0	3.6	2.1	196.9	2,720.5
75	36.0	12.6	3.7	25.0	2.2	0.2	0.3	8.3	95.4	0.0	0.0	0.0	445.6	491.6	95.1	0.0	0.0	0.0	0.0	0.5	0.0	82.1	1,373.6

Table 2: Catch summary (lbs.) of important species by haul from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.

Station	Acadian Redfish	American Lobster	American Plaice	Atlantic Cod	Atlantic Herring	Atlantic Mackerel	Butterfish	Goosefish	Haddock	Longfin Squid	Northern Shortfin Squid	Pollock	Red Hake	Silver Hake	Spiny Dogfish	Summer Flounder	White Hake	Windowpane	Winter Flounder	Witch Flounder	Yellowtail Flounder	Other	Total
76	5.4	23.6	0.2	2.6	48.1	0.7	0.5	11.8	81.9	0.1	0.0	0.0	78.0	210.2	7.0	0.0	0.0	0.0	0.0	0.0	0.0	90.2	636.3
77	0.0	5.8	0.0	0.0	2.6	0.0	1.5	0.0	2.7	0.2	0.0	0.0	18.9	143.0	64.9	0.0	0.5	0.0	0.0	0.0	4.8	102.4	424.3
78	0.0	13.4	0.0	6.9	1.1	0.0	9.7	17.0	1.0	1.4	0.0	0.0	69.9	122.8	110.1	0.7	0.0	0.0	0.0	0.0	1.9	176.9	610.8
79	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	6.2	0.2	0.0	3.4	8.0	515.2	0.9	0.0	0.0	0.0	0.0	0.0	228.6	844.0
80	0.0	0.0	0.0	0.0	0.0	0.0	7.9	0.0	0.0	4.6	0.5	0.0	1.5	13.2	57.4	0.0	0.0	3.4	0.0	0.0	0.0	40.7	209.2
81	0.0	5.4	0.0	2.5	0.5	0.0	20.3	0.0	0.0	4.4	0.0	0.0	28.4	155.7	300.3	0.0	0.0	0.0	2.7	0.0	0.0	123.8	725.0
82	0.0	0.0	0.0	0.0	0.0	1.3	1.6	0.0	0.0	2.9	0.0	0.0	0.7	3.4	29.5	0.8	0.0	1.4	4.1	0.0	0.0	54.9	182.6
83	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	5.0	3.3	0.0	0.0	9.2	43.6	4.2	0.0	0.0	0.0	0.0	0.0	327.1	480.0
84	0.0	0.0	0.0	0.0	0.0	0.0	2.9	9.2	0.0	1.6	2.3	0.0	11.4	33.0	48.0	2.5	0.0	0.0	0.0	0.3	0.0	162.1	357.3
85	0.0	0.0	0.0	0.0	0.0	0.0	58.1	7.1	0.0	12.9	0.1	0.0	4.0	60.6	572.5	0.0	0.0	0.0	0.0	0.0	0.0	168.1	968.4

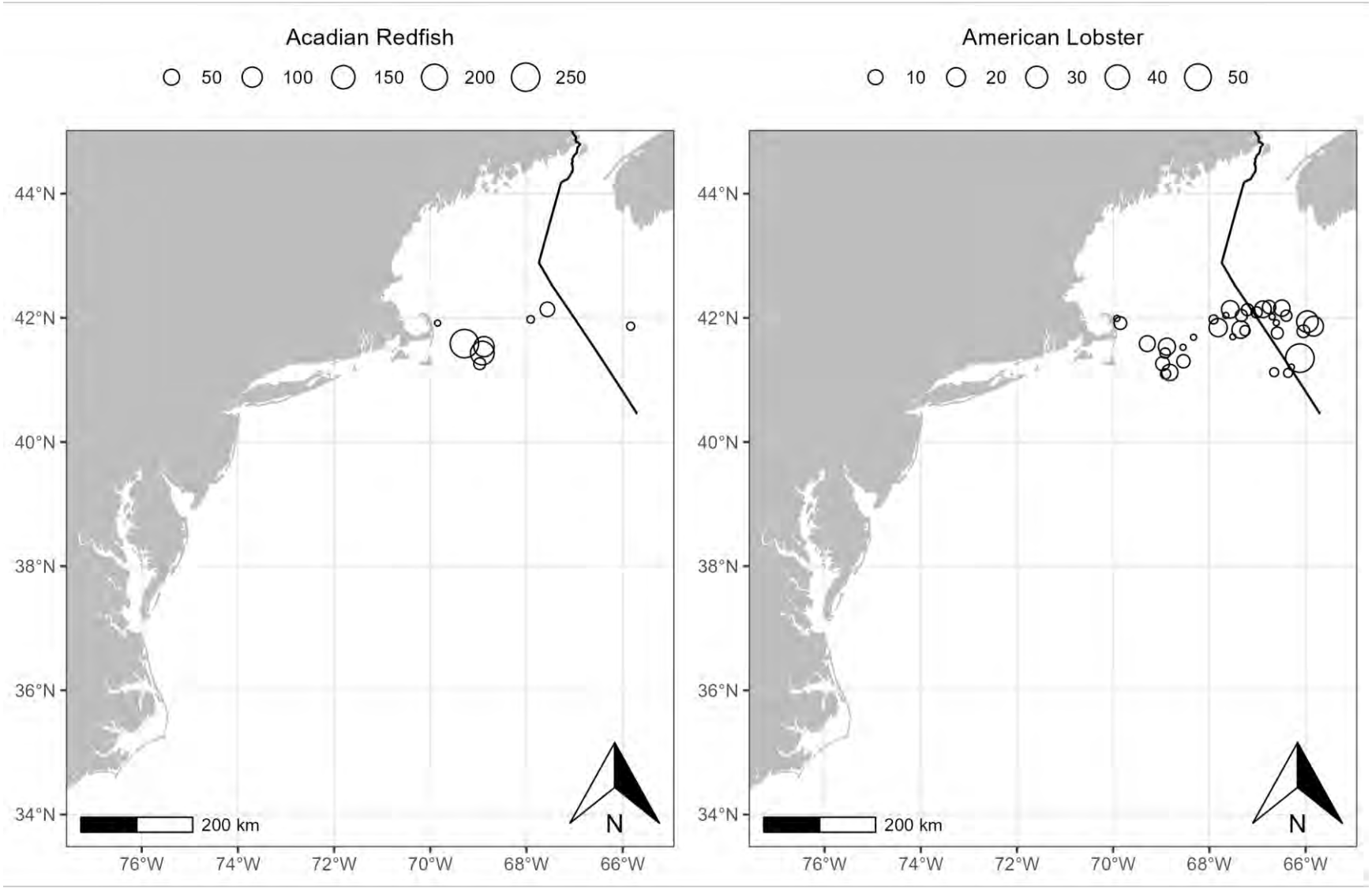

Figure 2: *Total number of Acadian redfish (left) and American lobster (right) per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

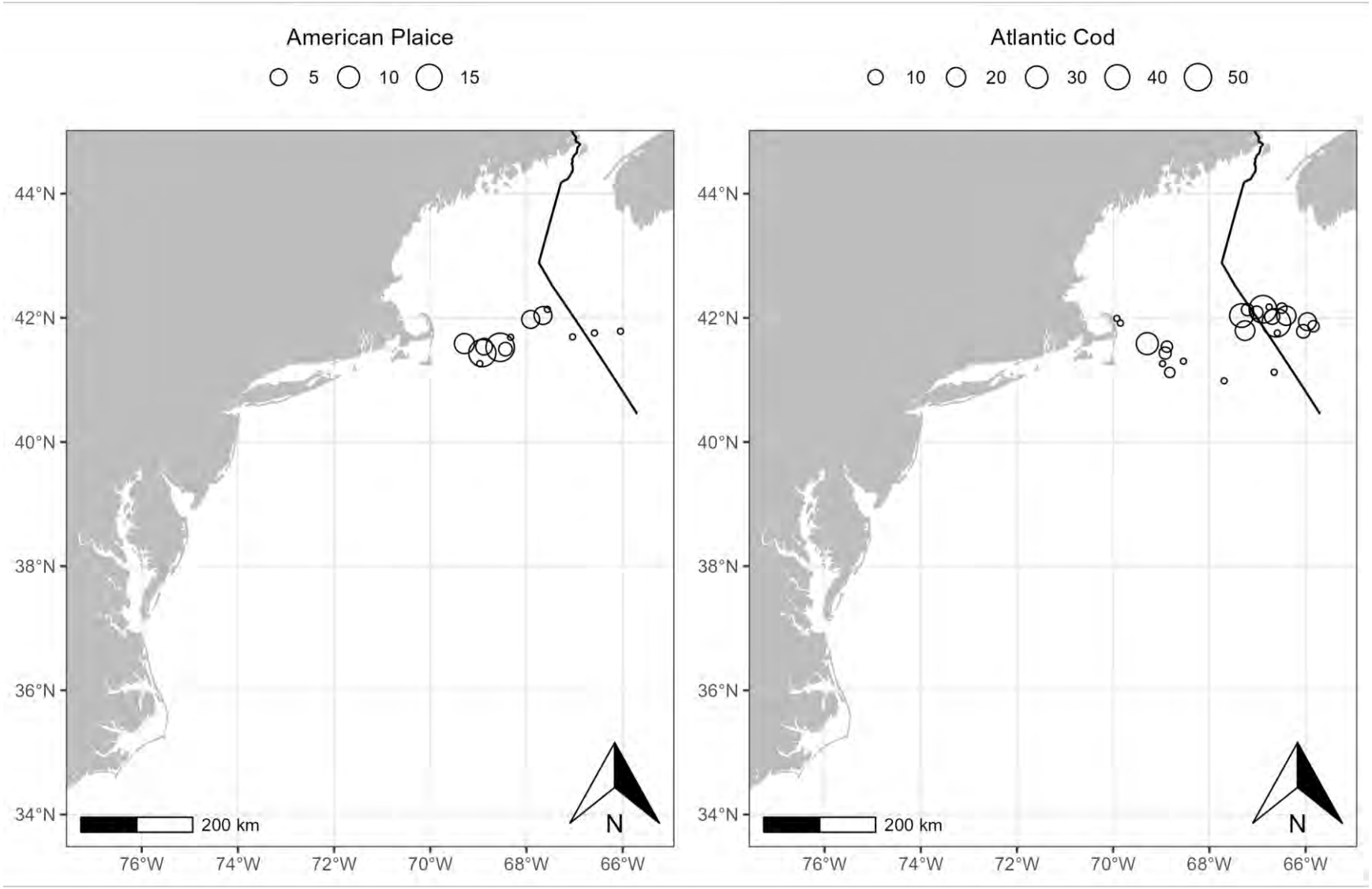

Figure 3: *Total number of American plaice (left) and Atlantic cod (right) per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

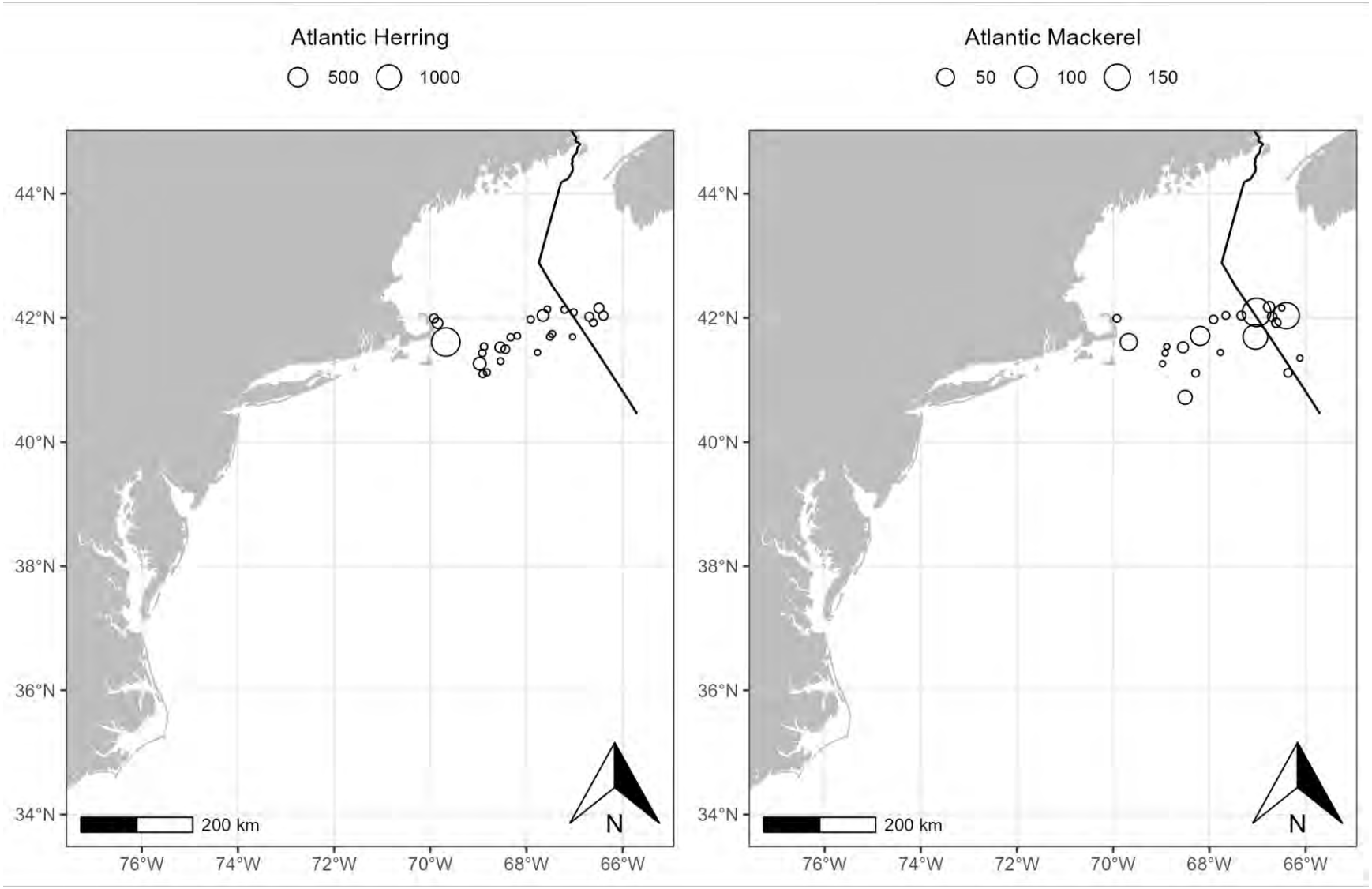

Figure 4: *Total number of Atlantic herring (left) and Atlantic mackerel (right) per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

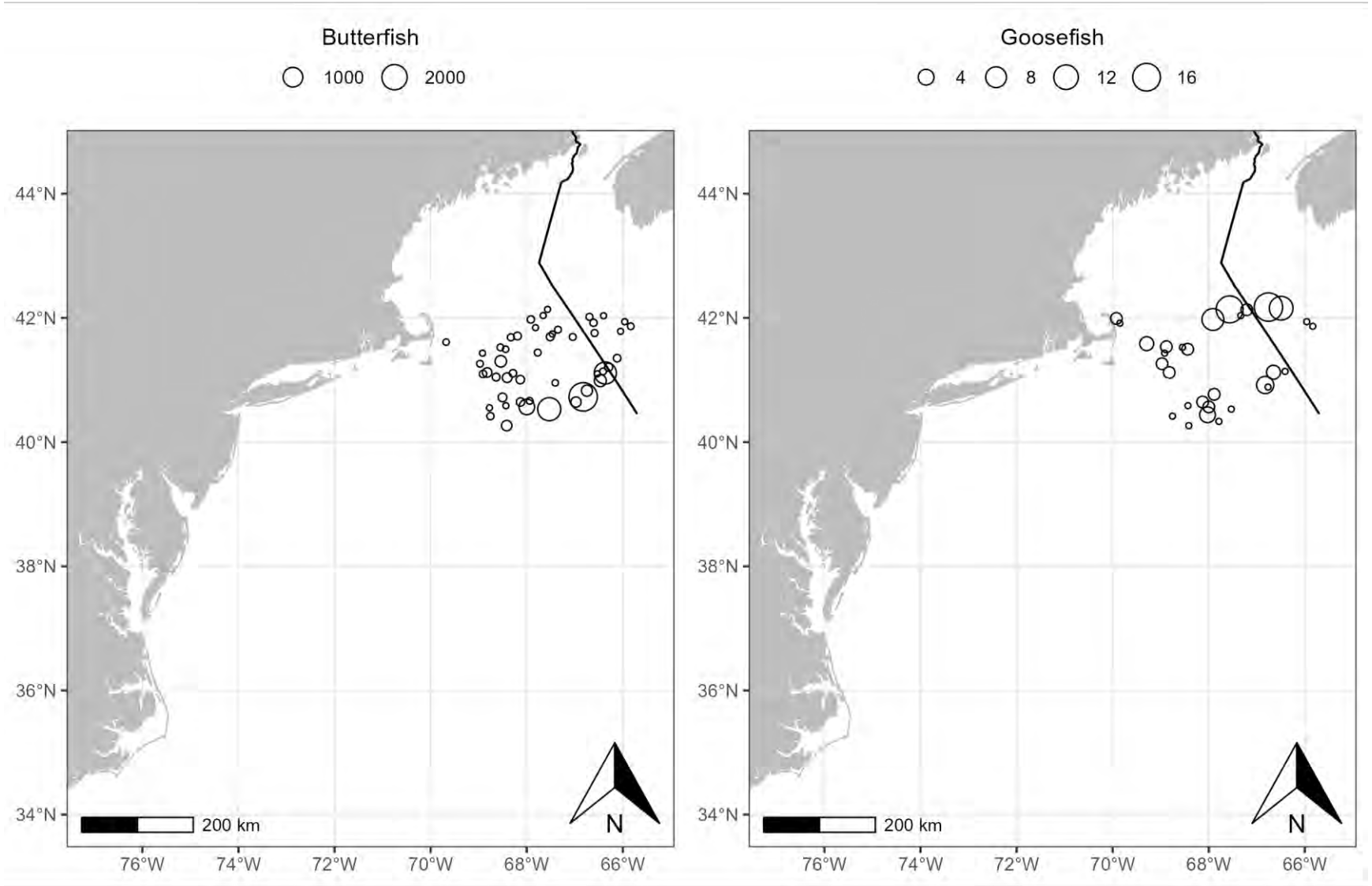

Figure 5: *Total number of Butterfish (left) and Goosefish (right) per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

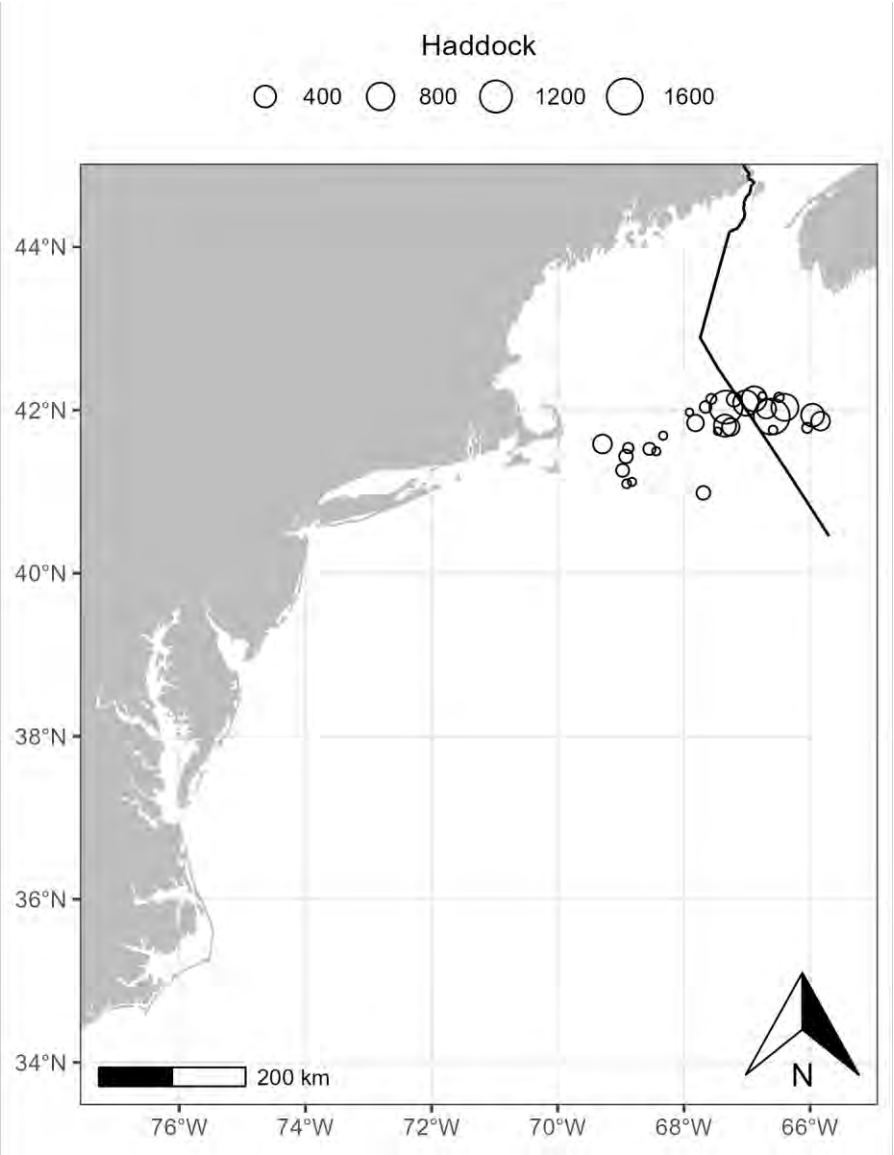

Figure 6: *Total number of haddock per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

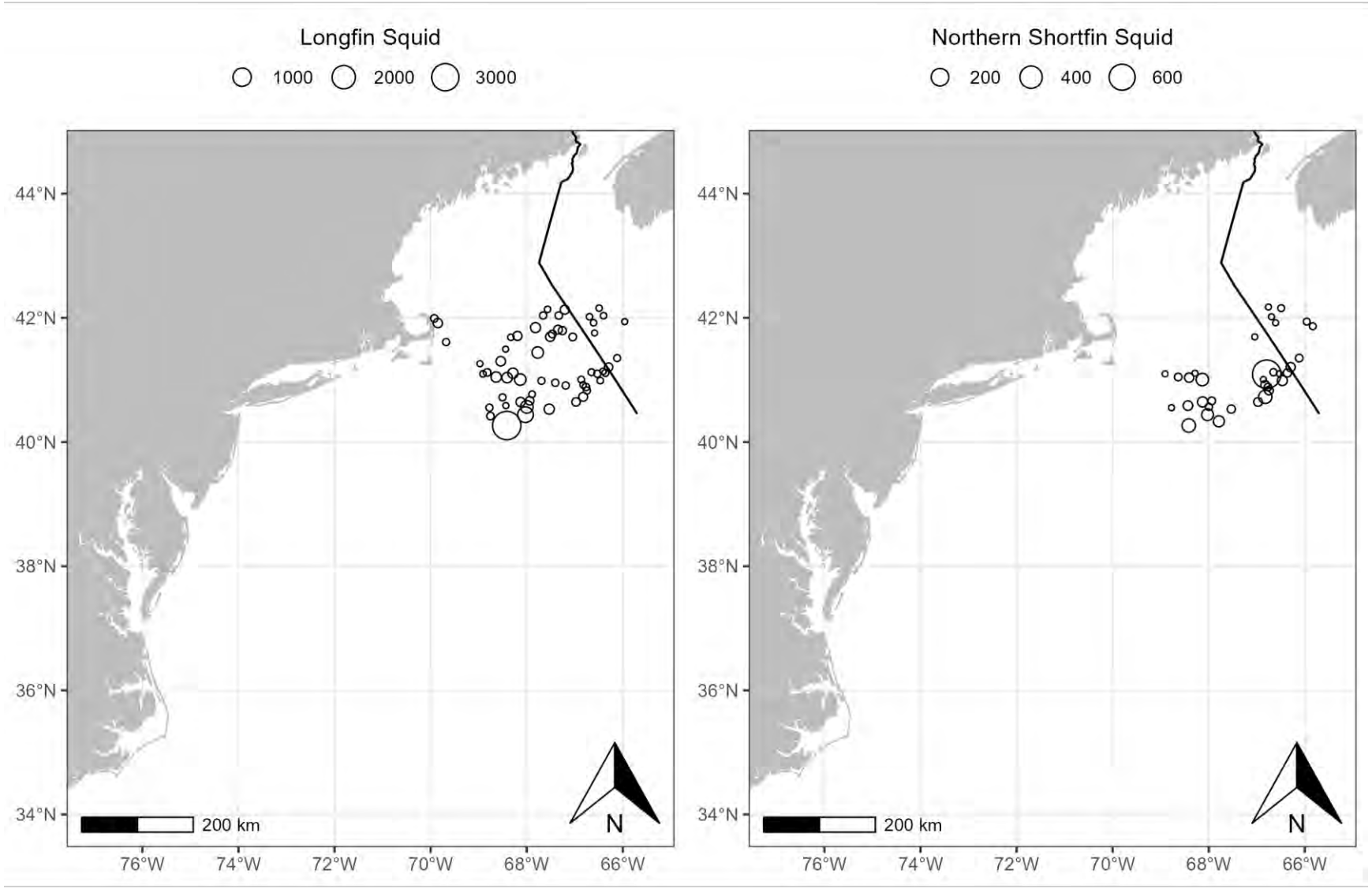

Figure 7: *Total number of longfin squid (left) and shortfin squid (right) per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

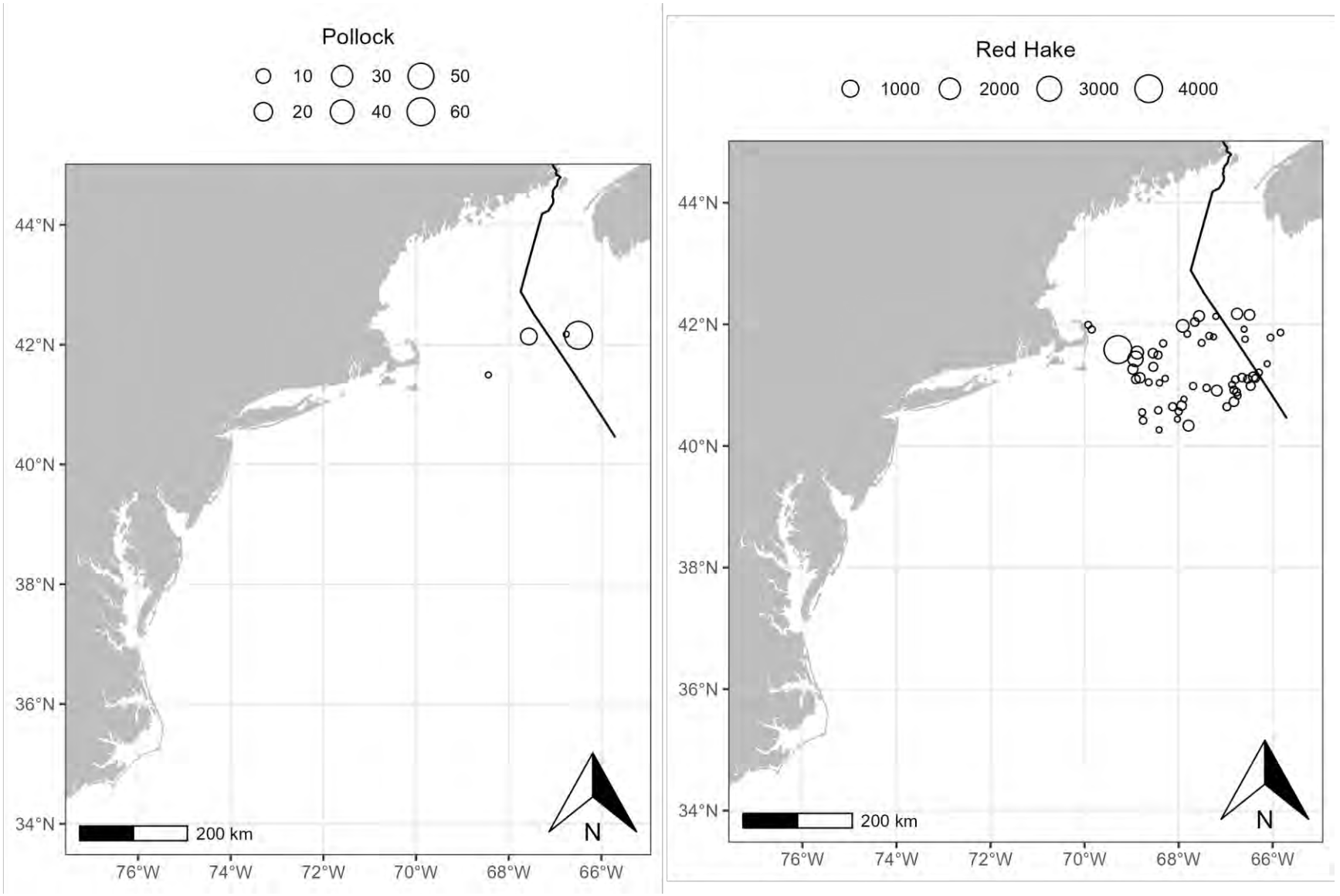

Figure 8: *Total number of pollock (left) and red hake (right) per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

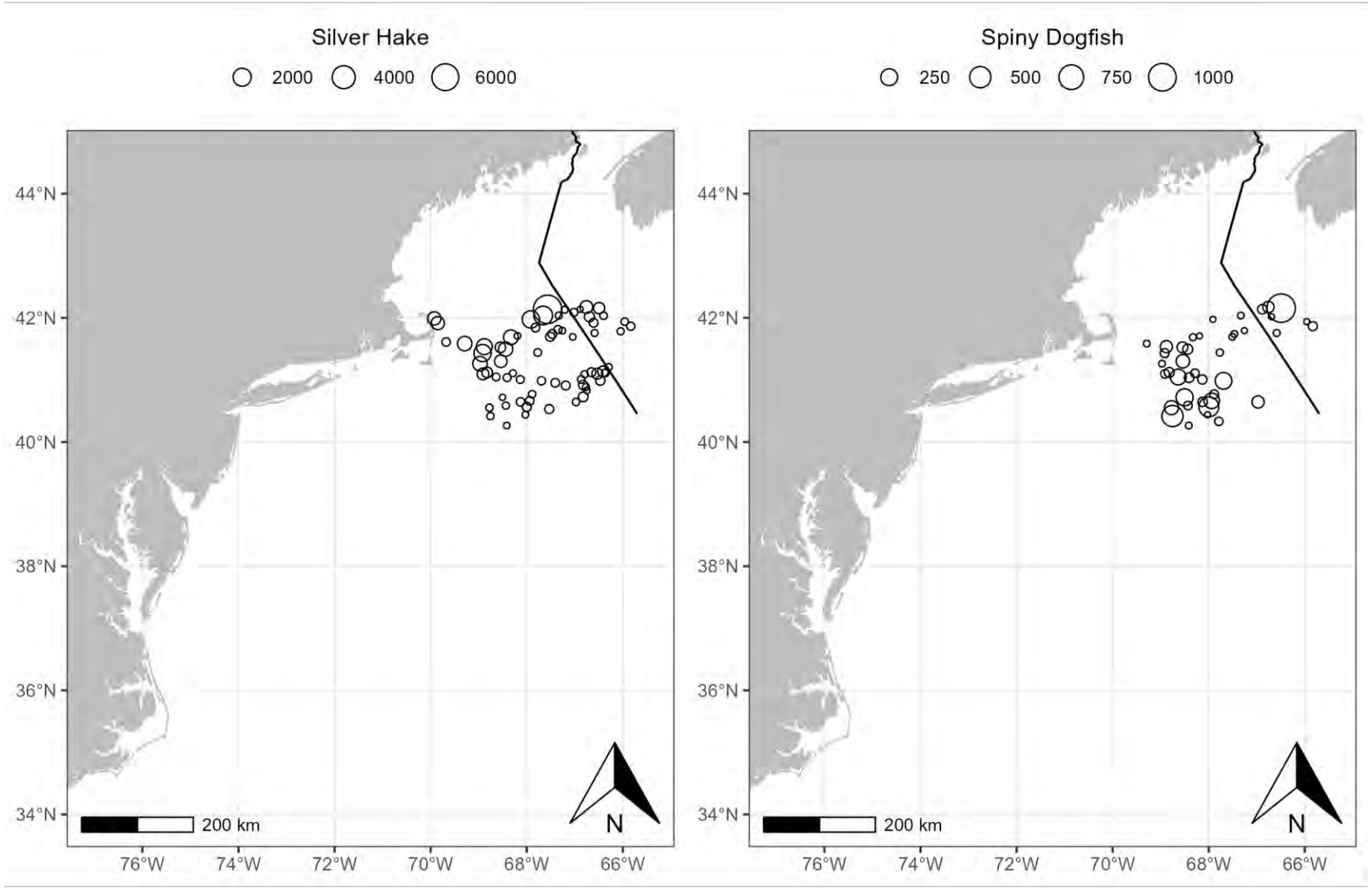

Figure 9: *Total number of silver hake (left) and spiny dogfish (right) per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

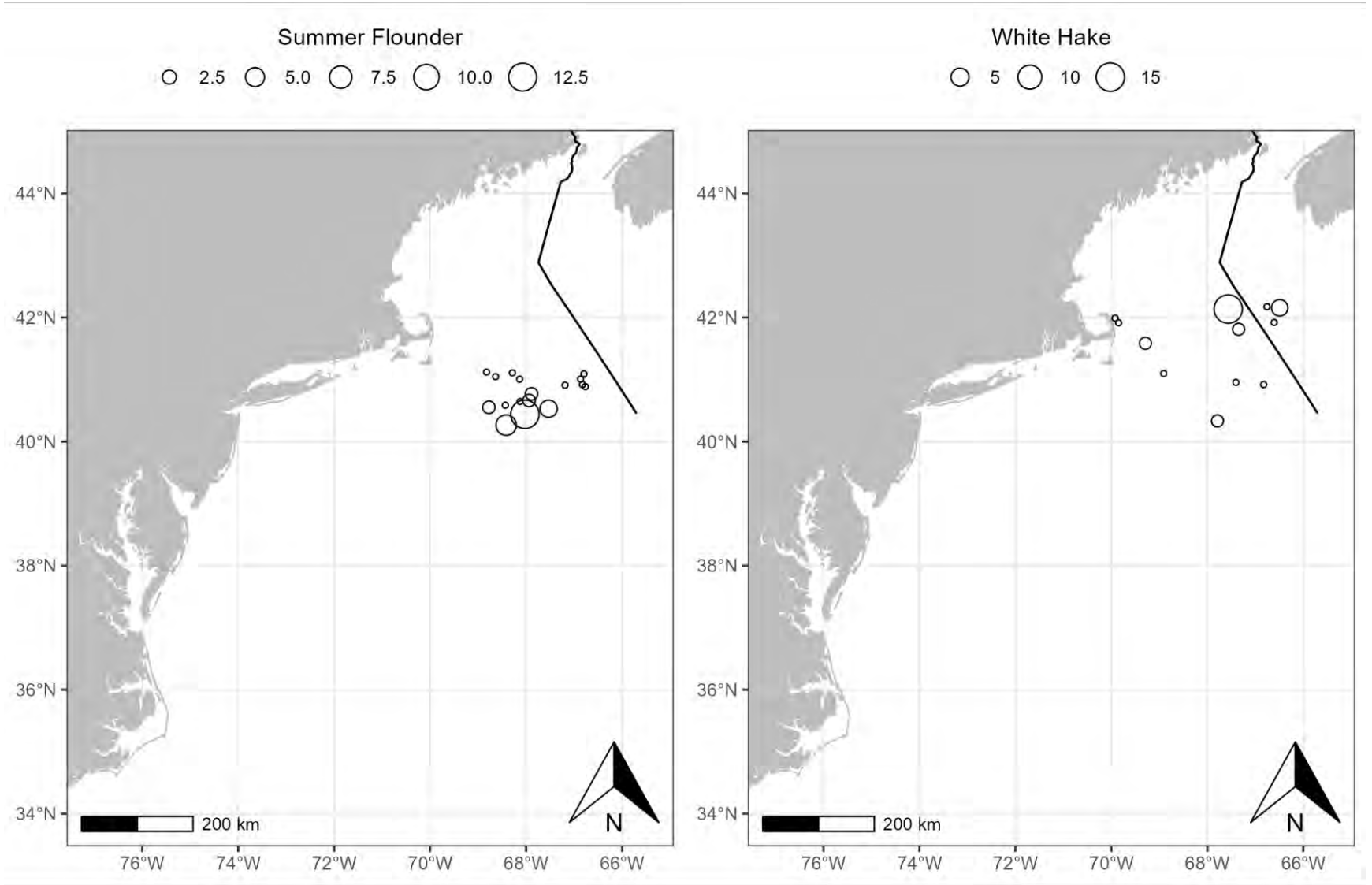

Figure 10: *Total number of summer flounder (left) and white hake (right) per tow from the Northeast Fisheries Science Center' s Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

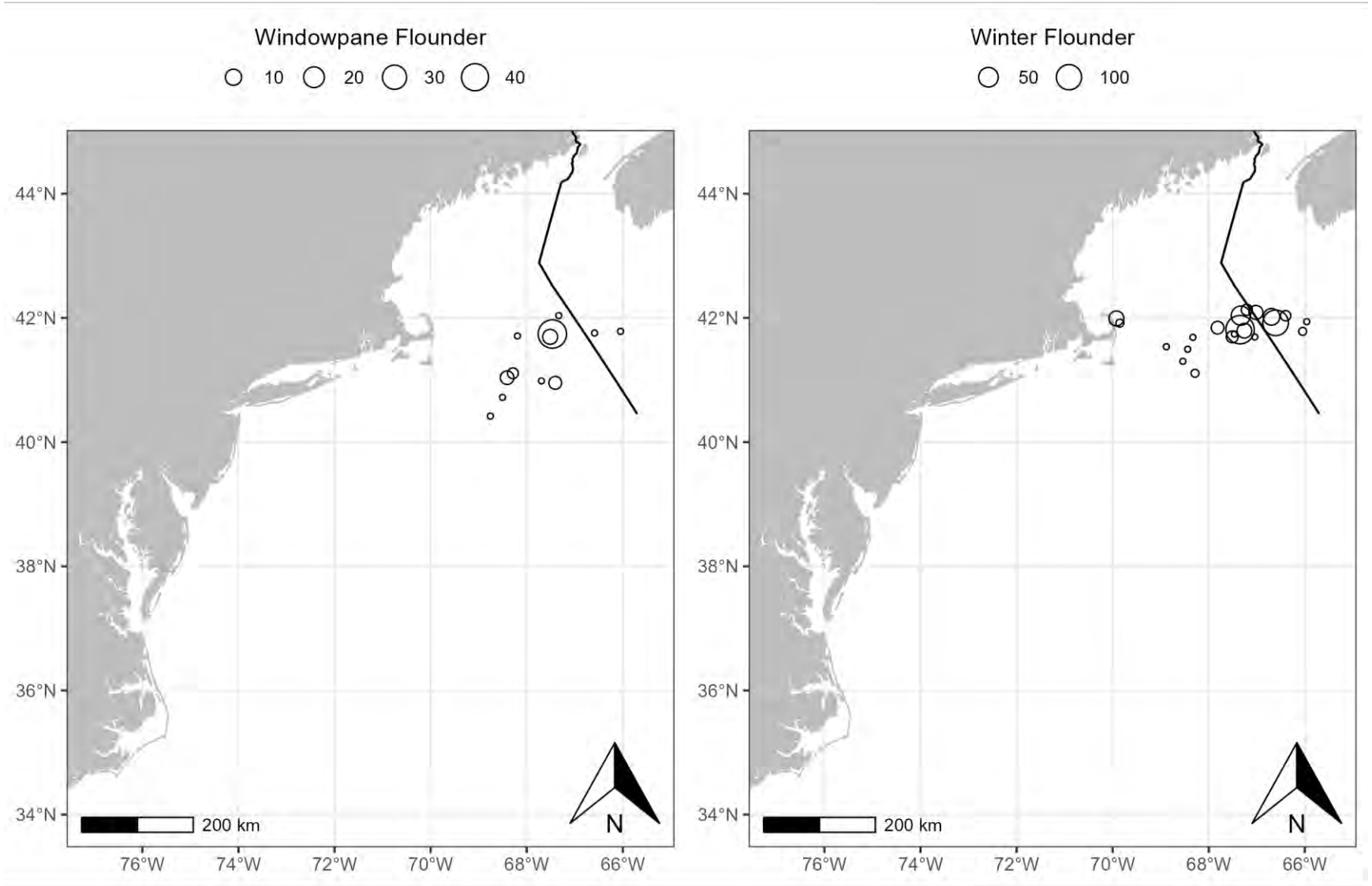

Figure 11: *Total number of windowpane flounder (left) and winter flounder (right) per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.*

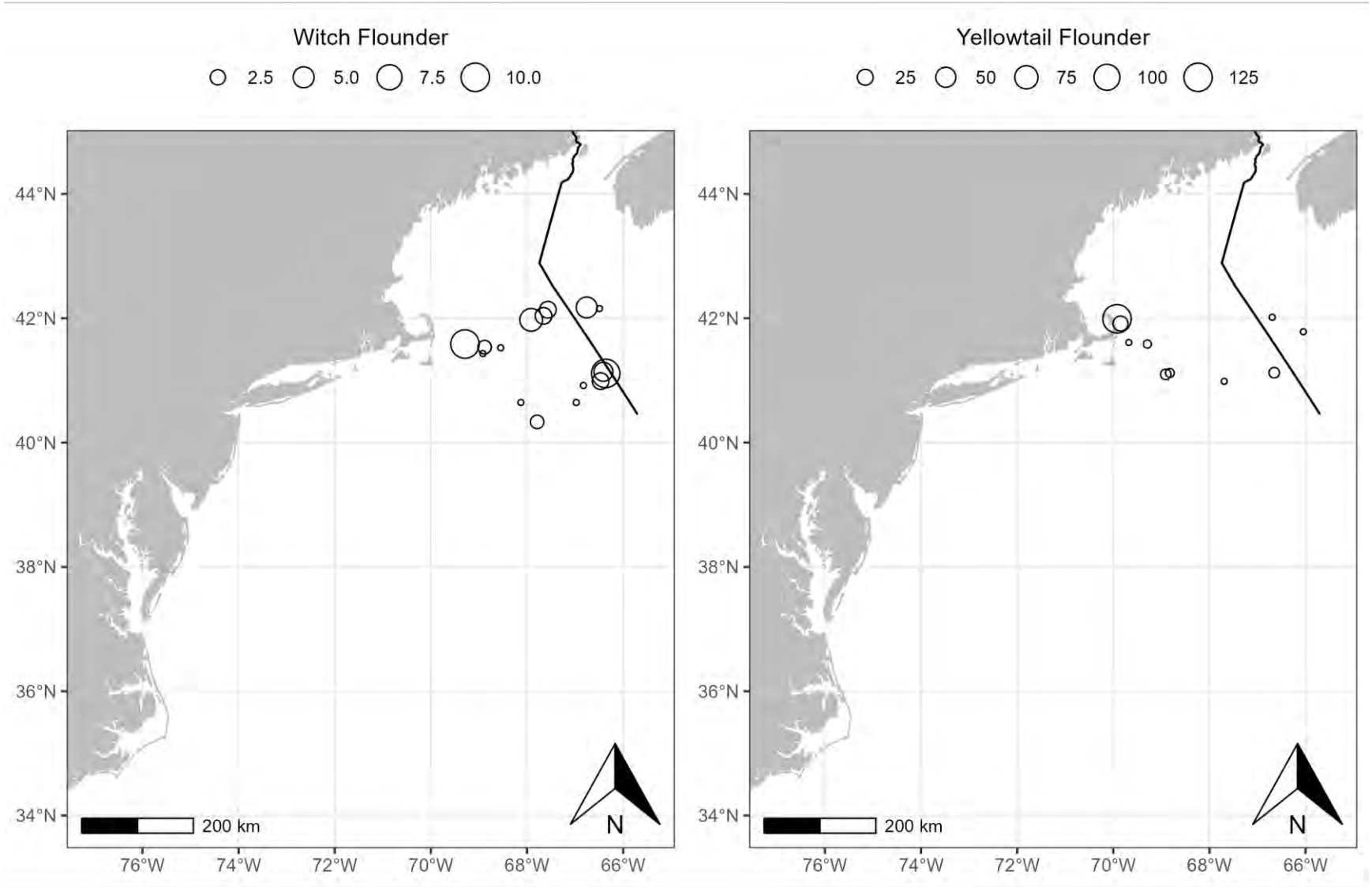

Figure 12: Total number of witch flounder (left) and yellowtail flounder (right) per tow from the Northeast Fisheries Science Center's Spring Bottom Trawl Survey, May 09, 2023-May 23, 2023.

#13b

2023 Northeast Atlantic Sea Scallop Survey Canceled

June 26, 2023

Contingency planning is underway for future surveys.

Atlantic sea scallops collected during the 2022 survey show the variety in coloration for this species. Credit: NOAA Fisheries/Christine Kircun

The 2023 Northeast Fisheries Science Center sea scallop survey has been canceled owing to mechanical difficulties with the survey vessel, the R/V *Hugh R. Sharp*. The *Sharp* is owned and operated by the University of Delaware, and has been chartered by NOAA Fisheries annually since 2008 for the sea scallop survey. The *Sharp* is part of the University-National Oceanographic Laboratory System federal research fleet.

The cruise was to occur May 13 to June 13. The *Sharp* encountered licensed engineering shortages and mechanical difficulties at the dock in its homeport of Lewes, Delaware before the cruise could leave. Repairs and sea trials were completed June 12. The cruise was rescheduled for 8 days, June 14 through 21, and the *Sharp* sailed on June 14 from Woods Hole, Massachusetts with the scientific crew. However, the ship encountered further mechanical failures at sea and returned to port on June 16, ending the NOAA cruise.

Data collected on sea scallop surveys are used to understand the distribution and abundance of this species. These data are key in developing quotas and area openings under the sea scallop fishery management plan.

Our sea scallop survey typically covers the Mid-Atlantic Bight and Georges Bank. It deploys a dredge to collect sea scallops and tows the HabCam. This instrument continuously photographs the ocean bottom habitat capturing images of sea scallops and other sealife.

To address data shortfalls, we are in contact with other groups who survey in the region through the Atlantic Sea Scallop Research Set-Aside Program. These groups have already conducted photographic and dredge surveys on parts of Georges Bank and in the Mid-Atlantic. They may be able to expand their survey plans to include additional dredge stations on Georges Bank and optical survey stations in the Mid-Atlantic.

We are working on contingencies for alternative survey platforms including use of the NOAA Ship *Bigelow* for sea scallop work. In July, we will be testing a new HabCam from the *Bigelow*, one that is an uncrewed underwater system, rather than one that is towed. We are also planning to test deploying the towed HamCam from the *Bigelow* on future cruises.

Last updated by Northeast Fisheries Science Center on August 29, 2023

Mid-Atlantic Fishery Management Council
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P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 21, 2021

To: Chris Moore, Executive Director

From: Julia Beaty, staff

Subject: Policy and Process for Council Review of Exempted Fishing Permit Applications for Forage Amendment Ecosystem Component Species

During their meeting on October 4, 2023, the Mid-Atlantic Fishery Management Council (Council) will consider adoption of a policy and process document for review of Exempted Fishing Permit (EFP) applications for species listed as Ecosystem Components under the Unmanaged Forage Omnibus Amendment. The Council will review the recommendations of the Ecosystem and Ocean Planning (EOP) Advisory Panel, EOP Committee, and Council staff before considering adoption of a policy and process.

Staff recommend adoption of the policy and process described in the first attachment behind this tab. This reflects the input of the EOP AP and Committee as well as an additional revision for concurrent review by the Council and the NOAA Fisheries Greater Atlantic Regional Fisheries Office (GARFO). Through the Forage Amendment, the Council stated that EFPs for Forage Amendment EC species should be reviewed by the Council prior to GARFO. However, after further consideration, including lessons learned from a recent thread herring EFP application, Council staff believe coordinated, concurrent Council and GARFO review would help the process be more efficient. This was discussed by the EOP AP and Committee and supported by some members.

The following documents are provided behind this tab:

1) Draft policy and process document recommended by staff

2) Summary of September 13, 2023 EOP AP and Committee meeting

The following document is provided as a supplementary briefing material:

3) Draft policy and process document incorporating edits recommended by EOP AP and Committee (note that item #1 incorporates these edits)

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DRAFT Policy and Process for Council Review of Exempted Fishing Permit Applications for Unmanaged Forage Amendment Ecosystem Component Species

Staff recommendation for consideration during October 4, 2023 Council meeting, incorporating recommendations by the EOP AP and Committee

Policy goal

This document establishes a standard process for Council review of exempted fishing permit (EFP) applications for species listed as ecosystem component (EC) species under the Council's Unmanaged Forage Omnibus Amendment (Forage Amendment). This document also communicates the Council's priorities regarding EC species to prospective EFP applicants.

As described in more detail below, EFPs authorize short-term exemptions from certain specified fishing regulations. Longer term fishing activities may require separate management actions such as development of a new Fishery Management Plan (FMP), an FMP amendment, or a framework adjustment. Use of an EFP does not guarantee the Council will develop a management action to allow longer term harvest of Forage Amendment EC species.

Exempted fishing permit definition

An EFP is a permit that exempts a vessel from certain specified federal fishing regulations. All other regulations remain in effect. EFPs may be used for purposes such as data collection, exploratory fishing, market research, product development, and other reasons. EFPs are issued by the National Marine Fisheries Service (NMFS) regional offices. EFPs for Forage Amendment EC species are issued by the NMFS Greater Atlantic Regional Fisheries Office (GARFO).

As required by the federal regulations at 50 CFR 600.745(b)(5), an EFP is valid for no longer than one year unless otherwise specified. However, EFPs may be renewed following the same procedures for obtaining an EFP. Multiple years of data collection are often preferrable from a scientific perspective.

Forage Amendment requirements

The goal of the Forage Amendment was to prohibit the development of new and expansion of existing directed commercial fisheries for unmanaged forage species until the Council has had an adequate opportunity to assess the scientific information relating to any new or expanded directed fisheries and consider potential impacts to existing fisheries, fishing communities, and the marine ecosystem. EFPs for Forage Amendment ECs must be consistent with the goal statement.

The Forage Amendment implemented a 1,700 pound possession limit in Mid-Atlantic Federal waters for over 50 forage species which were previously unmanaged in this region (Table 1). These species were designated as EC species in all the Council's FMPs. The possession limit applies to combined landings of all the EC species.

As indicated in the goal statement above, the Council did not intend to indefinitely prohibit directed commercial fishing for the Forage Amendment EC species, but rather only until the Council has had an adequate opportunity to assess the scientific information relating to any new or expanded directed fisheries and consider potential impacts to existing fisheries, fishing communities, and the marine ecosystem. The Forage Amendment requires use of an EFP as a first step towards the Council considering allowing landings beyond the 1,700 pound possession limit. The federal regulations at 50 CFR 648.12 state that exemptions to the Forage Amendment requirements may be granted "for the conduct of experimental fishing beneficial to the management of the resources or fishery managed under that subpart. The Regional Administrator shall consult with the Executive Director of the MAFMC before approving any…exemptions for experimental fishing contributing to the development of new or expansion of existing fisheries for Mid-Atlantic forage species."

Through the Forage Amendment, the Council also agreed that relevant EFP applications should be sent to the Council for review prior to submission to GARFO. They acknowledged that given the national-level regulations at 50 CFR 600.745 which apply to all EFPs, they cannot require applications to be sent to the Council first; however, they can request it.

This document reflects a change from the process adopted through the Forage Amendment in that the Council and GARFO will work together to review relevant EFP applications concurrently, rather than the Council reviewing the applications prior to GARFO. As described in more detail later in this document, the Council requests that GARFO refrain from publishing a Federal Register notice until certain steps of the Council review process are complete.

Table 1: Taxa designated as ecosystem components by the Council through the Unmanaged Forage Omnibus Amendment. The federal regulations at 50 CFR 648.2 (definition for "Mid-Atlantic forage species) further enumerate this list to the species level.

Anchovies (Family Engraulidae)
Argentines (Family Argentinidae)
Greeneyes (Family Chlorophthalmidae)
Halfbeaks (Family Hemiramphidae)
Herrings, sardines (Family Clupeidae)
Lanternfish (Family Myctophidae)
Pearlsides (Family Sternoptychidae)
Sand lances (Family Ammodytidae)
Silversides (Family Atherinopsidae)
Cusk-eels (Order Ophidiiformes)
Atlantic saury (*Scomberesox saurus*)
Pelagic mollusks except sharptail shortfin squid (*Illex oxygonius*)
Copepods, Krill, Amphipods & other species under 1 inch as adults

Required contents of EFP applications for Forage Amendment EC species

This section lists the required contents of EFP applications for Forage Amendment EC species. Applications must contain all the elements listed in the federal regulations at 50 CFR 600.745(b)(2), which apply to all EFPs and are summarized below, as well as additional requirements established by the Council for Forage Amendment EC species. Requirements specific to the EC species are

indicated with footnotes. All items below which do not have footnotes are required by the federal regulations for all EFPs.

All applications for EFPs for Forage Amendment EC species must contain:

1. The date of the application.

2. The applicant's name, mailing address, and telephone number. The applicant need not be the owner or operator of the vessel(s) for which the EFP is requested.

3. A statement of the purposes and goals of the exempted fishery for which an EFP is needed, including justification for issuance of the EFP.

    3.1. The ultimate fishery management goals of the exempted fishing activity should also be described. For example, applicants should indicate if their goal is to assess viability of a longer term directed fishery which would require a Council management action (e.g., an amendment to add a stock to an FMP or another type of management action).[1]

4. For each vessel covered by the EFP, the approximate time(s) and place(s) fishing will take place, and the type, size, and amount of gear to be used.

5. For each vessel to be covered by the EFP, as soon as the information is available and before operations begin under the EFP:

    5.1. A copy of the U.S. Coast Guard documentation, state license, or registration of each vessel, or the information contained on the appropriate document.

    5.2. The current name, address, and telephone number of the owner and master, if not included on the document provided for the vessel.

6. The species expected to be caught under the EFP, including the amount and expected disposition of (landed or discarded) those species. This should include both targeted as well as incidental species, both managed and unmanaged.[2]

7. Expected impacts of all catch (i.e., landings and discards) of target and incidentally caught species on fisheries, fishing communities, essential fish habitat (EFH), marine mammals, threatened and endangered species, and the marine ecosystem.[3]

8. Justification for the specific catch levels requested.

    8.1. Given limited available data and current lack of stock assessments for the Forage Amendment EC species, applicants should consider incremental increases above recent landings to mitigate concerns about potential impacts of large increases in landings.

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[1] The language for item 3.1 is specific to the Forage Amendment EC species. It is not included in the federal regulations for all EFPs.

[2] This differs from the federal regulations in that it expands the considerations beyond harvest of regulated species.

[3] This expands upon the requirements in the federal regulations to include consideration of discards, fishing communities, and the marine ecosystem.

Summaries of recent landings are available at https://www.mafmc.org/unmanaged-landings-reports. [4]

9. Procedures for monitoring all catch, including incidental catch and discards. Applicants may wish to consider mechanisms for observer coverage. Applicants should be aware that there are currently no existing mechanisms for third party funding of observers trained through the Northeast Fisheries Observer Program (NEFOP) or for assigning NEFOP observers to trips outside of what is required by the Standardized Bycatch Reporting Methodology.[4]

10. Applicants are encouraged to collect information that can assist with future management and stock assessments of EC species, including, but not limited to information on length, weight, age, sex, and maturity. Applicants should provide details for any planned biological sampling programs.[4]

11. Applicants are encouraged to consider gear modifications and fishing strategies to reduce bycatch.[5]

12. A brief description of the qualifications of the applicant and project partners.[4]

13. The signature of the applicant.

14. Other information as necessary to ensure compliance with all applicable laws, regulations, and executive orders.

15. Other information if requested by the Council or GARFO.

EFPs must comply with all applicable laws, regulations, and executive orders, including, but not limited to, the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the National Environmental Policy Act (NEPA), and the Endangered Species Act (ESA). Depending on the characteristics of the proposed fishing activity, this may require additional analysis. This could include development of a NEPA document such as an environmental assessment, an EFH consultation, and/or an ESA consultation, which would involve developing a biological opinion and an incidental take statement. In general, EFP applications for fishing activities that are similar to existing managed federal waters fisheries (e.g., the same gear types, seasons, and areas fished) will require less additional analysis than fishing activities that differ from existing managed federal waters fisheries. Applicants should consult with the Council and GARFO to determine what additional analyses may be required. Applicants should be aware that these additional analyses can be time consuming. GARFO and Council staff can provide only limited support for these analyses given workload constraints.

[4] This language is specific to the Forage Amendment EC species. It is not included in the federal regulations for all EFPs.

[5] This language is borrowed from the Pacific Fishery Management Council's Operating Procedure 24. It is not included in the federal regulations for all EFPs.

EFP process for Forage Amendment EC species

Step 1: Submission of EFP application to the Council and GARFO

EFP applications for Forage Amendment EC species should be sent to the Council for review prior to or at the same time as submission to GARFO. Applications should be sent via email to the Council executive director.

Applications should be submitted at least one year prior to the desired start of exempted fishing activities. This is intended to allow sufficient time for review by the Council, the Council's Scientific and Statistical Committee (SSC), Ecosystem and Ocean Planning (EOP) Committee, and EOP Advisory Panel (AP), as appropriate, as well as subsequent revisions to the application if needed, and review and processing by GARFO. This differs from the 60 day timeframe indicated in the federal regulations for all EFPs as the Council requires additional levels of review for EFPs for Forage Amendment EC species.

Step 2: Council and GARFO review

Council and GARFO staff will first review EFP applications to determine if all the required elements listed in the previous section have been addressed.

The Council will decide if the EFP application should be reviewed by the SSC. It is expected that most applications will be reviewed by the SSC. Council leadership will approve terms of reference for the SSC to address. Terms of reference will be tailored to each EFP but are expected to focus on the adequacy of the proposed sampling methodology to 1) allow for a determination of if the stated purposes and goals of the EFP have been met, 2) accurately estimate landings and discards of all caught species, and 3) provide information that may be useful to future stock assessments and management. The SSC may also comment on the EFP's consistency with the goal of the Forage Amendment, including the ability of the proposed methodology to allow conclusions to be made regarding the potential impacts of the exempted fishing activity on existing fisheries, fishing communities, and the marine ecosystem. If the SSC, Council staff, or GARFO identify major flaws with the proposed methodology or other aspects of the application, applicants may be directed to revise the application prior to further review.

Complete applications will be reviewed by the EOP Committee and EOP AP during either separate or joint meetings of the two bodies. With the assistance of Council staff, the EOP Committee and EOP AP will consider the following questions when reviewing EFP applications for Forage Amendment EC species:

1. Is the application complete?

2. Are the proposed catch levels sufficiently justified?

3. Is the proposed data collection methodology sufficient to accurately estimate landings and discards by species for all target and incidental species?

4. Will the information collected allow for a determination of if the stated purposes and goals of the EFP have been met?

5. Will the information collected support an assessment of the impacts of all catch on existing fisheries, fishing communities, marine mammals, threatened and endangered species, EFH, and the marine ecosystem?

6. Can the information collected assist with future management and stock assessments of EC species or other species?

7. Have the applicants determined if any additional analysis is needed to comply with applicable laws (e.g., MSA, ESA, NEPA)?

8. If the application requests renewal of a previously issued EFP, has the extension for an additional year been justified?

9. Is the proposal consistent with the goal of the Forage Amendment and the goals and objectives of the Council's FMPs?

10. Do the applicants and associated project partners have a history of relevant work to suggest they can successfully complete the proposed project?

After EFP applications have been reviewed by the SSC, the EOP Committee, and the EOP AP, the full Council will then review the relevant feedback and consider the application. The Council will determine if they wish to provide additional feedback to the applicants and/or provide comments during the Federal Register comment period described below. The Council may provide comments on all the items listed above for SSC, EOP Committee, and EOP AP review, including the consistency of the proposal with the goal of the Forage Amendment.

The Council may decide that review by the SSC, EOP Committee, EOP AP, and/or Council may take place via email for applications that are not expected to be controversial. For example, email review may be sufficient if the application only requests an extension of a previously issued EFP. In addition, the Council may determine they are opposed to the EFP and do not need further review to inform their position, for example, if the EFP is deemed incompatible with the goal of the Forage Amendment.

Unless requested by Council leadership, applications that are revised after review by the SSC, EOP Committee, EOP AP, Council, or GARFO do not require additional review by any Council groups to confirm the adequacy of the revisions.

Step 3: Federal Register notice and GARFO consideration for approval

As described in the federal regulations at 50 CFR 600.745, if the GARFO Regional Administrator determines that the application is complete and warrants further consideration, a Federal Register notice will be published to briefly describe the proposed exempted fishing activity and announce a 15 to 45 day public comment period. The Council requests that GARFO refrain from publishing the Federal Register notice until after the steps described in the previous section for SSC, EOP Committee, and EOP AP review are complete. This will help ensure the Council can develop informed comments during the comment period without further delaying review of the application.

The remainder of this section is based on the federal regulations at 50 CFR 600.745.

If the GARFO Regional Administrator determines that the application does not warrant further consideration, both the applicant and the Council will be notified in writing of the reason for the decision.

As soon as practicable after the close of the public comment period, the GARFO Regional Administrator shall make a determination on issuance of the EFP.

GARFO may attach terms and conditions to the EFP, consistent with the purpose of the exempted fishing and as otherwise necessary for the conservation and management of the fishery resources and the marine environment, including, but not limited to:

1. The maximum amount of each regulated species that can be harvested and landed during the term of the EFP, including trip limitations, where appropriate.

2. The number, size(s), name(s), and identification number(s) of the vessel(s) authorized to conduct fishing activities under the EFP.

3. A citation of the regulations from which the vessel is exempted.

4. The time(s) and place(s) where exempted fishing may be conducted.

5. The type, size, and amount of gear that may be used by each vessel operated under the EFP.

6. Whether observers, a vessel monitoring system, or other electronic equipment must be carried on board vessels operating under the EFP, and any necessary conditions, such as pre-deployment notification requirements.

7. Data reporting requirements necessary to document the activities, including catches and incidental catches, and to determine compliance with the terms and conditions of the EFP and established time frames and formats for submission of the data to NMFS.

8. Other conditions as may be necessary to assure compliance with the purposes of the EFP, consistent with the objectives of the FMPs and other applicable law.

9. Provisions for public release of data obtained under the EFP that are consistent with NOAA confidentiality of statistics procedures. An applicant may be required to waive the right to confidentiality of information gathered while conducting exempted fishing as a condition of an EFP.

EFP applications may be denied for a number of reasons, including, but not limited to, concerns about detrimental impacts to managed species, protected species, or EFH according to the best scientific information available; economic allocation as the sole purpose of the EFP; inconsistency of the EFP with FMP objectives and applicable laws; failure to provide an adequate justification for the exemption; and enforcement concerns. If an EFP application is denied, the applicant will be notified in writing of the reasons for the denial.

GARFO may charge a fee to recover the administrative expenses of issuing an EFP.

Step 4: Use of the EFP

This section summarizes the existing federal requirements at 50 CFR 600.745(b)(4)-(9) regarding use of EFPs.

Upon receipt of an EFP, the permit holder must date and sign the permit, and retain the permit on board the vessel(s). The permit is not valid until signed by the permit holder. In signing the permit, the permit holder agrees to abide by all terms and conditions set forth in the permit, and all restrictions and relevant regulations. The permit holder also acknowledges that the authority to conduct certain activities specified in the permit is conditional and subject to authorization and revocation by GARFO.

The EFP must be presented for inspection upon request of any authorized officer. Any fish, or parts thereof, retained pursuant to the EFP must be accompanied, during any ex-vessel activities, by a copy of the EFP.

Unless otherwise specified, an EFP is valid for no longer than one year. EFPs may be renewed following the same application procedures described above.

Step 5: Reports

EFP applicants must submit a report on the outcome of the EFP to the Council and GARFO no later than six months after concluding the fishing activity authorized by the EFP.[6] At a minimum, these reports should summarize total landings and discards by species, conclusions relative to the stated goals of the EFP, and any conclusions regarding impacts on existing fisheries, fishing communities, marine mammals, threatened and endangered species, EFH, and the marine ecosystem. The Council and GARFO may determine additional requirements for these reports and may also require interim progress reports. Any publications resulting from EFP activity should be shared with the Council and GARFO.

Contact information

For questions about the Forage Amendment or the process for Council, EOP Committee, EOP AP, or SSC review of EFP applications, contact Julia Beaty, Fishery Management Specialist, at jbeaty@mafmc.org or 302-526-5250.

For questions regarding review and issuance of EFPs by GARFO, contact Ryan Silva, Cooperative Research Liaison, at ryan.silva@noaa.gov or 978-281-9326.

[6] The six month time frame is specified in the federal regulations at 50 CFR 600.745(c).

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Ecosystem and Ocean Planning Advisory Panel and Committee Meeting

Policy/Process for Review of EFPs for Forage Amendment EC Species

September 13, 2023
Meeting Summary

Meeting objective and background

The Mid-Atlantic Fishery Management Council's (Council's) Ecosystem and Ocean Planning (EOP) Advisory Panel (AP) and Committee met in Baltimore, Maryland, with some members joining remotely. The purpose of this meeting was to discuss a draft policy and process for Council review of exempted fishing permit (EFP) applications for species listed as ecosystem components (EC) under the Unmanaged Forage Omnibus Amendment (Forage Amendment). The AP and Committee reviewed a draft policy and process document developed by staff based on input provided by the AP and Committee during their meetings in the spring of 2023.[1] The AP and Committee discussed the draft and provided suggested edits to the Council. The Council will consider adopting a policy and process document during their meeting on October 4, 2023.

The EOP AP and Committee also discussed the Council's Ecosystem Approach to Fisheries Management Risk Assessment during this same meeting. Those discussions will be summarized in a separate document.

EOP AP members in attendance: Fred Akers, Eleanor Bochenek, Bonnie Brady, Jeff Deem, Peter deFur, Jeremy Firestone, Jeremy Hancher, Jeff Kaelin, Carl LoBue, Pam Lyons Gromen, Philip Simon

EOP Committee members in attendance: Michelle Duval (Chair), Tom Schlichter (Vice Chair), Joseph Grist, Jerome Hermsen, Adam Nowalsky, Robert Ruhle, Sara Winslow

Others in attendance: Carly Bari, Julia Beaty, Kiley Dancy, Greg DiDomenico, Maria Fenton, Emily Gilbert, Emily Keiley, Brandon Muffley, Ryan Silva, Anna Weinstein, Kate Wilke

Please note: Unless otherwise noted, advisor and Committee member comments summarized below are not consensus or majority statements.

Key Points

AP and Committee members recommended the following revisions to the draft document:

- Clarify that the Council cannot require EFP applications to be sent to the Council prior to GARFO; however, the Council can request this.

[1] Available at https://www.mafmc.org/s/Draft-EC-EFP-application-review-policy-and-process-Sept2023.pdf.

- More clearly indicate each section that summarizes existing federal regulations.
- Note that although EFPs are typically only issued for one-year at a time, they can be renewed, and multiple years of data collection is often preferred from a scientific perspective.
- Add a reference to the regulations at section 648.12 and note that the regulations provide for development of new and expansion of existing fisheries for Forage Amendment EC species.
- Emphasize that review by the Council's Scientific and Statistical Committee (SSC) is expected for most EFP applications for Forage Amendment EC species.
- Consider SSC review as one of the first steps in the Council review process.
- Require applications to state their ultimate fishery management goals regarding the EFP (e.g., longer term management as a stock in an FMP or other management change).
- Note that Council comments during the Federal Register comment period can include comments on the consistency of the EFP proposal with the goals of the Forage Amendment.

Some AP and Committee members also recommended that the Council further clarify the next steps, after use of an EFP, for considering management of emerging or expanding fisheries. They did not think this should be encompassed in the policy and process document for review of EFP applications, but recommended that the Council discuss it in more detail in the future.

Summary of AP Discussion

Two advisors expressed concern with the one-year duration of EFPs, noting that one year of data typically represents just a snapshot of fishery and environmental conditions and is generally not sufficient to draw robust scientific conclusions. GARFO staff clarified that a one-year duration of EFPs is codified in the federal regulations which apply to all EFPs nation-wide; however, renewals are common. One advisor said the policy and process document should more clearly indicate that this is a GARFO requirement and multiple years of data collection is often preferred from a scientific perspective.

One AP member noted that the draft policy and process document does not describe the steps that would occur after use of the EFP if the applicants wished to pursue a stock in the fishery designation or other management change to allow longer term directed fishing. Council staff noted that some details of the next steps would depend on the type of management action needed (e.g., framework adjustment, amendment, or new Fishery Management Plan).

One AP member asked if the NOAA Fisheries Greater Atlantic Regional Fisheries Office (GARFO) has a required time period for completing their review of EFP applications. GARFO staff clarified that the 60 days referenced in the federal regulations is not a deadline for GARFO review. GARFO aims to complete their review in as timely a manner as possible; however, review of some EFPs requires much more than 60 days, especially for controversial EFPs.

One AP member asked if GARFO's review criteria for EFP applications for Forage Amendment species differ from the general review criteria for all EFPs. GARFO staff clarified that there are not different review criteria.

Two AP members recommended that the document more clearly indicate which sections summarize the existing federal regulations for all EFPs to better distinguish them from sections that are specific to the Forage Amendment EC species.

One AP member reminded the group that all EFPs must comply with all relevant Fishery Management Plans (FMPs). As such, the elements of the draft policy and process document which are specific to the Forage Amendment EC species simply clarify what is already required under the Council's FMPs. As such, these sections are not truly additions to the existing federal requirements but instead help communicate what is already required. This advisor added that the goal of the Forage Amendment and this EFP review process is to ensure that new fishing opportunities can be pursued sustainably and that impacts to the ecosystem are evaluated.

One AP member asked about the process for GARFO consultation with the Council if an EFP application is sent to GARFO prior to the Council. GARFO staff indicated that under the process described in the federal regulations, the Council is notified when a Federal Register notice is published announcing a public comment period on the EFP application. The regulations indicate that the comment period should be 15-45 days; however, GARFO can provide additional time for Council review when needed.

One AP member asked what would motivate someone to send their EFP application to the Council first when doing so cannot be required. Applicants could simply bypass the lengthy Council review process which includes multiple review meetings (EOP AP, EOP Committee, SSC, and Council) and send their applications directly to GARFO. Staff noted that if the ultimate goal of the applicant is for the Council to develop a follow-on action to allow longer term directed fishing effort, it wouldn't reflect well on the applicant if they did not follow the process laid out by the Council.

One advisor recommended that the draft policy and process document include the regulations in subsection 648.12, which state "The Regional Administrator may exempt any person or vessel from the requirements of subpart… P (Mid-Atlantic forage species) of this part for the conduct of experimental fishing beneficial to the management of the resources or fishery managed under that subpart. The Regional Administrator shall consult with the Executive Director of the MAFMC before approving any exemptions … for experimental fishing contributing to the development of new or expansion of existing fisheries for Mid-Atlantic forage species." This advisor said it is important to communicate that the regulations provide for the development of new and expansion of existing fisheries for Forage Amendment EC species. He also emphasized that allowing opportunities to harvest emerging species can help the fishing industry to be resilient in the face of climate shifts.

Another advisor said fishermen using a variety of gear types and vessel sizes should have access to emerging fishing opportunities for underutilized species resulting from climate change. The Council should support this access through use of permits such as EFPs which can be renewed for a year or two and can be used to collect scientific information. In addition, fisheries for underutilized species can help provide low-cost seafood to the public.

One advisor reminded the group that his company is pursuing an EFP for an experimental thread herring fishery, as discussed during previous EOP AP and Committee meetings. This is the first EFP application for a Forage Amendment EC species. The application was originally submitted in 2021 to both the Council and GARFO. This advisor said they sent the application to the Council as a courtesy, given that the Council cannot require applications to be sent to the Council prior to GARFO. The applicants are still in the process of completing additional analysis of potential impacts to sea turtles and sturgeon at the request of GARFO and are using $50,000 of their own funds to support this analysis. Given the experience with this EFP, he said the one-year time frame for Council review indicated in the draft document may be overly optimistic.

The same advisor expressed concern that Council review of EFP applications prior to GARFO review will be a deterrent to prospective applicants. He preferred that the Council adopt a set of criteria for review that would occur during the Federal Register comment period, rather than prior to GARFO review. Another advisor disagreed and said unnecessary delays could result from the Council waiting for the comment period to begin their review of EFP applications. This advisor supported Council review prior to GARFO review but could also support simultaneous Council and GARFO review at a minimum.

Two advisors said Council review prior to GARFO review could be advantageous for applicants because a favorable Council review could help expedite the GARFO review. One advisor said this could also help reduce the likelihood of applicants investing significant resources in preparation for exempted fishing activities which the Council may not ultimately support. Alternatively, even if applicants are able to successfully use an EFP, the Council may be opposed to development of a management action to allow longer term directed fishing effort. It would be beneficial for applicants to have some indication of that prior to investing in an experimental fishing effort with an EFP.

One advisor noted that ultimately only GARFO has the authority to determine if use of an EFP is sufficiently justified and should be approved. This advisor expressed concern with the statement that EFPs may be denied if economic allocation is the sole purpose of the EFP as all EFPs will have the goal of considering development of new economic opportunities.

This same advisor said SSC review should not be optional and all EFP applications should be reviewed by the SSC as the first step in the Council review process. He said the SSC has the expertise to consider the impacts of the catch levels proposed through EFP applications. Another advisor suggested that instead of requiring SSC review for all applications, the policy and process document could instead note that SSC review is expected for most applications.

One advisor said all applications should state the ultimate fishery management goals of the applicants, for example longer term management as a stock in an FMP.

Another advisor expressed support for a policy and process that is as protective as possible to the ecosystem. This advisor also reminded the group that a goal of the Forage Amendment was to prevent development of significant new fisheries before management measures can be put in place.

One advisor recommended a closer look at the draft document to ensure that words like “shall,” “may,” “should,” and “must” are used appropriately. For example, requirements should be clearly indicated with words such as “must.”

One advisor noted that the draft policy and process document contains a list of questions which will be evaluated during review of applications; however, the document is not clear who will answer each question. Staff and a Committee member noted that some questions may be most appropriate for the SSC to answer, while Council and GARFO staff can provide guidance on other questions. Another Committee member also noted that some questions may not have definitive answers for all EFP applications. However, the ability of the proposed methodology to take steps towards answering those questions could be considered.

Summary of Committee Discussion

The Committee agreed to the following revisions to the draft policy and process document:

- Clarify in the document that the Council cannot require EFP applications to be sent to the Council prior to GARFO; however, the Council can request this.

- Add reference to the federal regulations at 648.12 and note that the regulations provide for new fishing opportunities for Forage Amendment EC species.

- Require that EFP applicants clearly state if their ultimate goal is for the Council to consider managing the fishery in an FMP or another longer-term management change.

- Emphasize that Council comments during the Federal Register comment period can include Council comments on the consistency of the EFP proposal with the goals of the Forage Amendment.

The Committee discussed the timing of Council review of EFP applications in the context of the Council's annual implementation planning process. The Council's Executive Committee discusses priorities for the upcoming year each October, with the Council finalizing an annual implementation plan in December. The multiple EFP application review meetings described in the draft policy and process document could require a noteworthy amount of staff time. Given this, one Committee member questioned if a specific time window for submission of EFP applications would be beneficial. For example, the Council could request submission of applications prior to the October Council meeting. This could allow the Council to consider how to fit review of the EFP application in with the other priorities for the year. Another Committee member agreed that these sorts of priority planning discussions are important. GARFO staff expressed concern that a fixed time window for submission to the Council could complicate the GARFO review process if applications are sent to GARFO outside of the Council's stated time frame.

One Committee member expressed concern that time on SSC meeting agendas for EFP application review could be especially limiting. Another Committee member said SSC review as the first step in the review process could provide efficiencies. For example, the EOP Committee and AP may not need to review applications if the SSC has serious concerns with the proposed methodologies. Applicants could then be given the opportunity to revise their applications before resubmitting.

One Committee member said it's important to understand that an unfavorable Council review would not prevent individuals from submitting applications to GARFO and would not prevent GARFO from proceeding with their review. However, a favorable Council review would still act in the applicant's favor during GARFO review, especially if their ultimate goal is a follow-on Council management action.

One Committee member noted that species distributions are changing. For example, Virginia is considering management of new fisheries that have grown in recent years. The Council policy and process for review of EFP applications for emerging fisheries can help ensure a timely management response to new fisheries, which should benefit prospective EFP applicants in the long run. It will help applicants know what to expect and can help ensure the review process does not drag on longer than necessary.

Another Committee member agreed and expressed support for a previous AP member comment about the benefits of clarifying the next steps for consideration of a follow-on management action. This Committee member did not think these next steps need to be included in the document, but it could be beneficial for the Council to think about this in the future. This also aligns with discussions that occurred through the East Coast Climate Change Scenario Planning process.

One Committee member expressed concern that asking applicants to state their ultimate management goals for the EFP may be putting the cart before the horse. Applicants will first need to consider the results of their exempted fishing activity before determining their desired next steps. Another Committee member said it would be helpful for the Council to understand the applicant's long-term goals, even if they may evolve over time. This can help avoid speculation on the part of the Council.

The GARFO member on the Committee said the agency would prefer simultaneous Council and GARFO review over Council review prior to GARFO review.

Public Comments

Multiple members of the public spoke in favor of moving forward with the draft policy and process. One individual said the draft document helps provide transparency regarding the Council review process and consistency with the Forage Amendment. In addition, a similar process used by the Pacific Council helps EFP applications for their Coastal Pelagic Species and other FMPs move forward efficiently.

A member of GARFO staff who is not on the Committee and therefore spoke as a member of the public stated that the goal of EFPs is not to subvert the Council process and allow a long term directed fishery that has not been approved by the Council. As previously stated, longer term fishing activities would require action by the Council.

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DRAFT Policy and Process for Council Review of Exempted Fishing Permit Applications for Unmanaged Forage Amendment Ecosystem Component Species

Incorporating revisions recommended during the September 13, 2023 Ecosystem and Ocean Planning Advisory Panel and Committee Meeting

Policy goal

This document establishes a standard process for Council review of exempted fishing permit (EFP) applications for species listed as ecosystem component (EC) species under the Council's Unmanaged Forage Omnibus Amendment (Forage Amendment). This document also communicates the Council's priorities regarding EC species to prospective EFP applicants.

As described in more detail below, EFPs authorize short-term exemptions from certain specified fishing regulations. Longer term fishing activities may require separate management actions such as development of a new Fishery Management Plan (FMP), an FMP amendment, or a framework adjustment. Use of an EFP does not guarantee the Council will develop a management action to allow longer term harvest of Forage Amendment EC species.

Exempted fishing permit definition

An EFP is a permit that exempts a vessel from certain specified federal fishing regulations. All other regulations remain in effect. EFPs may be used for purposes such as data collection, exploratory fishing, market research, product development, and other reasons. EFPs are issued by the National Marine Fisheries Service (NMFS) regional offices. EFPs for Forage Amendment EC species are issued by the NMFS Greater Atlantic Regional Fisheries Office (GARFO).

As required by the federal regulations at 50 CFR 600.745(b)(5), an EFP is valid for no longer than one year unless otherwise specified. However, EFPs may be renewed following the same procedures for obtaining an EFP. Multiple years of data collection are often preferrable from a scientific perspective.

Forage Amendment requirements

The goal of the Forage Amendment was to prohibit the development of new and expansion of existing directed commercial fisheries for unmanaged forage species until the Council has had an adequate opportunity to assess the scientific information relating to any new or expanded directed fisheries and consider potential impacts to existing fisheries, fishing communities, and the marine ecosystem. EFPs for Forage Amendment ECs must be consistent with the goal statement.

The Forage Amendment implemented a 1,700 pound possession limit in Mid-Atlantic Federal waters for over 50 forage species which were previously unmanaged in this region (Table 1). These species were designated as EC species in all the Council's FMPs. The possession limit applies to combined landings of all the EC species.

As indicated in the goal statement above, the Council did not intend to indefinitely prohibit directed commercial fishing for the Forage Amendment EC species, but rather only until the Council has had an adequate opportunity to assess the scientific information relating to any new or expanded directed fisheries and consider potential impacts to existing fisheries, fishing communities, and the marine ecosystem. The Forage Amendment requires use of an EFP as a first step towards the Council considering allowing landings beyond the 1,700 pound possession limit. The federal regulations at 50 CFR 648.12 state that exemptions to the Forage Amendment requirements may be granted "for the conduct of experimental fishing beneficial to the management of the resources or fishery managed under that subpart. The Regional Administrator shall consult with the Executive Director of the MAFMC before approving any…exemptions for experimental fishing contributing to the development of new or expansion of existing fisheries for Mid-Atlantic forage species."

Through the Forage Amendment, the Council also agreed that relevant EFP applications should be sent to the Council for review prior to submission to GARFO. They acknowledged that, given the national-level regulations at 50 CFR 600.745 which apply to all EFPs, they cannot require applications to be sent to the Council first; however, they can request it.

Table 1: Taxa designated as ecosystem components by the Council through the Unmanaged Forage Omnibus Amendment. The federal regulations at 50 CFR 648.2 (definition for "Mid-Atlantic forage species) further enumerate this list to the species level.

Anchovies (Family Engraulidae)
Argentines (Family Argentinidae)
Greeneyes (Family Chlorophthalmidae)
Halfbeaks (Family Hemiramphidae)
Herrings, sardines (Family Clupeidae)
Lanternfish (Family Myctophidae)
Pearlsides (Family Sternoptychidae)
Sand lances (Family Ammodytidae)
Silversides (Family Atherinopsidae)
Cusk-eels (Order Ophidiiformes)
Atlantic saury (*Scomberesox saurus*)
Pelagic mollusks except sharptail shortfin squid (*Illex oxygonius*)
Copepods, Krill, Amphipods & other species under 1 inch as adults

Required contents of EFP applications for Forage Amendment EC species

This section lists the required contents of EFP applications for Forage Amendment EC species. Applications must contain all the elements listed in the federal regulations at 50 CFR 600.745(b)(2), which apply to all EFPs and are summarized below, as well as additional requirements established by the Council for Forage Amendment EC species. Requirements specific to the EC species are indicated with footnotes. All items below which do not have footnotes are required by the federal regulations for all EFPs.

All applications for EFPs for Forage Amendment EC species must contain:

1. The date of the application.

2. The applicant's name, mailing address, and telephone number. The applicant need not be the owner or operator of the vessel(s) for which the EFP is requested.

3. A statement of the purposes and goals of the exempted fishery for which an EFP is needed, including justification for issuance of the EFP.

    3.1. The ultimate fishery management goals of the exempted fishing activity should also be described. For example, applicants should indicate if their goal is to assess viability of a longer term directed fishery which would require a Council management action (e.g., an amendment to add a stock to an FMP or another type of management action).[1]

4. For each vessel covered by the EFP, the approximate time(s) and place(s) fishing will take place, and the type, size, and amount of gear to be used.

5. For each vessel to be covered by the EFP, as soon as the information is available and before operations begin under the EFP:

    5.1. A copy of the U.S. Coast Guard documentation, state license, or registration of each vessel, or the information contained on the appropriate document.

    5.2. The current name, address, and telephone number of the owner and master, if not included on the document provided for the vessel.

6. The species expected to be caught under the EFP, including the amount and expected disposition of (landed or discarded) those species. This should include both targeted as well as incidental species, both managed and unmanaged.[2]

7. Expected impacts of all catch (i.e., landings and discards) of target and incidentally caught species on fisheries, fishing communities, essential fish habitat (EFH), marine mammals, threatened and endangered species, and the marine ecosystem.[3]

8. Justification for the specific catch levels requested.

    8.1. Given limited available data and current lack of stock assessments for the Forage Amendment EC species, applicants should consider incremental increases above recent landings to mitigate concerns about potential impacts of large increases in landings.[4] Summaries of recent landings are available at https://www.mafmc.org/unmanaged-landings-reports.

9. Procedures for monitoring all catch, including incidental catch and discards. Applicants may wish to consider mechanisms for observer coverage. Applicants should be aware that there

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[1] This language is specific to the Forage Amendment EC species. It is not included in the federal regulations for all EFPs.

[2] This differs from the federal regulations in that it expands the considerations beyond just harvest of regulated species.

[3] This expands upon the requirements in the federal regulations to include consideration of discards, fishing communities, and the marine ecosystem.

[4] This language is specific to the Forage Amendment EC species. It is not included in the federal regulations for all EFPs.

are currently no existing mechanisms for third party funding of observers trained through the Northeast Fisheries Observer Program (NEFOP) or for assigning NEFOP observers to trips outside of what is required by the Standardized Bycatch Reporting Methodology.[4]

10. Applicants are encouraged to collect information that can assist with future management and stock assessments of EC species, including, but not limited to information on length, weight, age, sex, and maturity. Applicants should provide details for any planned biological sampling programs.[4]

11. Applicants are encouraged to consider gear modifications and fishing strategies to reduce bycatch.[5]

12. A brief description of the qualifications of the applicant and project partners.[4]

13. The signature of the applicant.

14. Other information as necessary to ensure compliance with all applicable laws, regulations, and executive orders.

15. Other information if requested by the Council or GARFO.

EFPs must comply with all applicable laws, regulations, and executive orders, including, but not limited to, the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the National Environmental Policy Act (NEPA), and the Endangered Species Act (ESA). Depending on the characteristics of the proposed fishing activity, this may require additional analysis. This could include development of a NEPA document such as an environmental assessment, an EFH consultation, and/or an ESA consultation, which would involve developing a biological opinion and an incidental take statement. In general, EFP applications for fishing activities that are similar to existing managed federal waters fisheries (e.g., the same gear types, seasons, and areas fished) will require less additional analysis than fishing activities that differ from existing managed federal waters fisheries. Applicants should consult with the Council and GARFO to determine what additional analyses may be required. Applicants should be aware that these additional analyses can be time consuming. GARFO and Council staff can provide only limited support for these analyses given workload constraints.

EFP process for Forage Amendment EC species

Step 1: Submission of EFP application to the Council

EFP applications for Forage Amendment EC species should be sent to the Council for review prior to formal submission to GARFO. Applications should be sent via email to the Council executive director. Applications should not be formally submitted to GARFO prior to Council review; however, they may be sent to GARFO for preliminary review.

Applications should be submitted to the Council one year prior to the desired start of exempted fishing activities. This is intended to allow sufficient time for review by the Council, the Council's

[5] This language is borrowed from the Pacific Fishery Management Council's Operating Procedure 24. It is not included in the federal regulations for all EFPs.

Ecosystem and Ocean Planning (EOP) Committee, EOP Advisory Panel (AP), and/or Scientific and Statistical Committee (SSC) as appropriate, as well as subsequent revisions to the application if needed, and review and processing by GARFO. This differs from the 60 day timeframe indicated in the federal regulations for all EFPs as the Council requires additional levels of review for EFPs for Forage Amendment EC species.

Step 2: Review by the EOP Committee, EOP AP, SSC, and Council

Council staff will first review EFP applications to determine if all the required elements listed in the previous section have been addressed.

The Council will decide if the EFP application should be reviewed by the SSC. It is expected that most applications will be reviewed by the SSC. Council leadership will approve terms of reference for the SSC to address. Terms of reference will be tailored to each EFP but are expected to focus on the adequacy of the proposed sampling methodology to 1) allow for a determination of if the stated purposes and goals of the EFP have been met, 2) accurately estimate landings and discards of all caught species, and 3) provide information that may be useful to future stock assessments and management. The SSC may also comment on the EFP's consistency with the goal of the Forage Amendment, including the ability of the proposed methodology to allow conclusions to be made regarding the potential impacts of the exempted fishing activity on existing fisheries, fishing communities, and the marine ecosystem. If the SSC or Council staff identify major flaws with the proposed methodology or other aspects of the application, applicants may be directed to revise the application prior to further review.

Complete applications will be reviewed by the EOP Committee and EOP AP during either separate or joint meetings of the two bodies. With the assistance of Council staff, the EOP Committee and EOP AP will consider the following questions when reviewing EFP applications for Forage Amendment EC species:

1. Is the application complete?

2. Are the proposed catch levels sufficiently justified?

3. Is the proposed data collection methodology sufficient to accurately estimate landings and discards by species for all target and incidental species?

4. Will the information collected allow for a determination of if the stated purposes and goals of the EFP have been met?

5. Will the information collected support an assessment of the impacts of all catch on existing fisheries, fishing communities, marine mammals, threatened and endangered species, EFH, and the marine ecosystem?

6. Can the information collected assist with future management and stock assessments of EC species or other species?

7. Have the applicants determined if any additional analysis is needed to comply with applicable laws (e.g., MSA, ESA, NEPA)?

8. If the application requests renewal of a previously issued EFP, has the extension for an additional year been justified?

9. Is the proposal consistent with the goal of the Forage Amendment and the goals and objectives of the Council's FMPs?

10. Do the applicants and associated project partners have a history of relevant work to suggest they can successfully complete the proposed project?

After EFP applications have been reviewed by the SSC, the EOP Committee, and the EOP AP, the full Council will then review the relevant feedback and consider the application. The Council will determine if they wish to provide additional feedback to the EFP applicants and/or provide comments during the Federal Register comment period described in the next section. The Council may provide comments on all the items listed above for SSC, EOP Committee, and EOP AP review, including the consistency of the proposal with the goals of the Forage Amendment.

The Council may decide that review by the EOP Committee, EOP AP, SSC, and/or Council may take place via email for EFP applications that are not expected to be controversial. For example, email review may be sufficient if the application only requests an extension of a previously issued EFP. In addition, the Council may determine they are opposed to the EFP and do not need further review to inform their position, for example, if the EFP is deemed incompatible with the goal of the Forage Amendment.

Unless requested by Council leadership, applications that are revised after review by the EOP Committee, EOP AP, SSC, or Council do not require additional review by those groups to confirm the adequacy of the revisions.

Step 3: GARFO review of EFP application

After the Council has completed its review of the EFP application, including review by the EOP Committee, EOP AP, and/or SSC, as appropriate, applicants may submit their complete EFP application to GARFO. The GARFO process for consideration of EFP applications is summarized below. Everything in this section is based on the federal regulations at 50 CFR 600.745.

If the GARFO Regional Administrator determines that the application is complete and warrants further consideration, a Federal Register notice will be published to briefly describe the proposed exempted fishing activity and announce a 15 to 45 day public comment period. If the Regional Administrator determines that the application does not warrant further consideration, both the applicant and the Council will be notified in writing of the reason for the decision.

The Council may submit comments during the comment period. If the Council intends to take comments during a Council meeting, this should be indicated in the meeting notice and agenda. The EFP applicant will be notified and given the opportunity to speak to the EFP application during the meeting.

As soon as practicable after the close of the public comment period, the GARFO Regional Administrator shall make a determination on issuance of the EFP.

GARFO may attach terms and conditions to the EFP, consistent with the purpose of the exempted fishing and as otherwise necessary for the conservation and management of the fishery resources and the marine environment, including, but not limited to:

1. The maximum amount of each regulated species that can be harvested and landed during the term of the EFP, including trip limitations, where appropriate.

2. The number, size(s), name(s), and identification number(s) of the vessel(s) authorized to conduct fishing activities under the EFP.

3. A citation of the regulations from which the vessel is exempted.

4. The time(s) and place(s) where exempted fishing may be conducted.

5. The type, size, and amount of gear that may be used by each vessel operated under the EFP.

6. Whether observers, a vessel monitoring system, or other electronic equipment must be carried on board vessels operating under the EFP, and any necessary conditions, such as pre-deployment notification requirements.

7. Data reporting requirements necessary to document the activities, including catches and incidental catches, and to determine compliance with the terms and conditions of the EFP and established time frames and formats for submission of the data to NMFS.

8. Other conditions as may be necessary to assure compliance with the purposes of the EFP, consistent with the objectives of the FMPs and other applicable law.

9. Provisions for public release of data obtained under the EFP that are consistent with NOAA confidentiality of statistics procedures. An applicant may be required to waive the right to confidentiality of information gathered while conducting exempted fishing as a condition of an EFP.

EFP applications may be denied for a number of reasons, including, but not limited to, concerns about detrimental impacts to managed species, protected species, or EFH according to the best scientific information available; economic allocation as the sole purpose of the EFP; inconsistency of the EFP with FMP objectives and applicable laws; failure to provide an adequate justification for the exemption; and enforcement concerns. If an EFP application is denied, the applicant will be notified in writing of the reasons for the denial.

GARFO may charge a fee to recover the administrative expenses of issuing an EFP.

Step 4: Use of the EFP

This section summarizes the existing federal requirements at 50 CFR 600.745(b)(4)-(9) regarding use of EFPs.

Upon receipt of an EFP, the permit holder must date and sign the permit, and retain the permit on board the vessel(s). The permit is not valid until signed by the permit holder. In signing the permit, the permit holder agrees to abide by all terms and conditions set forth in the permit, and all restrictions and relevant regulations. The permit holder also acknowledges that the authority to

conduct certain activities specified in the permit is conditional and subject to authorization and revocation by GARFO.

The EFP must be presented for inspection upon request of any authorized officer. Any fish, or parts thereof, retained pursuant to the EFP must be accompanied, during any ex-vessel activities, by a copy of the EFP.

Unless otherwise specified, an EFP is valid for no longer than one year. EFPs may be renewed following the same application procedures described above.

Step 5: Reports

EFP applicants must submit a report on the outcome of the EFP to the Council and GARFO no later than six months after concluding the fishing activity authorized by the EFP.[6] At a minimum, these reports should summarize total landings and discards by species, conclusions relative to the stated goals of the EFP, and any conclusions regarding impacts on existing fisheries, fishing communities, marine mammals, threatened and endangered species, EFH, and the marine ecosystem. The Council and GARFO may determine additional requirements for these reports and may also require interim progress reports. Any publications resulting from EFP activity should be shared with the Council and GARFO.

Contact information

For questions about the Forage Amendment or the process for Council, EOP Committee, EOP AP, or SSC review of EFP applications, contact Julia Beaty, Fishery Management Specialist, at jbeaty@mafmc.org or 302-526-5250.

For questions regarding review and issuance of EFPs by GARFO, contact Ryan Silva, Cooperative Research Liaison, at ryan.silva@noaa.gov or 978-281-9326.

[6] The six month time frame is specified in the federal regulations at 50 CFR 600.745(c).

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MEMORANDUM

Date: September 20, 2023

To: Council

From: Julia Beaty, staff

Subject: Updates on Offshore Wind Energy Development

On October 4, 2023, the Council will receive updates on the following offshore wind energy topics:

- **Bureau of Ocean Energy Management (BOEM)** staff will provide an update on several topics, which may include, but is not limited to:
    - Final Environmental Impact Statement for the Empire Wind project off New York and next steps for pending Record of Decision.
    - Next steps for the Central Atlantic Wind Energy Areas off Delaware, Maryland, and Virginia.
    - Next steps for finalization of guidance for fisheries mitigation.
    - Upcoming Draft Environmental Impact Statement for the Atlantic Shores North project off New Jersey.
    - Upcoming Final Environmental Impact Statement for the commercial scale Coastal Virginia Offshore Wind (CVOW) project.
    - Next steps on development of a programmatic environmental impact statement for 6 New York Bight leases.
    - Updates on BOEM Environmental Studies offshore wind research projects.
- **New York State Energy Research and Development Authority (NYSERDA)** staff will provide an update on the New York State Offshore Wind Master Plan 2.0: Deepwater. This initiative aims to:
    - Synthesize available information about wildlife distributions, oceanographic conditions, and how the region is used by others to develop recommendations and considerations for BOEM regarding which areas are highly sensitive to development and which areas require further analysis.
    - Assess available and emerging technologies and develop estimates of costs, benefits, and risks of deep water offshore wind.

- Provide a baseline understanding of the offshore space necessary to better position the state to take advantage of opportunities afforded by deep water offshore wind.
- Assess how New York could best expand its position as the hub for offshore wind energy by leveraging the emerging supply chain and expertise.
- This effort is led by NYSERDA in collaboration with the state agencies who will scope and execute the Master Plan, with input and engagement as appropriate with the offshore wind industry, federal and regional state partners, elected officials, maritime users, non-governmental organizations, other stakeholders and the public.

- **NOAA Fisheries** will also provide updates on offshore wind energy development as part of a separate agenda item later in the day. See the Tab 9 briefing materials for more information.

The following additional updates are provided for informational purposes, but are not expected to be addressed in presentations during the Council's October meeting:

- **Submitted comment letters**. Since the August 2023 Council meeting, the Mid-Atlantic Council and the New England Council submitted the following joint comment letters:
  - MAFMC and NEFMC Letter to BOEM: NOI for the Central Atlantic Wind Energy Areas off Delaware, Maryland, and Virginia (8/30/23)
- **SSC discussion of offshore wind.** The SSC discussed several research projects related to offshore wind during their meeting on September 12, 2023. More information is available here.
- **Ongoing construction.** Construction and pre-construction activities are underway for the three currently approved projects in federal waters.
  - **Vineyard Wind 1**. The 62 turbine Vineyard Wind 1 project, located 15 miles south of Martha's Vineyard and Nantucket, is currently in construction. The most recent updates on construction activities are available here.
  - **South Fork Wind**. The 12 turbine South Fork Wind project, located approximately 19 miles southeast of Block Island and 35 miles east of Montauk Point, is currently in construction. For the most recent updates on construction activities, see the Northeast mariners briefings posted here.
  - **Ocean Wind 1.** Pre-construction survey activities are underway for the up to 98 turbine Ocean Wind 1 project, located approximately 15 miles off the southern New Jersey coast. The most recent updates on marine activities are available in the Mid-Atlantic mariners briefings available here.
- **Ongoing survey activities (geotechnical, geophysical, fisheries, etc.)**. Several offshore wind projects are undertaking geophysical, geotechnical, fisheries, and other types of survey work throughout the region. These surveys use a variety of gear types, including some equipment that is installed in a given location for extended periods of time (e.g., buoys, acoustic receivers). The best way to stay informed of these survey activities is to sign up for email updates from individual wind developers (see the project specific links available here).

- **Fisheries liaison outreach**. Fisheries liaisons for most offshore wind projects periodically host port hours, dock visits, and other outreach events. The best way to stay informed of these events is to sign up for email updates from individual wind developers (see the project specific links available here).
- **Stay informed**. To stay up to date on individual wind projects, including development of fishery communications plans, details on offshore survey operations, outreach events, and other updates, see the project-specific links available at https://www.mafmc.org/offshore-wind-notices.

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MEMORANDUM

Date: September 21, 2023

To: Council

From: Brandon Muffley, Council staff

Subject: Meeting Materials – Ecosystem Approach to Fisheries Management (EAFM) Risk Assessment

On Wednesday, October 4, 2023, the Mid-Atlantic Fishery Management Council (Council) will review the proposed updates to the EAFM risk assessment. The Ecosystem and Ocean Planning (EOP) Committee and Advisory Panel conducted a comprehensive review of the risk assessment and are recommending changes to the risk elements that would be included in a revised risk assessment. The Council will review the EOP recommendations and approve the final list of risk elements to be included in the updated EAFM risk assessment report to be completed in April 2024.

Materials listed below are provided for Council consideration of this agenda item.

- Briefing Memo: EAFM risk assessment review background and meeting goals
- September 13-14, 2023 Ecosystem and Ocean Planning (EOP) Committee and AP meeting summary
- Draft EAFM Risk Element Overview

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Ecosystem Approach to Fisheries Management Risk Assessment Review

October 2023 Council Meeting

Prepared By: Brandon Muffley, Council Staff
September 21, 2023

Background:

Conducting a risk assessment is the first step the Council's Ecosystem Approach to Fisheries Management (EAFM) structured decision framework (Figure 1) and is intended to identify and prioritize ecosystem interactions and help the Council decide where to focus limited resources to address priority ecosystem considerations in its science and management programs. The initial EAFM risk assessment was completed in 2017 and, based on an evaluation of the initial risk assessment, summer flounder was identified as the most "high risk" fishery. This led to the development of a conceptual model (Step 2), which identified the key risk factors affecting summer flounder and its fisheries. Utilizing the results of the conceptual model, the Council conducted a management strategy evaluation (MSE, Step 3) to identify management measure that address live and dead discards in the recreational summer flounder fishery. The outcomes and modeling framework developed through the MSE are currently being used by the Council in management action development and during the specification setting process for other recreational species. Developing a comprehensive and robust risk assessment was a critical step in successfully completing the structured decision process and developing tools to support and inform priority science and management decisions.

Figure 1. The Mid-Atlantic Fishery Management Council's EAFM structured decision framework to incorporate ecosystem considerations into management (from Gaichas et al. 2016).

Since 2017, the EAFM risk assessment has been updated annually using the utilizing information from the Northeast Fisheries Science Center (NEFSC) Mid-Atlantic State of the Ecosystem Report to provide a snapshot of the current ecosystem risks to meeting the Council's management objectives. While the risk assessment has been updated to utilize the most recent information available, the risk elements, indicators, and ranking criteria have remained the same as in the original risk assessment. However, there is a significant amount of additional information and new analyses available to help inform an updated risk assessment that could reflect the Council's changing management priorities.

Given the length of time since its initial development, the availability of new information and analyses, and ever-changing risks facing Council-managed fisheries, the Council agreed to

conduct a comprehensive review of the EAFM risk assessment. The goal of the review was to produce an updated risk assessment that incorporates the latest scientific information, reflects the Council's current priorities, and can be adaptive and responsive to new and changing conditions that can support a variety of Council management needs. This review also provides the opportunity to possibly expand the Council's use of the risk assessment information within other Council-related ecosystem and management activities.

Ecosystem and Ocean Planning (EOP) Committee and Advisory Panel (AP) review

Similar to the approach taken during the development of the original assessment, the review was conducted jointly with the EOP Committee and AP to ensure input and key risks of interest by the Council and stakeholders were identified. The EOP Committee and AP initiated the risk assessment review in late 2022 and met on five separate occasions between November 2022 and September 2023 to address different components of the risk assessment.

- **November 2022** – overview of risk assessment and review, initial ideas for new risk elements (Meeting page and materials)
- **April 2023** - consider risk elements and definitions (Meeting page and materials)
- **July 2023** – review elements and definitions and consider indicators (Meeting page and materials)
- **August 2023** – continue review of elements and definitions and consider indicators (Meeting page and materials)
- **September 2023** – review elements, definitions, indicators and consider risk ranking criteria (Meeting page and materials)

Also similar to the original assessment, the group took a collaborative and iterative approach to conduct the review with each meeting building off the discussion and decisions from the meeting prior (Figure 2). Prior to each meeting, technical staff from the Council and NEFSC would solicit initial feedback from the Committee and AP on the upcoming meeting topics through questionnaires or other methods. This initial feedback would then be used to develop discussion documents that would help guide and focus the Committee and AP discussion and input during the meeting. This process of getting early input, refining documents based on the feedback, and then focused discussion during the meeting allowed for the group to efficiently move through a highly complex and extensive review.

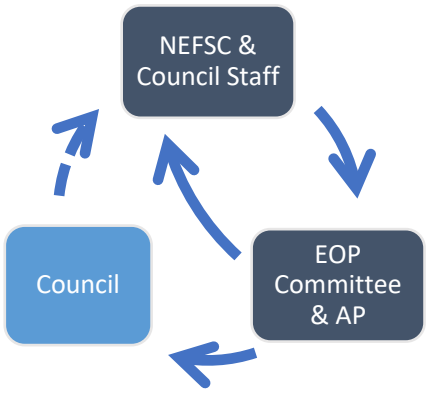


Figure 2. Iterative process taken by Council, EOP Committee, AP, and technical staff to conduct the comprehensive review and update of the EAFM risk assessment.

Following the first meeting, the Committee and AP identified a total of 43 possible risk elements that would be considered in a revised risk assessment. Those elements were a mixture of existing elements (23) that are included in the current assessment and potentially new (20) risk elements suggested by the Committee and/or AP. During the subsequent meetings, the Committee and AP worked to develop and refine the different risk element components (description, definition, indicator, and risk criteria) for all 43 elements. Risk element descriptions, definitions, and indicators (at least in draft form) were developed for each

element. Depending on the status of the indicator development, risk criteria were developed for many of the risk elements. At the September meeting, the Committee and AP addressed outstanding issues on those risk elements where additional, more substantive feedback was needed and made recommendations on each risk element under consideration.

Of the **43** risk elements considered by the Committee and AP, **28** elements are recommended to be included in a revised risk assessment report, **6** elements are recommended to be placed in the parking lot to be consider later when additional information is available, and **9** elements are recommended to be removed as a stand-alone risk element but be used as an potential indicator under another risk element (Tables 1-3). A summary of the Committee and AP recommendations for each of the 43 risk elements, including recommendations for indicators and other element revisions, can be found in Tables 1-3.

More information on the discussion and recommendations developed by the EOP Committee and AP during their September 13-14, 2023 meeting can found in the meeting summary behind Tab 7. In addition, there is an EAFM Risk Element Overview document behind the Tab that provides the element description, definition, indicator(s) (if applicable), and risk criteria (if applicable) for all 43 risk elements considered. This document incorporates the most recent feedback and recommendations developed by the EOP Committee and AP at their September meeting.

October Council Meeting Outcomes and Next Steps:

During the October Council meeting, the Council will receive an overview of the risk assessment review conducted by the EOP Committee and AP. The Council will then review the recommendations developed by the Committee and AP and decide which risk elements will initially be included in the revised risk assessment. The Council can also provide any additional feedback and direction on any of the risk element components.

Technical staff from the Council and NEFSC will then develop a revised risk assessment that includes those risk elements selected by the Council and incorporates all of the feedback provided by the Council, EOP Committee, and AP regarding the risk element components. A revised draft risk assessment will be completed in March 2024 and will include the most up-to-date information and relevant indicators derived from the 2024 Mid-Atlantic State of the Ecosystem report. The draft risk assessment will then be presented to the EOP Committee and AP for their final feedback and recommendations regarding the inclusion, deletion, or parking/later consideration of any risk element for Council consideration. At the April 2024 Council meeting, the Council will then review and approve the new EAFM risk assessment for use by the Council in future management documents, priorities, and decisions.

In addition to competing a revised and updated risk assessment, another goal of this review was to make the risk assessment more adaptable to account for emerging risks and include new information. The Committee and AP kept this thought in mind as they conducted the review. For example, the definitions were developed to be specific enough to describe the current risk but also broad enough to ensure future risks could also be considered. They also identified potential indicators that may not be ready now but could be developed in the future with additional data and new analytical tools. Staff plan to develop a process for Council consideration by which the risk assessment can be modified and updated without needing another comprehensive review.

This approach should make the process more efficient, save Council and NEFSC resources, and make the risk assessment more informative and actionable for the Council.

The final goal for this review was to identify opportunities to potentially expand the use of the risk assessment and ecosystem information into other Council products, priorities, and decisions. While the direct application and benefits of the risk assessment were demonstrated through the outcomes of the EAFM structured decision framework process, there are opportunities to integrate ecosystem and climate information more fully into the Council process. Additional work and discussion on this goal needs to be done, but the Committee and AP identified some initial areas of potential application, including: incorporating relevant information into Fishery Information Documents and AP Fishery Performance reports, support outcomes of the East Coast Climate Change Scenario Planning efforts, and linking to SSC Ecosystem Work Group products and Ecosystem and Socio-economic Profile reports. More information on all of these goals will be provided to the Council in April 2024 when the revised risk assessment is reviewed.

Table 1. Summary of the Ecosystem and Ocean Planning Committee and Advisory Panel recommendations for ***Ecological Risk Elements*** considered during the 2022-2023 comprehensive review of the EAFM risk assessment.

Risk Element Name	**Existing/New**	**Element Recommendation** *(Keep, Remove, Combine, Consider Later)*	**Indicators** *(Existing, New, Consider Later)*	**Other Element Updates** (Definition, Indicators, Criteria)
Stock Assessment Performance	Existing	Keep	Existing and New	Revised criteria to account for new indicators
Fishing Mortality Status	Existing	Keep	Existing	Same as existing element
Stock Biomass Status	Existing	Keep	Existing	Same as existing element
Food Web (1) - Prey Availability	Existing	Keep	Existing and New	Updated name and definition, new indicators, and revised criteria
Food Web (2) - Predation Pressure	Existing	Keep	Existing and New	Updated name and definition, new indicators, and revised criteria
Food Web (3) - Protected Species Prey	Existing	Keep	Existing	Revised criteria to account for different protected species objectives and status
Food Web (4) - Other (birds, HMS)	New	Remove	Consider Later	Considered under the new definitions and indicators for Food Web (2) and (3)
Ecosystem Productivity	Existing	Keep	Existing, New, and Consider Later	Possibly revise criteria to account for new indicator(s)
Forage Base	New	Remove	New	To become an indicator under the Ecosystem Productivity element
Population Diversity	New	Consider Later	Consider Later	Important to track, needs development, pilot a species
Ecological Diversity	New	Consider Later	Consider Later	Continue development, track in State of the Ecosystem report
Climate	Existing	Keep	Existing and New	Updated definition, new indicators, and revised criteria
Distribution Shifts	Existing	Keep	Existing	Same as existing element
Estuarine and Coastal Habitat	Existing	Keep	Existing	Same as existing element
Offshore Habitat	New	Keep	New	Definition developed, indicators (empirical and model based) identified, criteria developed
Invasive Species	New	Remove	New	To become an indicator under the Estuarine/Coastal and Offshore Habitat risk elements

Table 2. Summary of the Ecosystem and Ocean Planning Committee and Advisory Panel recommendations for ***Socio-Economic Risk Elements*** considered during the 2022-2023 comprehensive review of the EAFM risk assessment.

Risk Element Name	**Existing/New**	**Element Recommendation** *(Keep, Remove, Combine, Consider Later)*	**Indicators** *(Existing, New, Consider Later)*	**Other Element Updates** (Definition, Indicators, Criteria)
Economic Elements				
Commercial Value	Existing	Keep	Existing and Consider Later	Updated name and continue development of Net Revenue indicator
Marine Recreational Angler Days/Trips	Existing	Keep	Existing	Updated definition
Commercial Fishery Resilience (1) - Revenue Diversity	Existing	Keep	Existing and Consider Later	Develop indicators at vessel and port level and revised criteria
Commercial Fishery Resilience (2) - Shoreside Support	Existing	Keep	Existing	Same as existing element
Recreational Fishery Resilience (1) - Shoreside Support	New	Consider Later	Consider Later	Continue development of element and possible indicators
Commercial Fishery Resilience (4) - Capital	New	Remove	Consider Later	Important to track, potentially develop an indicator to be included under other/future resilience elements
Commercial Fishery Resilience (5) - Insurance Availability	New	Remove	Consider Later	Important to track, potentially develop an indicator to be included under other/future resilience elements
Commercial Fishery Resilience (6) - Emerging Markets/Opportunities	New	Remove	Consider Later	Important to track, potentially develop an indicator to be included under other/future resilience elements
Seafood Safety	New	Remove	Consider Later	Combine any potential indicators as part of Commercial Fishery Resilience (6)
Social-Cultural Elements				
Commercial Fishery Resilience (3) - Fleet Diversity	Existing	Keep	Existing	Same as existing element

Recreational Fishery Resilience (2) - Fleet Diversity	New	Keep	New and Consider Later	Description and definition developed, identified indicators to include and develop further, draft criteria
Community Vulnerability	Existing	Keep	Existing	Same as existing element
Food Production Elements				
Commercial Fishing Production	Existing	Keep	Existing and New	Changed name from Seafood Production to Fishing Production to account for all harvest, new indicators for bait/non-food, criteria still to be developed
Recreational/Subsistence Seafood Production	Existing	Keep	Existing and Consider Later	Existing definition, indicators, and risk criteria remain, further develop subsistence indicators
Commercial Fishery Employment	New	Consider Later	Consider Later	Description and definition developed, identified potential indicators for future consideration, criteria to be determined
Recreational Fishery Employment	New	Consider Later	Consider Later	Description and definition developed, identified potential indicators for future consideration, criteria to be determined

Table 3. Summary of the Ecosystem and Ocean Planning Committee and Advisory Panel recommendations for ***Management Risk Elements*** considered during the 2022-2023 comprehensive review of the EAFM risk assessment.

Risk Element Name	**Existing/New**	**Element Recommendation** *(Keep, Remove, Combine, Consider Later)*	**Indicators** *(Existing, New, Consider Later)*	**Other Element Updates** (Definition, Indicators, Criteria)
Fishing Mortality Control	Existing	Keep	Existing and New	Updated definition, new indicators from State of the Ecosystem report, same criteria
Technical Interactions	Existing	Keep	Existing and Consider Later	Existing definition, indicators, and risk criteria, consider further development of new indicators
Offshore Wind - Biological/Ecosystem	New	Keep	New	Description and definition developed, potential indicators identified, criteria to be determined
Offshore Wind - Fishery Science and Access	New	Keep	New	Description and definition developed, indicators from the State of the Ecosystem report and initial criteria identified
Offshore Energy Exclusive of Wind	New	Remove	Consider Later	As other offshore energy activities take place, develop an indicator to include under Other Ocean Activities element
Aquaculture	New	Remove	Consider Later	As aquaculture activities take place, develop an indicator to include under Other Ocean Activities element
Other Ocean Activities	Existing	Keep	New and Consider Later	Updated the description and definition with focus on access, identified a suite of potential indicators, criteria to be updated
Regulatory Complexity and Stability	Existing	Keep	Existing and Consider Later	Updated the definition, use existing indicators and identified new ones for development, potential revisions to criteria

Allocation	Existing	Keep	Existing and Consider Later	Description and definition remain unchanged, existing and potential new indicators available, keep existing criteria for now and evaluate in future
Discards	Existing	Keep	Existing, New and Consider Later	Updated and expanded description and definition, suite of indicators were identified to account for new definition, updated criteria
Essential Fish Habitat	New	Consider Later	Consider Later	Developed description and definition, further develop indicators and criteria once EFH Amendment is complete

Ecosystem and Ocean Planning Committee and Advisory Panel Meeting

September 13-14, 2023

Meeting Summary

The Mid-Atlantic Fishery Management Council's (Council) Ecosystem and Ocean Planning (EOP) Committee and Advisory Panel (AP) met jointly on September 13-14, 2023 in Baltimore, MD and via webinar to continue their comprehensive review of the Ecosystem Approach to Fisheries Management (EAFM) risk assessment. The Committee and AP provided input on a series of outstanding issues associated with specific risk elements under consideration. The Committee and AP recommended a final list of elements and the associated indicators and risk criteria for Council review. The Council will consider approving a revised suite of risk elements to be included in an updated EAFM risk assessment to be completed in the spring of 2024.

The EOP AP and Committee also discussed a draft policy and process for Council review of exempted fishing permit (EFP) applications for species listed as ecosystem components (EC) under the Unmanaged Forage Omnibus Amendment (Forage Amendment). Those discussions will be summarized in a separate document.

EOP Committee Attendees: M. Duval (Committee Chair), A. Nowalsky, S. Winslow, J. Hermsen, J. Grist, T. Schlichter (Committee Vice-Chair), R. Ruhle, M. Luisi (Council Vice-Chair), S. Lenox, J. Cimino

EOP Advisory Panel Attendees: C. LoBue, B. Brady, F. Akers, P. Simon, P. Lyons-Gromen, J. Hancher, J. Kaelin, J. Deem, P. deFur, J. Firestone, E. Bochenek

Other Attendees: S. Gaichas, G. DePiper, B. Muffley, E. Keiley, J. Beaty, A. Weinstein, K. Wilke, K. Dancy, M. Fenton, R. Silva

As part of the EAFM risk assessment review, the Committee and AP identified, developed, and worked to refine 43 existing and potentially new risk elements. This was the first in-person meeting of the Committee and AP during the review, and it was decided to utilize the time to focus on those risk elements where additional input and direction was needed. Two discussion documents were provided as background material for Committee and AP feedback. The first document (found here) was the focus of the September meeting and included information on those risk elements where additional, more substantive feedback was needed in order to move forward with development of those risk elements. The second discussion document (found here) included information on the remaining risk elements where there was greater agreement and/or fewer changes identified by the Committee and AP. These elements were not discussed during

the meeting, but Committee and AP members were encouraged to provide feedback on any of the risk elements and information in the discussion document following the meeting.

Below are the consensus outcomes and recommendations associated with each risk element reviewed during the September meeting.

Ecosystem Elements:

- **Food Web – Council-Managed Predators**
  - The group recommended retaining this element in the revised risk assessment. They also agreed to change the element name to "Food Web – Prey Availability" and revise the definition to more clearly indicate this risk element considers the prey availability for Council-managed predators.
  - There was agreement to use the two proposed indicators – an aggregate forage fish index and fish condition index for each managed species.
  - Overall support for the proposed risk criteria but suggested an evaluation of the indicators with 1, 3, 5 years of data to inform the criteria rankings.
- **Food Web – Council-Managed Prey**
  - Similar to the previous element, the group recommended retaining this risk element and agreed to change the name to "Food Web – Predation Pressure" and update the definition to account for predation pressure from all sources on Council-managed prey species.
  - The group supported the existing indicator that uses food habits data combined with key predator population trends. They also suggested potentially including an indicator that compares predation pressure (M2) to fishing mortality (F) to help capture the relative importance of predation. Once developed, this potential new indicator will be brought back to the Committee and AP for feedback in spring 2024.
- **Food Web – Protected Species Prey**
  - The Committee and AP considered modifying the risk element definition that would have consider risks to meeting protected species objectives due to all food web interactions (predator, prey, other biological interactions) - not just those protected species interactions with Council-managed species as currently considered. Ultimately, the group felt the modified definition would likely be too big an issue to address and decided to retain the existing definition.
  - Since the definition remains as is currently included in the risk assessment, the group supported using the existing indicators but did recommend the risk criteria include more protected species-specific management objective considerations.
- **Ecosystem Productivity**
  - The group recommended retaining this risk element, current definition, and the four existing indicators. The group also recommend adding a new forage base indicator which calculates the aggregate pelagic forage fish biomass available in the Mid-Atlantic.
    - The SSC's Ecosystem Work Group is also developing ecosystem overfishing targets and thresholds for the Mid-Atlantic that could be incorporated here in the future.
  - Given the number and range of indicators available for this risk element, the group recommended additional evaluation of the indicators and how they will be used, in

aggregate or individually, to inform the risk criteria rankings. Based on the results of the evaluation, the risk criteria definitions may need to be modified.

- **Population Diversity**
  - This was a new risk element being considered by the Committee and AP and would consider the risks associated with declining or changing species/stock diversity (size, sex, reproductive).
  - The group noted this is an important issue to track but more work was needed and recommended parking this risk element and consider potentially incorporating it later when more information is available and potential indicators could be developed.
    - The group also suggested piloting the development of this element and potential indicators with some example stocks such as summer flounder and scup where there is a lot of information already available. The results from these pilot examples could determine if this may be a useful risk element.
- **Ecological Diversity**
  - This was a new risk element being considered by the Committee and AP and would consider the risks associated with declining or changing species diversity and altered ecosystem structure and function.
  - There are a number of potential ecological diversity indicators available from the State of the Ecosystem report (e.g., zooplankton, larval, and adult species diversity), but the group was unsure how to interpret the information and draw any conclusions.
  - The group recommended parking this risk element and continue to track these indicators in the State of the Ecosystem reports and determine how these may be incorporated in the future.
- **Offshore Habitat**
  - This risk element was first considered during the development of the initial risk assessment but was parked due to data limitations. Since then, a significant amount of new information available, including habitat models and vulnerability assessments.
  - The group recommended including this risk element and associated definition in the revised risk assessment. The group also recommended using model-based indicators that identify offshore habitat occupancy and that potentially include important habitat features (e.g., cold pool) and habitat vulnerability.
- **Invasive Species**
  - This was a new indicator being considered by the Committee and AP and would consider threats to Council-managed species due to interactions with invasive species (non-native to ecosystem and which causes harm).
  - While there are some invasive species examples within the Mid-Atlantic (e.g., blue catfish, lionfish, green crab, harmful algal blooms), the risk imposed by these species is unknown.
  - The group recommended removing this as a potential risk element and include as a potential indictor under the Estuarine/Coastal Habitat and Offshore Habitat risk elements.

<u>Socio-Economic Elements:</u>

- **Commercial Revenue**

    - The Committee and AP recommended retaining this element in the revised risk assessment and agreed to change the element name to "Commercial Value" to capture the interest in overall profits, not just revenue generated by the commercial sector.
    - The group reviewed a new/alternative indicator that looked at net revenue (gross revenue – trip costs), but the information available to inform this indicator only includes a sub-set of fishing activity in the Mid-Atlantic.
        - Given this, the group recommended retaining the current indicator and risk criteria, but supported further development of the net revenue indicator for future consideration.
- **Commercial Fishery Resilience (1) – Revenue Diversity**
    - The group recommended retaining this existing risk element and current definition.
    - The group supported the existing indicator which is applied across the entire commercial sector but suggested evaluating by vessel category and port level to understand the potential changes in diversity at the species level and understand community resilience.
    - The group also suggested refinement to the risk criteria definitions for the Low-Moderate risk level.
- **Commercial Fishery Resilience (4, 5, 6) – Capital, Insurance, Emerging Markets**
    - These are new commercial resilience risk elements being considered by the Committee and AP that would account for the various business and economic pressures encountered by commercial fishing operations.
    - Given the lack, and highly variable nature, of information available for many of these elements, the group was unsure if these elements would have any value as stand-alone risk elements. The group also noted there are other risk elements that consider how revenue and fleet structure might be changing.
        - Therefore, the group recommended removing these as stand-alone risk elements but consider them for potential indicator development that could inform other commercial fishery resilience risk elements.
- **Commercial and Recreational Fishery Resilience – Shoreside Support**
    - This element is currently included in the risk assessment that considers reduced resilience due to loss of commercial shoreside support. The Committee and AP have been considering adding a similar risk element for recreational shoreside support (marinas, bait and tackle shops etc.).
    - The group recommended retaining the current commercial shoreside support risk element, definition, indicators, and criteria ranking.
    - The group is interested in including recreational shoreside support in the future, but expressed concern about the existing data and current status of indicator development. Therefore, it was recommended to park this risk element, collect additional information, and allow for continued development of potential indicators.
- **Recreational/Subsistence Seafood Production**
    - The group recommended retaining this existing risk element, current definition, indicators, and ranking criteria.
    - The group also supported the potential development of indicators that would evaluate the subsistence component of this risk element. Understanding how this sector of the recreational fishery may be changing is important to know, particularly for equity and environmental justice considerations. However, this is likely to be a complex issue

driven by a variety of factors (e.g., location, culture, ethnicity etc.) and data availability.

- **Recreational Fleet Diversity**
  - This is a new indicator being considered by the Committee and AP and is currently included in the State of the Ecosystem report. This indicator considers the risk to maintaining equity in recreational access to fishery resources.
  - The group recommended including this risk element, definition and diversity index indicator in the revised risk assessment. The group also recommended the continued development of a harvest:catch ratio by mode indicator for review by the Committee and AP in early 2024. The intent of this indicator would be to evaluate if recreational fishing behavior/preferences are changing (i.e., harvest versus catch and release) within the different recreational modes/sectors.
- **Commercial and Recreational Employment**
  - Both of these are new elements being considered by the Committee and AP and would consider the risks of not optimizing or maintaining commercial and recreational job creation and retention.
  - The group recommended parking both of these elements until additional work and development could occur. As a potential indicator, the group suggested utilizing VTR information (number of crew and days absent or crew and trips) that might provide a timeseries of employment (or proxy for employment) at the individual level.
- **Commercial Seafood Production**
  - The group recommended retaining this element in the revised risk assessment and agreed to change the element name to "Commercial Fishing Production" and to modify the definition to account for not only commercial seafood production but also commercial landings that are used for bait. The Committee and AP felt tracking bait landings was important for the Mid-Atlantic and these landings ultimately result in the harvest of seafood.
  - The group recommended using the current indicators of total seafood and bait landings in the Mid-Atlantic, but also recommended developing a seafood:bait ratio as another indicator to track the composition of total commercial harvest.
  - Given the revised definition and new indicators, updated risk criteria will need to be developed for Committee and AP review in early 2024.

<u>Management Elements:</u>

- **Offshore Wind – Biological/Ecosystem**
  - This, and the element below, are new elements being considered by the Committee and AP that consider different risks associated with offshore wind development. This offshore wind risk element would consider the biological impacts to stock productivity, distribution, and ecosystem structure and function.
  - The group recommended including this element in the revised risk assessment and agreed to the risk element definition. The group identified potential indicators but noted further development is needed. Once indicators are developed, potential risk criteria can then be determined.
- **Offshore Wind – Fishery Science and Access**

    - This risk offshore wind risk element would consider the fishery impact risks due to fishing access and scientific uncertainty.
    - The group recommended including this element in the revised risk assessment and agreed to the risk element definition. The group also supported using a suite of indicators currently included in the State of the Ecosystem report (e.g., commercial revenue in lease areas, including port and EEJ revenue, and spatial overlap between lease areas and NEFSC fishery independent surveys). Additional development of risk criteria is needed and will be presented to the Committee and AP for consideration in early 2024.
- **Offshore Energy – Exclusive of Wind**
    - This was a new indicator being considered by the Committee and AP that would evaluate the risks to fishery access from non-wind related offshore energy development (e.g., oil and gas, tidal etc.).
    - Given the limited development of these activities in the Mid-Atlantic, the group recommended removing this as a stand-alone risk element and be included as a potential indicator under the Other Ocean Activities risk element (see below).
- **Aquaculture**
    - This was a new indicator being considered by the Committee and AP that would evaluate the risks to fishery access from federal waters aquaculture development in the Mid-Atlantic.
    - Given the limited development of offshore/federal water aquaculture activities in the Mid-Atlantic, the group recommended removing this as a stand-alone risk element and be included as a potential indicator under the Other Ocean Activities risk element (see below).
- **Other Ocean Uses**
    - This is an existing element in the current risk assessment but primarily focused on the risks associated with offshore wind. Given the recommendation to include two new offshore wind risk elements, the group recommended changing the risk element name to "Other Ocean Activities" and update the definition to focus on potential fishery displacement impacts from a suite of other ocean activities (e.g., energy, shipping, aquaculture, monuments/sanctuaries etc.)
    - The group identified potential indictors and, depending on the activity, could be considered now or will need to be developed once an activity occurs in the region.
- **Regulatory Complexity and Stability**
    - The group recommended keeping this risk element in the revised risk assessment with modifications to the definition to highlight the risk of non-compliance due to frequent and complex regulation changes.
    - The group also recommended continuing with the existing qualitive indicator but suggested alternative indicators be considered including regulatory differences between states and the frequency of mid-year regulation changes. Once additional indicators are developed, updated risk criteria will be to be reviewed by the Committee and AP in early 2024.
- **Essential Fish Habitat**
    - This is a new risk element being considered by the Committee and AP and would consider the risks associated with not identifying and/or protecting essential fish habitat (EFH). The group noted there are other habitat risk elements that focus more

on the ecological impacts for Council-managed fisheries. Since the Council has a direct role and authority under MSA, the group recommended retaining this as a new stand-alone element given its management focus.

- The Council is currently working on an amendment to update EFH designations for all Council managed species. Any revisions to EFH designations through the amendment will likely not occur until late 2025. Given the timing of the amendment, the group recommended parking this risk element until the results and outcomes from the amendment are complete.

Of the **43** risk elements considered by the Committee and AP, **28** elements are recommended to be included in a revised risk assessment report, **6** elements are recommended to be placed in the parking lot to be consider later when additional information is available, and **9** elements are recommended to be removed as a stand-alone risk element but be used as an potential indicator under another risk element.

At the October 3-5, 2023 Council meeting, the Council will review the Committee and AP recommendations and approve the final list of risk elements to be included in a revised risk assessment to be completed in spring 2024.

EAFM Risk Element Overview

Risk Element Information and Recommendations for Council Consideration

September 21, 2023

Below is a list of all 43 risk elements, grouped by category (Ecological, Socio-economic, and Management), considered by the Council's Ecosystem and Ocean Planning (EOP) Committee and Advisory Panel (AP) during their comprehensive review of the EAFM risk assessment. For each element, there is an element description, definition, indicator(s) (if applicable), and risk criteria (if applicable). The information associated with each element incorporates the most recent feedback and recommendations developed by the EOP Committee and AP at their September 13-14, 2023 meeting. The Council will review the EOP Committee and AP recommendations at the October 3-5, 2023 Council meeting and will finalize the list of risk elements to potentially be included in a revised risk assessment report. Technical staff from the Council and NEFSC will develop a revised draft risk assessment in early 2014 using the most recent information and indicators from the 2024 Mid-Atlantic State of the Ecosystem report. The draft risk assessment will be presented to the EOP Committee and AP in March 2024 for final feedback and recommendations regarding the inclusion, deletion, or parking/later consideration of any risk element for Council consideration. The Council will then review and approve the new EAFM risk assessment for use by the Council in future management documents, priorities, and decisions.

As a reminder:

Risk Elements - identify what we are measuring. They can be any aspect that may threaten achieving the biological, economic, or social objectives that the Council desires from a fishery.

Definitions - describe why we are measuring it and clearly state what is at risk.

Indicators - are how we measure risk and are observations that gives information about the risk element.

Risk Criteria - help specify what is the risk, ranging from low to high.

Contents

Ecological Elements

Stock Assessment Performance

Description:

Stock assessments provide the scientific basis for sustainable fishery management in this region. This risk element is applied at the species level, and addresses risk to achieving OY due to scientific uncertainty based on analytical and data limitations. The Council risk policy accounts for scientific uncertainty in assessments, with methods for determining scientific uncertainty currently being refined by the Council's Scientific and Statistical Committee (SSC).

Other assessment-related risk elements (F status and B status) describe risks according to our best understanding of stock status, but assessment methods and data quality shape that understanding.

Definition:

Risk of not achieving OY due to analytical limitations

Indicators:

The Council currently uses indicators from stock assessment review and a qualitative assessment of general assessment data quality. The EOP and Council can continue to use pass/fail criteria from independent stock assessment reviews, and more formally incorporate data quality indicators (including data quality impacts from any source of scientific survey constraint), assessment retrospective performance indicators, or other indicators of analytical limitations. The SSC OFL CV process already reviews many aspects of analytical assessment uncertainty, including data quality and retrospective performance, which may be incorporated in this EAFM risk assessment.

Proposed risk criteria:

Low risk for assessment performance was defined as stock assessment model(s) passing peer review, and stocks having high data quality. Low-Moderate risk was assessment passing peer review, but some key data and/or reference points are lacking. The Moderate-High risk category was not used for this element in the past, but could include consideration of major data gaps and or large retrospective patterns that require adjustment. High risk was the assessment failing peer review, and/or that considerable data shortcomings required the use of data-limited tools.

An alternative set of criteria could apply OFL CVs used by the SSC for establishing ABC, which represent overall assessment uncertainty. An OFL CV of 60% could represent the low risk category, 100% the low-moderate risk category, 150% the moderate-high risk category, and stocks without an assessment (where OFL CV is usually not applied) remaining in the high risk category. If applying these criteria, we could change the name of this to "Assessment uncertainty" to match what the SSC is evaluating.

Risk Level	*Definition*
Low	Assessment model(s) passed peer review, high data quality, small retrospective pattern
Low-Moderate	Assessment passed peer review but some data and/or reference points may be lacking
Moderate-High	Assessment passed peer review but with major data quality issue or large retrospective pattern
High	Assessment failed peer review or no assessment, data-limited tools applied

Fishing Mortality Status and Stock Biomass Status

Description:

Managed fisheries are required to be prosecuted within fishing mortality limits and managed stocks are required to be maintained above minimum threshold biomass levels to preserve sustainable yield. These elements are applied at the species level. Because OY is the objective, and OY is at most MSY under U.S. law, fishing mortality (F) limit reference points are based on F_{MSY}, while the stock biomass (B) target is biomass at MSY (B_{MSY}). F and B status relative to established MSY-based target and limit reference points or proxies (Gabriel and Mace, 1999) from stock assessments therefore indicate the level of risk to achieving OY from either overfishing or stock depletion, respectively.

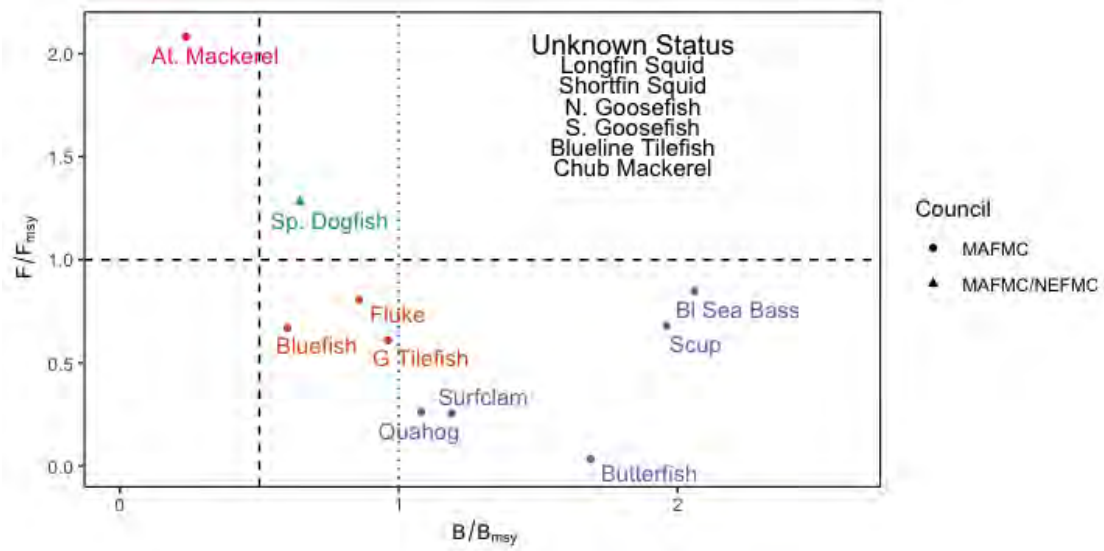
Definitions:

Fishing Mortality – F Status: Risk of not achieving OY due to overfishing

Stock Biomass – B Status: Risk of not achieving OY due to depleted stock

Indicators:

Stock assessments estimate both current F relative to the F reference point and current B relative to the B reference point and these indicators are used directly. When these quantities are not estimated due to analytical limitations, the SSC can evaluate the weight of evidence for risk of overfishing and overfished status based on evidence outside the stock assessment, and this evaluation is used in the EAFM risk assessment.



Summary of single species status for MAFMC and jointly federally managed stocks (Spiny dogfish and both Goosefish). The dotted vertical line is the target biomass reference point of Bmsy. The dashed lines are the management thresholds of one half Bmsy (vertical) or Fmsy (horizontal). Stocks in red are below the biomass threshold (overfished) and have fishing mortality above the limit (subject to overfishing), stocks in green are above the biomass threshold but have fishing mortality above the limit. Remaining stocks have fishing mortality

within limits: stocks in orange are above the biomass threshold but below the biomass target, and stocks in purple are above the biomass target.

Proposed risk criteria:

We applied low and high risk criteria for these elements as defined in U.S. law. Low risk criteria are $F < F_{MSY}$ and $B > B_{MSY}$ for an individual stock. High risk criteria are $F > F_{MSY}$ and $B < 0.5\ B_{MSY}$ for an individual stock. The Council established the intermediate risk categories to address stocks with unknown status. Moderate-high risk was defined as unknown status in the absence of other information for both F and B. Low-moderate risk was defined as unknown status, but with a weight of evidence indicating low overfishing risk for F. Similarly, low-moderate risk for B was either $0.5\ B_{MSY} < B < B_{MSY}$ or unknown status, but with a weight of evidence indicating low risk that the population is depleted.

Risk Level	*Definition*
Low	F < Fmsy
Low-Moderate	Unknown, but weight of evidence indicates low overfishing risk
Moderate-High	Unknown status
High	F > Fmsy

Risk Level	*Definition*
Low	B > Bmsy
Low-Moderate	Bmsy > B > 0.5 Bmsy, or unknown, but weight of evidence indicates low risk
Moderate-High	Unknown status
High	B < 0.5 Bmsy

Food Web (1) - Prey Availability

Description:

This element is applied at the species level.

Fish stocks and protected species stocks are managed using single species approaches, but fish and protected species stocks exist within a food web of predator and prey interactions. This element is one of two separating food web risks to achieving OY for Council managed species from two sources. This first element assesses prey availability for each species, and the second food web risk element assesses predation pressure on each species (see next element).

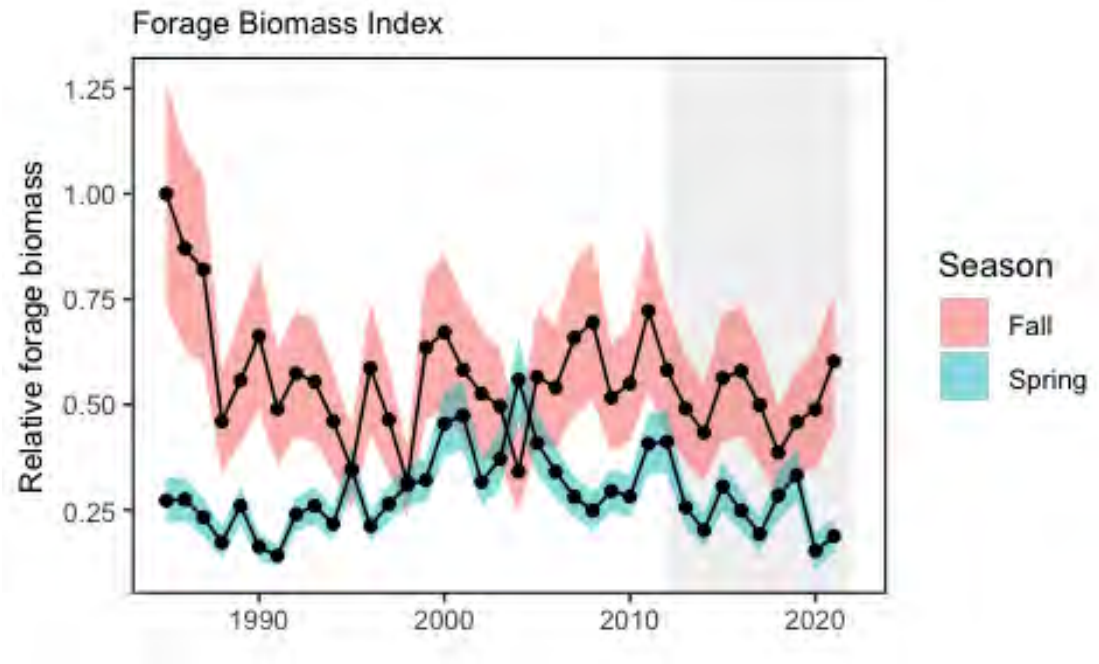
Definition:

Risk of not achieving OY for Council managed species due to availability of prey.

Indicators:

Indicators of prey availability for each Council managed species would be based on food habits information for the Council managed species combined with population trends for key prey species (if available). Prey could include all species (Council managed, other-managed, and non-managed) or a subset as determined by the EOP and Council.

Another indicator of prey could be based on stomach contents of predators, as was used for the 2022 bluefish research track assessment and presented in the 2023 State of the Ecosystem report. This index includes 22 forage species and was designed for bluefish, but also includes important forage for summer flounder and other Council managed species.



Forage fish index developed for the 2022 bluefish research track stock assessment

A secondary indicator of prey availability would include the fish condition indicators from the State of the Ecosystem report (shown below under Ecosystem Productivity). These would not rely on detailed diet information, instead reflecting the impact of environmental drivers including prey availability on fish growth.

Diet information was gathered from the Northeast Fisheries Science Center (NEFSC) food habits database and other sources (Smith and Link, 2010; Johnson et al 2008).

Potential risk criteria:

Risk Level	*Definition*
Low	Prey availability high (not limiting) and/or good fish condition past 5 years
Low-Moderate	Aggregate prey available for this species has stable or increasing trend, moderate condition
Moderate-High	Aggregate prey available for this species has significant decreasing trend, poor condition
High	Managed species highly dependent on prey with limited and declining availability, poor condition

Food Web (2) - Predation Pressure

Description:

This element is applied at the species level.

Fish stocks and protected species stocks are managed using single species approaches, but fish and protected species stocks exist within a food web of predator and prey interactions. This element is one of two separating food web risks to achieving OY for Council managed species from two sources. This second food web risk element assesses predation pressure on each species, and the first element assesses prey availability for each species (see element above).

Definition:

Risk of not achieving OY for Council managed species due to predation pressure.

Indicators:

Indicators of predation pressure on a Council managed species would be based on food habits information for predators of the species combined with key predator trends. This could be derived from empirical information or food web/multispecies models. Predators could include all species (protected, HMS, Council managed, other-managed, and unmanaged) or a subset as determined by the EOP and Council. Predation mortality (M2) compared to fishing mortality (F) to evaluate the relative importance of predation mortality is another indicator that could help inform the risk criteria levels.

Potential risk criteria:

Risk Level	*Definition*
Low	Predation pressure represents low proportion of overall mortality
Low-Moderate	Predation pressure moderate proportion of overall mortality, decreasing mortality trend
Moderate-High	Predation pressure moderate proportion of overall mortality, increasing mortality trend
High	Predation pressure represents high proportion of overall mortality, increasing mortality trend

Food Web (3) - Protected Species Prey

Description:

This element is applied at the species level.

Fish stocks and protected species stocks are managed using single species approaches, but fish and protected species stocks exist within a food web of predator and prey interactions. The previous two elements focus on Council managed species OY, while this element focuses on protected species objectives (maintain or recover populations and minimize bycatch).

This element ranks the risks of not achieving protected species objectives due to species interactions with Council managed species. In the US, protected species include marine mammals (under the Marine Mammal Protection Act), Endangered and Threatened species (under the Endangered Species Act), and migratory birds (under the Migratory Bird Treaty Act). In the Northeast US, endangered/threatened species include Atlantic salmon, Atlantic and shortnose sturgeon, all sea turtle species, and five whales.

Definition:

Risk of not achieving protected species objectives due to interactions with Council-managed species

Indicators:

Food web models and diet information can be used to establish thresholds of "importance" for predators and prey. Although monkfish occasionally ingest seabirds (Perry et al., 2013), there are no Council-managed species that are important predators of protected species (Smith and Link, 2010), so here we rank only risks where Council managed species represent prey of protected species. An important prey of protected species is defined here as individually comprising >30% of the predator's diet by weight. Critical prey warranting a high risk ranking would be a majority (>50%) of diet for an individual protected species.

Potential risk criteria:

Risk Level	*Definition*
Low	Few interactions with any protected species
Low-Moderate	Important prey of 1-2 protected species, or important prey of 3 or more protected species with management consideration of interaction
Moderate-High	Important prey of 3 or more protected species
High	Managed species is sole prey for a protected species

Food Web (4) – Other

Description:

Fish stocks and protected species stocks are managed using single species approaches, but fish and protected species stocks exist within a food web of predator and prey interactions. This element would be applied at the species level. The proposed new element would address risks to HMS management objectives from Council managed activities.

Definition:

Risks to maintaining HMS and shorebird populations due to interactions with Council-managed species.

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended removing this as a stand-alone risk element and consider as a potential indicator under the Food Web (2) and (3) risk elements.

Ecosystem Productivity

Description:

This element is applied at the ecosystem level (the Mid-Atlantic Ecosystem Production Unit).

Productivity at the base of the food web supports and ultimately limits the amount of managed species production in an ecosystem.

Definition:

Risk of not achieving OY due to changing system productivity at the base of the food web.

Indicators:

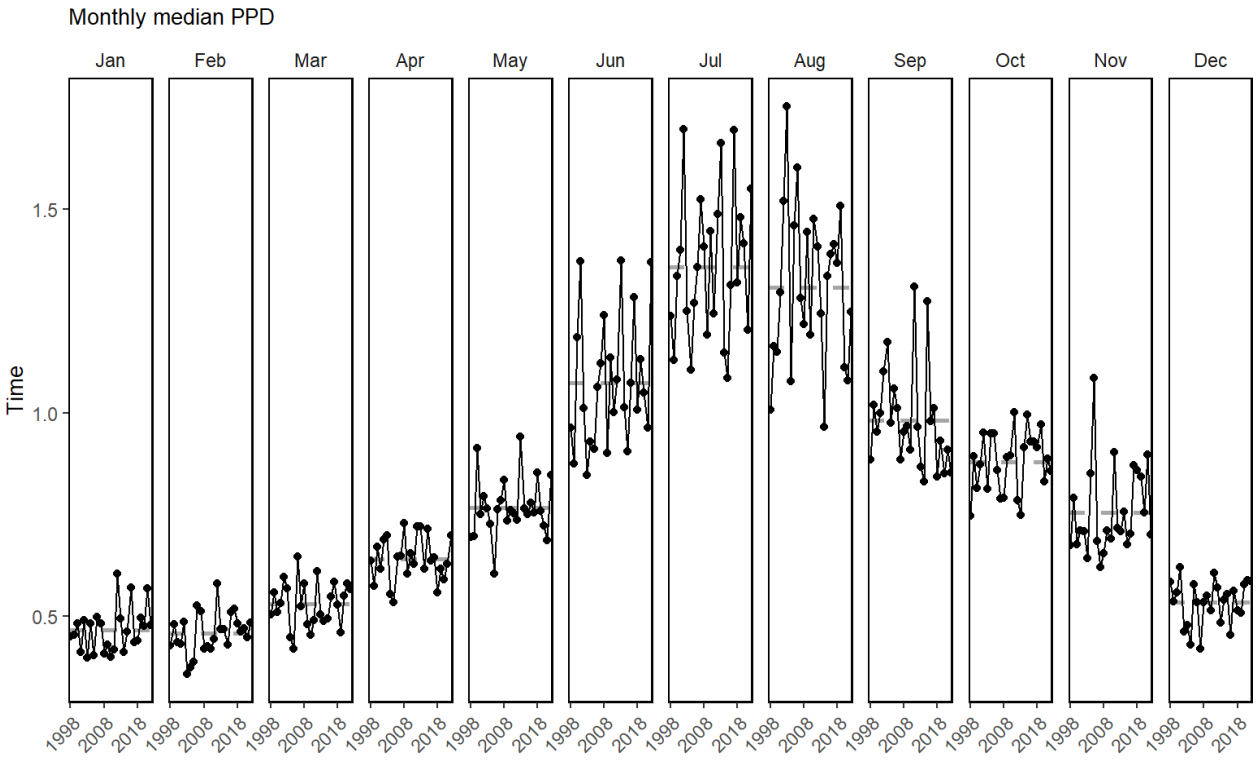
A combination of five indicators will be used to assess the risk of changing ecosystem productivity. We examine trends in total primary production, zooplankton abundance for a key Mid-Atlantic species, aggregate forage fish (new), and two aggregate fish productivity measures: condition factor (weight divided by length of individual fish) and a survey based "recruitment" (small fish to large fish) index. An assessment-based recruitment index was recently added to the State of the Ecosystem report as well. Because benthic crustaceans are important prey for many Council-managed species, we note a benthic production indicator is desirable but not yet available.

These indicators evaluate ecosystem productivity in aggregate, which may change due to drivers such as decreasing primary productivity, changes in spatial/temporal overlap at the base of the food web, or other factors.

For primary production and fish productivity, the spatial scale of analysis is the Mid-Atlantic Ecosystem Production Unit.

Primary production

Primary production has fluctuated recently with current conditions near average. The observed stability in system productivity is in contrast to an apparent shift in the timing of the bloom cycle in the Mid-Atlantic. Comparing remote sensing information from the 1970-80s to 1997-2015 information suggests that winter productivity was historically higher in the MAB and that the spring bloom we see today was less prominent. Shifts in timing of low trophic level production can affect Council managed fish species through early life history stages that feed on zooplankton.

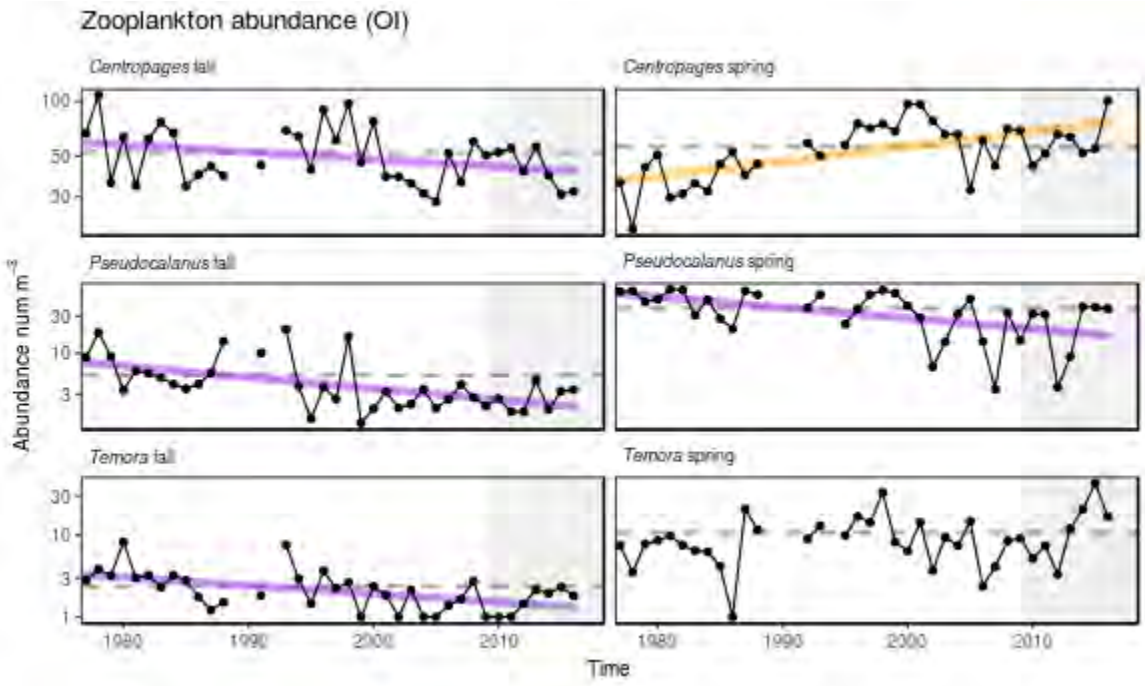


Monthly primary production trends show the annual cycle (i.e. the peak during the summer months) and the changes over time for each month.

Zooplankton abundance

Zooplankton provide a critical link between phytoplankton at the base of the food web, and higher trophic organisms such as fish, mammals, and birds. Changes in the species composition and biomass of the zooplankton community have a great potential to affect recruitment success and fisheries productivity, and climate change may be the most important pathway for these changes to manifest. Therefore these indices are relevant to both productivity and trophic structure objectives.

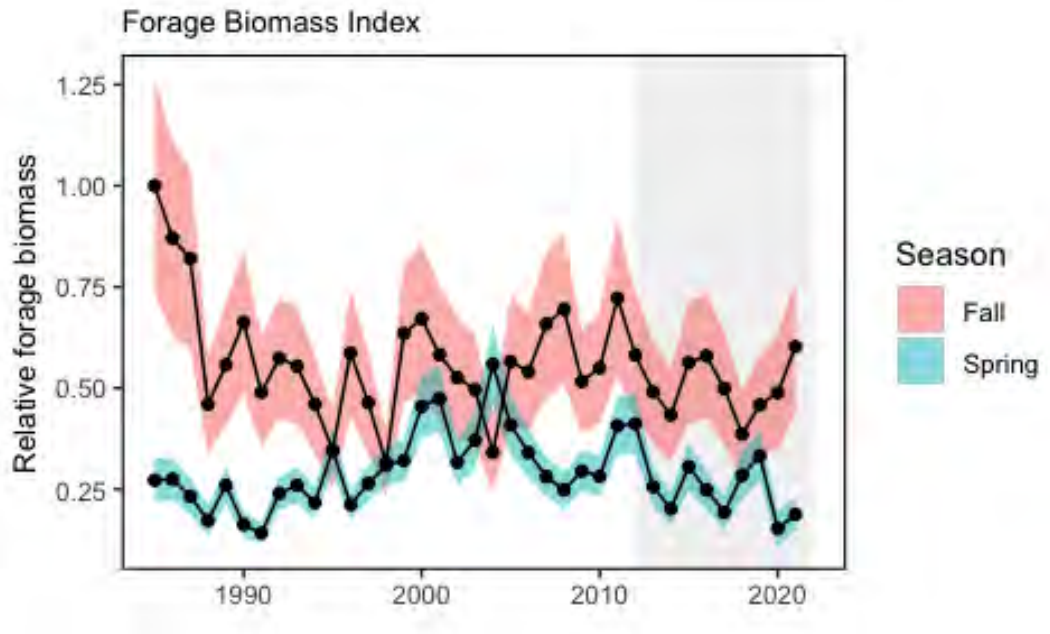
The time series of zooplankton biovolume suggest that overall zooplankton production has not changed over time. However, the dominant species of zooplankton in the Mid-Atlantic, *Centropages typicus*, shows a seasonal shift in abundance. This suggests a change in timing of zooplankton reproductive cycles, which may impact fish species such as Atlantic mackerel.



Time series of zooplankton abundance from 2019 SOE

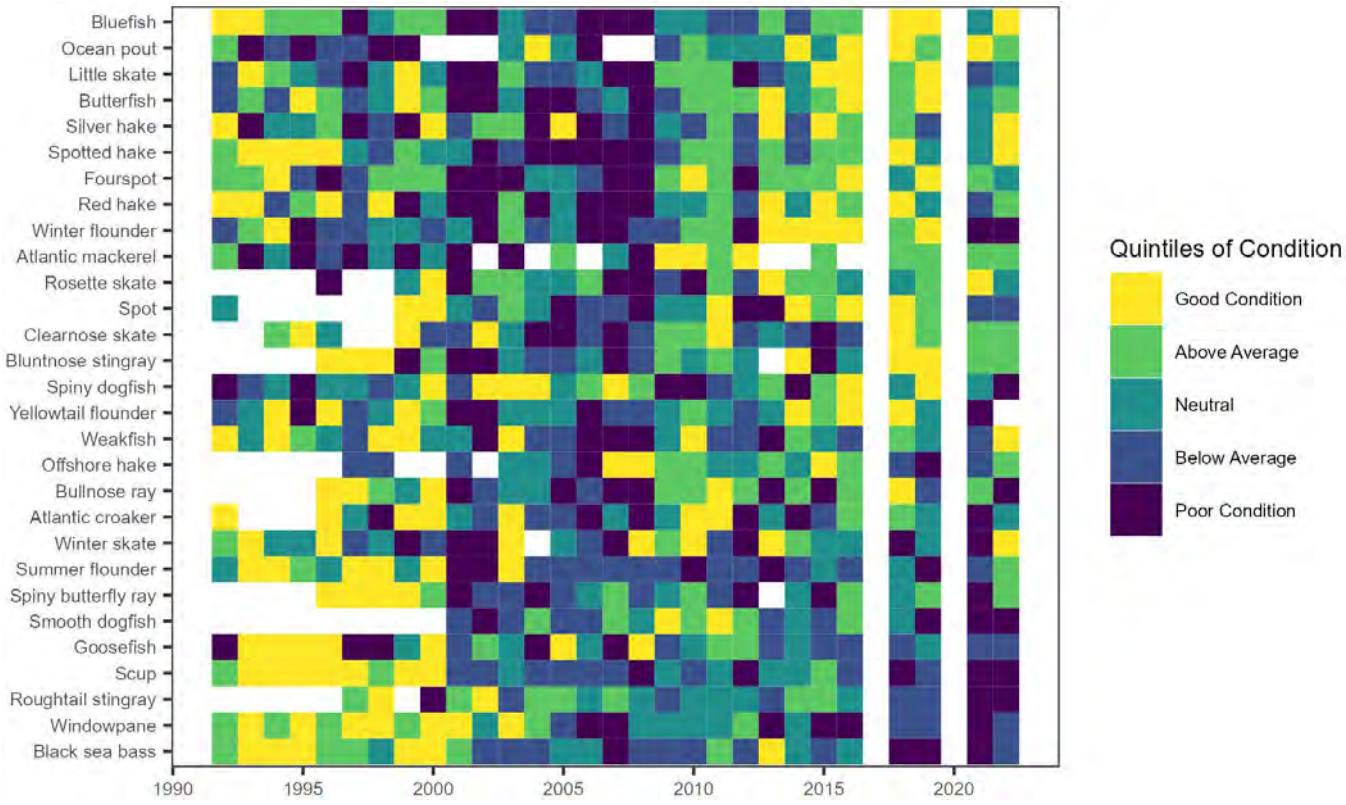
Forage Base - new indicator

The amount of forage available is one important driver of fish productivity. Indicators of aggregate pelagic forage fish biomass and forage fish energy content are presented in the State of the Ecosystem report. Indicators of benthic forage are under development but not yet available. Food habits data from surveys and literature could be used to define the forage base common to all Council managed and protected species.



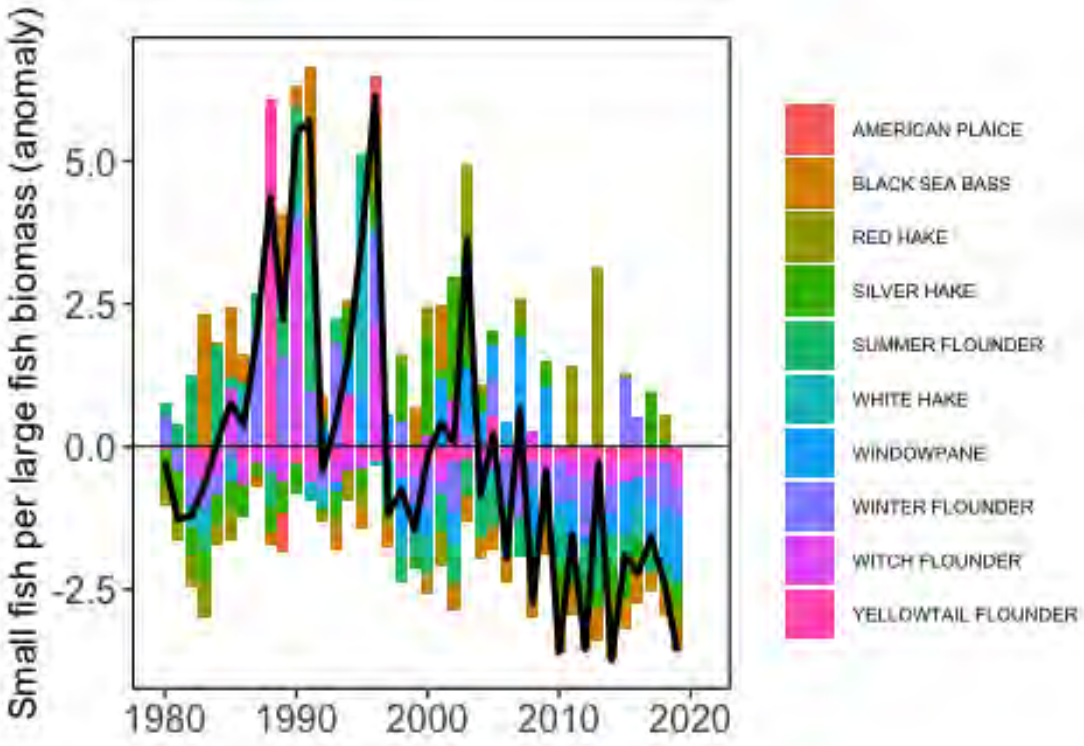
Fish condition

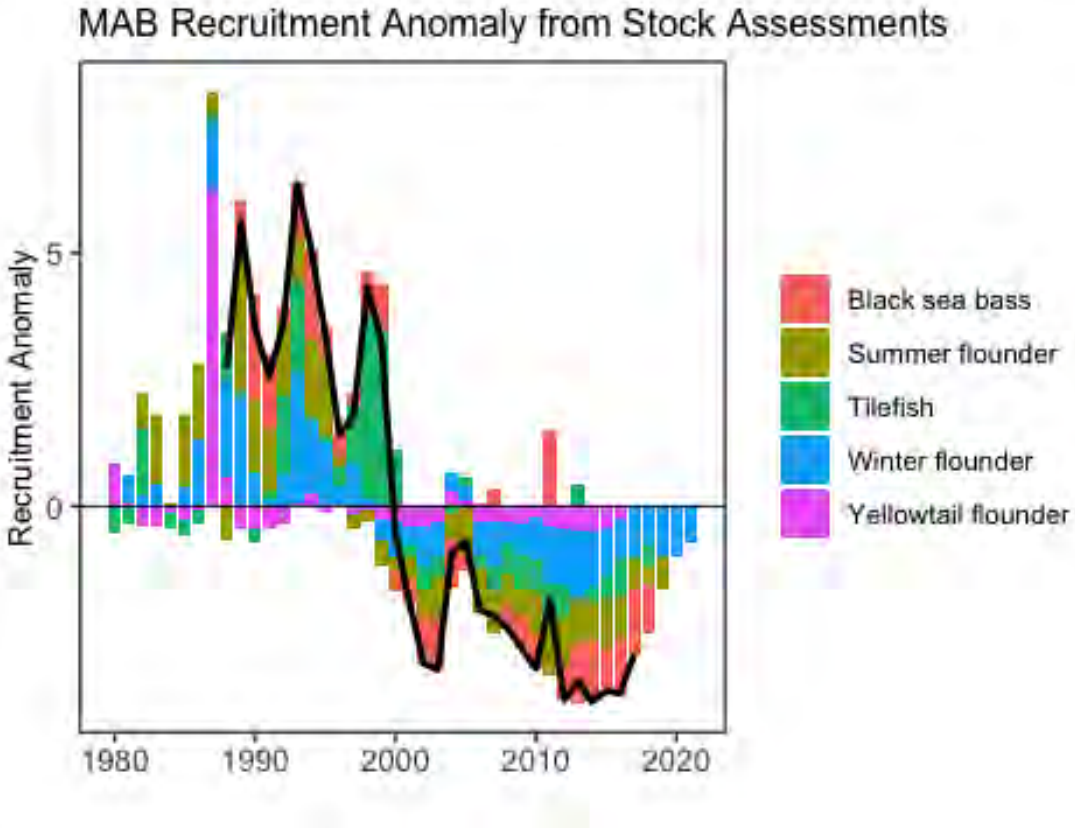
Fish condition is measured as the weight per length–a measure of "fatness". This information is from NEFSC bottom trawl surveys and shows a change in condition across all species at around 2000. Around 2010-2013 many species started to have better condition, though black sea bass remain thinner for their length on average.



Fish productivity

The number of small fish relative to the biomass of larger fish of the same species, as derived from the NEFSC survey, is a simple measure of productivity intended to complement model-based stock assessment estimates of recruitment. There is a general decrease in this indicator when aggregated across managed and unmanaged species in the Mid-Atlantic. The plot includes black sea bass, butterfish, clearnose skate, fourspot flounder, little skate, scup, spiny dogfish, summer flounder, thorny skate, windowpane flounder, winter flounder, and winter skate.


Small fish per large fish biomass (anomaly)
5.0
2.5
0.0
-2.5
1980
1990
2000
2010
2020
AMERICAN PLAICE
BLACK SEA BASS
RED HAKE
SILVER HAKE
SUMMER FLOUNDER
WHITE HAKE
WINDOWPANE
WINTER FLOUNDER
WITCH FLOUNDER
YELLOWTAIL FLOUNDER


MAB Recruitment Anomaly from Stock Assessments
Recruitment Anomaly
5
0
1980
1990
2000
2010
2020
Black sea bass
Summer flounder
Tilefish
Winter flounder
Yellowtail flounder

Potential risk criteria:

Low risk for this element was defined as no trends in ecosystem productivity across all five indicators. The Low-Moderate risk criterion was trend(s) in ecosystem productivity for 1-2 indicators, whether increasing or decreasing. The Moderate-High risk criterion was trends in ecosystem productivity (3+ measures, increase or decrease). The High risk criterion was decreasing trends across 4 or more indicators.

Risk Level	*Definition*
Low	No trends in ecosystem productivity
Low-Moderate	Trend in ecosystem productivity (1-2 measures, increase or decrease)
Moderate-High	Trend in ecosystem productivity (3+ measures, increase or decrease)
High	Decreasing trend in ecosystem productivity, 4+ measures

Forage Base (new)

Description:

The amount of forage available is one important driver of fish productivity. This element would be applied at the ecosystem level, and evaluates whether there is sufficient aggregate forage available to provide supporting ecosystem services to managed and protected species.

Definition:

Risk to not maintaining aggregate forage base and ecosystem function for Council-managed species and protected species.

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended removing this as a stand-alone risk element and consider as a potential indicator under the Ecosystem Productivity risk element.

Population Diversity (new)

Description:

This element would be applied at the species level.

Changes (particularly reduction) in diversity at the species/stock level (size, sex, reproductive) can impact stock productivity, and therefore yield.

Definition:

Risk of not achieving OY due to reduced species/stock diversity (size, sex, genetic, reproductive).

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended parking this risk element and consider potentially incorporating it later when more information is available and potential indicators could be developed.

Ecological Diversity (new)

Description:

This element would be applied at the ecosystem level.

Diversity of species within ecosystems provides the capacity to adapt to change at the ecosystem level, stabilizing ecosystem structure and function for dependent fishing communities.

Definition:

Risk of not achieving OY due to reduced species diversity and altered ecosystem structure and function.

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended parking this risk element and continue to track potential indicators (e.g., zooplankton, larval, and adult diversity) in the State of the Ecosystem reports and determine how these may be incorporated in the future.

Climate

Description:

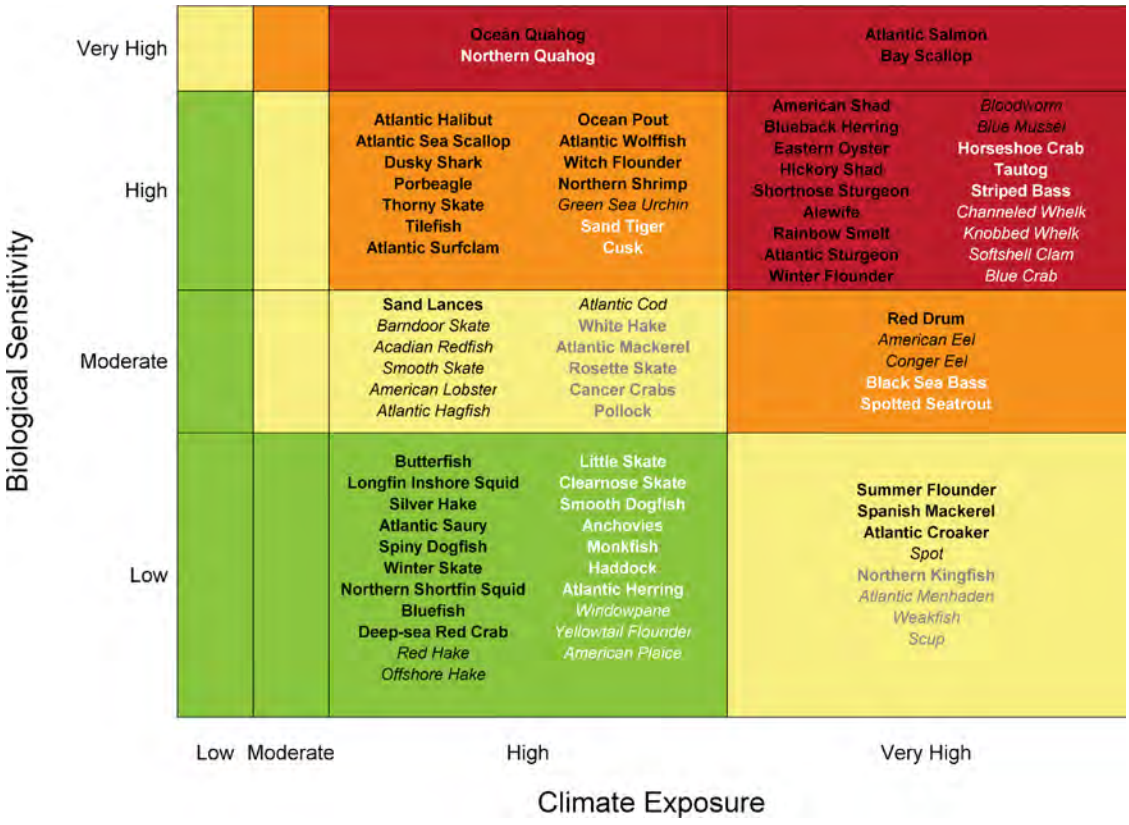
Climate change is expected to alter environmental conditions for managed fish in the Northeast US. This element is applied at the species level, and evaluates risks to species productivity (and therefore to achieving OY) due to projected climate change factors in the region using a comprehensive assessment (Hare et al., 2016) and other climate indicators (e.g., Mid-Atlantic ocean acidification).

Definition:

Risk of not achieving OY due to projected climate change or ocean acidification impacts on species productivity.

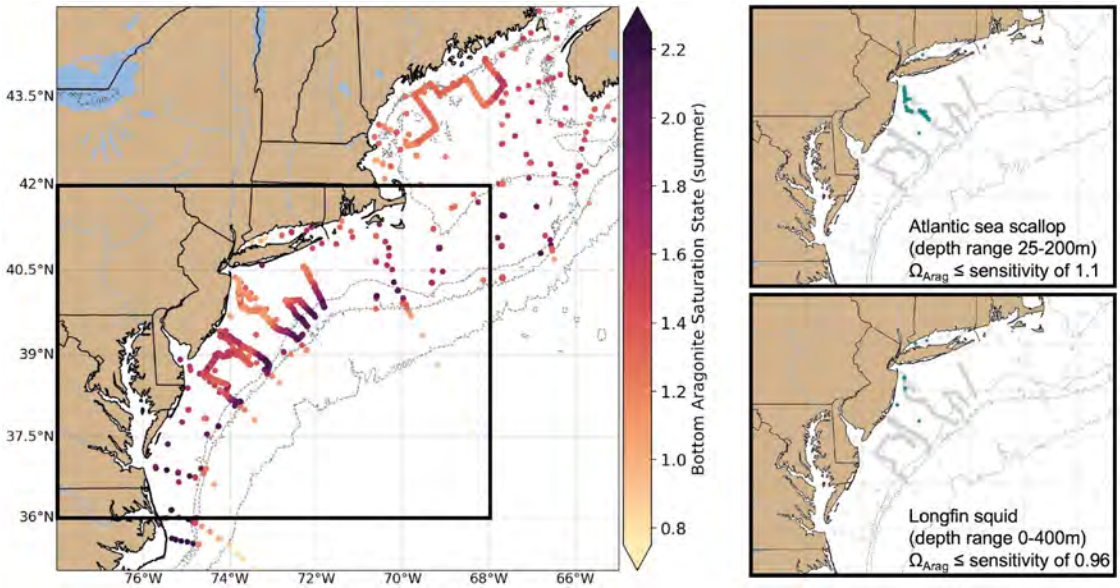
Indicators:

Indicators for climate productivity risk were taken from a climate vulnerability assessment (Hare et al., 2016) that evaluated exposure of each species to multiple climate threats, including ocean and air temperature, ocean acidification, ocean salinity, ocean currents, precipitation, and sea level rise. The assessment also evaluated the sensitivity (*not extinction risk*) of each species based on habitat and prey specificity, sensitivity to temperature and ocean acidification, multiple life history factors, and number of non-climate stressors. Additional indicators linking temperature and ocean acidification to individual stocks are presented in the State of the Ecosystem reports.



Hare et al., 2016 Climate vulnerability by species, Northeast US

Indicator: Mid Atlantic Ocean acidification



Potential risk criteria:

Risk Level	*Definition*
Low	Low climate vulnerability ranking
Low-Moderate	Moderate climate vulnerability ranking
Moderate-High	High climate vulnerability ranking, climate indicators impacting the stock increasing (worsening)
High	Very high climate vulnerability ranking, climate indicators impacting the stock increasing (worsening)

Low risk ranking was defined as a low climate vulnerability ranking. Low-Moderate risk was a moderate climate vulnerability ranking. Moderate-High risk was a high climate vulnerability ranking. High risk was a very high climate vulnerability ranking.

Distribution Shifts

Description:

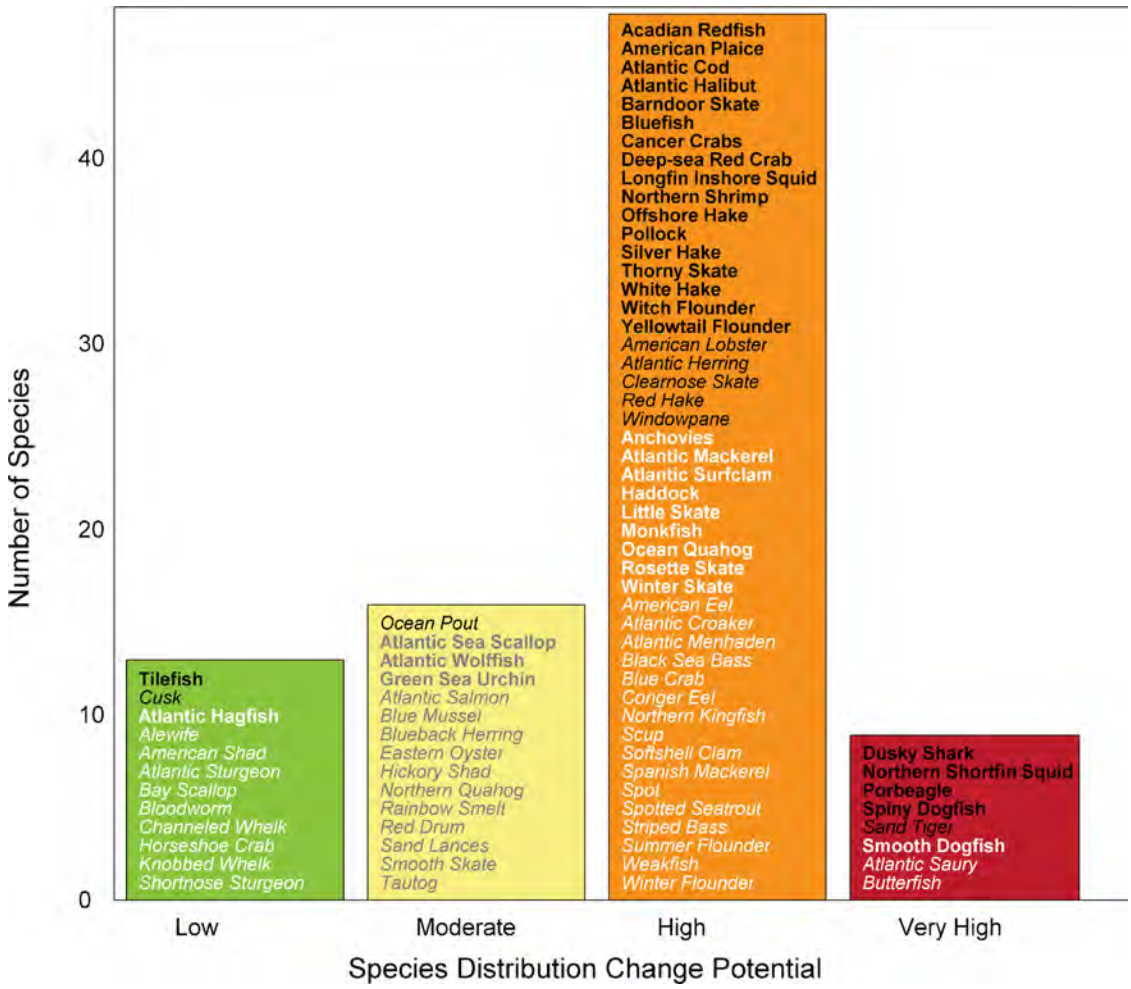
Climate change is expected to drive changes in spatial distribution for managed fish in the Northeast US as environmental conditions become more or less favorable for each stock throughout its range. Species distribution shifts in turn can increase risks of ineffective spatial catch allocation; if catch allocation is greatly mismatched with species distribution OY may not be achieved. This element is applied at the species level, and evaluates risks of species distribution shifts due to projected climate change in the Northeast US.

Definition:

Risk of not achieving OY due to spatial mismatch of stocks and management as a result of climate-driven distribution shifts.

Indicators:

Risks of species distribution shifts due to projected climate change in the Northeast US were assessed in a comprehensive assessment (Hare et al., 2016). We applied those distribution shift risk rankings directly in the risk assessment.



Hare et al., 2016 Distribution shift risk by species, Northeast US

In addition, changes in species distribution are monitored using fisheries independent bottom trawl surveys. Two distribution shift indicators are derived from these surveys: kernel density plots of recent distribution compared with 1970s distribution, and time series of the along shelf position of the center of distribution.

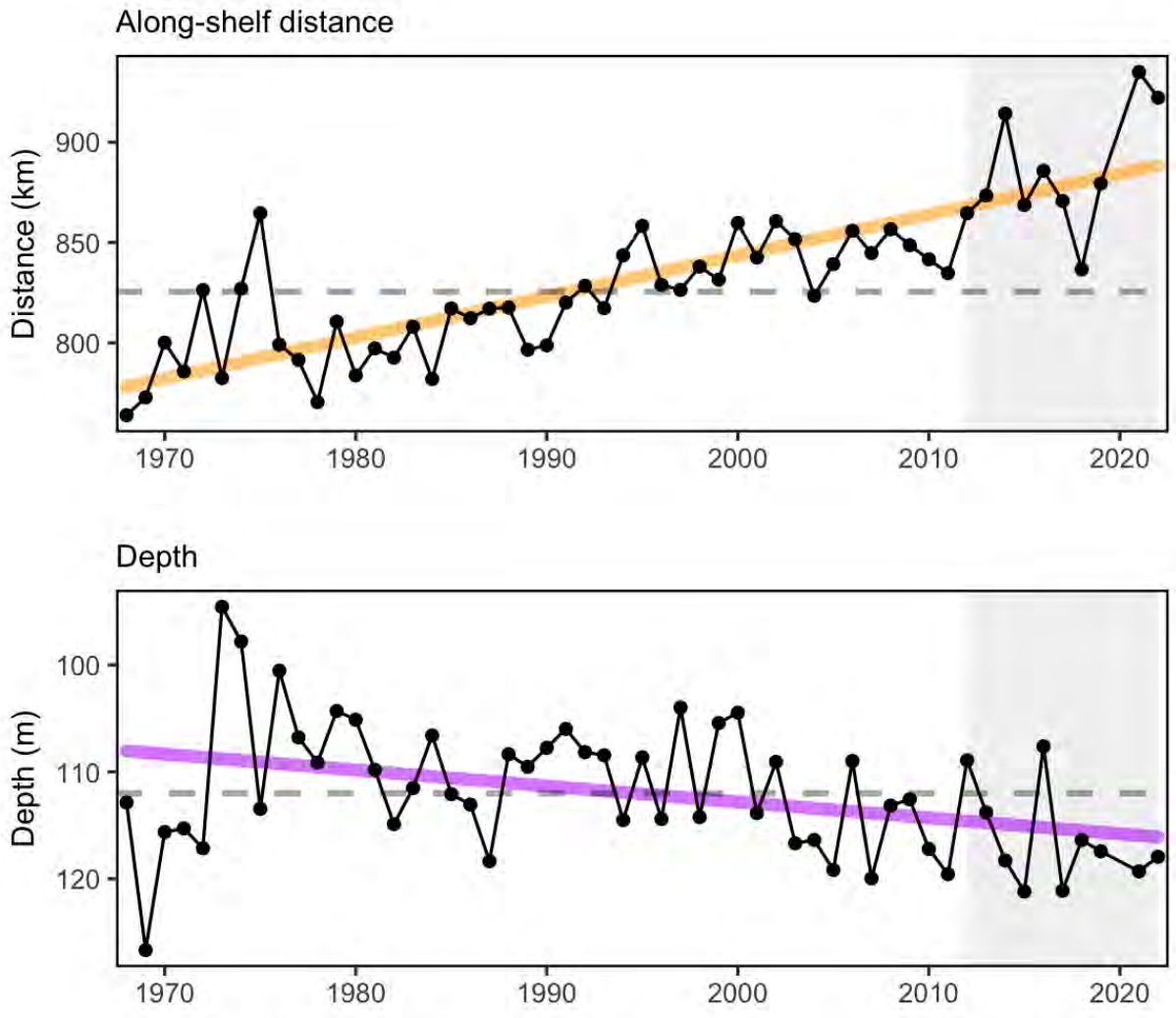
Historical vs. current distribution

Spatial distribution has changed over time for some species more than for others. The distribution of black sea bass, as measured by NEFSC surveys, has shifted northward relative to historical distributions. In contrast, the distribution of longfin squid in the Mid-Atlantic has remained relatively stable.

Species distribution models incorporating habitat variables show where distributions have increased or decreased over time: https://www.fisheries.noaa.gov/new-england-mid-atlantic/ecosystems/fisheries-habitat-northeast-us-shelf-ecosystem

Changes in along shelf position

The annual centroid of a species' distribution can be characterized by the position in the ecosystem along an axis oriented from the southwest to the northeast, referred to as the along shelf distance, and by depth. Along shelf distances range from 0 to 1360 km, which relates to positions along the axis from the origin in the southwest to the northeast. All species combined show a shift to the northeast and into deeper water. Individual Council managed species distribution centeroids, aside from squids, also showed this trend to the northeast along the shelf in previous analysis.



Aggregate species shifts from the 2023 State of the Ecosystem report

Potential risk criteria:

Risk Level	*Definition*
Low	Low potential for distribution shifts
Low-Moderate	Moderate potential for distribution shifts
Moderate-High	High potential for distribution shifts, observed distribution shifts
High	Very high potential for distribution shifts, observed distribution shifts

Estuarine and Coastal Habitat

Description:

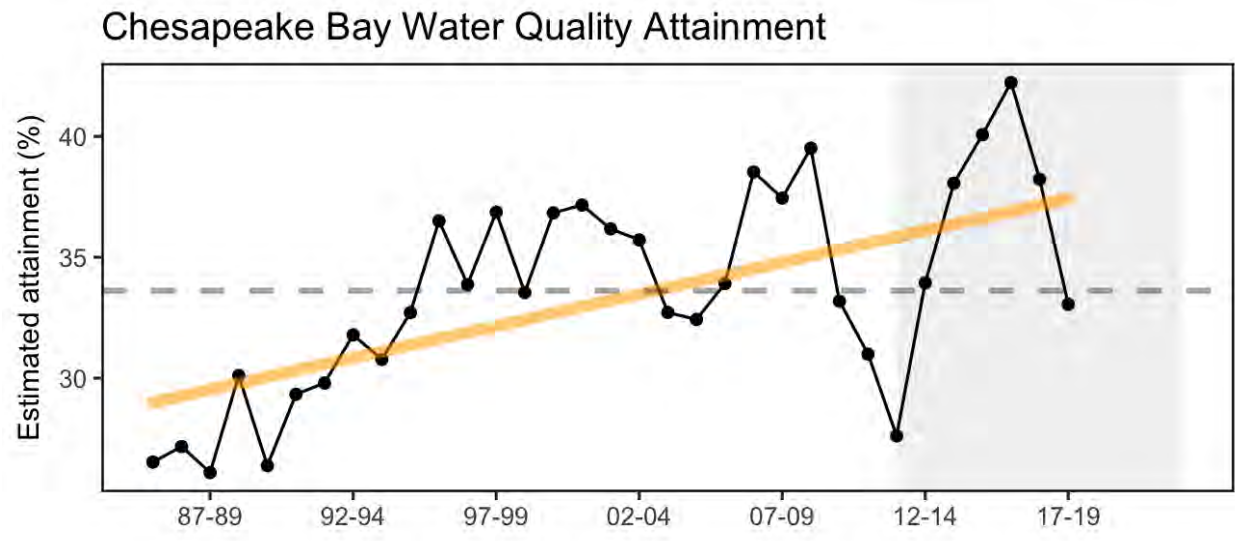
Estuarine and coastal habitat provides important nursery grounds for Council managed species, and is changing in quality and quantity due to multiple stressors from climate, land use, and coastal development. This element is applied at the species level, and evaluates risk of not achieving OY due to threats to estuarine and nearshore coastal habitat/nursery grounds.

Definition:

Risk of not achieving OY due to threats to estuarine/nursery habitat.

Indicators:

Risk was determined by first evaluating the estuarine dependence of species, and then by enumerating threats to the estuarine habitat required by these species. An assessment of national coastal and estuarine condition was used in this assessment. Water and habitat quality assessments produced for Chesapeake Bay, Delaware Bay, Long Island Sound, and other coastal estuaries have been developed and can be considered in the future. The National Coastal Condition Assessment for the Northeast US (US EPA, 2012) was used to evaluate estuarine and coastal condition. This report lists water, sediment, benthic, and coastal habitat quality as well as fish contamination. State of the Ecosystem reports now include up to date indicators of Chesapeake Bay habitat conditions which could be included as indicators.



Improvement in overall Chesapeake Bay water quality, from 2022 SOE

Species specific habitat use indicators for Chesapeake Bay are in development. As reported in the 2023 SOE, Chesapeake Bay suitable habitat for juvenile summer flounder growth has declined by 50% or more. Climate change is expected to continue impacting habitat function and use for multiple species. Habitat is improving in some areas (tidal fresh SAV,

oyster reefs), but eelgrass is declining. Similar information from multiple East Coast estuaries could be integrated into the risk assessment as it becomes available.

Potential risk criteria:

Risk Level	*Definition*
Low	Not dependent on nearshore coastal or estuarine habitat
Low-Moderate	Estuarine dependent, estuarine condition stable
Moderate-High	Estuarine dependent, estuarine condition fair
High	Estuarine dependent, estuarine condition poor

Species were defined as low risk if not dependent on nearshore coastal or estuarine habitat. Low-Moderate risk were estuarine dependent species with a stable estuarine condition. Moderate-High risk were estuarine dependent species with a fair estuarine condition. High risk were estuarine dependent species with a poor estuarine condition.

Offshore Habitat (new)

Description:

This element would be applied at the species level.

Offshore habitat , defined here as all habitat outside of the estuary and beyond the immediate coastal/nearshore areas, supports all life stages of many Council managed species, and is changing in quality and quantity due to multiple stressors from climate to other ocean uses such as offshore wind development. This element evaluates risk of achieving OY due to changes in offshore habitat quality and quantity.

Definition:

Risk of not achieving OY due to changing offshore habitat. The rationale is that multiple drivers of offshore habitat change, including ocean industrialization, are included in this definition.

Indicators:

Indicators of offshore habitat trends are available from species-specific habitat modeling through the Northeast Regional Habitat Assessment, NEFSC, and multiple other efforts throughout the region.

Indicators include the amount of habitat, quality of habitat, or other aspects of habitat important to support fish productivity. For example, the cold pool is a seasonal habitat feature linked to several species in the Mid-Atlantic with indicators for spatial extent, duration, and temperature within the feature.

Potential risk criteria:

Risk Level	*Definition*
Low	No trends in offshore habitat
Low-Moderate	Trend in offshore habitat (1-2 measures, increase or decrease)
Moderate-High	Trend in offshore habitat (3+ measures, increase or decrease)
High	Decreasing trend in offshore habitat, 4+ measures

Invasive Species (new)

Description:

Invasive species (defined as non-native to the ecosystem *and* likely to cause harm to the environment and or economy) are spread by human activity and have the potential to disrupt ecosystem structure and function.

This element would be applied at the ?? ecosystem level.

It would evaluate risks to OY across all Council managed species due to invasive species interactions and impacts on stock productivity.

Definition:

Risk of not achieving OY due to invasive species threats to managed species productivity.

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended removing this as a stand alone risk element and consider as a potential indicator under the Estuarine/Coastal Habitat and Offshore Habitat risk elements.

Economic Elements

Commercial Value

Description:

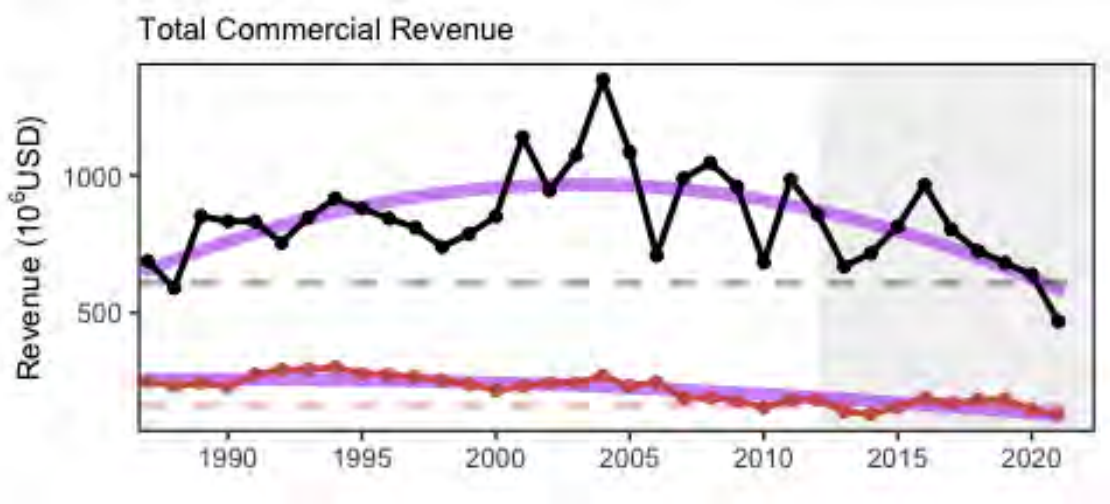
This element is applied at the ecosystem level, and addresses the risk of not maximizing fishery value. Revenue serves as a proxy for commercial profits, which is the component of a fishery's value that this element is ultimately attempting to assess risk towards. Lack of cost information across all fleet segments precludes the assessment of risk to profitability itself at the ecosystem level.

Definition:

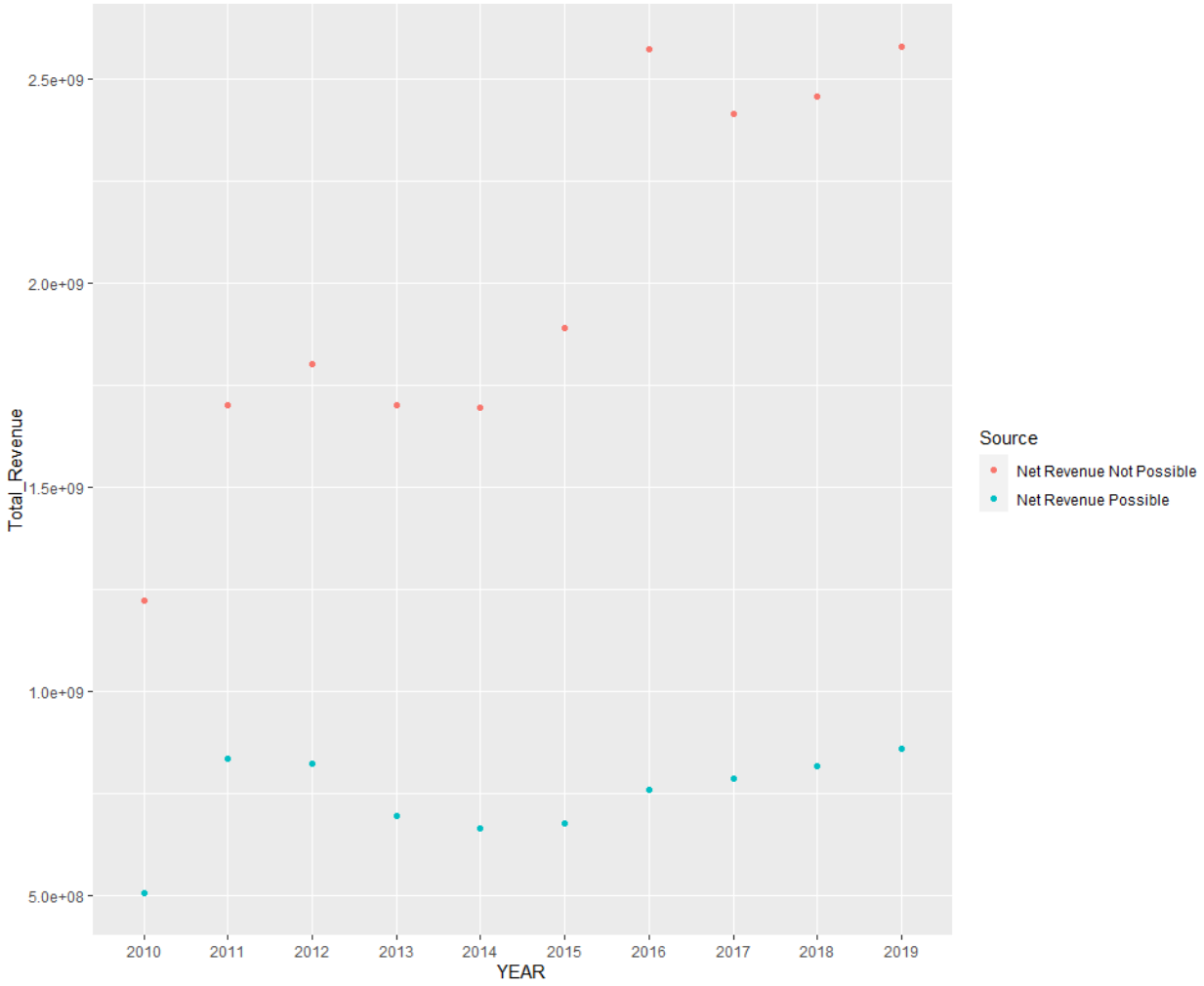
Risk of not maximizing commercial fishery value.

Indicators:

Gross revenue is the current indicator for this element, and can be developed for all fishing activity within the Mid-Atlantic and for all Council managed species. Revenue serves as a proxy for commercial profits, which is the component of a fishery's value that this element is ultimately attempting to assess risk towards. Currently this indicator is aggregated and presented at the ecosystem-level.



Net revenue (Gross revenue - trip costs) is a better proxy for trip value, in an economic context. However, this metric can be calculated only for trips by vessels holding federal licenses and submitting Vessel Trip Reports. This indicator would thus not capture all fishing within the region, and of potential interest to the Council. It underrepresents the total revenue generated regionally by about ½, and does not present the same trends as the subset for which net revenue can be generated. See figure below for the comparison of all revenue from Hatteras to the Canadian border versus what net revenue can be calculated for. The Ecosystem and Ocean Planning Committee and Advisory Panel recommended continued development of this indicator.



Potential risk criteria:

Low risk was defined as no trend and low variability in revenue. Low-Moderate risk was increasing or overall high variability in revenue. Moderate-High risk was a significant long-term revenue decrease. High risk was a significant recent decrease in revenue.

Risk Level	*Definition*
Low	No trend and low variability in revenue
Low-Moderate	Increasing or high variability in revenue
Moderate-High	Significant long term revenue decrease
High	Significant recent decrease in revenue

Marine Recreational Angler Days/Trips

Description:

Providing recreational opportunities is a stated goal of optimal fishery management under the legal definition of "benefits to the nation". Recreational fishing is important in the Mid-Atlantic region with the economic and social aspects of many coastal communities being highly dependent on recreational fishing.

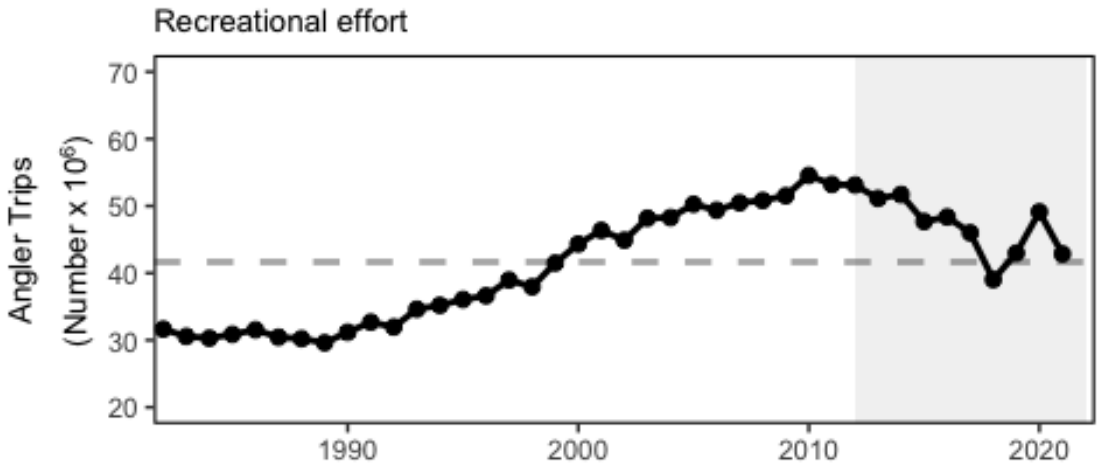
This element is assessed at the ecosystem level where it applies equally to all recreationally fished species. Providing recreational opportunities is a stated goal of optimal fishery management under the legal definition of "benefits to the nation". Recreational fishing is important in the Mid-Atlantic region with the economic and social aspects of many coastal communities being highly dependent on recreational fishing.

Definition:

Risk of not maximizing recreational fishery value and opportunities.

Indicators:

Currently, angler days and trips are the proxy indicators for the value generated from recreational fishing. Although willingness to pay would better capture the economic concept of recreational value, this information is not gathered systematically in the region. Potentially, multiple indicators could be used to better proxy for recreational fishery value.



Potential risk criteria:

Angler days and trips are the proxy indicators for the value generated from recreational fishing.

Risk Level	*Definition*
Low	No trends in angler days/trips
Low-Moderate	Increasing or high variability in angler days/trips

Risk Level	*Definition*
Moderate-High	Significant long term decreases in angler days/trips
High	Significant recent decreases in angler days/trips

Commercial Fishery Resilience (1) - Revenue Diversity

Description:

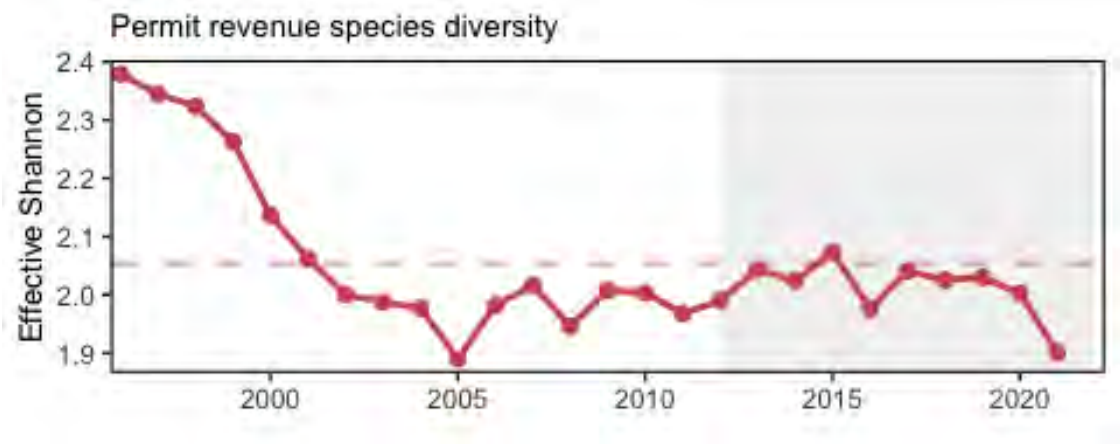
This element is applied at the ecosystem level, and addresses the potential risk of reduced commercial fishery business resilience by evaluating species diversity of revenue at the permit level.

Definition:

Commercial Fishery Resilience (Species Revenue Diversity) - Risk of reduced commercial fishery business resilience (at permit level).

Indicators:

Currently the average effective Shannon index for species revenue at the permit level is used to calculate diversity for all permits landing any amount of Council-managed species within a year (including both monkfish and spiny dogfish). Although the exact value of the effective Shannon index is relatively uninformative in this context, the relative value identifies changes in diversity.



Although the Shannon index provides a measure proportional to each type's relative frequency, the effective Shannon index has the added benefit of converting diversity measures onto a common scale, which is important when averaging across permits after calculation. As such, the effective Shannon index was selected as the preferred index of fishing diversity, consistent with the literature (Thunberg & Correia 2015).

Potential risk criteria:

Risk Level	*Definition*
Low	No trend in diversity measure
Low-Moderate	Increasing trend or high variance in diversity measure
Moderate-High	Significant long term downward trend in diversity measure

Risk Level	*Definition*
High	Significant recent downward trend in diversity measure

Low risk was defined as no trend and low variability in the diversity measure. Low-Moderate risk was an increasing trend or overall high variance in the diversity measure. Moderate-High risk was a significant long term decrease in the diversity measure. High risk was a significant recent decrease in the diversity measure.

Commercial Fishery Resilience (2) - Shoreside Support

Description:

This element is applied at the ecosystem level, and ranks the risk of reduced commercial fishery business resilience due to shoreside support infrastructure by examining the number of shoreside support businesses.

Definition:

Risk of reduced commercial fishery business resilience due to loss of shoreside support infrastructure.

Indicators:

Indicators include the number of shoreside support businesses. The number of shoreside support businesses were tallied for all Mid-Atlantic states in two categories: number of companies (Quarterly Census of Employment and Wages. Obtained September 27, 2017. US Department of Labor, Bureau of Labor Statistics. https://www.bls.gov/cew/home.htm) and number of non-employer entities Non-employer Statistics." Obtained September 28, 2017. U.S. Census Bureau. https://www.census.gov/programs-surveys/nonemployer-statistics.html), which we consider separately. Non-employer entities are businesses that have no paid employees (i.e. entrepreneurs, or the owner is the workforce), while the shoreside support companies include all businesses with paid employees. Some state level data was not included due to confidentiality.

The number of shoreside support companies include seafood merchant wholesalers, seafood product preparation and packaging, and seafood markets across all Mid-Atlantic states. The indicator shows a significant long-term and short-term decrease, which represents moderate-high risk to fishery resilience. The number of non-employer entities, including seafood preparation and packaging and seafood markets, shows a long-term increase. Data from other shoreside fishery supporting businesses, such as gear manufacturers and welding companies, are not included here due to aggregation of the statistics across non-fishing industries (e.g. net manufacturers combined with all other businesses).

Potential risk criteria:

Risk Level	*Definition*
Low	No trend in shoreside support businesses
Low-Moderate	Increasing or high variability in shoreside support businesses
Moderate-High	Significant recent decrease in one measure of shoreside support businesses
High	Significant recent decrease in multiple measures of shoreside support businesses

Recreational Fishery Resilience - Shoreside Support (new)

Description:

This element ranks the risk of reduced fishery business resilience due to shoreside support infrastructure by examining the number of shoreside support businesses.

Definition:

Risk of reduced fishery business resilience due to shoreside support infrastructure (marinas, bait and tackle shops, etc.).

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended parking this risk element, collect additional information, and allow for continued development of potential indicators.

Commercial Fishery Resilience (4,5,6) - Capital, Insurance Availability, and Emerging Markets/Opportunities (new)

Description:

This element is applied at the *??* level.

Definition:

Risk of reduced fishery business resilience due to business and economic pressures.

Indicators:

Indicators capturing the risk envisioned by the Committee/AP could include access to capital, inflation, gas prices, insurance prices, etc.

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended removing these as stand-alone risk elements but consider them for potential indicator development that could inform other commercial fishery resilience risk elements.

Seafood Safety (new)

This element is applied at the ??? level. This element describes the risk to market access (e.g. spiny dogfish EU market; surfclam on GB and PSP) for Council-managed species. This element would not consider the potential risks to human health.

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended removing as a stand-alone risk element and consider as a potential indicator in other commercial fishery resilience risk elements.

Social-Cultural Elements

Commercial Fishery Resilience (3) – Fleet Diversity

Description:

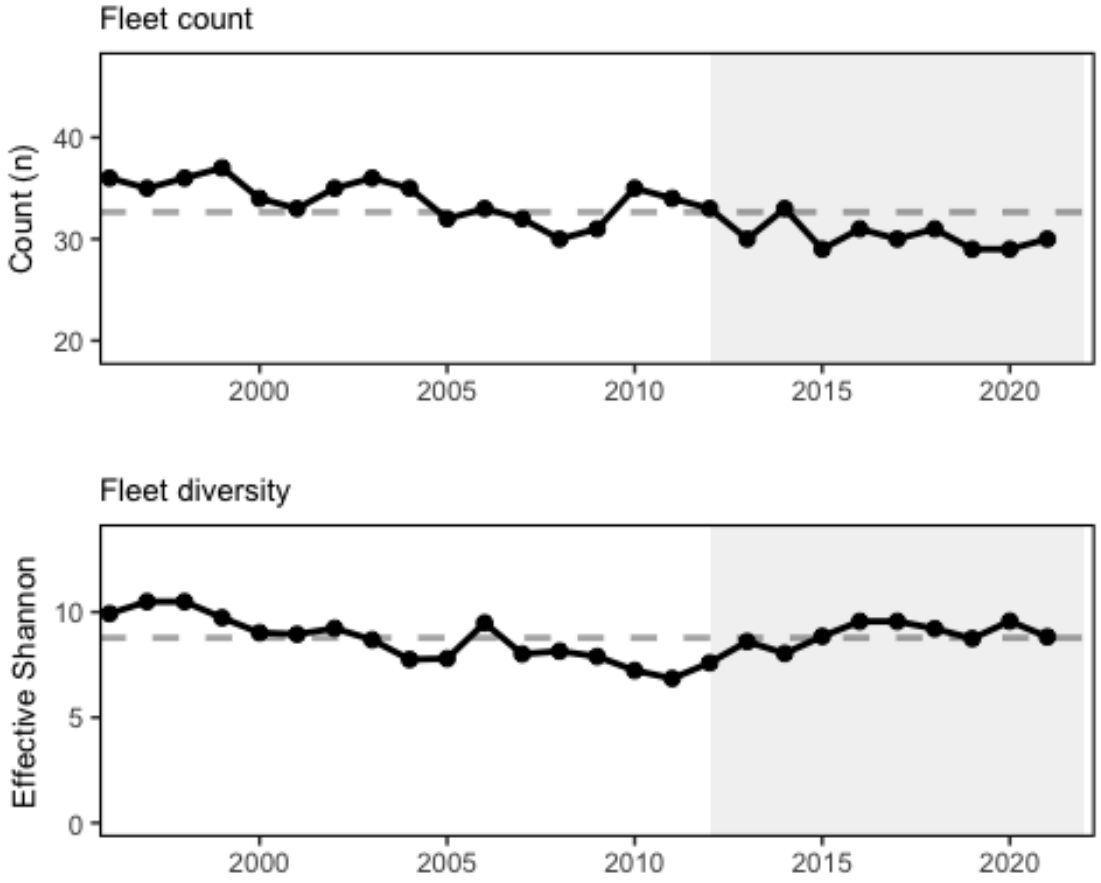
This element is applied at the ecosystem level, and ranks the risk to maintaining equity in access to fishery resources. Beyond equity concerns, maintaining diversity can provide the capacity to adapt to change at the ecosystem level for dependent fishing communities, and can address objectives related to stability.

Definition:

Risk of reduced fishery resilience (number and diversity of fleets).

Indicators:

Currently the diversity in revenue generated by different fleet segments, as well as a count of the number of active fleets, at the ecosystem level. A fleet is defined here as the combination of gear (Scallop Dredge, Other Dredge, Gillnet, Hand Gear, Longline, Bottom Trawl, Midwater Trawl, Pot, Purse Seine, or Clam Dredge) and vessel length category (Less than 30 ft, 30 to 50 ft, 50 to 75 feet, 75 ft and above). The effective Shannon index is used to calculate the diversity of revenue across these fleets. Although the exact value of the effective Shannon index is relatively uninformative in this context, the relative value identifies changes in diversity.



Other metrics for diversity exist. The Simpson index is a common measure of biodiversity, but has the undesirable attribute of being asymmetric and weighing more common types more heavily than the less common types. Although the Shannon index provides a measure proportional to each type's relative frequency, the effective Shannon index has the added benefit of converting diversity measures onto a common scale. As such, the effective Shannon index was selected as the preferred index of fishing diversity, consistent with the literature and ensuring no differential treatment between large and small fleets (Thunberg & Correia 2015).

Potential risk criteria:

Low risk was defined as no trend and low variability in the diversity measure. Low-Moderate risk was increasing variability or overall high variability in the diversity measure. Moderate-High risk was a significant long-term decrease in the diversity measure. High risk was a significant recent decrease in the diversity measure.

Risk Level	*Definition*
Low	No trend in diversity measure
Low-Moderate	Increasing or high variability in diversity measure

Risk Level	*Definition*
Moderate-High	Significant long term downward trend in diversity measure
High	Significant recent downward trend in diversity measure

Recreational Fleet Diversity (new)

Description:

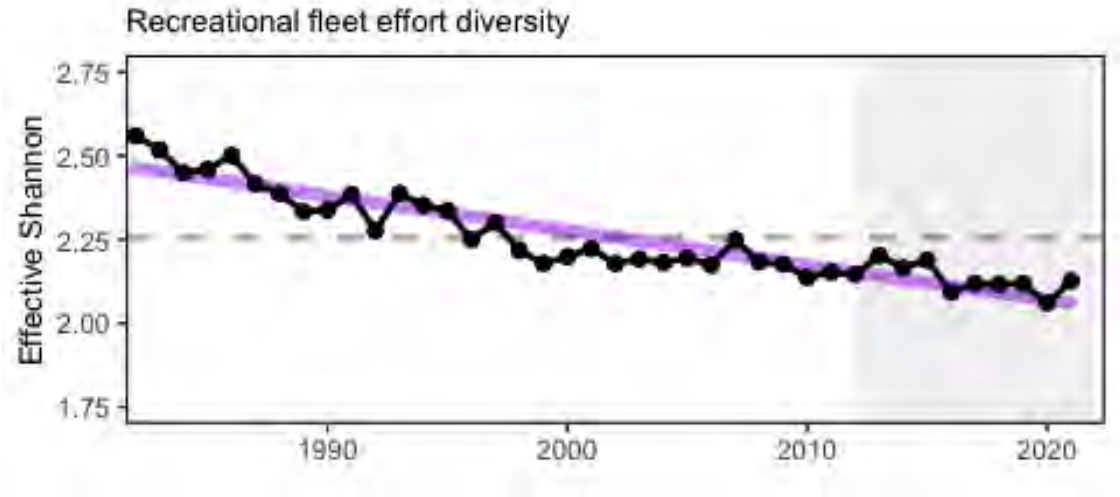
This element is applied at the ecosystem level, and ranks the risk to maintaining equity in recreational access to fishery resources. Beyond equity concerns, maintaining diversity can provide the capacity to adapt to change at the ecosystem level for dependent fishing communities, and can address objectives related to stability.

Definition:

Risk of reduced recreational fishery business resilience (diversity of modes).

Indicators:

Recreational fleet effort diversity is already presented in the Mid-Atlantic State of the Ecosystem Report. This indicator is an effective Shannon estimate of diversity of effort across mode (i.e. effort by shoreside, private boat, and for-hire anglers).



Other metrics for diversity exist. The Simpson index is a common measure of biodiversity, but has the undesirable attribute of being asymmetric and weighing more common types more heavily than the less common types. Although the Shannon index provides a measure proportional to each type's relative frequency, the effective Shannon index has the added benefit of converting diversity measures onto a common scale. As such, the effective Shannon index was selected as the preferred index of fishing diversity, consistent with the literature and ensuring no differential treatment between large and small mode contributions (Thunberg & Correia 2015).

The Ecosystem and Ocean Planning Committee and AP also recommended a harvest:catch ratio by mode indicator. The intent of this indicator would be to evaluate if recreational fishing behavior/preferences are changing (i.e., harvest versus catch and release) within the different recreational modes/sectors.

Potential risk criteria:

Similar criteria could be applied as for commercial diversity. Low risk was defined as no trend and low variability in the diversity measure. Low-Moderate risk was increasing variability or overall high variability in the diversity measure. Moderate-High risk was a significant long-term decrease in the diversity measure. High risk was a significant recent decrease in the diversity measure.

Risk Level	*Definition*
Low	No trend in diversity measure
Low-Moderate	Increasing or high variability in diversity measure
Moderate-High	Significant long term downward trend in diversity measure
High	Significant recent downward trend in diversity measure

Community Vulnerability

Description:

This element ranks the vulnerability of communities to events such as regulatory changes to fisheries, wind farms, and other ocean-based businesses, as well as to natural hazards, disasters, and climate change. Vulnerability metrics can help assess the relative impact of system changes on human communities dependent on and engaged in fishing activities.

This element is applied at the ecosystem level.

Definition:

Risk of reduced community resilience (vulnerability, reliance, engagement).

Indicators:

The NOAA Fisheries Community Social Vulnerability Indicators (CSVIs; Jepson and Colburn (2013)) are statistical measures of the vulnerability of communities to events such as regulatory changes to fisheries, wind farms, and other ocean-based businesses, as well as to natural hazards, disasters, and climate change. The CSVIs currently serve as indicators of social vulnerability, gentrification pressure vulnerability, commercial and recreational fishing dependence (with dependence being a function of both reliance and engagement), sea level rise risk, species vulnerability to climate change, and catch composition diversity. We use a combination of these five indicators for the most fishery dependent communities to evaluate overall social risk levels.

Potential risk criteria:

Risk Level	*Definition*
Low	Few (<10%) vulnerable fishery dependent communities
Low-Moderate	10-25% of fishery dependent communities with >3 high vulnerability ratings
Moderate-High	25-50% of fishery dependent communities with >3 high vulnerability ratings
High	Majority (>50%) of fishery dependent communities with >3 high vulnerability ratings

Below is a brief description for each vulnerability category based on the NOAA social indicator study (Colburn et al., 2016; Jepson and Colburn, 2013):

- **Fishing dependence** indices portray the importance or level of dependence of commercial or recreational fishing to coastal communities.
- **Social vulnerability** indices represent social factors that can shape either an individual or community's ability to adapt to change. These factors exist within all communities regardless of the importance of fishing.

- **Gentrification pressure** indices characterize those factors that, over time may indicate a threat to commercial or recreational working waterfront, including infrastructure.

Here, we define gentrification in fishing communities as described by Colburn and Jepson (2012), where coastal population growth combined with an influx of higher-income people seeking waterfront property can increase property values and displace working-class residents engaged in resource-dependent activities. "Three common elements of gentrification are reuse of waterfront structures, construction of new housing, and growth within the services sector (Colburn and Jepson, 2012)."

Communities are ranked as high, medium high, moderate, or low relative to the respective indicator. Community dependence on commercial and recreational fishing is mixed, with notably more communities in the Mid-Atlantic dependent on recreational fishing. While communities with high to medium high risk for social vulnerability are broadly distributed in suburban and rural areas of the Mid-Atlantic region, communities with high to medium high gentrification pressure are concentrated in beachfront communities near urban areas in New York and New Jersey.

The social and economic impacts of climate change have been modeled through application of social indicators of fishing dependent communities (Jepson and Colburn, 2013). Assessment of a range of social indicators has been applied in the Mid-Atlantic Region to predict vulnerability of communities to regulatory changes and disasters. More recently this methodology has been extended to include specific indicators of vulnerability to climate change and linked to species vulnerability assessments (Colburn et al., 2016; Hare et al., 2016). The tools developed through this approach are vital to an evaluation of the risks of climate change facing coastal communities dependent on fishing. Below is a description of the CSVIs related to climate change.

- **Sea level rise index** is a measure of the overall risk of inundation from sea level rise based on community area lost from one to six foot level projections over the next ~90 years. A high rank indicates a community more vulnerable to sea level rise.
- **Species vulnerability** is measured by the proportion of community fish landings that attributed to species vulnerable to climate change.
- **Catch composition diversity** is the relative abundance of species landed in a community. It is measured by Simpson's Reciprocal Index, and a higher index value indicates greater diversity. Communities with a diverse array of species landed may be less vulnerable to climate change.

Sea level rise is predicted to have variable impacts on coastal communities. The Mid-Atlantic region has a 3-4 times higher than global average sea level rise rate (Sallenger et al. 2012). Mid-Atlantic communities clustered around the Chesapeake Bay area and the New Jersey shore had especially high vulnerability to sea level rise (Fig.). These vulnerabilities include infrastructure (docks, marinas, bait shops, gear storage) and access to shore-based facilities due realignment of coastal communities.

Mid-Atlantic fishing communities with total landings value of $100,000 or more were mapped for their dependence on species vulnerable to climate change and catch composition diversity (Simpson Reciprocal Index). A number of communities in southern New Jersey, Maryland and Virginia are highly dependent on species such as clams that are highly vulnerable to climate change while displaying low catch composition diversity. Communities with this situation are considered more vulnerable to climate change in general.

While the maps provide an overview of the social and climate indicator results for the Mid-Atlantic coastal communities, Table identifies Mid-Atlantic communities that are most highly dependent on both commercial and recreational fishing. The varying vulnerability level to social factors, gentrification pressure, and climate change in these communities provide a more comprehensive profile and should be taken into account in the decision making process for fishery management.

To estimate "high" vulnerability across all current indicators (which are ranked on different scales), we tallied rankings from Table of MedHigh or High for social vulnerability and gentrification pressure, along with rankings of High risk from sea level rise, High/Very High species vulnerability, and rankings of Low catch composition diversity. We considered a majority (3 or more out 5) to represent high risk to a community overall because with only 5 indicators, this means that a majority (60-100%) of the individual indicators were high risk. Low risk ranking was defined as few (<10%) vulnerable fishery dependent communities with 3 or more high vulnerability rating. Low-Moderate risk was 10-25% of fishery dependent communities with 3 or more high vulnerability ratings. Moderate-High risk was 25-50% of fishery dependent communities with 3 or more high vulnerability ratings. High risk was a majority (>50%) of fishery dependent communities with 3 or more high vulnerability ratings.

Food Production Elements

Commercial Fishing Production

Description:

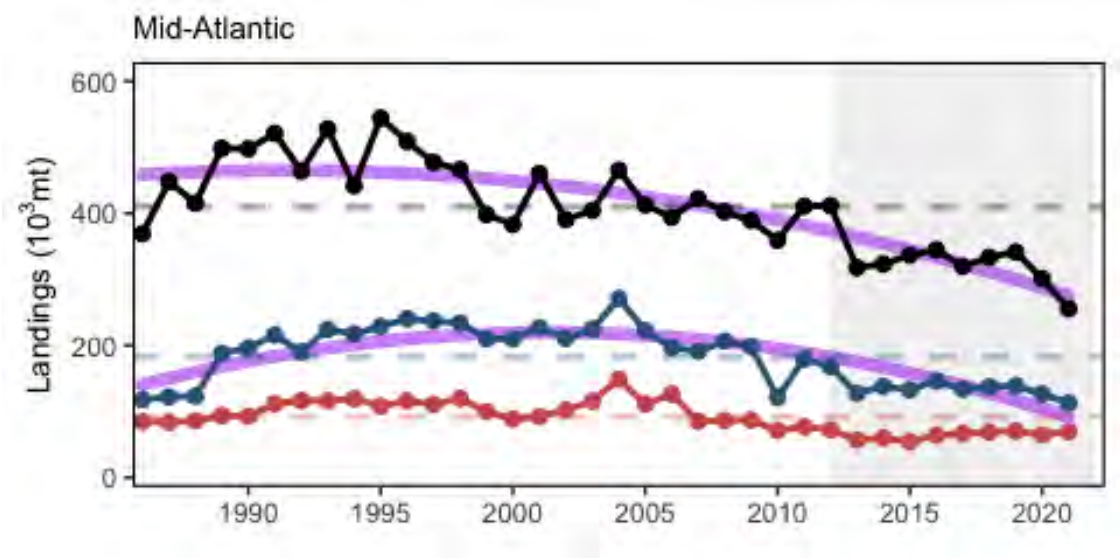
This element is applied at the ecosystem level, and describes the risk of not optimizing domestic commercial fishing production from Council-managed species and total commercial fishing production in the Mid-Atlantic. Commercial seafood landings , as well as total landings which include bait, are used to assess fishing production.

Definition:

Risk of not optimizing total commercial fishing production.

Indicators:

Commercial seafood landings from Council managed species (in red below) and total landings (in black) which include bait and industrial uses were used to assess fishing production.



Time series of landings of bait from the Federal Commercial Dealer Database.

Potential risk criteria:

The criteria still needs to be developed to account for both seafood and total commercial landings.

Recreational/Subsistence Food Production

Description:

This element is applied at the ecosystem level, and describes the risk of not maintaining personal food production.

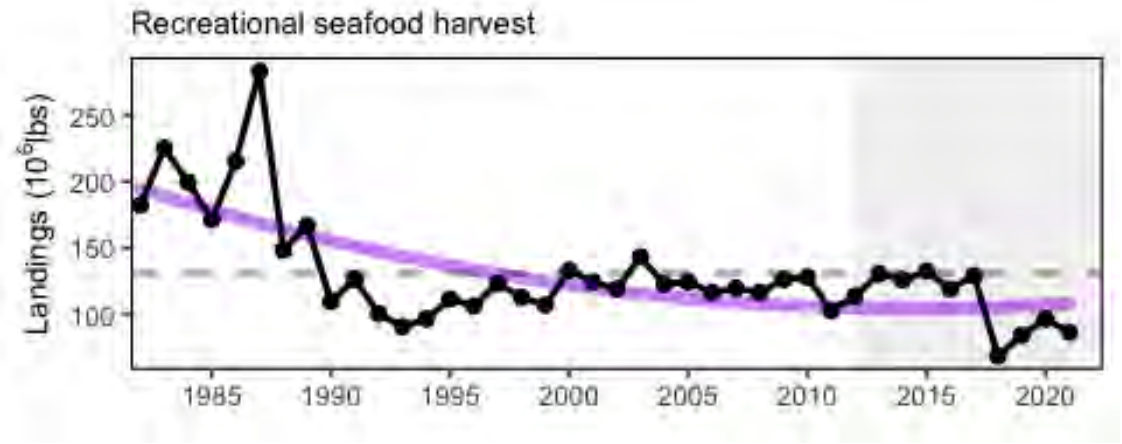
Definition:

Risk of not maintaining personal food production

Indicators:

Total recreational harvest (all species) and harvest per angler are currently used as indicators in the Mid-Atlantic region. Recreational seafood landings (as opposed to total catch which includes catch and release that are captured under other Risk Elements/indicators) were used to assess food use of recreationally caught fish.

The Ecosystem and Ocean Planning Committee and Advisory Panel also supported the potential development of new indicators that would evaluate the subsistence component of this risk element.



Potential risk criteria:

Risk Level	*Definition*
Low	No trend or increase in recreational landings
Low-Moderate	Increasing or high variability in recreational landings
Moderate-High	Significant long term decrease in recreational landings
High	Significant recent decrease in recreational landings

Low risk was defined as no trend, or an increase in recreational seafood landings. Low-Moderate risk was increasing or high variability in recreational seafood landings. Moderate-High risk was a significant long-term decrease in recreational seafood landings. High risk was a significant recent decrease in recreational seafood landings.

Commercial Employment (new)

Description:

This element ranks the risk of not optimizing or maintaining employment opportunities in the commercial sector. What does optimized employment entail?

Definition:

Risk of not optimizing or maintaining commercial job creation and retention

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended parking this risk element until additional work and development could occur. As a potential indicator, the group suggested utilizing commercial VTR information (number of crew and days absent) that might provide a timeseries of employment (or proxy for employment) at the individual level.

Recreational Employment (new)

Description:

This element ranks the risk of not optimizing or maintaining employment opportunities in the recreational sector. What does optimized employment entail?

Definition:

Risk of not optimizing or maintaining recreational job creation and retention.

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended parking this risk element until additional work and development could occur. As a potential indicator, the group suggested utilizing party/charter VTR information (number of crew and days/trips) that might provide a timeseries of employment (or proxy for employment) at the individual level.

Management Elements

Fishing Mortality Control

Description:

This element is applied at the species and sector (commercial and recreational) level, and addresses the level of management control in terms of catch estimation and monitoring to prevent overfishing. Adequate management control indicates a low risk of overfishing, while poor management control indicates a higher risk of overfishing and hence not achieving OY.

The ability to control total catch within the specified Acceptable Biological Catch (ABC) is necessary to prevent overfishing, which is a fundamental requirement of US fisheries law. Chronic or persistent overfishing can lead to stock depletion and ultimately to a stock being declared as overfished and requiring a stock rebuilding plan. The ability to constrain catch is a function of the efficacy of the catch monitoring program for each species and sector which relies on both proactive (in -season closure) and reactive (pay backs for overages in subsequent years) accountability measures (AMs). Under certain circumstances, specification of management measures which are too strict could lead to "underfishing" (not achieving the desired quota) and hence not achieving OY.

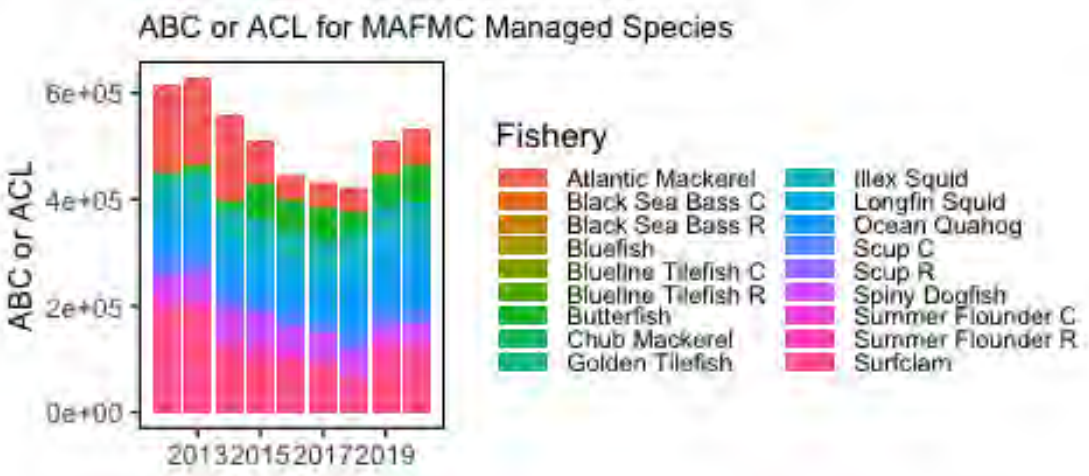
Definition:

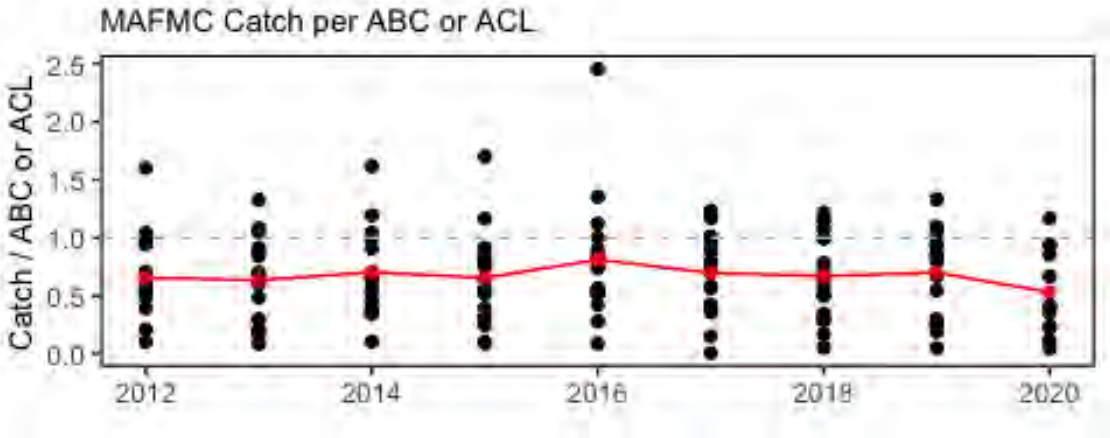
Risk of not achieving OY due to a mismatch of projected effects of management controls with harvest/catch targets.

Indicators:

Total catch at the fishery sector level compared to the appropriate catch limit (ABC or Annual Catch Limit, ACL). For the commercial fishery, NMFS dealer data in conjunction with estimates of dead discards from the most recent stock assessment are used to compare the annual catch limit to actual annual catch. For the recreational sector, Marine Recreational Information Program (MRIP) estimates of recreational landings and dead discards in conjunction with stock assessment estimates of recreational discards in weight are used to compare the annual catch limit to actual annual catch estimates.

Landings only information could potentially be considered if underfishing appears to be more important or if discards are low for a fishery sector. Discards are also addressed under a separate risk element. However, the current risk element is "Fishing Mortality Control" which would include both landings and discards. The Mid-Atlantic State of the Ecosystem report now includes an indicator that looks at total catch divided by total ABC or ACL across all Mid-Atlantic species if a broader look across managed species is preferred.





Potential risk criteria:

Risk Level	*Definition*
Low	No recent history (last 5 years) of overages
Low-Moderate	Small recent overages, but infrequent
Moderate-High	Routine recent overages, but small to moderate
High	Routine recent significant overages

Technical Interactions

Description:

This element is applied at the species and sector (commercial and recreational) level and considerers potential interactions with non-Council-managed species, including protected species, on Council-managed fisheries. Here the risk is caused by negative consequences from fishing activity regulated under Council FMPs which interacts with species managed by other agencies, including bycatch of protected species. For example, interactions with species protected under the U.S. Marine Mammal Protection Act (MMPA) could result in greater restrictions in Council managed fisheries, increasing the risk that OY would not be achieved in those fisheries.

Definition:

Risk of not achieving OY due to interactions with non-Council managed species, including protected species.

Indicators:

The current indicator used is the MMPA category fishery level (Category I - frequent incidental mortality or injury; Category II - occasional incidental mortality or injury; Category III, remote likelihood of incidental mortality or injury) assigned to the dominant gear type associated with the fishery sector. This indicator is relatively static over time and may not appropriately track risk associated with these technical interactions.

Could look at the total number of protected species "takes" by a fishery sector by year or five year period. Could also consider regulatory changes that were considered and/or implemented to reduce technical interactions in Mid-Atlantic fisheries.

Proposed risk criteria:

Evaluation of this risk element requires quantification of the likelihood that non-Council AMs would be triggered and impact fishing activities for Council managed species. In addition, NMFS manages incidental mortality of mammals through take reductions plans which could negatively impact a fishery.

Risk Level	*Definition*
Low	No interactions with non-Council managed species
Low-Moderate	Interactions with non-Council managed species but infrequent, Category II fishery under MMPA with limited takes; or AMs not likely triggered
Moderate-High	AMs in non-Council managed species may be triggered; or Category I fishery under MMPA (but takes less than PBR)
High	AMs in non-Council managed species triggered; or Category I fishery under MMPA and takes above PBR

Offshore Wind – Biological/Ecosystem (new)

Description:

This element would be applied at the species level and considers the biological and ecosystem risks of offshore wind development on Council-managed fishery resources and/or the supporting habitat. Offshore wind development is expected to cover 2.4 million acres of ocean space by 2030 in the Greater Atlantic region (ME through NC). Within these lease areas, there are 3,400 foundations (i.e., wind turbines) with over 9,000 miles of interconnecting cable proposed for construction. Offshore wind siting, construction, and operation has the potential for a variety of biological impacts and associated risks for fisheries resources. Habitat alteration, local hydrodynamic changes, underwater noise, and electromagnetic fields (EMF) can affect stock productivity, food availability and migration patterns. However, these risks are likely different across species and habitat types and more research is needed to fully understand these impacts.

Definition:

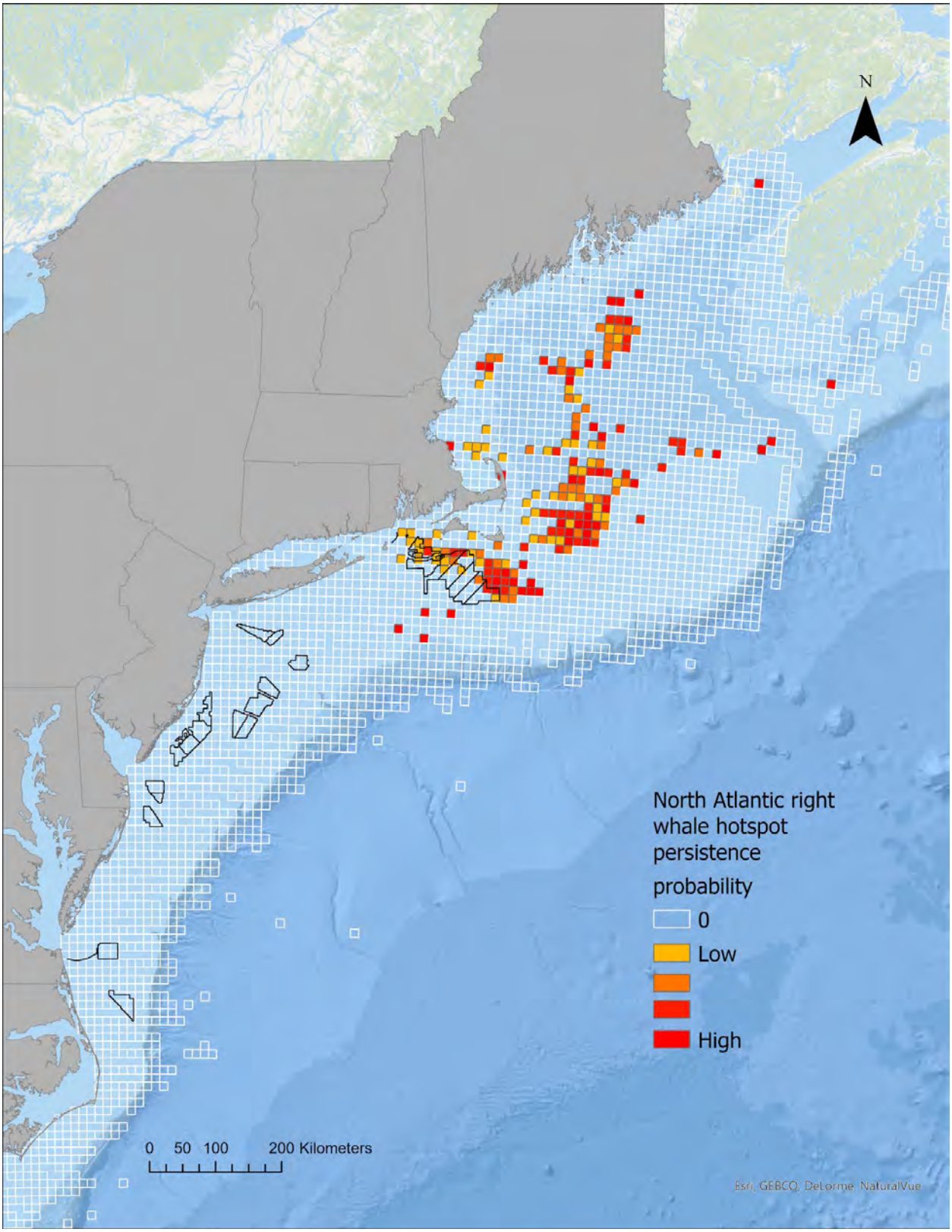
Risk of not achieving OY due to biological impacts to stock productivity, distribution, and ecosystem structure and function.

Indicators:

Information and relevant data at the species level available in the NOAA Tech Memo titled "Fisheries and Offshore Wind Interactions: Synthesis of Science".

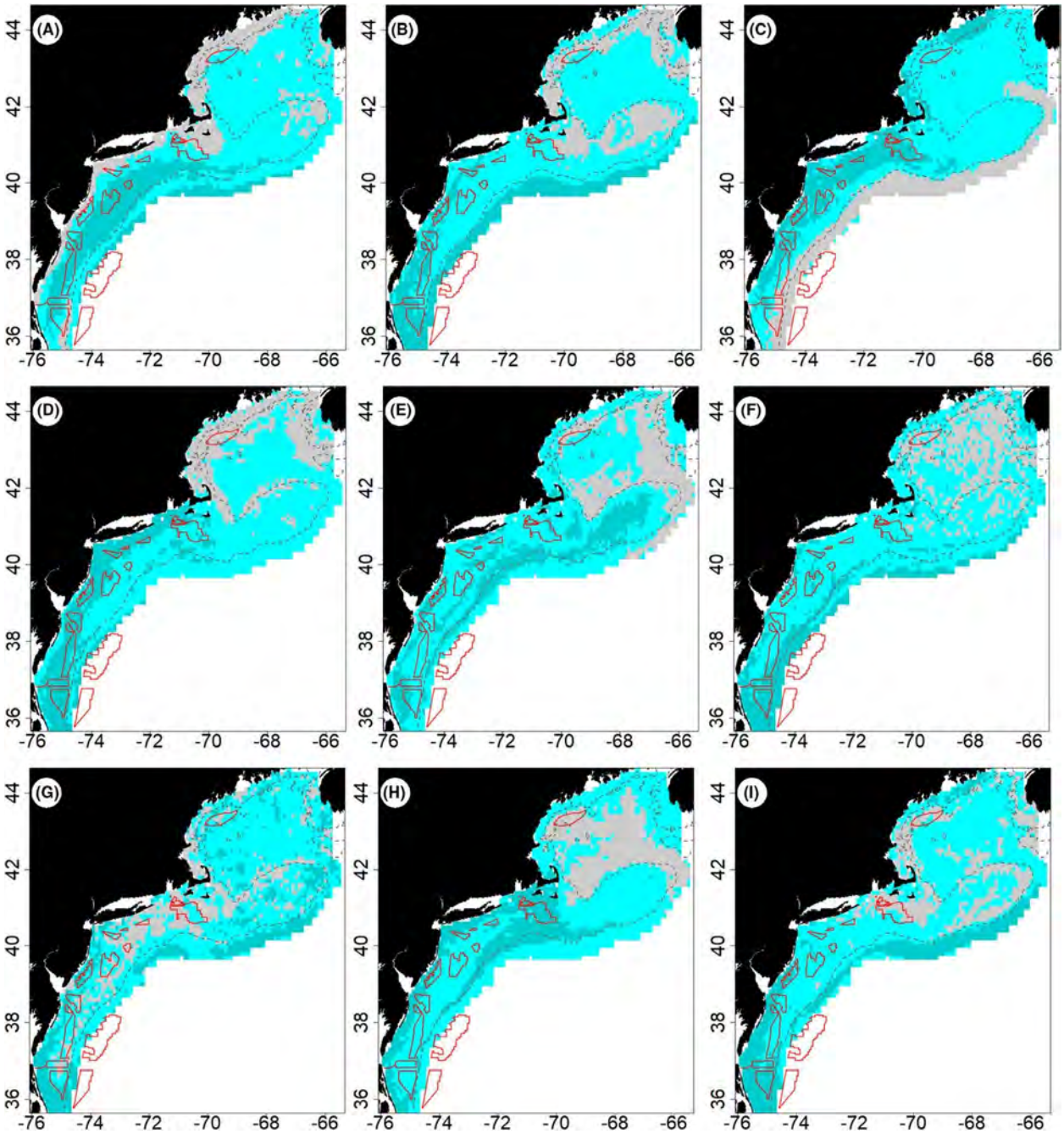
Species distribution overlap with offshore wind from a couple of potential data sources (e.g., https://apps-st.fisheries.noaa.gov/dismap/DisMAP.html). However, translating exposure into a risk of impacts, which is likely to be different by species, may be challenging.

From the State of the Ecosystem report - Right whale spatial overlap with offshore wind lease areas to help inform the ecosystem structure/function component of the definition.



Right whale hot spots overlap with offshore wind lease areas

In addition, recent work by Friedland et al. 2023 (https://afspubs.onlinelibrary.wiley.com/doi/full/10.1002/mcf2.10230), evaluated the habitat usage by forage species within and outside of offshore wind lease areas. This information could also be used to help inform the ecosystem structure/function component of the definition.



Mean occupancy habitats at the 20% (light blue) and 80% (dark blue) quantile thresholds across forage species; gray shows the model extent. Taxa with spring models include **(A)** Atlantic Mackerel, **(B)** Atlantic Menhaden, and **(C)** Atlantic Herring; taxa with autumn

models include **(D)** Round Herring, **(E)** longfin inshore squid, **(F)** Atlantic Chub Mackerel, **(G)** Spanish Sardine, **(H)** Butterfish, and **(I)** Atlantic Thread Herring.

Potential risk criteria:

To be developed.

Offshore Wind – Fishery Science and Access (new)

Description:

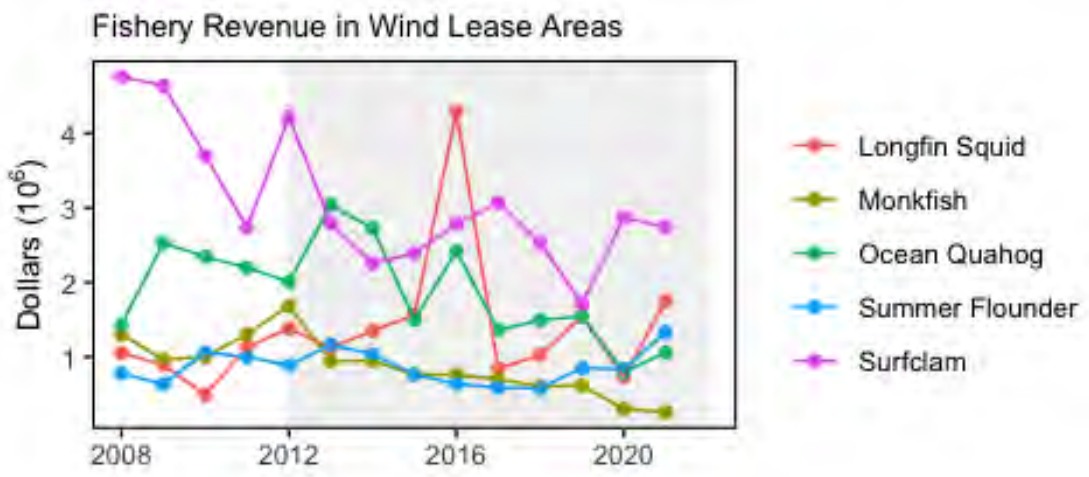
This element would be applied at the species and sector (commercial and recreational) level and considers the risks of offshore wind development on data and science quality and to fishery/fleet access for Council-managed fishery resources. Given the anticipated overlap between offshore wind lease areas and spatial coverage of many fishery-dependent survey strata, there are anticipated survey impacts through "preclusion, habitat change, changes in statistical design, and reduced sampling productivity" (Hogan et al. 2023). These impacts to the quality and quantity of the data could have implications for stock assessments, scientific uncertainty, and catch levels. As wind turbine construction and operation continues and expands, fishing fleet access, fishing operations, and revenue are anticipated to change.

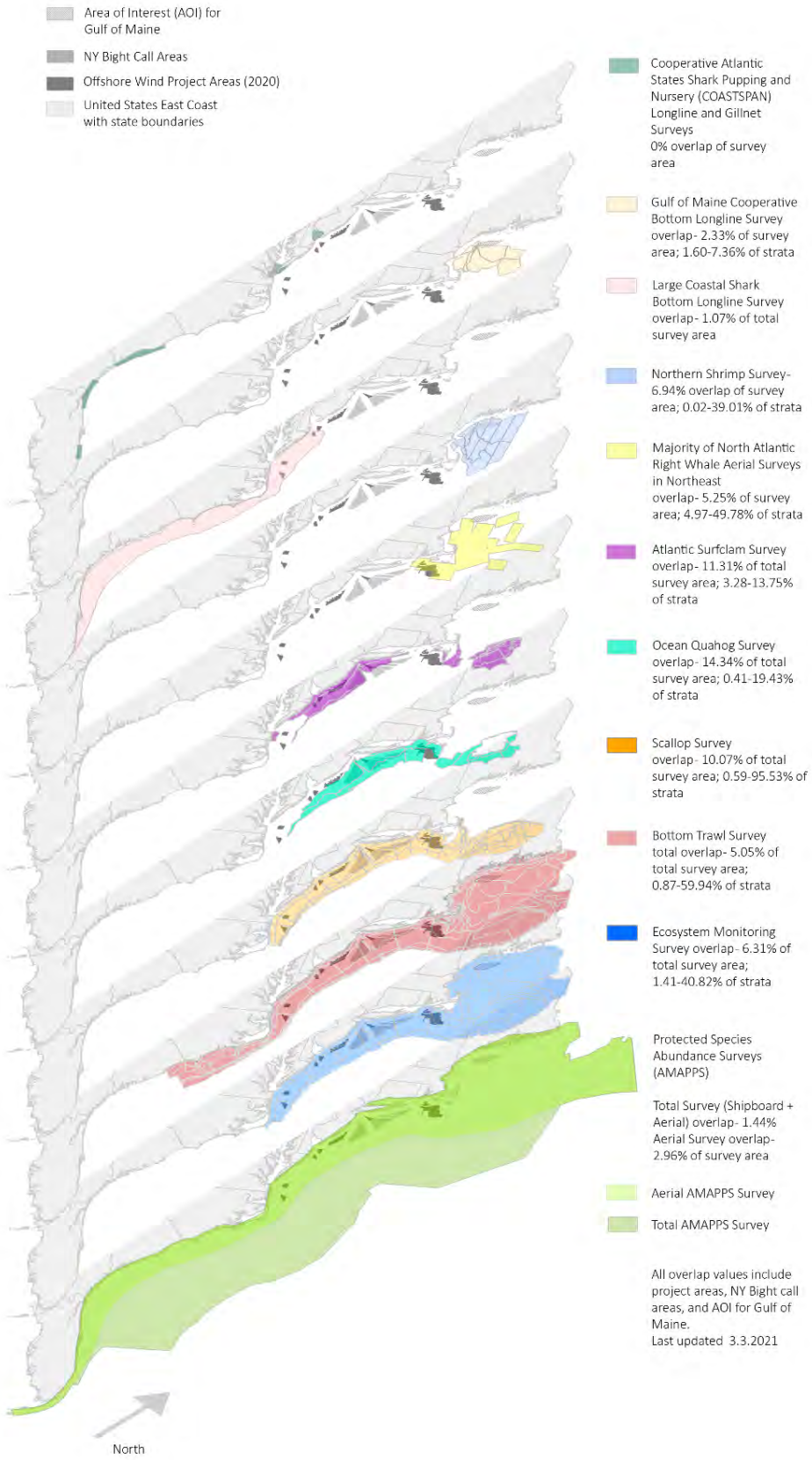
Definition:

Risk of not achieving OY due to fishery impacts due to access and scientific uncertainty.

Indicators:

Indicators for the Mid-Atlantic State of the Ecosystem and socioeconomic impacts web site. Fishery revenue and party charter activity from within lease areas by species, fleet, or community, community vulnerability/engagement/EEJ, spatial overlap of lease areas and federal fisheries surveys.




Area of Interest (AOI) for Gulf of Maine
NY Bight Call Areas
Offshore Wind Project Areas (2020)
United States East Coast with state boundaries
Cooperative Atlantic States Shark Pupping and Nursery (COASTSPAN) Longline and Gillnet Surveys
0% overlap of survey area
Gulf of Maine Cooperative Bottom Longline Survey
overlap- 2.33% of survey area; 1.60-7.36% of strata
Large Coastal Shark Bottom Longline Survey
overlap- 1.07% of total survey area
Northern Shrimp Survey-
6.94% overlap of survey area; 0.02-39.01% of strata
Majority of North Atlantic Right Whale Aerial Surveys in Northeast
overlap- 5.25% of survey area; 4.97-49.78% of strata
Atlantic Surfclam Survey
overlap- 11.31% of total survey area; 3.28-13.75% of strata
Ocean Quahog Survey
overlap- 14.34% of total survey area; 0.41-19.43% of strata
Scallop Survey
overlap- 10.07% of total survey area; 0.59-95.53% of strata
Bottom Trawl Survey
total overlap- 5.05% of total survey area;
0.87-59.94% of strata
Ecosystem Monitoring Survey overlap- 6.31% of total survey area;
1.41-40.82% of strata
Protected Species Abundance Surveys (AMAPPS)
Total Survey (Shipboard + Aerial) overlap- 1.44%
Aerial Survey overlap- 2.96% of survey area
Aerial AMAPPS Survey
Total AMAPPS Survey
All overlap values include project areas, NY Bight call areas, and AOI for Gulf of Maine.
Last updated 3.3.2021
North

Spatial overlap map with NEFSC surveys (From 2021 SOE; wind areas are out of date)

FishRules and FishBrain apps for recreational fishing spatial overlap information (work is still under review).

Potential risk criteria:

Risk Level	*Definition*
Low	0-3% revenue in lease area; no/low EEJ concerns; 0-5% spatial overlap for relevant survey(s)
Low-Moderate	4-10% revenue in lease area; low-moderate EEJ concerns; 5-20% spatial overlap for relevant survey(s)
Moderate-High	11-20% revenue in lease area; moderate-high EEJ concerns; 21-40% spatial overlap for relevant survey(s)
High	>20% revenue in lease area; high EEJ concerns; >40% spatial overlap for relevant survey(s)

Offshore Energy Exclusive of Wind (new)

Description:

This element would be applied at the species and sector (commercial and recreational) level and considers the risks of non-wind related energy development offshore, which could include tidal energy turbines, oil and gas extraction, and other development of offshore energy infrastructure.

Definition:

Risks of all offshore energy exploration and/or production on fishery displacement.

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended removing this as a stand-alone risk element and be included as a potential indicator under the Other Ocean Activities risk element (see below).

Aquaculture (new)

Description:

There is growing interest in the continued development and expansion of aquaculture production to support the increasing consumption of seafood and complement wild-caught fisheries. The Council does have an aquaculture policy, but does not have regulatory authority over aquaculture permitting, development, or operation. This element would be applied at the species level and would consider the biological and/or spatial risks of aquaculture development on Mid-Atlantic Council managed fisheries.

Definition:

Risks to fishery access from area closures due to aquaculture development in the Mid-Atlantic.

The Ecosystem and Ocean Planning Committee and Advisory Panel recommended removing this as a stand-alone risk element and be included as a potential indicator under the Other Ocean Activities risk element (see below).

Other Ocean Activities

Description:

This element is applied at the species and sector (commercial and recreational) level, and addresses the risk of fishery displacement or damage of a fishery resource and/or supporting habitat as a result of non-fishing activities in the ocean (e.g., energy development/aquaculture/shipping/other industrial uses, etc.). Many of these activities are in planning stages but not yet implemented in the region. It also includes evaluation of risk to Council fisheries from area-based measures outside of the control of the Council, including area closures implemented by other Councils to protect sensitive habitats, spawning areas, etc. and/or through marine monument/sanctuaries or other types of area-based management designations.

Definition:

Risk of not achieving OY due to fishery displacement from non-fishing ocean activities and/or area designations.

Indicators:

A more quantitative approach (similar to that done for offshore wind) could be applied with GIS mapping to determine the spatial footprint of current and future planned non-fishing activities (if available) could be calculated and qualify and spatial overlap with existing habitat and/or fishing ground locations. With a quantitative evaluation, potential to use a range/binned approach to specify risk level (e.g., 0-10% overlap, low risk, 11-20% overlap, low-moderate risk etc.), but those bins and risk level would likely be arbitrary. Depending on scope of element and how applied, could use the NMFS Habitat Climate Vulnerability Assessment, the Mid-Atlantic Council NRHA data explorer, and the America the CCC Area-Based Management tool for spatial mapping and overlap calculations.

Potential risk criteria:

Risk Level	*Definition*
Low	No spatial overlap with fisheries
Low-Moderate	Low-moderate overlap with fisheries
Moderate-High	Moderate-high overlap with fisheries
High	High overlap with fisheries; other uses could seriously disrupt fishery prosecution

Further refinement of the criteria will be needed to identify potential thresholds to indicate a specific risk level.

Regulatory Complexity and Stability

Description:

This element is applied at the species and sector (commercial and recreational) level. Constituents have frequently raised concerns about the complexity and continually changing fishery regulations and the need to simplify them to improve their efficacy. Complex and constantly changing regulations may lead to non-compliance and/or impact other fisheries. Non-compliance could have stock assessment, data quality, management, and fairness and equity implications.

Revised definition:

Risk of not achieving OY due to frequency of regulatory modifications and regulatory complexity, which may have an adverse effect on compliance.

Indicators:

Continue with a qualitative evaluation using the frequency of any regulatory change over the last 5 years by fishery and sector.

Potential alternative indicators include: quantifying the number of regulations and/or the frequency of regulatory changes, based on evaluation of the Code of Federal Regulations; frequency of mid-changes; number of states in management unit with different regulations (recreational bluefish versus black sea bass for example); noncompliant harvest relative to total harvest reported by MRIP to track compliance.

Potential risk criteria:

Risk levels and definitions will need to be updated depending upon the indicators developed for this risk element.

Allocation

Description:

Many Mid-Atlantic fisheries have some allocation component and any adjustments/changes in allocation can be driven by a number of factors which can present a variety of management, biological, and fishery risks. This element is applied at the species and sector level, and addresses the risk of not achieving OY due to spatial mismatch of stocks and management allocations or because of sub-optimal allocation by sector and/or area.

Definition:

Risk of not achieving OY due to spatial mismatch of stocks and management or sub-optimal allocation by sector and/or area.

Indicators:

Currently, the Allocation indicator consists of whether or not the Council is considering or an ongoing management action that might have any sort of allocation outcome/implication (by sector, region, permit holder etc.). However, this indicator does not directly get at the actual risk associated with spatial mis-match or sub-optimal allocation.

Indicators quantifying the difficulty of allocation could include a combination of distribution shifts (see above) and the number of interests (sectors, states, etc.) requiring allocation. There are new analyses and tools available (Palacios-Abrentes et al 2023 - https://doi.org/10.1371/journal.pone.0279025) that could provide more insight on actual mismatch risks for some species and sectors.

Potential risk criteria:

Risk Level	*Definition*
Low	No recent or ongoing Council discussion about allocation
Low-Moderate	*This category not used*
Moderate-High	*This category not used*
High	Recent or ongoing Council discussion about allocation

Currently, there are no definitions to specify intermediate levels of risk for this element, so only low and high risk criteria have been developed. A Low risk ranking was no recent or ongoing Council discussion about allocation. High risk was defined as recent or ongoing Council discussion about allocation.

Discards

Description:

This element is applied at the species and sector level. Stakeholders have identified the reduction of discards as a high priority in the Council management program, especially those caused by regulations since they represent biological and economic waste. Discards of either the target or non-target species in the fishery would be taken into consideration.

Definition:

Risk of not minimizing regulatory discards, bycatch mortality, and incidental catch to extent practicable.

Indicators:

NMFS provides estimates of discards by species based, in large part, on at-sea observations collected in the Northeast Fisheries Observer Program (NEFOP), for stock assessment purposes and quota monitoring. The observer program provides information on the reason for discarding during a commercial trip. In addition, the MRIP provides estimate of discards by species for the recreational fisheries. Discards and incidental catch will be evaluated for each species and fishery with a focus on identifying discards caused by regulations for each fishery sector. The ratio of regulatory discards to total discards for the target species could be applied or the ratio of discards to overall catch of the target species could be applied. A similar, or combined, approach could be applied for non-target species.

Discard mortality indicators might be more challenging, at least in terms of tracking improvements/declines over time. Discard mortality rates by species and gear type are not estimated annually, or even every 10 years, and are typically based on results developed from targeted research projects. Therefore, a static discard mortality rate by species and gear is applied to the discard estimate.

Potential risk criteria:

Low risk was defined as no significant discards and incidental catch (<5%). Low-Moderate risk was low or episodic discarding and incidental catch (<20%). Moderate-High risk was regular discarding and incidental catch (20% or more) but managed at an acceptable level. High risk was high discarding and incidental catch (>40%) and difficulty in management. A similar approach could be applied to discard mortality risks: low - mortality <5% for dominant gear; low-moderate - mortality <25% for dominant gear; moderate-high - mortality <50% for dominant gear; mortality >50% for dominant gear.

Risk Level	*Definition*
Low	No significant discards or incidental catch; no significant discard mortality
Low-Moderate	Low or episodic discards and incidental catch; low discard mortality

Risk Level	*Definition*
Moderate-High	Regular discards and incidental catch but managed; moderate discard mortality
High	High discards and incidental catch, difficult to manage; high discard mortality.

Essential Fish Habitat (new)

Description:

The MSA requires federal fishery management councils and NOAA's National Marine Fisheries Service to designate Essential Fish Habitat (EFH) for species managed under federal fishery management plans. EFH designation is important because it means those areas will be given additional consideration before any federal agencies are allowed to carry out activities in those areas. This element would be applied at the species level and would consider risks for not properly identifying and/or projecting EFH for Council-managed species.

Definition:

Risk of not identifying and/or protecting essential fish habitat and implications for Council-managed species.

Indicators:

The Northeast Habitat Climate Vulnerability Assessment and the Northeast Regional Habitat Assessment (https://www.mafmc.org/nrha) Data Explorer could be used to help identify EFH and critical habitats and potentially quantify changes in the total/spatial extent of these habitats over time (ie., compare current EFH areas to updated EFH areas). Quantifying the spatial overlap of offshore wind lease areas and EFH footprint.

The Council is currently reviewing EFH designations for all Council-managed species and outcomes from that action could be used to develop the indicators considered here.

Potential risk criteria:

Risk Level	*Definition*
Low	No-little change in EFH quantity; little-small spatial overlap between offshore wind lease area and designated EFH
Low-Moderate	Low -moderate change in EFH quantity; low-moderate overlap between offshore wind lease area and designated EFH
Moderate-High	Moderate-high change in EFH quantity; moderate-high overlap between offshore wind lease area and designated EFH
High	High change in EFH quantity; high overlap between offshore wind lease area and designated EFH

The Council is currently working on an amendment to update EFH designations for Council managed species. Development of any indicators, if using those provided above, and evaluation of ranking criteria would likely not occur until sometime in 2025 once the EFH amendment is complete.

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Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 18, 2023

To: Council

From: Hannah Hart and José Montañez, Council staff

Subject: Private Recreational Tilefish (Golden and Blueline) Permitting and Reporting Update

The Council will receive a presentation from the Greater Atlantic Regional Fisheries Office on the status of private recreational tilefish permitting and reporting on Wednesday, October 4, 2023, from 2:00 p.m. to 2:30 p.m. This presentation will include information related to the number of permits issued, landings, reporting systems, and lessons learned since the requirement was initially implemented. The Council will also discuss communication and outreach efforts to date and identify additional needs to ensure angler awareness and compliance with permitting and reporting requirements.

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 21, 2023

To: Council

From: Jessica Coakley, Staff

Subject: Habitat Activities Update

The Council will receive a presentation from the NOAA Fisheries Greater Atlantic Regional Fisheries Office (GARFO) Habitat and Ecosystem Services Division (HESD) on activities of interest in the region.

Back in December 2015, when the Council initially adopted its habitat policies on fishing and non-fishing activities (https://www.mafmc.org/habitat), the Council also asked GARFO HESD to provide the Council with updates on projects of concern that are occurring throughout the region. Since there are numerous projects in the region each year, the Council identified its projects of concern to include: 1) All offshore projects (e.g., energy projects, cables, sand mining, etc.), and 2) Only large scale nearshore/estuarine projects (i.e., includes any large transportation and port development projects). In addition, the Council requested periodic written and/or verbal updates on projects of concern including other habitat activities of interest occurring at least biannually, if possible.

During this October presentation, GARFO HESD staff will highlight offshore wind activities and several US Army Corps of Engineers' coastal storm risk management studies underway in the Greater Atlantic Region. They will also provide a brief update on several port development projects proposed in the region as well as NOAA Fisheries' recently approved national guidance on incorporating climate change into essential fish habitat consultations.

NOAA FISHERIES

National Marine Fisheries Service
Northeast Fisheries Science Center

Standardized Bycatch Reporting Methodology (SBRM): What Does It Mean?

Background

Fishermen sometimes catch and discard animals they do not want, cannot sell, or are not allowed to keep, creating what we know as bycatch. The Magnuson-Stevens Fishery Conservation and Management Act requires that all federally managed fisheries have a standardized bycatch reporting methodology (SBRM) to assess the amount and type of bycatch occurring in each fishery.

The 2015 SBRM Omnibus Amendment states: "Generally, an SBRM can be viewed as the combination of sampling design, data collection procedures, and analyses used to estimate bycatch in multiple fisheries. The SBRM provides a structured approach for evaluating the effectiveness of the allocation of fisheries observer effort across multiple fisheries to monitor a large number of species."

How do we monitor bycatch?

NOAA Fisheries collects commercial fisheries bycatch information in several ways: human observers on fishing vessels, electronic technologies that record and transmit data, logbook information that fishermen are required to record, and voluntary surveys of fishermen.

The Northeast Fisheries Observer Program (NEFOP) trains and deploys fishery observers who are our eyes and ears on the water. They collect data on kept and discarded catch from commercial fishing and processing vessels. Observers are professionally trained biological scientists who collect economic and biological data on fish caught onboard commercial fishing vessels in the Northeast region from Maine to North Carolina.

Why does coverage vary across fleets?

Without an observer on every trip, we need to use information from observed trips to estimate the discards on unobserved trips. If the amount discarded by trips of a certain fleet is highly variable, discard estimates on unobserved trips will be more uncertain within that fleet. Therefore, a higher observer coverage rate may be required for that fleet. In order to have confidence in our total estimated bycatch of each federally managed species, there needs to be sufficient levels of observer coverage. Generally, more observer coverage yields a more precise estimate of total discards.

How does the SBRM factor into how monitoring coverage is assigned?

Each year the Northeast Fisheries Science Center (NEFSC) uses the data collected by the NEFOP and Industry-Funded Scallop (IFS) Program to complete the annual SBRM analyses that estimate bycatch. These analyses are also used to determine the amount of observer coverage needed to monitor the Northeast's 14 federally managed fish species groups and sea turtles.

Across the New England and Mid-Atlantic regions, the SBRM process partitions commercial trips into fleets based on the type of fishing gear, access area, trip category, mesh size, and port region. Based on the SBRM analyses and available funding, we assign observer coverage that will help estimate bycatch in commercial fisheries as precisely as possible.

Are there different monitoring programs?

The federally funded NEFOP comprehensively collects bycatch data broadly across fleets. There are also fishery-specific industry-funded programs that are more focused, such as the groundfish sectors At-Sea Monitoring and IFS Programs. Sampling design and requirements differ between each program based on their specific data collection goals.

Questions?

For questions and concerns, please contact ne.observerprogram@noaa.gov.

Northeast Fisheries Observer Program (NEFOP) Limited Trips

Under the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA), all Category I, Category II, or Annual Determination (AD) fishery participants must carry an observer on fishing trips when requested (16 USC §1387 (c)(3)(B) and 50 CFR §222.402). The MMPA categories, called the List of Fisheries (LOF), are determined annually based on the level of incidental injury or mortality of marine mammals. The AD fishery listings last for 5 years and are based on the potential interactions with sea turtle species.

Observer programs are a vital component of the fishery management process because they are one of the best ways to gather information on the status of marine resources.

Observer Data Are Used To:

- Track the effectiveness of gear modifications.
- Determine whether appropriate conservation measures are in place for commercial fisheries to reduce bycatch of marine mammals and sea turtles.
- Identify fishing patterns.
- Identify ways for fishermen to efficiently reduce unwanted bycatch.
- Document interactions between marine mammals, sea birds, and sea turtles to determine severity of injuries.

Categorization of Observed Fisheries In The Northeast (2023 List of Fisheries):

Category I Fisheries

- Mid-Atlantic gillnet
- Northeast sink gillnet
- Northeast/ Mid-Atlantic American lobster trap/pot

Category II Fisheries

- Chesapeake Bay inshore gillnet
- North Carolina inshore gillnet
- Northeast anchored float gillnet
- Northeast drift gillnet
- Mid-Atlantic mid-water trawl
- Mid-Atlantic bottom trawl
- Northeast mid-water trawl (including pair trawl)
- Northeast bottom trawl
- Mid-Atlantic mixed species trap/pot
- Mid-Atlantic blue crab trap/pot
- Mid-Atlantic menhaden purse seine
- Mid-Atlantic haul/beach seine

AD Fisheries

- Mid-Atlantic gillnet (2023-2027)
- Chesapeake Bay inshore gillnet (2020-2025)
- Long Island inshore gillnet (2020-2025)
- Gulf of Mexico menhaden purse seine (2023-2027)
- Southeastern U.S. Atlantic, Gulf of Mexico shrimp trawl (2020-2025)
- Gulf of Mexico mixed species fish trawl (2020-2025)

Limited Observer Trips vs Complete Observer Trips

Limited Observer Trips

- Monitor for protected species interactions while the net is in the water.
- Observers weigh and take lengths on kept catch after the last haul of the day is completed.
- Only protected species interactions, tagged fish, sharks, sturgeons, and other large pelagic species are accounted for and sampled on all hauls.

Complete Observer Trips

- Observed gillnet trips monitor and account for all catch.
- Kept and discarded catch is weighed and lengthed on most hauls.
- Protected species sampling still occurs on all hauls.

NOAA FISHERIES

National Marine Fisheries Service

Northeast Fisheries Science Center

For a complete list of ALL MMPA Category I, II, and III fisheries, visit:
https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act-list-fisheries

For more information on the Annual Determination, visit:
https://www.fisheries.noaa.gov/national/bycatch/sea-turtle-observer-requirement-annual-determination

As a fishery participant, your cooperation is important to help NOAA Fisheries collect the most complete, unbiased, and relevant data possible. Good data prevent over-regulation and ensure the sustainability of our fisheries and the conservation of protected species populations.

Federal Requirements for Commercial Fishing Industry Vessels

Commercial Fishing Vessel Checklist Generator

June 2023

How Will I Be Notified to Carry an Observer?

Fishermen and fishing industry representatives will be notified in advance, whenever possible, that observer coverage will be required. Fishermen may be notified that they have been selected for observer coverage either by letter, phone, or in person by NOAA Fisheries personnel or a designated certified observer service provider. Northeast Multispecies permit holders with a pre-trip notification requirement will be selected for observer coverage through the PTNS.

If selected to carry an observer, a vessel may not engage in any Category I, II, or AD fishing operations unless the observer is aboard. Doing so may result in the assessment of civil penalties, per 50 CFR § 648.14 and 50 CFR § 229.7.

What are My Responsibilities When Carrying an Observer?

- Provide the observer with living quarters, meals, and amenities comparable to a crew member.
- Allow the observer access to areas of the vessel and gear necessary to conduct sampling and collect required data.
    - Allow the observer access to communication equipment and view of navigation equipment as necessary to perform their duties.
- Allow the observer to sample, retain and store marine mammal specimens, other protected species, and/or target and non-target species specimens.
- Provide true vessel locations by latitude and longitude upon request by the observer.
- Provide the observer with vessel trip report serial numbers and vessel monitoring system fishing activity codes, if requested.
- Notify the observer when commercial fishing operations are to begin and end.
- Allow for the safe embarking and disembarking of the observer.

What are the Safety Requirements for Carrying an Observer?

Observers are required to review emergency protocols with the vessel operator and complete a pre-trip safety check of the vessel's emergency equipment to ensure compliance. Observers must verify that the equipment, registrations, and certificates meet the requirements before departing on a trip.

- All vessels MUST have a current U.S. Coast Guard (USCG) Commercial Fishing Vessel Safety Examination decal, regardless of vessel size. An observer may not depart on a trip selected for coverage until the decal is up to date. Visit www.fishsafe.info for more information regarding the USCG decal and maritime safety for commercial fishing vessels.
- Observers also check for personal floatation devices/immersion suits, ring buoys or other allowable floatation, distress signals, and when required, check for fire extinguishing equipment and emergency position indicating radio beacon (EPIRB).
- If your vessel requires a survival craft, there must be adequate room to accommodate an observer.

For more information or questions regarding observer coverage requirements, visit https://www.fisheries.noaa.gov/new-england-mid-atlantic/fisheries-observers/fisheries-monitoring-operations-northeast or email: ne.observerprogram@noaa.gov

Northeast Fisheries Observer Program (NEFOP) Vessel Selection

If selected to carry an observer am I required to take one?

Yes, as a federal fishery permit holder (see list of permits to left) **or Category I or II fishery participant, you are required to take an observer when selected.** Depending on your permits, category or fishing location this requirement is mandated under one of the following Acts: the Magnuson-Stevens Act (MSA), the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA), the Marine Mammal Protection Act (MMPA) or the Endangered Species Act (ESA).

Is there a limit to how many times a month I can be selected to carry an observer?

No, there are no laws or regulations that limit or specify the number of times a single vessel may be selected for observer coverage within a given month*. However, the goal is to collect representative data without overburdening an individual vessel. Every effort is made to spread coverage out evenly among all vessels actively fishing in the same fleet (for the purpose of this sea day schedule the fleet you fish in is defined by the gear type and mesh size you are using as well as the region you are fishing in i.e. Large mesh (>5.5") Otter Trawl in New York).

** With the exception of LAGC IFQ vessels (See (*50 CFR 648.11(g)(2)(ii))

How does the observer service provider decide how many times a month to select a vessel for observer coverage?

The NOAA Fisheries, Northeast Fisheries Science Center generates a yearly sea day schedule for the NEFOP with a given number of days at sea that need to be observed every month in active fishing fleets. NOAA Fisheries partners with an observer service provider to complete this sea day schedule. The NEFOP provider attempts to achieve the days at sea tasked, while still spreading coverage throughout the fleet. For some fleets, it is not possible to accomplish the number of days at sea the NEFOP is tasked with without covering vessels multiple times per month. An example:

- *The NEFOP sea day schedule requires 30 sea days for the month of March on trawl vessels that are using mesh < 5" (small mesh) in a given region.*
- *There are only 10 day trip vessels in March that are using small mesh trawl in that region.*
- *Each vessel will have to be covered 3X to get the 30 days of coverage needed.*

Additionally, if a vessel fishes in multiple fleets on different trips (such as a small mesh trawl and a large mesh trawl trip) they may be selected for coverage for both fleets.

How many days are tasked to the fleets I fish in each month?

The NEFOP sea day schedule shows the breakdown of all of the days tasked for each fleet throughout the year and can be found at: https://www.fisheries.noaa.gov/resource/data/annual-discard-reports-northeast. The NEFOP can provide a summary of sea days tasked to the fleets you participate in upon request.

Federal permits requiring observer coverage:

- Atlantic sea scallops
- Northeast multispecies
- Monkfish
- Skates
- Atlantic mackerel
- Squid
- Butterfish
- Scup
- Black seabass
- Bluefish
- Spiny dogfish
- Atlantic herring
- Tilefish
- Atlantic deep-sea red crab
- Summer flounder (moratorium permit)
- American lobster
- Atlantic surfclam
- Ocean quahog

Any questions about the Northeast Fisheries Observer Program or these requirements should be directed to Katherine McArdle, Branch Chief, Fisheries Monitoring Operations Branch (774) 392-5308

Your cooperation and assistance in this program is greatly appreciated.

For the full text of these regulations visit:

Magnuson Stevens Act:
https://www.fisheries.noaa.gov/topic/laws-policies#magnuson-stevens-act

Marine Mammal Protection Act:
https://www.fisheries.noaa.gov/topic/laws-policies#marine-mammal-protection-act

Endangered Species Act:
https://www.fisheries.noaa.gov/topic/laws-policies#endangered-species-act

Updated May 2023

If I'm fishing in state waters am I required to take a federal observer?

Yes, if you hold any of the federal permits listed to the left or are a Category I or II fishery participant, you are required (under the MSA and MMPA) to take an observer, once selected, if you are fishing within waters of the United States(defined in the MSA as "all the States thereof"). It does not matter whether you are fishing in state or federal waters.

How will I be notified of my selection?

You will be contacted by a NMFS employee, designated contractor or observer acting on behalf of the Regional Administrator, in person, by telephone, or in writing and notified that your vessel has been selected to carry an observer. In some situations you may be selected dockside shortly in advance of a fishing trip.

What authority does NOAA have to place observers on my vessel?

NOAA's authority to place observers on your vessel is found in a number of federal statutes, including the Magnuson-Stevens Act, the Atlantic Coastal Fisheries Cooperative Management Act, the Marine Mammal Protection Act and the Endangered Species Act, and their implementing regulations. For example, federal Magnuson-Stevens Act regulations at 50 CFR § 648.14 (e) state that:

It is unlawful for any person to do any of the following:

(2) **Refuse to carry onboard a vessel an observer or sea sampler if requested to do so** by the Regional Administrator or the Regional Administrator's designee.

(3) Fail to provide information, notification, accommodations, access, or reasonable assistance to either a NMFS-approved observer or sea sampler conducting his or her duties aboard a vessel as specified in § 648.11.

Similar requirements are found in regulations implemented under the Marine Mammal Protection Act (see language below) and the Endangered Species Act. In addition, as a condition of your federal fishing permit, you must carry an observer when contacted by a NOAA employee or designated contractor.

50 CFR § 229.7 (c) (1)

(c) *Observer requirements for participants in Category I and II fisheries.*

(1) If requested by NMFS or by a designated contractor providing observer services to NMFS, a vessel owner/operator must take aboard an observer to accompany the vessel on fishing trips.

For a complete list of Category I or II fisheries visit:

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act-list-fisheries#lists-of-fisheries

It is a violation of federal regulations to fail to carry an observer on any fishing trip when the vessel has been selected. A violation may result in the assessment of civil penalties.

For more information on the Northeast Fisheries Observer Program please visit our website at: https://www.fisheries.noaa.gov/new-england-mid-atlantic/fisheries-observers/fisheries-monitoring-operations-northeast

Northeast Fisheries Observer Program (NEFOP) Sea Day Schedule, April 2023 - March 2024 - Version 1

Ref #	Source	Fishery Description	Region	Geographic Area	Quarter 2 - 2023			Quarter 3 - 2023			Quarter 4 - 2023			Quarter 1 - 2024			Total Tasked
					APR 2023 Tasked	MAY 2023 Tasked	JUN 2023 Tasked	JUL 2023 Tasked	AUG 2023 Tasked	SEP 2023 Tasked	OCT 2023 Tasked	NOV 2023 Tasked	DEC 2023 Tasked	JAN 2024 Tasked	FEB 2024 Tasked	MAR 2024 Tasked	
0087	SBRM	Longline, Mid-Atlantic Mix*	MA	Mid-Atlantic		23			23			23			23		**92**
0083	SBRM	Longline, New England Mix*	NE	New England		3			5			4			0		**12**
0623	SBRM	Handline, Mid-Atlantic Mix*	MA	Mid-Atlantic		3			4			4			3		**14**
0624	SBRM	Handline, New England Mix*	NE	New England		4			7			4			0		**15**
0506	SBRM	Otter Trawl Small/Medium Mesh (<5.5"), Mid-Atlantic Mix	MA	Mid-Atlantic		325			524			432			202		**1483**
0508	SBRM	Otter Trawl Large Mesh (>=5.5"), Mid-Atlantic Mix	MA	Mid-Atlantic		55			99			55			35		**244**
0505	SBRM	Otter Trawl Small/Medium Mesh (<5.5"), New England Mix	NE	New England		110			138			111			48		**407**
0507	SBRM	Otter Trawl Large Mesh (>=5.5"), New England Mix	NE	New England		14			33			18			12		**77**
0753	SBRM	Otter Trawl, Large Mesh Belly Panel, Small/Medium Mesh (<5.5"), New England Mix	NE	New England		16			19			10			6		**51**
0754	SBRM	Otter Trawl, Large Mesh Belly Panel, Large Mesh, (>=5.5"), New England Mix	NE	New England		0			11			0			0		**11**
0715	SBRM	Twin Trawl Small/Medium Mesh (<5.5"), Mid-Atlantic Mix*	MA	Mid-Atlantic		10			10			9			11		**40**
0755	SBRM	Twin Trawl Large Mesh (>=5.5"), Mid-Atlantic Mix	MA	Mid-Atlantic		14			0			12			14		**40**
0756	SBRM	Twin Trawl Small/Medium Mesh (<5.5"), New England Mix	NE	New England		0			0			19			25		**44**
0082	SBRM	Gillnet Small Mesh (<5.5") (complete), Mid-Atlantic Mix*	MA	Mid-Atlantic		3			3			4			3		**13**
0037	SBRM	Gillnet Large Mesh (5.5-7.99") (complete), Mid-Atlantic Mix	MA	Mid-Atlantic		26			10			40			17		**93**
0031	SBRM	Gillnet Extra Large Mesh (>=8") (complete), Mid-Atlantic Mix*	MA	Mid-Atlantic		3			3			3			4		**13**
0736	SBRM	Gillnet Small Mesh (<5.5") (complete), New England Mix	NE	New England		3			4			0			0		**7**
0562	SBRM	Gillnet Large Mesh (5.5-7.99") (complete), New England Mix*	NE	New England		0			4			0			0		**4**
0563	SBRM	Gillnet Extra Large Mesh (>=8") (complete), New England Mix	NE	New England		8			4			5			6		**23**
0069	SBRM	Purse Seine, New England Mix*	NE	New England		3			4			3			0		**10**
0569	SBRM	Pot & Trap, Fish, Mid-Atlantic Mix*	MA	Mid-Atlantic		3			4			3			3		**13**
0565	SBRM	Pot & Trap, Fish, New England Mix*	NE	New England		3			6			4			0		**13**
0566	SBRM	Pot & Trap, Conch, Mid-Atlantic Mix*	MA	Mid-Atlantic		3			3			3			3		**12**
0518	SBRM	Pot & Trap, Conch, New England Mix*	NE	New England		4			4			4			0		**12**
0567	SBRM	Pot & Trap, Lobster, Mid-Atlantic Mix*	MA	Mid-Atlantic		5			6			5			4		**20**
0572	SBRM	Pot & Trap, Lobster, New England Mix*	NE	New England		4			6			5			3		**18**
0575	SBRM	Pot & Trap, Crab, New England Mix	NE	New England		26			26			26			27		**105**
0713	SBRM	Ocean Quahog/Surfclam Dredge, Mid-Atlantic Mix	MA	Mid-Atlantic		13			13			11			10		**47**
0757	SBRM	Ocean Quahog/Surfclam Dredge, New England Mix*	NE	New England		5			6			4			4		**19**
				SBRM Subtotal		**689**			**979**			**821**			**463**		**2952**

Ref #	Source	Fishery Description	Region	Geographic Area	Quarter 2 - 2023			Quarter 3 - 2023			Quarter 4 - 2023			Quarter 1 - 2024			Total Tasked
					APR 2023 Tasked	MAY 2023 Tasked	JUN 2023 Tasked	JUL 2023 Tasked	AUG 2023 Tasked	SEP 2023 Tasked	OCT 2023 Tasked	NOV 2023 Tasked	DEC 2023 Tasked	JAN 2024 Tasked	FEB 2024 Tasked	MAR 2024 Tasked	
0763	MMPA	Gillnet Extra Large Mesh (>=8") (limited), New England Mix	NE	New England	23	20	20	3	1	1	1	3	10	6	6	18	**112**
0764	MMPA	Gillnet Large Mesh (5-7.99") (limited), New England Mix	NE	New England	1	0	0	0	0	1	2	0	1	1	1	1	**8**
0758	MMPA	Gillnet Large Mesh (5.5-7.99") (limited), NJ, DE, or MD, Ocean 0-200nm	MA	New Jersey, Delaware, Maryland	1	2	2	0	0	1	2	3	2	1	0	0	**14**
0759	MMPA	Gillnet Extra Large Mesh (>=8") (limited), NJ, DE, or MD, Ocean 0-200nm	MA	New Jersey, Delaware, Maryland	1	2	0	0	0	0	0	0	2	2	0	0	**7**
0717	MMPA	Gillnet (limited), Accomack County, VA, Bay	MA	Accomack County, VA	0	0	0	1	2	0	0	0	0	0	0	0	**3**
0744	MMPA	Gillnet (limited), Accomack County, VA, Ocean	MA	Accomack County, VA	6	2	2	5	9	13	8	1	1	1	0	0	**48**
0760	MMPA	Gillnet (limited), Charles City, VA, Bay	MA	Charles City, VA	0	0	0	0	0	0	1	0	0	0	0	0	**1**
0719	MMPA	Gillnet (limited), City of Hampton, VA, Bay	MA	City of Hampton, VA	2	3	2	2	2	4	3	1	1	0	1	1	**22**
0714	MMPA	Gillnet (limited), City of Hampton, VA, Ocean	MA	City of Hampton, VA	0	0	0	1	0	0	0	0	0	0	0	0	**1**
0761	MMPA	Gillnet (limited), Lancaster County, VA, Bay	MA	City of Hampton, VA	0	0	0	0	0	0	0	1	0	0	0	0	**1**
0720	MMPA	Gillnet (limited), Mathews County, VA, Bay	MA	Mathews County, VA	1	0	0	0	0	2	5	0	0	0	0	2	**10**
0721	MMPA	Gillnet (limited), Northhampton County, VA, Bay	MA	Northhampton County, VA	0	1	1	1	1	6	2	0	0	0	0	0	**12**
0737	MMPA	Gillnet (limited), Poquoson County, VA, Bay	MA	Poquoson County, VA	0	0	1	1	1	1	1	0	0	0	0	0	**5**
0738	MMPA	Gillnet (limited), Poquoson County, VA, Ocean	MA	Poquoson County, VA	0	0	0	0	0	0	0	0	0	0	0	1	**1**
0762	MMPA	Gillnet (limited), Suffolk City, VA, Bay	MA	City of Suffolk, VA	0	0	0	0	0	0	1	1	0	0	0	0	**2**
0723	MMPA	Gillnet (limited), City of Virginia Beach, VA, Bay	MA	City of Virginia Beach, VA	0	0	0	0	0	1	2	1	0	0	0	0	**4**
0746	MMPA	Gillnet (limited), City of Virginia Beach, Ocean	MA	City of Virginia Beach, VA	0	0	0	0	0	0	1	0	1	1	0	0	**3**
0725	MMPA	Gillnet (limited), York County, VA, Bay	MA	York County, VA	0	0	0	0	0	0	0	0	0	0	0	1	**1**
0747	MMPA	Gillnet (limited), York County, VA, Ocean	MA	York County, VA	0	0	0	0	0	1	1	0	0	0	0	0	**2**
0727	MMPA	Gillnet Large Mesh (>=5") (limited), Dare County, NC, Ocean 0-3nm	MA	Dare County, NC	0	0	0	0	0	0	0	1	1	1	0	1	**4**
0728	MMPA	Gillnet Small Mesh (<5") (limited), Dare County, NC, Ocean 3-200nm	MA	Dare County, NC	0	0	0	0	0	0	1	0	1	1	1	1	**5**
0729	MMPA	Gillnet Small Mesh (<5") (limited), Dare County, NC, Ocean 0-3nm	MA	Dare County, NC	2	2	3	3	2	5	6	2	2	1	0	1	**29**
				MMPA Subtotal	37	32	31	17	18	36	37	14	22	15	9	27	**295**
0807	ESA	Gillnet Large/Extra Large (>=5") (limited), Ocean 0-3nm	MA	New Jersey	0	0	3	3	3	3	3	0	0	0	0	0	**15**
0808	ESA	Gillnet Large/Extra Large (>=5") (limited), Ocean 0-3nm	MA	Delaware	0	0	3	3	3	3	3	0	0	0	0	0	**15**
0809	ESA	Gillnet Large/Extra Large (>=5") (limited), Ocean 0-3nm	MA	Maryland	0	0	3	3	3	3	3	0	0	0	0	0	**15**
				ESA Subtotal	0	0	9	9	9	9	9	0	0	0	0	0	**45**
				Total	798			1077			903			514			**3292**

* Fleets with Pilot / Minimum Pilot coverage: provider should select ~ 1 trip per month when effort exists

Version 1 released on August 9, 2023

SBRM and MMPA allocated days tasked through PTNS, April 1, 2023 - March 31, 2024					
1001	SBRM PTNS	Longline, New England Mix	NE	New England	2
1010	SBRM PTNS	Otter Trawl Large Mesh (>=5.5"), Mid-Atlantic Mix	MA	Mid-Atlantic	12
1017	SBRM PTNS	Otter Trawl Small/Medium Mesh (<5.5"), New England Mix	NE	New England	18
1011	SBRM PTNS	Otter Trawl Large Mesh (>=5.5"), New England Mix	NE	New England	199
1016	SBRM PTNS	Haddock Separator Trawl Large Mesh (>=5.5"), New England Mix	NE	New England	94
1024	SBRM PTNS	Gillnet Large Mesh (5.5-7.99") (complete), New England Mix	NE	New England	14
1025	SBRM PTNS	Gillnet Extra Large Mesh (>=8") (complete), New England Mix	NE	New England	59
1077	SBRM PTNS	Mid-Water Trawl, Paired/Single, New England Mix	NE	New England	23
				SBRM Subtotal	**421**
1078	MMPA PTNS	Gillnet Large Mesh (5-7.99") (limited), New England Mix	NE	New England	20
1079	MMPA PTNS	Gillnet Extra Large Mesh (>=8") (limited), New England Mix	NE	New England	35
				MMPA Subtotal	**55**
				Total	**476**

Region	States in Region
New England Region (NE)	ME, NH, MA, RI
Mid-Atlantic Region (MA)	CT, NY, NJ, DE, MD, VA, NC

Mid-Atlantic Gillnet Vessels

2023 NEFOP Observer Coverage Information

This informational sheet conveys Northeast Fisheries Observer Program (NEFOP) observer coverage information for federally permitted vessels fishing with gillnet gear in the states of Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina for the 2023 NEFOP Sea Day Schedule year spanning from April 1, 2023 through March 31, 2024.

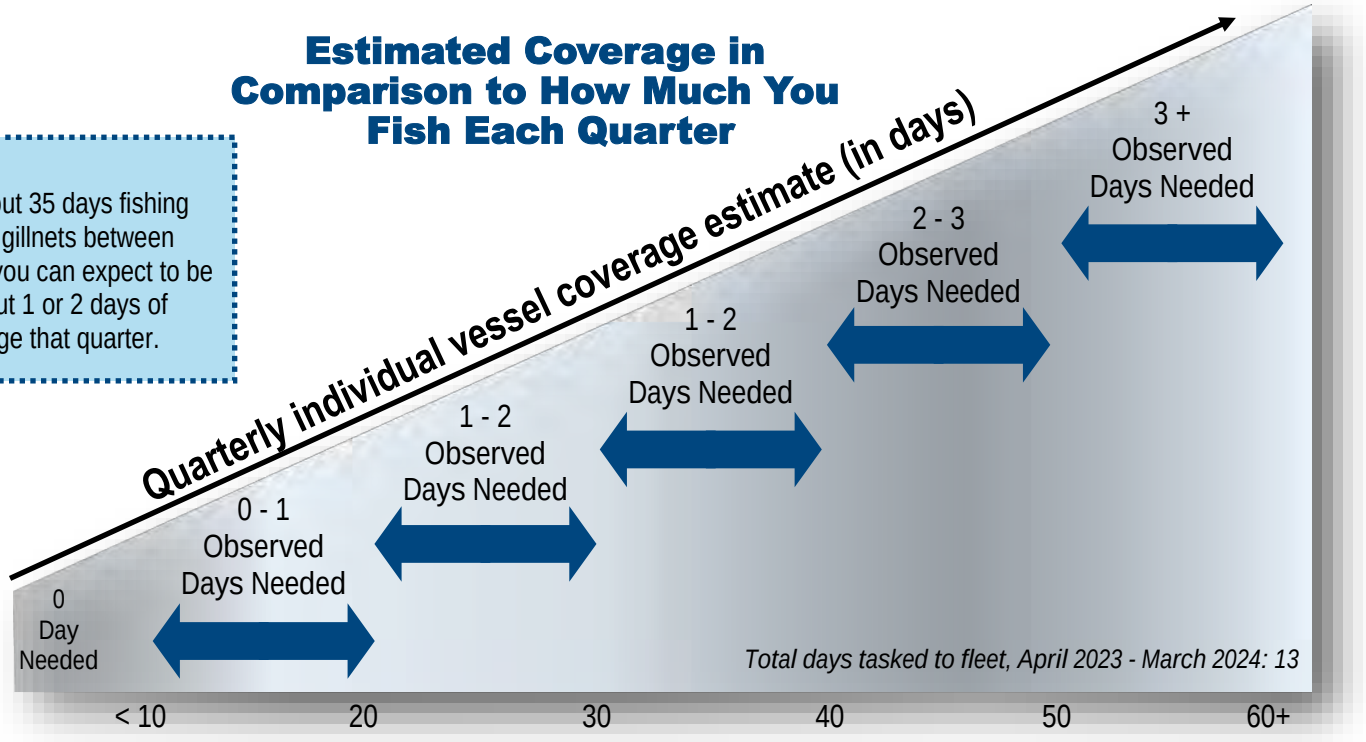
Gillnet vessels fishing in the states of NJ, MD, VA, and NC may be subject to additional "Limited" sampling trips where observers collect only limited data on the discarded catch. The 220 days tasked can be completed on both state and federally permitted gillnet vessels under authority of the MMPA and ESA.

How much observer coverage can you expect each calendar quarter in 2023?

In 2023, there are 119 combined sea days tasked to the federal gillnet fleet in the Mid-Atlantic on the NEFOP Sea Day Schedule. NEFOP Sea Day Schedule observer coverage is tasked and achieved based on calendar quarter. The following graph illustrates the anticipated observer coverage on individual fishing vessels within the gillnet fleet in Mid-Atlantic states for each calendar quarter (2023 Apr-Jun, Jul-Sep, Oct-Nov & 2024 Jan-Mar). The estimated observer coverage is based on the number of days an individual vessel spends fishing within a calendar quarter using gillnet gear. The more days an individual vessel spends at sea, the higher the estimated expected observer coverage will be. If a vessel fishes in multiple gillnet fleets, they may be subject to additional observer coverage.

Small Mesh (< 5.5 inches) Gillnet

For example:
If you spend about 35 days fishing with small mesh gillnets between April and June, you can expect to be selected for about 1 or 2 days of observer coverage that quarter.



Estimates may change based on realized industry effort in 2023/2024

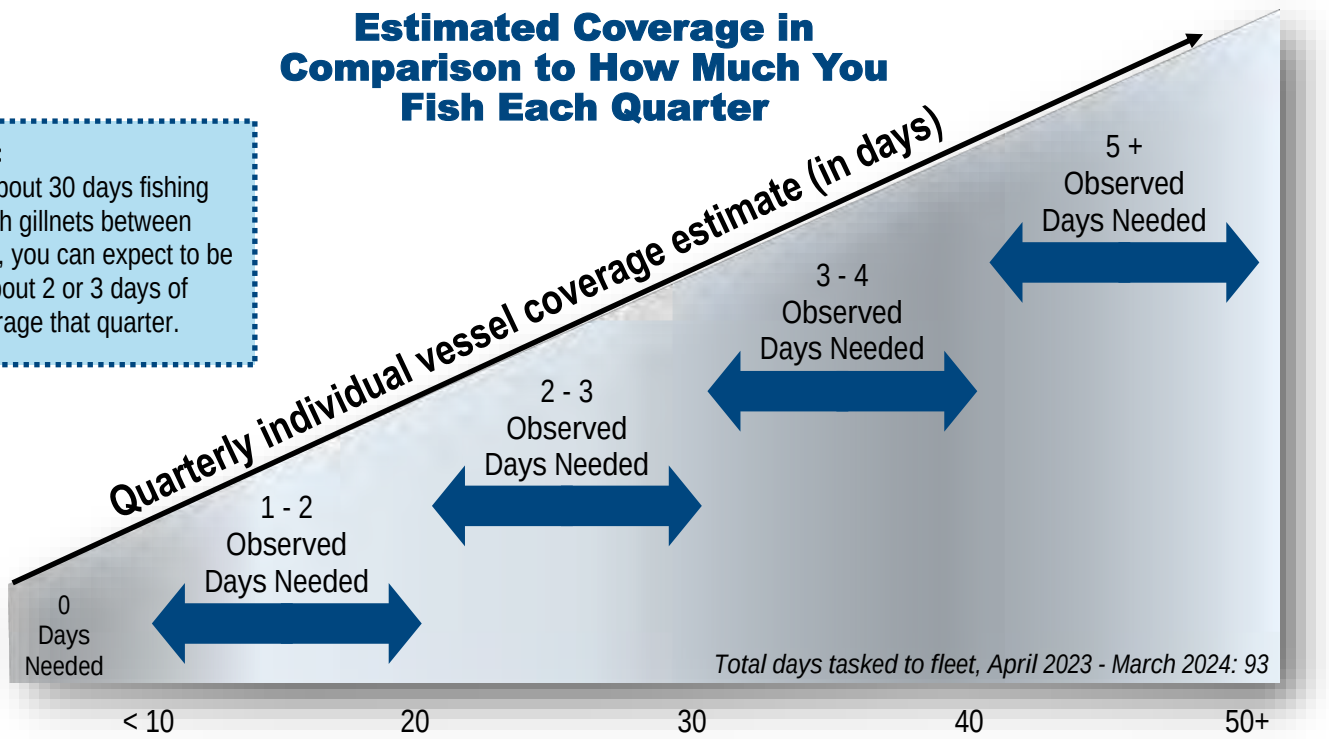
For questions on individual vessel coverage please contact :

Mid-Atlantic Operations Specialist, Bridget St.Amand, Bridget.St.Amand@noaa.gov or (508) 274-4859

**These graphs depict an estimate of observer coverage needed to achieve NEFOP's total tasked number of SBRM funded sea days for the Mid-Atlantic gillnet fleets, it is based on an estimate of fleet activity from the previous calendar year and is subject to change depending on changes in industry effort.*

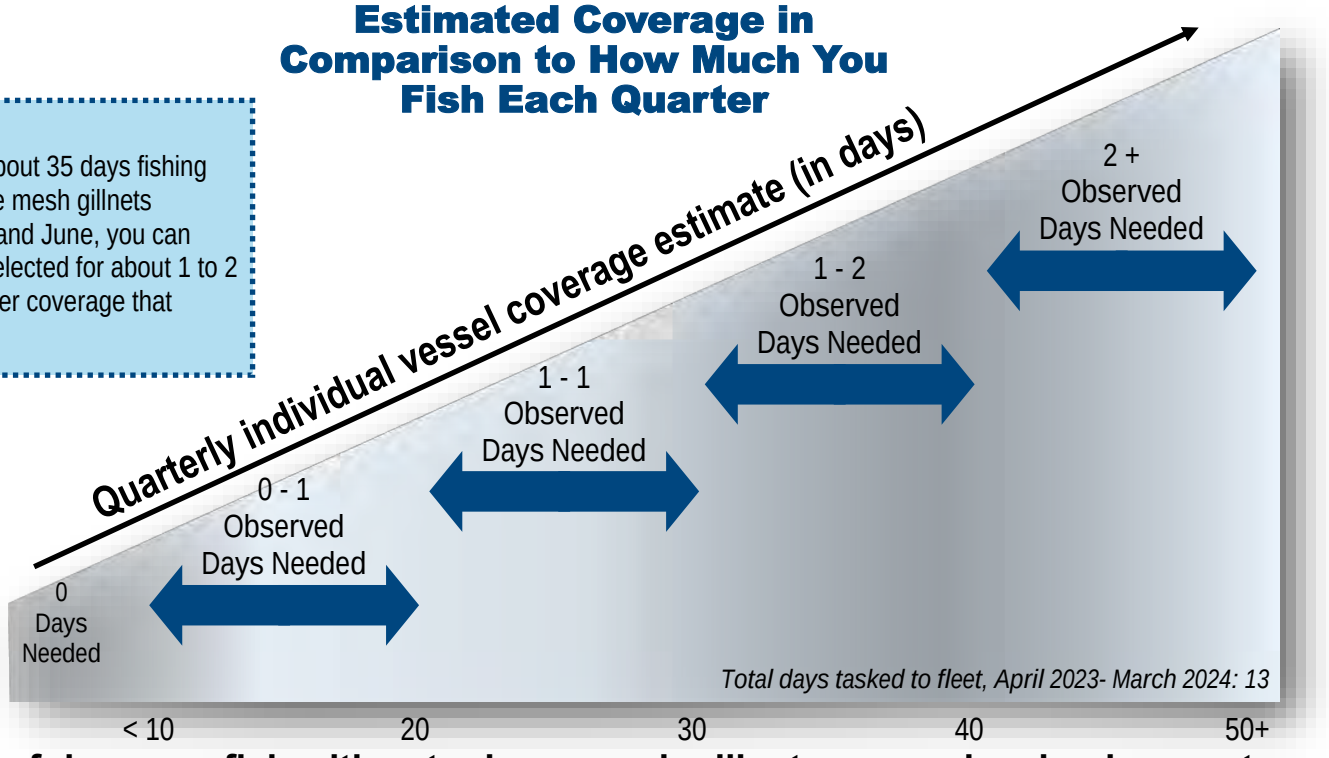
Large Mesh (5.5 - 7.99 inches) Gillnet

For example:
If you spend about 30 days fishing with large mesh gillnets between April and June, you can expect to be selected for about 2 or 3 days of observer coverage that quarter.



Extra Large Mesh (>= 8.0 inches) Gillnet

For example:
If you spend about 35 days fishing with extra large mesh gillnets between April and June, you can expect to be selected for about 1 to 2 days of observer coverage that quarter.



Estimates may change based on realized industry effort in 2023/2024

Mid-Atlantic Large Mesh Trawl Vessels

2023 NEFOP Observer Coverage Information

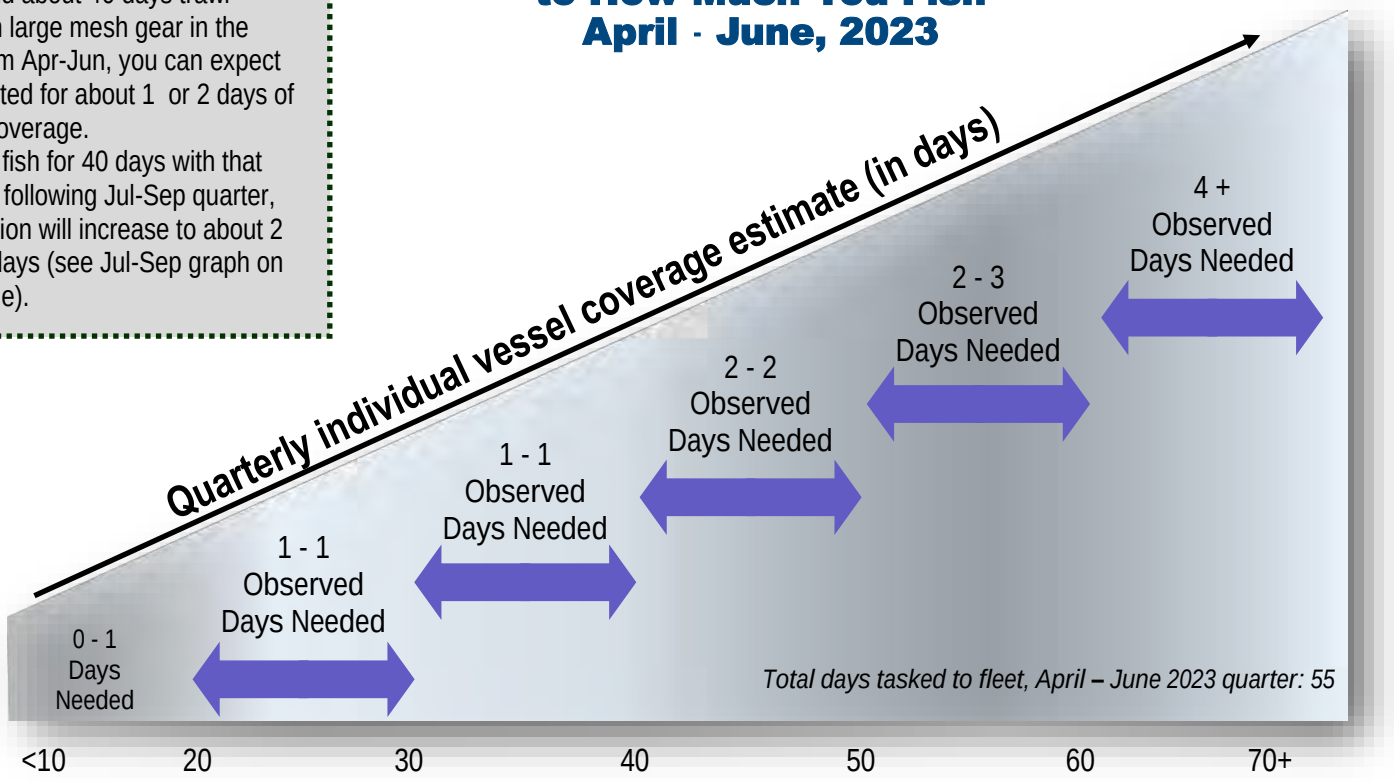
This informational sheet conveys Northeast Fisheries Observer Program (NEFOP) observer coverage information for federally permitted vessels fishing with bottom trawl gear using mesh 5.5 inches or greater landing in the states of Connecticut, New York, New Jersey, Delaware, Maryland, Virginia and North Carolina for the 2023 NEFOP Sea Day Schedule year spanning from April 1, 2023 through March 31, 2024.

How much observer coverage can you expect each calendar quarter in 2023?

In 2023, there are 244 sea days tasked to large mesh (≥ 5.5 inches) bottom trawl fleets in the Mid-Atlantic on the NEFOP Sea Day Schedule. NEFOP Sea Day Schedule observer coverage is tasked and achieved based on calendar quarter. The following graph illustrates the anticipated observer coverage on individual fishing vessels within the large mesh trawl fleet in Mid-Atlantic states for each calendar quarter (2023 Apr-Jun, Jul-Sep, Oct-Nov & 2024 Jan-Mar). The estimated observer coverage is based on the number of days an individual vessel spends fishing within a calendar quarter using small mesh trawl gear. The more days an individual vessel spends at sea, the higher the estimated expected observer coverage will be.

For example:
If you spend about 40 days trawl fishing with large mesh gear in the quarter from Apr-Jun, you can expect to be selected for about 1 or 2 days of observer coverage.
If you then fish for 40 days with that gear in the following Jul-Sep quarter, your selection will increase to about 2 observed days (see Jul-Sep graph on reverse side).

Estimated Coverage in Comparison to How Much You Fish April - June, 2023



Number of days you fish using large mesh trawl gear April - June 2023

Estimates may change based on realized industry effort in 2023/2024

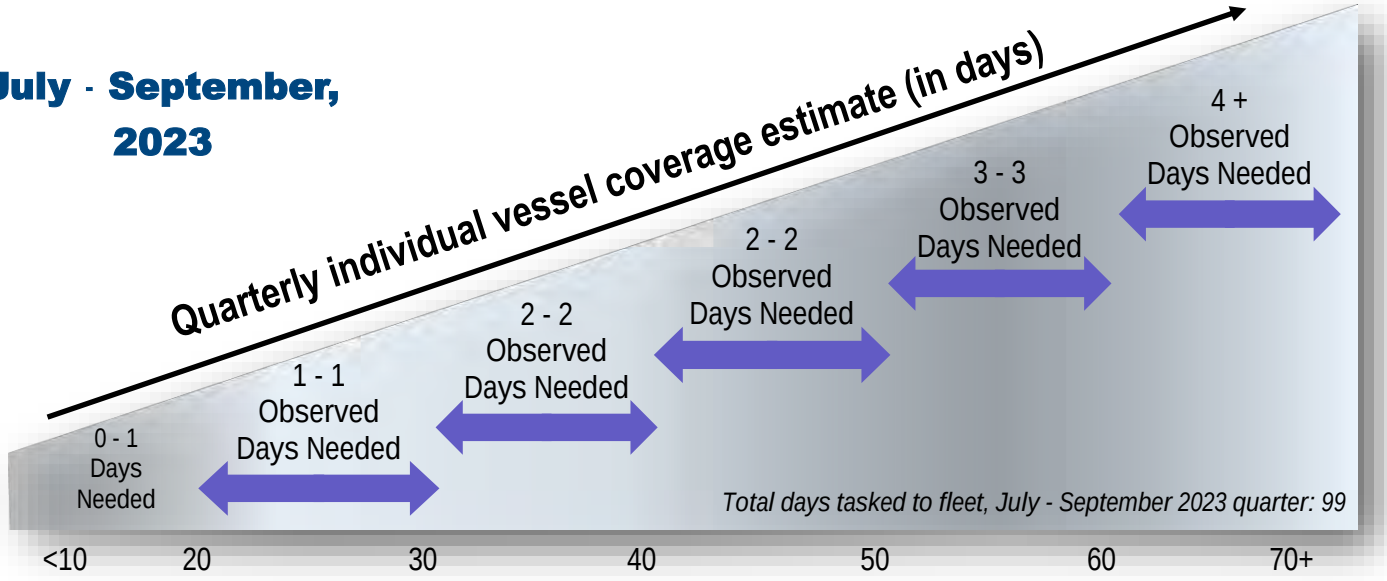
For questions on individual vessel coverage please contact:

Mid-Atlantic Operations Specialist, Bridget St.Amand, Bridget.St.Amand@noaa.gov or (508) 274-4859

**These graphs depict an estimate of observer coverage needed to achieve NEFOP's total tasked number of SBRM funded sea days for the Mid-Atlantic large mesh trawl fleet, it is based on an estimate of fleet activity from the previous calendar year and is subject to change depending on changes in industry effort. If a vessel fishes in multiple trawl fleets, they may be subject to additional observer coverage.*

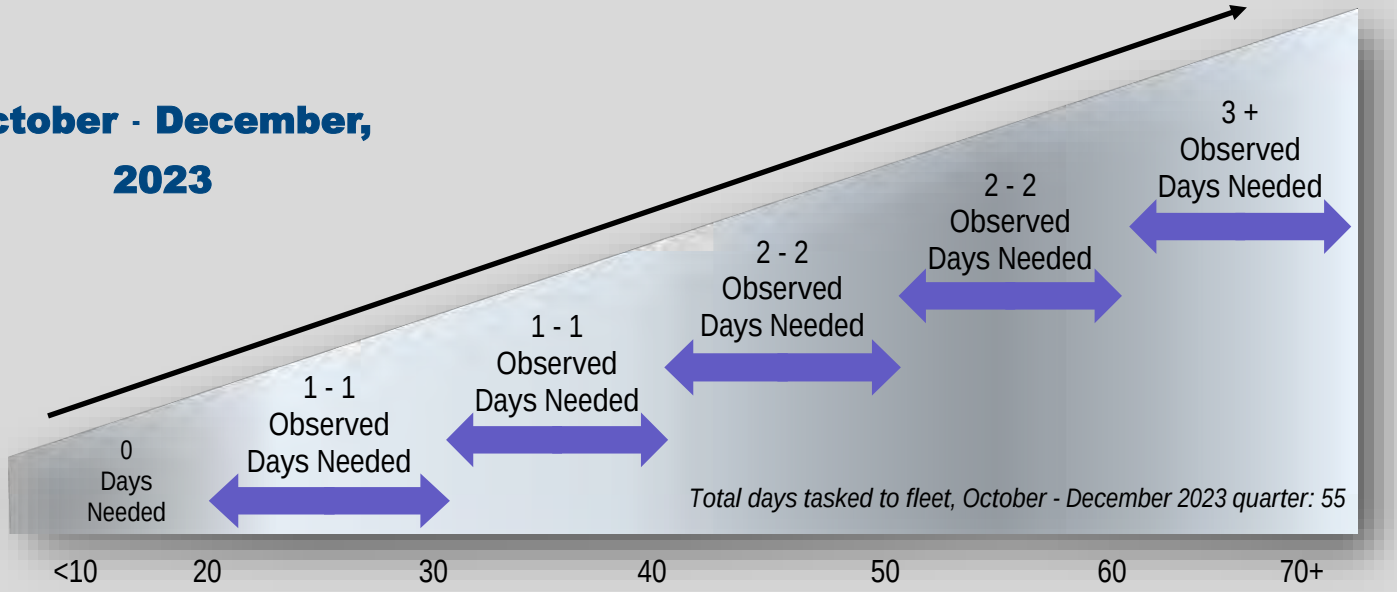
Mid-Atlantic Large Mesh Trawl Estimated Quarterly Observer Coverage

July - September, 2023



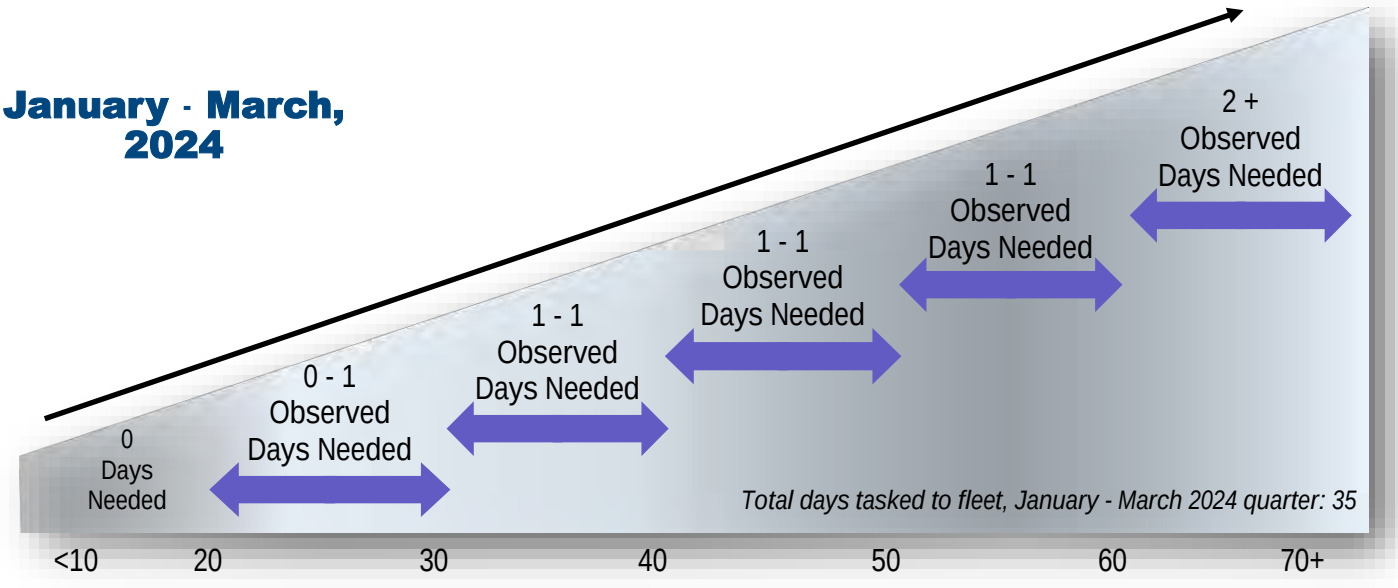
Number of days you fish using small mesh trawl gear July - September 2023

October - December, 2023



Number of days you fish using large mesh trawl gear October - December 2023

January - March, 2024



Number of days you fish using large mesh trawl gear January - March 2024

Estimates may change based on realized industry effort in 2023/2024

Mid-Atlantic Small Mesh Trawl Vessels

2023 NEFOP Observer Coverage Information

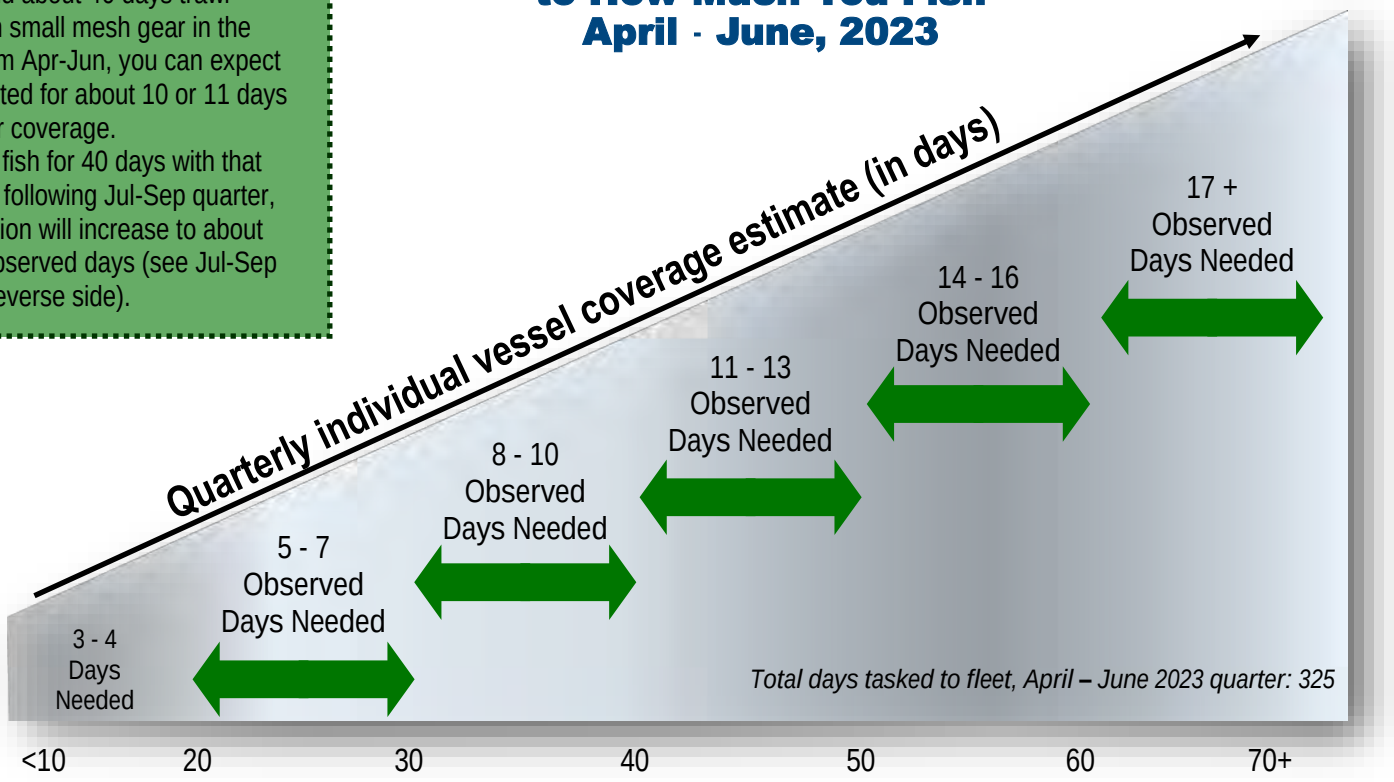
This informational sheet conveys Northeast Fisheries Observer Program (NEFOP) observer coverage information for federally permitted vessels fishing with bottom trawl gear using mesh less than 5.5 inches landing in the states of Connecticut, New York, New Jersey, Delaware, Maryland, Virginia and North Carolina for the 2023 NEFOP Sea Day Schedule year spanning from April 1, 2023 through March 31, 2024.

How much observer coverage can you expect each calendar quarter in 2023?

In 2023, there are 1,483 sea days tasked to small mesh (< 5.5 inches) bottom trawl fleets in the Mid-Atlantic on the NEFOP Sea Day Schedule. NEFOP Sea Day Schedule observer coverage is tasked and achieved based on calendar quarter. The following graph illustrates the anticipated observer coverage on individual fishing vessels within the small mesh trawl fleet in Mid-Atlantic states for each calendar quarter (2023 Apr-Jun, Jul-Sep, Oct-Nov & 2024 Jan-Mar). The estimated observer coverage is based on the number of days an individual vessel spends fishing within a calendar quarter using small mesh trawl gear. The more days an individual vessel spends at sea, the higher the estimated expected observer coverage will be.

For example:
If you spend about 40 days trawl fishing with small mesh gear in the quarter from Apr-Jun, you can expect to be selected for about 10 or 11 days of observer coverage.
If you then fish for 40 days with that gear in the following Jul-Sep quarter, your selection will increase to about 15 or 18 observed days (see Jul-Sep graph on reverse side).

Estimated Coverage in Comparison to How Much You Fish
April - June, 2023



Number of days you fish using small mesh trawl gear April - June 2023

Estimates may change based on realized industry effort in 2023/2024

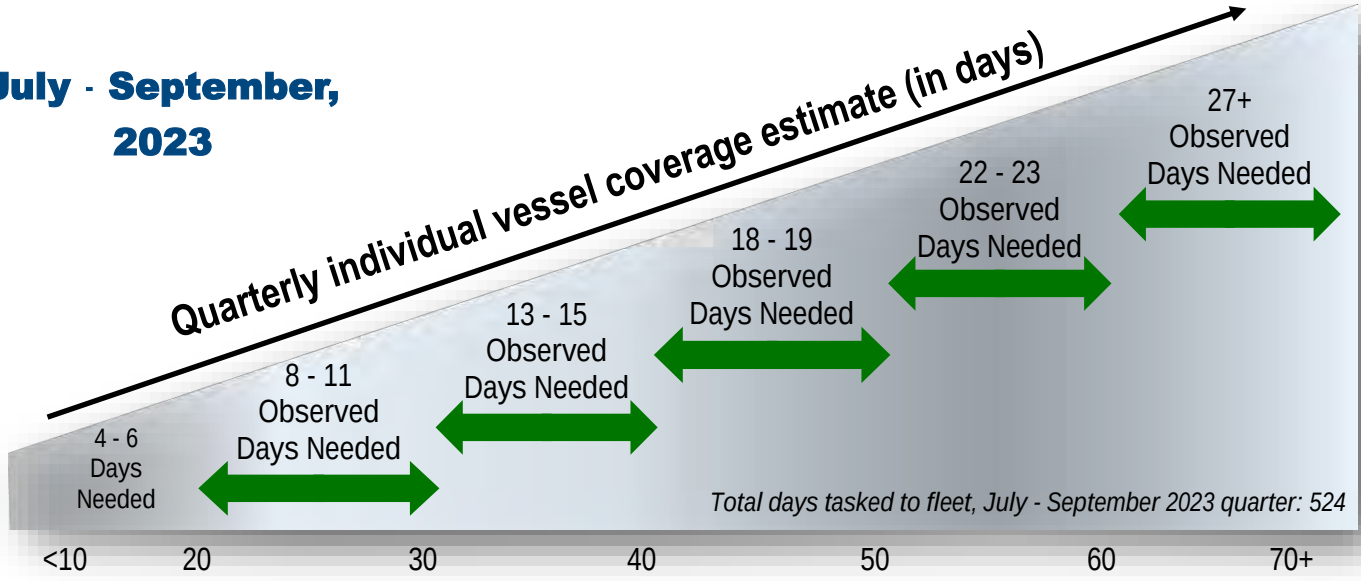
For questions on individual vessel coverage please contact:

Mid-Atlantic Operations Specialist, Bridget St.Amand, Bridget.St.Amand@noaa.gov or (508) 274-4859

**These graphs depict an estimate of observer coverage needed to achieve NEFOP's total tasked number of SBRM funded sea days for the Mid-Atlantic small mesh trawl fleet, it is based on an estimate of fleet activity from the previous calendar year and is subject to change depending on changes in industry effort. If a vessel fishes in multiple trawl fleets, they may be subject to additional observer coverage.*

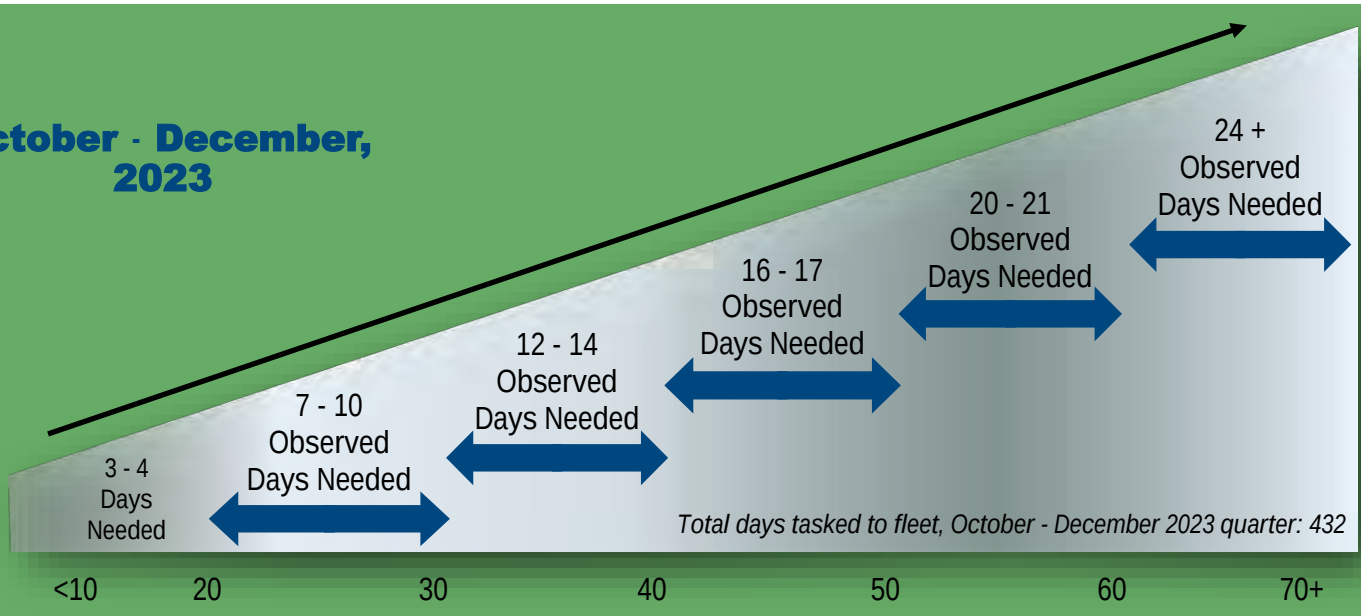
Mid-Atlantic Small Mesh Trawl Estimated Quarterly Observer Coverage

July - September, 2023



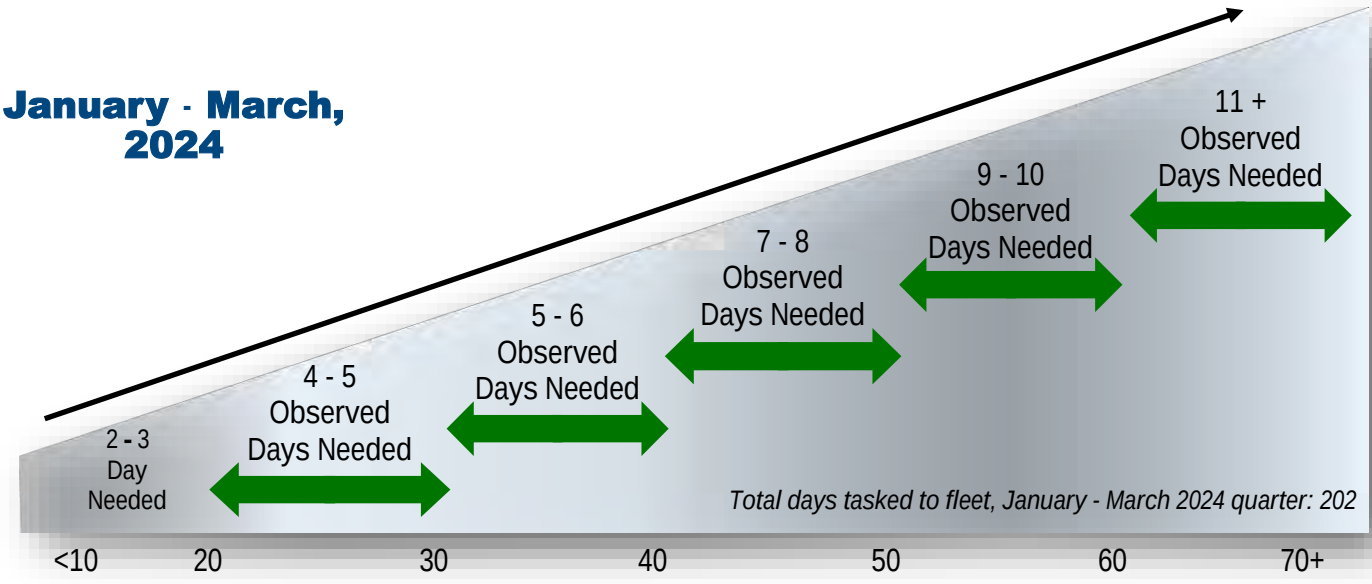
Number of days you fish using small mesh trawl gear July - September 2023

October - December, 2023



Number of days you fish using small mesh trawl gear October - December 2023

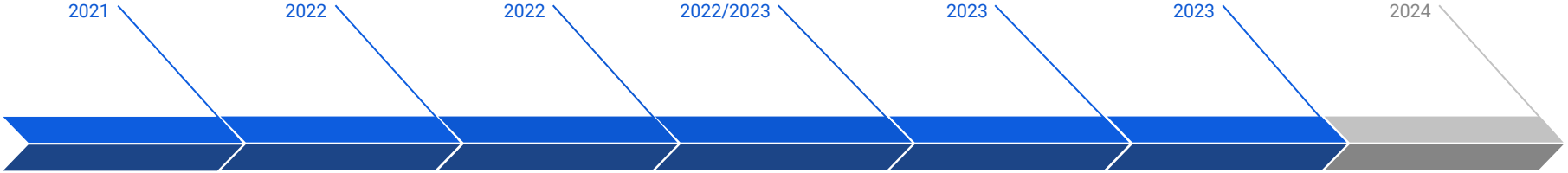
January - March, 2024



Number of days you fish using small mesh trawl gear January - March 2024

Estimates may change based on realized industry effort in 2023/2024

SASH Prevention Roadmap



SASH Training Initiative for Observers

Implemented SASH information into Conflict Resolution. Initially added to IFS cross training then adapted to NEFOP and IFS base training and ASM initial trainings.

Respect Observers Campaign

Worked with RCB and a contracted graphics company to create a more approachable anti-harassment poster. This was posted online with an article about observer treatment. A GOVDelivery message with abbreviated sentiment followed.

OLE Action Plan

Five point plan developed outlining actions by OLE NED and NE Observer Program to improve the support process to observer harassment issues, target repeat or escalating offenses by industry members, communicate outcomes to survivors in a more timely manner, and working with GC to increase transparency.

Industry Workshops

Ensuring a Safe Work Environment for Observers workshops were conducted in November 2022 for groundfish fishermen and sector managers. January and September 2023 workshops were open to the public. OLE and the Observer program presented materials about what is harassment, penalties for conviction, the investigative processes, observer training on harassment, and risk reduction strategies.

Developed Further Support Mechanisms

NOP developed national standards for SASH trainings that have been implemented into all initial observer trainings. Observer program created a code phrase for inReach usage as a result of an after action incident meeting and have been working with USCG to be prepared for its possible utilization.

Work with WVPR & Data Analytics

Worked with WVPR to host a training event for SASH: Strategic Resistance. This training teaches staff how to prepare observers to safely intervene on their own behalf while isolated on a vessel. We have been closely monitoring the rate of SASH occurrences and incorporating questions regarding harassment and reporting in the annual retention survey.

Continued Work with USCG & WVPR

Coordinating with USCG and WVPR on communication involving SASH incidents. We plan to work with the Fishing Partnership to incorporate a finalized version of the the industry workshop that can be integrated into the safety drills training conducted. The lessons from the SASH: Strategic Resistance will be incorporated into initial and refresher trainings for observers. We will continue to develop areas of support.

Updated 9/8/2023

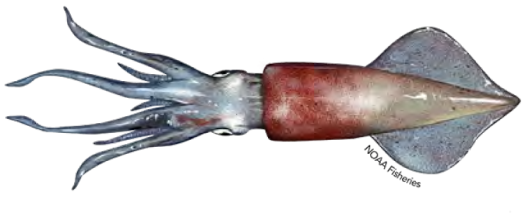
Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

NEFSC Cooperative Research Update

October 2023 Council Meeting

Dr. Anna Mercer of the Cooperative Research Branch of the NMFS' Northeast Fisheries Science Center (NEFSC) will provide an update on several ongoing and recent initiatives. Several current project summaries and abstracts of recent publications are included as background.

Longfin Squid Biological Sampling Program (SQUIBS) Project Charter



Goal:

Advance understanding of longfin squid life history and provide data to support the 2026 longfin research track stock assessment.

Project Summary:

The longfin squid biological sampling program (SQUIBS) will collect longfin squid *(Doryteuthis pealeii*) from fishing vessels at ports throughout Massachusetts and Rhode Island and New Jersey every week for two years (2023-2024). Technicians will collect biological measurements from longfin squid using an electronic data collection system. Biological measurements will include, but are not limited to: mantle length, mantle width, body weight, sex, nidamental gland length, testes length, accessory gland length, spermatophore length, and quantity of eggs. Technicians will also extract and store statoliths (squid age structures) for aging. All biological sampling will occur at the Northeast Fisheries Science Center's Narragansett Laboratory in Narragansett, Rhode Island. These data will advance understanding of longfin squid life history, will be used in a new length-based assessment model for longfin squid, and will contribute to the 2026 longfin squid research track stock assessment.

Sampling Design:

- The NEFSC's Industry-Based Biological Sampling Program (InBios) will coordinate longfin squid collections for the SQUIBS project.
- 300 unculled squid will be collected every week from vessels harvesting longfin squid.
- Biological Sampling Requests (BSR) for 100 unculled longfin squid will be deployed on three vessels fishing for longfin squid every week (100 squid x 3 vessels = 300 squid per week).
    - Vessels providing samples will be rotated, as feasible, to provide information from across the longfin squid fishing fleet throughout the year.
    - If a vessel grades squid at sea (sort by size), samples will be requested from each size category.
- Squid samples will be collected to maximize representativeness of the population and fishery, with target areas adapting as fishing areas change throughout the year.

Sampling Protocols:

- InBios will coordinate the collection of whole longfin squid samples from fishing vessels every week.
- Samples will be delivered to NEFSC Narragansett Lab or picked up at the docks when a vessel lands.
    - Every set of samples will have a Biological Sampling Request form attached to identify the vessel, date and time when samples were collected, latitude/longitude and depth where samples were collected, and Vessel Trip Report (VTR) number.
- If possible, whole squid will be processed fresh. If sampling cannot occur immediately, squid will be frozen in the Narragansett Lab freezer. If samples were frozen at sea, they will be kept frozen until processing.
- The BLISS software on Android tablets will be used for data collection.
- BLISS connects to a Bluetooth BigFin measuring boards, Bluetooth Marel M1100 scales, and Bluetooth calipers to minimize data entry errors.
- The biological parameters that will be collected for each squid are listed below.

Organism Parameter	**Unit of Measure**
Organism weight	g
Mantle width (after cut longitudinally*)	mm
Mantle length	mm
Sex	male, female, unknown
Nidamental gland length (females)	mm
Testis length (males)	mm
Accessory gland length (females)	mm
Spermatophore length (males)	mm
Number of eggs	none, some, many
Statolith	Extracted from 10 squid per 100 (30 per week)
Tissue sample	Collected from 10 squid per 100 (30 per week)

- Statoliths will be extracted from 10 squid per sample (10 x 3 = 30 statoliths per week)
- Statoliths will be stored in 95% ethanol for 24 hours.
- Statoliths will be removed from ethanol and stored in barcoded envelopes for aging.
- Tissue samples will be collected from the mantle of the same 10 individuals statoliths are extracted from each week.
- Tissue samples will be stored in labeled vials with 95% ethanol.
- Tissue sample vials will be stored in barcoded envelopes in the freezer.

Data Access and Management:

- All data will be stored in the biological sampling (BSM) database, managed by the NEFSC Information Technology Division.
- Data will be accessible via the Oracle database or through direct access to database tables.

Responsibilities:

- Project PI: Anna Mercer
- Sampling design development: Sarah Salois, Andy Jones, Anna Mercer, Jason Didden, Mike Wilberg, Jim Gartland
- Squid collection coordination: Katie Burchard, Thomas Swiader
- Lab sampling: Gina Scott, Ricardo Hernandez, Thomas Swiader, Sarah Salois, Emma Fowler, Jacob Wilson
- Statolith aging: MAFMC contract
- IT Support: Josh Moser, Thomas Swiader
- Data Access: Josh Moser

Project Title: Piloting a Collaborative Hook and Line Survey to Ensure Data Continuity in Offshore Wind Energy Development Areas in the Northeast Region

PIs: Anna Mercer, Cooperative Research Branch Chief, NEFSC, anna.mercer@noaa.gov, (774 392-7603); Dave McElroy, Gulf of Maine Bottom Longline Survey Lead, Cooperative Research Branch, NEFSC.

Background:
Offshore wind energy development is rapidly advancing in the Northeast region, with over 22 million acres of ocean space planned or leased. Areas developed for offshore wind farms will be difficult or impossible to access using traditional mobile-gear surveys; thus, there is a critical need for novel survey techniques that can provide data on the distribution, abundance, biomass length compositions, and biological samples for federally managed species and their habitats. Hook and line surveys conducted aboard recreational fishing vessels have been used successfully in other regions to inform stock assessments and assess the impacts of ocean planning efforts (Harms et al. 2008). Hook and line gear can be safely deployed in any habitat type and alongside offshore wind turbines, can be used to collect biological samples and deploy tags on different fish species, and can provide opportunities for additional monitoring efforts (oceanographic, habitat, eDNA).

Approach:
This project would seek to develop and test the methodology for a new hook and line survey in the Northeast region. The specific objectives of this project would be to 1) Determine the operational feasibility of conducting a hook and line survey in collaboration with a fleet of recreational fishing vessels in the Northeast region, and 2) Assess the species and size selectivity of potential hook and line survey configurations in the Gulf of Maine, Southern New England, and Mid-Atlantic Bight. The following steps would be used to achieve these objectives:

- Determine specific gear configurations (hook types, bait types, terminal tackle, jigging techniques) and survey protocols (station siting and anchoring, day/night operations) to test in collaboration with industry partners.
- Develop station selection protocols, including stratification of areas planned for offshore wind development by depth and habitat type with comparative locations inside and outside wind energy areas.
- Determine the logistically feasible number of sampling stations per day in collaboration with industry partners (dependent on distance from shore and between sites).
- Select sampling stations in the Gulf of Maine, Southern New England, and Mid-Atlantic Bight to examine different species complexes and habitats.
    - Sampling stations in Southern New England and the Mid-Atlantic Bight would include areas where offshore wind turbines currently exist.
- Purchase four automatic jig machines and tackle, with specifications determined in collaboration with industry partners.
- If possible, adapt the data collection software and hardware used for the “Southern California Shelf Rockfish Hook and Line Survey” for this pilot survey or identify alternatives if not feasible.

- Conduct standardized gear sets aboard recreational fishing vessels for 5 days in the Gulf of Maine, 5 days in Southern New England, and 5 days in the Mid-Atlantic Bight.
    - Collect data on survey operations, including but not limited to steam times, set times, catch handling and processing times, staffing and crew requirements.
    - Collect data on species abundance, biomass, and size compositions using different gear configurations at every station.
        - Note: Gear configurations would be developed in collaboration with industry partners.
        - Note: All gear configurations would be tested at each sampling station.
- Evaluate the species and size composition of different hook and line gear configurations (hook type, bait type, jig speed) and survey methodologies (sampling time, day/night).

Timeline: 12 months

- Fall/Winter 2023: Set up contracts with recreational fishing vessels in GOM, SNE, MAB; Determine gear configurations; Select sampling stations; Procure jig machines, tackle, and sampling equipment
- Spring 2024: Conduct field work in GOM, SNE, MAB
- Summer 2024: Analyze data and synthesize findings
- Fall 2024: Write report and seeking funding for full survey development

This pilot project would guide the development of a long-term hook and line survey ranging from the Gulf of Maine through the Mid-Atlantic Bight. Additional survey components (oceanographic sampling, habitat monitoring, eDNA sampling, tagging studies) could be added as resources are available. A novel hook and line survey will provide critical data for assessing the cumulative impacts of offshore wind energy development on fisheries species and habitats.

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Shelf break exchange processes influence the availability of the northern shortfin squid, *Illex illecebrosus*, in the Northwest Atlantic

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Abstract

The United States Northern Shortfin squid fishery is known for its large fluctuations in catch at annual scales. In the last 5 years, this fishery has experienced increased availability of *Illex illecebrosus* along the Northeast US continental shelf (NES), resulting in high catch per unit effort (CPUE) and early fishery closures due to quota exceedance. The fishery occurs within the Northwest Atlantic, whose complex dynamics are set up by the interplay between the large-scale Gulf Stream, mesoscale eddies, Shelfbreak Jet, and shelf-slope exchange processes. Our ability to understand and quantify this regional variability is requisite for understanding the availability patterns of *Illex*, which are largely influenced by oceanographic conditions. In an effort to advance our current understanding of the seasonal and interannual variability in this species' relative abundance on the NES, we used generalized additive models to examine the relationships between the physical environment and hotspots of productivity to changes in CPUE of

I. illecebrosus in the Southern stock component, which comprises the US fishery. Specifically, we derived oceanographic indicators by pairing high-resolution remote sensing data and global ocean reanalysis physical data to high-resolution fishery catch data. We identified a suite of environmental covariates that were strongly related to instances of higher catch rates. In particular, bottom temperature, warm core rings, subsurface features, and frontal dynamics together serve as indicators of habitat condition and primary productivity hotspots, providing great utility for understanding the distribution of *Illex* with the potential for forecasting seasonal and interannual availability.

KEYWORDS

environmental covariates, generalized additive model, *Illex illecebrosus*, northern shortfin squid, Northwest Atlantic, remote sensing, warm core rings

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Learning From the Study Fleet: Maintenance of a Large-Scale Reference Fleet for Northeast U.S. Fisheries

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Logbook data from commercial fisheries are a vital component in the machinery of management, including tracking the volume of catches and allocating catch spatially. At the same time, logbooks can provide a unique window into the ecological and sociological conditions in marine fisheries, where fishermen interact with marine species and environments frequently and broadly. Traditional logbooks, however, often are not sufficiently standardized (when personal logs), or lack the detail (when regulatory documents) required to adequately understand fisheries ecosystems. The Study Fleet program, operated by the Northeast Fisheries Science Center's Cooperative Research Branch, was developed to address these shortfalls by engaging members of the fishing industry in collecting high-resolution catch, effort, and environmental data using electronic logbooks. Since its inception, the Study Fleet has expanded from a small project focused on collecting detailed catch information from the New England multispecies groundfish fishery to a program with a wider scope encompassing a variety of fisheries, gears, and environmental parameters from North Carolina to Maine U.S. Over the years, a number of lessons have been learned about recruiting and supporting industry partners, managing the data, evolving technical specifications, and the challenges associated with analyzing and applying self-reported fisheries data. Here we describe the current state of the program and provide summaries of the Study Fleet program operations and outcomes from 2007-2020, with an eye towards successes, challenges, and applicability of the approach in other regions. We suggest other reference fleet programs, as well as other developing fishery dependent data collections (e.g., electronic monitoring programs), develop detailed roadmaps for each data collection to keep participants engaged as collaborators, target specific fisheries to keep resources from being stretched too thin,

and partner with data users early. Additionally, we suggest programs invest in the long-term participation of individual fishermen, carefully weigh the pros and cons of involvement in regulatory reporting, and plan data products and applications well in advance to ensure that the sampling scheme and granularity of the data meet the needs of stock assessment, ecosystem, and oceanographic scientists.

Keywords: logbook, CPUE, fishery dependent data, Northeast United States, self-reported data, cooperative research, reference fleet

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Bringing in the experts: application of industry knowledge to advance catch rate standardization for northern shortfin squid (*Illex illecebrosus*)

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Sources of fisheries information outside of fishery-independent surveys (e.g. fishery-dependent data) are especially valuable for species that support productive fisheries and lack reliable biological information, such as the northern shortfin squid (*Illex illecebrosus*). Fishery-dependent data streams are available for most species, however collaboration with industry members is critical to ensure that these fishery-dependent data are collected, applied, and interpreted correctly. Despite the need for collaboration and the frequency that fishery data are used in scientific research, there is limited literature on the structure of interactions and knowledge sharing that inform the analysis and application of fishery data. Between 2019 and 2022, a group of researchers collaborated with members of the northern shortfin squid fishing industry to bring together research data sets and knowledge from harvesters and processors to better describe the fishery dynamics, distribution, life history, and oceanographic drivers of the species. The collaboration focused on developing custom standardized fishery catch per unit effort (CPUE) indices to provide indicators of population trends that accounted for the impacts of technical and economic aspects of harvesting, processing and marketing on fishing effort, selectivity and landings of northern shortfin squid. We describe the methods used to inform and interpret the CPUE analyses, focusing on novel structure of interactions we had with industry members, and suggest best practices for integrating industry knowledge into CPUE standardization. The information shared and research products produced through this science-

industry research collaboration advanced understanding of northern shortfin squid population and fishery dynamics, and contributed directly to the 2022 stock assessment and management process. Given the complex and stochastic nature of the northern shortfin squid population and fishery, we found it critical to maintain open communication and trust with processors and harvesters, who have unique insight into the factors that may be driving changes in catch, landings, and productivity of the valuable resource species.

KEYWORDS

shortfin squid, stock assessment, cooperative research, local ecological knowledge, northeast United States, catch per unit effort, fisheries dynamics

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Assessment and Peer Review Overviews – Spiny Dogfish and Atlantic Mackerel

October 2023 Council Meeting

Prepared By: Jason Didden, Council Staff

This agenda item is informational to provide background for December 2023 discussions when the Council revisits Atlantic Mackerel (mackerel) specifications and sets spiny dogfish specifications.

Council staff will summarize the 2023 Management Track Assessments for mackerel and spiny dogfish as well as the peer review results. These assessments and peer reviews will inform the Scientific and Statistical Committee's (SSC) Acceptable Biological Catch (ABC) recommendations (October 30, 2023 SSC meeting). The SSC's ABCs are the binding upper catch limit for specifications that will be considered in upcoming Council meetings. A September 2023 peer review report was not finalized at the time briefing materials were collated, but the reviewers appeared generally positive regarding the scientific merit of the assessments (staff participated in the peer review meetings). Once available, the peer review reports will be posted as supplemental materials. The draft assessment documents will also be posted on the October 2023 Council Meeting webpage.

The Council adopted preliminary 2024-2025 mackerel specifications in August 2023. Due to low catches that apparently ended overfishing in 2022, additional peer review was required, so the SSC and Council will both review their preliminary decisions. The Council is generally familiar with the mackerel assessment based on action at the August Council Meeting. Recent assessments have been stable in terms of past stock trends (and that we are at a low point currently), but projected stock growth has not occurred. It appears that catches may need to remain low for some time.

Spiny Dogfish specifications action is anticipated at the December 2023 Council Meeting and the January 2024 New England Fishery Management Council Meeting – the stock is jointly managed so both Councils must take action. A November 2023 Spiny Dogfish Committee Meeting is also being planned. The spiny dogfish Management Track Assessment maintained the stock trends seen in the Research Track Assessment, but adopted a different approach for the target biomass reference point. The assessment concludes biomass is near its target despite being relatively low, and it also projects that relatively low future catches are needed to stay at the target (due to reduced productivity in both cases). The new assessment model is a major advancement from the previous approach, but being a new model for east coast spiny dogfish, its ability to accurately predict the future via projections is untested.

The Spiny Dogfish Advisory Panel (AP) met just before mailout for the October 2023 Council Meeting. Their *Fishery Performance Report* will be provided to the SSC and Council in preparation for ABC and specifications-setting. Staff notes the AP expressed grave concerns about the new assessment model results not matching their experience, and about the effects of roller-coaster style management endangering the spiny dogfish fishery and associated infrastructure.

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NEFSC Maternal Effects Research Update

October 2023 Council Meeting

NMFS' Northeast Fisheries Science Center (NEFSC) staff will provide an update on research efforts regarding maternal effects, which is generally where spawning potential may be higher with larger or older fish. Related work will be reviewed for several species including yellowtail flounder, winter flounder, and summer flounder. A working paper for yellowtail flounder is attached as background.

Variation in fecundity and condition of yellowtail flounder, *Limanda ferruginea*: patterns across stocks over ten years

Mark Wuenschel, Dave McElroy, Richard McBride-

NEFSC

Emilee Tholke, Yvonna Press-

CONTRACTORS FOR IBSS IN SUPPORT OF NOAA FISHERIES

Background/rationale

Sustainable management of fisheries requires maintaining the reproductive capacity of a stock. Spawning stock biomass often used as a proxy for total egg production, assumes egg production is a constant function of size or weight. Increasingly, as fecundity data becomes more readily available, many of these assumptions are being challenged. Specifically, studies have shown that larger and/or older females produce proportionally more and better eggs (Berkeley et al. 2004, Hixon et al., 2014, Jeuthe et al. 2013, Barneche et al. 2018). In addition, for the rare cases where time-series of fecundity is available, annual variation has been documented and linked to environmental drivers acting during oocyte development (dos Santos Schmidt et al. 2017, 2020). Despite the importance of understanding the factors regulating fecundity variation, fecundity remains one of the most poorly measured life history parameters of marine fishes (Tomkiewicz et al. 2003). However, recent advances via semi-automated processing (Thorsen and Kjesbu 2001) has enabled the routine collection of fecundity data, including those reported here.

Yellowtail flounder life history with respect to reproduction and energetics have been studied in the region (McElroy et al., 2015; Wuenschel et al. 2019). By evaluating the longer time series of data now available, we may be able to better understand the allometry of fecundity and the linkages between environmental drivers of fecundity. For example, yellowtail flounder appear to set an optimistic upper limit for fecundity during early oocyte development, but undergo levels of down-regulation of fecundity to better match their energetic status.

In collaboration with NEFSC CRP's Study Fleet, yellowtail flounder (three stocks) have been sampled since 2010 to supplement samples collected on NEFSC annual Spring Bottom trawl surveys to determine fecundity. Analysis of the first few years of data indicated significant positive allometry in PAF as a function of length and significant year and stock effects on potential annual fecundity (McElroy et al. 2015), suggesting environmental regulation at regional scale. McElroy et al. (2015) also reported annual variation in relative condition, which was related to the amount oocyte atresia in females. These earlier studies generated the following working hypotheses from a general bioenergetics framework. First, the fecundity-size relationship is hyper-allometric, i.e. as size increases, fecundity increases at a greater proportion

than weight does. This indicates that a given biomass of larger females produce more eggs than an equal biomass of smaller females. This maternal effect is not usually considered in assessments of population reproductive potential. Secondly, reproductive investment of fishes derives from surplus energy (McBride et al. 2015), and as such may be regulated by and related to various physiological drivers (e.g. body or liver condition). Therefore annual variation in environmental productivity that effects fish condition results in variable energy available to reproduction, which manifests as annual variation in fecundity.

Following on these working hypotheses, our specific goals were to explore the allometry of the size-fecundity relation to determine if significant maternal effects (in terms of egg numbers) exist for yellowtail flounder, and the potential implications of such patterns with subsequent concurrent changes in stock demographics. Acknowledging that physiological aspects of fish condition regulate potential fecundity, we determined the importance of size, relative condition (weight at length), and hepato-somatic index explain variation in fecundity across time (years) and space (stocks). Given the ease of collecting relative condition data as compared to fecundity estimates, we also explore the relation between the two and potential limitations of using existing long-term time series.

Methods

The data presented here represents a continuation of the McElroy et al. (2015) study, which provides a more detailed explanation of the sampling methods, and specific protocols for fecundity determination of yellowtail flounder. In short, we continued sampling and processing in the same manner and now report on ten years of data (Table 1). Samples were collected over the three stocks, covering a broad geographical range (Figure 1). The majority of samples (~82%) came from the NEFSC CRP Study fleet, with remainder (~18%) coming from fishery independent surveys (NEFSC and MADMF).

Relative condition (Kn; observed weigh/ predicted weight) was calculated following Wuenschel et al. (2019), using the length weight equation they developed from samples throughout the year to predict weight from length.

Liver condition was assessed by calculating the hepatosomatic index (HSI; 100*(liver weight/(total weight-liver weight)). Liver weights were not available for all samples.

The allometry of the fecundity vs. weight relation was tested by fitting the following to the full dataset (i.e. all fish, across all stocks including fish without liver weights):
Log (Fecundity) ~ Log (Weight)
to obtain the intercept and slope. Since we wished to test if the sloe was significantly different than 1, we used an offset of one to test for the significance of the slope term to obtain a p value.

To explore the variation in fecundity, we modeled fir the following GLM in R:
Log(Fecundity) ~ Log(TL) + Kn + HSI + MEANOD + Stock + Year + Stock:Year

where TL, Kn, HSI are as described above, and MEANOD is the mean oocyte diameter of the developing clutch of oocytes to be spawned, which indicates the nearness (developmentally) to spawning. Stock, Year, and Stock:Year terms were included to account for potential spatial and temporal variation in fecundity that may or may not be synchronized across stocks. A stepwise selection process was used to select the combination of terms making the best overall model with the lowest AIC score.

We compared patterns in relative condition of the 'fecundity fish' to the available time series of relative condition of developing females from spring bottom trawl survey to explore the utility of the time series as a proxy for fecundity. First, for the available NEFSC spring bottom trawl survey time series where individual weights are available (1992-2023) we calculated Kn as described above for each stock using the strata listed in Table 4. Second, for the fecundity fish, that have additional physiological metrics, we were able to model Kn as a function of length, HSI, MEANOD, Stock, Year and Stock:Year. This allowed us to obtain a more detailed estimate of Kn for these 'fecundity fish' that accounts for the other significant variables affecting fecundity. The two time series were plotted alongside each other to visually assess the similarity in patterns of annual estimates.

Results and Discussion

The large amount of fecundity data collected over 10 years allowed us to determine the scaling relationship between annual fecundity and weight. An earlier analysis on the first three years of the fecundity data presented (McElroy et al. 2015), indicated the slope of the fecundity relation with fish length was significantly greater than 3 (for GOM and SNE stocks), but did not specifically test whether it was greater than the length-weight exponent, or if the fecundity-weight exponent was greater than 1. The present analysis provides definitive evidence that the fecundity of yellowtail flounder increases hyperallometrically with weight (i.e. the fecundity allometry vs size is greater than the weight allometry vs length). Fish weight alone explained a large amount of variation in fecundity ($r2 = 0.71$), and the exponent of 1.33 was significantly greater than one (Table 2, Figure 2). This hyperallometry has potential implications on the reproductive value of spawning stock biomass, depending on the size composition (demography) of the spawning stock biomass. The present analysis only consider the effects of fish size on egg numbers, and not egg size or quality, which have also been shown to increase with fish size and age (Berkeley et al. 2004, Hixon et al., 2014, Jeuthe et al. 2013, Barneche et al. 2018). Therefore, we might expect an even greater value of the larger older females in the spawning biomass to stock reproductive value.

To illustrate potential implications of size dependent egg production, we used decadal length frequencies of spawning biomass from annual NEFSC spring bottom trawl surveys for each stock, scaled them equally to the same overall biomass, and calculated fecundity. The CC/GOM stock showed a significant decrease in the reproductive value of spawning stock based on length frequencies after the 1990s, and in recent decades productivity declined by more than 15% compared to the 1970s (Figure 3). The GB and SNE stocks did not exhibit strong size truncation in the length frequencies over the period analyzed, and reproductive value was similar across decades (Figures 4 and 5). It is important to note that this calculation assumes the fecundity at

length relation has not changed over time, and that the length frequencies used from the survey are representative of the respective populations. Also, using the length frequencies from the 1970s as the 'base' to compare to may be inappropriate, as these stocks have been fished prior to then and may have already experienced significant size truncation. These stocks may be capable of greater reproductive potential than reported here, when the size distributions contain larger individuals.

To further explore remaining variation in fecundity that was not explained by fish size, we explored including relative condition, hepatosomatic index, mean oocyte diameter, stock, year and the interaction of stock and year in GLM framework. The resulting best model (determined by AIC) included all variables and explained 86.7% of the deviance in the data (Table 3). The SNE stock had higher fecundity at length (Figure 6), as was reported in McElroy et al. (2015). Relative condition and hepatosomatic index also had positive effects on fecundity, indicated that heavier fish at length and fish with larger livers had higher fecundity. The fish liver plays a critical role (as the site of vitellogenesis synthesis) in the provision of vitellogenin (yolk) to the developing oocytes. There was a negative relation between the mean oocyte diameter of the developing clutch and fecundity, indicating down-regulation of fecundity during the development process. This has been previously reported, and detailed via quantification of atresia in yellowtail flounder (McElroy et al. 2015). We included mean oocyte diameter as a covariate in fecundity models to account for variation in fecundity related to sampling an individual earlier or later in the development process.

The model indicated significant stock, year, and interaction of stock and year effects (Table 3, Figure 7). While there was coherence across stocks in most years indicating potentially similar environmental forcing of fecundity over a broad geographic scale, in other years fecundity was more variable across stocks suggesting more regional forcing of fecundity. In general, CC/GOM and SNE stock showed slight decline in fecundity, especially between 2014 and 2018, followed by a rebound in 2019 for the SNE stock. The more limited data for the GB stock limits the ability to detect trends over time.

Relative condition as a proxy for fecundity. Given that Kn was a significant predictor of fecundity, we compared the Kn of the fecundity fish (confirmed pre spawn developing females) with the macroscopic developing females collected at sea with individual weights. Given that yellowtail flounder are batch spawners, the macroscopic class 'developing' contains some individuals that have already released a batch or more of eggs, which affects their total weight and estimated relative condition. We were interested if the patterns in Kn determined from the fecundity fish with detailed other measures (liver weight, mean oocyte diameter) and confirmed pre spawning status (i.e. no post ovulatory follicles present in histology) were comparable to the patterns in Kn obtained from developing females collected at sea. Given the later provides a longer time series, strong relations may provide a means to infer prior unmeasured fecundity. For the 10 year time period compared, the annual variation in the two estimates of Kn tracked reasonably well for each stock. However, given that variation in spawning condition over the entire time series was greater than the variation in the 10 year period of overlap with fecundity (spawning seasonality WP), it is not appropriate to infer trends in Kn early in the time series are

indicative of fecundity. Using the time series of Kn data from the NEFSC spring bottom trawl surveys to predict fecundity will require disentangling of spawning phenology and physiological condition at the individual level, which may or may not be possible.

Conclusions

Fecundity scaling is hyper-allometric; a given biomass of large females will produce more eggs than an equal biomass of smaller females.

Given the hyper-allomteric fecundity relationship, changes in stock demographics will result in changes in stock reproductive value (notwithstanding abundance). The illustration using spring survey length-frequencies for each stock suggest such changes have occurred in the GOM stock where size truncation has depleted the value of remaining spawning stock. Such truncation was not evident in the GB and SNE stock over the time series evaluated, but they may have already been truncated.

In addition to fish size, relative condition, hepatosomatic index, and mean oocyte diameter explained variation in annual fecundity which varied by stock and year. Variation in fecundity was synchronized across stocks in some years, but not others, suggesting different scales of environmental forcing.

Relative condition has a positive effect on fecundity, suggesting it may be a useful proxy to infer fecundity over a longer time series. However, relative condition is influenced by spawning condition which has varies over the time series, complicating its interpretation as an indicator of reproductive potential.

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Table 1. Summary of yellowtail flounder fecundity samples analyzed by year, stock area, and source. CP, Cooperative Research gear survey; MADMF, Massachusetts Division of Marine Fisheries inshore trawl survey; SF, NEFSC CRP Study Fleet; HB, NEFSC Bottom trawl Survey.

	GB	GOM	SNE	Grand Total
2010	**15**	**60**	**60**	**135**
CP	8	18	17	43
MADMF		6		6
SF	7	36	43	86
2011	**21**	**70**	**48**	**139**
MADMF		15		15
SF	21	55	48	124
2012	**17**	**87**	**39**	**143**
HB	12	2	5	19
MADMF		1		1
SF	5	84	34	123
2013	**54**	**87**	**11**	**152**
SF	54	87	11	152
2014	**86**	**55**	**59**	**200**
HB	32	13	10	55
SF	54	42	49	145
2015	**61**	**113**	**81**	**255**
HB	16	29	11	56
SF	45	84	70	199
2016	**45**	**125**	**37**	**207**
HB	23	29	5	57
SF	22	96	32	150
2017	**22**	**117**	**40**	**179**
HB	22	30	2	54
SF		87	38	125
2018	**1**	**123**	**56**	**180**
HB	1	22	1	24
SF		101	55	156
2019	**13**	**104**	**16**	**133**
HB	13	14	1	28
SF		90	15	105
Grand Total	**335**	**941**	**447**	**1723**

Table 2. Model summary for test of hyperallometry in fecundity vs. weight. Log (Fecundity) ~ Log (Weight).

	Parameter (SE)
Intercept	5.93 (0.125) ***
Log(Weight)	**1.33** (0.020) ***
Slope test (=1)	p<2e-16 ***
Adj. R-squared	0.713
n fish *Oocytes measured*	**1,722** *764,015*

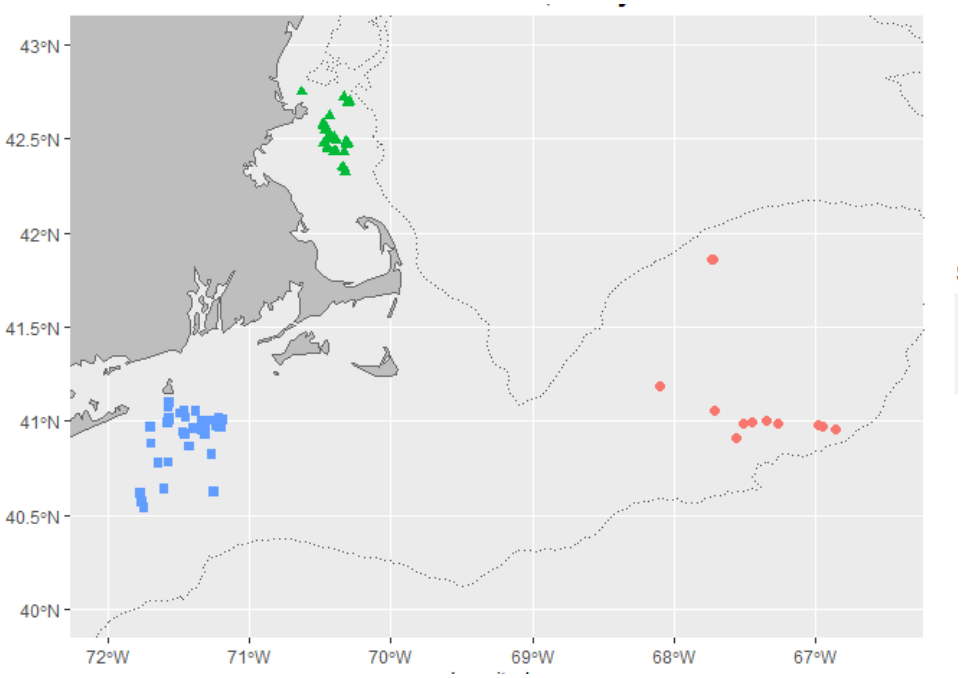
Table 3. Summary of significant terms in the fecundity model for yellowtail flounder: Log (Fecundity) ~ Log (TL) + Kn + HSI + MEANOD + Stock + Year + Sock:Year.

	Significance
Total Length	***
Kn	***
HSI	***
Mean Oocyte Diameter	***
Stock	***
Year	***
Stock:Year	***
Deviance explained (%)	86.7 %
n	1,401

Table 4. NEFSC bottom trawl survey strata used for each Yellowtail Flounder stock unit.

Stock unit	Spring Strata	Fall Strata
GB	Offshore 13-21	Offshore 13-21
CC-GOM	Offshore 25,26,27,39,40, Inshore 56,57,59,60,61,62,64,65,66	Offshore 25,26, 39,40, Inshore 56,57,59,60,61,62,64,65,66
SNE	Offshore 1,2,5,6,9,10,69,73,74 Inshore	Offshore 1,2,5,6,9,10

A)



B)

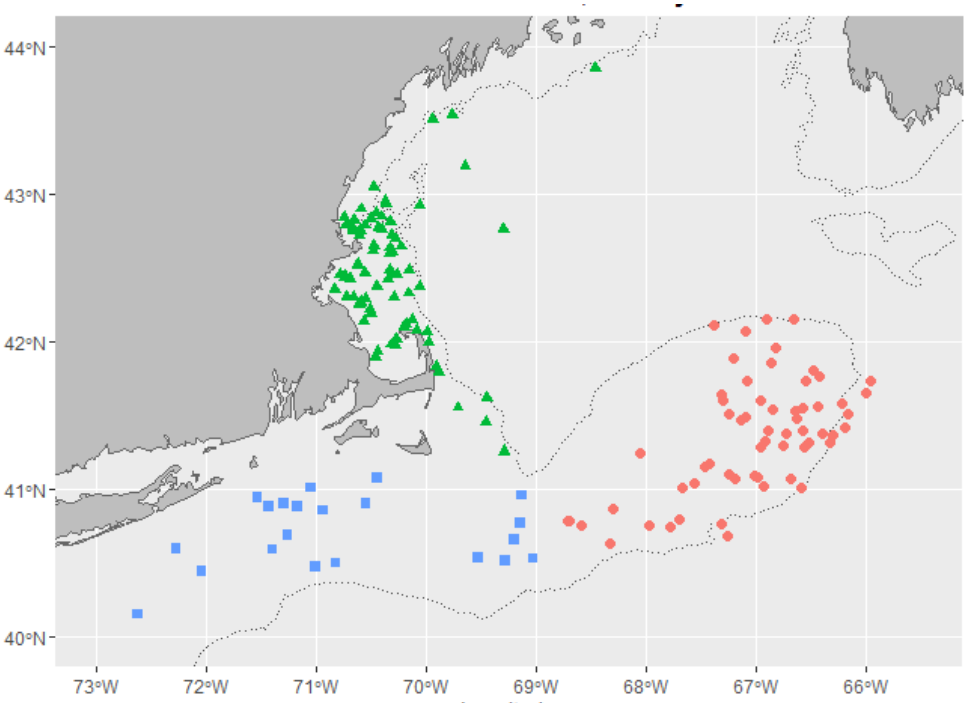


Figure 1. Locations of Yellowtail Flounder sampled from NEFSC Study Fleet (A) and during the NEFSC and MADMF bottom trawl surveys (B). The CC/GOM stock is shown in green, Georges Bank stock shown in red, and Southern New England stock shown in blue.

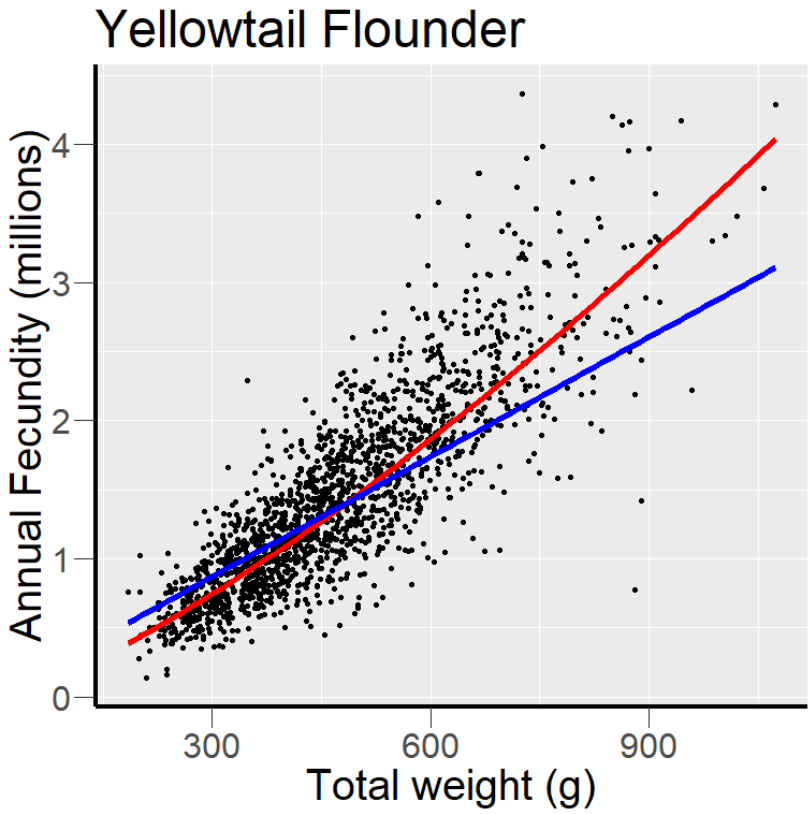


Figure 2. Annual fecundity in relation to body weight of Yellowtail Flounder. The red line is the best fit model with an exponent of 1.33 indicating hyper-allometry. The model fit assuming an isometric relation (fecundity proportional to weight) is shown in blue.

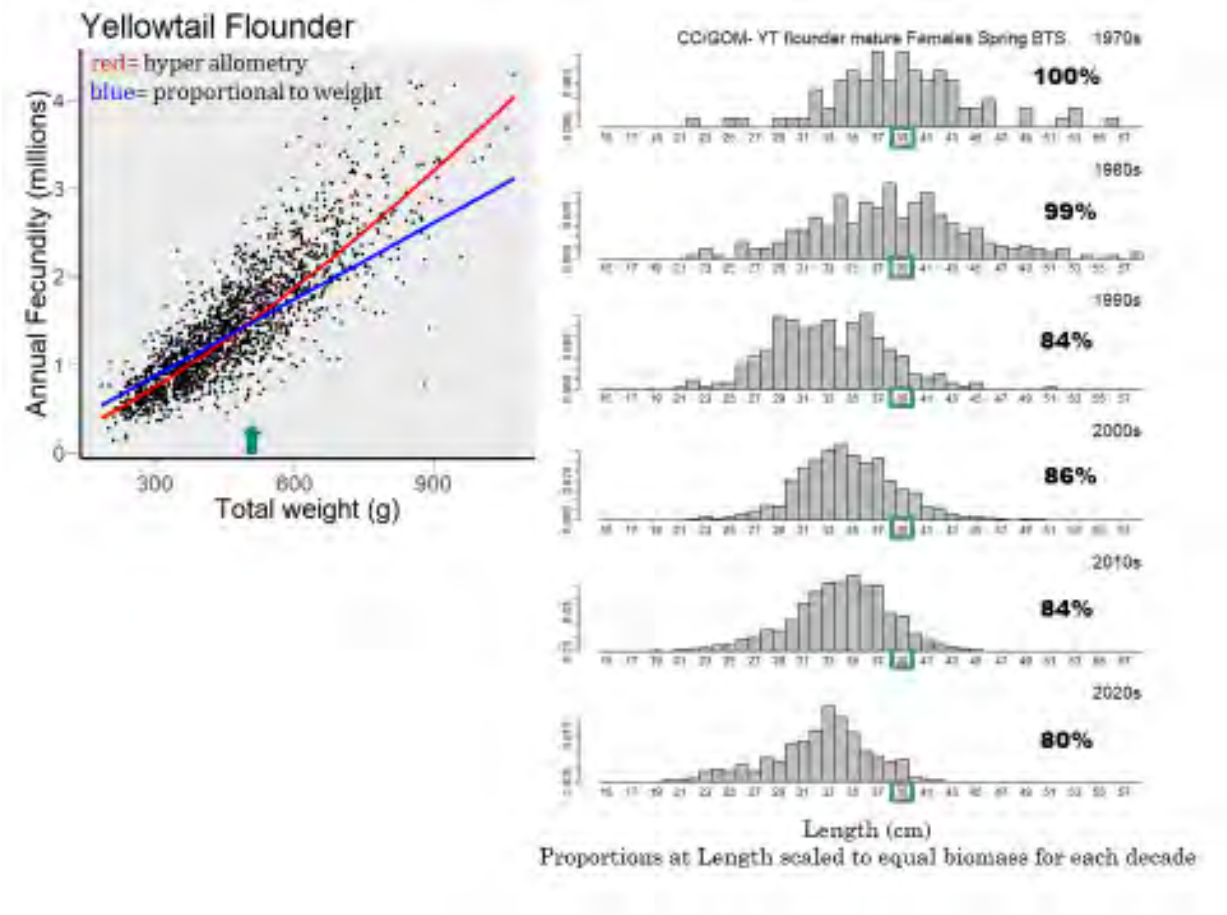


Figure 3. Illustration of the implication of hyperallometric fecundity on CC GOM Yellowtail Flounder. The fecundity relation is shown on the left. On the right are length frequencies of mature females sampled by the NEFSC spring bottom trawl surveys aggregated by decade and scaled to equal biomass using the 1970s as the base. The arrow on left represents approximate weight of 39 cm fish (boxed on right). The percentages shown indicate total fecundity of biomass with that distribution, relative to the base (1970s).

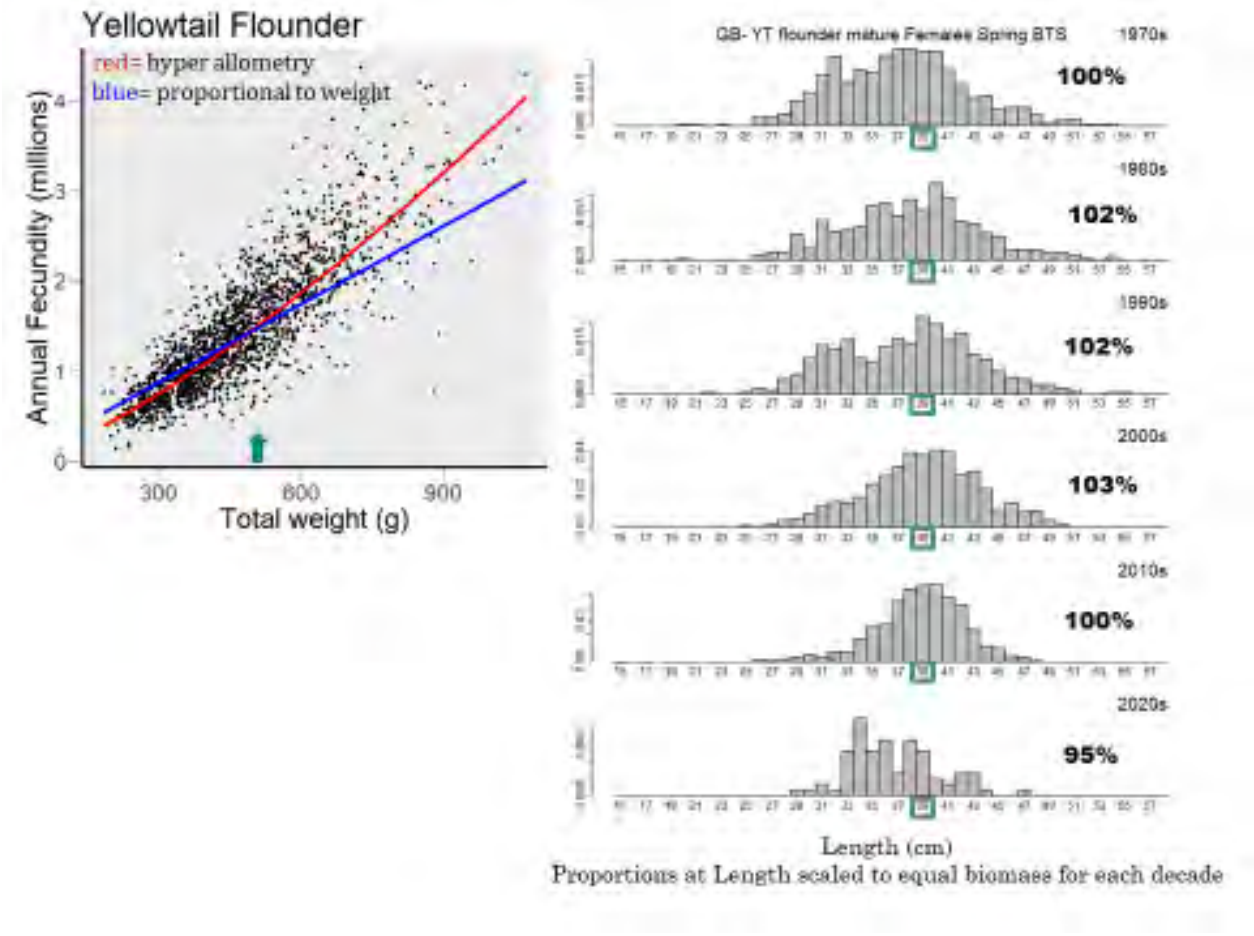


Figure 4. Illustration of the implication of hyperallometric fecundity on GB Yellowtail Flounder. The fecundity relation is shown on the left. On the right are length frequencies of mature females sampled by the NEFSC spring bottom trawl surveys aggregated by decade and scaled to equal biomass using the 1970s as the base. The arrow on left represents approximate weight of 39 cm fish (boxed on right). The percentages shown indicate total fecundity of biomass with that distribution, relative to the base (1970s).

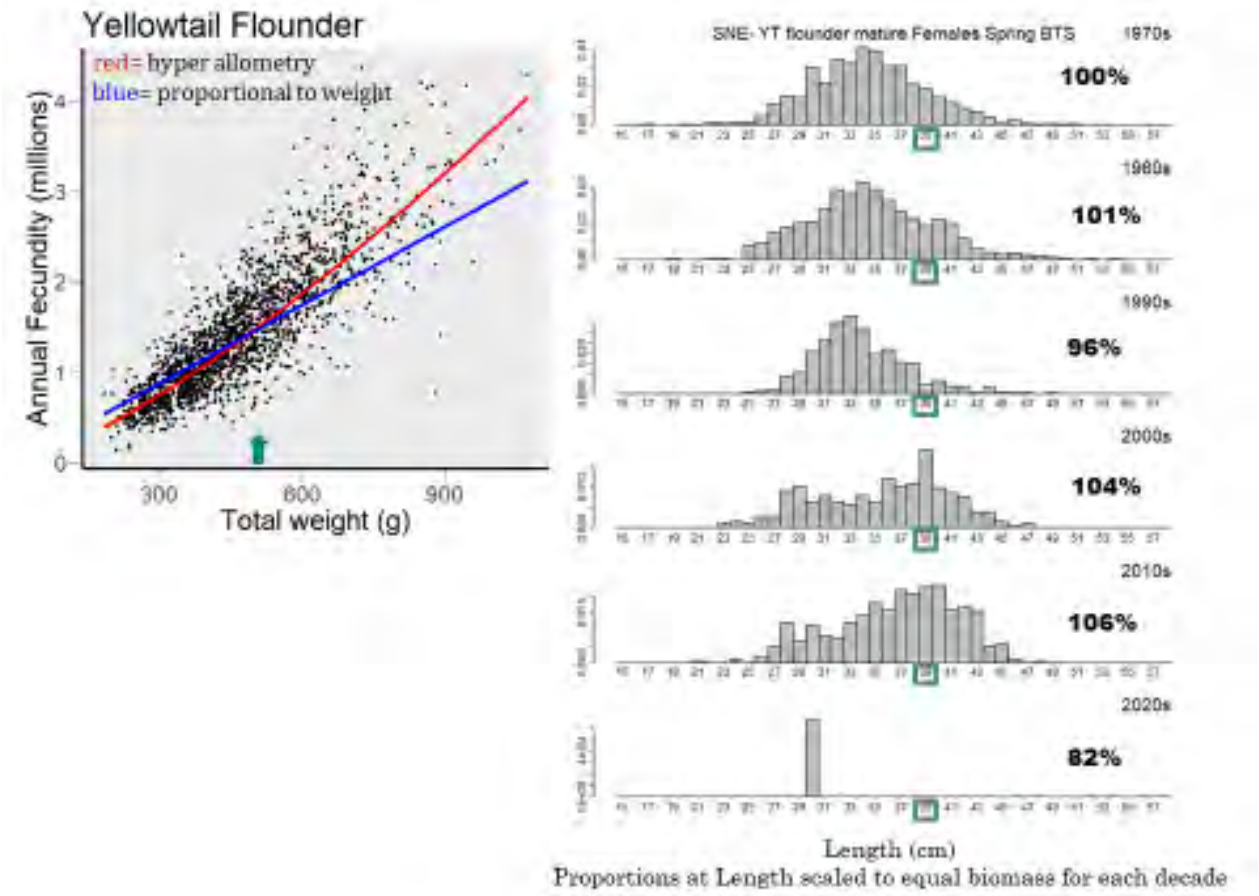


Figure 5. Illustration of the implication of hyperallometric fecundity on SNE Yellowtail Flounder. The fecundity relation is shown on the left. On the right are length frequencies of mature females sampled by the NEFSC spring bottom trawl surveys aggregated by decade and scaled to equal biomass using the 1970s as the base. The arrow on left represents approximate weight of 39 cm fish (boxed on right). The percentages shown indicate total fecundity of biomass with that distribution, relative to the base (1970s).

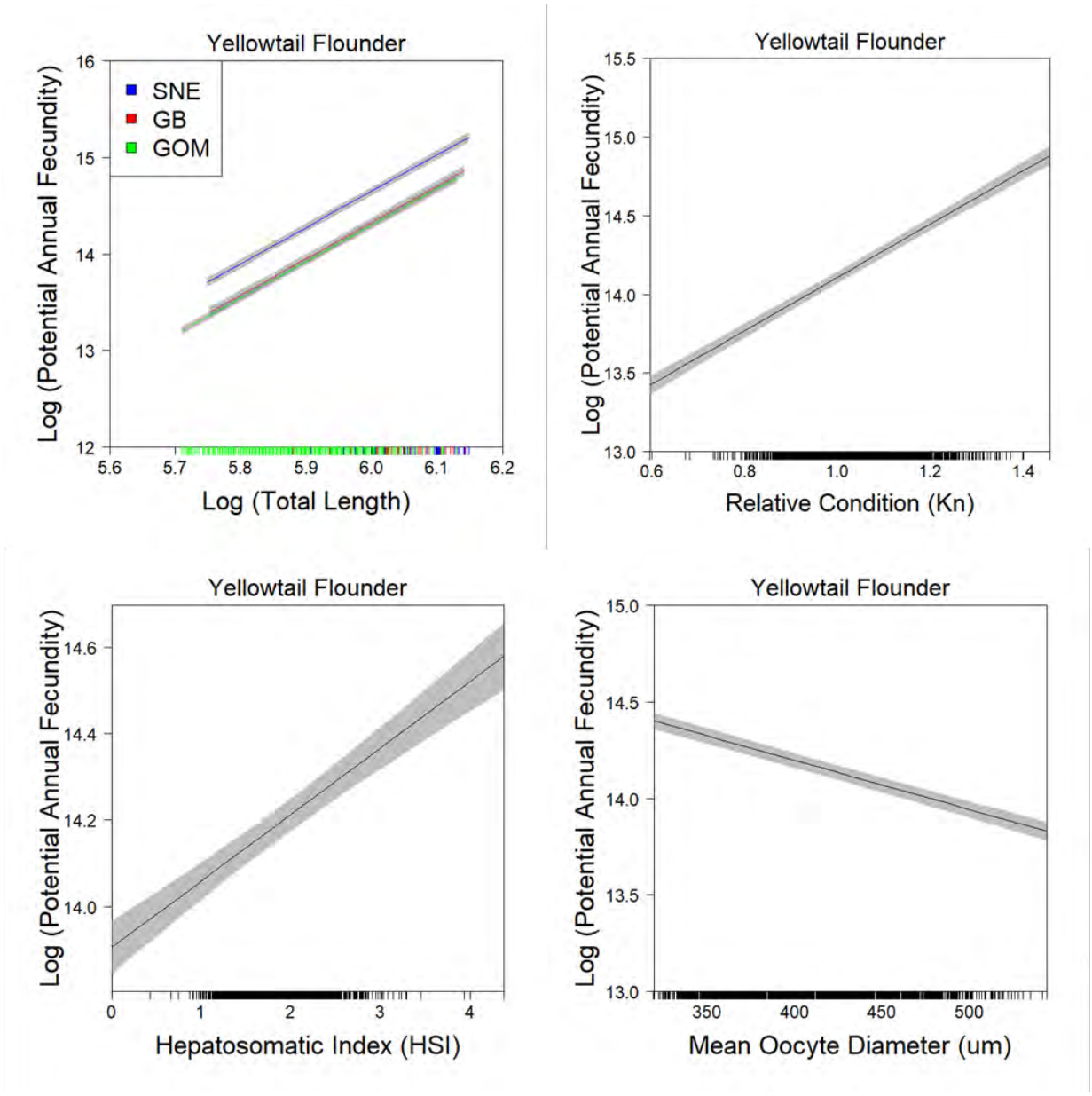


Figure 6. Marginal means partial effects plots for each of the significant quantitative variables in the Yellowtail Flounder fecundity model.

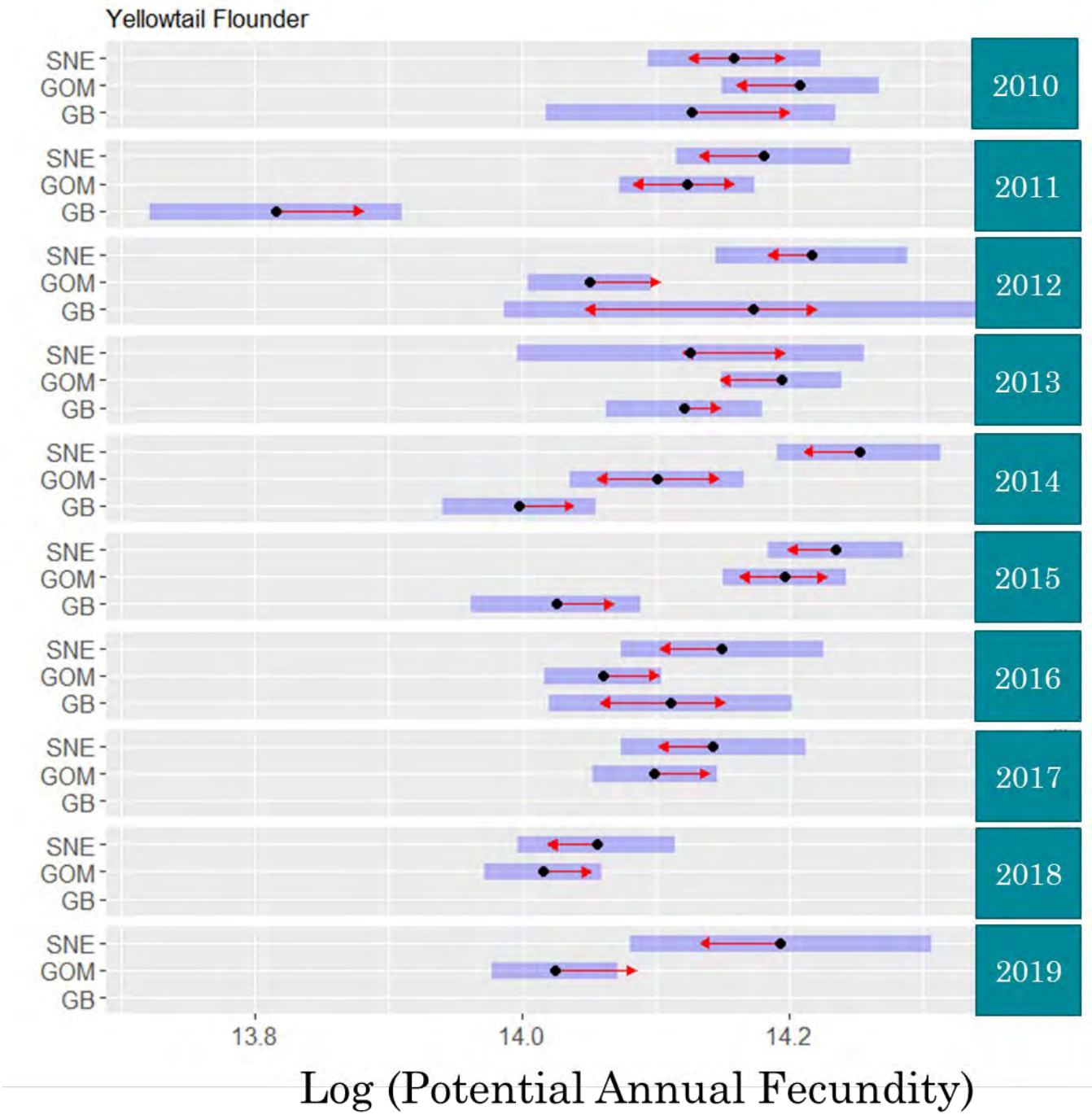


Figure 7. Marginal means partial effects plots for stock effects by year from the Yellowtail Flounder fecundity model.

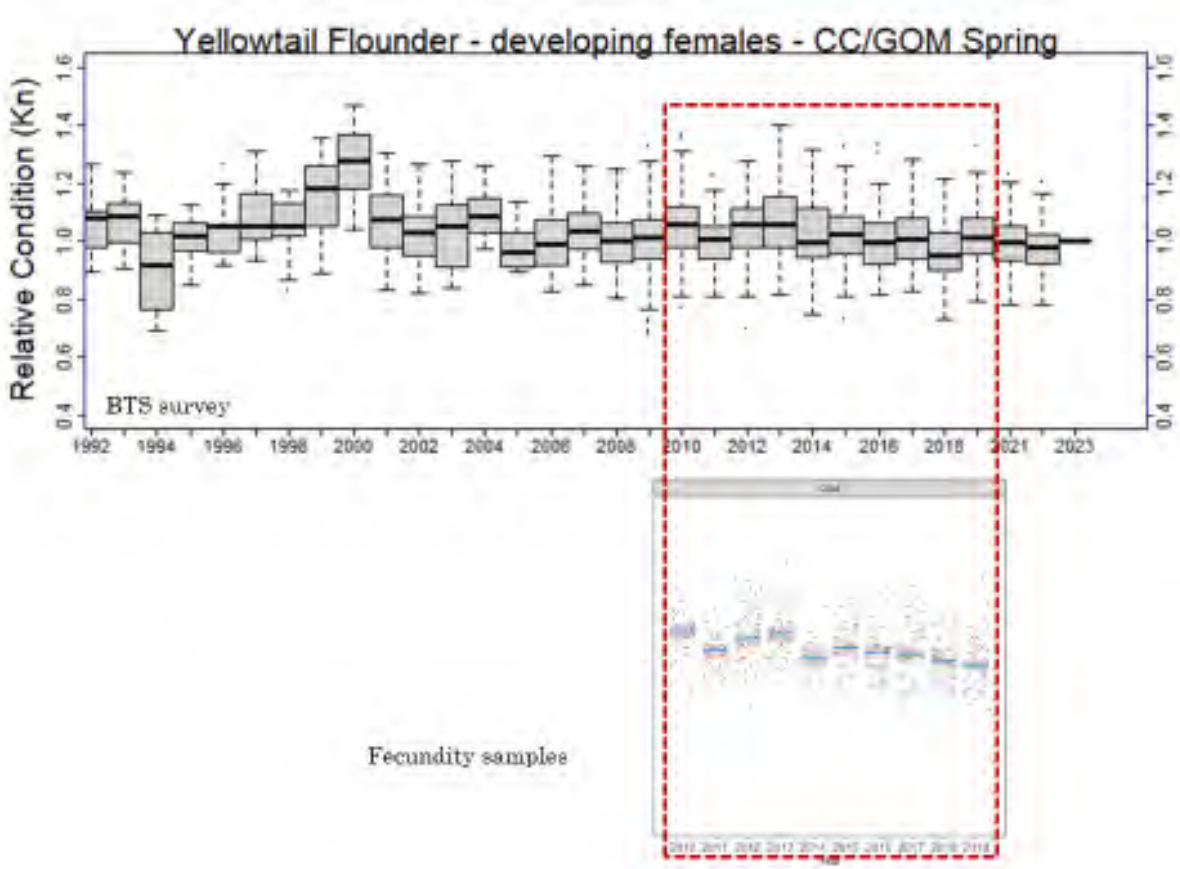


Figure 8. Comparison of trends in relative condition (Kn) for CC/GOM yellowtail flounder mature females collected on the NEFSC spring bottom trawl 1992-2023 to the Kn of fecundity fish analyzed 2010-2019 modeled as a function of hepatosomatic index and mean oocyte diameter.

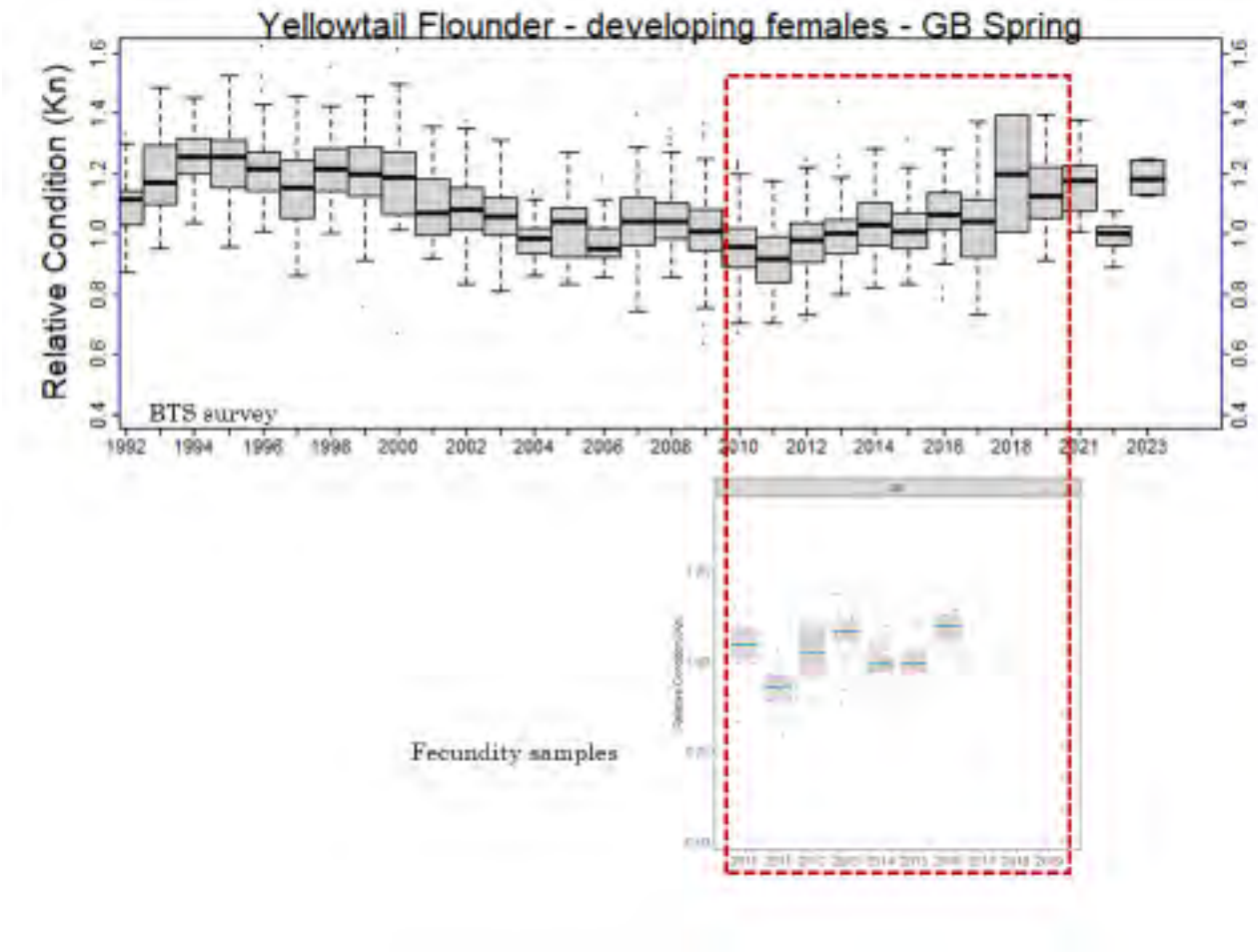


Figure 9. Comparison of trends in relative condition (Kn) for GB yellowtail flounder mature females collected on the NEFSC spring bottom trawl 1992-2023 to the Kn of fecundity fish analyzed 2010-2019 modeled as a function of hepatosomatic index and mean oocyte diameter.

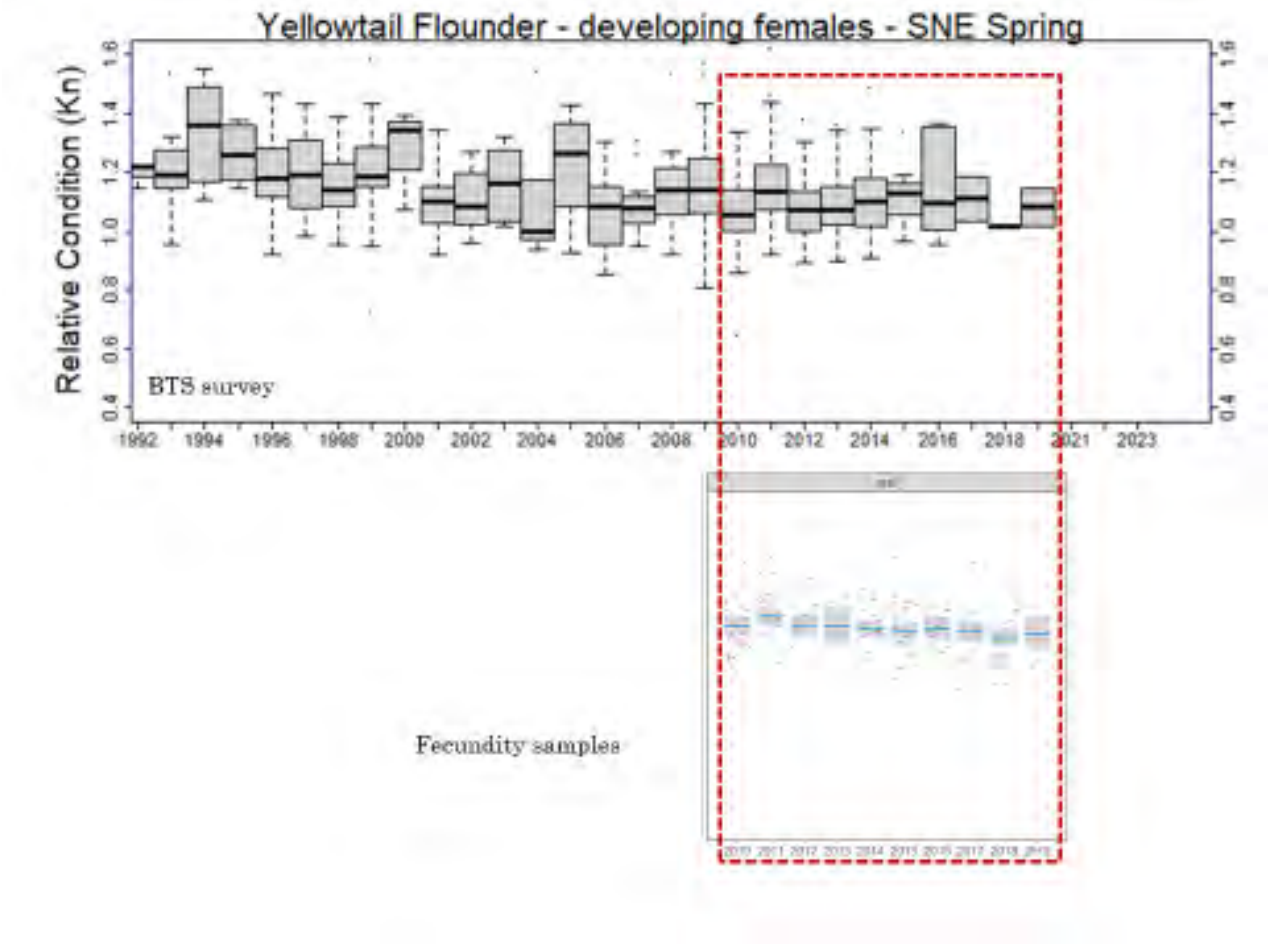


Figure 10. Comparison of trends in relative condition (Kn) for SNE yellowtail flounder mature females collected on the NEFSC spring bottom trawl 1992-2023 to the Kn of fecundity fish analyzed 2010-2019 modeled as a function of hepatosomatic index and mean oocyte diameter.

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M E M O R A N D U M

Date: September 21, 2023

To: Wes Townsend , Chairman, MAFMC

From: Paul J. Rago, Ph.D., Chair, MAFMC Scientific and Statistical Committee (SSC)

Subject: Report of the September 2023 SSC Meeting

Executive Summary

Background

The SSC met in person in Baltimore, MD, and via webinar from 12th - 13th of September 2023, to discuss: offshore wind topics, an update on development of recreational harvest measures setting framework/addenda, various SSC work group reports, an overview of the Commercial Port sampling program, an evaluation of scup discards in the Gear Restricted Areas, and proposed Atlantic Mackerel stock projections.

Offshore Wind

A session themed on fishery adaptation generated substantial interest in the development of telecommunications, simulation, and survey design approaches to address how fisheries will adapt to offshore wind development in the Mid-Atlantic Bight. New methods for evaluating recreational data, including analyses of geolocation of angler-at-sea cell phone lookups for regulation information, were presented. The approach holds promise in more generally informing the spatial distribution of recreational fishing effort. Results from a generalized commercial fishery simulator were presented for surf clams that included an agent-based modeling approach to capture possible commercial captain responses to offshore wind development. Finally, details of a long-term BACI monitoring program addressing how offshore wind development will impact Ocean City Maryland black sea bass fisheries was presented.

Recreational Measures Setting Process

Council timelines for updating the Harvest Control Rules Framework, which sunsets at the end of 2025, with a new framework/addenda were presented to the SSC. Early engagement of the SSC was appreciated.

Commercial Port Sampling Overview

The SSC reviewed recent trends in the Northeast port sampling program. Reductions in total budget, increasing costs, and the low overall number of samples were alarming. Recent improvements via technological advances were appreciated, but these will not be sufficient to offset losses in funding and costs. The SSC suggested that a more comprehensive review of sampling strategy would be useful. If the problems in the Northeast US are being experienced elsewhere in the US then a review by the National Academy of Sciences may be warranted.

Scup Discards and Gear Restricted Areas Analysis

The SSC favorably reviewed the evaluation prepared by Council staff. The closure areas appear to have kept the rate of discard mortality very low (about 2%) since their inception in 2000. It is not possible to establish these areas as THE causal factor for Scup recovery and currently high overall abundance. However, the low discard rates are thought to have contributed to the management success. The SSC did not endorse a special study to relate scup discards to predictive environmental drivers at this time, and identified alternatives analyses for consideration.

Atlantic Mackerel Stock Projection Alternatives

The SSC reviewed and approved a set of seven projection scenarios that will be used for setting ABCs following receipt of the results from the Management Track Assessment for Atlantic Mackerel.

Working Group Updates

The SSC received updates on several ongoing projects of the Ecosystem Work Group. Updates to the OFL-CV process for setting ABCs will be conducted between September 2023 and March 2024; a revised approach will be applied for the 2024 assessments.

Summary Report

Background

The SSC met in person in Baltimore, MD, and via webinar from 12th - 13th of September 2023. The agenda for the meeting and the participants are provided in Attachments 1 and 2, respectively. Topics discussed included: various offshore wind projects and analyses, an update on development of recreational harvest measures setting framework/addenda, an overview of the Commercial Port sampling program, an evaluation of Scup discards in the Gear Restricted Areas, and proposed Atlantic Mackerel stock projections. Reports from various SSC Work Groups were also received.

Meetings of the SSC reflect the combined planning efforts of management and scientific staff. Brandon Muffley, in particular, is thanked for his efforts to coordinate the many topics considered by the SSC. We also thank scientists from the Council, GARFO, and NEFSC for their presentations and working papers. As always, we benefited from timely and insightful comments by members of the public. Members of the SSC are thanked for their rigorous arguments and active participation at the meeting. Finally, we thank Sarah Gaichas for sharing her meeting notes and Tom Miller for leading the discussion to address Terms of Reference on the Council's GRA analyses.

All documents referenced in this report can be accessed via the SSC's meeting website https://www.mafmc.org/ssc-meetings/2023/sept 12-13. The OFL CV framework table that provides the general evaluation metrics associated with the nine decision criteria for each OFL CV bin can be found in Attachment 3. A comprehensive guide to the acronyms in this and earlier reports is found in Attachment 4.

Offshore Wind Topics

Recreational Data Sources

Geret DePiper, NEFSC, summarized recent analyses of fine-scale georeferenced data from recreational fishermen, obtained by cell-phone lookups of fishing regulations. Currently, MRIP data on spatial distribution of fishing effort is summarized coarsely by landing site within states and an inshore vs offshore designation for fishing activity. These designations are part of scientific survey design and can therefore be used to derive estimates for the entire population. In contrast, opportunistic samples at much finer spatial scales can be used to identify loci of fishing activities. This working paper provided a first glimpse of the potential to utilize such data. Data were obtained from a company whose cell phone app called FishRules allows users to obtain georeferenced recreational fishing regulations for individual species. This analysis investigated the hypothesis that such requests, when made at sea, could be used to identify fishing locations. The first step in the request is to look for clusters, then validate fishing activity, and then evaluate locations with respect to wind energy areas. Various likelihood methods, drawn from spatial epidemiology, were used to detect clusters of potential fishing areas

for 11 species. Data were binned into ten-minute squares and compared to VTR data from Charter/Party vessels. Initial comparisons are promising, but the relatively small size of the current dataset (~10,000 cases) makes fine-scale inferences difficult. With further development, a goal is to link fishing activity with presence of wind energy areas and identify potential impacts. Geret noted that the software companies FishRules and FishBrain are presently encouraging partnerships with science to improve information for management.

Discussions by the SSC noted the difficulties of dealing with multispecies fisheries, tracking clusters over time, detecting seasonal changes, and effects of regulations and weather. Larger databases in the future will allow finer spatial and temporal partitioning. The SSC inquired about the process of how locations are generated since inquiries can be made both on land and at sea. The SSC noted that regulatory complexity may induce more requests in some states than others. Concerns were also raised about the avidity of users relative to the overall population of anglers. With respect to angling opportunities in the vicinity of wind areas, it is not clear how accessible sites will be. Data currently available from wind farm areas are unlikely to be predictive of future activities.

Discussions expanded about the general nature of angling as a privilege to use a public resource. Under this principle, routine reporting of activity should be a responsibility. The SSC is well aware of the policy implications and noted that statutory authority exists for such a change. The SSC urged further consideration of this topic by the Council, particularly as usage patterns by commercial and recreation interests are expected to evolve with climate change, wind energy areas, and revisions to MRIP.

Climate Impacts and Wind Energy Areas on Mid-Atlantic Shellfish

Andrew Scheld, College of William and Mary, reported on progress associated with modeling of fleet behavior for commercial clam vessels and potential effects of wind energy areas on behavior, economics, and stock assessments. Displacement from traditional fishing areas, as well as ongoing increases in temperature, are expected to change distributions of Surfclam and Ocean Quahogs. The modeling, developed in collaboration with Rutgers, Old Dominion, and the University of Southern Mississippi includes a Spatially Explicit Fisheries Economic Simulator. SEFES currently operates at a resolution of ten-minute squares. A length-based population model, coupled with a complex agent-based model for choice of fishing areas, is used to simulate stock dynamics and fishing behaviors with and without consideration of wind energy areas. Port locations and availability of processing facilities are also included to evaluate economic impacts. Avoidance of mixed catches of Surfclams and Ocean Quahogs in transition areas is also a factor in guiding behavior and deriving economic costs. Further developments will include consideration of impacts of *de facto* closed areas on stock assessments. More detailed predictions of bottom temperatures are expected from linkages to other oceanographic models.

SSC members inquired about expected behavior of captains, especially with respect to weather conditions and searching behavior, which are currently incorporated into the modeling approach. The overall quota is not expected to have much influence on behavior because it is not limiting, though opportunity costs associated with quota use are considered. Criteria for validating the

model are under investigation for refinement and extrapolation to conditions outside the current conditions. The model may also be useful for interpretation of existing LPUE data in stock assessments, particularly for Surfclams where commercial spatial patterns reflect changes among areas as well as overall abundance. The economics of fishing operations suggest that some vessels operate at a loss. The vertical integration of companies allows these losses to be offset by shoreside mark- ups for finished products.

A member of the public appreciated the flexibility of the model to adapt to changing conditions and its utility for comparing a wide range of future scenarios.

Wind Impacts on Black Sea Bass Fisheries

David Secor, UMd Chesapeake Biological Lab, provided an overview of an industry-sponsored 9-year monitoring program, which has the acronym "TAILWINDS". TAILWINDS is an integrated survey to evaluate how recreational and trap fisheries for black sea bass will be impacted as well as protected marine mammals, including the North Atlantic right whale and includes monthly fishery surveys, and continuous and real-time bioacoustics assets to evaluate the incidence and behaviors of whales, dolphins, porpoises and migratory fishes.

The study exemplifies other academic-industry partnerships now occurring throughout the Mid-Atlantic states designed to understand the impact of offshore wind development on living resources and fisheries. Secor walked through how TAILWINDS conformed with ROSA and BOEM guidance for such studies, emphasizing Before-After-Control-Impact and Before-After-Gradient design elements, hypotheses specific to effect sizes and power analysis, and curtailed cumulative impacts to living resources, particularly protected resources. The SSC noted the limited nature of the fishery surveys – targeting only black sea bass. Secor noted that the survey was indeed "surgical" with intent to follow BOEM guidelines for efficiently evaluating the effects on key fisheries impacted in the development region.

Members of the public inquired about interactions between attraction to sites and rates of removal, if fishing mortality is higher within wind areas. Comparisons with behavior of fish near oil rigs in the Gulf of Mexico may be useful.

Recreational Measures Setting Process

Julia Beaty, MAFMC staff, provided a detailed overview of the process that would be used for updating the Harvest Control Rule approved by the MAFMC in 2022, which implemented the Percent Change Approach. The HCR was used for development of 2023 measures for Black Sea Bass, Summer Flounder, and Scup. It was not applied to Bluefish because that species is currently in a rebuilding plan. The HCR included a sunset provision at the end of 2025 such that work on refining the HCR needs to begin relatively soon.

In response to SSC concerns about the definition of a control rule, the new approach under this Framework/Addenda will be called the Recreational Measures Setting Process. Julia provided an overview of the current methods within the HCR and additional background on advances in methodology, such as the Recreational Demand Model (RDM). The SSC appreciated the

advance notice of Framework development and the opportunity to participate in some future capacity beginning in 2024.

The presentation generated extensive discussion by the SSC, particularly with respect to impacts of recreational harvest measures on commercial fisheries. A key objective of the HCR is to achieve stability in regulations rather than have frequent updates that cause problems over time and among states. The typical suite of measures has many moving parts, so isolating individual factors can be difficult. The SSC noted that stability in regulations creates problems for control of populations and fishing mortality. Undetected overfishing can require substantial changes in regulations between assessment; such lags would offset the initial benefits of stability of regulations. The SSC reiterated earlier concerns about the nature of the "bins" that define the basis for making catch adjustments and the proposed magnitudes of percentage changes in quotas induced by transitions among "bins." Many of the measures have a sound conceptual basis, but simulation analyses are needed to support the magnitudes of such changes, particularly with respect to species. Care needs to be taken to avoid introducing instability into populations through inappropriate discrete responses.

More frequent assessment updates should reduce some of the concerns related to discrete changes. Similarly, advances in modeling approaches might lead to use of control measures based on target F levels rather than predicted harvests. Finally, it was noted that there is often a disconnect between perception and the management process. There may be more benefit in trying to affect the perception rather than to change the management process.

Comments from the public dealt with clarification of the use of HCR in 2023 and 2024, and implementation of new harvest rules in 2026. It was also noted that there are continuing concerns about potential overestimation of fishing effort in the MRIP surveys.

Sarah Gaichas and Geret DePiper reported on the management strategy evaluation (MSE) framework used for Summer Flounder in 2022, which linked a Summer Flounder population model with the RDM in a closed loop framework. That MSE tested seven management procedures by using a variety of metrics developed through an extensive stakeholder process. The existing RDM, in conjunction with the MSE, has significant potential to address many of the topics to be developed for the Recreational Measures Setting Process Framework/Addenda. Examples include thresholds for policy decisions and the magnitude of associated management adjustments.

SSC discussions focused on strategies for implementation and efficacy of measures. Compliance may be an emergent property of the strategy if it could be built into the operating model. Implementation uncertainty and time lags could also be built in. Further advances are likely as part of an iterative process. The Committee noted that the recreational fishery is heterogeneous such that optimizing conditions for one group may not work for another. Pareto optimality analyses may be helpful for evaluating tradeoffs among groups. While long term performance is a basis for selection among policies, the effects of short-term uncertainty often create the stimuli that managers need to address. Hence, some consideration should be given to short-term metrics of catch performance.

Interactions with commercial fisheries also sparked discussion. Recent interactions for Black Sea Bass are likely to occur for other species. Some metric of borrowing among fishery types will need to be developed.

Commercial Port Sampling Overview

Victor Vecchio, GARFO, and Brian Linton, NEFSC, made complementary presentations on recent trends in commercial port sampling. The port sampling program is a complex enterprise requiring sampling over seven geographical regions, four annual quarters, multiple gears, multiple stock areas, and, for many species, market categories. Thirty species are routinely monitored. The SSC appreciated the update on this critical issue for stock assessments. The current sampling program has experienced severe cutbacks in the numbers of sampling events, and numbers of lengths and ages subsampled since 2017. Changes in contractors, increased costs, and reduced total budgets have acted in concert to cause significant declines in numbers of samples taken. For some species, very low landings have made it difficult to fully meet the target sampling goals (i.e., samples are hard to find). Improved technology, including the use of electronic measuring boards and reporting systems, are expected to offset some of these losses in primary sampling units. Electronic monitoring measures (specifically bar coding) also have improved chain of custody issues related to transmittal of samples from the contractors to the NEFSC. Such measures also allow for near real-time monitoring of sampling targets. At the stock level, the effects have not been equal across species. Shortfalls in sampling may be manifest in various and unpredictable ways depending on the manner in which samples must be weighted in response to under-sampling. A full review of the effects has not been conducted but will potentially rely on simulation studies. Brian Linton indicated that such studies cannot be done at present due to staffing concerns, but suggested collaborative projects as a way forward.

SSC comments began with questions about budget priorities and emphasizing the centrality of such sampling for characterizing stock status and informing management. The SSC acknowledged the support for supplemental samples in 2023 provided by the MAFMC, but noted that this was not a long-term fix. The SSC inquired about the definition of the primary sampling unit which is an individual trip. Catches from split trips (i.e., trips that occur in more than one stat area or stock areas) cannot be effectively sampled due to unknown patterns of mixing within the boxes. Subsamples within trips include species and market categories. Sampling agents visit ports, fish houses, and vessels where they are most likely to fill the sampling requests. The potential effects of this selection prioritization are unknown. GARFO staff meet regularly with the contractor to review progress within the year and to compensate for shortfalls when possible.

SSC members suggested several ways to revisit the efficacy of sampling programs, especially some measures instituted in Virginia. Close collaboration with various state-focused programs should yield benefits. An ongoing program with the Commonwealth of Massachusetts was noted.

The SSC emphasized that lack of funding and poor coordination undermines the entire stock assessment enterprise. The critical need should be raised to the highest levels within the Agency.

Less sampling means greater uncertainty and ultimately lower ABCs. Regardless of funding trends, the SSC noted that a more formal method of allocation of sampling effort may be necessary. Individual analysts need to be the fulcrum for this process. Comparisons of length frequency samples among randomly selected vessels would be a good starting point for a more formal examination of the sampling program.

As commercial port sampling is important for almost all Councils (North Pacific fisheries rely on at sea observers), a review by the National Academy of Sciences might be sufficient to elevate the importance of the program and improve sampling efficiency.

The alternative of using observers to obtain biological samples is infeasible in the Northeast for many species because the samples are not sorted by market category on the vessel at the time of the tow. This point begged the question of how the sampling designs might be improved through redesign of the entire program. Electronic systems can be programmed to coordinate cessation of sampling and identify shortfall across the entire sampling frame.

Scup Discards and Gear Restricted Areas Analysis

Jason Didden, MAFMC staff, provided an excellent overview of an analysis of the efficacy of the Gear Restricted Areas (GRA) in the Mid Atlantic. Hannah Hart led the review but was unable to be present. The GRAs were initiated in 2000 with the objective of reducing juvenile Scup discards in small mesh fisheries, especially those for squid. The closed areas boundaries and associated regulations were modified slightly in 2016, but can be viewed as a long-term management experiment. Estimation approaches changed slightly in 2020 with the shift to Catch Accounting and Monitoring System (CAMS), which uses two mesh categories rather than three used previously under the Area Allocation (AA) method. The SSC considered these changes to be relatively minor and do not detract from the overall evaluation. The SSC praises Council staff's review of these areas and their potential role in the rebuilding of scup populations.

Following this presentation and initial discussion, the SSC addressed the Terms of Reference (italics) for the GRA analysis. Responses by the SSC (standard font) to the Terms of Reference provided by the MAFMC are as follows:

Terms of Reference

For the Scup discards and Gear Restricted Areas (GRA) analysis, the SSC will provide a written report that identifies the following:

1. *Comment on the 2023 discard report and GRA analysis and its potential application for science and management considerations. Were the data and methods applied appropriately and do the results and recommendations seem reasonable?;*

The SSC appreciated the extensive and appropriate analysis of catches and discards of scup during GRA implementation. The GRA appears to have shifted spatial distribution of discards,

but overall rates as a proportion of SSB have remained low since implementation. The SSC noted the lack of a performance metric to evaluate GRA effectiveness in meeting management objectives. This begs the question: "What level of discard is considered acceptable?"

The SSC noted that discard totals are expected to increase with population size so that the measure of efficacy of a particular management measure is the slope of the relationship between total discards and population size. Data provided in Figures 9 from the 2023 Draft Commercial Scup Discards Report and GRA Analysis illustrates the correspondence of discards with recent recruitment estimates and also suggest discard rates since 2000 are about 2%, well below the prior 10%. Similarly, the discard rates expressed as a fraction of SSB are similarly high and low, before and after the GRA, respectively. The causality of the reduction in discard rate and rebuilding of the stock could not be established with these analyses. Moreover, the SSC noted that discard rates in 1999, a year before the GRA implementation, were already low. Causes for this low rate are not known but may be due to changes in harvester behavior in anticipation of the closures in 2000. The uncertainty in the discard rates is not presented so it is not possible to support this hypothesis without further analyses. An examination of the age-specific fishing mortality rates on younger age classes before and after the closures may provide additional evidence of efficacy.

Observer coverage increased sharply in 2004, so fine-scale differences in prior discard rates may be difficult to discern. The SSC expressed interest in testing for effects of reduction in the size of the southern GRA since 2017.

2. *Provide any feedback and direction on potential future analysis or modeling approaches that could examine the predictability of scup bycatch, including methods that incorporate environmental data, or any other alternative approaches the Council could consider to continue to reduce commercial scup discards.*

In TOR 1 the SSC suggestions include options that can be accomplished by revisiting data sets used to prepare the Staff report. Under TOR 2 we consider options that would likely require more extensive analysis and evaluation of new data sets.

By imposing some assumptions on historical recruitment estimates and the underlying spatial distribution of Scup, it may be possible to conduct a counterfactual assessment to determine the effect of maintaining earlier discard rates.

If sufficient data are available, spatial modeling distribution of Scup over time relative to the GRAs is recommended. Have the centers of distribution for the population and bycatch changed? Data from the NRHA might be useful for these analyses. Survey, fishery, and experimental data suggest high spatial and temporal variability. More fine-scale data are needed to evaluate and improve seasonal and spatial bycatch management for Scup. Similarly, a requirement for development of a predictive model for discard rates would be an evaluation of changes in physical/habitat variables (SST, bottom temp) over time during the season of GRA closures.

The GRA restrictions have had apparent benefits for Scup, but may have imposed costs on other fisheries such as Longfin Squid and Atlantic Mackerel. An evaluation of the tradeoffs with these stocks would be helpful for evaluating total impacts. What are other drivers of Scup bycatch besides season and area?

The SSC questioned whether additional analyses were needed given that Fig 10 from the draft report (bycatch % of SSB) suggests the bycatch problem has been solved by GRAs. The expected benefits of fine- tuning a process in which discard rates are roughly 2% of SSB should be formally stated.

Research recommendations include:

- Future research would benefit from a clear statement of management objectives in terms of volume of Scup bycatch reduction relative to tradeoffs of other fishery objectives
- Assuming that future analyses or modeling approaches can be developed to predict Scup bycatch, the SSC recommended some thought about how the environmental data would be used and whether dynamic area management could be supported. On the other hand, use of environmental data for discard prediction is an important scientific issue; such implementation details might be ignored initially.
- Can raw discard data be used to evaluate whether there has been a regime shift between pre and post GRA frequency of 0s and address whether data change drives observed change in bycatch?
- Evaluate temporal and spatial changes in physical habitat variables (SST, bottom temp) in GRA closure areas before modeling their effects on bycatch rates.
- Consider previous work on thermal habitat by Manderson et al.
- Couple Roberts et al. (2023) approach with physical model (ROMS, other regional ocean model)
- Evaluate potential impacts of offshore wind areas on small mesh effort in those areas (perhaps minimal) and effects on Scup bycatch

Atlantic Mackerel Stock Projection Alternatives

Jason Didden, MAFMC staff, led a discussion of seven alternative projections that would be used to evaluate alternative OFLs for Atlantic Mackerel. These alternatives will be evaluated by the SSC at its October 30, 2023, meeting following the MTA for Atlantic Mackerel in September. The alternatives were prepared in collaboration with Kiersten Curti, NEFSC. They build upon earlier recommendations of the SSC made in July 2023 and concerns about the apparent overestimation of recruitment in recent assessments. These disparities have resulted in overly optimistic expectations of rebuilding. The proposed scenarios reflect progressively less optimistic expectations of contemporary abundance estimates.

After discussion, the SSC agreed that the scenarios were well designed for evaluating alternatives, and should cover the range of feasible options consistent with the Council's desire for a constant two-year harvest quota in 2024 and 2025.

Working Group Updates

Ecosystem Working Group Report

Sarah Gaichas, NEFSC, provided an overview of the objectives of the Ecosystem Working Group (WG) established in May 2021 to:

- Clarify the ecosystem criteria for the OFL CV process
- Develop prototype processes for multispecies and system level scientific advice
- Collaborate with assessment leads to incorporate Ecosystem Terms of Reference in Research Track Assessments.

Effects of environmentally driven recruitment on ABC decisions are being examined by Mike Wilberg (U Md) and John Wiedenmann (Rutgers) via simulation studies. The WG is also providing significant input to the Council's EAFM process through the refinement of ecosystem overfishing indicators. Analyses suggest that methods that incorporate regional productivity measures are more appropriate than methods based on global productivity. Simulations are planned for the NE US Atlantis ecosystem model. Single species considerations will be addressed within this framework. An Index Numbers approach (Walden and DePiper 2023) has demonstrated utility in characterizing ecosystem performance. Ecosystem and Socio-Economic Profiles (ESP) are currently in development but recent staffing changes are impeding full development.

The SSC raised questions about measures of diversity among recreational users and species.

OFL CV Working Group

The SSC's process for setting the Acceptable Biological Catch (ABC) relies on the Council's risk policy for overfishing and an evaluation by the SSC of appropriate level of uncertainty for the Overfishing Limit (OFL) obtained from the stock assessment. The level of uncertainty is defined as the coefficient of variation (CV) of the OFL (OFL CV). The difference between the OFL and ABC increases as the OFL CV increases. In a nutshell, increases in uncertainty result in lower catch limits. The process of defining the OFL CV involves an evaluation of nine factors based on attributes of the stock assessment (See Attachment 3). Simulation studies have suggested that three levels of OFL CV are sufficient to span the range of uncertainty. Each factor is evaluated against specific criteria and, after discussion, the SSC assigns each factor a CV level. Finally, an overall evaluation of the nine factors is used to define the appropriate overall CV for the OFL. The focus is to work through the process rather than to justify a specific decision.

One mark of a good procedure is that it provides a consistent response. While the procedure is complex, it is also designed to be transparent such that the basis for determination is a matter of record. To ensure that the process continues to evolve in response to new models, stock status, and fisheries, the SSC has initiated a review of the OFL CV process that will be completed by March 2024. To meet this goal, the SSC will meet regularly between now and then to address the decision matrix and review recent applications of the method.

The SSC reviewed results of an initial meeting held on August 24, 2023, that included a number of suggestions for improvement and review. The topics and SSC discussions are described below:

- Modify or Remove the criteria for MSE.
    - Rationale—Full scale MSE studies can be exceptionally costly to develop and implement. Such studies have not been conducted to date, but less intensive approaches have been used for model evaluation.
    - Discussion—Work towards refining the criteria to allow credit for less intensive MSE applications.

- Consider a streamlined process for setting ABCs when B/BMSY exceeds 1.5.
    - Rationale—Selection of OFL CV has little effect on the ABC when B/Bmsy exceeds 1.5 because the Council's risk for overfishing is set to 0.49. A default level specification would be more efficient.
    - Discussion—The SSC clarified that while the OFL and ABC will increase with increasing stock size, the fishing mortality rate cannot exceed Fmsy proxy. "Fishing down" a stock by allowing F>Fmsy is not allowed under the MSA. One option would be to set a default OFL CV when B>Bmsy but consider the contingency that B/Bmsy could fall below the 1.5 threshold during the projection period.

- Consider dropping the requirement for an interim review of data for two-year projection period.
    - Rationale—For most MAFMC stocks, assessments will be updated every two years via Management Track Assessments. To date, the SSC has reviewed previous ABC recommendations during each year of the projection period, irrespective of its duration. In each instance, the SSC has concluded that data have been insufficient to justify modification of previous recommendations. Moreover, no specific criteria have been developed that would justify the magnitude of an adjustment. Another consideration is that it is unclear if management changes could be made in a timely fashion.
    - Discussion—The SSC noted that this provision should not apply to stocks under a rebuilding plan. Another alternative might be to update the projection for the interim year conditioned on the magnitude of removals that have actually taken place, rather than estimates of removals that were used to create the original projection. This would integrate new information in the context of original

assessment rather than introduce an *ad hoc post hoc* approach. The SSC also noted that the wide range of life histories for MAFMC stocks would require adjustments to account for the differences between short-lived squid and long-lived clams. Overall, the SSC expressed some reservations about streamlining the process too swiftly before the potential contingencies could be evaluated.

- Consider modification of the process when state-space models are used.
    - Rationale—State-space models are rapidly changing the assessment landscape by addressing stock uncertainty in a more comprehensive way than previous models. Consideration should be given to modifying the process.
    - Discussion—A Research Track Assessment is nearing completion and will be reviewed later this fall. The SSC recommends using the results of the RTA before making changes to the OFL CV decision matrix.

- Ensure that concerns of all SSC members are considered when scoring OFL CV factors
    - Rationale—Assessment leads on SSC are responsible for the initial draft of OFL CV decision matrix. Concerns were expressed that steps should be taken to ensure all members views are considered before rendering a final decision.
    - Discussion—The SSC noted that having a transparent process was essential for deriving the OFL CV. Transparency also requires that the decisions are NOT made in advance prior to open discussion in a public forum. Hence, the process explicitly avoids specification of levels prior to the meeting. Instead, the key lines of reasoning are summarized but no scores are set in advance. To ensure that all concerns are heard, the SSC recommended that all members prepare opinions on scoring prior to the plenary meetings. By precedent, the SSC seeks to achieve consensus on decisions rather than rely on voting. It is expected that this precedent will continue. The SSC noted that the Decision Matrix should be reviewed at each meeting before it is applied for the first time. The methodology is posted on the web and paper handouts are recommended for distribution to members of the public in attendance. Consultations with user groups are also recommended to determine if the process is transparent and understood.

- Revisit the summary narrative for determining the overall OFL CV
    - Rationale—The summary narrative integrates the collective judgment of SSC on the appropriate CV, but the implicit weightings of factors is not clear
    - Discussion—The SSC noted the perils of false quantification of the Decision Matrix. A particular concern was that some criteria, such as data quality, have a dominant overarching effect that cannot be offset by improvements in other factors. Future revisions to the Decision Matrix should make this distinction clear. This might be accomplished by including a preamble that specifies the process for synthesis more clearly. Another way of addressing this topic would be to estimate the implied weighting of criteria based on past performance.
    - The SSC also emphasized the need for realism in projections—adjustments should always be based on direct evidence of rebuilding rather than projections.

- Evaluate the process when ABC recommendations are not based on assessment update
    - Rationale—Delivery of assessment results can be delayed for many reasons. The SSC should plan for such contingencies by modifying this particular evaluation process.
    - Discussion—The SSC should anticipate delays in future assessments owing to unavoidable delays and unanticipated problems. Further work is needed on how to treat such instances systematically.

Additional material: Bi et al.- https://onlinelibrary.wiley.com/doi/full/10.1111/faf.12714

Alternative stock performance metrics

Paul Rago presented a report on a methodology that may be useful for characterizing changes in Biological Reference Points between assessments. The concept of dynamic biological reference points is often cited as a consequence of changes in ecological processes or responses to management measures. In collaboration with Brian Rothschild, a methodology was developed to partition the effects of growth, selectivity, maturity, natural mortality, and recruitment on the overall estimates of maximum sustainable yield and the proxy value for SSB at MSY. The methodology relies on approaches originally applied in human demography. The benefit of partitioning (or decomposing) the total change into its component factors is that effects of ecosystem changes and population density can be isolated from changes that are due to modeling decisions or responses to fishery regulations. The method was applied to recent stock assessments for Georges Bank Haddock, Bluefish, and Summer Flounder. Changes in BRPs for Haddock are primarily driven by reductions in average weights at age, although these effects are offset somewhat by an increase in the average age in the fishery. In contrast, changes in Bluefish are driven by the recent use of an alternative function of natural mortality at age.

SSC comments included questions about possible genetic selection for smaller size in Haddock. This method could not distinguish genetic selection from density dependence. Uncertainty in the estimates can be addressed in a variety of ways, possibly using the Sobol method described in the working paper. Further development of the method was encouraged.

Other Business

Upcoming events include:

- Joint MAFMC and NEFMC SSC subgroup to review information for updating EFH designations meeting in September. Ed Houde, John Boreman, and Yan Jiao will represent our MAFMC.
- October 30 full SSC webinar for Atlantic Mackerel MT assessment and specs for Spiny Dogfish.
- Subgroups will meet for OFL CV prior to March 2024

- Peer review needs in 2024 include a chair for the Golden Tilefish RTA in March 2024. An SSC member to chair and serve as a reviewer for the June 2024 MTA review for Black Sea Bass and Golden Tilefish.
- The Scientific Coordination Sub-Committee (SCS) will convene its Eighth national meeting on August 26-28, 2024 in Boston. NEFMC will be the host. The theme will be the application of ABC control rules in a changing environment. Possible sub-themes include:
    - how to integrate social science information,
    - data availability and modeling needs to support assessments including climate change and variations,
    - regime shifts and recruitment with projection implications.
    - case studies from each region are anticipated.

Attachment 1

Mid-Atlantic Fishery Management Council

Scientific and Statistical Committee Meeting

September 12 – 13, 2023

Royal Sonesta Harbor Court Baltimore (550 Light Street, Baltimore, MD)
or via Webex webinar

This will be an in-person meeting with a virtual option. SSC members, other invited meeting participants, and members of the public will have the option to participate in person at the Royal Sonesta Harbor Court Baltimore or virtually via Webex webinar. Webinar connection instructions and briefing materials will be available at Council's website: https://www.mafmc.org/council-events/2023/september-2023-ssc-meeting.

AGENDA

Tuesday, September 12, 2023

10:00 Welcome/Overview of meeting agenda (P. Rago)

10:05 Offshore Wind Session

- New tools for tracking recreational effort within wind projects (G. DePiper)
- Offshore wind development and climate impacts on mid-Atlantic commercial shellfish fisheries (A. Scheld)
- Team for Assessing Impacts to Living resources from offshore WIND turbineS (TailWinds): study on the impact of the US Wind MarWin project on Black Sea Bass fisheries, migratory fishes, and marine mammals (D. Secor)

12:30 Lunch

1:30 Update on the Development of the Recreational Measures Setting Process Framework/Addenda

- Overview of framework/addenda development, timelines, and potential SSC engagement (J. Beaty)
- Overview of proposed Recreational Demand Model and Management Strategy Evaluation analysis to support action (G. DePiper, S. Gaichas)

3:00 Break

3:15 SSC Work Group Updates

- Ecosystem Work Group (S. Gaichas)
  - EAFM risk assessment review (B. Muffley)
- Overfishing Limit (OFL) Coefficient of Variation (CV) Sub-Group (P. Rago)
- Alternative Stock Performance Metrics Sub-Group (P. Rago, B. Rothschild)

5:15 Adjourn

Wednesday, September 13, 2023

8:30 Northeast Commercial Port Sampling Overview (V. Vecchio, B. Linton)

- Administration, sampling design and targets, recent/future status

9:45 Scup Discards and Gear Restricted Area (GRA) Review

- Overview of new commercial Scup discards and GRA analysis (J. Didden)
- SSC discussion and address Terms of Reference

11:15 Break

11:30 Mackerel Stock Assessment and Projection Update

- Overview of recent and updated analysis for September Management Track peer review (K. Curti, J. Didden)

12:30 Other Business

- Remaining 2023 SSC schedule
- Update on 2024 Scientific Coordination Subcommittee workshop

1:00 Adjourn

Note: agenda topic times are approximate and subject to change

Attachment 2

MAFMC Scientific and Statistical Committee

September 12-13, 2023

Meeting Attendance in Person and via Webinar

Name	Affiliation
Paul Rago (SSC Chairman)	NOAA Fisheries (retired)
Tom Miller	University of Maryland – CBL
Ed Houde	University of Maryland – CBL (emeritus)
Dave Secor	University of Maryland – CBL
John Boreman	NOAA Fisheries (retired)
Jorge Holzer	University of Maryland
Yan Jiao	Virginia Tech University
Sarah Gaichas	NOAA Fisheries NEFSC
Wendy Gabriel	NOAA Fisheries (retired)
Cynthia Jones	Old Dominion University
Geret DePiper	NOAA Fisheries NEFSC
Andrew Scheld	Virginia Institute of Marine Sciences
Mark Holliday	NOAA Fisheries (retired)
Olaf Jensen	U. of Wisconsin-Madison
Rob Latour	Virginia Institute of Marine Sciences

Others in attendance (only includes presenters and members of public who spoke):

Jason Didden	MAFMC staff
Brandon Muffley	MAFMC staff
Kiersten Curti	NEFSC
Brian Linton	NEFSC
Victor Vecchio	GARFO
Julia Beaty	MAFMC staff
James Fletcher	United National Fisherman's Assoc.
Greg DiDomenico	Lund's Fisheries
Jeff Kaelin	Lund's Fisheries
Mike Waine	American Sportfishing Assoc.
Des Kahn	DE DNREC (retired)
Renee Reilly	ROSA
Ron Larsen	Sea Risk Solutions

Attachment 3

OFL CV Decision Table Criteria (updated June 2020)

Decision Criteria	Default OFL CV=60%	Default OFL CV=100%	Default OFL CV=150%
Data quality	One or more synoptic surveys over stock area for multiple years. High quality monitoring of landings size and age composition. Long term, precise monitoring of discards. Landings estimates highly accurate.	Low precision synoptic surveys or one or more regional surveys which lack coherency in trend. Age and/or length data available with uncertain quality. Lacking or imprecise discard estimates. Moderate accuracy of landings estimates.	No reliable abundance indices. Catch estimates are unreliable. No age and/or length data available or highly uncertain. Natural mortality rates are unknown or suspected to be highly variable. Incomplete or highly uncertain landings estimates.
Model appropriateness and identification process	Multiple differently structured models agree on outputs; many sensitivities explored. Model appropriately captures/considers species life history and spatial/stock structure.	Single model structure with many parameter sensitivities explored. Moderate agreement among different model runs indicating low sensitivities of model results to specific parameterization.	Highly divergent outputs from multiple models or no exploration of alternative model structures or sensitivities.
Retrospective analysis	Minor retrospective patterns.	Moderate retrospective patterns.	No retrospective analysis or severe retrospective patterns.
Comparison with empirical measures or simpler analyses	Assessment biomass and/or fishing mortality estimates compare favorably with empirical estimates.	Moderate agreement between assessment estimates and empirical estimates or simpler analyses.	Estimates of scale are difficult to reconcile and/or no empirical estimates.
Ecosystem factors accounted	Assessment considered habitat and ecosystem effects on stock productivity, distribution, mortality and quantitatively included appropriate factors reducing uncertainty in short term predictions. Evidence outside the assessment suggests that ecosystem productivity and habitat quality are stable. Comparable species in the region have synchronous production characteristics and stable short-term predictions. Climate vulnerability analysis suggests low risk of change in productivity due to changing climate.	Assessment considered habitat/ecosystem factors but did not demonstrate either reduced or inflated short-term prediction uncertainty based on these factors. Evidence outside the assessment suggests that ecosystem productivity and habitat quality are variable, with mixed productivity and uncertainty signals among comparable species in the region. Climate vulnerability analysis suggests moderate risk of change in productivity from changing climate.	Assessment either demonstrated that including appropriate ecosystem/habitat factors increases short-term prediction uncertainty, or did not consider habitat and ecosystem factors. Evidence outside the assessment suggests that ecosystem productivity and habitat quality are variable and degrading. Comparable species in the region have high uncertainty in short term predictions. Climate vulnerability analysis suggests high risk of changing productivity from changing climate.
Trend in recruitment	Consistent recruitment pattern with no trend.	Moderate levels of recruitment variability or modest consistency in pattern or trends. OFL estimates adjusted for recent trends in recruitment. OFL estimate	Recruitment pattern highly inconsistent and variable. Recruitment trend not considered or no recruitment estimate.

		appropriately accounted for recent trends in recruitment.	
Prediction error	Low estimate of recent prediction error.	Moderate estimate of recent prediction error.	High or no estimate of recent prediction error.
Assessment accuracy under different fishing pressures	High degree of contrast in landings and surveys with apparent response in indices to changes in removals. Fishing mortality at levels expected to influence population dynamics in recent years.	Moderate agreement in the surveys to changes in catches. Observed moderate fishing mortality in fishery (i.e., lack of high fishing mortality in recent years).	Relatively little change in surveys or catches over time. Low precision of estimates. Low fishing mortality in recent years. "One-way" trips for production models.
Simulation analysis/MSE	Can be used to evaluate different combinations of uncertainties and indicate the most appropriate OFL CV for a particular stock assessment.		

Attachment 4: Glossary (cumulative from previous SSC reports)

AA—Area Allocation Approach
ABC—Acceptable Biological Catch
ACCSP—Atlantic Coastal Cooperative Statistics Program
AGEPRO—Age Projection software
APAIS—Access Point Angler Intercept Survey
ASMFC—Atlantic States Marine Fisheries Commission
B_{msy}—Biomass at Maximum Sustainable Yield
CAMS—Catch Accounting and Monitoring System
CCC—Council Coordination Committee
CIE—Center for Independent Experts
CPUE—Catch Per Unit Effort (Catch=Landings+ Discards)
CV—Coefficient of Variation
DFO—Department of Fisheries and Oceans, Canada
EAFM—Ecosystem Approaches to Fisheries Management
ESP—Ecosystem and Socio-economic Profiles
F_{msy}—Fishing mortality at maximum sustainable yield
FSV—Fishery Survey Vessel
FMAT—Fishery Management Action Team
GARFO—Greater Atlantic Region Fisheries Office
HCR—Harvest Control Rule
GRA—Gear Restricted Area
LPUE—Landings per Unit Effort
M—Instantaneous Rate of Natural Mortality
MRIP—Marine Recreational Information Program
MTA—Management Track Assessment
MSE—Management Strategy Evaluation
NEFSC—Northeast Fisheries Science Center
NRHA—Northeast Regional Habitat Assessment
OFL—Overfishing Limit
P*—Probability of Overfishing
PSE—Proportional Standard Error
RDM—Recreational Demand Model
RHL—Recreational Harvest Limit
RMSP—Recreational Measures Setting Process
RTA—Research Track Assessment
R/V—Research Vessel
SCS—Scientific Coordination Subcommittee
SEDAR—Southeast Data, Assessment, and Review
SSB_{msy}—Spawning stock biomass at maximum sustainable yield
SSC—Scientific and Statistical Committee
TAILWIND—Team for Assessing Impacts to Living resources from offshore WIND turbineS

UTID-- Universal Trip Identifier
VAST—Vector Autoregressive Spatio-Temporal
WHAM—Woods Hole Assessment Model

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MEETING SUMMARY

Monkfish Committee

Webinar
September 13, 2023

The Monkfish Committee met on September 13, 2023, via webinar at 9:00 AM to 1) receive Advisory Panel comments on recent fishery performance and outlook for the remainder of fishing year (FY) 2023; 2) review the outcomes and recommendations of the Monkfish Research-Set-Aside (RSA) Working Group and make recommendations to the Council on next steps with the RSA program; and 3) make recommendations to the Council for monkfish-related work in 2024.

MEETING ATTENDANCE: Mr. Matt Gates (Monkfish Interim Chair), Mr. Peter Hughes (Vice-Chair), Mr. Dan Farnham, Mr. Eric Hansen, Mr. Scott Olszewski, Mr. John Pappalardo, Mr. Alan Tracy, Mr. Paul Risi, Mr. Robert Ruhle, and Ms. Kelly Whitmore; Dr. Rachel Feeney (Plan Development Team (PDT) Chair), Ms. Jenny Couture, and Ms. Janice Plante (Council staff); Mr. Ryan Silva (NMFS GARFO staff); Ms. Jackie Odell (incoming NEFMC member); Mr. Ted Platz (Advisory Panel Chair). In addition, about three members of the public attended.

KEY OUTCOMES:

- On Monkfish RSA Working Group outcomes and recommendations, the Committee recommended:
    - That the Council develop an action in 2024 to improve the Monkfish RSA program, further considering the recommendations of the RSA Working Group.
    - That the Council send a letter to GARFO to encourage uptake of the communication improvements recommended by the RSA Working Group that are under the purview of NOAA Fisheries.
- Regarding recommendations to the Council for 2024 monkfish-related work, the Committee recommended the ideas generated by the PDT and the AP should be forwarded for consideration.

INTRODUCTIONS, APPROVAL OF AGENDA, AND OTHER UPDATES:

The Chair introduced the Committee, welcomed attendees, and sought approval of the agenda. New Committee member Robert Ruhle was welcomed. There were no agenda changes. The timeline for 2023 monkfish work was reviewed. Staff provided an update on year-end annual catch limit (ACL) accounting for FY 2022, Framework Adjustment 13 implementation, and FY 2023 in-season quota monitoring.

A Committee member asked for clarification on the fishery performance data and how the reduction in the ACL relates to the last stock assessment. Staff explained that the monkfish stock assessment was completed last year using the Ismooth approach and a modification was used to set the specifications. The next management track assessment is scheduled for 2025 and there are two current monkfish RSA projects that plan to develop an industry-based catch per unit effort (CPUE) index to

help inform future assessments. The Committee member noted that the monkfish fishery in the Portland, Maine area is growing, and he is receiving questions on the status of the fishery.

AGENDA ITEM #1: MONKFISH ADVISORY PANEL REPORT

Advisory Panel (AP) Chair Mr. Ted Platz provided AP input on how the monkfish fishery is performing, focusing on FY 2022 and how FY 2023 is progressing, noting challenges related to the closing of Blue Harvest Fisheries impacting fishermen incidentally catching monkfish in the northern management area, skate abundance limiting ability to catch monkfish in the southern management area, decreasing price for monkfish, and increasing shipping cost. AP members supported efforts to improve the RSA program, and the Chair noted specific areas of input and suggested clarifications for the report. The Chair reported the AP's recommendations for 2024 work priorities: an action to define and reduce latent effort and an action to consider managing monkfish and skates under the same management plan.

A new Council member asked if staff included any data on latent fishing effort in the meeting materials given the recurring concern of latent effort in the southern management area. Staff did not as this topic was not on the agenda, but noted that data are in Framework 13, Section 5.1. The AP Chair suggested looking at how many permits are within permit banks as an estimate of the number of permits that would not be activated to allay concerns. A Committee member asked whether moving to a quota-based management system versus the current day-at-sea (DAS) system would alleviate the problem where one species is inhibiting the harvest of another species (e.g., skates and monkfish, respectively). The AP Chair thought that managing skates and monkfish together would help improve overall efficiency and help address latent effort. Lastly, the Committee briefly discussed how the Chapter 7 declaration of Blue Harvest Fisheries is likely going to impact fishing in New England. There was a question regarding what would happen to those permits and quota, especially those within the groundfish sector. GARFO staff noted that those permits would remain with the vessels, like any limited access permit, and that the permits would go into confirmation of permit history if the vessels were no longer operational. He suggested following up with Pete Christopher from GARFO.

AGENDA ITEM #2: MONKFISH RESEARCH-SET-ASIDE WORKING GROUP

Staff reviewed the Monkfish RSA Working Group outcomes and recommendations which were developed to improve the Monkfish RSA Program's effectiveness. The working group met three times over the summer and recently developed final recommendations. The Committee can make recommendations to the Council on next steps for improving the program. These steps can be related to improving communication, actions that NOAA Fisheries could take to improve program administration, or actions that the Councils would need to take to revise fishery regulations related to the RSA program. The Council will receive the Committee input including any recommendations during its September meeting.

The Committee spoke at length about the mismatch between how RSA DAS and pounds are calculated and any handshake agreements between researchers and the fishing industry participants. Staff clarified that each project has an overall DAS cap and poundage cap, calculated by setting each RSA DAS to be equal to double the possession limit for vessels with permit categories A and C fishing in the Southern Fishery Management Area (4,074 lb whole weight per RSA DAS). The project recipients receive the number of RSA DAS based on their research budget, which is based on the value of the RSA DAS. Exempted Fishing Permits (EFPs) do not specify how much a vessel is allowed to harvest as that is established between the researcher and an individual vessel. The RSA program office is not involved in these interactions and the EFP is likely not a legal instrument to stipulate that fishermen should pay for the equivalent amount of RSA DAS based on how many pounds are landed. The researcher is responsible for any written contracts to ensure the project budget is met. GARFO RSA staff noted that if vessels are not actually paying for the equivalent amount of

RSA DAS based on their landings, then the research won't be able to be done and that adjustments to the program should be made. He suggested the RSA program could improve its communication with the research industry on expectations and requirements of researchers and could consider providing sample contracts for researchers to use to have a more binding agreement with the fishing industry.

A Committee member asked whether fishermen are allowed to use their RSA landings on another trip if they do not harvest the full 4,074 lb on one Monkfish RSA DAS, like what is done in the scallop fishery. Staff clarified that no, that is not currently allowed and that is the impetus for recommending flexibility to flip to a Monkfish RSA DAS while at sea. There is inherent risk in buying a Monkfish RSA DAS before leaving the dock. The member was interested in whether allocating RSA quota in pounds versus DAS would help.

Another Committee member asked how the RSA program results are used in stock assessments. He was frustrated with the bottom trawl survey results and the overall assessment process. Staff noted how the scallop dredge discard mortality rate was used in last year's monkfish assessment and that she agreed there needs to be better communication between the RSA program and the NEFSC assessment scientists to help ensure RSA reports are incorporated accordingly into stock assessments.

A Committee member emphasized the importance of standardized formats for RSA final reports to help with ease of reading the reports across projects. GARFO staff noted that NOAA cannot legally require a specific format for final reports and that most projects already follow a similar format with additional narrative information, which differs across projects. If the Committee is interested in adding additional information or clarifying anything within the final reports, this can be done through work with the RSA program office. The new Council member reiterated the importance of RSA research and the need to improve the monkfish assessment approach including gathering additional data and conducting additional research, especially before the next stock assessment taking place in a few years. A Committee member suggested a memo that could be provided to the fishing industry on how information flows from the RSA final reports into the assessment process to help incentivize more industry participation. The AP Chair noted that the Monkfish RSA program has shifted priorities more recently towards improving the monkfish stock assessment; previously the program focused on stock movement, growth, diet, and ageing.[1]

Lastly, a Committee member made a couple of minor corrections to the slide to improve consistency.

1. MOTION: HUGHES/PAPPALARDO

The Committee recommends to the Council an action in 2024 to improve the Monkfish RSA Program, further considering the recommendations of the RSA Working Group. For example, consider streamlining the Exempted Fishing Permit process, allocating pounds versus DAS, allowing vessels to flip to an RSA DAS while at sea, etc.

Rationale: The Committee does not want to lose the momentum on the Monkfish RSA Working Group's discussion. The Committee would like to further discuss the many ideas generated, including those identified as higher and lower priorities by the working group.

Discussion on the motion: The Committee thought the Working Group had several strong recommendations and wanted to continue making progress on improving the Monkfish RSA program. The Committee briefly discussed a few items that likely do not need a Council action including publishing the request for proposals earlier. Streamlining the EFP process may not require Council action depending on the specifics. The group wanted to explore the possibility of converting to a weight-based RSA quota system rather than the DAS system currently in place. The AP Chair asked the Committee to describe how this change would impact other species given both effort controls were established for a reason. The Committee briefly spoke to this, noting that their intention

[1] Staff note that these earlier priorities supported assessment needs at the time.

was not to incentivize fishing on other species but that more discussion and public meetings will be held next year if this action is prioritized by the Council.

MOTION #1 ADOPTED BY CONCENSUS.

2. MOTION: WHITMORE/HUGHES
The Committee recommends that the Council send a letter to GARFO to encourage uptake of the communication improvements recommended by the Monkfish RSA Working Group that are under the purview of NOAA Fisheries.

Rationale: Many improvements to the program can be made outside of what would require Council action and the Committee would like to see forward progress on them.

Discussion on the motion: GARFO staff was uncertain whether certain communication improvements would be within the sole purview of NOAA versus in collaboration with the Council, namely the RSA Share Day recommendation.

MOTION #2 ADOPTED BY CONCENSUS.

AGENDA ITEM #3: RECOMMENDATIONS FOR MONKFISH-RELATED WORK IN 2024

Staff presented the Monkfish PDT memo outlining recent Council work priorities and proposed potential priorities for 2024. Staff also presented input received from the AP. The Committee can develop recommendations for the Council to consider for 2024 monkfish related work priorities during its late September meeting. The NEFMC will receive work priority recommendations from all committees and undergo a ranking exercise over the fall. The MAFMC will receive an update and have an opportunity to discuss it during its October meeting. The NEFMC will make final decisions in December.

A Committee member asked whether the PDT recommendations regarding a review of the effectiveness of the monkfish and skate fishery management plans (FMP) encompassed ideas from the AP. Staff answered that the AP was interested in initiating an action to combine FMPs while the PDT was interested in first reviewing whether and how those two fisheries could be managed more efficiently before initiating an action.

Another Committee member asked how latent fishing is defined and whether the AP was interested in addressing latent fishing in the directed monkfish fishery and/or the incidental fishery. Staff and the AP Chair thought the intention was on the directed monkfish fishery. One idea to address latent effort included looking at how many permits are held within permit banks and the number of limited access permits on trawlers and longline vessels in the Mid-Atlantic region that are being constrained to incidental fishing given most of the directed fishing occurs on gillnet gear.

3. MOTION: PAPPALARDO/HUGHES: The Committee recommends that ideas generated by the PDT and AP should be forwarded for consideration for 2024 priorities. The Committee forwards these without any ranking of priorities.

- Required: Complete joint NEFMC-MAFMC Sturgeon Action (Monkfish FW15).
- Required: Annual PDT review of monkfish fishery.
- An action in 2024 to improve the Monkfish RSA Program, further considering the recommendations of the RSA Working Group. For example, consider streamlining the Exempted Fishing Permit process, allocating pounds versus DAS, allowing vessels to flip to an RSA DAS while at sea, etc. Support other improvements that do not require a Council action to implement.

- Review the effectiveness of the monkfish and skate management programs to identify if there are ways to manage these fisheries more efficiently.
- An action to consider managing monkfish and skates under the same fishery management plan to:
  - Better facilitate vessels catching monkfish in a way that allows skate limits to adjust seasonally to not limit monkfish catch,
  - More effectively address incidental take concerns for protected resources and to reduce bycatch in both fisheries, and
  - Help streamline management since skate and monkfish are harvested simultaneously by many vessels.
- An action to define and reduce latency of monkfish permits. This action would likely need an updated control date from the date set through Amendment 6 (May 12, 2012).

Discussion on the motion: The Committee incorporated Motion #1 into Motion #3. The Committee did not want to rank these priorities given the Council will have a ranking exercise. A Committee member wanted additional input from the Monkfish AP and the broader fishing industry on which priorities should move forward.

MOTION #2 ADOPTED BY CONCENSUS.

AGENDA ITEM #4: OTHER BUSINESS

The Committee had no other business to discuss.

The Monkfish Committee meeting adjourned at 12:10 p.m.

Mid-Atlantic Fishery Management Council
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P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 19, 2023

To: Council

From: Hannah Hart, Staff

Subject: Northeast Trawl Advisory Panel Update

The Joint Mid-Atlantic and New England Fishery Management Councils' Northeast Trawl Advisory Panel (NTAP) recently held an in-person meeting on July 20, 2023, in Baltimore, Maryland. At the meeting the panel received updates from the Northeast Fishery Science Center (NEFSC), including updates on this year's trawl and bottom longline surveys. The panel discussed recent issues associated with the NOAA Ship Henry B. Bigelow and the hurdles that impacted recent survey efforts. Given these issues, the panel discussed potential contingency plans for future bottom trawl surveys and formed an NTAP Working Group to further discuss this topic. Following the July 20 NTAP meeting, the newly formed NTAP Working Group met on September 5, 2023. Materials from both meetings listed below are provided for the Council's consideration of this agenda item.

1) NTAP meeting agenda from July 20, 2023
2) NTAP meeting summary from July 20, 2023
3) NTAP Working Group meeting agenda from September 5, 2023
4) NTAP Working Group Summary from September 5, 2023

Northeast Trawl Advisory Panel Meeting

- Agenda-

Thursday, July 20, 2023
9:00-5:00

In-person attendance at the Maritime Conference Center (692 Maritime Blvd, Linthicum Heights, MD 21090) in Baltimore, MD with a webinar option available.

Webinar Details:
https://midatlanticfisheriesmc.webex.com/midatlanticfisheriesmc/j.php?MTID=m599bd3487bbd9f4b6bccdffee5ba385f
Meeting number (access code): 2330 382 2064
Meeting password: NTAP_July2023

Time	Topic/Purpose/Process	Lead	Preparation/Materials
9:00-9:15	**Welcome, Introductions, Logistics** - Introductions - Accept meeting summary from last meeting	Salerno	- NTAP Charter - Meeting summary from Jan 2023
9:15-9:45	**Center Updates** - Update on action items from last meeting - NTAP operations manual - Survey updates - Dashboard	Ford, Mercer, Dunn	- Presentation - Orientation manual - Rockhopper Catch efficiency dashboard (added glossary based on panel feedback)
9:45-11:45	**Bigelow contingency discussion with decision matrix**	Salerno, Ford	- Handout
11:45-2:00	**LUNCH & SIMULATOR**		
2:00-3:15	**Offshore wind fisheries monitoring surveys & survey mitigation** - NEAMAP definition discussion - What studies are being done? - Survey mitigation implementation strategy - Survey specific mitigation plans- include both BTS and BLLS	Mercer, Ford, McElroy, Methratta	- Presentation - Wind fisheries monitoring studies (Methratta) - ROSA database

3:15-3:45	**Restrictor Rope Research** - Presentation - focus on conclusions - 10 min for questions - Where do we go from here - MAFMC October meeting presentation?	Jones and Ruhle	- Blog post - Project webpage Feature Story
3:45-4:45	**Brainstorm next research project** - Goal: 3-5 titles of research projects NTAP would like to see funded	Mercer	- Presentation
4:45-5:00	**Wrap up & adjourn** - Discuss membership changes, need for new members - Scheduling next full panel meeting (if in the fall, do it virtually) - Scheduling next working group meeting - Topics for next meeting - Feedback on monthly update emails	Salerno	

Outstanding topics:

- Moulton Task Force update - funding received, projects being done.
- SSEEP and Rago overview and discussion.
- NAFO/TRAC/WKUSER updates.

Northeast Trawl Advisory Panel Meeting

~ NOTES ~

Thursday, July 20, 2023
9:00 AM - 5:00 PM

I. Participants

A. NTAP Members:

Name	Affiliation	In attendance
Kathryn Ford	NEFSC	x
Phil Politis	NEFSC	
Anna Mercer	NEFSC	x
Tim Miller	NEFSC	x
Dan Salerno	NEFMC Member Co-Chair	x
Dustin Gregg	MAFMC Scientist	x
Jim Gartland	MAFMC Scientist	x
Dan Farnham	MAFMC Member	x
Peter Whelan	NEFMC Member	x
Wes Townsend	MAFMC Member Co-Ch	x
Terry Alexander	MAFMC Stakeholder	x
Emerson Hasbrouck	MAFMC Stakeholder	x
Chris Parkins	ASMFC Representative	x
Pingguo He	NEFMC Scientist	x
Vito Giacalone	NEFMC Stakeholder	x
Mike Pol	NEFMC Scientist	X
David Goethel	NEFMC Stakeholder	x
Sam Novello	NEFMC Stakeholder	
Michael Hiller	MAFMC Stakeholder	
Dan Farnham	MAFMC Member	x

B. Other Participants:

Name	Affiliation
Katie Burchard	NEFSC
Hannah Hart	MAFMC
Alexander Dunn	NEFSC
Andy Jones	NEFSC
Ben Church	NEFSC
Alan Blanchi	North Carolina Department of Environmental Quality
Alan Tracy	NEFMC
Aubrey Church	CCCFA
Brandon Muffley	MAFMC
Jameson Gregg	VIMS
Jessica Blaylock	NEFSC
Kyle Cassidy	Orsted
Eric Reid	NEFMC
Gareth Lawson	CLF
Giovanni Gianesin	NEFSC
Geoff Smith	TNC
Rebecca Peters	Maine DMR
Steve Cadrin	SMAST
Steve Wilcox	Mass DMF
Derek Bolser	NMFS
Jack Wilson	NEFSC
Libby Etrie	NEFMC
Ricardo Hernandez	NEFSC
Drew Minkiewicz	FSF
Jerry Leeman	NEFSA
James Fletcher	Commercial Fisherman
Jocelyn Runnebaum	VIMS
Justin Bopp	Massachusetts DMF
Kelly Whitmore	Massachusetts DMF
Kurt Zegowitz	NMFS
Lindsey Nelson	NEFSC
Nicole Caudell	MD DNR
Kiley Dancy	MAFMC
Sefatia Romeo Theken	MA DFG
Stephen Pearson	MAFMC
Andrew Lipsky	NEFSC
Lisa Methratta	NEFSC
Julia Beaty	MAFMC

II. Notes by Agenda Topic:

Welcome, Introductions, Logistics (D. Salerno)

- Round Table Introductions.
- Last Meeting summary approved.

Center Updates (K. Ford)

Update on action items from last meeting (1/19/23):

1	Address questions raised about moving fixed gear, number of invalid tows.	Invalid tows assessment updated (will add to website); added lobster pot discussion to FAQ document (still in draft form)
2	Distribute NEAMAP definition document.	Not done - on agenda for today's meeting
3	Plan restrictor rope research working group meeting to further discuss data, drafting a paper for peer review, future studies, and application of knowledge.	Done - on agenda for today's meeting
4	Use breakout group results and discussion to draft a memo to present to Councils on priority concerns/research recommendations of NTAP.	Done, decided to hold off on the memo to the councils until we have discussion about how to address the inconsistency and refit of the Bigelow
5	Release 2nd draft of the Operations Manual for review.	Done, also completed final version, posted to website, and sent via email to members

Operation Manual (K. Ford)

Operation manual is finished. Overview of timeline and results available in the PowerPoint. Document is a "living document" owned by NTAP. Any member can suggest a change. Send changes/edits to co-chairs and/or MAFMC NTAP Coordinator and/or NEFSC NTAP Lead. Changes approved by co-chairs will be made by either MAFMC NTAP Coordinator or NEFSC NTAP Lead. Depending on the amount of change/timeliness of change, the document may be updated immediately or less frequently.

There is still an "Appendix" being worked on that has a list of answers to frequently asked questions.

Survey Updates

Bottom Trawl:(K. Ford)

Spring 2023:

- Bigelow delayed 2 months getting out of shipyard (May 8th departure).
- Lost 43 sea days, significant loss of survey area coverage.
- OMAO unable to properly staff the vessel resulting in only 12-hour operations per day, further impacting area coverage.
- Tows were conducted from 6am-6pm only due to inexperienced vessel crew.

- NEFSC prioritized Georges Bank at nearly full sampling density to meet TRAC obligations.
- 70 of 377 planned stations completed.

Autumn 2023:

- On track to begin September 9th with full survey area coverage planned.
- **Contingency plan later in Agenda. See notes further in document.*

Discussion and Questions:

Q: How was the discussion at the TRAC meeting (July 11-13) affected by the loss in spring survey station?
A: Spring 2023 survey was not used in the stock assessments management or research track process.

Q: Can you talk more about the safety concerns (related to why only daytime ops were allowed)?
A: The CO in charge didn't think It was safe to do anything but daytime.

Q: Problem was not lack of NEFSC biologists it was the crew?
A: We sailed the full science compliment. Captain decided not to run night tows.

Q: This was the captain's call?
A: Correct

Bottom Long Line: (D. McElroy)

Presented a new graphic image – see PowerPoint.
Stations:

- Completed 100% of stations (45 total) in spring 2023.

Highlights:

- High barndoor skate and red hake catches.
- High white hake catches - for spring, esp. large individuals.
- Some evidence of strong 2020 haddock year class.
- 2nd largest halibut caught to date (63 inches).

Lowlights:

- Low overall catch rates.
- Some technical issues (laptops, new data collection software).

Blogs (for more info):

- Bottom Longline Survey Gets Seal of Approval
- Whale Tails, Wrymouths, and Other Bottom Longline Survey Surprises

Discussion and Questions:
Terry: Haddock Catch GOM or GB
Dave: GOM

NEAMAP update: (J. Gartland)

- NEAMAP is the three inshore surveys:
    - Maine New Hampshire.
    - Mass DMF- running since mid-late 1970s.
    - Mid-Atlantic/Southern New England trawl survey (VIMS)- running since about 2007.
- NEAMAP surveys by VIMS, MA DMF, and ME/NH were successful.
- The VIMS spring survey occurred from April 24 – May 28 and sampled all of the 150 sites that were selected for the cruise using a stratified random design. No major issues to report. Catch was as would be expected.
- The Mass DMF trawl survey was successful this spring. It sampled 98% (101 of 103) of planned stations. The survey was completed over 16 consecutive days with a representative tow for all assigned stations in GOM and backside of Cape Cod. One station each in Nantucket Sound and Buzzards Bay was lost due to excessive weed/algae (both destroyed our nets). Nantucket Sound and Buzzards Bay continue to have large aggregations of scup and weed/algae dominating catch.
- The ME-NH survey started on May 2nd and ended on June 2nd, sampling 81% of planned stations. A combination of bad weather the first week of the survey, fixed gear, and mechanical issues on the boat during the last week of the survey affected our completion rate.

Discussion and Questions:
Q: Was there any sign of cod recruitment?
A: No
Response: Curious because some people are fishing off of Northern MA and New Hampshire and reporting seeing a lot of 1-3 year old cod's being caught.

Communications update: (A. Dunn)
NEFSC presented key links to stock assessment information, showed a dashboard which summarizes how the Rockhopper Catch Efficiency Study is used in assessments.

Other updates:

- NEFSC Restrictor Rope Project Page live

Discussion and Questions:
Q: Is the dashboard on the MAFMC website or center website?
A: It's available to all via a link and a pdf we export.

Bigelow contingency discussion with decision matrix (D. Salerno, K. Ford)

The need for a contingency plan to supplement the Bigelow bottom trawl survey sampling was introduced to the panel. The Bigelow availability has been decreasing over time. The vessel's midlife repair period is nearing and will take place in all of FY 2028. It was also refitted for RV Pisces in 2029. It was explained that there is also a current survey mitigation need for sampling Bigelow stations in offshore wind farms.

Bigelow survey success

Spring 2014	started late (March 31) due to mechanical issues (interface between the diesel and electric motors)
Fall 2017	started late (Oct 16) due to engine replacement, used Pisces; weather also a challenge
Spring 2018	started late (March 14) due to delays with shipyard repairs; weather
Fall 2018	weather (strong winds) and minor ship repairs needed during Legs 3 and 4
Spring & Fall 2020	spring survey ended early (March 18) & no fall survey due to COVID
Spring 2021	started late (March 13) due to non-COVID medical issue with vessel staff
Fall 2022	loss of 14 days during Legs 1 and 2 due to COVID; weather also a challenge
Spring 2023	started late (May 8) due to delays with shipyard repairs; daytime only ops due to vessel staffing limitations

Less than 300 tows were completed and therefore fewer stations were covered.

The fall and/or spring multispecies bottom trawl survey informs assessments for 51 of 63 stocks assessed by the NEFSC. Assessments use multiple data inputs, not just these two surveys. Many are robust to "hiccups" in the time series, but the consistent performance problems are very concerning. The Science Center cannot know specifically how this year's loss of stations will impact each of the assessments - this topic is addressed by management and research tracks as well as the Northeast Regional Coordinating Council (NRCC).

The presentation covered multispecies bottom trawl survey objectives and why the Bigelow is used for the multispecies trawl survey and some of the key constraints involved with using the Bigelow. Multiple initiatives prioritize the continuance of this time series.

Explanation of what is being done at multiple levels (NOAA NMFS, NOAA OMAO, NEFSC) to address these constraints. Fleet recapitalization plan, use of Inflation Reduction Act funds to support national survey program, advanced technologies, addressing communications & training, developing a written contingency plan identifying our options - pros and cons of each option, preferred alternatives. Review of advantages and disadvantages of using Industry vessels. Overview of request for proposals issued in 2016 for industry survey platforms. This resulted in no industry vessels that had the same capabilities as Bigelow.

- In discussion it was pointed out that the bar was set very high - why is the exception that they have to have the same specs as Bigelow? Can we lower the expectations? It was also noted that the industry has advanced since 2016, and there might be vessels that do have the same capabilities as Bigelow now.

Decisions to use industry vs research vessel are done for every survey and based on those survey needs as well as cost and logistics. As we develop a contingency plan, we plan to include industry vessels. Need NTAPs help to think through the contingency plan, review various options that are currently on the table.

Goal: consider options for multispecies bottom trawl survey when Bigelow sea days are unavailable -- contingency for the Bigelow time series. “In other words: Who would we call in October if we can’t sample all of the stations with the Bigelow?”

Process: use decision matrix to help guide discussion around a complex topic. Helps identify the options that need to be considered. Helps identify areas of disagreement and gaps in knowledge. It does not necessarily give "the right answer." It serves as a guide to the discussion.

Options with considering the objective of the BTS:

1. Pisces - sister ship to Bigelow:
    a. Sample what you can with Bigelow
    b. Fills in for remaining stations
    c. Replaces Bigelow if Bigelow unavailable
    d. Must be kept in ready condition
    e. No calibration needed
2. Bigelow + a NOAA research vessel calibrated to Bigelow
    a. Sample what you can with Bigelow
    b. Replace GM with larger NEFSC trawl vessel, have it on priority standby (if Bigelow loses stations and Pisces is unavailable, this vessel will pick them up and any other scheduled work will be postponed)
    c. And …. Class C vessels in plan to come online in 10 years
    d. Same problems? Staffing, prioritization, stymied by bureaucracy and/or contract timelines
    e. Calibration needed
3. Bigelow + an industry vessel calibrated to Bigelow
    a. Sample what you can with Bigelow

    b. Have industry vessel on priority standby (if Bigelow loses stations and Pisces is unavailable, this vessel will pick them up and any other scheduled work/fishing will be postponed)
    c. Could also be a trawl-capable research vessel
    d. Operational logistics are more complicated, particularly with last minute schedule changes, mobilization, etc.
    e. Contracting uncertainty every 5 years (or less)
    f. Calibration needed
4. Bigelow + another groundfish time series
    a. Sample what you can with Bigelow
    b. Develop a 2nd time series with industry (preferred) or research vessels over same survey area (i.e., sampling frame)
    c. Calibration - the 2nd survey could cover unsampled Bigelow stations
        i. Would be calibrated and conduct 24-hour sampling
    d. No calibration (2 separate surveys) - leaves gaps in Bigelow coverage
        i. Similar to NEAMAP expansion concept
        ii. Expansion of Canada's survey?
    e. Consistent with calls for expanded survey effort
5. Other Options:
    a. Bigelow + small fleet of industry vessels
        i. When sea days are limited, Bigelow targets GOM/GB and/or deeper Mid-Atlantic stations
        ii. Have 2-4 additional vessels that can sample if needed, preference for industry-based, could be other platforms
        iii. Calibration needed
        iv. Considerable overlap conceptually with option 3 (Bigelow + calibrated vessel) but more complex
    b. Bigelow + non-extractive sampling
        i. Use Bigelow extractive sampling on subset of stations & acoustic/optic/eDNA on others
        ii. Major change to survey approach, goes beyond the scope of Bigelow contingencies, disruptive to stock assessment process
    c. No Bigelow - industry-based survey only
        i. Major change to survey approach, goes beyond the scope of Bigelow contingencies, very disruptive to stock assessment process, risk of loss of biological, oceanographic and ecosystem data
    d. Panel member suggestion for additional option? *(Nothing mentioned.)*

Suggested Decision Matrix Evaluation Criteria:

- Scientific value (data equivalent or better than what we have now)

- Feasibility (can be done)
- Reliability (option is available for 20+ years, standardized methods can be used)
- Flexibility (can be available with little notice for 1 or more days)
- Complexity (how hard is this to manage)
- Future impact (resilient to anticipated changes including offshore wind)
- Enthusiasm
- Others? *(Nothing mentioned)*

Discussion and Questions:

Q: Who is the ultimate decision maker?
A: Jon Hare

Q: Model vs no model for stock assessment is a driver for the impact the BTS has?
A: Correct.

Q: Please explain cultural differences?
A: For example, ship operations vs scientist operation perspective. The way the science center conducts our work and the expectations we have for our work are different than a ship crews. For example, counting sea days, currently we don't consider a sea day worth counting unless it's collected data and enough data to really be a full day whereas a ship might count a valid sea day as long as we left the dock.

Q: What is the day rate for the Bigelow
A: $16k/day - that is a close estimate. Includes staffing for OMAO personnel. Kurt will confirm.

Q: The NEFSC cost is operation cost only? Not staff?
A: That includes contractors but not FTEs.

Q: The daytime only sampling model is from Alaska?
A: Correct, based on their sampling needs and limits of onboard berthing. We do some 24-hour sampling on smaller vessels that can use smaller scientific crews.

Q: What are the problems with conflict of interest?
A: Will follow-up and get back to you

Q: Requirements for industry vessels need to be downgraded. Outrageous demands, very few vessel can meet those requirements.
A: That's a fair assessment. Original request was to replace the Bigelow capabilities. There are ways around the requirements listed and can still make it work but this introduces different challenges. This is background information to support the discussion ahead.

Q: How important is the autotrawl system?
A: That's a good question to ask in the decision matrix.

Q: Can you poach another region's research vessel?
A: Yes, that is currently our favorite option.

What is overlap with offshore wind? We pitched this as a Venn diagram trying to find options that meet a short-term contingency need, could be used in wind farms, and addresses the refit time period. Maybe that's not the right approach - take each in turn, instead.

Q: How would any of these options affect the problems from last few years issues?
A: Having a NOAA standby 90' vessel like the Pisces

Q: Does the Pisces have a separate crew?
A: Each ship has its own staff of OMAO mariners. These staff can shift from Bigelow and Pisces but there is an issue of project prioritization.

Q: My understanding that this year that the Pisces wasn't even set up to run- and no one available that knows how to use the otter trawl.
A: Yes, that was my understanding.

Q: If Pisces crew went on Bigelow there would still be issue of training and ability to run auto trawl.
A: We would look at using personnel or subject matter staff to help with staffing other vessels.

Q: think we really need to look at staff flexibility in evaluating options
A: 'likely to have adequate staffing is listed under the feasibility component of the decision matrix.

Q: like to comment on Industry run survey being a new style of survey and thus being disruptive to the stock assessment, cannot imagine it is more disruptive than current operations of the Bigelow (or lack there off). Would like to see a compromise decision matrix.

Q: Is the staffing a union issue?
A: OMAO is short on subject matter expertise and also working to fill positions.

Request letter to OMAO to get it done. Suggest higher pay and cross training for everybody. Allows for alternates for important roles.

The Panel discuss the decision matrix options:

With the Pisces and Bigelow schedule- hard to buy into. Nothing we are seeing on these surveys is matching what we (industry) are seeing on the water. If we start out a new survey with an industry vessel. I see no other way. Much more dependability than two RVs. Using Industry vessels for the platform has been an option and idea since 2014.

We can't be more disruptive to the stock assessments than we are today with no sampling. Index based and empirical assessments are driven by Bigelow and have resulted in lower allowable catch. Need to rescale the biomass first, need to calibrate to the Bigelow, but we are calibrating to something that is broken. Isn't this an opportunity to build on something where we feel like we are starting on a good basis. Industry vessel - yes, rescale biomass.

We need back-up plans. Especially for emergencies/last minute issues you need vessels on standby. Contract people to be on retainer. Pay them for 10 days. When an issue occurs with Bigelow they are already paid to go to sea. Uncalibrated vessels capable of towing Bigelow gear as a 5th option. Better than nothing.

Darana R has been doing survey work for 17 years and doesn't meet the RFP requirements. Need to lower expectations a little bit. What does the otter trawl gear performance bring to the table? Retainer can cause further funding issues. VIMS NEAMAP coverage is minimal, sampling density is very poor, not capturing distribution shifts, dietary changes. Combination of Bigelow and Industry based survey could be beneficial. No such thing as too much data. Figuring out how to augment the existing surveys what one goal of this panel. One problem that keeps resurfacing is needing to calibrate. Darana R has no vessel effect, if use restrictor cable to keep gear geometry consistent this data is as good as it gets. Vessel effect would be lesser of two evils.

Why is Gulf of Maine Bottom Longline Survey (BLLS) so successful and how is that different than the Bottom trawl survey? Short-term: what do we do in October if the Bigelow runs into issues again? Long-term: what do we do in the long term for a contingency plan. Both questions could have different answers.

Note: BLLS is different and smaller scale than BTS, BLLS is only GOM. Operating with commercial vessels, including crew and staffing, problems exist but so far, we have been able to overcome them. Need trawl vessel for BTS.

Agree, two solutions. One short term and another long-term when Bigelow is out for mid-life repair.

Industry vessels are available and capable of supplementing or helping with BTS, e.g., NEMAP, wind energy surveys. NEMAP has been a model for other surveys, someday these should go into a larger database. Think that NMFS should start to look now at how it can incorporate this data already being collected in various areas by multiple surveys. I have NEMAP nets and a vessel that is

ready to go. We do wind surveys 4 times a year and I can go in October for 10-15 days (for BTS). We can start to plan for that. Incorporating this data should be part of the plan for moving forward.

Even though we believe that vessels will make a difference in the catch, there are a lot of variables that go into these surveys. How can we change any protocol at all to make the data useful for stock assessments. Cost could be less too. Also, involving private companies for staffing- like observer program? How critical is the one missed year of data?

Net sensors on gear so lots of data from every tow, CTD cast also done with every tow. Capable of accomplishing what is needed. Great opportunity for industry involvement.

Two themes coming out. 1. Lack of trust coming from federal surveys. 2. Frustration with inability to complete survey year after year. What I have seen is that industry surveys are the answers to both those issues. 100% completion rate on industry scallop surveys. Scallop AP members never question population assessment - the debate revolves around where to fish and how much we can catch. Multiple survey methods are used and the differences in these collections are worked out in process, always have variance but they get worked out. Note: scallop surveys are for a single species; multispecies trawl survey is more complex.

Use Bigelow when working but be ready to fill in with the industry.

Q: Smaller surveys are more successful than larger vessel surveys. Why are they so much more successful?
A: Why smaller vessels may have higher success rate, only two people in charge (one science and one operations). Larger surveys have too many chiefs.

Need for contingency to offshore wind. Being nimble. Could do multi-vessel survey, fleet of vessels. Use standardized gear package to mitigate differences, maybe not collecting whole suite of data, some data is better than none, could work in wind areas.

Examples from Alaska like the Sable fish survey. The fishing boat does vessel operations. AFSC provides oversight scientist - work-up of fish is done by observers. These are ways to work on staffing issues.

Q: When it comes to the decision tree- is the industry capable of collecting the best scientific data available. Absolutely yes. But does the science center agree.
A: It’s not about whether or not the vessel can collect the data or staff - it’s more about whether we have protocols in place, the more vessels we engage in the system the more complicated, not that it can’t be done. This is a multi-species survey; funding is an issue. I’d like to present solutions and

decide which are best. We may not need one option that meets every solution. A fair way to have multiple solutions for different needs can come from this exercise.

IRA funds could go a long way to solving trawl survey funding problems. IRA funds extend out to 2027 with a possible rollover.

Yellowtail survey and cod survey used multiple vessels. Lots of concerns did not calibrate (would have blown the entire budget). Set standardized protocol. Vessel sizes were not the same but comparable, we standardized everything else, I think we came up with a robust survey program. When things hit the fan, we have the capability to supplement with a multi-vessel approach.

Standardizing gear from the doors back since early 90's. Maybe 5 different vessels in monkfish survey, didn't worry about boat effect and standardized the gear.

Q: How to proceed with the matrix?
A: It was a tool to guide the discussion, not meant to be collected. Next step is to draft a layout a variety of options and what each looks like. Return in the next few months, and present at the NEFMC meeting in Sep. 2023. (9/26-28/23)

LUNCH & SIMULATOR (11:45-2:00)

Offshore wind fisheries monitoring surveys & survey mitigation (K. Ford)

NEAMAP definition discussion (J. Gartland)
From January meeting: Concerned about the "NEAMAP" brand being misused without NEAMAP approval, ROSA is working on creating a document of guidance after reaching out to BOEM asking what they can do. NEAMAP survey definition documentation is being worked out and will eventually be distributed.
Need to reach out to ASMFC NEAMAP committee, new staff leadership this spring. VIMS has been in contact with the new staffer- working on criteria document with protocols. Committee meeting in October.

Jim Gartland (VIMS NEAMAP) sent these following the meeting:
Documentation of VIMS NEAMAP protocols is here:
http://www.neamap.net/publications/VIMS_NEAMAP_Peer_Review_Documents.pdf

And the results of our peer review are here:
http://www.neamap.net/publications/NEAMAP%20Survey%20TOR%20and%20Advisory%20Report%20Final.pdf

Both of these docs have been available on www.neamap.net, which was developed and is maintained by the ASMFC, since 2009. While some of the material is a bit dated now (i.e., the electronic data collection system has been upgraded), the data elements that we collect and the methods that we use to collect them remain unchanged. We did add the elements recommended by the peer reviewers. Feel free to use the information in these docs and/or share as you see fit.

Discussion and Questions:
The original idea of NEMAP was to be an ASFMC umbrella for surveys. Some confusion about which surveys are NEAMAP or supported by NEAMAP.
Offshore wind survey in NY uses VIMS documentation, specification, gear company, standards, and tolerances.
Some think this might not be specific enough. Often offshore wind surveys will have in their fisheries research monitoring plan something like "fish collected will be identified, weighed, and enumerated consistent with the sampling approach of NEAMAP." Whether they should or not is another discussion

Fisheries Resource Monitoring at Offshore Wind Farms (L. Methratta)
Slide presentation about paper recently published (Recent paper) about how well offshore wind fisheries studies might address long-term assessment surveys done by the NEFSC.
The study concluded that the 67 studies being done across 9 offshore wind developments as they are currently being done and described are not able to serve as replacements/stand-ins/contingency for the NEFSC surveys.

Discussion and Questions:
Q: What good is all this information gathered?
A: The studies have value to their stated goal to assess change or determine baseline (although in some cases, the baseline development is less than 3 years so is considered too short). However, the value of these surveys to replacing NEFSC sampling has not been explored until this study. Another challenge is that post construction monitoring is also limited to 5 years and really needs to be monitored for the entirety of the project and after as they are decommissioning. (Panel support for longer baseline periods and monitoring for life of projects.)

Panel members that are doing offshore wind studies indicated that they hoped by using NEAMAP protocol the data could be used by NEFSC. As to how to incorporate it is up to the Science Center. Those doing studies in wind farms are open to suggestions.

Discussion around the development of baseline and who decides what a long enough period is. Several panel members expressed frustration with BOEM's and NMFS' lack of authority to require a multiple-year baseline period. There needs to be strong coordination with feds and individual research institutes work in wind farms. ROSA also working to support coordination, standardization, and regional research.

Offshore wind sampling teams expressed that there are opportunities to coordinate, there is an informal working group that includes Cornell, Rutgers, and VIMS to share lessons and develop common practices. Would like NOAA to be more active in providing guidance and ensuring the data collection is more helpful. NEFSC stated that as part of the survey mitigation strategy there will be monitoring standards developed (note: NEFSC received funding to support offshore wind-related work for the first time in FY23).

Data: Wind farms need to generate publicly available information not controlled by the wind farms. Unless these discussions are part of the construction and operations plan (COP) and in there it won't happen.

ROSA Database
ROSA Science Director gave an overview of FishForward database available on their website.

NEFSC reorganized with the creation of a wind farm team.

- Partial permanent funding received.
- Supporting staff hiring and research (including external grants).
- Branch Chief is Andy Lipsky
- Going into Population and Ecosystems Monitoring and Analysis Division in FY24 (October 2023)

Survey specific mitigation plans

Northeast Survey Mitigation Implementation Team (NESMIT)

- Meets every 2-4 weeks
- Working toward implementing Strategy Actions
    - Organized the team
    - Prioritized the action item list (14 items)
    - Take action on timely actions
        - ROD for Ocean Wind
        - https://doi.org/10.25923/jqse-x746
    - Identify other needs and address as pertinent

Bottom trawl survey mitigation plan

The Bigelow will not be able to tow in wind farm areas; developing a survey specific mitigation. Two major projects right now:

1. Survey Simulation Experimentation and Evaluation Project (SEEP) - CINAR grant to Gavin Fay
    - Develop a spatial modeling framework to simulate a variety of abundance and distribution scenarios that can be used to evaluate modified survey designs.
    - Project Website: https://thefaylab.github.io/sseep/
2. Working with Saltwater INC., Paul Rago.
   Propose and evaluate alternative statistical sampling designs including a hybrid spatially balanced random and fixed sampling design in the vicinity of survey regions that may not be accessible in future years.

Discussion and Questions:

Q: Clarification requested on design where OMAO had said NEFSC can't tow
A: 1 by 1 nautical mile area.
Q: Can we ask BOEM for allowance, has OMAO figured out a vessel length or wind farm spacing that will work? They won't go in them but how close will they go to them?
Note: expectation is that OMAO won't even steam through that area.
A: I have not heard that they won't transit through them. I think they do not go within a 1-mile buffer but needs to be confirmed.

Statement by member of the public: wind & BOEM should be required to construct survey equipment similar to electro fishing for freshwater. Use electro survey equipment - it should be built because wind farms generate electricity.

Bottom Long Line Survey (Dave McElroy)

- Vessels small enough to continue to fish and navigate the area

- Fish 2 shorter inline but separate sets of BLL gear on either side of WE structures - treat as 1 'station' analytically
    - 2 x 0.5 nm (500 hk) sections of the BLL - standard set ~ 1nm (1000 hk)
    - Set them end to end divided by wind infrastructure
- Preclusion from some areas could impact spatial coverage and station density
- May be able to test this mitigation strategy in the GOM Research Array
- Sources of Uncertainty:
    - Final wind energy areas are TBD and may only impact some portions of the BLLS region
    - Floating wind anchoring structures are not fully known and configuration could vary among the companies. Design choices could facilitate easier or further limit access to the WEA's
        - If vertical mooring lines may be able to do a full set
    - GOM research array is outside BLLS footprint
    - Nighttime operational capacity w/in floating wind?
        - Insurance coverage could possibly limit
    - Both Captains believe we may be able to fish w/in
    - But contingent on final structures and orientation

Discussion and Questions:

Q: Is it possible to see the data from past years overlapped with the areas to simulate impact?
A: Could be done, need more analytical capacity for that.

Q: What would it mean for your catch to have two shorter lines? Is there a separation that would be sufficient to make it work?
A: One thing we have proposed is to get funding and support to test that.

Q: The floating component is so new we don't know what it's going to look like. Will be interesting to see what kind of spacing the BLL will be able to get.

Brief discussion of floating wind, buffers, and habitat types (mud). No clarity yet where wind farms in the Gulf of Maine will be.

Hook and Line Survey Pilot Project

The cooperative research branch was asked to develop another fixed gear survey to help mitigate loss of trawl survey in the wind farm areas. We are designing a pilot hook and line survey.

Goal: Develop and test the methodology for a new hook and line survey that can be safely deployed in any habitat type and alongside offshore wind turbines and provide data continuity for species in the Northeast region.

Approach:

- Develop survey design, gear, operations, and protocols in partnership with fishing and science communities (summer/fall 2023)
    - Learn from Southern California Hook and Line Survey (NWFSC)
- Conduct pilot hook and line survey in the Gulf of Maine, Southern New England, and Mid-Atlantic in spring 2023 (in/around existing wind energy areas)
- Review operational success and challenges, analyze data to assess selectivity of gear, and identify necessary modifications to achieve survey goals (fall/winter 2024)
- If interested in participating, please keep this in mind: **the goal is not to start a new survey or time series. It's to pilot operationally how a hook and line survey would work. Are we getting numbers where we can assess biomass over time and space?**

Discussion and Questions:

Q: Are you going to survey all of Gulf of Maine or just inshore
A: We have a depth range and hope to cover a majority. Some will be in the wind farm area and some will be outside for comparison. This uses jigging so will be an on-shelf survey.

Q: slighter difference in gillnet survey. Trickier in some sense- gill net may be a better gear type.
A: During the pilot will assess what we are catching and size distribution to see if it's what's needed. Gillnet is not a viable tool in the northeast due to permitting and where we are with protected species.

There was a brief discussion of gillnet technology, even with varying mesh sizes it's never the right size for what you want to catch - gillnets have a lot of limitations too. Soak time is also hard to figure out if you're targeting multiple species. What about fish pots? Saturation issue, protected species. Danish seining? Hasn't been investigated.

Offshore wind news

- Vineyard Wind is going to prioritize installing foundations through the rest of the summer/early fall to meet pile driving time restrictions. Likely start in October.
- Only the bottom portions of the foundations will be visible above the water instead of the additional transition pieces with navigation day markers and lights. Temporary navigation aids will be installed on top of the bottom portions of the foundations.
- Navigating through this area may be a bit more difficult given the lower profile of the bottom foundation pieces.

Restrictor Rope Research (A. Jones)

Presentation - focused on conclusions.

Motivation for work

- Evidence in literature for improved trawl geometry with restrictor ropes
- Less information on potential impacts on catch
- Some suggestions that it can impact catches of semi-pelagic species1
- Has not been recently explored in the northeast U.S.
- Increasing international interest in restrictor rope impacts
- Restrictors have been used in Norwegian surveys
- Discussed in recent (2022) ICES workshop on the development of the new IBTS GEAR

Results:

- Subtle differences in gear metrics (which we expected based on the depths sampled)
- Limited impacts of the restrictor rope on aggregate catches of seven species
- Limited impact on the catch- at-length for seven species as well
- Limited impacts of the restrictor rope on aggregate catches of seven species
- Limited impact on the catch-at-length for seven species

Conclusion:

- We observed limited impacts of the restrictor rope on catches
- Worth considering the positive impacts of the restrictor on standardizing gear performance when surveys in wind energy areas are being developed
- Specifically, in scenarios where standardizing net geometry is likely to be more important (e.g., when a large depth range is covered by a survey, or multiple survey vessels may be used)
- In the context of offshore wind, this could potentially help improve consistency across wind developments and help researchers identify cumulative effects
- One caveat is that we do not have enough data to definitively say that there is no effect of the restrictor rope for all species, but we have some confidence based on the diversity of species sampled through this research

Next Steps:

- Drafting manuscript for peer review
- Shared with NEFSC/VIMS/Darana R
- Editing and hope to get to full panel soon
- Will likely target fisheries journal such as ICES Journal of Marine Science
- Present work to NEFMC/MAFMC as next step?

Discussion and Questions:

Panel consensus is that this is an impactful study and worthwhile, will be a good tool to put on industry vessels. Should be published and the Journal of Marine Science is okay. Experience from Darana R is that it is easy to deploy, uncomplicated and works well with offshore wind research they are doing. Next step would be to use it one two or three vessel platforms to test if there is a vessel

effect. If no vessel effect, then it can be used on all vessels in the future without needing to calibrate. One panel member recommended using two vessels (e.g., Heather Lynn, Bulldog) to conduct the surveys use and assess the vessel effect. This would be extremely useful for NEAMAP survey as well.

Brief discussion about using it on the Bigelow. The perspective is that it should be tried. (Note: NEFSC trawl survey lead unavailable to address this topic.) Concern expressed by one panel member that turbulence might be a problem.

Brief discussion of upcoming wind surveys that SMAST is doing, 3 or 4 will start very soon. A good time to implement this, would allow use of industry sized doors. Planning on staying with what they're doing unless some push from BOEM or NOAA.

Brainstorm next research project (POSTPONED)

Wrap up & adjourn (D. Salerno)

Discuss membership changes, need for new members?
Only Dustin Gregg is stepping down that we know of.
Bobby Ruhle will be able to represent ASMFC even though he's joining the MAFMC as a Council member.

Scheduling next full panel meeting (if in the fall, planning for a virtual meeting)

- Will meet virtually this fall
- Please bring ideas to the panel
- Continued with decision matrix
- Hannah Hart will continue to send out monthly email
- December orientation meeting – likely virtual meeting
- Planning for January 2024 for next full NTAP meeting (in-person with virtual option)?
    - Group agreed with plan
- Location preference: TBD

Scheduling next Working Group meeting:
NTAP working group will address Bigelow contingencies. Pisces is on standby for the fall, but NTAP should weigh in on a contingency plan with multiple strategies to pursue. Will get input from Council's after this fall's meeting, too.

Working Group volunteers are Terry Alexander, Bobby Ruhle, Dan Salerno, Jim Gartland, Anna Mercer, Vito Giacalone, David Goethel, and Eric Reid.
Kathryn and Hannah will follow up.

Topics for next meeting

- Papers shared in monthly update
- TRAC meeting outcomes

Feedback on monthly update emails

Previous email from Chris R. should be shared with the entire panel

Adjourned 4:57 PM

Northeast Trawl Advisory Panel Working Group Meeting

- Agenda-

Tuesday, September 5, 2023
10:00 a.m. -12:00 p.m.

Webinar Details:
https://midatlanticfisheriesmc.webex.com/midatlanticfisheriesmc/j.php?MTID=m79b025ca0641f957aae5a62af6bfa3ad
Meeting number (access code): 2333 975 8341
Meeting password: NTAP_WG_Sept2023

Join by Phone:
U.S. Toll: 1-415-655-0001
Access code: 2333 975 8341
Please only use this option if you are not connecting to the webinar on your computer or device. Otherwise follow the audio connection prompts to call in when you join the webinar.

Time	Topic
10:00-10:15 a.m.	Welcome, Introductions, and Logistics
10:15-10:45 a.m.	Develop Terms of Reference (TOR) and review scope of project
10:45-11:45 a.m.	NEFSC Survey contingencies discussion • Review process and timeline • Discuss communication strategies • Discuss outline for survey contingency options
11:45 a.m. -12:00 p.m.	Plan next meeting & adjourn

Northeast Trawl Advisory Panel Working Group
Webinar Meeting Summary
September 6, 2023

Working Group Attendees: Kathryn Ford, Dan Salerno, Wes Townsend, Jim Garland, Robert Ruhle, David Goethel, Eric Reid, Philip Politis

Additional Attendees: Hannah Hart, Alex Dunn, Drew Mankiewicz

The Northeast Trawl Advisory Panel (NTAP) created a new Working Group at their July 20, 2023, meeting in Baltimore to address contingency plans for when the NOAA Ship Henry B. Bigelow is not operational or for other reasons that it cannot be used to complete the federal bottom trawl survey. The Working Group met for the first time via webinar on Tuesday, September 5, 2023, to discuss several topics including terms of reference, a potential timeline, and possible contingency options.

Key Discussion Points and Working Group Recommendations

- The group agreed on principles and terms of reference:
    - *Describe vessel platforms that can support completing the NEFSC spring and fall BTS when the Bigelow is unavailable.*
    - *Assess the viability of the platform(s) and platform deployment needs from logistical and scientific perspectives and identify where additional information is needed to fully develop a given option.*
    - *Consider options that at a minimum meet stock assessment needs.*
    - *This effort should produce a relatively high-level overview of options and identify information gaps.*
- The group agreed to meet virtually roughly every two months to meet the tentative timeline below.
- Engagement of non-NTAP members was encouraged, particularly additional NEFSC (e.g., Population Dynamics Branch, etc.) and NOAA Office of Marine and Aviation Operations (OMAO) subject matter experts.
- The group agreed that the general approach and organization of the draft contingency option document is acceptable, but it was noted that it will be hard to determine how many data requests will be needed or can be accommodated in a timely matter.
    - It was noted that they will have to treat data requests on a case-by-case basis and keep pushing along given the short timeline.
- There was discussion of an industry vessel option and the scope required to consider this option:
    - To the extent this option would use the same design as the current survey this option would be within the agreed upon scope of the group.
    - To the extent it would use a new design and be more along the lines of designing a new/future multispecies survey it would not be within the agreed upon scope of the group.

        - However, it was noted that the group should not limit themselves as to what they suggest for future work to the Councils.
- Understanding the key parameters that must be collected to be considered a "Bigelow contingency" would be helpful - does everything need to be collected or can less data be collected and still provide data useful to assessments?
    - The assumption is that some data is better than no data.
    - This topic needs to be assessed and further discussed.

Tentative Timeline for Working Group

- August 2023: Determine NEFSC staff participants; check with NTAP to see if anyone else wants to participate; send doodle poll for first working group.
- September 2023: First virtual meeting with working group.
    - Write the TOR and review scope of the project.
    - Review process and calendar.
    - Discuss how to communicate.
    - Discuss outline for contingency options.
    - Plan next meeting.
- October/November 2023: Request comments on the draft contingency plan outline.
    - Comment deadline prior to November working group meeting.
- November 2023: Working group meeting (3-4 hours).
    - Discuss the outline and describe each option.
    - Assess the need for another meeting to discuss options.
- Send Draft 1 to working group by January 5, 2024
    - Comment deadline about 45-days
- Between January 5 and February 16, 2024: Working group meeting.
    - Follow up on questions from November.
    - Discuss first draft of the contingency plan document.
- February 16, 2024: Working group draft 1 comments due.
- Week of March 4, 2024: Working group meeting to discuss changes and assess need for a 2nd draft.
- April/May 2024: Finalize document; determine distribution list and process.

Atlantic Surfclam and Ocean Quahog Committee and Advisory Panel Meeting Summary
September 15, 2023

The Mid-Atlantic Fishery Management Council's (Council) Atlantic Surfclam and Ocean Quahog (SCOQ) Committee and Advisory Panel met jointly via webinar on September 15, 2023 to receive updates on the Shellfish Biotoxin/Food and Drug Administration protocols that might impact the clam fisheries on Georges Bank, discuss the status of the Species Separation Requirements Amendment, and to develop recommendations for implementation plan items for the Executive Committee to consider in October 2023.

Committee members present: Peter Hughes (Committee Chair), Maureen Davidson (Committee Vice-chair), Joe Cimino, John Clark, Sonny Gwin, and Jay Hermsen (GARFO).
Advisory Panel members present: Tom Dameron, Peter deFur, Peter Himchak, Samuel Martin, Joseph Myers, David O'Neill, Jeffrey Pike, Howard Rome, and David Wallace.
Others present: Jessica Coakley and José Montañez (Council staff), Doug Potts (GARFO), Kim Beardsworth, Shaun Gehan, Daniel Hennen (NEFSC), Sarah Hudak, Peter La Monica, Daniel LaVecchia, Peter Himchak, Samuel Martin, and Joe Meyers.

The Committee Chair made introductory remarks and reviewed the agenda.

Federal Waters Shellfish Biotoxin Protocols

The group discussed the letter sent by the Council to the Food and Drug Administration (FDA) July 22 on the changes to the federal waters shellfish biotoxin protocols. The staff provided a little history of their involvement. Although staff met with the FDA on July 20, this letter was expected to provide more detail on next steps and timing. Although staff was expecting the FDAs response prior to this meeting, FDA staff indicated it could not be cleared in time but should be available soon. Staff noted the FDAs response would be available to the full Council behind the Executive Director's Tab of the October Briefing Materials, if received before the Council meeting.

2024 Draft Implementation Plan Items

Staff reviewed the 2024 implementation plan development process, which consists of an Executive Committee Meeting in October to review the draft plan, and the Council reviewing and finalizing the plan in December. Staff presented the items that appeared on the 2023 implementation plan under Surfclam and Ocean Quahog, and two items related to these species that appear under possible additions.

The group first discussed the possible additions, "Develop spatial management options for Atlantic surfclam open water aquaculture in the New York Bight and central Atlantic," and to "Develop an action to authorize an experimental Atlantic surfclam fishery in the Great South Channel Habitat Management Area (HMA)."

The group discussed the surfclam open water aquaculture item in some detail. There was some question around whether this could be done and what would be involved or be required from other agencies that deal with aquaculture species or if permits are needed. Staff noted their understanding was this possible addition item was intended to explore management options to close areas where surfclam seed had been planted to bottom tending gears. An advisor indicated they did not think that was the intent and this issue should be dropped. The advisor noted that the industry would only need to keep clam vessels from dredging in these areas and they could do that themselves as an industry without management being involved. They also noted that this activity would simply be taking a cultured species and shifting surfclam from point a to point b in their habitat; therefore, they felt there are no aquaculture requirements or permits required. Staff noted that we should contact our GARFO aquaculture specialist to see if and what requirements may exist and what else needs to be considered for the open water surfclam aquaculture idea to move forward.

The group then shifted their discussion to the Great South Channel Habitat Management Area (GSCHMA). It was asked if to move things forward and up the list for surfclam fishing access in the GSCHMA, would an experimental design or something more specific be needed. Staff noted at this stage for implementation planning it is more about what this type of action might be relative to the plan (e.g., Amendment, Framework, etc.) and who would be doing the work. The advisors discussed the Coonamessett Farm Foundation (CFF) Exempted Fishing Permit (EFP) Phase II Project for Davis Bank East in the GSCHMA that will not be given further consideration by GARFO. An advisor indicated that they wanted to know what the process should be with GARFO and improving these EFPs, and getting the Council involved. Advisors indicated frustration with the EFP process. The GARFO Committee member noted they did have a follow-up phone call with one of our advisors about the EFP and that in the second to the last paragraph of their response letter they indicated how to improve the EFP. Another advisor noted that the Council should have a mechanism to open Rose Crown due to new information available. It was also suggested that the Council could develop an action to remove gear restrictions in the GSCHMA that were put in place by the New England Council for surfclam. It was suggested that an FMP action could be used to move that forward. Staff noted that the regulations in the GSCHMA were developed to restrict specific gear types from impacting habitat. Staff asked GARFO if they knew of any cases where another Council has developed a another set of measure/regulations to undo what another Council had done; the GARFO Committee member indicated they were not aware of a case like that. Another advisor indicated that question was asked before and the Council is not in the position to do anything about what the NEFMC has done.

With respect to the EFP, an advisor noted that the industry did have the ability to do this research well (e.g., multibeam sonar to assess bathymetry and bottom composition). It was noted that the government should do their own work to catalog the bottom; they also could charter boats to do

the work without the industry incurring the high costs of doing this research. The advisors then briefly discussed research by SCEMFIS looking at essential fish habitat and groundfish (e.g., cod) in the GSCHMA. They indicated that the project was looking at cod spawning and that once the results are in, this information can potentially be used to address this issue.

The Committee Chair noted that there is a level of frustration for the industry that the EFP has not been authorized. Even though NMFS does not survey the area, it is felt they are holding the industry to much higher standards.

Staff noted that the three major pathways discussed during the meeting for the GSCHMA during the meeting included working through the EFP process, working through NEFMC to make changes, or having the Council develop measures through an action to open areas NEFMC has closed – none of these pathways are without challenges.

Species Separation Amendment

Staff began by presenting on the discussion from the April 2023 FMAT meeting and noted that; at this stage the FMAT has exhausted most of the potential options for this action. As noted, some of the recently proposed solutions by industry would be unenforceable and not provide adequate, verifiable monitoring, and the solutions most likely to be enforceable and provide accurate monitoring (such as those being used in other analogous Limited Access Privilege Programs and/or Groundfish Sectors) would impose high costs on the industry/NOAA. The FMAT was seeking additional guidance from the Committee on what directions it should further pursue for additional alternative development for the amendment.

The advisors discussed the comment letters they submitting that indicated continued support for a variety of solutions including partial sorting onboard the vessel, doing the final accounting for the landings of the mixed surfclam and quahog catch in the dealer, and a mixed trip and/or mixed tag in addition to a surfclam and quahog tag.

Staff noted the importance of accounting for total catch. It was asked by the Committee Chair if you need to affix a surfclam tag to a partially filled cage, and the staff indicated that was the case. The Committee Chair also noted that in mixed fisheries we put a lot of trust in vessels and dealers when reporting. An advisor noted that in other fisheries multiple species are landed and reported. A member of the public noted they put in a proposal for a solution to the mixed clam issue. Proposal was sent in for distribution for this meeting. They hand shuck 60-70 cages per day and port agents can come onto the plan anytime they want to. For other companies, they don't want mixed trips. They noted that some of these cages are up to 30% quahog in surfclam cages. Another advisor noted that sorting is dangerous and impractical on vessels. I don't see a similarity with finfish; because when you go out for clams/quahog you will catch them. If you are sorting at the plant, some people will have to tag two species that come in. If it's a 60/30 mix of cages, then each needs a tag.

It was noted by another advisor that this debate has been going on for a while. If there was no regulation prohibiting mixed trip landings, this would not be an issue. Is this also an issue of what

is discarded at sea? In some fisheries this is counted against quotas. Staff noted that yes, the issue is tabulating total catch and this includes landings and discards.

The lead stock assessment scientist from NEFSC commented that the industry right now enjoys the assumption of very little discarding at sea. This issue was desensitized due to the current regulations which do not allow for mixed trips, and this is why there were no observers on clam boats until just recently. There are concerns about discarding changing in the future. Unaccountable catch is what we are looking for – it has caused a problem for several stock assessments (e.g., some groundfish stock) and uncertainty is increased and comes with penalties.

An advisor stated that for the few species that are targeted, they have very little bycatch. It is all separated and no one has stock assessment concerns about this. The hang up is the 32-bushel (bu) cage tag, and the advisor thought they could use a transport tab and eliminate the need for the 32 bu cage tag.

A member of the public stated that they suggest just bringing it all into the plant and counting it all there. The Committee Chair noted that under this proposal, clam discards would be catch everything is accounted for and any discards at sea that may still occur would be small. Another advisor stated the discarding problem due to increased mixed catch is a recent problem; if we just had an allowance for mix catch then the discard issue would go away. An advisor asked the following question: are clams that go through the shakers counted as discarded clams? The stock assessment lead from NEFSC responded that they do assess a small percentage to that incidental mortality. The assessment increases the catch by a small percentage due to getting clams killed and not returning to the bottom.

An advisor offered some historical context – the Fishery Management Plan (FMP) was based on both fisheries being geographically separated (inshore vs offshore). With climate change this has changed, so we need changes in the FMP. Industry brought this up initially to the Council for a solution. They felt that separating clams at the plant, would require 3 types of cage tags (SC, OQ, mixed) and declaring what type of trip you are taking. A transportation tag would also be needed (no food safety tag). This advisor noted that under the current system surfclam are overreported and quahogs are under reported.

A member of the public indicated that they thought their proposal would enhance enforcement and accounting and they feel you would get a better accounting than doing this at the dock or on the vessel. The Committee Chair asked this advisor if the FDA goes to their plant, if they run a grade A program, and if state inspection comes 4 times a year. They indicated yes and they also have a canning operation, so their records are regularly checked.

It was noted by another member of the public that the financial cost of doing separation this at sea would be high. At the plant, it would be easier and less challenging. They think they could do it at the plant with about 4 dedicated people - and this would make the cost much more affordable.

A Committee member noted that it sounds like we have suggestions for the tagging system. The current tagging system is not working but there are ideas for a new [electronic] tagging approach.

GARFO staff noted that an example would be the Gulf of Mexico Individual Fishing Quota (IFQ) system. The initial allocation is given to vessels (through a boat account) then a verification system for boat and dealers tracks every pound. They noted this fishery is also subject to cost recovery, and it goes to 3% every year for them.

A Committee member noted that accounting for catch is important but when does this become an issue [for these stocks]. We talked about some exploration on when this becomes an issue. Staff responded that it is important for stock assessment purposes to account for both landings and discards.

The GARFO Committee member noted they agreed with staff comments, but that there is also the issue of management of an ITQ fishery in terms of accurate accounting of catch and allocation.

Another Committee member noted they were supportive of counting at the plant. The quotas are not being caught and the fishery is not overfished. Counting at the plant sounds like an easy fix. Staff noted that enforcement at the plant is difficult. The NEFSC stock assessment lead noted that the FMAT talked through some of the challenges with potentially sorting more than one load of mixed cages together, and then tracking these back to the vessel and trip. It can also get tricky with more than one species linked to the same tag number. Some advisors and public noted that that have specific traceability that they use for food safety the public plant, and they will continue to do that.

The Committee Chair asked why the clam industry is held to a higher standard than other fisheries regarding law enforcement? GARFO staff noted that while they don't speak for enforcement, in our discussion they have indicated that this fishery is different than other fisheries for a few reasons. In other fisheries they have mixed catches, but they can be validated by enforcement when separated. In the clam fisheries, while a total number of cages are visible, it is difficult for enforcement to say how much of each species is in the cage. For other fisheries, where VMS is used, enforcement has a way to meet vessels at the plant. But in the clam fisheries extensive trucking goes on; a boat lands at one location and must be tracked to another facility making this difficult for enforcement to check. Also, in this fishery while there is no incentive to miss report quahog because they are a much less valuable species, there could be an incentive to under report surfclam as they are more valuable. It might not happen, but it is important to consider.

The Committee Chair noted in the scallop fishery, enforcement has an opportunity to inspect because there are prelanding notification requirements; prelanding notifications would perhaps address law enforcement requirements.

Committee Motions

The Committee did not make any motions during this meeting but agreed that the 2023 implementation plans items for surfclam and quahog and the two possible additions discussed should be carried forward in the draft to the Executive Committee.

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 11, 2023

To: Surfclam and Ocean Quahog (SCOQ) Committee

From: Jessica Coakley and José Montañez, Council Staff

Subject: Surfclam and Ocean Quahog Committee and Advisory Panel Meeting

Below is background information to support SCOQ Committee discussion, with its advisors, during the September 15, 2023, SCOQ Committee and Advisory Panel Meeting.

Molluscan Shellfish Biotoxin Protocols in Federal Waters

In 2019, revisions were made to the National Shellfish Sanitation Program (NSSP) 2019 "Guide for the Control of Molluscan Shellfish (i.e., Model Ordinance and Supporting Documents)." The NSSP is the federal/state cooperative program recognized by the FDA and the Interstate Shellfish Sanitation Conference (ISSC), for the sanitary control of bivalve molluscan shellfish produced and sold for human consumption through interstate commerce. The NSSP Model Ordinance (MO) provides specific requirements for state shellfish programs and the shellfish industry and includes the roles and responsibilities for federal agencies including the Food and Drug Administration (FDA) and National Oceanic and Atmospheric Administration (NOAA), for bivalve molluscan shellfish grown and harvested in Federal waters. This includes biotoxin protocols for molluscan shellfish in Federal waters. Revisions to the guide have implications for our Federal water Atlantic surfclam and ocean quahog fisheries given that any implemented changes may impact protocols with respect to paralytic shellfish poisoning (PSP) closed areas in the Georges Bank fishing areas or other federal waters.

Council staff and Greater Atlantic Regional Fisheries Office Sustainable Fisheries Division (GARFO-SFD) staff have been meeting regularly with staff from the NOAA Office of International Affairs, Trade, and Commerce - Office of Seafood Inspection and Food and Drug Administration since Spring 2022 to track this issue and the implementation of any changes that may impact our fisheries. On September 15, 2022, the Council sent a letter to the Office of Seafood Inspection's Director (and copied FDA staff) emphasizing that addressing this issue in a timely manner should be a high priority. The ISSC met in Spring 2023 to continue its work. Council staff and GARFO-SFD staff met with NOAA Office of Seafood Inspection and FDA staff again on July 20, 2023, to receive an update on their progress. On July 24, 2023, the Council sent a letter requesting details from the FDA on the steps and associated timing involved with the implementation of any changes to protocols that may impact the Atlantic surfclam and ocean quahog fisheries and allow for an opening of this closed area. That

response letter should be available prior to the meeting on September 15, 2023; Council staff plan to provide an update to the Committee and Advisory Panel.

Implementation Plan Items Discussion

At the October 2023 Council Meeting, the Executive Committee will consider items for inclusion in the draft 2024 Implementation Plan that the Council will further review and finalize at the December 2023 Council Meeting. The following items related to surfclam and ocean quahog were included in the plan for 2023. The Committee can recommend items for inclusion in the 2024 plan and should provide clarity on the scope of those recommended items.

2023 Implementation Plan: Surfclam and Ocean Quahog

- Review 2024 specifications for surfclam and ocean quahog
- Facilitate development of surfclam and ocean quahog advisory panel fishery performance reports
- Oversee SCOQ Electronic Monitoring Project
- Develop alternatives for the Surfclam and Ocean Quahog Species Separation Requirements Amendment

2023 Implementation Plan: Possible Additions

- Develop spatial management options for Atlantic surfclam open water aquaculture in the New York Bight and central Atlantic.
- Develop an action to authorize an experimental Atlantic surfclam fishery in the Great South Channel Habitat Management Area (HMA)

The issue of open water aquaculture was recently raised in the context of offshore wind leases. Wind farms may reduce access to the surfclam fishery within these wind turbine arrays. It has been suggested that aquaculture could be used as a means of mitigation for these lost fishing opportunities. Surfclam seed, produced in hatcheries and nurseries, could be planted on fishing grounds to enhance fishing opportunities outside of offshore wind farms. The feasibility of this is being explored through research. Industry recommended an action be developed to explore open water aquaculture and management approaches related to closing areas where cultured surfclam had been planted on the bottom to fisheries.

The Great South Channel HMA has a long history. The New England Council began its work on its Omnibus Essential Fish Habitat Amendment 2 (OHA2) in 2004. In December 2014, as completion on OHA2 drew close, the Mid-Atlantic Council submitted comments to the New England Council specifically requesting that, “sub- areas comprised predominantly of sand substrate be identified as clam management areas within the broader proposed habitat closure areas encompassing Nantucket Shoals, Georges Shoals, and Cultivator Shoals.” These areas were intended for clam dredge fishing access.

At the April 2015 New England Council meeting, a large area east of Nantucket (the Great South Channel HMA) was approved for targeted habitat protection. The New England Council recommended the Northeast corner of the area be closed to all dredges and bottom trawls, and the remainder of the area be closed to bottom trawls and scallop dredges with a 1-year exemption for clam dredges. That year would allow for consideration of a different program for clam dredges to

access portions of that HMA. The New England Council initiated action on a framework to address this issue in September 2015.

In January 2018, NOAA Fisheries approved most of the recommendations contained in OHA2. NOAA Fisheries approved the recommendation of the New England Council to establish the Great South Channel HMA, which would be closed to: (1) mobile bottom-tending gear throughout the area; and (2) clam dredge gear in the northeast section. Clam dredge gear would be allowed throughout other parts of the area for 1-year while the New England Council continued to consider refinements through the framework. The OHA2 was implemented April 9, 2018, and prohibited the use of mobile bottom-tending gear within the HMA. However, the surfclam fishery was granted a one-year exemption to continue operating in all but the northeast corner of the area.

In December 2018, the New England Council completed work on the Clam Dredge Framework and signed off on new measures to allow surfclam fishermen to continue fishing within three exemption areas inside the Great South Channel HMA (see Map below). Increased monitoring provisions including 5-minute VMS (vessel monitoring system) polling apply, and mussel fishermen are also able to fish in the new areas. The New England Council also recommended designation of two research areas in the Great South Channel HMA, with the following commitment: "The Council will develop a prioritized list of research needs concerning Rose and Crown and Davis Bank East. The intent is to work towards an exempted fishing permit program for these areas, which will support the potential development of additional exemptions in the future."

In April 2019, the clam dredge fishery exemption in the Great South Channel HMA expired. Clam dredges were unable to operate in the HMA until final rulemaking occurred on the Clam Dredge Framework in June 2020 (Final-Rule-2020-10566.pdf).

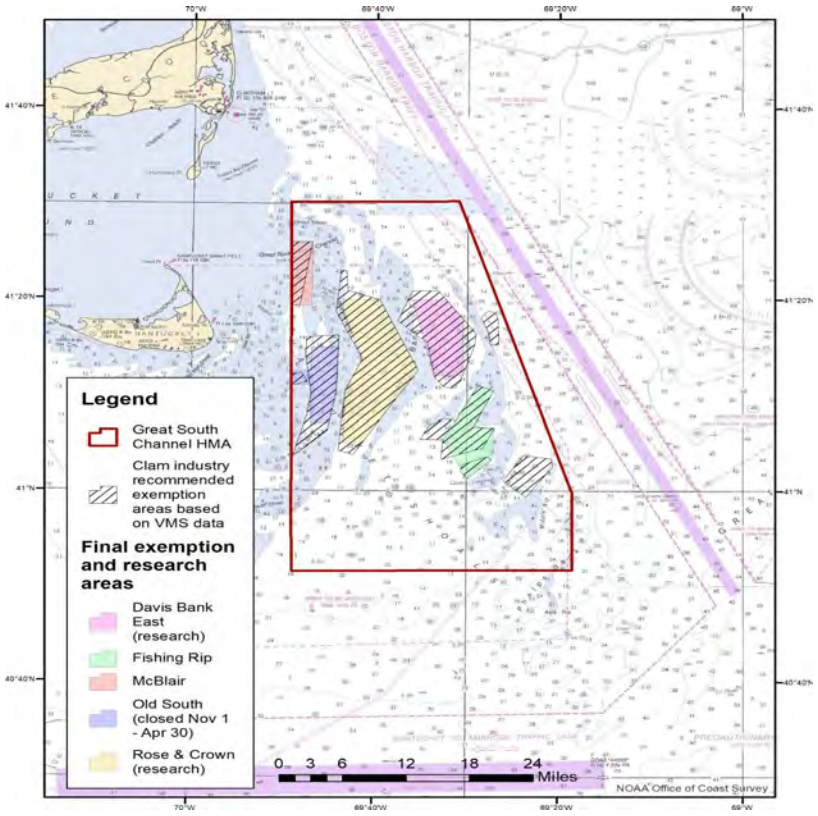
In June 2019, the New England Council followed up on its commitment to develop a research plan for the HMA (190612-GSC-HMA-Research-Planning-Document.pdf). In January 2020, NOAA Fisheries published a Federal Register notice about an Exempted Fishing Permit (EFP) requested by Coonamessett Farm Foundation (CFF) to fish with dredge mounted cameras in the Rose and Crown area of the HMA. The EFP was issued and in December 2020 CFF provided a progress report on their EFP research to the New England Council's Habitat Plan development Team (PDT). The Habitat PDT discussed this report on January 25, 2021.

In December 2021, the Mid-Atlantic Council recommended that Council leadership prioritize a leadership level discussion about the Great South Channel Habitat Management Area between both Councils. This was in response to a letter received by the Mid-Atlantic Council requesting this discussion. In January 2022, the leadership of both the New England and Mid-Atlantic Councils met and discussed opportunities to further coordinate this issue within the scope of the Council process. They agreed to notify the MAFMC Advisors of upcoming NEFMC meetings related to their requested emergency action in this region, and meeting to discuss any reports for research under the EFP issues.

In February 2022, the New England Council requested that the Habitat Committee work with the PDT to review the final report for the project. In June 2022, CFF submitted a final report on the project which was reviewed by the Habitat Committee and then the New England Council. The New England Council forwarded the Committee's evaluation to NOAA Fisheries for their consideration when reviewing future EFP proposals. CFF applied for another EFP (a Phase II Project) that would have conducted video and acoustic mapping in Davis Bank East. In August 2023, NOAA Fisheries

determined the application does not warrant further consideration; but noted the applicant can revise their proposal and submit a new EFP request.

For summaries of past meetings or additional background on the OHA2 and the Clam Dredge Framework, see: https://www.nefmc.org/management-plans/habitat



Map: GSCHMA final exemption and research areas.

Atlantic Surfclam and Ocean Quahog Species Separation Requirements Amendment

As surfclam have shifted toward deeper water in recent years, catches including both surfclam and ocean quahog on the same trip have become more common. Current regulations do not allow surfclam and ocean quahog to be landed on the same trip or in the same tagged cage. The Council began the process of exploring possible modifications to the species separation requirements in these fisheries back in 2020 with the formation of a Fishery Management Action Team (FMAT). In November 2021, the FMAT provided a discussion paper that presented 9 options that could be further explored as approaches to address this issue to the Committee and Advisory Panel at a December 6, 2021 Meeting. In the meeting summary it was noted that, "members of the AP indicated they were supportive of an approach like Option #3 (Modify Regulations to Require Onboard Sorting and Allow Mixed Trips) as a first step, which would require manual onboard sorting and separation of clams by species (surfclam or quahog) when cages are filled on board the vessel, and then taking a research and development (R&D) approach to look at other longer term solutions (like Option #6 or other options that address long term monitoring)."

Therefore, the Committee passed the following motion by unanimous consent: "I move that the Committee forward the recommendation of the AP and Committee as discussed Dec 6 (i.e., proposal of option 3 [required onboard sorting] and longer-term R&D such as EM type of solution), to the full Council for consideration." At the December 2021 Council Meeting, the Council also passed a similar motion "Move to initiate an Amendment that considers short term solutions to species separation including white paper option 3. Also request that the staff/NEFSC[1] explore the feasibility of longer-term solutions for monitoring (such as electronic monitoring testing on the clam survey)."

In 2022, development continued on an Amendment with 3 action alternatives included; the primary alternative that at the time was supported (onboard sorting into cages) and two other alternatives to bracket the ranges of expected impacts and costs for the NEPA analysis (i.e., the development of a port monitoring program and a longer-term solution of electronic monitoring). That document was taken out for public comment in October 2022, and industry indicated that onboard sorting was not a feasible option nor were other alternatives contained within the action.

In December 2022, the Council reviewed public comments and agreed to postpone final action on this Amendment to allow time for development of additional alternatives. The Fishery Management Action Team met in January 2023 jointly with the Surfclam and Ocean Quahog Advisory Panel to solicit input on additional alternatives to explore that are summarized here. The FMAT met again in April 2023 with port agents, enforcement experts, and data management experts (from the GARFO Analysis and Program Support Division) to gather input (see FMAT Summary on page 6 below).

As described in the FMAT summary, there are substantial issues associated with the ideas suggested by the industry as a potential solution. Based on discussion with additional expertise from monitoring and enforcement, moving all sorting into dealer facilities is highly problematic. It sets up a system that makes it much easier to circumvent requirements and difficult if not impossible to enforce. In addition, industry members had indicated they were not supportive of sorting under a standardized protocol in the dealer facilities. Likewise, having partial sorting/estimation on board would likely not provide the information needed, including a more detailed accounting of catch and discards.

In other fisheries, including other Limited Access Privilege Programs (e.g., Pacific Groundfish; Scallops), and the NEFMC groundfish sectors, the catches are monitored at-sea (via high levels/near 100% observer coverage, at-sea monitors, or EM requirements often in lieu of monitors) to ensure any multispecies catch and discards are accurately accounted for. Those types of catch monitoring systems are very expensive and would impose costs on the industry and/or NOAA Fisheries.

At this stage the FMAT has exhausted most of the potential options. As noted, some of the proposed solutions by industry would be unenforceable and not provide adequate, verifiable monitoring, and the solutions most likely to be enforceable and provide accurate monitoring would impose high costs on the industry/NOAA. The FMAT needs additional guidance from the SCOQ Committee and Council on what directions it should further pursue for additional alternative development for the amendment.

[1] NOAA has funded work to explore longer-term solutions for monitoring as described in this news article, The video camera/image collection system was recently deployed on the August 2023 clam survey and project results are expected in 2024.

Atlantic Surfclam and Ocean Quahog (SCOQ) Species Separation Requirements
Fishery Management Action Team (FMAT)
Meeting Summary
April 12, 2023

The Mid-Atlantic Fishery Management Council's (Council) Species Separation requirements FMAT met in person and via webinar on April 12, 2023, to continue its work on the Species Separation Requirement Amendment. The FMAT invited experts from the GARFO Analysis and Program Support Division, Office of Law Enforcement, and Port Agent Program, to provide input on issues related to catch and allocation monitoring and enforcement of regulations. Members of the public also attended.

FMAT members present: Jessica Coakley and José Montañez (Council Staff), Douglas Potts and Sharon Benjamin (GARFO), and Dan Hennen and John Walden (NEFSC).

Others: Caleb Gilbert, Barry Clifford, Bill Duffy, Ben Galuardi, Josh O'Connor, Ted Hawes, Tom Dameron, Peter Himchak, Samuel Martin, Joe Myers, and Dave Wallace.

Summary of Discussion

The meeting was opened with introductory remarks and a review of the agenda. Staff provided an overview of the proposed timeline for work. The FMAT discussed the trip declaration process and law enforcement noted that those declarations are important to retain; therefore, it is important to retain the individual declarations (so it highlights whether quahog or surfclam are the primary target). The fishing industry had suggested the potential for a sampling or subsampling protocol onboard the vessel and then additional sampling protocols at processor to assess composition of the mix.

It was noted that it is important to get a precise accounting of catch before it comes to shore, because right now we are not capturing the discards on board the vessel. There are clams that are tossed overboard and not accounted for in the data.

One suggestion was for a predetermined monitoring plan for each vessel and processor group – this is like what has been done in some of the catch share programs. Each group could work on what would need to be in each detailed monitoring plan. The enforcement aspect is important, and for catch shares it is expensive and carefully monitored. Another option is to develop a separate shoreside monitoring/sampling program, again this could be a more expensive option. This sampling program would need to collect adequate data on catch; however, this would not capture any discards occurring onboard. The group agreed to reach out to NEFSC on Fisheries Monitoring (Katherine McArdle), Cooperative Research (Anna Mercer), and the Port Sampling Program – could look for opportunities through SK, NFWF, FIS, or other programs to develop proof of concept.

It was suggested that there be a two-track option developed – one for smaller vessels and one for larger vessels. It may be easier for smaller vessels with lower volume to manage onboard sorting, and some

industry members may support it, while larger vessels with higher volume catches may be less supportive.

The group discussed the concept of physical tagging versus developing a system to do e-tags – this would make partial use of allocation a bit easier. Right now, any kind of partial use of tags would be problematic for tracking in the databases. It was noted that ITQ is allocated not by mix, but by individual species. To land a mixed trip would you have to have allocation/tags to cover what is being landed? The group discussed the fact that you could shift away from tag-based tracking. Could set up processor/vessel groups and manage allocation accounts (like what was done in the Gulf). This could support a tag less system; however, this would be a big endeavor and require major changes to how allocation is tracked. Allocation would be moved into allocation accounts and only authorized vessels would fish and run a debit to the account based on hail weights, etc. A tag less system could have additional cost recovery implications.

Tags are used for other purposes, so the group discussed tracking and tagging. Might want to check with seafood inspection to make sure tag less would not impact traceability.

It was noted that this fishery is an ITQ – not an IFQ. Perhaps, you need a processor ITQ instead of a vessel/individual ITQ, then the processing plant would have to bear the cost of monitoring. Other industries, such as the meat industry, have inspectors embedded in their facilities (e.g., FDA inspectors). The issue with moving all sorting into dealer facilities is challenging for monitoring and enforcement – there would be no cross checks on the data system and there are a variety of reasons not to have people in the processing facility (safety, slow operations, not enough folks to do any monitoring, EM (cameras) but must have someone review). Lots of challenges there. Other fisheries also have crosschecks between VTRs, and dealer records.

The group discussed the electronic monitoring project – the result from that will be about 1.5 years out. This could do the electronic id as materials come down the belt prior to going into the cages.

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MEMORANDUM

Date: September 22, 2023

To: Council

From: Chris Moore, Executive Director

Subject: Executive Director's Report

The following materials are enclosed for review during the Executive Director's Report at the October 2023 Council Meeting:

1. 2023 Planned Meeting Topics
2. MAFMC to NMFS: Comments on Advanced Notice of Public Rulemaking for Potential Revisions to the National Standard 4, 8, and 9 Guidelines (9/15/23)
3. MAFMC to NMFS: Comments on Draft Technical Guidance for National Standard 1 Reference Points and Status Determinations (9/22/23)
4. Overview of Inflation Reduction Act Funding for Councils (July 2023)
5. Greater Atlantic Region Saltwater Recreational Fisheries Implementation Plan
6. Marine Resource Education Program (MREP) Flyers
7. Draft October 11-13, 2023 CCC Meeting Agenda
8. Highly Migratory Species Advisory Panel – September 6-7, 2023 Meeting Agenda
9. Public Comment on Atlantic Herring Quota Measures

2023 Planned Council Meeting Topics

Updated: 9/21/23

Changes made since the previous Council meeting are shown in track changes.

October 3-5, 2023 Council Meeting – New York City, NY

- *Illex* Hold FW Meeting #2: final action
- Executive Committee: review progress on 2023 Implementation Plan and discuss draft 2024 deliverables
- Policy/Process for Reviewing Exempted Fishing Permit Applications for Unmanaged Forage Amendment Ecosystem Component Species: approve
- Private Recreational Tilefish Permitting and Reporting: review performance
- EAFM Risk Assessment Review: approve
- Habitat Activities (including aquaculture): update
- Offshore Wind: update
- ~~NTAP Restrictor Rope Research: review results~~
- Northeast Fishery Science Center Federal Surveys: Survey Performance, Issues, and Planning for the Future
- Spiny Dogfish Assessment and Peer Review Overview
- Atlantic Mackerel Assessment Peer Review Overview
- NEFSC Cooperative Research Update
- NEFSC Presentation on Maternal Effects (i.e., the potential importance of larger females for resilient fisheries)
- Monkfish and Dogfish Joint Framework to Reduce the Bycatch of Atlantic Sturgeon: review and approve range of alternatives

December 11-14, 2023 Council Meeting – Philadelphia, PA

- 2024-2025 Recreational Management Measures for Summer Flounder and Scup: approve (joint with ASMFC SFSBSB Board)
- 2024 Recreational Management Measures for Black Sea Bass: approve (joint with ASMFC SFSBSB Board)
- Summer Flounder Commercial Minimum Mesh Size Regulations and Exemptions: review and discuss next steps (joint with ASMFC SFSBSB Board)
- Recreational Measures Setting Process Framework/Addenda: review and discuss next steps (with ASMFC Policy Board)
- 2024 Implementation Plan: approve
- Golden Tilefish IFQ Program Review: review final report
- 2024-2026 Spiny Dogfish Specifications: approve
- Review 2024-2025 Atlantic mackerel specifications
- Biennial Review of 2020-2024 Research Priorities Document: review and approve

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September 15, 2023

Wendy Morrison, Ph.D.
Fisheries Policy Analyst
National Marine Fisheries Service
1315 East-West Highway, Room 13436
Silver Spring, MD 20910

Dear Dr. Morrison,

On behalf of the Mid-Atlantic Fishery Management Council (Council), thank you for the opportunity to submit comments on the Advanced Notice of Public Rulemaking (ANPR) for potential future revisions to the guidelines for National Standard (NS) 4, 8, and 9. I would also like to thank Dr. Tara Scott for taking the time to present and provide an overview of the ANPR and the National Marine Fisheries Service (NMFS) comment areas of interest to the Council at our June 6-8, 2023 meeting. The comments offered in this letter reflect the discussion and input from the Council during their June and August 2023 meetings.

Overarching comments

In general, although some clarity to existing definition(s) or minor guidance adjustments to NS4, 8, and 9 could be helpful, the Council believes the existing guidelines provide sufficient direction and enough flexibility to address current and future management challenges, including those associated with climate change, and, as such, should remain largely unchanged.

If rulemaking is pursued, NMFS should identify the deficiencies in the fishery management process that revised guidelines would seek to address. Specifically, any revisions to the guidelines should identify how revised national standards, as well as equity and environmental justice (EEJ) considerations, address the many issues facing our commercial and recreational fishing industries and that maintain flexibility and fishing opportunities. In addition, NMFS should provide examples on how potential revised guidelines might affect current fishery management plan (FMP) and future modifications to such plans. The Council also urges NMFS to provide a clearly specified definition of "underserved communities" as it relates to fisheries, with examples by region, in order to understand how NMFS and the Councils might evaluate future management actions to ensure these groups, communities, and individual entities have fair and equitable access to fisheries resources.

Comments specific to National Standard 4

Over the last few decades, a significant focus of fisheries management has been to reduce overcapitalization in many fisheries in order to help promote stock rebuilding. The Council believes

that any potential revisions to NS4 guidance should carefully consider the implications of new entrants into a fishery, particularly for limited access IFQ/ITQ fisheries.

Also, although it may be beneficial to reference NMFS's Allocation Policy in the NS4 guidance, the Council does not believe modifications to the guidance are needed to reinforce the policy. Each Council has an approved fishery allocation review policy that requires periodic allocation reviews that sufficiently consider the potential impacts of climate/environmental change and affected communities to determine if allocation changes are necessary.

Relative to climate change related considerations, the ANPR notes changing environmental conditions affecting stock distributions and abundances "have the potential to change the applicability of historical information and current regulations." The Council notes that it's likely true that these factors will change in their degree of applicability or relevance, but it should not be implied that these factors may become totally irrelevant, since historical information (e.g., landings) and the regulatory framework that was/is in place have had a major influence in shaping the evolution of fisheries and communities. In addition, for allocations with a spatial component, it may be helpful for the guidelines to more clearly differentiate between various "location" elements. For example, historic and current locations of catch, locations of landings, and locations of effort are all important considerations with potentially different outcomes for allocation decisions.

The Council requests additional clarity on the perceived shortcomings of past allocation decisions as they relate to climate-driven effects. Past allocation decisions have been deemed as fair and equitable, and the ANPR fails to describe how these allocations may now be unfair. In addition, the current NS4 guidelines already allow for allocation decisions that analyze and account for shifting stocks. The Council has been considering, and already implemented, allocation decisions that consider climate driven distribution changes. Although changes in stock distribution should be considered during fishery access and allocation decisions, they should not be the only factor.

In addition, the Council believes the existing guidelines are already aligned with EEJ goals. We are concerned that it would be difficult to demonstrate compliance with more prescriptive guidelines given the lack of social and economic data in many regions. The ANPR also does not indicate how EEJ considerations would promote conservation or specify how underserved communities may have been excluded in the current process for making allocation decisions. Similarly, more information and clarity on what is meant by "marginalized individuals who may have been inequitably excluded" would help identify potential analyses and approaches that could be considered in the future. Instead of changing the NS4 guidelines to address underserved and under-represented communities, NMFS should consider addressing these needs by supporting increased outreach and engagement in the management process by those individuals in those communities.

Comments specific to National Standard 8

Similar to the previous comments, the Council believes the current NS8 guidelines provide sufficient guidance and flexibility to evaluate, consider, and address the effects of climate change on communities dependent on affected fisheries resources. If NMFS does proceed with updates to the NS8 guidelines, the Council supports making some updates and improvements to the definition of "fishing community" but cautions against changes that make the guidance unclear which could lead to both decreased flexibility and adaptability to account for and address future challenges and changes

within our fishing communities. The Council does not support shifting the focus from "dependence" to "engagement" in any revisions to the guidelines for the definition of "fishing community". The Magnuson-Stevens Act (MSA) definition of fishing community includes both "dependence" and "engagement" and the guidelines should continue to consider and balance both as important components in understanding the potential implications of a management action on the affected communities. If the guidelines do shift to a focus on "engagement", the Council suggests that any revised language needs to clearly define what engagement means and how it will be measured to ensure the appropriate analysis and considerations are evaluated.

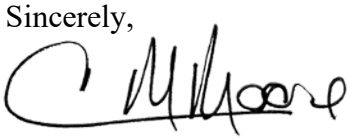
The ANPR is considering removing language that states that NS8 "does not constitute a basis for allocating resources to a specific fishing community nor for providing preferential treatment based on residence in a fishing community." It's unclear as to what the potential implications might be if this language is removed, and the Council suggests that any potential future rulemaking should provide additional information on the rationale for this potential change. The Council also notes there is probably significant overlap between groups that would be considered under "sustained participation" and those communities with high social and climate vulnerability. Given this overlap, it's not clear if the ANPR is proposing that revised guidelines encourage special considerations for highly vulnerable communities.

Comments specific to National Standard 9 and Other Relevant Management Challenges

The Council does support changes to NS9 guidelines that would provide the Councils and industry increased flexibility to minimize regulatory discards. For example, increased flexibility and alternative approaches to deal with choke species, incorporation of ecosystem-based management approaches that might reduce bycatch at a multispecies level, and creative opportunities for industry (within conservation constrains) to potentially switch between species or retain species that may not have been their initial target should all be considered. In addition, the Council believes that without creating financial incentives, it's unclear how revised NS9 guidelines would provide anything meaningful to incentivize the use of bycatch. Participants in a fishery can currently find markets for bycatch, but those markets will generally determine those opportunities and business decisions. Any revisions intended to reduce waste by increasing the use of bycatch should be carefully crafted to avoid incentivizing the catch of bycatch species. Where bycatch cannot be eliminated or reduced substantially, the Council supports additional NS9 guidance and prioritization on identifying opportunities and mechanisms to reduce economic and regulatory waste. Finally, the Council urges NMFS to remove any reference to the phrase "unobserved bycatch mortality" within the NS9 guidelines. Unobserved mortality due to interactions with fishing gear is not bycatch and is not part of the definition of bycatch under MSA, which specifies fish need to be caught in order to be considered bycatch.

Thank you again for the opportunity for the Council to provide comments on the ANPR. Please contact me if you have any questions.

Sincerely,



Christopher M. Moore, Ph.D.

Executive Director
Mid-Atlantic Fishery Management Council

cc: W. Townsend, M. Luisi, S. Rauch, K. Denit

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

September 22, 2023

Richard Methot, Ph.D.
Senior Scientist for Stock Assessments
National Marine Fisheries Service
Office of Science and Technology
Via email: richard.methot@noaa.gov

Dear Dr. Methot,

On behalf of the Mid-Atlantic Fishery Management Council (Council), thank you for the opportunity to submit comments on the draft *Technical Guidance for Estimating Status Determination Reference Points and their Proxies in Accordance with the National Standard 1 Guidelines*. I would also like to thank you for providing an overview of the of the new research and updated guidance outlined in the tech memo to the Council's Scientific and Statistical Committee (SSC) at their July 24-26, 2023 meeting. The comments offered in this letter reflect the discussion and input from the SSC during their September meeting.

The SSC commended the report's authors for developing a comprehensive document that captures the significant progress and improvement that has been made since the guidance document was originally developed in 1998, particularly for data-limited stocks. The report provides a very useful synthesis of approaches for defining reference points and the results of ongoing national and international research and it will be valuable to the SSC as it develops future acceptable biological catch (ABC) recommendations.

The SSC strongly supported the continued exploration and development of dynamic reference points that are responsive to changing environmental conditions as highlighted in the report. Such approaches must distinguish effects due to low stock size from longer-term changes in productivity. Moving average methods may be helpful in defining appropriate stanzas of productivity. The SSC also recommended additional detail and discussion on how to reconcile the different approaches to defining reference points for those stocks that are also managed by boarding countries (e.g., Atlantic Mackerel in Canada). This will likely require the development of more spatial analyses of fish populations and their fisheries.

The SSC commented on the importance of forecasting future conditions relevant to ABC specifications, particularly assumptions about future recruitment. The report suggests using trailing moving averages that will better define the forecast starting point; however, the SSC notes this approach will likely be inadequate if conditions continue to change in the future and are not reversable. An overarching concern is the identification of mechanisms underlying such changes. The SSC agreed with the report's practical solution to take a "weight of evidence" approach, involving comparisons of multiple single species assessments.

The tech memo acknowledges the importance of multispecies models, but does not have specific recommendations to guide their application. The SSC noted that management strategy evaluation (MSE) might be useful for interpreting trade-offs in analyses of multispecies approaches. MSE's can also provide guidance and potential consideration of important economic factors to help inform NS1 guidelines.

The SSC also noted that observations of life history attributes (e.g., maximum age, or age at maturity) can be biased by the intensity of fishing mortality and density dependent processes. Such considerations highlight the utility of long time series of data, comparative analyses with other stocks, sufficiently complex models, and process-oriented field studies. These same approaches are relevant to the assessment of closed areas (e.g., scallops) and potentially areas excluded by offshore energy development and additional guidance should be explored.

Thank you again for the opportunity for the Council and SSC to provide comments on the draft NS1 tech memo. Please contact me or Brandon Muffley of my staff if you have any questions.

Sincerely,

Christopher M. Moore, Ph.D.
Executive Director
Mid-Atlantic Fishery Management Council

cc: W. Townsend, M. Luisi, P. Rago

Overview of Inflation Reduction Act Funding for Councils

Objective: This document describes the process for distributing Inflation Reduction Act (IRA) funds to the Councils for climate-ready fisheries.

Summary: NMFS will determine a set of priorities, incorporating input from the Councils. Within those priority areas, NMFS will provide funding to each Council to support self identified top climate-related management projects. Funding will be executed to the Councils via IRA-specific grants through traditional granting mechanisms with a proposal process coordinated by Office of Sustainable Fisheries and Office of Management and Budget. The Regional Offices and other subject matter experts will have a role in reviewing and evaluating project proposals.

Actions funded under IRA will contribute to the following overarching goals:

- Implementation of fishery management measures necessary to improve climate resiliency and responsiveness to climate impacts; and
- Development and advancement of climate-related fisheries management planning and implementation efforts in support of underserved communities.

Total amount of funds: $20M is being allocated to Councils over the next three years. In FY24, NMFS is planning for 2 disbursements of funds. In Quarter 1, $2M will be distributed according to the Council allocation formula. Later in FY24 and in outyears, funds will be distributed based on a project proposal process. Headquarters will run a proposal process to solicit project ideas and will fund proposals based on specified criteria.

Process overview and anticipated timeline:

- FY23 Q4: The Office of Sustainable Fisheries and Office of Management and Budget will request grant applications from each Council for the IRA funds distributed via the Council allocation formula. Applications will include the typical information required for your Council operational grants (e.g., Project narrative, budget narrative, Standard Forms (SF), etc.). Initial funds will be provided in FY24 Q1.
- Later FY24 and out years: The Office of Sustainable Fisheries will solicit project ideas via pre-proposals and will invite full proposals to those that meet specified funding criteria. Full proposals will include a budget narrative, timeline, and an explanation of how the work meets funding priorities with clear outcomes (below). Pre-proposals and full proposals will be reviewed by a team of NMFS experts from across the Regional Offices and headquarters. Full proposal review will include 3 technical experts. Full proposals that are selected will need to be

submitted to the relevant Federal Program Officer located in the Office of Management and Budget.

A request for proposals will be shared before the October 2023 CCC meeting, in order to discuss and answer questions at that meeting. Proposal reviews and funding decisions for FY24 are expected to occur near the end of the calendar year (December - January).

Priorities: Priorities will focus on implementation of management actions to advance climate-ready fisheries. Priority proposal topics may include:

- Operationalizing fish climate vulnerability assessments or other scientific products (e.g., ecosystem status reports, Integrated Ecosystem Assessments, etc.);
- Operationalizing recommendations from climate scenario planning efforts;
- Implementing management changes that address climate vulnerability or improve climate resiliency of fisheries, including those that are important to underserved communities;
- Implementing measures that increase responsiveness of allocations or other management measures to climate impacts;
- Developing and advancing climate-related fisheries management planning and implementation efforts in support of underserved communities.

Outcomes must contribute to:

- Dynamic fishery management measures that are more timely in response to climate impacts;
- Increased fishing community resiliency to fishery changes caused by anticipated climate impacts.

Proposals **must** be focused on fishery management and governance topics. Proposals that address data and science needs will not be considered under this funding source. Councils should coordinate on scope of proposals with their NMFS Regional Office counterpart.

High priority consideration will be given to:

- Actions that leverage existing tools
- Actions that will be completed within 3 years
- Cross-council projects and initiatives (where relevant)

Requirements for funding: The following requirements will be considered in evaluating proposals:

- Each proposal must be a minimum of $300K per proposal.
    - Rather than funding single activities (e.g., a workshop), it is preferable to bundle related activities under one comprehensive proposal.
- Actions must be completely implemented or in the final phases of approval by 2027.
- Actions using IRA funds must be able to be sustained with no additional post-IRA funds.

Eligible uses: IRA funds can be used to hire new staff/contractors. IRA funds cannot be used to pay for current staff time unless their time is shifted to work on an IRA-funded project and is fully accounted for. Multi-year proposals can be submitted, so long as the proposal outlines how and when the outcomes will be achieved.

Council Staff Note: Several of these are in support of, or in collaboration with, the Mid-Atlantic Fishery Management Council.

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https://www.fisheries.noaa.gov/new-england-mid-atlantic/recreational-fishing/greater-atlantic-region-saltwater-recreational

Greater Atlantic Region Saltwater Recreational Fisheries Implementation Plan

The plan is built around the policy goals and guiding principles identified in NOAA's Saltwater Recreational Fisheries Policy.

Saltwater fisheries are an important component of our regional identity—from downeast Maine and Cape Cod to the Chesapeake Bay and Cape Hatteras. Millions of recreational fishing trips take place throughout the Greater Atlantic region. Anglers spend more than $2.3 billion annually on these recreational fishing trips across our region ($544.4 million across New England and $1.76 billion across the mid-Atlantic in 2020). For-hire vessels, private vessels, and shore-based anglers harvest more than 150 million pounds of fish each year, including summer flounder, pollock, haddock, black sea bass, and bluefish.

The Greater Atlantic Regional Fisheries Office and the Northeast Fisheries Science Center are responsible for the science-based stewardship of our nation's marine life in the northwest Atlantic Ocean. Together with our management partners, we are responsible for maintaining healthy marine and coastal ecosystems, sustainable and productive fishery resources, and commercial and recreational access to those fishery resources for the long-term use and overall benefit of the nation.

We are responsible for setting annual specifications and management measures in federal waters to ensure we are preventing overfishing on recreationally important stocks—Atlantic bluefish, Atlantic mackerel, black sea bass, chub mackerel, groundfish (like cod, haddock, pollock, and flounders), scup, summer flounder, and golden and blueline tilefish. In addition, we are continually working with our management partners on innovative management approaches to better meet the needs of the recreational and for-hire communities. We recognize the important role that recreational anglers and for-hire operations play in the long-term sustainability of our fisheries. We work closely with the recreational community on fisheries management, protected resources management, and habitat restoration and, in particular, in the consideration of other ocean uses like offshore wind and aquaculture.

In the Greater Atlantic Region, our vision for the future includes thriving fish stocks, healthy fish habitats, vibrant coastal communities, and world-class fisheries. Achieving this goal requires a foundation of trust between NOAA and recreational anglers; therefore, collaboration with the recreational fisheries community is essential. This implementation plan is the next step toward making recreational fisheries a key focus of regional activities. While the plan will be a basic roadmap for action in the region, it is a living document that can accommodate new challenges and opportunities as they arise. We intend for this plan, and the activities described here, to embrace a wide range of partners and stakeholders to allow for successful recreational and for-hire fisheries.

Support, Maintain, and Recover Sustainable Saltwater Recreational and Non-Commercial Fisheries Resources, Including Protected Species, and Healthy Marine and Estuarine Habitats

Support Habitat Restoration Projects for Healthy Fish Habitats

Work closely with the Habitat Restoration Center, recreational fishermen, and other partners to support restoration of important habitat for recreationally significant fish (e.g., eel grass restoration, etc.). The action supports guiding principles 1 and 6. Metrics of success include the number of recreational fishing groups/associations partnerships and the number of projects completed.

Expand Collaboration with NOAA's Marine Debris Program

Work closely with the Marine Debris Program to partner with recreational fishing associations on issues related to minimizing and mitigating marine debris from recreational fishing. The action supports guiding principles 1 and 6. Metrics of success include the number of recreational fishing group/association partnerships and the number of projects completed.

Collaborate with the Recreational Fishing and Boating Communities to Improve Whale and Vessel Safety

Advise the Whale and Vessel Safety Taskforce to help identify and develop technology and monitoring tools that can mitigate the risk of vessel strikes to marine mammals, with special attention to North Atlantic right whales. This action supports guiding principles 1, 4, and 6. Metrics of success include participation in taskforce discussions and identification of mitigation strategies.

Promote Inclusive and Sustainable Saltwater Recreational and Non-Commercial Fishing for the Social, Cultural, and Economic Benefit of the Nation

Strengthen Angler Engagement

Collaboratively develop a regional outreach and communication plan that aims to educate and gather angler input and participation in programs and activities. This work supports guiding principles 2, 5, and 6. Metrics of success include development of an engagement plan and the number of communications and engagements with recreational community and leaders.

Validation of Northeast For-Hire Vessel Trip Report Effort Estimates

Evaluate the accuracy of VTR effort estimates and develop quality assurance/quality control procedures, as appropriate. The project supports guiding principles 4 and 5. Metrics of success include comparison of self-reported estimates of angler effort from the for-hire vessel trip reports to direct observations of angler effort recorded by Marine Recreational Information Program interviewers and development/implementation of quality assurance/quality control procedures, as appropriate.

Expand Collaboration with NOAA's National Marine Sanctuaries

Work closely with the Stellwagen Bank and Hudson Canyon National Marine Sanctuaries on outreach and education efforts related to sustainable access of recreational fisheries within the Sanctuary system. The effort supports guiding principles 2 and 3. Metrics of success include the number of engagement events and the number of fishing group/association partnerships.

Enable Enduring Participation In, and Enjoyment Of, Saltwater Recreational Fisheries Through Science-Based Conservation and Management

Better Understand Recreational Use of Marine and Coastal Resources

- Study ability to enhance and augment available data on angler participation, effort, and preferences derived from recreational fishing apps (e.g. FishBrain, FishRules, FishVerify, etc.). The action supports guiding principles 1 and 4. Metrics of success include development of a study to determine efficacy of recreational fishing apps, to include angler participation, effort, and preferences.
- Work closely with recreational fisheries groups to explore innovative solutions to gather recreational data that is otherwise deficient in stock assessments and/or supplements the broader national recreational data collection system. The action supports guiding principles 1 and 4. Metrics of success include exploration of viable reporting programs that obtain discard and effort data and exploration of long-term angler engagements.

Expand the Recreational Bioeconomic Length-Structured Angler Simulation Model Toolkit

Construct a fully functional recreational fishing management decision support tool based on the BLAST modeling framework developed for cod and haddock in the Gulf of Maine, and summer flounder, black sea bass, and scup in the mid-Atlantic. The project supports guiding principles 4 and 5. Metrics of success include development of a Decision Support Tool Working Group to guide construction of the Working Group and integrate it into the management decision-making process.

Explore Use of Use High-Resolution Satellite Imagery to Quantify Recreational Fishing Vessels At Sea

Analyze a subset of very high resolution satellite imagery and determine if and how these data can be compared to Marine Recreational Information Program effort estimates. The project supports guiding principles 4 and 6. Metrics of success include evaluation of high-resolution images to account for recreational anglers at sea, implement a study of participation metrics, and the release of the final results.

Mid-Atlantic Recreational Reform Initiative

Continue to support the development and application of new and additional management tools for recreational fisheries in the mid-Atlantic. The project supports guiding principles 3 and 4. Metrics of success include continued support of work to advance recreational reform and supporting the Department of Justice in defending against litigation.

Advance Climate-Ready Policies and Programs to Respond to Climate-Driven Changes and Impacts on Fishery Resources and the Ecosystem

Ensure Recreational Fisheries Metrics are Considered in the East Coast Climate Change Scenario Planning Next Steps

Ensure recreational fisheries and recreational fishing data continue to be considered in the potential actions resulting from the East Coast Climate Change Scenario Planning process. The project supports guiding principles 3 and 4. Metrics of success may include number of climate-related projects including recreationally important stocks and number of projects that incorporate recreational fishing data.

Examine the Impact of Climate Change on Recreationally Important Stocks

Develop a process to consider shifts in distribution and vulnerability related to climate change on recreationally important stocks allowing for improved understanding and consideration of the impact of climate change on the recreational community. This activity supports guiding principles 1, 4, 5, and 6. Metrics of success include number of conversations with recreational fishing groups on climate-related changes and the number of fishery management actions with climate considerations described in the decision-making process.

Pursue Development of a Recreational For-Hire Study Fleet

Provide opportunity for recreational and for-hire fishery participants to provide meaningful, usable data for use in better understanding recreational fisheries, the impacts of climate changes on those stocks, and other data through a scientifically rigorous for-hire study fleet pilot program. The project supports guiding principles 1 and 4. Metrics of success include development of a Northeast groundfish pilot study, approval/execution of a for-hire study fleet model, and publication of the results.

Pursue and Support Equitable Treatment and Meaningful Involvement of Underserved and Underrepresented Communities in Recreational and Non-Commercial Fisheries and Stewardship

Marine Resource Education Program

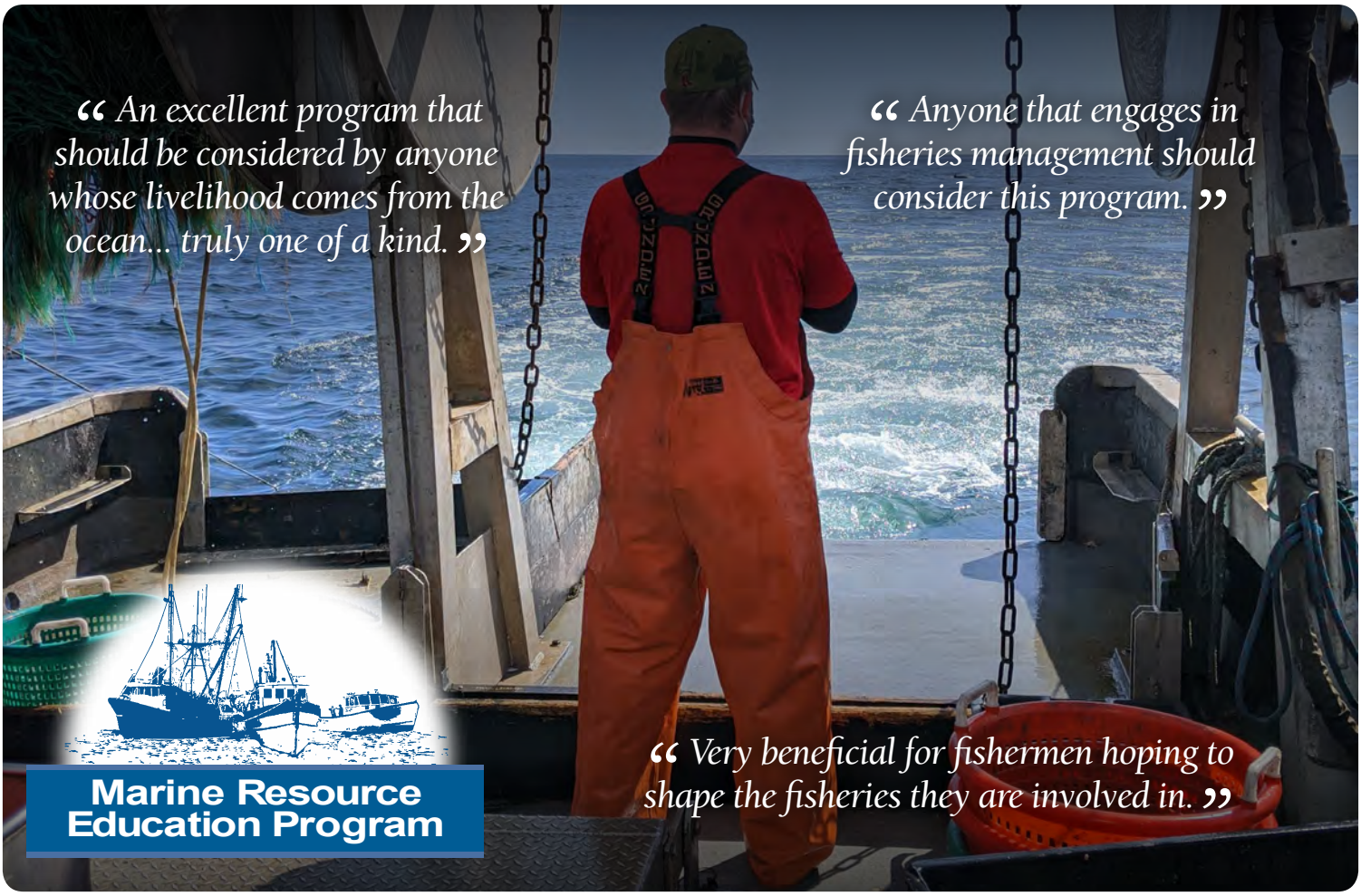
Engage and educate constituents while seeking and supporting diverse candidates for the Northeast Marine Resource Education Program to enhance and diversify public participation in the federal fisheries science and management process. The project supports guiding principles 2, 3, and 6. Metrics of success include assessing the demographic composition of the program over time.

Translation of Educational and Outreach Materials

Provide non-English versions of educational materials in print and online formats. The project supports guiding principles 2 and 6. Metrics of success include the release of translated materials for non-English-speaking recreational fishing communities.

Expand Outreach and Youth Fishing Programs in Areas with Underrepresented Communities

Support and/or participate in outreach and educational programs specifically focused in areas with underserved and underrepresented communities and work to operationalize NOAA Fisheries' new national Equity and Environmental Justice Strategy. This work supports guiding principles 2 and 6. Metrics of success include the number of events supported by NOAA Fisheries and the number of participants or groups engaged in these programs.



By fishermen, for fishermen, the Marine Resource Education Program (MREP) offers a neutral look into local fishery science and management. MREP's Greater Atlantic workshop is tailored to the region. It brings commercial, charter, and recreational fishermen from North Carolina to Maine together with regional scientists and managers to learn the processes, share insights, and network in a neutral and professional setting. This workshop series will equip you with tools to engage in shaping regulatory action and participate in collaborative science. If interested, apply to the 2023-24 MREP Greater Atlantic workshop.

Space is limited, and preference will be given to applications received by **November 13, 2023**. Accepted participants will be notified by phone and email by early January 2024. Attending the workshop is free for anyone who fishes or works in associated fishing industries. MREP reimburses travel costs and pays for hotel lodging and meals for accepted participants.

For more information about MREP, please contact:

- Hank Soule, Groundfish Sector Manager
  (603) 781-9718 or shsector@gmail.com
- Rick Bellavance, Charter Captain
  (401) 741-5648 or rickbellavance@gmail.com

General questions about the program should be directed to **Liz Moore**, MREP Greater Atlantic Program Manager, (207) 228-1680 or emoore@gmri.org. For FAQ, please visit us at **mrep.gmri.org**.

2023-24 Workshop

MREP Fisheries Science & Management Workshop
February 12 – 16, 2024
Sea Crest Beach Hotel
Falmouth, MA

Apply today! Scan the QR code or visit:
mrep.gmri.org/apply

Gulf of Maine Research Institute

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Gulf of Maine Research Institute

Council Coordination Committee Meeting
October 11 - 13, 2023

Hilton Arlington National Landing
2399 Richmond Hwy
Arlington, VA 22202

Meeting website:
https://www.fisheries.noaa.gov/event/2023-october-council-coordination-committee-meeting

Agenda

Wednesday, October 11, 2023 | 1:00 - 5:00 pm EST **Click to join the meeting** **Join by phone:** +1-415-527-5035 US Toll. Access code: 276 276 27767	
1:00 - 1:20 pm	Opening of Meeting ● Welcome and Introduction (Kevin Anson, Gulf Council Chair) ● Approval of Agenda
1:20 - 2:00 pm	NOAA Fisheries Updates & Priorities ● Opening Remarks (Janet Coit) ○ Wind energy ○ National Seafood Strategy ○ National Equity and Environmental Justice plans ● Policy Updates (Kelly Denit) ○ National Standards 4, 8, and 9 Advanced Notice of Proposed Rulemaking
2:00 - 2:45 pm	Budget and 2024 Outlook (Brian Pawlak)
2:45 - 3:30 pm	NOAA Fisheries Science Update (Cisco Werner)
3:30 - 3:45 pm	*BREAK*
3:45 - 4:45 pm	Legislative Outlook (David Whaley) *Report from Congressional Staff and Members Staff (TBD)*
4:45 - 5:00 pm	Public Comment
5:00 pm	*ADJOURN DAY 1*

Thursday, October 12, 2023 | 9:00 am - 5:00 pm EST **Click to join the meeting** **Join by phone:** +1-415-527-5035 US Toll. Access code: 276 164 26187	
9:00 - 10:15 am	NOAA Fisheries Policy regarding Governance (MSA 304(f)) (Kelly Denit)
10:15 - 11:30 am	IRA Climate-Ready Fisheries Council Funding Priorities and Process (Kelly Denit)
11:30 - 11:45 am	*BREAK*
11:45 - 12:00 pm	CCC Subcommittee Updates ● Climate Workgroup (Ryan Rindone)
12:00 - 1:30 pm	*LUNCH BREAK*
1:30 - 3:00 pm	CCC Subcommittee Updates ● Habitat Workgroup (Lisa Hollensead) ● Area-Based Management (Michelle Bachman) ● 8th Scientific Coordination Subcommittee Meeting (Rachel Feeney) ● Communications Workgroup (Emily Muehlstein) ● Council Members Ongoing Development (CMOD) (David Witherell and Bill Tweit) ● EEJ Workgroup (Miguel Rolon)
3:00 - 4:15 pm	Process for Establishing Fishing Regulations in Sanctuaries (John Armor)
4:15 - 4:30 pm	*BREAK*
4:30 - 5:15 pm	Overview of the Fiscal Responsibility Act, (P.L.118-5) and CEQs Proposed NEPA Regulations (Katie Renshaw, Sam Rauch)
5:15 - 5:30 pm	Public Comment
5:30 pm	*ADJOURN DAY 2*

Friday, October 13, 2023 | 9:00 am - 12:30 pm EST **Click to join the meeting:** **Join by phone:** +1-415-527-5035 US Toll. Access code: 276 052 22510	
9:00 - 10:15 am	Endangered Species Act - Magnuson-Stevens Act (ESA - MSA) Integration policy update (Sam Rauch) and CCC ESA-MSA Workgroup (Kitty Simonds)
10:15 - 10:30 am	*BREAK*

10:30 - 10:45 am	Public Comment
10:45 - 11:00 am	Wrap Up and Other Business ● CCC Outcomes and Recommendations (Gulf Council) ● 2024 CCC Meetings (Caribbean Council)
11:00 - 11:30 am	2023 Presidential Migratory Bird Stewardship Award: “Seabird Conservation through Fishery-Based Data: The NOAA Oikonos Seabird Bycatch Project.” (presented by USFWS)
11:30 am	*ADJOURN DAY 3*

September 2023 HMS Advisory Panel Meeting

September 6, 2023

Time	Subject	Presenter
9:00	Welcome/Introductions	Bennett Brooks; Kelly Denit; Director, Office of Sustainable Fisheries
9:15	Overview Presentation	HMS Staff
10:15	Break	
10:30	A15 Update Presentation	HMS Staff
12:15	Lunch	
1:45	Bluefin Tuna Year in Review Presentation	HMS Staff
3:15	Break	
3:30	Leadership Update	Sam Rauch; Deputy Assistant Administrator for Regulatory Programs
4:00	MRIP Pilot Study Results and Next Steps Presentation	John Foster; NMFS Office of Science and Technology
4:45	Public Comment	
5:00	Daily Wrap-up	Bennett Brooks
5:15	Adjourn	

September 7, 2023

Time	Subject	Presenter
8:30	Meeting Set-up	
9:00	Welcome/Recap	Bennett Brooks
9:15	Protected Resources Updates Presentation 1 Presentation 2	Erin Fougeres and Eric Patterson; NOAA Fisheries Office of Protected Resources
10:00	Enforcement Update Presentation 1 Presentation 2	Katie Moore U.S. Coast Guard; NOAA Fisheries Office of Law Enforcement Staff
10:45	Break	
11:00	Bureau of Ocean Energy Management (BOEM) Update Presentation	Bureau of Ocean Energy Management Staff
12:00	Lunch	
1:30	HMS Economic Situation Update Presentation	HMS Staff
2:30	Public Comment	
2:45	Daily Wrap-up	
3:00	Adjourn	

FW: FYI Herring Letter to Council
September 20, 2023

Chris,

Peter Mullen requested that his interest in having the New England Council revisit their area-based Atlantic Herring quota measures (see below) be included as informational correspondence for the Mid's briefing book.

Jason Didden
jdidden@mafmc.org
www.mafmc.org
(302) 526-5254 (direct)
(302) 397-1131 (cell)

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

> I think that transferring Quota from Area 2 to Area 1A and Area 3, should be considered, if that Quota is not caught by the end of March 2024. This is the same stock of fish but it is not migrating into Area 2 because of climate change etc.
>
> This would help both fishermen and businesses very much.
>
> Peter Mullen
> F/V Osprey

New England Fishery Management Council Meeting Agenda
Monday – Thursday, September 25-28, 2023
Hotel 1620, 180 Water Street, Plymouth, MA 02360
tel: (508) 747-4900 | Hotel 1620
Webinar Registration Option

Sending comments? Written comments must be received at the New England Fishery Management Council (NEFMC) office no later than 8:00 a.m., Thursday, September 21, 2023 to be considered at this meeting. Please address comments to Council Chair Eric Reid or Executive Director Cate O'Keefe at: NEFMC, 50 Water Street, Mill 2, Newburyport, MA 01950. Email submissions should be sent to comments@nefmc.org. ** Written comments must address items listed on the agenda for this meeting or issues that will be brought up under the open period for public comment.

IMPORTANT: *The Council will hold its September 2023 meeting at Hotel 1620 in Plymouth, MA. This will be a hybrid meeting with in-person participation, coupled with a webinar option for individuals who cannot or prefer not to attend in person. Updates will be posted on the* ***Council's September 2023 meeting webpage****.*

PUBLIC COMMENTS: *The Council's "Guidelines for Providing Public Comments" can be found* ***here****. Anyone interested in speaking during the open period for public comment on Wednesday, September 27, 2023 at 4:30 p.m. should fill out the sign-up sheet on the table at the entrance to the Council meeting room. To speak remotely, email Janice Plante at jplante@nefmc.org to get on the list.*

Monday, September 25, 2023

12:00 p.m. **Introductions and Announcements** (Council Chair Eric Reid)

12:05 **Swearing-In of New and Reappointed Council Members** (GARFO Regional Administrator Mike Pentony)

12:15 **Election of 2023-2024 Officers**

12:30 **Reports on Recent Activities**
Council Chair, Council Executive Director, Greater Atlantic Regional Fisheries Office (GARFO) Regional Administrator, National Oceanic and Atmospheric Administration (NOAA) General Counsel, Northeast Fisheries Science Center (NEFSC), Mid-Atlantic Fishery Management Council (MAFMC), Atlantic States Marine Fisheries Commission (ASMFC), U.S. Coast Guard, NOAA Enforcement, Northeast Trawl Advisory Panel (NTAP), Northwest Atlantic Fisheries Organization (NAFO), Stellwagen Bank National Marine Sanctuary, Highly Migratory Species Advisory Panel, U.S. Fish and Wildlife Service

2:15 **Regional EEJ Engagement Strategy** (GARFO Regional Administrator Mike Pentony)
GARFO presentation on development of Draft Regional Equity and Environmental Justice (EEJ) Strategy; Council input on EEJ engagement issues for potential inclusion in draft strategy

2:45 **Whiting Report** (Rick Bellavance)
Presentation on preliminary Stock Assessment and Fishery Evaluation (SAFE) Report covering fishery catches and economic trends in fishing year 2022

3:15 **Procedural Directive on MSA 304(f)** (Mike Ruccio, NOAA Fisheries)
NOAA Fisheries guidance on fishery management plan authority for stocks across more than one Council's jurisdiction: presentation; Council discussion and comments

4:15 **East Coast Climate Change Scenario Planning** (Staff)
Follow-up discussion on next steps and formation of two groups to support implementation of climate change scenario planning outcomes from summit

Tuesday, September 26, 2023

9:00 a.m. **Scallop Committee Report** (Melanie Griffin)
Framework 38: preliminary overview of 2023 scallop surveys and progress report on action for 2024 fishery specifications, 2025 default specifications, and other measures; approve survey guiding principles developed by Scallop Survey Working Group

10:30 **Northeast Fisheries Science Center Fishery Independent Surveys** (Dr. Kathryn Ford and Peter Chase, NEFSC)
Overview of NEFSC fishery independent surveys, past survey performance, 2023 survey season issues, contingency plans, and future scheduling for *NOAA Ship Henry B. Bigelow* bottom trawl surveys and *R/V Hugh R. Sharp* scallop surveys; Northeast Trawl Advisory Panel input; Council question-and-answer session

12:30 p.m. **Council Photo**

12:45 **Lunch Break**

2:00 **Northern Edge** (Council Chair Eric Reid)
Initial presentation on and discussion of draft alternatives for action to potentially authorize scallop fishery access to the Habitat Management Area on the Northern Edge of Georges Bank; Council suggestions for revisions to draft alternatives

2:45 **Habitat Committee Report** (Council Chair Eric Reid)
Essential Fish Habitat (EFH) Review: progress report on work to review and revise EFH components of the Council's fishery management plans; Offshore Wind and Other Habitat-Related Work: update on regional activities

3:30 **June 2023 Management Track Stock Assessment** (Dr. Russ Brown, NEFSC)
Presentation on peer-reviewed results of June 2023 Management Track Stock Assessments for Atlantic deep-sea red crab, longfin inshore squid, bluefish, scup, and summer flounder

4:15 **Deep-Sea Red Crab** (Dr. Lisa Kerr, SSC Chair; Dr. Willy Goldsmith, Pelagic Strategies)
2024-2027 Specifications: Scientific and Statistical Committee (SSC) report on overfishing limits (OFLs) and acceptable biological catches (ABCs); Council final action on specifications

Wednesday, September 27, 2023

9:00 a.m. **Atlantic Cod Research Track Assessment** (Working Group Chair Dr. Lisa Kerr; Dr. Russ Brown, NEFSC)
Presentation on peer-reviewed results of the 2023 Atlantic Cod Research Track Assessment; Council question-and-answer opportunity

10:30 **Transboundary Resources Assessment Committee (TRAC)** (U.S. Co-Chair Tara Trinko Lake, NEFSC)
Presentation on TRAC summary of 2023 assessment results/updates for Eastern Georges Bank cod, Eastern Georges Bank haddock, and Georges Bank yellowtail flounder

11:00 **Transboundary Management Guidance Committee** (U.S. Co-Chair Daniel Salerno; SSC Chair Dr. Lisa Kerr)
Receive SSC overfishing limit and acceptable biological catch recommendations for Georges Bank yellowtail flounder for fishing years 2024 and 2025; review and approve TMGC recommendations for 2024-2025 total allowable catches (TACs) for shared U.S./Canada resources on Georges Bank

11:30 **Scientific and Statistical Committee** (SSC Chair Dr. Lisa Kerr)
Receive SSC recommendations on OFLs and ABCs for: (1) Gulf of Maine haddock for fishing years 2024 and 2025; and (2) white hake for fishing years 2024 and 2025, along with feedback on the white hake rebuilding plan options

12:00 p.m. **Groundfish Committee Report Part 1** (Rick Bellavance)
Framework 66: progress report on action that includes (1) 2024-2025 total allowable catches for U.S./Canada shared resources on Georges Bank; (2) 2024-2025 specifications for Georges Bank yellowtail flounder, white hake, and Gulf of Maine haddock; (3) 2024-2026 specifications for Acadian redfish, northern windowpane, and southern windowpane; (4) a revised white hake rebuilding plan; (5) Atlantic halibut issues; and (6) extending removal of the sector management uncertainty buffer for white hake and Gulf of Maine haddock until the next specifications cycle

12:30 **Lunch Break**

1:45 **Groundfish Committee Report Part 2** (Rick Bellavance)
Framework 68: report on facilitated meeting for action to revise groundfish acceptable biological catch (ABC) control rules; Atlantic Cod Management Transition Plan: update and Council discussion

3:30 **Risk Policy Working Group Report** (Megan Ware)
Review and discuss recommended changes to the Council's Risk Policy as identified in Terms of Reference 1 and 2, including potential revisions to goals and objectives; discuss how revisions to the Council's groundfish ABC control rules may relate to the Risk Policy Working Group's directive

4:30 **Open Period for Public Comment**
Opportunity for the public to provide brief comments on issues relevant to Council business but not listed on this agenda (please limit remarks to 3-5 minutes)

4:45 **Draft Technical Guidance for National Standard 1** (Staff)
Overview of NOAA Draft Technical Guidance for National Standard 1 Reference Points and Status Determinations; SSC input; Council discussion and comments

Thursday, September 28, 2023

9:00 a.m. **Atlantic Herring Committee Report** (Cheri Patterson)
Action to Minimize User Conflicts for Atlantic Herring: progress report on work to revisit Amendment 8 Inshore Midwater Trawl Restricted Area; potentially initiate framework adjustment

10:00 **North Atlantic Right Whales** (Colleen Coogan, GARFO Protected Resources Division)
Recap on timeline for Atlantic Large Whale Take Reduction Plan (ALWTRP) modifications

10:30 **On-Demand Fishing Gear Conflict Working Group** (Mike Pierdinock)
Update on activities; approve working group's terms of reference

11:15 **Monkfish/Dogfish Joint Action to Reduce Atlantic Sturgeon Bycatch** (Matt Gates)
Monkfish Framework 15: update on joint New England/Mid-Atlantic Council action to reduce monkfish and dogfish large-mesh gillnet fishery interactions with Atlantic sturgeon

11:45 **Monkfish Committee Report** (Matt Gates)
Presentation on recommendations to improve the Monkfish Research Set-Aside (RSA) Program's effectiveness; Council discussion and approval of recommendations

12:30 p.m. **Lunch Break**

1:30 **Skate Committee Report** (Scott Olszewski)
Framework 12: update on action to develop 2024-2025 fishery specifications and measures to expand possession of smooth and barndoor skates

2:00 **Ecosystem-Based Fishery Management Committee Report** (John Pappalardo)
Presentation on and Council discussion of next steps in using EBFM prototype management strategy evaluation (pMSE) final report to engage stakeholders in potential 2024 deep-dive workshops

2:30 **Initial Discussion on 2024 Council Priorities** (Executive Director Cate O'Keefe)

3:45 **Other Business**

Times listed next to the agenda items are estimates and are subject to change.
This meeting is being held in person and by webinar. Council member financial disclosure forms are available for examination on the Council website.

Although other non-emergency issues not contained on this agenda may come before this Council for discussion, those issues may not be the subject of formal action during this meeting. Council action will be restricted to those issues specifically listed in this notice and any issues arising after publication of this notice that require emergency action under section 305 (c) of the Magnuson-Stevens Act, provided the public has been notified of the Council's intent to take final action to address the emergency.

Documents pertaining to Council actions are available for review prior to a final vote by the Council.
Please check the Council's website, www.nefmc.org, or call (978) 465-0492 for copies.
This meeting will be recorded. Consistent with 16 USC 1852, a copy of the recording is available upon request.

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

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Carolyn N. Belcher, Ph.D., Chair |Trish Murphey, Vice Chair
John Carmichael, Executive Director

Agenda

Town and Country Inn
2008 Savannah Highway
Charleston SC 29407

September 11-15, 2023

Except for advertised (scheduled) public hearings and public comment sessions, the times indicated on the agenda may be adjusted as necessary to accommodate the completion of agenda items. Interested parties should be aware that meetings may start earlier or later than indicated.

Hybrid Public Comment Session:
The public comment session for the meeting (September 13, 2023, at 4 PM), will allow for both in-person and remote (via webinar) verbal public comment. Individuals intending to provide verbal public comment remotely are asked to **sign-up here**. Members of the public intending to provide verbal public comment in-person will be asked to sign-in at the meeting.

Written Comments:
To submit written comment on items on this agenda, visit the **online public comment form**.
Written comments will be accepted from August 25 to September 15, 2023. These comments are accessible to the public, part of the Administrative Record of the meeting, and immediately available for Council consideration.
View **submitted written comments**.
Written comments submitted by mail/fax received by close of business the Monday before the meeting (September 4, 2023) will be compiled, posted to the website as part of the meeting materials, and included in the administrative record.
From September 5 to 5 PM on September 15, written comments must be submitted electronically through the online public comment form at the link above.

Photo scanning event for FISHstory project: staff will be ready to scan historic photos contributed to the project all day on Wednesday, September 13.

Monday, September 11, 2023 COUNCIL SESSION

COUNCIL SESSION I/Belcher 8:30 am – 12:00 noon

- Call to order and introductions
- Oath for new members
- Approve agenda
- Approve minutes (June 2023)

1. Reports (NOAA Office of Law Enforcement, US Coast Guard, Council liaisons, state agencies)
2. Joint Commercial Electronic Logbook Amendment – consider for final approval
3. Climate Change Scenario Planning Update – report and May 2023 NRCC guidance/Potential Action Menu)

12:00 noon to 1:30 pm **Lunch**

COUNCIL SESSION I/Belcher 1:30 pm – 5:00 pm

4. Allocation Review Process – review draft
5. Southeast Reef Fish Survey (SERFS) and Southeast Area Monitoring and Assessment Program (SEAMAP) Updates
6. Marine Recreational Information Program pilot study on the recreational Fishing Effort Survey design – Richard Cody, NMFS Office of Science and Technology, Fisheries Statistics Division Chief
7. NMFS Council Governance Procedural Directive Discussion

Tuesday, September 12, 2023 **COMMITTEE MEETINGS**

Mackerel Cobia Committee/Roller 8:30 am – 10:00 am

- Approve agenda
- Approve minutes (June 2023)

1. CMP Framework Amendment 13 (Spanish mackerel) – review options
2. Port meetings update

Habitat Protection and Ecosystem-based Management Committee/Murphey 10:00 am – 12:00 noon

- Approve agenda
- Approve minutes (March 2023)

1. Habitat Program Blueprint – consider approval

12:00 noon to 1:30 pm **Lunch**

Habitat Protection and Ecosystem-based Management Committee/Murphey 1:30 pm – 3:00 pm

2. Advisory Panel Report (May 2023)
    a. EFH policies revision
    b. EFH review update
3. SSC comments on coral distribution model (May 2023)
4. Approve topics for Habitat Advisory Panel meeting

SEDAR Committee/Belcher 3:00 pm – 5:00 pm (Partially Closed Session)

- Approve agenda
- Approve minutes (March 2023)

1. April 2023 SEDAR Steering Committee Meeting Report
2. SEDAR Projects Update
3. Statements of Work Approval for 2026 Assessments (Snowy Grouper and Dolphin Management Procedure or Spanish Operational Assessment)
4. New SSC appointments to SEDAR panels to replace outgoing members **(CLOSED)**

Wednesday, September 13, 2023 COMMITTEE MEETINGS

Snapper Grouper Committee/McCawley 8:30 am – 12:00 noon

- Approve agenda
- Approve minutes (June 2023)

1. Wreckfish (Amendment 48)
    c. Overview of amendment – approve revised timeline
    d. Presentation on compliance of cost recovery fee

2. Private Recreational Permit (Amendment 46)
    a. Advisory Panel report
    b. Overview of amendment

12:00 noon to 1:30 pm Lunch

Snapper Grouper Committee/McCawley 1:30 pm – 3:45 pm

3. Scamp/Yellowmouth Grouper (Amendment 55)
    a. SSC recommendations
    b. Overview of amendment and scoping comments

Wednesday, September 13, 2023
PUBLIC COMMENTS

4:00 pm

Public comment will be accepted from individuals attending the meeting (in-person and remotely) regarding any of the items on the Council agenda. The Council Chair, based on the number of individuals wishing to comment, will determine the amount of time provided to each commenter. Those intending to provide verbal public comment via webinar can sign-up here.

Final Approval: Joint Amendment Addressing Electronic Reporting for Commercial Vessels

Thursday, September 14, 2023 COMMITTEE MEETINGS

Snapper Grouper Committee/McCawley 8:30 am – 12:00 noon

4. Yellowtail Snapper (Amendment 44)
    a. Overview of amendment

5. Black Sea Bass Management Options
    a. SSC recommendations – review of requested projections and catch levels
    b. On-demand Gear Workshop Report
    c. Review potential actions

6. Updates
    a. System Management Plan Workgroup
    b. Best Fishing Practices Outreach

7. SEDAR 86 (Red Grouper) Modifications
    a. SSC recommendations

8. Approve topics for Snapper Grouper Advisory Panel meeting

12:00 noon to 1:30 pm Lunch

Thursday, September 14, 2023 COUNCIL SESSION

COUNCIL SESSION II/Belcher 1:30 pm – 5:00 pm

1. Awards
    a. 2022 Law Enforcement of the Year
    b. Award of Excellence
2. Litigation Brief (if needed) – NOAA General Counsel
3. Staff Report
4. Approve topics for Dolphin Wahoo Advisory Panel
5. Review topics for Outreach and Education Advisory Panel
6. NMFS Southeast Regional Office Report
    a. Briefing on ongoing system issues at Permits Office
    b. Biological Opinions updates (Dolphin, Wahoo and Shrimp)
7. NMFS Southeast Fisheries Science Center Report

COUNCIL SESSION II/Belcher 8:30 am – 12:00 noon

8. Committee reports
9. Council workplan
10. Upcoming meetings

Other business

Adjourn