April 2024 Council Meeting

Tuesday, April 9 – Thursday, April 11, 2024

The Sheraton Atlantic City Convention Center Hotel
Pearl Ballroom
(Two Convention Boulevard, Atlantic City, NJ 08401; 609-344-3535)
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 Sheraton Atlantic City or virtually via Webex webinar. Webinar connection instructions and briefing materials will be available at: https://www.mafmc.org/briefing/april-2024.

Tuesday, April 9th

1:00 p.m. – 1:30 p.m.	**Proposed Rule to Update Regulations Associated with the Magnuson-Stevens Fishery Conservation and Management Act's Confidentiality Requirements – NOAA Fisheries HQ Staff** – Presentation and opportunity for questions/feedback	**(Tab 1)**
1:30 p.m. – 2:00 p.m.	**Offshore Wind Fisheries Compensation Programs** – Summary of fishery information requirements for compensation eligibility – Data needs and challenges – Consider potential Council action	**(Tab 2)**
2:00 p.m. – 3:00 p.m.	**2024 State of the Ecosystem Report – Dr. Sarah Gaichas, NEFSC** – Review and provide feedback	**(Tab 3)**
3:00 p.m. – 4:00 p.m.	**2024 Ecosystem Approach to Fisheries Management (EAFM) Risk Assessment Report** – Review draft report and provide feedback for further development	**(Tab 4)**
4:00 p.m. – 5:00 p.m.	**Habitat Activities Update – Greater Atlantic Regional Fisheries Office Habitat and Ecosystem Services Division** – Presentation on activities of interest (aquaculture, wind, and other projects) in the region	**(Tab 5)**

Wednesday, April 10th

9:00 a.m. – 11:00 a.m.	**Joint MAFMC/NEFMC Framework to Reduce Atlantic Sturgeon Interactions in the Monkfish/Dogfish Gillnet Fisheries: Final action** – Review recommendations from the FMAT/PDT, Dogfish and Monkfish Advisory Panels, and joint Dogfish and Monkfish Committee – Review alternatives and impacts analyses – Select preferred alternatives and take final action	**(Tab 6)**
11:00 a.m. – 12:00 p.m.	**NTAP Progress Report for Industry-Based Survey Pilot Program** – Review and provide feedback	**(Tab 7)**
12:00 p.m. – 1:00 p.m.	**---------- LUNCH ----------**	
1:00 p.m. – 2:00 **p.m.**	**Golden Tilefish Catch Share Program Review** – Review public comments received – Approve program review and submit to NOAA Fisheries – Review recommendations from the Oversight Team and discuss next steps	**(Tab 8)**
2:00 p.m. – 3:00 p.m.	**Golden Tilefish Assessment Overview – Kristan Blackhart, NEFSC** – Overview of recently completed Research Track Stock Assessment	**(Tab 9)**
3:00 p.m. – 3:30 p.m.	**Impacts of Offshore Wind Energy Construction Sounds on Behavior of Longfin Squid and Black Sea Bass – Aran Mooney, Woods Hole Oceanographic Institution** – Review research on impacts of sound on behavior of longfin squid and black sea bass	**(Tab 10)**
3:30 p.m. – 5:00 p.m.	**Summer Flounder Commercial Mesh Exemptions Framework Meeting #1 (with ASMFC SFSBSB Board)** – Review preliminary analysis and public input – Approve draft range of alternatives for further analysis	**(Tab 11)**

Thursday, April 11th

9:00 a.m. – 1:00 p.m.	**Business Session**	
	Committee Reports: – Scientific and Statistical Committee	**(Tab 12)**
	Executive Director's Report – Dr. Chris Moore	**(Tab 13)**

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 14)**

- 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 3/25/24)

SPECIES	STATUS DETERMINATION CRITERIA		Stock Status	Most Recent Assessment of Stock Status
	Overfishing Threshold F_{MSY} proxy value	**Overfished Threshold** ½ B_{MSY}		
Summer Flounder 	0.451	54.63 million lbs	Overfishing Not overfished	Stock status based on 2023 Management Track Assessment.
Scup 	0.19	86.64 million lbs	No overfishing Not overfished	Stock status based on 2023 Management Track Assessment.
Black Sea Bass 	0.46	15.92 million lbs	No overfishing Not overfished	Stock status based on 2021 Management Track Assessment.
Bluefish 	0.239	97.15 million lbs	No overfishing Not overfished*	Stock status based on 2023 Management Track Assessment. *Note: The stock is no longer overfished but the rebuilding plan will remain in effect until the stock reaches the biomass target.
***Illex* (Shortfin) Squid** 	Unknown	Unknown	Unknown Unknown	The 2022 Research Track Assessment failed to establish status determination criteria, but peer review agreed the stock was likely "lightly fished in 2019," though with cautions.
Longfin Squid 	Unknown	46.7 million lbs	Unknown Not overfished	Stock status based on 2023 Management Track Assessment. The assessment was unable to determine current exploitation rates.
Atlantic Mackerel 	0.21	169.9 million lbs	No overfishing Overfished	Stock status based on 2023 Management Track Assessment.
Butterfish 	0.85	43.5 million lbs	No overfishing Not overfished	Stock status based on 2022 Management Track Assessment.
Chub Mackerel 	At least 6.67 million lbs of catch per year	At least 6.67 million lbs of catch three years in a row	No overfishing Not overfished	No stock assessment.

SPECIES	STATUS DETERMINATION CRITERIA		Stock Status	Most Recent Assessment of Stock Status
	Overfishing Threshold F_{MSY} proxy value	**Overfished Threshold** ½ B_{MSY}		
Surfclam 	0.141	1.1 billion lbs [a]	No overfishing Not overfished	Stock status based on 2020 Management Track Assessment.
Ocean Quahog 	0.019	2.3 billion lbs [b]	No overfishing Not overfished	Stock status based on 2020 Management Track Assessment.
Golden Tilefish 	0.261	12.12 million lbs	No overfishing Not overfished	Stock status based on 2021 Management Track Assessment.
Blueline Tilefish (Mid-Atlantic management area) 	Unknown	Unknown	Unknown Unknown	The 2017 benchmark assessment (SEDAR 50) was unable to determine stock status for the portion of the stock north of Cape Hatteras. The portion of the stock south of Cape Hatteras was not overfished and overfishing was not occurring.
Spiny Dogfish (Joint mgmt with NEFMC) 	0.025	94 million pups spawning output	No overfishing Not overfished	Stock status based on 2023 Management Track Assessment.
Monkfish (Joint mgmt with NEFMC) 	Unknown	Unknown	Unknown Unknown	The 2022 Management Track Assessment was unable to determine stock status due to lack of biological reference points.

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

Overfishing Threshold Definitions

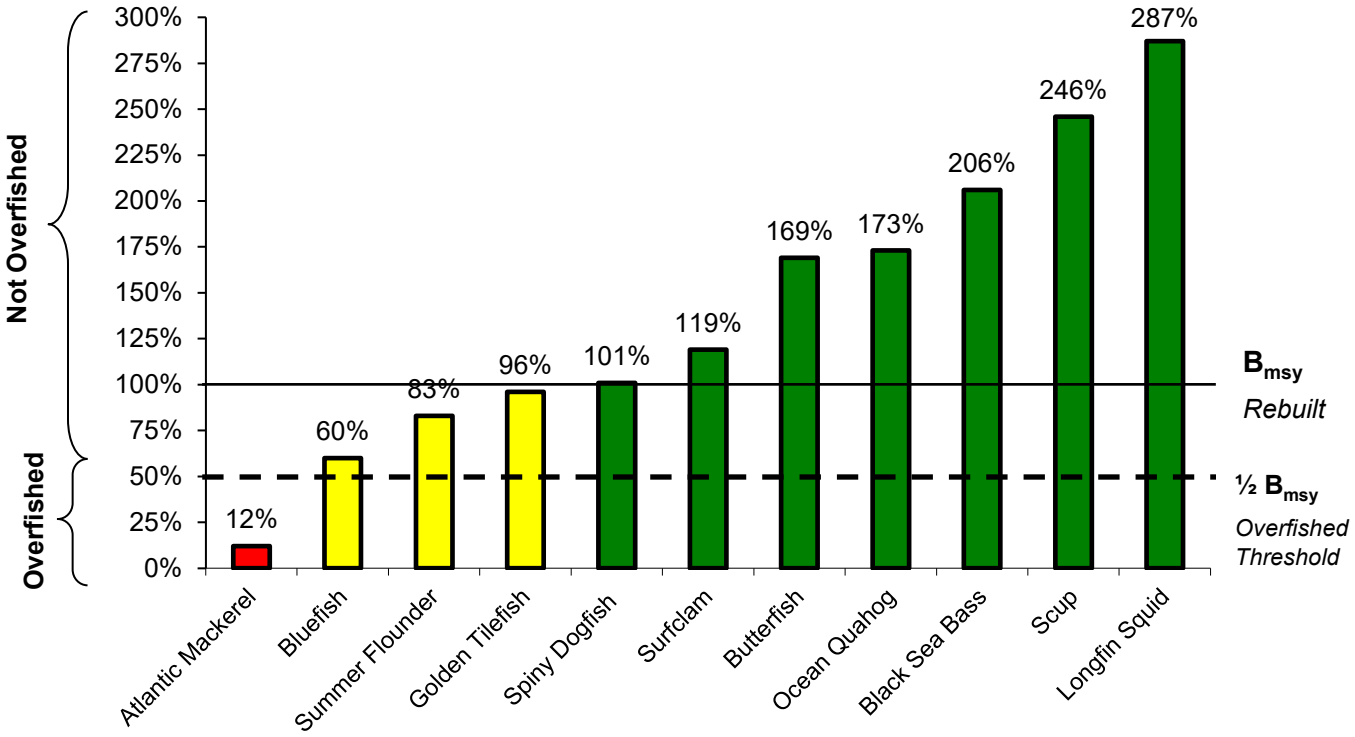
- **Summer Flounder**: F_{MSY} proxy = $F_{35\%}$
- **Scup**: F_{MSY} proxy = $F_{40\%}$
- **Black Sea Bass**: F_{MSY} proxy = $F_{40\%}$
- **Bluefish**: F_{MSY} proxy = $F_{35\%}$
- **Atlantic Mackerel**: F_{MSY} proxy = $F_{40\%}$
- **Butterfish:** F_{MSY} proxy = 2/3 (M) where M equals natural mortality
- **Atlantic Surfclam:** F_{MSY} proxy is calculated as 4.136 times the mean F during 1982 – 2015
- **Ocean Quahog:** F_{MSY} proxy is based on a management strategy evaluation analysis
- **Golden Tilefish**: F_{MSY} proxy = $F_{40\%}$
- **Spiny Dogfish**: F_{MSY} proxy calculated based on 60%SPR (spawners per recruit)

[a] Atlantic surfclam $SSB_{threshold}$ is calculated as $SSB_0/4$.

[b] Ocean quahog $SSB_{threshold}$ is calculated as $0.4*SSB_0$.

Stock Size Relative to Biological Reference Points

(as of 3/25/24)



Notes:

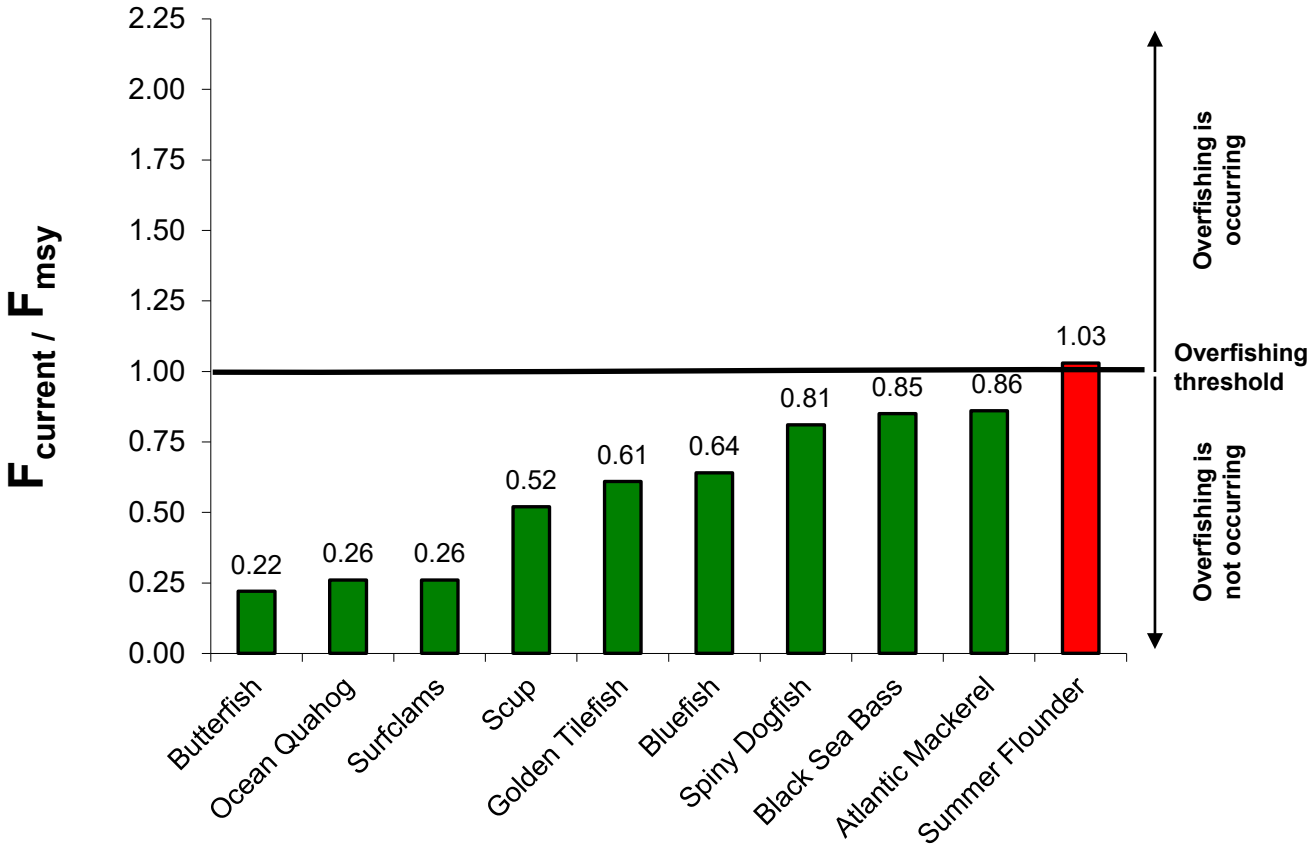
- Of the 15 species managed by the Council, 7 are above target biomass (B_{MSY}), 3 are below target biomass but above the overfished threshold (½ B_{MSY}), 1 is below the overfished threshold, and 4 are unknown.
- Unknown B_{msy} - *Illex* squid, monkfish (Northern and Southern Fishery Management Areas), blueline tilefish (North of Cape Hatteras), and chub mackerel.

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 3/25/24)



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:

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

From: Samuel Rauch - NOAA Federal <samuel.rauch@noaa.gov>
Date: Friday, March 8, 2024 at 5:18 PM
Subject: NOAA Fisheries Announces Proposed Rule to Update Regulations Associated with the Magnuson-Stevens Fishery Conservation and Management Act's Confidentiality Requirements

Good morning/Good afternoon,

Today, NOAA Fisheries published a proposed rule that would bring our implementing regulations for managing confidential information into compliance with the 2007 statutory amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSA). When Congress originally passed the MSA in 1977, it for the first time created new federally mandated requirements that fishermen report things like when and where they catch fish. In exchange, however, Congress also required that this information be kept confidential. Throughout the years, Congress has occasionally tweaked these confidentiality requirements. NOAA Fisheries has implemented regulations to meet the statutory requirements in the MSA, but the regulations have not been updated for some time and specifically have not fully incorporated the requirements of the 1996 Sustainable Fisheries Act or the most recent MSA amendments in 2007.

The proposed rule aims to streamline access for the fishing industry as well as Regional Fishery Management Councils, states, commissions, and other entities that need such information for fishery conservation and management purposes. It would bring our implementing regulations into compliance with the Congressional amendments and address their application to some of our more recent issues, such as applying the MSA confidentiality provisions to camera-based electronic monitoring programs and uncertainty associated with sharing data across international partnerships. The rule would also prohibit unauthorized disclosure of confidential information, clarify exceptions to the MSA that allows for the release of confidential information, and provide a general framework for the handling of confidential information under the MSA. A core component of the MSA confidentiality requirements is for NOAA Fisheries to establish and publish internal control procedures for the maintenance of, and access to, any confidential information. As part of updating our internal control procedures after the final rule is published, NOAA Fisheries will provide opportunities for engagement during their development, and final control procedures would be shared and posted publicly.

NOAA Fisheries is requesting public comment through 04-25-2024. The "as filed" version of the document can be viewed on the Federal Register's website: https://www.federalregister.gov/documents/2024/03/11/2024-05106/confidentiality-of-information and will officially publish on 03-11-2024.

If you have any questions, please contact Laura Keeling at laura.keeling@noaa.gov and Brett Wiedoff at brett.wieddoff@noaa.gov.

Thank you.
Sam

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Samuel D. Rauch III
Deputy Assistant Administrator for Regulatory Programs
National Marine Fisheries Service/NOAA
U.S. Department of Commerce
301-427-8000

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: March 26, 2024

To: Council

From: Julia Beaty, staff

Subject: Offshore Wind Fisheries Compensation Programs and Data Needs

On Tuesday, April 9, the Council will discuss fisheries compensatory mitigation programs for offshore wind energy projects and the data requirements for fishermen to demonstrate eligibility. The discussion will focus on the Vineyard Wind 1 fisheries compensatory mitigation program, but will also be relevant for other wind projects. Vineyard Wind 1 is especially of interest given the June 3, 2024 deadline for fishermen to qualify for compensation from this program. NOAA Fisheries is expected to receive a high volume of data requests associated with this and other compensation programs as more offshore wind projects begin construction over the upcoming years. Some commercial fishery stakeholders have raised concerns about the ability of NOAA Fisheries to respond to data requests in a timely manner and are concerned that this will pose challenges for fishermen to demonstrate eligibility for compensation, especially for programs with strict deadlines such as Vineyard Wind 1.

The goal of the Council discussion on April 9 is to better understand the data requirements, process for obtaining data, and associated challenges. Representatives from NOAA Fisheries and Vineyard Wind 1 will be available to assist with this discussion. The Council may also discuss potential actions the Council could take with the goal of improving the process. This could take the form of additional outreach to help raise awareness among fisheries stakeholders about these compensation programs, a Council letter expressing concerns with the process, or other potential Council action.

To assist with this discussion, details on the data needed to demonstrate eligibility for compensation from the Vineyard Wind 1 program are provided below. This information was obtained from the Vineyard Wind 1 fisheries compensatory mitigation program website (accessed 3/20/2024).

To qualify for the Vineyard Wind 1 fisheries compensatory mitigation program, applicants must apply by June 3, 2024 and demonstrate that they:

- Are the owner/operator of a commercial fishing vessel homeported in Massachusetts, Rhode Island, Connecticut, New York, or New Jersey.
- Have a 2023 commercial fishing permit from NOAA Fisheries.

- Have a valid government-issued vessel registration that shows vessel ownership, or a vessel lease agreement.
- Fished in the Vineyard Wind 1 lease area, OCS-A 0501 (see map below), for at least three years between 2016 and 2022.
- Have annual revenue from fishing activities for the corresponding three years between 2016 and 2022.

The eligibility period, which closes on June 3, 2024, is the only time that commercial fishing vessel owner/operator applications will be accepted. Applications submitted outside of the eligibility period will not be considered and applicants will not have another opportunity to qualify for the program.

Commercial fishing vessel owners/operators must include evidence of fishing activities in the Vineyard Wind 1 lease area, OCS-A 0501, with their application. This evidence may include, but is not limited to the following:

- Vessel Trip Reports
- Vessel Monitoring System information
- Automatic identification system information
- Fishery Observer or At-Sea Monitoring information
- NOAA Fisheries Cooperative Research Study Fleet information
- Time-stamped chart plotter data/images
- Logbooks (supported by additional data)
- Other trip-level reporting information that establishes fishing activity in the Vineyard Wind 1 lease area, OCS-A 0501

NOAA Fisheries has provided the following contacts for fishing activity data requests:

- Logbook and fishing footprint data requests: NMFS.GAR.Data.Requests@noaa.gov
- Vessel Monitoring System data requests: ole.helpdesk@noaa.gov
- Northeast Fisheries Observer Program data requests: chris.tholke@noaa.gov
- GARFO permit data requests: NMFS.GAR.Permits@noaa.gov

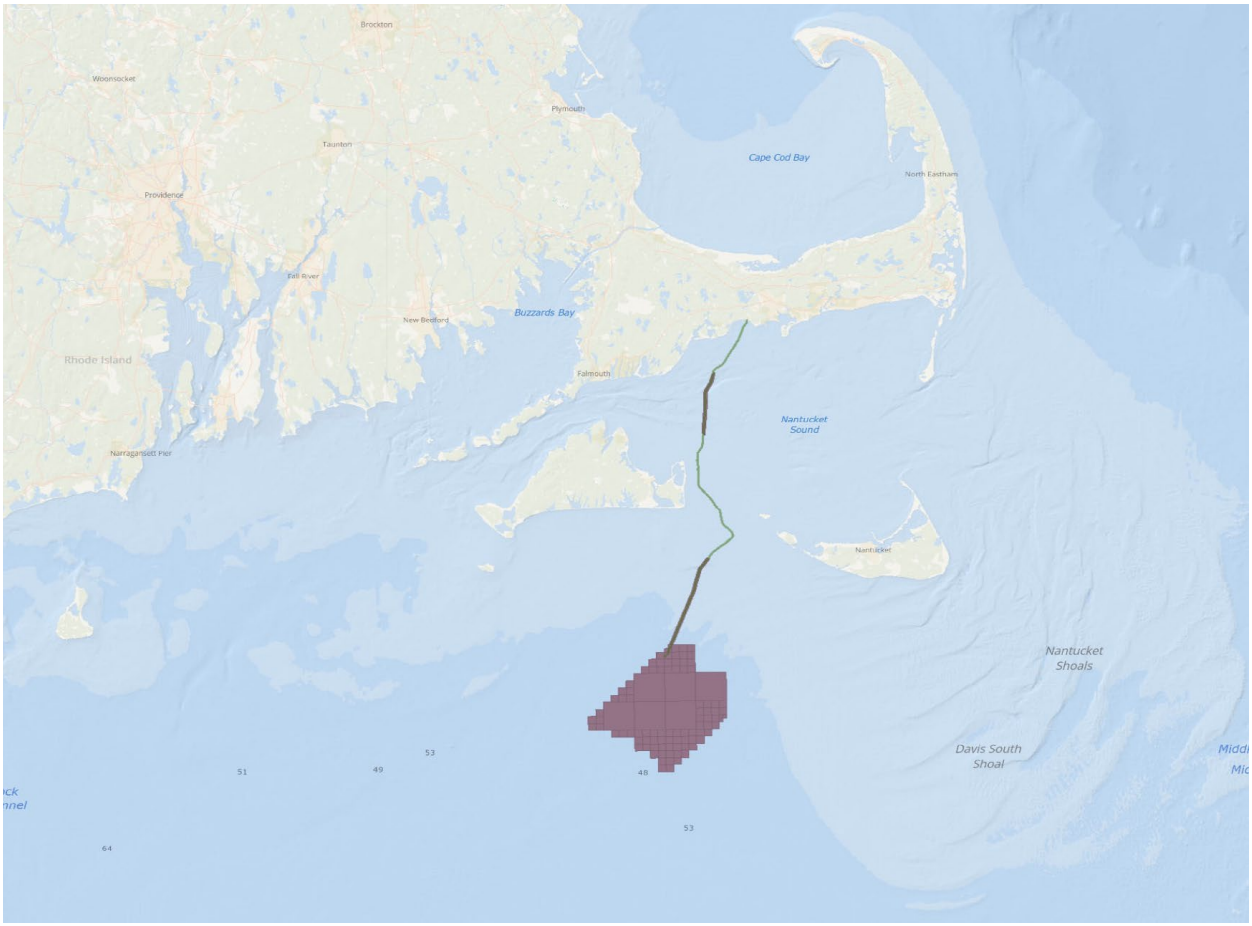
NOAA Fisheries has provided the following guidance for fishing activity data requests:[1]

- Be very clear about what you are requesting
- Ensure your request includes all of the necessary information:
    - Contact information for the person requesting the data
    - Permit number and vessel name for data requested
    - Data requested (e.g., logbook landings, fishing revenue, permit issuance)
    - Date range for the data requested (e.g., fishing or calendar years 2016 – 2022)
    - Area to which the data applies (e.g., logbook data when fishing in the Vineyard Wind 1 lease area, OCS-A 0501)
- Identify expected data output (e.g., spreadsheet or map)
- Specify if data are needed by a certain date

[1] If you are requesting data for permits for which you were not the owner in all relevant years, NOAA Fisheries may require proof that you have permission from the previous permit holder(s) to access their historical fishing data.

The frequently asked questions page for the Vineyard Wind 1 fisheries compensation program (accessed 3/20/2024) states "Provided that your application is submitted during the eligibility period and is otherwise deemed completed by the third-party administrator, your application will not be rejected if fishing activity data from NOAA Fisheries remains outstanding. Once the fishing activity data is received from NOAA Fisheries, you will have the opportunity to amend your application and provide the outstanding data. The third-party administrator will then review your application and render an eligibility determination."

Additional details about the Vineyard Wind 1 fisheries compensatory mitigation program are available on the program's frequently asked questions page.



Map: Vineyard Wind 1 lease area and cable corridor. Source: MARCO data portal (accessed 3/20/2024).

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: March 26, 2024

To: Council

From: Brandon Muffley, Council staff

Subject: Mid-Atlantic State of the Ecosystem Report – Meeting Materials

On Tuesday, April 9, 2024, Dr. Sarah Gaichas (NEFSC) will present the 2024 Mid-Atlantic State of the Ecosystem (SOE) report. Many of the indicators in the SOE report are used in the Council's Ecosystem Approach to Fisheries Management (EAFM) risk assessment, which the Council will receive an update on after the SOE discussion. The Council will review the findings and ecosystem considerations contained in the SOE and provide any feedback on the future report development and the utility of the information for management.

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

Materials behind the tab:

- Cover letter and State of the Ecosystem response memo
- 2024 Mid-Atlantic State of the Ecosystem report

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1026

27 March, 2024

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

To the Council,

In this memo we list comments and requests received on the 2019-2023 State of the Ecosystem (SOE) reports, and how we responded to those requests. We include comments from both Councils because adjustments to the report were made in response to both. We welcome feedback on whether this memo is useful and how to improve it for future SOE reporting.

Since 2023, the memo is organized into categories of requests in descending order of overall Council priority. The Rank column summarizes priority and was derived from combined discussion with the Mid-Atlantic SSC ecosystem working group and a survey of selected MAFMC members coordinated by Council staff in July 2022.

The attached document includes a table where we summarize all comments and requests with sources. The Status and Progress columns briefly summarize how we responded, with a more detailed response in each memo section. In each detailed response, we refer to SOE sections where changes are found or describe information that was not sufficiently developed to include in the 2023 SOE in an effort to solicit feedback on how best to develop indicators for future reports.

We welcome comments on the entire SOE report as well as information included in this memo, and look forward to feedback from the SSC and Council.

Sincerely,

Sarah Gaichas, PhD
Research Fishery Biologist
Ecosystem Dynamics and
Assessment Branch
Northeast Fisheries Science Center

encl: State of the Ecosystem 2024: Request Tracking Memo

cc: Jon Hare

State of the Ecosystem 2024: Request Tracking Memo

March 27, 2024

Introduction

In the table below we summarize all comments and requests with sources. The memo is now reorganized into categories of requests in descending order of overall Council priority. The new Rank column summarizes priority and was derived from combined discussion with the Mid-Atlantic SSC ecosystem working group and a survey of selected MAFMC members coordinated by Council staff in July 2022. The Progress column briefly summarizes how we responded, with a more detailed response to each request in a section for each request category. In the Status column, "In SOE" indicates a change included in the report(s).

Table 1: State of the Ecosystem requests by category and Council priority.

Request	Year	Rank	Source	Status	Progress
System level thresholds/ref pts					
Compare EOF (Link) thresholds to empirical thresholds (Large, Tam)	2021	Highest	MAFMC SSC	In progress	Analysis planning with Mid SSC
Trend Analysis / Inflection / Break points	2019 - 2023	Highest	Both Councils and SSCs	In progress	Prototype analysis 2022-2023
Optimum yield for ecosystem	2021	Highest	NEFMC	In progress	Analysis planning with Mid SSC
How does phyto size comp affect EOF indicator, if at all?	2021	High	MAFMC	In progress	Analysis planning with Mid SSC
Sum of TAC/ Landings relative to TAC	2021, 2023	Moderate	MAFMC SSC	In SOE-MAFMC, In progress-NEFMC	Seafood Production section
Nutrient input, Benthic Flux and POC (particulate organic carbon) to inform benthic productivity by something other than surface indicators	2021, 2023	Low	MAFMC SSC	In progress	Stomach-based benthos indices in development
Reduce indicator dimensionality with multivariate statistics	2020	Lowest	NEFMC	In progress	Analysis planning with Mid SSC
Management					
Incorporate social sciences survey from council	2020	High	NEFMC	Not started	Lacking resources this year
Management complexity	2019	High	MAFMC	In progress	Student work needs further analysis, no further work this year
Recreational bycatch mortality as an indicator of regulatory waste	2021	High	MAFMC SSC	Not started	Lacking resources this year
Include New England ports with significant reliance on mid species be included in the Mid SOE	2022	Unranked	MAFMC	In SOE	Other Ocean Uses: Offshore Wind section
Re-evaluate EPUs	2020	Lowest	NEFMC	Not started	Lacking resources this year
Short term forecasts					
Using phytoplankton trends to forecast fish stocks	2022	High	MAFMC	Not started	Lacking resources this year
Short term forecasting (water temp, productivity)	2022	High	NEFMC	Not started	Lacking resources this year
Regime shifts					
Time series analysis (Zooplankton/Forage fish) to tie into regime shifts	2021	High	MAFMC SSC	In progress	Individual projects started
Regime shifts in Social-Economic indicators	2021	High	NEFMC SSC	In progress	Analysis planning with Mid SSC
Multiple system drivers					
Linking Condition	2020	High	MAFMC	In progress	Not ready for 2023
Avg weight of diet components by feeding group	2019	High	Internal	In progress	Part of fish condition project
Cumulative weather index	2020	Moderate	MAFMC	In progress	Data gathered for prototype

Request	Year	Rank	Source	Status	Progress
Fall turnover date index	2021	Moderate	MAFMC SSC	In SOE	Climate and Ecosystem Productivity section
Modeling cold pool/warm core ring and wind development interactions	2022	Moderate	MAFMC	Not started	Lacking resources this year
Impact of climate on data streams (changes in catchability of survey)	2022	Moderate	NEFMC SSC	Not started	Lacking resources this year
Young of Year index from multiple surveys	2019	Moderate	MAFMC	Not started	Lacking resources this year
Links between species availability inshore/offshore (estuarine conditions) and trends in recreational fishing effort?	2021	Unranked	MAFMC	In progress	Bluefish prey index inshore/offshore partially addresses
Tell Social stories like we try to tell biological stories	2022	Unranked	GARFO	Not started	Lacking resources this year
What determines a "risk"? Include aquaculture as a risk?	2022	Unranked	NEFMC SSC	In progress	Climate and Ecosystem Risks revision
Profits vs Revenue	2023	Unranked	Both Councils	In progress	Profit calculation for subset of fleet
OA linked to scallop harvest in areas where aragonite saturation is highlighted.	2023	Unranked	Both Councils	Not started	Lacking resources this year
Time series of social indicators	2023	Unranked	NEFMC	In progress	SOE evaluates changes from last year
Stability indicator - yield over time in NE	2023	Unranked	NEFMC	Not started	Lacking resources this year
Vessel-level diversity vs fleet level diversity	2023	Unranked	NEFMC	Not started	Lacking resources this year
Inclusion of upcoming HMS climate vulnerability assessment	2023	Unranked	NEFMC	Not started	Assessment not yet published
Mean stomach weight across feeding guilds	2019	Low	MAFMC	In progress	Intern evaluated trends in guild diets
Environmental Justice - Further Explanation and maybe have Soc Sci folks on call to explain	2022	Low	MAFMC SSC	In SOE	Social and cultural section
Changing per capita seafood consumption as driver of revenue?	2021	Low	MAFMC	Not started	Lacking resources this year
Relate OA to nutrient input; are there "dead zones" (hypoxia)?	2021	Low	MAFMC	In SOE	In new 2023 Highlights section
Estuarine Water Quality	2020	Low	NEFMC	In SOE-MAFMC, In progress-NEFMC	Intern project 2021 needs expansion
Decomposition of diversity drivers highlighting social components	2021	Lowest	MAFMC SSC	Not started	Lacking resources this year
Indicators of chemical pollution in offshore waters	2021	Lowest	MAFMC	Not started	Lacking resources this year
Estuarine condition relative to power plants and temp	2019	Lowest	MAFMC	Not started	Lacking resources this year
Functional group level status/thresholds/ref pts					
Forage availability index (Herring/Sandlance)	2021	Moderate	NEFMC	In SOE	Climate and Ecosystem Productivity section
VAST and uncertainty	2020	Moderate	Both Councils	In progress	Not ready for 2023
Seal index	2020	Low	MAFMC	In progress	Not ready for 2023
Apex predator index (pinnipeds)	2021	Low	NEFMC	In progress	Protected species branch developing time series
Biomass of spp not included in BTS	2020	Lowest	MAFMC	Not started	Lacking resources this year
Stock level indicators					
Shellfish growth/distribution linked to climate (system productivity)	2019	Moderate	MAFMC	In progress	Project with A. Hollander
Indicator of scallop pred pops poorly sampled by bottom trawls	2021	Moderate	NEFMC	Not started	Lacking resources this year
Climate change impacts on NEFSC surveys - change in survey catchability	2023	Unranked	NEFMC	In progress	Varies by research track

Request	Year	Rank	Source	Status	Progress
Sturgeon Bycatch	2021	Lowest	MAFMC SSC	Not started	Lacking resources this year
SOE admin					
SOE usage tracking	2022-2023	Unranked	MAFMC SSC	In progress	Draft manuscript in progress
Include estimates of inclusion years in request memo	2022	Unranked	NEFMC SSC	In progress	Reorganized memo to clarify project timing

Responses to comments

Priorities from 2023 have been retained for 2024. While no formal prioritization has been conducted since last year, we welcome further discussion and adjustment of priorities as needed by the Councils and SSCs. New requests from 2023 are listed without prioritization, while previously prioritized requests have been noted with adjustments to years in the table.

Some high priority SOE work was delayed in 2023-2024 due to staff turnover. However, we plan to continue as noted in the categories below, and welcome further feedback on planned and continuing work.

In response to an unranked request for further definition of risk, in addition to general requests for further synthesis and transparency, we have made major revisions to the 2024 SOEs:

1. The Climate and Ecosystem Risks section now centers on management decisions. It includes 3 sections:
    - Risks to spatial management, highlighting distribution shifts in managed species with potential drivers
    - Risks to seasonal management, highlighting temporal shifts in managed species with potential drivers
    - Risks to quota setting and rebuilding, highlighting productivity and condition shifts, with potential drivers
2. A new section, 2023 Highlights, reviews new conditions, activities, and anomalous observations across the Northeast US from the past year. This section is summarized graphically on p.3 (Mid-Atlantic report) and p.4 (New England report).
3. A new online indicator catalog provides a "deep dive" into each indicator, with multiple visualizations of the data and clearer links to the datasets in the ecodata R package for increased transparency and ease of use by investigators throughout the region.

System level thresholds/reference points

Further refining ecosystem level overfishing (EOF) indicators and investigating optimum yield (OY) at the ecosystem level was identified as highest priority by both the MAFMC SSC working group and by surveyed MAFMC members. Methods for evaluating ecosystem indicator trends, inflection points, and breakpoints (regimes, see below) were also ranked highest priority by both SSC and Council as these methods apply to ecosystem level thresholds and reference points, as well as to indicators at the functional group or stock level, or to indicators of climate or habitat risk. Several other SSC and Council requests are related to or support these analyses and can likely be addressed by planned analyses.

The EOF indicators were first presented in 2021 and were discussed in depth with the MAFMC SSC working group in April 2022 and February 2023. Considerable progress has been made on updating data inputs for the EOF indicators and planning for system level threshold analyses with the MAFMC SSC. After reviewing previous presentations of the EOF indicators, Andy Beet (NEFSC) reviewed solutions to several data input problems identified in July 2022 (menhaden landings were added and differences between different data sources were resolved). In 2023, estimates of regional productivity were added to calculate regional thresholds, for comparison with published global thresholds. An outstanding data input task is completing discard estimates for all species in the Northeast US, which is in progress.

A simulation study is being planned to use the Northeast US Atlantis ecosystem model [1] to investigate robustness of thresholds and determine how informative they can be. This portion of the research will likely address the MAFMC

request to evaluate how phytoplankton size composition might affect the EOF indicator. It will also address SSC questions raised about tradeoffs between fishing for different species groups to address EOF, and how climate driven changes in transfer efficiency might be incorporated into or impact EOF indicators. In addition, the NEUS Atlantis model may be able to address the lower priority requests on nutrient input and benthic flux contributions to system productivity once model sensitivity analysis determines whether these model components behave reasonably. We expect to present results of EOF analyses to the SSC in late 2023. If reviews are positive, EOF indicators may appear in the 2024 SOE, and if further work is needed they should appear in the 2025 SOE.

Automated methods for estimating both short term and long term trends, evaluating time series inflection points, and identifying breakpoints (regimes) are being tested for inclusion in the 2025 SOE.

- The `ecodata` R package already incorporates long term trend estimation based on Hardison et al. [2]. This research found that trends were most robustly distinguished from autocorrelation in indicator time series of 30 years or longer. However, there is still considerable interest in robust methods for assessing short term trends, especially for the most recent portions of time series and for shorter indicator time series. In 2022, work was initiated on short term trend analysis robust to autocorrelation by Andy Beet and Kim Bastille (NEFSC). The short term trend fitting method needs more simulation testing to address performance with missing data.
- Kim Bastille (NEFSC) has also been working on methods to identify inflection points in indicator time series based on Large et al. [3] and [4]. A standardized method has been implemented as a prototype and applied to several existing SOE indicators in 2022, but several questions on default approaches to be used across multiple indicators require more in depth analysis and review.
- A method for identifying breakpoints has been implemented by Kim Bastille and Laurel Smith (NEFSC) and a prototype analysis developed using SOE indicators in 2022. If this method can be further developed, it may be reviewed in a regime shift workshop scheduled for May 2024.

Work is in progress by John Walden and Geret DePiper (NEFSC) to combine multiple indicators into single integrated indices (Index Numbers) using Data Envelopment Analysis. This work has been reviewed by the MAFMC SSC ecosystem working group in July 2022 and again in February 2023. Index Numbers evaluate sets of environmental indicators and management output indicators to determine system performance. The approach combines important management outputs linked to objectives (e.g. commercial revenue, recreational days fished, right whale abundance) and likely ecosystem drivers of change in these outputs (e.g., chlorophyll a, zooplankton, aggregate fish biomass) into an analysis evaluating aggregating inputs and outputs into single indicators used to determine whether system performance has improved over time relative to a reference year. An initial case study using the SOE indicators identified above was presented in July 2022, and a follow up analysis evaluating individual Index Numbers for SOE management objectives (Seafood Production, Recreational Opportunities, etc.) was presented in February 2023. Integrated Index Numbers based on some of these case studies may be further reviewed by the MAFMC SSC ecosystem working group and developed for the 2025 SOE.

Management

Council members tended to give higher priority rankings to requests in this category relative to the SSC working group, but overall both ranked management related requests high priority.

In 2022, MAFMC requested that New England ports with significant reliance on Mid-Atlantic managed species be included in the Mid-Atlantic SOE analysis of potential risks to fishery management from offshore wind development. Angela Silva (NEFSC) evaluated landings for all New England ports by both value and pounds, and included New England ports with over 50% of maximum value or pounds MAFMC managed species landed from wind areas between 2008-2021. Six ports were identified as "significantly reliant" using this criteria, and we included this information in the 2023 and 2024 MAFMC SOEs.

It may be possible to address the requests on management complexity and recreational bycatch mortality as part of the Mid-Atlantic EAFM risk assessment updates throughout 2024 if appropriate expertise can be brought into this process.

The request to re-evaluate Ecosystem Production Units (EPUs) was ranked lowest priority. We do not forsee having the resources to address this request, which is a large project, in the near future.

Short term forecasts

The SSC working group ranked these new requests higher priority relative to Council members, but overall both ranked short term forecasting requests high priority. New resources to address this request are coming online at the NEFSC through the Climate Ecosystem Fisheries Initiative (CEFI) in 2024. This national effort seeks to link ocean model forecasts with products used in management. In the Northeast region, the SOE team plans to closely collaborate with CEFI modelers to test and present new products to the Councils and SSCs as they come online.

While using phytoplankton trends to forecast fish stocks may be feasibly simulation tested within the Atlantis modeling framework described above for EOF indicators, this relatively long term project would require dedicated effort to achieve, likely by a postdoctoral or CEFI researcher.

Some experimental short term forecasts of regional water temperature are currently available, and could be investigated or presented to the SSCs during the 2025 cycle if this remains a high priority. MAFMC has recently completed work on short term forecasts of species distributions for fisheries management are in progress with Rutgers University and MAFMC, which may also address this request. Skill assessment of these forecasts, as well as determining the context in which they would be used (stock assessment projections? habitat projections? other uses?) would be needed to bring them into the management process (this is better developed for the ongoing Rutgers/MAFMC project). Incorporating short term forecasts into the SOE outside the ongoing Rutgers/MAFMC project would require a similar level of effort to the phytoplankton/fish forecasting project above.

Regime shifts

Adding information on regime shifts was considered a high priority by both the Council and SSC. Time series analysis of zooplankton and forage fish to evaluate potential linked regime shifts is currently in progress, and multiple projects may contribute to this. We are working to coordinate existing projects (see below) into a synthesis product for the SOE. Because the projects are on different timelines, it is difficult to give a target date for SOE synthesis. However, a workshop is scheduled for May 2024 to review and synthesize methods and results for the Northeast Region. We expect to have some project results published prior to the 2025 SOE. With these publications complete, some synthesis may be presented in the following SOE cycle.

Table 2: Selected Regime Shift Projects. Methods: rpart = recrusive partitioning R package, DFA = dynamic factor analysis, EOF = empirical orthoganal function, SEWS = spatial early warning signals, DEA = data envelopment analysis, GAMs = general additive models. Ecosystem Component: Env = environmental drivers, Fish = fish, Zoo = zooplankton, Landings = fishery landings.

Analysis	Methods	Ecosystem Component	Temporal Scale	Spatial Scale	Availability
SOE Indicator Comparison	rpart	Env to Fish	Annual	EPU	Available Now
Condition (1)	rpart	Env to Fish	Annual, fall only	EPU or shelf	Multi species available now
Condition (2)	DFA	Fish	Annual?	EPU	In progress
Zooplankton	multiple	Zoo	Seasonal	EPU	In review
Zooplankton VAST	EOF	Zoo	Seasonal	EPU	In progress
SST	SEWS	Env	Annual?	NW Atlantic	In progress
DEA	DEA	Zoo to Landings	Annual	EPU	In progress
Stock Recruit	changepoint and GAMs	Fish	Annual	Stock	Not started, could use stock smart

Regime shifts in socio-economic indicators may be addressed in the ongoing work described above by John Walden and Geret DePiper (NEFSC) integrating multiple indicators into Index Numbers. Once the structure of the Index Numbers is determined, these time series can be evaluated for change points using any of the methods described in the table above.

Multiple system drivers

This category contains a wide array of requests with many projects currently in progress. There were two requests ranked high priority, five ranked moderate priority, nine unranked because they are newer requests, and eight ranked

low or lowest priority. Given the number of SOE requests, those ranked lowest priority that have not already been started are unlikely to be addressed.

The high priority request in this category is incorporating the ongoing fish condition project and associated analyses into the SOE. Regime shift analyses of fish condition may be available for the 2025 SOE. Initial work linking multiple SOE low trophic time series with fish condition using dynamic structural equation modeling [5] was started in February 2024. With additional resources, this approach may be presented to synthesize drivers of fish condition across multiple species in a future SOE.

An unranked request to review direct indicators of net vs. gross revenue indicators is in progress. We can calculate net revenue for ~ 1/2 of the revenue generated within the Greater Atlantic Region. The trends between the total gross revenue and gross revenue for which we can estimate costs are different. In addition, the net revenue looks to be just a scaled gross revenue metric, with trends staying the same, just the magnitude changing (Fig. 1).

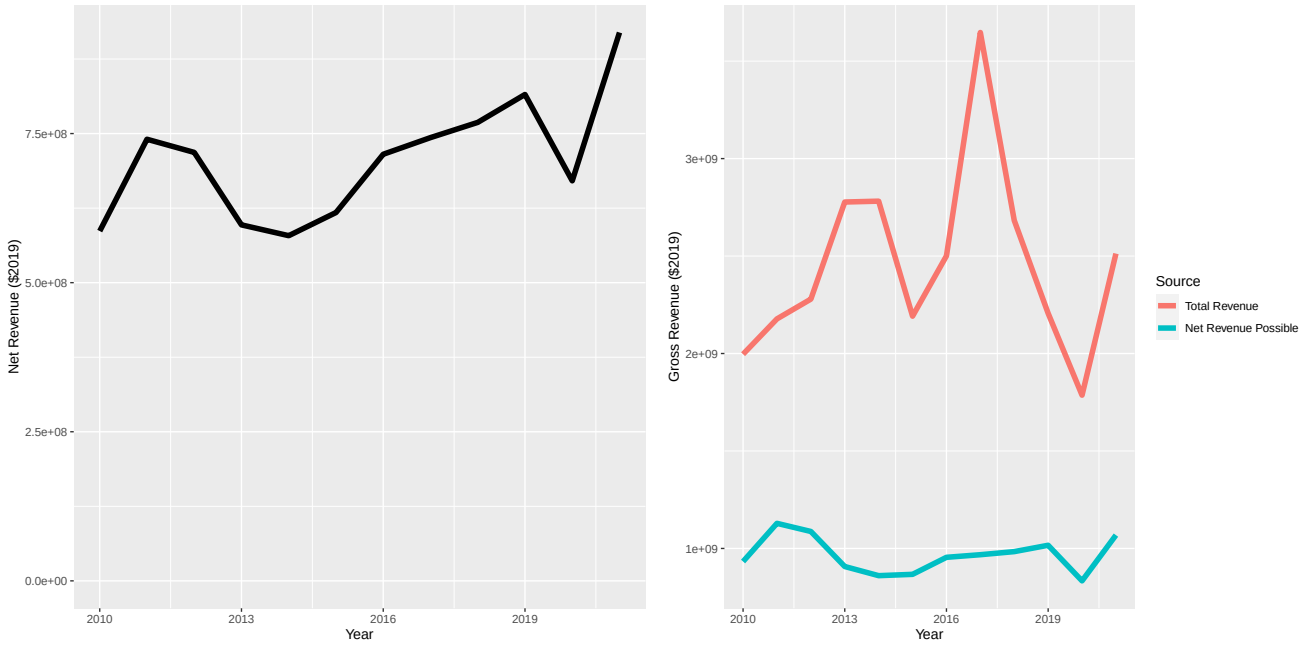

Figure 1: Net revenue (left) and cost coverage (right) in the Greater Atlantic Region.

One moderate priority request was included in the 2023-2024 SOE: a fall turnover index has been included in both the MAFMC and NEFMC reports in the Climate and Ecosystem Productivity sections.

One low priority request was included in the 2023 SOE: we updated text with further explanation of the Environmental Justice indicators. This text has been expanded for 2024 in an online indicator catalog page.

An unranked request to evaluate links between species availability inshore and offshore and trends in recreational fishing effort was partially addressed using a spatial index of forage fish to evaluate bluefish availability to the recreational fishery during the research track assessment in December 2022. This forage fish index has been included in the 2023-2024 SOE.

Several other moderate/unranked and low priority requests are currently in progress or started as intern projects, including a cumulative weather index, mean stomach weights across feeding guilds, and estuarine water quality for the NEFMC SOE. If sufficient resources are found to finish these projects, they could be included in the 2024 SOE.

Functional group level status/thresholds/ref pts

Requests in this category were considered moderate to low priority by the SSC and Council. However, many were already in progress prior to ranking, and one has been included in the 2023 SOE.

The NEFMC requested a forage availability index (including both managed species such as herring and unmanaged species such as sandlance). A spatial index of forage availability was developed for the bluefish research track assessment as described above. This index was partitioned into EPUs and presented in the 2023 and 2024 SOEs. An index of forage center of gravity was also included as a potential driver of distribution shifts in the 2024 Risks to Spatial Management section.

Gray seal pup count indices are already included in the NEFMC SOE, and indices of populations for other seals and apex predators are in development by the protected species branch. These additional indices were not ready for the 2024 report.

Investigating time series of biomass for species not well represented in bottom trawl surveys was partially addressed by the forage index included in the 2023-2024 reports. However, only a subset of forage species are not well represented in bottom trawl surveys, and other species that are not forage are also not well represented in bottom trawl surveys. This request was ranked lowest priority by the Council and SSC, and given the difficulty of synthesizing data on poorly sampled species, is unlikely to be addressed in the near future.

Stock level indicators

Requests in this category were ranked moderate to lowest priority by the SSC and Council. Indicators of this nature would be well suited to Ecosystem and Socioeconomic Profiles (ESP) developed during research track assessments for individual stocks. Some aspects of these indicators may benefit SOE reporting as well.

One request, linking shellfish growth and distribution to climate change and system productivity, is in progress. Alexis Hollander (VIMS) completed her thesis on surfclam growth in relation to bottom temperature in 2022, and information from this work can likely be included in the 2025 SOE, pending publication of student thesis results.

The request for indicators of scallop predators that are poorly sampled by bottom trawls is similar to the request in the category above addressing all species not well sampled by bottom trawls. It is possible that this request could be clarified and addressed during a scallop research track assessment.

A new unranked request to evaluate the impacts of climate change on survey catchability is being addressed in some research track stock assessments.

The request for a sturgeon bycatch indicator was ranked lowest priority by the SSC and Council, so is unlikely to be addressed in the near future.

SOE admin

These relatively new requests were not ranked; however, both are in progress.

Investigation of uses of the SOE as requested by the MAFMC SSC is in progress with the assistance of NOAA communications experts using a combination of website analytics and citation information. This information has been compiled as part of an in progress manuscript reviewing use of ecosystem reports across NMFS. We hope to have an update on uses of the Northeast SOEs for the 2025 report/request memo.

The restructuring of this memo according to prioritization is intended to partially address the requests for timelines on in progress SOE requests by the NEFMC SSC. While not all project timelines are currently available, we have reported estimates in this document where possible. In addition, the effort to prioritize requests in 2022 ensures that limited resources are applied to the highest priority issues.

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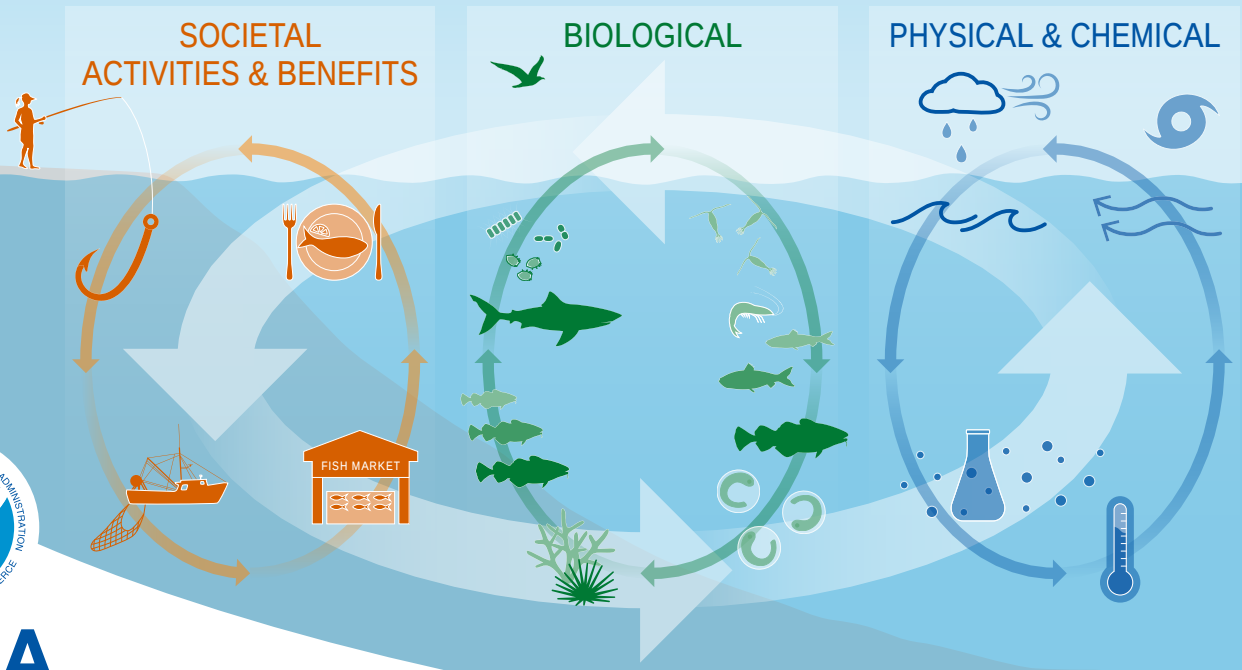
2024 State of the Ecosystem

Mid-Atlantic



NOAA FISHERIES

Performance Relative to Fishery Management Objectives

Trends and status of indicators related to broad ecosystem-level fishery management objectives, with implications for the Mid-Atlantic Fishery Management Council (MAFMC)

OBJECTIVE (Indicator)	TREND	CURRENT STATUS	IMPLICATIONS
Seafood production (Total and MAFMC managed landings)	Decline	Below long-term average	Commercial seafood landings were near historic lows in 2022, driven by declining surfclam and ocean quahog landings as well as landings of species not managed by the MAFMC (scallops). Recreational harvest is declining due to multiple drivers. Biomass trends within the ecosystem continue to be stable.
Commercial profits (Total and managed revenue)	Decline	Below long-term average	Total revenue has generally been higher than 1982 levels in the region up until 2022, when commercial revenue reached a historic low driven by both declining price and volume. Recent declining revenue trends are driven in part by managed clam species volume. Even when adjusting for inflation, falling prices are almost universal and due to market dynamics. Monitor climate risks to surfclams and ocean quahogs.
Recreational opportunities (Effort and fleet diversity)	EFFORT: Increase FLEET DIVERSITY: Decline	EFFORT: Above long-term objective FLEET DIVERSITY: Below long-term average	Recreational effort shows an increasing long-term trend and is above average, but fleet diversity is decreasing because of a shift away from party/charter to shore-based fishing. This shift results in a decreased range of recreational fishing opportunities. Shore-based anglers have access to different species/sizes of fish than vessel-based anglers. Recreational effort shows increasing variability since 2018.
Stability (Fishery and ecosystem diversity maintained over time)	FISHERY: No trend ECOSYSTEM: Mixed trends	FISHERY: Near long-term average ECOSYSTEM: Near long-term average	**Commercial:** Commercial fleet revenue diversity and fleet count metrics suggest stable capacity to respond to the current range of fishing opportunities. Commercial fleet revenue in recent years is being generated by fewer species than historically. **Recreational:** Species catch diversity has been maintained by a different set of species over time and continues to be above the long-term mean. **Ecosystem:** Adult fish diversity indices are stable while zooplankton diversity is increasing, indicating potential instability. Several climate and oceanography metrics are changing and should be monitored as warning signs for potential regime shift or ecosystem restructuring.
Social and cultural (Community fishery engagement, reliance, and environmental justice vulnerability)	Status only indicator	Environmental justice status for top commercial and recreational communities	Many communities throughout the Mid-Atlantic region ranked medium-high or above for one or more of the environmental justice indicators. Among commercial fishing communities, Atlantic City, NJ scored high for all three environmental justice indicators. Swan Quarter and Columbia, NC, and Little Creek, DE scored high in personal disruption and poverty. Hampton Bays/Shinnecock, NY and Newport News, VA scored medium-high for the population composition. Among recreational fishing communities, Ocean City, MD and Avon, NC, scored medium-high in personal disruption. Five other recreational fishing communities scored medium for one or more environmental justice indices.
Protected species (Coastwide bycatch, population numbers, mortalities)	BYCATCH: Mixed trends POPULATION NARW: Decline	BYCATCH: Meeting objectives POPULATION NARW: Below long-term average	Bycatch objectives are being met for harbor porpoise and gray seals. Mixed bycatch trends through 2021 are related to fishery management, shifts in population distribution combined with fishery shifts, and population increase for seals. Population drivers for North Atlantic Right Whales (NARW) include combined fishery interactions/vessel strikes and distribution shifts related to prey abundance and quality. Management measures to reduce adult mortality are reflected in more stable population numbers. Unusual mortality events continue for 3 large whale species.

Risks to Meeting Fishery Management Objectives

Climate and Ecosystem Risks

Climate and ecosystem change can directly and indirectly create risks to meeting fisheries management objectives by affecting the distribution, seasonal timing, productivity, and physiology of marine species.

Risks to Spatial Management: Species distribution shifts can complicate quota allocation because historical distributions may not reflect current availability and catch. Changing spatial overlap of species and fisheries can alter bycatch patterns. Species availability to surveys can change.

- **Observations:** Species distributions are trending to the northeast along the continental shelf and into deeper water for many fish and marine mammals.
- **Drivers:** Increasing temperature, changing oceanography, and the decreasing size of the seasonal cold pool can alter the spatial distribution of suitable habitat for managed species, as well as availability and distribution of their prey.

Risks to Seasonal Management: Changes in seasonal life-cycle events may not align with fishing seasons or area openings/closings, potentially reducing effectiveness of management measures. Changes in species and fisheries temporal overlap can alter bycatch and availability to surveys.

- **Observations:** Seasonal timing of spawning has changed for several managed fish species. Migration timing of some tunas and large whales has changed.
- **Drivers:** Later transition to fall conditions, shorter duration of seasonal cold pool, changing timing of fall phytoplankton blooms, seasonal community shifts in zooplankton, and changes in timing of food availability contribute to changes in timing of life-cycle events.

Risks to Quota Setting/Rebuilding: Environmentally driven changes in growth, reproduction, and natural mortality can complicate short-term stock projections. Stock reference points may not reflect prevailing environmental conditions.

- **Observations:** Changes in fish productivity and condition have been observed for multiple species.
- **Drivers:** Warmer temperatures increase metabolic demands and alters the availability and quality of prey. Episodic extreme temperatures, ocean acidification, and low oxygen events represent multiple stressors that can affect growth rates and cause mortality.

Other Ocean Uses: Offshore Wind Risks

There are 30 offshore wind energy projects proposed for construction on the Northeast shelf, covering more than 2.3 million acres by 2030, with additional large areas under consideration. Impacts at the wind project, local ocean, and regional scales are likely. Negative effects are possible for species that prefer soft bottom habitat, while species that prefer hard structured habitat may benefit. Wind energy updates include:

- Two projects are under construction in southern New England (South Fork Wind and Vineyard Wind 1).
- 1–23% of Mid-Atlantic port revenue (2008–2022) came from existing lease and proposed offshore wind areas. Some of these communities score medium-high to high in environmental justice concerns and gentrification vulnerability.
- 2–20% of annual commercial landings and revenue for MAFMC managed species between 2008–2022 occurred within lease areas and may be displaced. Individual operators may depend on lease areas for even larger proportions of their annual landings or revenue.
- Ongoing construction areas and planned future wind areas overlap with one of the only known winter right whale foraging habitats, and altered local oceanography could affect right whale prey availability. Development also increases vessel strike risk and the potential impacts of pile driving noise.

2023 Highlights

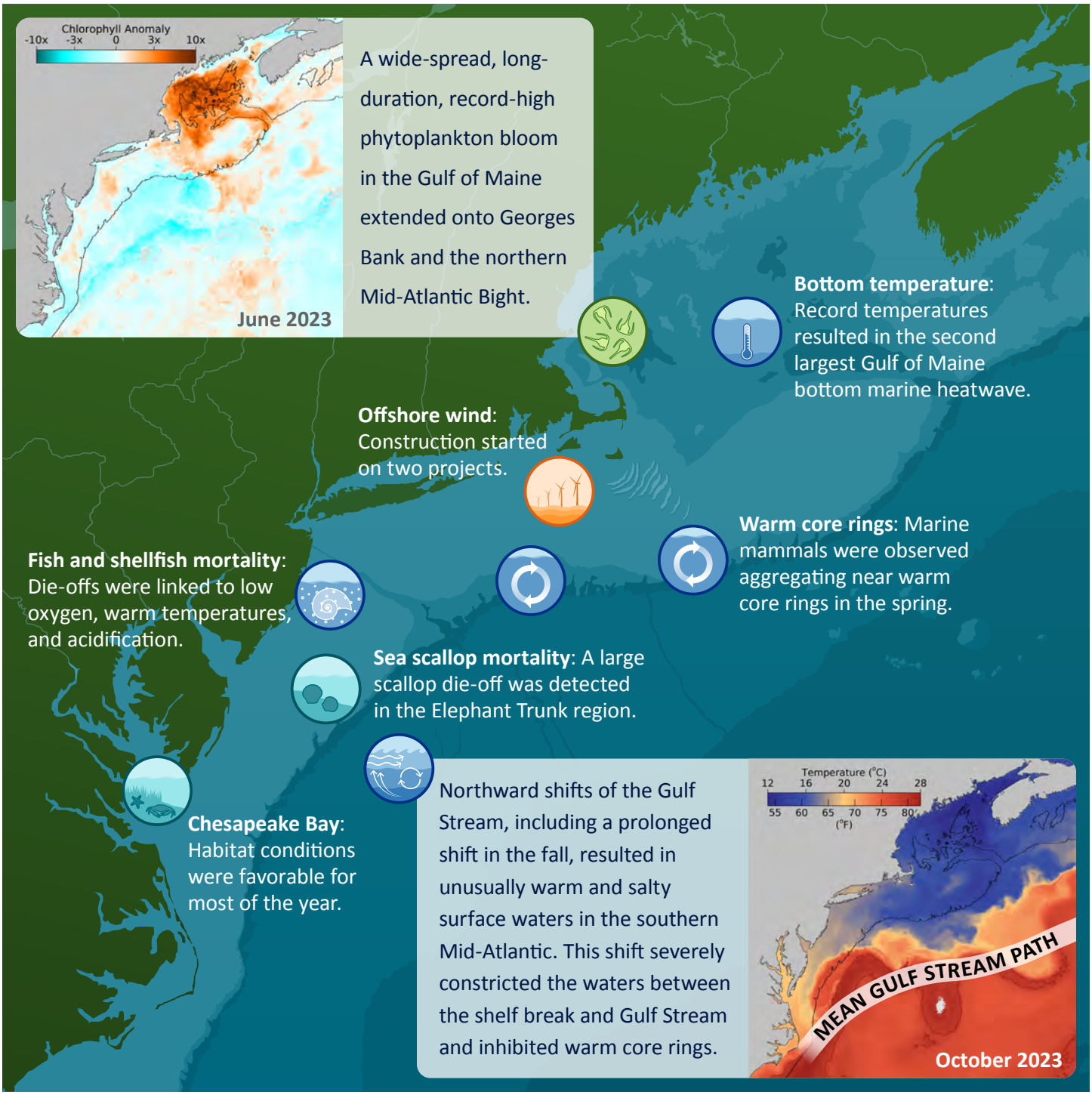
Multiple anomalous conditions and extreme events were observed in 2023 that could have brief local effects and/or widespread long-term ecosystem, fishery, and management implications. Anomalous events describe unusual or remarkable observations and can lead to increased uncertainty and unpredictable management outcomes.

Sea Surface Temperature

2023 global and North Atlantic sea surface temperatures were the warmest on record. However, Northeast U.S. shelf temperatures were more variable, with near record highs in winter and near average in other seasons.

El Niño Conditions

The 2020–2022 La Niña conditions ended in late winter and shifted to strong El Niño conditions in late spring 2023. The current El Niño is expected to gradually weaken and transition to neutral conditions in spring 2024.



Introduction

About This Report

This report is for the Mid-Atlantic Fishery Management Council (MAFMC). The purpose of this report is to synthesize ecosystem information to allow the MAFMC to better meet fishery management objectives, and to update the MAFMC's Ecosystem Approach to Fishery Management (EAFM) risk assessment. The major messages of the report are synthesized on pages 1 and 2, with highlights of 2023 ecosystem events on page 3. The information in this report is organized into two main sections; performance measured against ecosystem-level management objectives (Table 1), and potential risks to meeting fishery management objectives (climate change and other ocean uses). A final new section introduced this year highlights notable 2023 ecosystem observations.

Report structure

The two main sections contain subsections for each management objective or potential risk. Within each subsection, we first review observed trends for indicators representing each objective or risk, including the status of the most recent data year relative to a threshold (if available) or relative to the long-term average. Second, we identify potential drivers of observed trends, and synthesize results of indicators related to those drivers to outline potential implications for management. For example, if there are multiple drivers related to an indicator trend, do indicators associated with the drivers have similar trends, and can any drivers be affected by management action(s)? We emphasize that these implications are intended to represent testable hypotheses at present, rather than "answers," because the science behind these indicators and syntheses continues to develop.

A glossary of terms[1], detailed technical methods documentation[2], indicator data[3], and detailed indicator descriptions[4] are available online. We recommend new readers first review the details of standard figure formatting (Fig. 54a), categorization of fish and invertebrate species into feeding guilds (Table 4), and definitions of ecological production units (EPUs, including the Mid-Atlantic Bight, MAB; Fig. 54b) provided at the end of the document.

Table 1: Ecosystem-scale fishery management objectives in the Mid-Atlantic Bight

Objective categories	Indicators reported
Provisioning and Cultural Services	
Seafood Production	Landings; commercial total and by feeding guild; recreational harvest
Profits	Revenue decomposed to price and volume
Recreation	Angler trips; recreational fleet diversity
Stability	Diversity indices (fishery and ecosystem)
Social & Cultural	Community engagement/reliance and environmental justice status
Protected Species	Bycatch; population (adult and juvenile) numbers; mortalities
Supporting and Regulating Services	
Biomass	Biomass or abundance by feeding guild from surveys
Productivity	Condition and recruitment of managed species, primary productivity
Trophic structure	Relative biomass of feeding guilds, zooplankton
Habitat	Estuarine and offshore habitat conditions

Performance Relative to Fishery Management Objectives

In this section, we examine indicators related to broad, ecosystem-level fishery management objectives. We also provide hypotheses on the implications of these trends—why we are seeing them, what's driving them, and potential or observed regime shifts or changes in ecosystem structure. Identifying multiple drivers, regime shifts, and potential

[1] https://noaa-edab.github.io/tech-doc/glossary.html
[2] https://NOAA-EDAB.github.io/tech-doc
[3] https://noaa-edab.github.io/ecodata/
[4] https://noaa-edab.github.io/catalog/index.html

changes to ecosystem structure, as well as identifying the most vulnerable resources, can help managers determine whether anything needs to be done differently to meet objectives and how to prioritize upcoming issues/risks.

Seafood Production

Indicators: Landings; commercial and recreational

This year, we present updated indicators for total commercial landings, U.S. seafood landings, and Council-managed U.S. seafood landings. Total commercial landings within the Mid-Atlantic have declined over the long term, and total U.S. Mid-Atlantic seafood landings are near their all time low. Because there is no long term trend in MAFMC-managed U.S. seafood landings, the decline in U.S. seafood landings in the Mid-Atlantic region is likely driven by recent declines in species not managed by the Mid-Atlantic Council (Fig. 1).

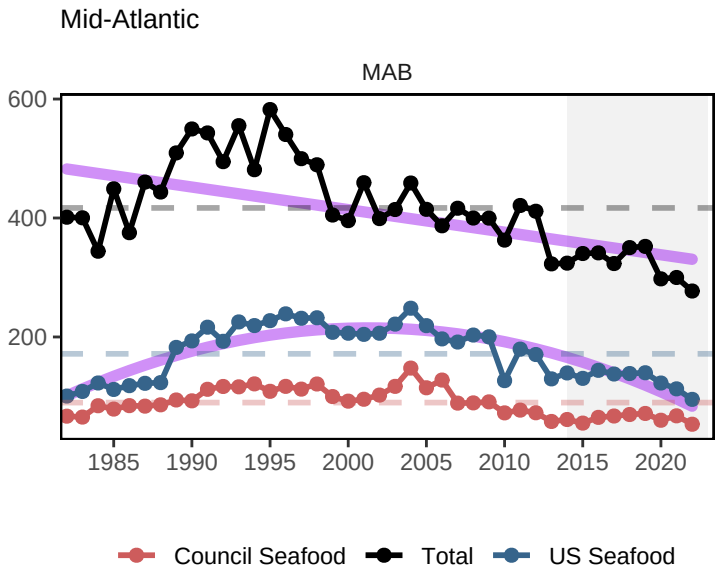


Figure 1: Total commercial landings (black), total U.S. seafood landings (blue), and Mid-Atlantic managed U.S. seafood landings (red), with significant declines (purple) in total and U.S. seafood landings.

Commercial landings by guild include all species and all uses, and are reported as total for the guild and the MAFMC managed species within the guild. As reported in previous years, landings of benthos presented a significant downward trend, primarily driven by surf clam and ocean quahog, with scallops now contributing to the decline as well. However, total landings of planktivores is now also presenting a significant downward trend, primarily due to decreases in species not managed by the MAFMC (Atlantic herring and Atlantic menhaden; Fig. 2).

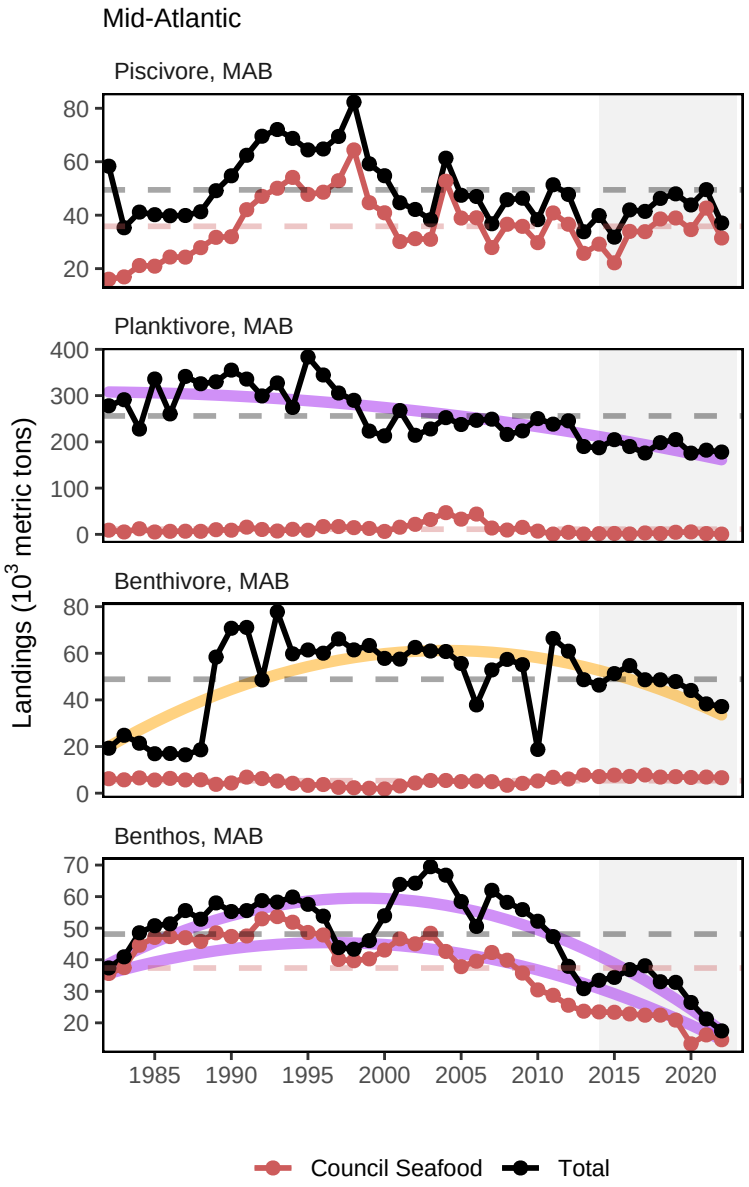


Figure 2: Total commercial landings in the Mid-Atlantic Bight (black) and MAFMC-managed U.S seafood landings (red) by feeding guild, with significant declines (purple) in total planktivore landings and both total and MAFMC managed benthos landings and a significant increase (orange) in total benthivore landings.

Although total recreational harvest (retained fish presumed to be eaten) has increased from a historic low in 2018, there is a long-term decline in the MAB (Fig. 3).

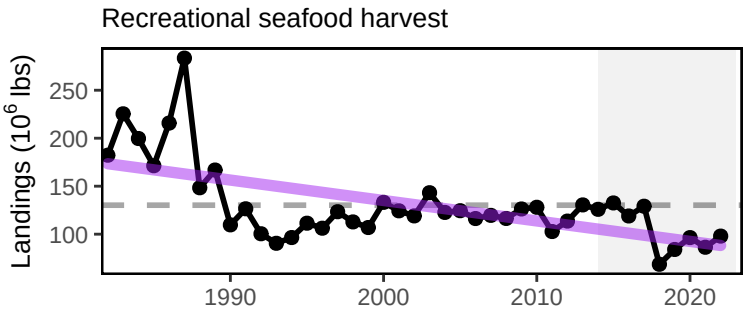


Figure 3: Total recreational seafood harvest (millions of pounds, black, significant decrease, purple) in the Mid-Atlantic region.

Recreational shark landings show an increase in pelagic sharks over the past decade, with a sharp decrease in 2018 - 2019 persisting through 2022 (Fig 4). This is likely influenced by regulatory changes implemented in 2018 intended to rebuild shortfin mako stocks.

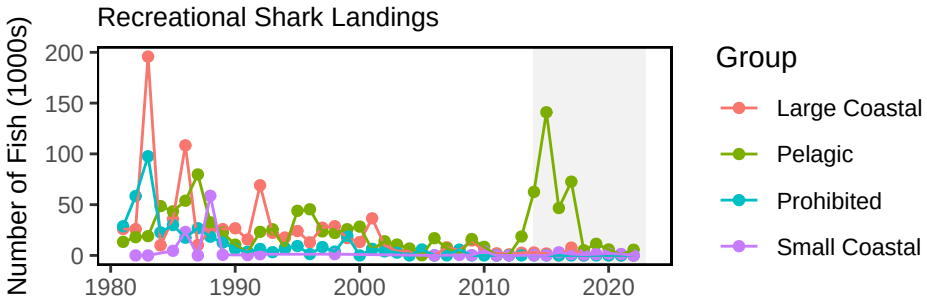


Figure 4: Recreational shark landings from Large Pelagics Survey.

Aquaculture production is not yet included in total seafood landings. Available aquaculture production of oysters for a subset of Mid-Atlantic states indicates a decline in recent years.

Implications

Declining commercial (total and seafood) and recreational landings can be driven by many interacting factors, including combinations of ecosystem and stock production, management actions, market conditions, and environmental change. While we cannot evaluate all possible drivers at present, here we evaluate the extent to which stock status and system biomass trends may play a role.

Stock Status and Catch Limits Single species management objectives (1. maintaining biomass above minimum thresholds and 2. maintaining fishing mortality below overfishing limits) are being met for all but two MAFMC-managed species (Fig. 5), though the status of six stocks is unknown (Table 2).

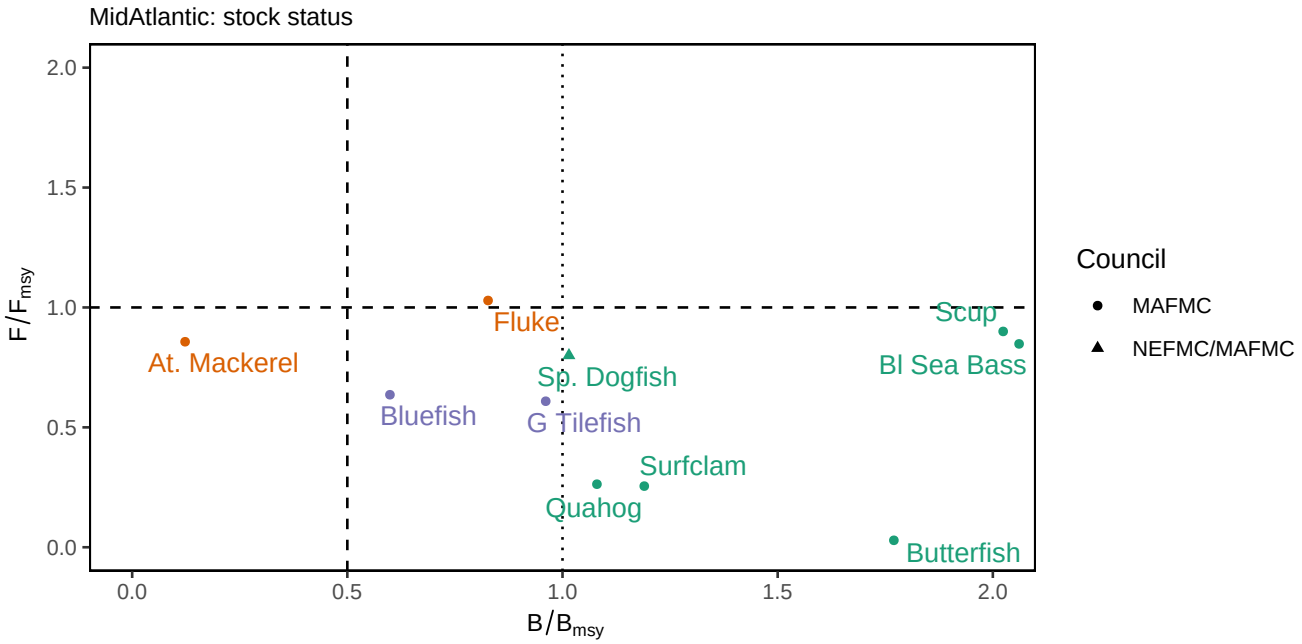


Figure 5: Summary of single species status for MAFMC and jointly federally managed stocks (Spiny dogfish and both Goosefish). The dotted vertical line is the target biomass reference point of B_{MSY}. The dashed lines are the management thresholds of one half B_{MSY} (vertical) or F_{MSY}. (horizontal). Stocks in orange are below the biomass threshold (overfished) or have fishing mortality above the limit (subject to overfishing), so are not meeting objectives. Stocks in purple are above the biomass threshold but below the biomass target with fishing mortality within the limit. Stocks in green are above the biomass target, with fishing mortality within the limit.

Table 2: Unknown or partially known stock status for MAFMC and jointly managed species.

Stock	F/Fmsy	B/Bmsy
Longfin inshore squid - Georges Bank / Cape Hatteras	-	2.873
Northern shortfin squid - Northwestern Atlantic Coast	-	-
Goosefish - Gulf of Maine / Northern Georges Bank	-	-
Goosefish - Southern Georges Bank / Mid-Atlantic	-	-

Stock status affects catch limits established by the Council, which in turn may affect landings trends. Summed across all MAFMC managed species, total Acceptable Biological Catch or Annual Catch Limits (ABC or ACL) have been relatively stable 2012-2022 (Fig. 6). The recent total ABC or ACL is lower relative to 2012-2013, with much of that decrease due to declining Atlantic mackerel ABC. This is true even with the addition of blueline tilefish management in 2017 contributing an additional ABC and ACL to the total 2017-2022, due to that fishery's small relative size.

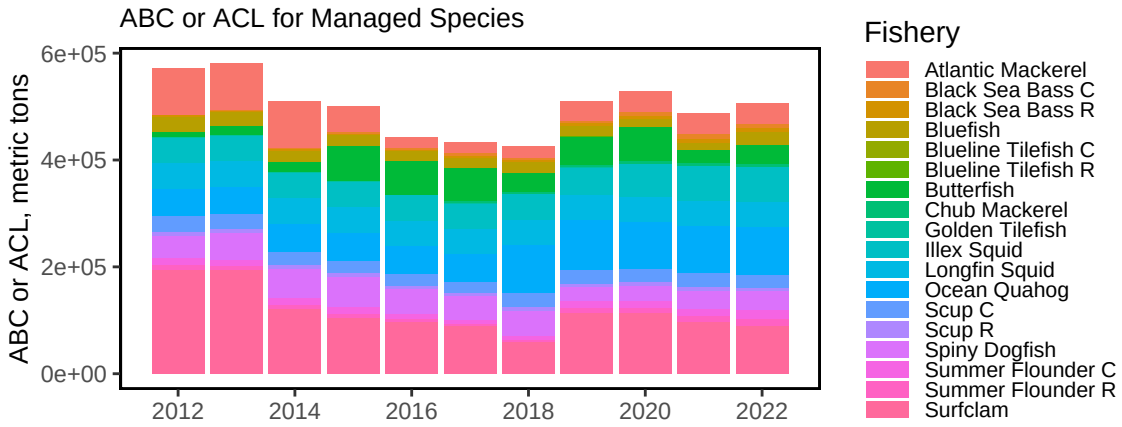


Figure 6: Sum of catch limits across all MAFMC managed commercial (C) and recreational (R) fisheries.

Nevertheless, the percentage caught (landings and discards) for each stock's ABC/ACL suggests that these catch limits are not generally constraining as most species are well below the 1/1 ratio (Fig. 7). Therefore, stock status and associated management constraints are unlikely to be driving decreased landings for the majority of species.

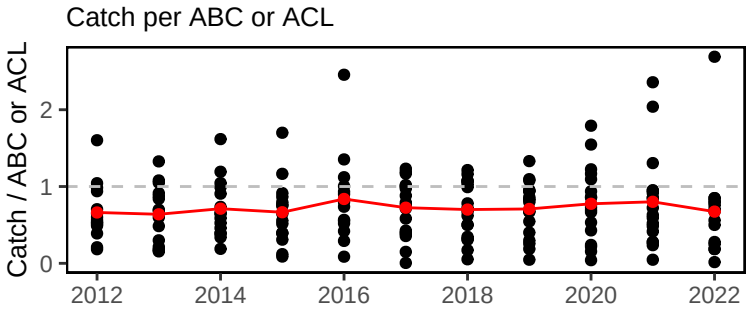


Figure 7: Catch divided by ABC/ACL for MAFMC managed fisheries. High points are recreational black sea bass (up to 2021) and scup (2022). Red line indicates the median ratio across all fisheries.

System Biomass Although aggregate biomass trends derived from scientific resource surveys are mostly stable in the MAB, spring piscivores and fall benthivores show long-term increases (Fig. 8). While managed species make up varying proportions of aggregate biomass, trends in landings are not mirroring shifts in the overall trophic structure of survey-sampled fish and invertebrates. Therefore, major shifts in feeding guilds or ecosystem trophic structure are unlikely to be driving the decline in landings.

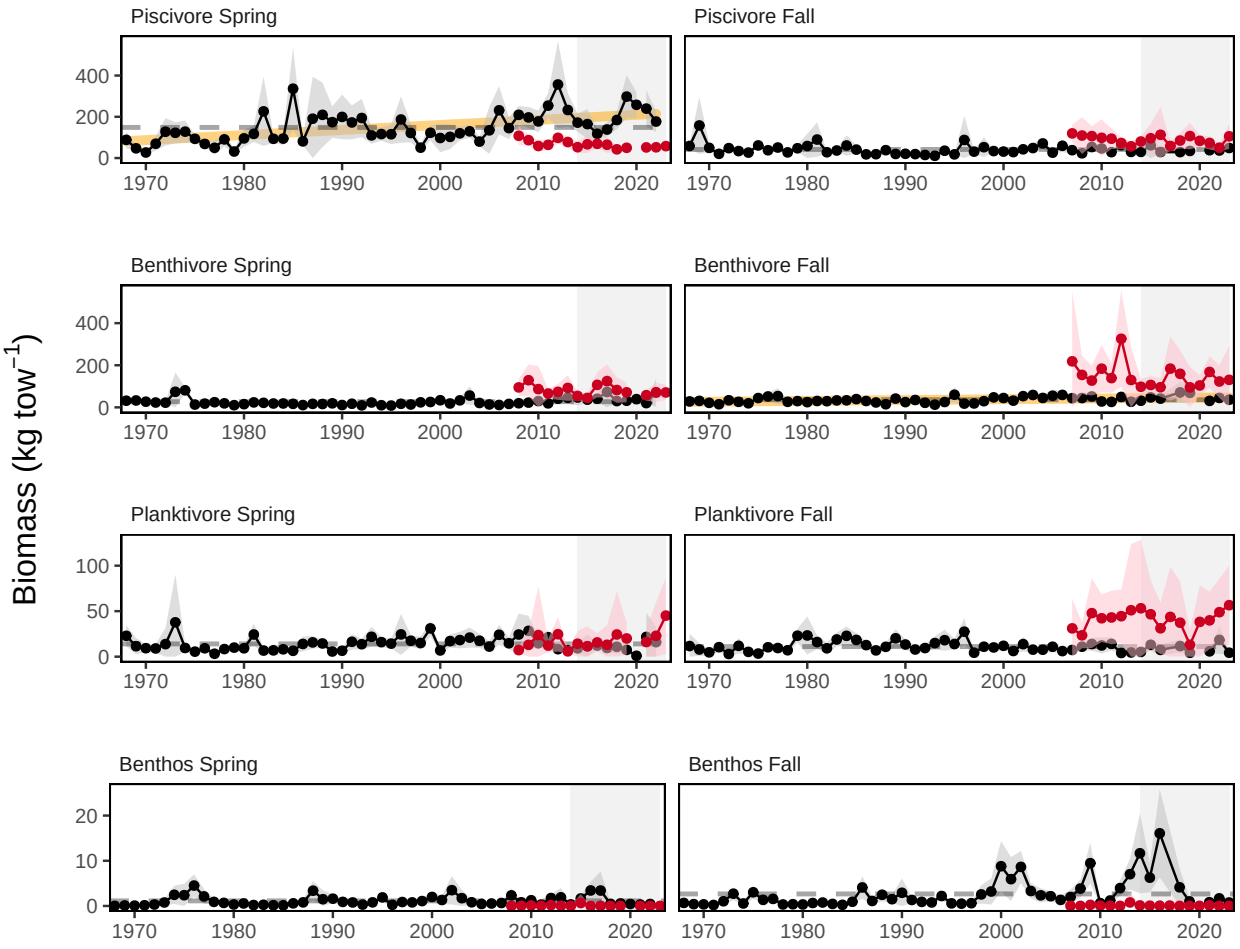


Figure 8: Spring (left) and fall (right) surveyed biomass in the Mid-Atlantic Bight. Data from the NEFSC Bottom Trawl Survey are shown in black, with the nearshore NEAMAP survey shown in red. Significant increases (orange lines) are present for spring piscivore and fall benthivore biomass. The shaded area around each annual mean represents 2 standard deviations from the mean.

Effect on Seafood Production Stock status is above the minimum threshold for all but two stocks, and aggregate biomass trends appear stable, so the decline in managed commercial seafood landings is most likely driven by market dynamics affecting the landings of surfclams and ocean quahogs, as landings have been below quotas for these species. In addition, regional availability of scallops has contributed to the decline of benthos landings not managed by the MAFMC, with some of the most productive grounds currently closed through rotational management. The long term decline in total planktivore landings is largely driven by Atlantic menhaden fishery dynamics, including a consolidation of processors leading to reduced fishing capacity between the 1990s and mid-2000s.

Climate change also seems to be shifting the distribution of surfclams and ocean quahogs, resulting in areas with overlapping distributions and increased mixed landings. Given the regulations governing mixed landings, this could become problematic in the future and is currently being evaluated by the Council.

The decline in recreational seafood harvest stems from other drivers. Some of the decline, such as that for recreational shark landings, is driven by management intended to reduce fishing mortality on mako sharks. However, NOAA Fisheries' Marine Recreational Information Program survey methodology was updated in 2018, so it is unclear whether the lower than average landings for species other than sharks since 2018 are driven by changes in fishing behavior or the change in the survey methodology. Nevertheless, the recreational harvest seems to be stabilizing at a lower level than historical estimates.

Other environmental changes require monitoring as they may become important drivers of landings in the future:

- Climate is trending into uncharted territory. Globally, 2023 was the warmest year on record (see 2023 Highlights section).
- Stocks are shifting their distributions, moving towards the northeast and into deeper waters throughout the Northeast US Large Marine Ecosystem (see Climate Risks section).
- Some ecosystem composition and production changes have been observed (see Stability section).
- Some fishing communities are affected by environmental justice vulnerabilities (see Environmental Justice and Social Vulnerability section).

Commercial Profits

Indicators: revenue (a proxy for profits)

Total commercial revenue and MAFMC managed species revenue within the Mid-Atlantic Bight have declined over the past 20-30 years. In 2022, total revenue was at an all-time low, and revenue from MAFMC managed species was near an all-time low (Fig. 9).

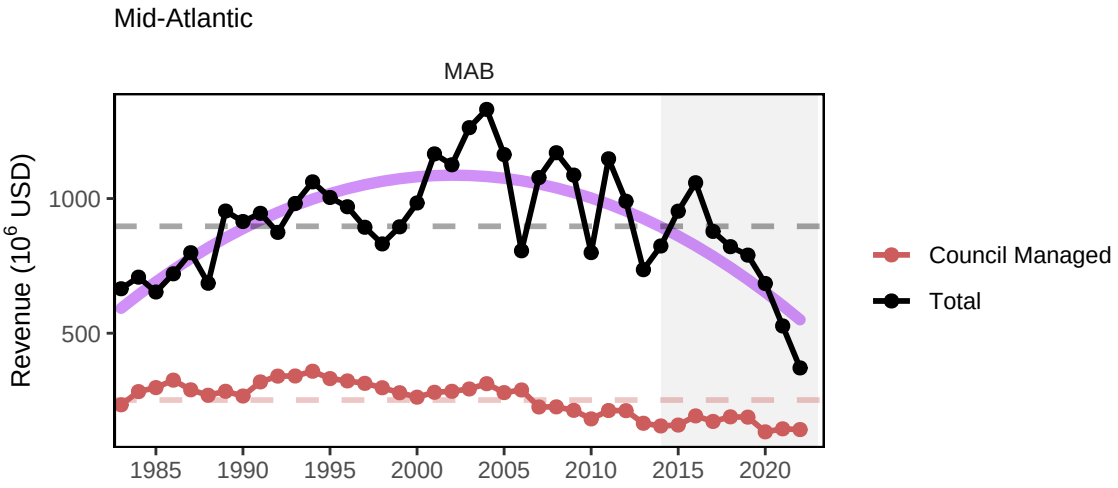


Figure 9: Revenue for the for the Mid-Atlantic region: total (black) and from MAFMC managed species (red), with a significant decrease (purple) for total revenue.

Revenue earned by harvesting resources is a function of both the quantity landed of each species and the prices paid for landings. Beyond monitoring yearly changes in revenue, it is even more valuable to determine what drives these changes: harvest levels, the mix of species landed, price changes, or a combination of these. The Bennet Indicator decomposes revenue change into two parts, one driven by changing quantities (volumes), and a second driven by changing prices. All changes are in relation to a base year (1982).

In the Mid-Atlantic region revenues were above the 1982 baseline for all years in the series until 2022 (Fig. 10). Both increasing prices and volumes contributed to the positive revenue change in most years. In terms of prices, since 2000 Benthos contributed the most to increasing prices (Fig. 11). Beginning in the 1990s, in most years benthivores contributed the most to increasing volumes (Fig. 11).

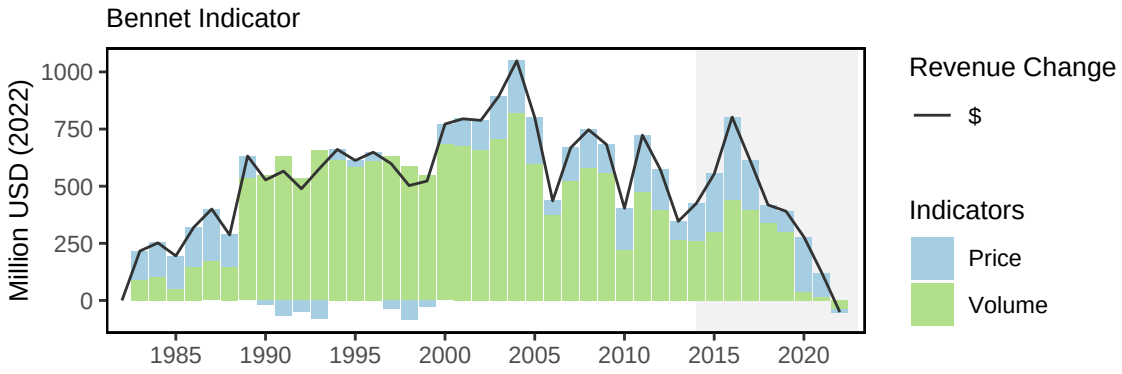


Figure 10: Revenue change from 1982 values in 2022 dollars (black); Price (PI), and Volume Indicators (VI) for total commercial landings in the Mid-Atlantic Bight.

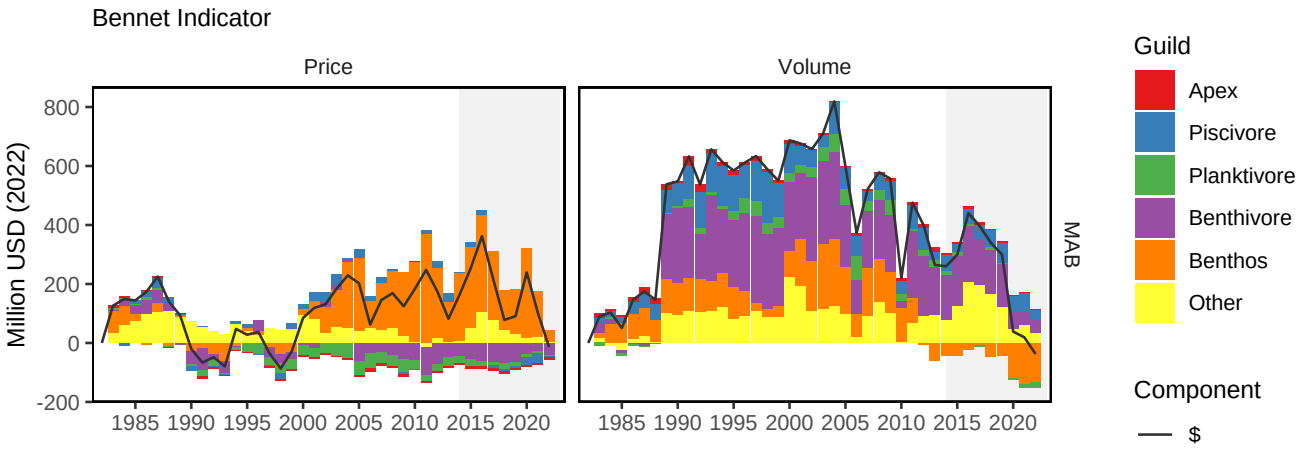


Figure 11: Total price and volume indicators in 2022 dollars (black) for commercial landings, and individual guild contributions to each indicator, in the Mid-Atlantic Bight.

Implications

Although the Mid-Atlantic region shows declining revenue trends since 2016, inflation-adjusted revenue from harvested species was still greater than 1982 levels until 2022. In a similar manner to seafood landings, the results here are driven in large part by market dynamics affecting the landings of surfclams and ocean quahogs, as landings have been below quotas for these species, as well as lower quotas for Atlantic scallops. The declining Benthos category since 2012 may be partially caused by decreases in surfclam and ocean quahogs in the southern part of their range as harvest have shifted northward. Changes in other indicators, particularly those driving landings and those related to climate change, require monitoring as they may become important drivers of revenue in the future; for example:

- Surfclams, ocean quahogs, and scallops are sensitive to warming ocean temperatures and ocean acidification.
- Multiple stressors are interacting in Mid-Atlantic shellfish habitats.

Recreational Opportunities

Indicators: Angler trips, fleet diversity

Recreational effort (angler trips) in 2022 has increased and is above the long-term average (Fig. 12). in the MAB. However, recreational fleet diversity (i.e., effort by shoreside, private boat, and for-hire anglers) has declined over

the long term (Fig. 13).

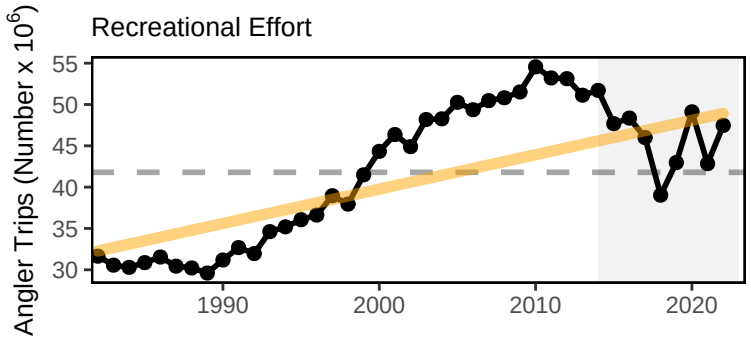


Figure 12: Recreational effort (number of trips, black) in the Mid-Atlantic, with significant increase (orange line).

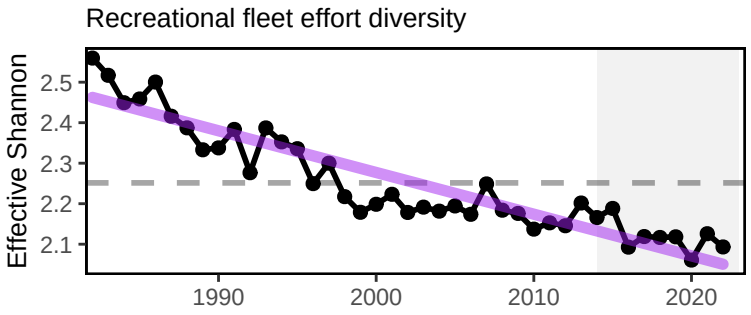


Figure 13: Recreational fleet effort diversity (black) in the Mid-Atlantic, with significant decrease (purple line).

Implications

While the overall number of recreational opportunities in the MAB is above the long-term average, the continuing decline in recreational fleet effort diversity suggests a potentially reduced range of recreational fishing options, despite the slight increase in this indicator's value between 2020 and 2022.

The downward effort diversity trend is driven by party/charter contraction (down from 2% in 2021 to 1.4% in 2023), and a shift toward shorebased angling, which currently makes up 59% of angler trips. Effort in private boats has increased slightly to 40% of trips from 37% in 2021.

Changes in recreational fleet diversity can be considered when managers seek options to maintain recreational opportunities. Shore anglers will have access to different species than vessel-based anglers, and when the same species is accessible both from shore and from a vessel, shore anglers typically have access to smaller individuals. Many states have developed shore-based regulations where the minimum size is lower than in other areas and sectors to maintain opportunities in the shore angling sector.

Stability

Indicators: fishery fleet and catch diversity, ecological component diversity

While there are many potential metrics of stability, we use diversity indices to evaluate overall stability in fisheries and ecosystems. In general, diversity that remains constant over time suggests a similar capacity to respond to change over time. A significant change in diversity over time does not necessarily indicate a problem or an improvement, but does indicate a need for further investigation. We examine diversity in commercial fleet and species catch, recreational species catch (with fleet effort diversity discussed above), zooplankton, and adult fishes.

Fishery Stability Diversity estimates have been developed for fleets landing managed species, and species landed by commercial vessels with Mid-Atlantic permits. Commercial fishery fleet count and fleet diversity have been stable over time in the MAB, with current values near the long-term average. This indicates similar commercial fleet composition and species targeting opportunities over time. Commercial fisheries are relying on fewer species relative to the mid-90s, although current species revenue diversity has recovered somewhat in the last year (Fig. 14).

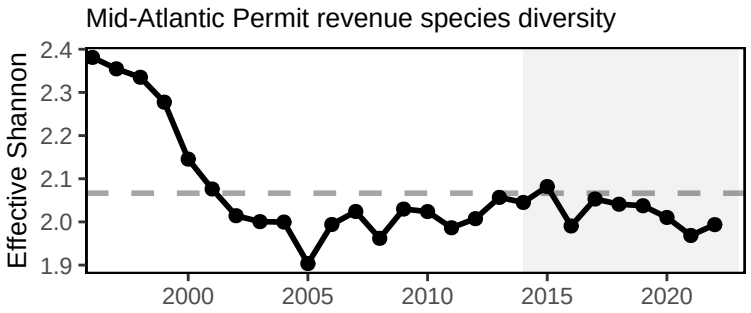


Figure 14: Species revenue diversity in the Mid Atlantic.

As noted above, recreational fleet effort diversity is declining (Fig. 13), suggesting a shift in recreational fishing opportunities. However, recreational species catch diversity has no long term trend so is considered stable, and has been at or above the long term average in 8 of the last 10 years (Fig. 15).

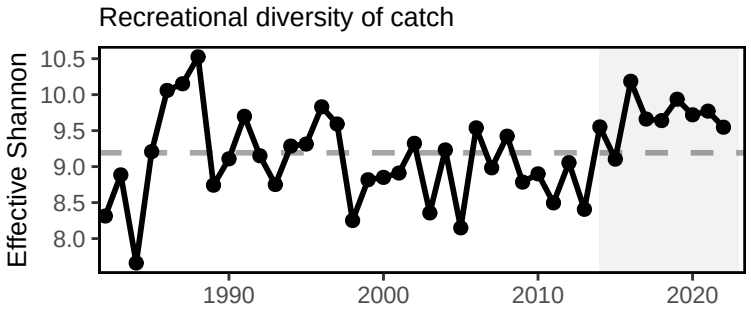


Figure 15: Diversity of recreational catch in the Mid Atlantic.

Ecological Stability Total primary production (PP) is a measure of the total energy input into a system per year. Total primary production in the Mid Atlantic has no clear trend (Fig. 16), suggesting stability in energy at the base of the food web.

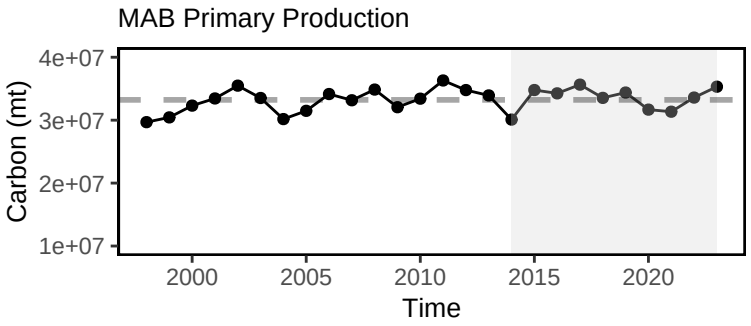


Figure 16: Total areal annual primary production for the MAB. The dashed line represents the long-term (1998-2023) annual mean.

Ecological diversity indices show mixed trends. Zooplankton diversity is increasing in the MAB (Fig. 17). Adult fish diversity is measured as the expected number of species in a standard number of individuals sampled from the NEFSC bottom trawl survey. Adult fish diversity indices appear stable over time, with current values within one standard deviation from most historic estimates (Fig. 18).

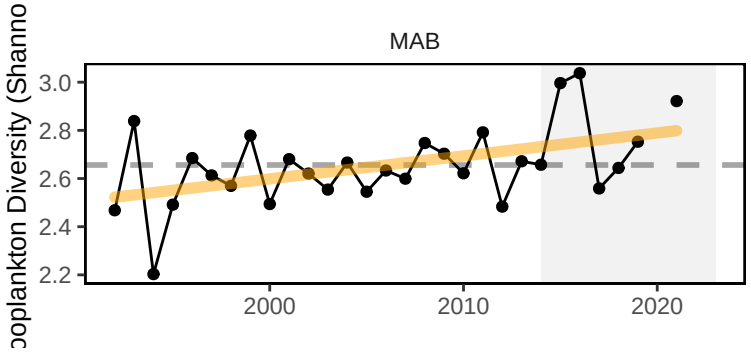


Figure 17: Zooplankton diversity in the Mid-Atlantic Bight, Shannon diversity index (black) with significant increase (orange line).

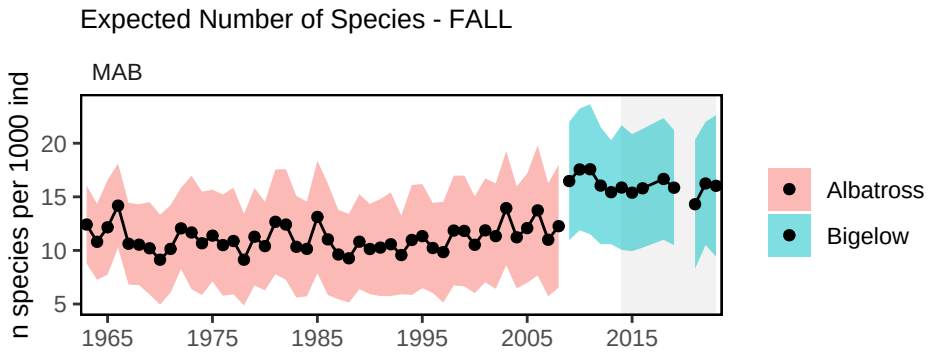


Figure 18: Adult fish diversity in the Mid-Atlantic Bight, based on expected number of species. Results from survey vessels Albatross and Bigelow are reported separately due to catchability differences.

Implications

Fleet diversity indices are used by the MAFMC to evaluate stability objectives as well as risks to fishery resilience and maintaining equity in access to fishery resources. Stability in commercial fleet diversity metrics suggests stable capacity to respond to the current range of fishing opportunities. However, commercial species diversity remains low when compared to historical levels.

Declining recreational fleet effort diversity, as noted above, indicates that the party/charter boat sector continues to contract, with shoreside angling becoming more important as a percentage of recreational angler trips. Stability in recreational species catch diversity has been maintained by a different set of species over time. A recent increase in Atlantic States Marine Fisheries Commission (ASMFC) and South Atlantic Fishery Management Council (SAFMC) managed species in recreational catch is helping to maintain diversity in the same range that MAFMC and New England Fishery Management Council (NEFMC) managed species supported in the 1990s.

Production at the base of the food web is variable, but stable over time. Ecological diversity indices can provide insight into ecosystem structure. Changes in ecological diversity over time may indicate altered ecosystem structure with implications for fishery productivity and management. Stable adult fish diversity indicates the same overall number and evenness over time, but doesn't rule out species substitutions (e.g., warm-water replacing cold-water). In addition, the change in survey vessels complicates interpretation of long-term fish diversity trends.

In the MAB, existing diversity indicators suggest overall stability in the fisheries and ecosystem components examined. However, declining recreational fleet diversity suggests a potential loss in the range of recreational fishing opportunities. Increasing zooplankton diversity (due to increases in abundance of several taxa and stable or declining dominance of an important copepod species) suggests a shift in the zooplankton community that warrants continued monitoring to determine if managed species are affected. In addition, the species diversity in commercial landings warrants continued attention given its relatively low index value indicating average reliance on a small number of species for revenue.

Environmental Justice and Social Vulnerability

Providing for sustained participation of fishing communities, and avoiding adverse economic impacts to fishing communities are objectives of fishery management. We report the top ten communities most engaged in, and/or reliant upon, commercial and recreational fisheries and the degree to which these communities may be vulnerable to environmental justice issues (i.e., Poverty, Population Composition, and Personal Disruption) using data for the most recent available year (2021). We also compare these results with those presented in previous SOE reports to highlight changes in community status.

Indicators: Environmental Justice and Social Vulnerability in commercial and recreational fishing communities

The engagement and reliance indices demonstrate the importance of commercial and recreational fishing to a given community relative to other coastal communities in a region. Social vulnerability indicators measure social factors that shape a community's ability to adapt to change. A subset of these factors can be used to assess potential environmental justice issues. Similarly to the engagement and reliance indicators, the environmental justice indices characterize different facets and levels of social vulnerability in a given community relative to other coastal communities in a region.

Changes in fishing activity between years changed community engagement and reliance rankings. The largest change from last year's report is that Hatteras and Hobucken, NC are no longer listed as top ten commercial fishing communities, replaced by Hampton, VA; Swan Quarter, NC; Bowers and Little Creek, DE (Fig.19). Manteo, Vandemere, and Hobuken, NC are no longer listed as top ten recreational communities, replaced by Cape May and Barnegat Light, NJ; Orient, NY; Topsail Beach, Avon and Rodanthe, NC (Fig.20).

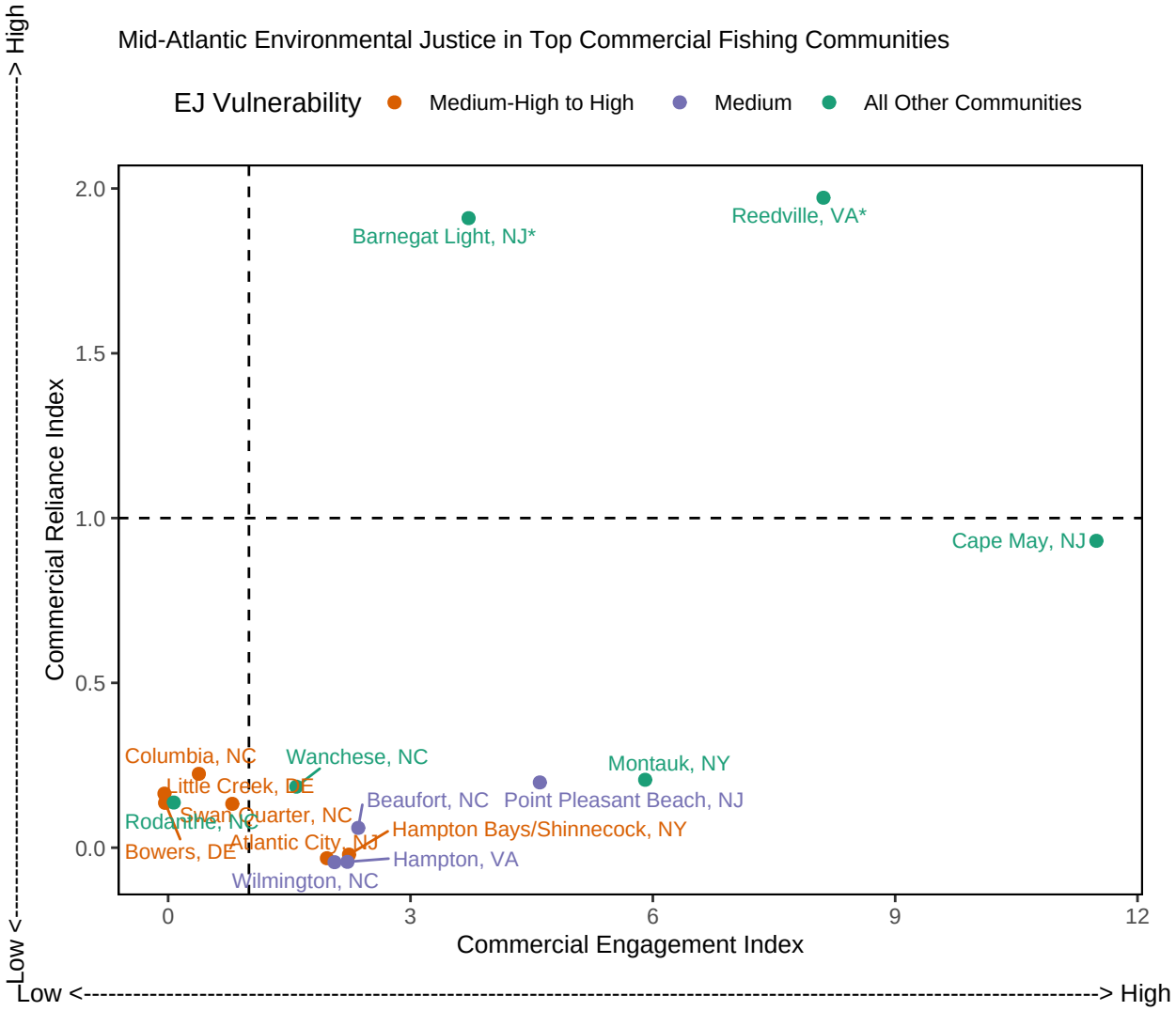


Figure 19: Commercial engagement, reliance, and environmental justice vulnerability for the top commercially engaged and reliant fishing communities in the Mid-Atlantic.

Scores for environmental justice concerns remain similar for communities based on 2020 and 2021 data, with top commercial ports (Fig. 21) showing more concerns than top recreational ports overall (Fig. 22). Atlantic City, NJ ranks highest for all three environmental justice concerns. There is variability in the specific issues facing communities with environmental justice concerns. Higher scores in population composition indicate community vulnerability related to the presence of non-white, non-English speaking, and younger populations.

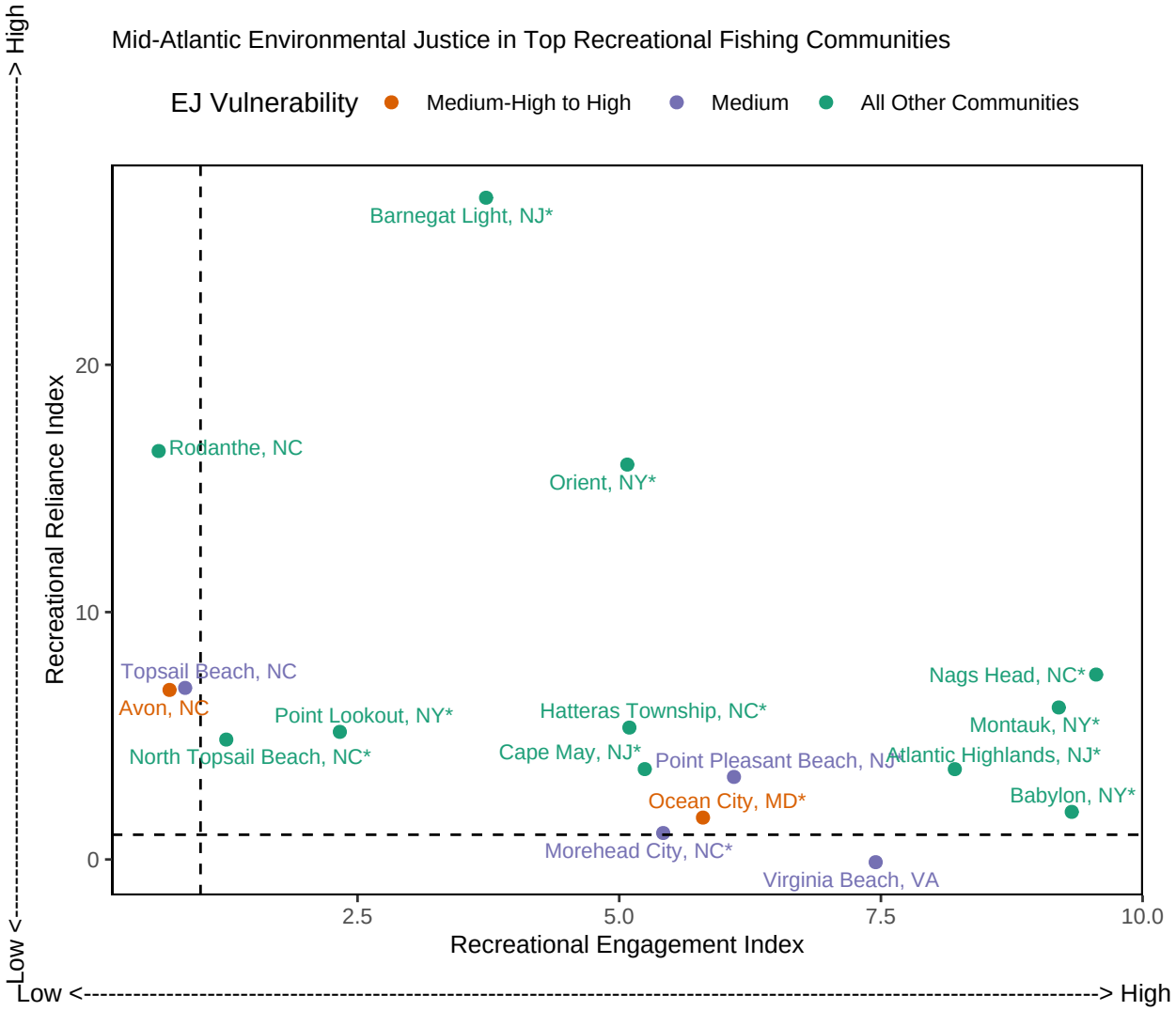


Figure 20: Recreational engagement and reliance, and environmental justice vulnerability, for the top recreationally engaged and reliant fishing communities in the Mid-Atlantic.

Both commercial and recreational fishing are important activities in Montauk, NY, Cape May, Barnegat Light and Point Pleasant Beach, NJ; and Rodanthe, NC, meaning these communities may be impacted simultaneously by commercial and recreational regulatory changes. However, in all but Point Pleasant Beach NJ, environmental justice may not be a major concern in these communities given the index scores (Figs 21 and 22)). Point Pleasant Beach, NJ scored medium for the personal disruption index, indicating that environmental justice may be a moderate concern in Point Pleasant Beach.

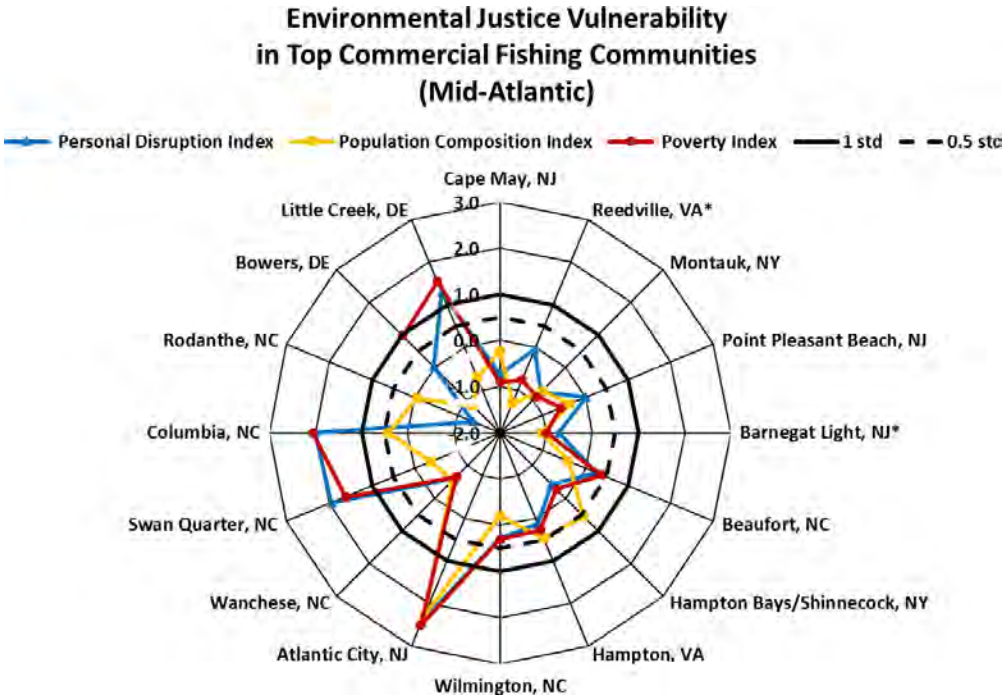


Figure 21: Environmental justice indicators (Poverty Index, population composition index, and personal disruption index) for top commercial fishing communities in Mid-Atlantic. Some communities are missing data for some indices. *Community scored high (1.00 and above) for both commercial engagement and reliance indicators.

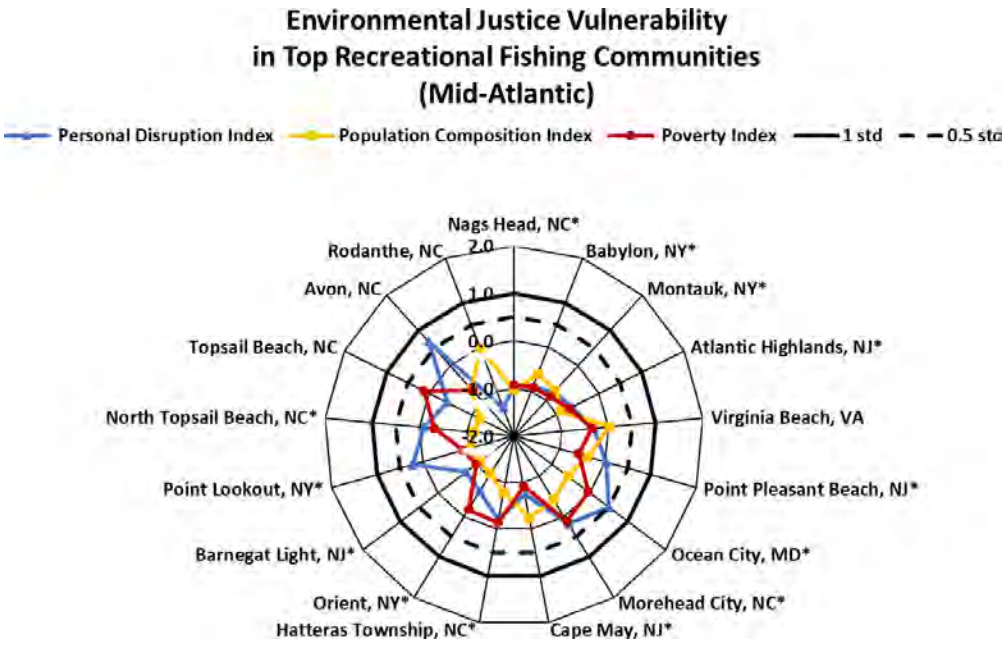


Figure 22: Environmental justice indicators (Poverty Index, population composition index, and personal disruption index) for top recreational fishing communities in Mid-Atlantic. Some communities are missing data for some indices. *Community scored high (1.00 and above) for both recreational engagement and reliance indicators.

Implications

A range of environmental justice concerns are found throughout Mid-Atlantic fishing communities. However, index scores for these concerns are higher overall in the top commercial communities relative to the top recreational communities.

These indicators provide a snapshot of the presence of environmental justice issues in the most highly engaged and most highly reliant commercial and recreational fishing communities in the Mid-Atlantic. These communities may be especially vulnerable to changes in fishing patterns due to regulations and/or climate change. Some changes occurred among the top fishing communities due to shifts in fishing activities, both commercial and recreational. Many of these communities, especially top commercial fishing communities, demonstrated medium to high environmental justice vulnerability, indicating that they may be at a disadvantage when responding to change.

Protected Species

Fishery management objectives for protected species generally focus on reducing threats and on habitat conservation/restoration. Protected species include marine mammals protected under the Marine Mammal Protection Act, endangered and threatened species protected under the Endangered Species Act, and migratory birds protected under the Migratory Bird Treaty Act. In the Northeast U.S., endangered/threatened species include Atlantic salmon, Atlantic and shortnose sturgeon, all sea turtle species, and five baleen whales. Protected species objectives include managing bycatch to remain below potential biological removal (PBR) thresholds, recovering endangered populations, and monitoring unusual mortality events (UMEs). Here we report on performance relative to these objectives with available indicator data, as well as indicating the potential for future interactions driven by observed and predicted ecosystem changes in the Northeast U.S.

Indicators: bycatch, population (adult and juvenile) numbers, mortalities

Average indices for both harbor porpoise (Fig. 23) and gray seal bycatch (Fig. 24) are below current PBR thresholds, meeting management objectives.

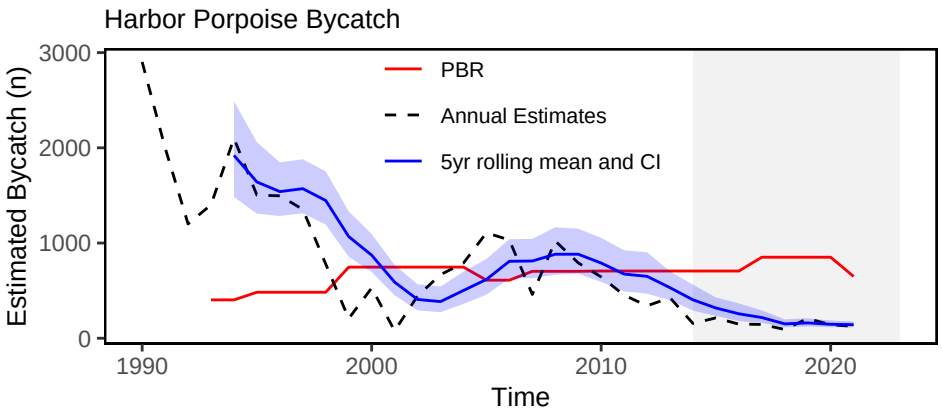


Figure 23: Harbor porpoise average bycatch estimate for Mid-Atlantic and New England gillnet fisheries (blue) and the potential biological removal (red).

The annual estimate for gray seal bycatch has declined since 2019, in part driven by declining gillnet landings. In addition, estimates since 2019 have greater uncertainty stemming from low observer coverage since 2019. The rolling mean confidence interval remains just below the PBR threshold.

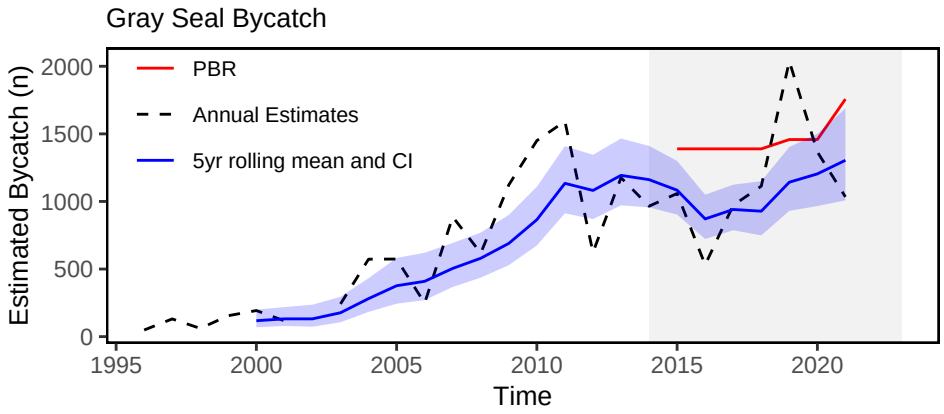


Figure 24: Gray Seal average bycatch estimate for gillnet fisheries (blue) and and the potential biological removal (red).

The North Atlantic right whale population was on a recovery trajectory until 2010, but has since declined (Fig. 25). The sharp decline observed from 2015-2020 appears to have slowed, although the right whale population continues to experience annual mortalities above recovery thresholds. Reduced survival rates of adult females lead to diverging abundance trends between sexes. It is estimated that there are fewer than 70 adult females remaining in the population.

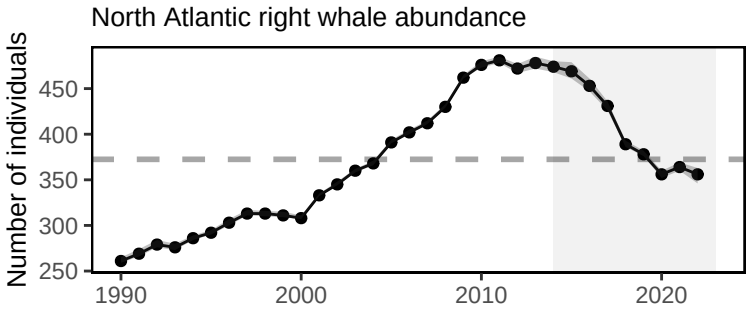


Figure 25: Estimated North Atlanic right whale abundance on the Northeast Shelf.

North Atlantic right whale calf counts have generally declined after 2009 to the point of having zero new calves observed in 2018 (Fig. 26). However, since 2019, we have seen more calf births each year with 15 births in 2022.

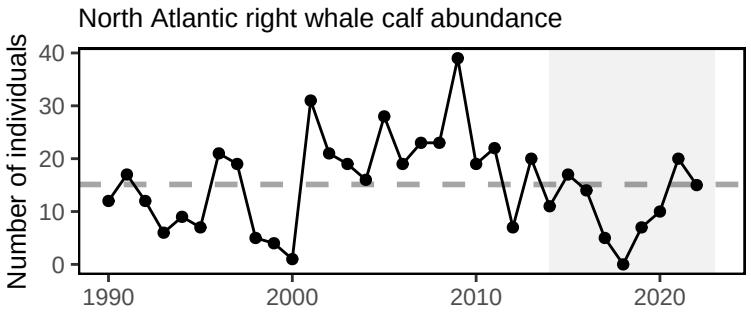


Figure 26: Number of North Atlantic right whale calf births, 1990 - 2022.

This year, the Unusual Mortality Event (UME) for North Atlantic right whales continued. From 2017 through 16 February 2024, the total UME right whale mortalities includes 38 dead stranded whales, 17 in the US and 21 in Canada. When alive but seriously injured whales (34) and sublethal injuries or ill whales (51) are taken into account, 123 individual whales are included in the UME. Recent research suggests that many mortalities go unobserved and the true number of mortalities are about three times the count of the observed mortalities. The primary cause of death is "human interaction" from entanglements or vessel strikes.

A UME continued from previous years for humpback whales (2016-present) and Atlantic minke whales (2018-present); suspected causes include human interactions. A UME for Northeast pinnipeds that began in 2018 for infectious disease is pending closure as of February 2024.

Implications

Bycatch management measures have been implemented to maintain bycatch below PBR thresholds. The downward trend in harbor porpoise bycatch could also be due to a decrease in harbor porpoise abundance in U.S. waters, reducing their overlap with fisheries, and a decrease in gillnet effort. The increasing trend in gray seal bycatch may be related to an increase in the gray seal population (U.S. pup counts), supported by the dramatic rise over the last three decades in observed numbers of gray seal pups born at U.S. breeding sites plus an increase in adult seals at the breeding sites, some of which are supplemented by Canadian adults.

Strong evidence exists to suggest that interactions between right whales and both the fixed gear fisheries in the U.S. and Canada and vessel strikes in the U.S. are contributing substantially to the decline of the species. Further, right whale distribution has changed since 2010. New research suggests that recent climate driven changes in ocean circulation have resulted in right whale distribution changes driven by increased warm water influx through the Northeast Channel, which has reduced the primary right whale prey (the copepod Calanus finmarchicus) in the central and eastern portions of the Gulf of Maine. Additional potential stressors include offshore wind development, which overlaps with important habitat areas used year-round by right whales, including mother and calf migration corridors and foraging habitat. This area is also the only known right whale winter foraging habitat. Additional information can be found in the offshore wind risks section.

The UMEs are under investigation and are likely the result of multiple drivers. For all large whale UMEs, human interaction appears to have contributed to increased mortalities, although investigations are not complete.

A climate vulnerability assessment is published for Atlantic and Gulf of Mexico marine mammal populations.

Risks to Meeting Fishery Management Objectives

Climate and Ecosystem Change

Regulations and measures designed to meet fishery management objectives are often based on historical information about stocks, their distribution in space and time, and their overall productivity. Large scale climate related changes in the ecosystem can lead to changes in important habitats and ecological interactions, altering distributions and productivity. With large enough ecosystem changes, management measures may be less effective, and management objectives may not be met.

This year, we have restructured this section to focus on three categories of management decisions and the risk posed to them by climate and ecosystem change: spatial management, seasonal management, and quota setting or rebuilding depleted stocks. In each section, we describe potential risks to a management category, highlight indicators of observed changes that contribute to those risks, review possible biological and environmental drivers and the ways they may explain the observed indicators, and raise potential future implications if these trends persist or change.

Risks to Spatial Management

Shifting species distributions (changes in spatial extent or center of gravity) alter both species interactions and fishery interactions. In particular, shifting species distributions can affect expected management outcomes from spatial

allocations and bycatch measures based on historical fish and protected species distributions. Species availability to surveys can also change as distributions shift within survey footprints.

Indicators: Fish and protected species distribution shifts As noted in the Landings Implications section above, the center of distribution for a suite of 48 commercially or ecologically important fish species along the entire Northeast Shelf continues to show movement towards the northeast and generally into deeper water (Fig. 27).

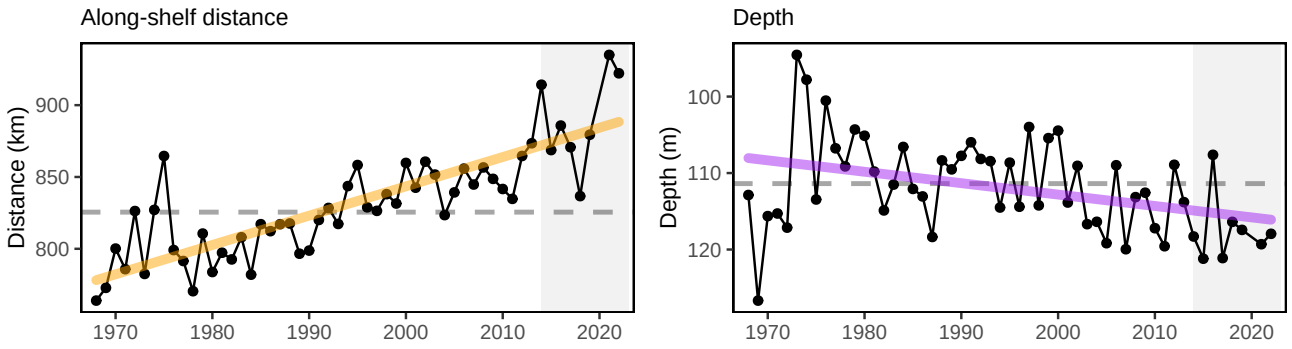


Figure 27: Aggregate species distribution metrics for species in the Northeast Large Marine Ecosystem: along shelf distance with increasing trend (orange), and depth with decreasing trend indicating deeper water (purple).

Habitat model-based species richness suggests shifts of both cooler and warmer water species to the northeast. Similar patterns have been found for marine mammals, with multiple species shifting northeast between 2010 and 2017 in most seasons (Fig. 28).

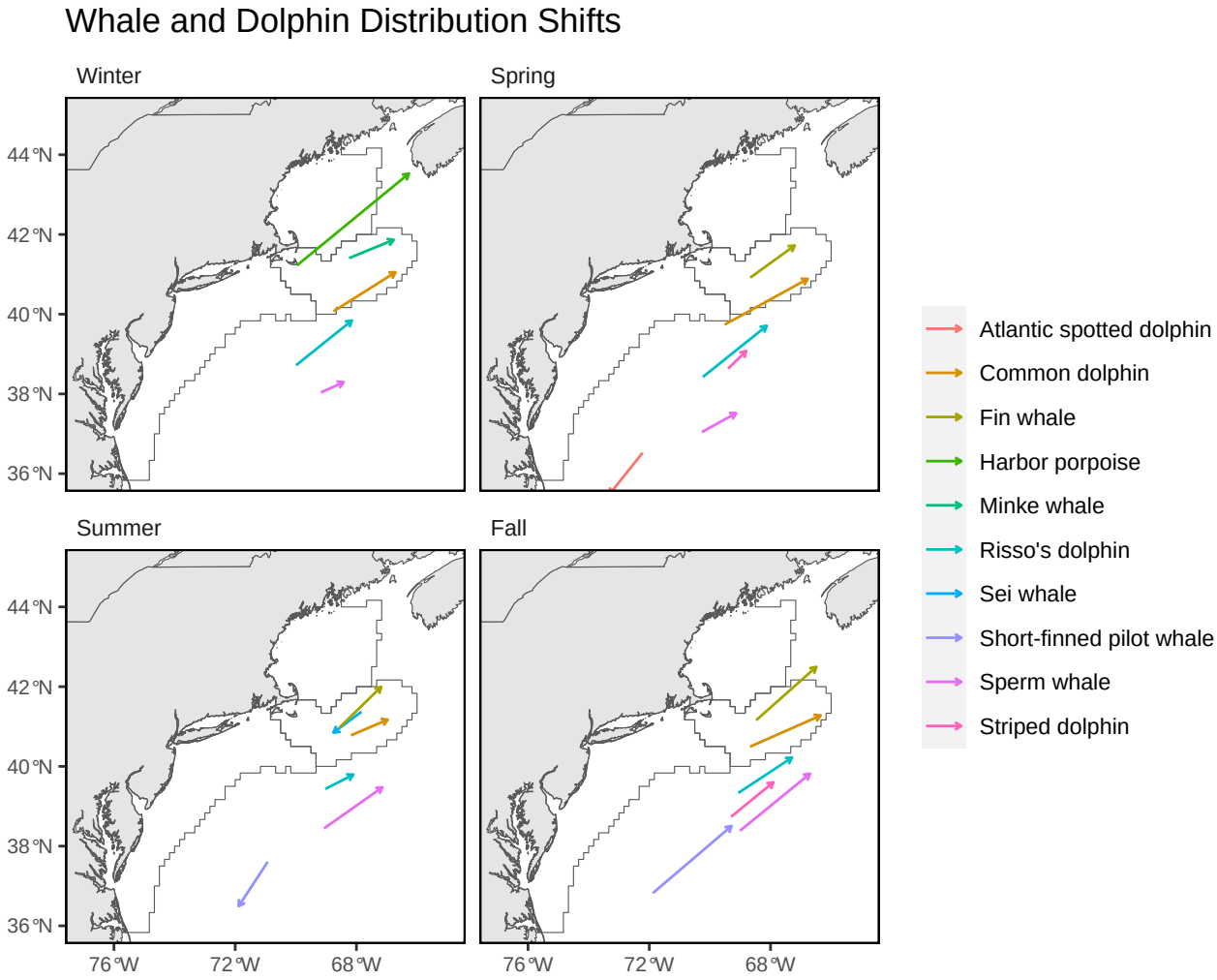


Figure 28: Direction and magnitude of core habitat shifts, represented by the length of the line of the seasonal weighted centroid for species with more than 70 km difference between 2010 and 2017 (tip of arrow).

Drivers: Mobile populations shift distributions to maintain suitable temperature and prey fields, possibly expanding ranges if new suitable habitat exists. Changes in managed species distribution is related, in part, to the distribution of forage biomass. Since 1982, the fall center of gravity of forage fish (20 species combined) has moved to the north and east (Fig. 29). Spring forage fish center of gravity has been more variable over time.

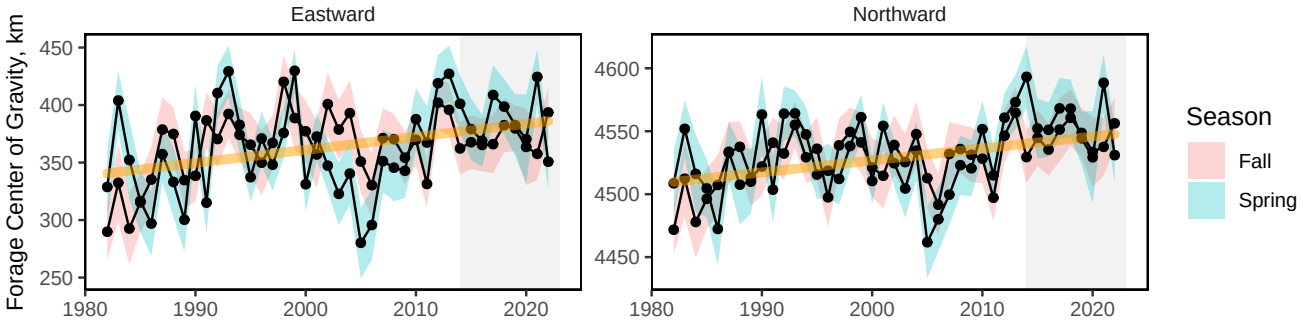


Figure 29: Eastward (left) and northward (right) shifts in the center of gravity for 20 forage fish species on the Northeast U.S. Shelf, with increasing trend (orange) for fall eastward and northward center of gravity.

Ocean temperatures influence the distribution, seasonal timing, and productivity of managed species (see sections below). The Northeast US shelf, including the Mid-Atlantic, has experienced a continued warming trend for both the long term (Fig. 30) and recent surface and bottom in all seasons.

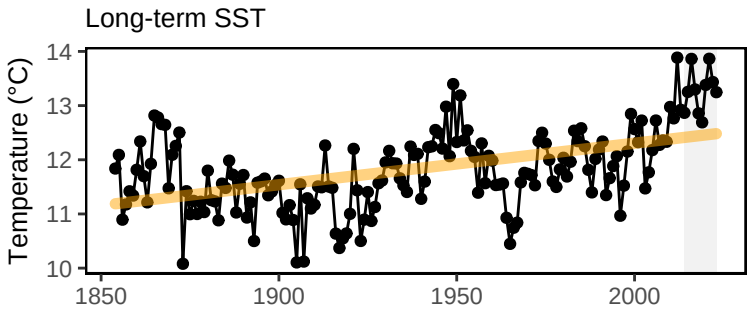


Figure 30: Northeast US annual sea surface temperature (SST, black), with increasing trend (orange).

Species suitable habitat can expand or contract when changes in temperature and major oceanographic conditions alter distinct water mass habitats.The variability of the Gulf Stream is a major driver of the predominant oceanographic conditions of the Northeast U.S. continental shelf. As the Gulf Stream has become less stable and shifted northward in the last decade (Fig. 31), warmer ocean temperatures have been observed on the northeast shelf and a higher proportion of Warm Slope Water has been present in the Northeast Channel.

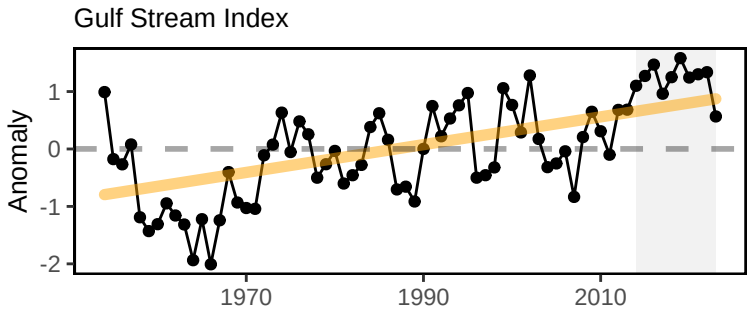


Figure 31: Index representing changes in the location of the Gulf Stream north wall (black). Positive values represent a more northerly Gulf Stream position, with increasing trend (orange).

Changes in ocean temperature and circulation alter habitat features such as the seasonal cold pool, a band of relatively cold near-bottom water from spring to fall over the northern MAB. The cold pool represents essential fish spawning and nursery habitat, and affects fish distribution and behavior. The cold pool has been getting warmer and smaller over time (Fig. 32). The spatial extent (or area) of the seasonal cold pool is decreasing over time, yet the interannual variability of cold pool area has increased.

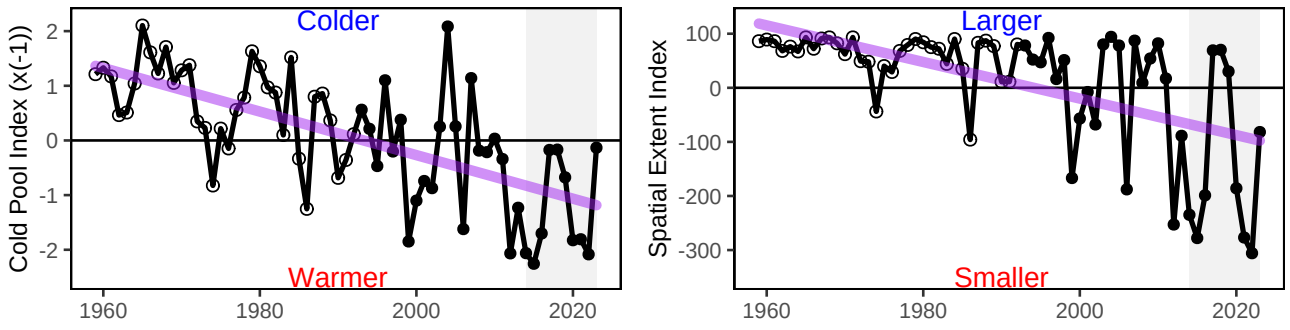


Figure 32: Seasonal cold pool mean temperature (left) and spatial extent index (right), based on bias-corrected ROMS-NWA (open circles) and GLORYS (closed circles), with declining trends (purple).

Future Considerations Distribution shifts caused by changes in thermal habitat are likely to continue as long as long-term temperature trends persist. Near-term oceanographic forecasts are currently in development and may inform how future warming impacts species distributions.

Distribution patterns associated with climate-driven changes in ocean circulation are also unlikely to be reversed to historical ranges in the short term. Increased oceanographic variability needs to be captured by regional ocean models and linked to species distribution processes to better understand potential future distributions. Species with high mobility or short lifespans react differently from immobile or long lived species.

Adapting management to changing stock distributions and dynamic ocean processes will require continued monitoring of populations in space and evaluating management measures against a range of possible future spatial distributions. Processes like the East Coast Climate Scenario Planning can help coordinate management.

Risks to Seasonal Management

The effectiveness of seasonal management actions (fishing seasons or area opening/closing) depends on a proper alignment with the seasonal life cycle events (phenology) of fish stocks (e.g. migration timing and spawning). Changes in the timing of these biological cycles can reduce the effectiveness of management measures if not accounted for. The timing of seasonal patterns can also change the interactions between fisheries and non-target species thus influencing the amount of bycatch and the availability of species to surveys.

Indicators: Timing shifts Spawning timing is shifting earlier for multiple stocks, including haddock and yellowtail flounder. Spawning of both haddock stocks occurred earlier in the year, as indicated by more resting (post-spawning) stage fish in the 2010s as compared to earlier in the time series (Fig. 33). The northern (CC/GOM) stock shows earlier active spawning in recent years with a decline in pre-spawning resting females.The recent increase in resting females in the southern (SNE) stock also indicates a shift to earlier spawning (i.e. more post-spawn fish). Yellowtail flounder spawning is related to bottom temperature, week of year, and decade sampled for each of the three stocks.

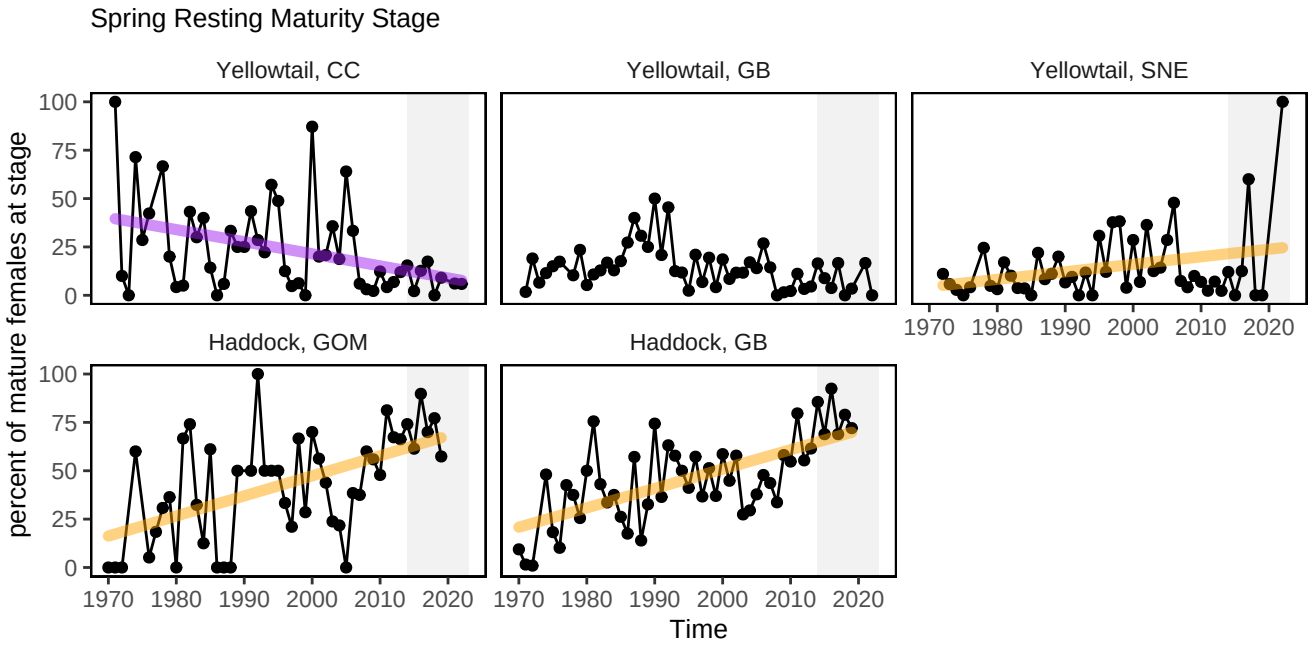


Figure 33: Percent resting stage (non-spawning) mature female fish (black) with significant increases (orange) and decreases (purple) from two haddock and three yellowtail flounder stocks: CC = Cape Cod Gulf of Maine, GOM = Gulf of Maine, GB = Georges Bank, SNE = Southern New England.

Migration timing of some tuna and large whale migrations has changed. For example, tuna were caught in recreational fisheries 50 days earlier in the year in 2019 compared to 2002. In Cape Cod Bay, peak spring habitat use by right and humpback whales has shifted 18-19 days later over time.

Understanding whether seasonal patterns are changing for stocks requires regular observations throughout the year. Despite the importance of understanding seasonal patterns, we have few indicators that directly assess timing shifts of species. We plan on incorporating more indicators of timing shifts and phenology in future reports.

Drivers: The drivers of timing shifts in managed stocks are generally coupled to shifts in environmental or biological conditions, since these can result in changes in habitat quality or food availability within the year. Changes in the timing of fall phytoplankton blooms and seasonal shifts in zooplankton communities are thought to be critical indicators of changes in seasonal food availability to stocks.

Along with the overall warming trends in the Mid Atlantic, ocean summer conditions have been lasting longer, as shown by the later transition from warm stratified summer conditions to well mixed cool fall conditions (Fig. 34). Changes in the broad seasonal cycles of their environment can lead to changes in species biological processes (migrations, spawning, etc.) that are triggered by seasonal events.

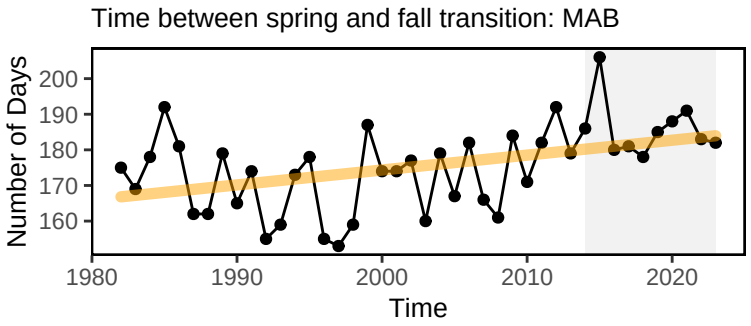


Figure 34: Ocean summer length in the MAB: the annual total number of days between the spring thermal transition date and the fall thermal transition date (black), with an increasing trend (orange).

The cold pool is a seasonal feature within the MAB that creates seasonally suitable habitat for many species. In 8 of the past 10 years, cold pool persistence has been well below average, so this habitat was available for a shorter portion of the year (Fig. 35). A change in the timing of the cold pool may impact the recruitment of species that depend on it for juvenile habitat, such as yellowtail flounder.

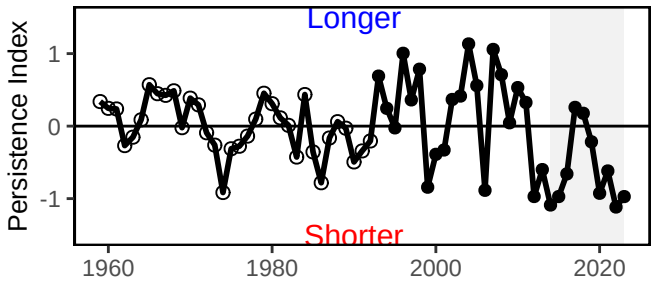


Figure 35: Cold pool persistence index based on bias-corrected ROMS-NWA (open circles) and GLORYS (closed circles).

Future Considerations For stocks reliant on environmental processes to dictate the timing of their behavior (e.g. phytoplankton bloom timing, thermal transition, or the duration of the cold pool), it is possible that some changes are episodic and have interannual variability, while other effects on timing can change on scales of years to decades. However, other species may rely on the general seasonal succession of their environment, which exhibits long-term trends unlikely to reverse in coming years. For those species, timing shifts in migration or spawning may continue. Management actions that rely on effective alignment of fisheries availability and biological processes should continue to evaluate whether prior assumptions on seasonal timings still hold, and new indicators should be developed to monitor timing shifts for stocks.

Risks to Quota Setting/Rebuilding

The efficacy of short-term stock projections and rebuilding plans rely on an accurate understanding of processes affecting stock growth, reproduction, and natural mortality. These biological processes are often driven by underlying environmental change. When observed environmental change occurs, there is a risk that established stock-level biological reference points may no longer reflect the current population.

Indicators: Fish productivity and condition shifts Indicators of fish productivity are derived from observations (surveys) or models (stock assessments). Fish productivity has been declining in the Mid-Atlantic since the early 2000s, as described by the small-fish-per-large-fish anomaly indicator (derived from NEFSC bottom trawl survey) (Fig. 36). This decline in fish productivity is also shown by a similar analysis based on stock assessment model outputs (recruitment per spawning stock biomass anomaly).

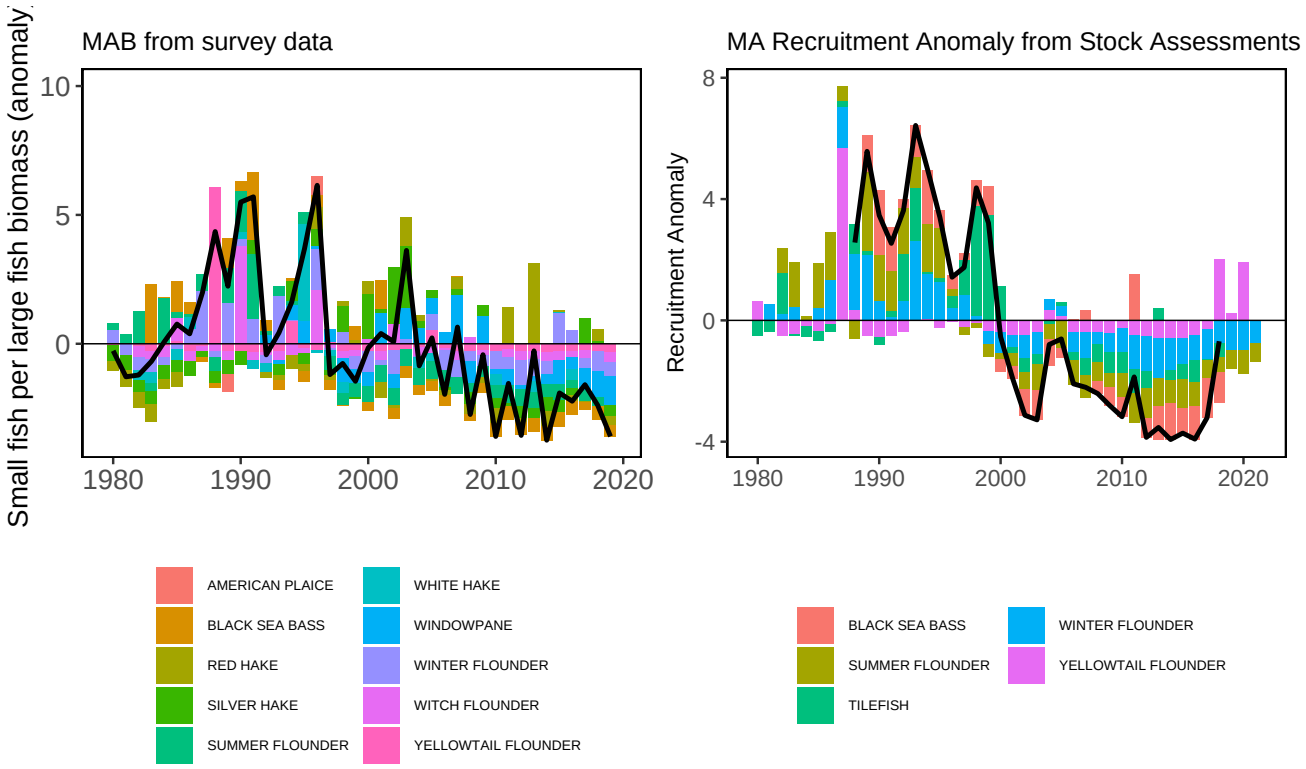


Figure 36: Fish productivity measures. Left: Small fish per large fish survey biomass anomaly in the Mid-Atlantic Bight. Right: assessment recruitment per spawning stock biomass anomaly for stocks mainly in the Mid-Atlantic. The summed anomaly across species is shown by the black line, drawn across all years with the same number of stocks analyzed.

The health of individual fish (i.e. fish condition) can contribute to population productivity through improved growth, reproduction and survival. Fish condition in the MAB was generally good prior to 2000, poor from 2001-2010 (concurrent with declines in productivity, Fig. 36), and a mix of good and poor since 2011. In 2023, condition was mixed, with general improvement since a relatively low condition year in 2021 (Fig. 37). Preliminary analyses show that changes in temperature, zooplankton, fishing pressure, and population size influence the condition of different fish species.

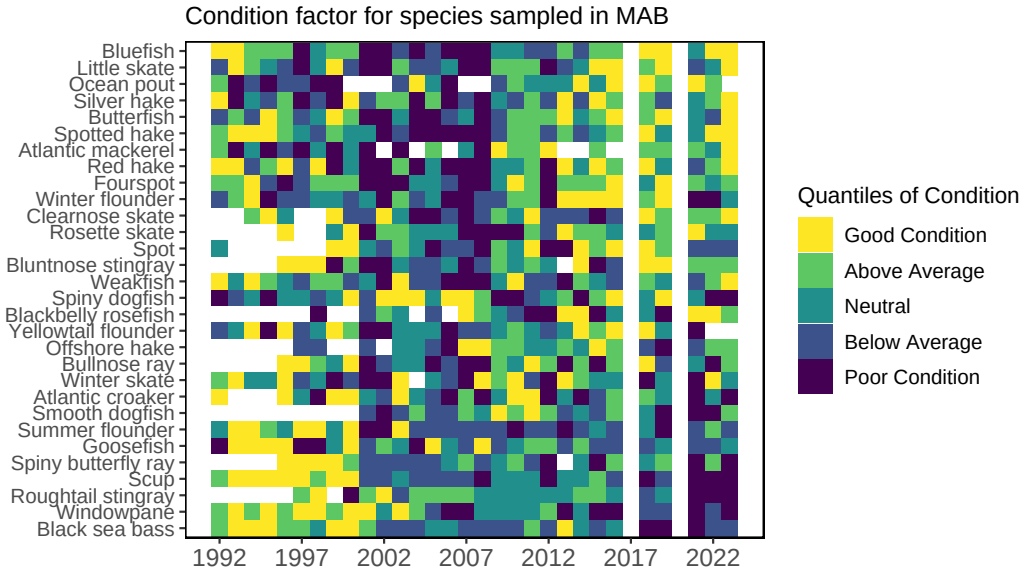


Figure 37: Condition factor for fish species in the MAB based on fall NEFSC bottom trawl survey data. MAB data are missing for 2017 due to survey delays, and no survey was conducted in 2020.

Drivers: Fish productivity and condition are affected by increasing metabolic demands from increasing temperature, combined with changes in the availability and quality of prey. Long-term environmental trends and episodic extreme temperatures, ocean acidification, and low oxygen events represent multiple stressors that can affect growth rates, reproductive success, recruitment, and cause mortality.

Biological Drivers: Forage quality and abundance The amount of forage fish available in the ecosystem combined with the energy content of the forage species determines the amount of energy potentially available to predators in the ecosystem. Changes in the forage base can drive managed and protected species production.

The energy content of juvenile and adult forage fish as prey is related to forage fish growth and reproductive cycles, as well as environmental conditions. The energy content of Atlantic herring from the NEFSC trawl surveys has increased recently (Fig. 38) but is still well below that observed in the 1980s and 1990s. Silver hake, longfin squid (Loligo in figure) and shortfin squid (Illex in figure) remain lower than previous estimates.

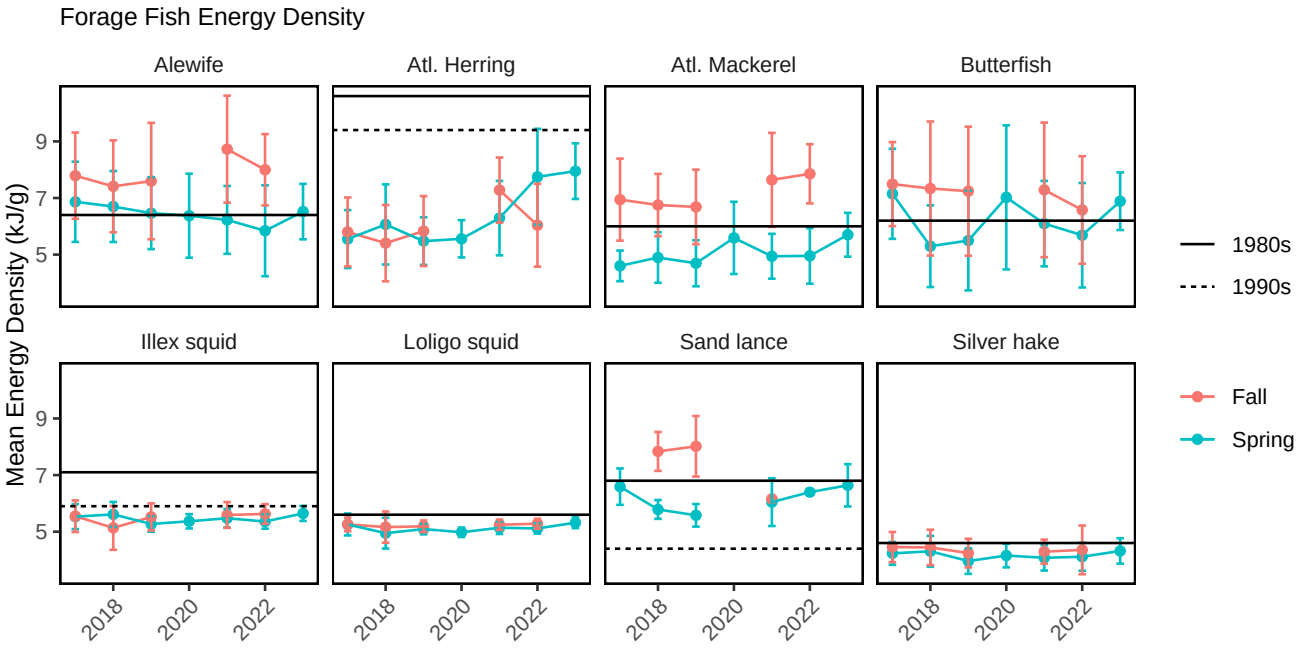


Figure 38: Forage fish energy density mean and standard deviation by season and year, compared with 1980s (solid line) and 1990s (dashed line) values.

Changes in the overall abundance of forage fish can influence managed species productivity as it relates to changes in food availability. A spatially-explicit forage index for the Mid-Atlantic shows a long term declining trend in fall, with higher forage biomass in fall than spring (Fig. 39). Forage biomass was highest during fall in the early-1980s.

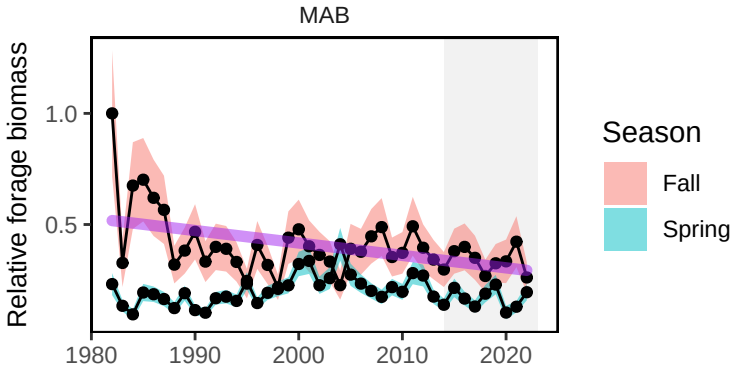


Figure 39: Forage fish index in the MAB for spring (blue) and fall (red) surveys, with a decline (purple) in fall. Index values are relative to the maximum observation within a region across surveys.

Biological Drivers: Lower trophic levels Phytoplankton are the foundation of the food web and are the primary food source for zooplankton and filter feeders such as shellfish. Numerous environmental and oceanographic factors affect the abundance, size composition, spatial distribution, and productivity of phytoplankton. While changes in fish productivity (including forage) could result from changing primary productivity, total primary production in the Mid Atlantic has no clear trend (Fig. 16).

Zooplankton communities in the Mid-Atlantic have increasing trends for smaller bodied copepods and gelatinous species (Cnidaria; Fig. 40). Smaller bodied copepods and gelatinous species are less energy-rich than Eupausiids (krill) or the larger-bodied copepod *Calanus finmarchicus*. A changing mix of zooplankton prey can impact forage fish energy content and abundance, as well as the prey field of filter feeding whales.

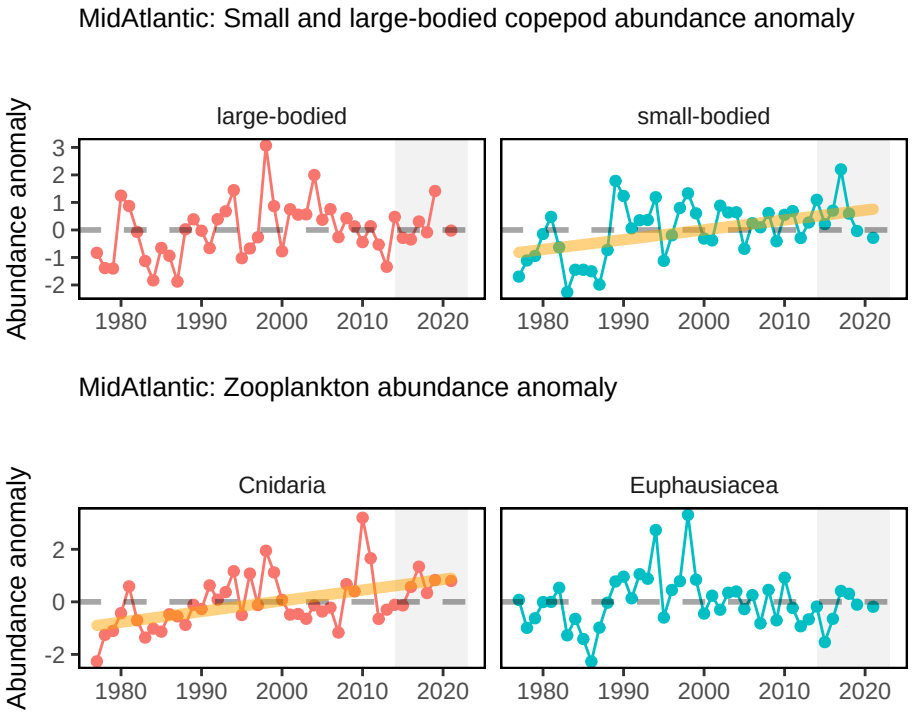


Figure 40: Changes in zooplankton abundance in the MAB for large (top left) and small (top right) copepods, Cnidarians (bottom left), and Euphausiids (bottom right), with significant increases (orange) in small copeods and Cnidarians.

Environmental Drivers Fish production can also be directly related to the prevailing environmental conditions by altering metabolic processes (growth) and reproduction. Many species possess thermal tolerances and can experience stressful or lethal conditions if temperatures exceed certain levels. Extreme temperatures at both the surface and bottom can exceed thermal tolerance limits for some fish. For example, 2015 had the warmest summer and fall bottom temperatures in the Mid-Atlantic. A large proportion of the region had bottom temperatures above the 15℃ thermal tolerance for most groundfish, with some days exceeding the 24℃ potential mortality limit (Fig. 41). Many Mid-Atlantic species have different thermal tolerance limits from groundfish, and we will work to include those next year.

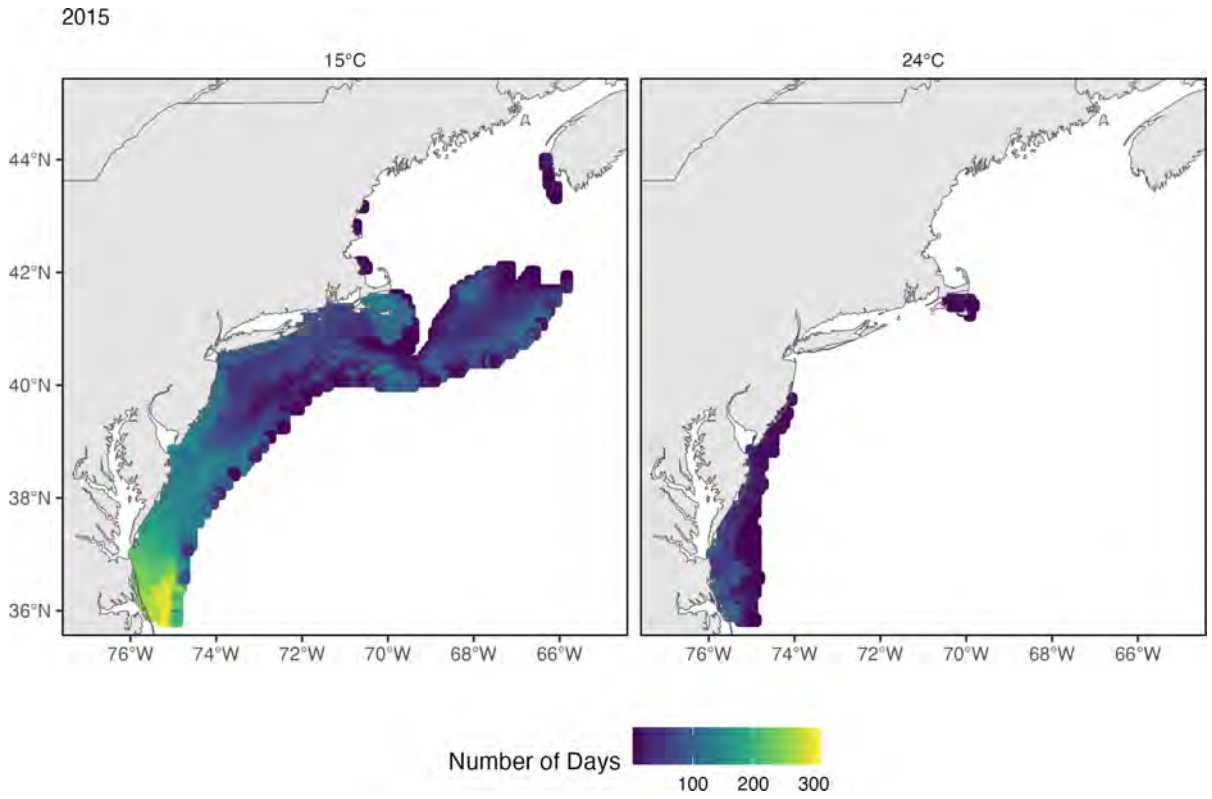


Figure 41: The number of days in 2015 where bottom temperature exceeds 15℃ (left) and 24℃ (right) based on the GLORYS 1/12 degree grid.

Ocean acidification (OA) risks vary among species and include reduced survival, growth, reproduction, and productivity, where high OA risk indicates potential negative effects to species. High OA risk conditions were observed for Atlantic sea scallop and longfin squid in Long Island Sound and the nearshore and mid shelf regions of the New Jersey shelf during summer of 2016, 2018, 2019, and 2023 (Fig. 42).

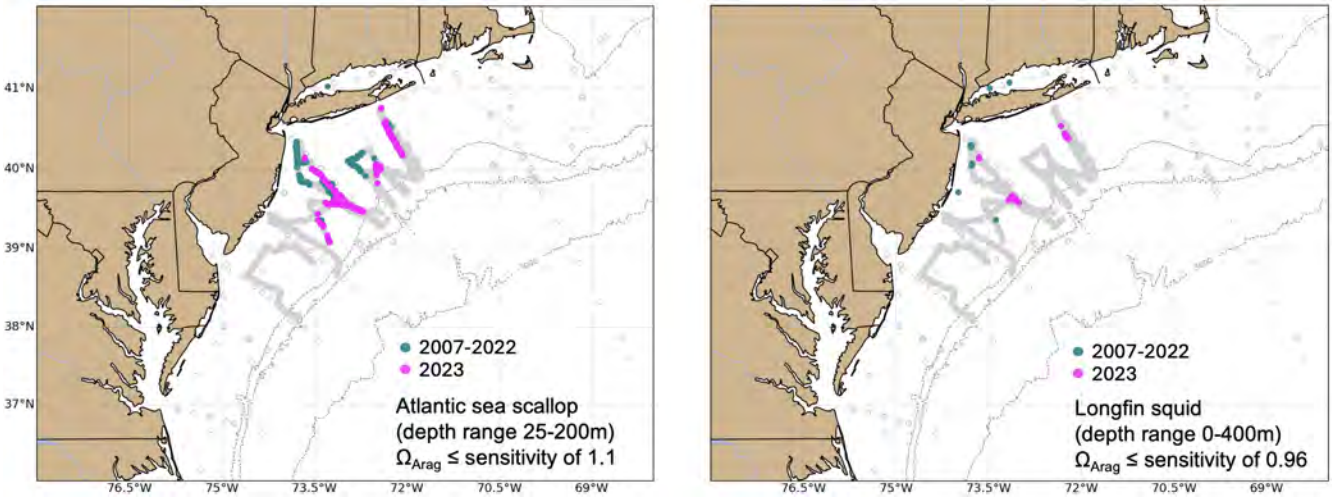


Figure 42: Locations where bottom aragonite saturation state (Ω_{Arag}; summer only: June-August) were at or below the laboratory-derived sensitivity level for Atlantic sea scallop (left panel) and longfin squid (right panel) for the time periods 2007-2022 (dark cyan) and 2023 only (magenta). Gray circles indicate locations where bottom Ω_{Arag} values were above the species specific sensitivity values..

Biological and oceanographic processes can affect the amount of oxygen present in the water column. During low oxygen (hypoxic) events, species growth is negatively affected, and very low oxygen can result in mortality. The duration and extent of hypoxic events is being monitored, but long-term shelf-wide observations are not yet available. However, hypoxic events were detected off the coast of New Jersey in 2023 and were potentially responsible for fish, lobster, and crab mortalities.

Drivers: Predation The abundance and distribution of predators can affect both the productivity and mortality rates on managed stocks. Predators can consume managed species or compete for the same resources, resulting in increased natural mortality or decreased productivity. The northeast shift in whales and dolphins (Fig. 28) indicates a change in the overlap between predators and prey. Since we also observe distribution shifts in managed species as well as forage species, the effect of changing predator distributions alone is difficult to quantify.

Indicators for shark populations, combined with information on gray seals (see Protected Species Implications section, above), suggests predator populations range from stable (sharks) to increasing (gray seals) in the MAB. Stock status is mixed for Atlantic Highly Migratory Species (HMS) stocks (including sharks, swordfish, billfish, and tunas) occurring throughout the Northeast U.S. shelf. While there are several HMS species considered to be overfished or that have unknown stock status, the population status for some managed Atlantic sharks and tunas is at or above the biomass target, suggesting the potential for robust predator populations among these managed species. Stable predator populations suggest stable predation pressure on managed species, but increasing predator populations may reflect increasing predation pressure.

Future Considerations

The processes that control fish productivity and mortality are dynamic, complex, and are the result of the interactions between multiple system drivers. There is a real risk that short-term predictions in assessments and rebuilding plans that assume unchanging underlying conditions will not be as effective, given the observed change documented in the prior sections in both ecological and environmental processes. Assumptions for species' growth, reproduction, and natural mortality should continue to be evaluated for individual species. With observations of system-wide productivity shifts of multiple managed stocks, more research is needed to determine whether regime shifts or ecosystem reorganization are occurring, and how this should be incorporated into management.

Other Ocean Uses: Offshore Wind

Indicators: development timeline, revenue in lease areas, coastal community vulnerability

As of January 2024, 30 offshore wind development projects are proposed for construction over the next decade in the Northeast (timelines and project data for 2024 are based on the Ocean Wind 1 Offshore Wind Farm Final Environmental Impact Statement. Volume II: Appendix F). Offshore wind areas are anticipated to cover more than 2.3 million acres by 2030 in the Greater Atlantic region (Fig. 43). All states will be able to reach their 2030 offshore wind goals with existing lease areas.

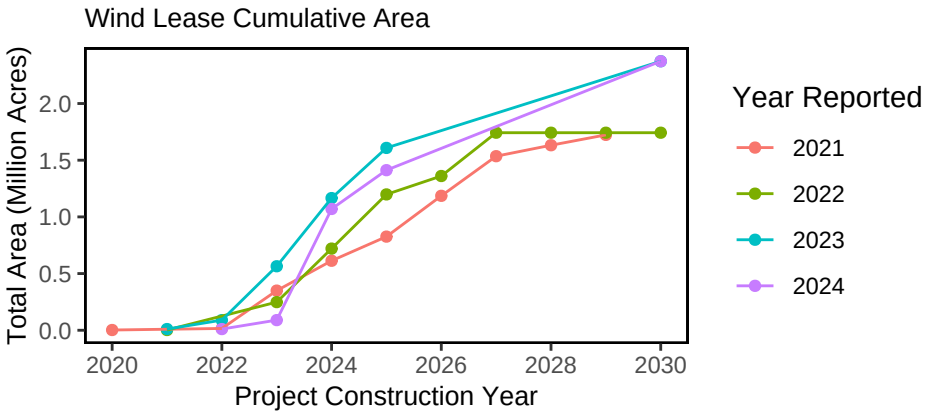
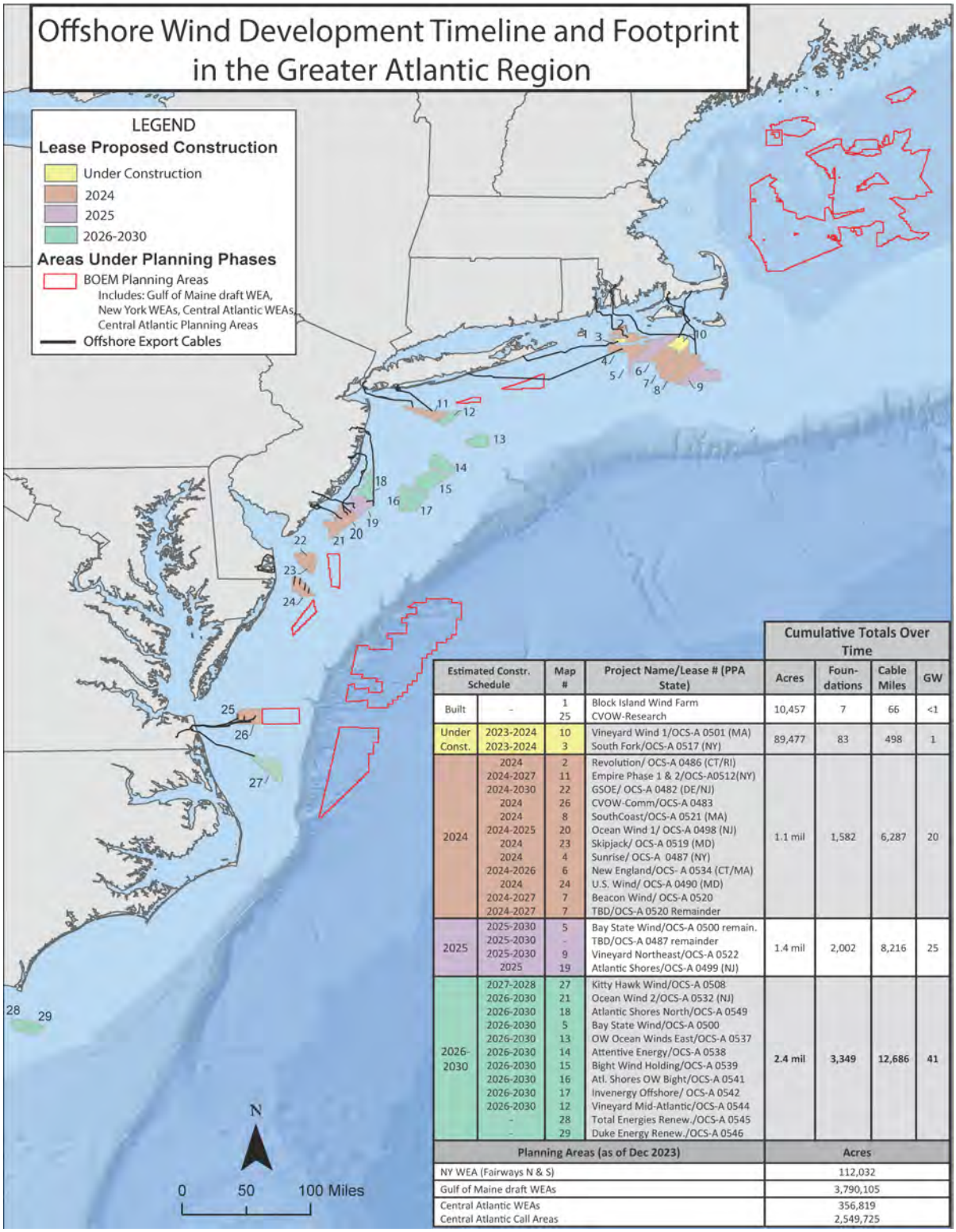


Figure 43: Total area proposed for wind develpment on the northeast shelf through 2030.

Just over 3,300 foundations and more than 12,000 miles of inter-array and offshore export cables are proposed to date (Fig. 44). Based on current timelines, the areas affected would be spread out such that it is unlikely that any one particular area would experience full development at one time. Construction of two projects in Southern New England (South Fork Wind and Vineyard Wind 1) during 2023 affected fisheries managed by the Mid-Atlantic Fishery Management Council, while construction activities began for Revolution Wind in early 2024. It is likely that construction will begin on other projects in Southern New England and possibly the New York Bight during 2024 that will further affect regional fisheries.



Estimated Constr. Schedule		Map #	Project Name/Lease # (PPA State)	Cumulative Totals Over Time: Acres	Foundations	Cable Miles	GW
Built	-	1	Block Island Wind Farm	10,457	7	66	<1
		25	CVOW-Research				
Under Const.	2023-2024	10	Vineyard Wind 1/OCS-A 0501 (MA)	89,477	83	498	1
	2023-2024	3	South Fork/OCS-A 0517 (NY)				
2024	2024	2	Revolution/ OCS-A 0486 (CT/RI)	1.1 mil	1,582	6,287	20
	2024-2027	11	Empire Phase 1 & 2/OCS-A0512(NY)				
	2024-2030	22	GSOE/ OCS-A 0482 (DE/NJ)				
	2024	26	CVOW-Comm/OCS-A 0483				
	2024	8	SouthCoast/OCS-A 0521 (MA)				
	2024-2025	20	Ocean Wind 1/ OCS-A 0498 (NJ)				
	2024	23	Skipjack/ OCS-A 0519 (MD)				
	2024	4	Sunrise/ OCS-A 0487 (NY)				
	2024-2026	6	New England/OCS- A 0534 (CT/MA)				
	2024	24	U.S. Wind/ OCS-A 0490 (MD)				
	2024-2027	7	Beacon Wind/ OCS-A 0520				
	2024-2027	7	TBD/OCS-A 0520 Remainder				
2025	2025-2030	5	Bay State Wind/OCS-A 0500 remain.	1.4 mil	2,002	8,216	25
	2025-2030	-	TBD/OCS-A 0487 remainder				
	2025-2030	9	Vineyard Northeast/OCS-A 0522				
	2025	19	Atlantic Shores/OCS-A 0499 (NJ)				
2026-2030	2027-2028	27	Kitty Hawk Wind/OCS-A 0508	**2.4 mil**	**3,349**	**12,686**	**41**
	2026-2030	21	Ocean Wind 2/OCS-A 0532 (NJ)				
	2026-2030	18	Atlantic Shores North/OCS-A 0549				
	2026-2030	5	Bay State Wind/OCS-A 0500				
	2026-2030	13	OW Ocean Winds East/OCS-A 0537				
	2026-2030	14	Attentive Energy/OCS-A 0538				
	2026-2030	15	Bight Wind Holding/OCS-A 0539				
	2026-2030	16	Atl. Shores OW Bight/OCS-A 0541				
	2026-2030	17	Invenergy Offshore/ OCS-A 0542				
	2026-2030	12	Vineyard Mid-Atlantic/OCS-A 0544				
	-	28	Total Energies Renew./OCS-A 0545				
	-	29	Duke Energy Renew./OCS-A 0546				

Planning Areas (as of Dec 2023)	Acres
NY WEA (Fairways N & S)	112,032
Gulf of Maine draft WEAs	3,790,105
Central Atlantic WEAs	356,819
Central Atlantic Call Areas	2,549,725

Figure 44: All Northeast Project areas by year construction ends (each project has 2 year construction period).

Based on federal vessel logbook data, commercial fishery revenue from trips in the current offshore wind lease areas, including the newly designated lease areas in the Central Atlantic, have varied annually from 2008-2022, with less

than $1 million in maximum annual revenue overlapping with these areas for most fisheries with the exception of the surfclam, monkfish, and longfin squid fisheries. Some fisheries see periodic spikes in revenue overlap with wind energy lease areas, including the surfclam ($6.6 million), longfin squid ($4.7 million), monkfish ($4.3 million), and summer flounder ($1.3 million) fisheries (Fig. 45).

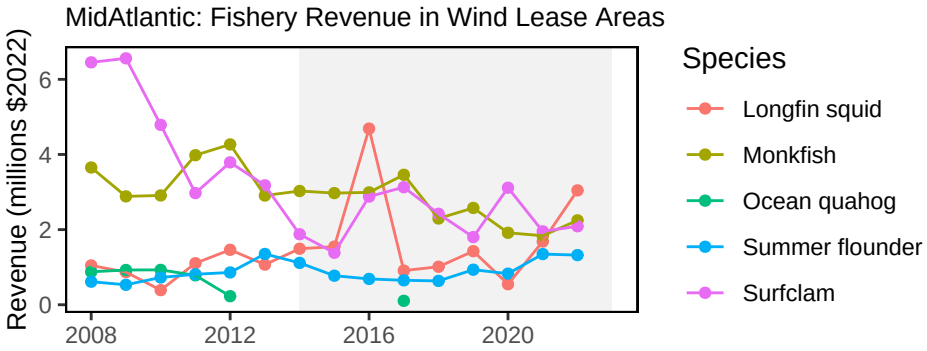


Figure 45: Fishery revenue in wind energy lease areas in the Mid-Atlantic.

Of MAFMC managed fisheries, the monkfish fishery would be the fishery most affected by offshore wind development, with a maximum of 20% of annual regional fishery revenue occurring within existing and proposed wind lease areas and the Gulf of Maine Draft Wind Energy Area during 2008-2022 (see Table 3). Future fishery resource overlap with wind leases, especially surfclams and ocean quahogs, may change due to species distribution shifts attributable to climate change and recruitment and larval dispersion pattern changes caused by hydrodynamic flow disruptions from turbine foundations, which could also affect fishery landings/revenue.

Table 3: Mid-Atlantic managed species Landings and Revenue from Wind Energy Areas.

NEFMC, MAFMC, and ASMFC Managed Species	Maximum Percent Total Annual Regional Species Landings	Maximum Percent Total Annual Regional Species Revenue
Monkfish	20	20
Atlantic surfclam	18	17
Blueline tilefish	13	16
Black sea bass	10	10
Scup	8	9
Atlantic mackerel	8	8
Longfin squid	8	8
Atlantic chub mackerel	6	6
Golden tilefish	6	6
Butterfish	6	5
Summer flounder	5	5
Bluefish	4	4
Spiny dogfish	4	4
Ocean quahog	3	3
Illex squid	2	2

Proposed wind development areas interact with the region's federal scientific surveys. Scientific surveys are impacted by offshore wind in four ways:
1. Exclusion of NOAA Fisheries' sampling platforms from the wind development area due to operational and safety limitations.
2. Impacts on the random-stratified statistical design that is the basis for scientific assessments, advice, and analyses.
3. Alteration of benthic and pelagic habitats, and airspace in and around the wind energy development, requiring

new designs and methods to sample new habitats.
4. Reduced sampling productivity through navigation impacts of wind energy infrastructure on aerial and vessel survey operations.

Increased vessel transit between stations may decrease data collections that are already limited by annual days-at-sea day allocations. The total survey area overlap ranges from 1-70% for all Greater Atlantic federal surveys. The Gulf of Maine Cooperative Research Bottom Longline Survey (41%) and the Shrimp Survey (70%) have the largest percent overlap with the draft Gulf of Maine Wind Energy Areas. The remaining surveys range from 1-16% overlap. Individual survey strata have significant interaction with wind areas, including the sea scallop survey (up to 96% of individual strata) and the bottom trawl survey (up to 60% strata overlap). Additionally, up to 50% of the southern New England North Atlantic right whale survey's area overlaps with proposed project areas and a region-wide survey mitigation program is underway

Equity and environmental justice (EJ) are priority concerns with offshore wind development and fisheries impacts in the Northeast, and the impacts of offshore wind development are expected to differentially impact specific coastal communities (Fig. 46). Additionally, impacts of offshore wind development may unevenly affect individual operators, with some permit holders deriving a much higher proportion of revenue from wind areas than the port-based mean.

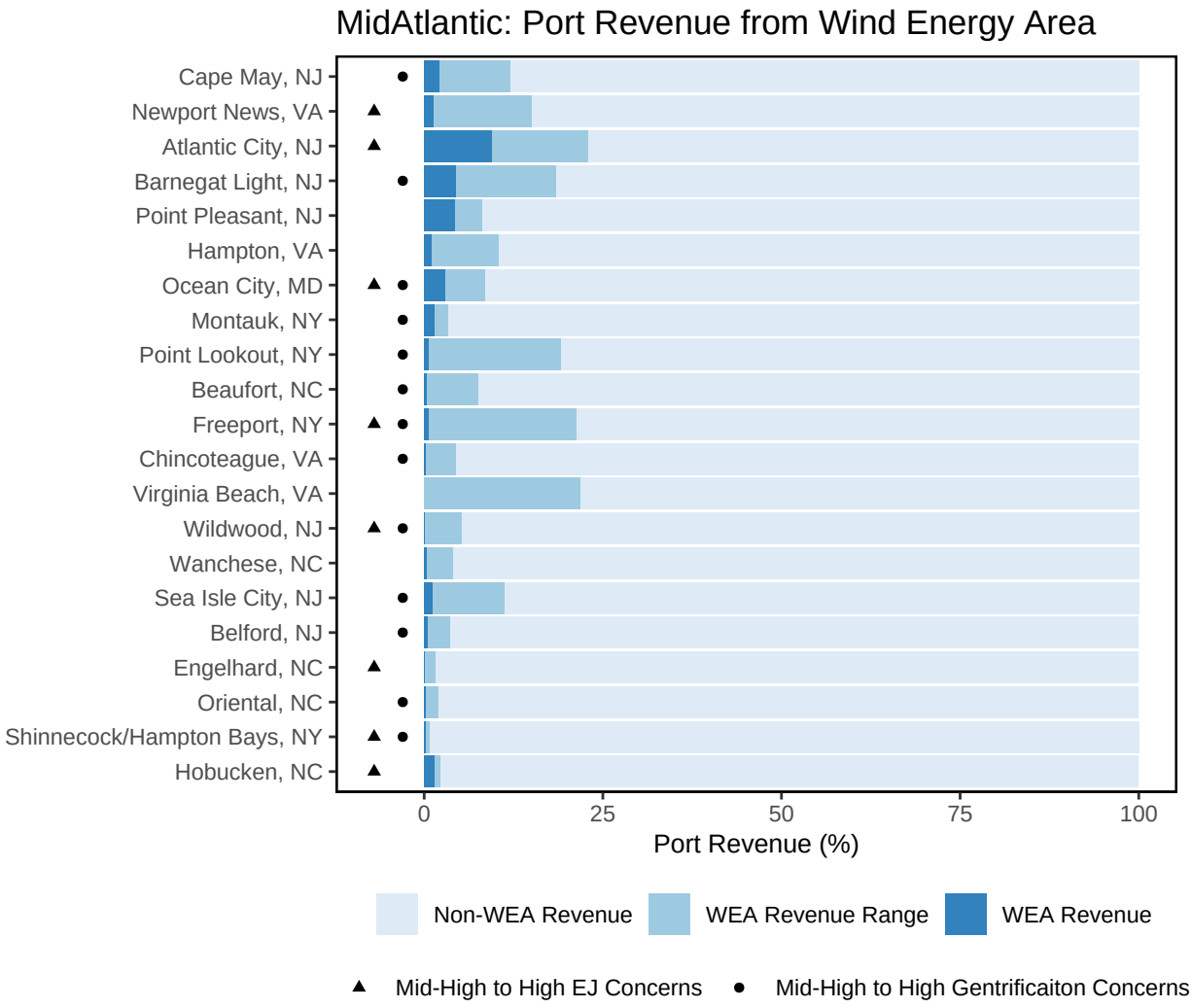


Figure 46: Percent of Mid-Atlantic port revenue from Wind Energy Areas (WEA) in descending order from most to least port revenue from WEA. EJ = Environmental Justice.

For example, Atlantic City, NJ had the highest potential revenue loss (minimum of 10% and maximum of 23%) from potential wind development areas based on 2008-2022 total port fisheries revenue. BOEM reports that cumulative offshore wind development (if all proposed projects are developed) could have moderate impacts on low-income members of communities with environmental justice concerns who work in the commercial fishing and for-hire fishing industry due to disruptions to fish populations, restrictions on navigation and increased vessel traffic, as well as existing vulnerabilities of low-income workers to economic impacts.

Some ports in New England land Mid-Atlantic managed species from wind areas as well. For the maximum percent value reported in each New England port, the majority (at least 50% based on both value and pounds) of those landings were Mid-Atlantic managed species within wind areas for Barnstable, MA, and Point Judith, RI.

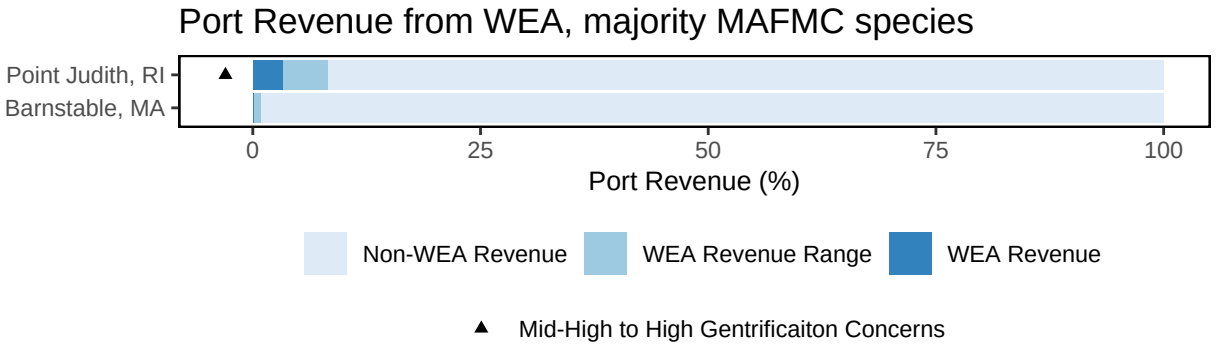


Figure 47: Percent of New England port revenue with majority MAFMC landings from Wind Energy Areas (WEA) in descending order from most to least port revenue from WEA. EJ = Environmental Justice.

Top fishing communities with environmental justice concerns (i.e., Atlantic City, NJ, Newport News, VA, Hobucken and Beaufort, NC) should be considered in decision making to reduce the social and economic impacts and aid in the resilience and adaptive capacity of underserved communities. These are communities where we need to provide further resources to reach underserved and underrepresented groups and create opportunities for and directly involve these groups in the decision-making process.

Implications

Current plans for rapid buildout of offshore wind in a patchwork of areas spreads the impacts differentially throughout the region (Fig. 44). Up to 17% of maximum annual fisheries revenue for major Mid-Atlantic commercial species in lease areas and draft call areas could be forgone or reduced and associated effort displaced if all sites are developed. Displaced fishing effort can alter historic fishing area, timing, and method patterns, which can in turn change habitat, species (managed and protected), and fleet interactions. Several factors, including fishery regulations, fishery availability, and user conflicts affect where, when, and how fishing effort may be displaced, along with impacts to and responses of affected fish species.

Planned development overlaps NARW mother and calf migration corridors and a significant foraging habitat that is used throughout the year (Fig. 48). Turbine presence and extraction of energy from the system could alter local oceanography and may affect right whale prey availability. For example, persistent foraging hotspots of right whales and seabirds overlap on Nantucket Shoals, where unique hydrography aggregates enhanced prey densities. Wind leases (OCS-A 0521 and OCS-A 0522) currently intersect these hotspots on the southwestern corner of Nantucket Shoals and a prominent tidal front associated with invertebrate prey swarms important to seabirds and possibly right whales. Proposed wind development areas also bring increased vessel strike risk from construction and operation vessels. In addition, there are a number of potential impacts to whales from pile driving and operational noise such as displacement, increased levels of communication masking, and elevated stress hormones.

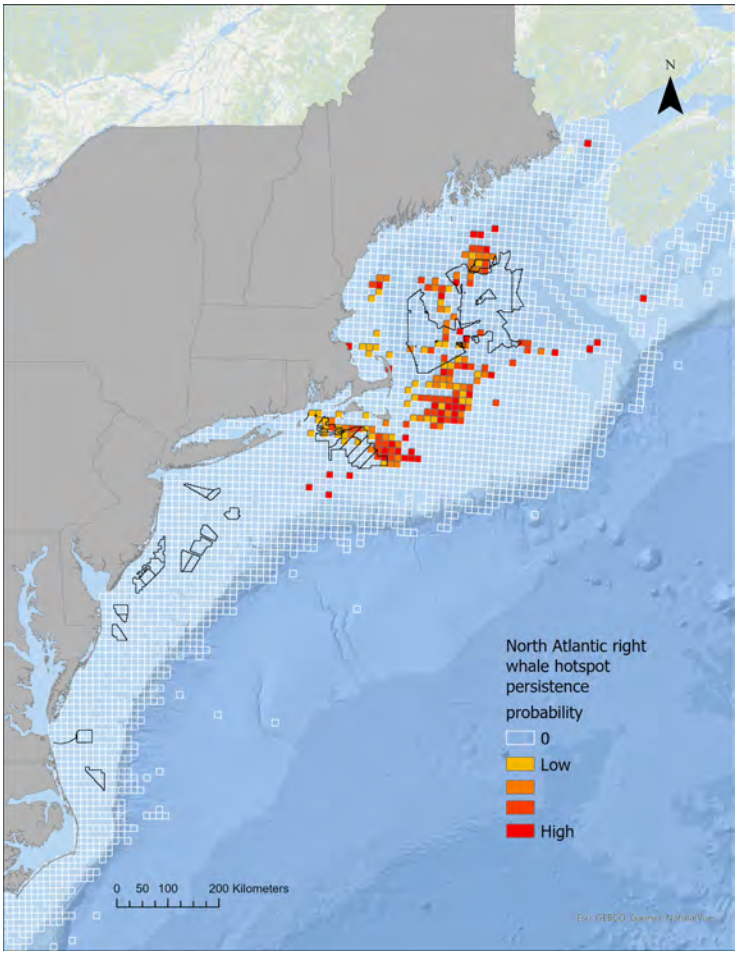


Figure 48: Northern Right Whale persistent hotspots (red shading) and Wind Energy Areas (black outlines).

Scientific data collection surveys for ocean and ecosystem conditions, fish, and protected species will be altered, potentially increasing uncertainty for stock assessments and associated management decision making.

The increase of offshore wind development can have both positive (e.g., employment opportunities) and negative (e.g., space-use conflicts) effects. Continued increase in coastal development and gentrification pressure has resulted in loss of fishing infrastructure space within ports. Understanding these existing pressures can allow for avoiding and mitigating negative impacts to our shore support industry and communities dependent on fishing. Some of the communities with the highest fisheries revenue overlap with offshore wind development areas that are also vulnerable to gentrification pressure are Point Pleasant and Atlantic City, NJ, Ocean City, MD, and Beaufort, NC.

2023 Highlights

This new section is common to the Mid-Atlantic and New England reports. Multiple anomalous conditions and extreme events were observed in 2023 that could have brief local effects and/or widespread long-term ecosystem, fishery and management implications. This section intends to provide a record of these observations, the implications they may have for other ecosystem processes, and a reflection on how they fit into our understanding of the ecosystem. Many of these observations are being actively studied but should be noted and considered in future analyses and management decisions.

Globally, 2023 was the warmest year on record with record high sea surface temperatures in the North Atlantic. In contrast, Northeast U.S. shelf surface temperatures were more variable, with near record highs in winter and near average conditions in other seasons.

Regional/Coastal phenomena There was a documented die-off of scallops in the Mid-Atlantic Elephant Trunk regions between the 2022 and 2023 surveys. In 2022, Elephant Trunk experienced stressful temperatures for scallops (17 - 19 ℃) for an average of 30 days (Fig. 49), but ongoing research is being conducted to identify contributing factors. A fish and shellfish mortality event was observed in coastal New Jersey linked to hypoxia and ocean acidification (Fig. 50).

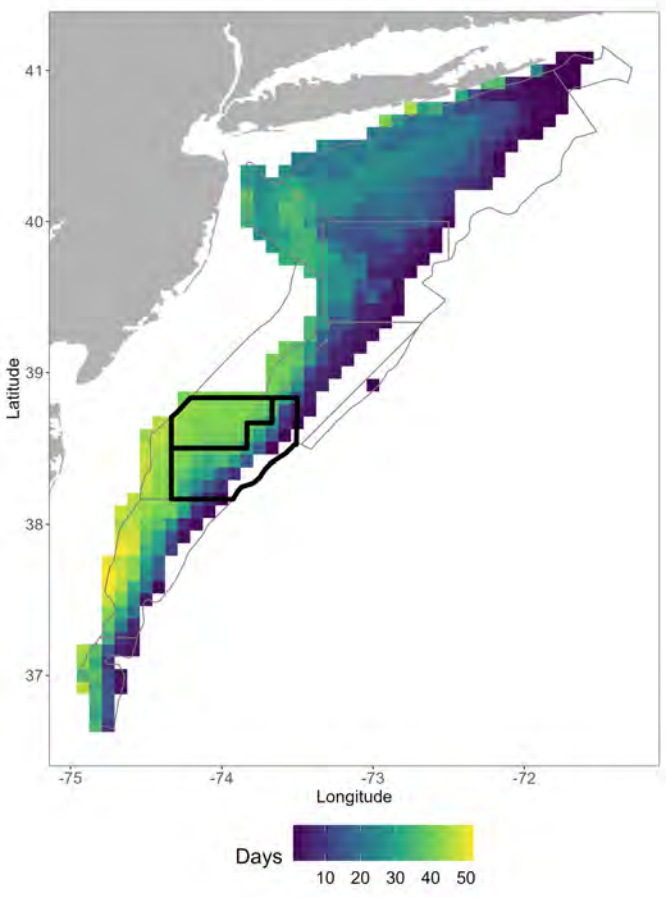


Figure 49: The number of days where bottom temperature was between 17 and 19 °C in each GLORYS grid cell for 2022. The gray lines show the sea scallop estimation areas, with the Elephant Trunk region highlighted in black lines.

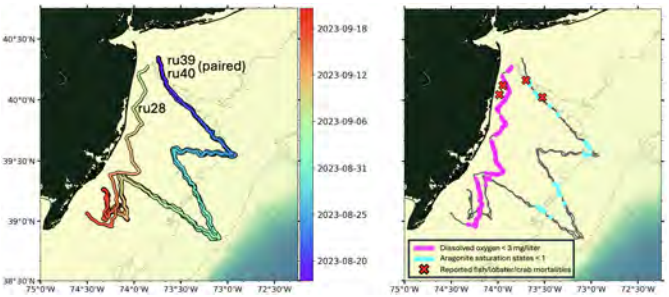


Figure 50: Mission tracks of three gliders (left) deployed off the coast of New Jersey in August and September of 2023. Locations of hypoxic levels of dissolved oxygen (magenta; < 3 mg/liter) and low aragonite saturation state (cyan; < 1) measured along the glider mission tracks and locations of reported fish, lobster, and/or crab mortalities (red X).

Summer bottom temperatures in the Gulf of Maine were the warmest on record (since 1959) resulting in the second

largest bottom marine heatwave. The heatwave started in February, peaked in May and likely continued beyond August (pending data update). 2023 bottom temperature exceeded the 15 ℃ threshold for up to 59 days along the shelf break.

A wide-spread, long-duration phytoplankton bloom of the dinoflagellate *Tripos muelleri* was observed in the GOM and generated chlorophyll concentrations up to ten times greater than average (a record high since 1998) from March to August (Figs. 51, 52). The bloom severely reduced water clarity, impacting harpoon fishing and likely affecting visual predators. Despite *Tripos* being a similar size to typical large phytoplankton (diatoms), this extra production was not grazed nor did it sink to the bottom. The specific drivers of the bloom and implications to the food web are still under investigation.

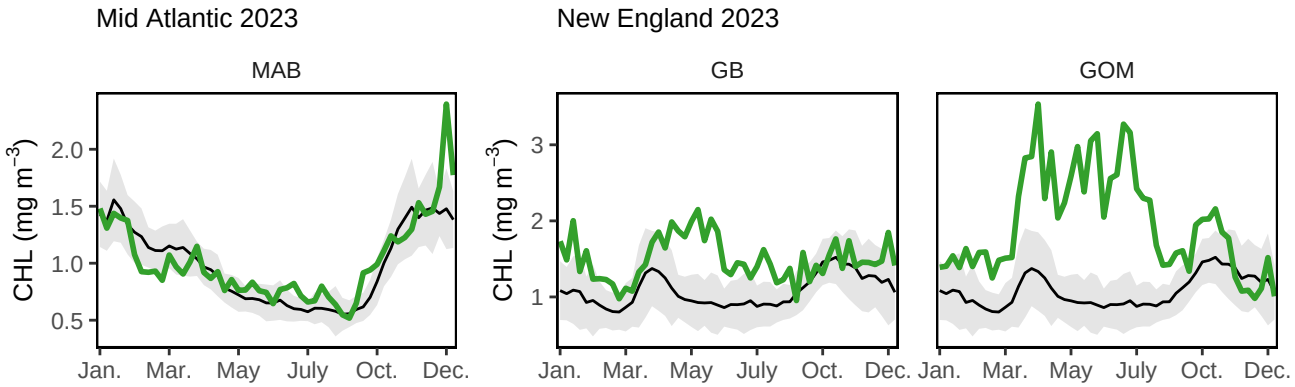


Figure 51: 2023 median weekly chlorophyll concentrations (green line) with standard deviation 1998-2023 (gray shading).

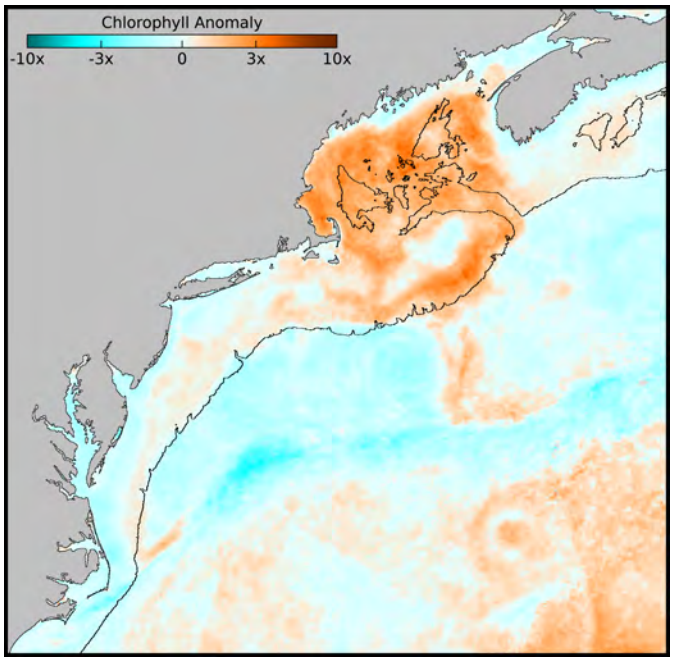


Figure 52: June 2023 chlorophyll anomaly shown as the ratio of the June 2023 average compared to climatological (1998-2023) June average. The black line depicts the 100 m isobath.

In Chesapeake Bay, hypoxia conditions were the lowest on record (since 1995), creating more suitable habitat for

multiple fin fish and benthic species. Cooler Chesapeake Bay water temperatures paired with low hypoxia in the summer suggest conditions that season were favorable for striped bass. Cooler summer temperatures also support juvenile summer flounder growth. However, warmer winter and spring water temperatures in the Chesapeake Bay, along with other environmental factors (such as low flow), may have played a role in low production of juvenile striped bass in 2023. Higher-than-average salinity across the Bay was likely driven by low precipitation and increased the area of available habitat for species such as croaker, spot, menhaden, and red drum, while restricting habitat area for invasive blue catfish.

Shelf-wide Phenomena The Gulf Stream was highly variable in 2023, with northward shifts intermittently throughout the year and a more notable prolonged shift north along the continental shelf break in the southern Mid-Atlantic in the fall (Fig. 53). This shift severely constricted the Slope Sea (the waters between the Gulf Stream and continental shelf), inhibited warm core ring formation and interactions, resulted in unusually warm and salty surface waters, and strong northeastward currents in the southern Mid-Atlantic. Intermittent warm waters like this can be threats to temperature sensitive species, especially species at the southern end of their range or are not mobile (e.g. scallops), while also providing suitable habitat for more southern species.

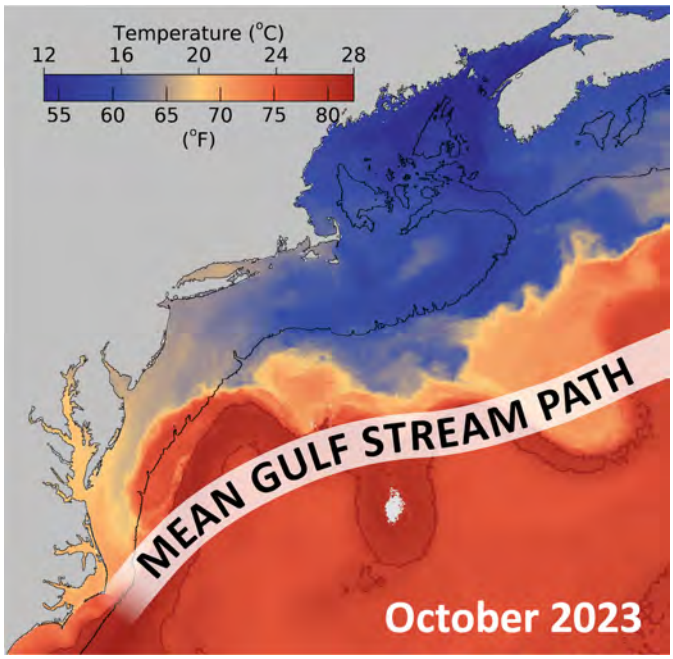


Figure 53: October 8-14, 2023 sea surface temperature average derived from the Advanced Clear Sky Processor for Ocean (ACSPO) SST data. The black line depicts the 100 m isobath and the white line is the mean path of the Gulf Stream.

While the total number of warm core rings in 2023 (18) was below the decadal average (31), there were a few notable events. A large early season ring pulled continental shelf water into the Slope Sea. Events like these can create biological hotspots, aggregating multiple species in small areas, increasing bycatch risks, and marine mammal shipstrike risks. In spring 2023, concentrations of North Atlantic right whales, humpback whales, basking sharks, and other large baleen whales were observed feeding near the edge of warm core rings near the shelf break.

Multiple fall 2023 tropical and coastal storms caused several flash flood events, above average coastal water levels, strong winds and high rainfall totals throughout the Northeast. These storms may be related to the shift from 2020-2022 La Niña conditions to strong El Niño conditions in late spring 2023. El Niño winters are associated with more frequent East Coast storms, which can result in increased risk of coastal flooding, increased freshwater runoff into the coastal ocean, and delayed spring transition from a well mixed water column to stratified. In estuaries, increased freshwater flow decreases salinity, reduces the amount of suitable habitat for juvenile marine fish, and is related to increased hypoxia (low oxygen). However, precipitation is not uniform throughout the Northeast U.S.,

and Chesapeake Bay 2023 conditions did not align with El Nino expectations. The current El Niño is expected to weaken by spring 2024.

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Document Orientation

The figure format is illustrated in Fig 54a. Trend lines are shown when slope is significantly different from 0 at the p < 0.05 level. An orange line signifies an overall positive trend, and purple signifies a negative trend. To minimize bias introduced by small sample size, no trend is fit for < 30 year time series. Dashed lines represent mean values of time series unless the indicator is an anomaly, in which case the dashed line is equal to 0. Shaded regions indicate the past ten years. If there are no new data for 2022, the shaded region will still cover this time period. The spatial scale of indicators is either coastwide, Mid-Atlantic states (New York, New Jersey, Delaware, Maryland, Virginia, North Carolina), or at the Mid-Atlantic Bight (MAB) Ecosystem Production Unit (EPU, Fig. 54b) level.

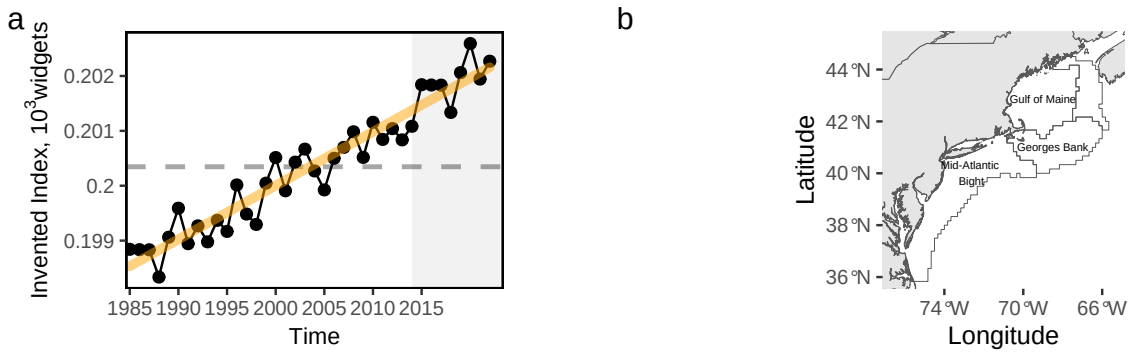

Figure 54: Document orientation. a. Key to figures. b.The Northeast Large Marine Ecosystem.

Fish and invertebrates are aggregated into similar feeding categories (Table 4) to evaluate ecosystem level trends in predators and prey.

Table 4: Feeding guilds and management bodies.

Guild	MAFMC	Joint	NEFMC	State or Other
Apex Predator				shark uncl, swordfish, yellowfin tuna, bluefin tuna
Piscivore	summer flounder, bluefish, northern shortfin squid, longfin squid	spiny dogfish, goosefish	winter skate, clearnose skate, thorny skate, offshore hake, silver hake, atlantic cod, pollock, white hake, red hake, atlantic halibut, acadian redfish	sea lamprey, sandbar shark, atlantic angel shark, atlantic torpedo, conger eel, spotted hake, cusk, fourspot flounder, windowpane, john dory, atlantic cutlassfish, blue runner, striped bass, weakfish, sea raven, northern stargazer, banded rudderfish, atlantic sharpnose shark, inshore lizardfish, atlantic brief squid, northern sennet, king mackerel, spanish mackerel
Planktivore	atlantic mackerel, butterfish		atlantic herring	harvestfishes, smelts, round herring, alewife, blueback herring, american shad, menhaden, bay anchovy, striped anchovy, rainbow smelt, atlantic argentine, slender snipe eel, atlantic silverside, northern pipefish, chub mackerel, atlantic moonfish, lookdown, blackbelly rosefish, lumpfish, northern sand lance, atlantic saury, mackerel scad, bigeye scad, round scad, rough scad, silver rag, weitzmans pearlsides, atlantic soft pout, sevenspine bay shrimp, pink glass shrimp, polar lebbeid, friendly blade shrimp, bristled longbeak, aesop shrimp, norwegian shrimp, northern shrimp, brown rock shrimp, atlantic thread herring, spanish sardine, atlantic bumper, harvestfish, striated argentine, silver anchovy
Benthivore	black sea bass, scup, tilefish		barndoor skate, rosette skate, little skate, smooth skate, haddock, american plaice, yellowtail flounder, winter flounder, witch flounder, ocean pout, crab,red deepsea	crab,unc, hagfish, porgy,red, sea bass,nk, atlantic hagfish, roughtail stingray, smooth dogfish, chain dogfish, bluntnose stingray, bullnose ray, southern stingray, longfin hake, fourbeard rockling, marlin-spike, gulf stream flounder, longspine snipefish, blackmouth bass, threespine stickleback, smallmouth flounder, hogchoker, bigeye, atlantic croaker, pigfish, northern kingfish, silver perch, spot, deepbody boarfish, sculpin uncl, moustache sculpin, longhorn sculpin, alligatorfish, grubby, atlantic seasnail, northern searobin, striped searobin, armored searobin, cunner, tautog, snakeblenny, daubed shanny, radiated shanny, red goatfish, striped cusk-eel, wolf eelpout, wrymouth, atlantic wolffish, fawn cusk-eel, northern puffer, striped burrfish, planehead filefish, gray triggerfish, shortnose greeneye, beardfish, cownose ray, american lobster, cancer crab uncl, jonah crab, atlantic rock crab, blue crab, spider crab uncl, horseshoe crab, coarsehand lady crab, lady crab, northern stone crab, snow crab, spiny butterfly ray, smooth butterfly ray, snakefish, atlantic midshipman, bank cusk-eel, red cornetfish, squid cuttlefish and octopod uncl, spoonarm octopus, bank sea bass, rock sea bass, sand perch, cobia, crevalle jack, vermilion snapper, tomtate, jolthead porgy, saucereye porgy, whitebone porgy, knobbed porgy, sheepshead porgy, littlehead porgy, silver porgy, pinfish, red porgy, porgy and pinfish uncl, banded drum, southern kingfish, atlantic spadefish, leopard searobin, dusky flounder, triggerfish filefish uncl, blackcheek tonguefish, orange filefish, queen triggerfish, ocean triggerfish
Benthos	atlantic surfclam, ocean quahog		sea scallop	sea cucumber, sea urchins, snails(conchs), sea urchin and sand dollar uncl, channeled whelk, blue mussel

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P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: March 26, 2024

To: Council

From: Brandon Muffley, Council staff

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

On Tuesday, April 9, 2024, the Mid-Atlantic Fishery Management Council (Council) will review the draft 2024 EAFM risk assessment report. The risk assessment is provided to the Council annually and is intended to track ecosystem elements that may threaten the Council's ability to achieve the ecological, socio-economic, and management objectives desired for Council-managed fisheries. The Council will provide any guidance and feedback on the draft document that should be considered for completion of the risk assessment later in the year.

Background

In October 2023, the Council reviewed and approved a number of changes and updates to be included in a revised EAFM risk assessment. These changes included the addition of four new risk elements and revisions to the definitions, indicators, and/or risk criteria for 16 of the 24 existing risk elements. These updates were developed as part of a comprehensive review of the risk assessment by the Council's Ecosystem and Ocean Planning (EOP) Committee and Advisory Panel (AP)[1]. The goal of the review was to produce an updated risk assessment that 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.

The draft report has been updated to reflect the approved changes to the risk assessment and incorporates the latest data and scientific information, indicators from the 2024 Mid-Atlantic State of the Ecosystem report[2], and new analyses developed by Council and NEFSC staff. For some elements, there are indicators and risk criteria that are still draft (identified as "potential" in the relevant headings of the report) and require additional feedback from the Council, EOP Committee and AP. In addition, there are several risk elements, including all four new elements, that are still under development and will take additional time to complete and, therefore, there is no risk ranking associated with those elements.

[1] See the September 13-14, 2023 EOP Committee and AP meeting summary for additional information: https://www.mafmc.org/s/Tab07_EAFM-Risk-Assessment-Review.pdf

[2] The 2024 Mid-Atlantic State of the Ecosystem report will be presented to the Council at the April 2024 Council meeting and can be found at: https://www.mafmc.org/council-events/2024/april-council-meeting.

Over the next several months, staff will continue to work on tasks needed to complete the remaining risk elements and incorporate any input from the Council identified at the April meeting. Once ready, a completed draft risk assessment will be presented to the EOP Committee and AP for feedback and recommendations. A final risk assessment that addresses the EOP input will be presented to the Council later this year for review and approval.

Meeting Materials

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

- Draft 2024 EAFM risk assessment report

Introduction

Risk Element Information and Recommendations for Council Consideration

The Council approved an Ecosystem Approach to Fisheries Management (EAFM) Guidance Document in 2016 which outlined a path forward to more fully incorporate ecosystem considerations into marine fisheries management[1], and revised the document in February 2019[2]. The Council's stated goal for EAFM is "to manage for ecologically sustainable utilization of living marine resources while maintaining ecosystem productivity, structure, and function." Ecologically sustainable utilization is further defined as "utilization that accommodates the needs of present and future generations, while maintaining the integrity, health, and diversity of the marine ecosystem." Of particular interest to the Council was the development of tools to incorporate the effects of species, fleet, habitat and climate interactions into its management and science programs. To accomplish this, the Council agreed to adopt a structured framework to first prioritize ecosystem interactions, second to specify key questions regarding high priority interactions and third tailor appropriate analyses to address them [1]. Because there are so many possible ecosystem interactions to consider, a risk assessment was adopted as the first step to identify a subset of high priority interactions [2]. The Council completed its first risk assessment in 2017 and the risk elements included in the assessment spanned biological, ecological, social and economic issues and risk criteria for the assessment were based on a range of indicators and expert knowledge [2].

The risk assessment is updated annually and was designed to help the Council decide where to focus limited resources to address ecosystem considerations by first clarifying priorities. Overall, the purpose of the EAFM risk assessment is to provide the Council with a proactive strategic planning tool for the sustainable management of marine resources under its jurisdiction, while taking interactions within the ecosystem into account.

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 conducted a comprehensive review of the EAFM risk assessment in 2023. 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. At the conclusion of the review, the Council identified 28 risk elements to be included in the updated assessment – 24 existing elements and 4 new elements. In addition, the Council supported new and/or revised indicators for 16 of the existing risk elements.

This draft document revises the Mid-Atlantic Council's EAFM risk assessment and includes the changes approved by the Council as part of its comprehensive review and updates the assessment with the most recent data available, indicators from the 2024 State of the Ecosystem report, and with new analyses conducted by Council and Center staff for relevant risk elements. This report does not include rankings for 3 existing elements and the 4 new elements approved by the Council. Additional time is needed to develop the indicators and risk ranking criteria for these elements. Once developed, this information will be shared with the Council's Ecosystem and Ocean Planning Committee and Advisory Panel for review and feedback. A final EAFM risk assessment report with information on all 28 risk elements will then be presented to the Council later this year for approval.

Components of the EAFM risk assessment

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. In general, because the Council is charged with managing fisheries for Optimum Yield (OY), many risk definitions are centered on a particular element's potential impact on achieving OY. However, some Risk Elements addressed additional Council objectives (e.g. maximizing fishery value, optimizing employment).

Indicators - are how we measure risk and are observations that gives information about the risk element. Indicators may be a time series of data, may come from an individual study, or from qualitative information.

Risk Criteria - help specify what is the risk and include the following risk levels: low, low-moderate, moderate-high, and high.

[1] http://www.mafmc.org/s/EAFM_Guidance-Doc_2017-02-07.pdf
[2] http://www.mafmc.org/s/EAFM-Doc-Revised-2019-02-08.pdf

Risk Assessment - applies the risk criteria to the indicators and summarizes the rationale for the risk ranking.

The risk elements included in the Council's 2024 updated assessment span biological, ecological, social and economic issues (Table 1) and risk criteria for the assessment were based on a range of indicators and expert knowledge (Table 2).

Table 1: Risk Elements, Brief Definitions, and Indicators Used. Additional detail and information on each risk elements definition and indicator(s) can be found in the full risk assessment text.

Element	Definition	Indicator
Ecological		
Assessment performance	Risk of not achieving OY due to analytical limitations	Current assessment method/data quality/retrospective pattern
F status	Risk of not achieving OY due to overfishing	Current F relative to reference F from assessment
B status	Risk of not achieving OY due to depleted stock	Current B relative to reference B from assessment
Food web (Prey availability)	Risk of not achieving OY due to availability of prey	Prey biomass, fish condition
Food web (Predation pressure)	Risk of not achieving OY due predation pressure	Predator consumption, predation mortality
Food web (Protected species prey)	Risk of not achieving protected species objectives due to interactions with Council-managed species	Diet composition
Ecosystem productivity	Risk of not achieving OY due to changing system productivity	Five indicators, see text
Climate	Risk of not achieving OY due to climate change on productivity	Northeast Climate Vulnerability Assessment
Distribution shifts	Risk of not achieving OY due to climate-driven distribution shifts	Northeast Climate Vulnerability Assessment + 2 indicators
Estuarine habitat	Risk of not achieving OY due to threats to estuarine/nursery habitat	Enumerated threats + estuarine dependence
Offshore habitat	Risk of not achieving OY due to changing offshore habitat	Integrated habitat model index
Economic		
Commercial value	Risk of not maximizing commercial fishery value	Gross revenue in aggregate
Recreational angler days/trips	Risk of not maximizing fishery value and opportunities	Total numbers of anglers and trips in aggregate
Commercial fishery resilience (Revenue diversity)	Risk of reduced fishery business resilience (at permit level)	Species diversity of revenue
Commercial fishery resilience (Shoreside support)	Risk of reduced fishery business resilience due to shoreside support infrastructure	Number of shoreside support businesses
Social		
Commercial fishery resilience (Fleet diversity)	Risk of reduced fishery resilience	Number of fleets, fleet diversity
Recreational fleet diversity	Risk of reduced recreational fishery resilience	Recreational fleet effort diversity
Fishing community vulnerability	Risk of reduced community resilience	Community vulnerability, fishery engagement and reliance
Food Production		
Commercial fishing production	Risk of not optimizing commercial fishing production	Seafood and total landings in aggregate
Recreational fishing production	Risk of not maintaining personal food production	Recreational landings in aggregate
Management		
F Control	Risk of not achieving OY due to inadequate control	Total catch compared to catch targets
Technical Interactions	Risk of not achieving OY due to interactions with non-Council managed species	Number and type of interactions with protected or non-MAFMC managed species, co-management

Table 1: Risk Elements, Brief Definitions, and Indicators Used. Additional detail and information on each risk elements definition and indicator(s) can be found in the full risk assessment text. *(continued)*

Element	Definition	Indicator
Offshore wind (Bio/Ecosystem)	Risk of not achieving OY due stock and ecosystem impacts	Fished, protected, and forage species overlap with wind areas
Offshore wind (Science/Access)	Risk of not achieving OY due to access and uncertainty	Fishery revenue in and federal survey overlap with wind areas
Other ocean activities	Risk of not achieving OY due to other non-fishing activities	Fishery overlap, spatial coverage of shipping/energy/mining areas
Regulatory complexity & stability	Risk of not achieving compliance due to complexity	Number and frequency of changing regulations by species and state
Discards	Risk of not minimizing regulatory discards, bycatch to extent practicable	Discards relative to catch, discard mortality
Allocation	Risk of not achieving OY due to spatial mismatch of stocks and management	Allocation considerations by management

Table 2: Risk Ranking Criteria used for each Risk Element. Additional information on the risk ranking criteria can be found in the full risk assessment text.

Element	Low	Low-Moderate	Moderate-High	High
Assessment performance	Assessment model(s) passed peer review, high data quality	Assessment passed peer review but some key data and/or reference points may be lacking	*This category not used*	Assessment failed peer review or no assessment, data-limited tools applied
F status	F < Fmsy	Unknown, but weight of evidence indicates low overfishing risk	Unknown status	F > Fmsy
B status	B > Bmsy	Bmsy > B > 0.5 Bmsy, or unknown, but weight of evidence indicates low risk	Unknown status	B < 0.5 Bmsy
Food web (Prey availability)	TBD	TBD	TBD	TBD
Food web (Predation pressure)	TBD	TBD	TBD	TBD
Food web (Protected species prey)	Few interactions with any protected species	Important prey of 1-2 protected species, or important prey of 3 or more protected species with management consideration of interaction	Important prey of 3 or more protected species	Managed species is sole prey for a protected species
Ecosystem productivity	No trends in ecosystem productivity	Trend in ecosystem productivity (1-2 measures, increase or decrease)	Trend in ecosystem productivity (3+ measures, increase or decrease)	Decreasing trend in ecosystem productivity, 4+ measures
Climate	Low climate vulnerability ranking	Moderate climate vulnerability ranking	High climate vulnerability ranking	Very high climate vulnerability ranking
Distribution shifts	Low potential for distribution shifts	Moderate potential for distribution shifts	High potential and observed distribution shifts	Very high potential and observed distribution shifts
Estuarine habitat	Not dependent on nearshore coastal or estuarine habitat	Estuarine dependent, estuarine condition stable	Estuarine dependent, estuarine condition fair	Estuarine dependent, estuarine condition poor
Offshore habitat	TBD	TBD	TBD	TBD
Commercial value	No trend and low variability in revenue	Increasing or high variability in revenue	Significant long term revenue decrease	Significant recent decrease in revenue
Recreational angler days/trips	No trends in angler trips	Increasing or high variability in angler trips	Significant long term decreases in angler trips	Significant recent decreases in angler trips
Commercial fishery resilience (Revenue diversity)	No trend in diversity measure	Increasing or high variability in diversity measure	Significant long term downward trend in diversity measure	Significant recent downward trend in diversity measure
Commercial fishery resilience (Shoreside support)	No trend in shoreside support businesses	Increasing or high variability in shoreside support businesses	Significant recent decrease in one measure of shoreside support businesses	Significant recent decrease in multiple measures of shoreside support businesses

Table 2: Risk Ranking Criteria used for each Risk Element. Additional information on the risk ranking criteria can be found in the full risk assessment text. *(continued)*

Element	Low	Low-Moderate	Moderate-High	High
Commercial fishery resilience (Fleet diversity)	No trend in diversity measure	Increasing or high variability in diversity measure	Significant long term downward trend in diversity measure	Significant recent downward trend in diversity measure
Recreational fleet diversity	TBD	TBD	TBD	TBD
Fishing community vulnerability	Few (<10%) vulnerable fishery dependent communities	10-25% of fishery dependent communities with >3 high vulnerability ratings	25-50% of fishery dependent communities with >3 high vulnerability ratings	Majority (>50%) of fishery dependent communities with >3 high vulnerability ratings
Commercial fishing production	No trend or increase in seafood landings	Increasing or high variability in seafood landings	Significant long term decrease in seafood landings	Significant recent decrease in seafood landings
Recreational fishing production	No trend or increase in recreational landings	Increasing or high variability in recreational landings	Significant long term decrease in recreational landings	Significant recent decrease in recreational landings
F Control	No recent history (last 5 years) of overages	Small recent overages, but infrequent	Routine recent overages, but small to moderate	Routine recent significant overages
Tech Interactions	No interactions with non-MAFMC managed species	Interactions with non-MAFMC managed species but infrequent, Category II fishery under MMPA; or AMs not likely triggered	AMs in non-MAFMC managed species may be triggered; or Category I fishery under MMPA (but takes less than PBR)	AMs in non-MAFMC managed species triggered; or Category I fishery under MMPA and takes above PBR
Offshore wind (Bio/Ecosystem)	TBD	TBD	TBD	TBD
Offshore wind (Science/Access)	TBD	TBD	TBD	TBD
Other ocean activities	TBD	TBD	TBD	TBD
Regulatory complexity	Simple/few regulations; rarely if ever change; same recreational regs across all states	Low-moderate complexity; occasional recent changes; few (1-2) recreational regulation differences across states	Moderate-high complexity; occasional recent changes; moderate (3-4) recreational regulation differences across states	High complexity; frequent recent changes; many (5+) recreational regulation differences across states
Discards	No significant discards or incidental catch; no significant discard mortality	Low or episodic discards and incidental catch; low discard mortality	Regular discards and incidental catch but managed; moderate discard mortality	High discards and incidental catch, difficult to manage; high discard mortality
Allocation	No recent or ongoing Council discussion about allocation	*This category not used*	*This category not used*	Recent or ongoing Council discussion about allocation

Risk Assessment

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:

Stock assessment review and general assessment data quality contribute to assessment of assessment performance risk. The EOP and Council can continue to use pass/fail criteria from independent stock assessment reviews while more formally incorporating 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 further refine criteria used in this EAFM risk assessment.

Risk criteria:

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

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 Assessment

Stocks with low risk due to assessment performance include ocean quahog, surf clam, summer flounder, scup, black sea bass, Atlantic mackerel, butterfish, golden tilefish, bluefish, and spiny dogfish. Longfin squid are assessed with index-based assessment methods which rank low-moderate risk due to incomplete survey coverage in some years, and reference points for longfin squid are lacking. Shortfin squid also lack reference points, and the 2022 Research Track assessment was unable to put any analytical method forward to evaluate stock status or trends, so assessment performance risk increased to high. The monkfish 2016 operational assessment was unable to model growth or population status due to innaccurate ageing methods, so both northern and southern stocks rank high risk for this element. Blueline tilefish ranks as high risk for assessment type because it is assessed with the data limited methods (DLM) toolbox, and chub mackerel rank high risk due to no assessment.

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 [3] 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.

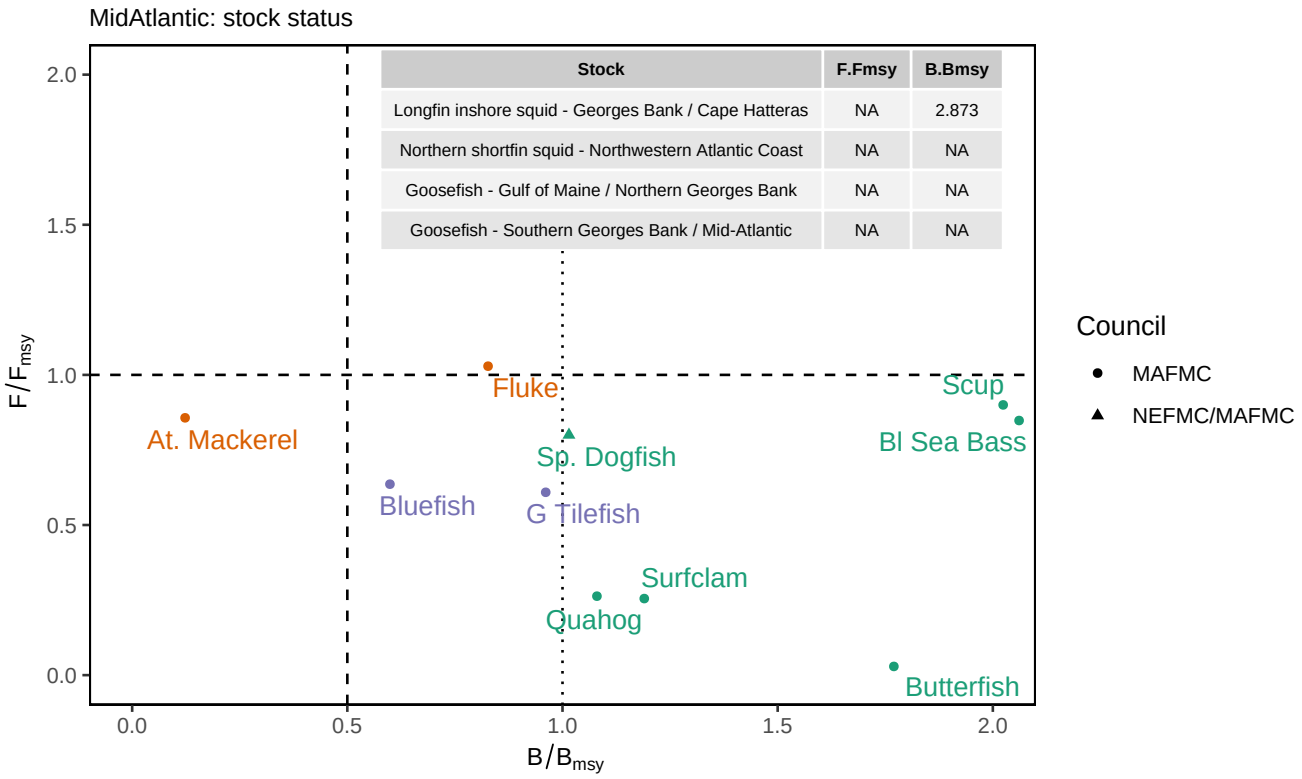

Figure 1: Summary of single species status for MAFMC and jointly federally managed stocks (Spiny dogfish and both Goosefish). The dotted vertical line is the target biomass reference point of B_{MSY}. The dashed lines are the management thresholds of one half B_{MSY} (vertical) or F_{MSY}. (horizontal). Stocks in orange are below the biomass threshold (overfished) or have fishing mortality above the limit (subject to overfishing), so are not meeting objectives. Stocks in purple are above the biomass threshold but below the biomass target with fishing mortality within the limit. Stocks in green are above the biomass target, with fishing mortality within the limit.

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

Risk Assessment

Single species management objectives (1. maintaining biomass above minimum thresholds and 2. maintaining fishing mortality below overfishing limits) are being met for all but two MAFMC-managed species (Fig. 1), though the status of six stocks is unknown (Table **??**). Based on current assessment results, F and B status are both in the low risk category for surfclams, ocean quahogs, scup, and black sea bass. Butterfish, bluefish, and golden tilefish F status is in the low risk category, and B risk is in the low-moderate risk category. Spiny dogfish F status is in the high risk category, and B status is in the low risk category. Summer flounder F status is in the high risk category and B status is in the low-moderate risk category. Atlantic mackerel F status is in the low risk category and B status is in the high risk category.

Stocks with unknown status have a range of rankings. F and B status for chub mackerel and northern and southern monkfish stocks are ranked low-moderate risk (unknown but weight of evidence supports lower risk). Longfin squid B is above the established B threshold, and both squid stocks have unknown F status, but F is difficult to estimate because it is very low relative to natural mortality, so they were also ranked low-moderate risk. Blueline tilefish are high risk for F status and have unknown B status and little auxiliary information in the Mid-Atlantic region, and so rank moderate-high risk for B status.

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 (Fig. 2).

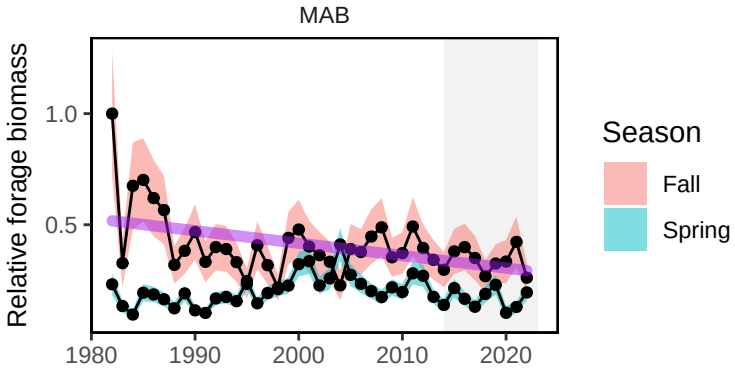

Figure 2: Forage fish index in the MAB for spring (blue) and fall (red) surveys, with a decline (purple) in fall. Index values are relative to the maximum observation within a region across surveys.

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.

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

Risk Assessment

To be developed later in year in collaboration with the EOP Committee and AP once indicators and risk criteria are developed.

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

Risk Assessment

To be developed later in year in collaboration with the EOP Committee and AP once indicators and risk criteria are developed.

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 [4], there are no Council-managed species that are important predators of protected species [5], 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

Risk Assessment

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 5 baleen whales. MAFMC managed species are not important predators of protected species [5], even though monkfish occasionally ingest seabirds [4]. Atlantic salmon, both species of sturgeon, and sea turtles are not major predators of MAFMC managed species, as reviewed in the MAFMC Forage Fish white paper [6–12]. Information sources for marine mammal diets in the Northeast US [13], and seabird diets [14–19] were reviewed.

Diet information for protected species tends to be more uncertain than for fished species, so we consider diet at the family level for these rankings because diet compositions are not reported to the species level. Longfin squids are estimated to comprise >30% of diet for one protectes species, pilot whale, in the Northeast US [13,20], therefore we rank this species low-moderate risk for this element. Shortfin squid were identified as important prey for two pelagic seabirds in the Northeast US [15], and therefore ranked low-moderate risk. Unmanaged forage fish such as sand lance and saury were identified as important prey for >3 seabird species in the Northeast US [15], as well as grey seals [13]. MAFMC has enacted measures to restrict fishing on these species, such that they rank low-moderate risk for this element. Other MAFMC managed species do not meet the threshold of important prey of protected species based on available information, so they rank low risk for this element.

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 (Fig. 3) can affect Council managed fish species through early life history stages that feed on zooplankton.

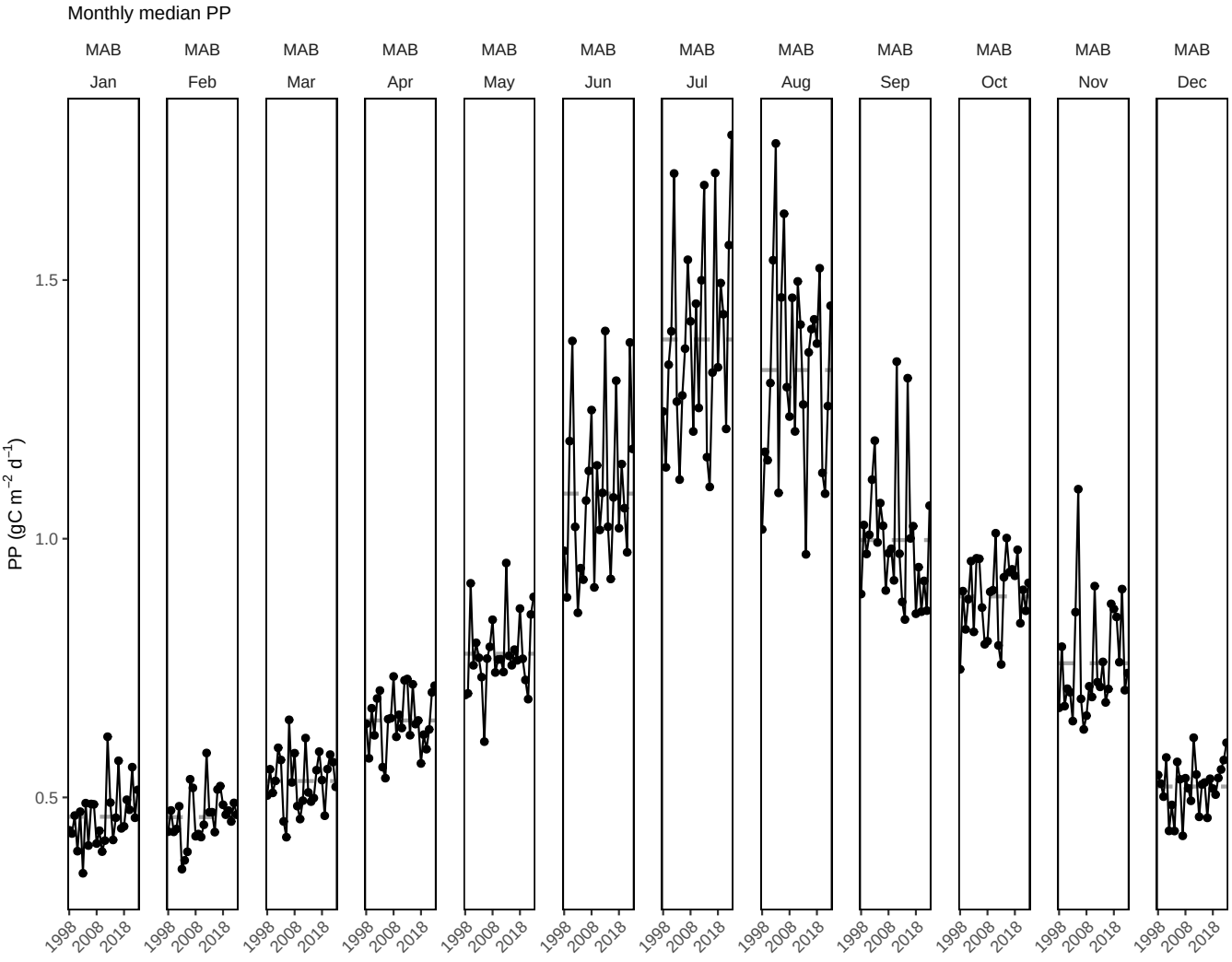

Figure 3: Monthly primary production trends show the annual cycle (i.e. the peak during the summer months) and the changes over time for each month.

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, increasing zooplankton diversity and increasing small copepods and cnidarians in the Mid-Atlantic (Fig. 4) suggest a change in zooplankton community composition which may affect fish species such as mackerel.

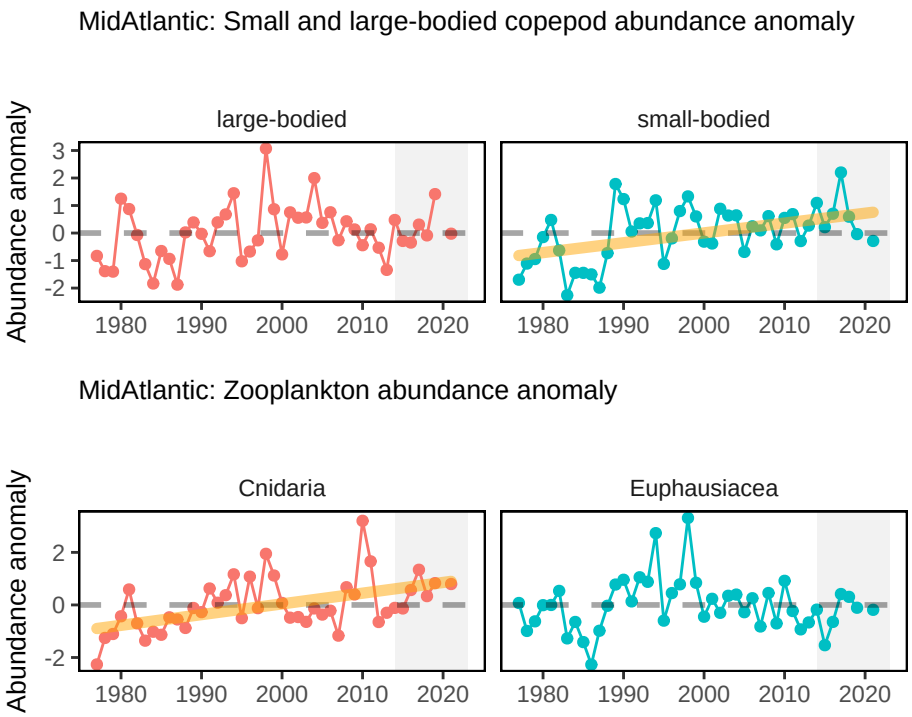

Figure 4: Changes in zooplankton abundance in the MAB for large (top left) and small (top right) copepods, Cnidarians (bottom left), and Euphausiids (bottom right), with significant increases (orange) in small copeods and Cnidarians.

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 (Fig. 2). 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 (Fig. 5). Around 2010-2013 some species started to have better condition. In 2023, condition was mixed, with general improvement since a relatively low condition year in 2021. Preliminary analyses show that changes in temperature, zooplankton, fishing pressure, and population size influence the condition of different fish species.

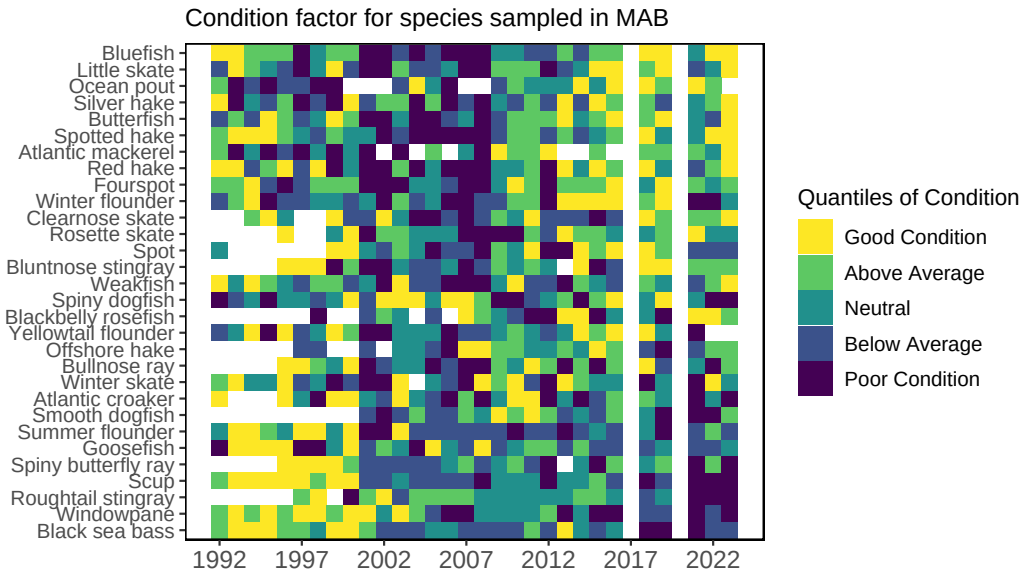

Figure 5: Condition factor for fish species in the MAB based on fall NEFSC bottom trawl survey data. MAB data are missing for 2017 due to survey delays, and no survey was conducted in 2020.

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. Fish productivity has been declining in the Mid-Atlantic since the early 2000s, as described by the small-fish-per-large-fish anomaly indicator (Fig. 6). This decline in fish productivity is also shown by a similar analysis based on stock assessment model outputs (recruitment per spawning stock biomass anomaly).

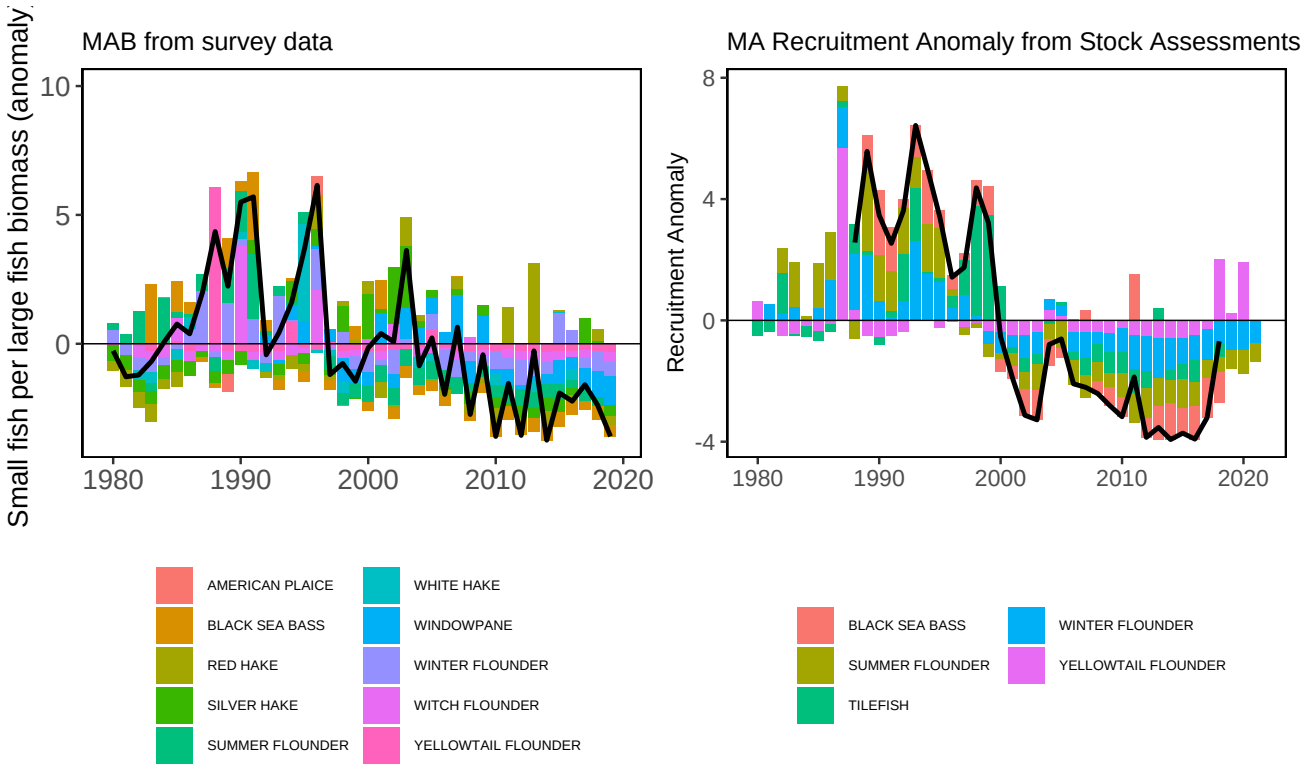

Figure 6: Fish productivity measures. Left: Small fish per large fish survey biomass anomaly in the Mid-Atlantic Bight. Right: assessment recruitment per spawning stock biomass anomaly for stocks mainly in the Mid-Atlantic. The summed anomaly across species is shown by the black line, drawn across all years with the same number of stocks analyzed.

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

Risk Assessment

Two measures of ecosystem productivity have significant trends, so the ranking for this element is low-moderate risk. The forage index shows a significant decrease in fall, and several zooplankton indicators show significant increasing trends. However, the potential for changing seasonality of primary production warrants further attention, as do patterns in condition and productivity across multiple stocks.

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 [21] 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 [21] 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 (Fig. 7).

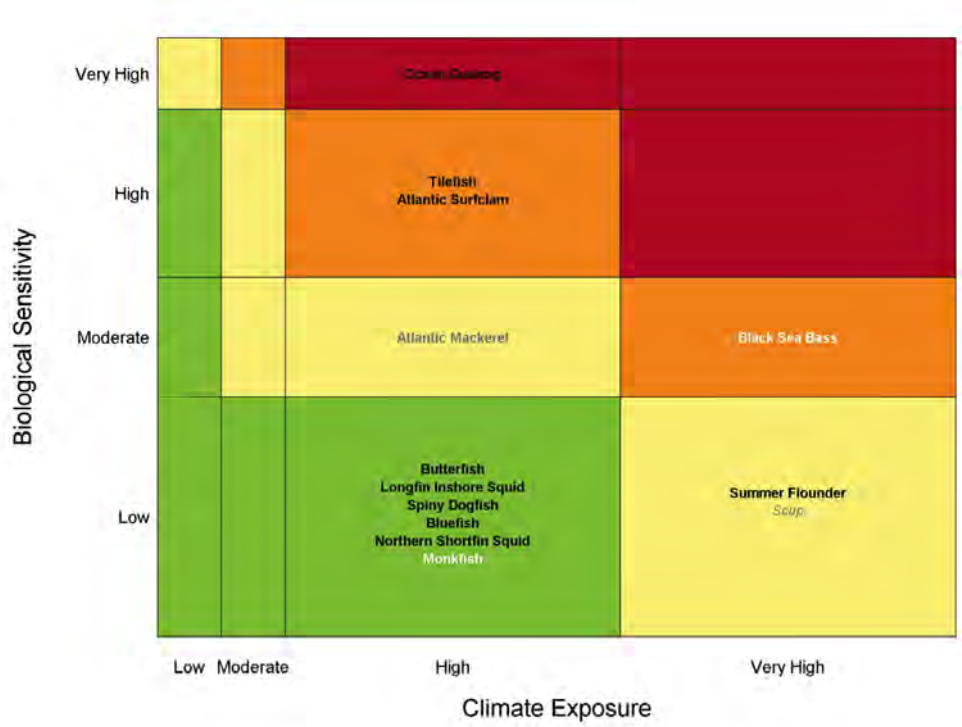

Figure 7: Hare et al., 2016 Climate vulnerability by species, Northeast US

Additional indicators linking temperature and ocean acidification (Fig. 8) to individual stocks are presented in the State of the Ecosystem reports, and will be expanded in the future as more temperature sensitivity information for each managed species becomes available.

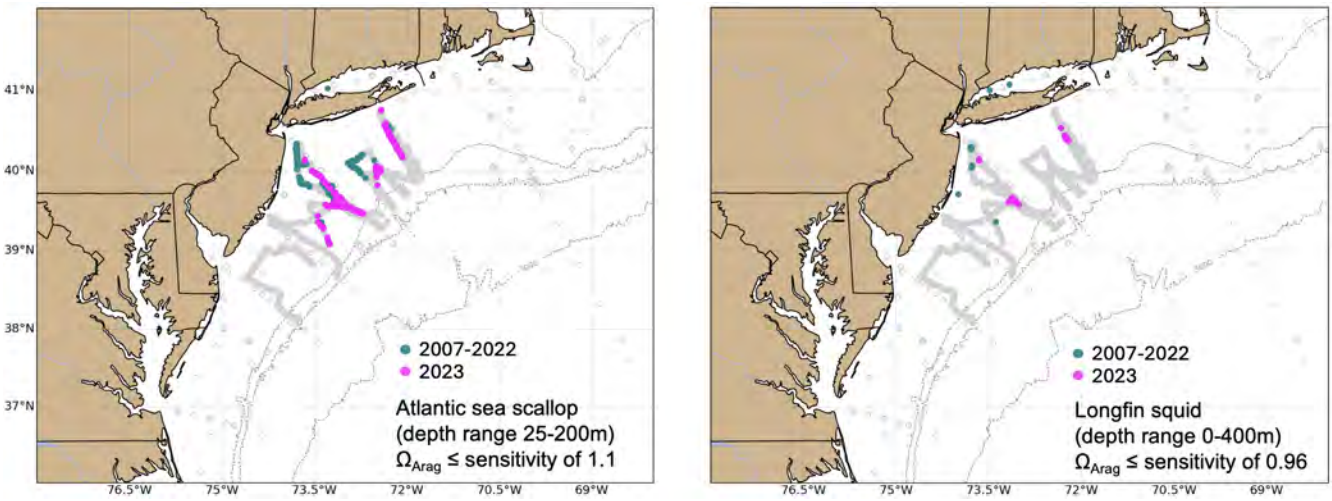

Figure 8: Locations where bottom aragonite saturation state (Ω_{Arag}; summer only: June-August) were at or below the laboratory-derived sensitivity level for Atlantic sea scallop (left panel) and longfin squid (right panel) for the time periods 2007-2022 (dark cyan) and 2023 only (magenta). Gray circles indicate locations where bottom Ω_{Arag} values were above the species specific sensitivity values.

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.

Risk Assessment

Mid-Atlantic species were all either highly or very highly exposed to climate risk in this region, and ranged from low to very high sensitivity to expected climate change in the Northeast US. The combination of exposure and sensitivity results in the overall vulnerability ranking. We applied those climate vulnerability rankings directly here (Fig. 7).

As noted in the SOE, ocean quahog have highest climate vulnerability among Mid-Atlantic managed species. Surfclams, black sea bass, and both species of tilefish ranked moderate-high risk. Summer flounder, scup, and Atlantic mackerel ranked moderate-high risk. The remaining species ranked low risk. Chub mackerel, unmanaged forage, and deepsea corals were not ranked in the CVA.

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 [21]. We applied those distribution shift risk rankings directly in the risk assessment (Fig. 9).

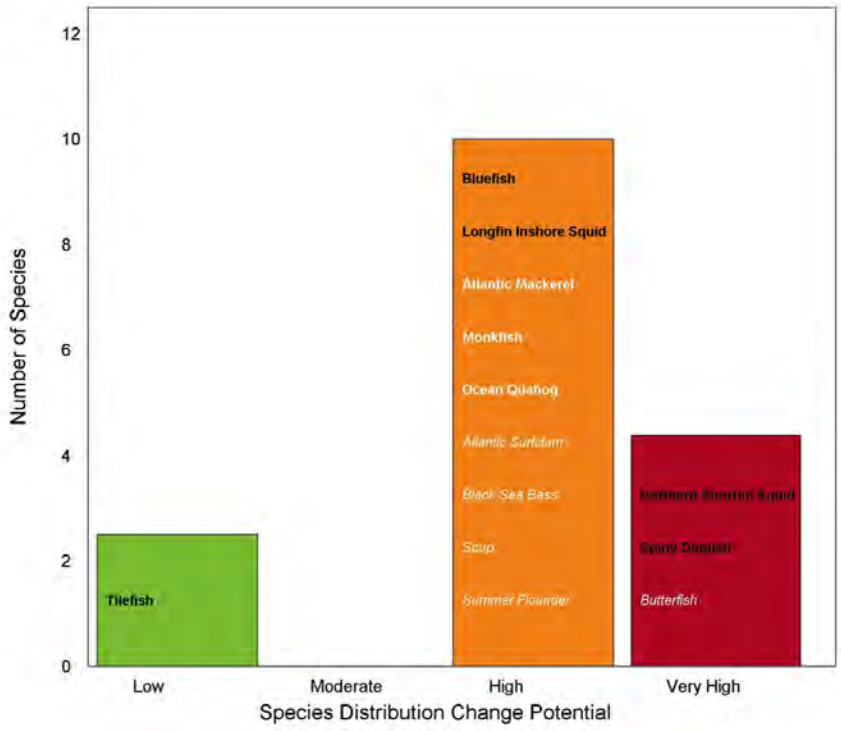

Figure 9: Hare et al., 2016 Distribution shift risk by species, Northeast US

In addition, changes in species distribution are monitored using fisheries independent bottom trawl surveys. Two distribution shift indicators are derived from these surveys: species distribution models, and time series of the along shelf position of the center of distribution.

Historical vs.current distribution

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 (Fig. 10). Individual Council managed species distribution centeroids, aside from squids, also showed this trend to the northeast along the shelf in previous analysis.

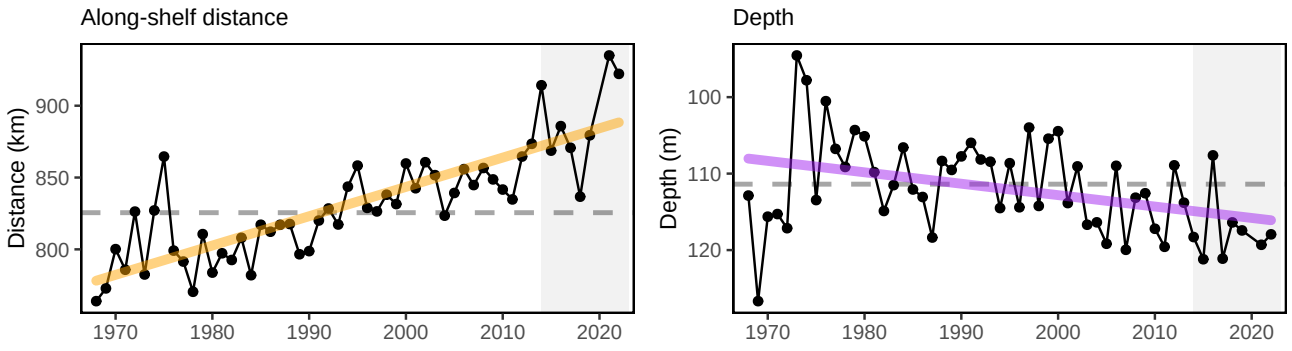

Figure 10: Aggregate species distribution metrics for species in the Northeast Large Marine Ecosystem: along shelf distance with increasing trend (orange), and depth with decreasing trend indicating deeper water (purple).

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

Risk Assessment

All Mid-Atlantic species with the exception of golden and blueline tilefish had either high or very high risk of distribution shifts in the Northeast US. Chub mackerel, unmanaged forage, and deepsea corals distribution shift risks were not ranked in the CVA.

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 [22] 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 (Fig. 11).

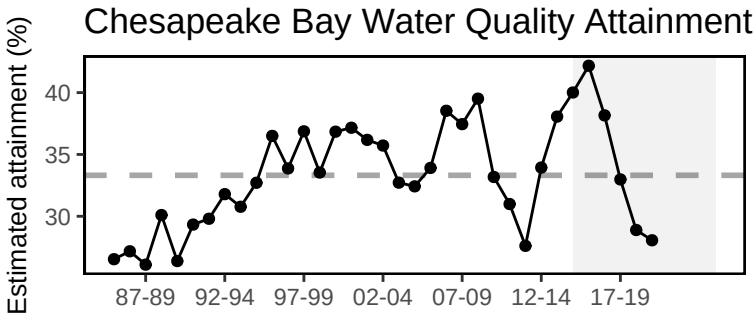

Figure 11: Chesapeake Bay water quality trend, 3 year running mean proportion of areas meeting or exceeding quality thresholds based on dissolved oxygen, chlorophyll, water clarity, and submerged aquatic vegetation.

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.

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.

Risk Assessment

Northeast US coastal waters in the Mid-Atlantic region rated fair to poor for water quality, fair for sediment quality, poor for benthic quality, good to fair for coastal habitat, and fair to poor for fish contamination. These ratings were based on nearshore and estuarine summer sampling 2003-2006 [22]. The overall coastal condition was rated fair for the entire region, but this includes offshore conditions which we address in the next element. Therefore, estuarine and nearshore coastal habitat dependent species (summer flounder, scup, black sea bass, and bluefish, [23]) were ranked high risk based on overall poor estuarine condition for this element, and all others were ranked low risk due to lower dependence on this habitat type.

Offshore Habitat (new)

Description:

This element is 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

Risk Assessment

To be developed later in year in collaboration with the EOP Committee and AP once indicators and risk criteria are developed.

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.

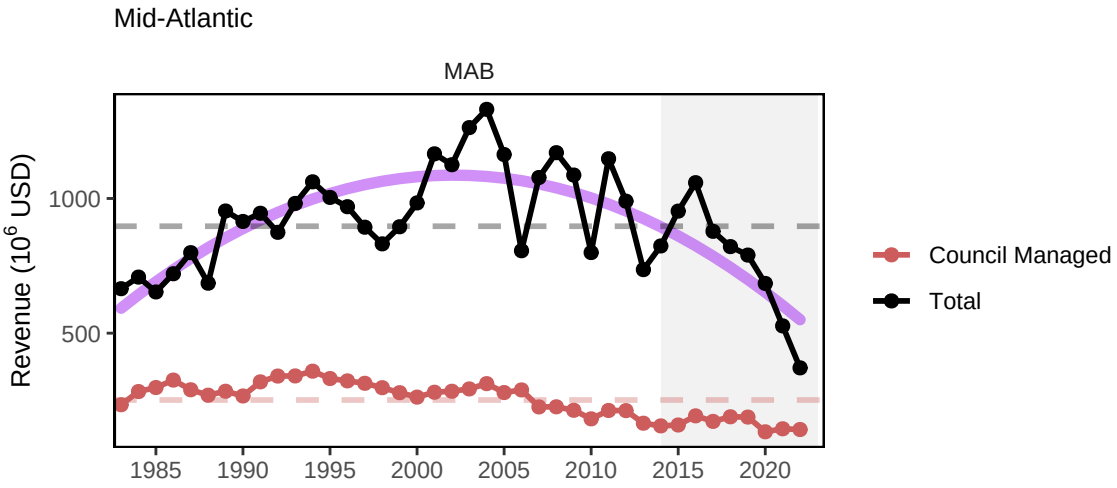

Figure 12: Revenue for the for the Mid-Atlantic region: total (black) and from MAFMC managed species (red), with a significant decrease (purple) for total revenue.

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 Fig. 13 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.

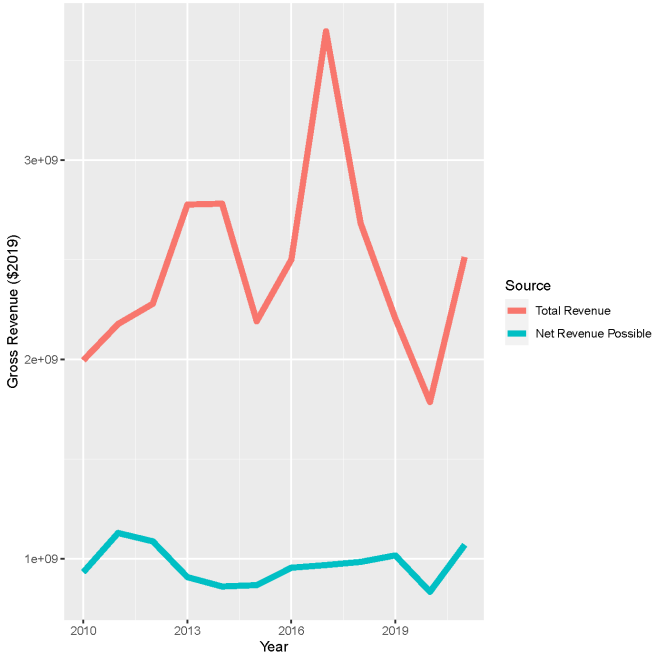

Figure 13: Cost coverage

Risk criteria:

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

Risk Assessment

There is a long term significant decrease in gross revenue, indicating moderate-high risk to commercial fishery value.

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.

Definition:

Risk of not maximizing recreational fishery value and opportunities.

Indicators:

Currently, angler trips is the proxy indicator for the value generated from recreational fishing (Fig. 14). 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.

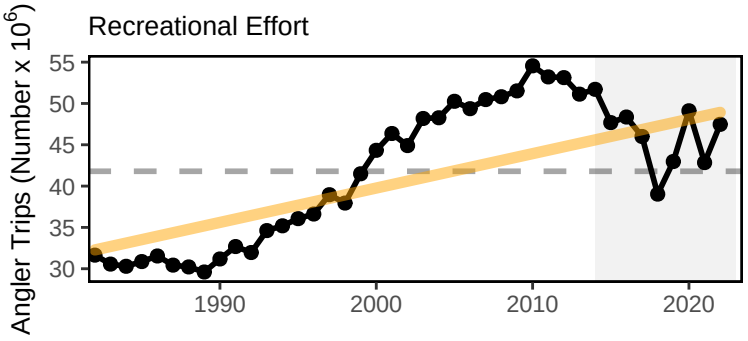

Figure 14: Recreational effort (number of trips, black) in the Mid-Atlantic, with significant increase (orange line).

Risk criteria:

Risk Level	*Definition*
Low	No trends in angler trips
Low-Moderate	Increasing or high variability in angler trips
Moderate-High	Significant long term decreases in angler trips
High	Significant recent decreases in angler trips

Risk Assessment

There is a long term significant increase in angler trips, indicating low-moderate risk to recreational fishery value. In addition, the indicator has shown high interannal variation since 2017.

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 (Fig. 15) 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.

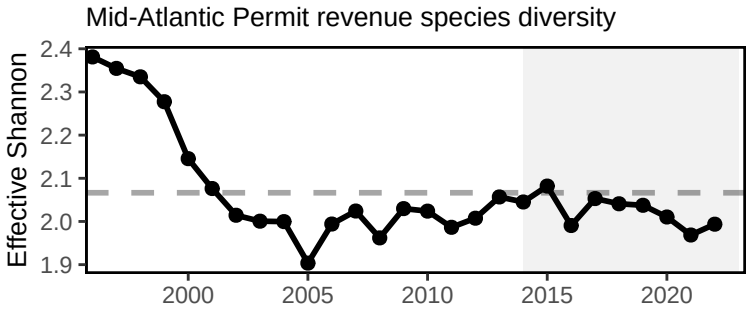

Figure 15: Species revenue diversity in the Mid Atlantic.

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
High	Significant recent downward trend in diversity measure

Risk Assessment

Permit revenue species diversity has less than 30 years in the time series, therefore trend was not assessed. With no trend, this element ranks low risk. However, a decline prior to 2000 is visually apparent and could be assessed with updated methods for the 2025 risk assessment.

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.

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

Risk Assessment

The indicator shows a significant long-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).

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 (Fig. 16). 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.

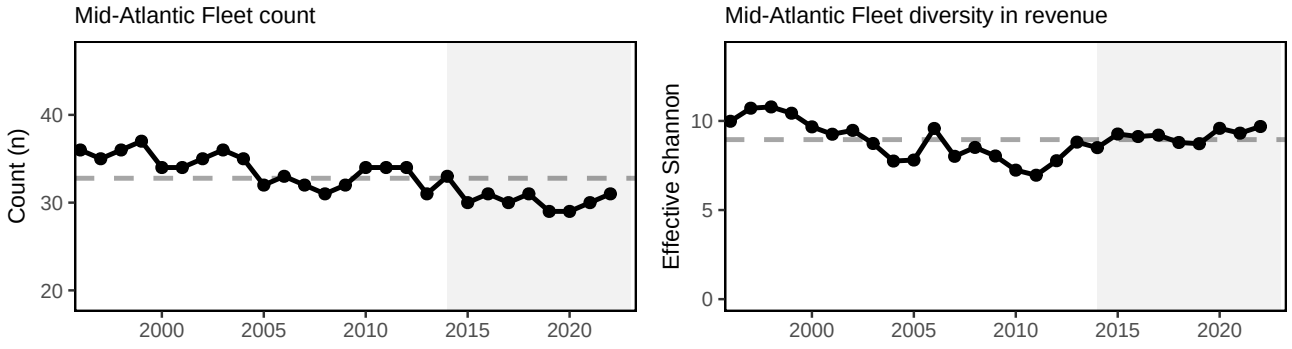

Figure 16: Commercial fleet count and revenue diversity in the Mid Atlantic.

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 [24].

Risk criteria:

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

Risk Assessment

The commercial fleet count and revenue diversity have less than 30 years in the time series, therefore trend was not assessed. For fleet count a visual trend may be apparent, while for revenue diversity no apparent visual trend exists. With no trend, this element ranks low risk.

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 has been presented in the Mid-Atlantic State of the Ecosystem Report for several years. This indicator is an effective Shannon estimate of diversity of effort across mode (i.e. effort by shoreside, private boat, and for-hire anglers; Fig. 17). The downward effort diversity trend is driven by party/charter contraction (down from 2% in 2021 to 1.4% in 2023), and a shift toward shorebased angling, which currently makes up 59% of angler trips. Effort in private boats has increased slightly to 40% of trips from 37% in 2021.

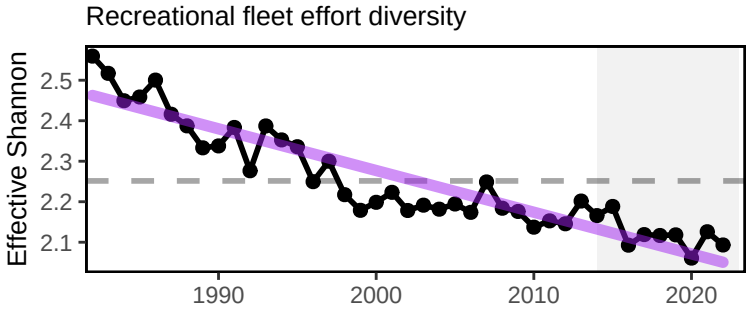

Figure 17: Recreational fleet effort diversity (black) in the Mid-Atlantic, with significant decrease (purple line).

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.

At present, proposed criteria are based only on the existing diversity indicator.

Proposed risk criteria:

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

Risk Assessment

To be developed later in year in collaboration with the EOP Committee and AP once indicators and risk criteria are developed.

Fishing 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; [25]) 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 [25,26]:

- **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 [27], 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 [27]."

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 [25]. 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 [21,26]. 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 [28]. Mid-Atlantic communities clustered around the Chesapeake Bay area and the New Jersey shore had especially high vulnerability to sea level rise. 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 [26].

A subset of social vulnerability factors, the poverty index, population composition index, and personal disruption index, can be used to assess potential environmental justice issues. The most highly engaged and reliant commercial and recreational fishing communities (Figs 18 and 19) in the Mid-Atlantic were evaluated for environmental justice (EJ) vulnerability based on 2021 data.

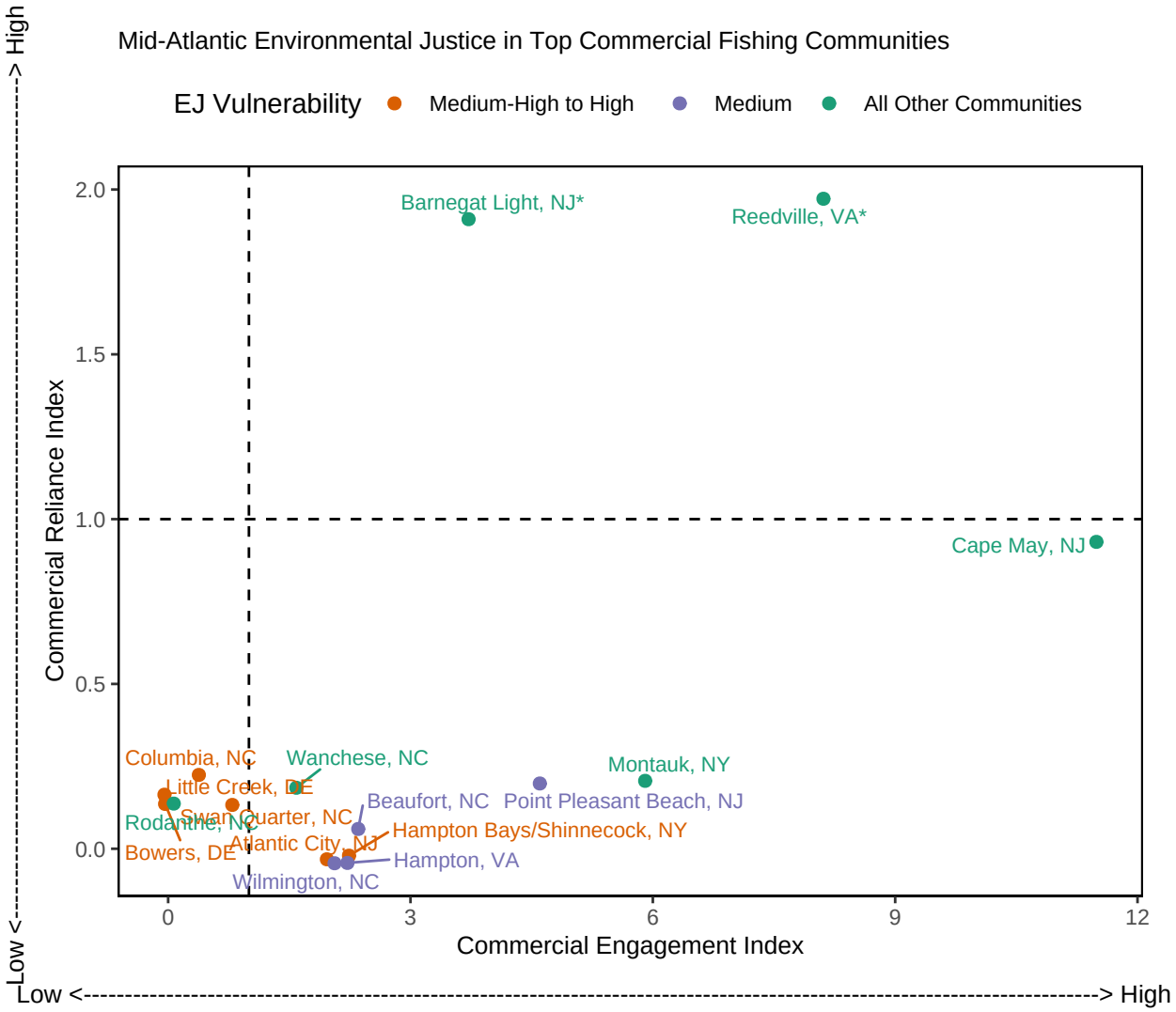

Figure 18: Commercial engagement, reliance, and environmental justice vulnerability for the top commercially engaged and reliant fishing communities in the Mid-Atlantic.

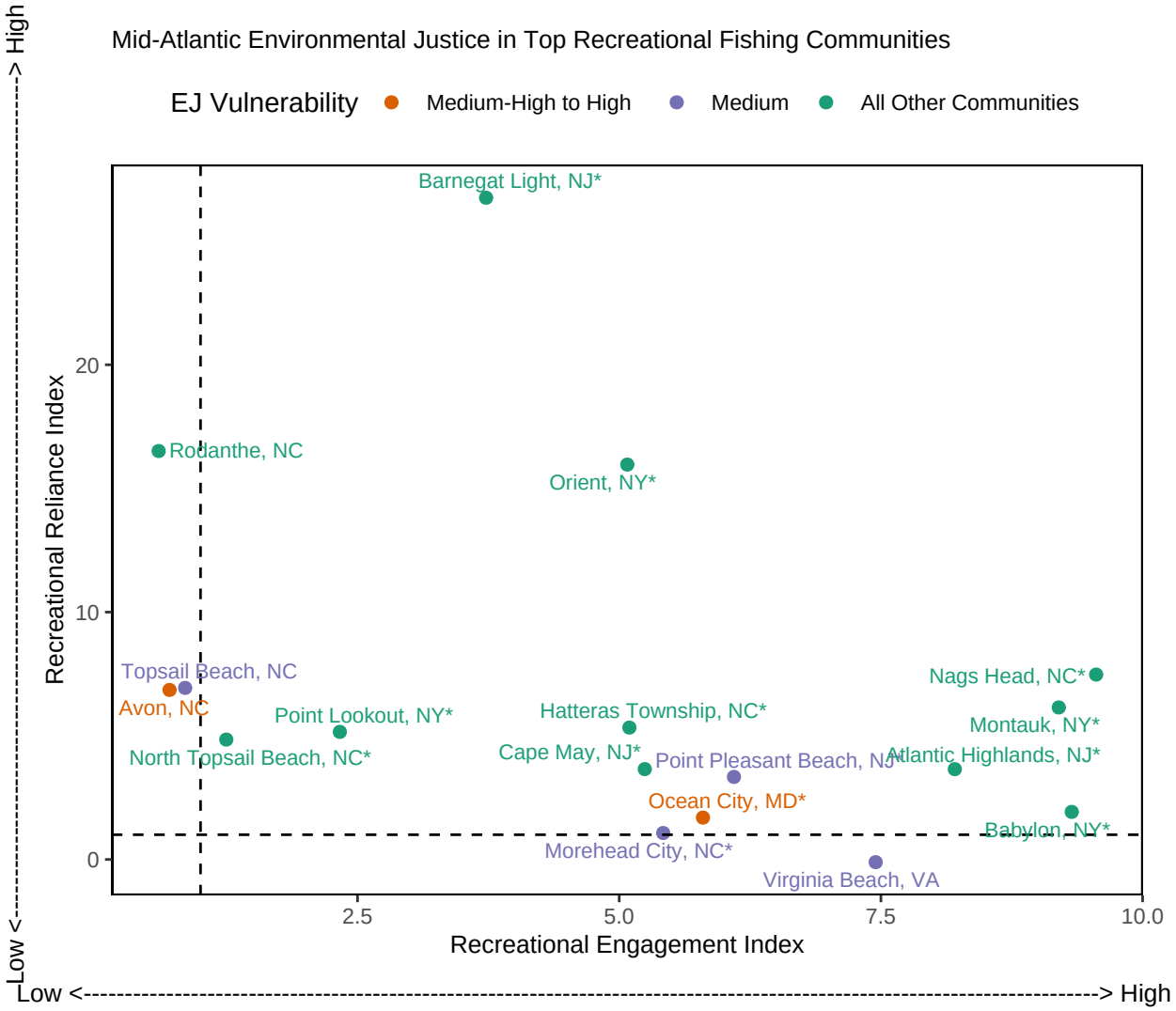

Figure 19: Recreational engagement and reliance, and environmental justice vulnerability, for the top recreationally engaged and reliant fishing communities in the Mid-Atlantic.

To estimate "high" vulnerability across all current indicators (which are ranked on different scales), we tallied rankings 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.

Risk Assessment

In past risk assessments, four of the top communities (20%) had three or more of these high risk rankings, so we ranked overall social-cultural risk as low-moderate for these Mid-Atlantic communities. However, newer analyses evaluating EJ vulnerability could be incorporated into this analysis.

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, Fig. 20) and total landings (in black) which include bait and industrial uses managed by all entities were used to assess fishing production.

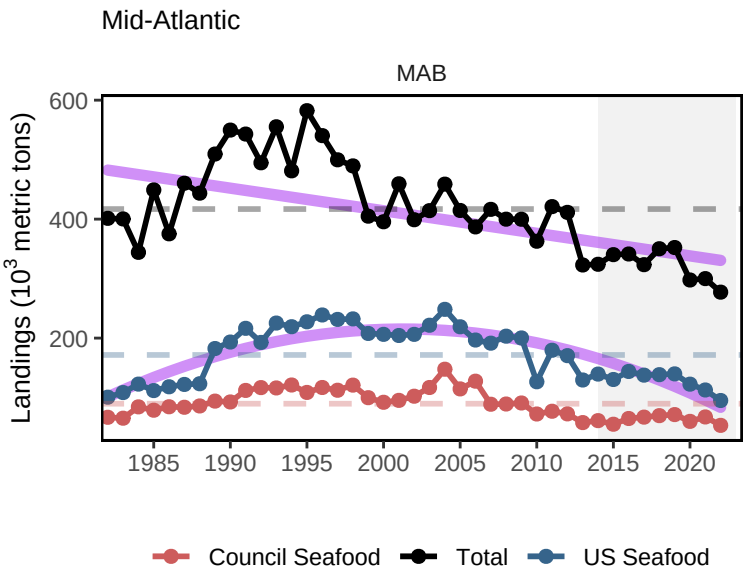

Figure 20: Total commercial landings (black), total U.S. seafood landings (blue), and Mid-Atlantic managed U.S. seafood landings (red), with significant declines (purple) in total and U.S. seafood landings.

Risk criteria:

New criteria still need to be developed to account for both seafood and total commercial landings. Criteria used previously are below.

Risk Level	Definition
Low	No trend or increase in seafood landings
Low-Moderate	Increasing or high variability in seafood landings
Moderate-High	Significant long term decrease in seafood landings
High	Significant recent decrease in seafood landings

Risk Assessment

There is a significant long term decrease in total commercial landings and U.S. seafood landings in the Mid-Atlantic, indicating moderate-high risk using previous criteria.

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) is 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.

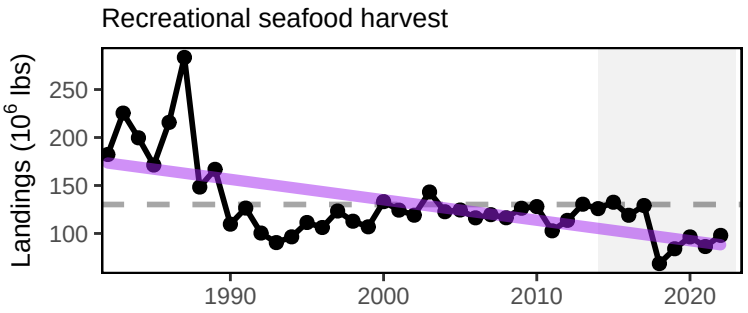

Figure 21: Total recreational seafood harvest (millions of pounds, black, significant decrease, purple) in the Mid-Atlantic region.

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

Risk Assessment

This significant long term decrease in both recreational landings represents a moderate-high risk to food production.

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:

This risk element is currently defined at "Fishing Mortality Control" which includes both landings and dead discards. Therefore, the total catch at the fishery sector level is 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 ABC/ACL to estimated annual commercial 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 ACL to estimated annual recreational catch estimates.

The Mid-Atlantic State of the Ecosystem report now includes an indicator that looks at total catch divided by total ABC or ACL provides a visualization of this indicator across all Mid-Atlantic species (Fig. 22).

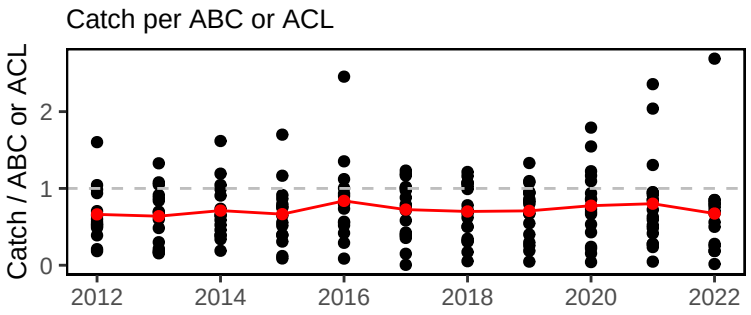

Figure 22: Catch divided by ABC/ACL for MAFMC managed fisheries. High points are recreational black sea bass (up to 2021) and scup (2022). Red line indicates the median ratio across all fisheries.

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

Small overages are defined as <5%, moderate as 5-10%, and significant overages as >10%. For both sectors, low risk was defined as no history of overages during the last 5 years (2018-2022). Low-moderate risk was small but infrequent overages (1-2 overages). Moderate-high risk was routine (3 or more overages), but small-moderate overages, and high risk was routine, significant overages.

Risk Assessment

Both surfclam and ocean quahog remain as low risk because they are well within recent quotas and are managed as ITQ fisheries. Commercial fisheries for scup, Atlantic mackerel, butterfish, longfin squid, golden tilefish, bluefish, spiny dogfish, and chub mackerel as well as recreational blueline tilefish and spiny dogfish were also low risk with

no recent overages and a variety of management measures in place to avoid overages. While there are no stock assessments or ABCs in place for the Council's unmanaged forage species, there is no indication that the existing trip limits (1,700 pounds) for these species have been exceeded and therefore have a low risk criteria score. Commercial summer flounder, black sea bass, shortfin squid, and blueline tilefish as well as recreational summer flounder, Atlantic mackerel, and bluefish were ranked as low-moderate risk as each fishery had one, small overage during the last five years. Shortfin squid were also ranked low-moderate with two overages early in the time period hut have been below the higher catch limits put in place starting in 2020. Recreational scup and black sea bass are the only two sectors ranked as high risk each with three or more overages greater than 10% within the last five years. Recreational golden tilefish remains unranked because there are no catch and landing limits associated with the recreational fishery and appear to be a relatively minor component of total removals. However, recreational harvest is increasing and future stock assessments may include recreational removals and may warrant additional consideration at that time.

Technical Interactions

Description:

This element is applied at the species and sector (commercial and recreational) level and considers 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:

Indicators used for this element include 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. The occurrence of any accountability measures (AMs) from non-Council managed species, documented interactions with non-Council managed species, and new or anticipated regulatory changes to reduce interactions of protected species over the last 5 years (2018-2022) were also used as indicators.

Risk criteria:

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

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 Assessment

All recreational fisheries are ranked as low risk with hook and line gear having no/very limited known interactions with protected species and no AMs have been triggered from non-Council managed fisheries that have implications for the recreational sector. Similalrly, the commercial fisheries for ocean quahogs, surfclams, golden tilefish, blueline tilefish, bluefish, and unmanaged forage species were ranked low risk as there are no known interactions with

protected resources with the primary gear types or no AMs in other fisheries. Summer flounder, scup, black sea bass, Atlantic mackerel, butterfish, shortfin squid, and chub mackerel commercial fisheries were ranked as low-moderate risk due to Category II fisheries designation (primarily trawl and pot fisheries) with some infrequent interactions with marine mammals and shad and river herring catch cap implications from the Atlantic herring fishery. Moderate-high risk rankings were identified for the commercial longfin squid fishery (some marine mammal interactions, sea turtle and Atlantic sturgeon takes, and river herring/shad catch cap implications) and the spiny dogfish commercial fishery (some marine mammal interactions, sea turtle and Atlantic sturgeon takes, and new regulations anticipated to minimize takes of Atlantic sturgeon).

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.

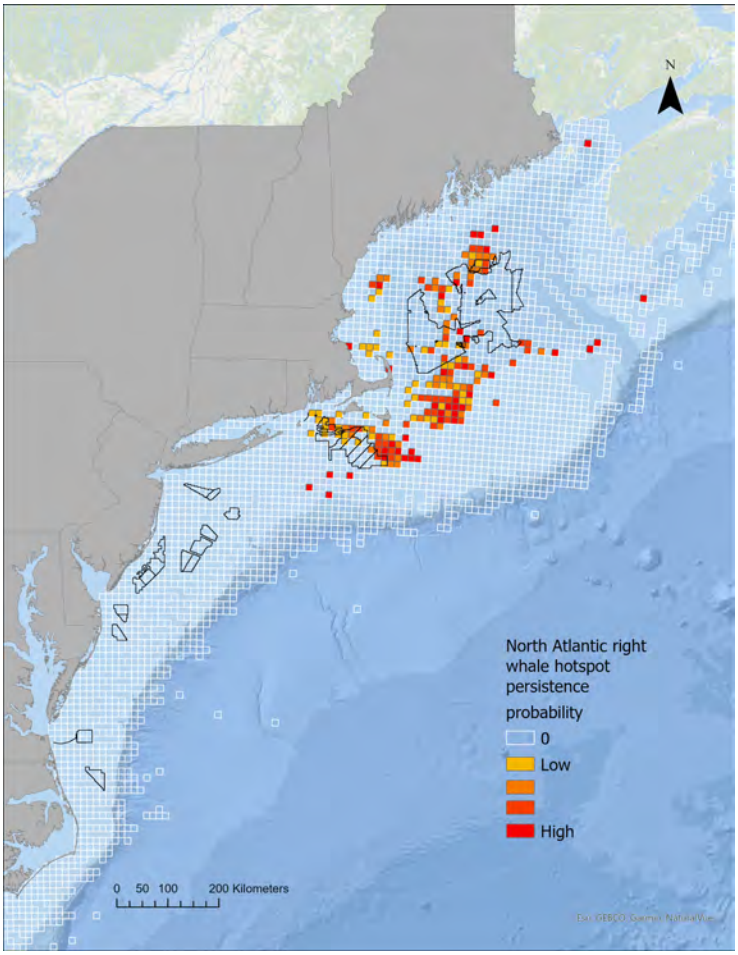

Figure 23: Northern Right Whale persistent hotspots (red shading) and Wind Energy Areas (black outlines).

Right whale hot spots overlap with offshore wind lease areas

In addition, recent work by [29] evaluated the habitat usage by forage species within and outside of offshore wind lease areas (Fig. 24). This information could also be used to help inform the ecosystem structure/function component of the definition.

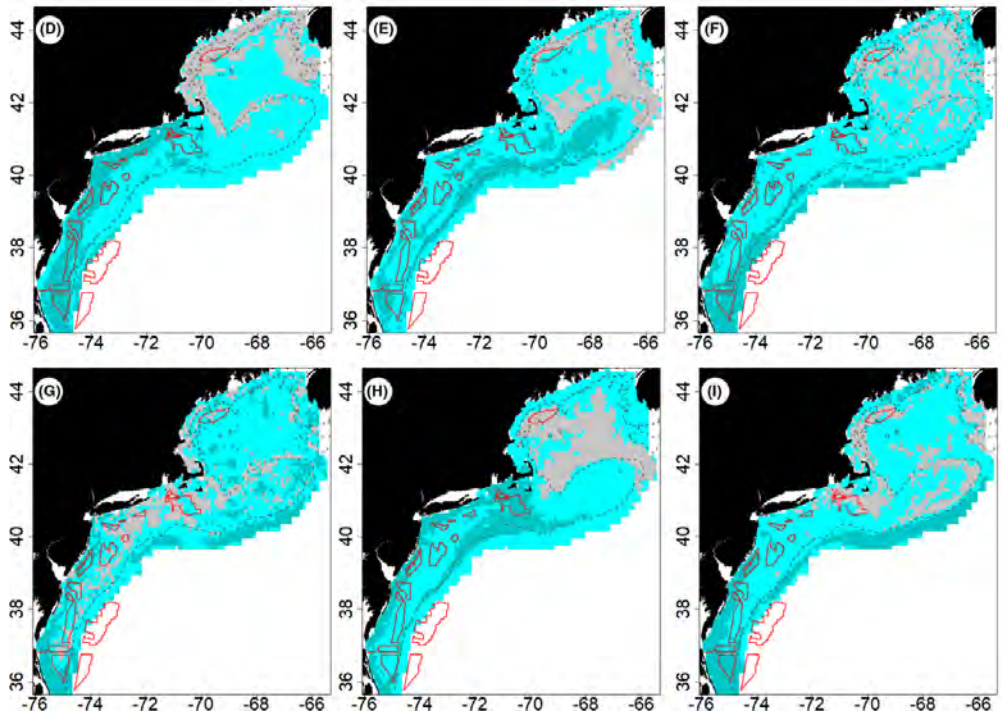

Figure 24: Mean occupancy habitats at the 20th (light blue) and 80th (dark blue) quantile thresholds across forage species; gray shows the model extent. Taxa with autumn models include (D) Round Herring, (E) longfin inshore squid, (F) Atlantic Chub Mackerel, (G) Spanish Sardine, (H) Butterfish, and (I) Atlantic Thread Herring.

Potential risk criteria:

To be developed.

Risk Assessment

To be developed later in the year in collaboration with the EOP Committee and AP once indicators and risk criteria are 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" [30]. 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 (Fig. 25) 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 (Fig. 26).

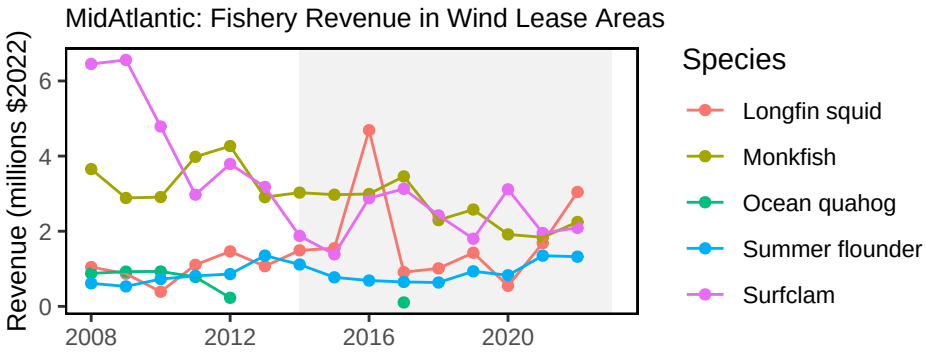

Figure 25: Fishery revenue in wind energy lease areas in the Mid-Atlantic.

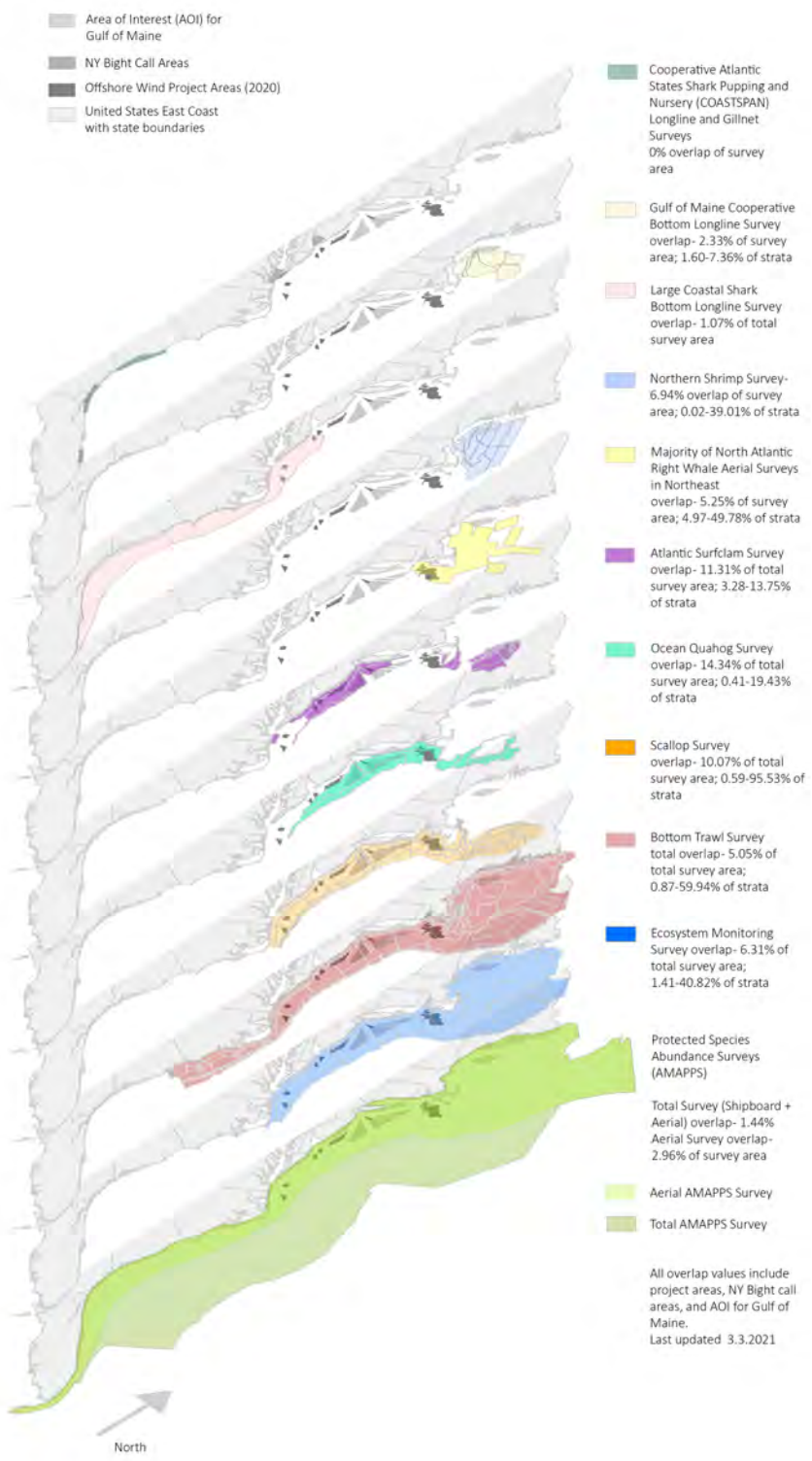

Figure 26: Spatial overlap map with NEFSC surveys (From 2021 SOE; wind areas are out of date)

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)

Risk Assessment

To be developed later in the year in collaboration with the EOP Committee and AP once indicators and risk criteria are developed.

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.

Risk Assessment

To be developed later in year in collaboration with the EOP Committee and AP once indicators and risk criteria are developed.

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.

Definition:

Risk of not achieving OY due to frequency of regulatory modifications and regulatory complexity, which may have an adverse effect on compliance.

Indicators:

For this element, a combination of qualitative and quantitative indicators were used. Council staff used a qualitative evaluation of the relative complexity of the regulations contained within an FMP and a quantitative approach that considered the frequency of any regulatory change over the last 5 years by fishery and sector. In addition, for the recreational sector, the number of states in management unit with different regulations was also used.

Potential risk criteria:

Risk Level	*Definition*
Low	Simple/few regulations; rarely/if ever change; same recreational regulations for all states in the management unit
Low-Moderate	Low-moderate complexity; occasional changes within last 5 years; few (1-2) recreational regulations across states in the management unit
Moderate-High	Moderate-high complexity; occasional changes within last 5 years; moderate (3-4) recreational regulations across states in management unit
High	High complexity; frequent changes within last 5 years; many (5+) recreational regulations across states in management unit

Risk Assessment

Surfclam, ocean quahog, commercial and recreational golden tilefish, commercial blueline tilefish, recreational spiny dogfish, chub mackerel and unmanaged forage all scored as low risk. These fisheries are generally smaller fisheries with fairly consistent catch specifications with few to little overages, if applicable; therefore, there have been minor/few regulation changes over the last five years, regulations have limited complexity and are fairly consistent across all states. Commercial summer flounder, scup, black sea bass, and bluefish ranked low-moderate risk with moderately complex regulations, particularly at the state level, but have changed very little recently. Recreational Atlantic mackerel and blueline tilefish also ranked as low-moderate due to their less complex regulations that are consistent across states, but have undergone some recent changes. The moderate-high risk ranking for butterfish, longfin squid, and shortfin squid were based on their high complexity and pending changes to the shortfin squid fishery. Recreational bluefish also scored as moderate-high risk based on recent regulation changes and a high degree of variability in regulations across the states. While the frequency of regulation changes in the recreational fisheries for summer flounder, scup, and black sea bass has declined recently, they still ranked as high risk as changes can still occur fairly regularly, regulations can be complex with a range of fishing mode and seasonal differences and there is a high degree of variability across states. The commercial fisheries for Atlantic mackerel and spiny dogfish also ranked as high risk due to their highly complex and frequently changing regulations, sometimes year to year or even within year.

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 were evaluated for each species and fishery with a focus on identifying discards caused by regulations for each fishery sector. All of this information was used to estimate total dead discards by fishing sector. The proportion of dead discards to overall catch (dead discards + harvest) of the target species by sector was calculated as one indicator. The discard mortality rate for the dominant gear type used in the stock assessment were used as another indicator. The relative proportion of non-target species to the total catch was also considered when evaluating the criteria.

Potential risk criteria:

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
Moderate-High	Regular discards and incidental catch but managed; moderate discard mortality
High	High discards and incidental catch, difficult to manage; high discard mortality.

Low risk was defined as no significant discards and incidental catch (<5%) and a discard mortality rate of <5% for the dominant gear type. Low-Moderate risk was low or episodic discarding and incidental catch (>5% but <20%) and a discard mortality rate of <25% for the dominant gear type. Moderate-High risk was regular discarding and incidental catch (>20% but <40%) but managed at an acceptable level and a discard mortality rate of <50% for the dominant gear type. High risk was high discarding and incidental catch (>40%) with difficulty in management and a discard mortality rate of >50% for the dominant gear type.

Risk Assessment

The commercial and recreational fisheries for both golden and blueline tilefish were ranked low risk. There is minimal data for the blueline tilefish fisheries, but discards are assumed to be small and there are few vessels targeting blueline tilefish. Recreational tilefish discards are also negligible and the ITQ commercial golden tilefish fishery is prohibited from discarding tilefish. Shortfin squid, chub mackerel, and unmanaged forage were also ranked as low risk due to the low discards and incidental catch associated with these fisheries. The commercial and recreational fisheries for Atlantic mackerel, bluefish, and spiny dogfish were all ranked at low-moderate risk. While discards occur frequently in these fisheries, dead discards comprise a relatively low proportion of total catch, are generally managed, and discard mortality for most gears is relatively low. Discards in the surfclam and ocean quahog fisheries is a low percent of the overall catch; however, the co-occurrence of surfclams and ocean quahogs has become a significant issue in the fishery and has led to discarding events and has been ranked as medium-high risk. The commercial fisheries for summer flounder, scup, butterfish, and longfin squid were also ranked as medium-high risk. For summer flounder and scup, commercial discards comprise a relatively small portion of the total commercial catch but can be highly variable and the discard mortality rate associated with trawl gear is high. A high proportion of butterfish are discarded and nearly 33% of the longfin squid catch is comprised of discarded non-target species. The recreational summer flounder, scup, and black sea bass fisheries all ranked as medium-high risk where discard

mortality is assumed to be 15% or less but discards make up a high proportion of the total catch, as high as 90%, and have led, in part, to recent ACL overages. The commercial black sea bass fishery ranked as high risk because dead discards account for 26% of the total commercial catch, discards have also been highly variable, and the dominant gear type (trawls) has a 100% discard mortality rate.

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:

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.).

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.

Risk Assessment

The recreational fisheries for summer flounder, scup, black sea bass, and bluefish all ranked as high risk because the Council has initiated an amendment that, among other things, will consider sector separation within the recreational sector which may include designating allocations between the for-hire and private recreational sectors. All other fisheries were ranked as low risk because recent allocation decisions have been finalized and/or there are currently no allocation related issues under consideration. There have been some recent discussions regarding allocations in both the golden and blueline tilefish fisheries and may be considered in the future if recreational landings continue to increase for golden tilefish.

Summary

Species level risk elements

Table 30: Species level risk analysis results; l=low risk (green), lm= low-moderate risk (yellow), mh=moderate to high risk (orange), h=high risk (red). Greyed out risk elements to be completed later in 2024.

Species	Assess	Fstatus	Bstatus	PreyA	PredP	FW2Prey	Climate	DistShift	EstHabitat	OffHab
Ocean Quahog	low	low	low			low	high	modhigh	low	
Surfclam	low	low	low			low	modhigh	modhigh	low	
Summer flounder	low	high	lowmod			low	lowmod	modhigh	high	
Scup	low	low	low			low	lowmod	modhigh	high	
Black sea bass	low	low	low			low	modhigh	modhigh	high	
Atl. mackerel	low	low	high			low	lowmod	modhigh	low	
Chub mackerel	high	lowmod	lowmod			low	na	na	low	
Butterfish	low	low	lowmod			low	low	high	low	
Longfin squid	lowmod	lowmod	lowmod			lowmod	low	modhigh	low	
Shortfin squid	high	lowmod	lowmod			lowmod	low	high	low	
Golden tilefish	low	low	lowmod			low	modhigh	low	low	
Blueline tilefish	high	high	modhigh			low	modhigh	low	low	
Bluefish	low	low	lowmod			low	low	modhigh	high	
Spiny dogfish	low	high	low			low	low	high	low	
Monkfish	high	lowmod	lowmod			low	low	modhigh	low	
Unmanaged forage	na	na	na			lowmod	na	na	na	
Deepsea corals	na	na	na			low	na	na	na	

Ecosystem level risk elements

Table 31: Ecosystem level risk analysis results; l=low risk (green), lm= low-moderate risk (yellow), mh=moderate to high risk (orange), h=high risk (red). Greyed out risk elements to be completed later in 2024.

System	EcoProd	CommVal	RecVal	FishRes1	FishRes4	ComDiv	RecDiv	Social	ComFood	RecFood
Mid-Atlantic	lowmod	modhigh	lowmod	low	modhigh	low		lowmod	high	modhigh

Species and Sector level risk elements

Table 32: Species and sector level risk analysis results; l=low risk (green), lm= low-moderate risk (yellow), mh=moderate to high risk (orange), h=high risk (red). Greyed out risk elements to be completed later in 2024.

Species	FControl	Interact	OSW1	OSW2	OtherUse	RegComplex	Discards	Allocation
Ocean Quahog-C	low	low				low	modhigh	low
Surfclam-C	low	low				low	modhigh	low
Summer flounder-R	lowmod	low				high	modhigh	high
Summer flounder-C	lowmod	lowmod				lowmod	modhigh	low
Scup-R	high	low				high	modhigh	high
Scup-C	low	lowmod				lowmod	modhigh	low
Black sea bass-R	high	low				high	modhigh	high
Black sea bass-C	lowmod	lowmod				lowmod	high	low
Atl. mackerel-R	lowmod	low				lowmod	lowmod	low
Atl. mackerel-C	low	lowmod				high	lowmod	low
Butterfish-C	low	lowmod				modhigh	modhigh	low
Longfin squid-C	low	modhigh				modhigh	modhigh	low
Shortfin squid-C	lowmod	lowmod				modhigh	low	low
Golden tilefish-R	na	low				low	low	low
Golden tilefish-C	low	low				low	low	low
Blueline tilefish-R	low	low				lowmod	low	low
Blueline tilefish-C	lowmod	low				low	low	low
Bluefish-R	lowmod	low				modhigh	lowmod	high
Bluefish-C	low	low				lowmod	lowmod	low
Spiny dogfish-R	low	low				low	lowmod	low
Spiny dogfish-C	low	modhigh				high	lowmod	low
Chub mackerel-C	low	lowmod				low	low	low
Unmanaged forage	low	low				low	low	low
Deepsea corals	na	na				na	na	na

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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: March 27, 2024

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 April presentation, HESD staff will highlight habitat and offshore wind activities. They will provide project updates related to coastal development, infrastructure, and upcoming federal navigation and civil work projects from the New York and Philadelphia Districts of the Army Corp of Engineers. They will also provide a summary of alternatives considered for the reevaluation of Historic Area Remediation Site (HARS), highlighting a concept to identify an offshore fishery enhancement beneficial use site in the New York Bight. HESD staff will also provide a brief update on some of NOAA's activities associated with the Bipartisan Infrastructure Law.

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MEMORANDUM

Date: March 26, 2024

To: Council

From: Karson Cisneros and Jason Didden, MAFMC Staff; Jennifer Couture and Robin Frede, NEFMC Staff

Subject: Joint Sturgeon Bycatch Framework: Final Action

On Wednesday, April 10, the Council will take up the Spiny Dogfish and Monkfish Committees' motions for final action on the Sturgeon Bycatch Framework. Final action for the New England Fishery Management Council (NEFMC) is scheduled for April 16-18, 2024. Please see the following supporting materials:

1) Joint Monkfish and Spiny Dogfish Committee meeting summary from March 13, 2024 with Committees' motions for preferred alternatives.
2) Joint Monkfish and Spiny Dogfish Advisory Panel meeting summary and recommendations from March 5, 2024
3) Fishery Management Action Team/Plan Development Team (FMAT/PDT) meeting summary and recommendations from February 22, 2024 and staff supplemental memo dated March 12, 2024
4) Draft Framework Environmental Assessment dated March 26, 2024 which includes the alternatives under consideration, affected environment, and impacts analyses*

*This document is provided electronically via the above link due to its size

MEETING SUMMARY

Joint Monkfish and Dogfish Committee

Webinar

March 13, 2024, 9am – 3 pm

The Monkfish and Dogfish Committee (Committee) met jointly on March 13, 2024, via webinar to: 1) review the Sturgeon Framework alternatives, 2) review the preliminary impact analyses; 3) review the recommendations from the Fishery Management Action Team/Plan Development Team (FMAT/PDT) and Joint Monkfish and Dogfish Advisory Panel (AP); 4) make recommendations on any preferred alternatives for the Mid-Atlantic and New England Fishery Management Councils to consider during their April meetings; and 5) Other business.

MEETING ATTENDANCE:

Dogfish Committee: Sonny Gwin (Dogfish Chair), Chris Batsavage, Richard Wong, Dan Farnham, Skip Feller, Joseph Grist, Adam Nowalsky, Nichola Meserve (Dogfish Vice Chair), Mark Alexander, Rick Bellavance, Dan Salerno, Alan Tracy*, Toni Kerns (ASMFC), Jay Hermsen (GARFO).

Monkfish Committee: Matt Gates (Monkfish Chair), Eric Hansen, Kelly Whitmore, Jackie Odell, Scott Olszewski, John Pappalardo, Alan Tracy*, Pete Christopher (GARFO), Dan Farnham* (MAFMC), Robert Ruhle (MAFMC).

*Committee member is on both Committees

Council Staff: Jason Didden (MAFMC), Jenny Couture (NEFMC), Robin Frede (NEFMC), and Karson Cisneros (MAFMC)

Others in attendance: Sturgeon FMAT/PDT: James Boyle, Jason Boucher, Lynn Lankshear, Spencer Talmage; Additional Council staff: David McCarron and Emily Bodell; NEFMC and MAFMC: Eric Reid (NEFMC Chair), Wes Townsend (MAFMC Chair), Mike Luisi (MAFMC Vice Chair), Michelle Duval (MAFMC), Megan Ware (NEFMC); Mitch MacDonald (NOAA GC); GARFO: Allison Murphy; Monkfish and Dogfish Advisory Panel: James Dopkin, Chris Rainone, Patrick Duckworth, Ted Platz, Kevin Wark, Mark Sanford; Public: Albert Didden, Aubrey Church, Conor Davis, Emerson Hasbrouck, Francisco Perez-Gonzalez, Jesse Hornstein, Joe Cimino, Raymond Kane, Richard Tyler Guteres, Sefatia Romeo Theken, and Tara Dolan.

SUPPORTING DOCUMENTATION: Discussions were aided by the following documents and presentations: **(1)** Meeting overview memo; **(2)** Agenda; **(3)** Presentation, Council Staff; **(4)** Draft Framework Adjustment; **(5)** Sturgeon Bycatch Fishery Management Action Team/Plan Development Team DRAFT meeting summary, February 22, 2024; **(6)** Joint Monkfish and

Dogfish Advisory Panel Meeting Summary, 20240305 – DRAFT; **(7)** Sturgeon Risk Assessment (Closures) Final Report, February 20, 2024; **(8)** BREP proposal narrative for low-profile gear; **(9)** correspondence; and **(10)** FMAT/PDT supplemental memo, March 12, 2024. Meeting materials are available on the NEFMC website: https://www.nefmc.org/calendar/mar-13-2023-joint-monkfish-and-dogfish-committee-webinar

KEY RECOMMENDATIONS:

- Monkfish:
  - For Southern New England, the Monkfish Committee did not recommend any measures for the Councils to adopt.
  - For New Jersey, the Monkfish Committee recommended the Councils adopt a year-round low-profile gear requirement in the NJ bycatch hotspot polygon as the preferred alternative (Alternative 5).
- Spiny Dogfish:
  - For New Jersey, the Dogfish Committee recommended the Councils adopt an overnight soak prohibition (8pm until 5am) for vessels targeting spiny dogfish in the NJ bycatch hotspot polygon with an exemption for mesh < 5.25" year-round; vessels using mesh ≥ 5.25" could not do overnight soaks in May and November.
  - For DE/MD/VA, the Dogfish Committee recommended the Councils adopt an overnight soak prohibition (8pm until 5am) for vessels targeting spiny dogfish in DE/MD/VA bycatch hotspot polygons with an exemption for mesh < 5.25" year-round; vessels using mesh ≥ 5.25" could not do overnight soaks from November through March.
- Other:
  - The Joint Monkfish and Dogfish Committee recommend the New England and Mid-Atlantic Councils write a letter to the NEFSC observer program to develop and implement a carcass tagging program for dead sturgeon discards (similar to what is done for sea turtles and marine mammals) and a tagging program for live sturgeon discards. This would apply to any fishery where sturgeon are caught, regardless of gear type, area, etc.

Questions:

Committee members asked several questions about the staff presentation. More specifically, one member asked if and how offshore wind was being taken into account in evaluating the impact of time/area closures in Southern New England for the monkfish fishery. He mentioned this should be considered a de facto closure and that fishing practices and behavior are likely to change, which would inherently benefit sturgeon. Staff noted that the regulations do not prohibit fishing within wind farms so cannot be considered a closure; this type of impact will be addressed in the cumulative effects section of the environmental assessment.

Another member asked whether the Council action alternatives meet the necessary sturgeon bycatch target reduction levels. Council and GARFO staff noted that after many iterative discussions, there are no target reduction levels for this action. The Council action is designed to reduce sturgeon interactions in both the monkfish and spiny dogfish fisheries, which is the only

mandate from the 2021 Biological Opinion, where measures must be in place by 2024. There is a possibility that the new Biological Opinion (expected in early 2025) may require additional sturgeon reduction measures, though this is uncertain given the sturgeon stock assessment is not yet complete.

One Monkfish Committee member asked if the delayed implementation for low-profile gear would impact achieving sturgeon reduction by 2024. Council and GARFO staff noted that as long as regulations are in place by 2024, the delayed implementation should not matter with respect to meeting the 2021 Biological Opinion requirements. It is unclear how this impacts the baseline analysis of the new Biological Opinion, however.

Regarding the upcoming sturgeon stock assessment, there were a few questions on whether the individual sturgeon distinct population segments (DPS) would be evaluated and if the assessment would evaluate any potential change in status from endangered to threatened. Atlantic States Marine Fisheries Commission staff explained that the assessment is just an update with additional years of data, so very similar to what was included in the 2017 assessment. Another member later asked if a substantial change in stock status is anticipated from the assessment and if the Committees should include a contingency for this Council action. Staff reiterated that the Councils should take final action in April to reduce sturgeon interactions in both the monkfish and spiny dogfish fisheries in order to meet the 2021 Biological Opinion requirements. Thus, a contingency based on the stock assessment results is likely not feasible. We do not know what the updated trends for sturgeon will be – positive or negative or large or small.

Another Committee member asked about the monthly spiny dogfish observed takes in the Delmarva region and if the months with highest sturgeon interactions were due to higher fishing effort. Staff explained that the rate of sturgeon takes are from only observed trips, so not necessarily a reflection of overall fishing effort. The Committee member asked whether the next Incidental Take Statement (ITS) would be informed by the sturgeon assessment, meaning the allowed ITS could be higher if there is a positive trend in the upcoming assessment. Staff explained this is hard to predict but the next BiOp and ITS will be informed by all available information.

A Dogfish Committee member asked about the partial exemption for the overnight soak prohibition for vessels using mesh < 5.25” and the reason for the low observer coverage for New Jersey. Staff answered that the observer program does have binning rules in order to meet certain standards based on the standard bycatch reporting methodology, which allocates observer coverage among fleets. There has not been a substantial amount of 5” mesh gear being used off NJ for spiny dogfish recently (<10% of NJ gillnet spiny dogfish landings). Another member asked whether the observer data by mesh size in Delmarva could be used as a proxy for the lower observer coverage in NJ. Increasing observer coverage for smaller mesh gear would be helpful for future management. Staff commented that during the AP meeting on March 5, a member of the public who used larger mesh (5.75”) stated an overnight soak prohibition would be most problematic from May through September.

A couple of Committee members asked about the time/area closures and the need to balance the socioeconomic impacts to the fisheries with reducing sturgeon interactions. One member expressed concern about the results of the decision support tool analysis and needing to potentially consider closures in the future as needed once the new Biological Opinion is published.

Regarding the low-profile gear requirement and the twine size conflict with the Harbor Porpoise Take Reduction Team requirements, this is a lengthy process (around one year). The meetings (not yet scheduled) are just getting underway to evaluate a potential exemption for using low-profile gear.

Regarding the Atlantic Large Whale Take Reduction Team timing, the proposed rule for gillnet and other trap/pot fisheries is expected by 2025 and implementation by 2026, so the current sturgeon Council action will be implemented before then. Staff noted that NMFS has not determined whether the South Island Restricted Area will be included in the proposed rule.

Public Comment:

- **Chris Rainone, NJ monkfish fishermen, monkfish advisor:** Asked if Alternative 5 includes time/area closures in May and November and if the measures would only apply to the polygon areas. He wanted to address the latent permit issue in the monkfish fishery. Staff clarified that Alternative 5 only includes gear modifications and does not include any time/area closures.

There was a brief discussion on the voting protocols for motions, namely that only the Dogfish Committee can vote on Dogfish motions and likewise with monkfish. Only one member of GARFO and one member from the state of Massachusetts can vote given there are two members of each on the Joint Committee membership.

1. **Dogfish Motion (Grist/Gwin):** The Spiny Dogfish Committee recommends the Councils adopt Alternative 5 with an exemption for both NJ and DE/MD/VA bycatch polygons for the use of gill net mesh less than 5.25-inches (e.g., In Delmarva, mesh < 5.25" mesh could do overnight soaks year-round; mesh ≥ 5.25" could not do overnight soaks from November through March; In NJ, mesh < 5.25" mesh could do overnight soaks year-round; mesh ≥ 5.25" could not do overnight soaks in May and November).

    Alternative 5: Vessels with a federal fishing permit targeting spiny dogfish in federal and/or state waters - Overnight soak time prohibition from 8pm until 5am in the New Jersey bycatch hotspot polygon during May 1 – May 31 and November 1 – November 30. - Overnight soak time prohibition from 8pm until 5am in the Delaware/Maryland/Virginia bycatch hotspot polygons during November 1 – March 31.

        Sub-alternative 5a: Vessels using less than 5 ¼ inch gillnet mesh would be exempted from the New Jersey polygon overnight soak time prohibition.

        Sub-alternative 5b: Vessels using less than 5 ¼ inch gillnet mesh would be exempted from the Delaware/Maryland/Virginia polygon overnight soak time prohibition.

Rationale: Based on observer data, input from AP and other industry members, appears that gillnet meshes <5.25" have fewer sturgeon interactions; a closure and lack of overnight soak which is necessary in Delmarva is problematic; economic impact should be balanced with

protected species impacts. Applicable to NJ as well because observer data from Delmarva can serve as a proxy for NJ.

Discussion on the motion: There was support for this motion, however, one Dogfish Committee member was concerned that no overnight soaks would not be workable in Delmarva area, though may be workable in NJ. He noted this seems to be very region-specific and he's concerned that further action may be needed in the next Biological Opinion. Another member expressed concern about a prohibition of overnight soaks for five months and that it will substantially negatively impact the dogfish fishery. One Committee member asked how this motion differs from the FMAT/PDT recommendation. Staff noted that the FMAT/PDT did not recommend an exemption for overnight soaks for the smaller mesh in NJ due to limited observer data in the area and Council staff (not yet vetted by the FMAT/PDT) recommend the Committee carefully consider no exemption for the Delmarva region for the smaller mesh in December, when sturgeon takes/observed trip was highest. Another Committee member appreciated the exemption for the smaller mesh and thought the benefit to sturgeon would likely extend beyond the polygon boundaries (since fishermen cannot switch gillnet gear mesh easily).

Public Comment:

- **Chris Rainone, NJ monkfish fishermen, monkfish advisor:** Expressed concern that fishermen are going to use smaller mesh as a result of this exemption in order to avoid the overnight soak prohibition. He also asked what happens if the measures from this Council action are not sufficient for the new Biological Opinion.

  One Committee member commented that the smaller mesh does benefit sturgeon, however, there are still sturgeon interactions, including juveniles like what is observed in North Carolina. If additional bycatch reduction measures are needed then this could be done through the Councils again or via NMFS.

Motion passed 11/1/2.

Dogfish Committee	Yes	No	Abstain
Sonny Gwin (Chair)	x		
Chris Batsavage		x	
Dan Farnham	x		
Skip Feller	x		
Joseph Grist	x		
Richard Wong	x		
Adam Nowalsky	x		
Jay Hermsen			x
Toni Kerns			x
Nichola Meserve (Vice Chair)	x		
Mark Alexander	x		
Rick Bellavance	x		
Dan Salerno	x		
Alan Tracy	x		

2. **Monkfish Motion (Odell/Farnham):** Monkfish Committee recommends that the Councils adopt Alternative 5 (year-round low-profile gear requirement in NJ bycatch hotspot polygon) as the preferred alternative.

Rationale: This follows the recommendations of the FMAT/PDT and recommendations of the advisors. Need to think more about the time/area closures and economic impacts to the monkfish fishery and the impacts on sturgeon. Need additional information on the stock assessment and the new Biological Opinion before proceeding with additional measures. Based on the Decision Support Tool analysis and how time/area closures could shift effort into areas important for other protected species (e.g., North Atlantic Right Whales), do not recommend closures at this time.

Discussion on the motion: One member supported the motion as it struck a good balance between minimizing economic impacts to the monkfish fishery and reducing impacts to sturgeon and does not include time/area closures which may push effort into important North Atlantic right whale habitat. Regarding a follow-on action for the states (once the Council action is complete), the Commission representative clarified that any action the Commission undertakes will be for the spiny dogfish fishery and not the monkfish fishery, given monkfish is not a species managed by the Commission.

If a future action is needed based on the new Biological Opinion, the Councils or NOAA could work on this. One member wanted the Councils to be involved in this process should another action be needed and NOAA leads this effort. Once the next Biological Opinion is published, a final determination will be made on sturgeon status and the impact to fisheries. The Reasonable and Prudent Measures from any Biological Opinion are typically less rigid from a non-jeopardy finding compared to Reasonable and Prudent Alternatives.

There was a brief discussion on the terms and references for the upcoming stock assessment. Ms. Kerns sent Council staff the document with this information, after which staff send to the full Committee for their awareness.

Public Comment:

- **Jamie Dopkin, NJ monkfish fishermen, monkfish advisor:** Expressed interest in conducting research on alternative gear types, namely different mesh sizes (12" vs 13") and twine sizes, to understand how monkfish and skate catch change along with sturgeon interactions. He noted that skate possession limits recently increased and that fishing using low-profile gear may be counter-productive if he can't catch enough skates. He commented that if sturgeon are able to break through the lighter twine size then it's likely harbor porpoises can as well.

  One Committee member asked about the research recommendations the Councils approved in fall 2023. These included additional low-profile gear research as potential management measures, including in Southern New England for the monkfish fishery and the Mid-Atlantic region in the spiny dogfish fishery. This is likely broad enough to encompass research on different mesh sizes.

- **Ted Platz, southern area monkfish fishermen, monkfish adviser**: Agreed with Committee members on the need to balance the socioeconomic impacts to the monkfish fishery and the need to reduce sturgeon interactions. He expressed concern that the observer data are not by individual DPS and that this information is needed for future management decisions.

Motion passed 9/0/0.

Monkfish Committee	**Yes**	**No**	**Abstain**
Matt Gates (Chair)			
Eric Hansen	x		
Kelly Whitmore	x		
Jackie Odell	x		
Scott Olszewski	x		
John Pappalardo	x		
Alan Tracy	x		
Pete Christopher	x		
Peter Hughes (Vice-Chair)	absent		
Dan Farnham	x		
Robert Ruhle	x		
Paul Risi	absent		

Other business

One Committee member asked how to address the double counting of dead sturgeon discards by observers.

CONSENSUS STATEMENT

The joint Monkfish and Dogfish Committee recommends to both the New England and Mid-Atlantic Councils to write a letter to NOAA NEFSC observer program to develop and implement a carcass tagging program for dead sturgeon discards similar to sea turtles and marine mammals as well as include a tagging program for live sturgeon discards. This would apply to any fishery where sturgeon are caught regardless of gear type, area, etc.

Rationale: This type of program would help prevent the possibility of double-counting individual observed sturgeon takes.

Discussion on the Consensus Statement: For dead marine mammals and sea turtles, the carcass is usually tagged by observers so if the animal is observed again in the near future that the observer knows this take has already been accounted. Observers can scan for pit tags but cannot implant the tags. Staff noted that the 2021 Biological Opinion included a recommendation to this effect. There was a brief discussion on which fisheries the consensus statement would apply to, noting that the Councils may not necessarily have jurisdiction.

Public Comment:

- **Chris Rainone, NJ monkfish fishermen, monkfish advisor:** Suggested expanding to include both live and dead discard tagging to track the species more. For example, use of spaghetti tags for live sturgeon by observers.
- **Patrick Duckworth, monkfish fishermen, monkfish adviser**: Reiterated that he caught a dead sturgeon and then re-caught the same one a few days later and that this is an urgent issue that needs to be addressed.

Consensus statement with one abstention from NMFS.

The meeting adjourned at approximately 1pm.

MEETING SUMMARY

Joint Monkfish and Dogfish Advisory Panel

Webinar

March 5, 2024, 1 pm – 5 pm

The Monkfish and Dogfish Advisory Panel (AP) met jointly on March 5, 2024, via webinar to: 1) review the Sturgeon Framework alternatives, 2) review the preliminary impact analyses; 3) review the recommendations from the Fishery Management Action Team/Plan Development Team (FMAT/PDT; 4) make recommendations on any preferred alternatives for the Joint Committee to consider during their March 13th meeting; and 5) Other business

MEETING ATTENDANCE:

Dogfish Advisory Panel: James Fletcher, Jeremy Hancher, Scott MacDonald, Roger Rulifson, John Whiteside, Mark Sanford, Christopher Rainone*, Samuel Martin, Kevin Wark, Shah Amir

Monkfish Advisory Panel: Ted Platz, Terry Alexander, Bonnie Brady, James Dopkin, Patrick Duckworth, Timothy Froelich, Linda Hunt, Samuel Martin, Randall Hayes Morgan

*Advisor is on both APs

Council Staff: Jason Didden (MAFMC), Jenny Couture (NEFMC), Robin Frede (NEFMC), and Karson Cisneros (MAFMC)

Others in attendance: Lynn Lankshear, Chris Batsavage, Matt Gates, Scott Olszewski, Eric Reid, Tara McClintock, Conor Davis, Janice Plante, James Boyle, Jesse Hornstein, Sefatia Romeo Theken, Aubrey Church, Mark Alexander, Jackie Odell, Joe Grist, Kelly Whitmore, Nichola Meserve, Jason Boucher, Michelle Duval, Tyler Guteres, Wes Townsend, Emerson Hasbrouck, Robert Elsey, and two other members of the public on the phone.

SUPPORTING DOCUMENTATION: Discussions were aided by the following documents and presentations: **(1)** Meeting overview memo; **(2)** Agenda; **(3)** Presentation, Council Staff; **(4)** Draft Framework Adjustment; **(5)** Sturgeon Bycatch Fishery Management Action Team/Plan Development Team DRAFT meeting summary, February 22, 2024; **(6)** Sturgeon Risk Assessment (Closures) Final Report, February 20, 2024; **(7)** BREP proposal narrative for low-profile gear; and **(8)** correspondence. Meeting materials are available on the MAFMC website: https://www.mafmc.org/council-events/2024/march-5/joint-dogfish-monkfish-ap.

KEY RECOMMENDATIONS:

Note that the following advisor recommendations are not necessarily consensus statements.

MONKFISH

- For New Jersey, advisors supported Alternative 5 (year-round low-profile gear requirement) if action must be taken.
- For Southern New England, advisors did not support any closure alternatives and felt that there needed to be more options other than closures. If closures are deemed absolutely necessary to reduce sturgeon interactions, the same or better results would be achieved with fewer economic impacts to the monkfish fishery by avoiding the times of the year included in the range of alternatives, specifically April and May, and implementing a closure in November as the most preferable option followed by December (less preferable). It's worth noting that a closure in June would also be economically detrimental to the fishery. Restrictions in the region should be discussed only after low-profile gear is tested in the area.
- Managers should wait for sturgeon stock assessment results before making any other recommendations.
- More research needs to be done related to 1) sturgeon tagging (passive acoustic monitoring) to better reflect accurate number of sturgeon takes (vs. retakes of the same sturgeon) in order to inform the new Biological Opinion and 2) additional gear modifications such as different mesh sizes and lighter twine sizes to reduce sturgeon interactions.

SPINY DOGFISH

- For New Jersey, one advisor felt the overnight soak prohibition would be workable.
- For the Delmarva region, several advisors supported the overnight soak exemption for smaller mesh (<5.25"). In this region, no overnight soaks would end the fishery and any months with overnight soak prohibitions should be considered a closure.
- Overall, advisors were concerned with putting people out of business since there are so few participants left and several advisors did not support any of the alternatives.
- Generally, advisors did not support any closures. One advisor noted that if a closure was needed, it should be done in October or early November south of Long Island.
- Nothing should be done until the results of the 2024 sturgeon stock assessment are available.
- More research needs to be done with lighter twine sizes and ways to enforce longer soak times for spiny dogfish (for example a 23-hour maximum soak time requirement).
- A member of the public who uses 5.75" mesh communicated that October through April would be less problematic for an overnight soak ban in New Jersey related to his fishing including for smooth dogfish.

Questions:

Advisors asked several clarifying questions related to the analysis, process, and values presented in the meeting materials. One advisor asked how observed takes are extrapolated out to become total bycatch estimates to a specific fishery in the 2021 Biological Opinion. Staff provided a

general description of the model used to estimate takes and directed the advisor to the Sturgeon Biological Opinion and Sturgeon Action Plan for additional information and suggested talking offline about this as needed.

One advisor asked whether closing an area for spiny dogfish was considered eliminating the fishery in the southern regions because that is what the implications would be (the processor can not survive reductions in landings). Staff highlighted that the FMAT/PDT also discussed that the alternatives with time/area closures occur during the months that are the most critical for these fisheries and also only achieve a low reduction in sturgeon bycatch. Because of this, the FMAT/PDT recommended gear-only restriction measures for both fisheries (Alternative 5) instead of the time/area closures.

An advisor specifically asked why October and November were not considered for potential closures in the Southern New England (SNE) region. He felt that these months should be considered and that there may be less disruptive ways to achieve the same sturgeon bycatch reduction. The advisor would like to see the bycatch numbers for all months for the SNE region. Staff noted that the months identified for potential closures were generally the months with the highest observed sturgeon takes.

Another advisor asked whether data were reviewed on where male dogfish are located to focus the fishery there, instead of fishing for female dogfish, which he thought is where sturgeon interactions occur. Staff noted previous work on male/female spiny dogfish overlap times/areas could be used to consider measures in the future.

Discussion:

Overall, advisors commented on the need for improved evaluation of sturgeon abundance to understand the size of the sturgeon population. One advisor felt that the sturgeon population is a lot larger than is being reported by states or the surveys. A couple of advisors added that a specific survey targeting sturgeon needs to be conducted. Lastly, they felt that fishermen bear the brunt of the reductions when other threats to sturgeon such as vessel strikes and habitat degradation are contributing to their endangered status. Another advisor agreed that the trawl survey does not catch sturgeon well and did not feel it was a good tool for estimating sturgeon abundance. Staff did not know the sturgeon population estimate and individual survey results, however, provided the AP with a description of the surveys used in the most recent assessment and noted that the updated assessment will be completed summer 2024.

One advisor commented that the way observed takes are documented is problematic. He relayed an instance of catching a sturgeon that was dead, cutting its tail to mark it, then catching the same fish and had it count as taking two sturgeon by the observer. Staff noted that we can look at sturgeon condition and whether they were caught dead or alive, but otherwise are unsure how to address that potential issue. This advisor also raised concerns over the potential for shifting effort to where there are more right whales in the SNE region. This advisor supported no closures in SNE, however if closures must be implemented (given there are no gear modification options for SNE), the advisor would prefer consideration of October and November instead of December for closures. He added that there are very limited options in SNE and the time/area closure polygon is essentially where the fishery operates at any given time.

Multiple advisors recommended that there should be more tagging of sturgeon to generate more accurate population estimates and use the tagging data as validation for take estimates.

One advisor discussed that there are five distinct population segments (DPS) that have a wide range and movement within the range. He noted that observers collect genetic information and asked whether Council staff have this information available, further commenting that more work needs to be done in this area. Protected Resources Staff at GARFO responded that the preliminary genetic results are available from observer data collection, noting that fish from the Hudson River and Delaware River dominate the fish from the Mid-Atlantic Region, however there are fish from all of the DPSs.

One advisor stated that selecting no action is the best choice, especially given the results from the 2024 assessment are not yet available. He added that sturgeon need to be removed from the endangered species list and the stocks are healthy. However, given the legal requirement to reduce sturgeon interactions in the gillnet fisheries to meet the 2021 Biological Opinion requirements, Alternative 5 seems to be the only workable option. The advisor added that when fishermen lose access it is never given back.

Another advisor agreed that Alternative 5 (gear-only modifications) is the only alternative that provides a balance between a reduction in sturgeon bycatch and the successful operations of the monkfish and spiny dogfish fisheries per the Action Plan. For a low-profile gillnet, he added that there needs to be more emphasis on 12-inch mesh with finer twine (versus the 13-inch mesh size) because fishermen still need to catch monkfish/skate. The advisor added that further gear modifications such as a lighter twine size should be researched before any measures are implemented. Other advisors agreed with this recommendation. For soak time restrictions, he felt that a 24-hour maximum should be considered instead of no overnight soaks. Lastly, this advisor reiterated the importance of no closures. Staff noted a 24-hour soak restriction was not feasible for action at this time due to the current alternative range based on input from enforcement regarding enforceability of a 24-hour maximum soak time.

An advisor said that twine size research should be explored for both the dogfish and monkfish fisheries and felt that the dogfish fishery in Virginia using smaller mesh (≤ 5.5”) have fewer interactions with sturgeon. He added that a prohibition of overnight sets in this area would end the fishery. He also agreed with previous comments that measures should be decided after the results of the sturgeon stock assessment are available.

One advisor reiterated that a 23-hour soak time restriction for New Jersey would be better than no overnight soaks and felt that this could be enforceable (nets would be out for an hour for enforcement checks, achieving a less than 24-hour soak time in practice). Another advisor said that no overnight soaks in New Jersey for dogfish would be doable for him.

An advisor spoke in favor of gear modifications in general because he is against closures. If closures are necessary, closing October and early November are preferred over closing December in Southern New England. He felt that if a closure is needed, the timing of the closure should be up to the people who fish because they know when the sturgeon interactions occur. The advisor added that when there was a sturgeon fishery, the season was in October or November which is when the sturgeon migrated further offshore.

One advisor commented that a lot of takes in the Virginia area occurred in state waters, specifically at the mouth of Chesapeake Bay, and asked what will be done in state waters to

reduce sturgeon bycatch. Staff responded that the Atlantic States Marine Fisheries Commission plans to consider complementary action following final action from the Councils. This advisor added that the sturgeon takes are from vessels fishing larger mesh sizes (≥6 inches) and that fishermen generally avoid areas where there are a lot of sturgeon. He agreed with other advisors that action should be taken only after the stock assessment results are available, and that closures are going to ruin the fishery.

One advisor recommended changing the exemption for smaller mesh sizes to ≤5.25" for Virginia because there is variability in the manufacturing of the webbing which does not consistently measure 5". He added that he didn't want to see any restrictions and said that if the Virginia dogfish fishery closes, a lot of people will be out of work. Staff noted there did not seem to be much gear used at 5.25 inches, and 5.5 inches had more sturgeon catch than 5.0 inches, so the measure was set up as <5.25 inches rather than less than or equal to 5.25 inches.

Lastly, an advisor stated that he represents the last dogfish processor, and the processor can't take a cut to the quota or a reduction in landings and added that this action is essentially a backdoor way of reducing the quota. The advisor also supported all of the concerns voiced by other advisors and felt that the minimum possible cuts is what should be accepted by the Councils.

Public Comment:

Robert Elsey who fishes for monkfish from Sandy Hook to Cape May commented that there are only about 8 boats left fishing for monkfish in NJ and how could so few boats be impacting the sturgeon population so much. He added that if fishermen move off the beach they will not catch as many sturgeon. From the few sturgeon that are caught, 90% are caught on the shoreline. He said there is a need to leave the nets overnight to catch enough target species and noted that he sleeps with his nets out and guards them in the summer months. His main income comes from sand sharks (e.g., smooth dogfish) in June, which requires a longer soak time (using a 5.75" mesh). Sturgeon migrate in the fall, so he can continue fishing and avoid sturgeon even if the nets are pulled off the beach.

The meeting adjourned at 5pm.

Joint[1] Sturgeon FMAT[2]/PDT[3] Meeting Summary

February 22, 2024 Webinar

The joint Sturgeon FMAT/PDT met on February 22, 2024, via webinar. The purposes of this meeting were to 1) review the additional sub-alternatives added by the MAFMC, 2) review the draft impact analyses, and 3) develop FMAT/PDT recommendations for the Joint AP and Joint Committee to consider. The meeting was open to the public.

FMAT/PDT Attendees: Jason Didden (MAFMC), Jenny Couture (NEFMC), Robin Frede (NEFMC), Jason Boucher (NEFSC), Spencer Talmage (GARFO SFD), Bridget St Amand (NEFSC), Lynn Lankshear (GARFO PRD), Sharon Benjamin (GARFO NEPA), Ashleigh McCord (GARFO NEPA), and James Boyle (ASMFC).

Other Attendees: Invited member from GARFO APSD Daniel Hocking; NEFMC members Eric Reid, Scott Oszewski, Nichola Meserve and Kelly Whitmore; MAFMC member Joe Grist; NEFMC staff David McCarron; GARFO PRD staff Danielle Palmer; and about 10 members of the public.

1. Gear sub-alternatives:

The FMAT/PDT discussed the new sub-alternatives added by the MAFMC during their February meeting, which includes exemptions for vessels with a federal fishing permit targeting spiny dogfish in federal and/or state waters during the times of the year currently specified in the set of alternatives. More specifically:

> **Sub-alternative 5a**: Vessels using less than 5 ¼ inch gillnet mesh would be exempted from the New Jersey polygon overnight soak time prohibition.
>
> **Sub-alternative 5b**: Vessels using less than 5 ¼ inch gillnet mesh would be exempted from the Delaware/Maryland/Virginia (Delmarva) polygon overnight soak time prohibition.

FMAT/PDT members discussed the need for considering additional observer data analyses, but initial review suggests that there are fewer sturgeon interactions with the smaller mesh size (5" mesh) in the Delmarva area. For the New Jersey area, there may be too few small mesh trips with sturgeon takes to say anything meaningful regarding the effect of smaller mesh size on rates of sturgeon interaction. Council staff plan to further evaluate observer data on trips with and without sturgeon interactions by mesh size.

[1] This is a joint action of the Mid-Atlantic Fishery Management Council (MAFMC) and the New England Fishery Management Council (NEFMC)
[2] FMAT = Fishery Management Action Team
[3] PDT = Plan Development Team

Staff noted that the MAFMC also discussed adding a requirement to use low-profile gear in the Southern New England polygon, however, after much discussion, this was not added to the alternatives.

2. Review of Draft Impact Analyses

Council staff reviewed the Decision Support Tool (DST) analyses along with the sturgeon risk analysis which are being used to evaluate the impact of time/area closures on gear displacement and removal. Daniel Hocking provided an overview of the risk assessment for the FMAT/PDT noting that the model is spatially implicit and is based on observer data that is used to estimate unobserved VTR trips (by spatially interpolating individual VTR locations and smoothing between these points). This model is the same one used since 2011 to estimate sturgeon takes and Dr. Hocking noted that the model fits observer data fairly well. He also commented that there were observed sturgeon interactions in deeper water, though less common, which likely led to the unexpectedly diffuse sturgeon risk. Dr. Hocking's final report was recently made available and will be included as part of the Council framework and will also be distributed to the AP and Committee.

> **Public:** Chris Rainone asked how the DST works and whether there were any differences in sturgeon takes inshore versus offshore. Dr. Hocking explained that the time/area closures were evaluated using a maximum distance that someone would be willing to move from the current fishing location to a new fishing location outside of the proposed closed area. 20 and 50 miles were used as two scenarios for which gear would be displaced; the DST group heard from a few industry members that 20 miles is likely more representative of the distance fishermen would be willing to travel to continue fishing outside of any closure. Regarding sturgeon interaction differences, Dr. Hocking explained that there were fewer takes offshore in deeper waters but that those interactions still occurred. Most of the reduction in sturgeon interactions is from gear being removed from the water versus being displaced outside a closure.

Staff also shared preliminary DST results for the gear modification alternatives. These results are still being finalized and will be shared with Dr. Hocking to be used in his sturgeon risk assessment analysis. These results are expected by the March Committee meeting.

A few FMAT/PDT members discussed whether these DST and sturgeon risk assessment analyses account for sturgeon seasonal movement where sturgeon are further offshore in the ocean environment in the winter, all within the 50 m contour line with most within the 20 m contour line. The fish then travel further south towards inshore waters and up the coast into estuaries in the spring and summer. There are several references noting these seasonal movements that should be used to help interpret the sturgeon risk assessment results. More specifically, any time/area closures off New Jersey and Delmarva regions that cause effort to move north or south are likely to have a similar level of risk of sturgeon interaction relative to the closed areas. However, if effort shifts in deeper waters during the spring, for example, then the literature would suggest there would be reduced risk of sturgeon interaction because the sturgeon are thought to be more nearshore during this season.

The team also briefly discussed the low-profile gear configuration which includes 0.81 mm twine size, which is at conflict with the Harbor Porpoise Plan Take Reduction Team's (TRT) requirement of 0.90 mm twine size. The TRT received the Councils' letter which requested an exemption of this lighter twine size. The process just began and the TRT will likely only raise this issue during their March meeting. In order for low-profile gear to be included as part of the

proposed rule (if the Councils select this as part of their final action package), the TRT must be far enough along in their process to signal that this lighter twine size would be acceptable. The low-profile gear requirement includes a delay in implementation to allow the TRT process to play out and to allow gear manufacturers to produce the gear.

The new Biological Opinion (BiOp) is expected to be published by January 2025 (absent any extensions), with preliminary versions available before then, though drafts may or may not be publicly available. The new BiOp will include the Council action as the baseline for the assessment and will include the results of the sturgeon stock assessment (expected to be completed summer 2024), and any other new information.

> **Public:** Chris Rainone asked about the data included within the Human Communities Impacts analysis and whether the total number of permits are active permits or include latent permits as well. These are permits where a vessel landed > 0 lb of the target species in the relevant area, thus, active permits in that regard. The member of the public was concerned about the magnitude of latent fishing effort in the skate fisheries and its contribution to protected species issues and fishing regulations, etc.

3. FMAT/PDT Recommendations

Each FMAT/PDT member discussed their input on the range of alternatives and what he/she would recommend to the AP and Committee to consider during their deliberations of selecting a preferred alternative. The group was interested in striking a balance between achieving sufficient sturgeon interaction reduction without having too much of an impact on the fishing industry and other protected species (especially North Atlantic right whales). A few individual comments are detailed below:

- One person was interested in better understanding the smaller mesh exemption sub-alternatives and if there is one month with a higher ratio of sturgeon takes on observed trips; if so, he recommended against potentially allowing the smaller mesh to be exempt from overnight soak prohibition during this month and allowing the exemption in other months where the ratio of sturgeon takes was lower.
- Another member noted that she wanted to see as much sturgeon reduction as possible because if sufficient reduction is not achieved through this Council action, then that would likely be a gamble given the new BiOp will use the Council action as the baseline condition. She noted that the results of the sturgeon assessment are not yet known, however, it has been 12 years since sturgeon was listed under the ESA and large mesh fisheries are responsible for many sturgeon interactions.
- Several members were interested in gear modifications as the potential way forward, noting that there is some uncertainty in impacts on reducing sturgeon interactions. There is ongoing low-profile gear research funded by the Bycatch Reduction Engineering Program that will help inform use of this gear in other areas; the results will not be ready in time for this Council action but could inform future work.
- One member expressed concern over negatively impacting fishermen and the impact to the observer program given she has heard reports that fishermen do not want observers on board if that will lead to additional closures.
- Another member suggested the Councils recommend NEFSC evaluate the impacts on observer coverage of adding Atlantic sturgeon to the Standardized Bycatch Reporting

Methodology (SBRM) to help ensure there is sufficient observer coverage. The prior sturgeon stock assessment noted that there is a need for increased monitoring of this species, however, observer coverage has declined in recent years in some important areas/gears.

The FMAT/PDT made the following recommendation for the AP and Committee to consider during their upcoming March meetings:

> Of the options available, Alternative 5, the gear-only package appears to be the most reasonable. A partial exemption from the Delmarva overnight soak prohibition for gear less than 5.25" seems preliminarily supported by observer data. There were insufficient trips available to evaluate any potential exemptions for New Jersey, thus, the FMAT/PDT does not recommend any exemptions for this smaller mesh in this area. The FMAT/PDT is evaluating the monthly ratio of takes to observed trips in the Delmarva area to further inform a potential exemption for the Delmarva overnight soak prohibition for gear less than 5.25". Most likely this could entail an exemption for months where sturgeon take rates are lower and a recommendation to not exempt the month with the highest rate of sturgeon takes per observed trip in the Delmarva area. Generally, more research needs to be done to understand sturgeon bycatch and how to reduce sturgeon interactions – it is uncertain if the next Biological Opinion will trigger the need for additional measures regardless of the current action. The group also recognized the need to avoid shifting fishing effort from any time/area closures to important North Atlantic Right Whale habitat. The FMAT/PDT discussed potentially revisiting their recommendation following AP input.

Public:

- Chris Rainone appreciated the work of the FMAT/PDT and agreed that Alternative 5 gear-only package is a good first step in reducing sturgeon interaction. He recommended addressing the latent fishing effort issue in the skate fishery.
- James Fletcher asked whether this Council action is focused on reducing sturgeon interactions or mortality and he noted that large sturgeon have the most eggs and are most likely going to survive in the gillnet nets. Council staff answered that the current Council action is focused on reducing sturgeon interactions but have heard that reducing mortality is also important and will likely be included in the new BiOp.

The Councils will hold a joint meeting of their Spiny Dogfish and Monkfish Advisory Panels on March 5, 2024, and will hold a Joint Spiny Dogfish and Monkfish Committee meeting on March 13, 2024, to develop recommendations for the Councils. Final action by both Councils is scheduled for April 2024.

If additional information is needed before the March Advisory Panel (March 5th) and Committee (March 13th) meetings and before the April MAFMC and NEFMC meetings, please call Jason Didden of MAFMC staff (302-526-5254), Jenny Couture of NEFMC staff (978-465-0492 x111), or Robin Frede of NEFMC staff (978-465-0492 x124). The briefing documents for the Council meetings will be available at their websites, https://www.mafmc.org/, and https://www.nefmc.org/.

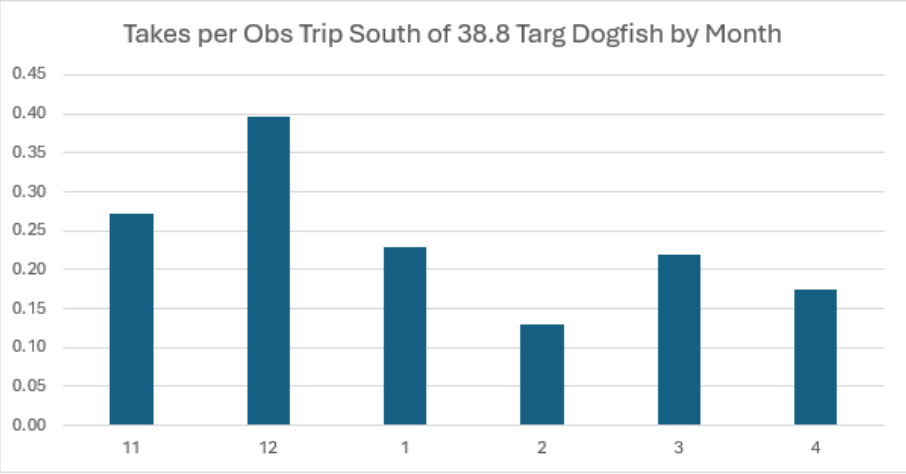
The meeting ended at 4pm.

March 12, 2024 Staff Supplement to Joint[1] Sturgeon FMAT[2]/PDT[3] Recommendation

In February 2024, the FMAT/PDT made the following recommendation for the AP and Committee to consider during their March meetings (underline added for this memo):

> "Of the options available, Alternative 5, the gear-only package appears to be the most reasonable. A partial exemption from the Delmarva overnight soak prohibition for gear less than 5.25" seems preliminarily supported by observer data. There were insufficient trips available to evaluate any potential exemptions for New Jersey, thus, the FMAT/PDT does not recommend any exemptions for this smaller mesh in this area. <u>The FMAT/PDT is evaluating the monthly ratio of takes to observed trips in the Delmarva area to further inform a potential exemption for the Delmarva overnight soak prohibition for gear less than 5.25". Most likely this could entail an exemption for months where sturgeon take rates are lower and a recommendation to not exempt the month with the highest rate of sturgeon takes per observed trip in the Delmarva area…"</u>

Subsequent analyses of observer data indicate that December has recently had the most Atlantic sturgeon takes per observed trip when considering trips targeting spiny dogfish south of 38.8 N latitude (i.e. south of Delaware Bay). As will be presented to the Committee, during 2020-2022, December spiny dogfish revenues into MD and VA averaged about $276,000 (2nd most with January higher) and about 57% of those December revenues came from the Delmarva polygon hotspots. Staff recommend that the Committee carefully consider not exempting December from the Delmarva polygon overnight soak prohibition even if gear less than 5.25" is used (the overnight soak prohibition would not apply in other months if using less than 5.25" gillnet mesh). There was not time to fully confirm FMAT/PDT consensus on this recommendation with the updated data, but it is generally consistent with the initial FMAT/PDT recommendation.



[1] This is a joint action of the Mid-Atlantic Fishery Management Council (MAFMC) and the New England Fishery Management Council (NEFMC)
[2] FMAT = Fishery Management Action Team
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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: March 28, 2024

To: Council

From: Hannah Hart, Staff

Subject: Northeast Trawl Advisory Panel Progress Report for the Industry-Based Survey Pilot Project

On Wednesday, April 10, 2024, the Mid-Atlantic Fishery Management Council (Council) will receive a progress report on the draft Industry-Based Survey Pilot Project. Background information and a list of materials are provided below for the Council's discussion of this agenda item.

Background

At the October 2023 Council meeting, Northeast Fisheries Science Center (NEFSC) staff provided an update on recent performance of federal fishery independent surveys in the Northeast region. The presentation highlighted recent challenges with the multispecies bottom trawl survey (BTS) conducted aboard the NOAA ship *Henry B. Bigelow*. The BTS monitors fishery stock abundance and distribution on the Northwest Atlantic continental shelf from Cape Lookout, North Carolina to the Scotian Shelf and is one of the longest fishery-independent time series in the world. In recent years the survey has experienced losses of survey days and/or reduced sampling coverage due to vessel mechanical issues, staffing shortages, weather, and other challenges. Most notably, the spring 2023 survey lost 43 of 60 sea days and was only able to sample 70 of the 377 planned stations due to staffing shortages and vessel mechanical issues.

During the October presentation to the Council, NEFSC staff described efforts underway to develop four potential options for contingencies in the event the Bigelow is not available for the BTS. The four options include using 1) the Bigelow's sister ship, the *Pisces*, as a back-up ship, 2) a different NEFSC vessel calibrated to the Bigelow, 3) an industry vessel calibrated to the Bigelow, and 4) a parallel industry-based survey that operates complementary to the Bigelow. As a result of the presentation and subsequent discussion, the Council passed a motion requesting that the NEFSC develop a white paper further outlining option 4, an industry-based survey that is complementary to the BTS. The New England Council had passed an identical motion during their meeting the month prior.

In response to the Councils' requests, the NEFSC worked with a newly formed working group of the Northeast Trawl Advisory Panel's (NTAP) to develop a white paper titled "Draft Proposed Plan for a Novel Industry-Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf." The white paper was presented to the New England and Mid-Atlantic Councils at their January and February 2024 meetings, respectively. After reviewing the white

paper, both Councils passed motions recommending that NTAP develop a pilot project to test the viability of an industry-based survey as described in the white paper and provide a progress report of the draft pilot project to the Council at the April 2024 meeting.

The full NTAP met after the February Council meeting on February 8, 2024, and the NTAP Bigelow Contingency Plan working group met on February 29, 2024, to continue its discussion of the Industry-Based Survey Pilot Project. The following is a summary of recommendations resulting from those discussions:

- Survey should be able to operate in wind farms.
- Develop a list of data elements collected in the trawl survey, identify which elements are sensitive to standardization.
- Develop a biological sampling protocol for the pilot project that targets sampling needs.
    - The working group emphasized that survey-specific age-length keys are useful.
- Address who will process biological samples.
    - *Note: for the pilot project it is likely that the NEFSC will be able to; however, for a shelf-wide survey this will need to be addressed depending on the volume of sampling needed.*
- Consider some level of overlap between the industry-based survey and bottom trawl survey.
    - When there are multiple indices and data sources it is best to make sure there is overlap so that the model can better address the multiple surveys/data sources.
- Use a restrictor rope in the pilot project.
- Use the same gear as the Bigelow.
- Incorporate any re-stratification of the survey done on the Bigelow.
- Use the same electronics and mensuration gear across vessels.
- Sample in more than one of the 4 major areas for proof of concept.
- Reduce depth limit to 130-150m. Investigate minimum depth required before loss of data required for individual stock assessments versus ecosystem-based assessments.
- Host a follow up meeting to discuss net mensuration value, need, and similarity across different systems.
- Host a follow up meeting with existing survey programs to discuss sampling stations.
- Host a series of public meetings to gather industry feedback. Similar to what was done for pilot hook and line survey.
- Host a workshop with vessel owners to discuss feasibility and/or limitations.
- Have someone ready to help with System for Award Management (SAM) registration so vessels are able to bid on the project in a timely fashion.

Meeting Materials

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

1) NTAP meeting summary from February 8, 2024
2) NTAP Working Group Summary from February 29, 2024

Northeast Trawl Advisory Panel Meeting

~ NOTES ~

Thursday, February 8, 2023
9:00 AM - 5:00 PM

I. Executive Summary

The meeting was held in-person on Thursday, February 8 in Arlington, VA. Attendance was high with most attendees joining virtually. The meeting covered a range of topics including updates on the Northeast fisheries Science Center (NEFSC) and NEAMAP fall surveys and spring preparations. **All fall surveys were successful though gear interference in Gulf of Maine (GOM) remains a concern for Bigelow and NH/ME surveys.** Presentations by NEFSC and School for Marine Science and Technology (SMAST) included an update on the restrictor rope research which will soon be submitted to a journal for peer review. **The restrictor rope did not cause significant changes to species composition or size classes in the area studied. Multiple NTAP members supported expanding the range of restrictor rope research into the GOM.**

Bigelow contingency plans as well as the industry-based survey (IBS) white paper was discussed. Option 1, using the Pisces as a primary backup for the Bigelow, was the preferred short-term plan. Some members expressed doubt regarding the viability of this option and its effectiveness but there was **strong support for continuing to plan and fund the necessary upgrades to the Pisces and ensure it could be used as backup for the Bigelow.** In the context of developing an IBS complementary to the Bigelow (contingency option 4), there was support for exploring this idea though members had some reservations about the viability of this option. Under this option, NTAP had a general consensus around keeping the net and sweep the same as the Bigelow and modifying certain standards (i.e., doors, wire, sweep, auto trawl) to ensure a wide variety of vessels could be considered (more details are provided in the white paper). There was also consensus for maintaining the Bigelow survey as the region's "backbone."

However, since initiating the IBS discussions with the understanding that the survey would start a new, standalone time series, there was **interest in considering an IBS survey not strictly as a Bigelow contingency** (the Pisces is a better contingency option, so use an IBS in a different way). NTAP supported broadening data collection, using gear/protocols that result in more stable net spread and head rope height that is more capable of sampling flatfish, and that can sample inside of wind farms. There is interest in using restrictor ropes but caution about applicability in the GOM. **There was also interest in splitting the survey area into 2 and using different sweeps in each area.** The areas are generally described as being divided by Cape Cod. There were different opinions about what elements of standardization are crucial (e.g., wire diameter). Many NTAP members supported not utilizing auto trawls if the captain is skilled. There are differences in opinion about vessels' ability to sample in wind farms though consensus at this time was that mobile gear will be incompatible of sampling within floating wind farms. There were differences in opinion related to sampling daylight hours vs. 24 hours.

The NTAP working group will meet next to continue discussions on an IBS pilot study. The next full panel meeting will be in summer 2024.

II. Participants

A. NTAP Members:

Name	Affiliation	In attendance
Kathryn Ford	NEFSC	x
Phil Politis	NEFSC	x
Anna Mercer	NEFSC	x
Tim Miller	NEFSC	
Dan Salerno	NEFMC Member Co- Chair	x
Jameson Gregg	MAFMC Scientist	
Jim Gartland	MAFMC Scientist	x
Dan Farnham	MAFMC Member	x
Peter Whelan	NEFMC Member	x
Wes Townsend	MAFMC Member Co-Chair	
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	x
Bobby Ruhle	ASMFC Representative	x

B. Other Participants:

Name	Affiliation
Katie Burchard	NEFSC
Hannah Hart	MAFMC
Alexander Dunn	NEFSC
Andy Jones	NEFSC
Catherine Foley	NEFSC
Angelia Miller	UMASS Dartmouth SMAST
Jainita Patel	ASMFC
Jessica Blaylock	NEFSC
Joe Grist	MAFMC
Chris Moore	MAFMC
GF	*unknown*
Rebecca Peters	ME Department of Marine Resources
Sefatia Romeo Theken	MA Department of Fish and Game
Catalina Roman	UMASS Dartmouth SMAST
Gareth Lawson	CLF
Kiley Dancy	MAFMC
Jon Hare	NEFSC
Russell Brown	NEFSC
Scott Curatolo-Wagermann	Cornell Cooperative Extension
Ron Larsen	Sea Risk Solutions LLC
Michelle Duval	MAFMC
Alex Mercado	Cornell Cooperative Extension
Andy Lipsky	NEFSC
Renee Reilly	ROSA
Michael Pentony	GARFO
Scott Olszewski	RI Department of Environmental Management
Brad Blythe	BOEM
David McElroy	NEFSC
Katie Viducic	NEFSC
Josh H	*unknown*

III. Notes by Agenda Topic:

Welcome, Introductions, Logistics (D. Salerno)

- Round Table Introductions

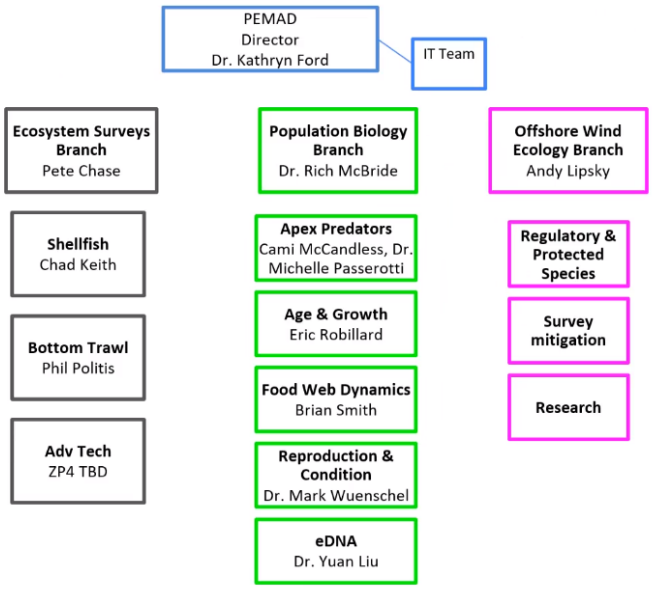
Center Updates (K. Ford, A. Mercer, K. Burchard, A. Dunn)

- Update on action items from last meeting; actions taken on all items. Outstanding: waiting on OMAO guidelines regarding transiting through wind farms (NMFS has reached out to OMAO; they do not have a policy at this time; commanding officers have discretion for both transiting and trawling).
- Correspondence since last meeting
- Funding Update
    - NTAP funding received to support ~2 years of in-person meetings.
- **Bottom Trawl Survey update (Phil Politis)**
    - Fall 2023
        - This marked the 60th year of the NEFSC Bottom Trawl Survey (BTS).
        - Completed 335 trawls of 377 planned.
        - 107 bongo samples of 116 planned.
        - Some weather impacts during leg 1 in September, made up time on following two legs.
        - Significant fixed gear encountered Downeast Maine, Stratum 039. Fixed gear is a bigger problem in the fall.
    - Spring 2024
        - On track to begin as scheduled, currently preparing.
        - Planning for 60 days, 3 legs.
        - Tentative schedule: March 6 - May 15.
        - 377 stations planned.
    - One NTAP member requested additional details related to what stations were not completed and reasons why in future NEFSC update presentations.
- **Gulf of Maine Bottom Longline Survey Update (Anna Mercer)**
    - Completed 100% of stations (45 total) in fall 2023.
    - This marked the 10th year of the Bottom Longline Survey (BLLS).
    - Highlights:
        - Strong catches of groundfish, including haddock, pollock, and cod.
        - Strong catches of hakes (white hake and red hake).
        - Strong catches of large barndoor skates.
        - Two small halibut caught in the eastern strata.
        - One golden tilefish (6kg) caught in the eastern strata.
        - One blue shark (35kg) caught and sampled for the Apex Predator program.
    - Lowlights: High spiny dogfish catches made for a challenging workflow.

- Data recently used for Atlantic cod, barndoor skate, red hake and thorny skate stock assessments.
  - On track to contribute indices of abundance for 5 additional stocks in 2024.
- New webpage (https://www.fisheries.noaa.gov/new-england-mid-atlantic/science-data/gulf-maine-bottom-longline-survey)

- **NEAMAP surveys (Jainita Patel, NEAMAP Coordinator)**
  - **MA DMF Fall Trawl Survey**
    - 88% station completion (91 of 103)
      - 100% stations in GOM 514.
      - Combination of vessel staffing issues related to family medical situation and prolonged poor weather were issues for second half of survey.
      - Lost a station in Muskeget Channel due to Vineyard Wind avoidance area around unprotected cable.
    - High catches of Spotted Hake, Red Hake and Silver Hake.
    - Scup is still the dominant species in southern stations.
    - Continued decline of Little Skate and Winter Skate.
    - Spring 2024 planned as normal. No major changes.
  - **Maine New Hampshire Inshore Trawl Survey**
    - Spring 2023
      - 97 tows completed out of 120 planned.
        - Missed tows were due to bad weather at start of survey and mechanical issues combined with bad weather at end of survey.
    - Fall 2023
      - 78 tows completed out of 120 planned.
        - Missed tows were due to fixed gear and bad weather.
      - The number of tows dropped because fixed gear increased again in the last two years.
    - State still communicating with fixed gear fishermen to try and reduce loss of stations.
  - **Mid Atlantic/Southern New England Nearshore Trawl Survey**
    - Spring 20023
      - 150/150 stations completed.
      - Completion in 35 calendar days.
      - Top species by count: Scup, Butterfish, Longfin Squid.
      - Notable: Three field employees departed our workgroup prior to/during the spring trip, including two chief scientists, one of which was the Chief of Trawl Operations.
    - Fall 2023
      - 150/150 stations completed.
      - Completion in 29 calendar days.
      - Top species by count: Spot, Scup, Butterfish.

        - Notable: Passing of Capt. Jimmy Ruhle just prior to survey departure. It was amazing to complete the survey after Jimmy's loss in only 29 days after a major unexpected delay to the beginning of the trip.
    - 2024: Trip departure should be within a few days of April 20th weather pending. No major changes or additions.
- NEAMAP/SEAMAP Trawl Vessel and Gear Calibration Workshop
    - Objective: develop a best practices guide for gear and vessel calibrations across the NEAMAP/SEAMAP trawl surveys; 3-day online workshop held in mid-January.
    - Next Steps: have operations committee review 1st draft of the best practices document.
- **Communications update (Alex Dunn and Katie Burchard)**
    - Communicating NTAP research
        - Stock assessment schedule.
        - NOAA Fisheries event calendar.
        - Research track stock assessment webpages.
        - Rockhopper Catch Efficiency Study result in assessments.
            - Dashboard shows assessments using the study results.
            - 2023 used in: red hake, summer flounder and northern stock of windowpane flounder.
            - NTAP member comment/question: Can the dashboard show adjustments made by Tim Miller to the results?
            - Web feature currently a work in progress.
    - Research to rule infographic:
        - Working with a graphics team to create a new infographic to show the path/steps of a potential new source of data has through the assessment and catch advice processes; planning to highlight phases when industry can be involved.
            - Reach out to Alex (Alexander.dunn@noaa.gov) or Katie (Katie.Burchard@noaa.gov) if interested in helping.
- Reorganizing of PEMAD: New Offshore Wind Ecology Branch.



    - Offshore Wind Ecology Branch (OWEB) joined as a new branch in October 2023.
- Wind Update
    - Block Island (5 turbines) and CVOW Pilot (2 Turbines) – Operational.
    - South Fork (12 turbines), Rev Wind (65), and Vineyard Wind (62) are under construction.
    - Integrated Science Plan for Offshore Wind, Wildlife, and Habitat in U.S. Atlantic Waters (effort by RWSC).
    - BOEM and NOAA Fisheries released North Atlantic Right Whale and Offshore Wind Strategy.
    - Fisheries monitoring plan development (effort by ROSA)
    - Other resources: Mid-Atlantic Council wind website (https://www.mafmc.org/northeast-offshore-wind)

IBS Survey + Bigelow contingency plan next steps (K. Ford)

- Presentation covered background on NEFSC Multispecies BTS, need for Bigelow Contingency Plan due to performance concerns in last several years.
- Contingency planning
    - September 2023: NTAP working group started developing a plan.
    - Draft Contingency Plan was developed, considering multiple options:
        1. Pisces
            - Progress update: Readiness plan has been drafted and is being refined with NMFS and OMAO.
        2. NEFSC vessel calibrated to Bigelow
            - Progress update: Drafted memo about pursuing this option, started identifying potential vessels. Lots to still figure out including funding and calibration.
        3. Industry based vessel(s) calibrated to Bigelow

        - Progress update: no progress (but can be informed by Option 4 conversations)
    4. Industry based survey (IBS) not calibrated to Bigelow (parallel, separate survey)
        - Progress update: white paper provided to Councils and presented at Jan/Feb ASMFC, NEFMC, and MAFMC meetings.
- Presentation reviewed the IBS as described in the white paper.
- Following the presentation a similar motion was made at each of the meetings.
    - ASMFC Motion 1/25/2024: made by Mr. Reid and seconded by Mr. Keliher. Motion carried by consent.
        - *Move to recommend to task NTAP and the NTAP Industry Based Survey (IBS) Working Group to develop an outline detailing a proposal to conduct an IBS Pilot Program to test the viability of the program as presented in the "Proposed Plan for a Novel Industry Based Bottom Trawl Survey" white paper with a particular focus on adapting Section 2 "Survey Design Elements" to current Industry platform capabilities. Delivery date for the outline should be in time for further discussion at the Spring 2024 meeting cycle for the Commission and both the Mid-Atlantic and New England Councils in April 2024.*
    - NEFMC Motion 1/30/2024: made by Mr. Salerno and seconded by Mr. Pappalardo. Motion carried by consent with one abstention by NMFS (Mr. Pentony).
        - *Move to recommend to task NTAP and the NTAP Bigelow Contingency Working Group to develop an outline detailing a plan to conduct a multi-vessel IBS Pilot Program to test the viability of the program as presented in the "Draft Proposed Plan for a Novel Industry-Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf" white paper with a particular focus on refining Section 2 "Survey Design Elements," considering NEAMAP protocols and current Industry platform capabilities. A progress report on the draft plan should be presented in time for further discussion at the April 2024 meetings of the NEFMC and MAFMC, and the spring 2024 meeting of ASMFC.*
    - MAFMC Motion, 2/7/2024: made by Mr. Hughes and seconded by Mr. Rhule. Motion carried by consent.
        - *Move to recommend to task NTAP and the NTAP Bigelow Contingency Plan working group to develop an outline detailing a plan to conduct a multi-vessel IBS pilot program to test the viability of the program presented in the "Draft Proposed Plan for a Novel Industry-Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf" white paper with a particular focus on refining section 2 "Survey Design Elements", considering NEAMAP protocols and current industry platform capabilities. A progress report on the draft plan should be presented in time for further discussion at the April 2024 meetings of the NEFMC and MAFMC, and the spring 2024 meeting of ASMFC.*

- Next Steps
    - Finish the contingency plan.
    - Explore connections with offshore wind.
    - Plan out a pilot survey to be on the water in FY2025.
    - Give a progress report on the draft plan at the April/Spring Councils and Commission's meeting cycle.

Discussion and Questions:

- What is the objective? An industry-based survey that improves on the Bigelow/adds information that the Bigelow isn't collecting, or a contingency for the Bigelow (trying to match the Bigelow)? Would it be a standalone time series or calibrated to the Bigelow?
  A: *The white paper describes an approach that is a contingency for the Bigelow; it would be a standalone time series.*
- Want to create a survey that doesn't have to wait 5 years before the data can be used. Something you can use in the short term.
  A: *data streams from the IBS that could be used more quickly were outlined in the white paper. Oceanographic data and age data could be incorporated in a short time scale.*
- Can we use swept area biomass in assessments, efficiency?
  A: *Analytical assessments are a model-based assessment using Bigelow data as relative abundance. Empirical assessments (i.e. monkfish) use the trend. Some of our empirical assessments calculate swept area biomass. Taking area, the catch, and catch efficiency and calculating swept area biomass. Description of catch efficiency studies and how catch efficiency is used in stock assessments.* Jon Hare will follow up with the Population Dynamics Branch and get back to Vito.
- What is the status of the Pisces?
  A: *Conversations have begun, we have a scoping plan with the Pisces. We are on track for 2026 and 2027, not on track to have it ready for this Spring.*
- Status of a new NEFSC research vessel.
  A: *In an ideal world we would have estimates in a year. But there are a lot of variables outside of the Science Center at play that can influence timing.*
- If the Pisces isn't ready to fill in for the Bigelow, are there any considerations to postpone the refit of Bigelow?
  A: *There is currently some uncertainty with currently scheduled refit. As far as timing, there are plans for each ship to be the replacement for each other, but that could shift depending on funding availability.*
- What is the status of the restrictor rope study? When will it be submitted for peer review?
  A: *Not long, it is currently going through NMFS internal review and then will be submitted for peer review in a couple of months.*
- We need to split the IBS and contingency plan issues. The first issue is the contingency plan for the Bigelow and the options that go along with that. The second issue is then to develop the IBS pilot project to get on the water ASAP. Test out the unknowns (12/24-hour sampling days, 20-min tows, etc.).

- Are there plans to calibrate the Pisces to the Bigelow? Are the physical characteristics similar enough to not calibrate? When the IBS is considered, does this mean that two vessels with similar tonnage and length will not need calibration either (or three vessels that are physically similar enough)?
  A: *Calibrating between the Pisces and Bigelow as a part of the contingency plan has not yet been decided. Need to understand the characteristics of the vessels that could do this work.*
- Pisces has already filled in for our time-series. Maybe some assumptions that calibration is not needed? Sister ships should be the same, what are the similarities/dissimilarity of vessels that would require calibration?
  A: *NEFSC agrees that calibration may not be needed. We will also be limited to some level. We have not had the chance to calibrate Pieces and Bigelow yet, but it may be identified as a priority.*
- Does the Pisces cost $56,000/day?
  A: *That is the standard day rate; but the impact on NEFSC budget is not $56,000 per day.*
- Example given of the scallop survey – redundancies were available at reasonable costs when the research vessel was unavailable. The only way to ensure data is redundant.
- Keep in mind "cold start" problem; consider potential ways around that – splitting time or season across the vessels. Adds a tremendous amount of resilience if done right.
- Interesting to get feedback on whether we will be able to trawl in wind farms? Should we assume we cannot trawl there? May help us answer questions.
- Description of the cod IBS - make it so that anyone could do the work on the go. Cod survey uses 4 different boats, bottom sensors, the Notus System, and anything outside the parameters got thrown out. Most tow were completed using the same nets, same doors. Not worried about wire size, as long as net configuration and door configuration was the same. Ideally restrictor rope will be used in the IBS and will lessen concerns related to consistent door spread, etc.
- It's easy to take things away from a survey but harder to add. I think we can accomplish both an IBS and a calibration if we used the 400x12 on multiple vessels based on strata. Doesn't make sense to use vessels best suited for deep water to sample inshore. Survey overlap is crucial. Wire to wire is all that is important. Different vessels fit different criteria. Appropriate vessels to pull gear through GOM. Use industry vessel to fill in data gaps.
- With wind energy areas, significant holes will appear in our survey. Whatever we build as an IBS survey needs to be able to operate and maneuver in wind farm areas. GOM different windmills. But for southern New England/mid-Atlantic could an IBS still operate in those areas?
- We need more information about these wind farms to know who and what can tow there. Also, need additional details on how they will be cabled. Crosshatched? Buried? Block Island Wind farm is currently having trouble keeping their cable buried. I do think we still need to flesh out IBS. Restrictor rope work getting published gives us the answer. Standardize wing spread and have the best doors and be happy with your catch. There will always be uncertainty.
- Discussion about tow time: power take off hydraulic system vs. a haulback and the catch rate you'd encounter. NEAMAP protocols call the tow time at the initiation of trawling mainly because we are in shoal water. The survey tow time is from the time it starts until haulback. Technically it can still catch fish coming up. Tried minimizing that variance by stopping everything at the end of the tow.
- Discussion about restrictor rope, multiple vessels, and introduction of uncertainty.

- Cod IBS used 4 different vessels similar size and horsepower. Didn't use any sort of calibration but standardized gear. Minimizing variation via standardization.
- It is not ideal to use multiple vessels but may be needed. How can we conduct a multi-vessel survey without needing to calibrate but doing all that we can to eliminate as much of the potential variation as possible.
- Standardize wingspread, recognizing equipment differences. Could never calibrate all boat variables, need a way to minimize variation. It's a rabbit hole. If you change net ends you get different geometry, there is no way to get it perfect. We have to design something that will do the best job possible. I fear trying to design something perfect and never coming out of the rabbit hole.
- Bigelow wire size was too big.
- Need to be cautious we don't standardize the wrong thing. Better served to standardize performance metrics and geometry. Anything beyond that just creates problems for availability of vessels. You want to put bounds on the boat but don't focus on what is irrelevant to the application of the gear. Industry knows the implications of changes to gear. Wire size has no impact on catch. As long as spread isn't disrupted the door could be upside down and would not impact what is being caught.
- What was the added value of having an auto trawl on the Bigelow? Albatross didn't have it. I have never heard any justification related to why it is so important.
  A: *Auto trawl balances the tensions between the two warps. Comes into play when the current is pulling more on one side. Also, in high wind conditions the wind can start pushing the vessel to one side or the other relative to the gear. In this type of situation, the auto trawl will balance out the tension between the two warps. An auto trawl improves the consistency of tows and therefore the data collected. Also added benefit to when you hang minimizing gear damage. There is literature that has studied these elements.*
- Leave Bigelow survey alone we don't want to mess up that time series. How important is it that these vessels are similar to each other and/or similar to Bigelow, given it will be a stand-alone/complementary data set? Is there flexibility in how we design the IBS?
- If the IBS data will be treated differently, will data coming off say 4 boats need to be as close as possible or can we have more vessel differences and deal with the data analytically? There are advantages to having different vessels operate according to the area being fished.
- As far as the vessel effect goes, it's not only towing speed and net geometry there is inertia from heavier boats so boats would need to be similar in size and horsepower. Vessels could be a class of vessels. The "cart" should be standardized but the "horse" should be similar in size and class. But the subtlety and variability in vessels will help us better cover geography, depth, and bottom.
- There are a number of ways to compare a new net and an old net. What's important is whatever you are doing. We need to be open and aware of where you are holding your nose as to where you are willing to accept variation and where you aren't. A net maker can make the same two of the exact net and one will catch differently than the other.
- Captain experience to deploy gear ensures consistent performance so that data is the highest we can get. To design an IBS, we'll lean on captains with experience. How do we leverage experience and maintain consistency? Experienced captains mean less need for auto trawls. It would be good to

get expertise from NTAP captains to ensure metrics across vessels could be valuable to all multi-vessel surveys.

[The following points were presented at the end of the meeting and placed here due to relevance to this section.]

- Edits are needed in Section 2.3 sampling gear. We never talked about using a chain sweep or considered it for use in a survey, we talked about the chain sweep efficiency factor not the chain sweep itself due to degradation of size. The cookie sweep has the least amount of variability.
- Endurance, nowhere you can't make port in several hours. 7 days is enough. 10 days with a single crew could weigh on them rather heavily.
- Need to know about the boat before building out the plan.
- There are portable acoustic units that could work for acoustic requirements. Boats have to have acoustics to see in front of them. Now-a-days we all have sounders.

Action: We need to think about at least 1-2 working group meetings to discuss metrics important to have consistency across vessels before April. Hannah will organize a doodle poll.

Survey redesign & mitigation (C. Foley, Fay, M. Hall, A. Mercer)

Presentation by Catherine Foley (NEFSC)

Current stratification is a problem. Oversamples some strata and under samples others. Currently, NEFSC is looking at reducing the number of strata by condensing existing strata into "superstrata" or using a spatially balanced sampling design such as Generalized Random Tessellation Stratified (GRTS), which is adaptable to change. The presentation provided some examples. Also looking at impact of wind energy areas. If there is no sampling inside of wind farms, are we able to estimate what's going on inside by sampling outside? Perimeter sampling was representative of the biomass for small wind areas. This declines with the increase in size of wind areas.

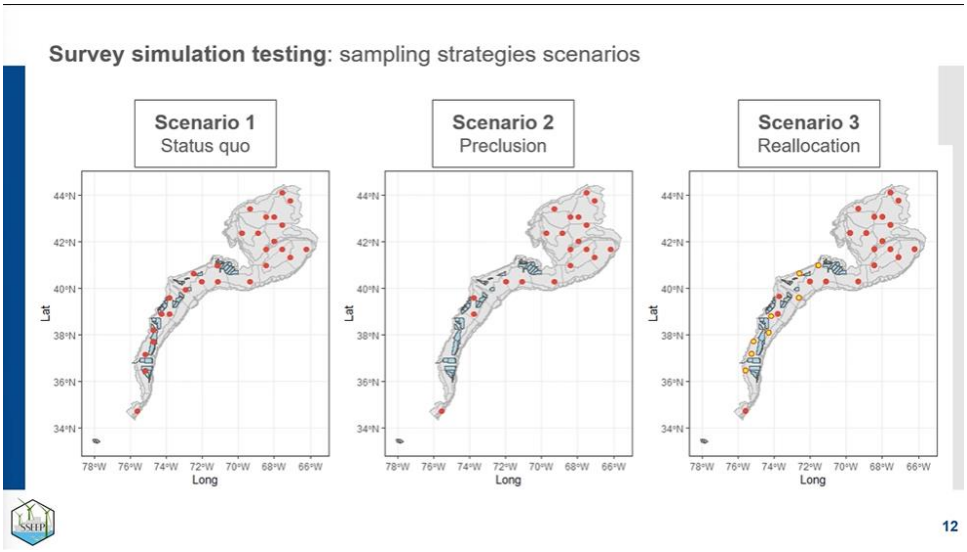
Next step is a collaboration with Ocean Science and Technology NOAA Head Quarter's Distribution Mapping and Analysis Portal (DisMAP), using our data as well as others to develop species distribution maps for every species we're interested in. We can start to assess different sampling designs and which species are most affected by perimeter sampling.

Presentation by Gavin Fay (SMAST)

Survey Simulation Experimentation and Evaluation Project (SSEEP) update. Goal: can we quantify likely changes of effort reduction associated with offshore wind? If supplemental sampling is done, what approaches might be better than others? Guided by two stakeholder workshops in 2022.

First part of project: Doing analysis using existing trawl survey data to look at the potential impact of survey effort reduction to sampling numbers and abundance indices. We looked at removing stations in wind farm areas. There was a change in the abundance index for summer flounder.

The second part of project: Using species distribution models for summer flounder and mackerel to test different sampling strategies.



Presentation by Madison Hall (NEFSC): Survey specific mitigation plans

Offshore wind will impact multiple surveys conducted by the NEFSC. There is a Federal Survey Mitigation Strategy that includes developing survey specific mitigation plans. Nineteen plans are being developed, including for the BTS and the BLLS. These are going through an internal and external review process.

Progress on drafts and reviews was presented.

It is unclear if the BLLS will be able to operate in floating wind areas in the GOM. Could reduce gear length if turbines adequately spaced; could do paired sampling between short and traditional gear to calibrate new approach.

BTS can't sample in wind farms; still evaluating impact of doing perimeter sampling. New approaches include smaller vessels to sample inside wind farms, passive gear, and remote sensing.

Discussion and Questions:

- There will be loss and exclusion for surveys in wind energy areas. What is the impact on abundance estimates? Is the change due to lost stations or will this reflect actual rise/lower stocks in wind areas? Do some of the simulations address estimates?
  A: *Very much at the front of our minds. SSEEP was designed to address these questions. We can use the simulator to test different spatial patterns. Won't tell us why the patterns are changing. Using species distribution models helps us determine what would happen if catch rates increase within these areas and we aren't able to survey them. We can the test assumptions that catch rate will be higher in wind farms in one simulation and the opposite where the catch rate is lower in wind farms. Pull those simulated predicted catch rates and distribute across the grid. Starting to get at how to*

incorporate those. It's also important to be careful to think about how we combine data streams if different surveys are covering wind areas.

- What are the expectations for the developers for the new mitigation requirements?
  ***A:** No answer yet. We're in the beginning phases of this conversation with Revolution Wind. The options Madison presented are some of the options we'd give to developers.*

Presentation by Anna Mercer (NEFSC): Pilot hook and line survey

Project goal is to develop and test the methodology for a new hook and line survey to provide data continuity for multiple resource species in complex habitats and alongside offshore wind turbines. Assuming we won't be able to conduct current trawl surveys in wind farms. This is a pilot project, not year 1 of a new survey. Trying to identify if this type of survey is worth the resources it would take to fully develop a long-term survey. Not a species-specific survey. Intended to target a wide range of species. The pilot is meant to inform how close to the turbines we can get.

Presentation provided specifics on gear and vessel recruitment (14 vessels applied, 3 were selected).

Discussion and Questions:

- Lures or bait setup?
  ***A:** Baited using squid*
- How are the sites selected? By bottom or depth?
  ***A:** Working with Catherine and Madison to select stations for smaller, pilot survey. Range of stations will encompass the entire survey area with structured bottom. Final decision not yet made, should be made by end of next week.*
- Will any stations be chosen specifically in the wind farms,
  ***A:** Yes, include areas around the VA and RI/MA turbines.*

Restrictor Rope Research (A. Jones)

Presentation by Andy Jones (NEFSC)

- Conclusions:
  - 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).
  - 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 and questions
    - Incorporating edits received from panel members.
    - Will likely target fisheries journal such as ICES Journal of Marine Science.
    - Work to be presented at World Fisheries Congress in Seattle in March.
    - Present work to NEFMC/MAFMC?
    - Work with other groups (e.g., ROSA) to provide guidance on the application of this gear to new surveys?
        - What would this look like?
        - Who would like to be involved?
        - Wait until after peer review is complete?
    - Create Decision Matrix to describe recommendations for restrictor rope use.
        - Survey Types:
            - New wind impact survey
            - New science survey
            - Existing wind impact survey
            - Existing science survey
        - Survey conditions:
            - Multi-vessel?
            - Spans large depth range?
            - Data used for assessments?
            - Data used for region/cumulative impacts?
            - Species overlap with experiment?

Discussion and Questions:

[Limited discussion time was available.]

- Happy to see this work reach a wider audience.

Brainstorming next research project

- summary of previous discussion - slides outline potential project ideas and considerations to make when prioritizing.
- Follow up on items raised during the meeting.
- Review previous materials - research recommendations from research track assessments.
- Goal: 3-5 titles of research projects NTAP would like to see funded.

Discussion and Questions:

Wide ranging discussion about priorities and needs.

- Multiple NTAP members supported expanding the range of restrictor rope into the GOM. Maybe there's more flexibility in using this if we use a boat without the historical data set. There is also

value in reaching out to the ICES group that has better data on the positive effects of the restrictor rope. Andy Jones offered to solicit a presentation from that group. If there's no problem using a restrictor rope in GOM, then we can bring in other boats without calibrating them. (A. Jones will send restrictor rope draft to Terry Alexander).

- One member indicated he was a big proponent of acoustics.
- Calibration and standardizing across many surveys in the wind areas is needed. Need to take into account working in impact zones. Linkages between new gear development (e.g., acoustics) and sampling in wind areas.
- Expand NEAMAP – extend sampling further offshore. If this is done to cover wind energy areas, keep in mind that 15-20 miles around wind areas should also be sampled to better understand how they will change fish distribution.
- For Bigelow contingency, there is at least one large industry vessel with an auto trawl. Bobby Ruhle offered to get more information.
- GOM will be a new ball game for surveying. Pilot jig study is interesting, though many species don't take jig. How to manage groundfish with floating offshore wind. We don't know what the anchoring system will look like, maybe 12" diameter cables? No towing or gillnetting will be possible. How to address in GOM is difficult. No footprint yet, either. Sample as much as we can and sit on it and use it to establish a baseline. Get as many data collections tools as possible on the water to see what's there first.
- ROSA is hosting meetings about developing a common database, part of the ROSA work plan.
- Unsure if sampling can occur with trawling inside of wind farms; uncertainty if some areas can be left for sampling. It would be good to get these questions on paper to ask the wind industry (turbine spacing, cables, electric stations, heat generation).
- If perimeter sampling has any value, it would be useful to have studies that establish spatial coherence at a very fine scale, say over a scale of miles. This would entail sampling in the vicinity of the boundaries. Before-After-Gradient (BAG) type studies do this. However, in the context of future monitoring, such information could be used to establish the correlation between observation from outside the area to unsampleable areas within the area. Species with fidelity to structure would not necessarily be amenable to this approach. Example black sea bass hanging around rock piles.

Discussion also covered funding. Currently there is no specific funding identified, but resolving the challenge of sampling inside of wind farms is a priority so there will probably be avenues for funding available through wind.

A general theme came up several times regarding the different objectives of adding an IBS and doing an IBS as a Bigelow contingency. NTAP can make their own recommendations for priorities that they think are important. A real need is to determine if we can sample in wind farms. The SMAST wind farm sampling program is assuming they'll be able to sample within 500 meters of foundations.

Discussion about data, developing standards and a common database. NEFSC described a small project where they're working with scallop research set aside partners to deliver data in a format NEFSC can use

more efficiently. At least one NTAP member was supportive of developing this kind of capacity, another indicated that data sharing is a high priority for wind developers.

Maybe worth updating the NTAP charter to include wind. Ideas like a Bigelow shadowing survey, NEAMAP expansion are all clearly within the NTAP remit, but the wind area work gets away from the charter.

Conversation covered concerns about BOEM as a regulator not listening to NMFS, lack of clarity regarding how NTAP can move the needle on some of these issues, regulatory issues such as letters of acknowledgement for fisheries surveys in wind farms.

IV. Wrap up & adjourn

- Scheduling next full panel meeting
    - This summer, considering June/July. Location/date TBD and details will be provided at a later date.
        - Location will likely be in New England
            - NEFMC meeting in June 24-27 in Freeport, ME
            - Scheduling NTAP meetings right after/before Council meetings can be easier for scheduling, booking rooms, etc.
            - MAFMC meeting will be in Riverhead in mid-June.
            - ASFMC meeting is planned for August.
            - Note: Holding the meeting in conjunction with the Council meeting was viewed as successful, but only because it was the winter meeting which has a light agenda. Coupling NTAP with Council meetings should consider the length and agenda of the Council meeting and may only work for Council meetings of shorter length (1-2 days) and limited agendas.
- Scheduling next working group meeting
    - A doodle poll will be sent out.
- Topics for next meeting
    - Please provide to the co-chairs

Northeast Trawl Advisory Panel
Bigelow Contingency Plan Working Group Meeting- Virtual

Thursday, February 29, 2024
9:00 AM - 12:00 PM

-- NOTES --

Working Group Attendees: Anna Mercer, Daniel Salerno, David Goethel, Eric Reid, Jameson Gregg, Kathryn Ford, Philip Politis, Sam Novello, Tim Miller, Vito Giacalone, Wes Townsend.

Other Attendees: Dave McElroy, Gareth Lawson, Katie Burchard, Hannah Hart, Will Poston.

Meeting purpose: Discuss next steps for Industry based survey.

Meeting minutes:

9:00-9:15 a.m. Welcome, Recap

Timeline of events

July 2023: NTAP formed Bigelow Contingencies Working Group (WG).

Sept 2023: Working group kickoff, 4 contingency options:

- Pisces
- NEFSC vessel
- Industry Based Survey (IBS) calibrated to Bigelow
- IBS not calibrated to Bigelow (parallel, separate survey)

Sep/Oct 2023: Council motions to develop Option #4 as a white paper.

Jan 2024:

- Working group meeting (Jan 12).
- White paper delivered to the Atlantic States Marine Fisheries Commission (ASMFC), MAFMC, NEFMC (Jan 18).
- Presentations to ASMFC (Jan 25), NEFMC (Jan 30), and MAFMC (Feb 7).
- Jan/Feb Council/ASMFC motions made to develop an IBS pilot project.

Feb 8, 2024: NTAP Full Panel meeting

- Discussion around supporting Pisces development and developing IBS pilot project.

Feb 29, 2024: WG meeting to discuss IBS and next steps.

April 2024: Progress report at MAFMC and NEFMC Council meetings.

9:15-9:45 a.m. Options 1-3

Status updates

1. Pisces
    a. Proposal with needed improvements submitted to OMAO.
    b. SEFSC agreement that Pisces can be primary backup to Bigelow.

    c. Next steps
        i. Specific plan and funding for improvements.
        ii. Discussion needed of when to "trigger" Pisces.
2. NEFSC vessel calibrated to Bigelow
    a. Proposal provided to NEFSC Director, being discussed at NMFS HQ.
3. Industry vessel calibrated to Bigelow
    a. No progress.
4. Industry-based survey
    a. White paper completed, submitted and presented to Councils.

Lots of energy on 1 and 4, options 2 and 3 still need to be fleshed out. However, it may be wise to continue to put our effort into developing options 1 and 4.

Councils' February 2024 Motion: *Move to recommend to task the NTAP Bigelow Contingency Plan working group to develop an outline detailing a plan to conduct a multi-vessel IBS pilot program to test the viability of the program presented in the "Draft Proposed Plan for a Novel Industry-Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf" white paper with a particular focus on refining section 2 "Survey Design Elements", considering NEAMAP protocols and current industry platform capabilities. A progress report on the draft plan should be presented in time for further discussion at the April 2024 meetings of the NEFMC and MAFMC, and the spring 2024 meeting of ASMFC.*

Discussion/comments:

Where is the Pisces home ported?

A: *Mississippi, would take multiple days to get up to New England*

Need to be on standby right from the get-go. Would be two weeks best case minimum to get the boat up here from Mississippi.

Another thing that is concerning is that this vessel doesn't trawl often, should be exploring having the vessel ready.

After white paper we have a lot of support for moving forward with the pilot. Today we need to put more meat on the bones to really start developing how this survey would run. New time series for the science center in addition to Bigelow and NEAMAP.

9:45- 10:45 a.m. Industry Based Survey (option 4)

- What are the key goals for a pilot?
    - Should it operate inside wind farms? Can we replicate survey tows inside of a wind farm?
    - Questions to address in a pilot: 12/24-hour day, vessel size, crew size, ops protocol, bio sampling protocol, gear incl. use of restrictor rope, towing across cables/proximity to fixed structures.

Discussion/comments:

- Context from NEFSC: Next biggest threat is wind farms. Assumption that the Bigelow will not be able to be in or tow within a wind farm. If we are losing those windfarm

stations, especially since wind farms are going to cause a change in habitat this is a big problem.
    - Wind farm surveys not designed for a long-term solution with time series needed.
    - Developing an IBS that can operate in wind farms, or determining now if it should, would be helpful.

Operating in wind farms

The group discussed the need for the IBS to operate in wind farms and for a pilot to be designed to test operability of different sized vessels in wind farms. No clear consensus - some felt that existing fisheries monitoring work and commercial fishing activities once farms are built will tell us what we need to know about what kind of vessels can fish mobile gear inside of the wind farms. Others recommend determining vessel requirements and feasibility of operations within wind farms as a goal of the IBS. Other comments:

- We're having two different conversations: pilot that an industry or pair of industry vessels can sample in a complimentary way to the Bigelow. We are going to have a pretty good idea how different size vessels will operate in a wind farm development anecdotally via wind farm monitoring currently being conducted without having to incorporate this into the pilot.
- We're not going to bring someone in if they are not willing to go into a wind farm area.
- Not going to be a difference in ability between different sized trawlers (100-foot vs 50 foot) to fish in the fixed platforms. In the Gulf of Maine (GOM) all of them will be floating. Still don't know what the logistics are going to look like.
- Insurance coverage to tow in the wind farms could be a problem. Should check with insurance companies on coverage. Set up an IBS outside of the windfarms. For the pilot, insurance might be unique for the project; will be affected by the number of people on board the vessel.
- There could be value in knowing the capacity - operation on deck of different vessels. What level of catch volume can be handled; number of staff need.

24 vs 12-hour sampling

- If the decision is to do 1 boat for 24-hour days, pool of capable vessel is going to be smaller.
- Two vessels operating a 12-hour day will require a smaller vessel/smaller crew, less insurance and more availability. Going to 24 hours per day is not a good idea as it will raise expenses and there are fewer capable/willing vessels.
- Catch handling and biological sampling requirements will be better managed on two smaller vessels working 12 hours per day. Will also provide more options on crew.
- Are there any cons to doing two smaller vessels with a 12-hour shifts that we aren't thinking of? Two vessels: one running during the daytime and one nights. Or overlap option: half-darkness, half day? The overlap option would have 24-hour day coverage but split duties. Getting more granularity is important.
- Under the overlap option, Vessel 1 would fish noon to midnight and vessel 2 fishing midnight to noon. Have the vessel not conducting the tow shift figuring out where the next two should be.
- More vessels will be able to bid on the contract if it's a 12-hour shift. Be more efficient with less people needed. Using a large vessel would be a sole source contract. If that vessel breaks down, we're in the same situation as the Bigelow.

- There are cons from a standardization standpoint and managing a survey that uses a fleet of vessels makes it more complicated.

Gear

- Use the gear package that is currently being used on the VIMS NEAMAP survey (ground cable and ground gear)?
- Bigelow uses rockhopper, VIMS NEAMAP uses cookie. Bigelow has wider cod end to get additional length. Differences in mesh sizes in side panels.
- Two workgroup members emphasized that being similar to the Bigelow survey should take precedence and that the Bigelow gear should be used in the pilot. They pointed out that NTAP research has provided information comparing rockhopper and cookie.

Communication needs?

The group discussed how to best plan for the pilot study. Should we conduct workshops similar to those conducted for the hook & line survey? Is an operations workshop needed and/or visiting vessels?

- Questions about solicitation for scallop vessels: What did that solicitation look like? How much interest did you get?
  A: *There were several vessel visits gauge folks interest in registering with the System for Award Management (SAMS). Fair amount of interest. The scallop solicitation was different because it's an existing survey. Pilot IBS study may need to follow a different process. But we don't currently have someone to lead this effort. The hook and line effort conducted a series of meetings down the coast to help with their design.*
- The hook and line meetings were very helpful. It was helpful to have predefined questions we wanted discussion on. Definitely suggest having a point person dedicated to this effort. The meetings were a good platform for recruiting vessels, giving them information about requirements, and for responding to solicitations. A mix of in-person and virtual scoping workshops would be beneficial.
- Having someone in the office help with registration so the vessel can bid on the project would be beneficial. Including answering questions related to inspections, insurance requirements, etc. Starting earlier is better. Would likely need 9-12 months lead time.
- Also need to keep in mind deadlines for large contracts too. That will impact the timing and timeframe for setting the schedule. **This year the $250K- 5M deadline is May 13th.**

Design elements

- Be adaptable to potential loss of survey area. Incorporate any re-stratification of the survey done on the Bigelow.
- Do we want to do exactly as Bigelow does or incorporate some previous industry recommendations such as 30-minute tows and re-stratification of deep-water strata?
- Where would this pilot occur? Southern New England? At what depths?
- Three or four areas required to figure out. Mid-Atlantic, Southern New England (SNE), George's Bank (GB), GOM. Pilot should cover three areas for a proof of concept. Potentially SNE/Mid-Atlantic, GB, and GOM. The pilot doesn't have to occur in each region at the same time and vessels could share gear.
- Is sampling all the way to 200 fathoms worthwhile? Staying within 130-150 fathoms should be better. The deeper depths may be more important in different regions (e.g.,

monkfish, white hake). From one working group member: Gulf of Maine out to the 140's is solid American plaice, witch flounder and monkfish habitat. So, 150 fathoms would be safe maximum depth for final IBS design.

- How much money are we going to need? How much gear are we going to need? Spare nets if there is space on each vessel? We need to figure out basic things like that to determine cost. Everyone must have the same electronics and net menstruation systems and safety equipment.
- We're not trying to replicate an ecosystem survey we are trying to provide data for stock assessments. What is the maximum depth need before we lose data for stock assessment versus for ecosystem assessment?
- How far inshore would we want to go to overlap with other state and NEAMAP surveys? Some gaps in coverage in the 60-90 ft range. May be a good starting point in addition to some of the deeper areas where NEAMAP currently samples so there is some overlap.
- Recommend that for pilot there is a focus on overlap with the Bigelow to determine if the survey could work, should stick with where Bigelow goes, and then can modify from there. Post pilot need to determine what was done well vs. what needs to be fixed.
- For pilot target mid-depths, cut out deeper depths because they're more expensive to do (need larger wire, cost more comparatively). It's easier and less expensive to go shallower than deeper.
- Discussion about ratio of wire out; Bigelow and NEAMAP use depth-dependent ratio, NEAMAP also considers net geometry, commercial vessels operate similarly (shorter wire out in deeper water). Use pilot to determine scope for a longer-term survey. Gear needs to be on the bottom and fish with proper net geometry. If using a restrictor rope may not need to worry about this. With restrictor rope you'd use bigger doors, and the rope would be the restricting factor so that net geometry is held consistent. Would simplify entire question.
- Consider sampling water chemistry. Also, acoustics, plankton, etc. (where/if possible). At least to understand if these could be part of pilot/longer-term survey.
- Tow speed and tow time need to be defined.
- Don't require auto trawl (several working group members agreed, but others see value in auto trawl at least long term).
- Do we need to standardize net mensuration gear? Might need a separate meeting on this. Differences of opinion about value of net mensuration gear.
- Would be useful to survey vessels to get a sense of what electronics are already used/on industry vessels (depth).
- What are the costs of the sampling electronics/workstations? Can we build standard workstations that will work across multiple vessels? Portable FSCS is a good option, on boats would need servers, barcode scanners, etc. Talking about at least $30K (other working group members estimated much more, a scale alone can cost $9k). FSCS has been used in the past on industry vessels.
- Also need to define what needs to be supplied to these stations - hydraulic, mechanical, electrical? Darana R. only provides electricity (110V). Understanding the reality of moving these stations from boat to boat is a need. Need 110V inside too to run servers. Would need at least 2 scales, 1 fish board, 1 scanner, display(s), computer(s), calipers etc. per station.
- Would be beneficial to have a follow-up meeting with those that have used these systems to talk through all the different options and potential needs. Have this meeting

prior to a public workshop, so at the public workshops the message could be relayed and vessel owners/operators would have an understanding of what would be needed/required. At public workshops should already have a clear idea on specifics about set up, workstations, power requirements, space, and sampling equipment.
- Consider a follow-up discussion on the data management process.
- Consider length of time required for a pilot - 10 day vs. 5 days, etc.
- *Reminder: there are currently no funds available for this work, capacity of Center funding is limited and is currently struggling to fund the surveys that already exist.*

Summary of recommendations:

- Ensure survey can operate in wind farms.
- Develop a list of data elements collected in the trawl survey, identify which elements are sensitive to standardization.
- Develop a biological sampling protocol for the pilot that targets sampling needs. (Point made that survey-specific age-length keys are useful.)
- Address who will process biological samples. (For the pilot it is likely this can be done by the NEFSC. For a shelf-wide survey the volume of sampling will need to be addressed.)
- When there are multiple indices and data sources it is best to make sure there is overlap so that the model can better address the multiple surveys/data sources.
- Use a restrictor rope in the pilot study.
- Use the same gear as the Bigelow.
- Host meetings like done for hook and line survey.
- Have someone ready to help with SAMS registration so the vessel can bid.
- Incorporate any re-stratification of the survey done on the Bigelow.
- Use same electronics, mensuration gear across vessels.
- Sample in more than one of the 4 major areas for proof of concept.
- Reduce depth limit to 130-150m - look at how deep we go before we lose data for stock assessment versus for ecosystem assessment.
- Meet about net mensuration value, need, similarity of different systems.
- Meet with existing survey programs to discuss sampling stations.
- Have workshop with vessel owners to discuss feasibility, limitations.

Notes from the slides as edited during the working group meeting:

Should it operate inside of (fixed foundation) wind farms?	Yes (ideally)
Questions to address in a pilot: 12/24-hour day, vessel size, crew size, ops protocol, bio sampling protocol, gear incl. use of restrictor rope, towing across cables/proximity to fixed structures	2 boats sampling 12-hour periods over a 24-hour day (noon-midnight/midnight-noon); use restrictor rope. For the pilot, bio sample as much as possible, consider processing needs (who is doing it, what is their capacity); how/if CTD and plankton sampling is done, acoustics. Learn from other wind farm monitoring surveys and commercial activity in wind farms.

	Use pilot to develop a scope table for optimal spread; consider impact of using restrictor rope (spread won't be dependent on scope).
Workshops like hook & line survey? Operations workshop?	Workshops useful - Confirm the gear we're moving forward with (gear used on Bigelow for consistency); make sure they're structured; describe process clearly (i.e. scallop survey; include specs as early as possible); fall better.
Connection to wind farm trawl surveys, will that answer questions around towing across cables/proximity to fixed structures?	(Skipped this - covered under 1 and 2)
What are key stat design questions - how does that matter for a pilot?	Spatial overlap with other surveys. Future-proof survey designs, being adaptable to potential loss of survey area. Incorporate any re-stratification of the survey done on the Bigelow. More discussion of key elements of the survey design - consider if there is anything the pilot should examine - 20/30 min tow time, for example, tow speed.
Where will the pilot occur?	The 3 areas: MA-SNE, Georges, GOM. Include multiple areas ideally. Pilot doesn't have to occur in each region at the same time, vessels could share gear. Depth: using wire on the vessels will be less expensive; what would we miss stock assessment-wise 130-200 fathom (e.g., white hake); pilot focus on same strata as Bigelow, but truncate depth if needed to accommodate existing wire lengths; future need: overlap with NEAMAP/state surveys - include 60-90 ft range gap between NEAMAP and Bigelow.

- Auto trawl - do not require this for the pilot.
- Mensuration - identify specific measurements needed; not necessarily a specific unit (keep data management complications in mind, though)
- Electronics - can use what is on the vessels (needs more exploration based on data management needs)
- Horsepower - 20 min tow at 3 kt.
- Sampling workstations - portable FSCS; costs are >$30k; need to specify space and electrical needs.

10:45-11:30 a.m. Next Steps

- Develop cost estimates - back of the envelope we're in the $750K to $2M range.
    - Also need to consider how to handle the funds (maybe ASMFC).
- Co-chairs will provide an update at Councils' upcoming April 2024 meetings.
    - NEFSC staff will provide briefing materials to support Council meeting updates.
    - MAFMC briefing book is due March 29.
    - NEFMC briefing book is due April 5.
- Plan for a follow-up Working Group meeting following the April Council meetings prior to June meetings.
- Provide NTAP full panel meeting minutes and WG meeting summary. Prior to summer NTAP meeting, prepare any memos or background info required and share slides with MAFMC staff a day ahead of meeting.

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

MEMORANDUM

Date: March 25, 2024

To: Council

From: José Montañez, Staff

Subject: Golden Tilefish Catch Share Program Review – Issues and Potential Actions for the Council to Consider

The following documents are available for Council consideration on the above subject.

- Northern Economics, Inc. Golden Tilefish Individual Fishing Quota Program Twelve-Year Review, September 2023. The document can be found online at: https://www.mafmc.org/tilefish
- Summary of Public Comment on the Program Review (behind this tab)

Background

On December 13, 2023, the Council received a presentation from Northern Economics, Inc. on the "Golden Tilefish Individual Fishing Quota Program Twelve-Year Review.[1]" This presentation started a 30-day public comment period that ended on January 12, 2024. The public comments were compiled and summarized. The Oversight Team met on January 23, 2024 to consider the findings of the review report and public comments received, and to develop a list of potential issues for the Council to consider for action to improve aspects of the Golden Tilefish Individual Fishing Quota Program.

At this April 2024 meeting, the Council will review the public comment received and consider potential actions identified by the Oversight Team provided below.

Council Completion of Catch Share Review

The Council will formally submit the Program Review package via motion to NMFS and the review will be complete.

Oversight Team Recommendations

After considering findings of the review report and public comments, the Oversight Team discussed potential recommendations to the Council. The Team agreed that the NEI report found that the Golden Tilefish IFQ program is working well and identified no problems or issues that the

[1] https://www.mafmc.org/briefing/december-2023 (Tab 11).

Council would need to immediately address. However, the Oversight Team recommended that the Council continue to support existing data sources for the fishery as well as the development of fishery-independent data sources. The Oversight Team also identified areas for improvement that the Council could consider.

1. GARFO's Fish Online Web Portal

Currently, paper forms are used to request a temporary or permanent transfer of golden tilefish IFQ between two persons or entities. Industry input indicates that since there is only one NOAA Fisheries employee dedicated to oversight of quota applications, allocation tracking, and allocation transfers, sometimes this makes communication with NOAA Fisheries regarding golden tilefish allocation issues challenging. It has been suggested that expanding the use of GARFO's Fish Online web portal to allow participants to track and transfer golden tilefish allocations may be beneficial. An electronic system such as Fish Online could increase the efficiency and timeliness of program resource distributions and transactions (i.e., such as transfers).

Potential action: The Council could encourage NOAA Fisheries to evaluate the possibility of expanding the use of the Fish Online web portal to track golden tilefish IFQ allocation transfers and track current allocation to assist with quota and program management.

2. Barriers to New Entry

The golden tilefish IFQ program has few share transferability rules, and in theory, it allows the entry of new entities into the fishery. However, according to interviewed industry representatives, as IFQ shares become more valuable (as golden tilefish prices increase) and other fishing portfolios become less valuable, it is increasingly harder for some fishermen (e.g., younger fishermen) to enter the IFQ fishery. Furthermore, industry members have also indicated that the bulk of the quota is caught by a few vessels from NJ north. An industry proposal to address this imbalance, could be to develop a system to allow young fishermen to get in as current participants "age out." Other participants have indicated that the current system is working well, and that IFQ system has made the fishery stable and provided an increase in ex-vessel price, and increase in price stability and product supply throughout the year. The Program Review also indicated that the program's goal to reduce overcapitalization and latent effort in the commercial fishery, as well as FMP objectives to prevent overcapitalization and limit new entrants have been met.

Potential action: The Council could consider what the specific impediments are to entry into this fishery and consider how changes to the IFQ program itself or other programs could support new entrants entering the fishery.

3. Data Confidentiality ("Rule of 3")

This issue was raised in the program review report. The small size of the fishery increasingly results in constrained data displays to prevent exposure of confidential data ("Rule of 3").

Potential action: The Council could recommend alternative metrics and indicators (including socioeconomic data) be developed for evaluating changes and assessing the health of the fishery.

5. NEI "The Contractor"

The Oversight Team discussed the benefits of the Council hiring a contractor to conduct this program review. Overall, the oversight team thought that hiring a contractor was beneficial given the savings of staff time and effort, and the ability of the contractor to efficiently conduct interviews and surveys of public.

Golden Tilefish Catch Share program Review
Public Comment Summary

March 2024

At the December 2023 Council meeting, the Council received a presentation by Northern Economic Inc. regarding the Golden Tilefish Individual Fishing Quota Program Twelve-Year Review. This presentation (December 13) marked the beginning of a 30-day public comment period which ended on January 12. This document summarizes the public comments received during this period. All written comments received are included with this summary.

List of Written Comments Submitted:

1. Bennett Mumford
2. Brady Lybarger
3. Arhtur Sherard
4. Austin Schwerzel
5. Fred Akers
6. Laurie Nolan

Summary of Overall Themes from Written Comments:

1. Difficulty to enter the IFQ fishery, bulk of the quota caught by a few vessels from NJ North.
2. Difficulty entering the IFQ fishery given current program structure/regulations. Consider developing a system to allow young fishermen to get in as current participants "Age Out."
3. Keep fishery open and increase the catch limit.
4. The golden tilefish fishery is well managed.
5. Initial allocation disproportionately hurt Barnegat Light (New Jersey) vessels and favored Montauk vessels (New York). Lopsided allocation needs to be addressed to contribute to the long-term sustainability of golden tilefish and the well-being of the coastal communities depending on it.
6. Improve communication and transparency when tracking allocations and making allocations transactions and transfers.
    a. Requesting that a FishOnline program be used to carry out allocation transfers and track current allocations to assist with quota management.
    b. Such a system would improve administrative efficiencies.
7. Need to improve fishery-independent data collection. Relying on fishery-dependent data for stock assessment purposes is not ideal.
8. The program review did not highlight the marketing and distribution efforts being conducted at Viking Village (Barnegat Light, NJ). Viking Village has endeavored to introduce and distribute golden tilefish in many parts of the country.

9. Need an initial stock assessment for blueline tilefish in the mid-Atlantic.
10. Unexpected commercial blueline tilefish fishing closures are an issue. Instead of a complete closure, should consider dropping the trip limit to 100 pounds when 90% of the quota is projected to be taken.
11. Need to revisit the blueline commercial/recreational allocation (73%/27% split), as commercial quota too low. Should allow for a larger blueline commercial quota to help fishermen that cannot enter the golden tilefish IFQ fishery.

Montanez, Jose

Subject: FW: Golden Tile 12 year review public comment

From: Ben Mumford <mumfordshellfish@gmail.com>
Sent: Wednesday, December 13, 2023 6:25 AM
To: Hart, Hannah <hhart@mafmc.org>
Subject: Golden Tile 12 year review public comment

Good Morning Hannah;
I am having a hard time as to where to send my public comment for the 12 year review of the IFQ Golden Tile fishery in the MId-Atlantic and I am hoping I can send it to you so you could forward this for me or provide me with the correct email address to send it t.

Hello- My name is Bennett Mumford and I commercial fish out of Ocean City, MD. I am the youngest Owner/operator in this harbor and I would like to voice my opinion of the IFQ catch share system for TIlefish. What I have seen personally is that there is no way for myself to enter into the IFQ Golden TIle fishery for several reasons as the bulk of the quota is caught on vessels from New Jersey north on a select few vessels. While Looking at the collapse of Blue Ocean fisheries it should be noted that one or several individuals having control over such a large poundage of one specific fishery has not ended well for the ground fish fisherman in New England- and likely won't for many other fisheries. There is virtually no way someone like myself can enter into this fishery the way the IFQ catch share program is currently set up.
I need to bring up that the stock for Blue Line TIlefish is extremely healthy and there has yet to be a stock assessment done in the MId Atlantic for Blue Line Tiles. I feel it appropriate to say that there is almost no new entrance into the Commercial Fishing business and there needs to be a system or way as Fisherman "Age Out" that someone that is young, with a new boat, can go to work . As an alternative to an IFQ catch share fishery the Council needs to develop a way to bring in more fishermen into the industry or allow us to work ourselves into the Tilefish industry and diversify the group that owns the quota. The IFQ system is not a fair system - especially when I look ahead to the fisheries I can pursue in the Ocean.
My last comment is that the Blue Tile fish fishery is so restrictive in terms of the commercial quota that is split 73 % recreational/forhire and 27% commercial and that our quota is so extremely low. If there is no way for fishermen like myself to enter into the Golden Tile IFQ fishery then we need to be given an opportunity in the Blue line tile fishery. This specific fish is in abundance from the boundary of the Mid Atlantic all the way past the Hudson Canyon and with the northern progression of almost all fish stocks, there are likely Blue Line Tilefish further north. Thank you for your time and I hope my comments are taken into consideration at the review.

Bennett Mumford
443.754.4984

From: Scallop Shack Farms
To: Hart, Hannah; Montanez, Jose
Subject: Golden Tilefish IFQ Review
Date: Wednesday, December 13, 2023 9:45:57 PM

My name is Brady Lybarger i fish out of my home port of Cape May,NJ. I feel that the BlueLine Tilefishery could use a closer look into our Mid Atlantic quota.

First we need a more directed survey from depths from 38-70ftm to get a better understanding of the biomass so we can hopefully increase are quota for upcoming years.

Secondly I wasn't a fan of when the season closed. It happened very quick and with very little notice. My understanding was that daily reports had to be submitted Daily and not Weekly so we would have a better idea of landings moving forward. Also I think that instead of a complete closure the remaining 10% should drop down to 100lbs for the remainder of the year.

Being that the rec and for hire have a much larger quota and really no way of knowing what is being landing really is an unfair split.

Thirdly I believe that the Commecial Blueline Tilefishery from my local fishing knowledge and talking to other fishermen is that there is a strong biomass and could easily be increased this year.

Brady Lybarger
16096021417

Golden Tilefish IFQ Reviews

Name	Arthur Sherard
Email	ads4eternity@aol.com
Role	Charter/Headboat For-Hire Captain
Comments	Please keep the fishery open and increase the limit catch.

Name	AUSTIN SCHWERZEL
Email	austin@vikingvillage.net
Organization/Affiliation	Viking Village, Inc.
Role	Commercial Industry
Comments	Thank you again for a very well put together 12-year review and for all you and the GTF working group do for this fishery. Please feel free to reach out whenever, always happy to discuss my thoughts. My comments are attached. Take care and be well.
Attachment	vikingvillagecomments12yrgtfifqprogramreview.pdf pdf file added below

Name	Fred Akers
Email	fred.akers13@gmail.com
Role	Private Recreational Angler
Comments	The MAFMC does an excellent job of managing the commercial Golden Tile Fish fishery. The 2021 National Academies of Sciences LAPP Report 2021 came to the same conclusion.

Name	laurie Nolan
Email	tilefish1@optonline.net
Role	Commercial Industry
Comments	The Golden Tilefish IFQ Program Twelve -Year Review produced positive results across the board! The Reviewers were thorough, dug deep and spoke directly with many! Thanks for that! Goals & Objectives of the Golden Tilefish IFQ Program are being accomplished. Basically a 5 Star Review! It's nice to see a positive outcome of a Management Plan Review... Good for

the resource, good for the industry, good for the consumers.

We have been full time Golden Tilefish commercial industry members since 1978. In my opinion, the Golden Tilefish IFQ Management Plan saved the resource and those dependent on the resource. Landing flexibility, safety at sea, business planning, job security, market stability, vessel maintenance, shoreside infrastructure, dependability, reliability, a life... to name a few, have been the outcome of the Golden Tilefish IFQ Management Plan.

Thanks for the opportunity to comment. Sorry I missed the December Council Meeting!

laurie nolan

Viking Village, Inc.
Commercial Seafood Producers
1801 Bay View Avenue • PO Box 458
Barnegat Light, New Jersey 08006
609-494-0113 • FAX 609-361-9536
www.vikingvillage.net

January 9, 2024

Dr. José Montañez
Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201
Dover, Delaware 19901

Request for Public Input on Golden Tilefish (GTF) Individual Fishing Quota (IFQ) Program Review

Dear Dr. Montañez,

I am writing to express my thoughts and concerns regarding the 12-year Golden Tilefish IFQ Program Review. As a concerned stakeholder in the fisheries community, I believe it is essential to provide input to ensure the sustainable and fair management of our marine resources.

Firstly, I want to thank the Mid-Atlantic Fishery Management Council and the Northern Economics team for meeting with us and putting this detailed report together. The IFQ system has proven to be effective by improving and stabilizing market prices, increasing profitability, and eliminating the derby-style fishing that existed prior to the IFQ program implementation. However, I would like to bring attention to certain aspects of the IFQ program that concern me.

1. Ongoing Lopsided Distribution of IFQ Allocations

   It is my belief that at the start of the GTF IFQ program, the distribution of quota was mishandled leaving Barnegat Light, NJ at a major disadvantage in comparison to Montauk, NY. Addressing this problem is crucial for maintaining a balanced and fair fishery management program. As it stands, the New York permit holders have 74.6% of the overall quota, leaving the permit holders in New Jersey with just 25.4%. Historically the decision points used to allocate quota has much favored one port over another. Our vessels have been committed to reducing effort during stock rebuilding years over the past several decades.

This has never benefited the vessels in Barnegat Light and has only hurt them. I believe the permit holders in Barnegat Light have been punished in the name of sustainability and we are still feeling the effects of the decisions made at the start of the GTF IFQ program. By addressing the lopsided allocation of the GTF IFQ quota, fisheries management can contribute to the long-term sustainability of the resource and the well-being of the coastal communities dependent on it.

2. Communication with NOAA Fisheries regarding GTF allocations

   There is a noticeable gap in communication and transparency when it comes to tracking allocation and making allocation transactions and transfers. Seemingly, there is only one NOAA Fisheries employee dedicated to overseeing the quota applications, allocation tracking, and allocation transfers. I would like to see NOAA Fisheries allocate more resources to help bridge the gap by providing IFQ quota holders with monthly reports and/or updates. Further, I would like to request a FishOnline program to carry out allocation transfers and track current allocation to assist with quota management. Though it is effective to talk with NOAA Fisheries, their employees are not always available when information is needed quickly, and this would allow NOAA Fisheries employees to be more productive by reducing the number of emails and calls coming in to answer these questions from stakeholders.

3. Data Poor Fishery

   I believe that the GTF fishery has been well managed and maintained in the name of sustainability and generating economic benefits. Being involved in a multitude of fisheries, we are seeing drastic changes in our ocean affecting many species. My worry is that we will soon see these effects within the GTF fishery. I would like to see NOAA fisheries find new methods of data collection within the GTF fishery as there is no method of fishery-independent data collection at this time to protect those who are reliant on this fishery to make a living. I do believe the GTF working group has done a great job overlooking the data available, and my hope is to see more data available for them to protect the stock and the future of the fishery.

4. Geographic distribution of product

   The 12-year GTF IFQ program review seemingly implies that the only marketplace for GTF occurs at New Fulton Fish Market (NFFM). Though a high volume of GTF ultimately ends up at NFFM, the efforts to spread the fish out that have taken place at Viking Village (Barnegat Light) have not been highlighted in the review. Viking Village has endeavored to introduce and distribute our GTF in many parts of the country. We have found success moving our product all over the nation to avoid the market getting backed up with product. We believe that our efforts will have lasting positive impacts on demand and price within the fishery and these efforts should have been highlighted in the 12-year review.

In conclusion, I appreciate the opportunity to provide input on the 12-year review of the Golden Tilefish Individual Fishing Quota Program Review. I trust that the council will carefully consider these concerns and suggestions in their decision-making process, prioritizing the long-term sustainability of the Golden Tilefish population and the overall health of our marine ecosystems.

Thank you for your dedication to responsible fisheries management.

Sincerely,

Austin Schwerzel
Manager of Receiving and Compliance

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

MEMORANDUM

Date: March 25, 2024

To: Council

From: José Montañez and Brandon Muffley, Staff

Subject: Meeting Materials - Golden Tilefish Research Track Stock Assessment

On Wednesday, April 10, 2024, the Northeast Fisheries Science Center (NEFSC) will provide the Council with an overview of the recently completed 2024 research track stock assessment and peer review for golden tilefish. During the June 2024 management track assessment review, data through 2023 will be included in the modeling and alternative model configurations may be explored. Results of the June management track assessment will be used to inform management and future catch specifications.

The following materials are provided for Council consideration of this agenda item:

- 2024 Report of the Golden Tilefish Research Track Working Group Report Executive Summary
  - The full working group report can be found at: Stock Assessment Support Information (SASINF) Search Tool
- Summary Report of the Golden Tilefish Research Track Stock Assessment Peer Review (to be posted once available)

2024 GOLDEN TILEFISH RESEARCH TRACK ASSESSMENT

The 2024 golden tilefish research track working group (RTWG) met 10 times between October 2022 and February 2024. All meetings were held remotely via WebEx.

PARTICIPANTS

Working Group

NAME	AFFILIATION
Jason Boucher	NEFSC
Nikolai Klibansky	SEFSC
Sean Lucey	NEFSC
John Maniscalco	NYSDEC
José Montañez	MAFMC, chair
Paul Nitschke	NEFSC, assessment lead

GARFO = Greater Atlantic Regional Fisheries Office
MAFMC = Mid-Atlantic Fishery Management Council (Council)
NEFSC = Northeast Fisheries Science Center
NMFS = National Marine Fisheries Service
NOAA = National Oceanic and Atmospheric Administration
NYSDEC = New York State Department of Environmental Conservation
SCDNR = South Carolina Department of Natural Resources
SEFSC = Southeast Fisheries Science Center

In addition to the Working Group members, the following individuals participated in some of the meetings:

Chair-invited analytical participants

Daniel Hennen	NEFSC
Kimberly Hyde	NEFSC
Andrew Jones	NEFSC
Anthony Kaufman	NOAA-Affiliate
Adelle Molina	NEFSC
Stephanie Owen	NEFSC
Sarah Salois	NEFSC-Affiliate

Working Group meeting attendees

Charles Adams	NEFSC
Fred Akers	MAFMC Tilefish Advisory Panel Member
Russell Brown	NEFSC
Kathie Burchard	NEFSC
Greg DiDominico	Lund's Fisheries
Alexander Dunn	NEFSC
Skip Feller	Industry/Council Member
Frank Green	Industry
Homer Hiers	SCDNR

Scott Large	NEFSC
Yong-Woo Lee	NOAA-NMFS
Scott Large	NEFSC
Chris Legault	NEFSC
Laurie Nolan	Industry/ex-Council Member
Douglas Potts	GARFO
Daemian Schreiber	NOAA-Affiliate
Michele Traver	NEFSC
Mark Terceiro	NEFSC
Anthony Wood	NEFSC

ACKNOWLEDGEMENTS

The RTWG thanks: Dan Hennen for assistance with WHAM explorations. We also thank Sarah Salois, Stephanie Owen, Adelle Molina, Andrew Jones, and Kimberly Hyde for developing the ecosystem and socioeconomic profile (ESP) framework. Andy Jones developed the study fleet and observer trawl CPUE. Tony Kaufman provided the RTWG with valuable information and data about the large pelagic survey. Michele Traver and Alexander Dunn provided helpful administrative support. Fred Akers, Skip Feller, Frank Green, and Lauire Nolan offered expert advice regarding the operations of the commercial and recreational golden tilefish fisheries.

EXECUTIVE SUMMARY

Term of Reference (TOR) #1: Identify relevant ecosystem and climate influences on the stock. Characterize the uncertainty in the relevant sources of data and their link to stock dynamics. Consider findings, as appropriate, in addressing other TORs. Report how the findings were considered under impacted TORs.

The northern stock of golden tilefish are a long-lived, non-migratory demersal species inhabiting the outer continental shelf and slope of the Mid-Atlantic Bight region of the Northwest Atlantic. This species has relatively specific habitat preferences described by soft substrates (for burrowing) and a narrow range in temperatures and salinities. Motivated by the fact that this data-limited stock remains poorly sampled by fishery-independent surveys, this work aims to develop a suite of environmental indicators to better understand geographical distribution and potential drivers of recruitment by utilizing new and under-explored data streams. Quantitative ecosystem indicators were analyzed in relation to in situ larval data, a model-derived recruitment index and a new fishery-dependent catch per unit effort (CPUE) index derived from incidental catch. Linear regressions and generalized additive models (GAM) were used to determine the effects of ecosystem indicators on golden tilefish catch and recruitment. Most principally, there was agreement in bottom temperature and salinity preferences across all analyses and values were consistent with ranges documented in the literature. There was some seasonality to the influence of environmental indicators, such that indicators of habitat condition (bottom temperature and salinity) as well as indicators of food availability (microplankton abundance) in the fall were highly correlated with the presence of larvae and catch of recruitment age (0-1) fish. Analyses suggested physical oceanographic indicators serving as proxies for currents and movement of water masses (shelf water volume, cold pool spatial extent and persistence, Gulf Stream Index) may have important and complex influences on early life history stages. Sources of uncertainty were discussed and our findings informed several research recommendations (TOR 7). In sum, this work highlights the value of the new incidental CPUE index (derived from trawl fisheries) in beginning to make some inferences on drivers of tilefish recruitment and also provides context and support for the further development of ecosystem indicators. Specifically, findings suggest that bottom temperature, salinity at depth, shelf water volume, and microplankton abundance may influence golden tilefish recruitment or mortality and may be of use in as environmental covariates in future stock assessment models.

TOR #2: Estimate catch from all sources including landings and discards. Describe the spatial and temporal distribution of landings, discards, and fishing effort. Characterize the uncertainty in these sources of data.

Total commercial golden tilefish landings (live weight) increased from less than 125 mt during 1967-1972 to more than 3,900 mt in 1979 during the development of the directed longline fishery. Landings prior to the mid-1960s were landed as a bycatch in the trawl fishery. Annual landings ranged between 454 and 1,838 mt from 1988 to 1998. Landings from 1999 to 2002 were below 900 mt (ranging from 506 to 874 mt). An annual quota of 905 mt was implemented in November of 2001. Landings in 2003 and 2004 were slightly above the quota at 1,130 mt and 1,215 mt, respectively. Landings from 2005 to 2009 were at or below the quota, while landings in 2010 at 922 mt were slightly above the quota (Figure 1). Since 2010 landings have been below

the quota and decreased to an estimated 494 mt in 2016. The landings have increased slightly to an average of 695 mt from 2017 to 2022. The Total Allowable Landings (TAL) was reduced for the first time in 2015 to 796 mt from the TAL of 905 mt which was in place from 2001-2014. The TAL in 2016 and 2017 was increased to 856 mt based on projections from the SARC 58 assessment. The TAL was then reduced to 738 mt from 2018 to 2021 based on the 2017 operational assessment and subsequently increased based on the 2021 management track assessment. The top 4 permits hold 80% of the golden tilefish IFQ (individual fishing quota) allocation.

During the development of the directed longline fishery in the late 1970s and early 1980s Barnegat, NJ was the principal tilefish port; more recently Montauk, NY has accounted for most of the landings. Most commercial landings are taken by the directed longline fishery.

The RTWG suggests that a simple scalar assumption of 3.9 mt based on the median estimate from (2014-2021) should be used for the total discards of all non-directed tilefish fleets (large and small mesh trawl, and gillnet fisheries). The median discards from 2014 to 2021 was estimated to be 2.3 mt in the directed longline tilefish fishery.

The RTWG developed a new recreational catch time series using vessel trip report data, large pelagic survey data, and other historical data available to develop a 1971-2022 time series of recreational catch. Recreational catches have ranged from a low of 3 mt for most years to 100 mt in 1974. More recently, for the last decade (2013-2022), recreational catches have ranged from 14 mt in 2016 to 23 mt in 2015. Based upon the newly developed recreational catch time series, the contribution of recreational golden tilefish landings to total removals for the 2005-2022 period ranged from 0.3% in 2006 to 3.7% in 2015. In 2022, contribution of recreational golden tilefish landings to total removals was 3.2%.

TOR #3: Present the survey data used in the assessment (e.g., indices of relative or absolute abundance, recruitment, state surveys, age-length data, application of catchability and calibration studies, etc.) and provide a rationale for which data are used. Describe the spatial and temporal distribution of the data. Characterize the uncertainty in these sources of data.

A time series fishery-independent index of abundance does not exist for tilefish. Effort was considered directed for tilefish when at least 75% of the catch from a trip consisted of tilefish. Three different series of longline effort data were analyzed. The first series was developed by Turner (1986) who used a general linear modeling approach to standardize tilefish effort during 1973-1982 measured in kg per tub (0.9 km of groundline with a hook every 3.7 m) of longline obtained from logbooks of tilefish fishermen. Two additional LPUE series were calculated from the NEFSC weighout (1979-1993) and the VTR logbook data using days absent of the effort metric.

The NEFSC weighout and VTR LPUE series were standardized using a GLM incorporating year and individual vessel effects. Changes in the VTR LPUE can be generally explained with evidence of strong incoming year classes that track through the landings size composition over time (TOR 2). Since the SARC 58 assessment there appear to be increases in

LPUE due to one or two new strong year classes. In general, strong year classes appear to persist longer in the fishery after the FMP and after the constant quota management came into effect which is evident in both the LPUE and size composition data.

The 2024 RTWG developed a method of transitioning from a LPUE index based purely on logbook VTR data to LPUE based on the newly developed CAMS system since the VTR database at the NEFSC will no longer be supported. The CAMS system integrates data collected from dealers with VTRs, observers, electronic monitoring for both landings and discards on a trip by trip basis as a single catch source to be used for assessments and quota monitoring for all managed stocks. The CAMS system is being used for landings and discards in stock assessments starting in 2020. The RTWG developed the most comparable LPUE tilefish index possible within the CAMS system for the transition from the VTR series in 1994 to the CAMS full implementation in 2020. However, the CAMS system has been estimated back in time to 2000. Catch estimates for stocks assessments will likely not use CAMS until the year 2020 and forward into the future. The RTWG did consider linking the VTR and CAMS based LPUE index before 2020 and recommended transitioning the two data series in 2010.

For the 2024 RT assessment the WG also investigated whether other factors could help improve and perhaps better explain the LPUE trends. Reexamination of vessels effects, temporal factors (month), and crew size was examined. None of the available factors reexamined had a large influence on the underlying index. Limiting the index to the top 10 tilefish vessels also did not produce a meaningful difference. Very similar trends are seen in individual vessel LPUE series. The use of crew size also eliminated the data from 1991 to 1993 since that data was not available for that time period which is not desirable. The RTWG agreed to maintain the use of the original LPUE GLM incorporating individual vessel effects for the index.

Past benchmark tilefish assessments concluded that a simple days absent minus one day steam time (DA-1) was the best effort metric from vessel trip report (VTR) data due to data limitations mainly because the data is not collected on a haul by haul basis. Questions remain if landings per unit effort (LPUE) based on data collected at a finer haul basis could provide improvements or provide insights to LPUE indices as an index of biomass. Investigation of the longline study fleet data may help answer questions surrounding the somewhat crude effort metric in the LPUE index and could provide insight for future refinements. To help answer some of these questions the RTWG examined data from a single individual fishing quota (IFQ) tilefish vessel in the study fleet program who has been collecting tilefish catch data on a haul by haul basis since 2010. This analysis seems to support the use of days absent as an effort metric on a trip basis.

Because golden tilefish are poorly sampled by the northeast regions fishery-independent surveys, the assessment is relatively data poor, and additional data sources are vital to better understand trends in abundance. The directed fishery exclusively utilizes longline gear and information from this gear type is the primary source of information underpinning recent assessments. Interestingly, the species is also caught incidentally but with some frequency in trawl gear that is commonly used throughout the region. Despite this being common knowledge, there have been limited explorations of these data to see if they could be useful in understanding abundance patterns. The RTWG examined study fleet and observer data from trawl gear to

develop a catch per unit effort (CPUE) index and compare this new index to existing indices from the tilefish assessment. The results suggest that there may be some value in using these data to understand the abundance of fish slightly smaller than those captured in the targeted fishery and the longline landing per unit effort (LPUE) index.

The RTWG estimated the stratified numbers per tow at length indices of relative abundance for the 2017 Tilefish Pilot Longline Survey and the 2020 Golden Tilefish Longline Survey using a standard stratified random mean approach. The 2017 pilot survey used three different offset circle hook sizes (small = 8/0, regular = 12/0, large = 14/0), distributed at a ratio of 20-60-20 and the 2020 survey used two different offset circle hook sizes (small = 8/0, regular = 12/0), distributed at a ratio of 50-50. The pilot survey indicated that small circle hooks (8/0) caught few large golden tilefish and more small individuals relative to regular circle hooks (12/0), and large circle hooks (14/0) caught few individuals overall. Given these findings, the 2020 survey was designed to determine if the small circle hooks (8/0) could provide additional information to a pre-recruit index relative to the regular circle hooks (12/0) as well as inform assessment model selectivity (i.e., domed shaped selectivity), therefore, the large hook (14/0) was dropped from the 2020 survey, as the catchability of large hooks greatly decreases. An adjustment was applied to the hook sizes for 2017 given the difference in the deployment of circle hook sizes between surveys and because of the differences in catchability between hook sizes.

The stratified numbers per haul show a decrease in the abundance index between 2017 and 2020 for both the combined hook indices and for the separate hook size indices. However, the longline stratified survey index at lengths suggests that a relatively large younger year class or perhaps two year classes were present during the 2017 survey (first two modes in the distribution between 35cm and 50cm) in comparison to the 2020 stratified numbers per haul at length index. Three years later in the 2020 survey it can be seen that the stratified numbers per haul between 50 cm and 70 cm is greater than the 2017 survey. This generally follows the expectation of the growth of golden tilefish for the strong year classes seen in the 2017 survey.

Both hook sizes have very similar length distributions but there is some indication that smaller hooks catch a greater amount of smaller, younger fish between 35 and 50 cm relative to regular hooks. The regular hooks appear to catch relatively more large fish greater than 50 cm given that the catchability of regular hooks is about half or that of small hooks. Additional surveys will likely be needed to determine if this data could potentially be used to inform the dome shaped selectivity in the assessment model. This pattern does seem to be consistent with a dome shape selectivity pattern in the fishery in the assessment model.

The survey also provides some indication that as fish age and increase in size they tend to be in deeper strata. However the vast majority of the fish caught in the survey was seen in the core fishing grounds. The combined effects of possible reduction in catchability with larger fish sizes and relatively lower availability of larger/old fish to the fishery remains difficult to quantify at this time.

TOR #4: Use appropriate assessment approach to estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock) for the time series, and estimate their uncertainty. Compare the time series of these estimates with those from the previously accepted assessment(s). Evaluate a suite of model fit diagnostics (e.g., residual patterns, sensitivity analyses, retrospective patterns), and (a) comment on likely causes of problematic issues, and (b), if possible and appropriate, account for those issues when providing scientific advice and evaluate the consequences of any correction(s) applied.

The RTWG goal for TOR 4 was to advance the assessment model from ASAP to the newly developed state-space modeling framework Woods Hole Assessment Model (WHAM). Due the sensitivity of the tilefish modeling results to random effects the data inputs within TOR 4 were not changed from the last 2021 management track ASAP data input which had a terminal year of 2020. The RTWG goal was to examine model configuration effects in the new modeling framework WHAM without the additional effects of data changes. The RTWG suggests the best configuration to be used in the next management track assessment with the hope that incremental improvement and advancements could be made in future management track assessments as more data can be incorporated from TORs 1-3. A better understanding of random effects influence on model selectivity estimates and biological reference points (BRPs) with this relative data poor stock can then be advanced in future management track assessments once the assessment model is developed in WHAM in this RT assessment.

The RTWG first developed a bridge run which produced similar results to the 2021 ASAP model. The RTWG then investigated configuration changes to improve the model. In general the WHAM model results were similar to ASAP with similar estimates of the dome shaped selectivity in the second block and with the stock rebuilding to roughly SSB_{MSY} after the inception of management in 2001. The WHAM model diagnostics also appears to be acceptable with low retrospective error.

The RTWG developed a base model starting in 1976 using estimated starting numbers at age, self-weighting dirichlet missing 0 for fits to age composition data and shifting the selectivity block to 1976-1986 for the 1st block and 1978 to 2000 for the second block. WHAM model results were sensitive to adding random effects. Adding random effects to the base model NAA appears to allow for additional model flexibility which produces a relatively better fit to the data with improvements in the diagnostics. Most of the change occurs in fitting the 10+ age group while still producing good retrospective diagnostics. Adding numbers at age (NAA) random effects results in a relative flattening of the selectivity curve in the 2nd block, less cryptic biomass, less rebuilding since the inception of management in 2001 and a worse stock status relative to $F_{40\%}$ based spawning potential ratio (SPRs) BRP proxies ($F/F_{40\%}$ and $SSB/SSB_{40\%}$ ratios).

Adding additional random effects on selectivity as well as survival continues to improve the relative model diagnostics. In general, it appears that adding additional random effects to the tilefish model seems to result in additional flexibility within the model allowing for further flattening of the selectivity curve which results in lower increase in biomass relative to an $F_{40\%}$ based proxies and a relatively poorer stock status.

The RTWG was uncomfortable with the underlying sensitivity of the results even though the diagnostics improved when additional random effects were added. The results became more questionable with additional random effects added to the model given the history of the fishery and management. The perception from industry is that fishing has improved and that increases in biomass have occurred since management was implemented in 2001. The raw data also suggests general improvements in LPUE and size structure after management was put in place. Strong year classes have been entering the fishery relatively consistently every 5-7 years.

While the literature on state space model diagnostics is still developing, some studies have suggested that overfitting may be a concern when data density is relatively low. Liljestrand et al. (2023) demonstrated that low data density may reduce the ability to properly differentiate process and observation errors. Given the relatively low information content of the tilefish data, the RTWG decided to use a less complex model as the basis for continuing model development in the management track.

However, RTWG felt that the WHAM results among models suggests there is considerable uncertainty in the selectivity and stock status. A single model does not seem to capture the true uncertainty in the assessment. The RTWG did not have confidence in the results of the full random effects model as a basis for the assessment and stock status. The RTWG recommends to use the base model without random effects until more confidence can be gained in future management track that suggests inclusion of some random effects are giving a more accurate depiction of the selectivity and true stock status. However, the RTWG feels that consideration of the random effects model is useful for showing the overall uncertainty and sensitivity of the results in the assessment. Assuming the base model is an accurate depiction of reality also does not account for the true uncertainty in this assessment.

> *TOR #5: Update or redefine status determination criteria (SDC; point estimates or proxies for B_{MSY}, $B_{THRESHOLD}$, F_{MSY} and MSY reference points) and provide estimates of those criteria and their uncertainty, along with a description of the sources of uncertainty. If analytic model-based estimates are unavailable, consider recommending alternative measurable proxies for reference points. Compare estimates of current stock size and fishing mortality to existing, and any redefined, SDCs.*

The RTWG did not recommend a change to the $F_{40\%}$ proxy for F_{MSY} biological reference points (BRP) since a stock-recruit relationship was also not evident in the WHAM base model. There was little difference between using a 10 year or a 5 year recent average for the estimates of the WHAM BRPs. The RTWG suggested using the 10 year average since there can be some variability in the mean weights at ages for the older ages. The recruitment used to estimate the $SSB_{40\%}$ within WHAM was based on the entire time series minus the most recent two years of data (1999 and 2000) since there is limited information to inform recruitment in the last two years of the model. The RTWG recommends the use of the base model configuration for stock status determination (TOR 4). Overfishing ($F/F_{40\%} = 0.55$) was not occurring and the stock was not overfished ($SSB/SSB_{40\%} = 1.29$) according to the base model.

TOR #6: Define appropriate methods for producing projections; provide justification for assumptions of fishery selectivity, weights at age, maturity, and recruitment; and comment on the reliability of resulting projections considering the effects of uncertainty and sensitivity to projection assumptions.

With the new RTWG base model the projections and biological reference points are integrated within the WHAM framework. The RTWG recommends the use of the base model for $F_{40\%}$ (F_{MSY} proxy) projection for the determination of overfishing limits (OFL) in the next management track assessment. Using the base model would also be consistent with stock status determination. However, the RTWG acknowledges that projections and estimated uncertainty of the base model likely does not capture the true uncertainty in the assessment since the results and status determination were found to be sensitive to changes in selectivity from the use of random effects.

Projections under $F_{40\%}$ show increases in catch in the short-term catch due to a relatively strong recruitment year classes at the end of the time series and because $F_{40\%}$ results in an increase in F within the projection ($F/F_{40\%} = 0.55$). The stock is also estimated to be above $SSB_{40\%}$ ($SSB/SSB_{40\%} = 1.29$) in 2020 for the base model. Therefore the projections become a Fishing down exercise to $SSB_{40\%}$ longer-term in the projections. In the short term, catches at $F_{40\%}$ are higher than the maximum sustainable yield (MSY) when the stock is at $SSB_{40\%}$ (855 mt). The projections for golden tilefish models are also more uncertain because there is limited information to inform recruitment in year t-1 and no information for the terminal year since no survey information for younger smaller fish is available to the assessment model.

TOR #7: Review, evaluate, and report on the status of research recommendations from the last assessment peer review, including recommendations provided by the prior assessment working group, peer review panel, and SSC. Identify new recommendations for future research, data collection, and assessment methodology. If any ecosystem influences from TOR 1 could not be considered quantitatively under that or other TORs, describe next steps for development, testing, and review of quantitative relationships and how they could best inform assessments. Prioritize research recommendations.

The RTWG reviewed the status of previous research recommendations and proposed new research ones to address issues raised during the working group meetings. Notable accomplishments relative to past research recommendations include: used survey data to develop a stratified index of relative abundance, examined effort metrics from one longline vessel participating in the study fleet program, variability in recruitment were further investigated using environmental covariates, developed a recreational landings time series, evaluate the reliability of the report of protogynous hermaphroditism in the S. Atlantic stock.

The RTWG proposed new research recommendations that should improve assessing the population through the current or future models. These include the following: collection of length samples on party/charter trips for potential improvements in recreational time series estimates and evaluate WHAM performance for information poor stocks using simulated tilefish like populations (i.e., only catch data). Do random effects in both survival and selectivity introduce bias?

TOR #8: Develop a backup assessment approach to providing scientific advice to managers if the proposed assessment approach does not pass peer review or the approved approach is rejected in a future management track assessment.

Several approaches were considered as potential contingency plans if the proposed assessment model is deemed inappropriate for providing management advice, either as a conclusion of research track peer review or subsequently in the management track process. Many northeast U.S. assessments specify an empirical backup approach based on survey data, either swept-area estimates of stock biomass and a target exploitation rate or survey biomass trends and recent catch. However, due to the current lack of survey data for golden tilefish these approaches are not good options for this stock. The RTWG briefly discussed the use of other data-limited approaches for estimating sustainable yield such as Depletion-Corrected Average Catch (DCAC) and Depletion-Based Stock Reduction Analysis (DB-SRA); however, the RTWG did not pursue these because they heavily rely on assumptions needed to run models and/or they lead to severe retrospective errors in statistical catch-at-age models. In addition, these data-limited methods have been found not to outperform a retrospectively adjusted catch-at-age model over the long-term.

The RTWG recommends that if the proposed assessment approach (WHAM Base model without random effects) does not meet the standards of peer review or is rejected in a future management track assessment, an alternative model be developed to integrate information from catch, age composition and potentially indices (e.g., alternative WHAM configurations).

In addition, the RTWG also proposed an alternative "Plan C" based on historical fishery performance under constant quota strategies. Under Plan C, if modeling fails, management would be based on a commonsense constant catch approach considering the management history since 2001 and response in CPUE and size distribution of fish landed. For example, a constant catch approach using a quota within the range of those implemented in the fishery since 2001 (738 – 905 mt) could be considered when determining an appropriate constant catch if the model fails. Alternatively, using an average of the actual catches (10 year 2013-2022 average catch of 690 mt or 20 year 2003-2022 average catch of 790 mt) may be more justified for the determination of a constant quota catch advice since this is the actual catch that appeared to have a positive effect on recruitment and seemed to allow for strong year classes to persist while supporting the fishery.

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MEMORANDUM

Date: March 25, 2024

To: Council

From: Julia Beaty, staff

Subject: Impacts of Offshore Wind Energy Construction Sounds on Behavior of Longfin Squid and Black Sea Bass

Construction of offshore wind energy projects will produce a variety of noise impacts, with pile driving of turbine and offshore substation foundations being of particular concern due to the intensity of the noise produced. On Wednesday, April 10, the Council will receive a presentation from Dr. Aran Mooney with the Woods Hole Oceanographic Institution on multiple studies that examined the impacts of offshore wind energy construction sounds on the behavior of longfin squid and black sea bass. These studies were funded by the Bureau of Ocean Energy Management. A report summarizing the initial studies is available at https://espis.boem.gov/final%20reports/BOEM_2022-004.pdf. The presentation will also touch on additional studies for which reports are forthcoming.

These studies focused on potential impacts of pile driving sounds on black sea bass and longfin squid given their ecological, commercial, and, in the case of black sea bass, recreational importance, as well as the overlap of their distributions with several planned offshore wind energy projects. As described in more detail in the report linked above, these studies measured several behavioral responses to recorded sounds in a laboratory setting. Results showed significant changes in black sea bass behavior when exposed to pile driving, including decreased activity and movement from foraging areas. Longfin squid exhibited a variety of alarm responses at the onset of noise exposure; however, those reposes rapidly diminished responses within the first minute and did not appear to have substantial energetic consequences. Nor was hearing loss induced.

The authors concluded that the results for both species suggest that "responses to sound are most likely to occur at the onset of noise, rapid habituation is expected, with some re-sensitization, and reproductive behaviors may be relatively resilient to noise stressors for semelparous species that have limited opportunity to reproduce." The authors also "suggested that missed opportunities for prey capture and lower feeding rates could lead to reduced growth and survival. Considering the metabolic requirements of both species, especially in [longfin squid] to feed often, there exists the potential for population level reductions in abundance if wild animals similarly are disrupted from feeding due to a sudden onset of anthropogenic noise. Yet in a reproductive context, [longfin squid] retain appropriate reproductive behaviors during noise. Therefore, pile driving noise is not expected to reduce the reproductive output of wild populations as far as behaviors up through egg laying are concerned."

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

MEMORANDUM

Date: March 27, 2024

To: Chris Moore, Executive Director

From: Kiley Dancy and Hannah Hart, Staff

Subject: Summer Flounder Commercial Minimum Mesh Exemption Framework/Addendum Meeting 1

On Wednesday, April 10, 2024 the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board (Board) will review draft alternatives, preliminary analysis, and initial public input on the Summer Flounder Commercial Minimum Mesh Exemption Framework/Addendum. The Council and Board should consider adopting a range of alternatives for inclusion in a public hearing document, to be developed and approved by the Board later this spring.[1] This memo provides action background, an overview of a revised action timeline, and a list of meeting materials for the Council and Board's consideration of this agenda item.

Action Background

This framework/addendum considers changes to two exemptions to the summer flounder commercial minimum mesh size requirements. This action was initiated in response to issues raised during a Fall 2023 review of summer flounder commercial mesh regulations. The following issues have been identified for exploration through this action:

- **Small Mesh Exemption Program (SMEP) Area Revisions:** The Council and Board will consider modifications to the area associated with the SMEP for summer flounder, including evaluating suggested revisions made by fishing industry representatives during the Fall 2023 review process for this exemption.
- **Flynet Exemption Gear Definition Updates:** The Council and Board will consider modifying the regulatory definition of a flynet as it relates to the flynet exemption to the summer flounder commercial minimum mesh size. Modifications are being considered in light of changes in the use and configuration of commercial trawl gear since this exemption was put in place in the 1990s.

[1] The Commission's addendum process requires a minimum 30-day public comment period and optional public hearings, while the Council's framework process does not have a similar requirement. The comment period and hearing process is proposed to occur through the Commission's process, and comments received will be provided to both the Council and Board for consideration prior to final action.

Timeline and Action Plan Revisions

Since the initiation of the action, a Fishery Management Action Team (FMAT)/Plan Development Team (PDT) has been formed and met several times to work through some preliminary analysis and draft a range of alternatives for the Council and Board's consideration. The Council will host a public input webinar on April 2, 2024 to gather preliminary public feedback on the draft range of alternatives.

Earlier in 2024, the Council and Board separately reviewed a draft action plan that indicated final action would take place at a joint meeting in June. Since then, the FMAT/PDT has discussed the infeasibility of implementing the action by the goal date of November 1, 2024. As discussed at the December joint Council/Board meeting, this was an ambitious timeline with several associated challenges, including federal rulemaking timelines and the required public comment period associated with the Commission's addendum process, which lasts for a minimum of 30 days. Because it has become clear that achieving this timeline is no longer possible, the action plan has been revised for the Council and Board's consideration at the April meeting. Final action is now proposed to occur at the joint August meeting, to allow for additional analysis to be developed and incorporated into the public hearing document.

The action plan has also been revised to reflect additional membership to the FMAT/PDT, appointed by Commission representatives following the Board's February 14 webinar meeting.

Meeting Materials

Materials listed below are provided for the Council and Board's discussion of this agenda item. As noted below, some materials will be posted at a later date.

1) Revised Action Plan (*as of March 22, 2024*)
2) Summer Flounder Commercial Minimum Mesh Exemption Framework/Addendum Discussion Document with Draft Range of Alternatives

The following materials will be posted to the meeting page once they are available:

3) Summary of April 2, 2024 Summer Flounder Commercial Minimum Mesh Exemption Framework/Addendum Public Input Webinar and written comments

Documents from the prior review of these exemptions, including the Fall 2023 final review report and summary of previous public comments, can be found on the action page for this Framework/Addendum, at: https://www.mafmc.org/actions/summer-flounder-commercial-mesh-exemptions.

Summer Flounder Commercial Mesh Size Exemptions Framework/Addendum

Action Plan

As of March 22, 2024

Framework/Addendum Goal: This management action is being developed by the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission)'s Summer Flounder, Scup, and Black Sea Bass Board (Board). This action will evaluate potential changes to two exemptions to the summer flounder commercial minimum mesh size requirements, including 1) the Small Mesh Exemption Program (SMEP), and 2) the flynet exemption. Consideration of these changes is intended to modernize these requirements with consideration of current fishing industry gear use and practices and to provide additional flexibility to fishery participants while continuing to meet the conservation objectives of the FMP.

Alternatives to be Considered: The Council and Board have identified the issues below for exploration through this action. They may also identify other alternatives to address the objectives of the action at future meetings.

- **Small Mesh Exemption Program Area Revisions:** This action will consider modifications to the area associated with the SMEP for summer flounder, including evaluating suggested revisions made by fishing industry representatives during the Fall 2023 review process for this exemption.
- **Flynet Exemption Gear Definition Updates:** This action will consider modifying the regulatory definition of a flynet as it relates to the flynet exemption to the summer flounder commercial minimum mesh size. Changes would be considered in light of changes in the use and configuration of commercial trawl gear since this exemption was put in place in the 1990s.
- **Other alternatives**: This action may consider other alternatives, as appropriate. For example, this could include potential revisions to the timing associated with the SMEP, or administrative requirements associated with either exemption.

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

An FMAT/PDT is being formed to assist with development and analysis of potential alternatives. FMAT/PDT members are listed in the table below. Other Council, Commission, and NOAA Fisheries staff, as well as other experts, will be consulted as needed.

FMAT/PDT Member Name	Agency	Role/Expertise
Kiley Dancy	Mid-Atlantic Fishery Management Council	FMAT/PDT Co-Chair
Chelsea Tuohy	Atlantic States Marine Fisheries Commission	FMAT/PDT Co-Chair
Hannah Hart	Mid-Atlantic Fishery Management Council	FMAT/PDT Co-Chair
Laura Deighan	NMFS Greater Atlantic Regional Fisheries Office	Fisheries policy and legal requirements
Emily Keiley	NMFS Greater Atlantic Regional Fisheries Office	Fisheries policy and legal requirements

Marianne Randall	NMFS Greater Atlantic Regional Fisheries Office	National Environmental Policy Act requirements
Sara Turner	NMFS Greater Atlantic Regional Fisheries Office	Analysis and Program Support
Sam Truesdell	NMFS Northeast Fisheries Science Center	Population dynamics
Debra Duarte	NMFS Northeast Fisheries Science Center	Fisheries Monitoring and Research Division
Lorena de la Garza	NC Division of Marine Fisheries	Monitoring/Technical Committee, NC
Corinne Truesdale	RI Department of Environmental Management	Monitoring/Technical Committee, RI

Draft Timeline – *Subject to change*

December 2023	● Council initiates framework action
February 2024	● Board initiates addendum (February 14 webinar meeting)
January-March 2024	● FMAT/PDT formed; first meetings ● Development of range of alternatives and draft document for meeting 1
April 2024	● Public input meeting to provide feedback on draft alternatives ● Framework/addendum meeting 1: approve range of alternatives
April/May 2024	● Continued analysis and development of draft public hearing document
Spring 2024 (timing TBD)	● Board approves draft document for public comment (via webinar Board meeting or joint meeting)
June/July 2024	● Public comment period (30 days minimum required for Commission addendum) and optional public hearings ● Advisory Panel meeting(s) and/or other public meeting(s) to provide input
August 2024	● Framework/addendum meeting 2: final action
Fall 2024/Winter 2025	● Development, review, and revisions of framework/addendum document(s) ● Federal rulemaking
TBD	● Effective date of implemented changes

Summer Flounder Commercial Mesh Exemptions Framework/Addendum

Draft Range of Alternatives and Preliminary Analysis
Council and Board Joint Meeting, April 2024

1. Introduction

This management action is being developed jointly by the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's (Commission) Summer Flounder, Scup, and Black Sea Bass Board (Board). The action was initiated by the Council in December 2023, and by the Board in February 2024, in response to a review of summer flounder commercial minimum mesh size exemptions conducted in the fall of 2023.

The joint framework/addendum will evaluate potential changes to two exemptions to the summer flounder commercial minimum mesh size requirements, including 1) the Small Mesh Exemption Program (SMEP), and 2) the flynet exemption. Consideration of these changes is intended to modernize these requirements with consideration of current fishing industry gear use and practices and to provide additional flexibility to fishery participants while continuing to meet the conservation objectives of the FMP. Additional information and documents can be found at: https://www.mafmc.org/actions/summer-flounder-commercial-mesh-exemptions.

This document describes the draft purpose and need for the action, draft range of alternatives, and preliminary analysis of the use of these exemptions.

1.1 Purpose and Need for Action

The draft purpose and need statements for this action are as follows:

- **Purpose 1:** Consider modifications to the westward boundary of the area associated with the Small Mesh Exemption Program to provide additional access and economic benefits to commercial fishing operators without compromising the conservation objectives of the FMP (Alternative Set 1).

  Need for action 1: In the Fall of 2023, the Council contracted a review of the Small Mesh Exemption Program (SMEP), which allows trawl vessels to obtain a Letter of Authorization (LOA) to land more than 200 pounds of summer flounder east of longitude 72° 30.0'W, from November 1 through April 30, using mesh smaller than the minimum summer flounder mesh sizes of 5.5" diamond or 6.0" square. This exemption is designed to allow vessels to retain some bycatch of summer flounder while operating in other small-mesh fisheries. During this review, feedback from the commercial fishing industry indicated that the SMEP has become a very important program to maintain the economic viability of their businesses. Industry representatives recommended moving the demarcation line approximately 5 miles landward to facilitate the conduct of their fishing operations in other fisheries. The Council and Board recommended additional evaluation of this proposal, including further exploration of appropriate boundaries and the expected biological impacts to summer flounder.

- **Purpose 2:** Consider whether changes to the regulatory definition of a flynet, as pertaining to the flynet exemption to the commercial summer flounder minimum mesh size, are warranted based on changes in trawl gear configuration and use since the exemption's original implementation (Alternative Set 2).

  Need for action 2: Vessels fishing with a two-seam otter trawl flynet, with a specific configuration defined in the summer flounder regulations, are exempt from the summer flounder minimum mesh size requirements. The original intent of this exemption was to accommodate a specific fishery, concentrated in North Carolina and extending north to Cape Henlopen, Delaware. Available data indicate that the exemption is no longer being utilized today in that area/fishery. However, industry feedback indicates that the flynet exemption has become an important component of specific fisheries throughout the Greater Atlantic Region, although some of the net types being utilized under the flynet exemption (i.e., "high rise nets") do not comply with the specific regulatory definition of a flynet. The term "high rise" net appears to be regional terminology for flynets and similar net types. The Monitoring Committee has identified this as a potential compliance and enforcement issue and/or indication of a potential need to revise the regulatory language. During the summer flounder mesh exemption review process, industry representatives proposed updating the definition of the term "flynet" to reflect modern gear configurations and use patterns under this exemption. Further review is needed to determine the implications of a gear definition change for this exemption, including ensuring that changes would not unintentionally incentivize an expansion of the use of this exemption in a manner that would negatively impact the summer flounder stock.

These exemptions are both annually reviewed by the Monitoring Committee and the Council and Board during the specifications process for setting or reviewing catch limits. Some changes can be made through the specifications process. However, the regulations list some restrictions on what types of changes to the SMEP can be recommended by the Monitoring Committee via specifications (see Section 2.6). In addition, the typical annual review of the flynet exemption is primarily to review data on the flynet fishery in North Carolina. A redefinition of the exempted gear type(s) would fall outside the scope of what could be modified via specifications. As such, the Council and Board were advised to initiate a framework/addendum to consider the issues described above.

1.2 Intersection Between the Exemptions

While these two exemptions were originally intended to apply to largely different fisheries operating in different areas, consideration should be given to how revisions to the flynet exemption may impact the use of and need for the small mesh exemption program. In particular, as discussed at the Council and Board's December meeting, if a redefinition of "flynet" gear is developed such that it would cover most or all of the vessels participating in the SMEP, then a separate SMEP may not be necessary. Preliminary analysis of this intersection is provided in **Appendix C**, and the FMAT/PDT will continue to explore this issue prior to the next Council and Board meeting.

2. Small Mesh Exemption Program: Draft Alternatives and Preliminary Analysis

2.1 SMEP Background

Summer flounder moratorium permitted vessels fishing east of longitude 72° 30.0'W (Figure 2), from November 1 through April 30, and using mesh smaller than the required summer flounder minimum mesh sizes of 5.5-inch diamond or 6.0-inch square, may land more than 200 pounds of summer flounder. Participation in this program requires an LOA obtained through GARFO. Vessels must be enrolled in the program for a minimum of 7 days and may not fish west (landward) of the line. This exemption program was developed under Amendment 2 to the FMP and modified via Amendment 3 (both in 1993).

This exemption program was initially suggested by the New England Fishery Management Council and industry participants. It was designed to allow vessels to retain some bycatch of summer flounder while operating in other small-mesh fisheries. At the time it was determined that the exemption would not pose an issue for the stock because the mesh size requirement was designed to protect smaller summer flounder, which largely were not being caught in these offshore areas in the winter months.[1] The exemption was thus viewed as consistent with the conservation goals of the FMP while reducing discard waste in the summer flounder fishery.
When Amendment 2 was originally implemented, the possession threshold during this time period was 100 lb and the demarcation line was 71° 30.0'W, following the yellowtail closed area to 72° 30.0'W, and continuing until it intersected with the EEZ. Amendment 3 increased the threshold possession limit for smaller mesh vessels to 200 lb of summer flounder and simplified the SMEP area to the area east of 72° 30.0'W to resolve issues with compliance and enforcement created by the previous, irregular line. Otter trawl data from 1990 and 1991 indicated that summer flounder discards were about 13 percent east of 72° 30.0'W (and between 71° 30.0'W and 72° 30.0'W), compared to 11 percent east of 71° 30.0'W and 21 percent elsewhere. Data from the Northeast Fisheries Science Center winter flatfish survey indicated that 33.5 percent of summer flounder were under 14 in. east of 71° 30.0'W and 72 percent were under 14 in. west of that line, compared with 35 percent and 72 percent east and west of 72° 30.0'W, respectively. The amendment determined that changing the SMEP exemption area to the area east of 72° 30.0'W would result in a small increase in discards, but the increase would be offset by better compliance and the ability to modify the exemption program during the annual review. The amendment also noted that the new line avoided bisecting Hudson Canyon, which better allowed industry members to decide whether to participate in the SMEP and reduced navigational and trawling issues.

[1] The exemption was approved based on data (from 1985 to 1989) indicating 99.8 percent of summer flounder caught in the exemption area were equal to or greater than the size limit at the time of 13 inches, and 84.7 percent were greater than 15 in., compared to 88.6 percent and 50 percent outside the area, respectively.

2.2 SMEP Participation

Over the last 10 years, LOAs have been issued to an average of 68 vessels each year for the relevant November-April time periods, with a slight increasing trend over these years (Figure 1).

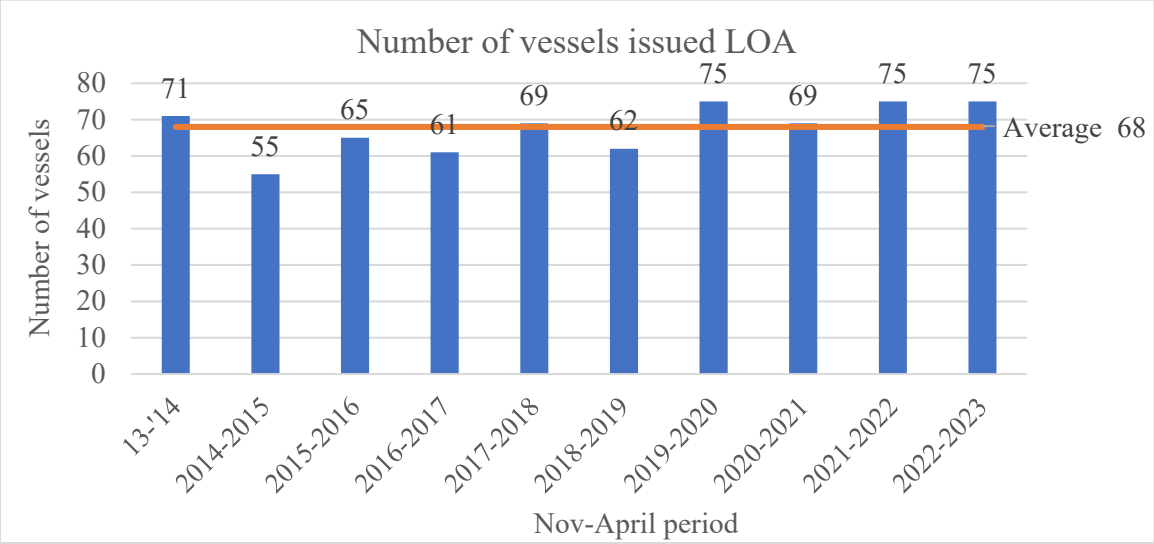

Figure 1: Number of vessels issued an LOA from November 2013 through April 2023. Some vessels held multiple LOAs within a season.

Because vessels with an active LOA are restricted to trips east of the demarcation line, many vessels hold several LOAs for varying lengths of time throughout a given November-April period. On average over the past 10 years, about 44% of vessels held the LOA for the full November-April time frame (Figure 2).

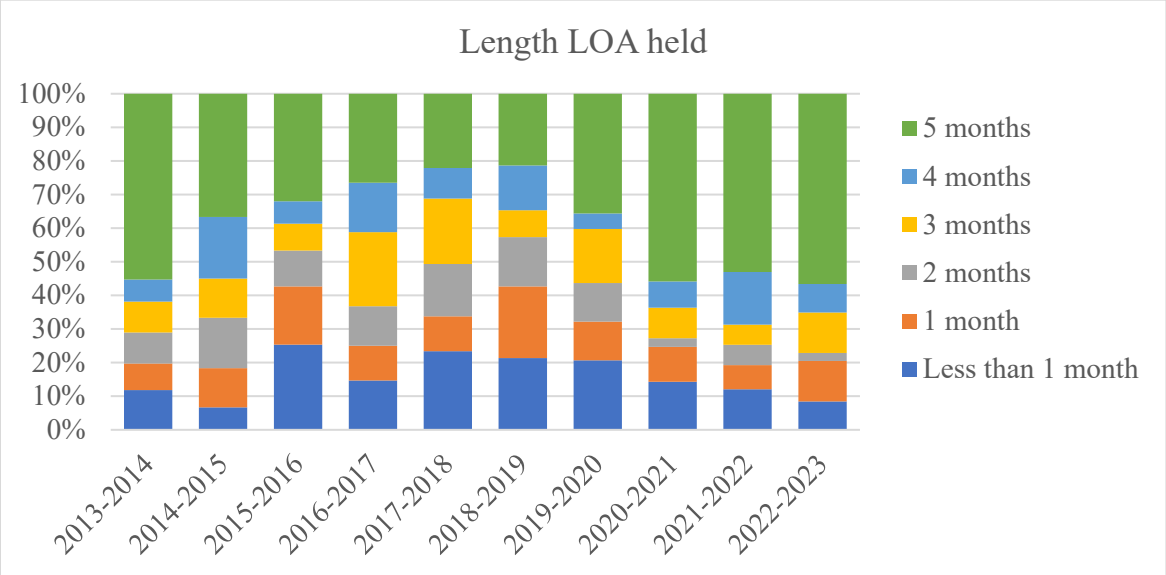

Figure 2: Active LOA length for each November-April SMEP season from November 2013-April 2023. Some vessels may be represented multiple times within the same season if they held multiple LOAs for less than 180 days.

2.3 Draft Range of Alternatives for SMEP Area Revisions

The draft alternatives below consider revisions to the area associated with the SMEP. Recent discussions have not suggested a need to modify the exemption timing (November 1-April 30). Some clarifications and revisions may also be needed regarding the administrative requirements and evaluation methodology associated with the exemption (see Section 2.6), but these are expected to be addressed administratively without requiring separate alternatives in the Framework/Addendum.

As discussed below, some consideration is needed regarding how potential revisions to the SMEP area would connect to or intersect with other management areas, specifically the scup gear restricted areas (GRAs) and the Frank R. Lautenberg Deep Sea Coral Protection Zone.

With all alternatives, the SMEP area overlaps portions of the Frank R. Lautenberg Deep Sea Coral Zone, where all bottom tending fishing gear is currently prohibited year-round.[2] Vessels using the SMEP are bottom trawls (see Section 2.4.1), and as such the portions of the SMEP area overlapping with the coral zones (see Figure 4) are unable to be fished by these gear types regardless of possession of the LOA.

Draft Alternatives:

Alt 1A: No Action/Status Quo.

This alternative would maintain the SMEP demarcation line at longitude 72° 30.0'W (Figure 2). Vessels issued an LOA for this program may fish west of this line from November 1 through April 30 using mesh smaller than the required summer flounder minimum mesh sizes of 5.5-inch diamond or 6.0-inch square and retain more than 200 pounds of summer flounder.

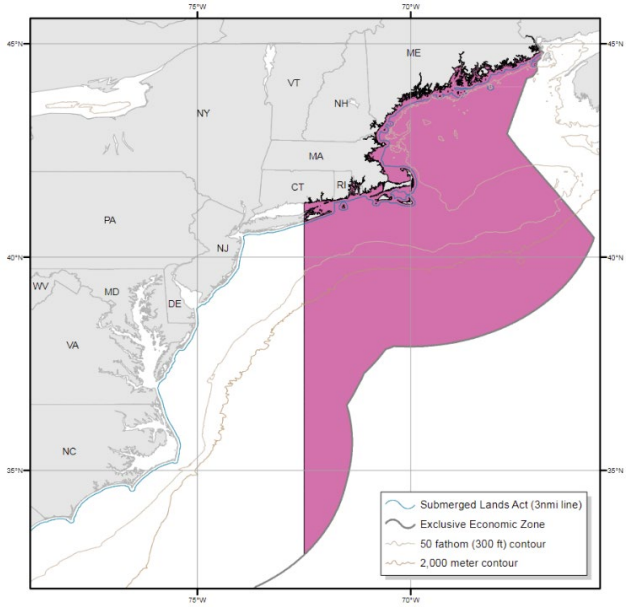

Figure 3: Status quo SMEP area (Alternative 1A).

[2] https://www.mafmc.org/actions/msb-am16

<u>Alt 1B: Industry proposed revisions to SMEP area linked to coral zone boundaries</u>.

Starting south of Long Island, this alternative would move the westward demarcation line approximately 5 miles west to 72°37'W longitude, following this longitude south until intersection with the northeast corner of the scup Southern Gear Restricted Area (GRA) at 39°20'N and 72°37'W and then follow along the eastern border of the southern scup GRA to about 37°N latitude (Figure 4). Note that this alternative as currently drafted does not extend the line westward in Long Island Sound nor does it modify the southern portion of the SMEP south of the deep sea coral protection area *(public and Council/Board feedback is sought on whether this is appropriate)*. The calculated additional area, <u>excluding</u> the deep-sea coral zones where bottom tending gear is prohibited, is 4,943 km^2 (1,441 nmi^2). The timing of the exemption would remain unchanged (November 1-April 30).

Because this alternative proposes connecting the SMEP area to the scup GRAs[3], it is important to note that modifications to the scup GRA boundaries may be considered in the next few years. The Council's 2024 Implementation Plan includes a project[4] that would build on past Council scup GRA analyses and assess if changes to the current GRAs are warranted, and if so, provided recommendations on potential changes. This project is expected to extend through 2025 and could potentially result in changes to the current boundary, timing, etc. of the southern scup GRA. However, given the expected project timeline changes to the scup GRA boundaries are unlikely to change prior to 2026.

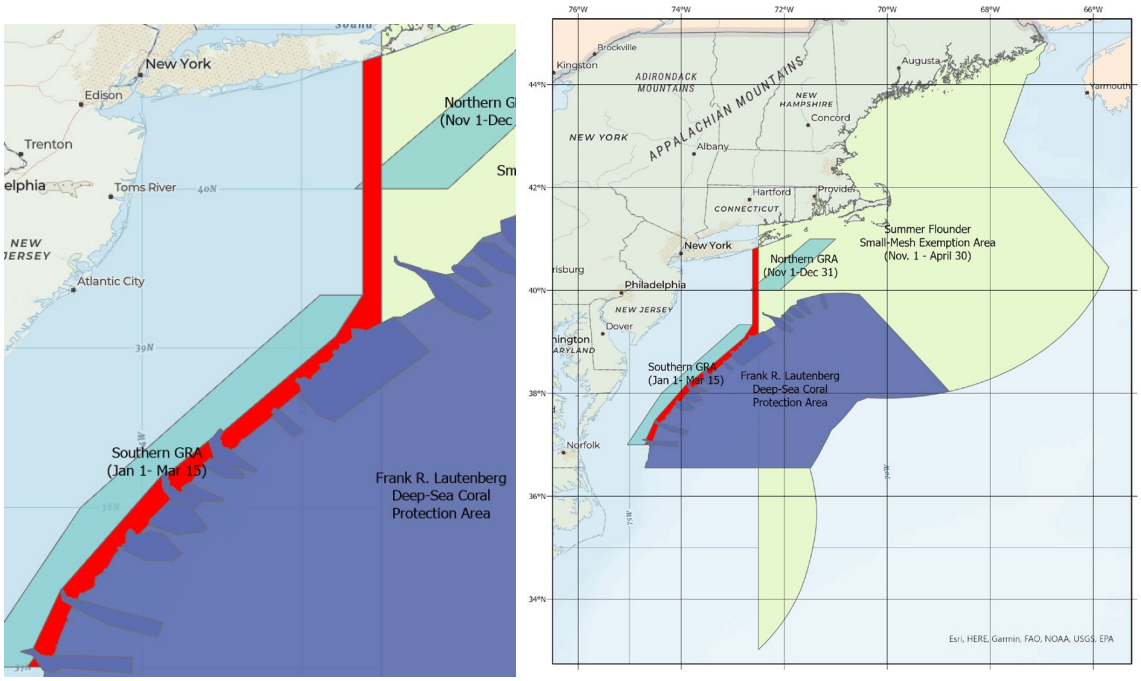

Figure 4: Draft Alternative 1B, industry proposal, for SMEP area.

[3] The two scup GRAs are designed to reduce scup discards in small-mesh fisheries. Trawl vessels may not fish for or possess longfin squid, black sea bass, or silver hake in the Northern GRA from November 1 – December 31 and in the Southern GRA from January 1 – March 15 using mesh smaller than 5 inches.

[4] https://www.mafmc.org/newsfeed/2024/request-for-proposals-collaborative-strategies-to-adapt-scup-gear-restricted-areas-gra-to-changing-ocean-conditions

Alt 1C: Extension of SMEP area without referencing coral zone boundaries.

While alternative 1B includes the area of interest to the fishing industry and reflects that bottom trawl gear is prohibited from the deep sea coral zone, the way in which alternative 1B follows the boundary of the coral area adds complexity to the regulations that may be unnecessary. Alternative 1C proposes a simplified extension of the SMEP to the eastern boundary of the southern scup GRA (Figure 5).

While this has the appearance of notably increasing the SMEP area size, the effective change is the same as alternative 1B given the restrictions on bottom tending gear in the deep sea coral area. There is already substantial overlap of the SMEP and coral zone where the SMEP is essentially irrelevant; this would increase that area of that overlap. The advantage of this alternative would be simplified boundaries to theoretically simplify compliance and enforcement.

The timing of the exemption would remain unchanged (November 1-April 30). Similar considerations regarding the intersection with the scup GRA, as described above under alternative 1B, apply here as well.

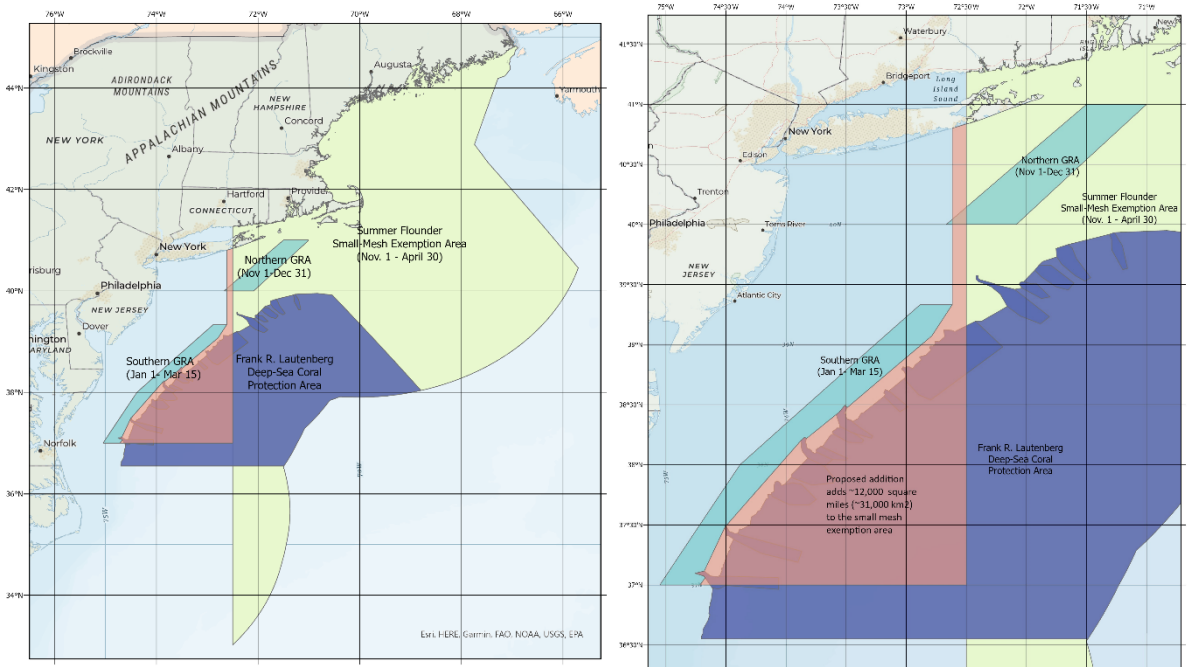

Figure 5: Draft alternative 1C, simplified proposed boundary modification that does not follow the coral area boundaries.

2.4 Preliminary Analysis

2.4.1 Characterization of Exemption Use

Vessel Trip Report (VTR) and Northeast Fisheries Observer Program (NEFOP) data, both linked to trips where vessels held an active SMEP LOA, were used to characterize use of this exemption program.

Gear Types and Mesh Size

VTR data from November 1, 2022 through April 30, 2023 indicate that over this time period, 90% of LOA trips were using bottom otter trawl gear, with the remaining 10% utilizing other or unknown gear types (small numbers of trips for unnamed "other" gear types, other bottom trawl types, scallop dredge, and sink gillnets). As some of these other gear types are non-trawl gears, these vessels would not be actively using the SMEP on every trip. Observer data for November 2013 through April 2022 indicate that 100% of observed trips over this time period associated with an active SMEP LOA were using bottom otter trawl gear.

A total of 6,771 hauls were observed on 1,246 trips associated with an active SMEP LOA from November 2013- April 2022. About 40% of these hauls used a mesh size at or above the summer flounder minimum mesh size of 5.5 inches, while 57% used mesh smaller than 5.5 inches and/or a small mesh codend liner (Table 1). The LOA/exemption is not necessary for vessels fishing with mesh over the 5.5-inch minimum size; however, many vessels holding LOAs are using a mix of different gear configurations on different trips or portions of trips while the LOA is active.

Table 1: Trips and hauls for observed bottom otter trawl trips with an active SMEP LOA, 2013-2022, by mesh size category (above and below the summer flounder 5.5" diamond mesh requirement).

Gear type and mesh size category	% of Hauls	Number of Unique Trips[a]	Number of Unique Permits[a]
≥5.5 inch[b]	40%	637	87
<5.5 inch[b]	57%	624	92
Unknown	3%	38	25
Total	100%	1,246	109

[a] Number of trips and permits do not add to the total given that some trips and some permits are associated with use of multiple mesh size categories.

[b] Observer mesh size data is reported as an average of 10 individual mesh measurements, in millimeters. For this analysis, mesh size was converted to inches and rounded to the nearest tenth of an inch, so conversion and rounding error may be present for some observations.

Target Species

Target species is reported for each haul in the observer data. 31% of observed hauls for active LOA holders over this time period were reported as targeting summer flounder, and 37% of trips (467 out of 1,246) had at least one haul targeting summer flounder. Other common target species on observed SMEP trips included longfin squid, scup, and skate, with other species accounting for less than 5% of hauls on these trips (Table 2).

Table 2: Top 10 target species on observed trips for vessels with an active SMEP LOA, 2013-2022, with percent of total observed hauls, number of unique trips, and number of unique permits. NK = unknown.

Target Species	Percent of Hauls	Number of Trips	Number of Permits
Summer Flounder	30.8%	467	92
Longfin Squid	23.7%	242	71
Scup	10.1%	173	53
Skate, NK	5.1%	94	30
Silver Hake (Whiting)	4.7%	85	24
Yellowtail Flounder	4.5%	84	35
Groundfish, NK	3.9%	86	17
Atlantic Herring	3.0%	68	8
Little Skate	2.3%	51	14
Flounder, NK	2.3%	42	22

The top targeted species differ somewhat when observed hauls for LOA trips are broken out by mesh size category (above and below the summer flounder minimum diamond mesh size of 5.5-inches). Larger mesh gear (greater than or equal to 5.5-inches) is generally used by LOA holders to target summer and yellowtail flounder, groundfish, and skate. Smaller mesh (less than 5.5 inches) LOA trips do target some summer flounder (25% of hauls), but otherwise are generally targeting species with smaller or no minimum mesh size requirements including longfin squid, scup, whiting, herring, and black sea bass (Table 3).

Table 3: Top 6 target species by mesh size category, above and below the summer flounder diamond minimum mesh size of 5.5 inches, for observed trips with an active SMEP LOA, November-April, 2013-2022.

Large Mesh (≥5.5 inch)	Percent of Large Mesh Hauls	Small Mesh (<5.5 inch)	Percent of Small Mesh Hauls
Summer Flounder	38.2%	Longfin Squid	41.3%
Yellowtail Flounder	12.0%	Summer Flounder	25.2%
Groundfish, NK	10.6%	Scup	14.9%
Skate, NK	9.2%	Silver Hake (Whiting)	7.7%
Flounder, NK	5.5%	Atlantic Herring	5.0%
Little Skate	5.5%	Black Sea Bass	1.7%

For all hauls targeting summer flounder, 49% were using mesh at or above the 5.5-inch minimum mesh size, while 47% used mesh smaller than 5.5-inches (Table 4).

Table 4: All hauls targeting summer flounder by mesh size category (above and below summer flounder min. mesh size), November 2013-April 2022, for observed trips tied to active SMEP LOA.

Mesh Size Category	Percent of hauls	Permits	Trips	Total observed catch (lb)
Large (≥5.5 inch)	49%	70	246	1,621,516
Small (<5.5 in)	47%	68	225	1,947,089
Unknown	4%	11	12	148,816
Grand Total	**100%**	**92**	**467**	**3,717,421**

Summer Flounder Catch and Discards

Of all observed hauls linked to SMEP LOAs from November 2013-April 2022, 74% of hauls caught summer flounder, and 86% of observed trips caught summer flounder at some point on the trip. Of the hauls targeting summer flounder, 97% caught summer flounder (Table 4).

Table 5: Observed trips, hauls, and permits for observer data linked to SMEP LOAs, November 2013-April 2022.

	Trips	Hauls	Permits
All observed SMEP LOA	1,246	6,771	109
Caught fluke	1,073	4,998	106
Targeted fluke	467	2,084	92
Targeted & caught fluke	466	2,022	92

For all observed trips that caught summer flounder, average summer flounder landings were 863 pounds per trip, compared to 1,587 pounds per trip on trips where targeting of summer flounder occurred. Average discards were 113 pounds of summer flounder for all trips, and 95 pounds for trips targeting summer flounder (Table 5). For most observed trips, discards of summer flounder appear to be relatively low by weight, but can still be a notable proportion of total summer flounder catch on those trips. On average, 19% of summer flounder caught were discarded on these observed trips, with 39% of trips discarding more than 10% of their summer flounder catch (or 21% for trips reporting targeting of summer flounder; Table 6).

Table 6:Statistics for landings and discards of summer flounder on a) all observed SMEP LOA trips with summer flounder catch, and b) observed SMEP LOA trips with hauls targeting summer flounder, November 2013-April 2022. Landings and discard values are in pounds.

a) All observed trips with summer flounder catch			
	Fluke Landings		**Fluke Discards**
Mean per trip	863	Mean per trip	113
Median per trip	300	Median per trip	15
% of trips landings >2,000 lb	11%	% of trips discards >2,000 lb	1%
% of trips landings >500 lb	42%	% of trips discards >500 lb	5%
% of trips landings >200 lb	58%	% of trips discards >200 lb	13%
% of trips no landings	7%	% of trips no discards	25%
b) Observed trips targeting summer flounder			
	Fluke Landings		**Fluke Discards**
Mean per trip	1,587	Mean per trip	95
Median per trip	1,000	Median per trip	23
% of trips landings >2,000 lb	22%	% of trips discards >2,000 lb	0.2%
% of trips landings >500 lb	75%	% of trips discards >500 lb	3%
% of trips landings >200 lb	92%	% of trips discards >200 lb	13%
% of trips no landings	0.2%	% of trips no discards	23%

Table 7: Statistics for percent of summer flounder discarded on a) all observed SMEP LOA trips with summer flounder catch, and b) observed SMEP LOA trips with hauls targeting summer flounder, November 2013-April 2022.

	a) All trips catching summer flounder	b) Trips targeting & catching summer flounder
Total observed trips	1,073	466
Avg % flk discarded per trip	19%	7%
Total % flk discarded across all trips	12%	6%
% of trips discarding more than 10% of flk catch	39%	21%

2.4.2 Presence of Juvenile and Undersized Summer Flounder in SMEP Area

Preliminary analysis of the presence and abundance of undersized (less than the 14-inch commercial fishery minimum size) and juvenile (less than 30 cm or 11.8 inches) is provided in **Appendix A**, based on NMFS bottom trawl survey length data from the Northeast Regional Habitat Assessment from 1990-2019. Additional work is needed to evaluate and interpret these results, including evaluating if trends differ by time period and further comparing the results between the current and proposed SMEP areas. The period of overlap between the bottom trawl survey timing and the SMEP timing is limited, given that the survey occurs only within a portion of the SMEP time frame (portions of March and April). As such, the data should be interpreted with caution. During this time, it appears that the availability of undersized summer flounder (less than 14 inches) is similar between the current SMEP area and the proposed expansion (11% and 12%, respectively, of summer flounder caught in each area; see Appendix A).

The FMAT/PDT are continuing to explore other sources of information to assess potential biological impacts.

2.5 Additional Planned Analysis

Additional analysis planned but not yet available for this document includes:

- Evaluate landings and discards by mesh size category (above and below 5.5 inches) for SMEP users.
- Map spatial extent of the use of the small mesh exemption program (using observer and/or VTR data).
- Evaluate extent of fishing activity west of the demarcation line.
- Look for additional sources of information to evaluate biological impacts, including potential length data from observer records.
- Economic analysis of potential changes.

2.6 Other Issues to be Addressed

As noted above, the Fall 2023 review of mesh exemptions raised some administrative and technical issues that should be addressed but would not require separate alternatives within this management action. The FMAT/PDT is considering how the following issues may be addressed:

Administrative requirements:

- Some confusion exists about the requirement that "Vessels fishing under the LOA shall not fish west of the line." It appears that the intent of this language was to prohibit any vessel with an active LOA from fishing west of the line in any fishery; however, comments received in the fall of 2023 indicate that some vessels interpret this as a restriction on fishing west of the line within a single trip in which they have participated in the SMEP. GARFO intends to clarify this portion of the regulation.
- Regulations require that the LOA be held for at least 7 days. The FMAT/PDT's understanding is that this was due to staff processing requirements at the time this exemption was implemented. The FMAT/PDT will continue to work with others at GARFO to determine whether this provision could be made more flexible.
- The regulations specify that the Monitoring Committee may recommend adjustments to the exempted area and boundary in 30-minute intervals of latitude and longitude, and to the seasons in 2-week intervals. This is thought to be due to data availability at the time. GARFO and the FMAT/PDT are looking into whether these restrictions on what the Monitoring Committee can recommend should be modified.

Evaluation methodology:

- Language differs between Amendment 3 and the regulations[5] for determining the rescission of the exemption and should be reconciled. This may impact the methodology used in these evaluations going forward.
    - **Amendment 3:** "if the Regional Director determines after a review of Sea Sampling data that **vessels fishing seaward of the line** described above are discarding more than 10% of their summer flounder catch, the Regional Director may rescind the exemption."
    - **Regulations: "**the Regional Administrator may terminate this exemption if he/she determines, after a review of sea sampling data, that **vessels fishing under the exemption** are discarding more than 10 percent, by weight, of their entire catch of summer flounder per trip."
- The methodology and data sources being used to calculate the impact of this program are the same as those available in 1993. Currently, the analysis relies solely on observed trips identified using a series of assumptions indicating a presumed use of the SMEP. This provides a limited snapshot due to limited observer coverage and is not based on confirmed use of the LOA. More accurate and robust data should be available through systems that are in place today, but which were not available in the 1990s, which would improve the ability to evaluate the utilization and impacts of the SMEP and provide more accurate information on trips that are actually fishing under the SMEP rather than relying on the assumptions inherent in the observer datasets. The Monitoring Committee noted that if continued use of observer data for this analysis is necessary, the methodology used may need to be revisited. The FMAT/PDT will continue to consider how evaluation methods might be improved going forward.

3. Flynet Exemption

3.1 Flynet Exemption Background

Since 1993, The flynet exemption in the Summer Flounder FMP, has provided an exemption to the minimum mesh size requirements for vessels fishing with a two-seam otter trawl flynet with specifications

[5] 50 CFR 648.108(b)(1))

defined in regulation (see draft Alternative 2A). No permits or special reporting are required to utilize this exemption.

The original intent of this exemption was to accommodate the use of a specifically defined gear in a specific fishery. Flynets were generally fished 10-12 ft off the bottom between September and April from North Carolina to Cape Henlopen, Delaware, and primarily targeted bluefish and sciaenids. North Carolina Division of Marine Fisheries provided additional data to support the exemption, indicating that summer flounder were landed as incidental catch in the flynet fishery and comprised only 1 to 3 percent of the total trip catch (based on 1982 to 1989 data). Comparatively, summer flounder made up 62 to 94 percent of nearshore bottom trawl total trip catch and 10 to 72 percent for deep water otter trawls. Although flynets caught a higher proportion of undersized summer flounder (58.1 percent) versus nearshore bottom trawls and deep water trawls (4.5 percent and 8.4 percent, respectively), summer flounder appeared in less than half of the flynet trawls and made up 0.2 to 0.8 percent of the catch between 1985 and 1988.

Amendment 2 also proposed an exemption for 4-seam, pelagic nets with large mesh of at least 32 in. in the wings, 50 feet (40 meshes) of 15 in. in the belly, decreasing in the body relative to the wings and extensions to mesh of 1.5 in. or less in the codend (referred to as "millionaire nets"). The exemption was requested primarily by New Jersey fishermen who stated that almost all summer flounder quickly escaped after entering these nets. This exemption was disapproved in the final rule because the record did not include sufficient information to determine its effect and because the net could be fished on the bottom by towing at a reduced speed, which could lead to increased discard mortality of undersized summer flounder.

Available data provided by the state of North Carolina indicate that the flynet exemption is no longer being utilized today in that area/fishery and discussions with surrounding states indicate that few landings of summer flounder using this gear type occur. However, industry feedback indicates that the flynet exemption has become an important component of specific fisheries throughout the Greater Atlantic Region, although some of the net types being utilized under the flynet exemption do not comply with the specific regulatory definition of a flynet. The term "high rise" net appears to be regional terminology for a flynet. Those nets may not meet the definition specified in regulation for this exemption (particularly regarding the number of seams), but industry feedback indicated that, in their opinion, there was little difference in the fishing characteristics of 2-seam flynets and high-rise nets. The term "flynet" refers mainly to the way in which the net opens at the mouth. Recommendations from industry from the Fall 2023 mesh exemptions review centered primarily on updating the regulatory definition of exempted gear types under the flynet exemption.

3.2 Draft Range of Alternatives for Flynet Exemption

Alternative 2A: Status quo.
Vessels fishing with a two-seam otter trawl flynet are exempt from the summer flounder minimum mesh size requirements. The regulatory definition of a fly net is a two-seam otter trawl with the following configuration:

- The net has large mesh in the wings that measures 8" to 64".
- The first body (belly) section of the net has 35 or more meshes that are at least 8".
- The mesh decreases in size throughout the body of the net to 2 inches (5 cm) or smaller towards the terminus of the net.

Alternative 2B: Modified flynet definition to remove references to two seams and 64" upper bound of mesh in wings.

This alternative would modify the flynet definition to remove 1) the reference to two seams and 2) the reference to the upper range of the mesh size in the wings of 64", as indicated in the highlighted portions of the definition below.

Vessels fishing with an ~~two-seam~~ otter trawl flynet are exempt from the summer flounder minimum mesh size requirements. The regulatory definition of a fly net is an ~~two-seam~~ otter trawl with the following configuration:

- The net has large mesh in the wings that measures 8" ~~to 64"~~ or greater.
- The first body (belly) section of the net has 35 or more meshes that are at least 8".
- The mesh decreases in size throughout the body of the net to 2 inches (5 cm) or smaller towards the terminus of the net.

Comments during the previous public input process suggested that the number of seams is not a critical component of the configurations for gears that should be included in this exemption, in terms of the way the net fishes or in terms of catch of summer flounder. These comments asserted that both two and four seam nets can be "high rise" type nets with larger mesh in the wings that prevents catching large amounts of summer flounder. Comments also suggested that some mesh in the wings of these nets is substantially greater than 64", and this "upper limit" in the regulations should be removed.

Alternative 2C: Rewrite definition to apply to flynet and high-rise gear with large mesh in the wings, with specifications informed by additional industry feedback and public comment. This alternative would modify the flynet definition to describe flynet and high-rise nets with large mesh in the wings, with additional specific configuration details to be informed by industry feedback and public comment. This alternative may be preferable if it is determined that the definition alternative 2B does not adequately describe these net types. Preliminary input from industry and gear experts indicate that some components of the definition of trawl gear types are particularly important to distinguish gear types that are unlikely to target or catch substantial amounts of summer flounder, but additional input is needed to more precisely define these gear types. This revised definition could include listing specific net types, however, certain details on mesh configuration (mesh sizes and number of meshes in specific net locations) will be important to avoid any ambiguity in the definition that would exempt gear types that may catch summer flounder in greater amounts.

3.3 Preliminary Analysis

The sections below summarize preliminary analysis on use patterns and catch for flynet or high-rise type nets, based on observer data. Observer data is the primary source of information to compare use of these net types vs. other trawl net types. Specific gear and net configuration fields are not available from Vessel Trip Reports.

3.3.1 Gear Definitions and Descriptions

Several otter trawl net types used in the Greater Atlantic region may be relevant to an expanded or modified definition of a flynet for the purposes of the flynet exemption. However, defining some of these net types consistently and clearly can be a challenge. Most nets are made with custom specifications, and the exact configuration often varies even among net types that may be called by the same name. Terminology for a given net type can also vary by region and fishery.

During the mesh exemptions review process in the Fall of 2023, a few industry representatives provided input on the types of nets that may be appropriate to consider in an expanded flynet definition (Table 7). In summary, these net types are either two- or four-seam high-rise nets that have large mesh in the wings with mesh sizes that gradually decrease to the codend. The large mesh in the wings allows many flatfish to escape and is not ideal for targeting summer flounder.

Modifications to this list can be made prior to public hearings and final action as needed based on public and Council/Board input. Additional definitions related to gear configuration and net types, including definitions for other trawl types not proposed for potential inclusion in this exemption can be found in **Appendix B.**

Table 8: Possible flynet/high-rise net types recommended for consideration by some fishing industry comments during Fall 2023 mesh exemptions review. Definitions are from the 2021 Observer Operations Manual.

Net type	Description
Balloon Trawl	A two-seam trawl with a high mouth, lighter net material, and floats attached to the headrope so the footrope floats just above the bottom.
Eliminator Trawl	Typically a four-seam, three-bridle trawl with large mesh in the forward part of the net. Large meshes in the bottom belly act as a separator device for the escape of non-target groundfish species. Mesh sizes decrease as the net tapers towards the codend.
Flynet	A high profiled trawl with large wing mesh sizes that slowly taper to smaller mesh sizes in the body extension and codend. The headrope is usually slightly larger than the footrope. Uses a large number of floats to keep the net slightly off the bottom. *Regulatory definition for this exemption specifies two seams, but observer data show some reported use of four seam flynets.
Haddock Separator Trawl	A groundfish trawl with two codend extensions arranged one over the other. A codend is attached to the upper extension, and the bottom extension is left open with no codend attached. A horizontal mesh panel separates the upper and lower extensions.
Millionaire Trawl	A four-seam trawl typically used in the squid fishery. Very large openings in the mouth and large mesh in the wings.
Rope Separator Trawl	A four-seam bottom trawl net modified to include both a horizontal separator panel (consisting of parallel lines of fiber rope) and an escape opening in the bottom belly of the net below the separator panel.
Ruhle Trawl	A four-seam groundfish net with large meshes (8-foot meshes) in the wings and bottom belly of the net. The trawl must have kite panels that meet the regulated minimum surface area.7 The Ruhle Trawl is a specific type of Eliminator Trawl.

Note that this suggested list originally included "**pelagic pair trawl**" and "**pelagic single trawl**" net types. It was determined that these net types apply almost exclusively to midwater trawls, which operate fully off the bottom and catch negligible amounts of summer flounder. As such, these net types were removed from this list.

Preliminary conversations with gear experts[6] suggest that the mesh size in the wings, particularly in the middle part of the trawl behind the sweep, is the most important part to regulate for flatfish to escape. A larger mesh regulation and potentially a maximum number of meshes should be considered here, as allowing for too many large meshes may mean that the mesh will close up while the gear is towed.

[6] Northeast Trawl Advisory Panel members Pingguo He and Mike Pol, pers. comm., March 2024.

The number of seams on an otter trawl primarily impacts the opening shape of a net. For example, a 4-seam compared to a 2-seam net creates a higher dome-shape opening. This sort of opening is designed primarily for fish that occupy or swim up just above the bottom, and is not ideal for catching flatfish that reside on the bottom. Therefore, the removal of the reference to the number of the seams in the regulatory definition of a flynet appear unlikely to directly impact the proportions of summer flounder targeted, caught, or discarded using this exemption, although it would expand the number of vessels that could theoretically use the exemption. As noted below, additional evaluation of the differences in catch characteristics between 2- and 4-seam nets is planned, but overall these net types do not appear to catch substantial amounts of summer flounder. Nets with more than 4 seams do exist (e.g., 6 seam nets), but are very uncommon for bottom trawls and are designed more for mid-water trawling.

3.3.2 Characterization of Flynet and High-Rise Gear Use

Observer data was used to characterize the use of flynet/high-rise type nets in comparison with other trawl net types. Observers record a "net type" field in addition to a broader gear category field, and also collect other information related to specific configuration of a trawl. Net type in the observer data is recorded based on what is reported to the observer by the captain[7], and not all captains use the same terminology. In addition, net type information in the observer data is often missing or reported as "unknown." Therefore, while observer data over a number of years can provide a general sense of the use of different gear types, it should be interpreted with caution, and industry feedback on these analyses will be helpful.

Prevalence vs. Other Trawl Types

The net types associated with potential revisions to the flynet definition (Table 7) were associated with about 13% of all observed bottom trawl hauls from 2014-2022 (regardless of target species; Table 8).

Table 9: Percent of hauls and observed trips by net category for all observed bottom trawl trips, 2014-2022. Includes all observed trawl trips regardless of target species or catch of summer flounder.

Net Category	Percent of Hauls	Observed trips[a]
NOT considered "flynet" or high-rise (e.g., flatfish trawl, groundfish trawl, etc.)	86.9%	8,534
Potential flynet/high-rise nets (e.g., balloon trawl, eliminator trawl, flynet, etc.)	13.1%	1,155

[a] This column indicates that this gear type was used at some point on a trip, not necessarily for every haul. Many vessels use multiple gear types within a single trip.

Target Species

For flynet or high-rise type gears identified for possible inclusion in a revised flynet definition, the top target species according to observer data are listed in Table 9. For all of these gear types combined, the largest proportion of hauls were targeting haddock or longfin squid. A good proportion of hauls also targeted scup, short-fin squid, black sea bass, and groundfish. Summer flounder was identified as the primary target species on about 3.7% of observed flynet/high-rise type gear hauls from 2007-2022.

For all of these species, flynet or high-rise gear types are only a portion of the net types used to target them, ranging from 1-62% of hauls vs. other trawl gear types (Figure 6).

[7] Observers are also instructed to visually verify trawl gear components and configurations.

For confidentiality reasons, target species cannot be broken down for all individual net types. The FMAT/PDT is working to summarize some information in aggregated form; however, additional time is needed to ensure confidentiality. However, of the different industry recommended flynet/high-rise net types, only balloon trawls and flynets appear to have a meaningful percent of hauls targeting summer flounder, about 6-7% of their total hauls. Other industry recommended flynet/high-rise net types appear to very rarely report targeting summer flounder within a haul.

Table 10: Top target species recorded on observed trawl hauls for all flynet-type net types identified for possible inclusion in an expanded flynet definition, 2007-2022.[a] Species shown represent those target species collectively accounting for 90% of observed hauls.

Target Species[b]	**Percent of observed hauls**	**Observed trips**
Haddock	20.1%	274
Squid, Atl Long-Fin	19.1%	383
Scup	9.9%	392
Squid, Short-Fin	8.7%	176
Sea Bass, Black	8.0%	283
Groundfish, NK	7.2%	114
Croaker, Atlantic	4.2%	122
Flounder, Summer (Fluke)	3.7%	237
Cod, Atlantic	3.1%	112
Flounder, Winter (Blackback)	2.3%	51
Herring, Atlantic	2.2%	89
Pollock	1.5%	59

[a] Gear types include flynets, balloon trawls, eliminator trawls, haddock separator trawls, millionaire trawls, rope separator trawls, and Ruhle trawls.

[b] Observer records can include up to five target species per haul; for simplicity, only the first target species listed is included in this analysis.

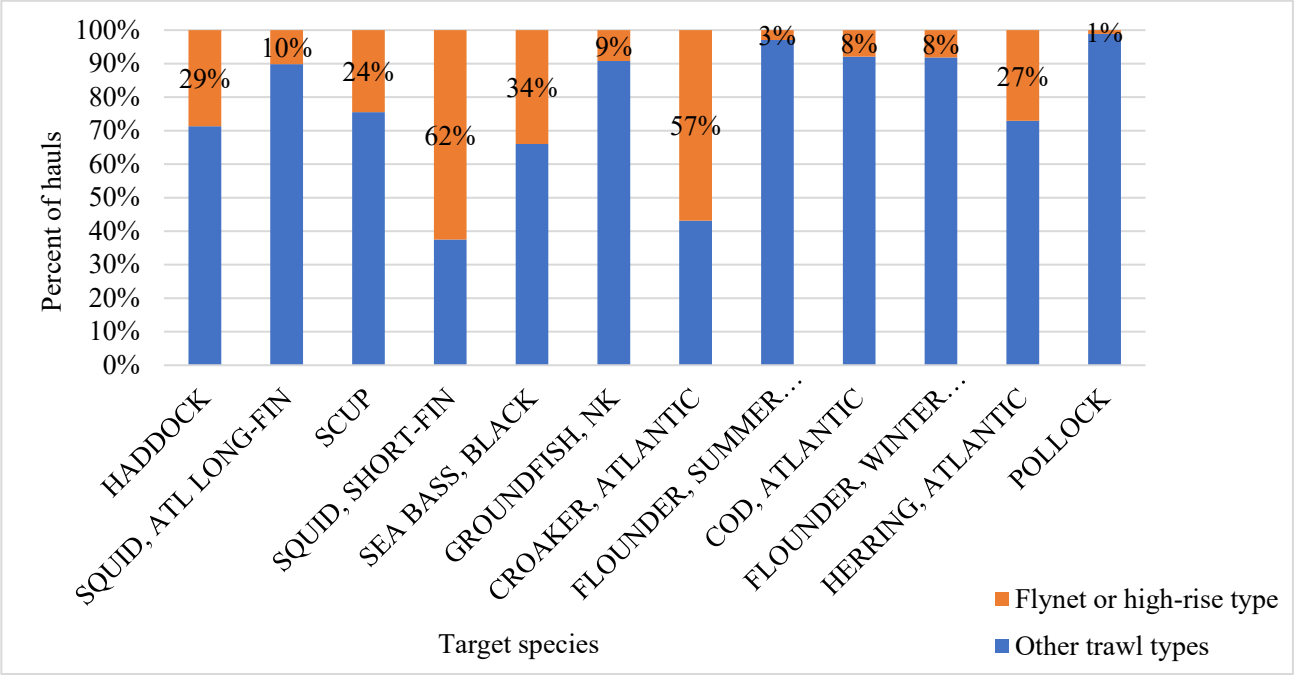

Figure 6: For top target species of flynet and high-rise type gear, percent of total observed trawl hauls represented by flynet-type gear vs. Other trawl types, from 2007-2022 observer data.

Caught Species

According to observer data from 2007-2022, the top species caught and landed with these trawl gear types are short-fin squid and Atlantic herring, followed by longfin squid, haddock, and scup (Table 10). The top discarded species by weight are spiny dogfish and winter skate, followed by unknown fish and little skate (Table 11).

Summer flounder represents 0.7% of the total observed catch by weight in these gear types, including 0.6% of observed landings and 0.9% of observed discards. Average total catch of summer flounder in these gear types is about 455 pounds per trip, with discards averaging about 100 pounds per trip.

Table 11: Top caught and landed species recorded on observed trawl hauls for all flynet-type net types identified for possible inclusion in an expanded flynet definition, 2007-2022.[a] Species shown represent those caught species collectively accounting for 90% of observed catch.

Species	Percent of total flynet/high-rise gear catch by weight	Percent of total flynet/high-rise gear landings by weight	Percent of total flynet gear trips with catch
Squid, Short-Fin	35.7%	41.6%	32.3%
Herring, Atlantic	11.0%	13.0%	20.36%
Squid, Atl Long-Fin	8.7%	10.1%	63.07%
Haddock	6.9%	7.7%	26.4%
Scup	5.2%	5.2%	48.6%
Butterfish	4.0%	3.8%	53.3%
Dogfish, Spiny	3.2%	0.1%	64.8%

Croaker, Atlantic	2.8%	3.2%	7.85%
Mackerel, Atlantic	2.4%	2.8%	26.09%
Skate, Winter (Big)	2.3%	0.6%	47.5%
Fish, Nk	1.6%	0.4%	19.4%
Sea Bass, Black	1.6%	1.5%	48.94%

[a] Gear types include flynets, balloon trawls, eliminator trawls, haddock separator trawls, pelagic pair trawls, pelagic single trawls, millionaire trawls, rope separator trawls, and Ruhle trawls.

Table 12: Top discarded species recorded on observed trawl hauls for all flynet-type net types identified for possible inclusion in an expanded flynet definition, 2007-2022.[a] Species shown represent the top 10 discarded species, collectively totaling 69% of observed discarded weight in these gear types.

Species	Percent of total flynet/high-rise gear discards by weight	Observed trips
Dogfish, Spiny	20.0%	1,242
Skate, Winter (Big)	11.3%	790
Fish, Nk	7.7%	364
Skate, Little	7.2%	1,014
Butterfish	5.0%	867
Scup	4.9%	866
Squid, Short-Fin	4.3%	503
Haddock	3.1%	400
Skate, Nk	2.6%	197
Sea Robin, Northern	2.5%	806

[a] Gear types include flynets, balloon trawls, eliminator trawls, haddock separator trawls, pelagic pair trawls, pelagic single trawls, millionaire trawls, rope separator trawls, and Ruhle trawls.

3.4 Additional Planned Analysis

Additional analysis planned but not yet available for this document includes:

- Further clarify and define which net types might be included under each alternative, including consulting further with gear experts to determine the critical elements of definition for this exemption.
- Spatial and temporal exploration of flynet/high-rise gear use using observer data, including overlap with the SMEP area and timing.
- Additional exploration of target species and catch by net type (inclusion in public documents to be limited by confidentiality constraints).
- Exploration of observer data for other net configuration fields that may provide information about how to define these gear types more clearly.
- Additional characterization of the use of 2 seam vs. 4 seam nets.
- Economic analysis of potential changes.

3.5 Other Issues to be Addressed

Similar to the SMEP evaluation methodology, there is differing language in the regulations[8] vs. in Amendment 2 for evaluation of the flynet exemption. Specifically, there is differing language for

[8] https://www.ecfr.gov/current/title-50/part-648#p-648.108(b)(2)(iv).

determining when this exemption should be rescinded based on the level of discards of summer flounder by vessels fishing under this exemption.

- **Amendment 2:** the NMFS Regional Administrator may withdraw the exemption if the "summer flounder catch in the flynet fishery exceeds 1% *of the total catch in the flynet fishery*."
- **Regulations:** whether "vessels fishing under the exemption, on average, are discarding more than 1 percent *of their entire catch of summer flounder per trip*."

The FMAT/PDT will continue to work with GARFO to identify ways to reconcile these differences for the Council and Board's consideration at a future meeting.

Appendix A: Analysis of Juvenile and Undersized Summer Flounder in SMEP Area Using Fishery Independent Survey Data

The availability of juvenile and undersized summer flounder in the SMEP area (current and potential proposed) was investigated using fishery independent trawl survey data. The Northeast Regional Habitat Assessment Data Explorer[9] includes mapped length data for state and federal trawl surveys. While the spatial and temporal overlap between the surveys and the SMEP area/timing are limited, some information is available to assess the abundance of juvenile (<30 cm or 11.8 inches) and undersized (<35.6 cm or 14 inches) summer flounder in the SMEP area during November 1-April 30, and how abundance varies for the proposed expanded area.

Data was first filtered to include records from 1990 to the most recent year of trawl survey data availability within NRHA, 2019. Subsequent exploration focused on spatial coverage and temporal alignment. The NMFS bottom trawl survey is the only survey that spans both the current and proposed areas within the November-April exemption timeframe. The NEAMAP, Massachusetts Bottom Trawl, Rhode Island Narragansett Bay Trawl and Long Island Sound Bottom Trawl surveys were all considered for inclusion in these analyses as they do intersect with the current SMEP area. However, these surveys occur well inshore and are unlikely to provide informative data on summer flounder relative to this exemption program. In addition, the NEAMAP and Massachusetts Bottom Trawl survey do not occur within the November-April time frame, and the Long Island Sound Bottom Trawl and Rhode Island Narragansett Bay Trawl do not occur within the proposed expanded SMEP area (Table 12, Figure 7, Table 13).

Table 13: Survey and timing available to potentially evaluate summer flounder within SMEP area (current and proposed).

Survey	Months Surveyed
Connecticut Long Island Sound Trawl	4, 5, 6, 8, 9, 10, 11
Massachusetts Bottom Trawl	5, 9, 10
NEAMAP Bottom Trawl	5, 6, 9, 10
NMFS Bottom Trawl	1, 2, 3, 4, 5, 6, 9, 10, 11
Rhode Island Narragansett Bay Trawl	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

[9] https://nrha.shinyapps.io/dataexplorer/#!/

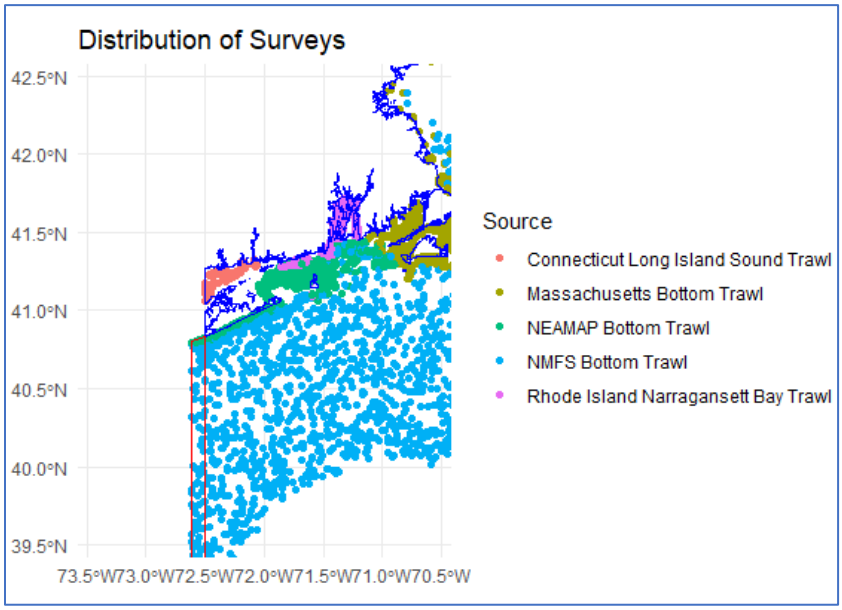

Figure 7: Distribution of surveys available to potentially evaluate summer flounder within SMEP area (current and proposed).

Table 14: Summary of the number of records from each survey in the current Small Mesh Exemption Area and the Proposed Exemption Area by date and life stage, 1990-2019. Only NMFS covers both proposed and current areas for the Nov 1-April 30th SMEP timing.

Survey	Season	Stage 30cm	Legal size 35.6cm	Small Mesh Exemption Area	Number of Records
Connecticut Long Island Sound Trawl	Nov 1 - Apr 30	Adult	legal sized	current	25
Connecticut Long Island Sound Trawl	Nov 1 - Apr 30	Adult	undersized	current	12
Connecticut Long Island Sound Trawl	Nov 1 - Apr 30	Juv	undersized	current	16
Connecticut Long Island Sound Trawl	Outside Nov 1 - Apr 30	Adult	legal sized	current	411
Connecticut Long Island Sound Trawl	Outside Nov 1 - Apr 30	Adult	undersized	current	235
Connecticut Long Island Sound Trawl	Outside Nov 1 - Apr 30	Juv	undersized	current	161
Massachusetts Bottom Trawl	Outside Nov 1 - Apr 30	Adult	legal sized	current	2602
Massachusetts Bottom Trawl	Outside Nov 1 - Apr 30	Adult	undersized	current	1051
Massachusetts Bottom Trawl	Outside Nov 1 - Apr 30	Juv	undersized	current	495
NEAMAP Bottom Trawl	Outside Nov 1 - Apr 30	Adult	legal sized	current	668
NEAMAP Bottom Trawl	Outside Nov 1 - Apr 30	Adult	legal sized	proposed	16
NEAMAP Bottom Trawl	Outside Nov 1 - Apr 30	Adult	undersized	current	404
NEAMAP Bottom Trawl	Outside Nov 1 - Apr 30	Adult	undersized	proposed	17
NEAMAP Bottom Trawl	Outside Nov 1 - Apr 30	Juv	undersized	current	248
NEAMAP Bottom Trawl	Outside Nov 1 - Apr 30	Juv	undersized	proposed	26
NMFS Bottom Trawl	Nov 1 - Apr 30	Adult	legal sized	current	1543
NMFS Bottom Trawl	Nov 1 - Apr 30	Adult	legal sized	proposed	403
NMFS Bottom Trawl	Nov 1 - Apr 30	Adult	undersized	current	561
NMFS Bottom Trawl	Nov 1 - Apr 30	Adult	undersized	proposed	125
NMFS Bottom Trawl	Nov 1 - Apr 30	Juv	undersized	current	345
NMFS Bottom Trawl	Nov 1 - Apr 30	Juv	undersized	proposed	59
NMFS Bottom Trawl	Outside Nov 1 - Apr 30	Adult	legal sized	current	1319
NMFS Bottom Trawl	Outside Nov 1 - Apr 30	Adult	legal sized	proposed	38
NMFS Bottom Trawl	Outside Nov 1 - Apr 30	Adult	undersized	current	251
NMFS Bottom Trawl	Outside Nov 1 - Apr 30	Adult	undersized	proposed	16
NMFS Bottom Trawl	Outside Nov 1 - Apr 30	Juv	undersized	current	94
NMFS Bottom Trawl	Outside Nov 1 - Apr 30	Juv	undersized	proposed	19
Rhode Island Narragansett Bay Trawl	Nov 1 - Apr 30	Adult	legal sized	current	129
Rhode Island Narragansett Bay Trawl	Nov 1 - Apr 30	Adult	undersized	current	54
Rhode Island Narragansett Bay Trawl	Nov 1 - Apr 30	Juv	undersized	current	87
Rhode Island Narragansett Bay Trawl	Outside Nov 1 - Apr 30	Adult	legal sized	current	2007
Rhode Island Narragansett Bay Trawl	Outside Nov 1 - Apr 30	Adult	undersized	current	788
Rhode Island Narragansett Bay Trawl	Outside Nov 1 - Apr 30	Juv	undersized	current	450

Figure 8 shows the spatial distribution of legal sized vs. undersized summer flounder from the NMFS bottom trawl survey length data, while Figure 9 shows juvenile vs. adult summer flounder.

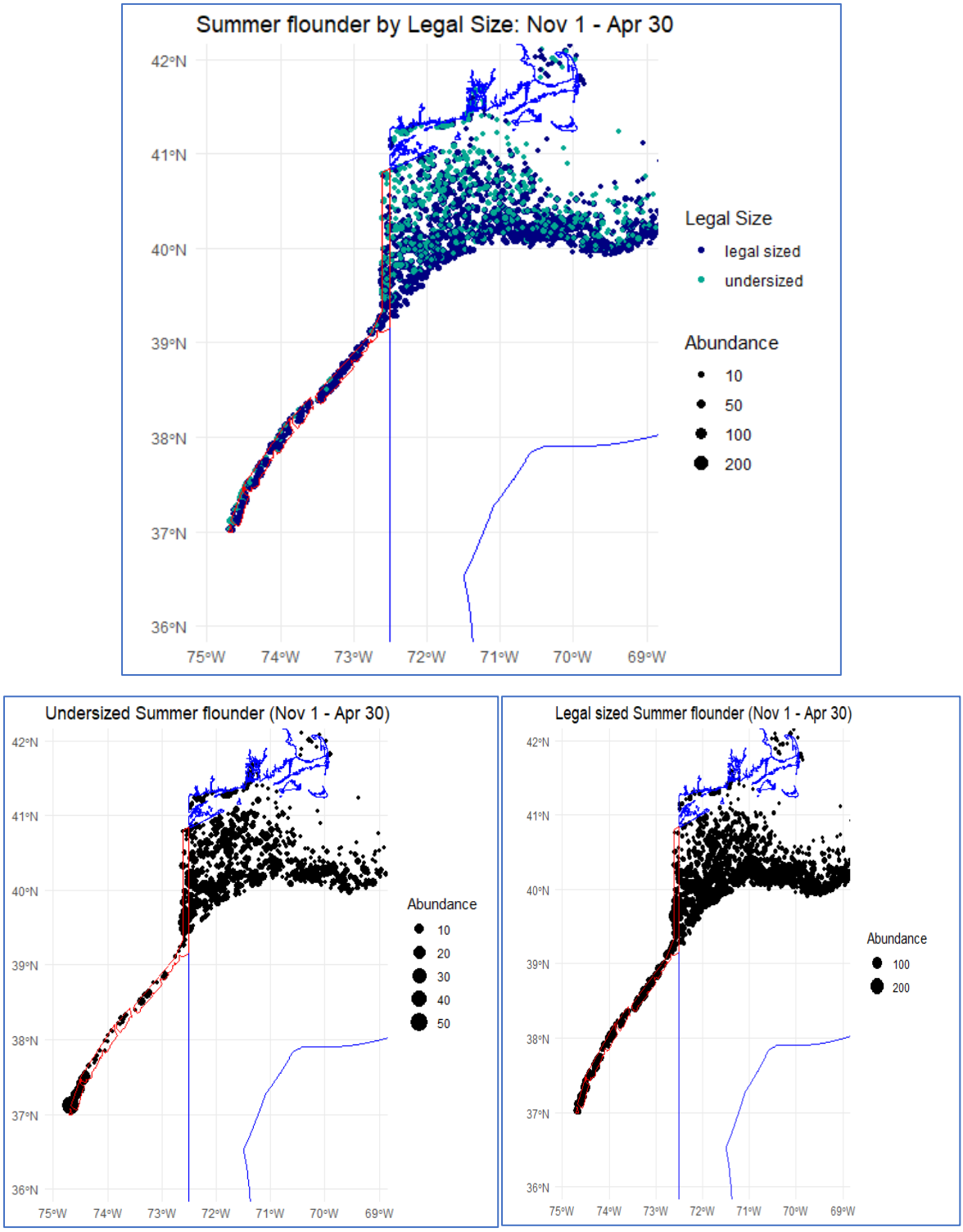

Figure 8: Spatial extent of observations of undersized vs. legal sized (above and below 14-inch commercial minimum size) for NMFS bottom trawl survey data, 1990-2019. The current SMEP area is represented by the blue line, with potential additional area (excluding deep sea coral zones, see draft alternatives 1B and 1C) outlined in red.

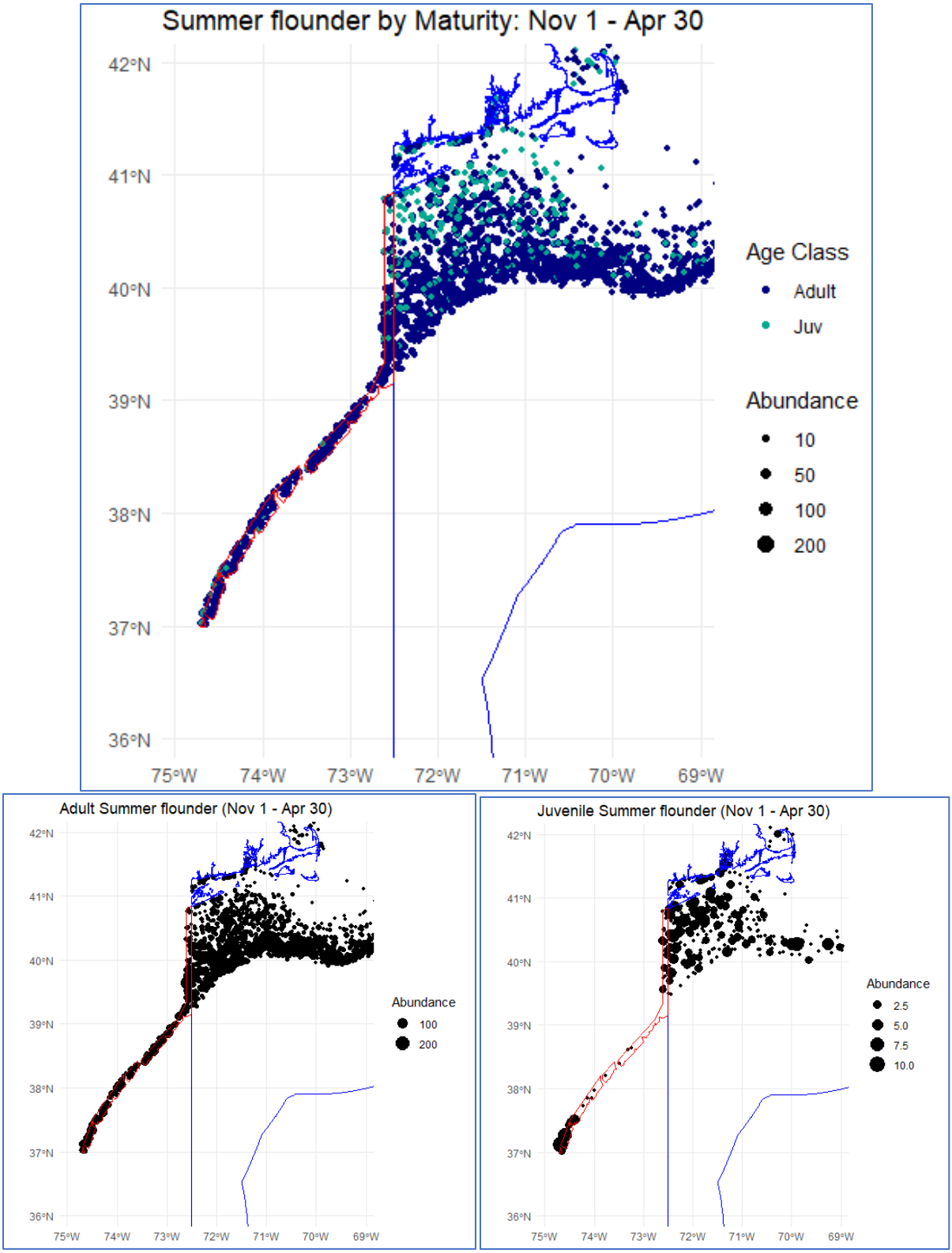

Figure 9: Spatial extent of observations of juvenile vs. mature summer flounder (above and below 30 cm) for NMFS bottom trawl survey data, 1990-2019. The current SMEP area is represented by the blue line, with potential additional area (excluding deep sea coral zones, see draft alternatives 1B and 1C) outlined in red.

Figure 10 shows the summer flounder distribution by length category for all NRHA surveys with summer flounder data (NMFS Bottom Trawl, Connecticut Long Island Sound Trawl, New Jersey Ocean Stock Assessment, Rhode Island Narragansett Bay Trawl, Massachusetts Bottom Trawl, NEAMAP Bottom Trawl), within and outside the current SMEP and proposed expanded area. This preliminary work used an aggregated data set beginning in 1990; future work will identify whether more recent data sets suggest alternative patterns that could impact the interpretation of the data.

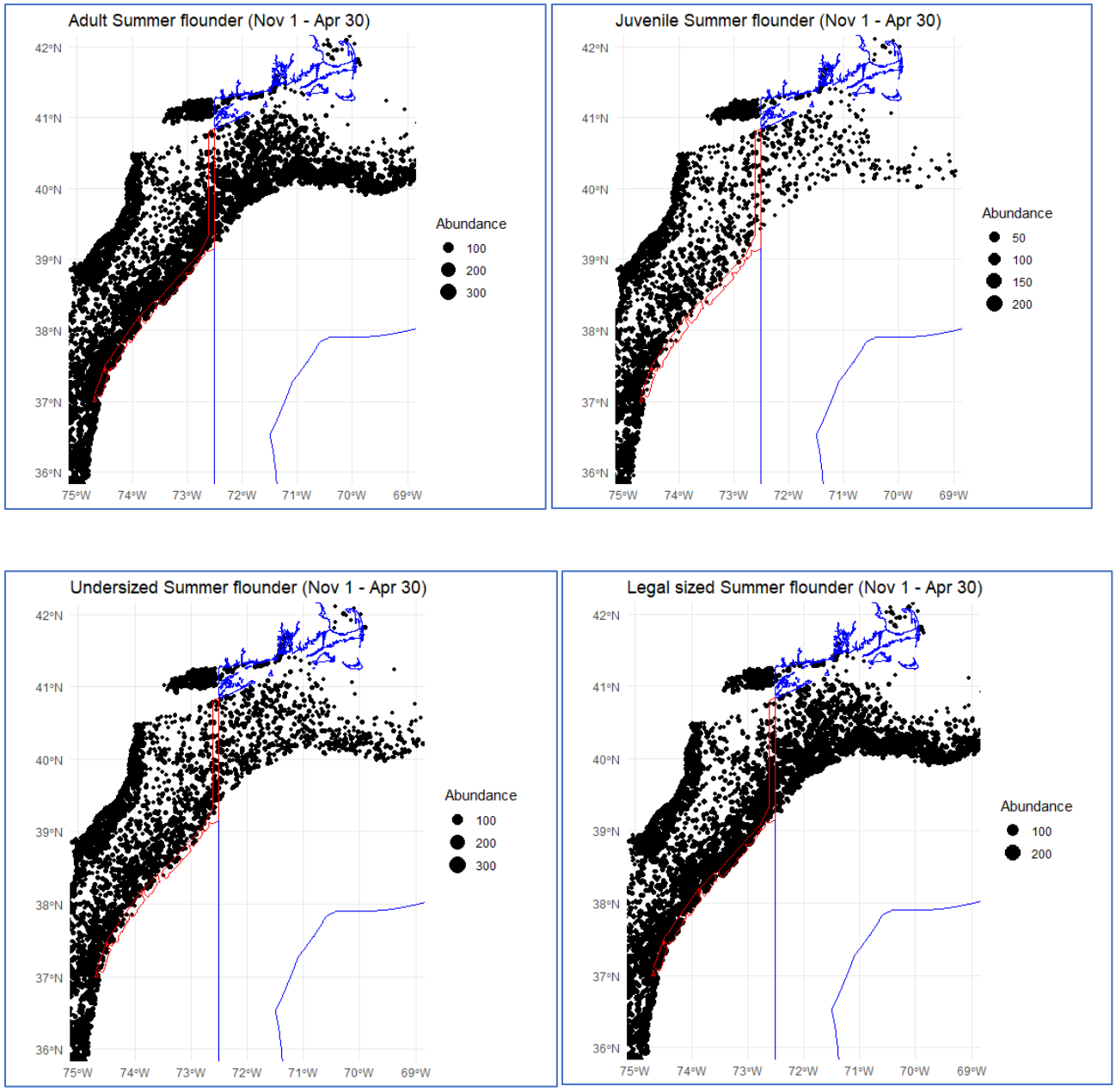

Figure 10: Summer flounder trawl survey distribution within and outside the SMEP area from November-April, 1990-2019, for all trawl surveys in NRHA with summer flounder data for this time period.

As indicated in Table 14, most summer flounder captured by the survey during this time period are legal sized adult fish. The proportions of summer flounder under the commercial minimum size (under 14 inches, including both mature and immature fish) appear to be similar between the current SMEP area (11% of summer flounder survey catch in this area) and the proposed expanded SMEP area (12%) of summer flounder survey catch in this area).

Table 15: Percentage of total summer flounder in the NMFS bottom trawl (November 1-April 30, 1990-2019) in each category outside the SMEP, within the current SMEP, and within the proposed expanded area.

Location	Legal Size	Maturity	Total Abundance	Percent of total	Percent within evaluated area
current	legal sized	Adult	13525	28.9	89%
current	undersized	Adult	1216	2.6	8%
current	undersized	Juv	448	1.0	3%
outside	legal sized	Adult	13191	28.2	47%
outside	undersized	Adult	6702	14.3	24%
outside	undersized	Juv	8403	18.0	30%
proposed	legal sized	Adult	2913	6.2	88%
proposed	undersized	Adult	310	0.7	9%
proposed	undersized	Juv	90	0.2	3%

Appendix B: Additional Trawl Net Definitions and Descriptions

Figure 11 provides a generalized schematic of a bottom trawl for reference. Definitions of various trawl gear components and other possibly useful definitions are provided in Table 15.

Additional specialized trawl types that were NOT suggested as potentially meeting a revised flynet/high-rise definition are listed in Table 16, although some of these gear types may be appropriate to further investigate for potential inclusion.

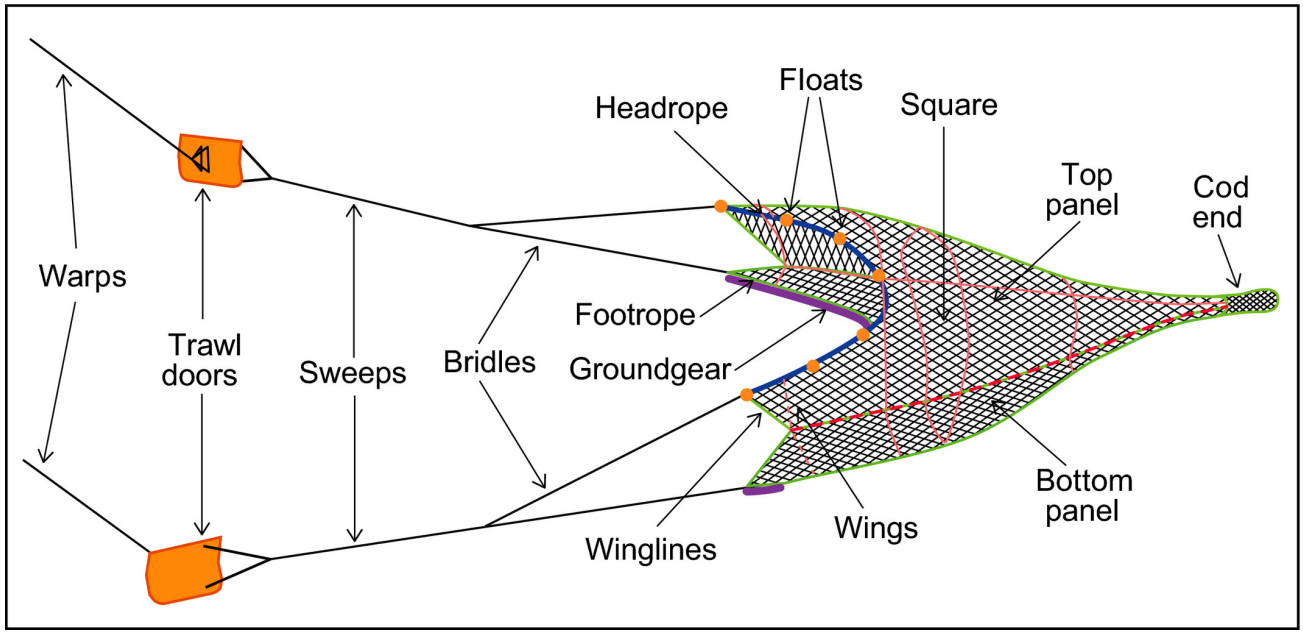

Figure 11: Schematic of a typical bottom trawl. Source: McConnaughey RA, Hiddink JG, Jennings S, et al. Choosing best practices for managing impacts of trawl fishing on seabed habitats and biota. Fish Fish. 2020; 21: 319–337. https://doi.org/10.1111/faf.12431.

Table 16: General definitions of trawl gear components or gear categories. Definitions are from the 2021 Observer Operations Manual unless otherwise noted.

Term	Definition
Top wings	Two sections of netting, usually shaped diagonally opposite one another, that form the upper mouth of the trawl. The headrope is attached from one top wing end to the other, along the diagonal flymesh edges and across the bosom, or center part, of the square.
Lower wings	Two narrow sections of netting fitted between the lower belly and the top wings to form the lower lip of the trawl net (see FIGURE 15). The footrope is attached from one wing end to the other, along the flymesh edges and across the lower belly bosom meshes. The lower wings are subject to the most abrasion, and consequently they are the sections which have to be continually repaired or replaced when working rough bottom substrate.
Headrope	Distance from the upper bridle on one side of the net to the upper bridle on the other side of the net.
Footrope/sweep	Distance from the lower bridle on one side of the net to the lower bridle on the other side of the net.
Bridle	Connects the wings of the net to the ground cable, which eventually leads to the doors. In the pair trawl fishery, the bridle is a line coming directly off a net wing, connecting to a warp.
Square	The section of netting fitted between the top body and the two top wings, so that it partially overhangs the footrope.
Codend	Two rectangular pieces of netting made with heavy twine. The top edges are joined to the narrow end of the bellies, the selvedges are laced together, and a codline or codend clip is woven through the lower meshes for securing the section into a bag where the fish are held, until released onboard the vessel. The codend is the section of the trawl net most often affected by mesh size regulations. The size of the codend depends on the species being targeted and regulations.
Codend Liner	A section of small mesh net sewn into the inside of the codend bag, the purpose of which is to restrict the escapement of smaller species, e.g., squid. On midwater trawls, the liner is referred to as a brailer, and may extend halfway up the belly of the net.
Fishing circle	The section of the net located behind the wings and before the belly. It is the row of mesh which creates the largest complete circle in the net.
Excluder/Separator Device	A modification to a common bottom trawl that helps prevent the capture of non-target species. It can redirect or allow those species to naturally swim toward an escape outlet once inside trawl. Alternatively, it can inhibit some species from entering the trawl. An excluder/separator device may be present without an escape outlet.
Kites	Canvas panels attached to the headrope to keep the mouth open.
Otter trawl	The otter trawl is an active fishing gear that is towed through the water column, targeting benthic and pelagic species. It is constructed of twine webbing, so that when fully assembled and rigged, it will take the shape of a funnel while being towed along the bottom of the ocean (bottom otter trawl), or in the water column (midwater otter trawl). Floats on the headrope and a weighted footrope are used to keep the mouth of the net opened vertically. For nets being towed by a single vessel, the mouth of the net is held open horizontally by attaching each wing to an otter board or trawl door. Each door is fitted with chains that attach to the ground cables, which lead to the net. The doors are also attached to the towing vessel via steel cables, referred to as wires or warps. The resistance created by the forward motion of the doors in the water forces them to pull apart, opening in opposite directions, thus keeping the mouth of the net open.

Bottom-tending mobile gear (Regulations)	*Bottom-tending mobile gear* means gear in contact with the ocean bottom, and towed from a vessel, which is moved through the water during fishing in order to capture fish, and includes otter trawls, beam trawls, hydraulic dredges, non-hydraulic dredges, and seines (with the exception of a purse seine).
Midwater Trawls (Regulations)	Trawl gear that is designed to fish for, is capable of fishing for, or is being used to fish for pelagic species, no portion of which is designed to be or is operated in contact with the bottom at any time. The gear may not include discs, bobbins, or rollers on its footrope, or chafing gear as part of the net.

Table 17: Specialized net type definitions for nets that are NOT likely to fall under a revised flynet/high-rise net definition. Note that the 2021 Observer Operations Manual states that it lists specialized net types that may be observed in the bottom trawl fishery; however, other specialized net types may exist that are not included on this list. Observers are instructed to never assume net types or any other gear configurations and to always confirm with the captain when collecting observer data.

Gear	Definition Source	Definition	Notes
Pelagic net	2021 Observer Operations Manual	Mid-Water or Pelagic Trawls are similar to otter trawls but are used to target species that run in schools near the surface of the water, such as mackerel or herring. A single midwater trawl gear is pulled by one boat and uses different trawl doors, designed to hold the mouth of the net open higher in the water column, as opposed to sliding across the seafloor.	Suggested for inclusion by at least one industry rep. when reviewing list of net types, but appears relevant only to midwater trawls. Available data suggests negligible catch of summer flounder. Removed from lists of flynet/high-rise gear above.
	Am2 Proposed Rule (1993)	Owners or operators of vessels fishing with a four-seam otter trawl pelagic net with the following configuration, provided that no other nets or netting with mesh smaller than 5 ½ inches (14.0 cm) are on board: (i) The wings of the net have mesh that measures 32 inches (81.3 cm) or greater; (ii) The first body section (belly) of the net consists of 40 meshes of 15 inches (38.1 cm) or greater; and (iii) The mesh in the remaining portion of the net decreases in size to a mesh size as small as 1 ½ inches (3.81 cm) or smaller in the terminal portion of the net.	
Box trawl	*2021 Observer Operations Manual*	A four-seam, high-rise trawl.	Not suggested by previous comments, but based on description, may warrant further investigation
Shuman trawl	*2021 Observer Operations Manual*	Contains very large meshes in the mouth and has a very high-opening net that may have canvas kites on the headrope to keep the mouth open. Typically fished just off the bottom.	Not suggested by previous comments, but based on description, may warrant further investigation
Sweepless trawl	*2021 Observer Operations Manual*	A Raised Footrope Trawl in which there is no chain sweep and the drop chains are heavier.	

Gear	Definition Source	Definition	Notes
Flounder trawl	*2021 Observer Operations Manual*	May be either (1) A two-seam, low-rise net, where the headrope is at least 30 percent longer than the footrope or (2) a two-seam, low-rise net, where the top panel of the net contains a section of large meshes (at least 12-inch mesh) behind the headrope.	
Flatfish trawl	*2021 Observer Operations Manual*	Any net used to target flatfish that does not meet the specific definition of a flounder trawl.	
Shrimp trawl	*2021 Observer Operations Manual*	A very small mesh trawl used to target shrimp. Must have a grate consisting of parallel bars that excludes non-target species.	
Scallop trawl	*2021 Observer Operations Manual*	A trawl, or pair of trawls, used to target sea scallops.	
Large mesh belly panel trawl	*2021 Observer Operations Manual*	A trawl with a large mesh (30-32”) installed in the first belly for a total of about 8 feet of large mesh, attached 5 meshes behind the footrope and stretching from gore to gore.	
Raised footrope trawl	*2021 Observer Operations Manual*	Trawl gear configured in such a way that, when towed, the gear is not in contact with the ocean bottom. Floats attached to the headrope provide lift. No ground gear is used (bare wire or chain sweep) and drop chains (12-inch or 42-inch) may be attached.	

Regulatory Definitions

Some net types potentially falling under a revised flynet/high-rise net definition have specific definitions in the federal regulatory text, including fly nets, haddock separator trawls, Ruhle trawls, and rope separator trawls. Many of these are associated with specific measures under the Northeast Multispecies FMP.

Flynet[10]

Vessels fishing with a two-seam otter trawl fly net with the following configuration, provided that no other nets or netting with mesh smaller than 5.5 inches (14.0 cm) are on board:

(i) The net has large mesh in the wings that measures 8 inches (20.3 cm) to 64 inches (162.6 cm).
(ii) The first body section (belly) of the net has 35 or more meshes that are at least 8 inches (20.3 cm).
(iii) The mesh decreases in size throughout the body of the net to 2 inches (5 cm) or smaller towards the terminus of the net.

Haddock separator trawl[11]

A groundfish trawl modified to a vertically-oriented trouser trawl configuration, with two extensions arranged one over the other, where a codend shall be attached only to the upper extension, and the bottom extension shall be left open and have no codend attached. A horizontal large-mesh separating panel constructed with a minimum of 6.0-inch (15.2-cm) diamond mesh must be installed between the selvedges joining the upper and lower panels, as described in paragraphs (a)(3)(iii)(A) and (B) of this section, extending forward from the front of the trouser junction to the aft edge of the first belly behind the fishing circle. The horizontal large-mesh separating panel must be constructed with mesh of a contrasting color to the upper and bottom extensions of the net that it separates.

- ***Two-seam bottom trawl nets.*** For two seam nets, the separator panel will be constructed such that the width of the forward edge of the panel is 80–85 percent of the width of the after edge of the first belly of the net where the panel is attached. For example, if the belly is 200 meshes wide (from selvedge to selvedge), the separator panel must be no wider than 160–170 meshes wide.
- ***Four-seam bottom trawl nets.*** For four seam nets, the separator panel will be constructed such that the width of the forward edge of the panel is 90–95 percent of the width of the after edge of the first belly of the net where the panel is attached. For example, if the belly is 200 meshes wide (from selvedge to selvedge), the separator panel must be no wider than 180–190 meshes wide. The separator panel will be attached to both of the side panels of the net along the midpoint of the side panels. For example, if the side panel is 100 meshes tall, the separator panel must be attached at the 50th mesh.

Ruhle trawl[12]

Four-seam bottom groundfish trawl designed to reduce the bycatch of cod while retaining or increasing the catch of haddock, when compared to traditional groundfish trawls. A Ruhle Trawl must be constructed in accordance with the standards described and referenced in this paragraph § 648.85(b)(6)(iv)(J)(*3*). The mesh size of a particular section of the Ruhle Trawl is measured in accordance with § 648.80(f)(2), unless insufficient numbers of mesh exist, in which case the maximum total number of meshes in the section will be measured (between 2 and 20 meshes).

(*i*) The net must be constructed with four seams (i.e., a net with a top and bottom panel and two side panels), and include at least the following net sections as depicted in Figure 1 of this part (this figure is also available from the Administrator, Northeast Region): Top jib, bottom jib, jib side panels (× 2), top wing, bottom wing, wing side panels (× 2), bunt, square, square side panels (× 2), first top belly, first bottom belly, first belly side panels (× 2), and second bottom belly.

[10] https://www.ecfr.gov/current/title-50/part-648#p-648.108(b)(2)
[11] https://www.ecfr.gov/current/title-50/part-648#p-648.85(a)(3)(iii)(A)
[12] https://www.ecfr.gov/current/title-50/part-648#p-648.85(b)(6)(iv)(J)(3)

(ii) The top and bottom jibs, jib side panels, top and bottom wings, and wing side panels, bunt, and first bottom belly (the first bottom belly and all portions of the net in front of the first bottom belly, with the exception of the square and the square side panels) must be at least two meshes long in the fore and aft direction. For these net sections, the stretched length of any single mesh must be at least 7.9 ft (240 cm), measured in a straight line from knot to knot.

(iii) Mesh size in all other sections must be consistent with mesh size requirements specified under § 648.80 and meet the following minimum specifications: Each mesh in the square, square side panels, and second bottom belly must be 31.5 inches (80 cm); each mesh in the first top belly, and first belly side panels must be at least 7.9 inches (20 cm); and 6 inches (15.24 cm) or larger in sections following the first top belly and second bottom belly sections, all the way to the codend. The mesh size requirements of the top sections apply to the side panel sections.

(iv) The trawl must have at least 15 meshes (240 cm each) at the wide end of the first bottom belly, excluding the gore.

(v) The trawl must have a single or multiple kite panels with a total surface area of at least 19.3 sq. ft. (1.8 sq. m) on the forward end of the square to help maximize headrope height, for the purpose of capturing rising fish. A kite panel is a flat structure, usually semi-flexible, used to modify the shape of trawl and mesh openings by providing lift when a trawl is moving through the water.

Rope separator trawl[13]

A rope separator trawl is defined as a four-seam bottom trawl net (i.e., a net with a top and bottom panel and two side panels) modified to include both a horizontal separator panel and an escape opening in the bottom belly of the net below the separator panel, as further specified in paragraphs (e)(1) through (3) of this section.

(1) ***Mesh size.*** The minimum mesh size applied throughout the body and extension of a rope separator trawl must be 6-inch (15.2-cmI t) diamond mesh or 6.5-inch (16.5-cm) square mesh, or any combination thereof. Mesh in the bottom belly of the net must be 13-inch (33-cm) diamond mesh. Unless otherwise specified in this part, the codend mesh size must be consistent with mesh size requirements specified in § 648.80. The mesh size of a particular section of the rope separator trawl is measured in accordance with § 648.80(f)(2), unless insufficient numbers of mesh exist, in which case the maximum total number of meshes in the section will be measured (between 2 and 20 meshes).

(2) ***Separator panel.*** The separator panel must consist of parallel lines made of fiber rope, the ends of which are attached to each side of the net starting at the forward edge of the square of the net and running aft toward the extension of the net. The leading rope must be attached to the side panel at a point at least 1⁄3 of the number of meshes of the side panel above the lower gore, and the panel of ropes shall slope downward toward the extension of the net. For example, if the side panel of the net is 42 meshes tall, the leading rope must be attached at least 14 meshes above the lower gore. The forward 2⁄3 of the separator ropes that comprise the separator panel must be no farther than 26 inches (66 cm) apart, with the after 1⁄3 of the separator ropes that comprise the separator panel being no farther than 13 inches (33 cm) apart. The ends of the aftermost rope shall be attached to the bottom belly at a point 1⁄6 of the number of meshes of the after end of the bottom belly below the lower gore. The separator ropes should be of sufficient length not to impinge upon the overall shape of the net without being too long to compromise the selectivity of the net. The separator ropes may not be manipulated in any way that would inhibit the selectivity of the net by causing the separator ropes to dip toward the bottom belly of the net and obscure the escape opening, as defined in paragraph (e)(3) of this section.

(3) ***Escape opening.*** The escape opening must be positioned in the bottom belly of the net behind the sweep and terminate under the separator panel, as described in paragraph (e)(2) of this section. Longitudinal lines may be used to maintain the shape of the escape opening, as necessary. The escape opening shall be at least 18 meshes in both length and width.

[13] https://www.ecfr.gov/current/title-50/part-648#p-648.84(e)

Appendix C: Preliminary Analysis of Intersection Between the Exemptions

As noted above in Section 1.2, consideration should be given to how revisions to the flynet exemption may impact the use of and need for the small mesh exemption program. Additional evaluation is needed on the intersection between these exemptions, but preliminary information is provided below. Table 17 indicates that about 8% of the hauls for observed trips with an active SMEP LOA were using gear that may be considered "flynet" or "high-rise" gear, while 92% were using other or unknown gear types. There are some differences in top target species (Table 18) and top caught species (Table 19) between the two net type categories for vessels using the SMEP LOA, in particular with non-flynet type nets targeting summer flounder more than any other species and catching more benthic species like skate and flounder. Figure 12 indicates that most trips with flynet or high-rise type gear are occurring in statistical areas either completely or partially within the SMEP exempted area, although the timing of the trips has not yet been investigated relative to SMEP timing.

Table 18: Percent of hauls and number of trips by net category for observed trawl trips with an active SMEP LOA (November-April, 2013-2022). Includes all observed trawl trips on vessels with a SMEP LOA regardless of target species or catch of summer flounder. Cannot display data for individual net types for confidentiality reasons.

Net Type	Percent of Hauls	Observed trips*
NOT considered "flynet" or high-rise, or unknown net type	92.1%	1,326
Potential flynet/high-rise nets	7.9%	117

*This column indicates that this gear type was used at some point on a trip, not necessarily for every haul. Because many vessels use multiple gear types within a single trip, any percentages calculated from the observed trips column will not add to 100%.

Table 19: Top species targeted using non-flynet/high-rise nets compared to industry recommended flynet/high-rise nets, based on primary target species by haul recorded in observed trawl trips on vessels with a SMEP LOA (2013-2023). The top species (>3% of observed hauls) for each net category are listed for the combined net category. Percent of hauls is the percent of total hauls within each net category.

Net Category		
NOT considered "flynet" or high-rise	**Percent of hauls**	**Observed trips[a]**
Flounder, Summer (Fluke)	33.1%	499
Squid, Atl Long-Fin	23.0%	255
Scup	8.8%	171
Skate, Nk	5.5%	103
Flounder, Yellowtail	4.8%	93
Groundfish, Nk	4.7%	88
Hake, Silver (Whiting)	4.7%	87
Potential Flynet/High-Rise Nets		
Scup	25.8%	30
Squid, Atl Long-Fin	25.5%	22
Herring, Atlantic	19.4%	37
Flounder, Summer (Fluke)	6.7%	12
Skate, Nk	5.7%	8
Hake, Silver (Whiting)	4.9%	10
Butterfish	3.1%	6

[a] This column indicates that this species was targeted at some point on a trip, not necessarily for every haul. Many vessels use multiple gear types within a single trip.

Table 20: Top species caught in non-flynet/high-rise nets compared to industry recommended flynet/high-rise nets by haul recorded in observed trawl trips on vessels with a SMEP LOA (2013-2023). The top species for each net category are listed for the combined net types as a percentage of total catch. Percent of hauls is the percent of total hauls within each net category catching a given species.

Net Category	Proportion of total catch	Percent of hauls
NOT considered "flynet" or high-rise		
Skate, Nk	12.2%	15.0%
Scup	8.8%	42.4%
Skate, Winter (Big)	8.7%	54.1%
Skate, Little	8.1%	39.9%
Squid, Atl Long-Fin	7.3%	60.2%
Flounder, Summer (Fluke)	6.9%	75.9%
Fish, Nk	6.1%	6.8%
Hake, Silver (Whiting)	5.9%	57.1%
Herring, Atlantic	5.8%	6.3%
Dogfish, Spiny	5.8%	48.9%
Potential Flynet/High-Rise Nets		
Herring, Atlantic	45.4%	23.7%
Scup	14.6%	36.0%
Squid, Atl Long-Fin	7.7%	55.1%
Hake, Silver (Whiting)	5.2%	59.6%
Butterfish	4.7%	48.0%
Fish, Nk	4.0%	6.9%
Dogfish, Spiny	3.5%	41.0%

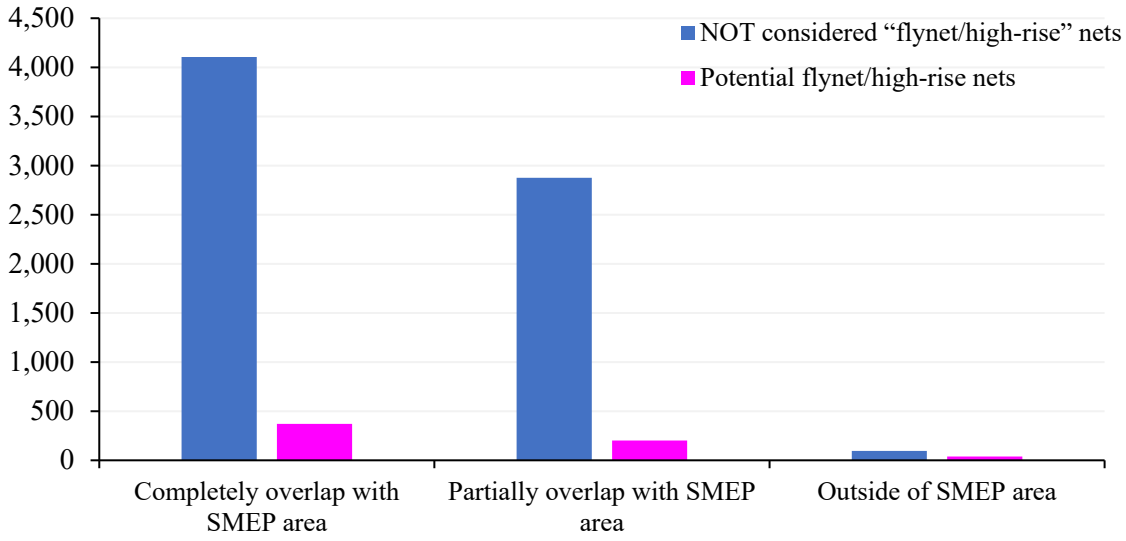

Figure 12: Number of hauls for observed trawl trips with an LOA (2013-2023) in statistical areas that completely overlap with, partially overlap with, or are completely outside of the SMEP area. Includes all observed trawl trips on vessels with a SMEP LOA regardless of target species or catch of summer flounder.

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

M E M O R A N D U M

Date: April 1, 2024

To: Wes Townsend , Chairman, MAFMC

From: Paul J. Rago, Ph.D., Chair, MAFMC Scientific and Statistical Committee (SSC)

Subject: Report of the March 19, 2024 SSC Meeting

Executive Summary

Mid-Atlantic State of the Ecosystem (SOE) Report

The SOE Report for 2024 includes key findings related to continuing decline in seafood production and profits, reduction in recreational harvests, initiation of offshore wind energy sites, and a major die off of sea scallops in the Elephant Trunk management area in response to a summer heat wave in 2022. In 2023, high temperatures and nutrients included record hypoxia in Chesapeake Bay and local mortality events in New Jersey coastal waters. A summer phytoplankton bloom in the Gulf of Maine shattered all historical records. Bycatch of harbor porpoise and gray seals have been below thresholds, but the North Atlantic Right Whale population is decreasing.

The SSC greatly appreciated the thoroughness of the SOE report, the availability of the data, transparency of the process, and the responsiveness of the team to annual requests for modifications.

Overview and Update on NEFSC Cooperative Research Program Activities

The SSC received an overview of several Northeast Fisheries Science Center (NEFSC) Cooperative Research Program activities that included the use of Study Fleet CPUE information in recent assessments, enhanced collection of biological data from *Illex* and Longfin Squid fisheries, and development of a pilot hook-and-line survey.

The SSC appreciated both the comprehensive overview of these projects and their focus on immediate utility in ongoing stock assessments. The increase in biological sampling for squid will provide the fine-scale temporal information necessary for modeling and management of these annual species. Several suggestions for standardization of information from the pilot hook-and-line survey were proposed. It was noted that the new survey must not only be statistically sound, but also be properly integrated with existing measures of relative abundance.

Overfishing Limit (OFL) Coefficient of Variation (CV) Sub-Group Update

Recent analyses in the literature suggest that an OFL CV of 60% may be too low for most stocks. While the current three-bin approach will be retained, the SSC Sub-group has suggested the likelihood of selecting an OFL CV of 60% will likely be reduced. The Sub-Group recommended elimination of three of the nine criteria used to define the OFL. These criteria were deemed less useful and subject to misinterpretation. A tiered system of evaluation was proposed in which three criteria (data quality, model appropriateness, and retrospective pattern) would primarily determine the overall OFL CV bin. It was noted that poor data or inappropriate models cannot be overcome with increased sophistication in other aspects of the assessment.

The OFL CV Sub-Group will meet at the end of April to finalize recommendations that will be considered by the SSC at its May meeting. The final set of recommendations will be presented to the Council in June. If approved, the revised criteria will be used by the SSC in July for its determination of ABCs for recent stock assessments.

Background

The SSC met via webinar on March 19th 2024, addressing the following topics:

- Ecosystem Science Activities including the State of the Ecosystem Report for Mid-Atlantic Region
- Overview of NEFSC Cooperative Research Activities
- Summary of Overfishing Limit (OFL) Coefficient of Variation (CV) Sub-Group
- Other business

See Attachment 1 for the meeting's agenda. An Executive Summary provides a quick summary of the primary conclusions of the SSC.

All but two SSC members were able to participate in the one-day meeting (Attachment 2). Other participants included Council members, Council staff, NEFSC and GARFO staff, and representatives of industry, stakeholder groups, and the public. NEFSC scientists led the sessions on the State of the Ecosystem and Cooperative Research and were joined by their

colleagues from the Center. A special thanks to Brandon Muffley—he guided the SSC's work before, during, and after the meeting.

I thank Sarah Gaichas, Brandon Beltz (NEFSC), and Brandon Muffley for their excellent meeting notes, and members of the SSC and Council staff for their comments on an early draft of this report.

All documents referenced in this report can be accessed via the SSC's meeting website https://www.mafmc.org/ssc-meetings/2024/march19. This report uses many acronyms: a comprehensive guide is listed in Attachment 3.

Mid-Atlantic State of the Ecosystem Report

Sarah Gaichas presented the 2024 State of the Ecosystem (SOE) for the Mid-Atlantic. Her presentation included an overview of the major trends, highlights of significant changes, and a summary of responses by the team of over 80 scientists who contributed to the report. The updated report includes a report card on current ecosystem properties, a greater focus on management risks, and a new section highlighting significant events in 2023. The report was well received by the SSC who complimented Sarah and her team for the comprehensive nature of the report, transparency of methods, accessibility of the underlying data, and ongoing responsiveness to requests for improvements.

Highlights from the SOE report included:

- Seafood production and profits continued to decline and remain low relative to historical trends.
- Recreational opportunities are increasing but the diversity of the effort appears to be declining.
- There are no significant trends in the stability of fisheries but ecological trends are variable in recent years.
- Bycatch of harbor porpoise and gray seals has been below thresholds, but the North Atlantic Right Whale population is decreasing although calf production increased in the past year.
- Significant events in 2023 include:
    1. Initial construction of two offshore wind energy sites
    2. A major scallop die-off in the Elephant Trunk management area as a result of a heat wave.
    3. High temperatures caused hypoxia and local mortality events in NJ coastal waters.
    4. Hypoxia in Chesapeake Bay was a record low for recent years.
    5. A summer phytoplankton bloom in the Gulf of Maine shattered all historical records.
    6. The Gulf of Maine bottom heatwave was the highest on record.

Questions and Comments by the SSC included:

- Consider looking at changes in variance for various time-series analyses. Examples might include use of sliding windows. Visual examination of the cold pool dynamics suggests higher inter-annual variability in recent years.
- The small-to-large fish ratio can be difficult to interpret since the numerator and denominator can change independently. Consider adjusting the small to large fish metric for increases in large fish vs spikes in recruitment. One way to address this concern is to express anomalies of both quantities and the ratio.
- Fine-scale information on the spatial and temporal extent of heatwaves and their documented effects on scallops suggest that similar analyses for other sessile and even some mobile species will be very useful to management. Potential effects on fishing behavior by vessels in the Study Fleet will be useful. Heatwaves may also influence interpretation of fishery independent surveys through changes in catchability.
- Outputs from stock assessments are effectively synthesized in many areas of the report. One relatively easy-to-obtain metric that could be included in subsequent reports is "surplus production" (= recruitment plus somatic growth less other mortality), which requires only estimates of changes in biomass and total catch between years.
- Concerns were expressed about the coarseness of the information, especially for indices that depend on economics and social factors. For example, fine-scale information on fleet dynamics in response to costs are difficult to quantify by fleet and region. Cost information is restricted to vessels with federal permits, representing about 50% of overall effort. Non-federally permitted vessels are assumed to behave similarly to federal vessels but this has not been validated and make it difficult to estimate net from gross revenue. Some of these concerns may be addressed as ESPs (Ecosystem and Socio-economic Profiles) become more common and available. Currently, the National Academy of Sciences is addressing various measures of environmental justice. Their report will have relevance to the SOE report and ESPs.
- The SSC asked presenters about the types of information sources that are currently limiting further progress. Responses included a need for more focused information on changes in system level productivity and guidance from managers. Simulation analyses may be useful for identifying the types of controls that are robust to uncertainty.

Questions and Comments by Council and Public included:

- Concerns were expressed about indicators for North Atlantic Right Whales and the need for even finer scale information relevant to the construction and operation of wind energy areas. Additional information on Canadian regulations would be useful to include.
- Ecosystem monitoring cruises are strongly supported, but the number and duration of cruises appears to be declining. Can non-profit organizations assist in establishing priorities for such cruises?
- Further clarification of indices of recreational fishing opportunities would be useful, especially the effects of catch rates, bag and size restrictions, and season length. It was noted that such measures are complex and affected by overall fishing effort, variations among sectors, and the complexity of fishing regulations.

Questions and Comments on SOE Prioritization included:

- The SSC appreciated the open process of setting priorities for future SOE reports. Suggestions to involve the SSC's Ecosystem and Economic Working Groups were well received.
- The determination of change points in underlying processes is an important aspect of the SOE. The SSC looks forward to the results of ongoing analyses to characterize the statistical properties of such changes and ensure appropriate interpretation by readers.

NEFSC Cooperative Research Program Activities

Anna Mercer, NEFSC, provided an overview of ongoing collaborative research with industry and its utility for stock assessments and management. Projects summarized included:

- Development of a pilot hook-and-line survey that may have general utility for estimating abundance within wind energy areas that may not be accessible with traditional trawl gear.
- Use of study fleet data to understand fine-scale behavior of vessels, particularly near wind energy areas.
- Standardized CPUE data from the Study Fleet have been incorporated into recent Research Track Assessments (RTA) for Spiny Dogfish, Golden Tilefish, Black Sea Bass, and *Illex* Squid.
- Major new programs to collect weekly biological data (length, weight, ages) from commercially-landed *Illex* and Longfin Squid. This project requires close coordination with major processors and has already resulted in a 100-fold increase in the number of sampled squid compared to traditional port sampling.
- A pilot program to increase biological sampling for recreationally caught Atlantic Cod and other species is under development. A recent RTA assessment of Atlantic Cod recommended increasing the number of cod stocks in US waters from two to four. This has put a premium on acquisition of finer scale biological data.
- Collaborative work on the biological oceanography of squid continues with weekly meetings of biologists, oceanographers, and commercial harvesters. Results from these meetings were included in the recent RTA for *Illex* Squid and will be included in the ongoing Longfin Squid RTA.

The SSC appreciated both the comprehensive overview of these projects and their focus on immediate utility in ongoing stock assessments. Several suggestions for standardization of information from the proposed hook-and-line survey were proposed. It was noted that the new survey must not only be statistically sound, but also be properly integrated with existing measures of relative abundance.

The industry-based supplemental sampling for port samples should be valuable for upcoming assessments as well as serving as a basis for an optimal port sampling design. The SSC encouraged the transition from pilot to operational programs and highlighted the need for dedicated resources to aid this transition. Presently, support for many programs has come from

successful competitive grant proposals rather than base funding. Offshore wind development will demand new methods to allow continuation of comparable historical time series. A potential data source, currently underutilized, is the Vessel Monitoring System (VMS) data. Integration of VMS data with traditional Vessel Trips Reports, Study Fleet, and Observer datasets could lead to greater use of such data in estimating relative abundance.

A member of the public inquired about the inclusion of information from private anglers in cooperative research efforts. Such involvement is considered desirable but there presently are no systematic programs.

Overfishing Limit (OFL) Coefficient of Variation (CV) Sub-Group Update

Paul Rago provided an overview of the results of three meetings of the Sub-Group since the last SSC meeting in October 2023. These meetings led to a set of initial recommendations for improving the process for deriving the uncertainty of the OFLs. The current rubric considers nine factors when setting the OFL CV to one of three levels (60%, 100%, or150%). It has been employed and refined since 2020. Recommendations addressed the utility of the current OFL CV bins, the possibility of dropping three criteria, and the utility of a tiered system that distinguishes primary from secondary criteria. The recommendations and rationale are as follows:

- Recent empirical studies and historical simulation research suggest that a CV of 60% may be too low for almost all assessments. Information is insufficient to recommend new bins, but evidence suggests that a CV of 60% may be infrequently applied.
- A review of SSC reports over the past four years suggests several criteria are difficult to interpret or aspirational rather than operational. The Sub-Group recommended deletion of the following three criteria:
    - Criteria 7—Informed by prediction error
    - Criteria 8—Assessment accuracy under different fishing pressures
    - Criteria 9—Informed by simulation analyses or full MSE

  The deleted criteria can be folded into existing criteria if appropriate on an assessment-specific basis.
- The decision process for defining the CV must be deliberative, transparent, and open. Presently, the synthesis of these criteria is based on a synthesis of criteria-specific recommendations. However, it is also evident that certain factors are more important than others. For example, poor or limited data quality cannot be overcome by modeling approaches regardless of their sophistication. In recognition of this principle and a desire to avoid an artificial scoring algorithm the Sub-Group recommended defining two tiers of criteria. The first tier includes data quality, model appropriateness and identification, and uncertainty informed by retrospective analyses. The second tier includes uncertainty informed by comparisons with empirical studies, ecosystem factors, and appropriate stanzas of recruitment.

The SSC generally approved of the draft recommendations, but sought clarification on several topics. Members wanted more information on the conclusion that a 60% CV was optimistic. An empirical review of worldwide stock assessments suggested that assessments were rarely this precise. Earlier MSE modeling research suggested that even modest departures from baseline model formulations caused severe degradation of forecasts and, consequently, inappropriate catch recommendations.

The OFL CV ultimately relies on a measure of the overall productivity of the stock. Separating the joint effects of fishing from environmental effects is always challenging, but becomes more so with improved management that shifts the balance from factors that are controllable (fishing mortality) to those that are less controllable (environment).

An important recommendation was that the Sub-Group should conduct a trial application (dress rehearsal) of the new approach prior to the SSC's July meeting. The SSC emphasized that the derivation of the CV limit was not a "grade" on the assessment, but rather a structural feature of our current ability to understand the stock's dynamics. The SSC suggested that further consultations with the stock assessment lead scientists would be helpful with respect to evaluating some criteria.

Some members of the public expressed disappointment about the proposed recommendations. In particular, the reduced likelihood of selecting a OFL CV of 60% implies a greater buffer between the OFL and the ABC. The SSC noted that this effect is greatest when the stock is between 50% and 100% of Bmsy. For stocks above Bmsy, the reductions in ABC associated with a higher OFL CV are negligible. When the stock falls below 50% of Bmsy, the stock is overfished and rebuilding is required. In such circumstances, harvest policies for rebuilding may diverge from the Council's risk policy, depending on the expected rebuilding time horizon and the targeted probability of rebuilding. The SSC agreed with a recommendation from the public to better explain and highlight the effects of selecting higher levels of uncertainty. Another commenter expressed concerns about differing levels of uncertainty between commercial and recreational harvests. Presently, the ABCs are based on the overall uncertainty of the OFL rather than the uncertainty of component fisheries. If such a distinction were applied, the rubric for defining the OFL CV would need to be changed and the computational details of separate ABC would need to be worked out. It was noted that the Council had discussed separate ABCs several years ago but did not implement this as part of their risk policy.

The OFL CV Sub-Group will meet at the end of April to finalize recommendations to be considered by the SSC at its May meeting. The final set of recommendations will be presented to the Council in June. If approved, the revised criteria will be used by the SSC in July for its determination of ABCs for recent stock assessments.

Other Business

- Plans for the national meeting of the eight regional SSCs are continuing. The meeting will be held August 26-28, 2024 in Boston and will be hosted by the NEFMC. The theme for the meeting will be the application of ABC control rules in a changing environment with a focus on integration of ecosystem and social science considerations, and implications for rebuilding plans. Potential speakers have been identified for keynote addresses, and regional case studies. Approximately four SSC members per Council will be supported to attend. The plenary sessions of the meeting will be broadcast via webinar but in listen-only mode.
- A Biological Reference Points Workshop, supported by a CINAR grant, was held at SMAST in January 2024. Four SSC members from MAFMC attended in person. Mike Wilberg and Paul Rago presented summaries of current methods and recent research findings.
- Housekeeping business included identification of species leads for assessments, a schedule of upcoming peer reviews, and solicitation of SSC reviewers for a number of upcoming Management and Research Track Assessments.

Attachment 1

Mid-Atlantic Fishery Management Council

Scientific and Statistical Committee Meeting

March 19, 2024 via Webinar

AGENDA

Tuesday, March 19, 2024

10:00 Welcome/Overview of meeting agenda (P. Rago)

10:05 Ecosystem Science Activities (S. Gaichas)
- 2024 NEFSC Mid-Atlantic State of the Ecosystem Report
- 2024 Ecosystem Approach to Fisheries Management (EAFM) Risk Assessment Update
- SSC Ecosystem Work Group – update on work group progress

12:30 Lunch

1:30 Overview and Update on NEFSC Cooperative Research Program Activities (A. Mercer, NEFSC)

2:30 Overfishing Limit (OFL) Coefficient of Variation (CV) Sub-Group Update (P. Rago)
- Review and provide feedback on draft sub-group recommendations

3:30 Break

3:45 Other Business
- Scientific Coordination Sub-Committee 8th National Workshop
- Defining Biological Reference Points Workshop
- Species/topic lead assignments
- Stock assessment updates: 2024-2025 schedule and peer review needs
- 2024 SSC meeting schedule – topics, locations, needs

5:00 Adjourn

Note: agenda topic times are approximate and subject to change

Attachment 2

MAFMC Scientific and Statistical Committee

March 19, 2024

Meeting Attendance via Webinar

Name	Affiliation
SSC Members in Attendance:	
Paul Rago (SSC Chairman)	NOAA Fisheries (retired)
Tom Miller	University of Maryland – CBL
Ed Houde	University of Maryland – CBL (emeritus)
John Boreman	NOAA Fisheries (retired)
Jorge Holzer (March 8th only)	University of Maryland
Yan Jiao	Virginia Tech University
Rob Latour	Virginia Institute of Marine Science
Mike Frisk	Stony Brook University
Brian Rothschild	Univ. of Massachusetts-Dartmouth (emeritus)
Olaf Jensen	U. of Wisconsin-Madison
Sarah Gaichas	NOAA Fisheries NEFSC
Wendy Gabriel	NOAA Fisheries (retired)
Mike Wilberg (Vice-Chairman)	University of Maryland – CBL
Cynthia Jones	Old Dominion University
Gavin Fay	U. Massachusetts-Dartmouth
Geret DePiper	NOAA Fisheries NEFSC
Mark Holliday	NOAA Fisheries (retired)
Andrew Scheld	Virginia Institute of Marine Science
Others in attendance (only includes presenters and members of public who spoke):	
Brandon Muffley	MAFMC staff
Anna Mercer	NEFSC
Greg DiDomenico	Lund's Fisheries
Mike Waine	American Sportfishing Association
Michelle Duval	MAFMC
Will Poston	American Saltwater Guides Assoc.
Meghan Lapp	Seafreeze Ltd.

Attachment 3. Glossary

ABC—Acceptable Biological Catch
AIC—Akaike's Information Criterion
B_{msy}—Biomass at maximum sustainable yield
CV—Coefficient of Variation
DEA—Data Envelopment Analysis (DEA)
DFO—Department of Fisheries and Oceans, Canada
ESP—Ecosystem and Socio-economic Profiles
EAFM—Ecosystem Approach to Fisheries Management
F—Instantaneous rate of fishing mortality
FSV—Fishery Survey Vessel
GARFO—Greater Atlantic Region Fisheries Office
HCR—Harvest Control Rule
M—Instantaneous rate of natural mortality
MAFMC – Mid-Atlantic Fishery Management Council
MRIP—Marine Recreational Information Program
MTA—Management Track Assessment
MSC—Marine Stewardship Council
MSE—Management Strategy Evaluation
NEFMC – New England Fishery Management Council
OFL—Overfishing Limit
P*—Probability of overfishing
q—catchability coefficient parameter
RHL—Recreational Harvest Limit
RSA—Research Set Aside
RSC—Research Steering Committee
RTA—Research Track Assessment
R/V—Research Vessel
SOE—State of the Ecosystem
SSB_{msy}—Spawning stock biomass at maximum sustainable yield
SSC—Scientific and Statistical Committee
v—availability parameter

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P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: March 29, 2024

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 April 2024 Council Meeting:

1. 2024 Council Meeting Topics
2. Status of Council Actions Under Development
3. Status of Completed Council Actions and Specifications
4. 2025 Council Meeting Schedule
5. Staff Memo: 2025-2029 Strategic Plan Process and Timeline
6. MAFMC Fishery Management Process Review: Focus Group Findings and Themes
7. Joint Council Letter to NMFS Regarding Funding Concerns (3/28/24)
8. Action Plan: Recreational Measures Setting Process Framework/Addenda
9. SSC Terms of Reference: Recreational Measures Setting Framework/Addenda
10. Advisory Panel Recruitment Notice (3/27/24)
11. Staff Memo: Offshore Wind Updates
12. Joint Offshore Wind Developers Notice of Survey Activities (3/21/24)
13. Staff Memo and Recent Correspondence Regarding USFWS Regulation of Squid Fishery Exports

2024 Planned Council Meeting Topics

April 9 – 11, 2024 Council Meeting – Atlantic City, NJ

- Joint MAFMC/NEFMC Framework to Reduce Atlantic Sturgeon Interactions in the Monkfish/Dogfish Gillnet Fisheries: final action
- Summer Flounder Commercial Mesh Exemptions Framework Meeting #1 (with ASMFC SFSBSB Board)
- 2024 Ecosystem Approach to Fisheries Management (EAFM) Risk Assessment Report
- 2024 State of the Ecosystem Report
- Golden Tilefish Research Track Assessment Overview
- Habitat Activities Update (GARFO-HESD)
- NTAP Proposal for Industry-Based Survey Pilot Program: review
- Golden Tilefish Catch Share Program Review: review public comments and discuss next steps
- NMFS Proposed Rule to Update Regulations Associated with the Magnuson-Stevens Fishery Conservation and Management Act's Confidentiality Requirements
- Offshore Wind Fisheries Compensation Programs
- Impacts of Offshore Wind Energy Construction Sounds on Behavior of Longfin Squid and Black Sea Bass

June 4 – 6, 2024 Council Meeting – Riverhead, NY

- Advisory Panel Reappointments (Executive Committee)
- 2025-2029 Strategic Plan: discuss vision, mission, goals (Executive Committee)
- ~~Recreational Measures Setting Process Framework/Addenda: update (with ASMFC Policy Board)~~
- Atlantic Surfclam and Ocean Quahog Species Separation Requirements Amendment – approve Public Hearing Document
- ~~Summer Flounder Commercial Mesh Exemptions Framework Meeting #2 (with ASMFC SFSBSB Board)~~
- ~~2025 Atlantic Mackerel Specifications: review~~
- 2025 Chub Mackerel Specifications: review
- 2025 Longfin Squid Specifications: review
- 2025 *Illex* Squid Specifications: review
- Unmanaged Commercial Landings Report
- SSC's Overfishing Limit (OFL) Coefficient of Variation (CV) Guidance Document: review and approve updates

August 12 – 15, 2024 Council Meeting – Philadelphia, PA

- 2025 Atlantic Surfclam Specifications: review
- 2025 Ocean Quahog Specifications: review
- MRIP Update from NMFS Office of Science and Technology

- Recreational Measures Setting Process Framework/Addenda: update (with ASMFC Policy Board)
- ~~Recreational Measures Setting Process Framework/Addenda: approve public hearing document (with ASMFC Policy Board)~~
- Summer Flounder Commercial Mesh Exemptions Framework Meeting #2 (with ASMFC SFSBSB Board)
- 2025 Black Sea Bass Specifications: approve (with ASMFC SFSBSB Board)
- 2025 Summer Flounder Specifications: review (with ASMFC SFSBSB Board)
- 2025 Scup Specifications: review (with ASMFC SFSBSB Board)
- 2025 Bluefish Specifications and Recreational Management Measures: review (with ASMFC Bluefish Board)
- 2025-2026 Butterfish Specifications: approve
- 2025-2027 Golden Tilefish Specifications: approve
- 2025 Blueline Tilefish Specifications: approve
- Draft 2025-2029 Strategic Plan: review ~~(Executive Committee)~~
- Council Program Review: review final report

October 8 – 10, 2024 Council Meeting – Dewey Beach, DE

- 2025 Implementation Plan: review draft deliverables (Executive Committee)
- 2025-2029 Strategic Plan: approve
- Atlantic Surfclam and Ocean Quahog Species Separation Requirements Amendment: final action
- Omnibus Essential Fish Habitat Amendment: approve public hearing document
- 2025 Spiny Dogfish Specifications: review
- 2025 Atlantic Mackerel Specifications: review
- Recreational Tilefish Permitting and Reporting Update (GARFO)
- Tilefish Angler Outreach and Program Evaluation: review report and discuss next steps
- Habitat Activities Update (GARFO-HESD)
- Offshore Wind Update
- Scientific Coordination Subcommittee 8th National Workshop Outcomes
- Council Awards Discussion

October (TBD), 2024 – Joint Meeting with ASMFC Policy Board

The Council will meet with the ASMFC Policy Board during the ASMFC's Annual Meeting, which will be held October 21-24, 2024, in Annapolis, MD. The exact date/time of the joint meeting is TBD.

- Recreational Measures Setting Process Framework/Addenda: approve public hearing document (with ASMFC Policy Board)

December 9 – 12, 2024 Council Meeting – Annapolis, MD

- 2025 Black Sea Bass Recreational Management Measures: approve (with ASMFC SFSBSB Board)
- 2025 Summer Flounder Recreational Management Measures: review (with ASMFC SFSBSB Board)

- 2025 Scup Recreational Management Measures: review (with ASMFC SFSBSB Board)
- Recreational Sector Separation Amendment: approve scoping document (with ASMFC Policy Board)
- 2025-2029 Council Research Priorities: approve
- 2025 Implementation Plan: approve
- River Herring Data Portal Project: review
- Ricks E Savage Award Nominations (Executive Committee)
- Overview of National Fishing Effects Database
- 2024 EAFM Risk Assessment Report Updates: review

Timeline and Status of Current and Upcoming Specifications for MAFMC Fisheries

As of 3/25/24

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	10/12/23					SIR submitted 10/12/23. NEPA edits received 3/27/24.
Butterfish	2023-2024	6/8/22	9/8/22	2/17/23	3/7/23	7/27/23	7/27/23	
Illex Squid	2024-2025	4/5/23	10/12/23					SIR submitted 10/12/23. NEPA edits received 3/27/24.
Atlantic Mackerel (including RH/S cap)	2024-2025	12/13/23	1/3/24	2/13/24	2/28/24			
Chub mackerel	2023-2025	6/8/22	9/8/22	2/17/23	3/7/23	7/27/23	7/27/23	
Bluefish	2024-2025	8/9/23	10/6/23	11/16/23	11/16/23	1/2/24	1/1/24	
Summer Flounder and Scup	2024-2025	8/8/23	10/6/23	11/30/23	11/17/23	12/21/23	1/1/24	
Black Sea Bass	2024	8/8/23	10/6/23	12/3/23	11/17/23	12/21/23	1/1/24	
Spiny Dogfish	2024	12/13/23	3/21/24					NEFMC Action Feb 1, 2024

Recreational

Current Management Measures	Year(s)	Council Approval	Initial Submission	Final Submission	Proposed Rule	Final Rule	Regs Effective	Notes
Summer flounder rec measures	2024	12/12/23	1/16/24	N/A	2/23/24			
Black sea bass rec measures	2024	12/13/23	1/16/24	N/A	2/23/24			
Scup rec measures	2024	12/12/23	N/A	N/A	N/A	N/A	N/A	No rulemaking needed because no changes to federal measures
Bluefish rec measures	2020-2024	12/13/19	1/23/20	3/19/20	5/25/20	6/29/20	6/29/20	
Blueline tilefish rec measures	2024 and beyond	6/6/23	9/1/23	9/18/23	11/14/23	3/20/24	4/19/24	

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

As of 3/25/24

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			
Illex Vessel Hold Capacity Framework		10/3/23	NA	NA						GARFO determined can use a NEPA "categorical exclusion." Staff is awaiting requests from GARFO RE: any supplemental documentation (no change from last 2 meetings)

Status of Council Actions Under Development

AS OF 3/25/24

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 at 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/rec-measures-framework-addenda	The FMAT/PDT and Council/Commissioner work group are continuing to develop and analyze alternatives and develop the draft framework/addenda document. An SSC sub-group has been formed to review several aspects of this action. The Council and Policy Board are tentatively scheduled to meet in August 2024 to receive an update and discuss next steps.	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.	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 December 2024.	Dancy/Hart
	Summer Flounder Commercial Mesh Exemptions Framework/Addendum	This framework adjustment/addendum will consider changes to two summer flounder commercial minimum mesh size exemptions. Specifically, the action considers moving the western boundary of the Small Mesh Exemption Area and clarifying the regulatory definition of exempted flynet gear.	Framework meeting #1 is scheduled for April 2024. Final action is expected to occur in August 2024.	Dancy/Hart

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 consider changes to species separation requirements in these fisheries. In addition, staff/NEFSC are exploring longer term solutions to catch monitoring through an electronic monitoring project on the clam survey. https://www.mafmc.org/actions/scoq-species-separation	At the February 2024 Council meeting, the Council agreed with to include a new, industry-member recommended alternative in the public hearing document. Once the FMAT completes analysis of this new alternative, the Council will schedule a public comment period and hold public hearings.	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 the first half of 2024. The Council is scheduled to review a draft public hearing document in October 2024.	Coakley/Kentner
Dogfish and Monkfish	Framework to Reduce the Bycatch of Atlantic Sturgeon	The Mid-Atlantic and New England Councils are jointly developing a framework action to reduce bycatch of Atlantic sturgeon (an endangered species) in the monkfish and spiny dogfish gillnet fisheries. This action was initiated in December 2022 in response 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	The Councils endorsed several packages of alternatives for further technical analysis at their January/February meetings. Final action is scheduled for April 2024.	Cisneros/Didden

2025 Council Meeting Schedule

(As of March 19, 2024)

February 11-12, 2025	***(Virtual Meeting)***
April 8 – 10, 2025	Seaview Dolce 401 South New York Road Galloway, NJ 08205
June 10 – 12, 2025* **(Last meeting for outgoing members)**	Hilton Virginia Beach Oceanfront 3001 Atlantic Avenue Virginia Beach, VA 23451
August 11 – 14, 2025* **(New members sworn in on first day)**	The Westin Annapolis 100 Westgate Circle Annapolis, MD 21401
October 7 – 9, 2025	The Notary Hotel Philadelphia 21 North Juniper Street Philadelphia, PA 19107
December 8 – 11, 2025	The Madison Hotel 1177 15th Street NW Washington, DC 20005

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

MEMORANDUM

Date: March 27, 2024

To: Chris Moore, Executive Director

From: Mary Sabo, Council Staff

Subject: 2025-2029 Strategic Plan

The Mid-Atlantic Fishery Management Council is guided by a five-year strategic plan. The plan serves as a roadmap that is used to prioritize fishery management actions, focus resources, and ensure steady progress toward long-term goals. The current strategic plan will expire at the end of 2024. This memo outlines a proposed timeline for development of the Council's next strategic plan for 2025 through 2029.

Background

In August 2013, the Council adopted its first strategic plan. Development of the plan was informed by a "visioning" process which involved extensive stakeholder outreach and engagement. The 2014-2018 Strategic Plan established a vision, mission, core values, and strategic goals with associated objectives and strategies. The plan was organized around four themes: Communication, Science, Management, and Governance. In 2018 the Council decided to extend the plan for an additional year, through 2019, to align the timing of the next strategic plan with the Council's 5-year cooperative agreement and 5-year research priorities.

In late 2018, the Council began working with a contractor to evaluate progress on the first strategic plan and obtain input for the next plan from stakeholders, the public, the Council's advisory bodies and SSC, and the Council's science and management partners. These perspectives are summarized in the Stakeholder Input Report which was presented to the Council in June 2019. In general, the feedback received through this process indicated that the original vision, mission, and goal statements were still appropriate and did not require major changes. However, the Council received many constructive recommendations for tailoring the objectives and strategies within the goal areas. Guided by this input, the Council updated the vision and mission statements, revised the four original goal areas, and added a fifth "Ecosystem" goal area to the 2020-2024 Strategic Plan. The final plan was approved at the December 2019 Council Meeting.

Timeline and Proposed Process

The strategic plan update is an opportunity for the Council to review progress and accomplishments over the last five years, affirm which aspects of the plan are working well, and make revisions that support a continued trajectory of success. The table below identifies key steps in the proposed process for development of the 2025-2029 Strategic Plan.

April-May 2024	• Request for initial public input, including at least one public webinar.
June 2024 Council Meeting	• Executive Committee reviews public comments and discusses strategic plan framework (vision, mission, core values, goals)
August 2024 Council Meeting	• Draft 2025-2029 Strategic Plan is presented for Council review and discussion.
August-September 2024	• Staff incorporates Council feedback into revised document. • Draft strategic plan is posted for public comment.
October 2024 Council Meeting	• Council reviews public comments and considers approval of 2025-2029 Strategic Plan. • Executive Committee reviews draft deliverables for the 2025 Implementation Plan.
December 2024 Council Meeting	• Council reviews and approves 2025 Implementation Plan.

THE PARNIN GROUP

Executive Summary
Efficiencies Analysis of the Mid-Atlantic Fishery Management Process: Focus Group Findings and Themes

Overview

Over the past three months, the Parnin Team conducted seven focus group interviews as well as individual interviews as part of the "Discover" phase of the project, receiving feedback from 34 Mid-Atlantic Fishery Management Council (Council) members, staff, partners, and stakeholders. We have approached 22 individuals for additional focus group interviews.

This summary is a brief overview of recurring response themes and challenges that emerged from exchanges with interviewees. The broader focus groups conversations help to identify areas of inquiry for additional focus groups and individual interviews as we continue the "Discover" phase and begin our project's "Assess" phase (see timeline below). While some of these themes may not be novel, they underpin a need to consider innovative approaches to improving the fishery management process.

Themes that emerged include developing adequate regulatory responses amid constraints such as limited staff resources for the Council and key partners, balancing commercial and recreational management concerns, and prioritizing issues in consideration of short and long-term objectives. Discussions also revolved around refining or streamlining the process for action item development, maintaining a balance between efficiency and comprehensiveness in approach, and appropriately timing fishery performance reports and analyses to prevent bottlenecks and avoid delays in the fishery management process.

The complexity of the regulatory process emerged as a significant challenge, particularly with respect to the interplay of federal and state procedures. This dynamic was highlighted as confusing and, at times, it leaves partner organizations and stakeholders of the MAFMC inadequately prepared to provide efficient, meaningful, or fully informed input to the process.

Data collection poses another hurdle. Discussions centered on the need for sufficient economic data, overcoming jurisdictional barriers in the evaluation and determination of stock status, and ensuring the reliability of stock assessments in light of current and future impacts of climate change. Climate change presents unique challenges, primarily associated with predictable stock distribution, fishery stability for present and future fishery

participants, and developing intentional, long-term approaches to potential management changes without incurring operative disruptions in the short term.

Next Steps

The Parnin Team notes there are additional issues, topics, and themes to be analyzed that are not part of this report. These aspects may be included in the final evaluation after further investigation and discussion with additional focus groups and individual interviews that will be conducted in the next six to eight weeks. We received extensive feedback and some recommended improvements from interviewees, and we will continue to compile these suggestions for further evaluation and ground-truthing.

A short description of our project was provided to the Council in its December 4, 2023, Briefing Book. This project is now in its second phase, "Assess," in which we focus on analyzing the themes and challenges identified in the focus groups and linking key drivers to specific challenges. This allows us to depict the organizational structure and associated processes more accurately. Our next major milestone is the delivery of a draft report with preliminary recommendations identifying potential solutions and/or actions to improve the current system(s). The project remains on-schedule to deliver the final report by July 31, 2024. The Parnin Team and MAFMC Project Manager plan to present the final report to the Council for review and discussion at the August 2024 Council meeting.

Our timeline for completing the project is as follows:

1. Discover (Nov. 2023 - Feb. 2024)
    i. Background research and process document reviews
    ii. Focus group interviews with MAFMC stakeholders
    iii. Individual interviews with MAFMC stakeholders
2. Assess (Feb. - Apr. 2024)
    i. Process and gap analysis
    ii. Interview themes and findings review
    iii. Preliminary findings report and MAFMC Oversight Team feedback
    iv. Preliminary Findings report for April 2024 Council meeting
3. Recommend (May -July 2024)
    i. Draft report and recommendations
    ii. MAFMC Oversight Team feedback
    iii. Final report and recommendations (by July 31, 2024)
    iv. Final report presentation at August 2024 Council meeting

U.S. Regional Fishery Management Councils

March 28, 2024

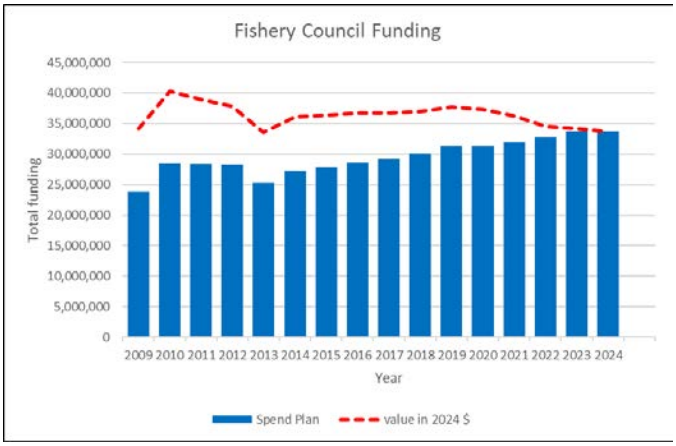
Ms. Janet Coit
Assistant Administrator, NOAA Fisheries
1315 East-West Highway
Silver Spring, MD 20910
Via email: janet.coit@noaa.gov

Dear Ms. Coit,

Thank you for your continued support of the Regional Fishery Management Councils and our work to manage the nation's marine fishery resources under the Magnuson-Stevens Fishery Conservation and Management Act.

On behalf of all eight regional fishery management councils, we want to make you aware of our financial situation, and concerns with the next grant period in CY2025-2028. Meeting our current obligations mandated under the Magnuson Stevens Fishery Conservation and Management Act, much less addressing new initiatives to improve our conservation and management programs to maintain sustainable fisheries in the face of unprecedented environmental change, will be extremely challenging without additional resources as the current long-term funding trajectory leaves us with ever-diminishing resources. Our assessment of the extent of this problem is informed by our experience to date with adapting to climate change; our universal experience is that it increases complexity and requires more resources in order to maintain healthy populations and sustainable fisheries. It is clear now that our resources will not be adequate. Already several Councils have regular annual costs that exceed annual income and have only been able to sustain activities in recent years as the result of a temporary budget pattern due to delays in spending that occurred during the COVID pandemic. Continuing this spending pattern into the future is not sustainable. Other Councils have initiated changes in operations and policies to restrain spending and may find it difficult to further adapt to future inflation.

The Councils acknowledge that recent annual awards have provided a modest 0-3% (1.5% average) increase in annual funding allocations. However, annual costs for the councils have increased substantially in recent years. We have experienced greater than 5% increases in Federal salary rates, greater than 10% annual increases in travel costs, hotel and meeting space, and insurance, and in some cases greater than 20% annual increases in health care costs. These overall cost increases sharply contrast with the modest increases in Council funding in recent years. It is highly unlikely that these recent cost increases will decrease in the future, even if inflation rates drop.



To examine the real impact of inflation, we can look at the history of funding for the Councils

since 2009 relative to the value of those funds compared to the current value of the current U.S. Dollar. In terms of current dollar value, for example, the 2010 funding was 19% higher, and the 2019 funding was 12% higher than in 2024. In other words, the Councils purchasing power has shrunk by 12% over the last 5 years.

Some of the Councils have already been required to take drastic actions to reduce spending, including scaling back on development of needed conservation and management measures, reducing the number of staff, reducing the number of council meetings, increasing use of virtual meetings, reducing the number of advisory body meetings, and reducing or eliminating any in-person committee meetings. Even with these savings, costs are projected to exceed grant revenue in the next grant period for most councils, assuming we continue to receive only modest increases in funding.

Clearly, we cannot continue with the status quo when costs are higher across the board, and inflation rates exceed our annual grant allocation increases, which have typically been less than 3%. The Councils are having to adapt by doing less with less at a time when there are an increasing number of conservation and management matters to address, requiring we do more not less.

Climate ready fisheries management and climate resilient fisheries require more timely and responsive fisheries management. It requires that we be able to respond to an influx of new species into Council jurisdictions while considering the loss of others; it requires that we set new and potentially dynamic management targets; it requires that we consider expanded ranges of some stocks and complex, multi-Council governance agreements; and it requires that we consider all of these things through a lens of equity, fairness, and environmental justice. Without additional funding, these goals are not achievable.

We request further discussions with you regarding our funding allocations at the May 2024 Council Coordination Committee meeting. We look forward to collaborating with you to identify specific approaches to alleviate our emerging fiscal issues.

Thank you for your consideration.

Signed,
Council Executive Directors:

David Witherell, NPFMC

Cate O'Keefe, NEFMC

Miguel Rolon, CFMC

Chris Moore, MAFMC

Merrick Burden, PFMC

John Carmichael, SAFMC

Kitty Simonds, WPFMC

Carrie Simmons, GMFMC

Summer Flounder, Scup, Black Sea Bass, and Bluefish

Recreational Measures Setting Process Framework/Addenda

Draft Action Plan

March 2024

https://www.mafmc.org/actions/rec-measures-framework-addenda

Framework/addenda goal: This management action is being developed by the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission). This is a follow-on action to the Recreational Harvest Control Rule Framework/Addenda, which implemented the Percent Change Approach for setting recreational management measures. In adopting the Percent Change Approach, the Council and the Commission's Interstate Fisheries Management Program Policy Board (Policy Board) agreed it should sunset by the end of 2025 with the goal of considering an improved measures setting process, as developed through this management action, starting with 2026 measures.

Alternatives to be considered: During their June 2022, August 2023, and December 2023 meetings, the Council and Policy Board agreed to further develop the following alternatives through this management action. The range of alternatives is expected to be further modified and refined prior to finalization for public hearings.

- **No Action Alternative** – Consideration of a no action alternative is required by the National Environmental Policy Act. If no action is taken by the Council and Policy Board to replace the Percent Change Approach before the sunset date, then the process for setting recreational measures, starting with 2026 measures, would revert back to the requirements of the Fishery Management Plans (FMPs) prior to implementation of the Harvest Control Rule Framework Addenda. Specifically, measures would be set with the primary goal of allowing harvest to meet but not exceed the recreational harvest limit (RHL). Unlike the other alternatives under consideration, measures would be set for one year at a time.
- **Percent Change Approach** – This approach was implemented starting with the 2023 recreational management measures for summer flounder, scup, and black sea bass. It will also be used for bluefish once that stock is no longer in a rebuilding plan. Under the Percent Change Approach, a determination is made to either liberalize, restrict, or leave measures unchanged based on two factors: 1) Comparison of a confidence interval around an estimate of expected harvest under status quo measures to the average RHL for the upcoming two years and 2) Biomass compared to the target level, as defined by the most recent stock assessment. These two factors are used to define a target harvest level for setting management measures. The Percent Change Approach is described in detail in the reference guide and final framework document for the previous action. The Council and Policy Board agreed that further development of this approach should, at a minimum, include greater consideration of fishing mortality. This could include development of approaches to assign fishing mortality rates and targets to the recreational fishery.
- **Biological Reference Point Approach and Biological Based Matrix Approach** - These alternatives use a combination of indicators to place the stock in one of multiple potential management measure "bins." The indicators vary by alternative and include expected harvest

under status quo measures, biomass compared to the target level, fishing mortality, recruitment, and/or trends in biomass. The intent is that bins associated with poor indicators would have more restrictive management measures and bins with positive indicators would have more liberal measures. These alternatives are described in more detail in the reference guide and final framework document for the previous action. In December 2023, the Council and the Policy Board agreed to modify these alternatives such that measures will no longer be assigned to all bins the first time either approach is used through the specifications process. Further consideration will be given to the appropriate method for setting measures under these alternatives.

Other topics to be considered: During their June 2022, August 2023 meetings, and December 2023 meetings the Council and Policy Board agreed that the following additional topics should also be considered through this management action. These are not management alternatives; rather, they are topics that will be considered in the context of the management alternatives listed above.

- **Target metric for setting measures** – The previous framework/addenda considered if recreational measures in state and federal waters should collectively aim to achieve a target level of harvest (e.g., based on the RHL), recreational dead catch (e.g., based on the recreational annual catch limit), or fishing mortality. This will be further considered through this action.
- **Starting point for measures** – Many recreational stakeholders have expressed frustration that the current measures do not appear to be aligned with stock status. The Council and Policy Board agreed that further consideration should be given to the starting point for measures under all alternatives.
- **Management uncertainty** – The Council and Policy Board agreed that further consideration should be given to the implications of the alternatives for management uncertainty buffers as currently defined in the Fishery Management Plan.
- **Use of the Summer Flounder Management Strategy Evaluation (MSE) model** – The previously developed Summer Flounder MSE model will be used to analyze several aspects of this management action. For example, it may be used to evaluate the performance of potential indicator thresholds which define the boundaries between management measure bins, the management response to crossing those thresholds, and measures assigned to each management response. Given time constraints, simplifying assumptions will need to be made and realistic example measures are not expected to be generated for every bin under all alternatives.
- **Impacts on the commercial sector** – Although this action will only consider the process for setting recreational measures, the Council and Policy Board agreed to further evaluate potential indirect impacts to the commercial sector. This action will not consider any changes to commercial management and it will not consider transferring quota between the commercial and recreational sectors.
- **Other topics** – This action may consider other topics, as appropriate. For example, this could include potential revisions to the accountability measures and considerations related to conservation equivalency.

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

An FMAT/PDT has been formed to assist with development and analysis of potential alternatives. FMAT/PDT members are listed in the table below. Other Council, Commission, and NOAA Fisheries staff, as well as other experts, will be consulted as needed.

FMAT/PDT Member Name	Agency	Role/Expertise
Tracey Bauer	Atlantic States Marine Fisheries Commission	FMAT/PDT Co-Chair
Julia Beaty	Mid-Atlantic Fishery Management Council	FMAT/PDT Co-Chair
Chelsea Tuohy	Atlantic States Marine Fisheries Commission	FMAT/PDT Co-Chair
Mike Celestino	New Jersey Department of Environmental Protection	Technical analysis and state management
Alexa Galvan	Virginia Marine Resources Commission	Technical analysis and state management
Emily Keiley	NMFS Greater Atlantic Regional Fisheries Office	Fisheries policy and legal requirements
Marianne Randall	NMFS Greater Atlantic Regional Fisheries Office	National Environmental Policy Act requirements
Scott Steinback	Northeast Fisheries Science Center	Recreational fisheries economist
Rachel Sysak	New York Department of Environmental Conservation	Technical analysis and state management
Corinne Truesdale	Rhode Island Department of Fish and Wildlife	Technical analysis and state management
Sam Truesdell	Northeast Fisheries Science Center	Stock assessments
Sara Turner	NMFS Greater Atlantic Regional Fisheries Office	Scientific and technical analysis of federal fisheries management

Commissioner/Council Member Work Group

The Council and Policy Board established a small group of Commissioners and Council members to act as a liaison between the PDT/FMAT and the Policy Board. The purpose of the Work Group is to guide the FMAT/PDT on the intent of the Council and Policy Board, not to develop new options/alternatives. This group will periodically meet with the PDT/FMAT. Work Group members are listed below.

Work Group Member Name	Council Member or Commissioner
Skip Feller	Council member
Jason McNamee	Commissioner
Nichola Meserve	Commissioner
Adam Nowalsky	Both
Paul Risi	Council member

Draft Timeline – *Subject to change*

May 2023	• FMAT/PDT formed.
June - July 2023	• FMAT/PDT meetings.
August 2023	• Council and Policy Board meeting to review progress and discuss next steps. • Council member/Commissioner work group formed.
September - November 2023	• FMAT/PDT and Council member/Commissioner work group meeting. • AP meeting to review progress and provide input. • Scientific and Statistical Committee (SSC) meeting to review progress. • MSE team begins work.
December 2023	• Council and Policy Board meeting to review progress and discuss next steps.
January - July 2024	• FMAT/PDT and Council/Commissioner work group meetings to continue development and analysis of alternatives and develop draft document for public hearings. • Continued MSE work. • Formation and meetings of SSC sub-group to review several aspects of the framework/addenda.
July 2024	• Final report on MSE work provided to FMAT/PDT and SSC. • SSC meeting to review draft sub-group report and finalize report from full SSC.
August 2024	• Council and Policy Board meeting to review progress and discuss next steps.
August-September 2024	• FMAT/PDT meeting(s) to develop recommendations for the final range of alternatives. • AP meeting to review draft range of alternatives and provide input to Council and Policy Board.
October 2024	• Council and Policy Board meeting to approve final range of alternatives and approve draft document for public hearings through Commission process.
December 2024 – February 2025	• Public hearings through Commission process.
March 2025	• FMAT/PDT and AP meetings to review public comments and provide input to Council and Policy Board prior to final action.
April 2025	• Council and Policy Board meeting for final action.
April-December 2025	• Development, review, and revisions of framework/addenda documents. • Federal rulemaking. • Monitoring and Technical Committees use new process to set 2026 recreational measures.
Late 2025 or early 2026	• Effective date of implemented changes.

Mid-Atlantic Fishery Management Council

Scientific and Statistical Committee

Background

The Mid-Atlantic Fishery Management Council (Council) requests that the Scientific and Statistical Committee (SSC) review several aspects of the Recreational Measures Setting Process Framework/Addenda, as summarized in the terms of reference (TORs) below. This management action is being developed by the Council and the Atlantic States Marine Fisheries Commission (Commission). Commission leadership provided input into these TORs. The SSC must complete their review during their July 23-25, 2024 meeting. Starting in March 2024 or as soon as possible, a subgroup of the SSC will work with the Fishery Management Action Team/Plan Development Team (FMAT/PDT) to review the ongoing and planned work to develop and analyze the management alternatives in this action. To ensure timely review and opportunities to revise the analyses and alternatives, as appropriate, the SSC sub-group may provide a preliminary response to some TORs prior to a full SSC review in July 2024.

Terms of Reference:

1) Provide feedback on the potential effects the management alternatives (including the no action alternative) might have on future ABC recommendations and scientific uncertainty considerations.

    a) Provide an evaluation of the potential biological impacts on the stocks and potential quota impacts to the commercial sector.

2) Compare and provide a relative ranking of all alternatives in terms of their potential to: 1) provide stability in recreational management measures, 2) appropriately respond to changes in stock status, and 3) prevent overfishing. Comment on other socioeconomic considerations (e.g., angler welfare) if possible based on available information. Describe tradeoffs in these considerations inherent in each alternative. These considerations can be ranked separately; they need not be combined into one ranking system. The SSC should not select an overall preferred alternative.

3) Are the fishery and stock status indicators and associated threshold values (e.g., the categories of biomass and fishing mortality) under each alternative reasonably defined for determining when a change in recreational management measures is needed?

4) Review the approaches for defining fishing mortality (F) targets for recreational measures and use of fishing mortality indicators for determining when measures should change.

a) Review and provide feedback on the analyses to support these approaches. Are the methods sound and applied appropriately for potential application in management?

b) Evaluate the scientific and biological appropriateness and identify any uncertainties of partitioning stock-wide F reference points and F projections into sector-specific reference points and projections for use in management.

c) Comment on whether the potential recreational F-based approaches could allow recreational measures to more appropriately respond to changes in stock status compared to setting measures based on a harvest target (e.g., the Recreational Harvest Limit or a harvest target set based on the current implementation of the Percent Change Approach).

5) Address the following for the Management Strategy Evaluation (MSE) conclusions, if applicable:

a) Given the limited scope of this analysis, what are the most important results, conclusions, and caveats in the MSE report for the Council and the Commission's Policy Board to consider when selecting a preferred alternative?

b) Given the MSE is specific to summer flounder, are there other factors and/or areas of uncertainty to consider for scup, black sea bass, and bluefish?

6) If appropriate, provide recommendations for additional work that could be completed by the FMAT/PDT or the MSE team prior to public hearings. Any additional analysis should help the public understand the alternatives and their impacts and should help the Council and Policy Board select their preferred alternative(s). It must not result in the identification of new alternatives outside the range of alternatives approved for public hearings.

MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

PRESS RELEASE

FOR IMMEDIATE RELEASE
March 27, 2024

PRESS CONTACT: Mary Sabo
(302) 526-5261

Mid-Atlantic Council Seeks Applicants for Advisory Panels

The Mid-Atlantic Fishery Management Council is accepting applications from qualified individuals to serve on its advisory panels for the next three years. The application deadline is **April 26, 2024**.

Advisory panels provide information and recommendations to the Council during the development of fishery management plans, amendments, specifications, and management measures. One of the chief responsibilities of advisory panels is the development of annual Fishery Performance Reports. These reports provide the Council and its Scientific and Statistical Committee (SSC) with information about the factors that influenced fishing effort and catch within each fishery during the previous year.

Advisory panels are composed of individuals with diverse experience and interest in Mid-Atlantic fisheries, including commercial fishermen, recreational anglers, for-hire operators, commercial dealers, scientists, environmentalists, and other members of the interested public. Most advisory panels meet 1-2 times per year. Members are compensated for travel and per diem expenses for any in-person meetings. Individuals who are appointed to advisory panels serve for three-year terms. **All current advisory panel members must reapply in order to be considered for reappointment.**

The Council is accepting applications for the following advisory panels:

- Summer Flounder, Scup, and Black Sea Bass
- Mackerel, Squid, and Butterfish
- Surfclam and Ocean Quahog
- Tilefish
- Bluefish
- Ecosystem and Ocean Planning
- River Herring and Shad
- Spiny Dogfish (jointly managed with New England Council)
- Communication and Outreach

How to Apply

Anyone interested in serving on an advisory panel may apply online or download an application at www.mafmc.org/advisory-panel-application. Applications can also be obtained by calling the Council office at (302) 674-2331 or emailing msabo@mafmc.org.

Completed applications must be received by **Friday, April 26, 2024.**

If you have questions or need additional information, please contact Mary Sabo at (302) 526-5261, msabo@mafmc.org.

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: March 28, 2024

To: Council

From: Julia Beaty, staff

Subject: Updates on Offshore Wind Energy Development

This memo summarizes recent updates on offshore wind energy development, with an emphasis on updates since the February 2024 Mid-Atlantic Fishery Management Council (Council) meeting. This list is not intended to be exhaustive and focuses on updates of greatest relevance to the Council.

- **Submitted comment letters.** The following comment letters were submitted:
  - MAFMC and NEFMC Letter to BOEM: Programmatic Environmental Impact Statement (PEIS) for Six Lease Areas in the New York Bight (2/23/24)
  - MAFMC and NEFMC Letter to BOEM: Proposed Sale Notice for Lease Area A-2, OCS-A 0557, off Delaware and Maryland and Lease Area C-1, OCS-A 0558, off Virginia (2/12/24)
- **Sunrise Wind approved.** The Department of Interior announced the approval of the Sunrise Wind project, located about 30 miles east of Montauk, NY. The Record of Decision (ROD) includes requirements for the locations of turbines, fisheries compensatory mitigation, and other requirements. More information is available here.
- **Atlantic Shores North EIS.** The Bureau of Ocean Energy Management (BOEM) released a notice of intent to prepare an environmental impact statement (EIS) for the Atlantic Shores North project, off New Jersey. A public scoping process, including a comment period through May 2, 2024 and five public comment meetings, is underway to identify issues and potential alternatives for consideration in the EIS. More information is available here.
- **Vineyard Northeast EIS.** BOEM published a notice of intent to prepare an EIS for the Vineyard Northeast Wind project, located about 29 miles south of Nantucket, MA. A public scoping process, including a comment period through May 9, 2024 and four public comment meetings, is underway to identify issues and potential alternatives for consideration in the EIS. More information is available here.
- **New England Wind Final EIS.** BOEM announced the availability of the final EIS for the proposed New England Wind project, located about 20 nautical miles south of Martha's Vineyard, MA. The final EIS will inform BOEM's decision to approve, approve with modifications, or disapprove the Constructions and Operations Plan for this

project. This decision will be announced in a Record of Decision in the coming months. More information is available here.

- **Beacon Wind draft Environmental Assessment.** BOEM announced the availability of a Draft Environmental Assessment for additional site assessment activities within the Beacon Wind lease area. More information is available here.
- **State Initiative on Fisheries Compensatory Mitigation**. Requests for proposals were solicited through March 20, 2024 for an entity to serve as an administrator for a regional fisheries compensation fund. More information is available here.
- **Vineyard Wind 1 and South Fork Wind fisheries compensatory mitigation programs.** Compensation programs are currently open for fishermen who can demonstrate fishing activities within the Vineyard Wind 1 and South Fork Wind project areas. More information is available here. The Vineyard Wind 1 compensation program for commercial vessel owners/operators has a strict deadline of June 3, 2024 to submit an application for eligibility for compensation. These compensation programs are separate from gear loss compensation programs.
- **Atlantic Offshore Wind Transmission Study and Action Plan.** The Department of Energy (DOE) released the final Atlantic Offshore Wind Transmission Study. This study concluded that although most east coast offshore wind projects being built in the near future will need to connect individually to the onshore grid, linking some future projects via offshore transmission networks can have cost, reliability, and environmental benefits. This study informs the final Atlantic Offshore Wind Transmission Action Plan, which outlines several actions to support offshore wind energy transmission.
- **Offshore Wind Transmission State Collaborative.** Ten east coast states have formed a collaborative to discuss offshore wind transmission planning. Recommendation 1 in the Atlantic Offshore Wind Transmission Action Plan provides a summary of the potential role for this group. This group is in the early stages of forming and defining their work plan.
- **SSC review of survey mitigation plans.** A review panel consisting of three Mid-Atlantic Council Scientific and Statistical Committee (SSC) members, three New England Council SSC members, and two assessment scientists representing the Atlantic States Marine Fisheries Commission will meet on May 22-24, 2024 in Narragansett, RI to review mitigation plans for 11 fishery independent surveys. These mitigation plans are intended to address the impacts from offshore wind energy development in order for NOAA Fisheries to continue to deliver precise, accurate, and timely surveys, assessments, data, and advice. This effort is part of the Federal Survey Mitigation Strategy. More information will be posted on the Council's website once it is available.
- **New England Fishery Management Council meeting**. The New England Council will receive updates on several offshore wind energy projects during their meeting on April 17, 2024. More information is available here.
- **South Atlantic Council Habitat and Ecosystems Advisory Panel meeting**. The South Atlantic Council's Habitat and Ecosystems Advisory Panel will discuss offshore wind energy development during their meeting on April 22 – 24, 2024. More information will be posted here once it is available.

- **Gulf of Maine Wind Energy Areas**. On March 15, 2024, BOEM announced the designation of a final Wind Energy Area in the Gulf of Maine. More information is available here.
- **Gulf of Mexico Proposed Sale Notice.** BOEM released a proposed sale notice for a second round of offshore wind energy lease auctions in the Gulf of Mexico. More information is available here.
- **Recreational fishing and offshore wind webinar.** On February 7, 2024, Rhode Island Sea Grant and the University of Rhode Island hosted a public webinar on recreational fishing and offshore wind energy. A summary and recording are available here.
- **Construction activities.** The following projects have been approved by BOEM. Construction and pre-construction activities are underway or may take place in the near future.
    - **South Fork Wind**. Construction is complete on all 12 turbines and the project is sending electricity to the grid. There may be continued vessel activity in the area to support final stages of construction. For the most recent updates on offshore activities, see the mariners briefings posted here.
    - **Vineyard Wind 1**. The 62 turbine Vineyard Wind 1 project, located 15 miles south of Martha's Vineyard and Nantucket, is currently under construction. The most recent notices to mariners are available here.
    - **Revolution Wind.** The up to 65 turbine Revolution Wind Projected, located about 15 nautical miles southeast of Point Judith, Rhode Island, is currently in construction. For the most recent updates on offshore activities, see the mariners briefings posted here.
    - **Coastal Virginia Offshore Wind** (CVOW). The up to 176 turbine CVOW project, located about 24 nautical miles off Virginia Beach, has been approved but offshore construction activities have not yet begun. The most recent notices to mariners are available here.
    - **Empire Wind.** The up to 147 turbine Empire Wind project, located about 12 nautical miles south of Long Island, has been approved but offshore construction activities have not yet begun. The most recent notices to mariners are available here.
    - **Sunrise Wind.** The up to 84 turbine Sunrise Wind project, located about 30 miles east of Montauk, NY, was approved by BOEM in late March 2024. Offshore construction activities have not yet begun. For the most recent updates on offshore activities, see the mariners briefings posted 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 left in place 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.

BLUEPOINT WIND · ATTENTIVE ENERGY · COMMUNITY OFFSHORE WIND · LEADING LIGHT WIND
JOINT NOTICE OF SURVEY ACTIVITIES
March 21, 2024

Bluepoint Wind (Lease 0537), Attentive Energy (Lease 0538), Community Offshore Wind (Lease 0539), and Leading Light Wind (Lease 0542) are issuing this joint notice of ongoing and planned survey activities to inform the scallop industry and other interested parties of the scope and timing of survey operations that may be occurring after April 1, 2024. All four of the lease areas overlap different portions of the New York Bight Scallop Rotational Area as shown in the map below. The rotational area has been closed to scallop fishing for two years and is scheduled to reopen under controlled fishing effort levels April 1, 2024.

Ongoing and anticipated site investigation activities for each project, as well as fisheries liaison contact information, are described on the following page. Our goal is to promote safe coordination of fishing and survey activities and encourage sharing of this notice. Additional information can be found on each project's website.

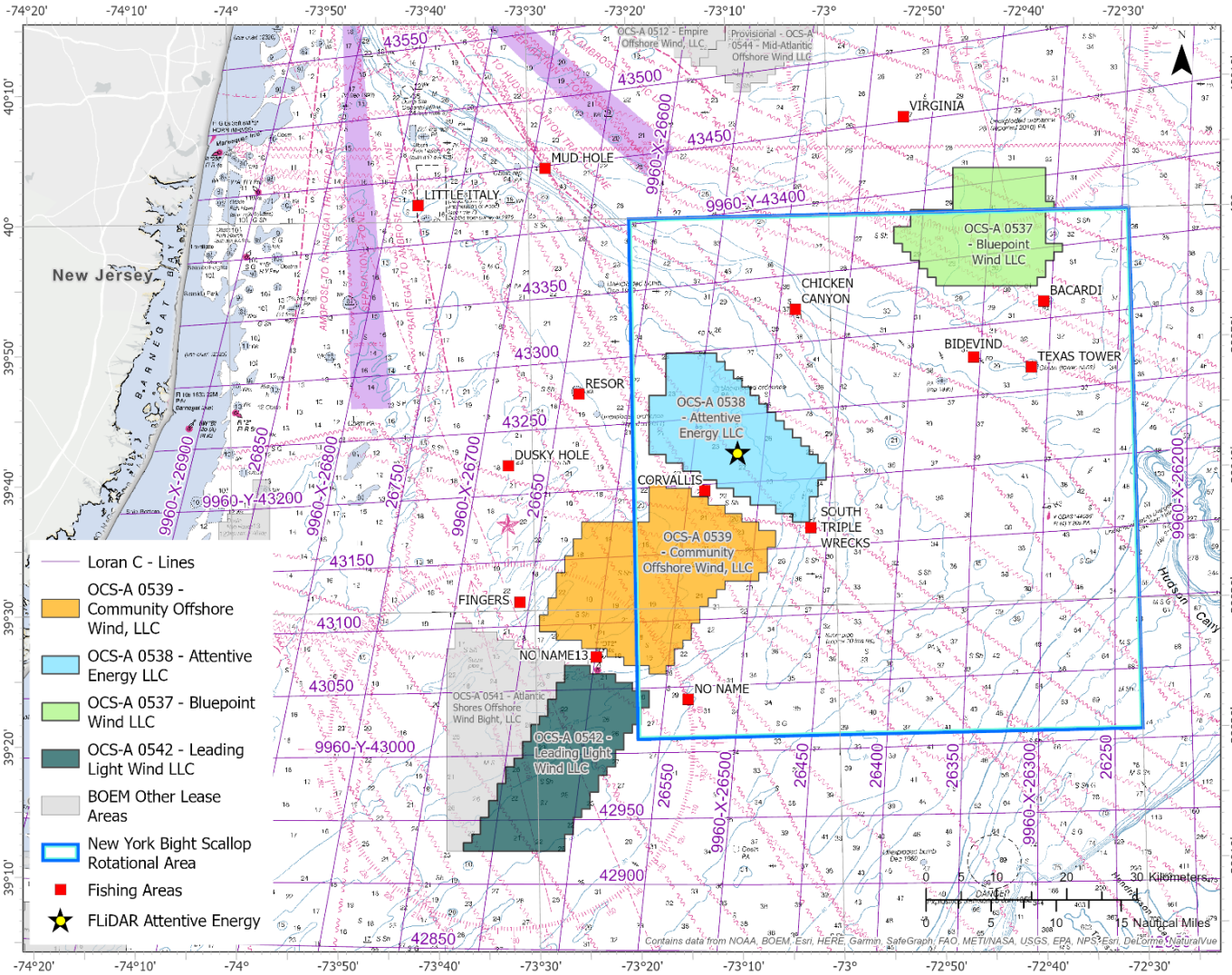


Figure 1. Bluepoint Wind (Lease 0537), Attentive Energy (Lease 0538), Community Offshore Wind (Lease 0539), and Leading Light Wind (Lease 0542) locations relative to the New York Bight Scallop Rotational Area.

BLUEPOINT WIND (Lease 0537)

During 2023 and early 2024, Bluepoint Wind conducted geophysical, geotechnical, and benthic surveys in our Lease Area and along potential Export Cable Corridors (ECCs). As a result of our progress, **Bluepoint Wind does not have any active survey vessels or campaigns at this time. Current projections show our next survey activity, geotechnical work in the Lease Area, will likely occur in late 2024 or early 2025.** The Project will communicate with the fishing industry and regulatory bodies in advance of any future survey campaigns. Mariners interested in viewing information on past survey activities can view archived Survey Awareness Flyers and Mariner's Updates on The Project page of the Bluepoint Wind website.

As the Project continues moving forward, Bluepoint Wind's planned priorities include gathering feedback specific to project design and navigation safety, attending commercial and recreational fishing industry events, and soliciting input from fisheries stakeholders. Interested stakeholders are welcome to contact the Bluepoint Wind team through our Fisheries Liaisons, Calvin Alexander at fisheries@bluepointwind.com and Diana Glinos at diana.glinos@bluepointwind.com, or Fisheries Representative Jim Kendall at nbsc@comcast.net regarding project activities and fisheries concerns.

ATTENTIVE ENERGY (Lease 0538)

In February 2024, Attentive Energy completed high resolution geophysical and geotechnical surveys in support of Attentive Energy One and Attentive Energy Two. Currently, no further surveys are planned for 2024. Additionally, a meteorological buoy was deployed in position 39° 41.876' N 73° 09.584' W (LORAN X 26,519.0 and Y 43,223.4), located 47 nautical miles east of Surf City, New Jersey. Deployment occurred the second week of January 2024. The buoy was deployed from the M/V Go Adventurer (Radio Call Sign: WDM7780). M/V Go Adventurer will monitor VHF-radio channel 16 throughout operations. The buoy is a Fugro Seawatch Wind LiDAR Buoy (SWLB092). The buoy is colored yellow, 10 feet (3 meters) in diameter, and lit from sunset to sunrise with a quick flashing yellow light (4 nautical mile range). The light flashes yellow for 5 one second flashes every 20 seconds. The buoy will transmit an AIS signal as Type: ATON/Physical, Name: SWLB092 with MMSI No. 993663043. The buoy extends 16 feet (5 meters) above and 10 feet (3 meters) below the waterline. The buoy is anchored to the seabed with a 6,000-pound (3 ton) seabed anchor. The swing radius is approximately 236 feet (72 meters) from the anchored position. The buoy and mooring are designed to withstand 10-year storm conditions without the anchor moving location or the mooring parting. In addition to the meteorological buoy, an aluminum seabed frame was anchored to the seafloor using a steel anchor incorporated into the seabed frame's structure located at 39° 41.766' N 73° 09.586' W (LORAN X 26,519.0 and Y 43,222.3). When anchored the seabed frame height is approximately 2 feet (0.6 meters) above the seafloor. It is not attached to the meteorological buoy but is anchored in the vicinity of the buoy. The seabed frame collects marine acoustic monitoring, current velocity, turbidity, and marine growth data. Photos of the buoy and seabed frame are available here.

For questions, concerns, or inquiries, our Fisheries Liaison, Sebastian Velez, or Marine Affairs Manager, Brian LeFebvre, can be reached at sebastian.velez@totalenergies.com and brian.lefebvre@totalenergies.com.

COMMUNITY OFFSHORE WIND (Lease 0539)

The lease area is located 32 nautical miles east of Barnegat Inlet, NJ and 56 nautical miles south of Long Beach, NY. Within the lease area, the M/V SANCO SWIFT is collecting bathymetric and ultra-high resolution seismic data using a towed array of acoustic sources and receivers, and is expected to complete data collection by mid-June 2024. An onboard fisheries liaison will be on the vessel to communicate and coordinate with the fishing fleet. Deep geotechnical survey activities are anticipated to begin within the lease area in June 2024 and continue into early January 2025, using a seabed frame lowered to the seafloor. All survey vessels monitor VHF 16 for bridge-to-bridge communications. A local commercial fishing vessel, F/V ANNICE MARIE, will scout for fishing gear as needed in advance of survey operations and will monitor VHF 16 during scouting operations.

Fishermen planning to fish fixed gear in the survey areas are encouraged to contact Fisheries Liaisons Sean Lucey (SeanL@communityoffshorewind.com OR sean.lucey@rwe.com, 508-524-9444) or Michelle Duval (MichelleD@communityoffshorewind.com OR michelle.duval.extern@rwe.com, 919-601-3798) to coordinate activities in advance. For additional information regarding survey activities occurring along potential export cable routes and for the latest Fisheries Notice, please see https://communityoffshorewind.com/fisheries.

LEADING LIGHT WIND (Lease 0542)

Leading Light Wind is located approximately 35 nautical miles east of Atlantic City, NJ and 69 nautical miles south of Long Beach, NY. The NYB Scallop Rotational Area overlaps with <2 square miles of the northeastern corner of the offshore lease area. For the *offshore lease*, the following activities are anticipated:

- Geotechnical survey ongoing through May 2024, R/V FUGRO EXPLORER
- Geophysical surveys ongoing through April 2024, M/V GO PURSUIT
- Benthic survey operations, April 2024, M/V GO PURSUIT
- Geophysical surveys, June 2024 through August 2024, M/V GO PURSUIT
- eDNA summer survey, July 2024, M/V GO PURSUIT
- eDNA fall survey, October 2024, M/V GO PURSUIT
- Avian surveys, 3x per season through December 2024; ATLANTIC PEARL

Leading Light Wind provides periodic Mariner Updates to local ocean users ahead of survey work in the project area at http://www.leadinglightwind.com/mariners. Protected Species Observers (PSOs) will be deployed onboard all survey vessels. The Fisheries Team will provide fisheries briefings as appropriate to survey vessel crew and continue communications with the fishing community to help avoid and/or minimize the potential for interactions with fishing operations and/or gear. Scout vessels and offshore Fisheries Liaisons will be deployed as necessary. Vessels can be hailed directly via VHF (CH 16) or by contacting the fisheries team below.

- ➲ Sarah Hudak, Fisheries Liaison, 919-302-8559, sarahhudak@leadinglightwind.com
- ➲ Ron Larsen, Fisheries Liaison Support, 570-242-5023, ronlarsen@searisksolutions.com

FOR ADDITIONAL INFORMATION, PLEASE VISIT INDIVIDUAL PROJECT WEBSITES:

Bluepoint Wind
Attentive Energy
Leading Light Wind
Community Offshore Wind

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: March 28, 2024

To: Chris Moore, Executive Director

From: Mary Sabo, Council Staff

Subject: USFWS Regulation of Squid Fishery Exports

Over the last several years, the Council has been involved with an issue concerning the inclusion of U.S. squid fishery products in the U.S. Fish and Wildlife Service (USFWS) inspection and user fee system for monitoring wildlife imports and exports. This memo provides background on the issue and an update on recent correspondence with USFWS.

Background

Under the authority of the Endangered Species Act (ESA), the USFWS regulates the import and export of wildlife through the licensing of importers and exporters, inspection of shipments, and charging fees for processing applications and performing inspections. The ESA provides an exemption from these requirements for "shellfish and fishery products" if they are intended for human or animal consumption, not listed as injurious under the Lacey Act, and not listed under the ESA or CITES. This exemption currently applies to the vast majority of domestic fisheries, but it does not apply to the three commercially harvested U.S. squid fisheries. While squid meet all of the criteria described above**,** the USFWS has concluded that squid are neither shellfish nor fishery products.

Participants in the commercial squid fisheries have reported that these licensing requirements are redundant, time-consuming, and costly for U.S. squid producers. Squid are generally considered to be a higher volume, lower value product, so any fees associated with USFWS policies and regulations add layers of costs that make U.S. products more expensive to produce and thus less competitive in the international market. Council staff have reviewed current regulations and supporting documents from USFWS and have not found a rationale for excluding squid from the exemption for shellfish and fishery products. We are not aware of any evidence that squid fisheries are any more vulnerable to illegal trade than other fisheries that are covered by the exemption.

In 2020, the Council identified this issue as a top priority in its response to Executive Order 13921.[1] Specifically, the Council recommended that squid be reclassified as either "shellfish" or "fishery products" and therefore exempt from the USFWS inspection and user fee system. The Council reiterated this recommendation in a December 2020 letter sent to Secretary of Interior

[1] Executive Order 13921 on Promoting American Seafood Competitiveness and Economic Growth required the regional Councils to submit prioritized lists of recommended actions to reduce burdens on domestic fishing and to increase production within sustainable fisheries.

David Bernhardt (we did not receive a response). The industry continues to report that these requirements create a costly and unnecessary regulatory burden.

Recent Correspondence (Attached)

- Email from Chris Moore to Edward Grace, Assistant Director, USFWS Office of Law Enforcement (3/12/24)
- Response from Eva Lara, Wildlife Inspector in Charge, USFWS Office of Law Enforcement (3/15/24)

From: Moore, Christopher <cmoore@mafmc.org>
Sent: Tuesday, March 12, 2024 1:18 PM
To: edward_grace@fws.gov
Cc: Mary Sabo <msabo@mafmc.org>; Spedden, Shelley <sspedden@mafmc.org>
Subject: USFWS Regulation of Squid Fishery Exports

Mr. Grace – My name is Chris Moore, and I am the Executive Director of the Mid-Atlantic Fishery Management Council. The Mid-Atlantic Council manages more than 65 marine species in federal waters and is composed of members from the coastal states of New York to North Carolina (including Pennsylvania). I am writing to you because Rick Jacobson, USFWS Assistant Regional Director for the Northeast Region, suggested that you would be the appropriate person to contact about a regulatory issue affecting two of the Mid-Atlantic Council's managed fisheries. This issue concerns the inclusion of squid fishery products in the USFWS inspection and user fee system for monitoring the import/export of certain types of wildlife products.

As you are aware, the Endangered Species Act authorizes the USFWS to regulate the import and export of wildlife through the licensing of importers and exporters, inspection of shipments, and charging fees for processing applications and performing inspections (50 CFR 14). The ESA provides an exemption from these requirements for "shellfish and fishery products" if they are intended for human or animal consumption, not listed as injurious under the Lacey Act, and not listed under the ESA or CITES. This exemption currently applies to the vast majority of domestic fisheries, but it does not apply to the three commercially harvested U.S. squid fisheries (Atlantic longfin squid, Atlantic *Illex* squid, and California market squid). While these fisheries meet all of the criteria described above, the USFWS has concluded that squid are neither shellfish nor fishery products. This interpretation is inconsistent with the definitions of "shellfish" used by the National Marine Fisheries Service and the United Nations Food and Agriculture Organization.

These licensing and inspection requirements are redundant, time-consuming, and costly for U.S. squid producers. Squid are generally considered to be a higher volume, lower value product, so any fees associated with USFWS regulations add layers of costs that make U.S. products more expensive to produce and thus less competitive in the international market. We have reviewed current regulations and supporting documents and have not found a rationale for excluding squid from the exemption for shellfish and fishery products. We are not aware of any evidence that squid fisheries are any more vulnerable to illegal trade than other fisheries that are covered by the exemption. As such, we believe squid should be reclassified as either "shellfish" or "fishery products" and therefore exempt from the USFWS inspection and user fee system. More detailed recommendations and rationale can be found in our December 2020 letter to the Secretary of Interior.

This is an issue of importance to the Mid-Atlantic Council and many of its stakeholders, and I would greatly appreciate any assistance you can provide. Please feel free to contact me if you have any questions or if you would like to schedule a time to discuss the matter further. I look forward to hearing from you. Thanks! C

Christopher M. Moore, Ph.D.
Executive Director
Mid-Atlantic Fishery Management Council
800 N. State St, Suite 201
Dover, DE 19901

From: Lara, Eva <eva_lara@fws.gov>
Sent: Friday, March 15, 2024 2:30 PM
To: Moore, Christopher <cmoore@mafmc.org>
Cc: Mary Sabo <msabo@mafmc.org>; Spedden, Shelley <sspedden@mafmc.org>; Grace, Edward <Edward_Grace@fws.gov>; Toomey, Keith <keith_toomey@fws.gov>
Subject: [EXTERNAL] USFWS Regulation of Squid Fishery Exports

Dear Christopher M. Moore:

Thank you for your email regarding the application of U.S. Fish and Wildlife Service (Service) import/export regulations to the importation and exportation of squid.

The Endangered Species Act (ESA) provides the Service authority to regulate the import and export of all fish and wildlife through licensing of importers and exporters, inspecting shipments, and charging and retaining reasonable fees for processing applications and conducting inspections. This authority is not limited to endangered or threatened species or those protected under the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) and covers many wildlife species, including those used for food. This comprehensive system is designed to protect foreign and domestic wildlife from illegal trafficking, to guard against the introduction of injurious species, and to monitor the legal international wildlife trade. Inspection and regulation of all fish and wildlife provided by this system is also critical for conservation.

The ESA exempts the import and export of shellfish and fishery products that are intended for human or animal consumption and that are not listed as endangered or threatened from the law's trade regulations found in Title 50 Code of Federal Regulations (CFR) Part 14. These regulations waive the import/export license, declaration, and inspection requirements for these commodities, as defined in 50 CFR Part 10.12. 50 CFR Part 10.12 defines “shellfish” as:
an aquatic invertebrate animal having a shell, including, but not limited to,
(a) an oyster, clam, or other mollusk; and
(b) a lobster or other crustacean; or any part, product, egg, or offspring thereof, or the dead body or parts thereof (excluding fossils), whether or not included in a manufactured product or in a processed food product.

By this definition, squid do not qualify as shellfish because, though they are mollusks, they do not have a shell.
Service policy defines “fishery product” as a non-living fish of one of the following classes: Cyclostomata, Elasmobranchii, and Pisces. Since squid are not part of any of these classes, they do not qualify as fishery products.
Imports of squid are therefore not covered by the exemption for shellfish and fishery products intended for human or animal consumption in the ESA and 50 CFR Part 14. Service import/export regulations, including licensing requirements, thus apply to these importations and exportations.
Other Federal laws and regulations, including those administered by the National Marine Fisheries Service (NMFS) (whose jurisdiction includes such marine species as squid, octopus, cuttlefish, and sea urchins), provide different definitions of “shellfish and fishery product.” NMFS regulations (50 CFR 222.205), however, specifically refer those engaged in international

trade of commodities subject to its jurisdiction to Service regulations (50 CFR Part 14) for import/export requirements.

The Service is the agency responsible for regulating all international wildlife trade. The Service finds no duplication of effort between NMFS and the Service as the agencies are responsible for monitoring different aspects of trade. The Service is the only agency responsible for collecting, maintaining, and analyzing detailed species information of wildlife trade, including wildlife used for human consumption. This data is used both in the U.S. and globally to inform conservation decisions with respect to international trade in these species, as well as maintaining and protecting a sustainable resource for U.S. stakeholders.

The Service's user fee system has been in place since the mid-1980's and was most recently updated in 2008 under guidance of the Office of Management and Budget. The Service has calculated that between 2018-2022, the approximate fees collected annually for imports and exports of shipments containing squid averaged 0.09% of the declared value of those squid shipments. These calculations accounted for both license application and user fees. It should be noted that these numbers include shipments that also contain other regulated fish and wildlife commodities which would require importers and exporters to obtain the license and pay user fees, regardless of the exemption status of squid.

I hope this information proves useful to the Council and its stakeholders. If you have additional questions on this matter, please feel free to contact me.

Eva Lara
Wildlife Inspector in Charge
United States Fish and Wildlife Service
Office of Law Enforcement
5275 Leesburg Pike, MS-OLE
Falls Church, VA 22041-3803
C: 786-236-2867

New England Fishery Management Council Meeting Agenda
Tuesday – Thursday, April 16-18, 2024
Hilton Mystic, 20 Coogan Boulevard, Mystic, CT 06355
tel: (860) 572-0731 | Hilton Mystic
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, April 11, 2024 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 April 2024 meeting at the Hilton Mystic in Mystic, Connecticut. 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 April 2024 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 Thursday, April 18, 2024 at 10:00 a.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.*

Tuesday, April 16, 2024

10:00 a.m. **Introductions and Announcements** (Council Chair Eric Reid)

10:05 **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, U.S. Fish and Wildlife Service

11:30 **Preventing Harassment in the Fishery Management Council Process** (Council Chair Eric Reid)

11:45 **Enforcement Committee Report** (Pat Keliher)
Summary of Enforcement Committee guidance on: (1) use of vessel monitoring systems (VMS) in enforcement and scallop VMS reporting rates; (2) evolving on-demand fishing gear programs; and (3) enforceability of closed area polygon boundaries

12:30 p.m. **Lunch Break**

1:45 **Scallop Committee Report** (Melanie Griffin)
Overview of 2024 scallop priorities and update on work plans

2:15 **Northern Edge** (Council Chair Eric Reid)
Council discussion on analysis of concept areas for potential scallop fishery access to habitat closure area; Council action or direction on preparation of management alternatives

5:30 **Council Adjourns**

6:00 **Council Public Outreach (Hilton Mystic – restaurant/lobby area)**
Informational exchange to foster open lines of communication among Council members, staff, industry, and meeting attendees; all are welcome; light snacks provided

Wednesday, April 17, 2024

9:00 a.m. **Applying State Space Models Research Track Peer Review** (Kristan Blackhart, NEFSC)

Presentation on peer review of comprehensive evaluation of work conducted by the Applied State Space Models Working Group

10:00 **Risk Policy Working Group Report** (Megan Ware)
Review proposed Risk Policy revisions; Council discussion

12:00 p.m. **Habitat Committee Report Part 1** (Council Chair Eric Reid, SSC Vice Chair Conor McManus)
Essential Fish Habitat (EFH) Review: consider Scientific and Statistical Committee (SSC) subpanel input on EFH review; provide Habitat Plan Development Team updates on EFH review components

12:30 **Lunch Break**

1:45 **Habitat Committee Report Part 2** (Council Chair Eric Reid)
Offshore Wind Developers Roundup: short updates from offshore wind developers about project status, surveys, fisheries mitigation, and other topics; EFH Climate Resilience Workshop: report on outcomes; additional staff habitat updates

3:00 **Monkfish Committee Report** (Matt Gates)
Framework 15: final action on joint New England/Mid-Atlantic Council framework to reduce monkfish and spiny dogfish large-mesh gillnet fishery interactions with Atlantic sturgeon

4:30 **Atlantic Herring Report** (Cheri Patterson)
Amendment 10: progress report on action to (1) minimize user conflicts; (2) contribute to optimum yield; (3) support rebuilding of Atlantic herring; and (4) enhance river herring and shad avoidance and catch reduction

5:15 **Council Adjourns**

6:00 **Atlantic Herring Amendment 10 Scoping Meeting** (Cheri Patterson)
Public scoping meeting on Amendment 10 to the Atlantic Herring Fishery Management Plan

Thursday, April 18, 2024

9:00 a.m. **Northeast Trawl Advisory Panel (NTAP)** (Dan Salerno)
Receive overview of NTAP's Bigelow Continency Plan Working Group meeting and continued discussions on the Industry-Based Survey Pilot Project and other *NOAA Ship Henry B. Bigelow* contingency options

10:00 **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)

10:15 **Groundfish Committee Report** (Rick Bellavance; SSC Subpanel Chair Dr. Jason McNamee)
Scientific and Statistical Committee subpanel report on Atlantic cod stock structure management strategy evaluation (MSE) review; Atlantic Cod Management Transition Plan: (1) update on public workshops and proposed phases of work on transition planning, and (2) Council discussion on incorporating four biological stock units of Atlantic cod into the groundfish plan; Other 2024 Groundfish Priorities: update on work to review flatfish sub-annual catch limits (sub-ACLs) and accountability measures

12:15 p.m. **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
Update and Liaison Report

March 2024

The South Atlantic Fishery Management Council (Council) met in Jekyll Island, Georgia, March 4-8, 2024. Below is a summary of salient discussions.

Southeast For-Hire Integrated Electronic Reporting (SEFHIER)
In December 2023 the Council stated their intent explore ways to modify the SEFHIER program to improve compliance, strengthen reporting requirements, and explore validation. At their March meeting, the Council received presentations on the South Carolina Department of Natural Resources for-hire reporting program and the Southeast Region Headboat Survey. To begin to identify needed changes to the SEFHIER program, and to obtain feedback from those who are required to report, the Council will assemble an advisory panel (AP) whose charge will be to explore improvements to the existing program. The Council approved the structure of the AP and will solicit applicants this spring with the intent of appointing members in June 2024. While the new AP is only tasked with discussing improvements to the existing SEFHIER program, the Council may revisit the AP's membership and its charge in the future to address limited access or other mechanisms to improve compliance and data collection.

For-Hire Limited Entry Amendment
Council staff presented available information on the number of federal for-hire permits in the Snapper Grouper, Dolphin Wahoo, and Coastal Migratory Pelagics (Atlantic only) fisheries from 2008 through 2020. Subsequent years of data were not available due to issues affecting the electronic permits system at the Southeast Regional Office. Staff also summarized information from Snapper Grouper Amendment 47, which considered implementing a moratorium on for-hire permits in the Snapper Grouper fishery, but was not completed. The Council directed staff to prepare a discussion document for June 2024, including a list of details the Council will have to work out as they move forward, e.g., Equity and Environmental Justice, impacts from climate change, governance shift considerations, etc. Additionally, the Council intends to wait to hold scoping hearings on this amendment until permit data from 2021 onwards are available later this year (possibly by May 2024).

Snapper Grouper Amendments and Projects

Private Recreational Permitting (Amendment 46)
The Council continued to make progress on an amendment to require a permit for the private component of the recreational sector. The Council requested additional feedback from their Outreach and Communications AP, Technical AP, and Private Angler AP ahead of the Council's next meeting. The intent is to consider approval for public hearings in September 2024.

Red Snapper
The Council received an overview of three projects proposed by the Florida Fish and Wildlife Conservation (FWC) that require Exempted Fishing Permits to allow harvest of red snapper. A total of five projects are recommended for funding. The Council provided comments on the FWC proposals.

NOAA Fisheries stated it is unknown whether there will be a recreational or a commercial season in 2024. Additionally, during the meeting week, NOAA Fisheries notified the Council that the agency is considering interim measures to reduce overfishing of red snapper during the 2024 fishing year.

The Council developed Snapper Grouper Regulatory Amendment 35 to address overfishing for red snapper but rescinded approval of the amendment in December 2023. At their March meeting, the Council requested the SSC provide feedback on the Shertzer et al. management strategy paper and to what extent strategies discussed therein could meet goals for reducing discards and rebuilding the red snapper stock. Additionally, the MSE Planning Team will compile an initial prioritized list of strategies for the Council to review in June based on potential for discard reduction while preventing overfishing and optimizing access. The Council will then use the MSE to evaluate these strategies.

Black Sea Bass Management (Amendment 56)
The Council received a presentation from the SEFSC on revised projections of future catch used for setting ABC and a rebuilding timeframe. Staff delivered a presentation focused on population conditions and past, present, and future management challenges. The Council requested additional information be compiled to inform discussions and consideration of the amendment for scoping in June 2024.

Gag and Black Grouper Recreational Vessel Limits and On-Demand Gear for Black Sea Bass Pots (Regulatory Amendment 36)
The Council reviewed scoping comments and Law Enforcement Advisory Panel comments about potentially expanded use of on-demand pots. The Council reviewed actions and alternatives and directed continued development of the draft amendment with consideration of approval for public comment scheduled for June 2024.

Snapper Grouper Commercial Fishery
The Council also continued discussion of the snapper grouper commercial fishery, including the current permit structure and trends in the fishery. The Council requested additional information for their next meeting, including the number of vessels by revenue bins, regulatory and legal

mechanisms for leasing and overall statistics on leasing, and trends in imports. The Council intends to take a focused look at both short-term and long-term changes needed for the fishery by continuing to engage the AP, looking back at suggested strategies in the Vision Blueprint, and consider other approaches to obtain feedback from stakeholders.

Coastal Migratory Pelagics Amendments and Projects

Port Meetings
Based on recommendations from the Mackerel Cobia Advisory Panel, the Council directed staff to begin work on a plan to conduct port meetings for king and Spanish mackerel to gain a comprehensive understanding of the fisheries to improve management efforts. Staff presented the Committee with a draft structure for port meetings and tentative meeting locations. The Council approved the final plan for conducting port meetings. Port meetings will begin in North Carolina on April 1-4, 2024. A Council webpage has been completed for port meetings, including outreach materials: https://safmc.net/king-and-spanish-mackerel-port-meetings

South Atlantic Fishery Management Council

News Release

FOR IMMEDIATE RELEASE
March 11, 2024

CONTACT: Kim Iverson
Public Information Officer
Toll Free: 866/SAFMC-10 or 843/571-4366
kim.iverson@safmc.net

Federal Fishery Managers Review Assessment for Black Sea Bass, Red Snapper Projects, and Address Other Issues During March Meeting

Black Sea Bass are managed along the Atlantic coast in federal waters from Cape Hatteras, NC southward along the east coast of Florida by the South Atlantic Fishery Management Council. Based on the recent stock assessment conducted through SEDAR 76, the stock is overfished and declining in abundance. With a current recreational bag limit of 7 fish per person and a 13-inch minimum size limit, the number of undersized fish released by the recreational fishery has increased in recent years while total landings have declined. Black Sea Bass inhabit offshore reef areas as well as nearshore structure and around half of the estimated regulatory discards occur in state waters. The overall discard mortality rate is approximately 14%. In addition, the stock assessment shows continued trends in low recruitment, or the number of new fish entering the population each year.

During its March meeting last week in Jekyll Island, Georgia, the Council reviewed stock projections for Black Sea Bass from NOAA Fisheries, considered recommendations from its Scientific and Statistical Committee, and a management response options presentation from Council staff addressing Population Conditions and Management Challenges for Black Sea Bass. The presentation shows strong evidence the stock is in significant decline. Climate change may be contributing to low recruitment and loss of the stock at the southern end of its range, and there is an urgent need to reduce both discards and landings.

The Council will continue to discuss Black Sea Bass during its June 10-14, 2024 meeting, including options for management to take out to public scoping. Public scoping meetings for Snapper Grouper Amendment 56 addressing measures for Black Sea Bass are tentatively planned for this summer.

Red Snapper Exempted Fishing Projects

Council members received an overview of three projects proposed by the Florida Fish and Wildlife Conservation (FWC) that require Exempted Fishing Permits. The projects are expected to be funded by NOAA Fisheries to explore new and innovative approaches to better understand and reduce Red Snapper discards and increase fishing opportunities in the snapper grouper fishery. A total of five projects are recommended for funding.

The three FWC proposals involve the use of Exempted Fishing Permits to allow harvest of Red Snapper. The individual projects would collaborate with fishermen to obtain catch and discard data, test innovative strategies to reduce discards, and allow additional harvest opportunities. In addition, the projects include a reporting app, an education course, and an angler satisfaction evaluation.

The proposals include both private recreational anglers and for-hire vessels in northeast Florida and private recreational vessels in southeast Florida. Fishermen will be selected to participate and test aggregate bag limits of snapper grouper species, including retention of Red Snapper. The projects could potentially begin in July 2024 and continue for one year, with possible funding available for an additional year. The Council provided comments on the proposals. NOAA Fisheries will also solicit public comment on the Exempted Fishing Permits needed for the three project proposals.

(Continued)

Red Snapper Management

During the meeting, the Council received a letter from NOAA Fisheries stating the agency is considering interim measures to reduce overfishing of Red Snapper during the 2024 fishing year. In the letter, Regional Administrator Andy Strelcheck noted the need to take "expeditious action to meet legal obligations, now and in the long term: including thorough consideration of the benefits and tradeoffs of different management opportunities to increase Red Snapper access, reduce discards, and rebuild other snapper grouper stocks." The Council received notification on July 23, 2021 that the Red Snapper stock was experiencing overfishing, primarily due to release mortality in the recreational fishery.

The Council developed Snapper Grouper Regulatory Amendment 35 to address overfishing for Red Snapper, reduce the number of fish caught and released, and reduce mortality of released fish. However, during its December 2023 meeting, the Council rescinded approval of the amendment, acknowledging that taking additional time to work on the regulatory amendment poses little risk as the Red Snapper stock is rebuilding faster than expected, exhibiting strong recruitment, increasing abundance, and expanding age structure.

The Council is addressing long-term management measures for Red Snapper and other snapper grouper species through development of a Management Strategy Evaluation for the Fishery. To help reduce release mortality, the Council has implemented requirements for descending devices to be onboard and readily available when fishing for snapper grouper species and hook specifications to help ensure released fish survive. The Council has also continued expansion of outreach efforts including the Council's Best Fishing Practices and Citizen Science Programs.

When asked about the 2024 Red Snapper season, Regional Administrator Andy Strelcheck stated they have no season projections to date, and a final decision will be made later this spring. The length of any season is determined by NOAA Fisheries.

For-Hire Reporting

The Council also continued discussing the Southeast For-Hire Integrated Electronic Reporting Program and the need to improve compliance with reporting requirements. To begin identifying needed changes and get feedback from those who are required to report, the Council approved assembling an advisory panel whose charge would be to explore approaches to improve the existing program. The Council established the structure of this advisory body and will solicit applicants this spring with the intent of appointing members at their June 2024 meeting.

Management of the Commercial Snapper Grouper Fishery

The Council continued discussion of the snapper grouper commercial fishery, including the current permit structure and trends in the fishery. The Council will take a focused look at both short-term and long-term changes needed for the fishery. Council members requested additional information on vessels active in the fishery, leasing of permitted vessels, trends in imports, and permit trends. The Council will continue to solicit input from its Snapper Grouper Advisory Panel, scheduled to meet March 26-28, 2024 in Charleston, SC.

Additional Information

Additional information about the March 2024 Council meeting in Jekyll Island, Georgia, including meeting materials and committee reports, is available from the Council's website at: https://safmc.net/events/march-2024-council-meeting/. The next meeting of the South Atlantic Fishery Management Council will be held June 10-14, 2024 in Daytona Beach Shores, Florida.

The South Atlantic Fishery Management Council, one of eight regional councils, conserves and manages fish stocks from three to 200 miles offshore of North Carolina, South Carolina, Georgia and east Florida.