



NOAA
FISHERIES

State of the Ecosystem Mid Atlantic and New England 2024

Atlantic States Marine Fisheries Commission
2 May 2024

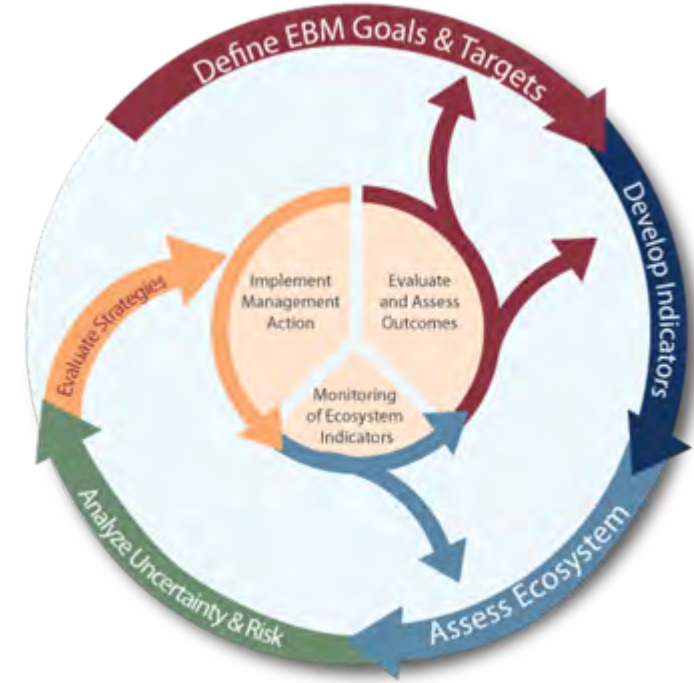
Sarah Gaichas and Joseph Caracappa, (editors),
Andy Beet, Brandon Beltz, Geret DePiper, Kimberly Hyde, Scott Large, Sean Lucey, Laurel Smith (data and section leads),
and all SOE contributors

State of the Ecosystem (SOE) reporting

Improving ecosystem information and synthesis for fishery managers

- Ecosystem indicators linked to management objectives (DePiper, et al., 2017)
 - Contextual information
 - Report evolving since 2016
 - Fishery-relevant subset of full Ecosystem Status Reports
- Open science emphasis (Bastille, et al., 2021)
- Used within Mid-Atlantic Fishery Management Council's Ecosystem Process (Muffley, et al., 2021)
 - Risk assessment (Gaichas, et al., 2018)
 - Conceptual modeling (DePiper, et al., 2021)
 - Management strategy evaluation (MSE)

The IEA Loop¹



[1] <https://www.integratedecosystemassessment.noaa.gov/national/IEA-approach>

State of the Ecosystem: Changes for 2024*

2024 Report Structure

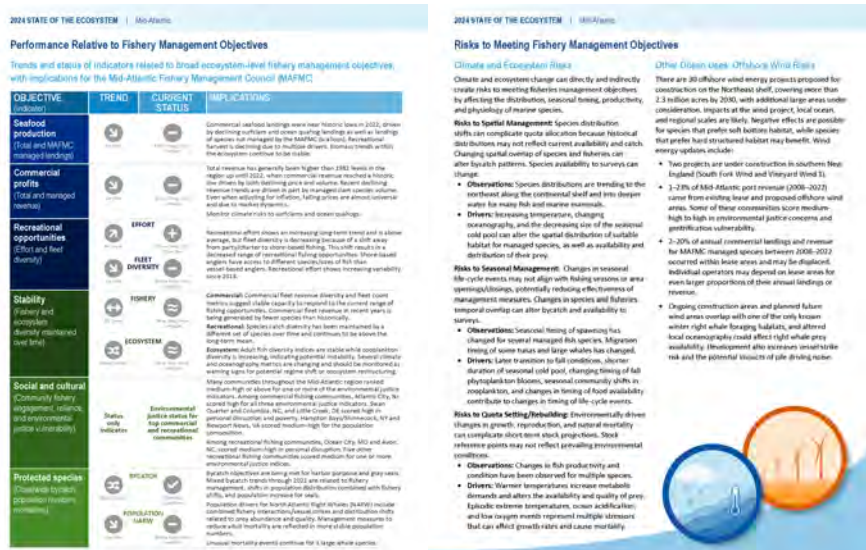
1. Graphical summary

- Page 1 report card re: objectives →
- Page 2 risk summary bullets
- Page 3 *2023 snapshot

2. Performance relative to management objectives

3. Risks to meeting management objectives

- *Climate and Ecosystem risks
- Offshore wind development



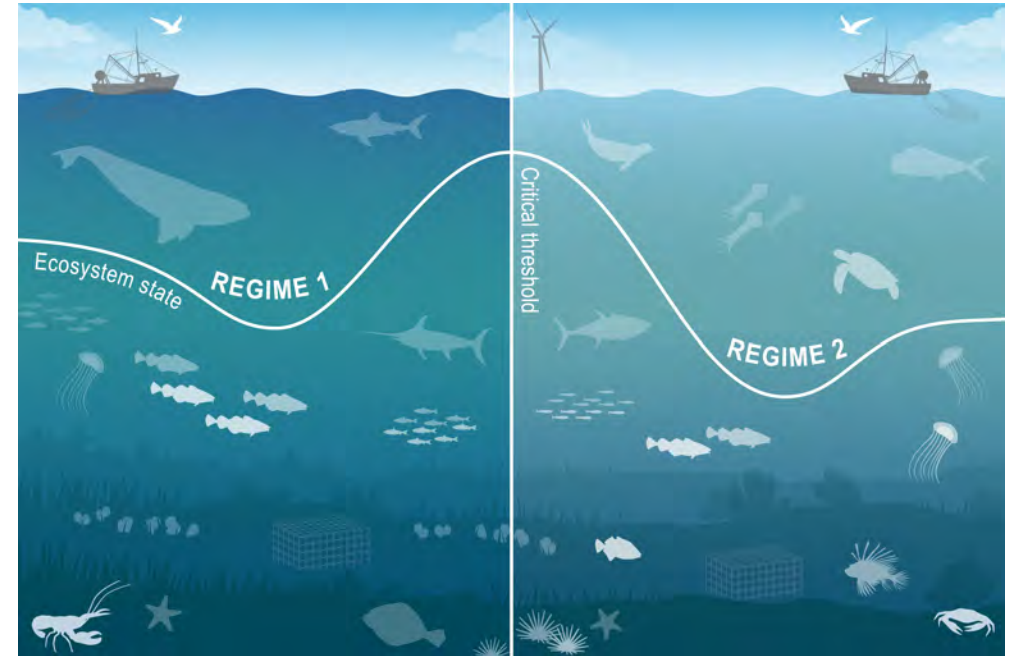
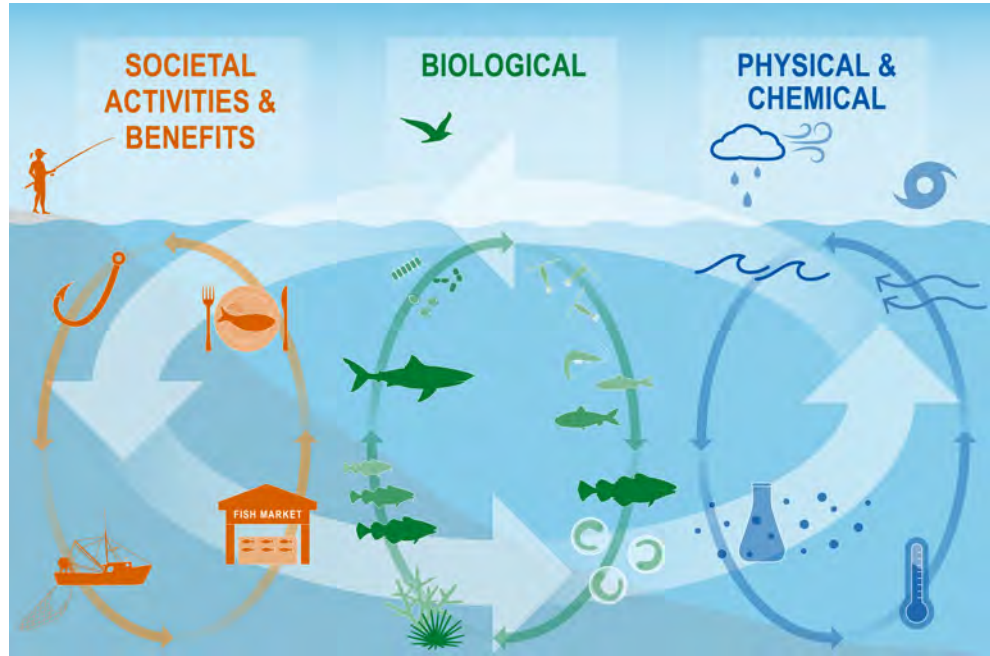
Ecosystem-scale fishery management objectives

| 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 |

Ecosystem synthesis themes

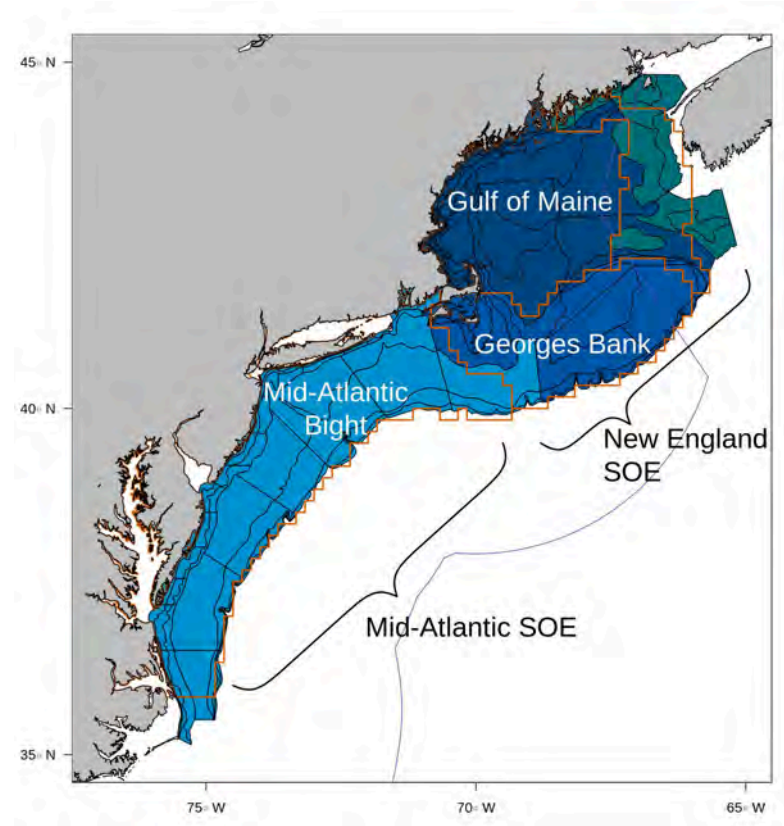
Characterizing ecosystem change for fishery management

- Societal, biological, physical and chemical factors comprise the **multiple system drivers** that influence marine ecosystems through a variety of different pathways.
- Changes in the multiple drivers can lead to **regime shifts** — large, abrupt and persistent changes in the structure and function of an ecosystem.
- Regime shifts and changes in how the multiple system drivers interact can result in **ecosystem reorganization** as species and humans respond and adapt to the new environment.



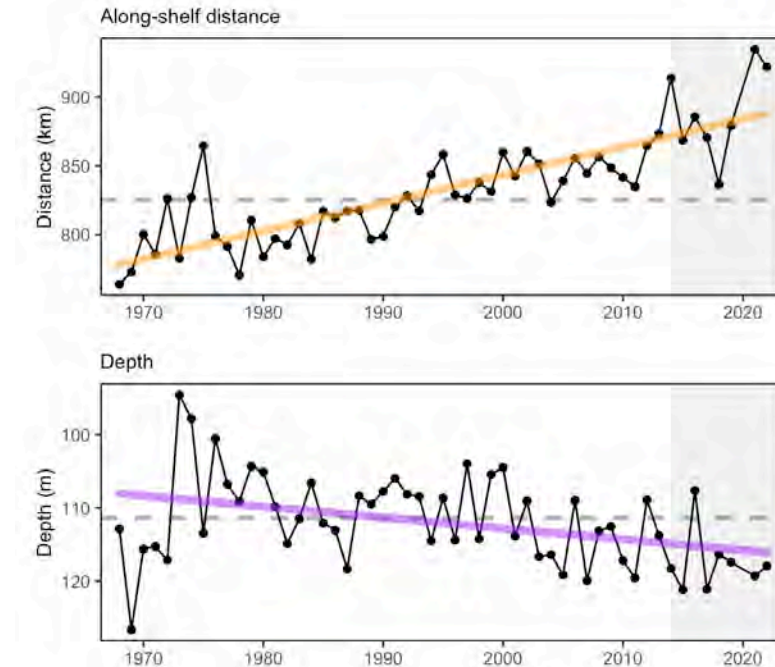
State of the Ecosystem report scale and figures

Spatial scale



A [glossary of terms](#), detailed [technical methods documentation](#), and indicator [data](#) and [catalog](#) are available online.

Key to figures



Trends assessed only for 30+ years: [more information](#)

Orange line = significant increase

Purple line = significant decrease

No color line = not significant or < 30 years

Grey background = last 10 years

Mid Atlantic State of the Ecosystem Summary 2024:

Performance relative to management objectives

Seafood production , 

Profits , 





Recreational opportunities: Effort  ; Effort diversity  

Stability: Fishery  ; Ecological  

Social and cultural, trend not evaluated, status of:

















- Fishing engagement and reliance by community
- Environmental Justice (EJ) Vulnerability by community

Protected species:

- Maintain bycatch below thresholds (harbor porpoise, gray seals)  
- Recover endangered populations (NARW)  

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) |  Increase |  Above long-term objective | 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. |
| |  Decline |  Below long-term average | |
| Stability (Fishery and ecosystem diversity maintained over time) |  Steady |  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) |  Mixed trends |  Near long-term average | 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) |  Mixed trends |  Meeting objectives | 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. |
| |  Decline |  Below long-term average | |

New England State of the Ecosystem Summary 2024:

Performance relative to management objectives - Georges Bank

Seafood production Total ↔, Managed ↘, Both –

Profits ↔, +

Recreational opportunities: Effort ↔, ≈; Effort diversity ↔, ≈

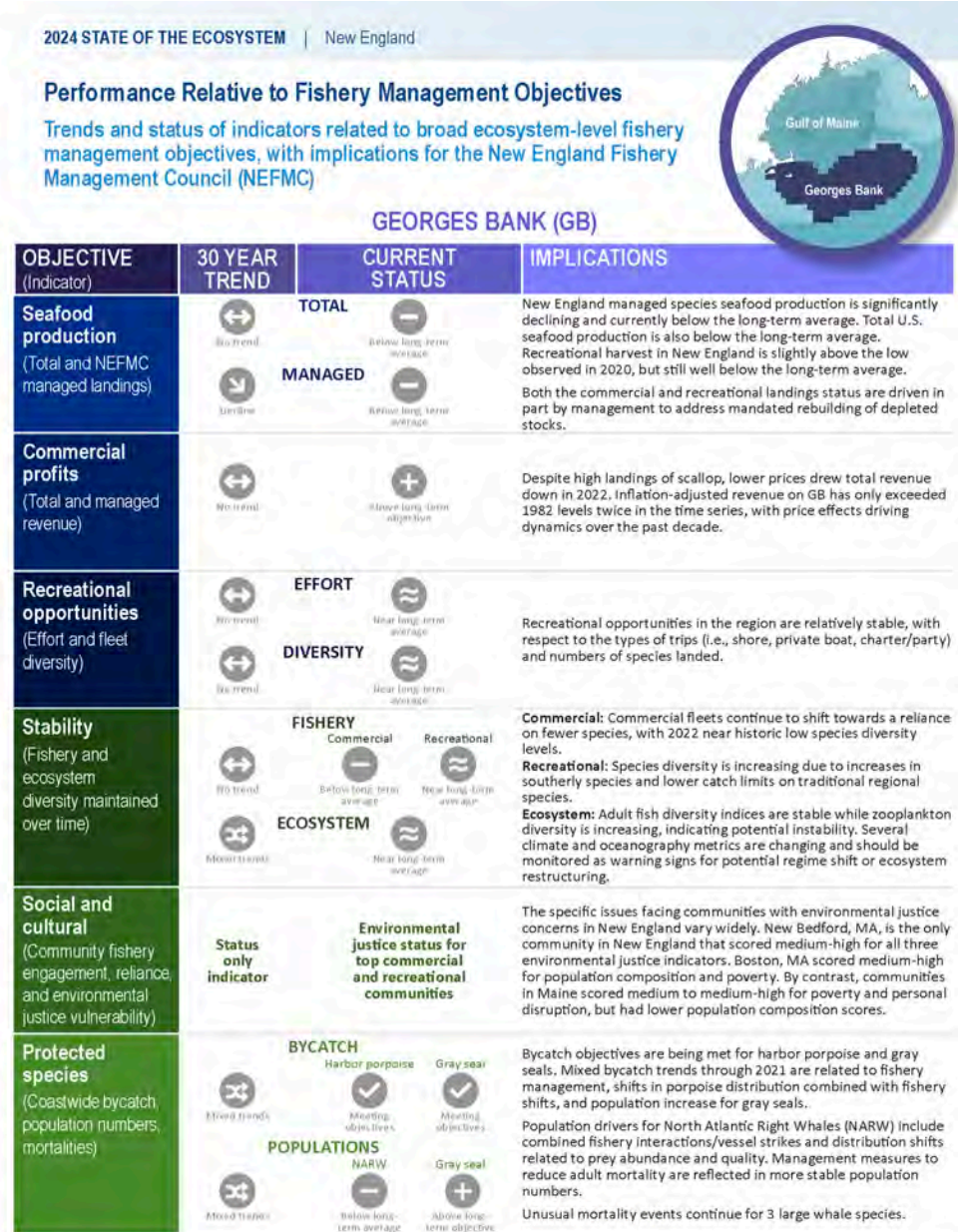
Stability: Fishery ⚡, Commercial – Rec ≈; Ecological ⚡ ≈

Social and cultural, trend not evaluated, status of:

- Fishing engagement and reliance by community
- Environmental Justice (EJ) Vulnerability by community

Protected species:

- Maintain bycatch below thresholds (harbor porpoise, gray seals) ⚡ ✓
- Recover endangered populations ⚡, NARW – Gray seal +



New England State of the Ecosystem Summary 2024:

Performance relative to management objectives - Gulf of Maine

Seafood production ↘, -

Profits Total ↔, +; NEFMC Managed ↘, -

Recreational opportunities: Effort ↔, ≈; Effort diversity ↔, ≈

Stability: Fishery ↔, Commercial - Rec ≈; Ecological ↔, ≈

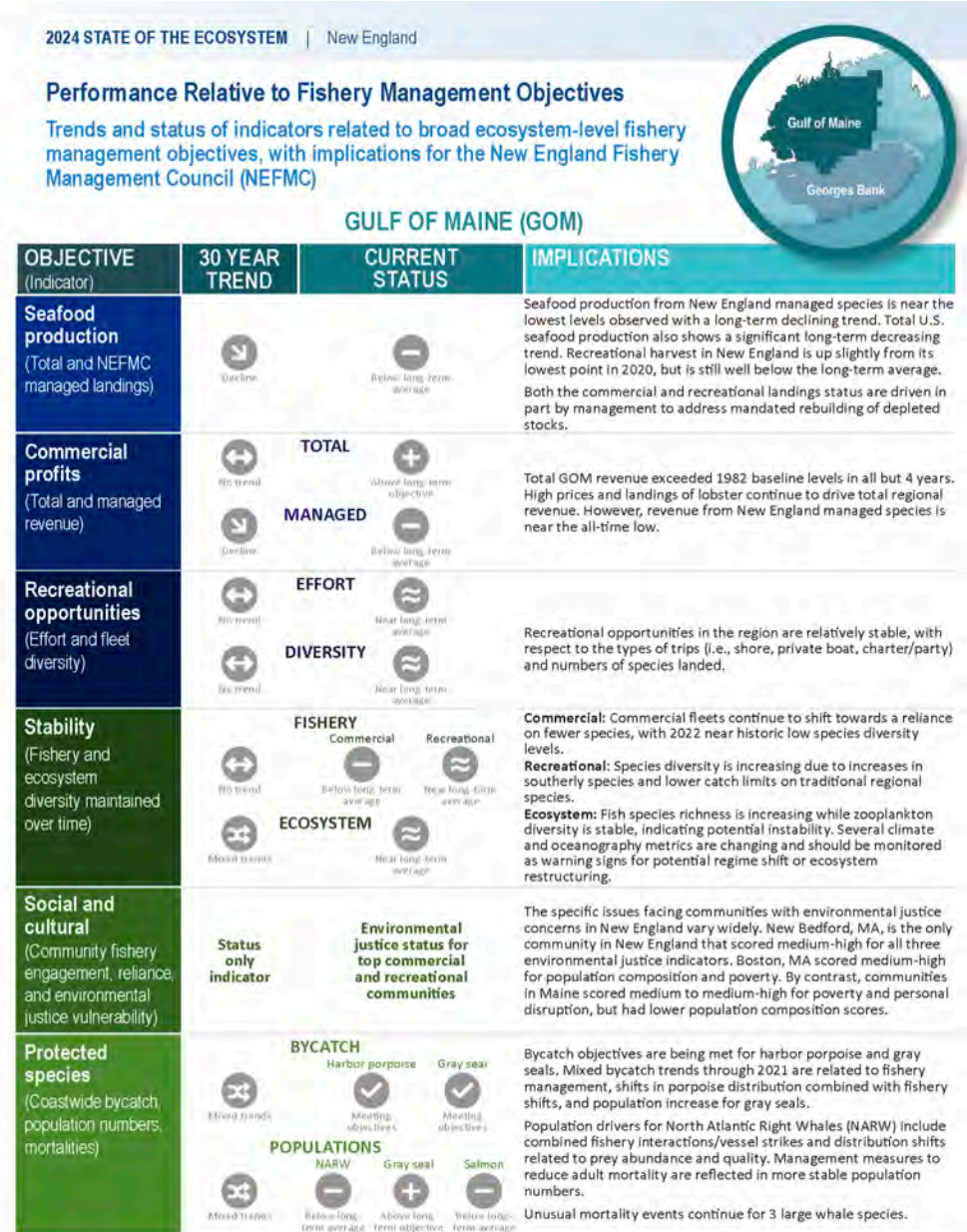
Social and cultural, trend not evaluated, status of:

- Fishing engagement and reliance by community
- Environmental Justice (EJ) Vulnerability by community

Protected species:

- Maintain bycatch below thresholds (harbor porpoise, gray seals) ↔, ✓
- Recover endangered populations ↔, NARW - Gray seal +

Salmon -



State of the Ecosystem Summary 2024:

Risks to meeting fishery management objectives

Climate: risks to spatial and seasonal management, quota setting and rebuilding

- Fish and protected species distribution shifts
- Changing spawning and migration timing
- Multiple stocks with poor condition, declining productivity

Other ocean uses: offshore wind development

- Current revenue in proposed areas
 - 1-23% by Mid-Atlantic port (some with EJ concerns)
 - 1-34% by New England port (some with EJ concerns)
 - 1-20% by MAFMC managed species
 - 3-54% by NEFMC managed species
- Overlap with important right whale foraging habitats, increased vessel strike and noise risks
- Gulf of Maine fisheries/offshore wind IEA in progress

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.



State of the Ecosystem Summary 2024:

New section this year: 2023 Highlights

Notable 2023 events and conditions

- South Fork Wind and Vineyard Wind 1 construction started
- Scallop die-off elephant trunk 2022-2023
- Hypoxia and mortality events in NJ coastal ocean this summer
- Record *low* hypoxia in Chesapeake Bay
- GOM summer phytoplankton bloom off the scale
- 2nd ranked GOM bottom heatwave
- Warm water everywhere EXCEPT in Spring on the NEUS shelf
- Gulf Stream changes altering shelf break habitats
- El Nino. Warmest year on record globally. Again.

2023 Highlights

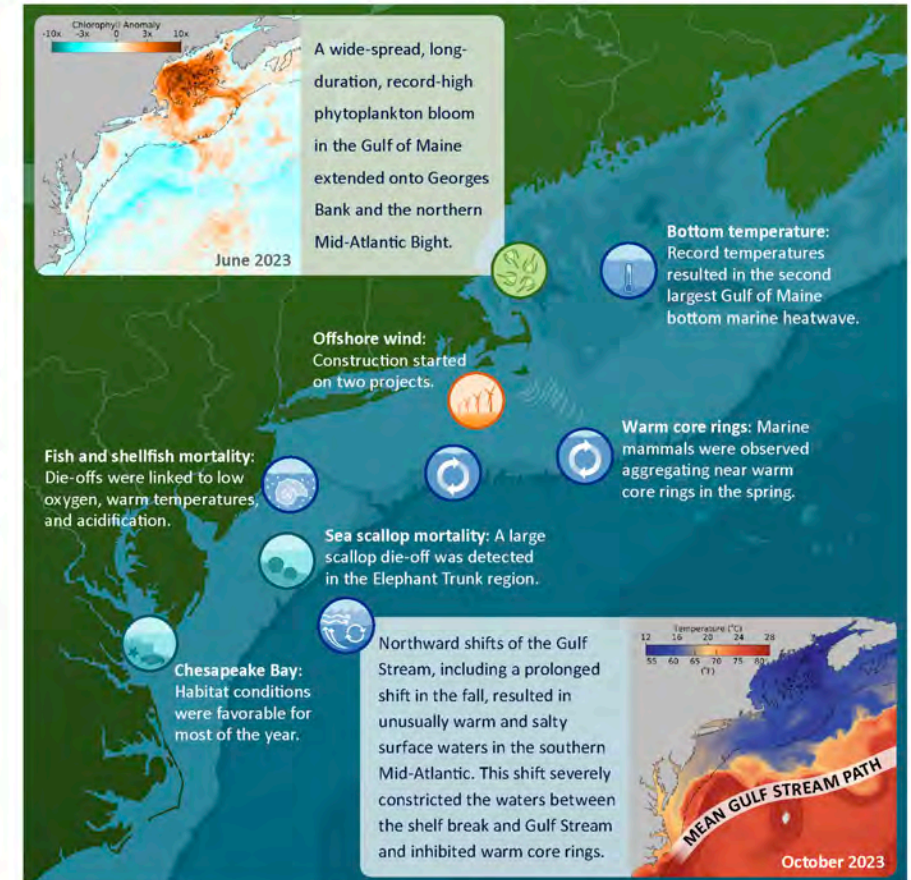
Multiple anomalous conditions and extreme events were observed in 2023 that could have brief local effects and/or widespread long-term ecosystem, fishery, and management implications. Anomalous events describe unusual or remarkable observations and can lead to increased uncertainty and unpredictable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

Sea Surface Temperature

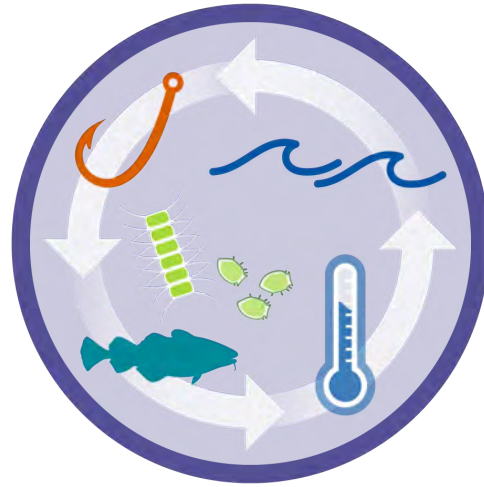
2023 global and North Atlantic sea surface temperatures were the warmest on record. However, Northeast U.S. shelf temperatures were more variable, with near record highs in winter and near average in other seasons.

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.



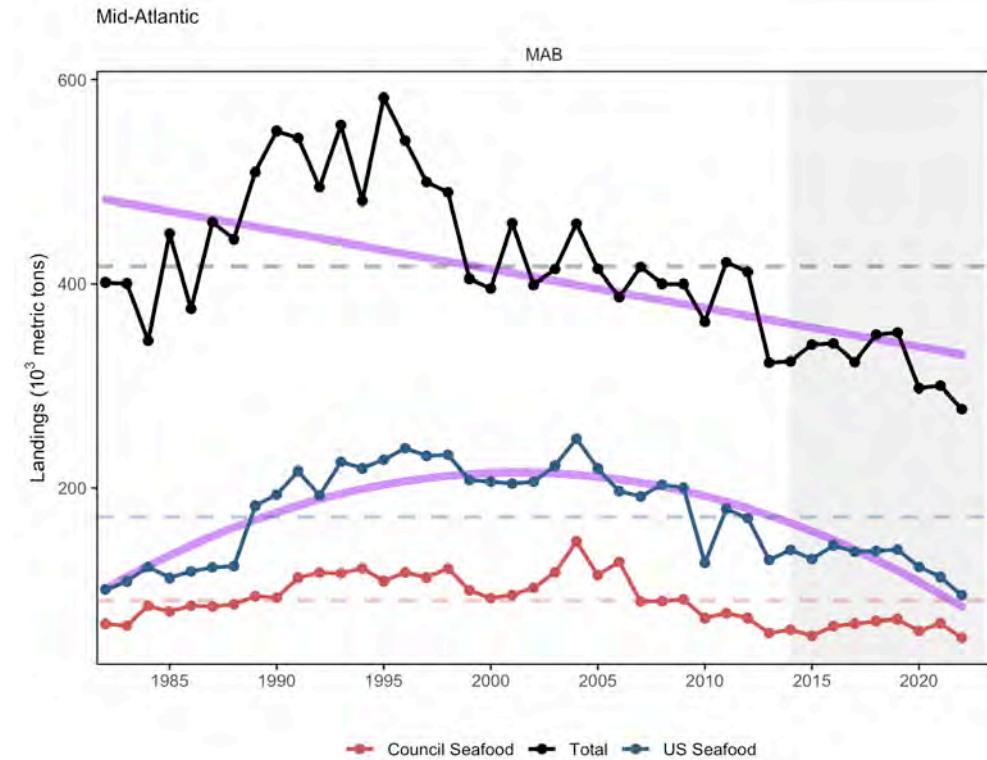
2024 Performance relative to management objectives



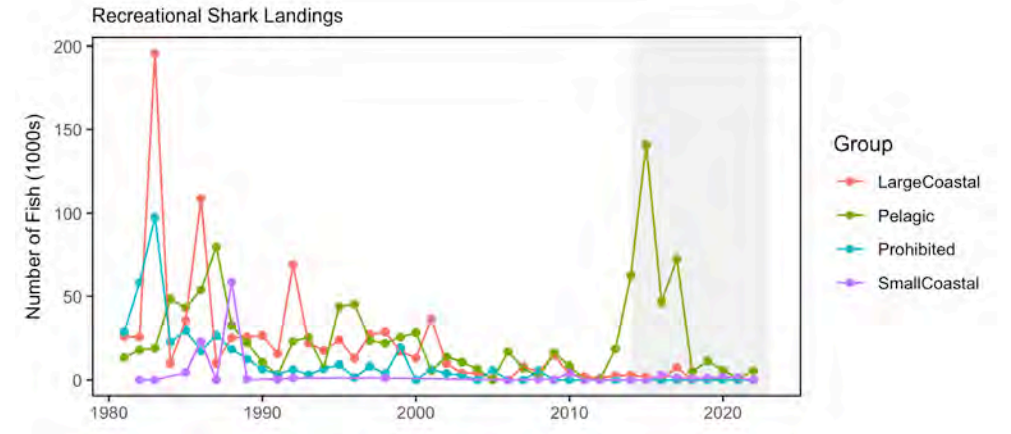
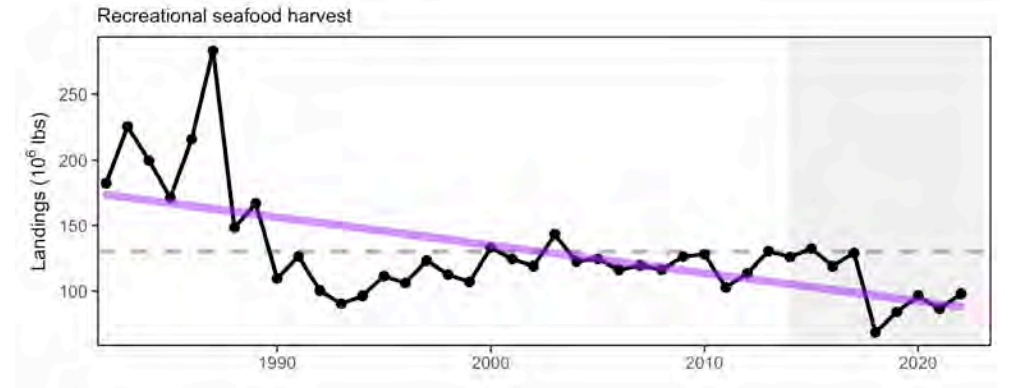
Objective: Mid Atlantic Seafood production ↘ -

Risk elements: ComFood and RecFood, unchanged

Indicator: Commercial landings



Indicators: Recreational harvest

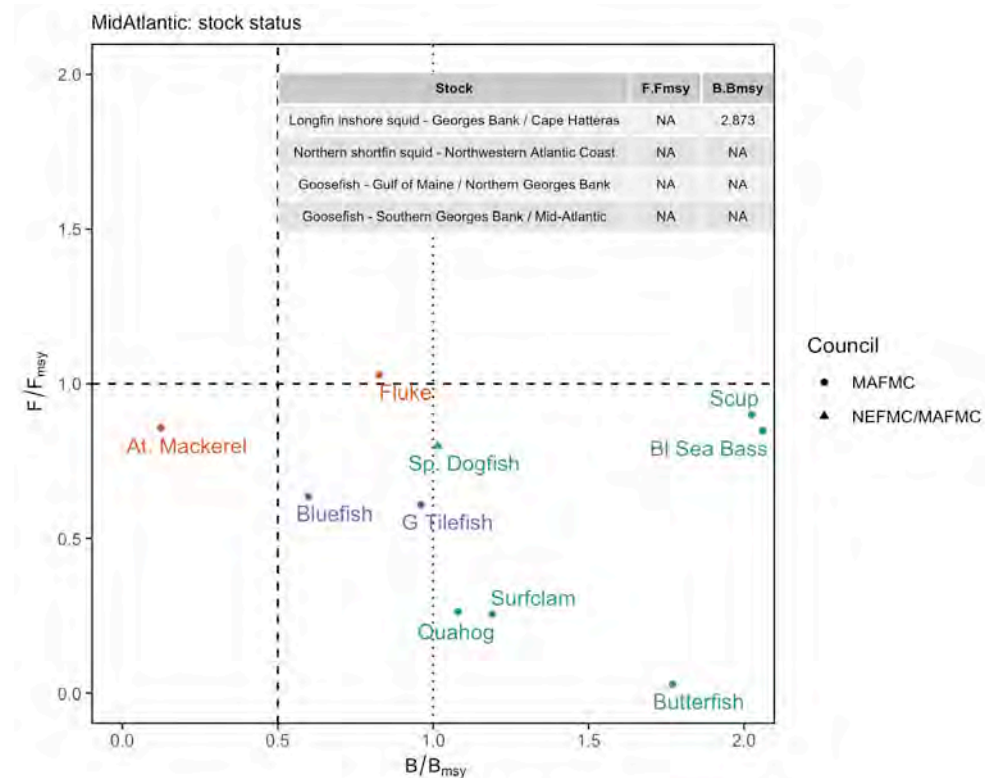


Multiple potential drivers of landings changes: ecosystem and stock production, management actions, market conditions, and environmental change.

Mid Atlantic Landings drivers: Stock status? TAC?

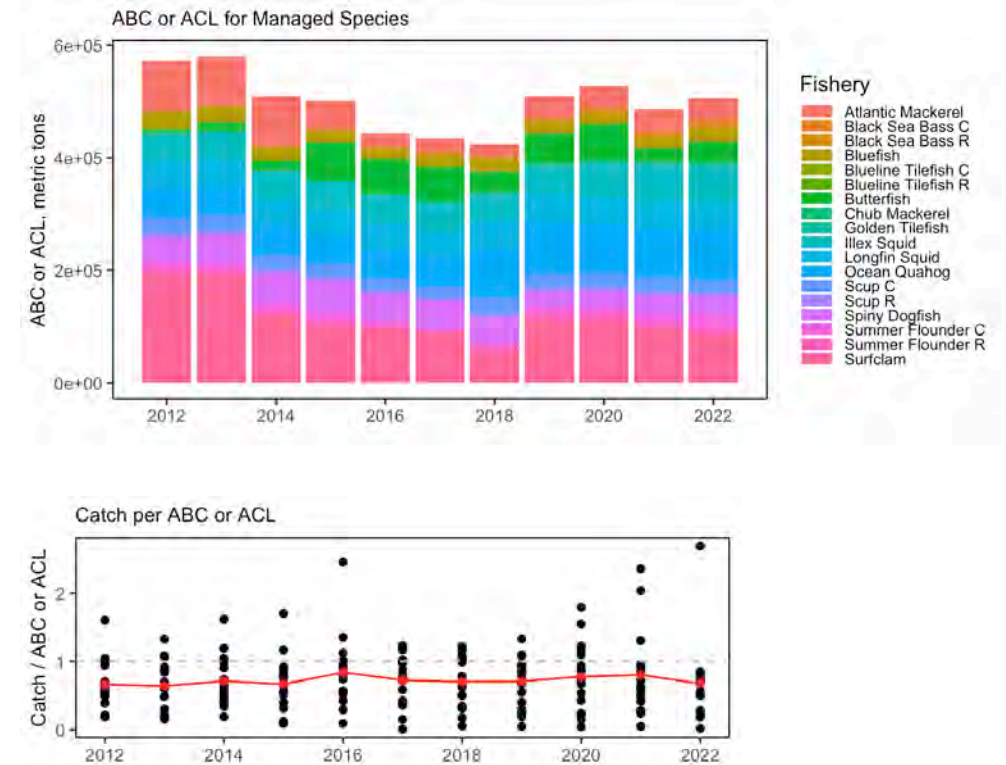
Risk elements: Fstatus, Bstatus, MgtControl

Indicator: Stock status



Most stocks have good status. Spiny dogfish B and F status have improved. Mackerel F status has improved, but B is still below the threshold. Summer flounder F exceeds the limit.

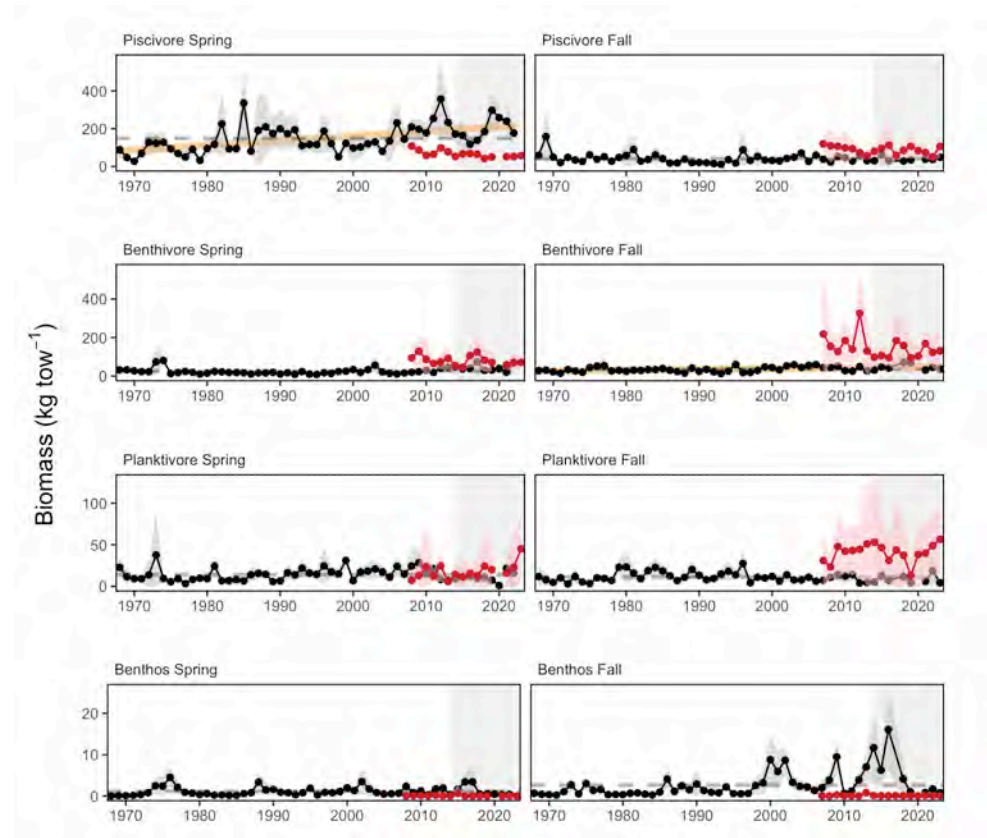
Indicators: Total ABC or ACL, and Realized catch relative to management target



Few managed species have binding limits; Management less likely playing a role

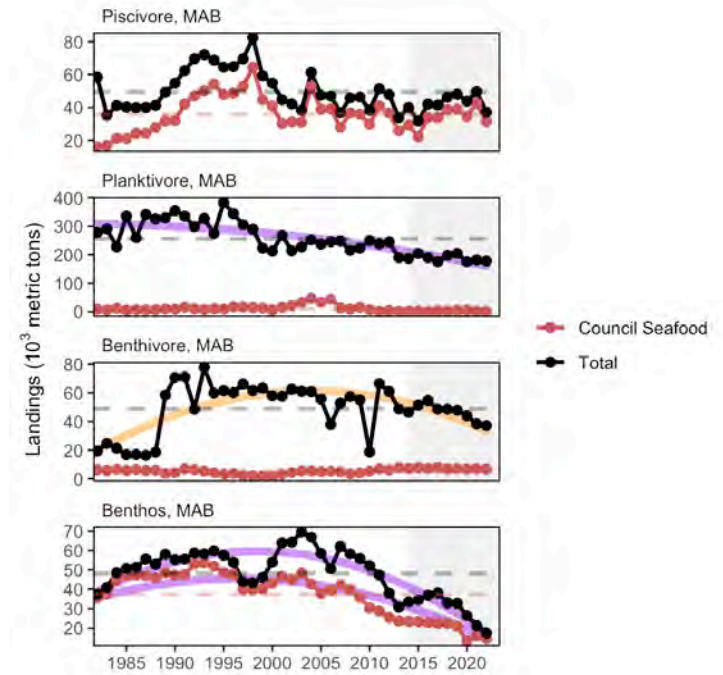
Implications: Mid Atlantic Seafood Production Drivers

Biomass does not appear to drive landings trends



Key: Black = NEFSC survey; Red = NEAMAP survey *New species categories, more southern species in Benthivores*

Declining managed benthos, aggregate planktivores



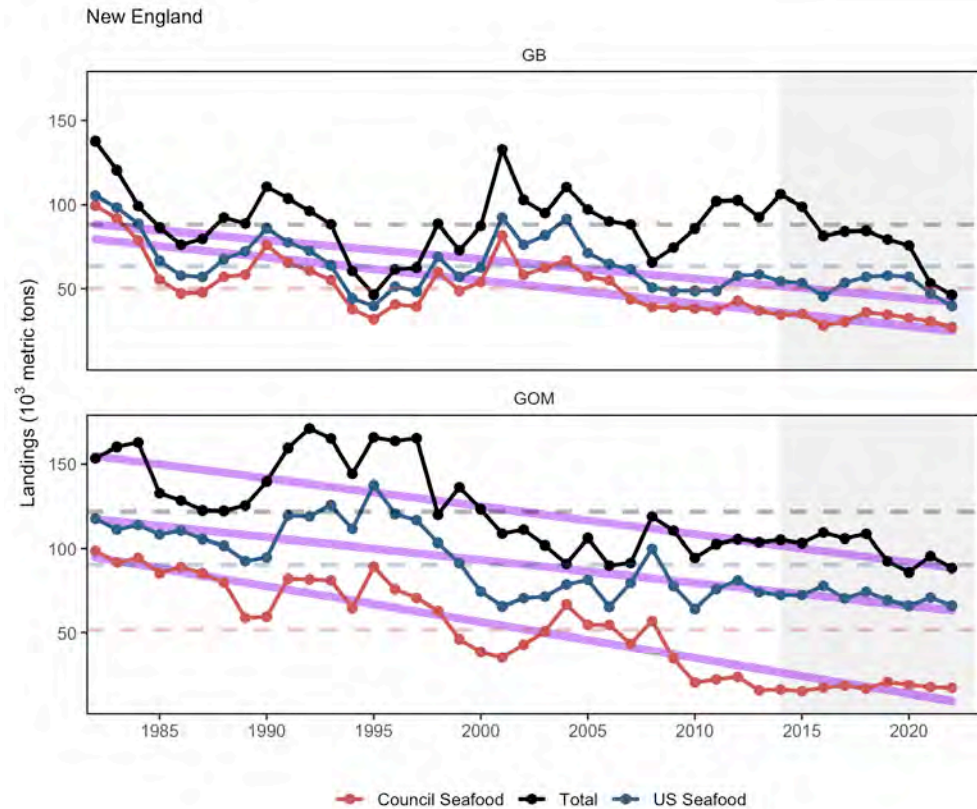
Markets and availability (benthos), fishery consolidation (planktivores)

Monitor:

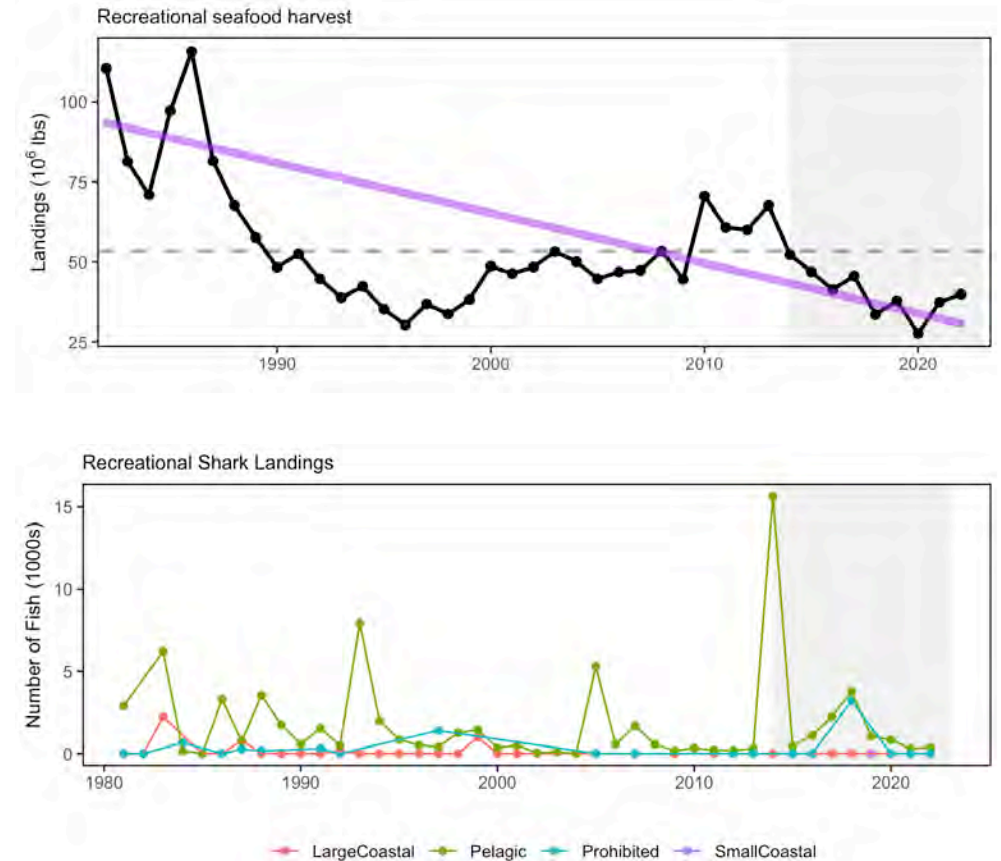
- Climate risks including warming, ocean acidification, and shifting distributions
- Ecosystem composition and production changes
- Fishing engagement

Objective: New England Seafood production ↘ -

Indicators: Commercial landings



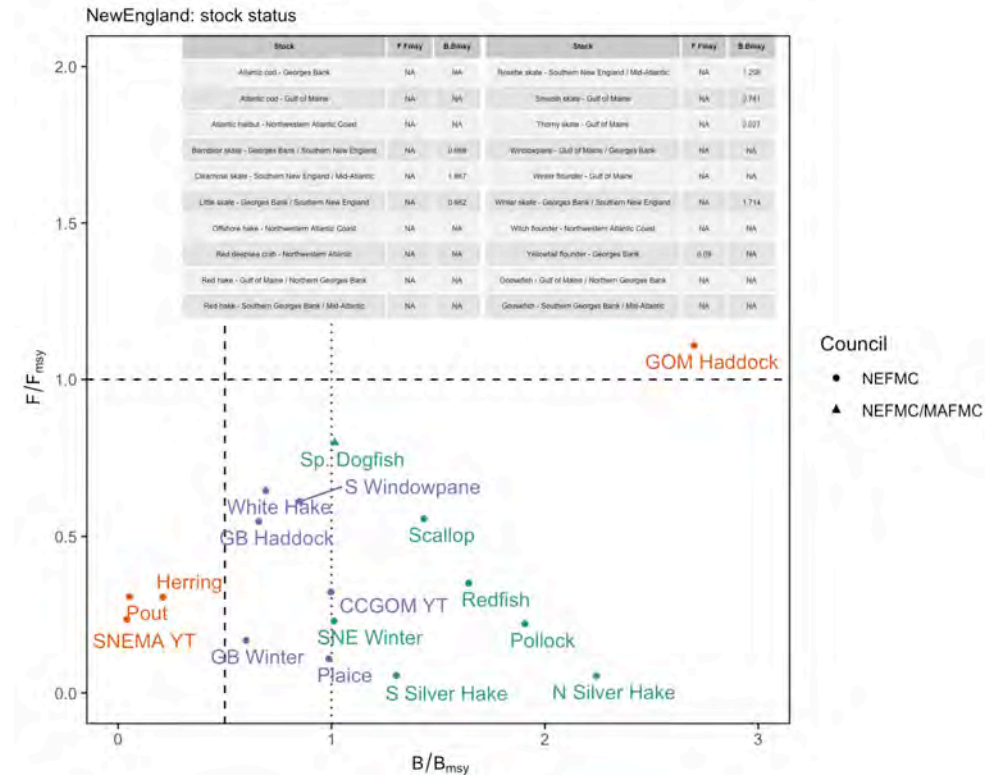
Indicators: Recreational harvest



Multiple drivers: ecosystem and stock production, management, market conditions, and environmental change

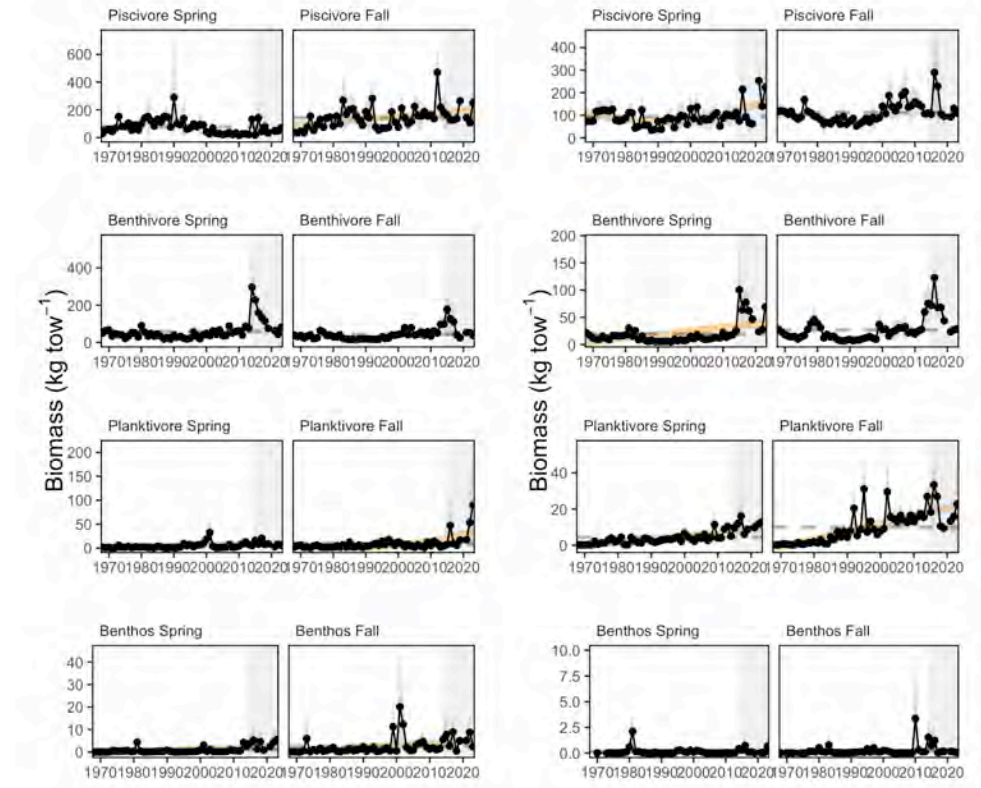
New England Landings drivers: Stock status? Survey biomass?

Indicator: Stock status



Rebuilding requirements still likely playing a role in seafood declines

Indicator: Survey biomass



Biomass availability still seems unlikely driver

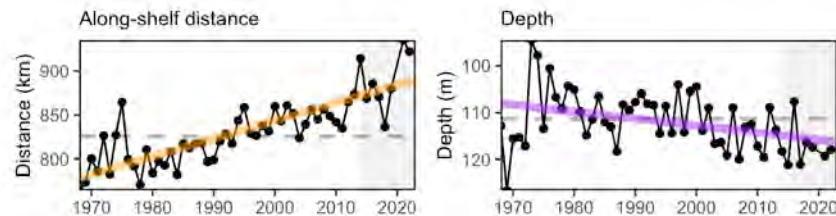
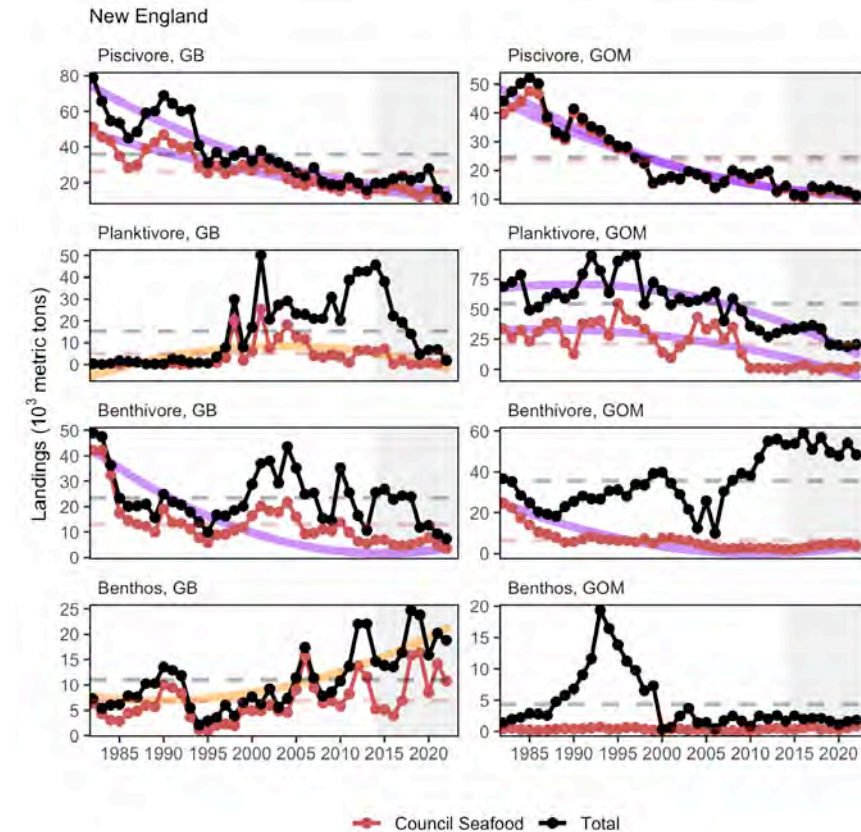
Implications: New England Seafood Production

Drivers:

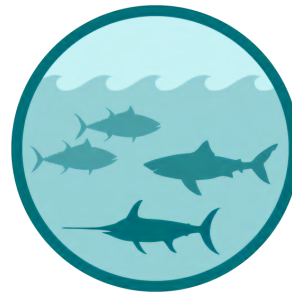
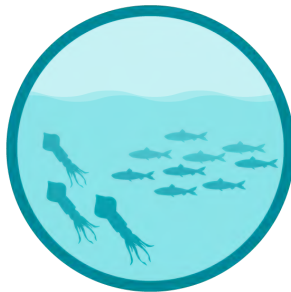
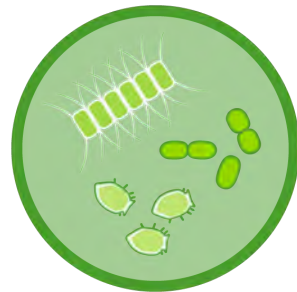
- decline in commercial landings is most likely driven by the requirement to rebuild individual stocks as well as market dynamics
- other drivers affecting recreational landings: shark fishery management, possibly survey methodology

Monitor:

- climate risks including warming, ocean acidification, and shifting distributions
- ecosystem composition and production changes
- fishing engagement

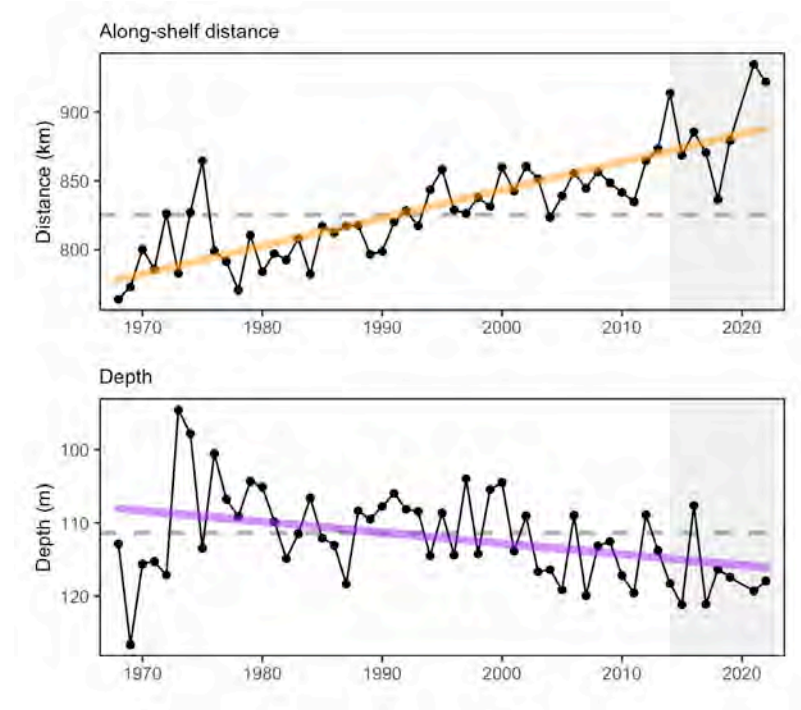


2024 Risks to meeting fishery management objectives

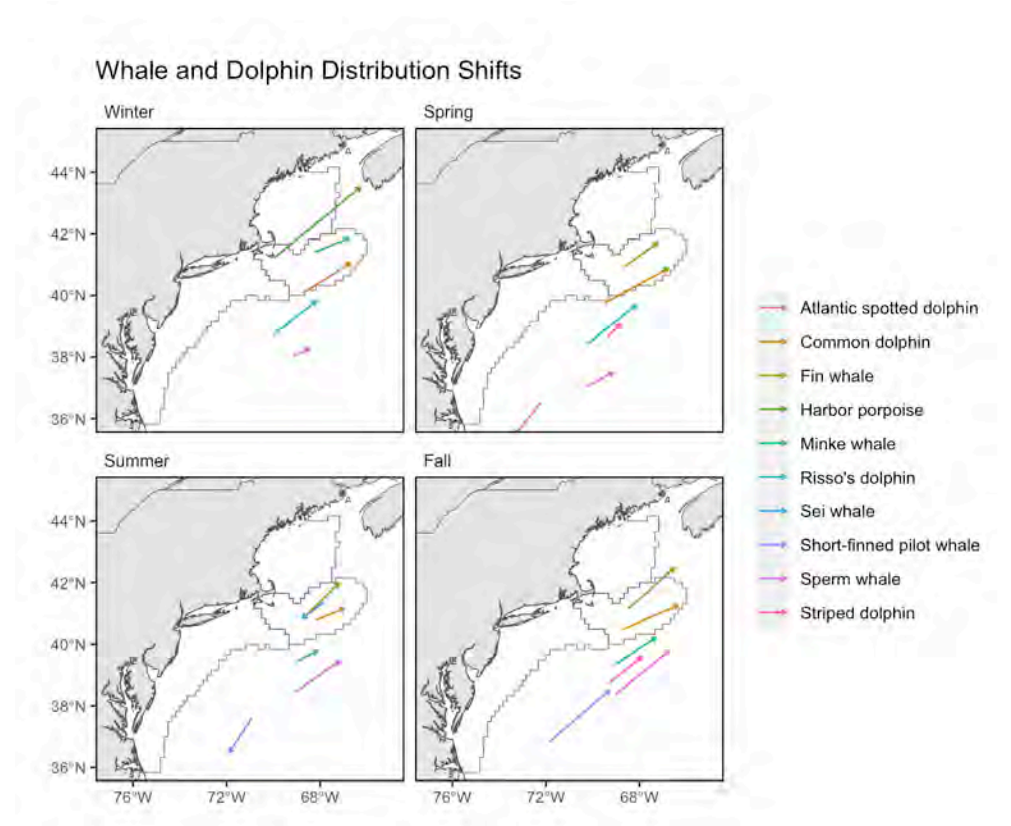


Risks to Spatial Management: All Areas

Indicators: Fish distribution shifts

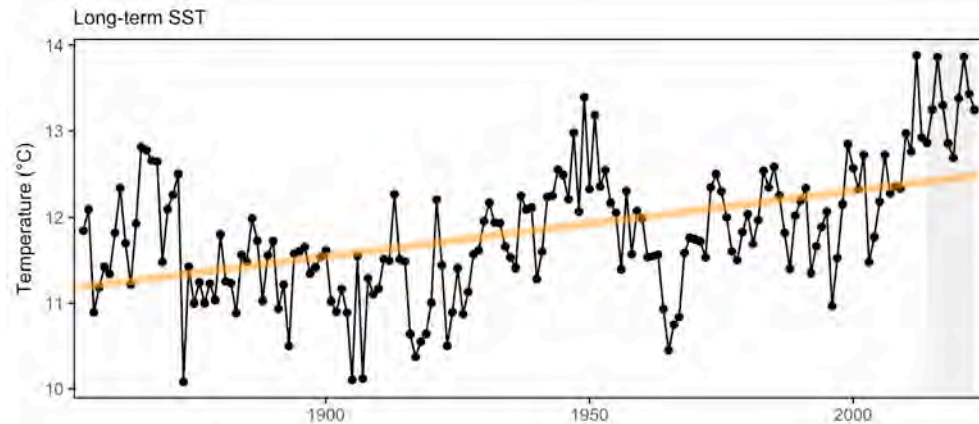
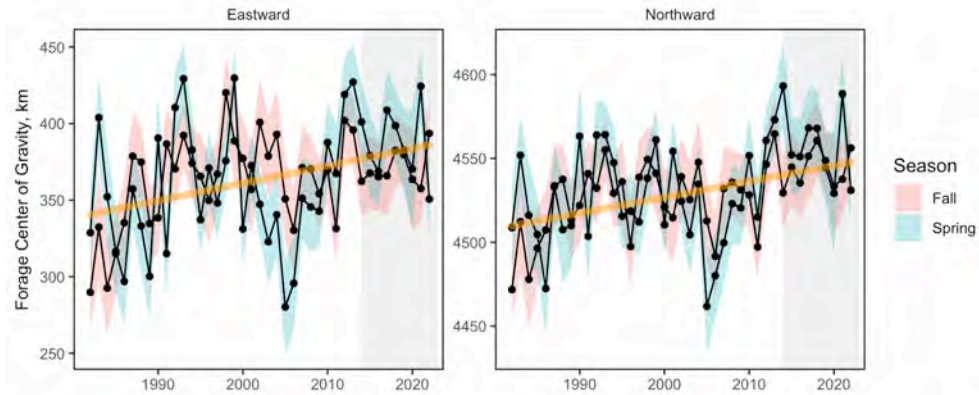


Cetacean distribution shifts

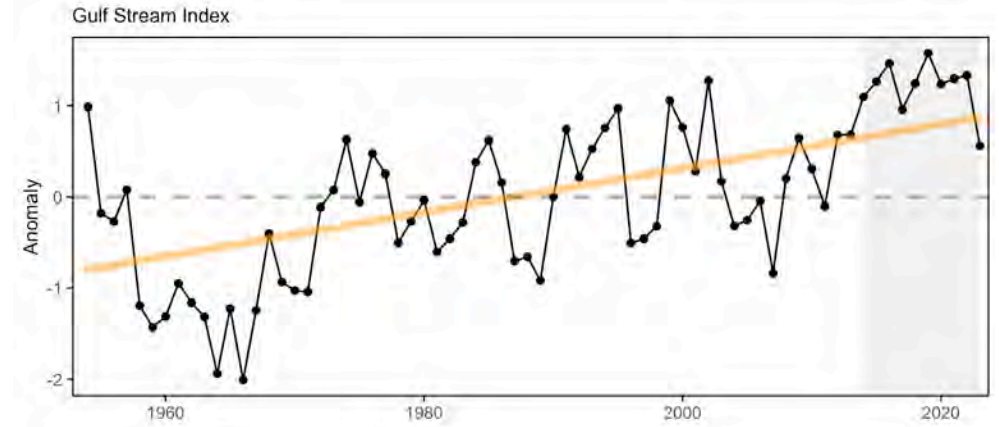


Risks to Spatial Management: All Areas

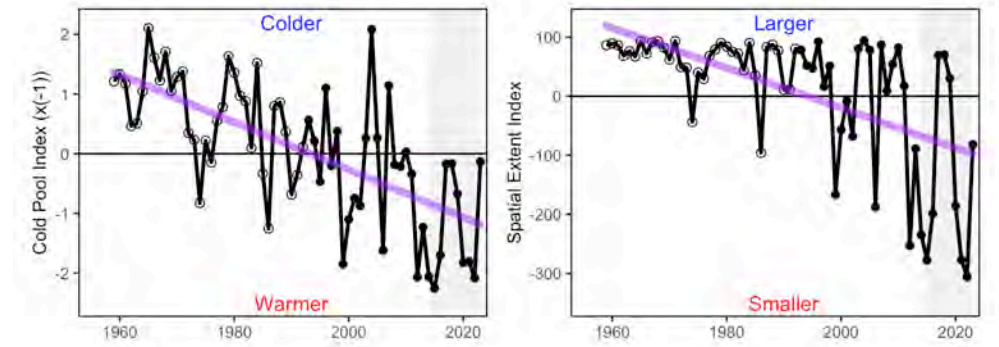
Drivers: Forage shifts, temperature increase



Drivers: changing ocean habitat



Cold pool temperature and spatial extent



Risks to Spatial Management: All Areas

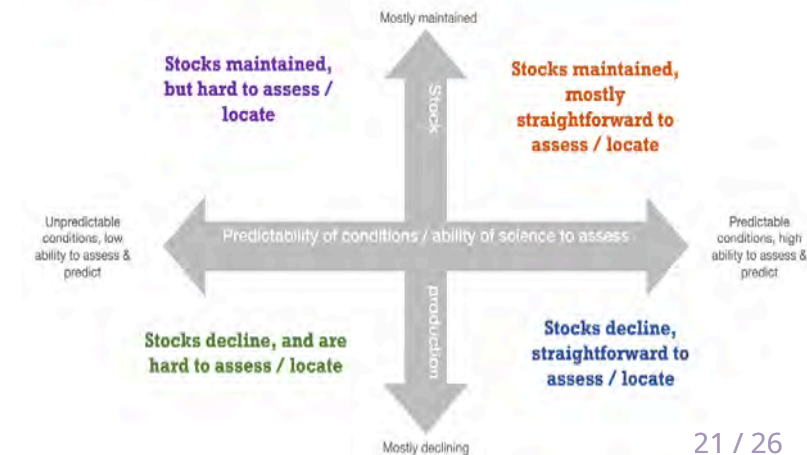
Future considerations

- 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.
- 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.

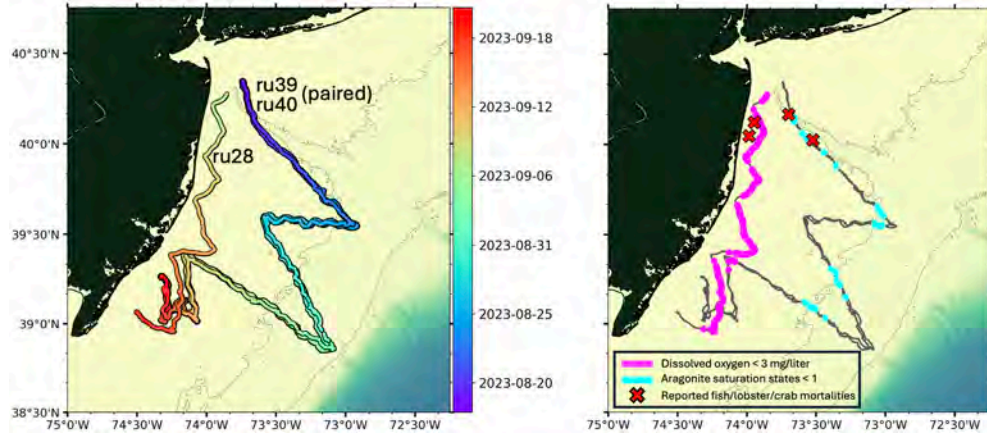
- **East Coast Climate Scenario Planning** can help coordinate management.
- **Near term predictions of distribution shifts** project in progress

Final Scenario Framework

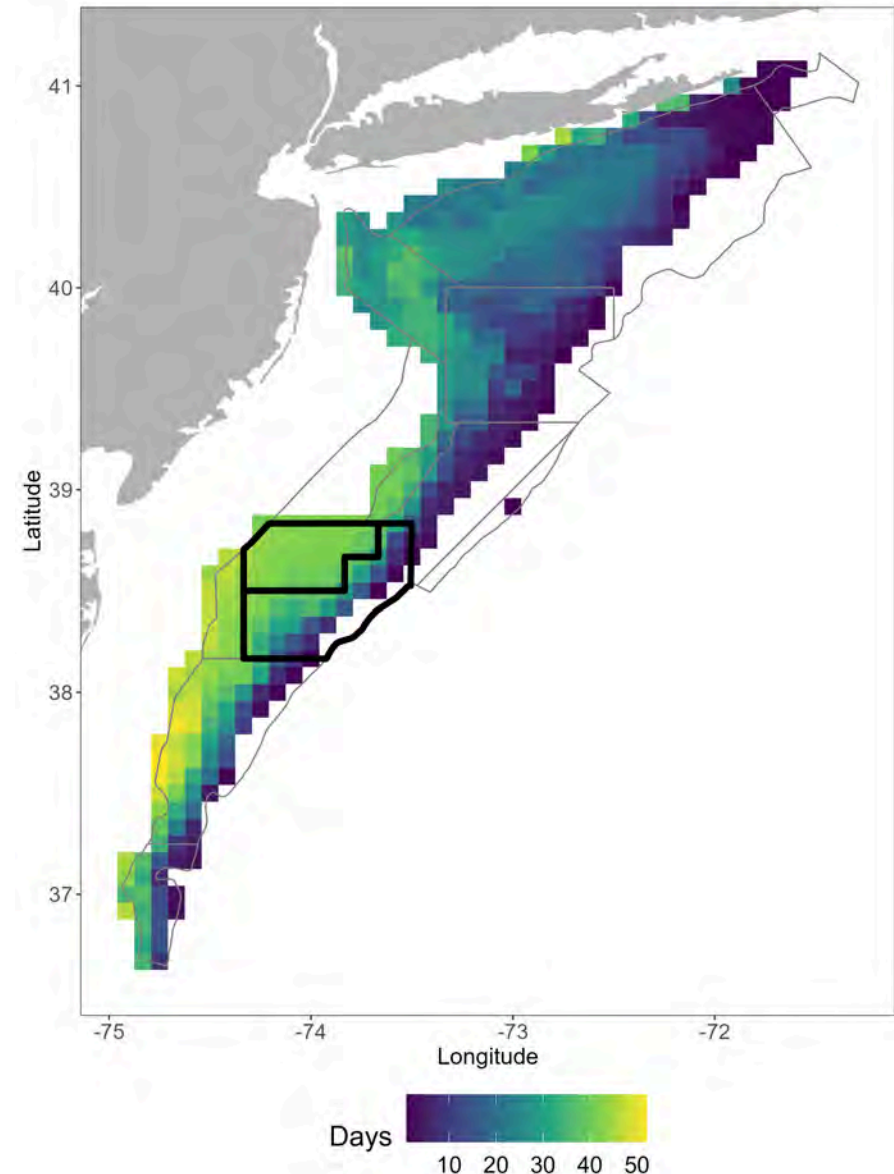


2023 Highlights

- Hypoxia and OA off NJ

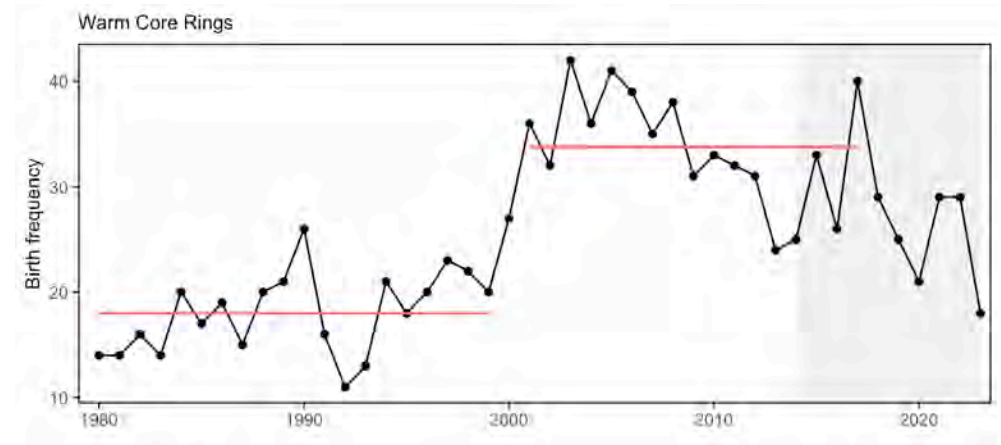
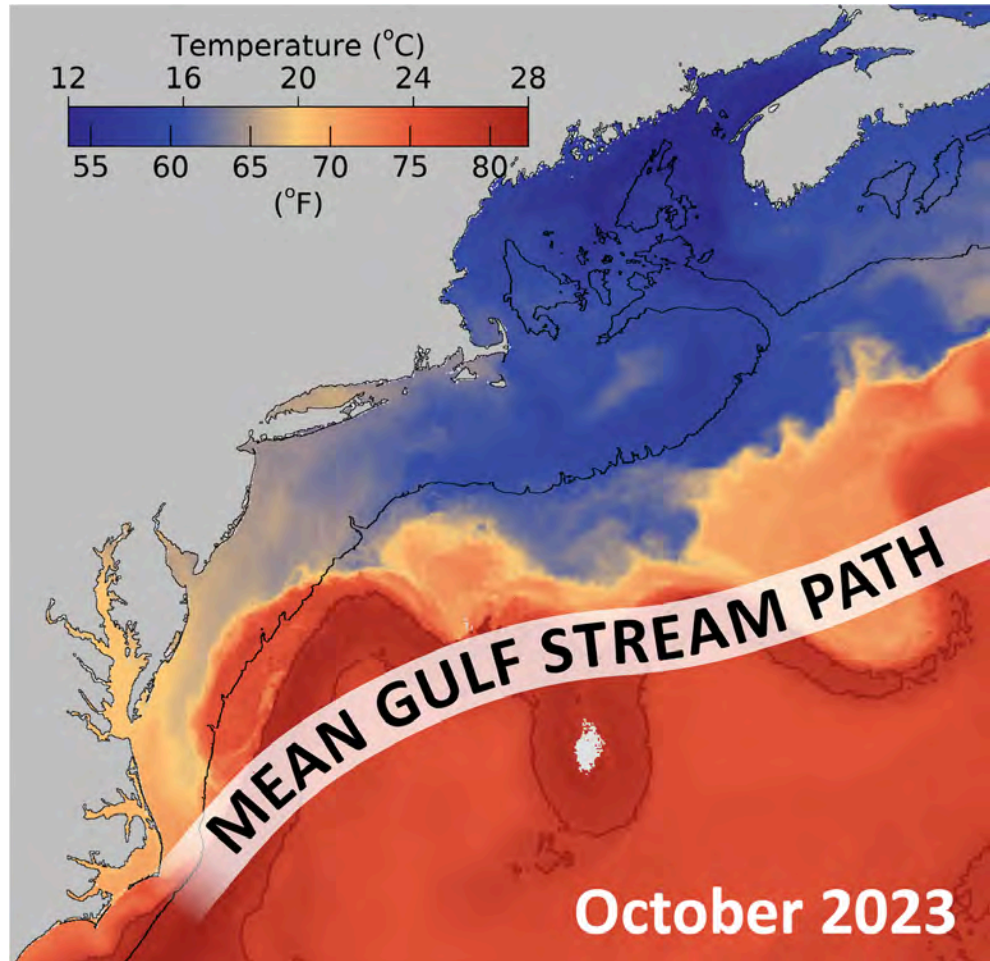


- Record *low* hypoxia in Chesapeake Bay since 1995, relatively cool summer with high salinity.
- Sea scallop recruitment detected Spring 2022, gone in Spring 2023
- Days in 2022 at or above scallop stress temperature 17-19 C →



2023 Highlights

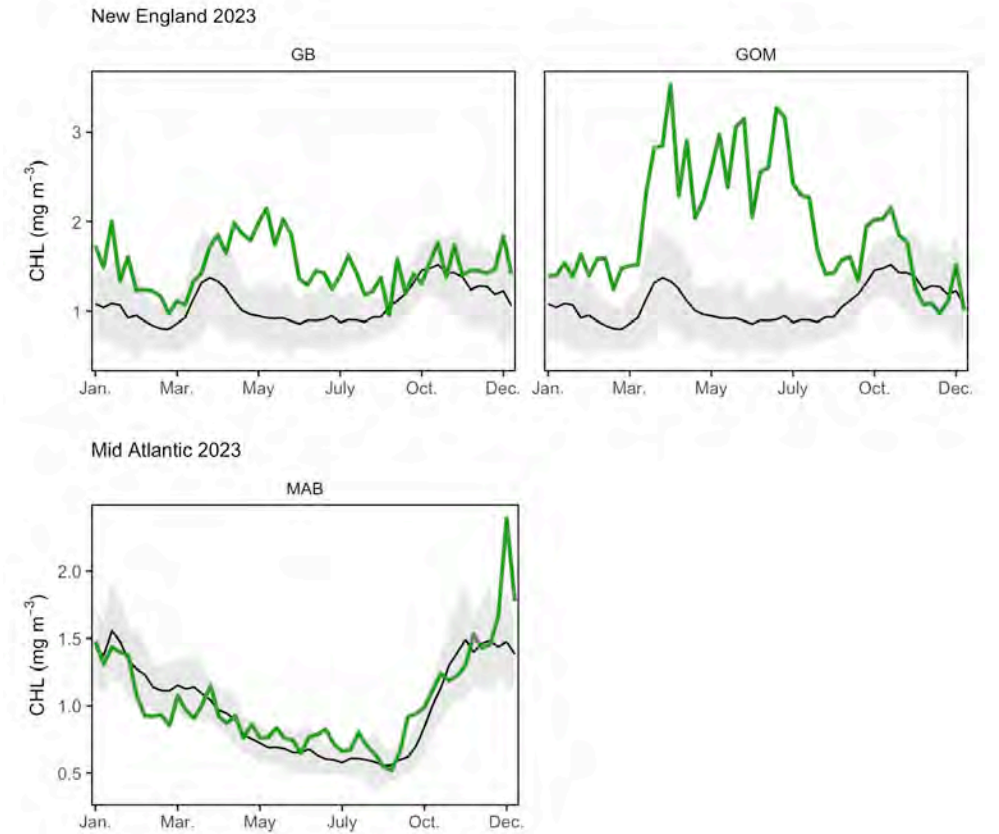
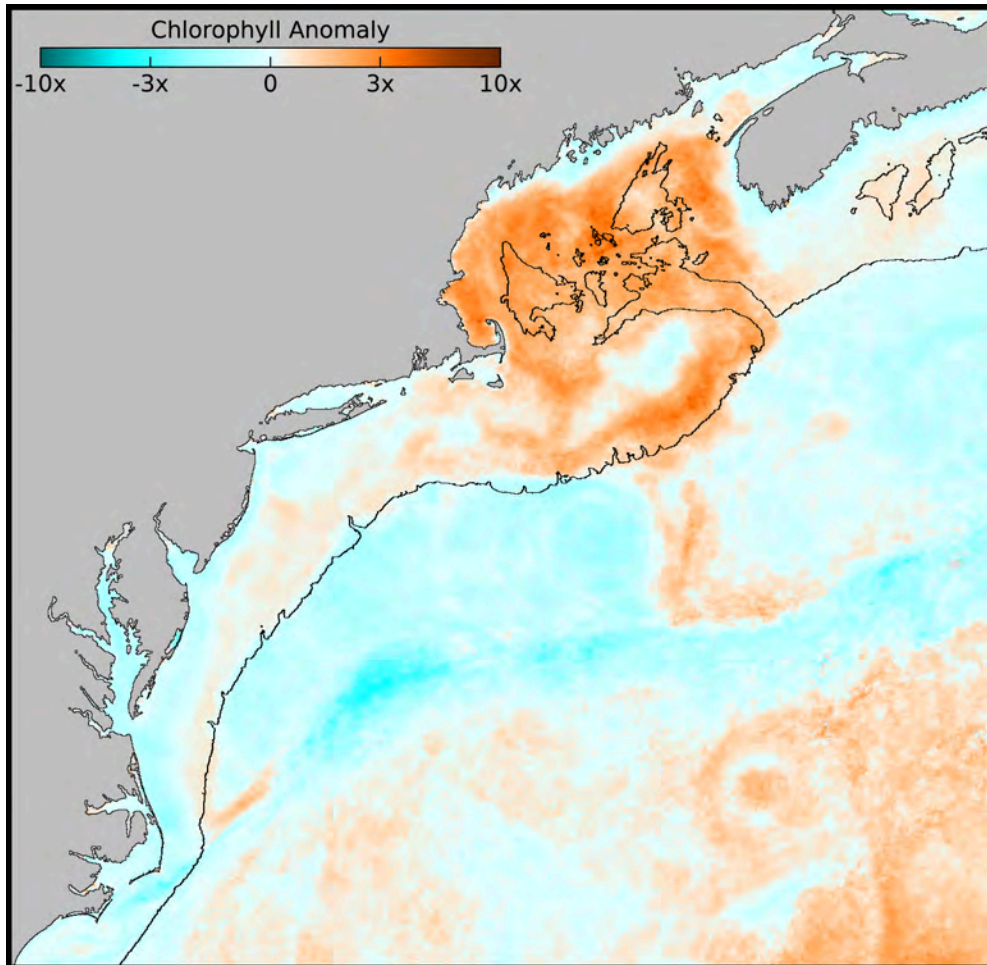
- Gulf Stream inshore, fewer rings



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.

2023 Highlights

- Gulf of Maine giant bloom and bottom heatwave



THANK YOU! SOEs made possible by (at least) 80 contributors from 20+ institutions

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References

- Bastille, K. et al. (2021). "Improving the IEA Approach Using Principles of Open Data Science". In: *Coastal Management* 49.1. Publisher: Taylor & Francis _ eprint: <https://doi.org/10.1080/08920753.2021.1846155>, pp. 72-89. ISSN: 0892-0753. DOI: [10.1080/08920753.2021.1846155](https://doi.org/10.1080/08920753.2021.1846155). URL: <https://doi.org/10.1080/08920753.2021.1846155> (visited on Apr. 16, 2021).
- DePiper, G. S. et al. (2017). "Operationalizing integrated ecosystem assessments within a multidisciplinary team: lessons learned from a worked example". En. In: *ICES Journal of Marine Science* 74.8, pp. 2076-2086. ISSN: 1054-3139. DOI: [10.1093/icesjms/fsx038](https://doi.org/10.1093/icesjms/fsx038). URL: <https://academic.oup.com/icesjms/article/74/8/2076/3094701> (visited on Mar. 09, 2018).
- DePiper, G. et al. (2021). "Learning by doing: collaborative conceptual modelling as a path forward in ecosystem-based management". In: *ICES Journal of Marine Science* 78.4, pp. 1217-1228. ISSN: 1054-3139. DOI: [10.1093/icesjms/fsab054](https://doi.org/10.1093/icesjms/fsab054). URL: <https://doi.org/10.1093/icesjms/fsab054> (visited on Aug. 08, 2022).
- Gaichas, S. K. et al. (2018). "Implementing Ecosystem Approaches to Fishery Management: Risk Assessment in the US Mid-Atlantic". In: *Frontiers in Marine Science* 5. ISSN: 2296-7745. DOI: [10.3389/fmars.2018.00442](https://doi.org/10.3389/fmars.2018.00442). URL: <https://www.frontiersin.org/articles/10.3389/fmars.2018.00442/abstract> (visited on Nov. 20, 2018).
- Muffley, B. et al. (2021). "There Is no I in EAFM Adapting Integrated Ecosystem Assessment for Mid-Atlantic Fisheries Management". In: *Coastal Management* 49.1. Publisher: Taylor & Francis _ eprint: <https://doi.org/10.1080/08920753.2021.1846156>, pp. 90-106. ISSN: 0892-0753. DOI: [10.1080/08920753.2021.1846156](https://doi.org/10.1080/08920753.2021.1846156). URL: <https://doi.org/10.1080/08920753.2021.1846156> (visited on Apr. 16, 2021).

Additional resources

- [ecodata R package](#)
- [Indicator catalog](#)
- [SOE Technical Documentation](#)
- [SOE Reports on the web](#)
 - Slides available at <https://noaa-edab.github.io/presentations>
 - Contact: Sarah.Gaichas@noaa.gov

Northeast Trawl Advisory Panel Report

ASMFC May 2, 2024

NEFMC – Daniel Salerno

MAFMC – Wes Townsend

NEFSC – Dr. Kathryn Ford

NTAP Bigelow Contingency Plan Working Group

Bigelow Contingency Plan

1. Pisces
2. NEFSC vessel calibrated to Bigelow
3. Industry vessel calibrated to Bigelow
4. Industry Based Survey not calibrated to Bigelow (parallel, separate survey)

- Bigelow Contingency Plan is for when the Bigelow will not be available on short notice.
- This plan does not reflect the alternative for when the Bigelow will be offline for vessel midlife repairs. It has already been determined the Pisces will fill in during this time period.

Bigelow Contingency Plan

1. Pisces

- Readiness plan has been drafted and is being refined with NMFS and OMAO
- SEFSC agreement that Pisces can be primary backup to Bigelow
- Next Steps
 - i. Specific plan and funding for improvements
 - ii. Discussion of when to “trigger” Pisces
 - iii. Discussion of need to calibrate (Bigelow & Pisces are sister ships)
- NTAP concern: time to get Pisces ready for trawling and moved from Mississippi to New England on short notice

2. NEFSC vessel calibrated to Bigelow – proposal provided to NEFSC Director, being discussed at NMFS HQ, optimistic timeframe 1+ years just to acquire vessel

3. Industry vessel(s) calibrated to Bigelow – no progress but may be a few commercial vessels that fit the bill

4. Industry Based Survey not calibrated to Bigelow (parallel, separate survey)

How we got here – similar motions from ASMFC, MAFMC & NEFMC:

- *The Council requests that the Northeast Fisheries Science Center (NEFSC) develop a white paper to be submitted to the New England Fishery Management Council by January 12, 2024, outlining an industry-based survey that is complementary to the spring and autumn Bottom Trawl Survey.*
- *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.*

Pilot Industry Based Survey

- Survey should be able to work in wind farms
- Survey should sample same strata as the Bigelow, but truncate depth (130 – 150 fm max) – focus on stock assessment needs
- Survey should occur in multiple regions (GOM, GB, SNE, MA), 5-10 days in each but not necessarily at the same time
- Survey should use similar sized, paired vessels operating 12 hrs./day over a 24 hr. period (noon-midnight/midnight – noon)
- Survey gear
 - same trawl gear used on Bigelow (net and sweep gear but not doors)
 - use Rhule (restrictor) rope
 - no auto-trawl
 - use net mensuration gear & other electronics current used by vessels
 - CTD, plankton & acoustic data collection during pilot
- Meet with scientific survey crews in region to scope out cost/details of portable sampling workstations
- Workshops to discuss pilot survey with interested vessels

Pilot Industry Based Survey

Elements to be determined:

- Who will manage pilot development & implantation?
 - NEFSC – need resources for staff & administrative support
 - 3rd party – need to identify but still need NEFSC resources
- Space and electrical requirements for sampling workstations
- Data management implications of multiple net mensuration & other electronic equipment
- Data and sample – volume, who processes stomachs & age structures and data analysis?
- Review and refine survey elements – wire scope, tow speed, tow duration
- Refine costs – estimate is currently \$1-2 million
- Statistical design – shallower depth range, **timing**, overlap with NEAMAP surveys, adaptability for future loss of survey area (GOM floating wind)

Questions ?





Law Enforcement Committee Review

Guidelines for Resource Managers on the Enforceability of Fishery Management Measures

May 2, 2024

GRM History



- First prepared in 2000; has been periodically reviewed and updated by the LEC in 2002, 2007, 2009, 2015, and now this sixth edition, in 2024.
- The LEC ***strongly encourages managers to consider the enforceability of all management regulations that are developed.*** We believe the *Guidelines* can support and strengthen the effectiveness of the Commission's efforts to conserve our marine fisheries resources.
- Compliance with natural resource regulations helps ensure sustainable fisheries.
- Many factors contribute toward compliance, including but not limited to the perceived legitimacy of the regulations/process, moral norms, voluntary compliance, enforcement, and enforceability.

How To Use This Document



The *Guidelines* are organized into five sections for ease of reference.

SECTION ONE - ***General Enforcement Operations***

SECTION TWO - ***Enforcement Tools***

SECTION THREE - ***General Enforcement Precepts***

SECTION FOUR - ***Enforceability Ratings***

SECTION FIVE - ***Enforcement Strategies and Recommendations***

Section 1 - General Enforcement Operations



- This section provides a statement on **general enforcement operations** that should be considered when implementing new management options or strategies.
- Available enforcement resources are maximized by enacting regulations that can be enforced at more than one point during fishing activity.
- Law enforcement relies on state and federal partnerships for at-sea patrol, and inspection efforts. Officers work with these partners to provide effective at-sea enforcement of state and federal regulations, particularly those involving area, gear, and prohibited species restrictions.

Section 2 – Enforcement Tools



- Are not specifically designed to limit catch or effort but to aid in the enforcement of other management measures that do so.
- Enforcement tools such as electronic reporting, pre-landing notification, and VMS have improved the effectiveness of certain regulations by allowing enforcement staff to focus effort on high priority areas. These tools do not replace traditional enforcement but rather complement patrol work and inspections.
- The requirement for some of these tools should be considered essential for effective enforcement of some management measures (e.g., VMS requirement for closed areas).
- New and emerging technologies such as cameras, ropeless fishing and others should continue to be explored.

Section 3 – General Enforcement Precepts



SIMPLICITY - Most enforceable regulations are simple, realistic, easy to understand, and presented in an accessible way to the regulated community.

CONSISTENCY - Regulations should make every effort to minimize exceptions and exemptions. Wherever possible, managers should adopt the same management measures among different FMPs, across different state boundaries, and between state and adjacent federal waters.

STABILITY - Regulations should avoid frequent changes. When this occurs, there must be a concerted outreach and educational effort to adequately inform the public.

EFFECTIVENESS - From an enforceability perspective, the most effective regulations are those based on controlling effort (closed area or season) and not the outputs (catch quota, trip limits).

SAFETY - Regulations should be designed such that they do not create an unintended safety-at-sea issue.

Section 4 – Enforceability Ratings



- 2024 *Guidelines* included a survey of 20 LEC voting members who numerically rated the enforceability of 27 management measures based on three categories: dockside, at-sea, and airborne.
- The enforceability of each management measure was rated on a scale of 1-5: 1 being the least enforceable and 5 being the most enforceable for each category. An average of at-sea and dockside ratings from the survey is also presented.
- The survey indicated limited applicability for airborne resources in the enforcement of most management measures. Therefore, the airborne value was only included in the average rating when it **increased** the average value of the management measure, with the inclusive average indicated in parentheses.
- The results of the updated survey are presented below in a visual matrix.

Enforceability of Marine Fisheries Management Measures



| Management Measures | Avg Dockside & Sea (avg w/Airborne) | Dockside | At-Sea | Airborne |
|---|-------------------------------------|----------|--------|----------|
| Permits | 4.61 | 4.53 | 4.68 | 1.53 |
| Slot Limits | 4.61 | 4.68 | 4.53 | 1.11 |
| Prohibited Species | 4.55 | 4.53 | 4.58 | 1.37 |
| Bag / Possession Limits (Low Volume) | 4.55 | 4.63 | 4.47 | 1.16 |
| Maximum / Minimum Size Limits | 4.53 | 4.63 | 4.42 | 1.21 |
| Closed Seasons | 4.18 | 3.89 | 4.47 | 3.21 |
| Tagging, Labeling, or Marking of Species | 4.00 | 4.26 | 3.74 | 1.11 |
| Bycatch Prohibition | 3.97 | 4.21 | 3.74 | 1.26 |
| Trophy Fish Allowance | 3.89 | 4.11 | 3.68 | 1.21 |
| Vessel Monitoring System | 3.82 | 3.63 | 4.00 | 2.74 |
| Daily Trip Limits | 3.82 | 4.32 | 3.32 | 1.26 |
| Gear Marking requirement | 3.50 | 2.68 | 4.32 | 1.95 |
| Gear Regulations (excluding method of take) | 3.42 | 2.89 | 3.95 | 1.89 |
| Method of Take | 3.37 | 2.53 | 4.21 | 2.11 |
| Closed Areas | 3.26 (3.58) | 2.11 | 4.42 | 4.21 |
| Catch and Release Fishing | 3.24 | 2.95 | 3.53 | 1.58 |
| Aggregate Trip Limits | 3.16 | 3.42 | 2.89 | 1.26 |
| Electronic Reporting | 3.05 | 3.68 | 2.42 | 1.11 |
| Gear Restricted Areas | 3.05 (3.14) | 1.84 | 4.26 | 3.32 |
| Bycatch Limits by use of Weight or Volume | 3.00 | 3.42 | 2.58 | 1.05 |
| Days at Sea | 2.87 | 2.95 | 2.79 | 1.74 |
| Annual Quotas | 2.84 | 3.32 | 2.37 | 1.05 |
| Bycatch Limits by % of Total Catch | 2.76 | 3.32 | 2.21 | 1.05 |
| Harvest Tolerance by Weight, Volume or % | 2.74 | 3.11 | 2.37 | 1.26 |
| ITQ / IFQ / LAP | 2.69 | 3.28 | 2.11 | 1.06 |
| Limited Drag or Soak Time | 1.89 | 1.11 | 2.68 | 1.84 |
| Targeting Prohibition | 1.87 | 1.63 | 2.11 | 1.16 |

Section Five – Enforcement Strategies & Recommendations



- This section provides information about each of the management measures that were considered in the *Guidelines*.
- Included is a brief definition of the measure, its numerical ranking based on the survey results, and some thoughts for consideration when drafting regulations. For ease of organization, the management measures are listed alphabetically.
- In 2009, the LEC evaluated 19 management measures, in 2015 the LEC evaluated 26 management measures and now in 2024 we have considered 27 management measures.

TAGGING, LABELING OR MARKING OF MARINE SPECIES



Definition: The act of placing an approved manufactured tag, label, or a manipulation/alteration of the respective marine species for the purpose of marking a marine species for a management purpose.

Average Overall Rating: 4.00

Recommendation:

- The tag should be an approved device that is identifiable, traceable, and tamper proof.
- The tag should be placed in a location that will cause least harm to the species whether alive or dead.
- When any alteration to a marine species (i.e., fin clipping, v-notching or other), the requirement should be consistent among all jurisdictions.
- Improved documentation and labeling of fish and fish products would enable law enforcement to track such products back to the harvester and/or the initial purchaser and to intercept unlawful seafood product at various points between harvest and final sale for consumption.

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- Our current and past members who contributed time and expertise to the *Guidelines*
- NOAA Fisheries Office of Law Enforcement, NOAA General Counsel, and USCG, Districts One and Seven, authors of the *Enforceability Precepts for Northeast Regional Fishery Management Councils (June 2013)*, for sharing their publication with us and allowing us to incorporate selected material from that document.
- Toni Kerns, Tina Berger, and Madeline Musante for their assistance in updating this document
- We also acknowledge the opportunity afforded to our Committee by the Commissioners and ASMFC staff to revise the 2015 *Guidelines*, and to make them available for routine use and reference.



Questions?



Law Enforcement Committee Report to ISFMP Policy Board

May 2, 2024

Specie Discussion



Atlantic Striped Bass –Update on the implementation of Addendum II with specific discussion of the adopted compliance measures found in Section 3.0 of the plan.

Atlantic Cobia – Staff updated the LEC on the Cobia draft Addendum II on Recreational Allocation, Harvest Target Evaluation, and Measures Setting.

Spiny Dogfish – Actions by the MAFMC and NEFMC to reduce sturgeon bycatch in the Federal Large Mesh Gillnet fisheries.

American Lobster – Status of Addendum XXX with specific discussion centered around the “Mitchell Provision” and how this addendum will interface with Addendum XXVII.

LEC Business Session



- **North American Wildlife Law Enforcement Accreditation** - Colonel John Cobb and Captain Rob Ham III of the Virginia Department of Wildlife Resources provided a presentation on the new wildlife law enforcement accreditation process being implemented through the Southeast Association of Fish and Wildlife Agencies (SEAFWA).
- **Elver Fishery Enforcement** – Representatives from the Maine Marine Patrol and the USFW Service presented on the current state of the Elver fishery.
- **Interstate Wildlife Violators Compact** - The committee continued discussions on how best to implement and use the Interstate Wildlife Violators Compact.

Notable Case Work



- Federal Partners
 - Illegally Exporting Elvers from Puerto Rico
- New Jersey DEP
 - Multi-state landing violation
- Connecticut Encon Police
 - Striped Bass Operation



Questions?