Atlantic Herring

Committee Meeting

New England Fishery Management Council

April 12, 2023 via Webinar

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Council Priorities for 2023

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2023 Council Priorities

- Coordination with MAFMC, ASMFC on various herring issues (RH/S, etc.), including actions in response to 2023 assessment; include an analysis of the combination of factors (e.g. sampling intensity, estimation methodology, inherent assumptions) that may have led to low 2020-2022 shad/river herring bycatch estimates in the Atlantic herring fishery

- Revisit Amendment 8 inshore midwater trawl closure

- Staff: Research track assessment (working group participation) - Atlantic herring

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Herring Outlook by Quarter in 2023, updated April 4, 2023, NEFMC Staff

Council Priority	Jan – Mar	Apr - Jun	July - Sept	Oct - Dec
Specifications 2023-2025	Final Submission; GARFO Implementation			
River Herring / Shad	PDT analysis of 2020-2022 catch estimates			
Revisit A8 Inshore MWT Closure	Overview of Issues and Court decision, Discuss Next Steps	TBD	TBD	TBD
2024 Council Priorities			Preliminary discussion/list	Set 2024 Priorities
Research Stock Assessment				NEFSC-led Working Group Forms

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Overview of the Atlantic Herring FMP and its History

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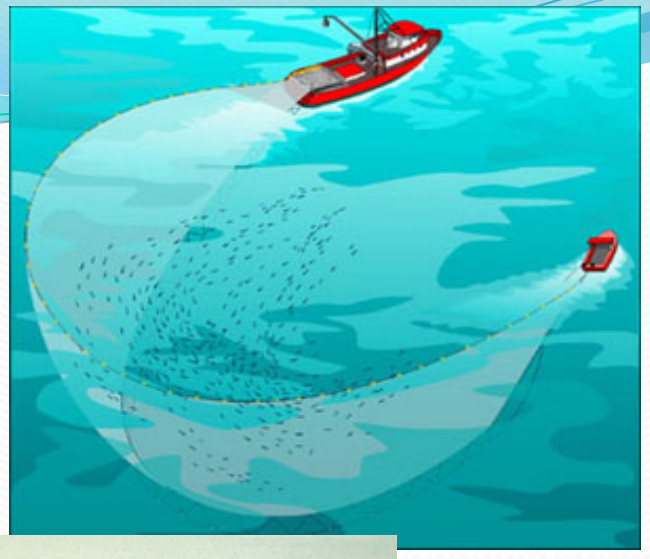
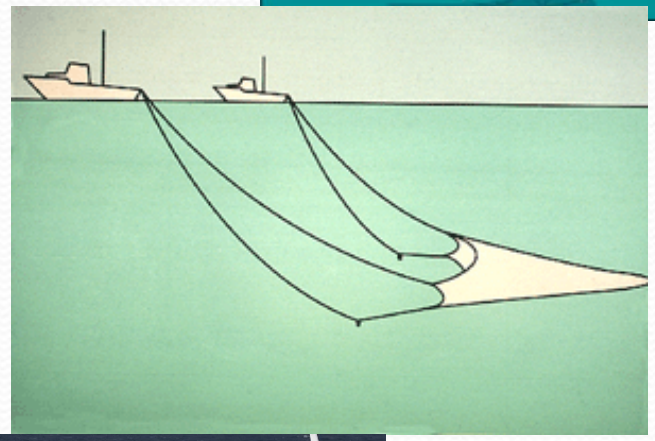
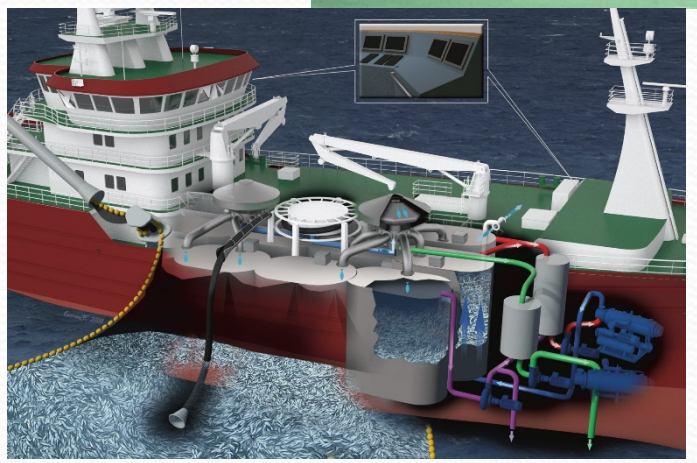
Atlantic Herring Fishery Overview



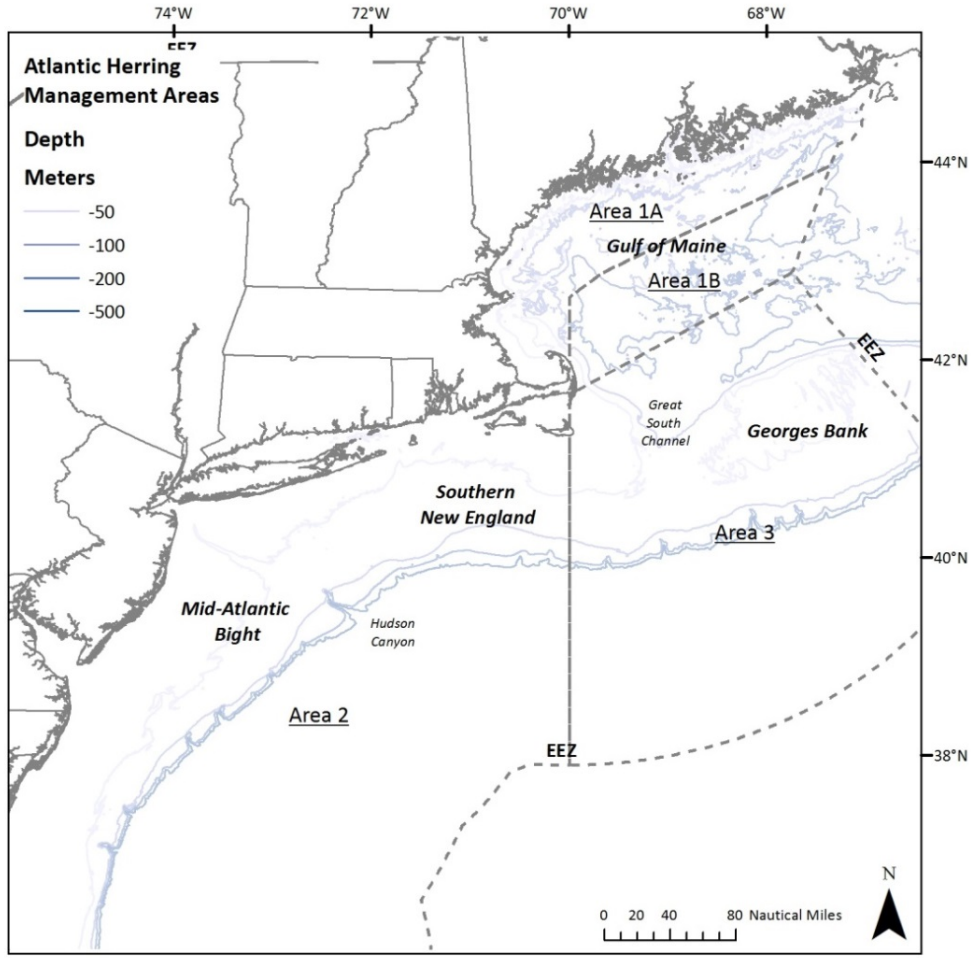
- Small, highly migratory fish with many predators.
- High volume – low value fishery (1-200 million lbs. and $20-30 mil.)
- Used primarily as lobster bait, salted or frozen.
- 3 gear types (purse seine, mid-water trawl, and bottom trawl).
- About 40 active vessels.
- Top 5 ports: Portland, ME, Gloucester, MA, Rockland, ME, New Bedford, MA, and Point Judith, RI.
- Some participate in other fisheries: e.g. mackerel, squid, menhaden.
- Important role as forage.



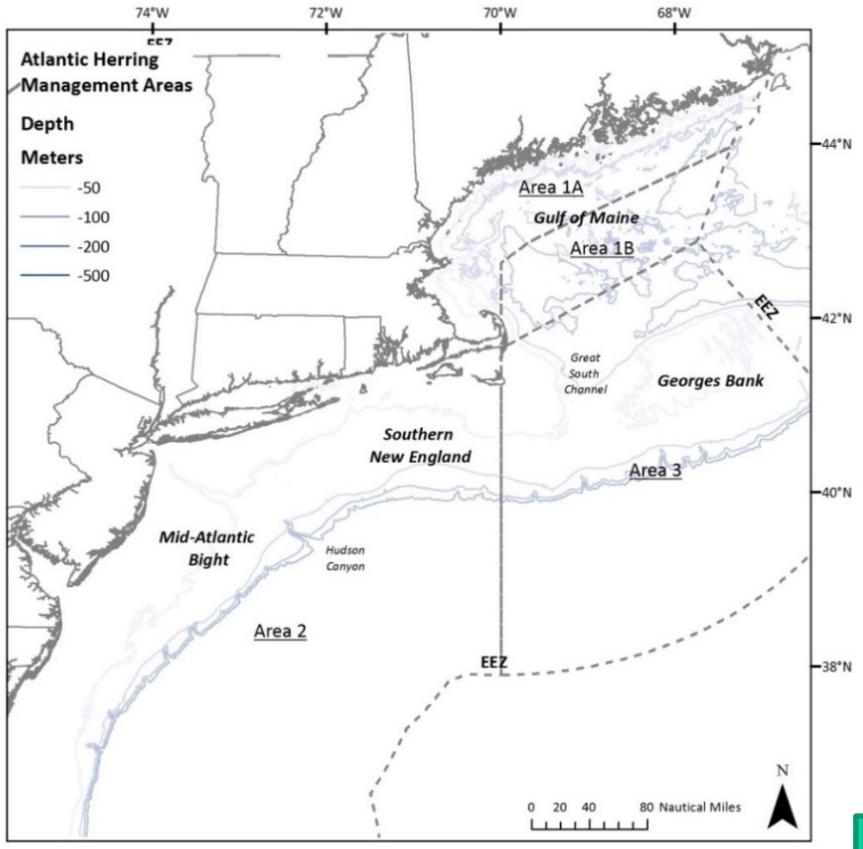


Atlantic Herring Management Overview

- Federal plan not until 2001. Initially managed by international agreements and states (ASMFC).
- Spawning closures and area catch limits at first, then limited access.
- Total TAC divided into 4 management areas.
- In-season closures of directed fishery when 92% of sub-ACL or 95% of total ACL (slightly modified in FW8 to use a 2-step process for Areas 2 and 3).
- Bycatch caps of GB haddock and river herring/shad.
- Fishery is seasonal, generally in Area 2 in the winter, Area 1A in the summer. Area 3 more variable.
- Amendment 1 – limited entry and MWT closure of Area 1A June-Sept.



Specifications and Management Areas



Herring OFL

↓

Herring ABC

↓

Herring ACL

Scientific Uncertainty
- ABC control rule and rebuilding plan

Management Uncertainty
- Canadian NB weir fishery
- State water catch
- Discards

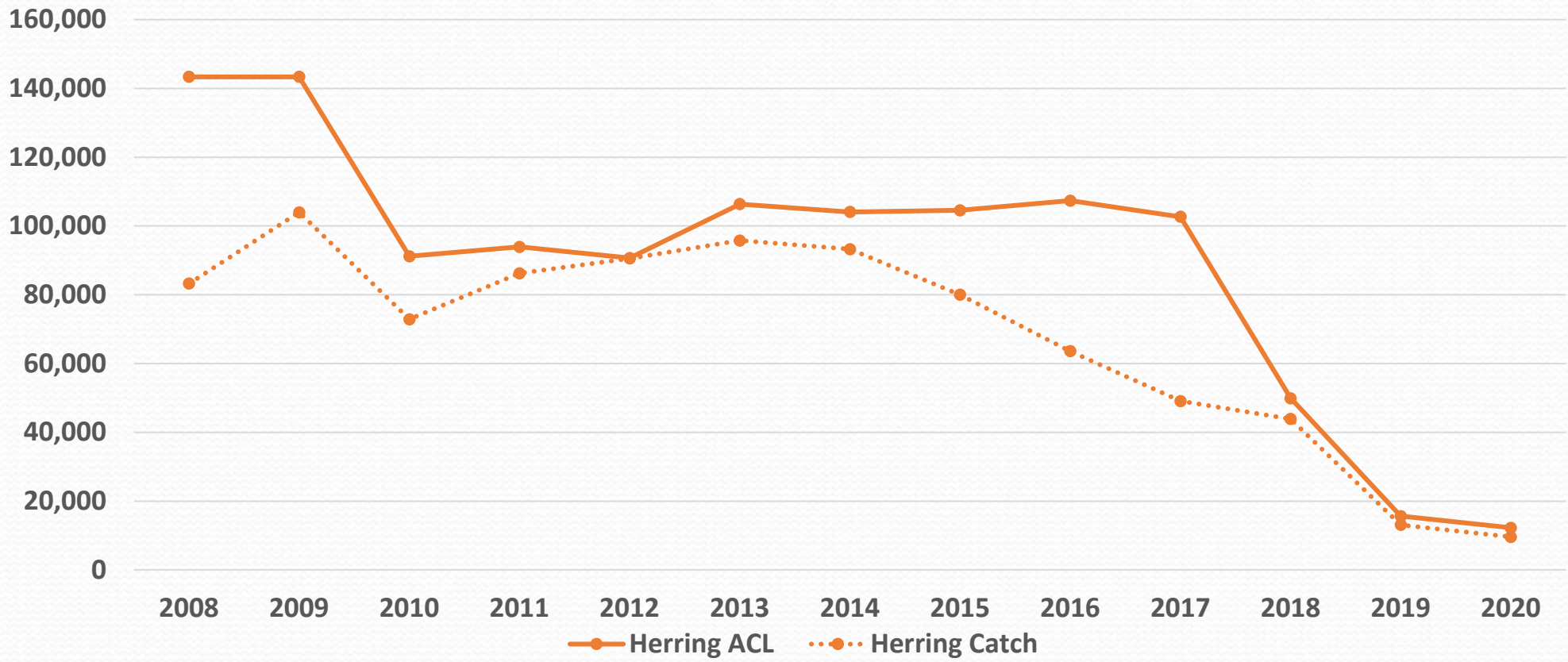
Area 1A (28.9%)

Area 1B (4.3%)

Area 2 (27.8%)

Area 3 (39%)

Specifications and Catches



Framework Adjustment 9

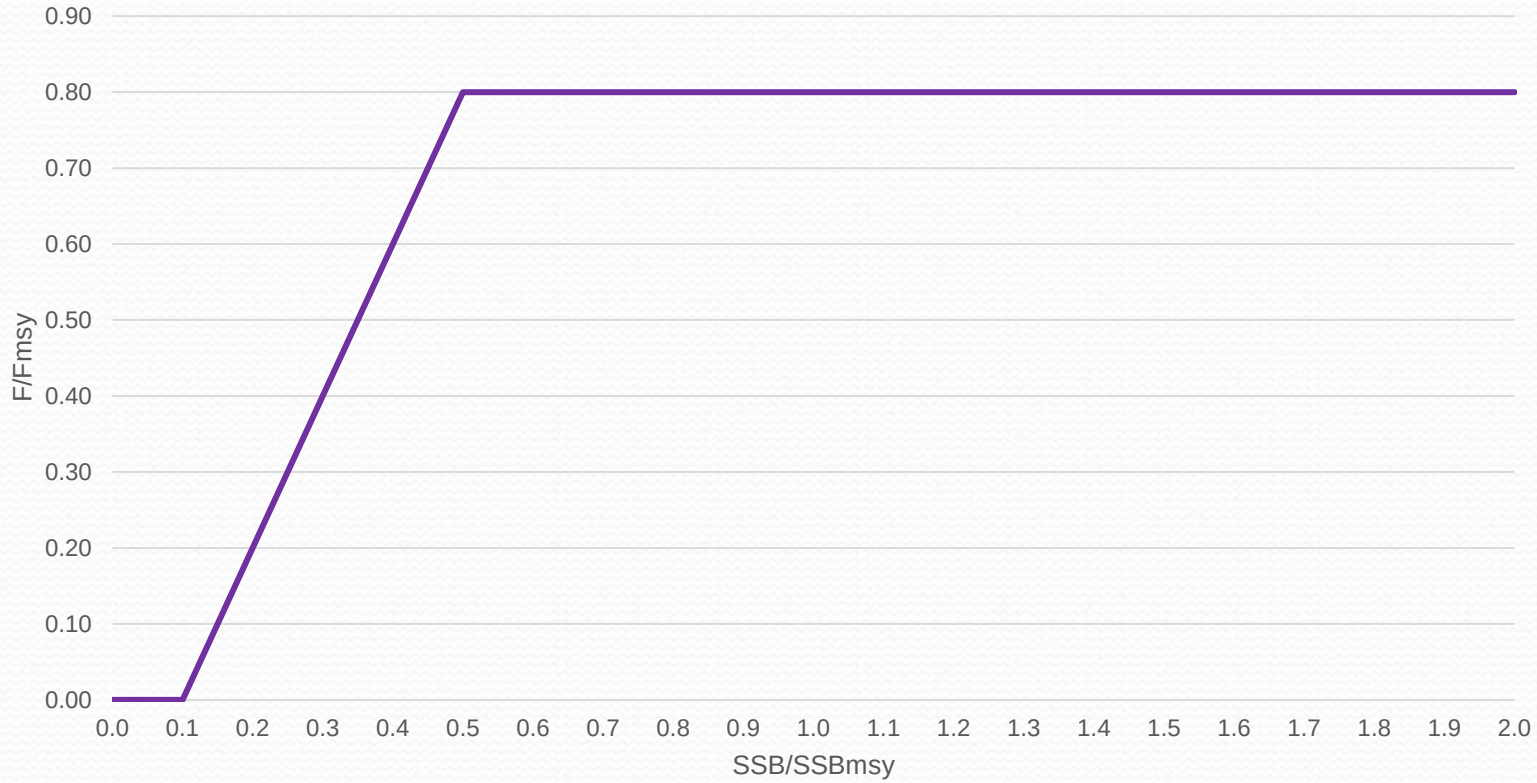
Effective date is August 18, 2022

- Establishes a rebuilding plan for Atlantic herring based on the Council's ABC Control Rule.
  - Rebuilding projections indicated herring can rebuild in 5 years (by fishing year 2026) under this rebuilding plan, assuming long-term average recruitment.
  - The rebuilding plan continues to use the ABC control rule that is currently used to set herring specifications.
- Adjusts accountability measure catch threshold triggers so that an overage of a management area sub-ACL in one fishing year (Year 1) will only be deducted in a subsequent fishing year (Year 3) if the overage exceeds 10 percent of the sub-ACL; and/or if the ACL is also exceeded in the same year.

ABC Control Rule

The Council's herring ABC control rule is biomass-based:

- When biomass is greater than 0.5 for the ratio of SSB/SSBMSY, the maximum fishing mortality allowed is 80% of FMSY.
- As biomass declines, fishing mortality declines linearly, and if biomass falls below 0.1 for the ratio of SSB/SSBMSY, then ABC is set to zero, no fishery allocation.



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2022 Stock Assessment

Main Conclusions

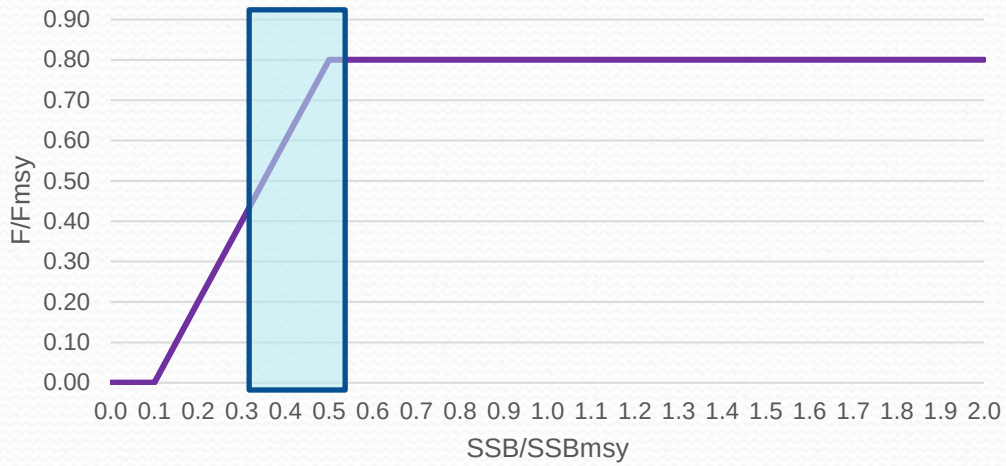
- **Overfished** but **overfishing is not occurring** in 2021.
- **Retrospective adjustments** were necessary.
- **Spawning stock biomass** (SSB) in 2021 was estimated to be 39,091 mt which is **21% of the biomass target**, SSBMSYproxy = 185,750 mt
- The 2021 average **fishing mortality** (F) for ages 7-8 (fully selected ages for the mobile fleet) was estimated to be 0.153 which is **31% of the overfishing threshold** proxy (FMSYproxy = 0.5).
- Sources of **uncertainty** include missing 2020 surveys, recruitment, natural mortality, and stock structure.

Short-Term Projections

Canadian Catch= 4220 US Fixed= 18

	Mobile Fleet F	SSB	P(overfishing)	P(overfished)	OFL	ABC	SSB/SSBmsy	P(rebuild)
2022	0.097	61645	0.000	0.989	–	–	0.332	0.000
2023	0.232	79231	0.000	0.677	29138	16649	0.427	0.025
2024	0.327	76795	0.109	0.683	32233	23409	0.413	0.033
2025	0.313	103645	0.167	0.397	40727	28181	0.558	0.105

Updates to the projections included the same changes applied to the BRPs and an autoregressive model for recruitment (rather than recruits drawn from a CDF of the entire time series).



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Summary of Atlantic herring fishery specifications (mt)

2023-2025 Implemented March 23, 2023

	2023	2023	2024	2025
Overfishing Limit (OFL)	44,600	29,138	32,233	40,727
Acceptable Biological Catch (ABC)	8,767	16,649	23,409	28,181
Management Uncertainty*	4,669	4,220	4,220	4,220
Optimum Yield (OY) / Annual Catch Limit (ACL)	4,098	12,429	19,189	23,961
Domestic Annual Harvest (DAH)	4,098	12,429	19,189	23,961
Border Transfer (BT)	0	0	0	0
Domestic Annual Processing (DAP)	4,098	12,429	19,189	23,961
US At-Sea Processing (USAP)	0	0	0	0
Area 1A sub-ACL (28.9%)	1,184	3,592	5,546	6,925
Area 1B sub-ACL (4.3%)	176	534	825	1,030
Area 2 sub-ACL (27.8%)	1,139	3,455	5,335	6,661
Area 3 sub-ACL (39%)	1,598	4,847	7,484	9,345
Fixed Gear Set-Aside	30	30	30	30
Research Set-Aside (RSA) as % of sub-ACL	0%	0%	0%	0%

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Summary of river herring and shad (RH/S) catch caps (mt)

2023-2025 Implemented March 23, 2023

	2023	2023	2024	2025
Midwater Trawl Gulf of Maine	76.7	76.7	76.7	76.7
Midwater Trawl Cape Cod	32.4	32.4	32.4	32.4
Midwater Trawl Southern New England and Mid-Atlantic	129.6	129.6	129.6	129.6
Bottom Trawl southern New England and Mid-Atlantic	122.3	122.3	122.3	122.3

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Industry Funded Monitoring Program

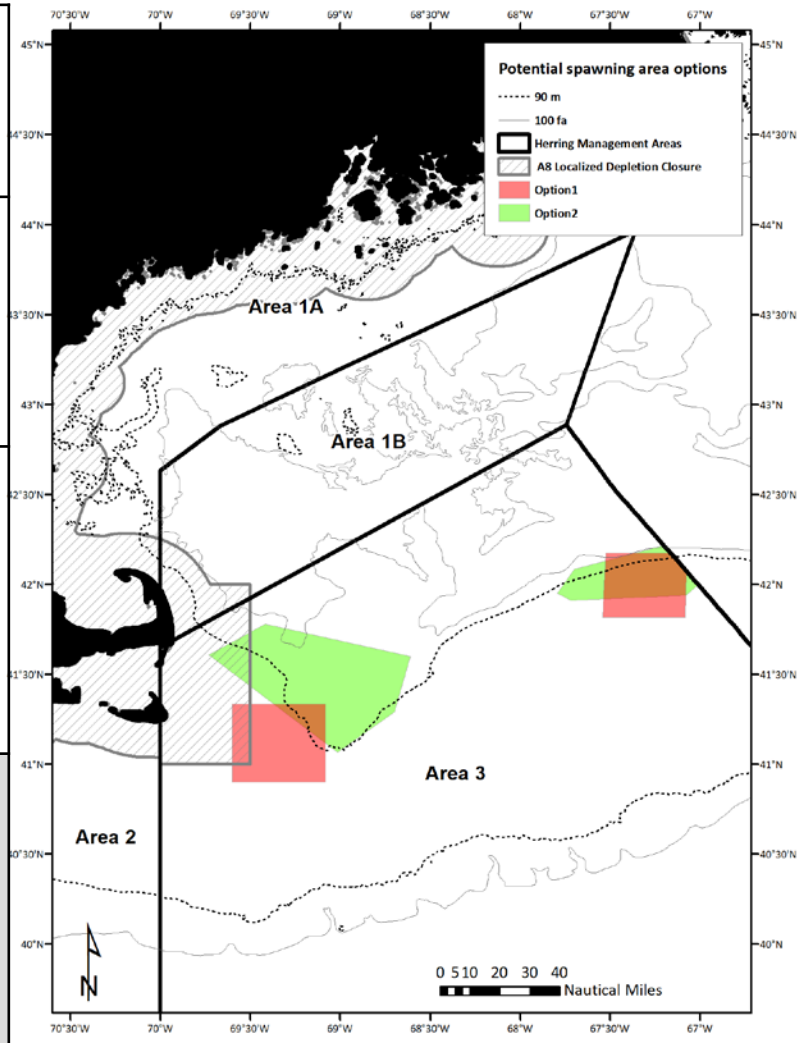
- Program became effective July 2021; 50% monitoring coverage goal for Cat A and B herring vessels (IFM adding to SBRM).
- Trips selected for IFM need an at-sea monitor unless in the EFP program (electronic monitoring plus portside sampling).
- In IFM year 2021 (July 2021-Mar 2022):
  - 43 trips were selected for at-sea IFM, but none were sampled.
  - 46 trips were selected for EFP (portside and EM), 18 had fishing activity so eligible for EM video review and 1 was also sampled portside.
- Program challenges (some):
  - COVID-19 restrictions caused high attrition rate, travel for sampling limited.
  - IFM providers are the same providers for NEFOP, IFS, ASM groundfish coverage, and IFM had to be the lowest on the priority list.
  - Difficult to maintain cadre of people monitoring a fishery with low effort.

Industry Funded Monitoring Program

- IFM Year 2022 outlook
  - NMFS has funding to administer program, conduct video review.
  - Funding to help offset industry costs expiring September 2022.
  - Observer training ongoing, expect to be ready for trips.
- IFM Year 2023 outlook
  - No funding has been identified to administer program.
  - IFM only operates if federal funds are available to administer.
- In May 2022, AP recommended initiating a framework action to revise the IFM weighting approach for the herring fishery.
- In June 2022, Committee made no motions on IFM. Council took no action.
  - Program will be on hold past April 2023 without federal funds.
  - Required program review.

Framework Adjustment 7

2019	• Contract to review A. herring spawning on Georges Bank. Sept: action initiated to protect spawning herring in Areas 1B, 2, 3. Ideas for alternatives floated, not approved.
2020	• April: set goal and objective – protect spawning adults and egg mats, considering measures like in Area 1A. • June-Dec: develop alternatives (areas, closures, spawning tolerance, program review).
2021	• Feb: develop alternatives (avoidance program). • April: focus action on declared herring vessels and on protecting spawning adults (not egg mats). • June: pause for joint PDT/AP meeting to discuss in-season monitoring of spawning tolerance.
2022	• May: PDT/AP mtg. Many details to develop still. PDT: difficult to monitor and enforce. AP supports incentive to avoid spawning herring. • June: Committee passed no motions. Tabled motion to stop action. Council postponed further work over the summer. • Council did not prioritize work on this action for 2023.



A8 Inshore Midwater Trawl Closure

Implemented Feb 10, 2021 and Vacated March 29, 2022

- 12-mile buffer zone from RI to US/Canada border; 20-mile buffer east of Cape Cod
- Prohibits vessels from "using, deploying, or fishing with midwater trawl gear" within restricted area
  - Short-duration, high volume herring removals
  - MWT are more mobile/capable of fishing further offshore than other gear types
- Addressed concerns that concentrated, intense commercial fishing efforts would negatively impact other user groups (commercial, recreational, tourism) dependent on herring as forage
- In addition to seasonal MWT closure in Area 1A (June 1-September 30, annually)

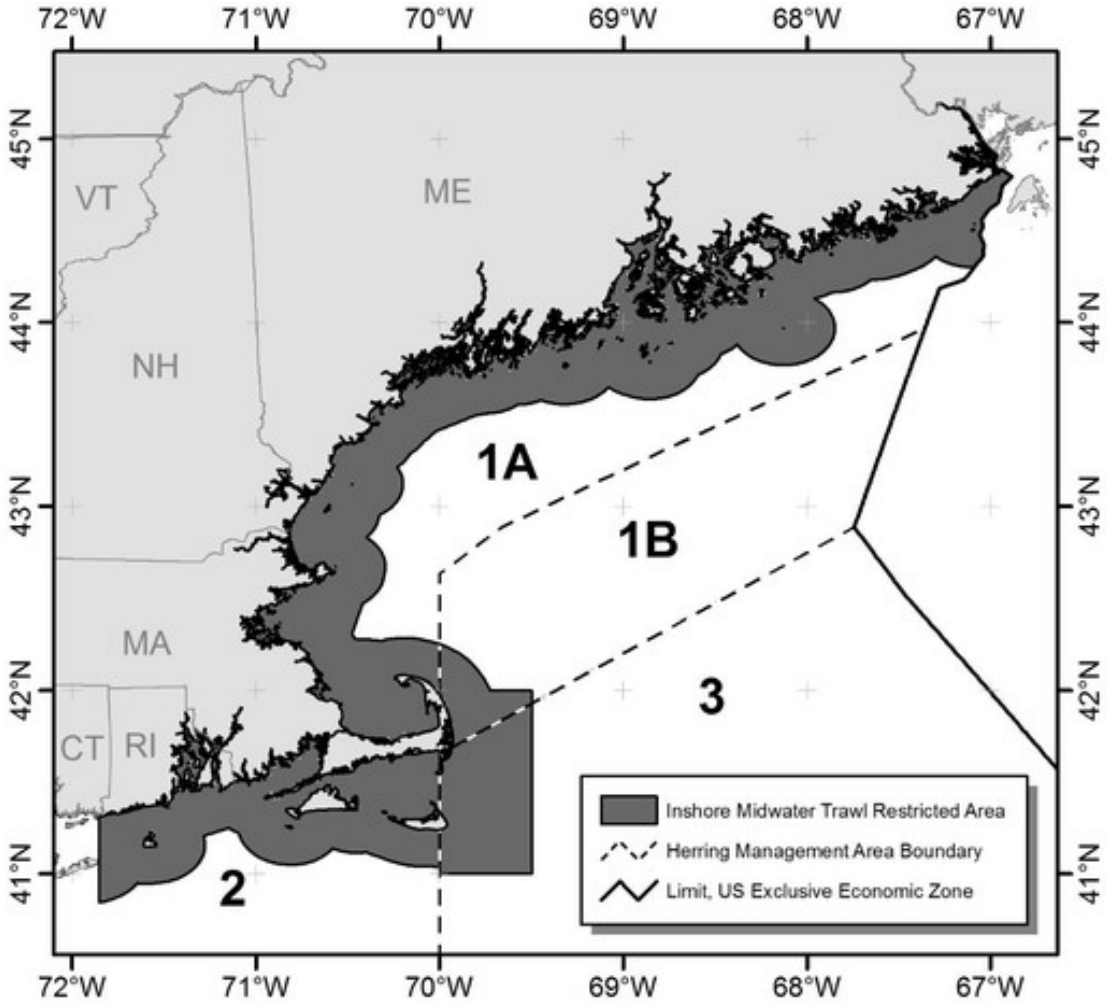


Image: NOAA Fisheries

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Atlantic Herring Advisory Panel
Members

Meghan Lapp (Chair)
Zack Klyver (Vice-Chair)
John-Paul Bilodeau
Willy Goldsmith
Jaclyn Higgins
Jeff Kaelin
Donald Lyons
David Mussina
Gerry O'Neill
James Reilly
James Ruhle
Dr. Tammy Silva
Mary Beth Tooley

Atlantic Herring Committee
Members

Cheri Patterson (Chair)
Rick Bellavance (Vice-Chair)
Mark Alexander
Dan Farnham (MAFMC)
Emily Gilbert (GARFO)
Melanie Griffin
Peter Hughes (MAFMC)
Raymond Kane (ASMFC)
Patrick Keliher (Melissa Smith)
Scott Olszewski
Geoff Smith
Peter Whelan

https://www.nefmc.org/management-plans/herring

River Herring & Shad

Purpose

Discuss the PDT's analysis of factors contributing to the low 2020-2022 river herring and shad catch estimates in the Atlantic Herring fishery.

Documents

4 – Memo from Herring PDT to Committee re river herring and shad catch in the Atlantic Herring fishery, 2020-2022

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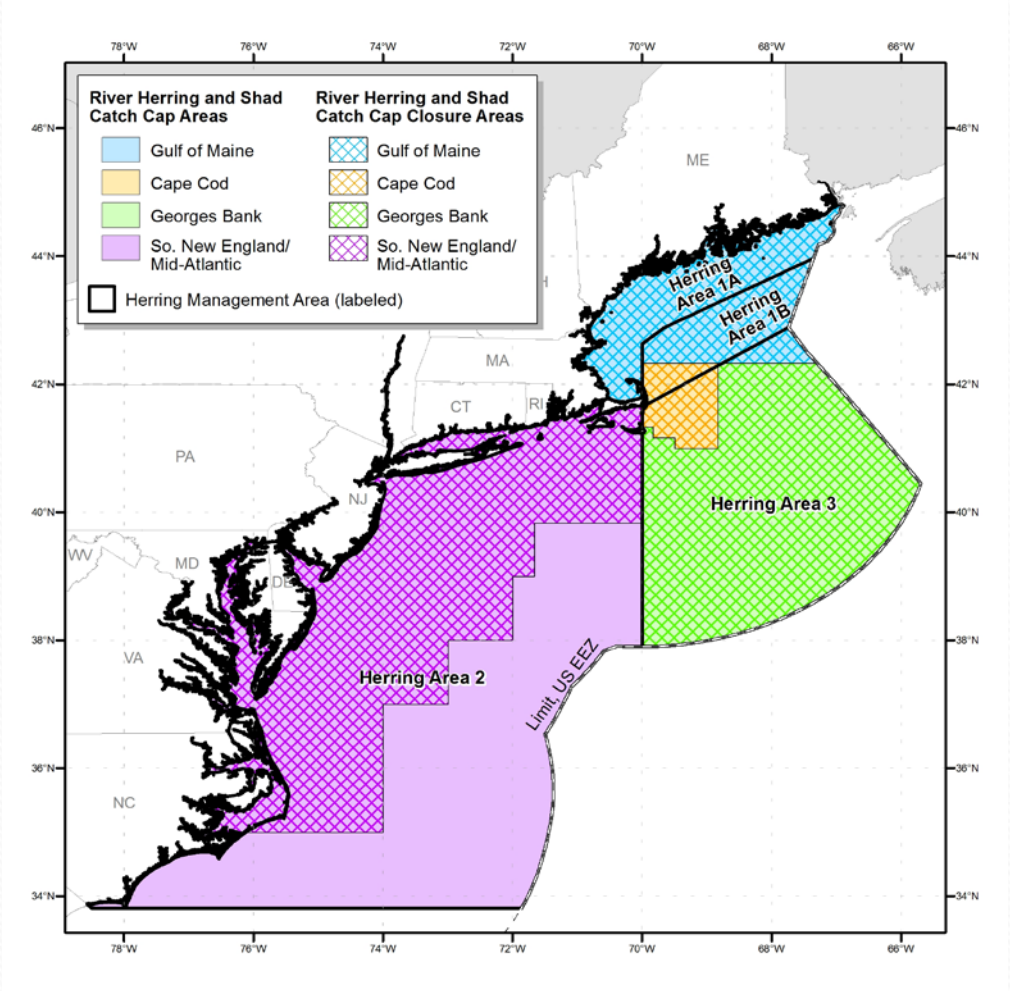
Monitoring River Herring & Shad Catch Caps

- Process established in 2014 by NEFMC Framework 3
- Atlantic Herring—trips landing more than 6,600 lbs
  - 4 Catch Cap Areas
    - Gulf of Maine Midwater Trawl
    - Cape Cod Midwater Trawl
    - Southern New England Midwater Trawl
    - Southern New England Bottom Trawl
- Atlantic Mackerel—trips landing more than 20,000 lbs
  - Catch caps apply to entire fishing area



Map Source: NOAA Fisheries

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Monitoring River Herring & Shad Catch Caps

- Bycatch estimation methodology developed by GARFO
- Data Sources:
  - Northeast Fishery Observer Program (NEFOP)
  - Federal Dealers
  - Vessel Trip Reports
  - Industry-Funded Monitoring

Catch Cap	Quota (mt)	Cumulative Catch (mt)	Percent Quota Caught
Cape Cod Mid-water Trawl	32.4	28.5	88.0%
Gulf of Maine Mid-water Trawl	76.7	0.0	0.0%
Southern New England Bottom Trawl	122.3	36.7	30.0%
Southern New England Mid-water Trawl	129.6	0.1	0.1%

Image Source: RHS Herring Quota Monitoring (noaa.gov)

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Monitoring River Herring & Shad Catch Caps

Estimated River Herring & Shad Catch:

$$\frac{Observed\ RH/S catch\ (landings\ and\ discards)}{Observed\ Kept\ (all\ species)} \times Kept\ (all\ species)$$

Transition Rate for Estimated RH/S Catch:

$$\left(\frac{0.7}{Trip\ Count}\right) \times Assumed\ Rate + \left(1 - \left(\frac{0.7}{Trip\ Count}\right)\right) \times In\ Season\ Rate$$

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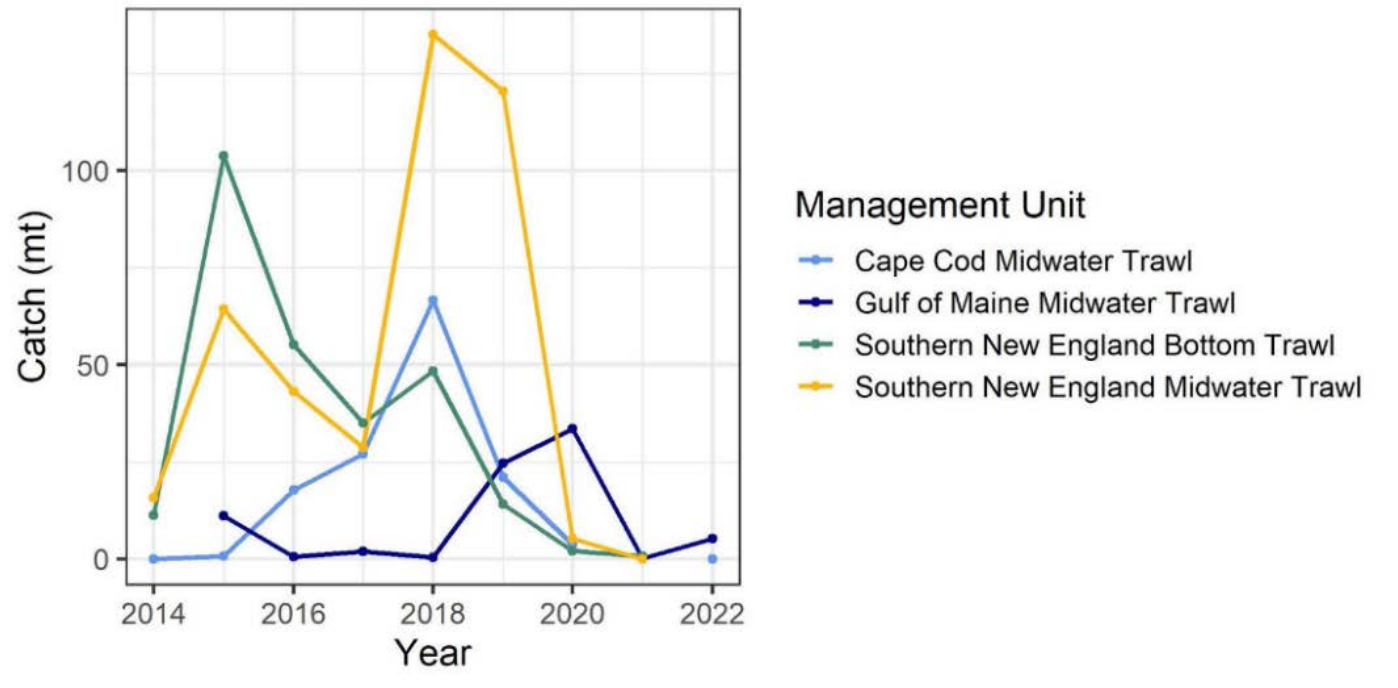
Formula Source & Additional Information: *Methodology for River Herring and Shad Caps in the Atlantic Herring Fishery*

Summary of Conclusions

A. **Multiple Factors**: A combination of factors (river herring and shad life history, Atlantic herring fishing activity, and monitoring coverage of the fishery) contribute to the annual estimated catch of river herring and shad and the low values for 2020-2022 relative to the past.

Annual estimated catch of RH/S for Atlantic herring trips qualifying for catch caps



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Summary of Conclusions

B. **Presence of River Herring and Shad in Ocean Waters**: Adult shad and river herring are most likely to be present in ocean waters in all seasons except the spring (during their spawning season in freshwater). Juvenile (immature) shad and river herring can be found in ocean waters year-round.

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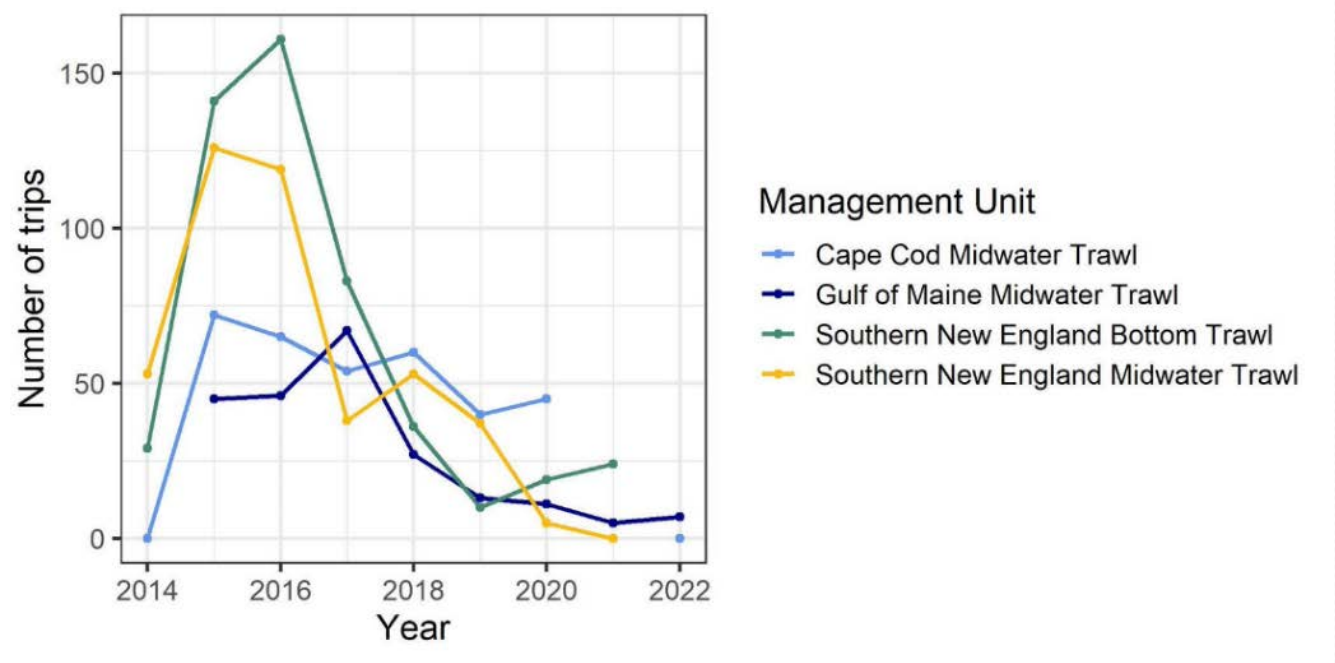
Summary of Conclusions

C. **Monitored Trips Under Catch Caps**: The current river herring and shad catch caps have been in place since 2016 and are based on a ‘reference period’ before catch caps were adopted (2008-2014). Atlantic herring trips landing greater than 6,600 lb of herring are included in the catch cap monitoring program as qualifying trips.

In-season number of Atlantic herring trips qualifying for RH/S catch caps



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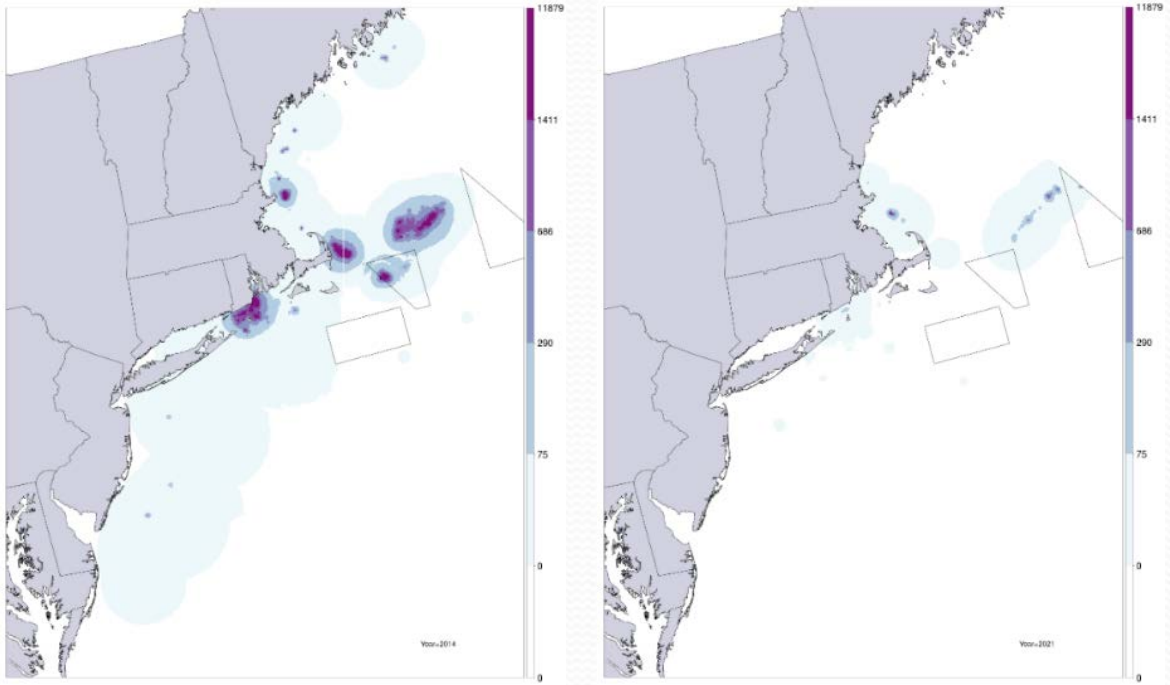
Summary of Conclusions

D. **Declines in Atlantic Herring Landings and Revenue**: Atlantic herring landings and revenue have declined in recent years along with the spatial extent of the landings. As this has occurred, the number of qualifying trips that would be monitored under the catch caps has also declined.

Atlantic Herring Landings (pounds per square kilometer) from the midwater and small mesh otter trawl fleets in 2014 (left) and 2021 (right)



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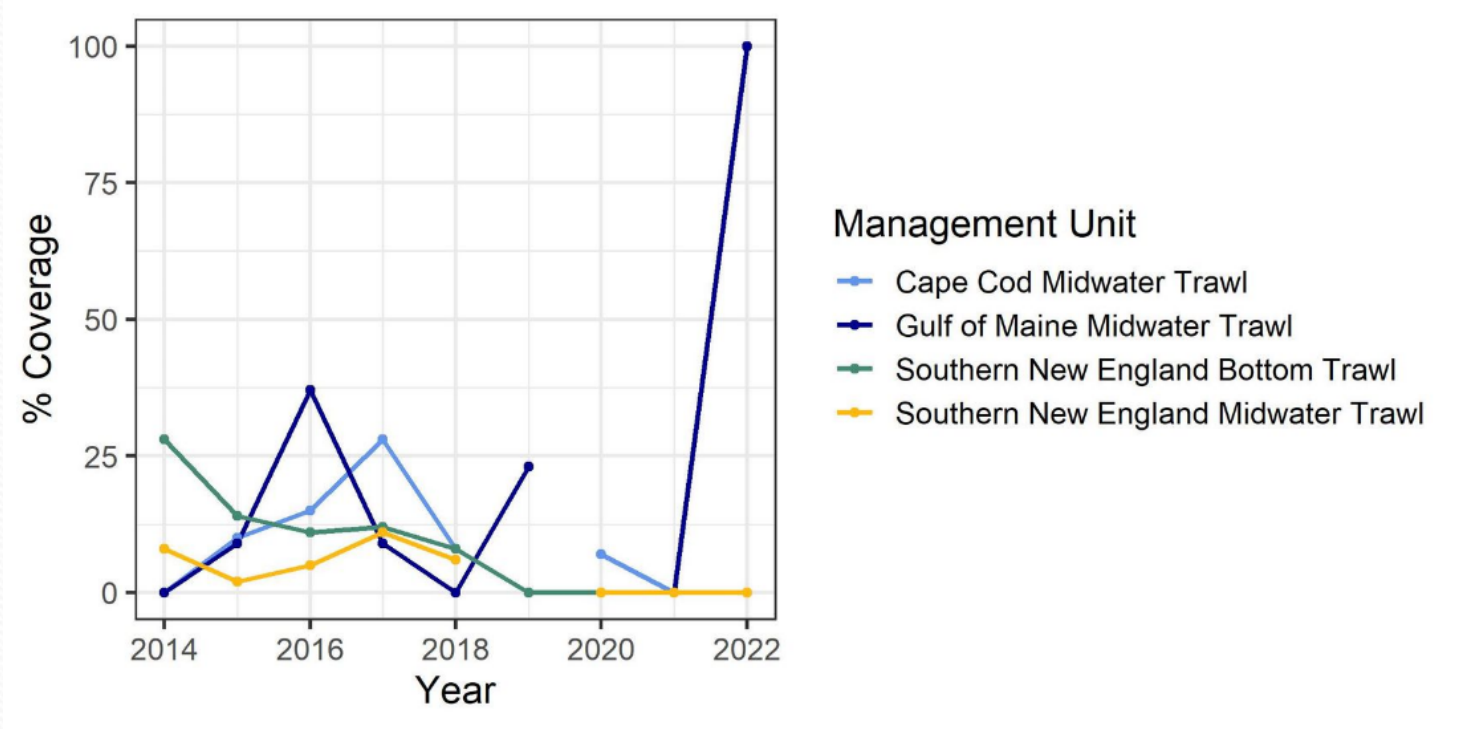
Summary of Conclusions

E. **Observer Coverage (Northeast Fisheries Science Center/Fisheries Monitoring Operations):**

- **COVID-19 Waivers**: In March 2020, a general waiver for observer coverage was issued to all Northeast vessels and was in place until August 2020, in response to the COVID-19 global pandemic. After August 2020, vessels were issued situational waivers which ended in June 2022.
- **Prioritized Coverage**: In 2021, observer service providers were instructed to prioritize trips depending on trip type, with Industry Funded Monitoring trips being the lowest priority, due to the ongoing challenges to accomplishing the federal Standardized Bycatch Reporting Methodology (SBRM) coverage. This prioritization ended with the start of the 2022 SBRM year in April 2022.
- **Industry Funded Monitoring Delayed Implementation:** The implementation of the IFM program was originally scheduled for April 2020, but was delayed until July 2021 due to the challenges of training new IFM observers during the beginning of the pandemic. Retention of observers is an ongoing challenge for the observer program and was only amplified by the pandemic. The recruitment and attrition rate have nearly matched over the last few years, making it difficult to maintain a cadre of available observers. Additionally, a lack of experienced observers trained in specialized gear fisheries, like herring, makes it difficult to cover these fleets.

Summary of Conclusions

Percent observer coverage of Atlantic herring trips qualifying for RH/S catch caps



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River Herring & Shad

Goal: Discuss the Plan Development Team's analysis of factors contributing to the low 2020-2022 river herring and shad catch estimates in the Atlantic herring fishery.

Key Discussion Question: Do you have any questions or additional considerations for the PDT?

Possible Outcome: Discussion/Tasking motions

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Amendment 8: Inshore Midwater Trawl Closure

Purpose

Receive summary of issues

Discuss next steps

Documents

5a – Review of A8 Case, GARFO Staff

5b – Opinion, US District Court of MA, Dkt No. 47

5c – Judgement, US District Court of MA, Dkt No. 50

5d – Background: Amendment 8

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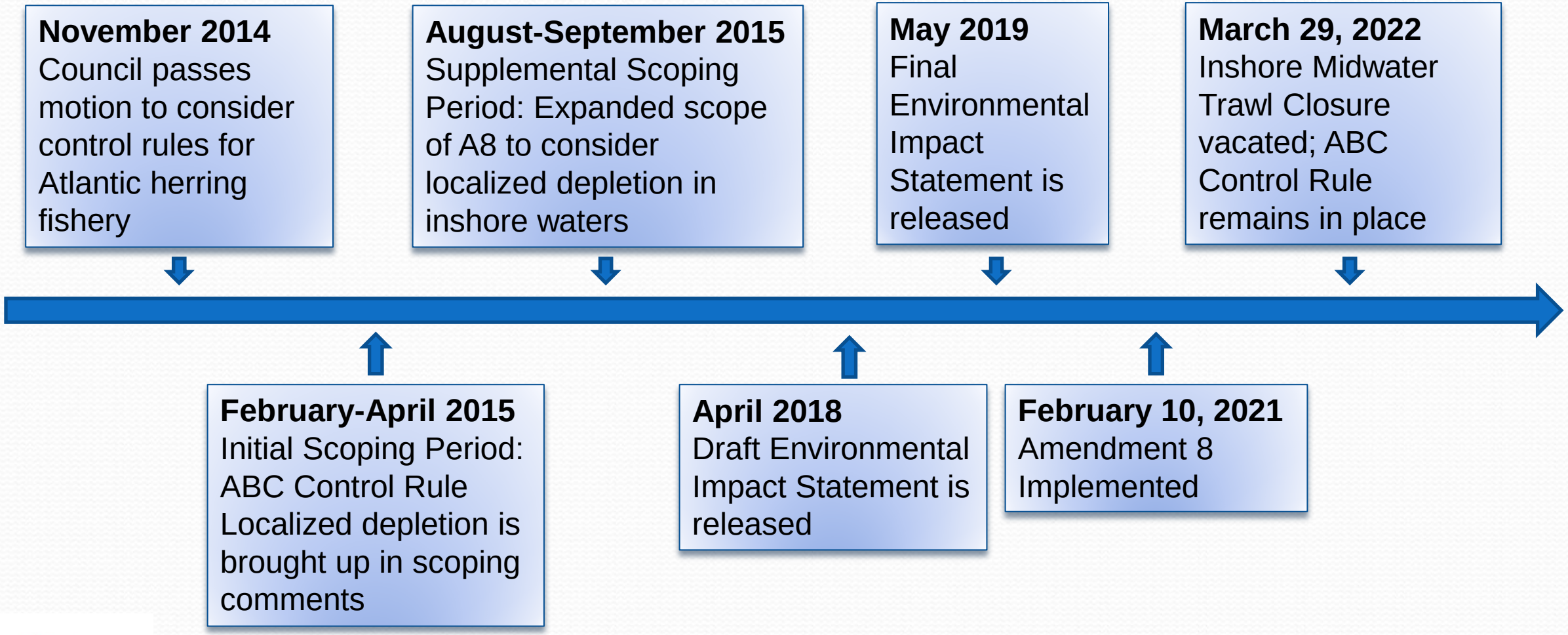
Amendment 8 Background



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Amendment 8 Background

Goals of Amendment 8 to the Herring FMP:

1. To account for the role of Atlantic herring within the ecosystem, including its role as forage.
2. To stabilize the fishery at a level designed to achieve optimum yield.
3. **To address localized depletion in inshore waters.**

Localized Depletion: When harvesting takes more fish than can be replaced either locally or through fish migrating into the catch area within a given time period.

--*Amendment 8 Final Environmental Impact Statement, May 2019*

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A8 Inshore Midwater Trawl Closure

- 12-mile buffer zone from RI to US/Canada border; 20-mile buffer east of Cape Cod
- Prohibits vessels from "using, deploying, or fishing with midwater trawl gear" within restricted area
  - Short-duration, high volume herring removals
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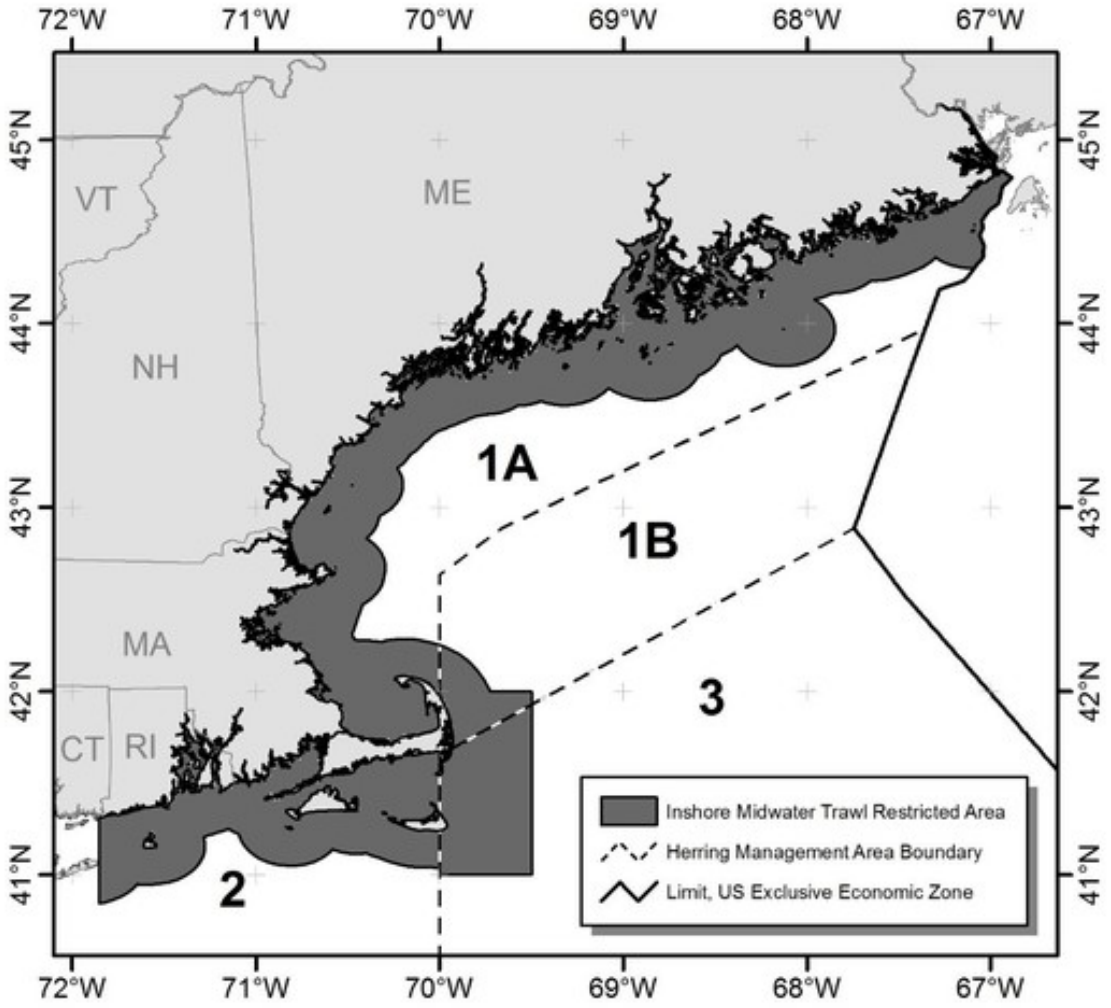

Image: NOAA Fisheries

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A8 Inshore Midwater Trawl Closure

PDT task: provide data and analyses to support the development of a problem statement and related measures in Amendment 8 regarding localized depletion of Atlantic herring.

Conducted several analyses, including:

- Identified forage needs
- Mapped herring, herring predator fisheries (overlap analysis)
- Evaluated inshore fishing effort
- Examined correlations between herring/predator catches
- Examined potential impacts of MWT area closures
- Examined cod/herring predator/prey relationship in Ipswich Bay

Additional Information: Amendment 8 FEIS Volume II: Appendices

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A8 Inshore Midwater Trawl Closure

MWT Closure vacated March 29, 2022 in US District Court of MA

From Review of A8 Exclusion Area Case—GARFO Staff (Doc 5a)

1. The Court found that the Exclusion Area rationale was not factually based.
   - No clear spatial or temporal definition of localized depletion
   - No Scientific basis
     - Catch information didn't support localized depletion
     - Overlap analysis didn't link MWT vessels and localized depletion
     - Anecdotal evidence insufficient to bridge lack of evidence

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A8 Inshore Midwater Trawl Closure

2. Scope of action was too broad; adverse effects on MWT fleet were too severe compared to potential benefits

3. Measure didn't comply with MSA National Standard 4 requirement that allocative measures must be reasonably calculated to promote conservation (partially because of speculative biological benefits)

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A8 Inshore Midwater Trawl Closure

- PDT received presentation from Mitch McDonald, NOAA General Counsel, at March 8, 2023 meeting
- Opportunity for clarifying questions, not much substantive PDT discussion
- PDT waiting for guidance from Committee re: next steps

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A8 Inshore Midwater Trawl Closure

Goal: Receive a summary of issues and discussion of next steps.

Key Discussion Question: What should the next steps be?

Possible Outcome: Discussion/motions

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Other Business

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