



**NOAA
FISHERIES**

Northeast
Fisheries Science
Center



1. Correspondence/Reports (September 15-17, 2026)

#9

Atlantic Mackerel and Atlantic Herring Cooperative Research Initiatives

Dr. Anna Mercer
Cooperative Research Branch Chief
Narragansett Laboratory Director
Northeast Fisheries Science Center
Narragansett, RI



Q



Q



Q

[Find A Species](#) [Fishing & Seafood](#) [Protecting Marine Life](#) [Environment](#) [Regions](#) [Resources & Services](#) [About Us](#)

NOAA Fisheries Announces \$2.3 Million to Study Atlantic Mackerel with the Northeast Fishing Industry

NOAA Fisheries is partnering with the Northeast fishing industry to collect management-relevant data on mackerel population dynamics using advanced technology.

Feature Story | New England/Mid-Atlantic



> Cooperative Research in the Northeast

FEATURE STORY

Animals

Pacific Islands, Southeast,
West Coast, National

Charting the Future of Fisheries-Independent Ecosystems

Alaska, New England/Mid-Atlantic,
West Coast

Advancing Agency-Level Reforms

Competitiveness
Alaska, New England/Mid-Atlantic,
Pacific Islands, Southeast

The project will engage more than 50 fishing vessels to collect and analyze data to improve our understanding of the Atlantic mackerel stock. Fishing vessels will be involved in:

- Developing acoustics technologies to detect and quantify mackerel, including active acoustics
- Collecting mackerel samples for biological analysis
- Tagging mackerel to understand movement between US and Canadian waters
- Participating in mackerel egg surveys to better understand spawning
- Developing and testing hypotheses about the ecosystem drivers of mackerel

This research initiative builds upon the [Northeast Fisheries Science Center's 20-year model of success with cooperative research](#). This research includes working with the fishing industry to identify research needs, collect data, and support sustainable management of resource species.

"Cooperative research is critical because it brings to bear the combined knowledge of fishermen and scientists. This allows us to make smarter management decisions," explained NOAA Fisheries Assistant Administrator Eugenio Piñeiro Soler.

Atlantic Mackerel Cooperative Research Initiative

This industry-driven initiative is a two-year collaborative effort between scientists and the fishing industry. It will address uncertainties about Atlantic mackerel population dynamics and biomass estimates to help improve our understanding of the stock.

New England/Mid-Atlantic

On This Page

- Request for Proposals!
- Overview
- Initiative's Five Research Elements
- Data
- Funding Source
- Contact
- Partners and Collaborators
- More Information



Atlantic mackerel are a migratory, pelagic fish that support valuable commercial and recreational fisheries in our region.
Credit: NOAA Fisheries/Andy Jones

Overview

We are partnering with members of our region's fishing industry to learn more about [Atlantic mackerel](#) and address uncertainties in population dynamics and biomass estimates. This work will help improve our understanding of the stock, which is managed by the Mid-Atlantic Fishery Management Council.

We will work with the captains and crew of more than 50 fishing vessels to collect and analyze data from five research elements. Together we'll:

- Develop active acoustic technologies to detect and quantify mackerel
- Collect mackerel samples for biological analysis
- Tag mackerel to understand movement between U.S. and Canadian waters
- Conduct mackerel egg surveys to better understand spawning
- Develop and test hypotheses about the ecosystem drivers of mackerel

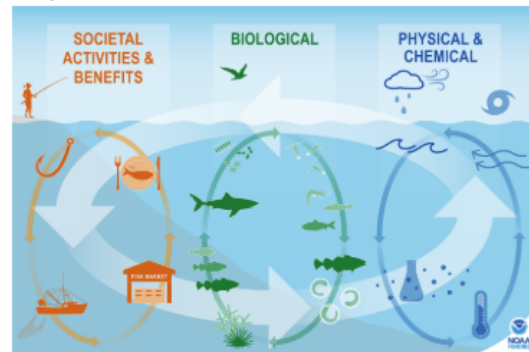
Atlantic mackerel are migratory, pelagic fish that support valuable commercial and recreational fisheries in our region. They also contribute to healthy marine ecosystems. They eat plankton and krill and become rich, fatty prey that supports larger predators like whales, seabirds, and commercially prized fish like Atlantic bluefin tuna and North Atlantic swordfish.

Mackerel on the Move: Cooperative Research Investigates Atlantic Mackerel Abundance Under Changing Ocean Conditions

Changing conditions are more than an oceanographic curiosity—they're reshaping where fish are found and when fishermen encounter them.

Feature Story | New England/Mid-Atlantic

Cooperative Research to Solve the Puzzle



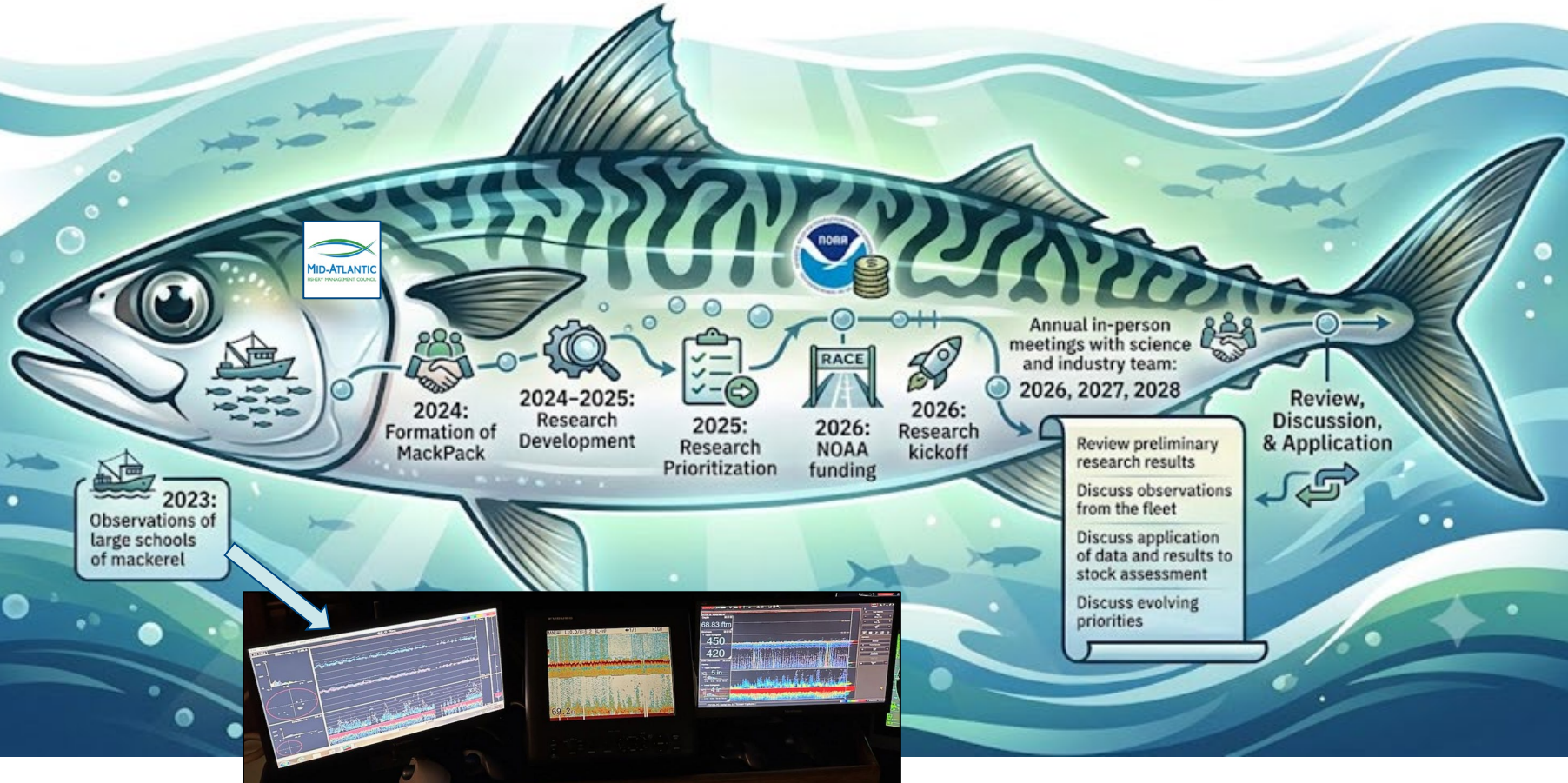
Multiple system drivers influence the quality and distribution of habitat in the ocean, which affects the amount and diversity of fish in the ocean. Combined with multiple social and economic drivers, this influences the fishing opportunities and the seafood, recreation, and other services we derive from the ocean. Credit: NOAA Fisheries

NOAA Fisheries is supporting multiple collaborative research programs to answer these questions—and more. We recently launched a [\\$2.3 million cooperative research initiative](#) that will engage more than 50 fishing vessels to improve our understanding of the Atlantic mackerel stock.

Fishermen will work alongside researchers to:

- Develop new survey tools and technologies that improve estimates of stock abundance
- Quantify mackerel movement between Northeastern U.S. and Canadian waters
- Evaluate mackerel spawning seasonality
- Collect and analyze data to reduce uncertainty in future stock assessments

Collaboration from Inception to Implementation...



Research Goals

- Advance our understanding of Atlantic mackerel population dynamics through collaborative research partnerships between the scientific and fishing communities.
- Apply this understanding in future stock assessments and other scientific products supporting fisheries management.



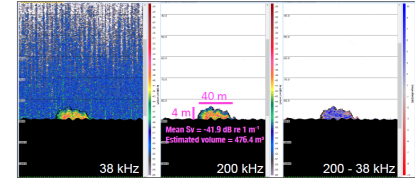
Holy mackerel! I have never been studied so thoroughly!



Research Elements

Element 1: Acoustic Detection

Develop new tools for quantifying mackerel biomass using advanced acoustic technologies and analytical methods



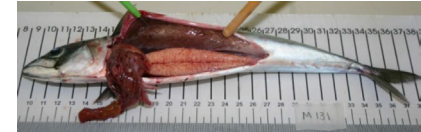
Element 2: Egg Survey

Assess uncertainties and sensitivities in the Atlantic mackerel egg index



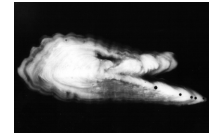
Element 3: Spawning Seasonality

Characterize the spawning seasonality of Atlantic mackerel on the US continental shelf



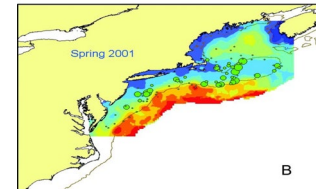
Element 4: Movement and Mixing

Characterize movement and mixing of Atlantic mackerel, with focus on movement between US and Canadian waters



Element 5: Ecosystem Drivers

Advancing understanding of ecosystem drivers of Atlantic mackerel



Research Element 1: Acoustic Detection

Objective: Develop new tools for quantifying mackerel biomass using advanced acoustic technologies and analytical methods

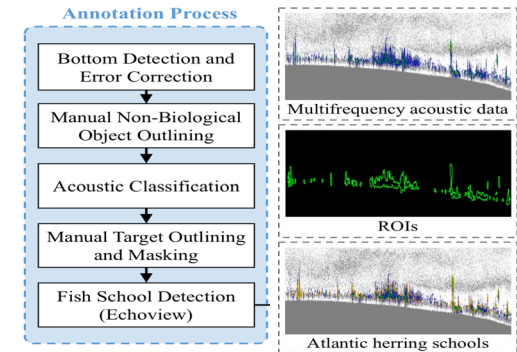
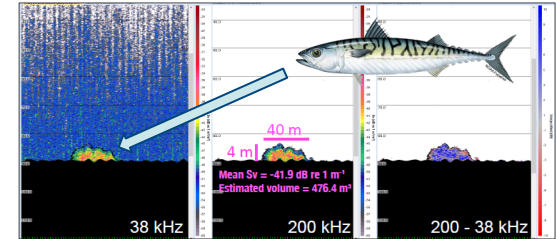
Science Team: Mike Jech, Conor McManus, Jason Morson, Jeff Pessutti, Katie Viducic, Anna Mercer, Kiersten Curti (NEFSC Advanced Technology, Cooperative Research, Population Dynamics)

Methods:

- Calibrate echosounders on 5 fishing vessels
- Measurements of Atlantic mackerel backscatter, trawl catch, and biological data during:
 - Opportunistic fishing operations
 - 12 days of dedicated research aboard a commercial F/V in winter/spring 2027 and 2028,
- Analyze acoustic and biological data using advanced analytics (e.g., machine learning)

Expected Outcomes:

- Echo classification of Atlantic mackerel
- Estimates of local mackerel biomass
- Comparisons to other biomass estimates



Soliciting applications for collaboration from F/Vs until 9/18!

Research Element 2: Egg Survey

Objective: Assess uncertainties and sensitivities in the Atlantic mackerel egg index

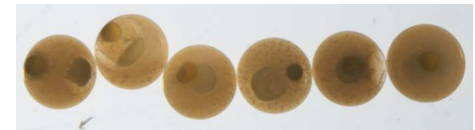
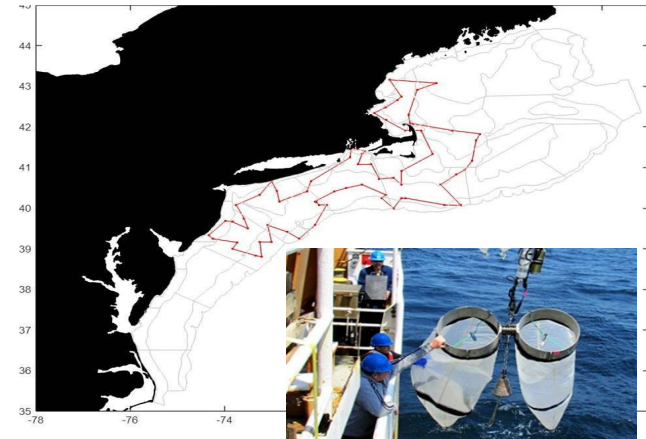
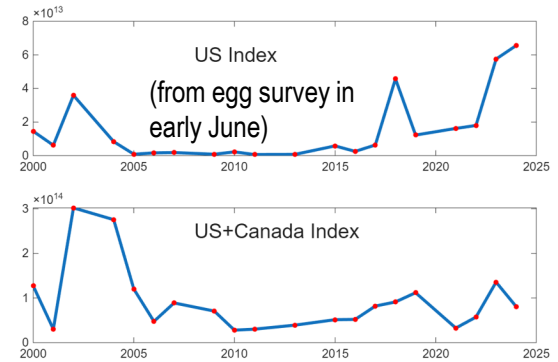
Science Team: Dave Richardson, Harvey Walsh, Katey Marancik, Olivia Robson, Amanda Jacobsen, Anna Mercer, Kiersten Curti (NEFSC Oceanography, Cooperative Research, Population Dynamics)

Methods:

- Implement an early-May egg survey on a fishing vessel using bongo nets paired with oceanographic measurements
- Process plankton samples and count and stage mackerel eggs
- Calculate early-May egg index and compare to the standard late-May/early-June egg index from ECOMON

Expected Outcomes:

- Demonstrate feasibility of mackerel egg sampling on an F/V
- Better understand the timing of the long-term egg survey relative to the timing of peak mackerel spawning into the U.S.
- If the egg production estimates from two surveys are notably different, update the spawning seasonality function in the long-term mackerel egg index
- Improve accuracy of Atlantic mackerel egg production estimates



Research Element 3: Spawning Seasonality

Objective: Characterize the spawning seasonality of Atlantic mackerel on the US continental shelf

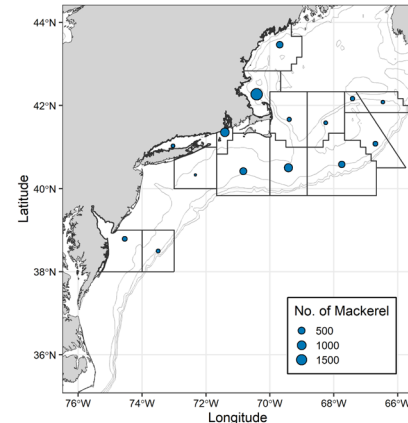
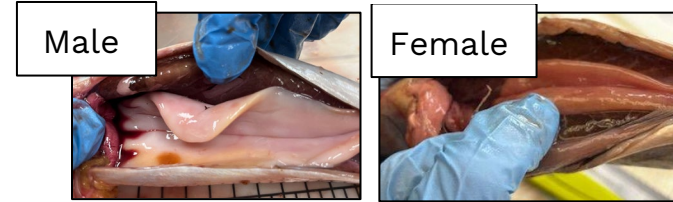
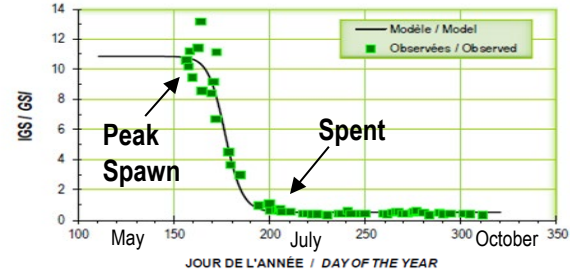
Science Team: Sarah Salois, Katie Viducic, Katie Burchard, Heather Soulen, Ar Mercer, Mark Wuenschel, Katie Rogers, Sandy Sutherland, Kiersten Curti (NEFS Cooperative Research, Population Biology, Population Dynamics)

Methods: SPAM - Sampling Program for Atlantic Mackerel!

- Weekly collection of Atlantic mackerel by a fleet of industry and research partners from March 2026 to July 2028
- Dissection and analysis of Atlantic mackerel for weight, length, sex, maturity stage, gonad weight, and age
- Calculate Gonadosomatic index (GSI) through the year

Expected Outcomes:

- Characterize when and where mackerel spawn in US waters
- Assess temporal alignment of mackerel spawning activity with the term mackerel egg survey
- Estimate annual mackerel egg production for the stock assessment
- Improve understanding of mackerel reproductive dynamics



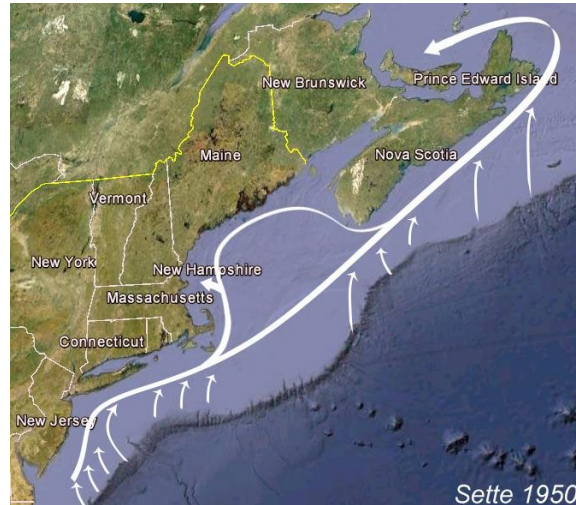
Research Element 4: Movement and Mixing

Objective: Characterize movement and mixing of Atlantic mackerel, with focus on movement between U.S. and Canadian waters

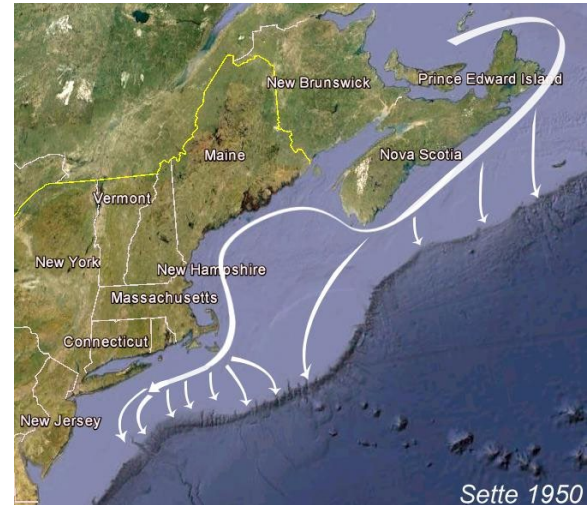
Methods:

- Tagging
- Otolith Microchemistry

Spring Migration



Fall Migration



Research Element 4: Movement and Mixing - Tagging

Objectives: Determine whether mackerel that spawn in U.S. waters move into Canadian waters and whether mackerel return to the same spawning site

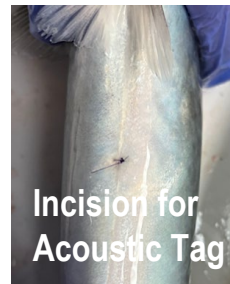
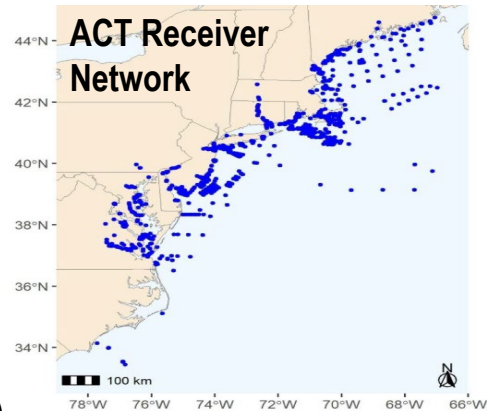
Science Team: Jason Morson, Conor McManus, Dave Richardson, Katie Viducic, Anna Mercer, Kiersten Curti (NEFSC Cooperative Research, Advanced Technology, Oceanography, Population Dynamics); Robert Lennox (Dalhousie University)

Methods:

- Tag adult (>12 inch) mackerel in the Gulf of Maine and Southern New England during May-June 2027 spawning season
- Verify spawning condition using untagged fish
- Track movement using US and Canadian acoustic arrays

Expected Outcomes:

- Estimate movement of tagged mackerel between US and Canadian waters
- Identify if mackerel return to the same spawning site year after year (natal homing)



Research Element 4: Movement Mixing - Otolith Microchemistry

Objectives: Characterize the mixed stock composition of Atlantic mackerel in the U.S. fishery and natal homing behavior

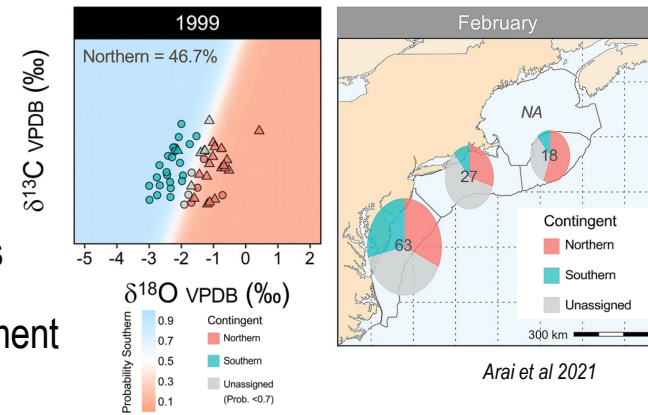
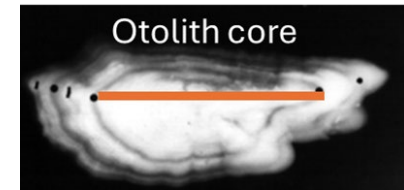
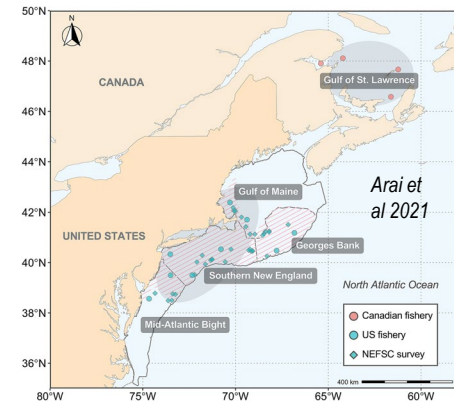
Science Team: Lisa Kerr (UMaine), Kiersten Curti, Dave Richardson, Anna Mercer, Sandy Sutherland (NEFSC Population Dynamics, Cooperative Research, Oceanography, Population Biology)

Methods:

- Otolith collection and preparation
 - Baseline (U.S. & Canada) and mixed stock fishery samples
 - Age-0 and spawning mackerel (U.S. and Canada)
- Otolith analysis and stock assignment
 - Stable isotope ratios ($\delta^{13}\text{C}$ and $\delta^{18}\text{O}$) of otolith cores
 - Classification of northern, southern individuals
- Application of mixed stock composition information
 - Reevaluate catch and the interpretation of indices

Expected Outcomes:

- Improved understanding of stock composition of mackerel in U.S. waters
- Improved understanding of natal homing of mackerel
- Advanced integration of stock mixing in stock assessment and management



Research Element 5: Ecosystem Drivers

Objective: Advance understanding of ecosystem drivers of Atlantic mackerel

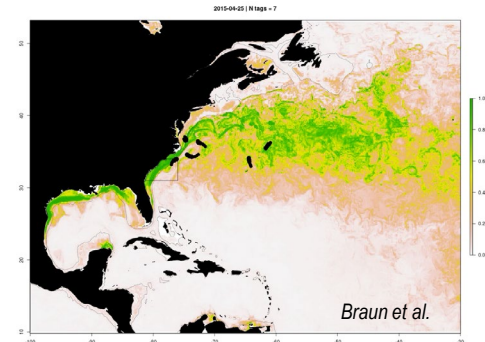
Science Team: Camrin Braun, Laura McDonnell, Nima Farchadi (WHOI), Anna Mercer, Kiersten Curti, Kim Hyde, Abby Tyrell, Sarah Salois (NEFSC Cooperative Research, Population Dynamics, Ecosystem Dynamics)

Methods:

- Co-develop hypotheses about the ecosystem drivers of Atlantic mackerel distribution and abundance
- Quantify how oceanographic dynamics influence distribution and availability
- Develop a Mackerel Ecosystem Socioeconomic Profile (ESP)

Expected Outcomes:

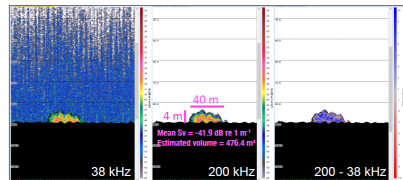
- A dynamic, process-informed species distribution model for Atlantic mackerel
- Environmental indicators relevant to stock assessment management



Collaboration Opportunities



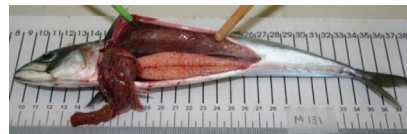
Element 1: Acoustic Detection *Apply Now! Open until September 18th!*
Develop new tools for quantifying mackerel biomass using advanced acoustic technologies and analytical methods



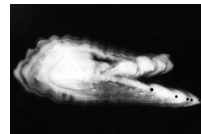
Element 2: Egg Survey *Spring 2027*
Assess uncertainties and sensitivities in the Atlantic mackerel egg index



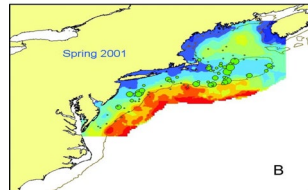
Element 3: Spawning Seasonality *Ongoing opportunities!*
Characterize the spawning seasonality of Atlantic mackerel on the US continental shelf



Element 4: Movement and Mixing *Spring 2027*
Characterize movement and mixing of Atlantic mackerel, with focus on movement between US and Canadian waters



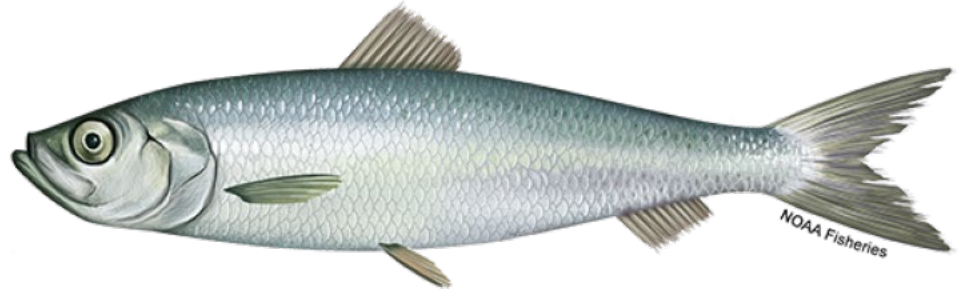
Element 5: Ecosystem Drivers *Ongoing opportunities!*
Advancing understanding of ecosystem drivers of Atlantic mackerel



Contact Me: Anna Mercer, anna.mercer@noaa.gov

Atlantic Herring Cooperative Research Initiative

Study me next!



Atlantic Herring Cooperative Research Initiative

Goal: Collaboratively develop a cooperative research plan for Atlantic herring

Approach:

- 2027 Atlantic herring workshop series
 - Bring together members of the Atlantic herring fishing industry, scientists, and managers to share observations, identify research needs, and develop an actionable cooperative research plan to improve understanding of Atlantic herring
 - *Seeking partnership to organize these workshops!*
- This effort will be modeled on the approach applied for Atlantic mackerel

Study me next!



Thank You!

- Andrew Dangelo, F/V Maridee
- Bilbo Callaway, F/V M.F. HY GRADER
- Birch Brennan, The Town Dock
- Bill Bright, F/V Retriever
- Camrin Braun, WHOI
- Dan Dean, F/V SeaCraft
- David Axelsson, F/V Dyrsten
- David Goethel, F/V Ellen Diane Too
- Erik Hicks, F/V Rayda Cheramie
- Gabe Folan, F/V Reel Irish
- Gerry O'Neill, F/V Endeavor
- Glenn Goodwin, F/V Buckeye
- Helger Cabral
- Jack Patrican, F/V Far Floater
- Jason Didden, MAMFC
- Jason Sawyer, F/V Cody
- Joe Letourneau, F/V Lady Rebecca
- Katie Almeida, The Town Dock
- Kelly Smith, F/V C-Devil II
- Laura McDonnell, WHOI
- Lisa Kerr, University of Maine
- Lund's Fisheries Inc.
- Malcolm McClintock, F/V Bulldog
- Mark Phillips, F/V Prevail
- Mary Beth Tooley, O'Hara Corporation
- Matt Wright Trucking
- Meghan Lapp, Seafreeze Ltd.
- Mike Pratt, F/V Perfect C's
- Nate Phillips, F/V Illusion
- Nima Farchadi, WHOI
- Noah Roebuck, fisherman
- North Atlantic Pacific Seafood
- Patrick Quinn, F/V Retriever
- Phil Ruhle, F/V Persistence
- Red's Best
- Richard Chatowsky, F/V Drifter
- Rick Bellavance, F/V Priority Too
- Rob Taylor, F/V Reel Ez
- Robert Ruhle, F/V Darana R, NEAMAP
- Robert Savino, F/V C J Victoria
- Rory Mullen, F/V Enterprise
- Ryan Raber, F/V Providian
- Shane Kissel, F/V Osprey
- Stefan Axelsson, F/V Dyrsten
- Tom DePersia, F/V BigFish
- Tom Smith, F/V Sea Wolf
- Troy Sawyer, F/V Debbie Sue
- Amanda Jacobsen, NEFSC, Oceanography
- Andy Jones, NEFSC, Cooperative Research
- Catherine Foley, NEFSC, Ecosystem Surveys
- Conor McManus, NEFSC, Advanced Technology
- Dave Richardson, NEFSC, Oceanography
- Harvey Walsh, NEFSC, Oceanography
- Heather Soulen, NEFSC, Cooperative Research
- Jason Morson, NEFSC, Cooperative Research
- Jeff Pessutti, NEFSC, Cooperative Research
- Katey Marancik, NEFSC, Oceanography
- Katie Burchard, NEFSC, Cooperative Research
- Katie Rogers, NEFSC, Population Biology
- Kiersten Curti, NEFSC, Population Dynamics
- Mark Wuenschel, NEFSC, Population Biology
- Maura Flynn, NEFSC, Cooperative Research
- Mike Jech, NEFSC, Advanced Technology
- Olivia Robson, NEFSC, Oceanography
- Sandy Sutherland, NEFSC, Population Biology
- Sarah Salois, NEFSC, Cooperative Research

Contact Me!

Anna Mercer

anna.mercer@noaa.gov

