

2021 Atlantic Cod Stock Management Workshop Series
Workshop #4:
Gathering Recreational Perspectives
September 9, 2021

WORKSHOP BACKGROUND AND OVERVIEW

In 2020, a report by the Atlantic Cod Stock Structure Working Group (ACSSWG) concluded that the population structure of Atlantic Cod in New England waters consists of **five distinct biological stocks, instead of the two that are currently managed**. This conclusion requires a re-thinking of the current science and management approaches to the fishery. In this effort, the New England Fishery Management Council (NEFMC), NOAA's Northeast Fisheries Science Center (NEFSC), and NH Sea Grant, is hosting a series of Atlantic Cod Stock Structure Workshops to focus on **(a) Science/Assessment Prospects** and **(b) Management**. Each workshop features presentations by technical experts followed by discussions open to the public to ensure complete information is available to best inform the cod stock assessment process.

The Management workshop series continues to build on the previous Science/Assessment workshops and serves as a bridge from the past to current understanding of cod population structure. The workshops aim to combine expert and public opinion that will best inform the Research Track for potential changes to management measures. The fourth workshop had the following **objectives**:

- Examine recreational data needs to inform management under the new Atlantic cod stock structure.
- Discuss and define both available and potential management tools that could be used to manage Atlantic cod differently under a new biological stock structure.
- Share advantages and disadvantages of management options.

This summary report focuses on the presentations and resulting discussions among workshop participants. The agenda is found in Appendix A and presentation slides are available online: <https://seagrant.unh.edu/2021-atlantic-cod-stock-workshops>

ATTENDANCE

The virtual (Zoom) workshop was attended by 50 people (Appendix B). Participant backgrounds included a broad range of expertise in fisheries science and management including representatives from state and federal agencies, non-profit environmental organizations, academic researchers, and members of the commercial and recreational fishing industries. An initial poll indicated that 54% of respondents attended the previous Cod Structure Science/Assessment Prospects Workshops in June, 46% did not.

A second poll characterized the affiliations of workshop attendees into some general categories. Representation was identified from fishermen's organizations (11%), scientific researchers (31%), NOAA and NEFMC staff (31%), state government agencies (11%), recreational and commercial fishermen (11%), and other interested parties (3%).

Introductory Presentations

Presentation – Workshop Introduction, Erik Chapman, New Hampshire Sea Grant (NHSG)

- This workshop series is a continuation of the Atlantic Cod Stock Structure Working Group's (ACSSWG) findings that were presented in two NH Sea Grant facilitated workshops in 2018 and 2019.
- The current Management workshop series will occur throughout August-September and build off of the previous Science/Assessment Prospects workshops that took place in June. Together, these discussions will be summarized and reported to the Research Track.
- In the first management workshop, we set the stage by briefly reviewing the previous Science/Assessment workshop series before discussing the current cod management system.
- In the August 17 workshop, participants voted for options from a list of management tools to guide discussions around Southern New England (SNE) and Georges Bank (GB) areas. They included:
 1. Spawning closures
 2. Gear options
 3. Additional trip reporting
- In the most recent workshop (Thursday, August 19), participants voted for options from a list of management tools to guide discussions around Gulf of Maine East (eGoM) and West (wGoM) areas. They included:
 1. Monitoring requirements for fisheries by subpopulation
 2. Reference points defined first by subpopulation
 3. Additional spawning closures for fisheries - with multiple components
- Today, we will continue onto the recreational fishery to review current management systems in place, stock assessment approaches, and available tools to better understand the feasibility of management for each proposed stock area.

Presentation – Goals and Objectives of the Management Workshops, Jamie Cournane (NEFMC)

- Due to the 2020 work of the Atlantic Cod Stock Structure Working Group (ACSSWG), we now understand there are five distinct biological stocks instead of the two that are currently managed. Given that, we are engaged in this workshop series to discuss management options.
- These current workshops will bridge the two-prong approach between the science and management. The objective is to gather input from participants on potential management changes along with their socioeconomic consequences.
- These discussions will be shared with the Council and the Research Track Working Group that is currently forming and they will review these reports over the next year or so.
- The workshops will not be scoping specific management actions or making formal recommendations. They are a platform for discussions and gathering different perspectives.

Presentation – Understanding the Recreational Data to Inform Management, Scott Steinback and Charles Perretti (NMFS, NEFSC)

There are currently two sources of recreational data:

1. Marine Recreational Information Program (MRIP)
 - Landing and discard estimates are acquired from a variety of anglers through surveys and partnerships with all coastal states. Catch data from North of the Cape Cod is considered GoM and South of the Cape is GB.
 - MRIP intercept sites provide the best possible location estimates but also require some assumptions. For example, in Massachusetts, it is complicated to assign landed catch to the adjacent stock areas.
 - MRIP protocol suggests Percent Standard Error (PSE) should be kept below 0.3 and anything greater than 0.5 is of serious concern for accuracy.
 - Overall, the GoM stock take-level estimates ($PSE < 0.3$) are considered adequate for assessment and support use at an annual scale. GB estimates ($PSE \geq 0.5$) often reflect significant uncertainty and are overly dependent on SNE data.

2. Data for Recreational Management
 - MRIP surveys households, for-hire vessels, and various private anglers at random for detailed fishing reports.
 - Together, these sources are used to produce annual mortality estimates (landings + discards) that can be broken up by stock and/or wave (2-month period) but this comes with an increased risk of uncertainty as data is further divided. Many states are limited by seasonal sampling like Maine (6 months) and New Hampshire (8 months).
 - To develop recreational management measures for the GB cod stock, the MRIP mortality is used to produce a catch estimate which is compared to the catch target. If catch exceeds target (rare), historical data is used to predict which management measure might affect mortality. Typically, this is a reactive approach.
 - To develop recreational management measures for the GoM cod stock, MRIP mortality and effort is combined with some available biological data into a bioecological model (since 2013) for more accurate projections of mortality that account for angler behavior and multi-species interactions (cod and haddock). This is a slightly more proactive approach but has certain limitations (i.e., numbers-at-age estimates, incomplete data, mis-specified angler behavior).
 - The GOM cod catch estimate is limited by strong dependencies on certain inshore regions and seasons within management areas. The GB cod estimate is overly dependent on SNE for data input. Similarly, there is very little catch in eGoM.

Participant Q&A

- A fishermen's representative asked: how do managers arrive at PSEs for GoM and GB management areas considering MRIP numbers are released by state? How do you think Massachusetts would be affected by the ad hoc analysis method to delineate stocks North and South of the Cape?
 - Scott Steinback explained that the catch allocation approach between stock areas was developed by the NEFSC as a separate analysis tool, not by MRIP. The delineation North

and South of the Cape Cod is completed during the assessment process and the practice is especially relevant in Massachusetts because it greatly reduces sample size and increases uncertainty.

- A participant commented on the PSE associated with GB assessment data. Based on the current MRIP structure, it does not seem realistic to generate PSEs below the proposed 0.3 optimal annual level. How would PSEs change under the proposed five stock model?
 - Scott Steinback explained that PSE by wave may be high but when expanded to annual, the increased data set allows for acceptable assessments. He has not yet speculated how data would fall out in proposed stock areas but the further division could make MRIP analyses impossible.

Presentation (continued) – Understanding the Recreational Data to Inform Management, Charles Perretti (NMFS, NEFSC)

How can MRIP data be used?

- MRIP data extends back to 1981 with generally high sample sizes until 2014 when fishing effort decreased resulting in lower sample sizes in recent years. Based on the current status, it is uncertain whether or not the length-age distributions, catch estimates, total biomass, etc. will be possible to generate if management areas are further divided.
- Once managers have a better idea regarding management area changes, we could more accurately consider how breaking up data will be reflected in the modeling estimates.

Participant Q&A

- A participant proposed that managers could offer a smart phone app or user-friendly website to more efficiently collect recreational data. The fishing community is always looking to be involved and provide information. Also, it should be noted that there is very little information for the inshore catch within 3 miles based on current survey design which is similar to issues in the flounder fishery. The accessibility to provide information might help with these concerns.
- Lisa Kerr (GMRI) asked: have we considered alternative techniques to pool catches in certain areas? Is there any additional allocation information that might be beneficial?
 - Charles Perretti responded that biological knowledge and data incorporation into practical management is the overall objective. The independent stocks with their unique dynamics are complex but we aim to achieve assessment more closely related to the species biology which may mean re-drawing lines somewhere between 2-5 statistical areas. Pooling catch is interesting and may help in certain situations but would require detailed validations to ensure that borrowing data across stocks is an acceptable approach.
- A fisheries biologist emphasized that when MRIP data is continuously split, sample sizes are reduced, and uncertainty increases. It seems unlikely that separating the MRIP data, under the current sampling design, into five independent stocks is possible.

- A participant reiterated the suggestion to develop a smartphone app or a more innovative data collection channel to better assess the recreational fishery. Other states already have efforts underway with varying success among species and the option deserves consideration for cod.
- A fishermen’s representative asked if simply adding more MRIP intercepts in SNE would improve some of the GB data needs. Could the additional funding be justified?
 - Scott Steinback answered that increased, targeted sampling would significantly help the assessment. If additional intercepts were determined to be a priority in GB, sampling rates could be increased at well-known cod catch locations. This strategy may reduce estimates for other locations where those data were being assigned but that could be addressed. Charles Perretti agreed that improved spatial and temporal sampling strategies would provide better estimates since much of the catch occurs during predictable, seasonal windows.
- A fishermen’s representative mentioned efforts to develop a smartphone app to collect additional cod data in other areas. The Mid-Atlantic tilefish fishery was cited as a recent example. Those tools let angler feel good about contributing, but can you confirm those data are useful?
 - Scott Steinback explained that tools such as smartphone apps, including the examples cited today (tilefish, red snapper), must undergo a data certification process by MRIP. Once the certification process is completed, the data can be used accurately in estimates.
 - Russel Brown (NOAA, NEFSC) commented that a representative sampling strategy is critical for accurate citizen data. If it is done properly, the information can be very useful but if not, it can actually bias data used in assessments.

Presentation – Atlantic Cod Stock Structure, Management Workshops- Overview, Linas Kenter (UNH)

- Key questions and discussion topics from the first three management workshops are provided to guide today’s recreational theme across management areas. Detailed summary reports can also be found on the NH Sea Grant website (<https://seagrant.unh.edu/2021-atlantic-cod-stock-workshops>)

Workshop 1- Setting the Groundwork:

- Management strategies may be area-specific, not overarching
- Altering boundaries is not strictly two or five management areas.
- How can an ongoing mixed stock analysis be implemented (cost, effectiveness)?
- Is “status quo” a viable option?
- How well can external factors (climate, wind energy) be incorporated into management decisions?
- Overall, all options are on the table and will be considered during the Research Track process.

Workshop 2- Gathering Regional Perspectives from SNE and GB (East & West):

Selected Discussion Topics:

1. Spawning closures
 2. Gear options
 3. Additional trip reporting
- Promising research is currently underway in SNE
 - Lessons learned from spawning closures (theory vs practice)
 - There is no universal gear type across proposed management areas
 - Recreational reporting requires improvements

Workshop 3 - Gathering Regional Perspectives from GoM (East & West):

Selected Discussion Topics:

1. Monitoring requirements for fisheries by subpopulation
 2. Reference points defined first by subpopulation
 3. Additional spawning closures for fisheries—with multiple components
- Mixed fisheries are complex but monitoring tools are available (otoliths, genetics)
 - Recreational reporting requires improvements

Presentation – Overview of Recreational Management Tools, Rick Bellavance (NEFMC)

- The most recent peer reviewed assessments for GOM and GB cod stocks were conducted in 2019 and concluded that stocks were overfished with overfishing still occurring.
- The rebuilding target plans fall within 2024-2026.
- Recreational management/assessment tools currently include bag limits, seasonal closures, size limits, spawning closures, for-hire reporting, MRIP, annual catch limit for GOM cod, and catch targets for GB cod

Participant Q&A

- Erik Chapman (NHSG) introduced the open discussion with some guiding questions:
 - How can stock boundary considerations potentially impact your fishing practices and/or your businesses?
 - What are some of the pros and cons that you foresee with the proposed five stock areas?
- A fishermen's representative proposed that the Council manage three stocks areas (GOM, SNE, and GB) since assigning the GoM Winter and Spring spawners will be too difficult for management. The GoM season could be slightly expanded and require anglers to use a reporting app or website. SNE and GB limits should remain the same but require them to contribute into assessments (MRIP and databases).

- A fisherman voiced concern that the for-hire fleet catch is underestimated while the overall recreational harvest (for-hire plus anglers) is over-estimated. Personal fishing records are significantly different compared to the entire state. This might be due to the mobile strategies of fleets that target the most active areas and can only be addressed through better reporting methods. Recreational fishermen could register for groundfish harvesting and be strategically monitored. Much of the on-board data is useful but unclear how consistently it is collected across states.
 - A second fisherman agreed and voiced a lack of confidence in recreational data collection in the for-hire sector. There are significant discrepancies between VTRs and overall catch which should be addressed to build confidence in the system before novel citizen data collection techniques are proposed.

- Rick Bellavance added that the for-hire fleet is currently under-utilized as a data-source, and a census reporting system could be considered to free up funding for additional intercepts. Fishermen need more confirmation that the data collected are being used. Additionally, if there are bag limit differences (1 vs 10 fish) across fine scale, imaginary boundary lines, this could lead to enforcement challenges. Bag limits in SNE are generous so they may not be affected but other boats would be tempted to make longer distance trips.
 - Lisa Kerr (GMRI) asked, what is your experience with the allocation of catch across area boundaries?
 - Rick Bellavance explained how boundaries are less impactful in southern states and in GB where less private angling occurs but starting in SNE (Massachusetts) the allocation gets complicated trying to choose a statistical area.

- A fisherman from Maine voiced concerns about how management measures focused on the species biology impact states differently within stock boundaries. For example, the brief spring (April) recreational season in GoM works to protect spawners off Massachusetts, but further north that's still too early for cod. If boundary lines are adjusted, temporal and spatial measures need to consider these seasonal differences among states.

- A participant commented that regardless of the management area, the target is to rebuild stocks by 2024. Based on all the presented available data and surveys, it is hard to see that trend occurring. If managers are not going to achieve that goal, then when/how will the new boundaries matter?
 - Jamie Cournane thanked participants for all the invaluable insight and noted that rebuilding concerns mentioned here will be a primary discussion topic at the upcoming Advisory Panel meetings and during the Research Track process.

Appendix A

**2021 Atlantic Cod Stock Structure
Management Workshop Series
Gathering Recreational Perspectives
September 9, 2021
2:00 PM – 4:00 PM**

Workshop Objectives:

- Examine recreational data needs to inform management under the new Atlantic cod stock structure.
- Discuss and define both available and potential management tools that could be used to manage Atlantic cod differently under a new biological stock structure.
- Share advantages and disadvantages of management options.

2:00 Welcome and Overview – NH Sea Grant and New England Fishery Management Council (NEFMC)

2:30 Understanding the Recreational Data to Inform Management – Northeast Fisheries Science Center (NEFSC)

- How the recreational data is currently used in management, including sources of uncertainty.
- Recreational data considerations for management under the new stock structure.

***Discussion:** How can recreational data inform management under the new stock structure?*

3:10 Considering Additional Fisheries Management Options & Tradeoffs

- What We've Heard in the Previous Three Workshops
- Brief Overview of Recreational Management Tools

***Discussion:** What happens **if** the stock boundaries are moved to be more in line with the new understanding of cod stock structure? How would this effect your fishing practices or businesses?*

3:55 Overview of Next Steps & Adjourn

Appendix B

Adrienne Kovach (UNH)
Alison Frey (UMass SMAST)
Allison Lorenc (Conservation Law Foundation)
Amanda Hart (UMass, SMAST)
Barry Gibson (Rec Fishing Alliance)
Charles Perretti (NMFS, NEFSC)
Cheri Patterson (NH Fish and Game)
Cole Carrano (UMass SMAST)
Daniel Mckiernan (MA DMF)
Dave Martins (MA DMF)
Erik Chapman (NH Sea Grant)
Frank Blount (Rec Advisory Panel, Chair)
Gabrielle Clardy (NOAA)
Geoffrey Smith (TNC)
Greg Ardini (NEFSC)
Jackie Odell (Northeast Seafood Coalition)
Jamie Cournane (NEFMC)
Janice Plante (NEFMC)
Jerelle Jesse (GMRI)
Jocelyn Runnebaum (TNC)
Keven Niland
Kyle Molton (NMFS, GARFO)
Laura Singer (Sambas Consulting LLC)
Linas Kenter (UNH)
Tom Nies (NEFMC)

Lisa Kerr (GMRI)
Lucy McGinnis (UMass SMAST)
Mark Alexander (NEFMC)
Mark Grant (NMFS)
Matt Gates (CT DEEP)
Megan Ware (DMR)
Micah Dean (Mass DMF)
Michael C. Plaia (Rec Advisory Panel)
Michelle Lemos (NH Sea Grant)
Mike Waive (ASA)
Moira Kelly (NMFS, GARFO)
Nathan Hermann (UNH)
Paul Nitschke (NEFSC)
Rebecca Peters (Maine DMR)
Rich McBride (NMFS, NEFSC)
Rick Bellavance (NEFMC)
Rip Cunningham
Robin Frede (NEFMC)
Roger Brothers (GMRI)
Russell Brown (NOAA, NEFSC)
Ryan Morse (NMFS, NEFSC)
Scott Olszewski (RI DMF)
Scott Steinback (NMFS, NEFSC)
Steven Cadrin (UMass, SMAST)