

2021 Atlantic Cod Stock Management Workshop Series
Workshop #2:
Gathering Regional Perspectives from Southern New England and Georges Bank
East & West

August 17, 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 serve 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 second workshop had the following **objectives**:

- Discuss and define available and potential management tools that could be used to manage Southern New England and Georges Bank East & West stocks differently to account for new understanding of biological stock structure.
- Share advantages and disadvantages of 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 57 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 73% of participants attended the previous Stock Management Workshop while 27% did not.

A second poll characterized the affiliations of workshop attendees into some general categories. Representation was identified from fishermen's organizations (15%), scientific researchers (30%), NOAA and NEFMC staff (25%), interested public (10%), and 20% distributed among other minority categories.

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 on the previous Science/Assessment workshops that took place in June. Together, these discussions will be summarized and reported to the NEFMC and the Research Track (timeline provided).
- In last Thursday's workshop (August 12), a summary of the Science/Assessment series was provided along with a detailed review of the current cod management system. A paper by Kerr et al. (<https://doi.org/10.1093/icesjms/fsw188>) was discussed as a reference for management tool options and relevant background for the upcoming workshops.
- The critical themes and questions from the first meeting:
 - Management strategies may be area-specific, not overarching
 - Management boundary decisions are not restricted to two or five units.
 - How can a mixed stock analysis be implemented into assessment (cost, effectiveness)?
 - Is "status quo" a viable option?
 - How well can external factors (climate, wind energy) be incorporated into management decisions?
- Today, starting with Southern New England (SNE) and Georges Bank (GB), we will begin 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)

- The peer reviewed results of the 2020 Atlantic Cod Stock Structure Working Group (ACSSWG) have led to an understanding that 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 workshops will bridge the two pronged 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 Research Track 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 – Sharing Examples from Other Fisheries, Jamie Cournane (NEFMC)

A pair of regional case studies for potential management consideration:

1. River herring (Alewife and Blueback) and shad are anadromous species with distinct populations that co-mingle outside of their respective spawning seasons. There is no coastwide assessment and they are currently managed together because of the difficulty of distinguishing them apart (i.e., co-catch fishery). This represents an example where managers know about aggregations with some biological information but not enough to discern between fish. In this case, gear types and harvest caps are set for area with associated penalties for exceeding quotas.
2. GB cod represents a fishery with a total allowable catch between the United States and Canada. Allocation happens each year for East and West management areas while still being considered a single stock. The quota can be transferred between areas if one goes unfilled under certain conditions but the frequency of those transfers has been declining over time.

Participant Q&A

- Is there a time constraint around when the GB transfer can occur within a season?
 - Jamie Cournane explained that a manager is able to request a one time, one way transfer from East to West because of a resource sharing agreement with Canada. The request goes to a regional administrator for approval.
 - A participant also cited Bering Sea and Aleutian Pacific cod as an example where time constraints are placed on the catch cap. Two stocks have been identified but they are managed as one and that fishery might provide an additional case study with the spatial and temporal components we are grappling with here.

Presentation – Understanding Existing Atlantic Cod Management in SNE/GB, Jamie Cournane (NEFMC)

- US cod are managed as part of the Northeast Multispecies (groundfish) Management Plan.
- Stock assessments take place every two years and currently indicate that GB is overfished with the Eastern portion (eGB) considered in “poor status.” The US and Canada convene to assess and inform managers to adjust quotas using a formulaic process. The final quota results are distributed for each country to apply their respective management plans, which are generally similar with some differences in gear and catch restrictions.
- The recreational fishery has no allocation but is subject to seasonal restrictions, habitat/spawning closures, trip limits, mandated reporting, and catch limits.

Participant Q&A

- An attendee representing the Canadian groundfish management confirmed that all the background information described in the presentations is accurate. A few more detailed comments were provided on eGB where cod is primarily a bycatch fishery. Canada applies different restrictions to fixed and mobile gear like mesh sizes and cod separator panels but cod catches are all currently low.

- A participant commented on the existence of a recreational catch cap for GB.
 - Jamie Cournane explained that it is referred to as a “catch target” in GB. We look at all assessment tools available for the recreational fishery and then examine what management measures will prevent exceeding the catch target but there is no consequence/punishment if that target is exceeded.
- While we consider the recreational theme, is it even realistic to start differentiating the recreational component for all of these areas? Is that concept even on the table?
 - Jamie Cournane emphasized that all options on the table and yes, recreational components will be considered for each area.
- A participant commented about the lack of “pay back” in the recreational fishery if the catch target is exceeded. This should be acknowledged and the measure should be considered in future years to prevent it from happening consistently. A second issue with the recreational assessment in SNE and GB is a reliance on Marine Recreational Information Program (MRIP) estimates of catch which are highly questionable. The statistical strength of these estimates for targeted management recommendations is weak and should only be considered at larger spatial scales where they are more applicable.

Presentation – Recent Research on SNE Cod, Steve Cadrin (SMAST)

- The Northeast Regional Cod Tagging Program (2001-09) and Massachusetts Marine Fisheries Institute Archival Tagging & Genetics studies (2007-11) were reviewed. Genetic studies that used tissue samples from spawning cod showed that SNE is a distinct population while recruitment studies (larval and trawl surveys) characterized the important spawning and nursery areas.
- NEFSC/SMAST/MADMF/TNC Cod Spawning Studies (2019-21) are currently applying additional techniques like hydrophone arrays, acoustic transmitters, and more tagging/tracking efforts. Gonad tissue sampling is occurring throughout the region. These results will demonstrate improved spawning site recognition including some regional spawning instances outside of Cox’s Ledge and multi-annual site fidelity.
- Finally, there is an additional project that will be examining the catch rates of multiple sectors to better summarize those data for use in assessments.

Participant Q&A

- Could you expand any more about that offshore spawning region? That’s very unique since SNE has always been best associated with Cox Ledge.
 - Steve Cadrin explained that yes, this was novel spawning information to SNE. After spawning, cod migrated towards the continental shelf but we weren’t originally aware of any spawning aggregations out there. The information is relatively low density (smaller aggregations) but cod with fully hydrated eggs are being found.

- A participant commented that these new data almost suggest a “sub population of a sub population.” This could be an added complexity with inshore and offshore spawning SNE cod but is very interesting.
- An attending fisherman provided some additional information about fishing on Cox Ledge (commercial and recreational). No one recreationally fishes there until July-August or during the spawning season because of dogfish bycatch. There used to be spawning aggregations well to the West of Cox during other times of the year when most fishing takes place out of RI. The fisherman offered to be contacted for additional information.
- A participant noted that our discussion today is the data deficiency in SNE based on current and historic trawl indices. There may be new data sources and/or approaches that are better fitted and informative. Is part of the management discussion going to be using more proactive research as well as the older, less informed trawl information?
 - Steve Cadrin explained that for SNE, managers don’t have the samples required for age composition compared to Gulf of Maine and other areas. SNE is a smaller scale fishery with overall less data availability and the offshore surveys don’t catch many fish because they don’t include Cox Ledge. The previous science workshops did demonstrate some data deficiencies but it would likely still be enough for a data limited assessment. Managers are hopeful that for-hire and commercial fleets will offer some additional data that can be applied in analytical models to determine how well it performs.
- A participant added that they have a species distribution model with a temporal component (1977-2019) showing increased habitat suitability on Nantucket shoals (East of Cox Ledge) for cod ichthyoplankton. They would be happy to share if interested and email provided: ryan.morse@noaa.gov
- It was noted that under the current management system, everything South of Cape Cod is attributed to GB but we are discussing sub dividing that into what we have identified as SNE. This would then represent cod being caught as far South as Virginia. Even though there is a peer reviewed analysis, no one is addressing this situation South of Montauk. It is important to note this difference since not everything will fit into “SNE.”
 - Steve Cadrin pointed out that during the ACSSWG, SNE was in fact proposed to include the entire mid-Atlantic resource despite its limited information. The regions may be different but based on best available data, they are best grouped with SNE.

Additional Open Discussion

The following list of management tools/options was presented to participants with the opportunity to add additional options that would be of interest. A poll was conducted to identify the three most popular topics that would be productive to discuss during the remaining workshop time.

Management Options/Tools:

- Additional spawning closures for fisheries

- Moving the western boundary line for the current US/Canada
- EGB cod management unit
- Changing trip limits/bag limits by fishery, area, and season
- Reallocation between areas and fisheries
- Additional trip reporting requirements for fisheries
- Gear options to catch or avoid cod

The top three discussion topics selected by participants:

1. Additional spawning closures for fisheries
2. Gear options to avoid or catch cod
3. Additional trip reporting requirements for fisheries

First Topic- Additional Spawning Closures

- Jamie Cournane opened the discussion and explained that these types of management closures require well-designed studies such as those discussed by Steve Cadrin, often paired with input from fishermen, to best inform managers. This information can be used to target specific habitats when and where cod are spawning, similar to the current measures in Mass Bay and Whaleback.
- A participant pointed out that spawning closures have been in place on GB for about four decades but during that time, stock status has not improved.
- Spawning closures are currently in practice and can show some promising results. Closures must be focused like the SNE examples off of Point Judith (Rhode Island). A lot of groundfish activity in SNE is focused on flounder so cod specific trips would be unique these days. The spawning closure concept has potential but it must incorporate these other fisheries in certain locations that aren't targeting cod. It can't be a mobile rolling closure.
- Protecting spawning components may be key to managing cod's biological stock structure. The misalignment of the current management approach with the true biological nature of the sub-populations could be inhibiting any other rebuilding efforts.
- The lessons learned from currently closed areas was raised by a participant. Is there ongoing research to assess effects of current closures? It was suggested that the science should be held accountable with ongoing feedback loops to management.
 - Lisa Kerr supported the value of spawning closures as a tool and acknowledged there are lessons to learn for assessment. Spawning closures are broadly effective tools if appropriately scaled with a catch quota in mind. They protect a sensitive life stage and

reduce mortality while fish are at a high density but science then needs to look at recruitment trends and survivorship, especially during changing ocean conditions.

- The questions was raised about the socioeconomic and effectiveness considerations for those most impacted by closures. Who is most impacted or restricted?
 - A participant asked when SNE/Cox ledge cod spawn and Steve Cadrin clarified that SNE cod are distinct winter spawners.
 - A spawning closure for SNE/Cox ledge would primarily effect the party boat fleet as there is nothing else to fish for except cod at that time of year.

Second Topic- Gear Option Considerations

- Erik Chapman offered that, in general, gear options can offer a “magic wand” that aid in species specificity. The benefit to management is that specific gear could allow the industry to access abundant fisheries while avoiding the overfished species.
- A key consideration is that some gear options that might work in GB will not work in SNE. Gear can be developed for a specific region/habitat. In SNE, the gear is designed to target flatfish and boats would need to be re-rigged to catch a cod. There are no universal gear types across these management areas and there are many options to consider (haddock separator, Ruhle trawl, etc.) that each require research.
- Jamie Cournane added that the Council tends to prefer regulating gear options over habitat closures despite known challenges. They allow for continued fishing but also require significant support by science. For example, the recently approved large mesh belly panel on GB required evidence that certain standards for reduction in catch were met prior to approval by managers.
- A participant commented that they have tested an off-bottom trawl on GB which has no or little bottom contact and is designed to catch haddock with less bycatch than the Ruhle trawl. Much like the Ruhle trawl, almost no cod were caught. A final report is currently available.
- A suggestion was proposed that the industry needs a gear code with a better method of reporting gear type (e.g., square vs diamond cod ends) that would help organize future data streams. Observers might be recording this information at times on boats but otherwise there is no method for reporting.
- Some general disadvantages listed in the Zoom chat were that gear restrictions require expensive, preliminary research and are then risky for the fishery to adopt.

Third Topic- Improving and/or Additional Reporting Requirements

- Jamie Cournane introduced the topic by explaining the need for more accurate, finer scale and timely data. *Is there a way to better understand what private anglers are catching?* Additional

outreach and active reporting might be required but the shifting strategy towards newer electronic trip reports have the potential to collect finer spatial scale data with new biological information (spawning condition fish). Multiple fishing areas has always presented complications so any new data streams would be helpful in addition to the observer data.

- A participant cited the example of a Mid-Atlantic Tilefish industry with recreational reporting within strict geographic boundaries. If this required reporting strategy seems efficient, it may open the door for a similar approach with cod and improve the imprecise MRIP data.
- A researcher raised the point again regarding the significant data gap in spatial resolution for recreational fishing. This workshop series and Research Track process would be a great opportunity to establish new multi-stock recreational harvest data with specific boundaries. Federal vessel trip reports are capable of establishing boundaries like they have done successfully for the commercial industry. When a recreational fisherman moves between areas, they can submit a sub-report to dramatically improve on MRIP data sets.
 - Jamie Cournane pointed out that even if we know a trip occurred in two management areas, there are still complications with catch apportionment by area within that trip.
- A sector manager highlighted some experience helping fishermen with the learning curve to trip reporting. Unlike some of the error proof commercial reports, a basic punch error can really make a difference in the recreational data where there is no backup or additional record of that trip. An auditing process should be put in place to ensure accuracy on any new reporting.
- A participant voiced concerns in the Zoom chat about unintended consequence to the offshore fleet. Effort in the offshore fleet has diminished significantly over the years. For those vessels that remain, management should encourage opportunities for these vessels to fish in offshore areas and harvest the eastern area TAC- not impose additional barriers.

Appendix A

**2021 Atlantic Cod Stock Structure
Management Workshop Series
Gathering Regional Perspectives
from Southern New England and Georges Bank East & West
August 17, 2021
1:00 PM – 3:00 PM**

Workshop Objectives:

- Discuss and define available and potential management tools that could be used to manage Southern New England and Georges Bank East & West stocks differently to account for new understanding of biological stock structure.
- Share advantages and disadvantages of options.

1:00 Welcome and Introductions – Erik Chapman, NH Sea Grant and Laura Taylor Singer, Facilitator

1:10 Goals and Objectives of the Management Workshop Series – Jamie Cournane, NEFMC

1:25 Understanding Existing Atlantic Cod Management in SNE/GB - NEFMC

1:50 Considering Additional Fisheries Management Options & Tradeoffs– NEFMC/All

2:50 Overview of Next Steps

3:00 Adjourn

Appendix B

Michelle Lemos (NH Sea Grant)
Erik Chapman (NH Sea Grant)
Jamie Cournane (NEFMC)
David Chosid (Mass DMF)
Laura Singer (Sambas Consulting LLC)
Linus Kenter (UNH)
Alison Frey (Umass SMAST)
Rich McBride (NMFS, NEFSC)
Jackie Odell (Northeast Seafood Coalition)
Hank Soule (Sustainable Harvest Sector)
Daniel McKiernan (Mass DMF)
Steven Cadrin (Umass, SMAST)
Elizabeth Moore (GMRI)
Cole Carrano (Umass SMAST)
Megan Ware (DMR)
Amanda Hart (Umass, SMAST)
Hal Weeks
Nathan Hermann (UNH)
Michael C. Plaia (Rec Advisory Panel)
Rebecca Peters (Maine DMR)
Micah Dean (Mass DMF)
Ryan Morse (NMFS)
Janice Plante (NEFMC)
Lisa Kerr (GMRI)
Dan Salerno
Patty Collins
Rick Bellavance (NEFMC)
Robin Alden
Togue Brawn (Downeast Dayboat)

Robin Frede (NEFMC)
Matt Gates (CT DEEP)
C Foley (NMFS, NEFSC)
Charles Perretti (NMFS, NEFSC)
Lucy McGinnis (Umass Dartmouth)
Allison Lorenc (Conservation Law Foundation)
Kyle Molton (NMFS, GARFO)
Greg Ardini (NEFSC)
Mark Grant (NMFS)
Mark Alexander (NEFMC)
Kate Draa (NOAA)
Tom Nies (NEFMC)
Stephanie Sykes (Cape Cod Fishermens Alliance)
Melanie Griffin (Mass DMF)
Alexander Dunn (NMFS, NEFSC)
Maggie Raymond (Associated Fisheries of Maine)
Jocelyn Runnebaum (TNC)
John Pappalardo (CCCFA)
Michael Pierdinock (CPF Charters)
Michelle Bachman (NEFMC)
Russell Brown (NOAA, NEFSC)
Irene Andrushchenko (Fisheries and Oceans Canada)
Nicholas Calabrese (Umass, SMAST)
Paul Nitschke (NEFSC)
Rebecca Peters (Maine DMR)
Rebecca Van Hoeck (UNC Chapel Hill, NEFSC)
Rich Balouskus (RI DMF)
Spencer Talmage (GARFO)