August 2021 Council Meeting Webinar

Monday, August 9 – Thursday, August 12, 2021

Meeting by Webinar

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Agenda

Monday, August 9th

9:30 a.m. — ***Council Convenes with the Atlantic States Marine Fisheries Commission's Bluefish Management Board***

9:30 a.m. – 11:00 a.m. — **Bluefish 2022-2023 Specifications (Tab 1)**
- Review recommendations from the Scientific and Statistical Committee (SSC), Monitoring Committee, Advisory Panel, and staff
- Adopt specifications for 2022-2023
- ASMFC Bluefish Fishery Management Plan Review

11:00 a.m. — ***Council and Bluefish Board Adjourn / Council Convenes with the ASMFC Summer Flounder, Scup, and Black Sea Bass Management Board***

11:00 a.m. – 12:30 p.m. — **Summer Flounder 2022-2023 Specifications (Tab 2)**
- Review recommendations from the SSC, Monitoring Committee, Advisory Panel, and staff
- Adopt specifications for 2022-2023

-------- Lunch 12:30 p.m. – 1:30 p.m. --------

1:30 p.m. – 3:00 p.m. — **Scup 2022-2023 Specifications (Tab 3)**
- Review recommendations from the SSC, Monitoring Committee, Advisory Panel, and staff
- Adopt specifications for 2022-2023

3:00 p.m. – 4:30 p.m. — **Black Sea Bass 2022-2023 Specifications (Tab 4)**
- Review recommendations from the SSC, Monitoring Committee, Advisory Panel, and staff
- Adopt specifications for 2022-2023

Tuesday, August 10th

9:00 a.m.	***Council Convenes with the ASMFC Interstate Fisheries Management Program (ISFMP) Policy Board***

9:00 a.m. – 11:00 a.m. **Recreational Harvest Control Rule Framework/Addendum (Framework Meeting #1) (Tab 5)**

- Review and approve initial range of alternatives
- Discuss next steps

11:00 a.m. ***Council and ISFMP Policy Board Adjourn / Council Convenes with the ASMFC Summer Flounder, Scup, and Black Sea Bass Management Board***

11:00 a.m. – 12:30 a.m. **Ecosystem Approach to Fisheries Management (EAFM) Summer Flounder Management Strategy Evaluation (MSE) (Tab 6)**

- Review core group recommendations
- Determine MSE objectives and alternatives

-------- Lunch 12:30 p.m. – 1:30 p.m. --------

1:30 p.m. – 2:30 p.m. **Summer Flounder, Scup, and Black Sea Bass Commercial/Recreational Allocation Amendment (Tab 7)**

- Consider approval of any Council/Board proposals for additional alternatives

2:30 p.m. ***Council and Summer Flounder, Scup, and Black Sea Bass Management Board Adjourn / Council Convenes***

2:30 p.m. – 3:30 p.m. **North Atlantic Right Whales (Tab 8)**

- Presentation on Atlantic Large Whale Take Reduction Team Scoping for Risk Reduction Measures for Atlantic Trap/Pot and Gillnet Fisheries

3:30 – 4:00 p.m. **Conserving and Restoring America the Beautiful (Tab 9)**

Sam Rauch, NOAA Fisheries

- NOAA Fisheries briefing on draft White House report, “Conserving and Restoring America the Beautiful,” with discussion on how it applies to fisheries

4:00 p.m. – 5:00 p.m. **Council Awards and Acknowledgements**

Wednesday, August 11th

9:00 a.m. – 9:15 a.m. **Swearing in of New and Reappointed Council Members (Tab 10)**

9:15 a.m. – 9:30 a.m. **Election of Officers**

9:30 a.m. – 12:00 p.m. **Golden Tilefish - Multi-year Specifications Framework – Meeting #2 (Tab 11)**

- Review recommendations for golden tilefish specifications from the Advisory Panel, SSC, Monitoring Committee, and staff
- Recommend any changes to (previously set) 2022 golden tilefish specifications if necessary

- Approve 2023-2024 golden tilefish specifications
- Review alternatives and approve Framework document for submission (final action)

-------- Lunch 12:00 p.m. – 1:00 p.m. --------

1:00 p.m. – 3:30 p.m. **Atlantic Mackerel Issues (Tab 12)**

- Atlantic Mackerel Specifications and/or Emergency Action
  - Review assessment results
  - Consider specifications and/or requesting emergency action pending rebuilding plan modification
- Atlantic Mackerel Rebuilding Modifications Framework – Meeting #1
  - Review options for revised rebuilding plan and set range of alternatives
  - Request additional options and analysis if needed

3:30 p.m. – 5:00 p.m. **Joint Council-SSC meeting (Tab 13)**

Thursday, August 12th

9:00 a.m. – 1:00 p.m. **Business Session**

Committee Reports (Tab 14)

- SSC

Executive Director's Report (Dr. Chris Moore) (Tab 15)

- Approve revised charter for Northeast Trawl Advisory Panel (NTAP)

Organization Reports

- NOAA Fisheries Greater Atlantic Regional Office
  - Update on commercial eVTR outreach
- NOAA Fisheries Northeast Fisheries Science Center
- NOAA Office of General Counsel
- NOAA Office of Law Enforcement
- US Coast Guard

Liaison Reports – New England Council, South Atlantic Council

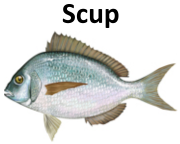
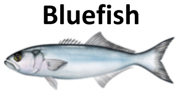
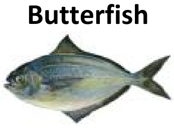
Continuing and New Business

This meeting will be recorded. Consistent with 16 USC 1852, a copy of the recording is available upon request.

The above agenda items may not be taken in the order in which they appear and are subject to change, as necessary. Other items may be added, but the Council cannot take action on such items even if the item requires emergency action without additional public notice. Non-emergency matters not contained in this agenda may come before the Council and / or its Committees for discussion, but these matters may not be the subject of formal Council or Committee action during this meeting. Council and Committee actions will be restricted to the issues specifically listed in this agenda. Any issues requiring emergency action under section 305(c) of the Magnuson-Stevens Act that arise after publication of the Federal Register Notice for this meeting may be acted upon provided that the public has been notified of the Council's intent to take final action to address the emergency. The meeting may be closed to discuss employment or other internal administrative matters.

Stock Status of MAFMC-Managed Species

(as of 7/26/21)

SPECIES	STATUS DETERMINATION CRITERIA		Stock Status	Most Recent Assessment
	Overfishing $F_{threshold}$	Overfished ½ B_{MSY}		
Summer Flounder 	$F35\%_{MSP}=0.422$	60.87 million lbs	No overfishing Not overfished	Most recent management track assessment was 2021.
Scup 	$F40\%_{MSP}=0.200$	99.23 million lbs	No overfishing Not overfished	Most recent management track assessment was 2021.
Black Sea Bass 	$F40\%_{MSP}=0.46$	15.92 million lbs	No overfishing Not overfished	Most recent management track assessment was 2021.
Bluefish 	$F_{35\%SPR}=0.183$	219.05 million lbs	No overfishing Overfished	Most recent management track assessment was 2021.
***Illex* Squid (short finned)** 	Unknown	Unknown	Unknown Unknown	Most recent benchmark assessment was 2006; not able to determine current exploitation rates or stock biomass.
Longfin Squid 	Unknown	46.7 million lbs	Unknown Not overfished	Most recent assessment was 2020; not able to determine current exploitation rates.
Atlantic Mackerel 	$F_{40\%}=0.22$	196.6 million pounds	Overfishing Overfished	Most recent management track assessment was 2021.
Butterfish 	$F_{Proxy}=2/3M$ $=0.81$	50.3 million lbs	No overfishing Not overfished	Most recent assessment was 2020.
Chub Mackerel 	At least 3,026 MT of catch per year	At least 3,026 MT of catch three years in a row	No overfishing Not overfished	No stock assessment.

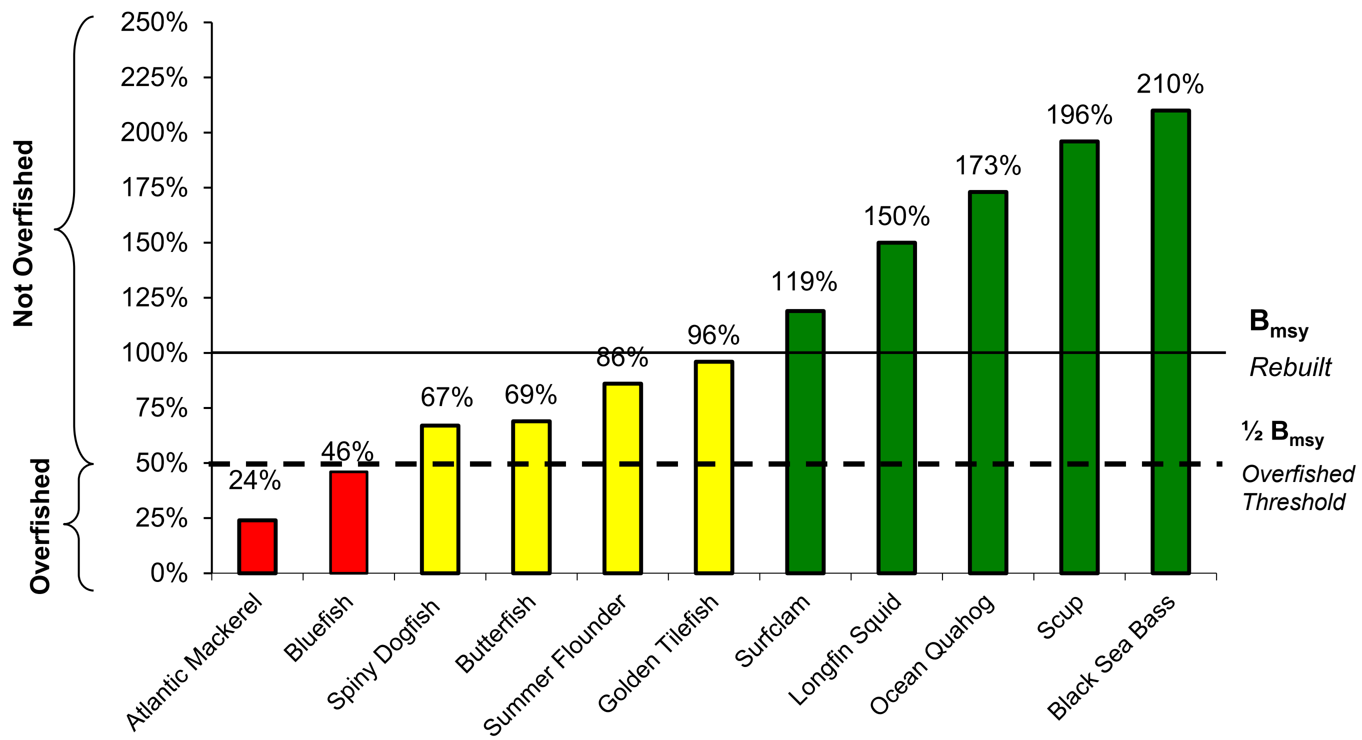
SPECIES	STATUS DETERMINATION CRITERIA		Stock Status	Most Recent Assessment
	Overfishing $F_{threshold}$	Overfished ½ B_{MSY}		
Surfclam 	$F/F_{threshold} = 1$[a]	$SSB/SSB_{threshold} = 1$[b]	No overfishing Not overfished	Most recent assessment was 2020
Ocean Quahog 	$F/F_{threshold} = 1$[c]	$SSB/SSB_{threshold} =1$[d]	No overfishing Not overfished	Most recent assessment was 2020.
Golden Tilefish 	$F_{40\%MSP}$=0.261	12.12 million lbs	No overfishing Not overfished	Most recent management track assessment was 2021.
Blueline Tilefish 	Unknown	Unknown	South of Cape Hatteras: No overfishing Not overfished North of Cape Hatteras: Unknown Unknown	Most recent benchmark assessment was 2017.
Spiny Dogfish (Joint mgmt with NEFMC) 	F_{MSY}=0.2439	175.6 million lbs Female SSB	No overfishing Not overfished	Most recent assessment update was 2018.
Monkfish (Joint mgmt with NEFMC) 	NFMA & SFMA F_{MAX}=0.2	NFMA - 1.25 kg/tow SFMA - 0.93 kg/tow (autumn trawl survey)	Unknown Unknown	Recent benchmark failed peer review and invalidated previous 2010 benchmark assessment results. Operational assessment in 2019 used survey data to scale earlier ABC.

SOURCES: Office of Sustainable Fisheries - Status Report of U.S. Fisheries; SAW/SARC, SEDAR, and TRAC Assessment Reports.

[a] $F_{threshold}$ is calculated as 4.136 times the mean F during 1982 – 2015.
[b] $SSB_{threshold}$ is calculated as $SSB_0/4$.
[c] $F_{threshold}$ is 0.019.
[d] $SSB_{threshold}$ is calculated as $0.4*SSB_0$.

Stock Size Relative to Biological Reference Points

(as of 7/26/21)



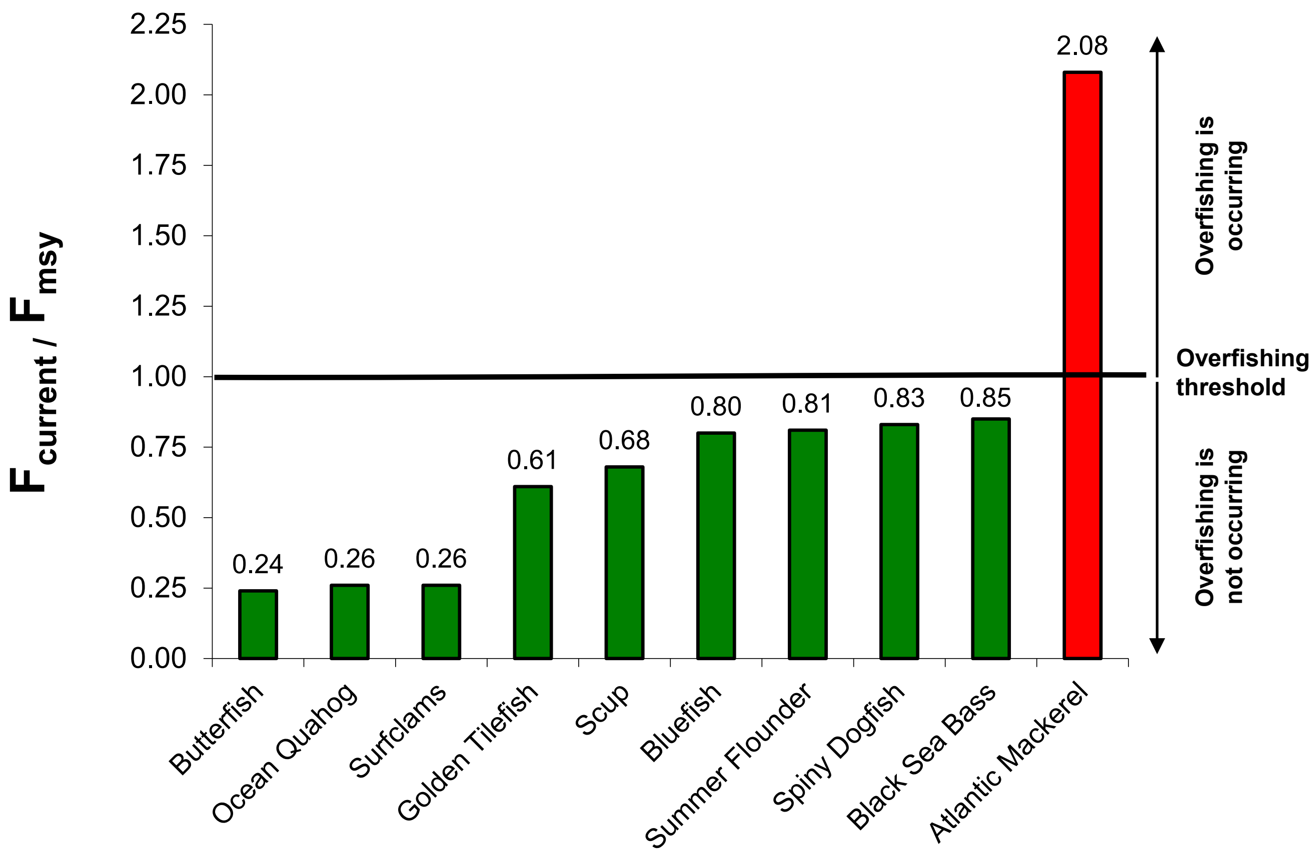
Notes:

- Unknown B_{msy} - *Illex* squid, monkfish (NFMA & SFMA), blueline tilefish (North of Cape Hatteras), and chub mackerel.
- Of the 15 species managed by the Council, 5 are above B_{msy}, 6 are below B_{msy}, and 4 are unknown.

Year of data used to determine stock size	
Atlantic Mackerel	2019
Black Sea Bass	2019
Bluefish	2018
Butterfish	2019
Golden Tilefish	2020
Longfin Squid	2018-2019 (average)
Ocean Quahog	2019
Spiny Dogfish	2018
Surfclam	2019
Scup	2019
Summer Flounder	2019

Fishing Mortality Ratios for MAFMC-Managed Species

(as of 7/26/21)



Notes:

- Unknown fishing mortality: *Illex* squid, Longfin squid, monkfish (NFMA and SFMA), blueline tilefish (North of Cape Hatteras), and chub mackerel.
- Of the 15 species managed by the Council, 9 are above F_{msy}, 1 is above, and 5 are unknown.

Year of data used to determine fishing mortality	
Atlantic Mackerel	2019
Black Sea Bass	2019
Bluefish	2018
Butterfish	2019
Golden Tilefish	2020
Ocean Quahog	2019
Spiny Dogfish	2017
Surfclam	2019
Scup	2019
Summer Flounder	2019

Status of Council Actions Under Development

AS OF 7/26/21

FMP	Action	Description	Status	Staff Lead
Summer Flounder, Scup, Black Sea Bass	Commercial/ Recreational Allocation Amendment	This joint MAFMC/ASMFC amendment will reevaluate and potentially revise the commercial and recreational sector allocations for summer flounder, scup, and black sea bass. This action was initiated in part to address the allocation-related impacts of the revised recreational data from MRIP. http://www.mafmc.org/actions/sfsbsb-allocation-amendment	The Council and Board reviewed public comments at the April 2021 Council Meeting and voted to postpone final action until December 2021.	Dancy/Coutre/ Beaty
Summer Flounder, Scup, Black Sea Bass *and* Bluefish	Recreational Reform Framework and Technical Guidance Documents	The Council and Policy Board initiated a framework/addendum to address the following topics for summer flounder, scup, black sea bass, and bluefish: (1) better incorporating MRIP uncertainty into the management process; (2) guidelines for maintaining status quo recreational management measures (i.e., bag, size, and season limits) from one year to the next; (3) a process for setting multi-year recreational management measures; (4) changes to the timing of the recommendation for federal waters recreational management measures; and (5) a proposal put forward by six recreational organizations called a harvest control rule. The Council and Policy Board agreed to prioritize the harvest control rule over the other topics. https://www.mafmc.org/actions/recreational-reform-initiative	The Council and Policy Board will receive an update on an initial range of alternatives for a harvest control rule framework/addendum at the August 2021 meeting.	Beaty
	Recreational Sector Separation and Catch Accounting Amendment	This joint MAFMC/ASMFC amendment considers (1) options for managing for-hire recreational fisheries separately from other recreational fishing modes and (2) options related to recreational catch accounting, such as private angler reporting and enhanced vessel trip report requirements for for-hire vessels. https://www.mafmc.org/actions/recreational-reform-initiative	The Council and Policy Board initiated this action at the joint October 2020 meeting. Minimal progress is expected in 2021 due to other priorities.	Beaty

FMP	Action	Description	Status	Staff Lead
Surfclam and Ocean Quahog	Addressing Current Surfclam and Ocean Quahog Species Separation Requirements	As surfclams have shifted toward deeper water in recent years, catches including both surfclams and ocean quahogs have become more common. Current regulations do not allow surfclams and ocean quahogs to be landed on the same trip. The Council is exploring options to address this issue.	An FMAT has been established, and their first meeting was held 11/17/2020. Work is ongoing.	Coakley/ Montañez
Tilefish	Golden Tilefish Multi-Year Specs Framework	This framework action will consider allowing specifications to be set for more than 3 years (e.g. 5 years) when assessment data support the development of longer-term projections. This action will also consider changing the fishing year to January 1 – December 31 (currently November 1 – October 31). This action is intended to increase administrative efficiency and predictability from year to year.	Framework Meeting #1 took place at the April 2021 meeting. Final action is schedule for the August 2021 meeting.	Montañez
Omnibus	Omnibus Amendment for Data Modernization	This amendment will address the regulatory changes needed to fully implement the Agency's Fishery-Dependent Data Initiative.	The Council last received an update at the October 2018 meeting.	GARFO/NEFSC

Timeline and Status of Recent MAFMC Actions and Amendments/Frameworks Under Review

As of 7/26/2021

The table below summarizes the status of actions after they have been approved by the Council. For information about the status of Council actions under development, please see the document titled "Status of Council Actions Under Development."

Title	Action Number	Council Approval	Initial Submission	Final Submission	NOA Published	Proposed Rule Published	Approval/ Disapproval Letter	Final Rule Published	Regs Effective	Notes
Excessive Shares Amendment	SCOQ Amd 20	12/9/19	4/24/20	9/25/20						
Omnibus Commercial eVTR Framework	MSB FW 14; Bluefish FW 4; SFSBSB FW 15; SCOQ FW 3; Tilefish FW 5; Dogfish FW 4	MAFMC: 12/11/19; NEFMC: 1/29/20	3/4/20	4/14/20	7/17/20	7/17/20		11/10/20	11/10/21	
MSB FMP Goals/Objectives and Illex Permits Amendment	MSB Amd 22	7/16/20	3/15/21							
Black Sea Bass Commercial State Allocation Amendment	TBD	Initial Approval: 2/1/2021								The Council voted at the June meeting to rescind the initial submission of this amendment. The Council and Board will revisit allocations at the ASMFC's summer meeting on Aug 4.
Bluefish Allocation and Rebuilding Amendment	TBD	6/8/21	7/19/21							

Timeline and Status of Current and Upcoming Specifications for MAFMC Fisheries

As of 7/26/21

Current Specifications	Year(s)	Council Approval	Initial Submission	Final Submission	Proposed Rule	Final Rule	Regs Effective	Notes
Golden Tilefish	2021-2022	4/8/20	5/11/20	7/21/20	11/13/20	12/21/20	12/21/20	
Blueline Tilefish	2019-2021	4/11/18	8/17/18	10/24/18	11/19/18	2/12/19	2/12/19	
Surfclam and Ocean Quahog	2021-2026	8/12/20	9/2/20	2/24/21	2/17/21	5/13/21	6/14/21	
Longfin Squid	2021-2023	8/10/20	10/14/20	7/2/21	5/26/21	7/22/21	7/22/21	Also used for in-season adjustment to Illex from June 2021 Council meeting.
Butterfish	2021-2022	8/10/20	10/14/20	7/2/21	5/26/21	7/22/21	7/22/21	Also used for in-season adjustment to Illex from June 2021 Council meeting.
Illex Squid	2020-2021	6/17/20	10/14/20	7/2/21	5/26/21	7/22/21	7/22/21	Also used for in-season adjustment to Illex from June 2021 Council meeting.
Atlantic Mackerel (including RH/S cap)	2021-2022	8/10/20	10/14/20	7/2/21	5/26/21	7/22/21	7/22/21	Also used for in-season adjustment to Illex from June 2021 Council meeting.
Chub mackerel	2020-2022	3/7/19	5/31/19	10/25/19	3/9/20	8/4/20	9/3/20	Reviewed October 2020. No changes recommended.
Bluefish	2021 (revised)	8/11/20	9/24/20	10/26/20	11/5/20	12/16/20	12/16/20	
Summer Flounder, Scup, Black Sea Bass	2021 (revised)	8/11/20	9/30/20	11/20/20	11/17/20	12/21/20	1/1/21	
Spiny Dogfish	2021-2022	10/6/20	12/7/20	2/3/21	3/4/21	5/1/21	5/1/21	

Recreational Management Measures

Current Management Measures	Year(s)	Council Approval	Initial Submission	Final Submission	Proposed Rule	Final Rule	Regs Effective	Notes
Summer flounder recreational measures	2021	12/15/20	1/20/21	1/20/21	4/6/21	5/6/21	5/5/21	Rulemaking required each year to continue use of conservation equivalency
Black sea bass recreational measures	2021	2/14/18	3/5/18	4/10/18	4/11/18	5/31/18	5/31/18	Reviewed in 2020. No changes from prevous year's measures.
Scup recreational measures	2021	12/10/14	3/20/15		5/5/15	6/19/15	6/19/15	Reviewed in 2020. No changes from prevous year's measures.
Bluefish recreational measures	2021	12/10/19	1/23/20	3/19/20	5/25/20	6/29/20	6/29/20	Reviewed in 2020. No changes from prevous year's measures.

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 28, 2021

To: Council and Board

From: Matthew Seeley, Council staff

Subject: 2022-2023 Bluefish Specifications

The Council and Board will set 2022-2023 specifications for bluefish on Monday, August 9, 2021. Recreational management measures for 2022-2023 will be considered later in 2021. Materials listed below are provided for the Council and Board's consideration of this agenda item.

Please note that some materials are behind other tabs. Items are listed in reverse chronological order.

1) Bluefish Advisory Panel meeting summary
2) Monitoring Committee meeting summary
3) July 2021 Scientific and Statistical Committee meeting report (*behind Tab 14*)
4) Staff memo on 2022-2023 bluefish specifications dated June 30, 2021 (revised on July 23, 2021)
5) Bluefish 2021 Northeast Fisheries Science Center management track assessment update
6) Bluefish F Rebuild projections
7) 2021 Advisory Panel Fishery Performance Report
8) 2021 Bluefish Fishery Information Document

Bluefish Advisory Panel
Meeting Summary
July 28, 2021

Advisory Panel Members (MAFMC and ASMFC): Mike Plaia, Frank Blount, Jim Kaczynski, Philip Simon, Willy Goldsmith, Paul Lane, Mike Waine, Eric Burnley, Victor Hartley, William Mandulak, Ben Vuolo, Steve Heins, Jason Mleczko, and Charlie Locke.

Others in attendance: Matthew Seeley (Council Staff), Mary Sabo (Council Staff), Dustin Colson Leaning (ASMFC), Chris Batsavage (MAFMC David Stormer (MAFMC), Greg DiDomenico (Lunds), Jessica Valenti, James Fletcher (UNFA), and a few unknown individuals (no identification or call-in numbers).

The Bluefish Advisory Panel (AP) met on Wednesday, July 28th from 2:00 – 4:00 p.m. The goal of the meeting was to discuss the AP process, review recent fishery performance (2020), review the recent management track assessment, and review the Scientific and Statistical Committee (SSC) and Monitoring Committee (MC) recommendations.

This AP meeting was the first meeting where new AP members were introduced to the bluefish specifications process. Staff presented and summarized what it means to be an AP member, the expected role to be filled, and the difference between this meeting, as it compares to AP meetings where ample time is spent developing the Fishery Performance Report. Below are individual AP questions and comments on fishery performance, the current management measures, and the recommendations provided by staff, the SSC, and MC.

Willy Goldsmith – Can we compare early waves' landings for 2021 to 2020 and 2019 to see what the impacts of the bag limit changes are on landings? Answer: These sorts of comparisons will occur with the Monitoring Committee at their November meeting prior to when the Council and Board take action on recreational management measures in December.

Philip Simon – Should we be concerned about the RHL overage and how it relates to the rebuilding plan? Answer: We need to be concerned with any overages, as they will impact the quotas and management measures in future years, as well as the expected duration of the rebuilding plan.

Bill Mandulak – I fish primarily from the beach in northern NC on the Outer Banks near Hatteras, and bluefish are a substantial part of my (and other's) harvest. In recent years, I have seen a fairly substantial decline in abundance.

Mike Waine – Can you explain how the 2020 RHL overage affects the 2022 specifications? Answer: Total catch was estimated at 19.93 million pounds, which exceeds the 16.28 M pound

ACL by ~22%. The regulations stipulate that a pound for pound payback is warranted in the next fishing year. The accountability measures have been incorporated into the 2022 specifications and the 2022 RHL includes those reductions.

Jim Kaczynski: The 200,000 MT SSB target is at a level where bluefish biomass has never been before. Can you offer some insight on where this estimate came from? Answer: This value is a biological reference point that is direct output from the management track stock assessment. As the assessment is updated, this target may be adjusted to reflect any model adjustments/revisions.

Philip Simon – I challenge the impact of ever decreasing quotas and RHLs on "fixing" the perceived low SSB and R numbers seen over the last 30 years, and, I challenge that SSB and R values that have guided fishery management have changed substantially at all. However, I understand that things might change, including the SSB threshold and target values, as a result of the upcoming management track assessment.

Greg DiDomenico – Why are sector transfers not allowed this year? Answer: The new amendment details transfers can not occur when the stock is either overfished or experiencing overfishing. Additionally, we anticipate the recreational sector fully landing the RHL, therefore there would be no quota to transfer.

Willy Goldsmith – Just to clarify are the new RHLs based on the rebuilding plan? Answer: Yes. How do we factor in the likelihood that the 2021 RHL will have an overage into future specifications? Answer: The Monitoring Committee will take up this discussion at their specifications meeting next year once we know if any overages did actually occur.

Greg DiDomenico –Should we expect an overage in 2022 for bluefish, and if so, will the measures change? Answer: Given the current trends and small quotas for 2021, it is possible. Again, the Monitoring Committee will take up this discussion at their specifications meeting next year once we know if any overages did actually occur.

Captain Victor Hartley – The for-hire sector has to get separated from the private anglers through a formal sector separation process.

Paul Lane –In NC, bluefish are bycatch in the mackerel fishery. A reduction of allocation from 17% to 14% is harmful to the commercial fishery. Why do we not have census data from the recreational fishery, especially for bluefish which is overfished? Answer: MRIP data is what we are currently using to monitor the recreational fishery. All data will be thoroughly reviewed prior to the research track assessment scheduled for 2022.

Bill Mandulak – Sounds like a lot of folks who are able to catch large bluefish are offshore. Are there efforts to quantify offshore abundance? Answer: Currently, there are no surveys addressing offshore abundance. This has been a consistent research recommendation to help improve our understanding prior to the 2022 research track assessment.

James Fletcher – P.L 109-479 Every saltwater angler was supposed to register! In NC, recreational landings will triple as Oregon inlet improves. Small for-hire recreational landings will also triple.

Also, the national park closing beach access for bird hatching lessens beach driving. When beach driving occurs in towns and the national seashore, recreational landing will go out of site.

Mike Waine – Asked about for-hire estimates used in the stock assessment and how they are compared. Answer: MRIP estimates include for-hire landings. Vessel trip report (VTR) data may also be incorporated.

Charlie Locke – We are held to trip tickets and VTRs and I think the recreational side should be held to the same standards. Until the recreational side is held to the same catch accounting standards there should not be any reallocation.

Captain Victor Hartley – The for-hire fleet is going to look for a bag-limit increase. They would be ok with a minimum size limit if it meant having a larger bag limit.

James Fletcher – Could a hook size or total length measures be utilized to reduce discards for recreational? Answer: Those are both measures that can be discussed by the Monitoring Committee.

Bill Mandulak – Discard mortality rates (15%) are a little high compared to other fisheries. What is the opportunity for examining that and researching how to reduce that? Treble hooks are quite destructive and have a high mortality. I am interested to find out what other measures could be implemented to reduce mortality.

Willy Goldsmith – The 3 and 5 bag limits represent a de facto reallocation. This should again be part of the Monitoring Committee conversation in regard to fairness and equitability. The for-hire sector should either be completely separated with their own ACL or not have separate measures at all.

Emailed Comments

TJ Karbowski – Plenty of bluefish this year due to the abundance of forage fish. Various year classes represented. No regulation changes necessary either way up or down. If a further bag or size reduction is necessary via the data than a separate "for-hire" category is absolutely imperative for the industry to stay in business.

Bluefish Monitoring Committee
Meeting Summary
July 26, 2021

Monitoring Committee Members: Matthew Seeley (Council Staff), Dustin Colson Leaning (ASMFC), Cynthia Ferrio (GARFO), Mike Celestino (NJ-F&W), Richard Wong (DE-F&W), Eric Durrell (MD-DNR), Nicole Lengyel Costa (RI DMF), Jim Gartland (VIMS), Tony Wood (NEFSC), Joseph Munyandorero (FL FWC), David Behringer (NC DMF), Same Truesdell (MA DMF), and Sandra Dumais (NY DEC).

Others in attendance: John Foster (NMFS), Chris Batsavage (MAFMC), Dewey Hemilright (MAFMC), David Stormer (MAFMC), Joseph Cimino (MAFMC), Nichola Meserve (MA DMF), Greg DiDomenico (Lund's Fisheries) and James Fletcher (UNFA).

Introduction

The Monitoring Committee (MC) discussed the impacts of COVID-19 on recreational data collection and the uncertainty associated with the 2020 catch estimates. As discussed in the staff memo, due to a lapse in angler intercept sampling caused by COVID-19 restrictions, a portion of the 2020 catch estimates were imputed using 2018 and 2019 data and may not fully reflect the management measures implemented in early to mid-2020 (i.e., 3-fish and 5-fish bag limits for the private and for-hire sectors, respectively).

John Foster (NMFS Office of Science and Technology, Fisheries Statistics Division) provided a presentation on the methodology used to impute the 2020 recreational catch and effort estimates, as well as a summary of select estimates. He noted that there were significant gaps in intercept data in 2020, particularly for mid-March through April. One notable trend was that interviewers received fewer length and weight measurements due to the reluctance of interviewers and anglers to closely interact. To fill these data gaps, all Access Point Angler Intercept Survey data from 2018 and 2019 collected within corresponding 2020 data gap periods were appropriately weighted and combined with available 2020 data. To assist fisheries managers and Marine Recreational Information Program (MRIP) catch query users in understanding the impacts of imputed data, a new column was incorporated to all harvest and catch queries indicating the "contribution of imputed data to total harvest rate".

The MC reviewed the Scientific and Statistical Committee's (SSC's) acceptable biological catch (ABC) recommendation for 2022-2023, recent fishery performance, and the 2021 Northeast Fisheries Science Center (NEFSC) bluefish management track assessment and rebuilding projections. The SSC recommended an ABC of 25.26 million pounds (11,460 mt) for 2022 and an ABC of 30.62 million pounds (13,890 mt) for 2023. The ABC recommendations reflect the results of the 2021 bluefish management track assessment and preferred constant fishing mortality (F) rebuilding plan selected through the bluefish allocation and rebuilding amendment. Following the presentation, the MC discussed various sources of management uncertainty, estimates of discards (recreational and commercial), 2021 expected recreational landings, transfers from one sector to the other, commercial management measures, and the implications of COVID-19. Ultimately, the MC endorsed the SSC's ABC recommendation for 2022 and 2023, which was consistent with Option 2 of the staff memo. Option 2 treated the total catch estimate from the F rebuild projections as an OFL proxy. Thus, the resulting F of 0.154 associated with the Council-preferred rebuilding plan was incorporated into revised projections in place of the original F_{MSY} = 0.181. This adjustment allowed the SSC to account for scientific uncertainty, which results in catch levels that now have the potential to rebuild the stock more quickly.

Recreational Discards

The MC discussed the two approaches used to characterize discards in the recreational fishery. First, the MC was presented with the approach the Greater Atlantic Regional Fisheries Office (GARFO) and the Council uses to monitor the recreational fishery. This approach uses the MRIP estimated mean weight (by year, state, and wave) of harvested fish (A+B1) times the number of released fish (MRIP-B2s by year, state, and wave) and an assumed 15% release mortality. The MC generally agreed that this estimate does not fully capture recreational fishery dynamics because this approach uses the mean weight of harvested fish, not discards, and the length frequency data suggests that released fish tend to be larger than retained fish. The second approach uses the NEFSC discard estimates, which applies a length-weight relationship to released fish data from the MRIP, American Littoral Society tag releases, and volunteer angler surveys from Connecticut, Rhode Island, and New Jersey. However, this sampling approach does not characterize the entire coast, which adds to the uncertainty in these estimates. Figure 1 shows the spatial distribution of live release data and release at length data for 2016-2018. Furthermore, in 2019, the NEFSC discard estimates are approximately 3x higher than the MRIP estimates, and in some cases, exceed the recreational ACT. The NEFSC assessment scientist indicated that the next research track assessment in 2022 would investigate using the MRIP release weight methodology (used by GARFO and the Council to monitor the fishery) to estimate the weight of released fish in the assessment.

Considering the lack of a NEFSC estimate for 2020, the COVID-19 pandemic, and the regulatory change in 2020, the MC recommends using the terminal year (2020) estimate of MRIP discards of 4.19 M pounds, as opposed to a 3-year average of 4.32 M pounds to develop the 2022-2023 specifications. This MC recommendation for a terminal year discard estimate differs from previous year's recommendations (3-year average) due to the regulatory change that occurred in 2020. The MC did note that the data gaps early in the year may not be a major factor for New England and Mid-Atlantic states due to them not having robust spring fisheries.

The MC endorsed the NEFSC methodology as the best approach but are not convinced sufficient data are available to inform the calculations, and hence believe the approach assuming that the average weight of a landed fish equals the average weight of a released fish, while not ideal, has less uncertainty in comparison. Consequently, the MC believes it would be helpful to evaluate the potential or need for a coastwide biological sampling program to provide additional data for the NEFSC approach[1].

Commercial Discards

The MC discussed recent reports of increased commercial discards in the bluefish fishery. Commercial discards were not included in the benchmark stock assessment or operational assessment as they were deemed negligible (SAW 60). In recent years, Advisory Panel members indicated that localized discards in the commercial fishery are increasing and may not be insignificant. The MC further discussed that while commercial discards may have been negligible in the past, with reduced commercial quotas in recent years, the number of regulatory discards could be more significant. The assessment scientist indicated that commercial discards are likely to be incorporated into the 2022 research track assessment to improve transparency, despite the fact that commercial discards comprise a very small percentage of total removals in a given year.

2022-2023 Expected Recreational Landings (ERL)

In recent years, expected recreational landings have been calculated from three-year averages using the most recent complete fishing years during the July MC meetings. This year, the MC recommends waiting until the November Recreational Measures MC meeting to provide a recommendation for ERL. In November, wave 4 recreational data will be available for 2021 and projections can be made using the most up to date data. However, in the meantime, the MC recommends using the previous year's landings (2020 = 13.58 M lbs) as a proxy for ERL for the same reasons only the terminal year estimate was used for recreational discards, as discussed above.

Management Uncertainty

The MC is recommending management measures and specifications based on the updated bluefish flowchart (Figure 2). This flowchart was revised though the Bluefish Allocation and Rebuilding Amendment, and now allows the MC to adjust catch limits based on management uncertainty for each sector (commercial and recreational).

Regarding specifications, the MC discussed various sources of management uncertainty in considering an adjustment from the annual catch limits (ACL) to the fishery-specific annual catch target (ACT). Most comments were related to the uncertainties surrounding the recreational dead discards and whether to use a one-year estimate or an average of the most recent three years, as well as being able to make an informed recommendation on whether to use the MRIP-estimated or NEFSC-estimated method to calculate recreational discards. For the commercial sector, the MC indicated that there is no formal analysis available to make appropriate estimates of commercial discards. To deal with the lack of commercial discard estimates, the MC recommends a review of commercial discard data that can allow for inclusion into the 2022 research track assessment.

[1] In February 2021, the Atlantic States Marine Fisheries Commission's Management Board signed off on a TC recommendation to encourage states that comprise >4% of coastwide removals to collect recreational release length data.

Finally, the MC recommends a retrospective analysis be performed to identify how accurate estimations of recreational discards have been historically, in order to help quantify management uncertainty and inform how recommendations are developed in future years; as the timeseries of calibrated MRIP harvest and calibrated RHLs lengthens, a similar analysis for predicted harvest will be helpful.

Another source of uncertainty is tied to the 2020 recreational harvest estimates. Following the overfished designation in 2019, the Council implemented 2020 management measures for bluefish that resulted in a 3 and 5-fish bag limit for private and for-hire anglers, respectively. This reduction in bag limit was anticipated to result in a ~28% reduction in recreational harvest to ensure the RHL was not exceeded. However, many states were not able to implement the new measures until at least midway through 2020. Then, the COVID-19 pandemic further influenced the uncertainty tied to the 2020 estimates, but MRIP offered data imputations to help inform 2020 harvest. The data imputations by MRIP used 2018 and 2019 to estimate 2020 harvest. While the timing of the imputation likely minimizes uncertainties in many mid-Atlantic and New England states, these 2020 imputed estimates unfortunately did not include the impacts of the revised management measures that reflect the reduction in bag limits, particularly in South Atlantic states. Therefore, the true impacts of the reduced bag limits are not yet reflected in the best available estimates of bluefish catch.

For the reasons provided above, the MC recommends no reductions be taken for management uncertainty. Additionally, the MC feels that the decisions discussed above regarding recreational discards and 2021 expected recreational landings account for some of the management uncertainty in the recreational sector providing further support for no management uncertainty reductions.

The MC recommends development of a structured process to quantify management uncertainty; the MC has started this process with an agreement to evaluate the performance of MC and Council predicted versus observed releases. As commercial discards are incorporated into the stock assessment and as the time series of calibrated MRIP harvest and calibrated RHLs lengthens, this analysis will be replicated for those fishery components as well.

Transfers

The MC recommends no transfer be applied from the recreational fishery to commercial fishery. No transfer can occur (as indicated in the regulations) because the recreational fishery is anticipated to harvest the full RHL, and the stock is still overfished. However, the MC continues to endorse the provisions that allow for commercial state-to-state transfers on an as needed basis. While the FMP changes are not expected to be formally implemented until early 2022, the MC thought it would be more efficient to make decisions under the assumption that all FMP changes will be adopted; in the event this does not happen, the MC will re-convene as necessary.

Resulting Commercial Quota and RHL

For 2022, the resulting RHL and CQ recommended by the MC are 13.89 M lbs and 3.54 M lbs, respectively (Table 1). For 2023, the resulting RHL and CQ recommended by the MC are 22.14 M lbs and 4.29 M lbs, respectively (Table 1). The decisions made by the MC to recommend MRIP-estimated terminal year recreational discards and no transfer, on top of the already restricted quotas results in a low RHL and CQ for 2022 compared to historical values. Defining the RHL and CQ in this manner likely accounts for a large amount of the uncertainty present in the management of the bluefish stock, which faces rebuilding over the next seven years. The Monitoring Committee acknowledges that such low levels of allowable landings present challenges to managers and fishery participants.

Recreational Management Measures

The MC needs Council/Board action on the RHLs and CQs prior to identifying the associated recreational management measures. To constrain harvest to the RHL, the MC will review the current management measures in place and will reconvene in November 2021 to utilize the Council approved RHLs and CQs to set management measures (as conducted in 2020).

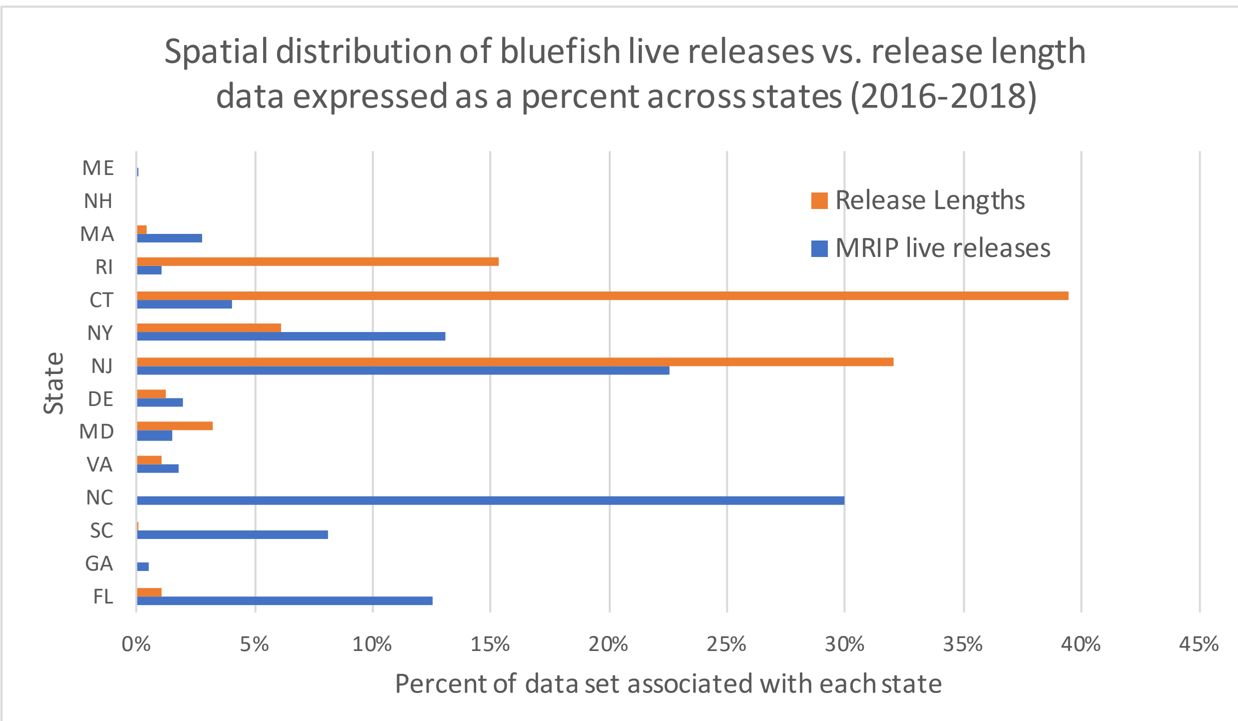

Figure 1. Spatial distribution of bluefish live releases and release length data. Legend and source: orange = release lengths – RI, CT, NJ volunteer angler surveys (RI 297 samples, CT 1057 samples, NJ 380 samples), American Littoral Society (660 samples), MRIP Type 9 (328 samples); blue = MRIP estimates of live releases (B2s) across Atlantic coast states.

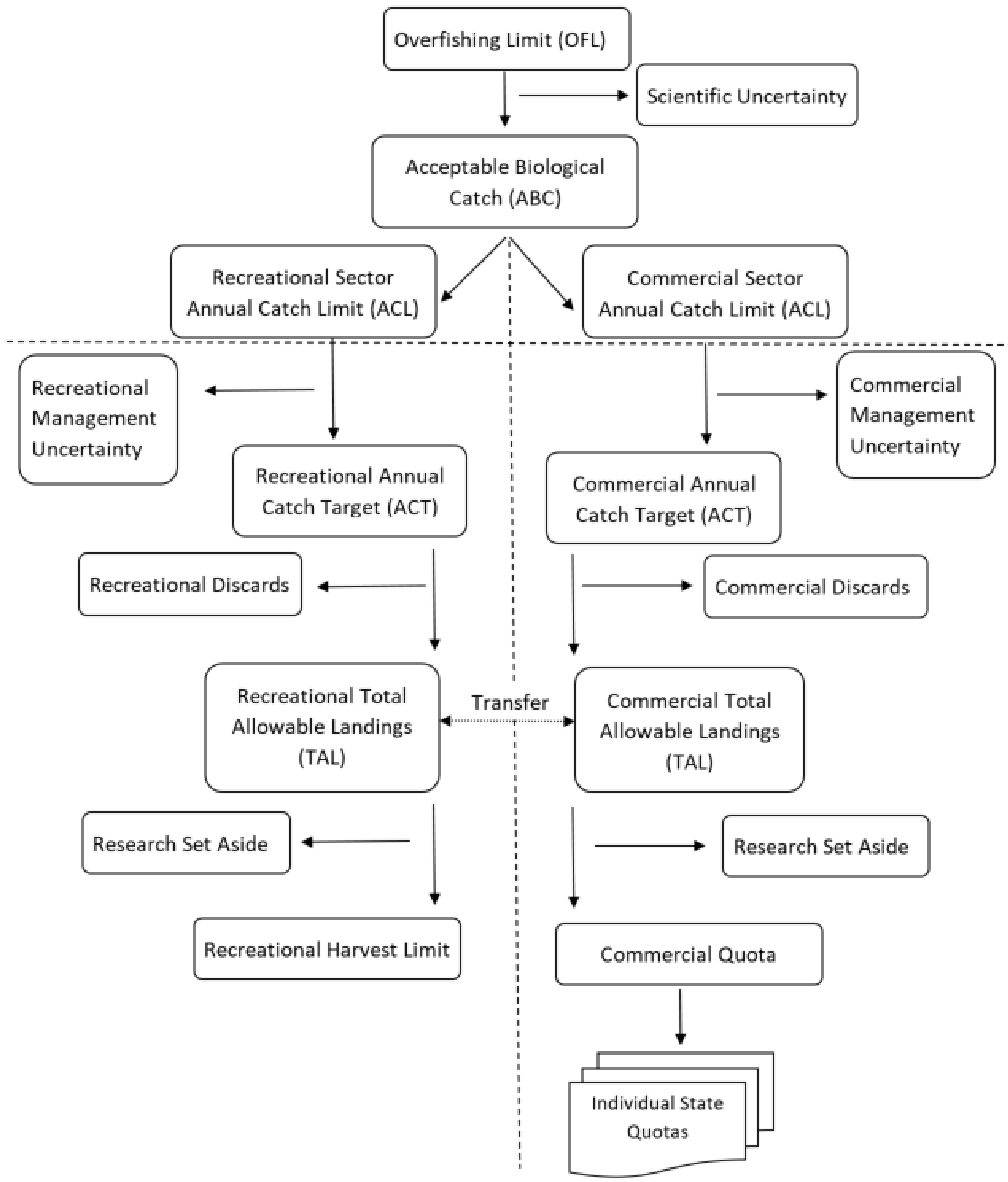

Figure 2. Council-approved bluefish flow chart from the Bluefish Allocation and Rebuilding Amendment, which includes sector specific management uncertainty.

Table 1. Monitoring Committee recommended bluefish specifications for 2022-2023.

Management Measure	Option 2				Basis
	2022		2023		
	mil lb.	mt	mil lb.	mt	
Overfishing Limit (OFL)	40.56	18,399	45.17	20,490	Stock assessment projections
ABC	25.26	11,460	30.62	13,890	Derived by SSC; Follows the rebuilding plan through NEFSC projections
ACL	25.26	11,460	30.62	13,890	Defined in FMP as equal to ABC
Commercial ACL	3.54	1,604	4.29	1,945	ABC x 14%
Commercial Management Uncertainty	0	0	0	0	Derived by the Monitoring Committee
Commercial ACT	3.54	1,604	4.29	1,945	(ACL – Commercial Management Uncertainty) x 14%
Recreational ACL	21.73	9,856	26.34	11,945	ABC x 86%
Recreational Management Uncertainty	0	0	0	0	Derived by the Monitoring Committee
Recreational ACT	21.73	9,856	26.34	11,945	(ACL – Recreational Management Uncertainty) x 86%
Recreational AMs	3.65	1,656	0	0	2022 only: 2020 ABC overage
Commercial Discards	0	0	0	0	Value used in assessment
Recreational Discards	4.19	1,901	4.19	1,901	2020 GARFO-estimated (MRIP) discards
Commercial TAL	3.54	1,604	4.29	1,945	Commercial ACT - commercial discards
Recreational TAL	13.89	6,298	22.14	10,044	Recreational ACT - recreational discards - Rec AMs
Combined TAL	17.42	7,903	26.43	11,989	Commercial TAL + Recreational TAL
Transfer	0	0	0	0	No transfer while overfished or overfishing
Expected Recreational Landings	13.58	6,160	13.58	6,160	2020 Recreational Landings, but remains TBD in December
Commercial Quota	3.54	1,604	4.29	1,945	Commercial TAL +/- transfer
RHL	13.89	6,298	22.14	10,044	Recreational TAL +/- transfer

The SSC Report is behind Tab 14.

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: June 30, 2021

To: Dr. Chris Moore, Executive Director

From: Matthew Seeley, Staff

Subject: 2022-2023 Bluefish Specifications

Executive Summary

A management track assessment for bluefish was conducted in June 2021. The assessment incorporates data through 2019, including the revised time series (1985-2019) of recreational catch provided by the Marine Recreational Information Program (MRIP).[1]

The Council and Board approved the Bluefish Allocation and Rebuilding Amendment at their June 2021 meeting. The rebuilding portion of the Amendment includes a 7-year constant fishing mortality plan that will begin in 2022. For comparison purposes, updated rebuilding projections were developed for the P* and 7-year constant fishing mortality approach. All projections were developed using the new risk policy for 2022 and beyond. Projections will be rerun every two years through the Northeast Fisheries Science Center (NEFSC) assessment process to ensure adequate rebuilding progress is being made. The next assessment is a research track assessment scheduled for 2022, which will inform the 2024-2025 specifications package. This assessment will thoroughly explore discard estimates and other model issues.

In July 2021, the Monitoring Committee (MC) will review recent fishery performance and make a recommendation to the Council and Board regarding 2022-2023 annual catch targets (ACTs), total allowable landings (TALs), commercial quotas, recreational harvest limits (RHLs), and any other associated management measures.

This memo provides two options for review of the 2022-2023 bluefish specifications. Option 1 treats the total catch values (e.g., 2022 = 40.70 million pounds (18,463 mt) and 2023 = 43.36 million pounds (19,667 mt)) from the 7-year constant fishing mortality rebuilding plan as an ABC (Table 1). Option 2 treats the total catch value from the 7-year constant fishing mortality rebuilding

[1] In July 2018, MRIP released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology (i.e., a transition from a telephone-based effort survey to a mail-based effort survey). The revised, or calibrated, estimates of catch and landings for most years are several times (~3x) higher than the previous estimates for shore and private boat modes, substantially raising the overall bluefish catch and harvest estimates.

plan as an OFL proxy (resulting in an ABC of 25.26 million pounds (11,460 mt) for 2022 and 30.62 million pounds (13,890 mt) for 2023, which allows for a scientific uncertainty buffer through the ABC calculations risk policy spreadsheet (Table 2). Ultimately, staff recommends Option 2, which includes an ABC of 25.26 million pounds (11,460 mt) for 2022 and an ABC of 30.62 million pounds (13,890 mt) for 2023.

Table 1. Option 1 for 2022-2023 bluefish specifications.

Management Measure	Option 1				Basis
	2022		2023		
	mil lb.	mt	mil lb.	mt	
Overfishing Limit (OFL)	40.70	18,463	43.36	19,667	Stock assessment projections
ABC	40.70	18,463	43.36	19,667	Derived by SSC; Follows the rebuilding plan through NEFSC projections
ACL	40.70	18,463	43.36	19,667	Defined in FMP as equal to ABC
Commercial ACL	5.70	2,585	6.07	2,753	ABC x 14%
Commercial Management Uncertainty	0	0	0	0	Derived by the Monitoring Committee
Commercial ACT	5.70	2,585	6.07	2,753	(ACL – Management Uncertainty) x 14%
Recreational ACL	35.01	15,878	37.29	16,914	ABC x 86%
Recreational Management Uncertainty	0	0	0	0	Derived by the Monitoring Committee
Recreational ACT	35.01	15,878	37.29	16,914	(ACL – Management Uncertainty) x 86%
Recreational AMs	3.65	1,656	0	0	2022 only: 2020 ABC overage
Commercial Discards	0	0	0	0	Value used in assessment
Recreational Discards	4.19	1,901	4.19	1,901	2020 GARFO-estimated (MRIP) discards
Commercial TAL	5.70	2,585	6.07	2,753	Commercial ACT - commercial discards
Recreational TAL	27.16	12,321	33.10	15,012	Recreational ACT - recreational discards
Combined TAL	32.86	14,906	39.17	17,766	Commercial TAL + Recreational TAL
Transfer	0	0	0	0	No transfer while overfished or overfishing
Expected Recreational Landings	13.58	6,160	13.58	6,160	2020 Recreational Landings, but remains TBD in December
Commercial Quota	5.70	2,585	6.07	2,753	Commercial TAL +/- transfer
RHL	27.16	12,321	33.10	15,012	Recreational TAL +/- transfer

Table 2. Option 2 for 2022-2023 bluefish specifications – Staff recommendation.

Management Measure	Option 2				Basis
	2022		2023		
	mil lb.	mt	mil lb.	mt	
Overfishing Limit (OFL)	40.56	18,399	45.17	20,490	Stock assessment projections
ABC	25.26	11,460	30.62	13,890	Derived by SSC; Follows the rebuilding plan through NEFSC projections
ACL	25.26	11,460	30.62	13,890	Defined in FMP as equal to ABC
Commercial ACL	3.54	1,604	4.29	1,945	ABC x 14%
Commercial Management Uncertainty	0	0	0	0	Derived by the Monitoring Committee
Commercial ACT	3.54	1,604	4.29	1,945	(ACL – Management Uncertainty) x 14%
Recreational ACL	21.73	9,856	26.34	11,945	ABC x 86%
Recreational Management Uncertainty	0	0	0	0	Derived by the Monitoring Committee
Recreational ACT	21.73	9,856	26.34	11,945	(ACL – Management Uncertainty) x 86%
Recreational AMs	3.65	1,656	0	0	2022 only: 2020 ABC overage
Commercial Discards	0	0	0	0	Value used in assessment
Recreational Discards	4.19	1,901	4.19	1,901	2020 GARFO-estimated (MRIP) discards
Commercial TAL	3.54	1,604	4.29	1,945	Commercial ACT - commercial discards
Recreational TAL	13.89	6,298	22.14	10,044	Recreational ACT - recreational discards
Combined TAL	17.42	7,903	26.43	11,989	Commercial TAL + Recreational TAL
Transfer	0	0	0	0	No transfer while overfished or overfishing
Expected Recreational Landings	13.58	6,160	13.58	6,160	2020 Recreational Landings, but remains TBD in December
Commercial Quota	3.54	1,604	4.29	1,945	Commercial TAL +/- transfer
RHL	13.89	6,298	22.14	10,044	Recreational TAL +/- transfer

Introduction

The Magnuson-Stevens Act (MSA) requires each Council's SSC to provide ongoing scientific advice for fishery management decisions, including recommendations for ABC, preventing overfishing, and achieving maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. In addition, the MC established by the Fishery Management Plan (FMP) is responsible for developing recommendations for management measures designed to achieve the recommended catch limits. The SSC recommends ABCs that addresses scientific uncertainty, while the MC recommends ACTs that address management uncertainty and management measures to constrain catch to the TALs.

This year, the SSC and MC will recommend 2022-2023 ABCs and management measures, respectively, based on the updated management track assessment and ongoing rebuilding plan. The Council/Board will meet jointly to consider these recommendations in August 2021.

Recent Catch and Landings

Recreational harvest, dead discards (GARFO-estimated), and commercial landings from 2000-2020 are presented in Figure 1.

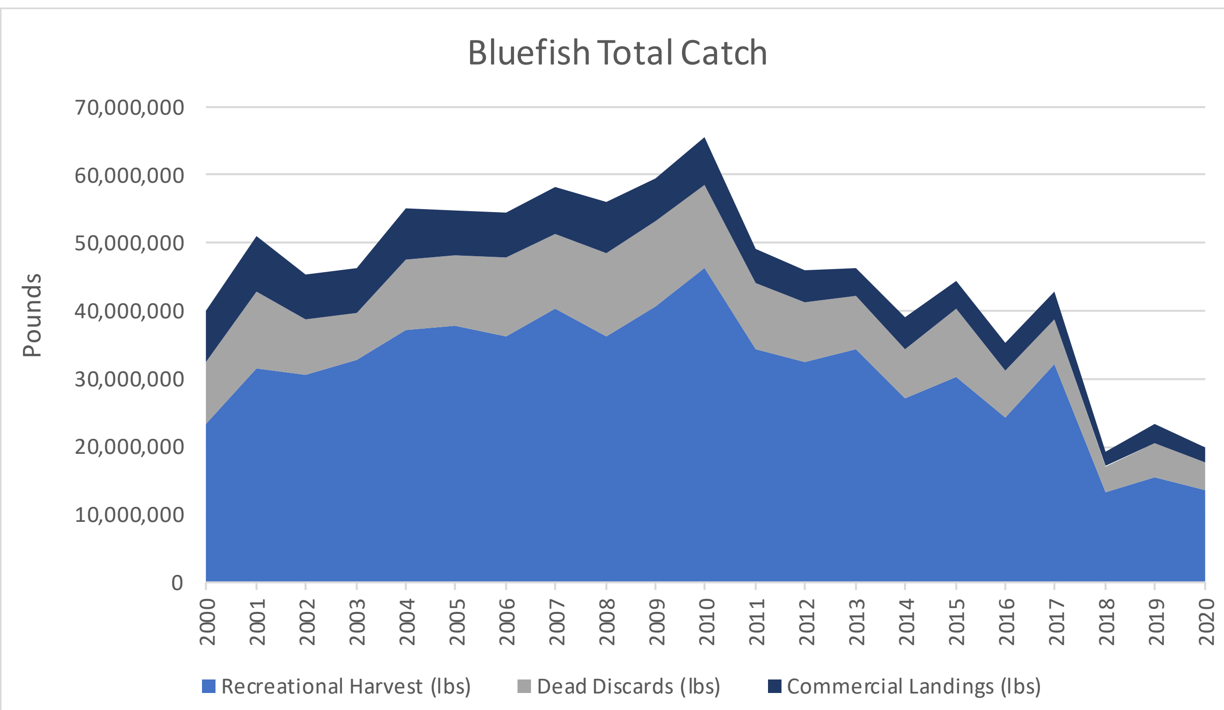

Figure 1. Bluefish total catch (recreational harvest, recreational dead discards and commercial landings) from 2000-2020.

MRIP recreational landings decreased by approximately 13% from 2019 to 2020 (15.56 million pounds to 13.58 million pounds) and reported the second lowest recreational landings (2018-

lowest) for the time series (Table 3). This coincides with effort, as the number of recreational trips[2] in 2020 (8,745,993) is the third lowest reported in the 2000-2020 period.

Commercial landings decreased by approximately 22% from 2019 to 2020 (2.78 million pounds to 2.16 million pounds), which represents the lowest commercial landings in the time series (Table 2). Landings identified through the dealer database (cfders) were harvested with the following gear: gillnet (52%), followed by unknown gear (24%), otter trawl/bottom fish (15%), handline (5%) and other (4%).

Table 3. Recreational harvest/catch and commercial landings by state for 2020.

	Recreational						Commercial
State	Harvest			Catch	Released Alive	Dead Discards	Landings
	Pounds	Number	Average Weight[1] (pounds)	Number	Number	Number	Pounds[3]
ME	0	0	0	0	0	-	527
NH	1,800	376	4.8	376	0	-	0
MA	553,242	162,128	3.4	906,269	744,141	111,621	112,674
RI	508,227	220,556	2.3	1,089,449	868,893	130,334	334,745
CT	594,546	298,383	2.0	1,407,730	1,109,347	166,402	22,312
NY	1,478,719	885,517	1.7	3,701,474	2,815,957	422,394	341,623
NJ	1,808,548	595,103	3.0	3,372,216	2,777,113	416,567	152,799
DE	94,901	53,751	1.8	219,288	165,537	24,831	4,303
MD	214,991	173,846	1.2	494,214	320,368	48,055	21,000
VA	305,092	395,751	0.8	1,172,803	777,052	116,558	165,623
NC	2,124,224	2,108,296	1.0	8,666,047	6,557,751	983,663	857,719
SC	154,420	289,339	0.5	2,187,307	1,897,968	284,695	0
GA	9,902	10,795	0.9	187,272	176,477	26,472	0
FL	5,732,605	4,142,380	1.4	7,277,380	3,135,000	470,250	144,698
Total	13,581,217	9,336,221	-	30,681,825	21,345,604	3,201,841	2,158,023

Discard Estimates

There are currently two methods to estimate recreational bluefish discards that result in very different estimates (e.g., 2019 GARFO estimated = 4,880,759 pounds, 2019 NEFSC estimated = 15,414,721 pounds), however there is only one estimate for 2020 (2020 GARFO estimated =

[2] Estimated number of recreational fishing trips where the primary or secondary target was bluefish, Maine – Florida's East Coast. Source: MRIP.
[3] State only commercial landings from North Carolina and Florida are not always present in the cfders database, and thus may not yet be finalized. Final commercial catch accounting will be made available by GARFO prior to setting specifications.

4,191,779 pounds). The first approach, which is used by GARFO and Council staff (for catch accounting), applies the MRIP estimated mean weight (by year, state and wave) of harvested fish (A+B1) times the number of released fish (MRIP-B2s by year, state and wave) and an assumed 15% release mortality. Previously, the Monitoring Committee generally agreed that this estimate does not fully capture recreational fishery dynamics because this approach uses the mean weight of harvested fish, not discards, and the length frequency data suggests that released fish tend to be larger than retained fish. The second approach, which is used by the NEFSC for catch accounting, incorporates a length-weight relationship for released fish data from the MRIP, American Littoral Society tag releases, and volunteer angler surveys from Connecticut, Rhode Island, and New Jersey. However, this sampling approach does not characterize the entire coast, which adds to the uncertainty in these estimates. Given there is no NEFSC estimate of discards for 2020 (since the assessment only goes through 2019), Council staff used the GARFO estimated discards to generate the specifications. Moreover, the constant F-rebuilding projections used to inform the 2022-2023 ABCs incorporate the 2020 GARFO estimated discards.

Due to the ongoing discussion surrounding bluefish discards and which estimate is more appropriate, the NEFSC assessment scientist indicated that the next research track assessment would thoroughly investigate using the MRIP release weight methodology (used by GARFO and the Council to monitor the fishery) to estimate the weight of released fish in the assessment.

Review of Prior SSC Recommendations

In September 2019, the SSC recommended new ABCs for 2020-2021, which incorporated the results of the 2019 operational stock assessment. To make this recommendation, the SSC reviewed 2018 fishery performance, the 2019 data update, and materials from the SAW 60 benchmark assessment.

To derive the 2020-2021 ABCs, a CV of 100% was applied to the OFL with a typical life history (which was increased from 60% due to the patterns in the revised MRIP estimates). The SSC offered ABCs using the constant/average and varied approach (Table 4). Upon review, the Council selected to move forward with the average ABC approach. This resulted in ABCs of 7,385 mt.

In July 2020, the SSC did not recommend any changes to the ABC of 7,385 mt.

Table 4. 2019 bluefish operational assessment ABC projections for 2020-2021. The projections assume the 2019 ABC of 9,897 mt with recreational catch in 'New' MRIP equivalents will be taken in 2019, providing an estimated catch of 22,614 mt in 2019. OFL Total Catches are catches in each year fishing at $F_{MSY} = 0.183$, prior to calculation of the associated annual ABC. The projections sample from the estimated recruitment for 1985-2018 and use the MAFMC SSC OFL CV working group recommended OFL CV = 100%.

Average ABC 2020-2021
Total Catch, Landings, Discards, Fishing Mortality (F)
and Spawning Stock Biomass (SSB)
Catches and SSB in metric tons

Year	OFL Total Catch	ABC Total Catch	ABC F	ABC P* value	ABC SSB
2019	15,373	22,614	0.279	0.679	92,773
2020	14,956	7,385	0.087	0.198	102,166
2021	17,228	7,385	0.075	0.154	115,041

Stock Status and Biological Reference Points

Projections

In June 2021, a bluefish management track assessment, which included revised bluefish MRIP estimates and commercial landings through 2019 indicated the bluefish stock is still overfished and overfishing is not occurring. This update builds upon the 2019 operational assessment with data through 2018 that first indicated the stock was overfished and overfishing was not occurring.

At the June 2021 Council meeting, the Council and Board approved a 7-year constant fishing mortality rebuilding plan as part of the Bluefish Allocation and Rebuilding Amendment. Throughout their discussion, support was also provided for the p* rebuilding approach, and thus, both projections are available for comparison (Table 5 – top and bottom).

The biological reference points for bluefish revised through the 2021 management track assessment include an updated fishing mortality threshold of $F_{MSY} = F_{35\%}$ (as the F_{MSY} proxy) = 0.181, and a biomass reference point of $SSB_{MSY} = SSB_{35\%}$ (as the SSB_{MSY} proxy) = 444.74 million lbs (201,729 mt). The minimum stock size threshold (1/2 SSB_{MSY}) is estimated to be 222.37 million lbs (100,865 mt); Table 5. SSB in 2019 was 211.07 million lbs (95,742 mt) (Figure 2 and Table 6).

Management track assessment results indicated that the bluefish stock was overfished and overfishing was not occurring in 2019 relative to the biological reference points. Fishing mortality on the fully selected age 2 fish was estimated to be 0.172 in 2019, 95% of the updated fishing mortality threshold reference point F_{MSY} proxy = $F_{35\%}$ = 0.181 (Figure 3). There is a 90% probability that the fishing mortality rate in 2019 was between 0.140 and 0.230.

Table 5. 2021 Bluefish Operational Assessment ABC Projection for 2022-2026 and a 7 year rebuilding projection (2022-2028) with constant fishing mortality. The rebuilding target (SSBMSY) from the 2021 assessment is 201,729 mt. The projections use an estimated 2020 catch and the 2021 ABC of 7,385 mt. The 2020 total catch estimate uses dealer (cfders) data for commercial landings, MRIP harvest (A+B1) data for recreational landings, and GARFO estimated dead discards (MRIP B2 by Wave and State * Discard Mortality * Average weight). Note: Discard Mortality = 0.15 and Average Weight = (Total weight harvested (A+B1) / Total harvest in numbers (A+B1)). OFL Total Catches are catches in each year fishing at Frebuild = 0.154, prior to calculation of the associated annual ABC. The projections sample from the distribution of estimated recruitment for 1985-2019 and use the MAFMC SSC OFL CV working group recommended OFL CV = 100%.

Frebuild Iterative Projection 2022-2026
Total Catch, Fishing Mortality (F)
Pstar and Spawning Stock Biomass (SSB)
Catches and SSB in metric tons

Year	OFL Total Catch	ABC Total Catch	ABC F	ABC P* value	ABC SSB
2020	14,727	9,041	0.093	0.230	112,864
2021	15,352	7,385	0.068	0.285	135,071
2022	18,399	11,460	0.094	0.320	149,387
2023	20,490	13,890	0.102	0.362	166,096
2024	22,773	16,960	0.113	0.391	177,910
2025	24,043	19,094	0.121	0.427	192,273
2026	25,787	22,103	0.131	0.451	204,244

7 year Frebuild projection
Total Catch, Fishing Mortality (F)
Spawning Stock Biomass (SSB)
Catches and SSB in metric tons

Year	Total Catch	F	SSB
2020	9,041	0.093	112,892
2021	7,385	0.068	135,081
2022	18,463	0.154	146,103
2023	19,667	0.154	155,671
2024	21,113	0.154	161,005
2025	21,782	0.154	169,690
2026	23,081	0.154	178,163
2027	24,570	0.154	192,196
2028	25,646	0.154	202,299

Table 6. Summary of changes in biological reference points and terminal year SSB and F estimates resulting from SAW/SARC 60 process to the 2019 operational assessment and 2021 management track assessment.

	SAW/SARC 60 (2015) Biological Reference Points and most recent update stock status results (data through 2014)	**Bluefish Operational Assessment (2019) Biological Reference Points and stock status results (data through 2018)**	**Bluefish Management Track Assessment (2021) Biological Reference Points and stock status results (data through 2019)**
Stock Status	Not Overfished, Not Overfishing	Overfished, Not Overfishing	Overfished, Not Overfishing
SSB_{MSY}	223.42 million lbs (101,343 mt)	438.10 million lbs (198,717 mt)	444.74 million lbs (201,729 mt)
½ SSB_{MSY}	111.71 million lbs (50,672 mt)	219.05 million lbs (99,359 mt)	222.37 million lbs (100,865 mt)
Terminal year SSB	*2014:* 258.76 million lbs (86,534 mt) 85% of SSB_{MSY}	*2018:* 200.71 million lbs (91,041 mt) 46% of SSB_{MSY}	*2019:* 211.07 million lbs (95,742 mt) 47.5% of SSB_{MSY}
F_{MSY}	0.190	0.183	0.181
Terminal year F	*2014:* 0.157 83% of F_{MSY}	*2018:* 0.146 80% of F_{MSY}	*2019:* 0.172 95% of F_{MSY}

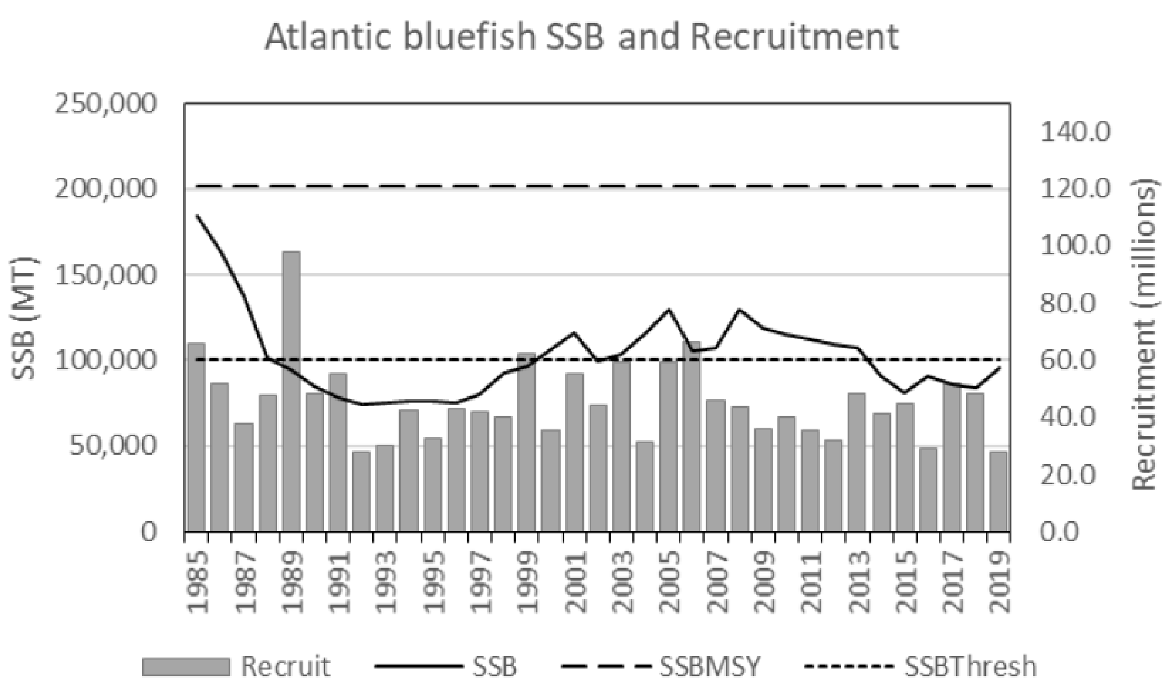

Figure 2. Atlantic bluefish spawning stock biomass (SSB; solid black line) and recruitment at age 0 (R; gray vertical bars) by calendar year. The horizontal dashed line is the updated SSB_{MSY} proxy = $SSB_{35\%}$ = 201,729 MT, and the dotted black line is the $SSB_{Threshold}$ = 100,865 MT.

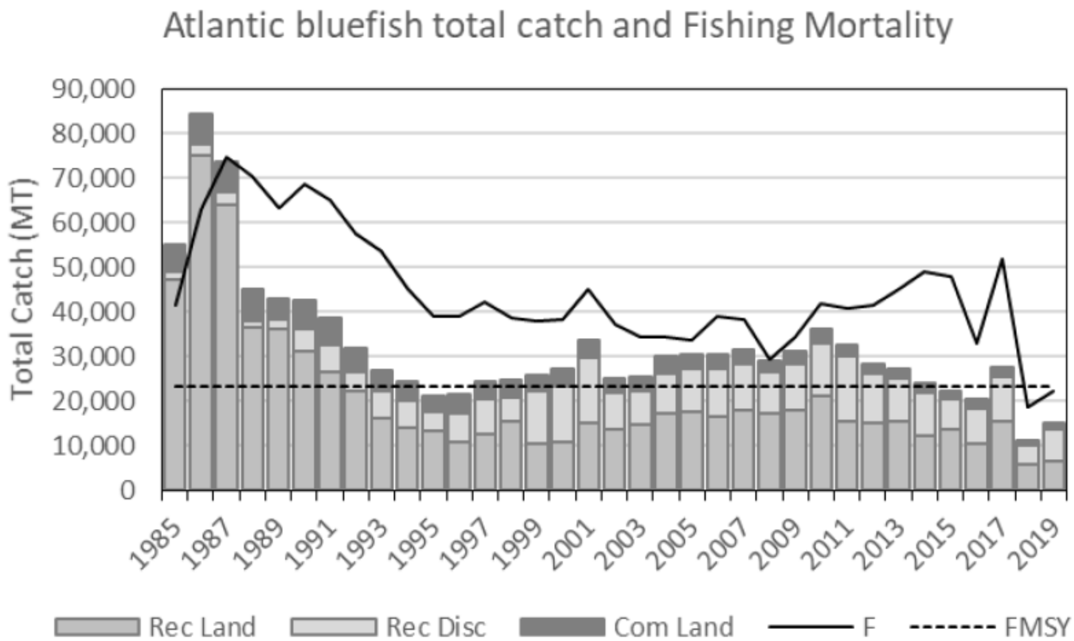

Figure 3. Total fishery catch (metric tons; MT; solid line) and fishing mortality (F, peak at age 3; squares) for Atlantic bluefish. The horizontal dashed line is the updated F_{MSY} proxy = F35% = 0.181.

The 2021 management track assessment indicated the bluefish stock has experienced a decline in SSB over the past decade, coinciding with an increasing trend in F. Recruitment has remained fairly steady, fluctuating just below the time-series mean of 46 million fish. Both commercial and recreational fisheries have had lower catches in recent years. These lower catches are possibly a result of availability. Anecdotal evidence suggests larger bluefish stayed offshore and inaccessible to most of the recreational fishery during the past few years.

Staff Recommendations for 2022-2023 ABCs

Two ABC options are available for SSC consideration so they can make an informed decision given the many uncertainties and moving parts present in the bluefish fishery and assessment.

Option 1 treats the total catch value (2022 = 40.70 million pounds (18,463 mt) and 2023 = 43.36 million pounds (19,667 mt)) from the 7-year constant fishing mortality rebuilding plan as an ABC. Option 2 treats the total catch value from the 7-year constant fishing mortality rebuilding plan as an OFL proxy (resulting in an ABC of 25.26 million pounds (11,460 mt) for 2022 and 30.62 million pounds (13,890 mt) for 2023), which allows for a scientific uncertainty buffer through the ABC calculations risk policy spreadsheet. Ultimately, staff recommends Option 2, which includes an ABC of 25.26 million pounds (11,460 mt) for 2022 and an ABC of 30.62 million pounds (13,890 mt) for 2023.

The Council and ASMFC's Bluefish Board approved a 7-year constant fishing mortality rebuilding plan with higher associated catches than the P* Council risk policy rebuilding plan. The preferred rebuilding plan projects total catch at 40.56 million pounds for 2022. This projected total catch is not an ABC or OFL, but instead the resulting total catch when fishing at the highest possible F to rebuild in 7 years. Typically, the assessment scientist projects at F_{MSY}, which is a target that cannot be exceeded because it is associated with an OFL. By using the 7-year constant F rebuilding plan, the Council has chosen a new "OFL proxy". This new level of F cannot be exceeded since the goal is to rebuild in 7 years. Therefore, the SSC may want to consider applying the risk policy to this new OFL proxy since there is a new F target, which is no longer F_{MSY}. Ultimately, by being more conservative and fishing below the targeted F, rebuilding may occur more quickly. Fishing above the targeted F will likely result in total catch that does not achieve a rebuilt status within 7 years.

In addition to the ongoing rebuilding plan, there are many uncertainties associated with the bluefish fishery. There are still two estimates of discards (NEFSC and GARFO MRIP-estimated) used to inform fishery performance and the projections. The 2019 discard estimates from the NEFSC exceed the GARFO MRIP-estimated discards by over 11 million pounds (and there are no 2020 estimates of discards from the NEFSC). Since there are no 2020 NEFSC discard estimates, the F rebuild projections use the 2020 realized catch that incorporates the GARFO MRIP-estimated total catch (including the commercial dealer landings). Moreover, the 2020 realized catch exceeds the 2020 ACL by 3.65 million pounds, which triggers accountability measures on the recreational ACT for 2022.

The last major source of uncertainty is tied to the 2020 recreational harvest estimates. Following the overfished designation in 2019, the Council implemented 2020 management measures for bluefish that resulted in a 3 and 5-fish bag limit for private and for-hire anglers, respectively. This reduction in bag limit was anticipated to result in a ~28% reduction in recreational harvest to ensure the RHL was not exceeded. However, many states were not able to implement the new measures until at least midway through 2020. Then, the COVID-19 pandemic further influenced the uncertainty tied to the 2020 estimates, but MRIP offered data imputations to help inform 2020 harvest. The data imputations by MRIP used 2018 and 2019 to estimate 2020 harvest. These 2020 imputed estimates unfortunately did not include the impacts of the revised management measures that reflect the reduction in bag limits. Therefore, the bluefish fishery still has not realized the true impacts of the reduced bag limits.

In 2022, a research track assessment will be conducted where discards and other data and model issues will be thoroughly explored. This assessment may change the overall model used to assess bluefish, and in turn update all biological reference points and the resulting rebuilding plan. This assessment will ultimately inform the 2024-2025 specifications package. Therefore, the SSC should consider the uncertainties associated with raising the ABC from 16.28 million pounds to 40.70 million pounds the year a rebuilding plan starts (while overfished and almost overfishing – 2019 F is 95% F_{MSY}) and the year prior to a research track assessment.

For all the reasons outlined above, staff recommends the SSC consider Option 1 and Option 2 for setting ABCs for the 2022-2023 bluefish specifications package.

Atlantic Bluefish Operational Assessment for 2021

National Marine Fisheries Service
Northeast Fisheries Science Center
166 Water St.
Woods Hole, MA 02543

State of Stock: This assessment of Atlantic bluefish (*Pomatomus saltatrix*) is a Level 1 update of the existing 2015 benchmark assessment (NEFSC 2015). Based on the previous assessment, the stock was overfished and overfishing was not occurring (NEFSC 2019). This assessment updates commercial and recreational fishery catch data, research survey indices of abundance, and the analytical ASAP assessment model and reference points through 2019. Based on this updated assessment, the bluefish stock was overfished and overfishing was not occurring relative to the updated biological reference points (Figure 1). Spawning stock biomass (SSB) was estimated to be 95,742 MT in 2019, about 47.5% of the updated biomass target reference point SSB_{MSY} proxy = $SSB_{35\%}$ = 201,729 MT, and 95% of the $SSB_{threshold}$ = ½SSB_{MSY} proxy = 100,865 MT (Table 1, Figure 2). There is a 90% probability that SSB in 2019 was between 73,992 and 105,151 MT. Fishing mortality on the fully selected age 2 fish was estimated to be 0.172 in 2019, and 95% of the updated fishing mortality threshold reference point F_{MSY} proxy = $F_{35\%}$ = 0.181 (Table 1, Figure 3). There is a 90% probability that the fishing mortality rate in 2019 was between 0.140 and 0.230. The average age-0 recruitment from 1985 to 2019 was 46 million. The largest recruitment in the time series occurred in 1989 at 98 million fish, and the lowest recruitment was in 2016 at 29 million fish. Recruitment over the last 10 years has varied around the time series average. In both 2017and 2018, recruitment estimates were above the average at 52, and 48 million fish, respectively. However, recruitment dropped dramatically in 2019 by 42%, with an estimate of 28 million fish (Table 1, Figures 2 & 4). The 2019 model estimates of F and SSB adjusted for internal retrospective error are within the model estimated 90% confidence intervals and no adjustment of the terminal year estimates has been made for stock status determination or projections (Figure 1).

OFL Projections: Projections using the 2021 bluefish Operational Assessment ASAP model (data through 2019) were made to estimate the OFL catches for 2022-2023. Projections assumed that the 2020 ABC of 7,385 MT was harvested in both 2020 and 2021 and sampled from the distribution of recruitment for 1985-2019. The OFL projection uses F_{2022} and F_{2023} = updated F_{MSY} proxy = F35% = 0.181. The OFL catches are 21,729 MT in 2022 (CV = 10%) and 22,641 MT in 2023 (CV = 10%).

Atlantic bluefish OFL for 2022-2023
Catches and SSB in metric tons

Year	Total Catch (MT)	F	SSB (MT)
2020	7,385	0.075	113,672
2021	7,385	0.067	137,162
2022	21,729	0.181	146,890
2023	22,641	0.181	153,066

Catch: Reported 2019 commercial landings from ACCSP were 1,353 MT = 3.0 million lbs. Estimated MRIP 2019 recreational landings were 6,612 MT = 14.6 million lb. Total commercial and recreational landings in 2019 were 7,965 MT = 17.6 million lb. Estimated 2019 recreational discards were 6,992 MT = 15.4 million lbs. Commercial discards are not considered significant and not included in the assessment. The estimated total catch in 2019 was 14,957 MT = 33.0 million lbs.

Catch and Status Table: Atlantic bluefish
(Weights in mt, recruitment in thousands, arithmetic means, includes New MRIP estimates)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Commercial landings	3,304	2,453	2,212	1,974	2,236	1,902	1,929	1,873	1,105	1,353
Recreational landings	21,013	15,430	15,051	15,526	12,050	13,524	10,433	15,421	5,695	6,612
Recreational discards[2]	11,965	14,606	11,039	9,537	9,848	6,953	8,008	10,111	4,489	6,992
Catch used in assessment	36,281	32,489	28,303	27,037	24,135	22,379	20,370	27,404	11,288	14,957
Spawning stock biomass	115,365	112,514	109,466	106,880	90,295	81,315	90,615	85,423	83,410	95,742
Recruitment (age 0, thousands)	39,925	35,543	31,687	48,399	41,368	44,532	29,106	51,806	48,147	27,918
F full[3]	0.327	0.322	0.331	0.362	0.399	0.400	0.276	0.450	0.152	0.172

	Min[1]	Max[1]	Avg[1]
Commercial landings	1,105	7,162	3,807
Recreational landings	5,695	74,988	21,012
Recreational discards[2]	1,440	14,850	7,717
Catch used in assessment	11,288	84,201	32,536
Spawning stock biomass	74,547	183,843	102,587
Recruitment (age 0, thousands)	27,917	98,151	45,744
F full[3]	0.152	0.579	0.351

[1] Years 1985-2019

[2] dead discards

[3] F on fully selected age 2. Note that table values are not retro adjusted.

Stock Distribution and Identification: The Atlantic States Marine Fisheries Commission (ASMFC) and Mid-Atlantic Fishery Management Council (MAFMC) jointly developed the Fishery Management Plan (FMP) for the bluefish fishery and adopted the plan in 1989 (ASMFC 1989, MAFMC 1990). The Secretary of Commerce approved the FMP in March 1990. The FMP defines the management unit as bluefish (*Pomatomus saltatrix*) in U.S. waters of the western Atlantic Ocean.

Assessment Model: The assessment model for Atlantic bluefish is a complex statistical catch-at-age model (ASAP SCAA; Legault and Restrepo 1998, NFT) incorporating a broad range of fishery and survey data (NEFSC 2015). The model assumes an instantaneous natural mortality rate (M) = 0.2. The fishery catch is modeled as two fleets: 1. Commercial landings, and 2. Combined recreational landings and recreational discards.

Indices of stock abundance included a recreational catch-per-unit-effort index developed from the MRIP intercept data. In addition, eight fishery-independent indices were included in the model. Age-0+ fishery-independent indices included the NEFSC fall Bigelow trawl survey, the New Jersey ocean trawl survey, the Connecticut Long Island Sound trawl survey (CTLISTS), the NEAMAP fall inshore trawl survey, and the North Carolina Pamlico Sound independent gillnet survey (PSIGN). Young-of-year indices included the SEAMAP fall trawl survey and a composite index developed from state seine indices from New Hampshire to Virginia. In 2019, there was no consistent trend across indices from 2018 values. SEAMAP, PSIGN, CTLISTS, and the composite YOY seine index all increased from 2018 values. The NEFSC Bigelow, MRIP, NEAMAP, and NJ Ocean, all decreased from 2018 values, with the NEFSC and NJ indices being the lowest estimates in their time-series.

There is not a major retrospective pattern in the bluefish assessment model. The minor internal model retrospective error underestimates F by 22% and overestimate SSB by 22% over the last 7 terminal years. The 2019 model estimates of F and SSB adjusted for internal retrospective error (F = 0.221; SSB = 78,093 MT) are within the model estimate 90% confidence intervals and no adjustment of the terminal year estimates was needed for stock status determination or projections. The 'historical' retrospective comparison between the SARC60 benchmark, a 2017 continuity run using old MRIP data, the 2019 OA, and this update, indicates similar trends for SSB, F, and recruitment for most of the time-series (Figure 5).

Biological Reference Points (BRPs): Reference points were calculated using the non-parametric yield and SSB per recruit long-term projection approach. The cumulative distribution function of the 1985-2019 recruitment estimates (corresponding to the period of input fishery catches-at-age) was re-sampled to provide future recruitment estimates for the projections used to estimate the biomass reference point.

The existing biological reference points for bluefish are from the 2019 operational update of the SAW 60 benchmark assessment (NEFSC 2015). The reference points are $F_{35\%}$ as the proxy for F_{MSY}, and the corresponding $SSB_{35\%}$ as the proxy for the SSBMSY biomass target. Based on the benchmark, the $F_{35\%}$ proxy for F_{MSY} = 0.183; the proxy estimate for SSBMSY = $SSB_{35\%}$ = 198,717 MT = 438 million lbs; the proxy estimate for the ½ SSB_{MSY} biomass threshold = ½ $SSB_{35\%}$ = 99,359 MT = 219 million lbs; and the proxy estimate for MSY = $MSY_{35\%}$ = 29,571 MT = 65 million lbs.

The $F_{35\%}$ and corresponding $SSB_{35\%}$ proxy biological reference points for bluefish were updated for this 2021 Operational Assessment. The updated fishing mortality threshold $F_{35\%}$ proxy for F_{MSY} = 0.181; the updated biomass target proxy estimate for SSB_{MSY} = $SSB_{35\%}$ = 201,729 MT = 445 million lbs; the updated biomass threshold proxy estimate for ½ SSB_{MSY} = ½ $SSB_{35\%}$ = 100,865 MT = 222 million lbs; and the updated proxy estimate for MSY = $MSY_{35\%}$ = 29,549 MT = 65 million lbs.

Qualitative status description:

The bluefish stock has experienced a decline in SSB over the past decade, coinciding with an increasing trend in F. Recruitment has remained fairly steady, fluctuating just below the time-series mean of 46 million fish. Both commercial and recreational fisheries have had lower catches in recent years, with poor catch in 2016 (20,370 MT), 2018 (11,288 MT), and 2019 (14,957 MT), well below the time series average of 32,034 MT. With the low catch in 2019, fishing mortality (0.172) was again estimated below the reference point (0.181). These low catches in recent years could be due to lower bluefish availability. Anecdotal evidence suggests larger bluefish stayed offshore and inaccessible to most of the recreational fishery during the past few years.

Research and Data Issues:

The large increase in recreational landings and discards from the new MRIP calibration has further increased the importance of the recreational data to this assessment. Accurately characterizing the recreational discard lengths is an important component of the assessment and research that improves the methodology used to collect these data is recommended. Bluefish is scheduled for a Research track assessment in 2022, where discards and other data and model issues will be thoroughly explored.

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Legault CM, Restrepo VR. 1998. A flexible forward age-structured assessment program. ICCAT. Col. Vol. Sci. Pap. 49:246-253.

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Northeast Fisheries Science Center (NEFSC). 2019. Operational Assessment of the Black Sea Bass, Scup, Bluefish, and Monkfish Stocks, Updated Through 2018. US Dept Commerce, Northeast Fish Sci Cent Ref Doc. 20-01; 164 p.

NOAA Fisheries Toolbox (NFT). Age Structured Assessment Program (ASAP) version 3.0.11. (Internet address: http://nft.nefsc.noaa.gov).

Table 1. Summary assessment results for Atlantic Bluefish; Spawning Stock Biomass (SSB) in metric tons (MT); Recruitment (R) at age 0 in thousands; Fishing Mortality (F) for age of peak fishery selection (S = 1) age 2.

Year	SSB	R	F
1985	183,843	66,052	0.323
1986	163,620	51,689	0.490
1987	136,954	37,877	0.579
1988	101,648	47,501	0.546
1989	94,923	98,151	0.492
1990	84,460	48,354	0.534
1991	77,579	55,160	0.507
1992	74,547	28,077	0.447
1993	74,846	30,086	0.419
1994	75,793	42,414	0.353
1995	76,526	32,508	0.306
1996	75,224	42,835	0.308
1997	79,665	42,017	0.332
1998	92,628	40,391	0.302
1999	96,285	62,117	0.298
2000	106,332	35,394	0.299
2001	116,170	55,078	0.355
2002	99,066	44,294	0.292
2003	103,768	59,639	0.272
2004	115,528	31,562	0.271
2005	129,375	59,342	0.263
2006	105,410	66,514	0.306
2007	107,083	45,824	0.300
2008	129,326	43,751	0.231
2009	118,914	35,987	0.269
2010	115,365	39,925	0.327
2011	112,514	35,543	0.322
2012	109,466	31,687	0.331
2013	106,880	48,399	0.362
2014	90,295	41,368	0.399
2015	81,315	44,532	0.400
2016	90,615	29,106	0.276
2017	85,423	51,806	0.450
2018	83,410	48,147	0.152
2019	95,742	27,918	0.172

Table 2. Total catch (metric tons) of Atlantic bluefish from Maine through Florida from 1985-2019. Does not include commercial discards as they are not considered significant for this stock. Includes the 'New' MRIP estimates of recreational catch.

Year	Commercial Landings	Recreational Landings	Recreational Discards	Total Catch
1985	6,124	47,376	1,655	55,154
1986	6,657	74,988	2,556	84,201
1987	6,579	63,834	3,198	73,610
1988	7,162	36,337	1,440	44,938
1989	4,740	36,250	2,029	43,019
1990	6,250	31,268	4,999	42,516
1991	6,138	26,485	6,137	38,760
1992	5,208	22,262	4,351	31,820
1993	4,819	16,170	5,955	26,943
1994	4,306	14,085	6,126	24,517
1995	3,629	13,228	4,400	21,257
1996	4,213	10,623	6,477	21,313
1997	4,109	12,516	7,829	24,455
1998	3,741	15,243	5,693	24,676
1999	3,325	10,501	11,809	25,634
2000	3,660	10,950	12,431	27,041
2001	3,953	14,888	14,850	33,691
2002	3,116	13,612	8,241	24,970
2003	3,359	14,758	7,281	25,398
2004	3,661	17,264	9,050	29,975
2005	3,211	17,661	9,571	30,443
2006	3,252	16,653	10,379	30,284
2007	3,390	18,077	10,136	31,603
2008	2,730	17,185	9,173	29,088
2009	3,119	18,040	10,071	31,231
2010	3,304	21,013	11,965	36,281
2011	2,453	15,430	14,606	32,489
2012	2,212	15,051	11,039	28,303
2013	1,974	15,526	9,537	27,037
2014	2,236	12,050	9,848	24,135
2015	1,902	13,524	6,953	22,379
2016	1,929	10,433	8,008	20,370
2017	1,873	15,421	10,111	27,404
2018	1,105	5,695	4,489	11,288
2019	1,353	6,612	6,992	14,957

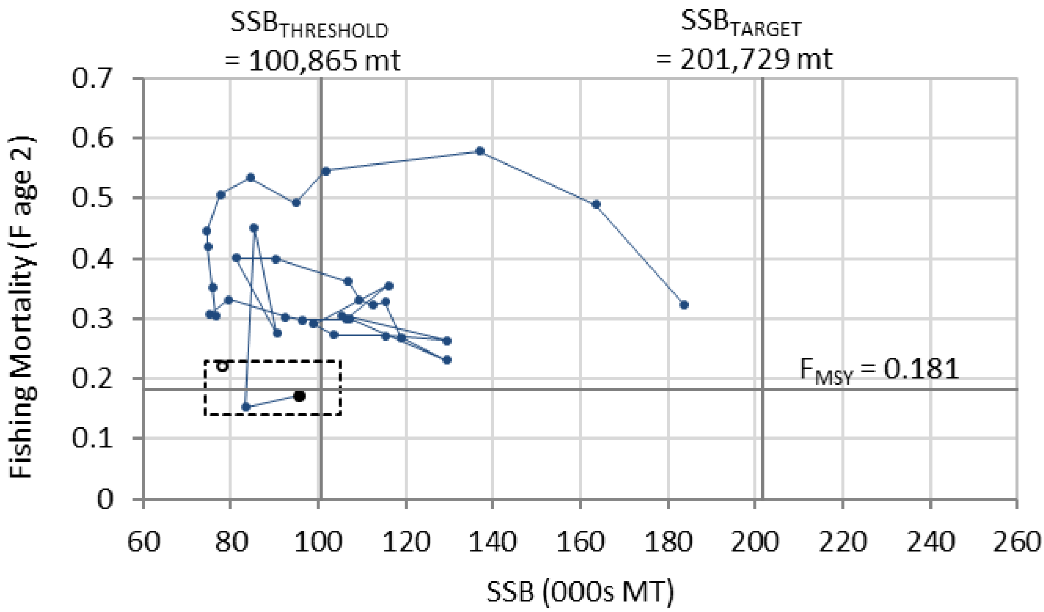

Figure 1. Estimates of Atlantic bluefish spawning stock biomass (SSB) and fully-recruited fishing mortality (F, peak at age 2) relative to the updated 2021 biological reference points. Black filled circle with 90% confidence intervals (dotted box) shows the assessment point estimates. The open circle shows the retrospective adjusted values.

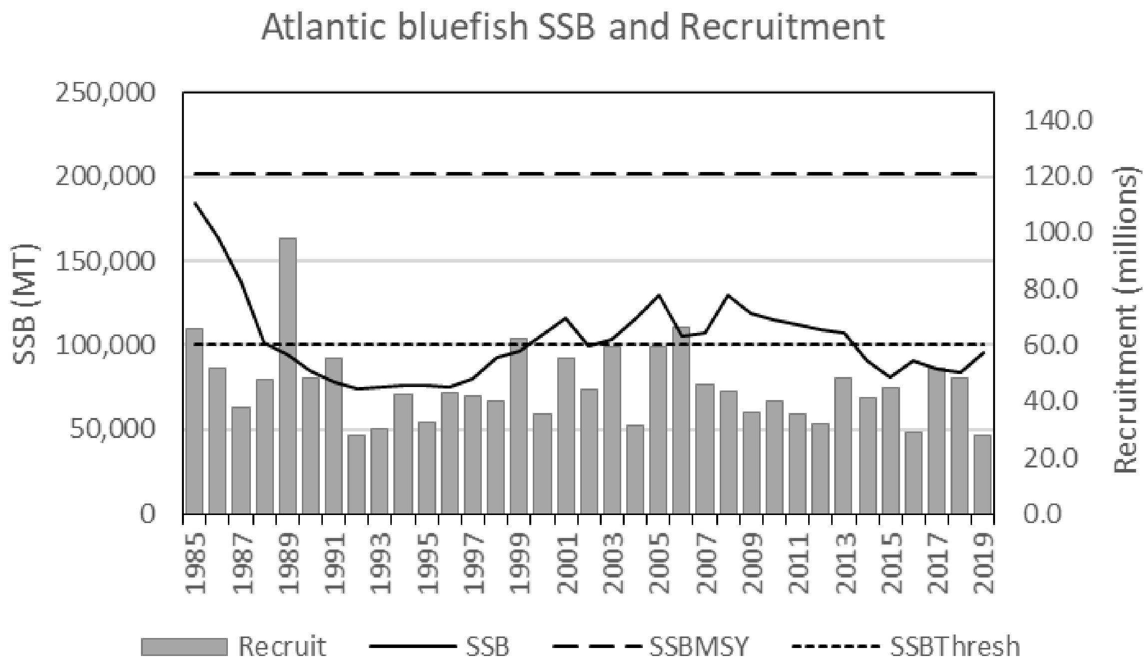

Figure 2. Atlantic bluefish spawning stock biomass (SSB; solid black line) and recruitment at age 0 (R; gray vertical bars) by calendar year. The horizontal dashed line is the updated SSB_{MSY} proxy = $SSB_{35\%}$ = 201,729 MT, and the dotted black line is the $SSB_{Threshold}$ = 100,865 MT.

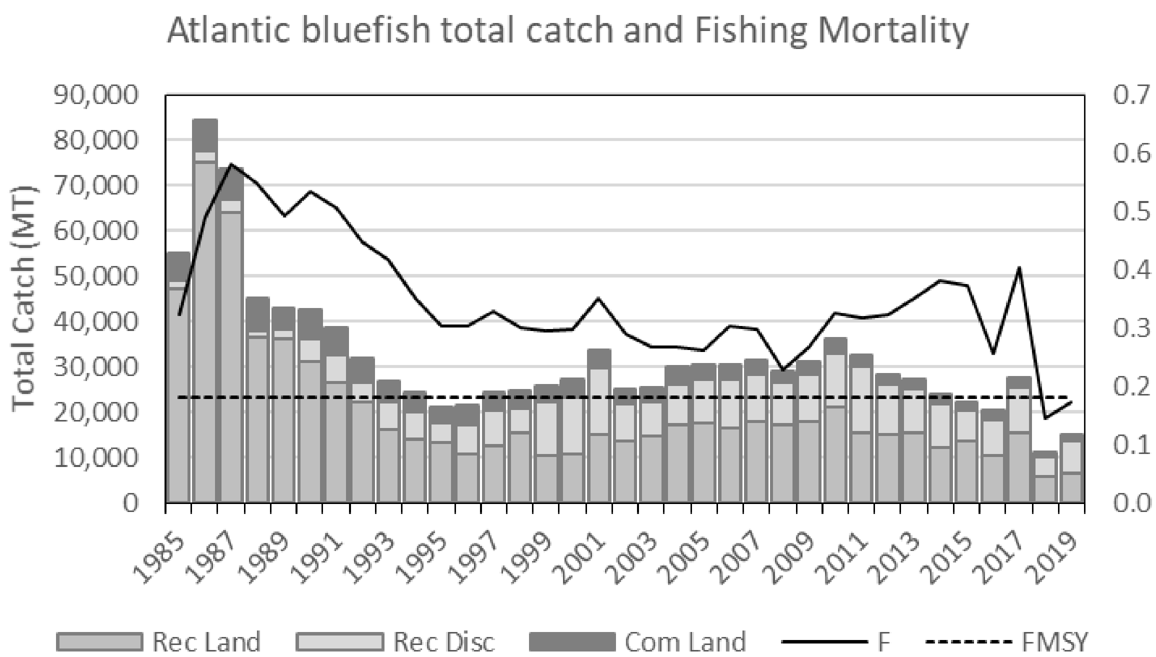

Figure 3. Total fishery catch (metric tons; MT; solid line) and fishing mortality (F, peak at age 3; squares) for Atlantic bluefish. The horizontal dashed line is the updated F_{MSY} proxy = $F_{35\%}$ = 0.181.

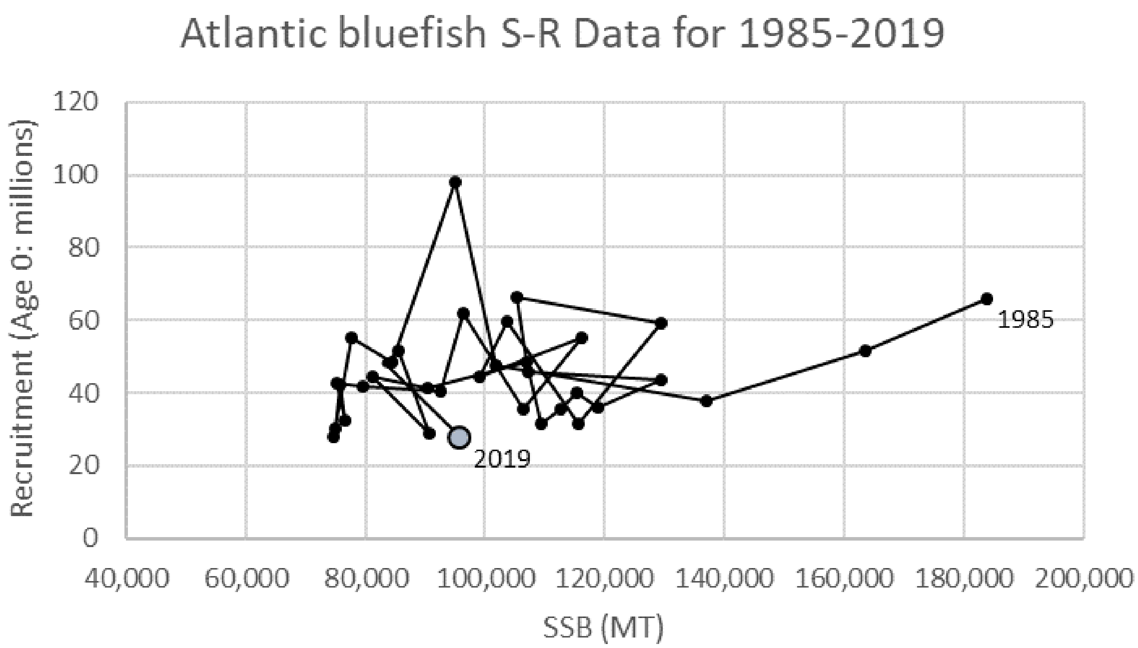

Figure 4. Spawning Stock Biomass (SSB) and Recruitment (R) scatter plot for Atlantic bluefish.

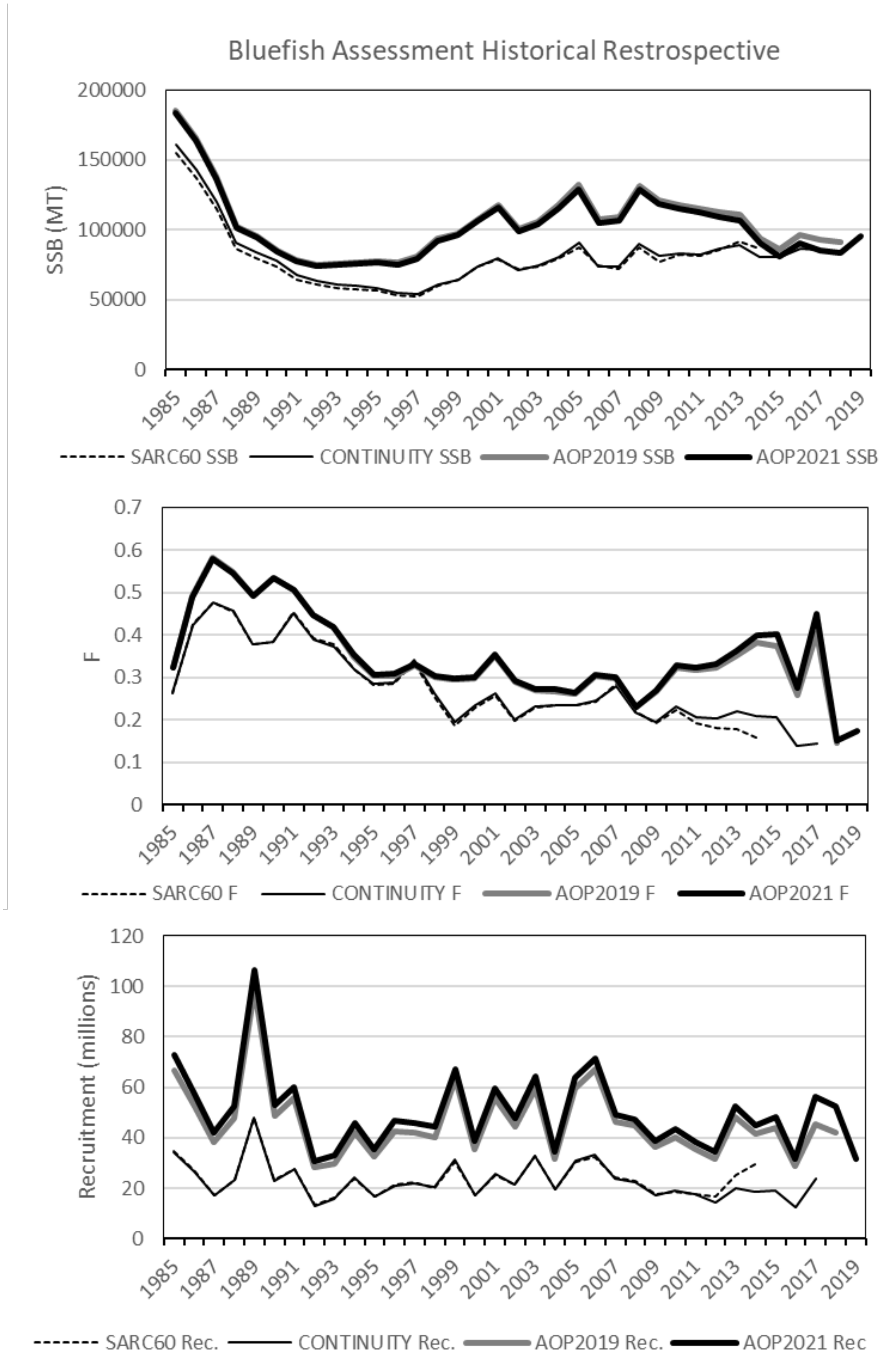

Figure 5. Historical retrospective analysis of the 2015 benchmark (dotted), 2017 (continuity run: slim black line), 2019 OA (bold grey line), and 2021 OA stock assessments of Atlantic bluefish.

Table ABC. 2021 Bluefish Operational Assessment ABC Projection for 2022-2026 and a 7 year rebuilding projection (2022-2028) with constant fishing mortality. The rebuilding target (SSBMSY) from the 2021 assessment is 201,729 mt. The projections use an estimated 2020 catch and the 2021 ABC of 7,385 mt. The 2020 total catch estimate uses dealer (cfders) data for commercial landings, MRIP harvest (A+B1) data for recreational landings, and GARFO estimated dead discards (MRIP B2 by Wave and State * Discard Mortality * Average weight). Note: Discard Mortality = 0.15 and Average Weight = (Total weight harvested (A+B1) / Total harvest in numbers (A+B1)). OFL Total Catches are catches in each year fishing at Frebuild = 0.154, prior to calculation of the associated annual ABC. The projections sample from the distribution of estimated recruitment for 1985-2019 and use the MAFMC SSC OFL CV working group recommended OFL CV = 100%.

Frebuild Iterative Projection 2022-2026
Total Catch, Fishing Mortality (F)
Pstar and Spawning Stock Biomass (SSB)
Catches and SSB in metric tons

Year	OFL Total Catch	ABC Total Catch	ABC F	ABC P* value	ABC SSB
2020	14,727	9,041	0.093	0.230	112,864
2021	15,352	7,385	0.068	0.285	135,071
2022	18,399	11,460	0.094	0.320	149,387
2023	20,490	13,890	0.102	0.362	166,096
2024	22,773	16,960	0.113	0.391	177,910
2025	24,043	19,094	0.121	0.427	192,273
2026	25,787	22,103	0.131	0.451	204,244

7 year Frebuild projection
Total Catch, Fishing Mortality (F)
Spawning Stock Biomass (SSB)
Catches and SSB in metric tons

Year	Total Catch	F	SSB
2020	9,041	0.093	112,892
2021	7,385	0.068	135,081
2022	18,463	0.154	146,103
2023	19,667	0.154	155,671
2024	21,113	0.154	161,005
2025	21,782	0.154	169,690
2026	23,081	0.154	178,163
2027	24,570	0.154	192,196
2028	25,646	0.154	202,299

Bluefish Fishery Performance Report

June 2021

The Mid-Atlantic Fishery Management Council's (Council) and the Atlantic States Marine Fisheries Commission's Bluefish Advisory Panels (AP) met via webinar on June 17, 2021 to review the Fishery Information Document and develop the following Fishery Performance Report. The primary purpose of this report is to contextualize catch histories by providing information about fishing effort, market trends, environmental changes, and other factors. A series of trigger questions listed below were posed to the AP to generate discussion of observations in the bluefish fishery. Please note: Advisor comments described below are not necessarily consensus or majority statements.

MAFMC Advisory Panel members present: Victor Hartley III (NJ – For-Hire) Thomas Roller (NC– For-Hire), and Judith Weis (NY– Researcher).

ASMFC Advisory Panel members present: Paul Caruso (MA) and Rusty Hudson (FL – Comm.)

Others present: Dustin Colson Leaning (ASMFC Staff), Cynthia Ferrio (GARFO), Paul Rago (MAFMC SSC), Cynthia Jones (MAFMC SSC), Maureen Davidson (MAFMC), David Stormer (MAFMC), James Fletcher (UNFA), Mike Waine (ASA), and Matthew Seeley (MAFMC Staff).

Written comments submitted by: John LaFountain (NY – Fox Seafood), TJ Karbowski (CT – For-hire), Kevin Wark (NJ – Comm.), and Charlie Locke (NC – Comm.).

Trigger questions

1. What factors have influenced recent catch (markets/economy, environment, regulations, other factors)?
2. Are the current fishery regulations appropriate? How could they be improved?
3. What would you recommend as research priorities?
4. What else is important for the Council to know?

Factors Influencing Catch

Recreational

Despite a decrease in Marine Recreational Information Program (MRIP) landings estimates from 2019 to 2020, AP members discussed an increase in bluefish abundance coastwide (despite some lower effort during the beginning and height of the COVID-19 pandemic). Advisors also continue to indicate that larger bluefish are often identified to be further offshore and not available to anglers that typically target bluefish from shore or in state waters. Small fish (1-3 lbs) continue to be available early in the year while larger fish (5-10 lbs) were not present until later in the year and then more offshore quickly. AP members speculate that this may have to do with increasing water temperatures. Finally, AP members indicated that the 2021 fishing season seems to be following a similar distribution pattern with slightly more fish.

NJ – From Raritan Bay to Rockaway Inlet, we have had a phenomenal bluefish year with lots of bunker and other bait, ultimately leading to an abundance of bluefish. Often, anglers catch their 5-fish limit very early on in trips and need to shift effort away from bluefish. Typically, these anglers will transition to seabass or striper fishing.

NJ – We get a lot of people who enjoy catching and releasing bluefish. The more bunker we see, the more bluefish we see. We are also having a fantastic striper season due to the abundance of bait.

NC – In North Carolina, we do not catch as many big bluefish as up north. The big bluefish we catch are mainly 6-7 pounds and people either really want to harvest them or they do not at all. However, anglers do often keep the 1-2 pounders. Anecdotal evidence supports that many people are keeping the smaller fish as bait, in addition to personal consumption.

MA – Like in 2019, we had a slight uptick in bluefish abundance, however distribution patterns are very different than the last 30 years. The age 2-3 fish come in shore earlier and stay later, which may be consistent with local bait abundance. Similar to other states, the bigger fish often come later in the year. In 2020, we experienced more shore fishing due to COVID-19. Overall, I believe abundance is related to environmental conditions and do not think the bag limits are constraining harvest (maybe shore mode for snappers).

NC – Bluefish are a very common species in North Carolina, that even when numbers are down, you are still going to catch them. As a fulltime guide, it is hard to not notice that stock biomass has gone down. There are definitely less bluefish, especially when trolling for Spanish mackerel. We catch bluefish (around 1.5-3 pounds) in their core habitat, but there are fewer large schools and a lot less bigger fish. Now, many charter vessels from the Outer Banks are catching lots of ribbon fish because there are fewer bluefish and Spanish mackerel. They fish the same spots using the same gear, so there is definitely something going on. However, North Carolina is very different than other states because we still have a lot of room to grow. Carteret County continues to have increased population growth and fishing effort. In shore fisheries are often not in the best shape, so many people turn to bluefish, which are doing “okay”. Bait abundance seems fairly high yet seems to be correlated with salinity and precipitation. Often, bluefish are landed specifically for king mackerel and shark bait.

NC (public) – There are now a lot more fishermen. Only 641,000 saltwater licenses sold. Therefore, we must use barbless hooks and encourage anglers to keep what they catch because dead discards are very impactful - both commercial and recreational.

NJ – For the for-hire fleet, the Golden eagle, Queen Mary, Miss Belmar Princess, and Lady Flamingo all share the issue of catching bluefish limits by mid-morning. Would like to see a 7-

fish bag limit since they are putting pressure on other fisheries.
NY – In northern NJ (Hackensack), which is fairly contaminated, we studied snapper abundance. Snappers were not feeding well despite the abundance of food (killifish and menhaden). This was the result of a behavioral problem due to interactions with contaminants (mercury and PCBs). Therefore, snappers did not have much food in their stomachs and thus, were not growing well. According to other studies, most snappers often have 60-70% of their gut full of food. These snappers were often much smaller and in turn, showed that the contaminants were affecting feeding behaviors. These fish would then be outcompeted by fish that spent their early life history in a more suitable environments.

FL – recreational landings are typically around 1M+, so the larger numbers may be due to the MRIP recalibration.

Commercial

NC (public) – Commercial landings are down because inlets are sometimes not passable. There is often less than 4 feet of depth for vessels to pass in Hatteras and Oregon inlet. Commercial vessels that traditional fish with gill nets cannot get back into the inlets with a full catch because the weight prohibits this movement through the inlets, which has nothing to do with bluefish abundance. The Army Corp of Engineers and state do not maintain the channels as well as they should.

FL – Hurricane Dorian at the end of Aug 2019 led to poor fall and winter weather. Now, the spring had significant wind that kept people in, which extended the damage. Overall, there were few gill netters targeting bluefish. In Florida, we do not harvest as many fish when they are further offshore.

Market/Economic Conditions

NC (public) – Right now the price stays strong in the NY market, only below a certain amount. Over a certain amount the price drops significantly. Boston market has been pushed out of business due to price war with NY market. Bluefish ranging 2-4 pounds often bring in ~$1.40/lb.

FL – Bluefish price has been fairly good in recent years, especially in the summer. When the weather is good, commercial fishermen do not have too much trouble getting a higher price for Spanish mackerel and bluefish. Prices varied from $1.35 in September 2020 to $2.01 in March 2021.

NC – For the for-hire fleet, COVID-19 caused business to fall off early in 2020. From June to the end of the year, I had more business than ever before. Most of Carteret County experienced this large uptick, specifically for smaller private companies, but we did not have many out of state tourists. The main difficulties we encountered were with the supply chains (e.g., tackle).

Management Issues

NJ – The for-hire fleet is not happy with the 5 fish bag limit and would like to see a 7-fish limit.

Public – Is there any evidence that the SSC reviews that could help understand the cyclical fluctuations often present in the bluefish fishery? Are there environmental factors that are reviewed by the SSC to better understand this cyclical nature?

Research Priorities

The AP reviewed all the research recommendations from the 2019 Operational Assessment and Council's Comprehensive 5-year Research Priorities (short-term). AP members agreed that the most important research focus moving forward is to more accurately characterize recreational discard lengths and weights.

NC – How can management validate release information that we collect? How do we know this data will be used? When you use software that is not required, it is hard to get individuals to actually report.

NJ – Any newly collected data reported by anglers may be more reliable that MRIP.

NC (public) – Can we look back at newspapers to reference the historical cycles? Also, can we set management measure that require the use barbless hooks, which would support the catch-and-release fishery.

NC (public) – Researchers need to think about the NAO and shifts in environmental conditions. We need to relate overfishing/overfished statuses to the environmental conditions using lunar cycles and not specifically years.

Written Comments

-----Original Message-----
From: John LaFountain [mailto:foxseafood@gmail.com]
Sent: Thursday, June 17, 2021 8:58 AM
To: Dustin C. Leaning <DLeaning@asmfc.org>
Subject: [External] Bluefish meeting

Hi Dustin, I am not gonna be able to make it back for the meeting this morning. I'm Actually waiting at the dock now for a boat to come in with Bluefish. I'm short staffed like every other business out there right now. Very good sign of fish this year in New York and Rhode Island. Nice large Bluefish. I've even seen quite a few guys Catching them off the rocks in point Judith Which I haven't seen in a while. I would like the FISHERY to remain as steady and consistent as possible. Good for everyone in the commercial FISHERY. My input would be to try to avoid any big decreases even if it means giving up some increases From year to year.

Regards,

I cannot attend. I will be on the water all day.
* Current observations for 2021. I have never seen so many bluefish this early in the season. Lots of forage around. Water temp has been fluctuating 58 - 61. If we didn't have those few years of lean

numbers you would think there were more bluefish around than ever. Various sizes represented.

Thank you,
Capt. TJ Karbowski
Rock & Roll Charters
Clinton, CT
203.314.3765
https://rockandrollcharters.com/

Hello all , I have a ROSA advisory committee call tomorrow so I will not be able to attend Bluefish AP but as for commercial this season so far amounted to some blue near shore in commercial quantities for just a few days in the spring mixed size they moved through quickly , as per the last several years Tilefish long liners are seeing Bluefish in 80 to 100 fathoms in the spring and they will not come into shore.

Regards Kevin Wark
F/V Dana Christine ll

The Bluefish fishery in North Carolina is complicated right now with the reduced Commercial Quota we have. We still encounter plenty of bluefish in the inshore gill net fishery but have had to adapt how we fish due to a smaller trip limits. The Big blue fishery has been almost non existent due to the warmer water through the winter months offshore, it seems the Bigger fish are staying more North and offshore than previous years. Over all over the years i have seen this same cycle so at the moment the challenge is the reduced trip limit,so i think a new stock assessment is a priority for this species. As far as the reallocation to the Recreational sector,the commercial sector is tired of the shifting of our quota to the "Unaccountable Army" this new MRIP data that is affecting every aspect of the commercial fisheries up and down the coast is highly unfair to an industry that has to record every pound of harvest as well as all discards. The time has come to bring the recreational sector to the same standards as us as far as up to date landings accountability and discard interactions. until this happens any shift of quota to there side is HIGHLY unfair to us.
Thank You,
Charlie Locke (Bluefish AP member)
F/V Salvation
Wanchese, North Carolina

MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

Bluefish Fishery Information Document

June 2021

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for bluefish with an emphasis on 2020. Data sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources, including previous Fishery Information Documents, please visit http://www.mafmc.org/bluefish/.

Key Facts

- According to 2019 operational assessment, bluefish is overfished and overfishing is not occurring. The bluefish stock will enter a rebuilding plan in 2022 to rebuild the stock to the SSB_{MSY} proxy = 438.10 million lbs (198,717 mt).
- Given the COVID-19 pandemic, many of the recreational estimates for 2020 were developed through imputations or proxy estimates.
- Recreational landings decreased from 15.56 million pounds to 13.58 million pounds from 2019 to 2020 (~13% decrease).
- Commercial landings decreased from 2.78 million pounds to 2.16 million pounds from 2019 to 2020 (~22% decrease).
- The 2020 bluefish Acceptable Biological Catch = Annual Catch Limit was exceeded by 3.65 million pounds.

Basic Biology

Bluefish are found worldwide in tropical and subtropical waters, but in the western North Atlantic range from Nova Scotia and Bermuda to Argentina. Bluefish travel in schools of like-sized individuals and undertake seasonal migrations, moving into the Middle Atlantic Bight (MAB) during spring and then south or farther offshore during fall. Within the MAB they occur in large bays and estuaries as well as across the entire continental shelf. Juvenile stages have been recorded in all estuaries within the MAB, but eggs and larvae occur in oceanic waters (Able and Fahay 1998). Bluefish have fast growth rates and reach lengths of 3.5 ft and can weigh up to 27 pounds (Bigelow and Schroeder 1953). Bluefish live to age 12 and greater (Salerno et al. 2001).

Bluefish eat a wide variety of prey items. The species has been described by Bigelow and Schroeder (1953) as “perhaps the most ferocious and bloodthirsty fish in the sea, leaving in its wake a trail of dead and mangled mackerel, menhaden, herring, alewives, and other species on which it preys."

Bluefish born in a given year (young of the year) typically fall into two distinct size classes suggesting that there are two spawning events along the east coast. Studies suggest, however, that spawning is a single, continuous event, but that young are lost from the middle portion resulting in the appearance of a split season (Smith et al. 1994). As a result of the bimodal size distribution, young are referred to as spring-spawned or summer-spawned. In the MAB, spring-spawned bluefish appear to be the dominant component of the stock.

Status of the Stock

The last bluefish benchmark stock assessment was peer reviewed in June 2015 and approved for use by management at SAW/SARC 60. This benchmark assessment uses a forward-projecting statistical catch-at-age model called ASAP (Age Structured Assessment Program). For the most recent benchmark, the catch-at-age matrices were completely reconstructed to incorporate new age data, including archived historical samples that had not been processed at the time the last benchmark (SAW/SARC 41; 2005) was conducted, and to correct aging errors in the earlier years of the time series (NEFSC 2015).

2019 Operational Assessment Update

In August 2019, a bluefish operational assessment, which included revised bluefish MRIP estimates through 2018 changed the stock status and biological reference points from SAW 60, which utilized data through 2014. All information from this operational assessment were and should be interpreted as preliminary results until publication of the final report.

The biological reference points for bluefish revised through the 2019 operational assessment include a fishing mortality threshold of $F_{MSY} = F_{35\%}$ (as the F_{MSY} proxy) = 0.183, and a biomass reference point of $SSB_{MSY} = SSB_{35\%}$ (as the SSB_{MSY} proxy) = 438.10 million lbs (198,717 mt). The minimum stock size threshold (1/2 SSB_{MSY}), is estimated to be 219.05 million lbs (99,359 mt); Table 3. SSB in 2018 was 200.71 million lbs (91,041 mt).

Operational assessment results indicated that the bluefish stock was overfished, and overfishing was not occurring in 2018 relative to the biological reference points. Fishing mortality on the fully selected age 2 fish was 0.146 in 2018, 80% of the updated fishing mortality threshold reference point F_{MSY} proxy = $F_{35\%}$ = 0.183.

2021 Management Track Assessment

In late June/early July 2021, a bluefish management track assessment will be conducted. This assessment will update all fishery and survey data through 2019 using the most recent ASAP model configuration with no changes; biological reference points (BRPs) will be updated, stock status determined relative to BRPs, and the lead will perform standard projections of the overfishing limit. The analyst is proposing to use the 2020 and 2021 allowable biological catch (ABC) as assumed catch for those years, and project 2022-2023 at $F = F_{MSY}$. In light of this work plan, the analyst proposed a level 1 assessment, direct delivery to the Council's Scientific and Statistical Committee (SSC).

Management System and Fishery Performance

Management

The Mid-Atlantic Fishery Management Council (Council or MAFMC) and the Atlantic States Marine Fisheries Commission (ASMFC) work cooperatively to develop fishery regulations for bluefish off the east coast of the United States. The Council and Commission work in conjunction with the National Marine Fisheries Service (NMFS), which serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore, also known as the Exclusive Economic Zone or EEZ). The management unit for bluefish is the U.S. waters in the western Atlantic Ocean.

The Bluefish Fishery Management Plan (FMP) was implemented in 1990 and established the Mid-Atlantic Fishery Management Council's management authority over the fishery in federal waters. Amendment 1, implemented in 2000, addressed stock rebuilding and created the Bluefish Monitoring Committee which meets annually to make management measure recommendations to the Council. Amendment 3 incorporated the development of annual catch limits (ACLs) and accountability measures (AMs) into the specification process and Amendment 4 modified recreational accountability measures to accommodate uncertainty in recreational management and catch estimation. The original FMP and subsequent amendments and frameworks are available at: http://www.mafmc.org/fisheries/fmp/bluefish.

Currently for bluefish, the annual catch target (ACT) is split 83 percent and 17 percent into recreational and commercial ACTs, respectively, and the discarded component of that catch is deducted to arrive at recreational and commercial total allowable landings (TAL). Additionally, landings above the expected recreational harvest can be "transferred" from the recreational to the commercial fishery as long as the final commercial quota does not exceed 10.5 million pounds. However, the Council and ASMFC's Bluefish Board are taking final action on Bluefish Allocation and Rebuilding Amendment in June 2021. This amendment addresses reallocation and the ability to transfer quota from one sector to the other. All preferred alternatives will be implemented for the 2022 fishing year. Amendment documentation is available at: https://www.mafmc.org/actions/bluefish-allocation-amendment.

The Council's SSC reviews assessment results and the Advisory Panel's fishery performance report and determines the ABC for the upcoming year. The Council's Bluefish Monitoring Committee develops and recommends specific coastwide management measures (commercial quota, recreational harvest limit) that will achieve the catch target and makes further adjustments to total catch as needed based on management uncertainty. Finally, the Council and Board meet jointly to develop recommendations to be submitted to the NMFS.

Fishery Performance Relative to Management Measures

The current commercial landings are slightly behind the 2020 landings (Figure 1; as of May 18, 2021). The recreational and commercial landings relative to specified management measures are provided in Table 1. In 2020, MRIP reported the recreational fishery landed 13.58 million pounds compared to the 9.48 million pounds RHL. This (2020) is the first year that all catch/landings can be compared to the ABC/Commercial quota/RHL using the new MRIP estimates. This RHL overage will be reviewed by the Monitoring Committee and Council and Board, as well as the Greater Atlantic Regional Fisheries Office to identify if/how accountability measures will be triggered. The commercial fishery landed 2.16 million pounds compared to the 2.77-million-pound quota. Total landings in 2020 are 15.74 million pounds when calculated using the new MRIP estimates and commercial landings.

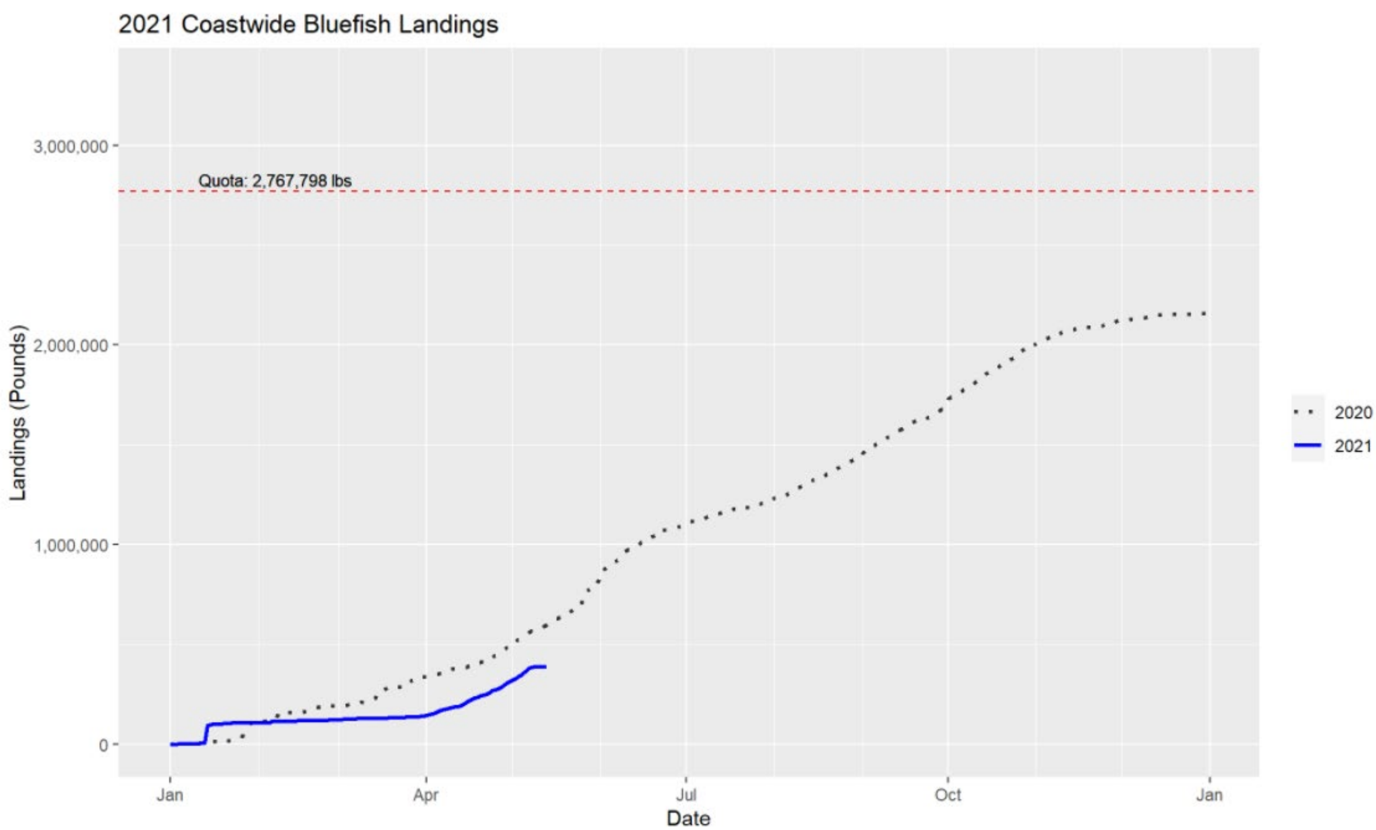

Figure 1. Atlantic bluefish commercial landings for 2021 fishing year to date (May 18, 2021).

Table 1. Summary of bluefish management measures, 2009 – 2021 (Values are in million pounds).

Management Measures	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[8]	2020[9]	2021
TAC[1]/ **ABC**[2]	34.08	34.38	31.74	**32.04**	**27.47**	**24.43**	**21.54**	**19.45**	**20.64**	**21.81**	**21.81**	**16.28**	**16.28**
TAL[3]	29.36	29.26	27.29	28.27	23.86	21.08	18.19	16.46	18.19	18.82	19.33	12.25	12.25
Comm. Quota[4]	9.83	10.21	9.38	10.32	9.08	7.46	5.24	4.88	8.54	7.24	7.71	2.77	2.77
Comm. Landings[5]	7.1	7.55	5.61	4.66	4.12	4.77	4.02	4.1	3.64	2.20	2.78	2.16	
Rec. Harvest Limit[4]	19.53	18.63	17.81	17.46	14.07	13.62	12.95	11.58	9.65	11.58	11.62	9.48	8.34
Rec. Landings, Old MRIP[6]	14.47	16.34	11.5	11.84	16.46	10.46	11.67	9.54	9.52	3.64	N/A	N/A	N/A
Rec. Landings, New MRIP	40.73	46.30	34.22	32.53	34.40	27.04	30.10	24.16	32.07	13.27	15.56	13.58	
Rec. Possession Limit (# fish)	15	15	15	15	15	15	15	15	15	15	15	3: Private 5: For-Hire	3: Private 5: For-Hire
Total Landings	21.57	23.89	17.11	16.5	20.58	15.23	15.69	13.64	13.16	5.84	18.34	15.74	
Overage/Underage	-7.79	-5.37	-10.18	-11.77	-3.28	-5.85	-2.5	-2.82	-5.03	-12.98	N/A*	3.49	
Total Catch[7]	25.10	27.93	20.39	19.26	24.06	17.96	18.65	16.09	15.65	6.96	23.50	19.93	
Overage/Underage	-8.98	-6.45	-11.35	-12.78	-3.41	-6.47	-2.89	-3.36	-4.99	-14.85	N/A*	3.65	

[1] Through 2011. [2] 2012 fwd. [3] Not adjusted for RSA. [4] Adjusted downward for RSA. [5] Dealer and South Atlantic Canvas data used to generate values from 2000-2011; Dealer data (cfders) was used to generate commercial landings. [6] Old MRIP. [7] Recreational discards were calculated assuming MRIP mean weight of fish landed or harvested in a given year multiplied by the MRIP B2s and assumed discard mortality rate of 15% . [8] Values for 2019 and beyond are presented using the new MRIP estimates. [9] 2020 will be the first year that the new MRIP landings can be compared to the RHL – this will allow for calculation of total landings, catch, and overage/underages.

*Note: 2019 is the transition year for when recreational landings are reported using only new MRIP estimates. The 2019 ABC, RHL, and Commercial Quota was developed using old MRIP estimates and cannot be directly compared to the new recreational landing estimates.

Landings History

Bluefish catches were estimated via the Marine Recreational Fisheries Statistic Survey (MRFSS) starting in 1981 thought 2003. Recreational data for years 2004 and later are available from the Marine Recreational Information Program (MRIP), the data collection that followed MRFSS.

From the early 1980s to the early 1990s, recreational landings declined about 70% (avg. 1981-1983 = 156.34 million pounds; avg. 1991-1993 = 46.14 million pounds) when using new MRIP estimates. Recreational landings continued to decline at a slower rate until reaching a low level in 1999-2000 but have since grown to a peak of over 46 million pounds in 2010 (new MRIP). In 2018 and 2019, recreational landings dropped to a time series low of 13.27 and 15.56 million pounds, respectively. In 2020, landings remain low at 13.58 million pounds.

Historically, landings have been relatively stable, however, overall landings have been trending downward since 2010 (Figure 2). Commercial discards are insignificant and are not estimated in the current assessment.

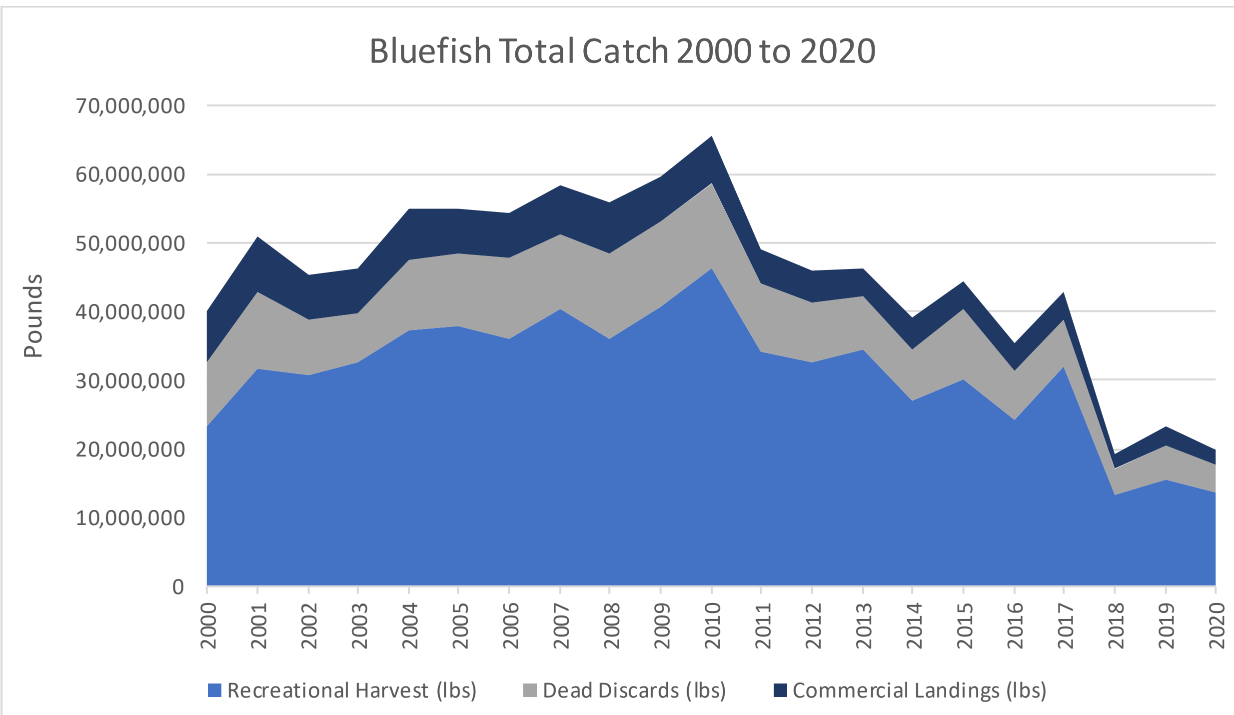

Figure 2. Bluefish catch (landings [AB1] and dead discards [B2*0.15*Avg wt. each year]), 2000-2020. Recreational dead discards are calculated as the average weight of a harvested fish by year, state and mode multiplied by the B2s and 15% discard mortality rate (Source: MRIP and Dealer data – cfders)

Recreational Fishery

Recreational fishery data is reported from MRIP using the new re-calibrated estimates. Trends in recreational trips associated with targeting or harvesting bluefish from 2000 to 2020 are provided in Table 2. Since 2000, the lowest annual estimate of bluefish trips was 7.17 million (2018). The highest annual estimate of bluefish trips in this timeframe was 13.32 million in 2007. Over the last 5 years (2016-2020), the number of bluefish trips have ranged from 7.17 million trips in 2018 to 10.62 million trips in 2016 with an average of 8.95 million trips.

While the COVID-19 pandemic disrupted the Access Point Angler Intercept Survey (APAIS), its overall impact on recreational fishing data collection was lower than first expected, and NOAA Fisheries was able to fill gaps in 2020 catch data with data collected in 2018 and 2019. These proxy data match the time, place, and fishing mode combinations that would have been sampled had the APAIS continued uninterrupted. Proxy data were combined with observed data to produce catch estimates using the standard estimation methodology. The mail and telephone surveys that collect effort data continued largely uninterrupted.

Table 2. Number of bluefish recreational fishing trips, landings per trip, harvest, catch and releases/discards from 2000 to 2020, ME-FL. Source: MRIP.

Year	bluefish trips[1] (N)	Recreational landings per "bluefish" trip	Recreational Harvest (N)	Recreational Harvest (lbs)	Released Alive (N)	Dead Discards[2] (lbs)	Catch (N)	Catch (lbs)
2000	9,414,330	1.37	12,879,485	23,357,120	34,223,385	9,136,762	47,102,869	32,493,882
2001	11,184,219	1.61	18,048,645	31,654,978	42,463,607	11,145,791	60,512,252	42,800,769
2002	11,609,147	1.52	17,607,380	30,654,388	32,202,742	8,172,282	49,810,122	38,826,670
2003	11,270,920	1.46	16,411,932	32,758,670	21,334,305	6,882,295	37,746,238	39,640,965
2004	12,494,269	1.49	18,631,904	37,133,463	30,607,172	10,405,576	49,239,076	47,539,039
2005	12,816,693	1.43	18,341,452	37,742,807	30,141,215	10,584,246	48,482,667	48,327,053
2006	12,166,411	1.59	19,397,272	36,081,958	34,912,777	11,657,418	54,310,049	47,739,376
2007	13,324,958	1.44	19,189,747	40,239,101	37,123,644	10,982,452	56,313,391	51,221,553
2008	11,416,665	1.30	14,845,435	36,166,834	31,199,569	12,326,758	46,045,003	48,493,592
2009	11,805,296	1.53	18,085,386	40,731,438	31,781,201	12,394,411	49,866,587	53,125,849
2010	13,514,815	1.62	21,929,517	46,302,792	40,420,592	12,296,774	62,350,109	58,599,566
2011	11,921,366	1.75	20,814,884	34,218,748	37,475,767	9,850,040	58,290,651	44,068,788
2012	12,817,838	1.45	18,578,838	32,530,917	32,079,529	8,743,161	50,658,367	41,274,078
2013	9,353,805	2.14	19,975,051	34,398,327	33,519,613	7,733,548	53,494,664	42,131,875
2014	12,441,771	1.73	21,510,651	27,044,276	33,583,115	7,317,237	55,093,766	34,361,513
2015	9,406,704	1.46	13,725,106	30,098,649	28,423,854	10,170,472	42,148,960	40,269,121
2016	10,626,957	1.40	14,899,723	24,155,304	27,629,023	7,106,707	42,528,746	31,262,011
2017	9,952,090	1.39	13,845,806	32,071,432	28,317,327	6,767,813	42,163,133	38,839,245
2018	7,169,536	1.43	10,245,710	13,270,862	20,682,992	3,897,500	30,928,703	17,168,362
2019	8,250,853	1.47	12,137,290	15,555,889	26,494,646	4,880,759	38,631,936	20,436,648
2020	8,745,993	1.07	9,336,222	13,581,218	21,345,604	4,191,779	30,681,826	17,772,997

[1] Estimated number of recreational fishing trips where the primary target was bluefish or bluefish were harvested regardless of target. [2] Each dead discard value in weight is calculated by querying MRIP releases by year, state and mode because the weights of fish discarded vary largely from state to state. MRIP B2s by year, state and mode are multiplied by their respective average weight of a landed fish and the assumed 15% discard mortality rate.

Recreational Landings by State

Recreational catch and harvest by state for 2020 are provided in Table 3. The greatest catches (includes discards) occurred in North Carolina with 8.67 million fish, followed by Florida with 7.27 million fish, and New York and New Jersey with over 3 million fish.

The greatest harvest of bluefish by weight in 2020 occurred in Florida with 5.73 million pounds, followed by North Carolina with 2.12 million pounds, and New York and New Jersey both over 1 million pounds. According to MRIP, 0 bluefish were caught in Maine and only 1,800 pounds in New Hampshire. Average weights, based on dividing MRIP landings in weight by landings in number for each state, suggest that bluefish size tends to increase along the north Atlantic coast.

Table 3. MRIP estimates of 2020 bluefish recreational harvest, total catch, and average weight.

State	Harvest			Catch	Released Alive	Dead Discards
	Pounds	Number	Average Weight[1] (pounds)	Number	Number	Number
ME	0	0	0	0	0	-
NH	1,800	376	4.8	376	0	-
MA	553,242	162,128	3.4	906,269	744,141	111,621
RI	508,227	220,556	2.3	1,089,449	868,893	130,334
CT	594,546	298,383	2.0	1,407,730	1,109,347	166,402
NY	1,478,719	885,517	1.7	3,701,474	2,815,957	422,394
NJ	1,808,548	595,103	3.0	3,372,216	2,777,113	416,567
DE	94,901	53,751	1.8	219,288	165,537	24,831
MD	214,991	173,846	1.2	494,214	320,368	48,055
VA	305,092	395,751	0.8	1,172,803	777,052	116,558
NC	2,124,224	2,108,296	1.0	8,666,047	6,557,751	983,663
SC	154,420	289,339	0.5	2,187,307	1,897,968	284,695
GA	9,902	10,795	0.9	187,272	176,477	26,472
FL	5,732,605	4,142,380	1.4	7,277,380	3,135,000	470,250
Total	13,581,217	9,336,221	-	30,681,825	21,345,604	3,201,841

[1] Average weight in Table 3 is simply the pounds harvested divided by the number of fish harvested. These average weights are calculated differently than what is presented in Table 2 due to the state and wave aspect associated with released fish.

Recreational Landings by Mode

Figure 3 presents new MRIP estimates of landings by mode (1991 through 2020) and indicates that the recent primary modes landing bluefish are shore mode and private boats. Based on recreational harvest in 2020, landings from shore represented 73% of overall landings, followed by private rental mode at 24% and the for-hire sector at 3%. Over the last five years (2016-2020), ~66% of the total bluefish landings came from shore, ~31% from private/rental boats, and ~4% from for-hire boats.

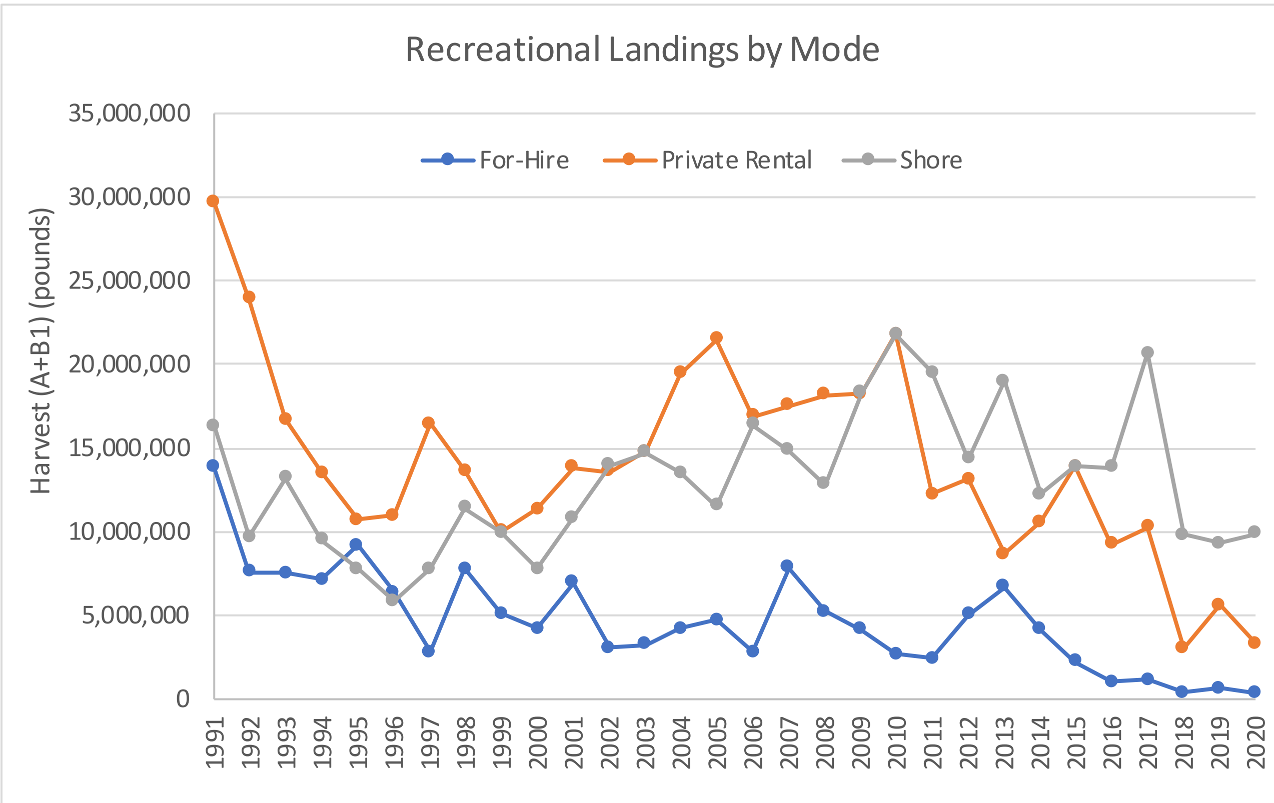

Figure 3. Bluefish recreational harvest (pounds) by mode on the Atlantic Coast, 1991-2020. Source: MRIP.

Recreational Landings by Area

MRIP classifies catch into three fishing areas: inland, nearshore ocean (< 3 mi), and offshore ocean (> 3 mi). In 2020, 40% of the landings of bluefish on a coastwide basis came from inland waters, followed by nearshore ocean at 57%, and offshore waters at 3% (Figure 4). Over the last five years (2016-2020), 39% of the total bluefish landings came from inland waters, 57% from nearshore ocean, and 4% from offshore ocean.

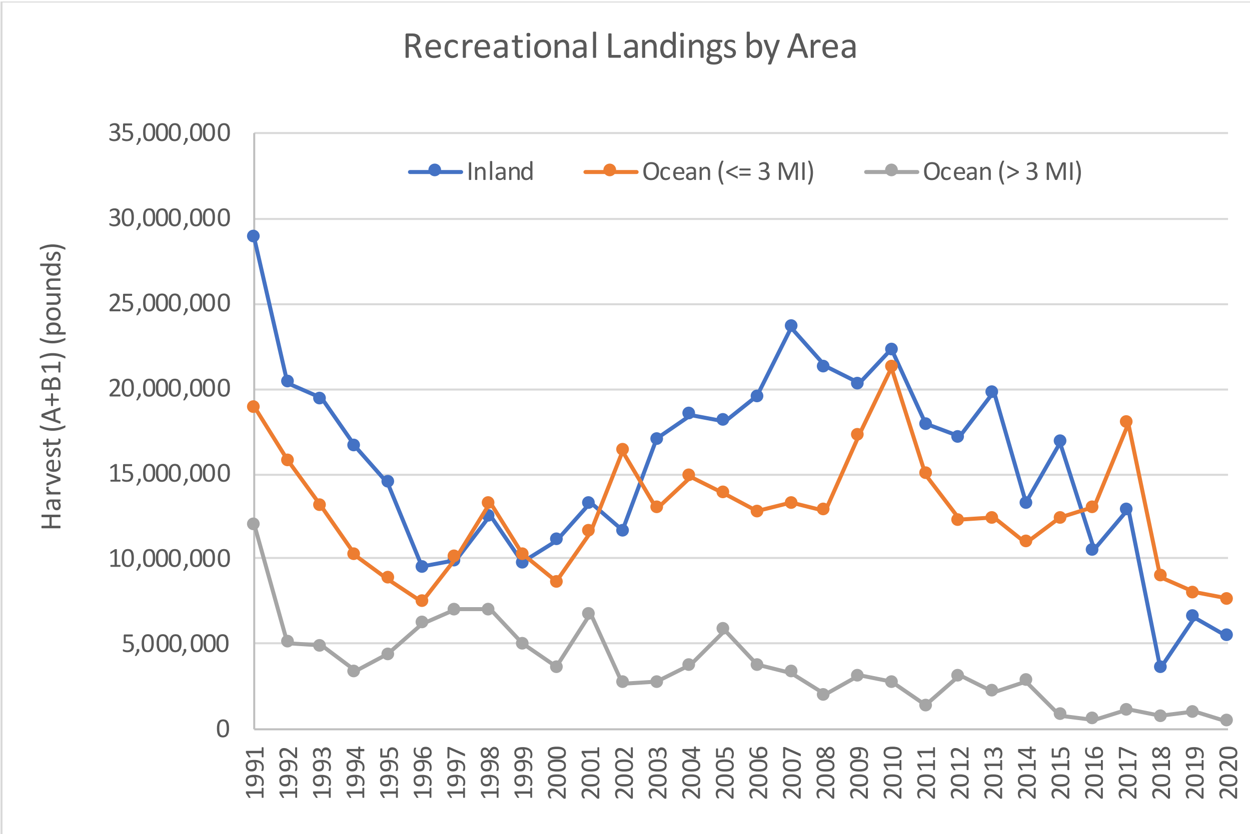

Figure 4. Bluefish recreational harvest (pounds) by area on the Atlantic Coast, 1991-2020 Source: MRIP.

Recreational Discards

In the recreational fishery, bluefish released alive (B2) are estimated by MRIP. To calculate discard mortality[1], a 15% mortality rate is applied to the B2 value. In 2020, there were 3.20 million bluefish dead discards, which represents a downward trend from the 2001 peak of 6.37 million bluefish dead discards (Figure 5).

[1] To estimate discards in pounds, multiply the number of dead discards times the average weight of fish in a given year. For more detailed results, which are used in Table 2, characterize the average weight of a bluefish by state and mode using the MRIP query tool: https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index.

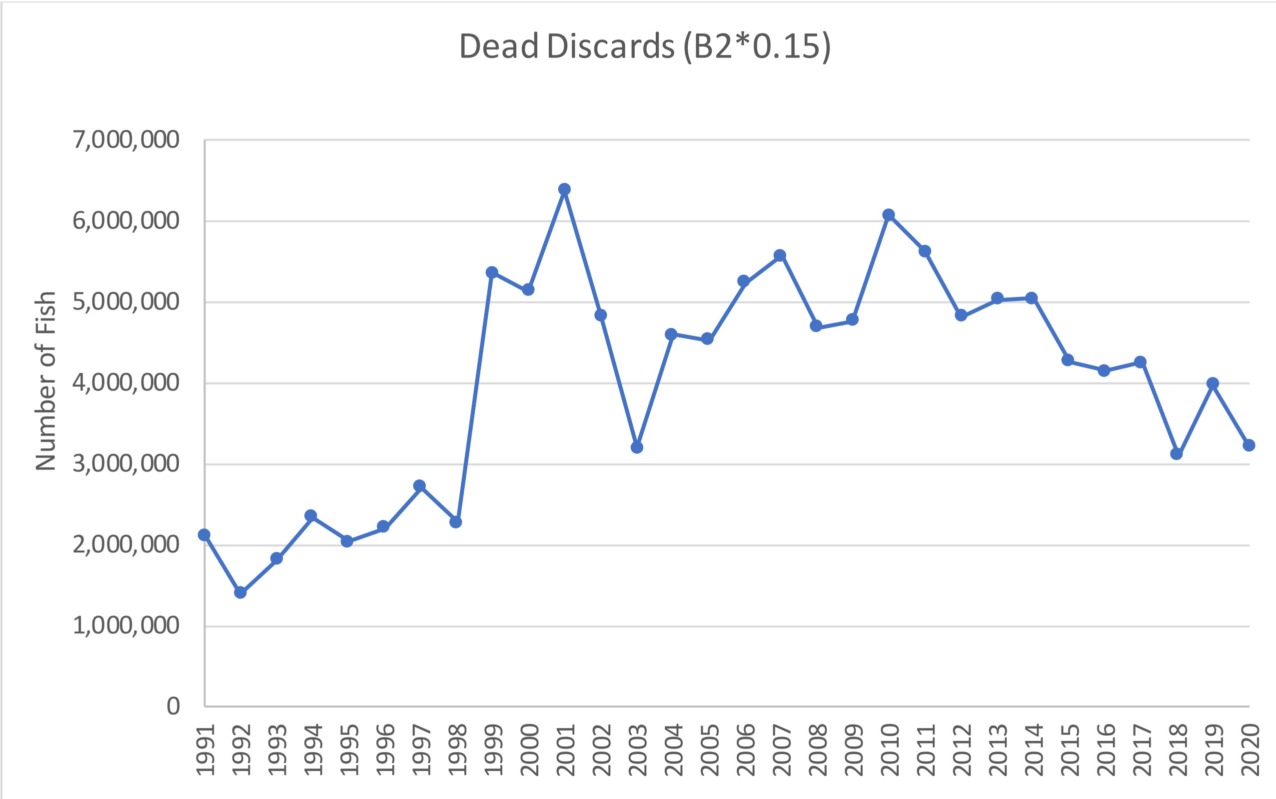

Figure 5. Bluefish dead discards (all areas and modes combined) from 1991-2020. Fish released alive (B2) are assumed to have a 15% mortality rate. Source: MRIP.

Commercial Fishery

Vessel and Dealer Activity

Federal permit data indicate that 2,351 commercial bluefish permits were issued in 2020[2]. A subset of federally permitted vessels was active in 2020 with dealer reports identifying 423 vessels with commercial bluefish permits that actually landed bluefish. Of the 307 federally permitted bluefish dealers in 2020, there were 107 dealers who actually bought bluefish.

Landings by Gear

Dealer data for 2020 indicate that the majority of the bluefish landings were taken by gillnet (52%), followed by unknown gear (24%), otter trawl/bottom fish (15%), handline (5%), and other (4%).

[2]In addition, there were 863 party/charter bluefish permit issued in 2020. A subset of federally permitted party/charter vessels was active in 2020 with VTR reports identifying 258 vessels with party/charter bluefish permits that actually landed bluefish.

Landings by Area

Commercial landings in 2020 were 2.16 million pounds. Landings by state are available in Table 4. VTR catch data was used to identify all NMFS statistical areas that accounted for at least 5 percent of the total bluefish catch or 5 percent or greater of the trips which caught bluefish in 2020 (Table 5). Eight statistical areas accounted for approximately 74% of the VTR-reported catch in 2020. The highest percentage of catch was from statistical area 539 with the most trips targeting bluefish conducted in statistical area 611. A map of statistical areas that accounted for a percentage of the Atlantic bluefish catch is shown in Figure 6.

Note: Commercial VTR landings may differ from landings reported through the dealer database because VTR data are only federal landings, and some state vessels are not required to submit VTRs.

Table 4. Commercial landings by state for 2020. Source: Dealer data (cfders).

State	2020 Landings (Pounds) [1]
ME	527
NH	0
MA	112,674
RI	334,745
CT	22,312
NY	341,623
NJ	152,799
DE	4,303
MD	21,000
VA	165,623
NC	857,719
SC	0
GA	0
FL	144,698
Total	2,158,023

[1] State only commercial landings from North Carolina and Florida are not always present in the cfders database, and thus may not yet be finalized. Final commercial catch accounting will be made available by GARFO prior to setting specifications.

Table 5. Statistical areas that accounted for at least 5 percent of the total bluefish catch or 5 percent or greater of the trips which caught bluefish in 2020. Source: VTR database.

Statistical area	Pounds of bluefish caught	Percent of 2020 commercial bluefish catch	Number of trips	Percent of 2020 bluefish trips that caught bluefish
539	142,333	21%	838	20%
613	81,676	12%	615	15%
611	63,433	9%	1,100	26%
537	51,818	8%	383	9%
626	50,526	7%	36	1%
636	49,261	7%	25	1%
632	34,409	5%	18	<1%
612	32,366	5%	314	7%

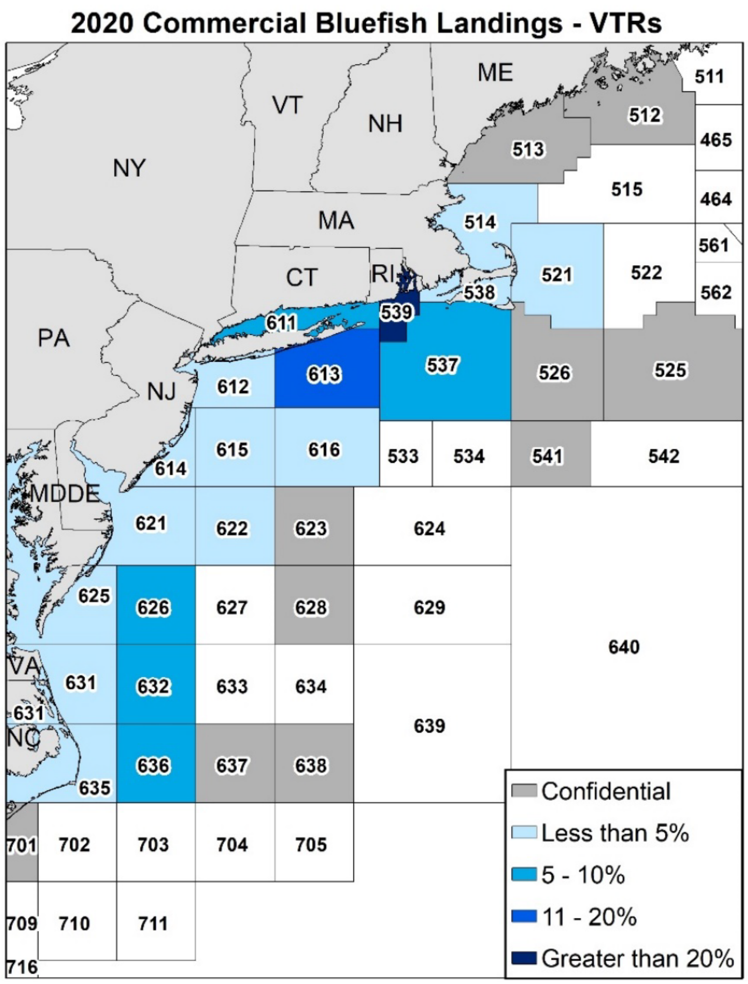

Figure 6. NMFS Statistical Areas that accounted for a percentage of the commercial bluefish landings in 2020. Source: VTR data.

The top commercial landings ports for bluefish in 2020 are shown in Table 6. Five ports qualified as "top bluefish ports," i.e., those ports where 100,000 pounds or more of bluefish were landed. Wanchese, NC was the most active commercial bluefish port with almost 400,000 pounds landed. The ports and communities that are dependent on bluefish are described in Amendment 1 to the FMP (available at http://www.mafmc.org/fisheries/fmp/bluefish). Additional information on "Community Profiles for the Northeast US Fisheries" can be found at http://www.nefsc.noaa.gov/read/socialsci/community_profiles/.

Table 6. Bluefish landings in pounds by port based on NMFS 2020 dealer data (cfders).

Port[1]	Pounds	% of total commercial bluefish landings	# vessels
Wanchese, NC	368,942	17%	16
Hatteras, NC	269,655	12%	<10
Point Judith, RI	216,060	10%	99
Montauk, NY	151,200	7%	74
Little Compton, RI	105,941	5%	<10

[1]This table includes only the "top ports" (ports where landings of bluefish were > 100,000 pounds), and thus does not include all 2020 landings.

Revenue

According to dealer data, commercial vessels landed about 2.16 million pounds of bluefish valued at approximately $1.84 million in 2020. Average coastwide ex-vessel price of bluefish was $0.85 per pound in 2020, a ~4.5% decrease from the previous year (2019 price = $0.89 per pound). The relative value of bluefish is very low among commercially landed species, less than 1% of the total value, respectively of all finfish and shellfish landed along the U.S. Atlantic coast in 2020. A time series of bluefish revenue and price is provided in Figure 7.

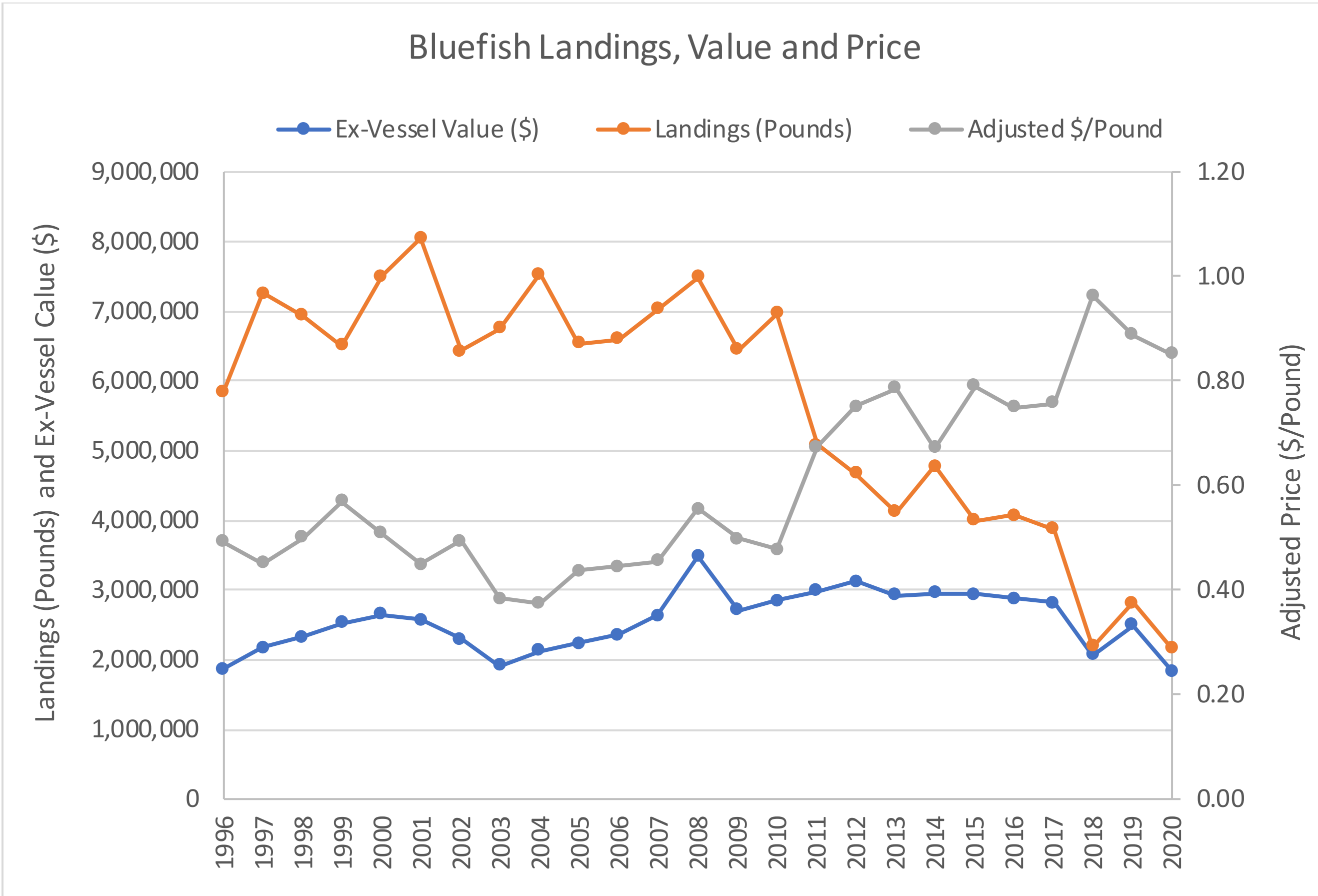

Figure 7. Landings, ex-vessel value, and price (adjusted to 2019 real dollars, 2020 unadjusted) for bluefish, 1996-2020.

<u>Bycatch</u>

The commercial bluefish fishery is primarily prosecuted with gillnets and handlines, although there are other small localized fisheries, such as the beach seine fishery that operates along the Outer Banks of North Carolina. Many of these fisheries do not fish exclusively for bluefish, but target a combination of species including croaker, mullet, Spanish mackerel, spot, striped bass, and weakfish. Given the mixed-species nature of the bluefish fishery, incidental catch of non-target species is not directly attributable to the bluefish fishery.

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MEMORANDUM

Date: August 3, 2021

To: Council and Board

From: Kiley Dancy and Karson Coutre, Staff

Subject: Summer Flounder 2022-2023 Specifications

On Monday, August 9, the Council and Board will consider summer flounder specifications for 2022-2023 after reviewing the recommendations of the SSC, Monitoring Committee, and Advisory Panel. Measures to be considered include 2022-2023 commercial and recreational catch and landings limits, as well as any changes to the commercial management measures desired for 2022. Materials listed below are provided for the Council and Board's consideration of this agenda item.

Please note that one document is behind a separate tab.

1) Monitoring Committee meeting summary from July 27, 2021
2) Advisory Panel meeting summary from July 29, 2021
3) July 2021 Scientific and Statistical Committee meeting report *(behind Tab 14)*
4) Staff memo on 2022-2023 summer flounder specifications dated July 8, 2021
5) Summer Flounder Management Track Assessment for 2021
6) June 2021 Advisory Panel Fishery Performance Report and associated additional AP comments received through July 6, 2021
7) Additional public comments received through July 29, 2021
8) 2021 Summer Flounder Fishery Information Document

Summer Flounder, Scup, and Black Sea Bass Monitoring Committee
Webinar Meeting Summary
July 27, 2021

Monitoring Committee Attendees: Julia Beaty (MAFMC), Peter Clarke (NJ F&W), Dustin Colson Leaning (ASMFC), Karson Coutré (MAFMC), Kiley Dancy (MAFMC), Lorena de la Garza (NC DMF), Steve Doctor (MD DNR), Sandra Dumais (NY DEC), Alexa Galvan (VMRC), Emily Keiley (GARFO), Savannah Lewis (ASMFC), Mike Schmidtke (SAFMC), Mark Terceiro (NEFSC), Corinne Truesdale (RI DEM), Sam Truesdell (MA DMF), Greg Wojcik (CT DEP), Rich Wong (DNREC)

Additional Attendees: Bonnie Brady (Long Island Commercial Fishing Association; AP member), Joe Cimino (Council and Board member), Kiersten Curti (NEFSC), Greg DiDomenico (Lund's Fisheries; AP member), Tony DiLernia (Council member), James Fletcher (United National Fisherman's Association; AP member), John Foster (NMFS), Jeff Kaelin (Lund's Fisheries), June Lewis (AP member), David Stormer (Council member), Mike Waine (American Sportfishing Association; AP member)

The Summer Flounder, Scup, and Black Sea Bass Monitoring Committee (MC) met via webinar on Monday July 27, 2021 to discuss several topics. The MC reviewed management track assessment information as well as recent fishery performance and management measure recommendations from the Advisory Panel, the Scientific and Statistical Committee (SSC), and Council staff. The MC recommended 2022-2023 commercial and recreational Annual Catch Limits (ACLs), Annual Catch Targets (ACTs), commercial quotas, and recreational harvest limits (RHLs) for summer flounder, scup, and black sea bass. In addition, they reviewed commercial management measures for all three species, and the February recreational black sea bass opening, to consider whether changes were needed for 2022.

Briefing materials considered by the Monitoring Committee are available at:
https://www.mafmc.org/council-events/2021/sfsbsb-mc-july27.

2020 Recreational Harvest Estimates

John Foster (NMFS Office of Science and Technology) presented on the methods used to develop 2020 Marine Recreational Information Program (MRIP) estimates in the context of missing shoreside intercept and head boat sampling data due to COVID-19.

As described in the staff memos, the COVID-19 pandemic disrupted the Access Point Angler Intercept Survey (APAIS) in 2020. All New England and Mid-Atlantic states suspended APAIS sampling starting in late March or April 2020, and resumed sampling between May and August 2020, depending on the state. In addition, head boat sampling was suspended in all states throughout the entirety of 2020. NMFS used imputation methods to fill gaps in 2020 catch data with data collected in 2018 and 2019. These proxy data match the time, place, and fishing mode combinations that would have been sampled had the APAIS continued uninterrupted. Proxy data were combined with observed data and 2020 fishing effort survey data (which was not impacted by COVID-19) to produce 2020 catch estimates using the standard estimation methodology.

During the presentation it was noted that differences in the timing of when surveys resumed by state resulted in differences in the effects of imputation by state. For example, there was a much bigger effect of imputation on the data for Connecticut, which was the last state to resume sampling on August 1, compared to the minimal effects of imputation in Massachusetts. It is also important to note that the imputation methods were applied to *catch rate* data (catch per unit effort), not to estimates of total catch, which are derived after incorporating effort data. Some notable changes in wave and state estimates for 2020 appear to be driven primarily by changes in effort (for which estimation methods continued as usual in 2020). Thus, a higher percent of imputed catch rate data used does not necessarily imply a large difference in the absolute estimates of catch with and without use of imputed data.

NMFS has indicated that when complete 2021 recreational data become available in 2022, they will evaluate the effects of including 2021 data (for example, alongside 2019 data and instead of 2018 data) in the imputation. One MC member asked about the timing of this evaluation and whether it would begin in 2021 given that 2021 data for time periods missing from 2020 should soon be available. Mr. Foster responded that they will likely start this evaluation in fall 2021, once complete wave 4 estimates are available. However, they are unlikely to make conclusions about 2020 estimate revisions by the end of this year, and this will more likely occur in 2022.

The group also discussed the apparent increase in the proportion of harvest (in numbers of fish) from federal waters for all three species in 2020. Mr. Foster confirmed that area fished information for private and shore mode comes from APAIS. Any shift in the percent from federal waters compared to 2018-2019 would be driven by available 2020 observed data, as opposed to imputed data, which matches 2018 and 2019. More investigation would be needed to confirm this, but it is expected that this trend may be coming from wave 5, which had complete 2020 data in all states and saw an increase in effort.

One MC member noted the apparent increase in New Jersey Wave 4 summer flounder harvest and asked about possible explanations. The contribution of imputed catch rate data for that wave 4 estimates is about 9%, so the imputation did not appear to make a large difference. The difference appears to come from the effort estimates, with New Jersey effort estimates increasing notably in 2020.

The MC discussed that while dead discard estimates in numbers of fish can be derived from the 2020 MRIP data (by applying the assumed discard mortality rate to the MRIP B2s or released alive fish), estimates of dead discards in weight are not available for 2020. The NEFSC uses additional data streams to inform length frequency distributions for discarded fish, along with length-weight equations, to estimate the weight of discarded fish. Some of the data typically used are not yet available for 2020, and estimation in weight has not been attempted at this time.

Summer Flounder 2022-2023 Specifications

The MC agreed with the staff recommendations for 2022-2023 ACLs, ACTs, and landings limits based on the SSC's Acceptable Biological Catch (ABC) recommendations for both the annually varying and constant approach (Table 1). **The MC preferred the constant approach over the varying approach** due to increased simplicity and stability over the two years. However, the MC acknowledged the potential for 2023 limits to be modified based on any changes via the ongoing commercial/recreational allocation amendment.

The recommended ACLs under both the varying and constant approaches are based on the MC's typical dead discard projections methodology, where total expected discards are estimated from the ABC projections received from the Northeast Fisheries Science Center (NEFSC) and apportioned to the commercial and recreational fisheries based on a 3-year moving average of dead discards by sector. In this case, 2017-2019 dead discard data indicate that 41% of dead discards came from the commercial sector and 59% from the recreational sector. This was the most recent 3-year period available since 2020 dead discard estimates in weight are not currently available. The MC discussed that different dead discard projection methodologies are used for each of the three species in this FMP, due to differing allocation structures and differing "fleets" modeled in the stock assessments (i.e., commercial and recreational landings and discards are modeled separately for summer flounder and scup, but not black sea bass). The group believed that it would be worth re-evaluating these methods in the future, but did not recommend changes at this time for summer flounder as the current methods have estimated future discards fairly well. In addition, the MC believed any such re-evaluation should occur after final action on the Commercial/ Recreational Allocation Amendment, which could require changes to the process of estimating discards in the event of a switch to a catch-based allocation for summer flounder.

The MC recommendations also include no deductions from the commercial or recreational ACLs to ACTs to account for management uncertainty. The MC agreed with the rationale in the staff memo, including that the commercial fishery is well controlled with in-season closure authority and commercial discard overages observed in 2017-2018 are less of a concern under higher quotas since mid-2019. For the recreational fishery, recreational Accountability Measures (AMs) are evaluated on a 3-year moving average comparison of dead recreational catch to the average recreational ACL, and were not triggered for application in 2021. It is unclear whether an estimated 31% RHL overage in 2020 would contribute to an AM being triggered for 2022, as 2020 recreational dead discard estimates in weight are not currently available. The MC noted that for 2022 recreational measures, both an expected increase in the RHL and preliminary 2021 estimates will be taken into account to determine how 2022 measures may need to be modified. The MC also acknowledged the importance of both the ongoing Recreational Reform Initiative and the Commercial/Recreational Allocation Amendment to future management of the recreational fishery including some aspects of recreational management uncertainty.

The resulting commercial quotas and RHLs under the MC recommendations are shown in Table 1. Under the annually varying limits, the commercial quota and RHL would increase by approximately 27% between 2021 and 2022, and then would decline by about 4.5% between 2022 and 2023. Under the constant limits, the commercial quota would increase by about 24% between 2021 and 2022 and remain at the same level for 2023.

The MC agreed with the staff recommendation that no changes be made to the commercial minimum fish size (14-inch total length), commercial gear requirements, and exemption programs for 2022. However, the MC continues to support further analysis and future consideration of modifications for several issues related to the mesh size regulations and exemptions. These issues have been discussed over the past several years, but additional evaluation has been identified as a lower priority by the Council and Board given other ongoing management actions and priorities. The MC was supportive of potentially hiring an external contractor to facilitate additional analysis of these measures due to current constraints on Council and Commission staff time.

Current regulations specify a minimum mesh size of 5.5" diamond or 6.0" square mesh throughout the net. As described in the staff memo, the MC has previously identified some concerns with the 6.0" square mesh option for the commercial trawl fishery given that based on a recent study, it appears that this mesh releases less than 50% of fish at or below the minimum size, and its selectivity appears more similar to a 5.0" diamond mesh. The MC has previously recommended that further analysis and industry input be conducted before changes are proposed.

The MC previously identified concerns with the recent increase in the percent of observed trips using the Small Mesh Exemption Program and discarding more than 10% of their summer flounder catch. However, the group believed that recent increases in the commercial quota for 2019-2021 should reduce the rates of discarding in general, including under this exemption. The rates of discarding under this exemption appear to have decreased somewhat during the relevant 2019-2020 period; however, due to COVID-19 restrictions, observer data are only available through mid-March 2020 and thus cannot necessarily provide an apples to apples comparison to previous years.

The MC considered an Advisory Panel member's request to modify the Small Mesh Exemption Program. Specifically, this advisor requested that the small mesh exemption line be completely removed and that vessels be allowed to possess up to 1,000 pounds of summer flounder with small mesh no matter where they are fishing. Additionally, for directed summer flounder trips with possession limits over 1,000 pounds, a 5" minimum mesh size should be used. The MC noted that this modification would essentially remove the small mesh exemption program as well as require modifications to the seasonal possession limits triggering the minimum mesh size requirement (currently 200 pounds from November through April and 100 pounds May through October). Some MC members raised concerns with this proposal, indicating that raising the possession limit triggering the minimum mesh size to 1,000 pounds could cause substantial changes in fishery dynamics, potentially increased difficulty in controlling fishery landings, and would likely conflict with some state possession limits. However, the MC was supportive of further evaluation of this exemption program in general and the placement of the line in particular, and agreed with the advisor's statement that fishery distribution and dynamics have changed since the exemption program was first implemented. **The MC recommends including this exemption program in the list of commercial measures to be further analyzed for future consideration.**

The MC also discussed the flynet exemption issues raised in the staff memo. In 2020, a comment from a commercial fisherman asserted that the flynet exemption is used more commonly in states other than North Carolina with "high rise nets." This individual also requested an expansion of the regulatory definition of flynet to include four-seam nets in addition to the currently specified two-seam nets. Last year, the MC noted that there is a need to better understand the use and configuration of flynet and high rise trawl nets as they relate to this exemption. Because the use of two-seam nets is said to be rare in the Mid-Atlantic and Southern New England winter offshore trawl fishery, this may indicate a possible compliance and enforcement issue if vessels that don't meet the regulatory definition (which specifies a two-seam net) believe they are fishing under the flynet exemption. The MC previously recommended additional evaluation of this issue including seeking input from gear experts, industry, and enforcement. Similar to other commercial measures, staff resources have not been available to address this in 2021. **The MC recommends no changes to the flynet exemption for 2022 but remains supportive of further evaluation of these issues for potential future changes.**

Table 1: Monitoring Committee recommendations for 2022-2023 catch and landings limits for summer flounder, under both annually varying and constant ABC approaches.

Measure	Current		Varying ABCs				Constant ABCs (MC Recommended)				Basis for 2022-2023 Measures
	2021		2022		2023		2022		2023		
	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	
OFL	31.67	14,367	36.28	16,458	34.74	15,759	36.28	16,458	34.98	15,865	Assessment projections/SSC recommendations
ABC	27.11	12,297	33.96	15,403	32.27	14,639	33.12	15,021	33.12	15,021	SSC recommendations
ABC Landings Portion	20.81	9,439	26.48	12,009	25.29	11,470	25.89	11,743	25.89	11,743	ABC projections for varying and averaged 2022-2023 ABC approaches; average approach includes averaged 2022-2023 expected landings
ABC Dead Discards Portion	6.30	2,858	7.48	3,394	6.99	3,169	7.23	3,279	7.23	3,279	ABC projections for varying and averaged 2022-2023 ABC approaches; average approach includes averaged 2022-2023 expected dead discards
Expected Commercial Dead Discards	2.14	972	3.05	1,383	2.85	1,292	2.95	1,336	2.95	1,336	41% of ABC dead discards portion, based on 2017-2019 average % dead discards by sector
Expected Recreational Dead Discards	4.16	1,886	4.43	2,011	4.14	1,877	4.28	1,942	4.28	1,942	59% of ABC dead discards portion, based on 2017-2019 average % dead discards by sector
Commercial ACL	14.63	6,635	18.94	8,589	18.02	8,174	18.48	8,382	18.48	8,382	60% of ABC landings portion (FMP allocation) + expected commercial dead discards
Commercial ACT	14.63	6,635	18.94	8,589	18.02	8,174	18.48	8,382	18.48	8,382	MC recommendation: Maintain no deduction from ACL for management uncertainty
Commercial Quota	12.49	5,663	15.89	7,205	15.17	6,882	15.53	7,046	15.53	7,046	Commercial ACT, minus expected commercial dead discards
Recreational ACL	12.48	5,662	15.02	6,814	14.25	6,465	14.64	6,639	14.64	6,639	40% of ABC landings portion (FMP allocation) + expected recreational dead discards
Recreational ACT	12.48	5,662	15.02	6,814	14.25	6,465	14.64	6,639	14.64	6,639	MC: Maintain no deduction from ACL for management uncertainty
RHL	8.32	3,776	10.59	4,804	10.12	4,588	10.36	4,697	10.36	4,697	Recreational ACT, minus expected recreational dead discards

Scup 2022-2023 Specifications

The MC agreed with the staff recommendation for 2022-2023 ACLs, ACTs, and landings limits based on the SSC's ABC recommendations for the varying approach (Table 2). The SSC was unable to recommend a constant ABC approach given the 2023 p* exceeding 0.50. Because of this, the MC would need to recommend ACTs resulting in a total catch limit lower than what the SSC recommended in order to keep limits constant across the two years. They agreed that they could not justify recommending constant limits if it meant recommending lower ACTs and foregoing quota. The MC also agreed with using the 3-year average proportion of discards by sector which was the approach adopted by the Council and Board in 2019.

The MC also discussed a request received by the Council from Lund's Fisheries[1] to analyze increasing the scup commercial Winter I possession limit to 100,000 pounds (from the current 50,000 pounds) or eliminating it entirely for 2022-2023. According to the request, this change would help Lund's continue to build their frozen markets for scup. The request further proposes that the MC analyze decreasing the commercial minimum fish size from 9 inches to 8 inches total length (TL) to further support developing these frozen markets.

The MC discussed that the proposed decrease in minimum size to 8 in TL would allow for the harvest of scup at a size where about 57% are mature. At the current minimum size of 9 inches TL, about 84% are mature. Overall, the MC did not feel it was acceptable to increase fishing pressure on immature fish, particularly at a time when recruitment is the lowest of the time series. **The MC recommended that the commercial scup minimum size remain 9 inches TL.** They did note that according to the Standardized Bycatch Reporting Methodology report from 2018-2019 about 53% of discards were due to size regulation so they were interested in whether a large portion of those were 8 inch TL fish. Some MC members felt that finding ways to allow for discarding less fish during years of high recruitment should be investigated, for example by allowing the retention of buffer amounts of undersized scup. One MC member said this is being explored in New England groundfish through Electronic Monitoring. MC members noted that this could be difficult to implement and one MC member felt that this was a slippery slope and was concerned about potential harm to the stock.

The MC also addressed the possession limit increase requested by Lund's Fisheries and discussed the staff memo including Winter I trip landings from 2018-2020.[2] They noted that it does not appear that vessels are currently landing the current 50,000 pound trip limit. One MC member and a few industry members in attendance said single trips can be landed on different days and/or with landings split across different dealers so some high poundage trips may not be accurately reflected in this analysis. Council staff accounted for trips across different dealers, however, they may not have captured trips across days. Council staff will work with GARFO staff to identify those trips before the August Council and Board meeting. One MC member noted that they were not comfortable with doubling or eliminating the current Winter I quota period possession limit and another voiced concerns with the impacts to state limits and the Winter II quota period. Some MC members felt that analyzing more incremental change in the future would be more appropriate. Another MC member wanted more information on what bycatch might look like at a 100,000 pound trip limit and what unintentional shifts in access by different user groups might occur. One

[1] Available at https://www.mafmc.org/s/Lunds_scup_request2021.pdf
[2] Available at https://www.mafmc.org/s/Scup_MC_commercial_measures_memo2021.pdf

member noted that on one hand this is a healthy stock and it would be beneficial to better utilize it; however, there are concerns about potential impact of increasing possession limits on smaller vessels in the fresh market. **Overall, the MC recommended no changes to the Winter I quota period possession limit and no changes to other commercial measures in 2022.** The MC discussed the need to evaluate the underharvesting of scup throughout the year and felt a more holistic and in depth evaluation across the quota periods is warranted.

One MC member pointed out the continued disparity between the scup RHL and recreational harvest under the revised MRIP estimates and emphasized the need for resolution on the ongoing Commercial/Recreational Allocation Amendment for all three species.

Public comments

A member of the public speaking for Lund's Fisheries felt that due to the high biomass, the MC was being too conservative with the scup regulations. The high biomass provides an opportunity to be more risky and changes can be evaluated at the next assessment. They also stated that they do not intend to target 8-inch fish so they would be converting discards into landings. They also noted that the comments about crashing the fresh market from advisors have not been analyzed economically so they should be discounted. From their perspective, last year was their best year and the company has invested potential for bringing frozen product to market. They are currently seeking Marine Stewardship Council certification and see opportunities for retail and wholesale markets.

An AP member asked about the biomass impacts of a 2017 MC recommendation to add an uncertainty buffer to the commercial ACL resulting in a lower ACT and quota for the purposes of market stability. They also commented on the amount of investment in infrastructure, certification, and employees they have taken on.

Another AP member did not support a decrease in size or increase in possession limit due to the lowest recruitment in 20 years and the negative impacts to the fresh fish market and the New York scup fishery. They also noted that this fishery does not have limited access in New York or a control date. Other ways of increasing quota utilization should be explored.

One AP member supported decreasing the minimum scup size in order to replace tilapia in the market and decrease U.S. imports.

Table 2: Monitoring Committee recommended 2022-2023 scup catch and landings limits under the varying ABC approach compared with currently implemented 2021 limits.

Measure	Current		2022		2023		Basis for 2022-2023 Measures
	mil lb	mt	mil lb	mt	mil lb	mt	
OFL	35.30	16,012	32.56	14,770	30.09	13,648	Assessment projections
ABC	34.81	15,791	32.11	14,566	29.67	13,460	Assessment projections & risk policy
ABC discards	8.24	3,740	5.65	2,564	6.39	2,900	Assessment projections
Commercial ACL	27.15	12,317	25.05	11,361	23.15	10,499	78% of ABC (per FMP)
Commercial ACT	27.15	12,317	25.05	11,361	23.15	10,499	Set equal to commercial ACL (MC recommendation)
Projected commercial discards	6.65	3,018	4.67	2,117	5.28	2,394	82.6% of ABC discards (avg. % of dead discards from commercial fishery, 2017-2019)
Commercial quota	20.50	9,299	20.38	9,245	17.87	8,105	Commercial ACT minus discards
Recreational ACL	7.66	3,474	7.06	3,205	6.53	2,961	22% of ABC (per FMP)
Recreational ACT	7.66	3,474	7.06	3,205	6.53	2,961	Set equal to recreational ACL (MC recommendation)
Projected recreational discards	1.59	722	0.99	447	1.12	506	17.4% of the ABC discards (avg. % of dead discards from rec. fishery, 2017-2019)
RHL	6.07	2,752	6.08	2,757	5.41	2,455	Recreational ACT minus discards

Black Sea Bass 2022-2023 Specifications

The MC agreed with all staff recommendations for 2022-2023 specifications, including the catch and landings limits shown in Table 3 and no changes to the commercial management measures or February recreational opening for 2022.

One MC member noted that it is beneficial to have stability in catch and landings limits and asked if the SSC could have recommended a slightly lower constant ABC to keep the p* below 0.5 in all years. He said this would be preferable to achieving constant catch and landings limits through a management uncertainty buffer to set both years equal to the lower of the two. Staff noted that the SSC chose not to recommend revised projections to achieve constant ABCs because a number of decisions would need to be made about how to perform those projections and the SSC felt that those decisions would be arbitrary without agreed upon guidance. Ultimately the MC did not recommend any approaches to set constant catch and landings limits across 2022 and 2023 and instead recommended the values shown in Table 3 based on the SSC's varying ABC recommendations.

The MC noted the 2020 RHL overage and agreed that this will be considered when setting 2022 recreational management measures later this year. They acknowledged that the current commercial/recreational allocation poses challenges for constraining the recreational fishery to the ACL and RHL without major restrictions.

The MC recommended no changes to the February recreational black sea bass opening. States must opt into this opening and adjust their measures later in the year as needed to prevent their participation from increasing their annual harvest. One MC member noted that this program provides flexibility for states, as participation is optional and there have not been major problems with the current process of states adjusting measures later in the year to account for February harvest. Virginia is the only state that has participated every year since 2021. The MC member from Virginia noted that the state is in favor of maintaining this program.

Public Comments

One AP member asked about recreational discard estimates in 2019 and 2020 and asked if the Monitoring Committee really believes that the RHL was exceeded by 56% in 2020. He asked how the Monitoring Committee plans to address management uncertainty for the recreational fishery moving forward.

Another AP member noted that the commercial fishery must payback quota overages, pound for pound. She said the recreational fishery is held to a "suggestion" because they are not required to payback overages. She noted that this is a fairness issue.

Table 3: Monitoring Committee recommended 2022-2023 black sea bass catch and landings limits under the varying ABC approach compared with currently implemented 2021 limits.

Measure	Current		2022		2023		Basis
	mil lb	mt	mil lb	mt	mil lb	mt	
OFL	17.68	8,021	19.26	8,735	17.01	7,716	Stock assessment projections
ABC	17.45	7,916	18.86	8,555	16.66	7,557	Stock assessment projections and Council risk policy
Expected com. dead discards	3.43	1,556	3.63	1,649	3.21	1,456	Calculated based on assumption that com. dead disc. would be 36% of com. catch in all 3 years (2016-2018 and 2017-2019 avg.)
Expected rec. dead discards	1.58	719	2.02	917	1.79	810	Calculated based on assumption that rec dead disc would be 20% of rec catch in 2021 (2016-2018 avg) and 23% of rec catch in 2022 & 2023 (2017-2019 avg)
ABC landings	12.44	5,641	13.20	5,990	11.66	5,291	ABC - expected com. and rec. dead discards
Com. ACL	9.52	4,320	10.10	4,583	8.93	4,048	49% of ABC landings portion + expected com. disc.
Com. ACT	9.52	4,320	10.10	4,583	8.93	4,048	Equal to the ACL; no deduction for management uncertainty
Com. quota	**6.09**	**2,764**	**6.47**	**2,934**	**5.71**	**2,592**	Com. ACT minus expected com. dead discards
Rec. ACL	7.93	3,596	8.76	3,972	7.74	3,509	51% of ABC landings portion + expected rec. disc.
Rec. ACT	7.93	3,596	8.76	3,972	7.74	3,509	Equal to the ACL; no deduction for management uncertainty
RHL	**6.34**	**2,877**	**6.74**	**3,055**	**5.95**	**2,699**	Rec. ACT minus expected rec. dead discards

Summer Flounder, Scup, and Black Sea Bass Advisory Panel Meeting Summary

July 29, 2021

The Mid-Atlantic Fishery Management Council's (Council's) Summer Flounder, Scup, and Black Sea Bass Advisory Panel (AP) met jointly with the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass AP on July 29, 2021. The purpose of the meeting was to provide an update on the 2021 Management Track Assessment results for each species, review the Scientific and Statistical Committee (SSC) and Monitoring Committee recommendations for 2022-2023 specifications, and for the AP to provide recommendations to the Council and Board on these issues.

Please note: Advisor comments described below are not consensus or majority statements.

Council Advisory Panel members present: Katie Almeida (MA), Carl Benson (NJ), Frank Blount (RI)*, Joan Berko (NJ), Bonnie Brady (NY), Jeff Deem (VA), Joseph DeVito (NY), Greg DiDomenico (NJ)*, James Fletcher (NC), Jeremy Hancher (PA), Mike Plaia (CT)*, Mike Waine (NC)

Commission Advisory Panel members present: Frank Blount (RI)*, Greg DiDomenico (NJ)*, Mike Plaia (RI)*

*Serves on both Council and Commission Advisory Panels.

Others present: Chris Batsavage (Council and Board member), Julia Beaty (MAFMC Staff), Ellen Bolen (Council member), Dustin Colson Leaning (ASMFC Staff), Karson Coutré (MAFMC Staff), Kiley Dancy (MAFMC Staff), Tony DiLernia (Council member), Dan Farnham (Council member), Dewey Hemilright (Council member), Raymond Kane (Board member), Emily Keiley (NMFS GARFO), Savannah Lewis (ASMFC Staff), Shanna Madsen (VMRC), David Stormer (Council member)

2022-2023 Summer Flounder Specifications

One advisor asked why a constant ABC approach was recommended by the Monitoring Committee and asked for clarification on the purpose of these two sets of ABCs. He also voiced concern over the Monitoring Committee recommending constant catch and landings limits for the purposes of market stability as this may not be achieved and would result in forgone yield in one year, compared to the varying approach. He wondered whether adding a buffer in 2017 to the scup commercial ACL was beneficial and if that had been analyzed. He also voiced concern over the 31% RHL overage but said he was skeptical of the 2020 MRIP estimates. He noted that the Monitoring Committee identifies areas of management uncertainty in the recreational sector but then does not apply a buffer to the recreational ACL.

One advisor said he's seen fewer summer flounder over the past three years. Another advisor said he'd heard that summer flounder fishing had been slow this year.

One advisor said that in 1976 the commercial fishing industry requested a 5 inch mesh and an 11 or 12 inch minimum size for summer flounder. He recommended these regulations be adopted for the upcoming fishing year. He also recommended looking into a recreational hook size requirement to reduce bycatch.

One advisor noted that there were recreational overages for summer flounder, scup and black sea bass in 2020 and asked what impacts those overages could have on spawning stock biomass (SSB). She also asked whether there were trends with fishery performance and SSB over time and whether overages or underages affect stock status.

Four advisors supported the varied ABC approach while one recommended the constant ABC approach. One advisor asked whether the constant or varying decision would be revisited next year or only when a new assessment is available. Staff clarified that this would set constant or varying ABCs for the next two years; however, catch and landings limits could change with the pending final action of the commercial/recreational allocation amendment. The advisor recommending the constant approach believed that stability would be beneficial for the price of summer flounder since the market is fragile and recovering from COVID-related impacts.

One advisor asked how projected discards are calculated and whether recreational discards in the stock assessment are based on MRIP estimates. Staff clarified how discards are calculated and reiterated that the 2020 MRIP data were not incorporated into the 2021 assessments for these species.

One advisor said that for commercial measures he recommended keeping a 5 and a half inch minimum mesh size and agreed with advisor comments from the June AP meeting to revisit the exemption line and added that he did not think anyone uses a 2 seam flynet.

2022-2023 Scup Specifications

One advisor said management has given imports a larger market share than they deserve and added that he would like to see a report on the quantity and size of tilapia imports. He said that all three species should have a 4 ¾ or 5 inch net and the minimum fish size should be reduced to the size of the net. He said he would support moving to an 8 inch minimum fish size or lower.

Another advisor representing Lund's Fisheries supported their proposed changes but understood why the Monitoring Committee would require more analysis. He stated that they would participate and assist as needed through this process. He added that the Winter I fishery has not come close to reaching their quota and has room to grow, and Lund's has no intention of fishing on smaller fish. The minimum size decrease would allow for keeping a portion of their current catch that is discarded.

Four advisors did not support a decrease in the scup minimum size and increase in the Winter I possession limit in the commercial fishery for various reasons. Two advisors were specifically concerned than an increased possession limit would encourage greater harvest from much larger boats that are capable of hauling several hundred thousands of pounds of fish per trip. They felt that this would harm the current fleet of smaller fishing vessels and their businesses. The winter price per pound for scup can go over a dollar or more and the fishery can be very important to the current fishermen during that time.

One advisor said 8 inch scup are a bony fish with no meat and could not see the advantage of decreasing the size limit, noting that even 9-10 inch scup can ruin the market when they are landed. Another advisor said that his concerns with decreasing the minimum size related to the poor scup recruitment in recent years, especially in 2019, and did not feel that harvesting more immature fish was a good idea for stock health.

2022-2023 Black Sea Bass Specifications

One commercial fishing advisor from New Jersey said the black sea bass population has exploded over the last decade. He said he hasn't seen any signs of the population decreasing, despite the stock assessment showing a declining trend in biomass in recent years. He added that the abundant black sea bass population is increasing competitive pressure on other stocks.

This same advisor said the estimated 36% of commercial dead catch coming from discards in 2017-2019 seems high. He added that he probably hasn't discarded more than 5-10% of his catch in a year under New Jersey's 3,000 pound trip limit. He said he would like this discard assumption to be revisited when specifications are reviewed in the future.

Another commercial fishery advisor agreed that 36% of commercial dead catch coming from discards seemed too high given the minimum mesh size requirements for trawls and escape vent requirements for pots/traps, both of which allow most black sea bass to escape alive. He added that many trawl vessels use a larger minimum mesh size than the 4.5 inches required for black sea bass so they can also comply with the groundfish mesh size requirements (5.5 or 6 inches).

One advisor said changes in the state allocations, which may be implemented for 2022, may result in fewer commercial discards than during 2017-2019, the years used to estimate discards when calculating the catch and landings limits. Another advisor wondered whether the changes to the commercial accountability measures, which became effective in 2019, would impact trends in discards.

One recreational fishing advisor said he's seen a lot of small black sea bass off New Jersey and Maryland. He asked if the Council and Board would consider recreational hook size requirements to minimize discard mortality.

One advisor expressed concerns about the ability of fisheries independent trawl surveys to adequately sample structured habitat and said this creates uncertainty in the stock assessment.

This same advisor said there is market demand for smaller fish, especially in some minority communities where cooking a whole fish is more common. He added that allowing harvest of smaller fish would benefit low income communities. He reiterated his request that management allow for harvest of smaller fish and the minimum trawl mesh sizes should match the allowable fish size.

The SSC Report is behind Tab 14.

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: July 8, 2021

TO: Chris Moore, Executive Director

FROM: Kiley Dancy, Staff

SUBJECT: Summer Flounder Specifications for 2022-2023

Executive Summary

This memorandum includes information to assist the Mid-Atlantic Fishery Management Council's (Council's) Scientific and Statistical Committee (SSC) and Monitoring Committee in recommending 2022-2023 catch and landings limits for summer flounder, as well as summer flounder commercial management measures for 2022. Additional information on fishery performance and past management measures can be found in the 2021 Summer Flounder Fishery Information Document and the 2021 Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report developed by advisors.[1]

In 2021, the Northeast Fisheries Science Center (NEFSC) provided a management track assessment update for summer flounder, which updated the current assessment model with data through 2019.[2] This is an update to the most recent benchmark stock assessment for summer flounder which was developed and peer reviewed in 2018 through the 66th Stock Assessment Workshop/Stock Assessment Review Committee (SAW/SARC 66; NEFSC 2019).[3]

The 2021 stock assessment update indicates that the summer flounder stock was not overfished and overfishing was not occurring in 2019. Spawning stock biomass (SSB) was estimated to be 104.49 million lb (47,397 mt) in 2019, 86% of the updated biomass target reference point (SSB_{MSY} = 121.73 million lb or 55,217 mt). The fishing mortality rate (F) in 2019 was 0.340, 81% of the updated fishing mortality threshold reference point ($F_{MSY\ proxy} = F_{35\%} = 0.422$).

[1] Available at: https://www.mafmc.org/fishery-performance-reports.
[2] To be posted at: https://www.mafmc.org/council-events/2021/ssc-july-21-23.
[3] Northeast Fisheries Science Center (NEFSC). 2019. 66th Northeast Regional Stock Assessment Workshop (66th SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 19-01; 40 p. Available from: https://www.nefsc.noaa.gov/publications/crd/crd1908/.

The Magnuson-Stevens Act requires the Council's SSC to provide ongoing scientific advice for fishery management decisions, including recommendations for Acceptable Biological Catch limits (ABCs), preventing overfishing, and achieving maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC.

There are currently no catch and landings limits in place for summer flounder beyond the 2021 fishing year. The SSC should recommend ABCs for 2022-2023 for the Council and Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) to consider at their joint August 2021 meeting. Two year specifications are recommended to align with the current stock assessment schedule for summer flounder, under which the next update is expected in 2023 to inform 2024-2025 specifications.

Based on the SSC's recommendations for ABCs, the Monitoring Committee recommends sector specific catch and landings limits and management measures to constrain catch and landings to these limits. Specifically, the Monitoring Committee should review recent fishery performance and make a recommendation to the Council and Board regarding 2022-2023 commercial and recreational Annual Catch Limits (ACLs) and Annual Catch Targets (ACTs), commercial quotas, and recreational harvest limits. The Monitoring Committee will also consider whether any revisions are needed to the commercial management measures (minimum fish size, minimum mesh size, and mesh exemption programs) for 2022. Recreational measures for 2022 will be considered later in 2021.

The currently implemented 2021 catch and landings limits are shown in Table 1.

Table 1: Currently implemented catch and landings limits for summer flounder for 2021.

Measure	2021		Basis
	mil lb	mt	
OFL	31.67	14,367	Stock projections
ABC	27.11	12,297	SSC recommendation (July 2020)
ABC Landings Portion	20.81	9,439	ABC discards to landings ratio from previous 2021 ABC projections (from NEFSC; Feb. 2019)
ABC Discards Portion	6.30	2,858	ABC discards to landings ratio from previous 2021 ABC projections (from NEFSC; Feb. 2019)
Expected Commercial Discards	2.14	972	34% of ABC discards portion, based on 2015-2017 average % discards by sector (using new MRIP data)
Expected Recreational Discards	4.16	1,886	66% of ABC discards portion, based on 2015-2017 average % discards by sector (using new MRIP data)
Commercial ACL	14.63	6,635	60% of ABC landings portion (FMP allocation) + expected commercial discards
Commercial ACT	14.63	6,635	No deduction from ACL for management uncertainty
Commercial Quota	12.49	5,663	Commercial ACT, minus expected commercial discards
Recreational ACL	12.48	5,662	40% of ABC landings portion (FMP allocation) + expected recreational discards
Recreational ACT	12.48	5,662	No deduction from ACL for management uncertainty
RHL	8.32	3,776	Recreational ACT, minus expected recreational discards

ABC projections for 2022-2023 were provided by NEFSC staff assuming the continued application of an overfishing limit (OFL) CV of 60%, as has been applied by the SSC in recent years for summer flounder. In addition, these projections apply the previous SSC recommendation that recruitment should be sampled from a recent time series of generally below-average recruitment. In this case, recruitment is sampled from 2011-2019. The projections also assume that the total fishery catch in 2020 and 2021 is equal to the ABCs in those respective years. Alternative projections may be needed if the SSC determines that different assumptions are warranted.

Projections were provided for both varying ABCs from 2022-2023, as well as an averaging approach where the 2022-2023 ABCs are identical. The Council and Board have requested the ability to determine which approach is more appropriate from a policy standpoint; therefore, the SSC is requested to provide recommendations for both varying and averaged ABCs. The resulting ABCs and associated staff-recommended commercial and recreational limits are provided in Table 2. Staff recommend that the Council and Board adopt the averaged ABC approach for 2022-2023 such that the catch and landings limits are held constant over the two years. This would result in a 2022-2023 ABC equal to 33.12 million pounds (15,021 metric tons), which would represent a 22% increase from the 2021 ABC of 27.11 million pounds (12,297 metric tons).

As discussed later it this memo, the recommendations for commercial and recreational catch and landings limits (ACLs, ACTs, RHLs, and commercial quotas) shown in Table 2 are subject to discussion by the Monitoring Committee, which will provide recommendations on these limits for the Council and Board's consideration. The Monitoring Committee should also provide recommendations for varying and constant ACLs, ACTs, RHLs, and commercial quotas based on the two sets of ABCs recommended by the SSC.

Table 2: Potential 2022-2023 catch and landings limits for summer flounder, under both annually varying and averaged ABC approaches, based on ABC projections provided by the NEFSC. The sector-specific catch and landings limits are initial limits prior to any deductions for past overages.

Measure	Varying ABCs				Averaged ABCs (Staff recommended)				Basis
	2022		2023		2022		2023		
	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	
OFL	36.28	16,458	34.74	15,759	36.28	16,458	34.98	15,865	Management track stock assessment projections
ABC	33.96	15,403	32.27	14,639	33.12	15,021	33.12	15,021	ABC projections provided by the NEFSC for varying and averaged 2022-2023 ABC approaches; 60% CV; sampling from 2011-2019 recruitment time series
ABC Landings Portion	26.48	12,009	25.29	11,470	25.89	11,743	25.89	11,743	ABC projections provided by the NEFSC for varying and averaged 2022-2023 ABC approaches; average approach includes averaged 2022-2023 expected landings
ABC Dead Discards Portion	7.48	3,394	6.99	3,169	7.23	3,279	7.23	3,279	ABC projections provided by the NEFSC for varying and averaged 2022-2023 ABC approaches; average approach includes averaged 2022-2023 expected dead discards
Expected Commercial Dead Discards	3.05	1,383	2.85	1,292	2.95	1,336	2.95	1,336	41% of ABC dead discards portion, based on 2017-2019 average % dead discards by sector
Expected Recreational Dead Discards	4.43	2,011	4.14	1,877	4.28	1,942	4.28	1,942	59% of ABC dead discards portion, based on 2017-2019 average % dead discards by sector
Commercial ACL	18.94	8,589	18.02	8,174	18.48	8,382	18.48	8,382	60% of ABC landings portion (FMP allocation) + expected commercial dead discards
Commercial ACT	18.94	8,589	18.02	8,174	18.48	8,382	18.48	8,382	Staff recommendation: Maintain no deduction from ACL for management uncertainty
Commercial Quota	15.89	7,205	15.17	6,882	15.53	7,046	15.53	7,046	Commercial ACT, minus expected commercial dead discards
Recreational ACL	15.02	6,814	14.25	6,465	14.64	6,639	14.64	6,639	40% of ABC landings portion (FMP allocation) + expected recreational dead discards
Recreational ACT	15.02	6,814	14.25	6,465	14.64	6,639	14.64	6,639	Staff recommendation: Maintain no deduction from ACL for management uncertainty
RHL	10.59	4,804	10.12	4,588	10.36	4,697	10.36	4,697	Recreational ACT, minus expected recreational dead discards

Staff recommend no changes to the commercial minimum size or mesh exemption requirements for 2022. As described below in the "Commercial Management Measures" section, staff recommend further evaluation of potential changes to the commercial minimum mesh size in 2022, possibly by an external contractor, for potential application in 2023. In particular, staff recommends continued consideration of phasing out the 6" square minimum mesh size regulation, (leaving the 5.5" diamond minimum mesh size in place), further evaluation of potential changes to the small mesh exemption program, and further evaluation of the regulatory criteria for the summer flounder flynet mesh exemption.

Recent Fishery Catch

Commercial landings in 2020 were approximately 9.11 million pounds (4,132 mt), about 79% of the commercial quota of 11.53 million pounds (5,229 mt). This underage is likely due in large part to market related impacts of COVID-19. Commercial dead discard estimates are not available for 2020 due to data gaps resulting from the suspension of the observer program from mid-March through mid-August 2020. As such, it is not currently possible to evaluate commercial catch against the 2020 commercial ACL. At this time, it is not clear whether alternative methodologies will be developed to generate 2020 commercial discard estimates for summer flounder and other species.

The 2021 commercial landings as of June 30, 2021, indicate that 41% of the 2021 coastwide commercial quota has been landed (Table 3).

Table 3: The 2021 state-by-state commercial quotas and the amount of summer flounder landed by commercial fishermen, in each state as of June 30, 2021.

State	Cumulative Landings (lb)	Quota (lb)[a]	Percent of Quota (%)
ME	0	14,332	0%
NH	0	9,834	0%
MA	305,308	1,015,179	30%
RI	1,114,319	1,861,550	60%
CT	322,547	579,376	56%
NY	483,552	1,094,113	44%
NJ	957,239	1,961,062	49%
DE[b]	0	0	0%
MD	66,698	558,559	12%
VA	834,951	2,399,576	35%
NC	1,028,875	2,984,903	35%
Total	5,113,489	12,478,484	41%

[a] Quotas adjusted for overages. Source: NMFS Weekly Quota Report with data reported through June 30, 2021.
[b] There is no quota available for 2021 in Delaware because the amount of over-harvest from previous years is greater than the amount of quota allocated to Delaware for 2021.

The mail and telephone surveys that collect effort data on recreational fishing continued largely uninterrupted in 2020; however, the COVID-19 pandemic disrupted the Access Point Angler Intercept Survey (APAIS). All New England and Mid-Atlantic states suspended APAIS sampling starting in late March or April 2020. States resumed sampling between May and August 2020, depending on the state. NMFS used imputation methods to fill gaps in 2020 catch data with data collected in 2018 and 2019. These proxy data match the time, place, and fishing mode combinations that would have been sampled had the APAIS continued uninterrupted. Proxy data were combined with observed data to produce 2020 catch estimates using the standard estimation methodology. For summer flounder, these estimates using imputed data show that approximately 10.06 million pounds (4,565 mt) of summer flounder were harvested in 2020, which is about 131% of the 2021 RHL of 8.32 million pounds. Recreational dead discard estimates in weight are not available for 2020 as the method for estimating the weight of discards relies on age and length information that is not complete at this time.

NMFS has indicated that when complete 2021 recreational data become available in 2022, they will evaluate the effects of including 2021 data (for example, alongside 2019 data and instead of 2018 data) in the imputation. Because these effects are unknown, the agency cannot predict whether it will seek to revise its 2020 catch estimates.

As of this memo, recreational estimates for 2021 are only available through wave 2 (March/April), which does not provide meaningful information about 2021 recreational harvest trends for summer flounder given that in recent years wave 2 has accounted for less than 1% of annual summer flounder harvest.

Stock Status and Biological Reference Points

In June 2021, the NEFSC provided a management track assessment update for summer flounder with data through 2019. The update adds two additional years of data to the model developed for the most recent benchmark stock assessment, which was developed through the 66th SAW/SARC in 2018 using data through 2017. The 2018 assessment incorporated the revised time series of recreational catch from MRIP, which is 30% higher on average compared to the previous summer flounder estimates for 1981-2017. While fishing mortality rates were not strongly affected by incorporating these revisions, increased recreational catch resulted in increased estimates of stock size compared to past assessments.

The 2021 management track assessment update made minor revisions to the biological reference points for spawning stock biomass and fishing mortality. The 2021 assessment update results indicate that the summer flounder stock was not overfished and overfishing was not occurring in 2019. SSB has generally decreased since 2003 and was estimated to be 104.49 million lb (47,397 mt) in 2019, about 86% of the updated biomass target reference point $SSB_{MSY\ proxy}$ = 121.73 million lb (55,217 mt). This estimate is 72% above the overfished threshold of ½ $SSB_{MSY\ proxy}$ = ½ $SSB_{35\%}$ = 60.87 million lb (27,609 mt; Figure 1). There is a 90% chance that SSB in 2019 was between 42,000 and 54,000 mt.

Fishing mortality on the fully selected age 4 fish ranged between 0.744 and 1.622 during 1982-1996 and then decreased to 0.245 in 2007. Since 2007 the fishing mortality rate (F) has increased, and in 2019 was estimated at 0.340, 81% of the updated fishing mortality threshold reference point ($F_{MSY\ proxy} = F_{35\%}$ = 0.422; Figure 2). There is a 90% probability that the fishing mortality rate in 2019 was between 0.280 and 0.396.

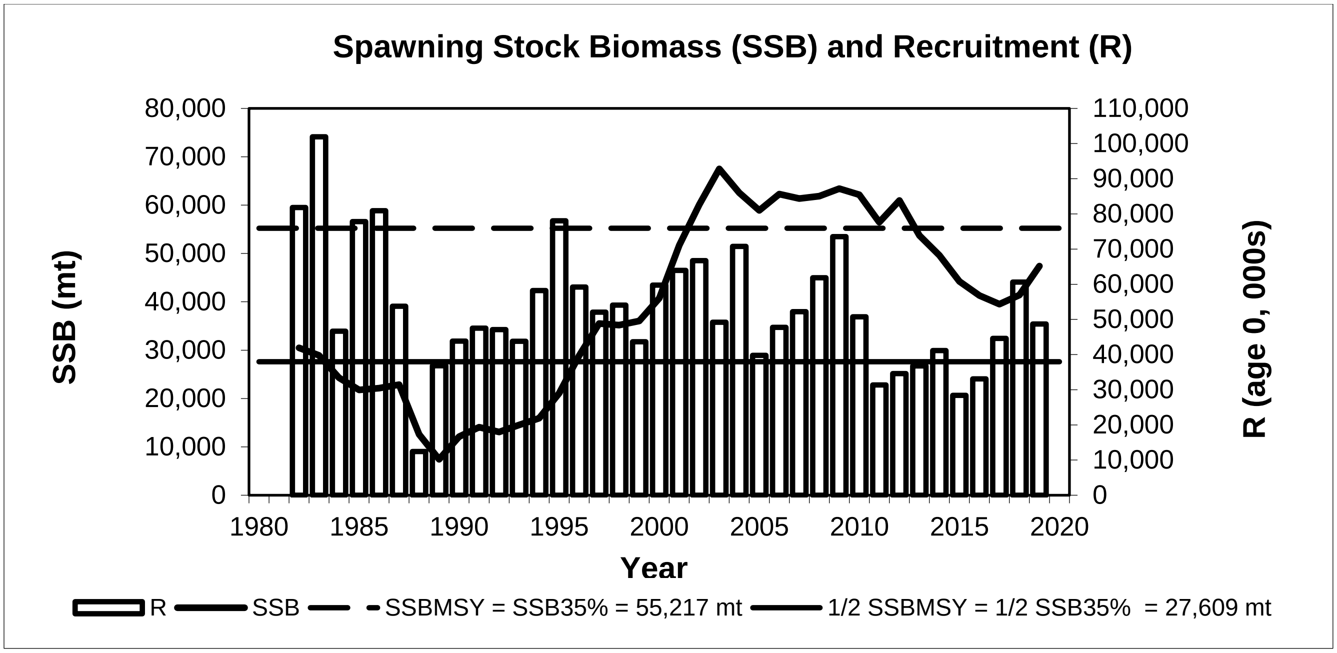

Figure 1: Summer flounder spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars),1982-2019. The horizontal dashed line is the updated target biomass reference point. The horizontal solid line is the updated threshold biomass reference point.

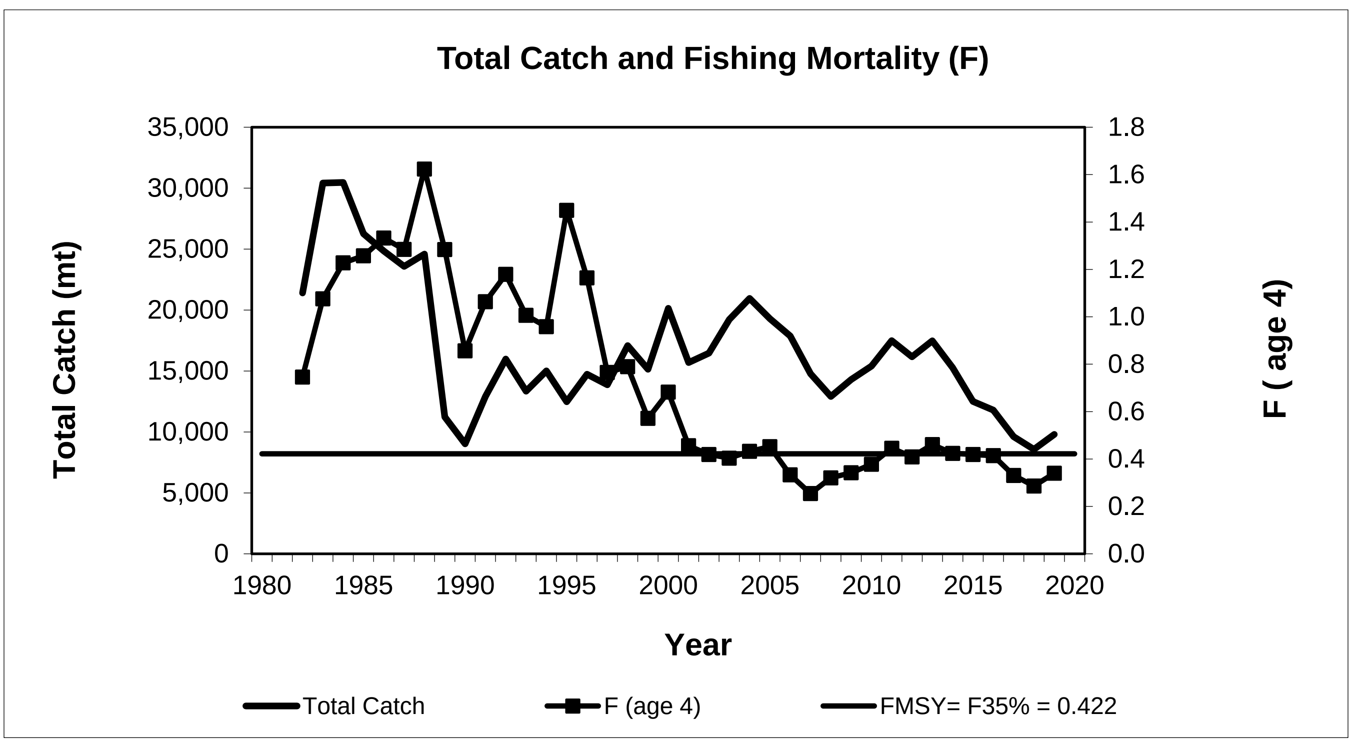

Figure 2: Total fishery catch (metric tons; mt; solid line) and fully-recruited fishing mortality (F, peak at age 4; squares) of summer flounder, 1982-2019. The horizontal solid line is the updated fishing mortality reference point.

The average recruitment from 1982 to 2019 is 53 million fish at age 0. Recruitment of juvenile summer flounder was below-average from 2011-2017, ranging from 31 to 45 million fish and averaging 36 million fish. The driving factors behind this period of below average recruitment have not been identified. The 2018 year class is above average at an estimated 61 million fish, which is largest recruitment estimate since 2009, while the 2019 year class is below average at 49 million fish.

Review of Prior SSC Recommendations

In February 2019, the SSC recommended, and the Council and Board adopted, summer flounder ABCs for 2019-2021 based on new stock status information and projections from the 2018 assessment. An ABC of 25.03 million pounds (11,354 mt) was implemented for each year 2019-2021; however, in 2020, the 2021 ABC was revised to account for changes to the Council's risk policy, as described in more detail below.

In February 2019, as requested by the Council, the SSC recommended two alternative sets of three-year ABCs based on the SAW66 assessment: one with varying ABCs each year, and one with a constant ABC for all three fishing years derived by averaging the three ABCs resulting from the varying approach. The Council and Board ultimately adopted the SSC-recommended ABCs based on the three-year averaged approach, implementing a constant ABC of 25.03 million pounds (113,54 mt) in each year 2019-2021.

The SSC indicated that the approach to estimating uncertainty in the OFL had not changed since the previous 2013 benchmark (SAW/SARC 57). Accordingly, the SSC maintained its determination that the assessment should be assigned an "SSC-modified OFL probability distribution." In this type of assessment, the SSC provides its own estimate of uncertainty in the distribution of the OFL. The SSC continued the application of a 60% OFL CV, because: (1) the latest benchmark assessment did not result in major changes to the quality of the data and model that the SSC has previously determined to meet the criteria for a 60% CV; (2) the summer flounder assessment continues to be a data rich assessment with many fishery independent surveys incorporated and with relatively good precision of the fishery dependent data; (3) several different models and model configurations were considered and evaluated by SAW-66, most of which showed similar stock trends and stock status; and (4) no major persistent retrospective patterns were identified in the most recent model. The SSC noted that significant improvements in quality of data and exhaustive investigations of alternate model structures affirm the specification of the 60% OFL CV by the SSC.

The SSC accepted the OFL proxy ($F_{35\%}$ = 0.448) used in the 2018 assessment. Given recent trends in recruitment for summer flounder, the SSC recommended the use of the most recent 7-year recruitment series for OFL projections (2011-2017) because near-term future conditions were more likely to reflect recent recruitment patterns than those in the entire 36-year time series.

The SSC considered the following to be the most significant sources of uncertainty associated with the determination of the OFL and/or ABC:

- Changes in life history are apparent in the population; for example, declining growth rates.
- Potential changes in productivity of the stock, which may affect estimates of biological reference points. Changes in size-at-age, growth, and recruitment may be environmentally mediated, but mechanisms are unknown.
- Potential changes in availability of fish to some surveys and to the fishery as a result of changes in the distribution of the population.

In December 2019, the Council adopted revisions to its risk policy. These revisions modified the ABC control rule to allow for a greater acceptable risk of overfishing at most biomass levels, while maintaining a risk of overfishing below 50% for all stocks. In light of these changes, in July 2020, the SSC considered whether the 2021 ABC should be modified in accordance with the revised risk policy.

In their July 2020 report, the SSC noted that the 2020 data update suggested an above average year class in 2018. These fish would not be fully recruited to the landings in the fishery until 2022, which the SSC noted may cause an increase in fishery discards in 2021 from this year class, as information about this year class was not incorporated into the previous projections for 2019-2021. The SSC believed this implied some uncertainty in the reliability of the projections from the assessment given the assumptions associated with those projections, but determined this was not a rationale for not applying the new Council risk policy. The SSC recommended that the ABC for the 2021 fishing year be revised to 27.11 million pounds (12,297 mt) to be consistent with the revised Council risk policy. This represented an 8% increase in the previously adopted 2021 ABC recommendation. The revised 2021 ABC recommendation was calculated based on the previously adopted 2021 OFL of 31.67 million pounds (14,365 mt), a projected 2021 B/Bmsy of 0.88, a P* value of 0.39 under the revised risk policy, and the previously applied OFL CV of 60%.

Table 4 shows the previously adopted 2019-2021 ABCs and the revised 2021 ABC, along with the associated OFLs and P* values.

Table 4: SSC-recommended 2019-2021 OFLs, ABCs, and P* values for the 3-year averaged ABC approach adopted by the Council and Board, and revisions to the 2021 ABC in response to changes in the Council's risk policy.

Timing of Recommendation	Year	OFL	ABC	P*
February 2019	2019	30.00 mil lb (13,609 mt)	25.03 mil lb (11,354 mt)	0.37
	2020	30.94 mil lb (14,034 mt)		0.35
	2021 (initial)	31.67 mil lb (14,367 mt)		0.34
July 2020	2021 (revised)	31.67 mil lb (14,367 mt)	27.11 mil lb (12,297 mt)	0.39

Staff Recommendation for 2022-2023 ABCs

ABC projections for 2022-2023 were developed using several assumptions based on staff recommendations and past recommendations of the SSC. Staff recommend continued use of projections that sample from a shorter, more recent time series of recruitment since 2011, in this case, the 9-year time series of 2011-2019. Recruitment was generally below average in these years, although as described above, recruitment in 2018 was above average. The causes of below-average recruitment have not been identified, and the SSC previously recommended the use of a shorter recruitment series believing that near-term future conditions are more likely to reflect recent recruitment patterns than those in the entire assessment time series (now 38 years).

Staff recommend continued use of the 60% OFL CV, which has been adopted by the SSC for summer flounder each year since 2014. The latest benchmark assessment did not result in major changes to the quality of the data and model that the SSC has previously determined to meet the criteria for a 60% CV. The summer flounder assessment continues to be a data rich assessment with many fishery independent surveys incorporated and with relatively good precision of the fishery dependent data. Several different models and model configurations were considered and evaluated by the most recent SAW, most of which showed similar stock trends and stock status. No major persistent retrospective patterns were identified in the most recent model.

Projections were provided for both varying 2022-2023 ABCs, as well as an averaging approach where the 2022-2023 ABCs are held constant. In each case, an iterated approach was used where the projected biomass for the subsequent year was updated assuming that the ABC was caught in the preceding year. This results in differing 2023 OFLs between various projection approaches. All 2022-2023 projections provided below assume that catch in 2020 and 2021 was equal to the implemented ABCs in those respective years.[4]

Using the assumptions described above, Table 5 provides projections under the varying 2022-2023 ABC approach while Table 6 provides projections using the constant ABC approach. Biologically, the outcome of an averaged vs. non-averaged approach is very similar and the projected spawning stock biomass trajectory is approximately the same in either scenario. Under these options, consistent with the Council’s revised risk policy, the probability of overfishing (P*) in 2022-2023 could range from 0.435-0.461.

Table 5: Projections for varying 2022-2023 ABCs, including OFL and ABC total catch, ABC projected landings and discards, ABC projected F, and projected SSB. These projections sample from a recent time series of recruitment (2011-2019) and assume application of the current Council risk policy with a 60% OFL CV.

Year	OFL Total Catch		ABC Total Catch		ABC Landings		ABC Discards		ABC F	ABC P*	SSB	
	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt			mil lb	mt
2020	31.27	14,183	25.03	11,354	18.97	8,604	6.06	2,750	0.328	0.344	119.83	54,352
2021	32.81	14,884	27.11	12,297	20.87	9,468	6.24	2,829	0.32	0.365	125.49	56,920
2022	36.28	16,458	33.96	15,403	26.48	12,009	7.48	3,394	0.391	0.452	121.04	54,901
2023	34.74	15,759	32.27	14,639	25.29	11,470	6.99	3,169	0.387	0.447	113.69	51,570

[4] While official catch estimates for 2020 are not currently available due to COVID-19 related data issues, the management track assessment estimates that 2020 total catch was approximately 99% of the 2020 ABC.

Table 6: Projections for averaged 2022-2023 ABCs, including OFL and ABC total catch, ABC projected landings and discards, ABC projected F, and projected SSB. These projections sample from a recent time series of recruitment (2011-2019) and assume application of the current Council risk policy with a 60% OFL CV.

Year	OFL Total Catch		ABC Total Catch		ABC Landings		ABC Discards		ABC F	ABC P*	SSB	
	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt			mil lb	mt
2020	31.27	14,183	25.03	11,354	18.97	8,604	6.06	2,750	0.328	0.344	119.83	54,352
2021	32.81	14,884	27.11	12,297	20.87	9,468	6.24	2,829	0.32	0.365	125.49	56,920
2022	36.28	16,458	33.12	15,021	25.82	11,713	7.29	3,308	0.38	0.435	121.72	55,211
2023	34.98	15,865	33.12	15,021	25.95	11,772	7.16	3,249	0.396	0.461	113.77	51,605

Whether or not to average the ABCs is a policy decision for the Council and Board. Because the Council is unable to recommend ABCs higher than what the SSC recommends for any given year, the SSC is asked to provide ABC recommendations for both approaches to allow the Council and Board to select their preferred approach.

Staff recommend that the Council and Board adopt ABCs for 2022-2023 based on the averaged ABC approach. This is consistent with the previous approach for summer flounder, and would provide stability and simplicity between limits in these two years.

The Northeast Regional Coordinating Council (NRCC)'s stock assessment process[5] now has summer flounder receiving management track updates every two years. The next management track assessment update is expected in 2023 to inform 2024-2025 catch and landings limits. Data updates (updated fishery catch and survey data only) would be requested in the interim years. 2022-2023 ABCs adopted this year are not expected to be revised unless there are unusual signals in interim data updates that prompt the SSC to determine that changes may be warranted.

Sector-Specific Catch and Landings Limits

The Council and Board are currently developing an amendment to reconsider the allocation of catch or landings between the commercial and recreational sectors for summer flounder, scup, and black sea bass.[6] Final action on this amendment is scheduled for December 2021 and any changes are expected to be implemented starting in 2023. Thus, while the below discussion of sector specific limits for 2023 assumes the current allocations will apply in 2023, this may not necessarily be the case, and 2023 limits may need revisions based on any allocation changes made by the Council and Board. Allocation changes would not impact the ABCs discussed above.

Recreational and Commercial Annual Catch Limits

The ABC projections provided in Table 5 and Table 6 above include an amount of catch expected to be landed and an amount expected to be discarded (dead discards) in 2022-2023 based on projections provided by the NEFSC. For the averaged ABC approach, staff recommends averaging the expected discards and landings across the two years given minor differences in these projections, to ensure that all limits would be held constant over the two years (see Table 2). Based on the allocation percentages in

[5] http://www.mafmc.org/s/Stock-assessment-process-FINAL.pdf.
[6] http://www.mafmc.org/actions/sfsbsb-allocation-amendment

the Fishery Management Plan (FMP), 60% of the amount of the ABC expected to be landed is allocated to the commercial fishery, and 40% to the recreational fishery. Dead discards are typically apportioned based on the dead discards contribution from each fishing sector using a 3-year moving average percentage.

Due to data issues related to COVID-19, dead discard data are not currently available for 2020 for the commercial or recreational fisheries. As such, recommendations for the split of projected dead discards between the commercial and recreational fisheries were developed using 2017-2019 data from the management track assessment. On average over these years, 41% of dead discards were attributable to the commercial fishery and 59% to the recreational fishery.

The allocated landings for each sector are added to the expected sector-specific dead discards to arrive at the commercial and recreational ACLs. Any deductions for management uncertainty (see below) would be deducted from the sector-specific ACLs to arrive at the sector-specific ACTs. Expected dead discards are subtracted from the sector ACTs to derive the commercial quota and RHL in each year (Figure 3).

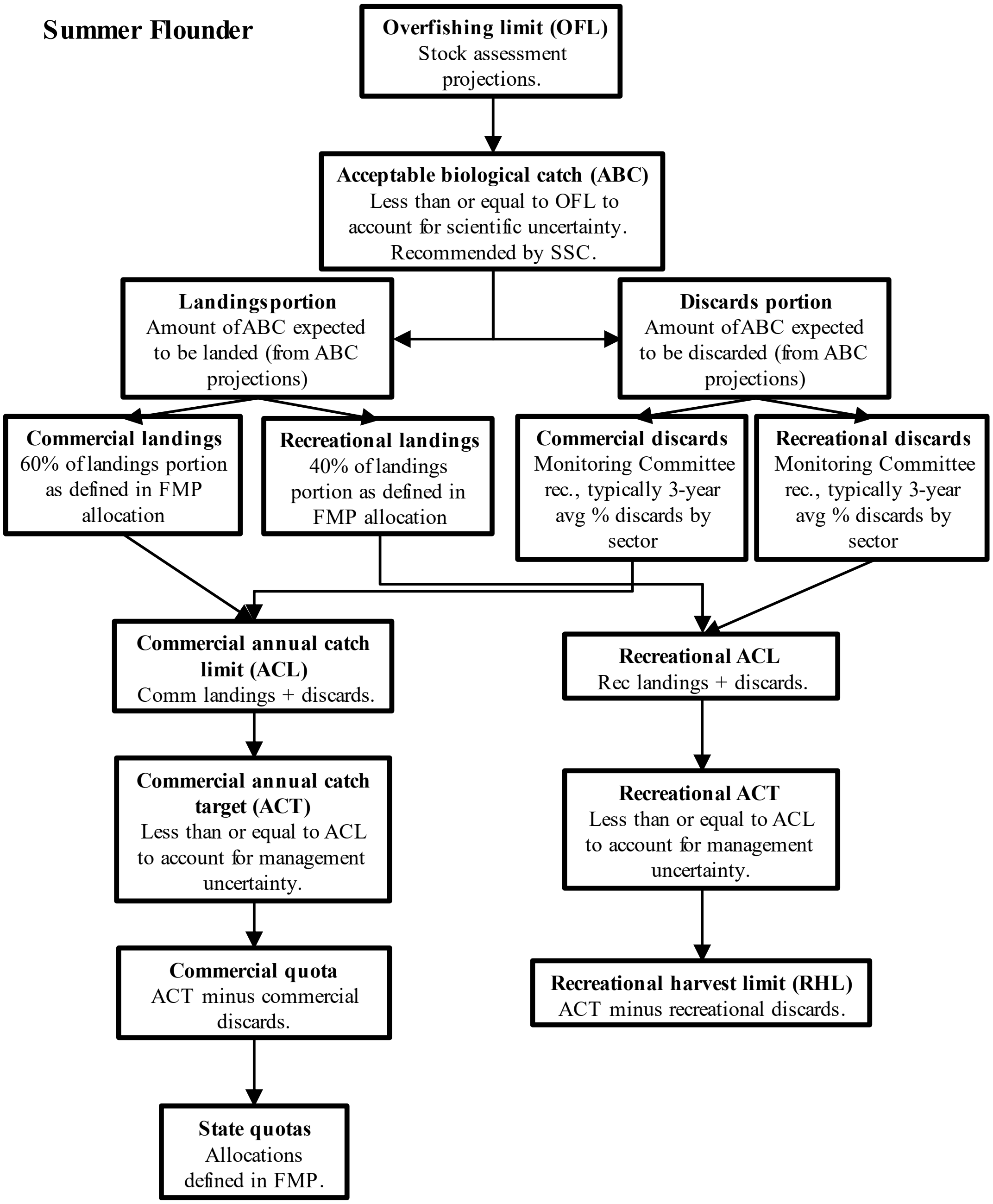

Figure 3: Flowchart for summer flounder catch and landings limits.

Annual Catch Targets and Accountability Measures

The Monitoring Committee is responsible for recommending ACTs, which are intended to account for management uncertainty. The Monitoring Committee should consider all relevant sources of management uncertainty in the summer flounder fishery and provide the technical basis, including any formulaic control rules, for any reduction in catch when recommending an ACT. ACTs may be reduced upon implementation in some cases if an Accountability Measure (AM) is triggered for a given fishery, as described below.

Management uncertainty is comprised of two parts: uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e., estimation errors). Management uncertainty can occur because of a lack of sufficient information about the catch (e.g., due to late reporting, underreporting, and/or misreporting of landings or bycatch) or because of a lack of management precision (i.e., the ability to constrain catch to desired levels).

Commercial landings were near the commercial quotas in recent years prior to the substantial commercial quota increase in 2019. In 2019 and 2020, more notable underages were observed (Table 7). In 2019 this was due to the mid-year increase in quota that did not allow the fishery the opportunity to fully harvest the quota, and in 2020, the underage was likely due to market impacts of COVID-19.

The NMFS Regional Administrator has in-season closure authority for the commercial summer flounder fishery, and commercial quota monitoring systems in place are typically effective in allowing timely reactions to landings levels that approach quotas. As such, any landings-based overages tend to be small in magnitude and are deducted from state quotas in the following years. Commercial ACL overages caused by higher than projected discards result in a payback amount scaled based on estimates of stock biomass relative to the biomass target. At this time, 2020 dead discards estimates are not available for the commercial fishery, however, NMFS may consider any available 2020 data later in the year during the rulemaking process for 2022-2023 specifications to determine whether adjustments to the commercial limits are needed.

The Monitoring Committee had previously recommended closely monitoring commercial discards trends due to discards-driven overages of the commercial ACL in 2017 and 2018; however, in these years, a large proportion of discards were likely the result of below-average quotas. Observer data for observed trawl hauls from 2015-2019 support this conclusion (Table 8). Commercial discards decreased in 2019, possibly due in part to increased quotas although this is difficult to determine given the mid-year quota change. Note that observer data show an increased proportion of observed discards attributed to "too small," possibly driven by an above average 2018 year class as indicated by fishery independent surveys. The commercial sector was under their commercial ACL by approximately 20% in 2019. As previously stated, commercial discard information is not available for 2020 at this time.

<u>Staff recommend maintaining commercial ACTs set equal to the ACLs for 2022-2023, such that no reduction in catch is taken for management uncertainty</u>.

For the recreational fishery, performance relative to RHLs through 2018 cannot be evaluated using the revised MRIP data, since past RHLs were set based on assessments that used the old data. A performance evaluation for 2016-2020 using a combination of old and new MRIP data is provided in Table 7 (2016-2018 uses pre-calibration MRIP data). Data for 2019-2020 are from the revised MRIP methodology and can be compared to the 2019-2020 limits given that they were set using the new assessment which incorporated revised MRIP information.

Compared to the commercial fishery, recreational performance has been more variable relative to the RHLs given the difficulty forecasting recreational effort and catch rates in any given year, as well as the lack of timely in-season data and in-season closure authority for the recreational fishery. Between 2016-2020, recreational harvest was below the RHLs in two of the five years (2017 and 2018). A moderate (14%) overage of the RHL was observed in 2016, and a more substantial (31%) overage in 2020. However, as discussed above, the 2020 MRIP data are based on imputation methods incorporating some 2018 and 2019 data to address 2020 gaps in intercept sampling coverage. The 2020 estimates should be reviewed by the Monitoring Committee, which may wish to provide recommendations on whether or how to use these estimates in evaluation of fishery performance to the RHL and ACL, as well as whether or how to use estimates broken down by state, wave, area, or mode when considering recreational measures later this year.

Recreational AMs are evaluated based on a three-year moving average of recreational catch compared to the average recreational ACL over the same time period. A recreational AM was not triggered for application in 2021 based on an evaluation of 2017-2019 catch data. At this time 2020 recreational dead discard estimates are not available; however, they may be available for an ACL evaluation later this fall during the process of setting recreational measures for 2022.

The Council and Board are considering a number of potential changes to recreational fisheries management through the Recreational Reform Initiative, with the goal of providing more stability in the recreational bag, size, and season limits from year to year, greater flexibility in the management process, and recreational accessibility aligned with availability. This is an ongoing effort. Specific changes could include greater consideration of stock status when setting recreational management measures, better addressing uncertainty in the MRIP data, and other changes.

<u>Staff recommend maintaining recreational ACTs set equal to the ACLs for 2022-2023, such that no reduction in catch is taken for management uncertainty</u>.

Table 7: Summer flounder commercial and recreational fishery performance relative to quotas and RHLs, 2016-2020. Recreational data show pre-revision MRIP estimates for 2016-2018 to allow comparison to past RHLs, and 2019-2020 are evaluated with the new MRIP estimates given that RHLs in these years were set with the new assessment which incorporated the revised MRIP data.

Year	Comm. Landings (mil lb)[a]	Comm. Quota (mil lb)[b]	Comm. Percent Overage(+)/ Underage(-)	Rec. Harvest - OLD MRIP (mil lb)[c]	Rec. Harvest - REVISED MRIP (mil lb)[c]	RHL(mil lb)[d]	Rec. Percent Overage(+)/ Underage(-)
2016	7.80	8.12	-4%	6.18	13.24	5.42	+14%
2017	5.87	5.66	+4%	3.19	10.08	3.77	-15%
2018	6.17	6.44	-4%	3.35	7.60	4.42	-24%
2019	9.06	10.98	-17%	N/A	7.80	7.69	+1%
2020	9.11	11.53	-21%	N/A	10.06[e]	7.69	+31%
5-yr Avg.	-	-	-9%	-	-	-	+1%

[a] Source: NMFS dealer data, as of June 2021.
[b] Commercial quotas are post-deduction for past landings and discard overages.
[c] Source: 2016-2017 pre-calibration MRIP data from NMFS MRIP calibration comparison query accessed June 27, 2019. 2018 back-calibrated data is from personal communication with NMFS. 2019-2020 recreational landings are from a NMFS recreational fisheries statistics query May 12, 2021. Recreational landings are from Massachusetts through North Carolina.
[d] RHLs for 2016-2018 were set using a prior assessment that did not incorporate revised MRIP values. The 2019-2020 RHLs were set using the 2018 assessment which incorporated revised MRIP values.
[e] 2020 recreational estimates were developed using imputation methods (incorporating 2018 and 2019 data) to account for missing 2020 APAIS data.

Table 8: Percent of observed bottom otter trawl hauls with discarded summer flounder by discard reason, 2015-2019.

Recorded Discard Reason	2015	2016	2017	2018	2019	Average
Too small	56.7%	50.9%	37.4%	45.6%	62.8%	50.7%
No Quota	31.9%	37.3%	49.9%	42.3%	27.1%	37.7%
High graded	4.4%	7.4%	7.2%	7.1%	6.4%	6.5%
Market reasons (unknown, will spoil, poor quality, too large)	7.0%	4.3%	5.3%	4.8%	3.7%	5.0%

Commercial Quotas and Recreational Harvest Limits

Projected discards are removed from the sector-specific ACTs to derive landings limits, which include annual commercial quotas and RHLs (Figure 3). For 2022-2023, the staff recommendation for an averaged ABC approach in combination with the ACT and discard assumptions outlined above would result in a commercial quota of 15.53 million pounds and an RHL of 10.36 million pounds. Under the varying ABC approach, the commercial quota would be 15.89 million pounds in 2022 and 15.17 million pounds in 2023, while the RHL would be 10.59 million pounds in 2022 and 10.12 million pounds in 2023 (Table 2). These calculations are dependent on the ABC recommendations of the SSC and may vary if the SSC adopts different recommendations than outlined in this memo.

The commercial quota is divided among the states based on the allocation percentages specified in the FMP, and each state sets measures to achieve their state-specific commercial quotas. The commercial allocations to the states were modified via Amendment 21, which became effective on January 1, 2021. The revised allocation system modifies the state-by-state commercial quota allocations in years when the annual coastwide commercial quota exceeds the specified trigger of 9.55 million pounds. Annual coastwide commercial quota of up to 9.55 million pounds is distributed according to the previous state allocations. In years when the coastwide quota exceeds 9.55 million pounds, the *additional* quota amount beyond this trigger is distributed in equal shares to all states except Maine, Delaware, and New Hampshire, which split 1% of the additional quota (Table 9). The total percentage allocated annually to each state is dependent on how much additional quota beyond 9.55 million pounds, if any, is available in any given year. This allocation system is designed to provide for more equitable distribution of quota when biomass is relatively higher, while also considering the historic importance of the fishery to each state.

Table 9: Previous (through 2020) and revised (effective January 2021) allocation of summer flounder commercial quota to the states.

State	Previous allocation of commercial quota	Revised allocation of commercial quota (total state allocation = baseline quota allocation + additional quota allocation)	
		Allocation of baseline quota ≤9.55 mil lb	Allocation of additional quota beyond 9.55 mil lb
ME	0.04756%	0.04756%	0.333%
NH	0.00046%	0.00046%	0.333%
MA	6.82046%	6.82046%	12.375%
RI	15.68298%	15.68298%	12.375%
CT	2.25708%	2.25708%	12.375%
NY	7.64699%	7.64699%	12.375%
NJ	16.72499%	16.72499%	12.375%
DE	0.01779%	0.01779%	0.333%
MD	2.03910%	2.03910%	12.375%
VA	21.31676%	21.31676%	12.375%
NC	27.44584%	27.44584%	12.375%
Total	100%	100%	100%

Specific management measures that will be used to achieve the RHL for the recreational fishery in 2022 will not be determined until later in 2021. Typically, the Council and Board review data through Wave 4 (July-August) in the current year to set recreational bag, size, and season limits for the upcoming year. The Monitoring Committee typically meets in November to review these data and make recommendations regarding any necessary changes in the recreational management measures (i.e., bag limit, minimum size, and season).

Commercial Management Measures

Commercial Gear Regulations and Minimum Fish Size

Management measures in the commercial fishery other than quotas (i.e., minimum fish size, gear requirements, etc.) have remained generally constant since 1999. The current commercial minimum fish size is 14 inches total length (TL) and has been in place since 1997.

Current trawl gear regulations require a 5.5-inch diamond or 6.0-inch square minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder, i.e., 200 lb in the winter (November 1-April 30) and 100 lb in the summer (May 1-October 31). The minimum fish size and mesh requirements may be changed through specifications based on the recommendations of the Monitoring Committee.

In September 2019, the Monitoring Committee discussed various mesh size issues for summer flounder, scup, and black sea bass, and revisited the 2018 mesh selectivity study for summer flounder, scup, and black sea bass by Hasbrouck et al. (2018)[7]. Hasbrouck et al. study suggests that, in general, the current minimum mesh sizes are effective at releasing catch of most undersized and immature fish, but modifications could be considered to allow for consistent mesh sizes for black sea bass and scup, and to potentially reduce discards of undersized summer flounder. As described in the meeting summary, the

[7] Hasbrouck et al. 2018 is available at: http://www.mafmc.org/s/Tab08_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf. The Monitoring Committee discussion document from September 2019 is available at https://www.mafmc.org/s/FSB-Mesh-Size-Issues-Overview-Sept-2019.pdf, and the MC report from that discussion can be found at: https://www.mafmc.org/s/SFSBSB_MC_Summary_Sept_2019_FINAL.pdf. T

MC identified additional analyses and input needed from industry before recommending changes to the mesh size regulations.

For summer flounder, the MC had noted that the selectivity curve described in the study for 6.0" square mesh does not appear to be equivalent to that of the 5.5" diamond. Instead, the 6.0" square is much more similar to a 5.0" diamond mesh. The 6.0" square mesh releases less than 50% of minimum size fish. The MC had some concerns with the amount of undersized summer flounder caught with the 6.0" square mesh and recommended further exploring the impacts of this mesh size. Phasing out the use of 6.0" square mesh for summer flounder could reduce discards of undersized fish. The MC noted that further analysis should be done on how many vessels are currently using 6.0" square vs. 5.5" diamond mesh.

In recent discussions on this topic, the MC has been supportive of continuing to analyze this issue, but has also recognized that it should be a lower priority issue in the near term given other pressing management concerns for this FMP. The Council and Board have also agreed that while this issue should still be pursued, it was not a near-term priority given other management activities. Given staff resources required on other issues for these species and other Council and Board priorities, to date there has not been additional staff time available to further evaluate these issues. <u>Staff recommend consideration of hiring an external contractor in late 2021/early 2022 to pursue further evaluation of this mesh size issue as well as re-evaluation of the mesh size exemptions as discussed below</u>. <u>Given this timing, staff recommend no changes to the current 14-inch minimum fish size, or seasonal possession thresholds triggering the minimum mesh size for 2022.</u>

Minimum Mesh Size Exemption Programs

Small Mesh Exemption Area

Vessels landing more than 200 lb of summer flounder east of longitude 72° 30.0'W, from November 1 through April 30, and using mesh smaller than 5.5-inch diamond or 6.0-inch square are required to obtain a small mesh exemption program (SMEP) permit from NMFS. The exemption is designed to allow vessels to retain some bycatch of summer flounder while operating in other small-mesh fisheries.

The FMP requires that observer data be reviewed annually to determine whether vessels fishing seaward of the SMEP line with smaller than the required minimum mesh size and landing more than 200 lb of summer flounder are discarding more than 10% (by weight) of their summer flounder catch per trip. Typically, staff evaluate the Northeast Fisheries Observer Program (NEFOP) data for the period from November 1 in the previous year to April 30 in the current year. However, when this analysis is conducted each summer, complete observer data is not yet available through the end of April in the current year. As such, a year-long lag in the analysis is used.

Under normal circumstances, staff would evaluate observer data from November 1, 2019 through April 30, 2020 in the development of this memo. However, given the suspension of the observer requirements in mid-March 2020 due to COVID-19, complete observer data for this time period are not available. NEFOP data were evaluated for observed trips from November 1, 2019 through approximately March 19, 2020.[8] For this time period, a total of 397 trips with at least one tow were observed east of 72° 30.0'W and 204 of these trips used small mesh (Table 10). Of those 204 trips, 97 trips (47%) reported landing more than 200 lb of summer flounder. Of those 97 trips, 24 trips (25%) discarded more than 10% of their summer flounder catch. The percentage of trips that met all these criteria relative to the

[8] The observer requirement was first waived on March 20, 2020, although there are a few relevant observer records after this date, presumably from vessels which were already at sea.

total number of observed trips east of 72° 30.0'W is 6.0% (24/397 trips).

The number of vessels issued a letter of authorization (LOA) for the small mesh exemption program has remained relatively stable since 2013, fluctuating around an average of 66 vessels (Figure 4).

The MC had previously identified concerns with an increased percentage in the number of observed trips in the small mesh exemption area landing over 200 pounds of summer flounder but discarding more than 10% of their summer flounder catch (Table 10). While the amount of observed discards from these trips is low relative to the commercial catch limit, because these observed trips are a subset of the fishery operating under this exemption, the actual extent of discards under the exemption program is not known. The MC has also noted that these increases in discards were possibly related to decreased commercial quotas, especially from 2017 through the first half of 2019. Last year, the MC noted that the substantial increase in the commercial quota for 2019-2021 should reduce the rates of discarding in general, including under this exemption. General analysis of recorded discard reasons in the observer data (not specific to this exemption program) indicate that discards in recent years prior to 2019 have been more heavily driven by quota-related reasons, but in 2019 quota-related reasons accounted for a much smaller percentage of observed discards. The MC indicated that an analysis of the recorded discard reasons specifically for vessels operating under this exemption program would be useful but recognized that COVID-19 observer coverage disruptions would hinder the ability to evaluate the most recent relevant time period. As indicated above, for the recent data that are available, the percent of observed trips discarding more than 10% of their summer flounder catch declined in the November 2019-March 2020 period. However, because 2020 observer data are incomplete, it is difficult to evaluate whether this change represents a meaningful difference in discarding patterns.

Following the June 2021 Advisory Panel meeting, one advisor requested evaluation of changes to the small mesh exemption program.[9] Specifically, this advisor requested that the small mesh exemption line be completely removed and that vessels be allowed to possess up to 1,000 pounds of summer flounder with small mesh no matter where they are fishing. Additionally, for directed summer flounder trips with possession limits over 1,000 pounds, a 5” minimum mesh size should be used. The advisor did not specify whether this modification should be seasonal or year-round. Staff note that this modification would essentially remove the small mesh exemption program as well as modify the seasonal possession limits triggering the minimum mesh size requirement (as discussed above, these limits are currently 200 pounds from November through April and 100 pounds May through October).

The MC should consider whether changes may be needed to this exemption program. As described above, there has not been sufficient staff time to dedicate to a more in depth evaluation of this exemption program in 2021. <u>Staff recommend that the MC identify additional analysis or industry input needed to inform potential changes to the small mesh exemption program, and recommend that this be considered for evaluation by an external contractor in late 2021/early 2022 for potential application in 2023 and beyond.</u>

[9] See email comment from Hank Lackner included in the Fishery Performance Report at: https://www.mafmc.org/s/SFSBSB_FPR_June-2021.pdf.

Table 10: Numbers of observed trips that meet specific criteria based on NEFOP data from November 1-April 30 for 2014 through 2020; observer data for 2020 is only available through mid-March due to the COVID-19 related suspension of the observer program.

	Criteria	Nov. 1, 2014 – April 30, 2015	Nov. 1, 2015 – April 30, 2016	Nov. 1, 2016 – April 30, 2017	Nov. 1, 2017 – April 30, 2018	Nov. 1, 2018 – April 30, 2019	Nov. 1, 2019 ~March 19, 2020
A	Observed trips with at least one catch record east of 72° 30' W Longitude	401	391	555	724	646	397
B	That met the criteria in row A and used small mesh at some point during their trip	172	252	376	364	354	204
C	That met the criteria in rows A-B and landed more than 200 pounds summer flounder on whole trip	72	92	150	135	164	97
D	That met the criteria in rows A-C and discarded >10% of summer flounder catch east of 72° 30' W Longitude	21	18	36	47	53	24
E	% of observed trips with catch east of 72° 30' W Longitude that also used small mesh, landed >200 pounds of summer flounder, and discarded >10% of summer flounder catch (row D/row A)	5.20%	4.60%	6.50%	6.50%	8.20%	6.05%
F	Total summer flounder discards (pounds) from trips meeting criteria in A-D	14,579	16,470	14,640	33,868	18,186	11,672
G	Total summer flounder landings (pounds) from trips meeting criteria in A-D	15,224	23,295	25,472	76,780	59,960	29,540
H	Total catch (pounds) from trips meeting criteria in A-D	29,804	39,763	40,113	110,648	69,145	41,212

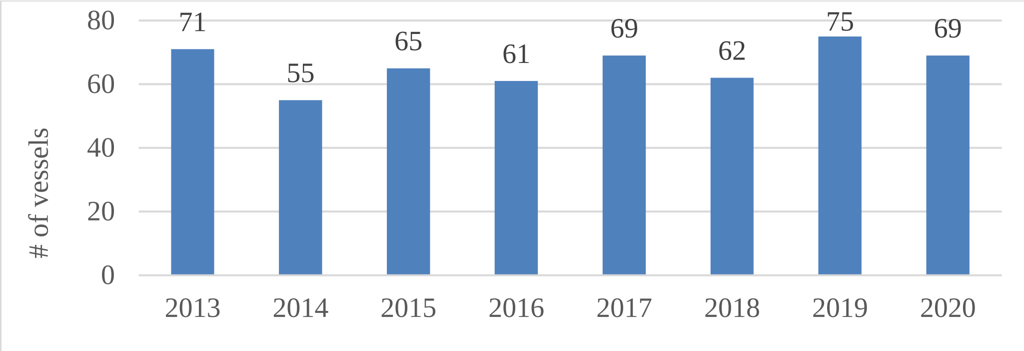

Figure 4: Number of vessels issued the small mesh LOA for the SMEP from fishing year 2013-2020. Source: Pers. Comm., GARFO Analysis & Program Support Division, June 17, 2021.

Flynet Exemption Program

Vessels fishing with a two-seam otter trawl flynet are also exempt from the minimum mesh size requirements. Exempt flynets have large mesh in the wings that measure 8 to 64 inches, the belly of the net has 35 or more meshes that are at least 8 inches, and the mesh decreases in size throughout the body of the net, sometimes to 2 inches or smaller. This exemption was created through Amendment 2 in 1993, as suggested by the South Atlantic Fishery Management Council and the State of North Carolina to accommodate flynet fisheries targeting other species and catching limited amounts of summer flounder. The NMFS Regional Administrator may withdraw the exemption if the annual average summer flounder catch in the flynet fishery exceeds 1% of the total flynet catch.

Typically, the MC reviews data from the North Carolina flynet fishery as the bulk of flynet landings in the Greater Atlantic region originate from North Carolina, though the flynet fishery in North Carolina is small. The supplemental memo from Lorena de la Garza dated July 1, 2021 (see Attachment) indicates that no summer flounder were landed in the North Carolina flynet fishery from 2015-2020. Flynet landings in North Carolina have declined in recent years due to shoaling issues at Oregon Inlet.

The flynet exemption was explored in more depth through the Monitoring Committee's 2015 comprehensive review of commercial management measures.[10] The MC determined at the time that other states, including Virginia, New Jersey, and Maryland may have small amounts of flynet landings; however, data were limited or unavailable for most other states and flynet landings of summer flounder in these states were believed to be insignificant.

A January 2020 public comment from a New Jersey fisherman[11] asserted that this exemption is being used more frequently than indicated by the Monitoring Committee analyses, and that many New Jersey vessels have been using this exemption to increase their flexibility to retain summer flounder on multispecies trips. He states that these vessels are using "high rise" nets that fall under the flynet definition, and as a result they are able to retain more than 200 pounds of summer flounder during the November 1-April 30 period without switching to summer flounder mesh sizes. He also requests a change in the definition of exempt flynet gear to include four-seam nets (in addition to two-seam nets) as well as some clarifying modifications to the regulatory language.

In response to this request, at their 2020 meeting, the MC noted that there is a need to better understand the use and configuration of flynet and high rise trawl nets as they relate to this exemption. Additional

[10] See the report at: http://www.mafmc.org/s/Tab11_SF-S-BSB-Commercial-Measures.pdf.
[11] See attachment at: https://www.mafmc.org/s/Fluke-mesh-exemption-memo-MC-May-2020.pdf.

information provided by Board member Emerson Hasbrouck indicates that the use of two-seam nets is rare in the Mid-Atlantic and Southern New England winter offshore trawl fishery. This may indicate a possible compliance and enforcement issue if vessels that don't meet the regulatory definition (which specifies a two-seam net) believe they are fishing under the flynet exemption. However, the MC stated that additional evaluation is needed to verify this. The MC also indicated a need to better understand the differences between a two-seam and four-seam net before commenting on whether an expansion of the flynet exemption definition is warranted. The MC also agreed that a change in this definition could lead to an increase in the number of vessels using this exemption and the consequences of this should be thoroughly understood before changes are adopted. The MC recommended exploration of the extent to which existing datasets allow for evaluation of specific trawl gear configurations, and noted the need for input from gear experts, industry, and enforcement on this issue.

As described above, there has not been sufficient staff time to dedicate to a more in depth evaluation of this exemption in 2021. <u>Staff recommend no changes to this exemption for 2022, and that the MC identify additional analysis or industry input needed to inform potential changes to the small mesh exemption program, and recommend that this be considered for evaluation by an external contractor in late 2021/early 2022 for potential application in 2023 and beyond.</u>

Memorandum

To: Kiley Dancy, MAFMC

From: Lorena de la Garza, NCDMF

Date: July 1, 2021

Subject: Species composition and landings from the 2020 North Carolina flynet fishery

The 2020 North Carolina flynet fishery landed 34,484 pounds of finfish consisting of four species including black sea bass, scup, bluefish, and monkfish. All 2020 North Carolina flynet fishery landings are not reported within a table because the data are confidential and cannot be distributed to sources outside the North Carolina Division of Marine Fisheries (North Carolina General Statute 113-170.3 (c)). Confidential data can only be released in a summarized format that does not allow the user to track landings or purchases to an individual. Summer flounder were not landed in the 2013, 2015, 2016, 2017, 2018, 2019, and 2020 flynet fisheries. Total flynet landings in 2020 are the second lowest since the trip ticket program began in 1994 (2013 being the lowest). Reduced fishing effort on targeted fish species and increased shoaling at Oregon Inlet continue to result in a low number of flynet boats landing at North Carolina ports.

Summer Flounder Management Track Assessment for 2021
(Lead: Mark Terceiro)

State of Stock: This 2021 Management Track Assessment (MTA) of summer flounder (*Paralichthys dentatus*) is an update through 2019 of the commercial and recreational fishery catch data and research survey indices of abundance. Assessment model estimates of stock size and fishing mortality are updated through 2019.

The stock was not overfished and overfishing was not occurring in 2019 relative to the updated biological reference points (Figures 1-3). Spawning stock biomass (SSB) was estimated to be 47,397 mt in 2019, 86% of the updated biomass target reference point SSBMSY proxy = SSB35% = 55,217 mt (Table 1, Figures 1, 3). There is a 90% chance that SSB in 2019 was between 42,000 and 54,000 mt. Fishing mortality on the fully selected age 4 fish was 0.340 in 2019, 81% of the updated fishing mortality threshold reference point FMSY proxy = F35% = 0.422 (Table 1, Figure 2). There is a 90% probability that the fishing mortality rate in 2019 was between 0.280 and 0.396**.** The 1983 year class is the largest in the assessment time series at 102 million fish, while the 1988 year class is the smallest at 12 million fish. The average recruitment from 1982 to 2019 is 53 million fish at age 0. Recruitment was below average during 2011-2017, ranging from 31 to 45 million and averaging 36 million fish. The 2018 year class estimated at 61 million fish is above average and the largest since 2009, while the 2019 year class is below average at 49 million fish (Table 1, Figures 3-4). The model estimates of F and SSB in 2019 adjusted for internal retrospective error are within the model estimate 90% confidence intervals and so no adjustment of these terminal year estimates has been made for stock status determination or projections (Figure 1). The recruitment production per unit of spawning stock biomass (R/SSB; a metric of the relative survival of year classes) was higher in the 1980s and early 1990s than in the years since 1996, as the stock has varied near SSBMSY (Figure 5).

OFL Projections: Projections using the results of the 2021 MTA model (data through 2019) were made to estimate the OFL catches for 2022-2023. The projections assume that the 2020 and 2021 ABCs of 11,354 mt and 12,297 mt were caught. **The preliminary estimate of 2020 catch is 11,203 mt, 99% of the 2020 ABC.** The projections sample from the estimated recruitment for the most recent 9 years (2011-2019; average recruitment = 40 million fish). The OFL projections use F2022-F2023 = updated FMSY proxy = F35% = 0.422. The OFL catches are 16,458 mt in 2022 (CV = 14%) and 15,464 mt in 2023 (CV = 12%).

OFL for 2022-2023
Catches and SSB in metric tons

Year	Catch	Landing	Discards	F	SSB
2020	11,354	8,604	2,750	0.328	54,352
2021	12,297	9,468	2,829	0.320	56,920
2022	16,458	12,798	3,620	0.422	54,053
2023	15,464	12,072	3,392	0.422	49,933

Catch: Reported 2019 landings in the commercial fishery were 4,109 mt = 9.059 million lb. Estimated 2019 landings in the recreational fishery were 3,537 mt = 7.798 million lb. Total commercial and recreational landings in 2019 were 7,646 mt = 16.857 million lb. Commercial discards in 2019 were estimated at 783 mt = 1.726 million lb. Recreational discards in 2019 were estimated at 1,379 mt = 3.040 million lb. Total commercial and recreational discards in 2019 were 2,162 mt = 4.770 million lb. The estimated total catch in 2019 was 9,808 mt = 21.623 million lb.

Catch and Status Table: Summer flounder

Catch weights and spawning stock biomass are in metric tons (mt); recruitment is in millions of age 0 fish; min, max and arithmetic mean values are for 1982-2019. Commercial catches are latest reported landings and estimated discards. Recreational catches in the table are 'New' MRIP calibrated landings and discard estimates.

Year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Commercial landings	6,078	7,517	5,918	5,696	4,989	4,858	3,537	2,644	2,787	4,109
Commercial discards	1,478	1,143	754	863	830	703	772	906	979	783
Recreational landings	5,142	6,116	7,318	8,806	7,364	5,366	6,005	4,565	3,447	3,537
Recreational discards	2,710	2,711	2,172	2,119	2,092	1,572	1,482	1,496	1,003	1,379
Catch used in assessment	15,408	17,487	16,163	17,483	15,275	12,498	11,796	9,611	8,216	9,808
Spawning stock biomass	62,137	56,467	60,957	53,700	49,600	44,212	41,313	39,516	41,403	47,397
Recruitment (age 0)	51	31	35	37	41	28	33	45	61	49
Fully selected F (age 4)	0.378	0.446	0.409	0.461	0.424	0.419	0.414	0.331	0.286	0.340

Year	**Min**	**Max**	**Mean**
Commercial landings	2,644	17,130	7,018
Commercial discards	219	2,151	1,101
Recreational landings	2,566	16,655	7,644
Recreational discards	84	2,711	1,223
Catch used in assessment	8,216	30,470	16,784
Spawning stock biomass	7,425	67,498	39,053
Recruitment (age 0)	12	102	53
Fully selected F (age 4)	0.254	1.624	0.727

Stock Distribution and Identification: The joint Mid-Atlantic Fishery Management Council (MAFMC) and Atlantic States Marine Fisheries Commission (ASMFC) Fishery Management Plan for summer flounder defines the management unit as all summer flounder from the southern border of North Carolina and to the northeast to the US-Canada border. The current management unit is consistent with a summer flounder genetics study which revealed no population subdivision at Cape Hatteras (Jones and Quattro 1999). For assessment purposes, the definition of Wilk et al. (1980) of a unit stock extending from Cape Hatteras north to New England has been accepted in this and previous assessments. A consideration of summer flounder stock structure incorporating tagging data supported the existence of stocks north and south of Cape Hatteras, with the stock north of Cape Hatteras possibly composed of two distinct spawning aggregations, off New Jersey and Virginia-North Carolina (Kraus and Musick 2003). The stock unit used in this assessment is consistent with the conclusions of Wilk et al. (1980) and Kraus and Musick (2003).

Assessment Model: The assessment approach implemented for summer flounder is a complex statistical catch-at-age model incorporating a broad array of fishery and survey data (ASAP SCAA; Legault and Restrepo 1998, NFT 2013a; NEFSC 2013, 2018). The catch in the model includes both commercial and recreational fishery landings and discards at age. The commercial and recreational fishery landings and discards are treated as four separate fleets in the model. The model assumes an averaged-over-ages instantaneous natural mortality rate (M) = 0.25.

Indices of stock abundance, including age compositions from the NEFSC winter, spring, and fall, Massachusetts spring and fall, Rhode Island fall and monthly, Connecticut spring and fall, Delaware, New York, New Jersey, VIMS ChesMMAP, and VIMS NEAMAP spring and fall trawl surveys, were used in the ASAP model calibration. Aggregate indices of stock abundance from the URI GSO trawl survey and NEFSC MARMAP and ECOMON larval surveys, and recruitment indices (age 0; Young-Of-the-Year, YOY) from surveys conducted by the states of Massachusetts, Delaware, Maryland, Virginia and North Carolina were also used in the model calibration. For the NEFSC indices, the years sampled by the FSV HB Bigelow (2009-2019) were treated as a separate series from the earlier years (1982-2008) that were sampled by the FSV Albatross IV. The Bigelow indices take into account trawl efficiency at length and wing spread by tow. All indices were updated for this assessment.

The summer flounder stock assessment historically exhibited a retrospective pattern of underestimation of F and overestimation of SSB. However, there is not a major retrospective pattern evident in the current summer flounder assessment model. The minor internal model retrospective error tends to overestimate F by +1% and overestimate SSB by +3% over the last 7 terminal years. The model estimates of F and SSB adjusted for internal retrospective error are within the model estimate 90% confidence intervals and so no adjustment of these terminal year estimates has been made for stock status determination or projections. The 'historical' retrospective analysis (comparison between assessments) indicates that the general trends in spawning stock biomass, recruitment, and fishing mortality have been consistent over the history of the assessment (Figure 6).

Biological Reference Points

The 2013 SAW 57 (NEFSC 2013) biological reference points for summer flounder were based on stochastic yield and SSB per recruit and stochastic projection models in the NSAA NFT framework (NEFSC 2013; NFT 2013b, c; Thompson and Bell 1934) using values from the 2013 assessment. The associated threshold fishing mortality reference point was F35% = 0.309 (CV = 15%) as a proxy for FMSY. The biomass reference point proxy was estimated as the projection of stock sizes at F35% = 0.309 and mean recruitment of 43 million fish per year (1982-2012). The SAW-57 target biomass SSBMSY proxy was estimated to be 62,394 mt (137.6 million lb; CV = 13%) and the threshold biomass of one-half SSBMSY was estimated to be 31,197 mt (68.8 million lb; CV = 13%). The MSY proxy was estimated to be 12,945 mt (28.539 million lb; CV = 13%).

The 2018 SAW 66 (NEFSC 2018) biological reference points for summer flounder were similarly based on stochastic yield and SSB per recruit and stochastic projection models. The threshold fishing mortality reference point estimate was F35% = 0.448 (CV = 15%) as a proxy for FMSY. The biomass reference point proxy was estimated as the projection of stock sizes at F35% = 0.448 and mean recruitment of 53 million fish per year (1982-2017). The target biomass SSBMSY proxy was estimated to be 57,159 mt (126.0 million lb; CV = 15%) and the threshold biomass of one-half SSBMSY was estimated to be 28,580 mt (63.0 million lb; CV = 15%). The MSY proxy was estimated to be 15,973 mt (35.214 million lb; CV = 15%). The increase in the F reference point (and MSY) but decrease in the biomass reference point compared to the 2013 SAW 57 values were a result of changes in mean weights at age and selectivity.

The F35% and corresponding SSB35% proxy biological reference points for summer flounder were updated for this 2021 MTA. The updated fishing mortality threshold F35% proxy for FMSY = 0.422 (CV = 15%). The updated biomass target proxy estimate for SSBMSY = SSB35% = 55,217 mt (122 million lb; CV = 15%) and the updated biomass threshold proxy estimate for one-half SSBMSY = one-half SSB35% = 27,609 mt (61 million lb; CV = 15%). The updated MSY proxy = 15,872 mt (35 million lb; CV = 15%).

Qualitative status description:

The age structure in current fishery and survey catches is greatly expanded compared to the truncated distribution observed in the late 1980s to early 1990s. Although survey indices and model estimates of recruitment have generally been below average in recent years, the driver of this pattern has not been identified and it is not clear if this pattern will persist in the future (NEFSC 2018). The recent 2018 year class is above average and the largest to recruit to the stock since 2009, while the 2019 year class is below average.

Research and Data Issues:

2018 SAW 66

Continue to explore changes in the distribution of recruitment. Develop studies, sampling programs, or analyses to better understand how and why these changes are occurring, and the implications to stock productivity: *no new research progress, note that recruitment improved in 2018-2019*

The reference points are internally consistent with the current assessment. It may be useful to carry uncertainty estimates through all the components of the assessment, BRPs, and projections*: no new research progress, models of S-R data continue to indicate that steepness is very close to 1*

Explore the potential mechanisms for recent slower growth that is observed in both sexes: *no new research progress, ongoing monitoring in assessment*

MAFMC SSC 2019-2020

Evaluate the causes of decreased recruitment and changes in the recruit per spawner relationship in recent years: *no new research progress, however, note that R/SSB ratio has stabilized as the stock has varied near BMSY*

Evaluate uncertainties in biomass to determine potential modifications to the OFL CV employed: *SSC has developed new procedures for establishing the OFL CV*

Evaluate fully the sex and size distributions of landed and discarded fish in the Summer Flounder fisheries: *no progress in implementing by-sex fishery sampling*

Evaluate the effects of past and possible future changes to size regulations on retention and selectivity in stock assessments and projections: *ongoing monitoring in assessment*

Incorporate sex-specific differences in size-at-age into the stock assessment through model structures as well as data streams: *no new data streams; however ASAP by-sex model updated through 2018 and NEFSC WHAM state-space by-sex model in development*

Validate the otolith-based age determination*: no explicit validation, however, going aging method exchanges have insured consistency among the major aging labs (NEFSC, NCDMF, VIMS, ODU, CTDEEP, and NYDEC)*

Further develop understanding of effects of ecosystem changes (e.g., temperature, trophic structure changes) on population dynamics: *new publication in the primary literature (O'Leary et al. 2019, a,b; Gulf Stream Index and exploitation influences on growth and natural mortality).*

The MAMFC SSC expressed some concern in 2020 that the rebuilding of the stock does appear to be rapid. It was noted that rebuilding was predicted to be slow under the harvest policy adopted: *updated projections through 2023 in the 2021 MTA*

The above average 2018 year class will not fully recruit to the fishery for 3 or 4 years (2021-2022). There are concerns about increasing discards during this transition. Quantify the size, magnitude, and uncertainty of the discards: *updated estimates of discards through 2019 in the 2021 MTA*

Verifying the strength of the 2018 year class based on a synthesis of the various surveys included in the assessment. (3 years of data on this year class will be available): *only 1 complete year of surveys available (2019) due to survey cancellations and limited fishery sample data in 2020*

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Tables

Table 1. Summary assessment results for summer flounder; Spawning Stock Biomass (SSB) in metric tons (mt); Recruitment (R) at age 0 in thousands; Fishing mortality (F) for age of peak fishery selection age (S = 1 at age 4).

Year	SSB	R	F
1982	30,495	81,800	0.746
1983	28,928	101,925	1.076
1984	24,283	46,637	1.228
1985	21,792	77,833	1.257
1986	22,152	80,928	1.332
1987	22,859	53,742	1.285
1988	12,567	12,412	1.624
1989	7,425	36,821	1.284
1990	12,112	43,817	0.857
1991	14,058	47,513	1.064
1992	13,077	47,093	1.179
1993	14,550	43,789	1.006
1994	15,921	58,204	0.958
1995	21,072	78,066	1.449
1996	28,850	59,204	1.164
1997	35,527	52,048	0.765
1998	35,172	54,069	0.790
1999	36,039	43,641	0.572
2000	40,731	59,752	0.682
2001	51,708	63,956	0.456
2002	60,095	66,736	0.419
2003	67,498	49,184	0.404
2004	62,534	70,761	0.433
2005	58,923	39,791	0.452
2006	62,295	47,732	0.333
2007	61,370	52,195	0.254
2008	61,847	61,846	0.321
2009	63,421	73,524	0.342
2010	62,137	50,724	0.378
2011	56,467	31,381	0.446
2012	60,957	34,576	0.409
2013	53,700	36,792	0.461
2014	49,600	41,146	0.424
2015	44,212	28,416	0.419
2016	41,313	33,088	0.414
2017	39,516	44,582	0.331
2018	41,403	60,598	0.286
2019	47,397	48,689	0.340

Table 2. Total catch (metric tons) of summer flounder from Maine through North Carolina. Includes the 'New' MRIP calibrated estimates of recreational catch.

Year	Comm Landings	Comm Discards	Comm Catch	Recr Landings	Recr Discards	Recr Catch	Total Landings	Total Discards	Total Catch
1982	10,400	n/a	10,400	10,758	250	11,008	21,158	250	21,408
1983	13,403	n/a	13,403	16,665	356	17,022	30,068	356	30,425
1984	17,130	n/a	17,130	12,803	537	13,340	29,933	537	30,470
1985	14,675	n/a	14,675	11,405	184	11,589	26,080	184	26,264
1986	12,186	n/a	12,186	12,005	646	12,651	24,191	646	24,837
1987	12,271	n/a	12,271	10,638	668	11,306	22,909	668	23,577
1988	14,686	n/a	14,686	9,429	483	9,912	24,115	483	24,598
1989	8,125	456	8,581	2,566	84	2,650	10,691	540	11,231
1990	4,199	898	5,097	3,517	414	3,931	7,716	1,312	9,028
1991	6,224	219	6,443	5,854	617	6,470	12,078	836	12,914
1992	7,529	2,151	9,680	5,746	559	6,305	13,275	2,710	15,985
1993	5,715	701	6,416	6,228	703	6,931	11,943	1,404	13,347
1994	6,588	1,539	8,127	6,481	409	6,889	13,069	1,947	15,016
1995	6,977	827	7,804	4,090	589	4,679	11,067	1,415	12,482
1996	5,861	1,436	7,297	6,813	624	7,437	12,674	2,060	14,734
1997	3,994	807	4,801	8,403	663	9,066	12,397	1,470	13,867
1998	5,076	638	5,714	10,368	997	11,365	15,444	1,635	17,079
1999	4,820	1,666	6,486	7,573	1,078	8,651	12,393	2,744	15,138
2000	5,085	1,620	6,705	12,259	1,182	13,441	17,344	2,802	20,146
2001	4,970	411	5,381	8,417	1,897	10,314	13,387	2,308	15,695
2002	6,573	948	7,521	7,388	1,564	8,952	13,961	2,512	16,473
2003	6,450	1,160	7,610	9,746	1,867	11,614	16,196	3,028	19,224
2004	7,880	1,628	9,508	9,616	1,833	11,449	17,496	3,461	20,958
2005	7,671	1,499	9,170	8,412	1,711	10,123	16,083	3,210	19,293
2006	6,316	1,518	7,834	8,452	1,583	10,034	14,768	3,100	17,868
2007	4,544	2,128	6,672	6,300	1,801	8,101	10,844	3,929	14,773
2008	4,179	1,162	5,341	5,597	1,970	7,567	9,776	3,132	12,909
2009	5,013	1,522	6,535	5,288	2,484	7,771	10,301	4,006	14,307
2010	6,078	1,478	7,556	5,142	2,710	7,852	11,220	4,188	15,408
2011	7,517	1,143	8,660	6,116	2,711	8,827	13,633	3,854	17,487
2012	5,918	754	6,672	7,318	2,172	9,490	13,236	2,927	16,163
2013	5,696	863	6,559	8,806	2,119	10,925	14,502	2,981	17,483
2014	4,989	830	5,819	7,364	2,092	9,456	12,353	2,922	15,275
2015	4,858	703	5,561	5,366	1,572	6,938	10,224	2,274	12,498
2016	3,537	772	4,309	6,005	1,482	7,487	9,542	2,254	11,796
2017	2,644	906	3,550	4,565	1,496	6,061	7,209	2,402	9,611
2018	2,787	997	3,784	3,447	1,003	4,450	6,234	1,982	8,216
2019	4,103	783	4,892	3,537	1,379	4,916	7,646	2,162	9,808

Figures

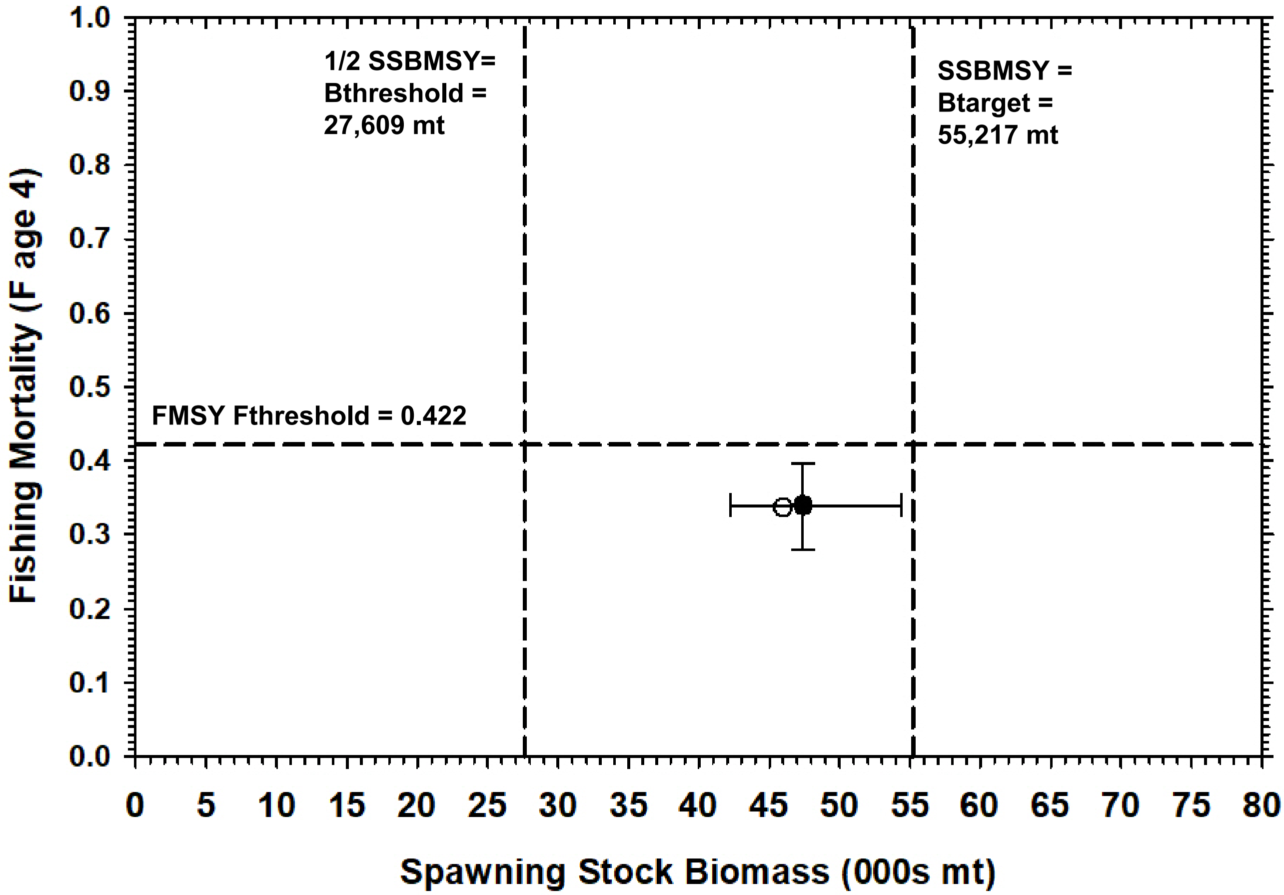

Figure 1. Estimates of summer flounder spawning stock biomass (SSB) and fully-recruited fishing mortality (F, peak at age 4) relative to the updated 2021 MTA biological reference points. The filled circle with 90% confidence intervals shows the assessment point estimates. The open circle shows the retrospectively adjusted estimates.

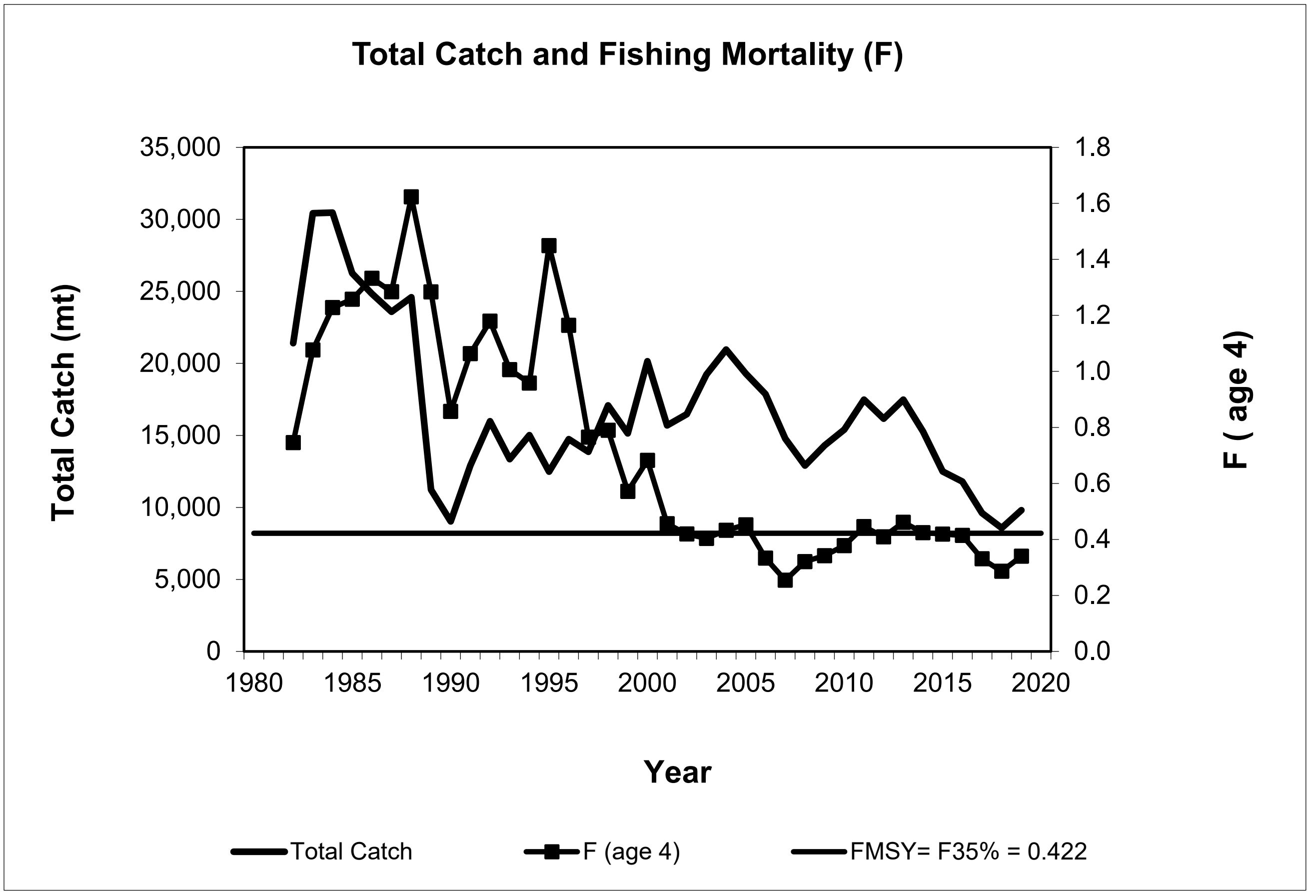

Figure 2. Total fishery catch (metric tons; mt; solid line) and fully-recruited fishing mortality (F, peak at age 4; squares) of summer flounder through 2019. The horizontal solid line is the updated 2021 MTA threshold fishing mortality reference point proxy.

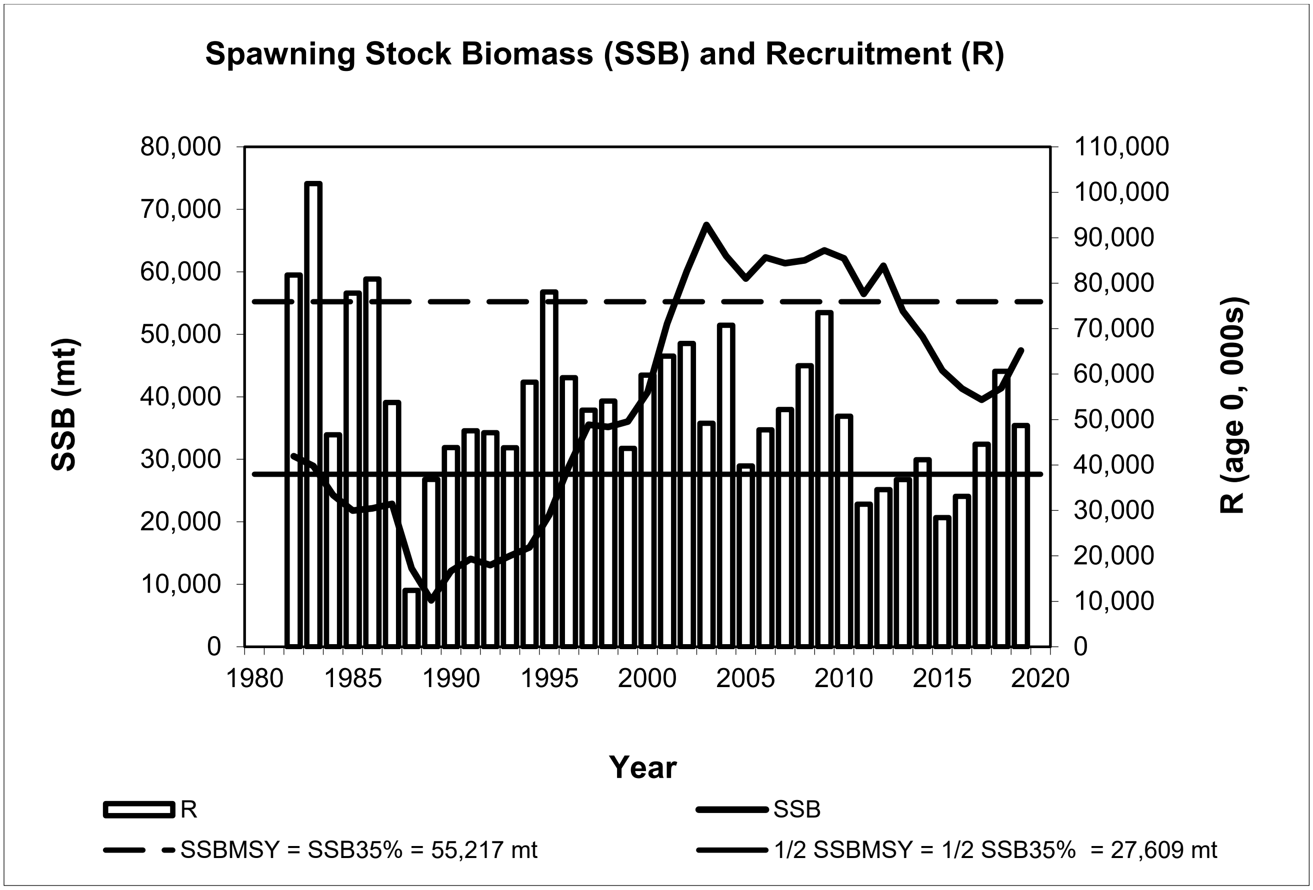

Figure 3. Summer flounder spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars) by calendar year through 2019. The horizontal dashed line is the updated 2021 MTA target biomass reference point proxy. The horizontal solid line is the updated 2021 MTA threshold biomass reference point proxy.

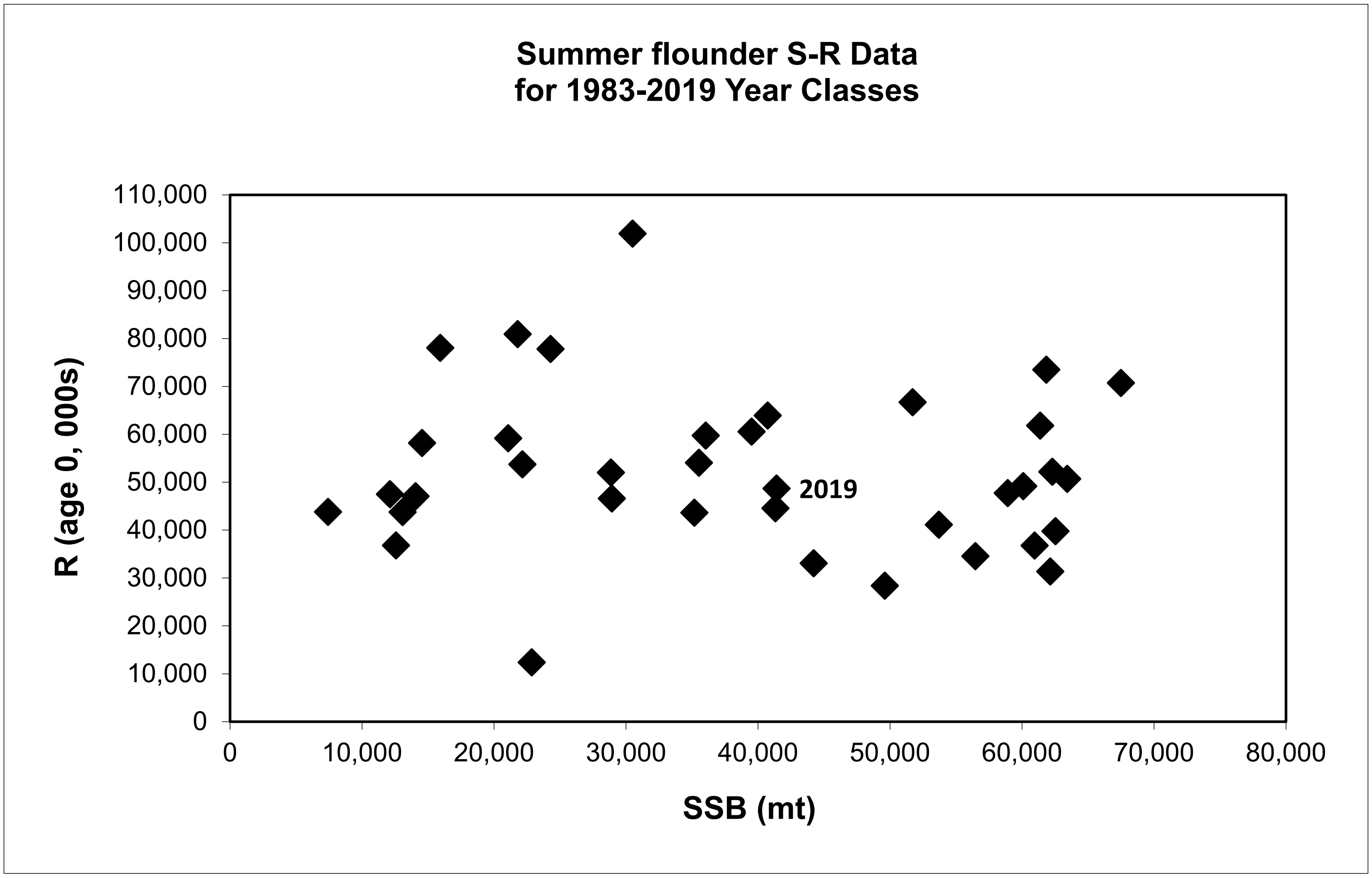

Figure 4. Stock-recruitment (SSB-R) scatter plot for the summer flounder 1983-2019 year classes. The largest recruitment (R) point is for the 1983 year class (R = 102 million, SSB = 30,495 mt). The lowest recruitment point is for the 1988 year class (R = 12 million, SSB = 22,859 mt). The 2018 year class is at R = 61 million, SSB = 39,516 mt; the 2019 year class is at R = 48 million, SSB = 41,403 mt.

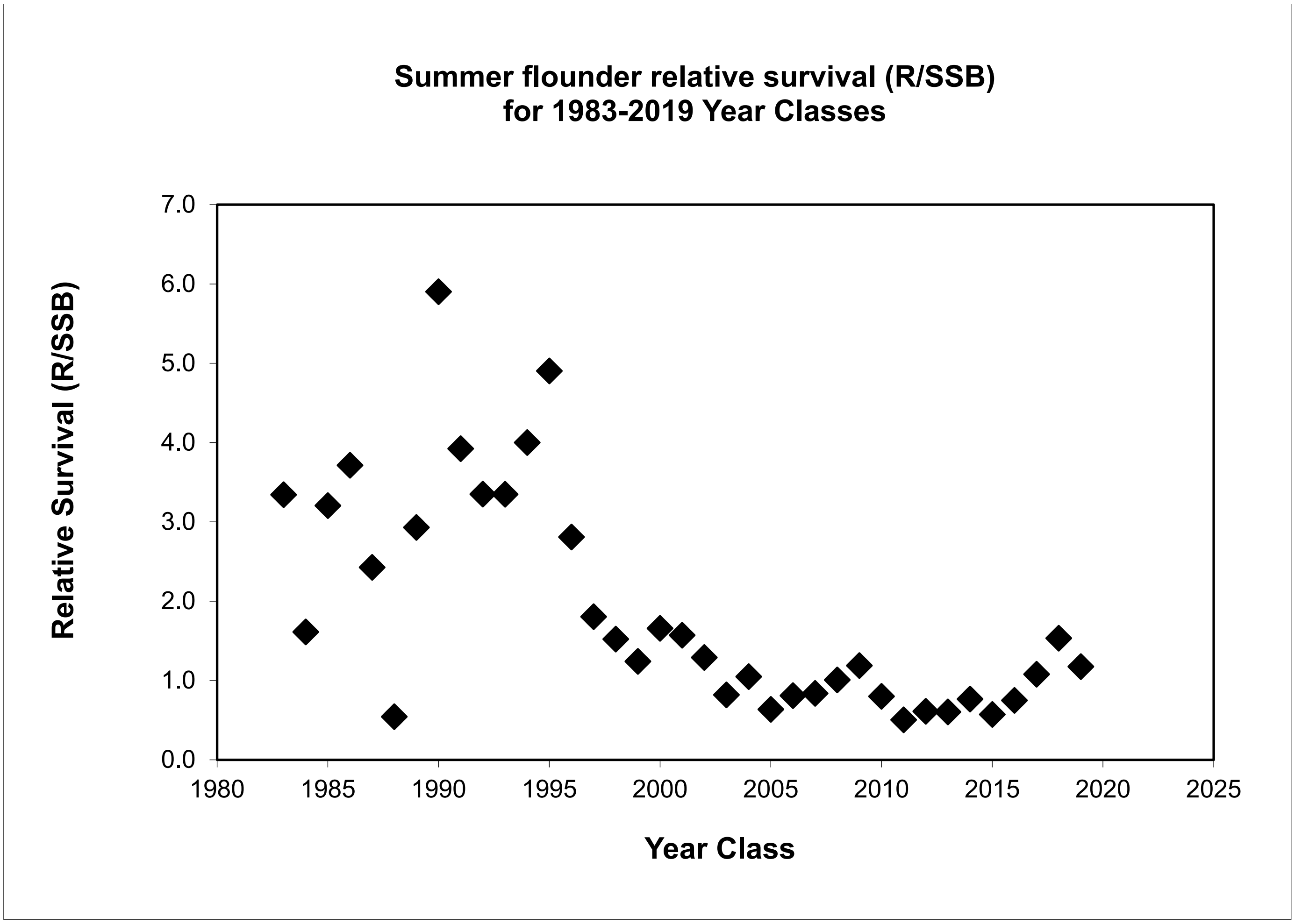

Figure 5. Recruits per Spawning Stock Biomass plot (R/SSB) indicative of the relative survival of the summer flounder 1983-2019 year classes.

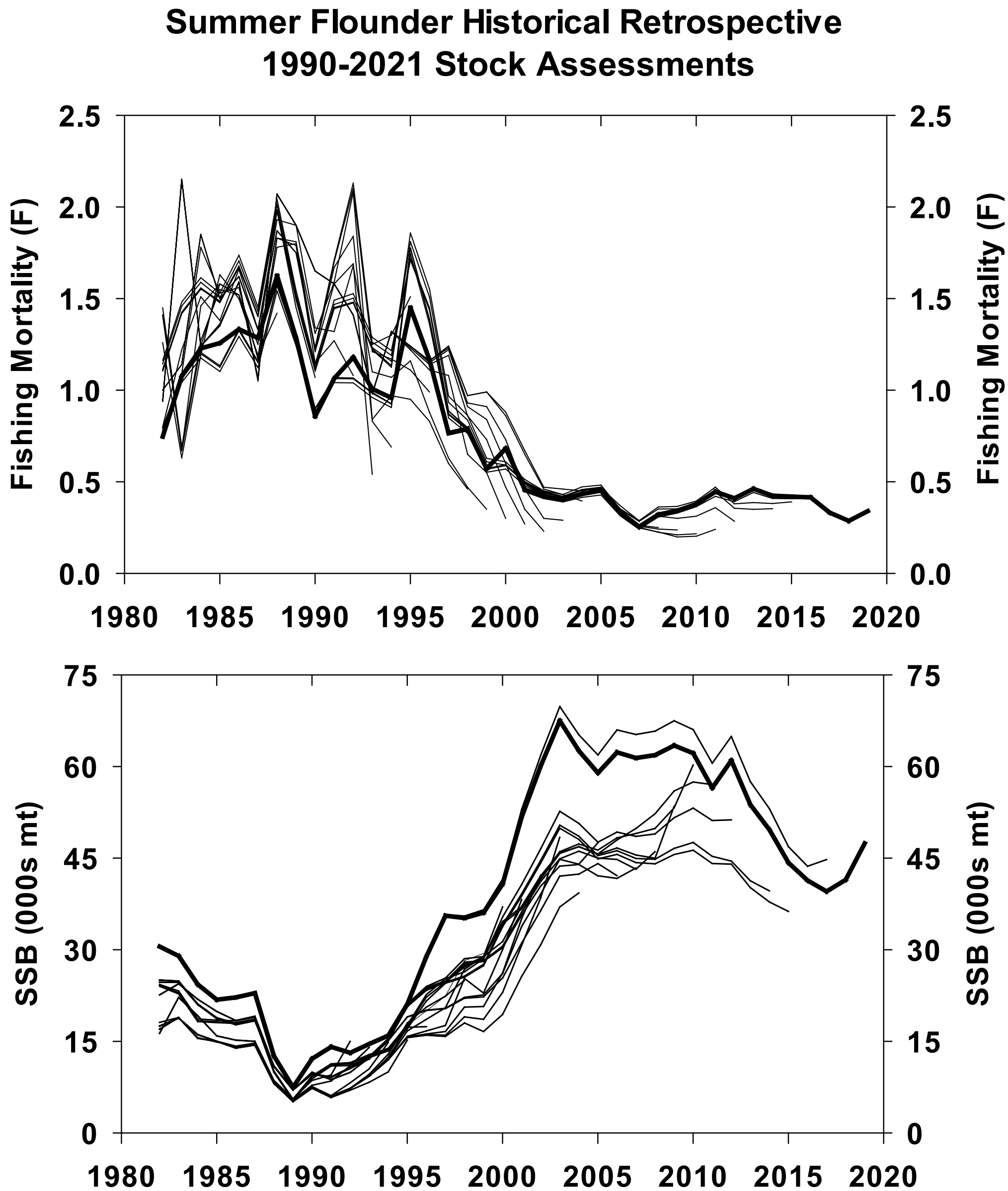

Figure 6. Historical retrospective of the 1990-2021 stock assessments of summer flounder. The heavy solid lines are the 2021 MTA model estimates.

Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report

June 2021

The Mid-Atlantic Fishery Management Council's (Council's) Summer Flounder, Scup, and Black Sea Bass Advisory Panel (AP) met jointly with the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass AP on June 21, 2021 to review the Fishery Information Documents and develop the following Fishery Performance Report for the three species. The primary purpose of this report is to contextualize catch histories for the Scientific and Statistical Committee (SSC) by providing information about fishing effort, market trends, environmental changes, and other factors.

Please note: Advisor comments described below are not necessarily consensus or majority statements.

Additional comments provided by advisors via email are attached to this document.

Council Advisory Panel members present: Carl Benson (NJ), Joan Berko (NJ), Bonnie Brady (NY), Jeff Deem (VA), Skip Feller (VA), James Fletcher (NC), Hank Lackner (NY), Mike Plaia (CT), Bob Pride (VA), Doug Zemeckis (NJ)

Commission Advisory Panel members present: Marc Hoffman (NY), Mike Plaia (RI)

Others present: Chris Batsavage (Council/Board member, NC DMF), Julia Beaty (MAFMC Staff), John Boreman (SSC), Dustin Colson Leaning (ASMFC Staff), Karson Coutré (MAFMC Staff), Kiley Dancy (MAFMC Staff), Savannah Lewis (ASMFC Staff), Tony DiLernia (Council member), Steve Doctor (MD DNR), Emily Keiley (NMFS GARFO), Paul Rago (SSC Chair), Angel Willey (MD DNR)

Discussion questions

1. What factors influenced recent catch (markets/economy, environment, regulations, other factors)?
2. Are the current fishery regulations appropriate? How could they be improved?
3. What would you recommend as research priorities?
4. What else is important for the Council to know?

General Comments

Recreational Data Concerns

A few advisors expressed concern with the Marine Recreational Information Program (MRIP) data, which they see as inaccurate and fundamentally flawed. One advisor said the entire program needs an overhaul. Another advisor said he has been following the development of National Marine Fisheries Service (NMFS) recreational data collection programs for over 30 years and has not seen any notable improvement in the estimates over that time. He believes the problem with MRIP lies in sample sizes that are too small, as well as extrapolation of interviews that tend to be biased toward people who catch more fish. He suggested that more creative management approaches that do not rely so heavily on flawed data are needed for the recreational fishery.

Another advisor added that an accurate count of all saltwater recreational anglers is needed to comply with the Magnuson Stevens Act and to better manage recreational fisheries for all species.

Several advisors expressed concerns with the 2020 recreational catch estimates that were developed by MRIP using imputation methods to account for COVID-19 related data gaps in 2020. Several advisors asked about the percent standard errors (PSEs) for these estimates and said they would expect the uncertainty associated with these estimates to be much higher than normal. Others noted concerns with using recreational data from 2018 and 2019 in the imputation methods. For example, one advisor said recreational fishing trends were tremendously different in these years which may create biases in the 2020 estimates. Generally, advisors expressed concern about using these estimates in fishery performance evaluation and development of management measures without additional scrutiny.

COVID-19 Impacts

As described in more detail in the species-specific sections below, multiple advisors agreed that the COVID-19 pandemic had major impacts on commercial and recreational fishing effort in 2020. Advisors generally agreed that the pandemic had negative impacts on commercial markets and prices. However, they described a range of different impacts on recreational fisheries, as described below.

Environmental Conditions

One advisor said that since additional restrictions have been put on the menhaden fishery, there are more sharks inshore due to an overabundance of menhaden. He believes the increased abundance of sharks may be impacting other species, for example by chasing bluefish and striped bass offshore. He questioned what additional impacts sharks are having on managed species such as black sea bass and summer flounder. He also noted that while the Council is attempting to focus more on ecosystem based management approaches, predator/prey dynamics are not properly factored into current catch estimate data.

One advisor said the Council and Board need to address chemicals in the water, such as surfactants, that may negatively impact fish populations.

Management Issues

One advisor recommended further research into a common commercial minimum mesh size for summer flounder, scup, and black sea bass.

Summer Flounder

Market/Economic Conditions and COVID-19 Impacts on Commercial Fishing Effort

Many advisors agreed that COVID-19 had major impacts on commercial and recreational summer flounder fisheries in 2020. A few advisors said commercial effort was notably down for many summer flounder vessels in 2020 as lower market prices did not justify fuel and other trip costs. Restaurant closures had a big impact on markets and prices for summer flounder. Some vessels did not fish for most or all of the year, including one advisor who said that although he holds a commercial permit, he did not fish commercially due to low prices. One advisor said some vessels were having difficulty getting crews to work. Another advisor agreed and said he's heard that reliable crew is difficult to find in some circumstances given stimulus payments and increased unemployment benefits.

One advisor noted that the commercial size limit and other regulations have increased the size of landed fish to the point where the market for smaller fish has been lost to imports. There is not as much of a market for larger fish, as the filets are too big for single servings. This advisor supported lowering the commercial minimum size below 14 inches to allow targeting of smaller fish, and also supported evaluating a change in the minimum mesh size requirement to 5 inches.

Recreational Fishery

Advisors provided mixed comments on recreational effort and catch in 2020. One advisor said all marinas he talked to had seen reduced participation in the recreational fisheries, yet the MRIP data showed an increase in catch. He felt that these data did not match up with reality. Another advisor said the charter industry in Virginia was shut down for a good part of the season, and while he has heard managers say private boat fishery effort was up in 2020, he did not see that in his observations. People were more worried about taking care of their families and had economic concerns that limited private boat effort. He agreed that some of the MRIP data do not seem to match with reality. However, another advisor noted that overall recreational effort (for all species) seemed to be much higher than normal in 2020.

Environmental Conditions and General Fishing Trends

One advisor said summer flounder fishing was "off" last year and a lot of commercial and recreational fishermen were not targeting them or were catching very few. He said summer flounder came in late in the season, showing up in August instead of April or May, which is more typical. He noted that this could be due to the increased presence of sharks keeping fish offshore, as discussed in the "General Comments" section above.

Management Issues

For summer flounder in particular, one advisor noted concerns with the 2020 MRIP estimates using imputed 2018-2019 data given that 2018 and 2019 were "boom years" and 2020 was a "bust year" for summer flounder. He expressed frustration that MRIP does not seem to recognize mistakes in their calculations and that, in his view, the resulting estimates appear to be impossible.

One advisor asked whether commercial dead discards were primarily caused by regulatory discards and if so, if those discards were counted against the catch limits despite being unavoidable for the fishing vessel. Staff clarified that many, but not all, discards are regulatory and that all estimated summer flounder dead discards are counted against the annual catch limit. This same advisor also expressed frustration that managers have not seriously considered his proposal for a recreational total length limit for summer flounder (i.e., a cumulative length limit where anglers can keep up to a specified total number of inches of fish) with mandatory retention of all fish caught until the length limit is reached.

Scup

Management Issues

Before the AP meeting, an industry representative from Lund's Fisheries requested that AP discuss the idea of increasing or removing the scup winter I quota period possession limit (currently 50,000 pounds) and decreasing the commercial minimum size from 9 inches to 8 inches.

Two advisors did not support moving to an 8 inch minimum size based on maturity concerns. One advisor added that having the minimum size closer to where the fish are 100% mature has contributed to scup's current high biomass and healthy stock status. One advisor supported decreasing the minimum size, stating that a smaller minimum size will not hurt anything and would bring smaller fish, preferred by some consumers, to the market. He added that tilapia imports have replaced market share for domestic fish due to its smaller size and requested a report on tilapia imports.

Two advisors said they did not support an increase in the winter I possession limit. One advisor said increasing the winter I possession limit would devastate New York's scup fishery because it would tank the price for the fresh fish market which many local fishermen depend on. One advisor expressed concern that an increase in the possession limit could result in vessels based in other states landing more scup in New York, especially vessels looking to shift their fishing effort from other species. This could decrease the price and negatively impact fisherman based in New York. Another advisor was also concerned that increasing the possession limit to 100,000 pounds would crash the market and added that fishermen generally do not land the full current possession limit anyway.

COVID-19 Impacts on Markets and Fishing Effort

One advisor said COVID-19 had major impacts on the scup market and prices, and therefore commercial scup landings. Another advisor said there was less recreational fishing effort due to COVID, especially on for-hire vessels as people avoided crowds. For this reason, he said the MRIP estimates of harvest do not make sense.

Recreational Fishery

One advisor reiterated comments made during the summer flounder discussion that the 2020 MRIP estimates using imputed 2018 and 2019 values are not realistic or believable. Another advisor added that after the incorporation of the new MRIP data in the assessments, 198% of the RHL was caught which is not believable because fewer people were fishing because of COVID. One advisor recommended that the same cumulative length limit approach described above for summer flounder be used in the recreational scup fishery. He suggested that this approach could first be tested for the shore-based recreational scup fishery before applying it to the entire recreational fishery.

Black Sea Bass

COVID-19 Impacts on Markets and Fishing Effort

One advisor said COVID-19 impacts on restaurants caused black sea bass prices to drop significantly and prices remain low. She added that the restaurant market for fresh fish is important in her area and prices may not rebound until restaurants recover from the pandemic impacts.

One advisor said charter boats operating in nearshore waters off Virginia Beach and Oregon Inlet had one of their best summers in 2020. He said these vessels mostly catch Spanish mackerel and bluefish, while the recreational black sea bass fishery in his area is almost entirely in federal waters. He said many trips reached full capacity and he attributed this to the COVID-19 stimulus payments. He noted that virtually all COVID-19 restrictions have been lifted in Virginia and there are minimal remaining impacts. For example, he said the for-hire industry in his area has not had a problem hiring and retaining crew members. Head boat sampling is still suspended, but captains have continued to submit vessel trip reports throughout the pandemic.

An advisor from New York said that in his area, charter boats barely fished during the spring and summer of 2020 due to COVID-19 restrictions and concerns about being around crowds. However, some charter boats began taking trips again in the fall.

Recreational Fishery

A few advisors repeated comments made earlier about their lack of faith in the MRIP data.

Although there was a recreational ACL overage in 2020, a payback will not be required due to the positive stock status of black sea bass. One advisor said this is unfair to the commercial industry as they are always required to payback quota overages, regardless of stock status.

One advisor said anglers fishing from private docks do not adhere to the black sea bass possession limit. He also said some recreational fishermen illegally sell their catch. He called for better information on the number of recreational anglers to improve the MRIP data.

One advisor said the February recreational black sea bass opening in Virginia was impacted by bad weather in 2021, but when vessels could go out, they caught a lot of black sea bass. He said December is also a good month for catching black sea bass and expressed a desire for a longer winter recreational opening.

One advisor asked how the outlier wave 1 2020 MRIP harvest estimate for black sea bass in North Carolina will be handled in the management process.

Biological Issues

One advisor claimed that most trawl surveys don’t sample more than five miles from shore, yet black sea bass have been caught 100 miles from shore and farther in lobster pots. This could result in the stock assessment under-estimating biomass. He added that black sea bass are so abundant that they are wiping out shellfish populations and requested an emergency opening, including a year-round recreational possession limit of ten fish per day.

Research Recommendations

Three advisors recommended additional research on the impacts of electromagnetic fields on black sea bass. This is a concern due to the potential for thousands of miles of cables to be installed for offshore wind energy projects planned for the greater Atlantic region.

One advisor said more research is also needed on the potential impacts of pile driving (e.g., for installing wind turbine foundations) and seismic testing (used for oil and gas survey work) on fishery species. Another advisor added that impacts of sub-bottom profilers (used for site characterization for offshore wind energy projects) are also a concern.

Impacts of Offshore Wind Energy Development

One advisor said offshore wind energy development will destroy commercial fisheries and it would be preferable if wind energy projects could be placed closer inshore.

As described in the previous section, three advisors expressed concerns about electromagnetic fields on species such as black sea bass. One advisor noted that commercial fishermen purposefully fished near telecommunications cables when targeting scallops in the 1970s. They developed cable jumper gear specifically for this purpose.

One recreational fishery advisor said he has experienced great fishing for black sea bass near the two wind turbines that were installed off Virginia Beach. He’s caught lots of keeper black sea bass as well as cobia and spadefish. He also observed sea turtles and lots of bait fish near the turbines. He hasn’t experienced a negative impact from the cables. He said the boulders placed at the turbine foundations for scour protection have created a lot of new structured habitat in the area. However, he acknowledged that the impacts may be different for projects with more turbines compared to the two turbines where he has fished.

Additional Email Comments

Sent: Monday, June 21, 2021 7:02 PM
To: Beaty, Julia <jbeaty@mafmc.org>
Subject: AP Meeting Comments

Hi Julia:

The possibility of having to carry an observer was a big factor on the commercial BSB fishery due to COVID. Especially for potters, where if your gear is in the ocean and you are told you can't go out until you take an observer. Restaurants being closed was another factor. While there is some demand for head on fish, it isn't as much as pre-11 inch minimum size fish. They are primarily white tablecloth.

I agree with Jim Fletcher about needing research about chemicals in the water. Too much fertilizer and pesticides being applied with no controls near the bay and ocean. Also the effects of windmills and the construction of windmills. And the seismic blasting that Rutgers did in previous years to study "rock formations" scared all the fish away.

If I am still an AP advisor, meetings are always better in the afternoon, since I am usually fishing in the morning.

Joan Berko

From: PAUL CARUSO
Sent: Friday, June 25, 2021 11:03 AM
To: Dustin C. Leaning <DLeaning@asmfc.org>
Subject: [External] Re: Draft Fishery Performance Report from Monday's AP mtg for your review; reminder of next mtg

Him Dustin, Sorry I could not make the call. Too many things going on here. For what its worth we had a decent BSB season last year and this spring was decent. We have virtually no rec summer flounder fishery anymore nearshore and scup seem very abundant both last season and this.

To: Beaty, Julia
Subject: Re: Draft Fishery Performance Report from Monday"s AP mtg for your review; reminder of next mtg
Date: Friday, June 25, 2021 8:21:12 PM

Julia

I had trouble getting on and called in from my phone, 732 278.... I agree that summer flounder minimum size should be lowered back to 13 inches. Feeding scavengers instead of harvesting this valuable resource makes no sense. I know the argument that these fish are not mature enough to spawn, but discards don't spawn. The harvest is constrained and trading fish that are mature for immature fish seems like a smart tradeoff.

Covid 2020 should just be eliminate from all evaluation methods. I did not exist.

Carl

From: HANK LACKNER
To: Beaty, Julia; Moore, Christopher; Luisi, Michael; Kiley Dancy
Subject: Re: AP Meeting for Fishery Performance Reports 6/21
Date: Tuesday, June 29, 2021 12:47:19 PM

Hello All,
I am sorry i couldnt stay on the AP call, but the illex squid derby is running wild.
Here a few thoughts I and others have moving forward..
These are my thoughts about raising the scup limit to 100,000 pounds in winter1.

1. This big trip limit opens this fishery to a whole new class of boats..That is boats with fish pumps and way larger vessels than currently participate. With that being said:

    A. We must establish a control date immediately!!

    B. We must then proceed to limited entry process!!

    C.The winter1 fishery has historically been driven by supply and demand.. which was the determining factor on price..The market is currently a fresh market targeting large mature fish..

A 100,000 pound trip limit will destroy the fresh market.
The quota is going to be reduced this year and the larger trip limits will only lead to even more discards.

2. An 8 in size limit is a very poor management move. It will not reduce discards..In fact it may even increase them.. Boats will specifically target smaller scup and the end result will be way more discarding..

    A. The fresh market will not be able to sell a scup that small..I have been told this by several Fulton dealers..

3. The small mesh exemption line..

This line should be completely removed.. Vessel should be allowed to possess up to 1000 pounds of summer flounder with small mesh no matter where they are fishing.. When on a directed summer flounder trip with a possession limit over 1000 pounds 5(FIVE) inch twine should be required.
It is important to remember the 72 30(small mesh line) was originated along time ago... As science now shows us, the vast majority of the summer flounder population lives east of that line..So everyone could have the exemption anyway.. Remember there were no scup GRAs back then either.
The way the fishery is now carried out, premium quality fluke get the best price..The only way to achieve that is by using big twine and catching the fluke “clean”. (no other species mixed in) ..And it is done now with mesh bigger than 5.5 inch..most do that to avoid dogfish and sea.robbins...Summer Flounder fisherman already regulate themselves.

4. Lastly, the council should adopt one mesh size for scup seabass and fluke..5 inch will work fine..The less gear fisherman drag around the ocean the better..It will be a money saver for boat owners.. Also remember 5 in is the size of the cover bag for loligo squid..A consistent twine size will be appreciated by all fisherman..

Thank You,
Hank Lackner

Kiley Dancy

From: James Fletcher <bamboosavefish@gmail.com>
Sent: Monday, July 26, 2021 1:36 PM
To: Didden, Jason; Hare, Jon; Kiley Dancy
Subject: UV EGGS not hatching

FMAT PDT for advisors ANY SCIENCE When are / will the managers address if eggs are maturing or are man made chemicals killing eggs at surface?
WHEN EGGS DO NOT HATCH CAN ANY MANAGEMENT BE SUCCESSFUL? COUNCIL STAFF, FMAT, PDT SCIENCE CENTER NMFS ANSWER THE QUESTION PLEASE.
A summer flounder report earlier in year showed flounder eggs DID NOT MATURE IN OCEAN AS CONTROLLED HATCHING IN LAB.
PERHAPS A DISCUSSION SHOULD BEGIN: JET FUEL IS DUMPED BY MILITARY. COMMERCIAL AIR LINERS DEPOSIT HOW MANY POUNDS OF SOOT PARTICLES PER TON OF JET FUEL.
ALL MATERIAL IS ON SURFACE OF OCEAN, Should the management look at things other than fishing?

BASIC SCIENCE QUESTION: nmfs STATES "OVER FISHED & OVER FISHING! YET NOTHING IS STATED WHERE IN CYCLE OF ABUNDANCE THE STOCK IS IN A GIVEN CYCLE.
WITHOUT ACKNOWLEDGING THE CYCLE ** HOW IS OVER FISHING ESTABLISHED? ******
Will bring up 7-27-2021

James Fletcher
United National Fisherman's Association
123 Apple Rd.
Manns Harbor, NC 27953
252-473-3287

Summer Flounder Fishery Information Document

June 2021

This document provides a brief overview of the biology, stock condition, management system, and fishery performance for summer flounder (*Paralichthys dentatus*) with an emphasis on 2020 (note that there are caveats associated with 2020 data due to COVID-19 related data gaps). Data sources include unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, as well as Marine Recreational Information Program (MRIP) data and stock assessment information. All 2020 data should be considered preliminary. For more resources on summer flounder management, including previous Fishery Information Documents, please visit http://www.mafmc.org/sf-s-bsb.

Key Facts:

- The 2018 benchmark stock assessment found that in 2017, summer flounder was not overfished and overfishing was not occurring. A management track update to this assessment is expected in July 2021.
- The 2019 and 2020 data updates showed signs of an above-average 2018 year class.
- Recreational data collection was limited in 2020 by COVID-19. MRIP released 2020 estimates derived using imputation methods incorporating data from 2018 and 2019. According to these estimates, 2020 recreational summer flounder harvest was 10.06 million pounds, about 131% of the harvest limit of 7.69 million pounds.
- Commercial landings in 2020 (9.11 million pounds; 79% of commercial quota) were similar to 2019 landings (9.06 million pounds; 83% of commercial quota). 2019 commercial fishery performance was impacted by a mid-year quota increase that the fishery was not able to fully take advantage of, while 2020 performance was impacted by the COVID-19 pandemic.
- Average commercial ex-vessel price continued to decline from its peak in 2017. The 2020 average price per pound of $2.58 was the lowest average price since 2011.

Basic Biology

Summer flounder spawn during the fall and winter over the open ocean areas of the continental shelf. From October to May, larvae and postlarvae migrate inshore, entering coastal and estuarine nursery areas. Juveniles are distributed inshore and in many estuaries throughout the range of the species during spring, summer, and fall. Adult summer flounder exhibit strong seasonal inshore-offshore movements, normally inhabiting shallow coastal and estuarine waters during the warmer months of the year and remaining offshore during the colder months.

Summer flounder habitat includes pelagic waters, demersal waters, saltmarsh creeks, seagrass beds, mudflats, and open bay areas from the Gulf of Maine through North Carolina. Summer flounder are opportunistic feeders; their prey includes a variety of fish and crustaceans. While the natural predators of adult summer flounder are not fully documented, larger predators (e.g., large sharks, rays, and monkfish) probably include summer flounder in their diets.[1]

Spawning occurs during autumn and early winter, and the larvae are transported toward coastal areas by prevailing water currents. Development of post larvae and juveniles occurs primarily within bays and estuarine areas. Most fish are sexually mature by age 2. The largest fish are females, which can attain lengths over 90 cm (36 in) and weights up to 11.8 kg (26 lb). The Northeast Fisheries Science Center (NEFSC) commercial fishery sampling in 2018 observed the oldest summer flounder collected to date, a 57 cm fish (likely a male) estimated to be age 20. Also sampled were two age 17 fish, at 52 cm (likely a male) and at 72 cm (likely a female). Two large (likely female) fish at 80 and 82 cm were both estimated to be age 9, from the 2009 year class (the 6th largest of the 36 year modeled time series). These samples indicate that increased survival of summer flounder over the last two decades has allowed fish of both sexes to grow to the oldest ages estimated to date.[2]

Status of the Stock

The information below is based on the most recent stock assessment information available when this document was written. Updated stock assessment information will be available in July 2021.

The most recent benchmark summer flounder stock assessment was completed and reviewed during the 66th Stock Assessment Workshop and Stock Assessment Review Committee (SAW/SARC 66) in November 2018.[3] This assessment uses a statistical catch at age model (the age-structured assessment program, or "ASAP" model). Stock assessment and peer review reports are available online at the NEFSC website: http://www.nefsc.noaa.gov/saw/reports.html.

The assessment incorporated the revised time series of recreational catch from MRIP, which is 30% higher on average compared to the previous summer flounder estimates for 1981-2017. The MRIP estimate revisions account for changes in both the angler intercept survey and recreational effort survey methodologies. While fishing mortality rates were not strongly affected by incorporating these revisions, increased recreational catch resulted in increased estimates of stock size compared to past assessments.

The biological reference points for summer flounder as revised through the recent benchmark assessment are described in Table 1.

Table 1: Summary of biological reference points and terminal year SSB and F estimates from the 2018 benchmark stock assessment.

	2018 stock assessment Biological Reference Points and stock status results (data through 2017)
SSB_{MSY} (biomass target)	126.01 mil lb (57,159 mt)
½ SSB_{MSY} (minimum stock size, or overfished, threshold)	63.01 mil lb (28,580 mt)
Terminal year SSB (2017)	98.22 mil lb (44,552 mt) 78% of SSB_{MSY} **(not overfished)**
$F_{MSY\ PROXY} = F_{35\%}$ (overfishing threshold)	0.448
Terminal year F (2017)	0.334 25% below F_{MSY} (**not overfishing**)

Assessment results indicate that the summer flounder stock was not overfished and overfishing was not occurring in 2017. Fishing mortality on the fully selected age 4 fish ranged between 0.744 and 1.622 during 1982-1996 and then decreased to 0.245 in 2007. Since 2007 the fishing mortality rate has increased, and in 2017 was estimated at 0.334, below fishing mortality threshold of 0.448 (Figure 1). The 90% confidence interval for F in 2017 was 0.276 to 0.380.

SSB decreased from 67.13 million lb (30,451) mt in 1982 to 16.33 million lb (7,408) mt in 1989, and then increased to 152.46 million lb (69,153) mt in 2003. SSB has decreased since 2003 and was estimated to be 98.22 million lb (44,552 mt) in 2017, about 78% of SSB_{MSY} = 126.01 million lb (57,159 mt), and 56% above the ½ SSB_{MSY} proxy = ½ $SSB_{35\%}$ = 63.01 million lb (28,580 mt; Figure 2).[3]

Recruitment of juvenile summer flounder to the fishery has been below average since about 2011 (Figure 2). The driving factors behind this trend have not been identified. Bottom trawl survey data also indicate a recent trend of decreasing length and weight at age, which implies slower growth and delayed maturity. These factors affected the change in biological reference points used to determine stock status.

Data updates were received in 2019 and 2020 with updated catch and landings information as well as federal trawl survey indices (for both 2019 and 2020) and state indices (2019 only). The 2020 data update indicates that the NEFSC spring survey index of summer flounder stock biomass decreased by 4% from 2018 to 2019 and the fall index decreased by 36% from 2018 to 2019.[4] Both data updates suggest that an above average year class recruited to the stock in 2018.[2,4]

A management track assessment update to this assessment is expected in July 2021. This update will consist of rerunning the existing model with data through 2019. Given data gaps for 2020 related to COVID-19 and the time required to address those gaps where possible, 2020 data could not be incorporated into this update.

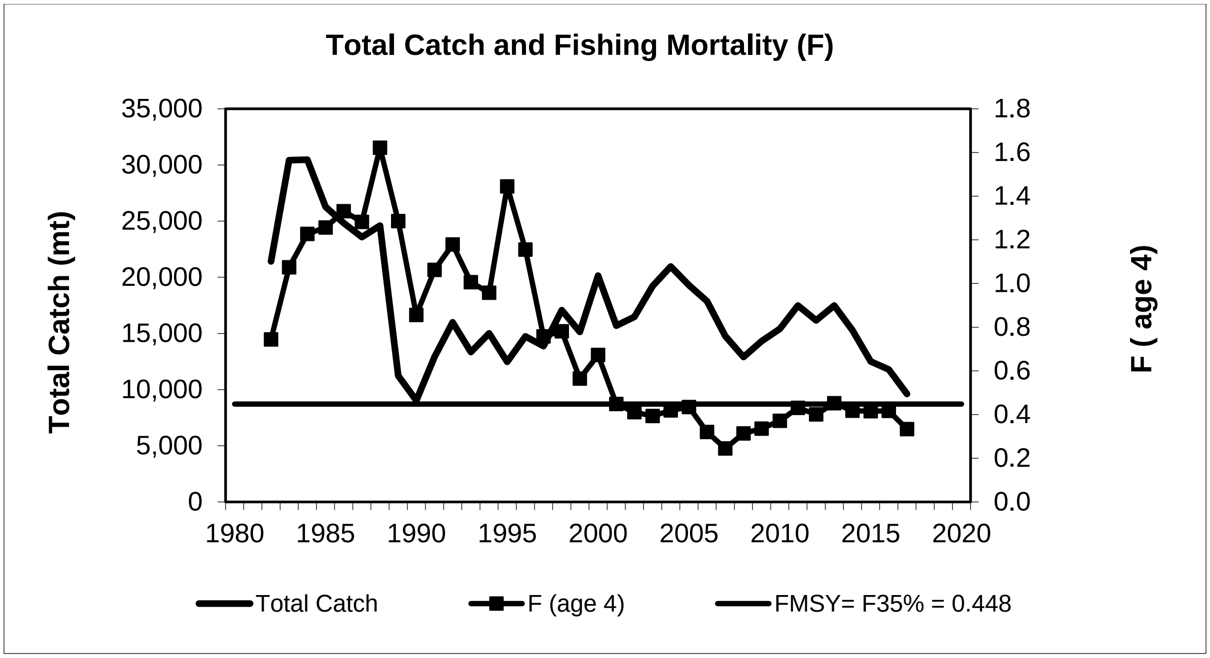

Figure 1: Total fishery catch (mt; solid line) and fully-recruited fishing mortality (F, peak at age 4; solid line with squares) of summer flounder. The horizontal solid line is the fishing mortality reference point proxy.[3]

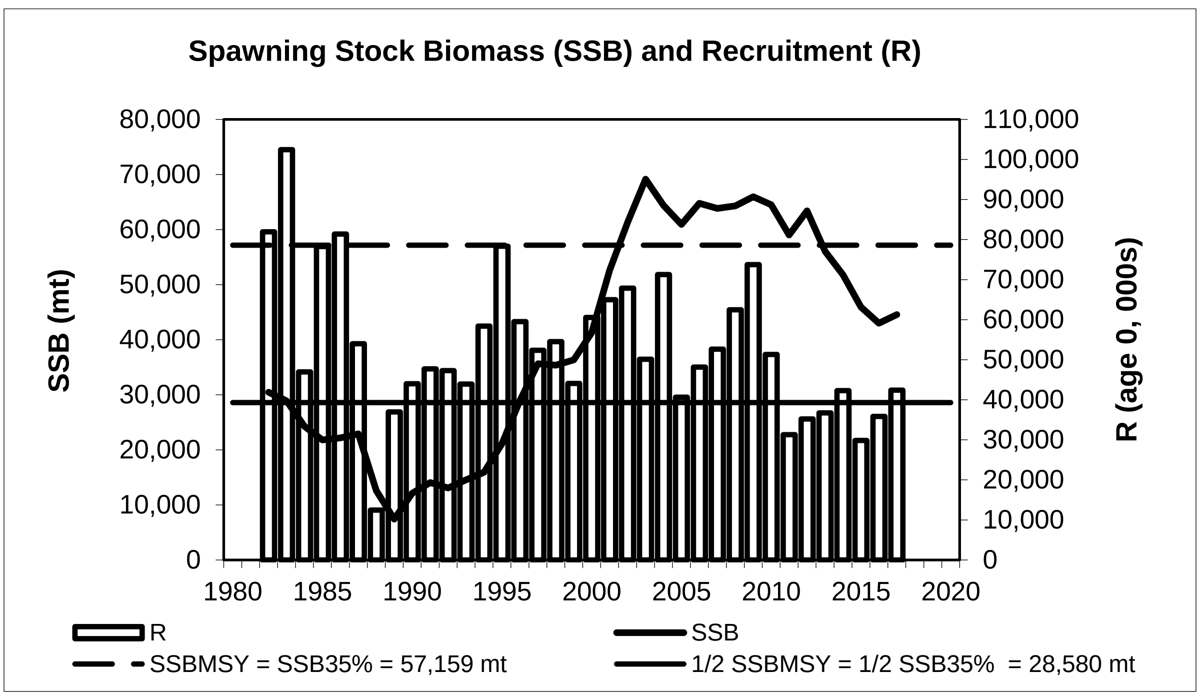

Figure 2: Summer flounder spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars) 1980-2017. The horizontal dashed line is the target biomass reference point. The horizontal solid line is the threshold biomass reference point.[3]

Management System and Fishery Performance

Management

The Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission or ASMFC) work cooperatively to develop fishery regulations for summer flounder off the east coast of the United States. The Council and Commission work in conjunction with NMFS, which serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state (0-3 miles offshore) and federal waters (3-200 miles offshore, also known as the Exclusive Economic Zone, or EEZ).

The joint Fishery Management Plan (FMP) for summer flounder became effective in 1988 and established the management unit for summer flounder as U.S. waters from the southern border of North Carolina northward to the U.S.-Canadian border. The FMP also established measures to ensure effective management of summer flounder fisheries, which currently include catch and landings limits, commercial quotas, recreational harvest limits (RHLs), minimum fish sizes, gear regulations, permit requirements, and other provisions as prescribed by the FMP.

There are large commercial and recreational fisheries for summer flounder. These fisheries are managed primarily using output controls (catch and landings limits), with 60 percent of the total allowable landings allocated to the commercial fishery as a commercial quota and 40 percent allocated to the recreational fishery as a recreational harvest limit. The Council and Commission are considering an ongoing FMP amendment to determine if these allocation percentages should be revised to reflect more recent data. Other management measures include minimum fish sizes, gear regulations, permit requirements, and other provisions as prescribed by the FMP. The Summer Flounder FMP, including subsequent Amendments and Frameworks, are available on the Council website at: http://www.mafmc.org/fisheries/fmp/sf-s-bsb.

The Council's Scientific and Statistical Committee (SSC) recommends annual Acceptable Biological Catch (ABC) levels for summer flounder, which are then approved by the Council and Commission and submitted to NMFS for final approval and implementation. The ABC is divided into commercial and recreational Annual Catch Limits (ACLs), based on the landings allocation prescribed in the FMP and the recent distribution of discards between the commercial and recreational fisheries. The Council first implemented recreational and commercial ACLs, with a system of overage accountability, in 2012. Both the ABC and the ACLs are catch limits (i.e., include both projected landings and discards), while the commercial quota and the recreational harvest limit are landing limits.

COVID-19 Data Issues in 2020

The COVID-19 pandemic impacted data collection in both the recreational and commercial fisheries. While commercial effort and markets were impacted to various degrees, data collection for commercial landings from seafood dealers continued uninterrupted. However, 2020 commercial discard estimates will be affected by missing observer data. Commercial discard estimates are developed using Standardized Bycatch Reporting Methodology (SBRM) approaches that rely heavily on observer data. On March 20, 2020, NMFS temporarily waived the requirement for vessels with Greater Atlantic fishing permits to carry a fishery observer or at-sea monitor. This waiver was extended several times before observers were redeployed on August 14, 2020. At this time it is not clear whether alternative methodologies will be developed to generate 2020 commercial discard estimates for summer flounder and other species.

For the recreational fishery, the mail and telephone surveys that collect effort data continued largely uninterrupted; however, the pandemic disrupted the Access Point Angler Intercept Survey (APAIS). All New England and Mid-Atlantic states suspended APAIS sampling starting in late March or April 2020. States resumed sampling between May and August 2020, depending on the state. NMFS used imputation methods to fill gaps in 2020 catch data with data collected in 2018 and 2019. These proxy data match the time, place, and fishing mode combinations that would have been sampled had the APAIS continued uninterrupted. Proxy data were combined with observed data to produce 2020 catch estimates using the standard estimation methodology. NMFS has indicated that when complete 2021 recreational data become available in 2022, they will evaluate the effects of including 2021 data (for example, alongside 2019 data and instead of 2018 data) in the imputation. Because these effects are unknown, the agency cannot predict whether it will seek to revise its 2020 catch estimates.

Fishery Landings Summary

Table 2 shows summer flounder catch and landings limits from 2008 through 2021, as well as commercial and recreational landings through 2020. Total (commercial and recreational combined) summer flounder landings generally declined throughout the early 1980s, and increased again in the mid-2000s before dropping to a time series low of 13.74 million lb in 2018 (Figure 3).[5,6]

Table 2: Summary of catch limits, landings limits, and landings for commercial and recreational summer flounder fisheries from 2010 through 2021. Values are in millions of pounds.

Management measures	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021[e]
ABC	25.50	33.95	25.58	22.34	21.94	22.57	16.26	11.30	13.23	25.03	25.03	27.11
Commercial ACL	--	--	14.00	12.11	12.87	13.34	9.43	6.57	7.70	13.53	13.53	14.63
Commercial quota[a,b]	12.79	17.38	12.73	11.44	10.51	11.07	8.12	5.66	6.63	10.98	11.53	12.49
Commercial landings	13.40	16.57	13.05	12.56	11.00	10.71	7.80	5.87	6.17	9.06	9.11	--
% of commercial quota landed	105%	95%	102%	110%	105%	97%	96%	104%	93%	83%	79%	--
Recreational ACL	--	--	11.58	10.23	9.07	9.44	6.84	4.72	5.53	11.51	11.51	12.48
Recreational harvest limit[a]	8.59	11.58	8.49	7.63	7.01	7.38	5.42	3.77	4.42	7.69	7.69	8.32
Harvest - OLD MRIP	5.11	5.96	6.49	7.36	7.39	4.72	6.18	3.19	3.35	--	--	--
% of RHL landed (Old MRIP 2010-2018; New MRIP 2019-2020)[c]	59%	51%	76%	96%	105%	64%	114%	85%	76%	101%	131%[d]	--
Harvest - NEW MRIP	11.34	13.48	16.13	19.41	16.23	11.83	13.24	10.09	7.60	7.80	10.06[d]	--

[a] For 2010-2014, commercial quotas and RHLs are adjusted for Research Set Aside (RSA). Quotas and harvest limits for 2015-2021 do not reflect an adjustment for RSA due to the suspension of the program in 2014.

[b] Commercial quotas also reflect deductions from prior year landings overages and discard-based Accountability Measures.

[c] The revised MRIP data cannot be compared to RHLs prior to 2019, given that these limits were set based on an assessment that used previous MRIP data.

[d] 2020 recreational estimates were developed using imputation methods (incorporating 2018 and 2019 data) to account for missing 2020 APAIS data.

[e] The 2021 measures were revised in 2020 by the SSC, the Council, and the Commission in accordance with the Council's changes to their risk policy.

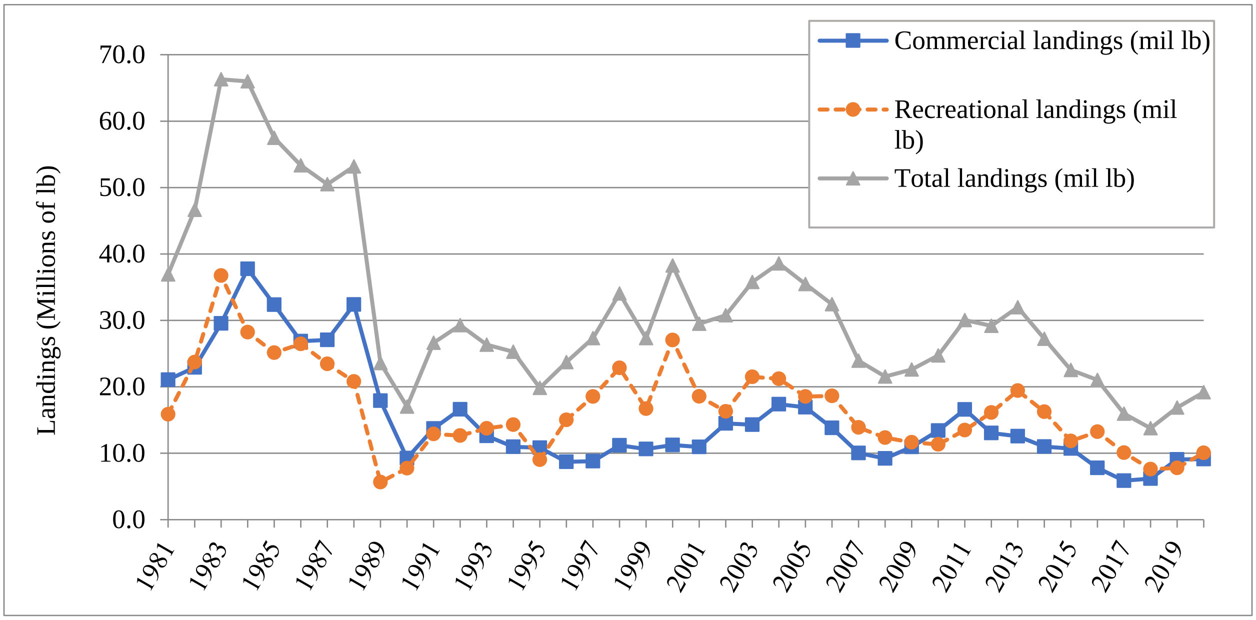

Figure 3: Commercial and recreational summer flounder landings in millions of pounds, Maine-North Carolina, 1981-2020. Recreational landings are based on revised MRIP data. 2020 recreational estimates were developed using imputation methods (incorporating 2018 and 2019 data) to account for missing 2020 APAIS data.[5,6]

Commercial Fishery

Commercial landings of summer flounder peaked in 1984 at 37.77 million pounds and reached a low of 5.83 million pounds in 2017. In 2020, commercial fishermen from Maine through North Carolina landed 9.11 million pounds of summer flounder, about 79% of the commercial quota (11.53 million pounds; Table 2). Total ex-vessel value in 2020 was $23.46 million, resulting in an average price per pound of $2.58 (Figure 4).

A moratorium permit is required to fish commercially for summer flounder in federal waters. In 2020, 727 vessels held such permits.[7]

The commercial quota is divided among the states based on the allocation percentages specified in the FMP, and each state sets measures to achieve their state-specific commercial quotas. The commercial allocations to the states were modified via Amendment 21, which became effective on January 1, 2021. The revised allocation system modifies the state-by-state commercial quota allocations in years when the annual coastwide commercial quota exceeds the specified trigger of 9.55 million pounds. Annual coastwide commercial quota of up to 9.55 million pounds is distributed according to the previous state allocations (Table 3). In years when the coastwide quota exceeds 9.55 million pounds, the *additional* quota amount beyond this trigger will be distributed by equal shares to all states except Maine, Delaware, and New Hampshire, which would split 1% of the additional quota (Table 3). The total percentage allocated annually to each state is dependent on how much additional quota beyond 9.55 million pounds, if any, is available in any given year. This allocation system is designed to provide for more equitable distribution of quota when stock biomass is relatively higher, while also considering the historic importance of the fishery to each state.

Table 3: Previous (through 2020) and revised (effective January 2021) allocation of summer flounder commercial quota to the states.

State	Previous allocation of commercial quota	Revised allocation of commercial quota (total state allocation = baseline quota allocation + additional quota allocation)	
		Allocation of baseline quota ≤9.55 mil lb	Allocation of additional quota beyond 9.55 mil lb
ME	0.04756%	0.04756%	0.333%
NH	0.00046%	0.00046%	0.333%
MA	6.82046%	6.82046%	12.375%
RI	15.68298%	15.68298%	12.375%
CT	2.25708%	2.25708%	12.375%
NY	7.64699%	7.64699%	12.375%
NJ	16.72499%	16.72499%	12.375%
DE	0.01779%	0.01779%	0.333%
MD	2.03910%	2.03910%	12.375%
VA	21.31676%	21.31676%	12.375%
NC	27.44584%	27.44584%	12.375%
Total	100%	100%	100%

For 1994 through 2020, NMFS dealer data indicate that summer flounder total ex-vessel revenue from Maine to North Carolina ranged from a low of $22.18 million in 1996 to a high of $35.93 million in 2005 (values adjusted to 2020 dollars to account for inflation). The mean price per pound ranged from a low of $1.88 in 2002 to a high of $4.45 in 2017 (both values in 2020 dollars). In 2020, 9.11 million pounds of summer flounder were landed generating $23.46 million in total ex-vessel revenue (an average of $2.58 per pound; Figure 4).[5]

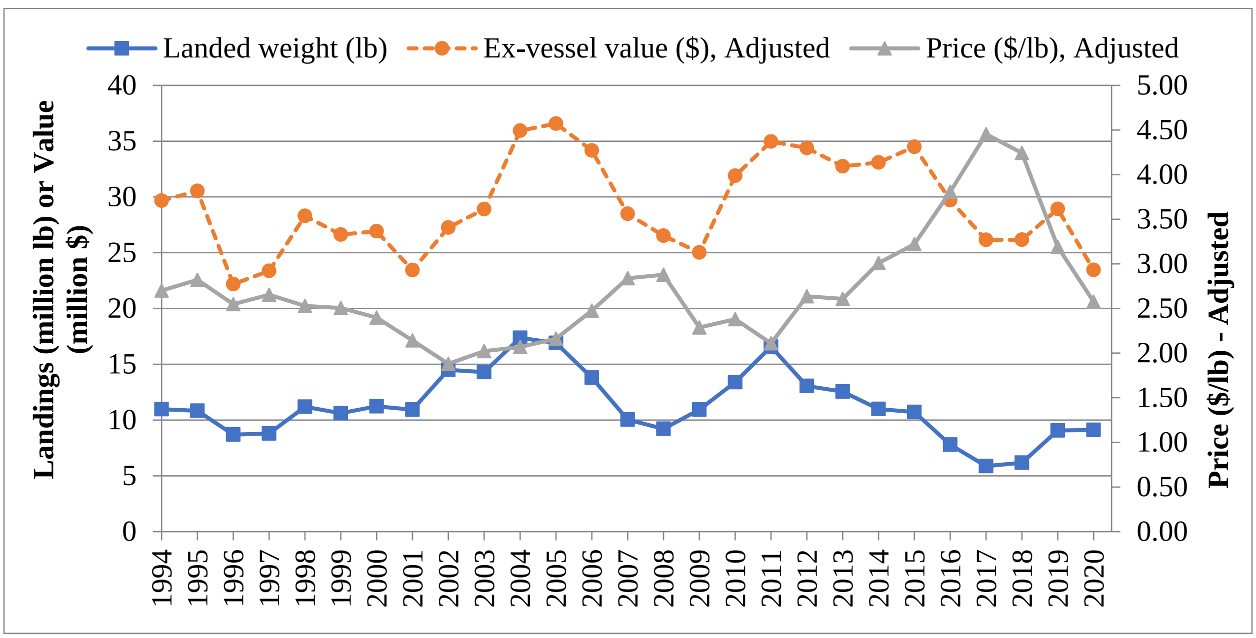

Figure 4: Landings, ex-vessel value, and price per pound for summer flounder, Maine through North Carolina, 1994-2020. Ex-vessel value and price are adjusted to real 2020 dollars using the Gross Domestic Product Price Deflator (GDPDEF).[5]

VTR data indicate that 99% of summer flounder landings in 2020 were taken by bottom otter trawls.[8] Current regulations require a 14-inch total length minimum fish size in the commercial fishery. Trawl nets are required to have 5.5-inch diamond or 6-inch square minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder (i.e., 200 lb from November 1-April 30 and 100 lb from May 1-October 31).

According to federal VTR data, statistical areas 537 and 616 were responsible for the highest percentage of commercial summer flounder catch in 2020 (28% and 22% respectively; Table 4). While statistical area 539 accounted for only 5% of 2020 summer flounder catch, this area had the highest number of trips that caught summer flounder (2,212 trips; Table 4; Figure 5).[8]

At least 100,000 pounds of summer flounder were landed by commercial fishermen in 16 ports in 8 states in 2020. These ports accounted for 89% of all 2020 commercial summer flounder landings. Point Judith, RI and Beaufort, NC were the leading ports in 2020 in pounds of summer flounder landed, while Point Judith, RI was the leading port in number of vessels landing summer flounder (Table 5).[5] Detailed community profiles developed by the Northeast Fisheries Science Center's Social Science Branch can be found at www.mafmc.org/communities/.

Over 181 federally permitted dealers from Maine through North Carolina bought summer flounder in 2020. More dealers from New York bought summer flounder than any other state (Table 6). All dealers combined bought approximately $23.46 million worth of summer flounder in 2020.[5]

Table 4: Statistical areas that accounted for at least 5 percent of the total summer flounder catch in 2020, with associated number of trips.[8] Federal VTR data do not capture landings by vessels only permitted to fish in state waters.

Statistical Area	Percent of 2020 Commercial Summer Flounder Catch	Number of Trips
537	28%	1,282
616	22%	789
613	17%	1,611
612	7%	1,069
539	5%	2,212

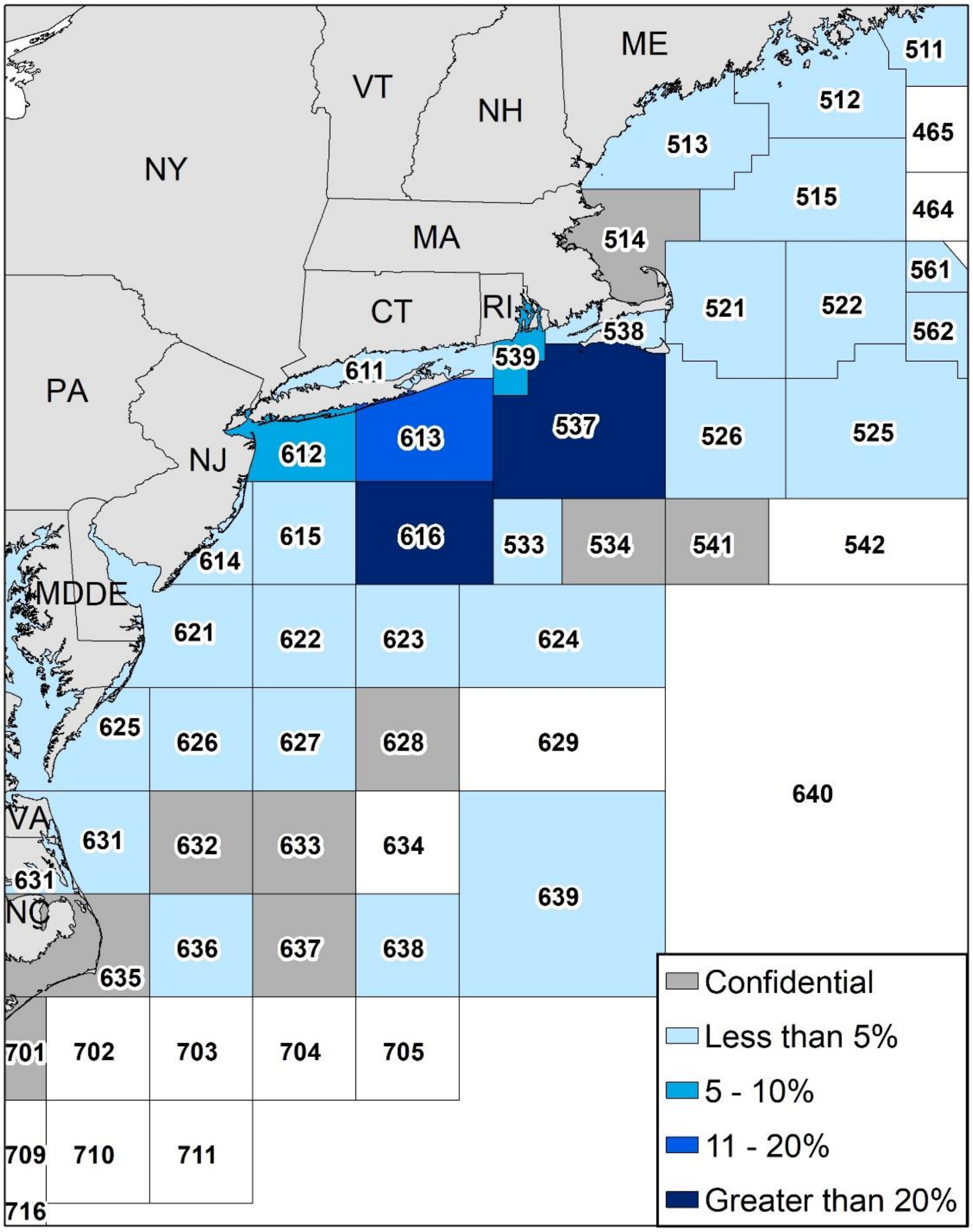

Figure 5: Proportion of summer flounder catch by NMFS statistical area in 2020 based on federal VTR data. Statistical areas marked "confidential" are associated with fewer than three vessels and/or dealers. Statistical areas with confidential data collectively accounted for less than 1% of commercial catch reported on VTRs in 2020. The amount of catch (landings and discards) that was not reported on federal VTRs (e.g., catch from vessels permitted to fish only in state waters) is unknown. For 2019, Northeast Fisheries Science Center Data ("AA tables") suggested that 8% of total commercial landings (state and federal) were not associated with a statistical area reported in federal VTRs; AA data for 2020 are not available.[8]

Table 5: Ports reporting at least 100,000 pounds of commercial summer flounder landings in 2020, based on dealer data.[5]

Port	Commercial summer flounder landings (lb)	% of total	Number of vessels
POINT JUDITH, RI	1,542,676	17%	129
BEAUFORT, NC	1,318,762	14%	49
PT. PLEASANT, NJ	1,172,984	13%	43
HAMPTON, VA	771,905	8%	50
NEWPORT NEWS, VA	655,960	7%	37
MONTAUK, NY	498,696	5%	63
NEW BEDFORD, MA	435,794	5%	61
BELFORD, NJ	273,612	3%	15
CAPE MAY, NJ	261,116	3%	42
OCEAN CITY, MD	190,923	2%	14
ENGELHARD, NC	181,561	2%	8
HAMPTON BAYS, NY	179,540	2%	29
STONINGTON, CT	178,621	2%	16
WANCHESE, NC	159,709	2%	6
LONG BEACH/ BARNEGAT LIGHT, NJ	159,331	2%	16
CHINCOTEAGUE, VA	130,220	1%	16

Table 6: Number of dealers per state which reported purchases of summer flounder in 2020. C = Confidential.[5]

State	MA	RI	CT	NY	NJ	DE	MD	VA	NC
# of Dealers	27	29	12	46	30	C	5	13	19

Recreational Fishery

There is a significant recreational fishery for summer flounder, primarily in state waters when the fish migrate inshore during the warm summer months. The Council and Commission determine annually whether to manage the recreational fishery under coastwide measures or conservation equivalency. Under conservation equivalency, state- or region- specific measures are developed through the ASMFC's management process and submitted to NMFS. The combined state or regional measures must achieve the same level of harvest as would a set of coastwide measures developed to adhere to the overall recreational harvest limit. If NMFS considers the combination of the state- or region- specific measures to be "equivalent" to the coastwide measures, they may then waive the coastwide regulation in federal waters. Anglers fishing in federal waters are then subject to the measures of the state in which they land summer flounder.

The recreational fishery has been managed using federal conservation equivalency each year since 2001. Since 2014, a regional approach has been used, under which the states within each region must have identical size limits, possession limits, and season length. The 2019-2021 regional conservation equivalency measures are given in Table 7. Minor seasonal adjustments were made between 2019 and 2020 in New Jersey and North Carolina. No changes to regional measures were made between 2020 and 2021.

Table 7: Summer flounder recreational fishing measures 2019-2021, by state, under regional conservation equivalency. Conservation equivalency regions in these years include: 1) Massachusetts, 2) Rhode Island, 3) Connecticut and New York, 4) New Jersey, 5) Delaware, Maryland, The Potomac River Fisheries Commission, and Virginia, and 6) North Carolina.

	2019-2021		
State	**Minimum Size (inches)**	**Possession Limit**	**Open Season**
Massachusetts	17	5 fish	May 23-October 9
Rhode Island (Private, For-Hire, and all other shore-based fishing sites)	19	6 fish	May 3-December 31
RI 7 designated shore sites	19	4 fish[a]	
	17	2 fish[a]	
Connecticut	19	4 fish	May 4- September 30
CT Shore Program (45 designed shore sites)	17		
New York	19		
New Jersey	18	3 fish	***2019:*** May 24- September 21 ***2020 and 2021:*** May 22-September 19
NJ Shore program site (ISBSP)	16	2 fish	
New Jersey/Delaware Bay COLREGS	17	3 fish	
Delaware	16.5	4 fish	January 1- December 31
Maryland			
PRFC			
Virginia			
North Carolina	15	4 fish	***2019:*** January 1-September 3 ***2020 and 2021:*** August 16-September 30[b]

[a] Rhode Island's shore program includes a combined possession limit of 6 fish, no more than 2 fish at 17-inch minimum size limit.

[b] North Carolina restricted the recreational season at the end of 2019 and for 2020 for all flounders in North Carolina (southern, gulf, and summer flounder) due to the need to end overfishing on southern flounder. North Carolina manages all flounder in the recreational fishery under the same regulations.

In July 2018, MRIP released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology (i.e., a transition from a telephone-based effort survey to a mail-based effort survey). The revised estimates of catch and landings are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall summer flounder catch and harvest estimates. On average, the new landings estimates for summer flounder (in pounds) are 1.8 times higher over the time series 1981-2017, and 2.3 times higher over the past 10 years (2008-2017). In 2017, new estimates of landings in pounds were 3.16 times higher than the previous estimates.

Revised MRIP estimates indicate that recreational catch (harvest plus live and dead discards) for summer flounder peaked in 2010 with 58.89 million fish caught. Recreational harvest peaked in 1983, with 25.78 million fish landed, totaling 36.74 million pounds. Recreational catch reached a low in 1989 with 5.06 million fish caught. Recreational harvest in numbers of fish reached a low in 2019 with 2.38 million fish landed (7.80 million pounds), while recreational harvest in pounds was lowest in 1989 at 5.66 million pounds (3.10 million fish; Figure 6).[6]

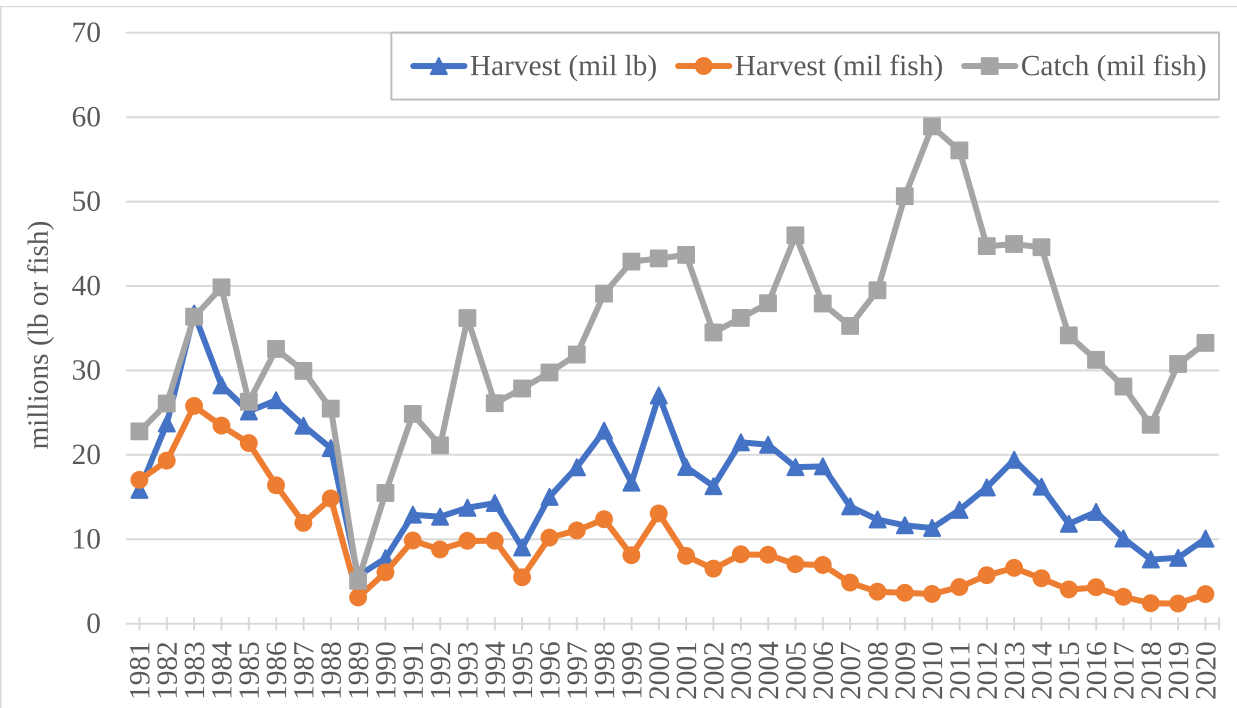

Figure 6: MRIP estimates of recreational summer flounder harvest in numbers of fish and pounds and catch in numbers of fish, ME - NC, 1981 - 2020, based on the revised MRIP data. 2020 recreational estimates were developed using imputation methods (incorporating 2018 and 2019 data) to account for missing 2020 APAIS data.[6]

For-hire vessels carrying passengers in federal waters must obtain a federal party/charter permit. In 2020, 831 vessels held summer flounder federal party/charter permits.[7] Many of these vessels also hold recreational permits for scup and black sea bass.

On average, an estimated 83 percent of the recreational landings (in numbers of fish) occurred in state waters over the past ten years (Table 8). The majority of summer flounder are typically landed in New York and New Jersey (Table 9).[6]

About 84% of recreational summer flounder harvest from 2018-2020 was from anglers who fished on private or rental boats. About 4% was from party or charter boats, and about 13% was from anglers fishing from shore. The revised MRIP methodology resulted in an increase in the amount of harvest estimated to occur from private and shore modes while making only minor changes to the estimates for party/charter modes, modifying the percentages attributable to each mode (Table 10).[6]

Table 8: Estimated percentage of summer flounder recreational landings (in numbers of fish) from state vs. federal waters, Maine through North Carolina, 2011-2020 (revised MRIP data).[6]

Year	State <= 3 mi	EEZ > 3 mi
2011	94%	6%
2012	86%	14%
2013	77%	23%
2014	78%	22%
2015	82%	18%
2016	79%	21%
2017	79%	21%
2018	83%	17%
2019	77%	23%
2020	61%	39%
Avg. 2011 - 2020	**83%**	**17%**
Avg. 2018 - 2020	**74%**	**26%**

Table 9: State contribution (as a percentage) to total recreational landings of summer flounder (in numbers of fish), from Maine through North Carolina, 2018-2020 (revised MRIP data).[6]

State	2018	2019	2020	2018-2020 average[a]
Maine	0%	0%	0%	0%
New Hampshire	0%	0%	0%	0%
Massachusetts	3%	2%	2%	2%
Rhode Island	7%	9%	3%	6%
Connecticut	6%	4%	4%	4%
New York	27%	24%	21%	23%
New Jersey	43%	46%	57%	50%
Delaware	4%	4%	6%	5%
Maryland	2%	3%	2%	3%
Virginia	6%	6%	4%	5%
North Carolina	2%	1%	1%	1%
Total	100%	100%	100%	100%

[a] Errors in previous version of this table corrected 7/12/21.

Table 10: The percent of summer flounder landings (in number of fish) by recreational fishing mode, Maine through North Carolina, 2011-2020 (revised MRIP data).[6]

Year	Shore	Party/Charter	Private/Rental	Total number of fish landed (millions)
2011	4%	3%	93%	4.33
2012	9%	3%	88%	5.74
2013	11%	4%	85%	6.60
2014	7%	8%	84%	5.36
2015	7%	7%	86%	4.03
2016	8%	4%	89%	4.30
2017	13%	4%	83%	3.17
2018	11%	6%	84%	2.41
2019	10%	3%	87%	2.38
2020	18%	2%	80%	3.49
% of Total, 2011-2020	**10%**	**4%**	**86%**	**--**
% of Total, 2018-2020	**13%**	**4%**	**84%**	**--**

References

[1] Packer, D. B, S. J. Griesbach, P. L. Berrien, C. A. Zetlin, D. L. Johnson, and W.W. Morse. 1999. Essential Fish Habitat Source Document: Summer Flounder, *Paralichthys dentatus*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-151.

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[4] Northeast Fisheries Science Center. 2020. Data Update for Summer Flounder.

[5] Unpublished NMFS dealer data as of April 29, 2021.

[6] Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed May 12, 2021. Available at: http://www.st.nmfs.noaa.gov/recreational-fisheries/index.

[7] Unpublished NMFS permit data as of January 25, 2021.

[8] Unpublished NMFS Vessel Trip Report (VTR) data as of April 29, 2021.

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: August 3, 2021

To: Council and Board

From: Karson Coutre, Staff

Subject: Scup 2022-2023 Specifications

On Monday, August 9, the Council and Board will consider scup specifications for 2022-2023 after reviewing the recommendations of the SSC, Monitoring Committee, and Advisory Panel. Measures to be considered include 2022-2023 commercial and recreational catch and landings limits, as well as any changes to the commercial management measures desired for 2022. Materials listed below are provided for the Council and Board's consideration of this agenda item.

Please note that some materials are behind other tabs.

1) Monitoring Committee meeting summary from July 27, 2021 *(behind Tab 2)*
2) Advisory Panel meeting summary from July 29, 2021 *(behind Tab 2)*
3) July 2021 Scientific and Statistical Committee meeting report *(behind Tab 14)*
4) Staff memo on Scup Commercial Minimum Size and Winter I possession limits for 2022-2023 dated July 20, 2021
5) Staff memo on 2022-2023 scup specifications dated July 8, 2021
6) Scup Management Track Assessment for 2021
7) June 2021 Advisory Panel Fishery Performance Report and associated additional AP comments received through July 6, 2021 *(behind Tab 2)*
8) Request from Lund's Fisheries dated June 18, 2021
9) 2021 Scup Information Document

The Summer Flounder, Scup, and Black Sea Bass Monitoring Committee Meeting Summary is behind Tab 2.

The Summer Flounder, Scup, and Black Sea Bass Advisory Panel Meeting Summary is behind Tab 2.

The SSC Report is behind Tab 14.

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: July 20, 2021

TO: Chris Moore, Executive Director

FROM: Karson Coutre, Staff

SUBJECT: Scup Commercial Minimum Size and Winter I possession limits for 2022-2023

Background

In June 2021, the Council received a request from Lund's Fisheries[1] to have the monitoring committee (MC) analyze increasing the scup commercial Winter I possession limit to 100,000 pounds (from the current 50,000) and analyze eliminating it entirely for 2022-2023. According to the request, this change would help Lund's continue to build their frozen markets for scup. The request further proposes that the MC analyze decreasing the commercial minimum fish size from 9 inches to 8 inches total length (TL), which would further support developing these frozen markets.

The MC will discuss these proposed changes during their July 27 meeting. This request was discussed briefly by advisory panel (AP) members during the June AP Fishery Performance Report meeting and will be discussed in more detail at their upcoming July 29 meeting discussing MC recommendations for 2022-2023.

At their June meeting and in related email comments, no advisors spoke in favor of an increase or removal of the Winter I possession limit in 2022-2023. Some advisors expressed concerns such as the potential for harming the fresh fish market and increasing commercial discards. One advisor spoke in favor of decreasing the minimum fish size to accommodate potential demand for smaller fish, while three advisors did not support moving to an 8-inch TL minimum size for reasons such as maturity concerns, no market, and increased discards due to targeting smaller fish. A summary of this discussion can be found in the Advisory Panel Fishery Performance Report and associated email comments.[2]

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[1] Available at https://www.mafmc.org/s/Lunds_scup_request2021.pdf
[2] Available at https://www.mafmc.org/s/SFSBSB_FPR_June-2021.pdf

Scup biomass and recruitment

The 2021 assessment indicates that the scup stock was not overfished, and overfishing was not occurring in 2019 relative to the updated biological reference points calculated through the assessment. Spawning stock biomass was estimated to be about 389 million pounds (176,404 mt) in 2019, about 2 times the SSB_{MSY} proxy reference point of 198.458 million pounds (90,019 mt). Fishing mortality on fully selected age 4 scup was 0.136 in 2019, about 68% of the F_{MSY} proxy reference point of 0.200 in 2019. The 2017-2019 year classes are estimated to be below average, with the 2019 year class as the smallest in the time series at 34 million fish (Figure 1).

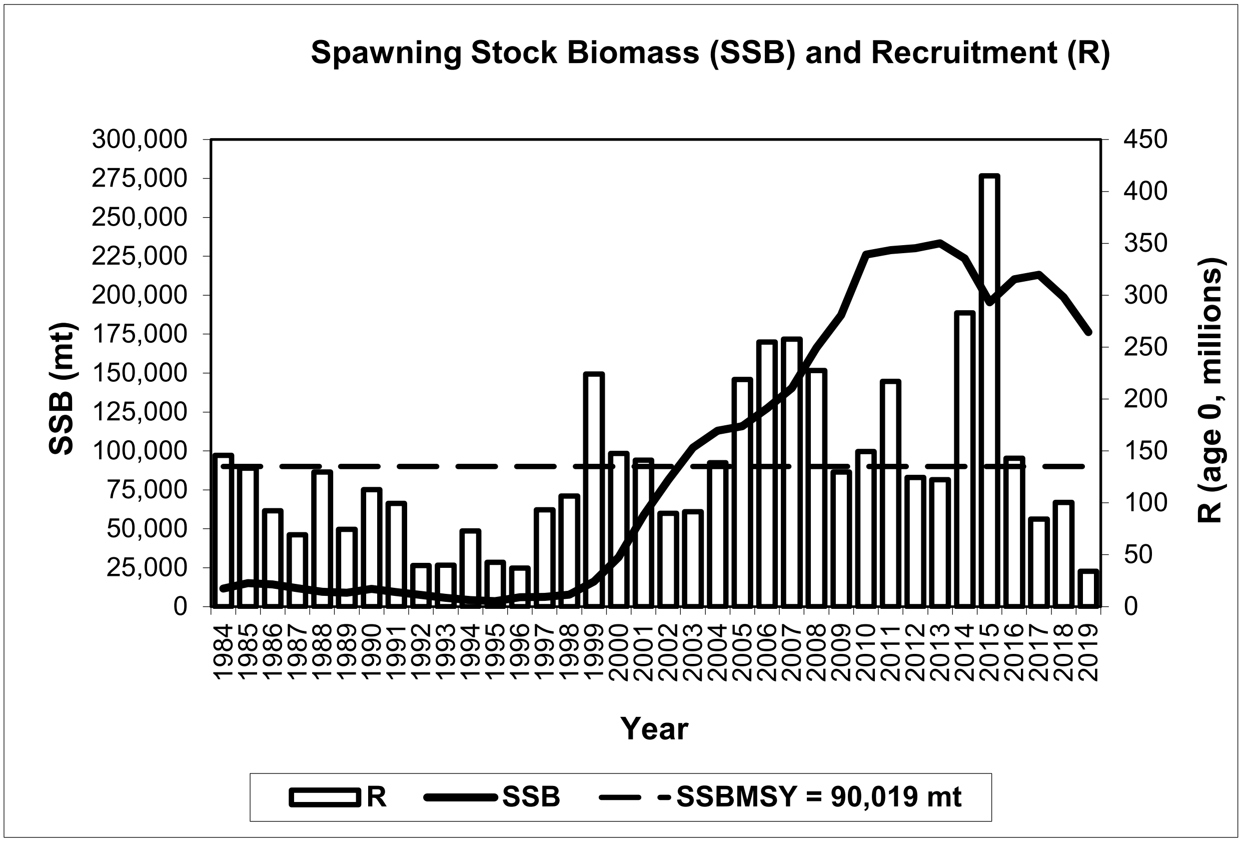

Figure 1: Scup SSB and recruitment at age 0, 1984-2019 from the 2021 management track stock assessment.

Size limit considerations and staff recommendation

The minimum size for retention of scup in the commercial fishery is 9 inches total length. This regulation applies to all commercial landings of scup in state and federal waters, including landings of incidental catch. This measure was first implemented in 1996, when scup were first managed by the Council and Commission. The Council and Board considered modifying this measure in 2005, 2012, and in 2015. After reviewing this measure in detail in 2015, the Monitoring Committee, Council, and Board all recommended no changes.[3]

[3] The 2015 commercial measures review document is available at http://www.mafmc.org/s/Tab11_SF-S-BSB-Commercial-Measures.pdf.

The scup commercial minimum size regulations are set using total length (TL). Northeast Fisheries Science Center (NEFSC) data estimate maturity by fork length (FL). Using the most recent FL to TL conversion equation (Maniscalco 2013), an 8 inch TL scup, which is the proposed decrease in minimum size, is approximately 7 inches long in FL. Scup caught in the NEFSC survey from 2018-2019 and were found to be 57% mature at 7 inches FL, 84% mature at 8 inches FL and 98% mature at 9 inches FL (Mark Terceiro, personal communication).

According to discard estimates using otter trawl observer data from July 2018-June 2019, about 53.8% of scup discards were due to size regulation, 3.9% were due to quota, 36.5% were due to no market and 5.8% were discarded for poor quality or other reasons.[4] Decreasing the minimum size has the potential to decrease a portion of the dead discards due to size regulations which could be beneficial to fishermen and reduce waste in the fishery. Decreasing the minimum size to 8 inches TL may also lead to increased utilization of the commercial quota which has had underages of 16-44% in the past five years.

However, as discussed by AP members and in the MC 2015 review of commercial measures, there are concerns with the potential for shifting the fishery selectivity to smaller or younger scup caught.[5] The proposed decrease in minimum size to 8 in TL (~7 in FL) would allow for the harvest of scup at a size where about 57% are mature. At the current minimum size of 9 inches TL (~8 in FL), about 84% are mature. Harvesting more immature scup could cause a decline in yield-per-recruit and ultimately harm the spawning stock biomass. As described in the previous section, the stock biomass is on a declining trajectory and 2019 was the lowest recruitment in the time series (Figure 1). Because of this, ABCs are projected to decrease by 8% in 2022 and 15% 2023 compared with the 2021 ABC.[6] <u>Given the selectivity concerns, recent low recruitment, declining stock biomass, and lack of strong support among the AP, staff recommend that the commercial minimum size for scup remain at 9 inches TL.</u>

Possession limit considerations and staff recommendation

Commercial possession limits are designed to help constrain landings to the seasonal period quotas. The Winter I possession limit is 50,000 pounds, which is the highest Winter I limit since possession limits went into place in 1999. After 80% of the Winter I quota is landed, the possession limit drops to 1,000 pounds. The Winter I quota period possession limit was last modified in 2012, when it increased from 30,000 to 50,000 pounds.

The commercial scup fishery has underutilized its annual quota and its Winter I quota in recent years (Table 1). The intent of increasing or eliminating the possession limit during Winter I would be to allow for increased Winter I landings and therefore higher utilization of the quota. However, from 2018-2020 less than 1% of scup trips in Winter I landed more than 20,000 pounds and no scup trips landed greater than 40,000 pounds (Table 2). This suggests that the

[4] 2020 SBRM Discard Estimation Report available at https://doi.org/10.25923/z0mw-9t57
[5] Available at http://www.mafmc.org/s/Tab11_SF-S-BSB-Commercial-Measures.pdf
[6] Staff memo: 2022-2023 Scup ABC Recommendations available at https://www.mafmc.org/s/b_Scup_specs2022_2023memo.pdf

current possession limit of 50,000 pounds is not limiting harvest opportunities in Winter I and other factors such as market dynamics may play a bigger role in driving scup harvest.

Although it is difficult to predict future fishery dynamics, increasing or eliminating the possession limit may encourage more or larger capacity vessels to increase their targeting of scup that had previously targeted other species. As mentioned above, this could lead to better utilization of the Winter I quota. However, some advisors were concerned that this could cause prices to crash in the fresh fish market. In future years, if biomass continues to decline and market demand increases or stays the same, an increased or eliminated possession limit could lead to harvesting 80% of the quota more quickly in Winter I, triggering a possession limit drop to 1,000 pounds. This could lead to decreased harvest opportunity for some vessels or regions along the coast that may fish later in the Winter I period.

As mentioned above, the declining biomass and low recruitment in recent years remain a concern while discussing liberalizing commercial measures. The majority of scup trips have fallen well below the current Winter I possession limit of 50,000 pounds, providing room for larger poundage trips under the current limits. <u>For these reasons, staff recommend no changes to the current commercial Winter I possession limit of 50,000 pounds in 2022-2023.</u>

Table 1: Scup annual and Winter I commercial landings relative to quotas in millions of pounds, 2016-2020 (2020 values are preliminary).

Year	Com. landings	Com. quota	Quota underage	Winter I landings	Winter I quota	Winter I quota underage
2016	15.76	20.47	-23%	6.08	9.23	-34%
2017	15.44	18.38	-16%	5.92	8.29	-29%
2018	13.37	23.98	-44%	4.85	10.82	-55%
2019	13.78	23.98	-43%	5.55	10.82	-49%
2020	13.58	22.23	-39%	5.18	10.03	-48%

Table 2. The total number of scup trips during the winter I period from 2018-2020, and the number of trips landing greater than 10,000, 20,000, 30,000, and 40,000 pounds of scup as shown in NMFS dealer data. "C" refers to confidential data and a Winter I trip was defined as at least one pound of scup caught per trip from January through April.

Year	Total # Winter I trips	Number of trips landing more than:			
		10,000 lb	20,000 lb	30,000 lb	40,000 lb
2018	3,269	61	11	C	0
2019	3,712	79	14	C	0
2020	3,172	89	13	C	0

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: July 9, 2021

TO: Chris Moore, Executive Director

FROM: Karson Coutre, Staff

SUBJECT: Scup Specifications for 2022-2023

Executive Summary

This memorandum includes information to assist the Mid-Atlantic Fishery Management Council's (Council's) Scientific and Statistical Committee (SSC) and Monitoring Committee in recommending 2022-2023 catch and landings limits for scup, as well as scup commercial management measures for 2022. Additional information on fishery performance and past management measures can be found in the 2021 Scup Fishery Information Document and the 2021 Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report developed by advisors.[1]

In 2021, the Northeast Fisheries Science Center (NEFSC) provided a management track assessment for scup, which was peer reviewed and accepted in June 2021. This assessment updated the existing assessment model with fishery catch and fishery-independent survey data through 2019.[2]

The 2021 assessment indicates that the scup stock was not overfished, and overfishing was not occurring in 2019 relative to the updated biological reference points calculated through the assessment. Spawning stock biomass was estimated to be about 389 million pounds (176,404 mt) in 2019, about 2 times the SSBMSY proxy reference point of 198.458 million pounds (90,019 mt). Fishing mortality on fully selected age 4 scup was 0.136 in 2019, about 68% of the F_{MSY} proxy reference point of 0.200 in 2019. The 2017-2019 year classes are estimated to be below average, with the 2019 year class as the smallest in the time series.

There are currently no catch and landings limits in place for scup beyond the 2021 fishing year. The SSC should recommend ABC levels for 2022-2023 for the Council and Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) to consider at their joint August 2021 meeting. Two-year specifications are recommended to align with the current stock assessment schedule for scup, under which the next update is expected in 2023 to inform 2024-2025 specifications.

Based on the SSC's recommendations for ABCs, the Monitoring Committee recommends sector specific

[1] Available at: https://www.mafmc.org/fishery-performance-reports
[2] Available at: https://www.mafmc.org/council-events/2021/ssc-july-21-23

catch and landings limits and management measures to constrain catch and landings to these limits. Specifically, the Monitoring Committee should review recent fishery performance and make a recommendation to the Council and Board regarding 2022-2023 commercial and recreational Annual Catch Limits (ACLs) and Annual Catch Targets (ACTs), commercial quotas, and recreational harvest limits. The Monitoring Committee will also consider whether any revisions are needed to the commercial management measures (minimum fish size, minimum mesh size, possession limits, etc.) for 2022. Recreational measures for 2022 will be considered later in 2021.

The currently implemented 2021 catch and landings limits are shown in Table 1. As described below, previously implemented 2021 limits were revised by the SSC and Council/Board in summer 2020 based on 2019 changes to the Council risk policy.

ABC projections for 2022-2023 were provided by NEFSC staff for both varying ABCs from 2022-2023, as well as an averaged approach where the 2022-2023 ABCs are identical. The Council and Board have requested the ability to determine which approach is more appropriate from a policy standpoint; therefore, the SSC is requested to provide recommendations for both varying and averaged ABCs. The resulting ABCs and associated staff-recommended commercial and recreational limits are provided in Table 2. Staff recommend that the Council and Board adopt the varying ABC approach for 2022-2023. This would result in a 2022 ABC of 32.11 million pounds (14,566 mt) and a 2023 ABC of 29.67 million pounds (13,460 mt), which would represent an 8% decrease in 2022 and 15% decrease in 2023 from the 2021 ABC of 34.81 million pounds (15,791 mt).

Table 1: Currently implemented 2021 scup catch and landings limits based on the varying ABC approach.

Management measure	2021		Basis
	mil lb	mt	
OFL	35.30	16,012	Assessment projections
ABC	34.81	15,791	Assessment projections & risk policy
ABC discards	8.24	3,740	Assessment projections
Commercial ACL	27.15	12,317	78% of ABC (per FMP)
Commercial ACT	27.15	12,317	Set equal to commercial ACL (staff recommendation)
Projected commercial discards	6.65	3,018	80.7% of ABC discards (avg. % of dead discards from commercial fishery, 2016-2018)
Commercial quota	20.50	9,299	Commercial ACT minus discards
Recreational ACL	7.66	3,474	22% of ABC (per FMP)
Recreational ACT	7.66	3,474	Set equal to recreational ACL (staff recommendation)
Projected recreational discards	1.59	722	19.3% of the ABC discards (avg. % of dead discards from rec. fishery, 2016-2018)
RHL	6.07	2,752	Recreational ACT minus discards

Table 2: Potential 2022-2023 scup catch and landings limits based on ABC projections provided by the NEFSC and under the averaged and varying ABC approaches. Under the averaged ABC approach, the ABCs and ABC discards are averaged to derive equal limits across 2022-2023.

Mgmt measure	2022/2023 (Averaged ABCs)		2022 (Varying ABCs)		2023 (Varying ABCs)		Basis
	mil lb	mt	mil lb	mt	mil lb	mt	
OFL	32.56/ 30.22	14,770/ 13,708	32.56	14,770	30.09	13,648	Assessment projections
ABC	30.89	14,013	32.11	14,566	29.67	13,460	Assessment projections & risk policy
ABC discards	6.04	2,742	5.65	2,564	6.39	2,900	Assessment projections
Com. ACL	24.10	10,930	25.05	11,361	23.15	10,499	78% of ABC (per FMP)
Com. ACT	24.10	10,930	25.05	11,361	23.15	10,499	Set equal to commercial ACL (staff recommendation)
Projected com. discards	4.99	2,263	4.67	2,117	5.28	2,394	82.6% of ABC discards (avg. % of dead discards from commercial fishery, 2017-2019)
Com. quota	19.11	8,667	20.38	9,245	17.87	8,105	Commercial ACT minus discards
Rec. ACL	6.80	3,083	7.06	3,205	6.53	2,961	22% of ABC (per FMP)
Rec. ACT	6.80	3,083	7.06	3,205	6.53	2,961	Set equal to recreational ACL (staff recommendation)
Projected rec. discards	1.05	478	0.99	447	1.12	506	17.4% of the ABC discards (avg. % of dead discards from rec. fishery, 2017-2019)
RHL	5.74	2,605	6.08	2,757	5.41	2,455	Recreational ACT minus discards

Introduction

The Magnuson-Stevens Act (MSA) requires that the Council's SSC provide scientific advice for fishery management decisions, including recommendations for ABCs, prevention of overfishing, and achieving maximum sustainable yield (MSY). The SSC must recommend ABCs that address scientific uncertainty. The MSA mandates that the Council's catch limit recommendations cannot exceed the ABCs recommended by the SSC.

The Monitoring Committee is responsible for developing recommendations for management measures to achieve the ABCs recommended by the SSC. Specifically, the Monitoring Committee recommends ACTs that are equal to or less than the ACLs to address management uncertainty and recommends management measures designed to achieve these ACTs. The staff recommendations for commercial and recreational catch and landings limits shown in Table 2 are subject to discussion by the Monitoring Committee, which will provide recommendations on these limits for the Council and Board's consideration. The Monitoring Committee should also provide recommendations for varying and constant ACLs, ACTs, RHLs, and commercial quotas based on the two sets of ABCs recommended by the SSC.

Summer flounder, scup, and black sea bass are cooperatively managed by the Council and the ASMFC under a joint Fishery Management Plan (FMP). The Council and the ASMFC's Summer Flounder, Scup, and Black Sea Bass Management Board (Board) meet jointly each year to consider SSC and Monitoring Committee recommendations before deciding on proposed scup catch limits and other scup management measures. The Council and Board may set specifications for scup for up to three years at a time. The Council and Board submit their recommendations to the National Marine Fisheries Service (NMFS), which is responsible for implementation and enforcement of federal fisheries regulations.

Recent Catch and Landings

The COVID-19 pandemic impacted data collection in both the recreational and commercial fisheries. While effort and markets were impacted by COVID-19 to various degrees, data collection for commercial landings from seafood dealers continued uninterrupted. However, 2020 commercial discard estimates will be affected by missing observer data. The MRIP program used imputation methods to fill gaps in 2020 recreational catch data with data collected in 2018 and 2019.

In 2020, the commercial scup fishery landed 13.58 million pounds (6,160 mt) of scup, about 61% of the 2020 commercial quota of 22.23 million pounds (10,083 mt, Table 3). Commercial dead discard estimates are not available for 2020 due to data gaps resulting from the suspension of the observer program from mid-March through mid-August 2020. As such, it is not currently possible to evaluate commercial catch against the 2020 commercial ACL. At this time it is not clear whether alternative methodologies will be developed to generate 2020 commercial discard estimates.

The COVID-19 pandemic disrupted the recreational Access Point Angler Intercept Survey (APAIS). All Mid-Atlantic states suspended APAIS sampling starting in late March or April 2020. States resumed sampling between May and August 2020, depending on the state. NMFS used imputation methods to fill gaps in 2020 catch data with data collected in 2018 and 2019. These proxy data match the time, place, and fishing mode combinations that would have been sampled had the APAIS continued uninterrupted. Proxy data were combined with observed data to produce catch estimates using the standard estimation methodology. The mail and telephone surveys that collect recreational effort data continued largely uninterrupted. NMFS has indicated that when complete 2021 recreational data are available in 2022, they will evaluate the effects of including 2021 data (for example, alongside 2019 data and instead of 2018 data) in the imputation. Because these effects are unknown, the agency cannot predict whether it will seek to revise its 2020 catch estimates. According to these imputed MRIP estimates, recreational landings in 2020 were 12.91 million pounds (5,856 mt) which was 198% of the 2020 RHL of 6.51 million pounds. Recreational dead discard estimates in weight are not available for 2020 as the method for estimating the weight of discards relies on age and length information that is not complete at this time.

The 2019 MRIP estimate could not be compared to the 2019 RHL as the RHL was set using an assessment that did not include the revised MRIP estimates. However, in 2020, the RHL and recreational harvest estimates both used the revised MRIP estimates and can be compared. The Council and Board agreed to leave the recreational bag, size, and season limits unchanged in 2020 despite an expected RHL overage. This was viewed as a temporary solution to allow more time to consider how to fully transition the management system to use of the revised MRIP data, including ongoing considerations related to the commercial/recreational allocation and the Recreational Reform Initiative.

The commercial scup quota is allocated among three quota periods: Winter I (January 1 – April 30, allocated 45.11% of the annual quota), Summer (May 1 – September 30, allocated 38.95% of the annual quota), and Winter II (October 1 – December 31, allocated 15.94% of the annual quota).[3] Based on preliminary 2021 dealer data, about 63% of the 2021 Winter I commercial scup quota was landed. As of June 23, 2021, 21% of the Summer commercial scup quota had been landed (Table 4).

Table 3: Scup commercial and recreational landings relative to quotas and RHLs (in millions of pounds), 2016-2020. The RHL overage/underage evaluation is based on recreational harvest estimates using the old MRIP-estimation methodology through 2018. In 2019 the RHL was based on the old MRIP estimates and harvest was estimated using the revised MRIP estimates so are not comparable. In 2020, the RHL and harvest both used the revised MRIP estimates and can be compared.

Year	Com. landings	Com. quota	Quota underage	Rec. harvest (old MRIP estimates)	RHL	RHL overage/ underage	Rec. harvest (new MRIP estimates)
2016	15.76	20.47	-23%	4.26	6.09	-30%	10.00
2017	15.44	18.38	-16%	5.42	5.50	-1%	13.53
2018	13.37	23.98	-44%	5.61	7.37	-24%	12.98
2019	13.78	23.98	-43%	N/A	7.37	--	14.12
2020	13.58	22.23	-39%	N/A	6.51	+98%	12.91

[3] Prior to 2018, October was included in the summer quota period. The allocation percentages were the same as shown above.

Table 4: Commercial scup landings during the 2021 Winter I and Summer quota periods (as of the week ending June 23, 2021), according to preliminary data from NMFS weekly landings reports. The Winter I quota is a coast-wide quota. The Summer period quota is allocated among states under the Commission's FMP.

State	Winter I Landings (pounds) January 1 – April 29, 2021	Summer Landings (pounds) May 1 – June 23, 2021
Maine	0	0
New Hampshire	0	0
Massachusetts	179,676	140,367
Rhode Island	1,236,421	858,799
Connecticut	175,873	78,717
New York	2,022,507	603,941
New Jersey	1,836,231	10,624
Delaware	0	0
Maryland	58,663	C
Virginia	261,361	98
North Carolina	45,832	704
Total landings	**5,816,564**	**1,693,103**
Quota	**9,247,904**	**7,985,056**
Percent of Quota	**63%**	**21%**

Stock Status and Biological Reference Points

A scup management track stock assessment was peer reviewed and accepted in June 2021. This assessment retained the model structure of the previous benchmark stock assessment, completed in 2015,[4] and incorporated fishery catch and fishery-independent survey data through 2019. The following information is based on the prepublication draft of the July 2021 management track assessment prepared for use by the Council and SSC.[5]

The updated fishing mortality reference point is F_{MSY} proxy = $F_{40\%}$ = 0.200 and the updated biomass reference point is SSB_{MSY} proxy = $SSB_{40\%}$ = 198.458 million pounds (90,019 mt). The minimum biomass threshold of ½ SSB_{MSY} proxy = ½ $SSB_{40\%}$ = 99.230 million pounds (45,010 mt, Table 5).

According to the 2021 assessment, the scup stock north of Cape Hatteras, North Carolina extending north to the US-Canada border was not overfished and overfishing was not occurring in 2019. Spawning stock biomass (SSB) was estimated to be about 389 million pounds (176,404 mt) in 2019, about 2 times the SSB_{MSY} proxy reference point of 198.458 million pounds (90,019 mt, Figure 1), meaning that the stock was not overfished in 2019. Fishing mortality on fully selected age 4 scup was 0.136 in 2019, about 68% of the F_{MSY} proxy reference point of 0.200 (Figure 2), meaning that overfishing was not occurring in 2019. The 2015 year class is estimated to be the largest in the time series at 415 million fish, while the 2017-2019 year classes are estimated to be below average, with the 2019 year class as the smallest in the time series (Figure 1).

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[4] 60th Northeast Stock Assessment Workshop (2015) assessment report and peer review summaries are available at: https://www.nefsc.noaa.gov/saw/reports.html
[5] Available at: https://www.mafmc.org/council-events/2021/ssc-july-21-23

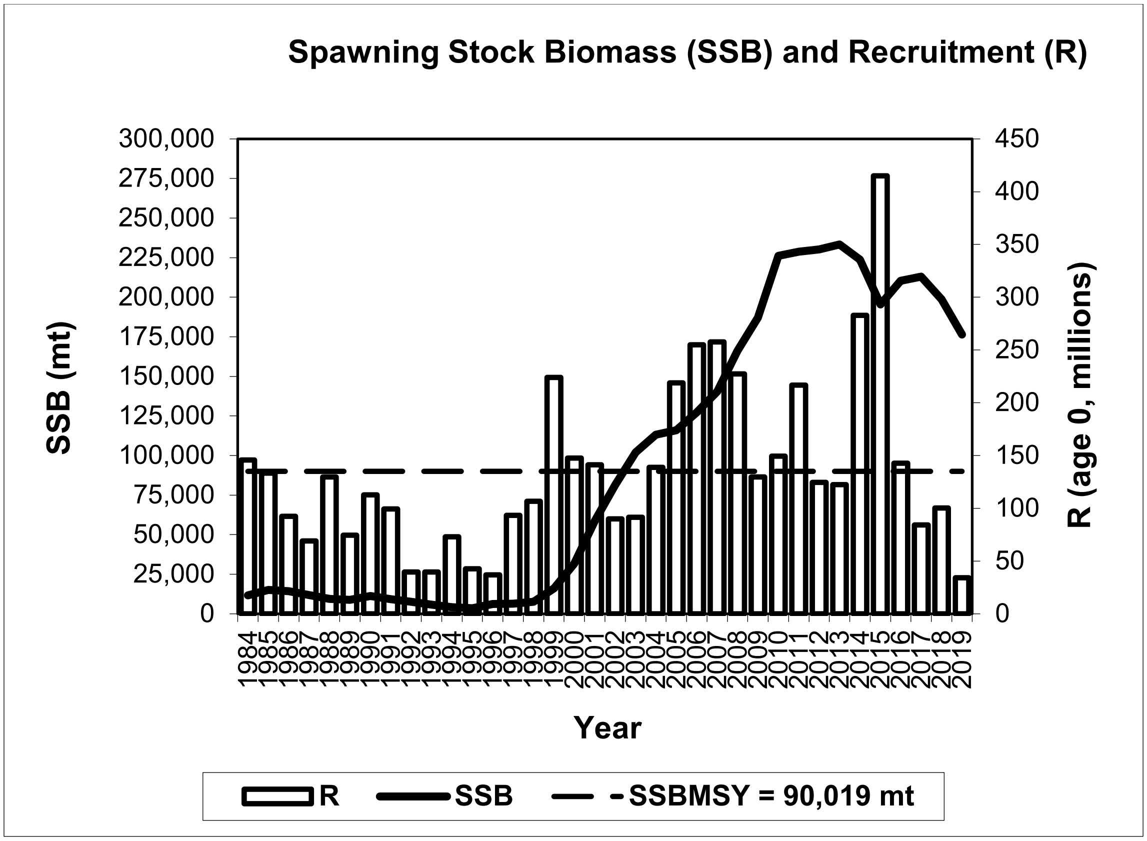

Figure 1: Scup SSB and recruitment at age 0, 1984-2019 from the 2021 management track stock assessment.

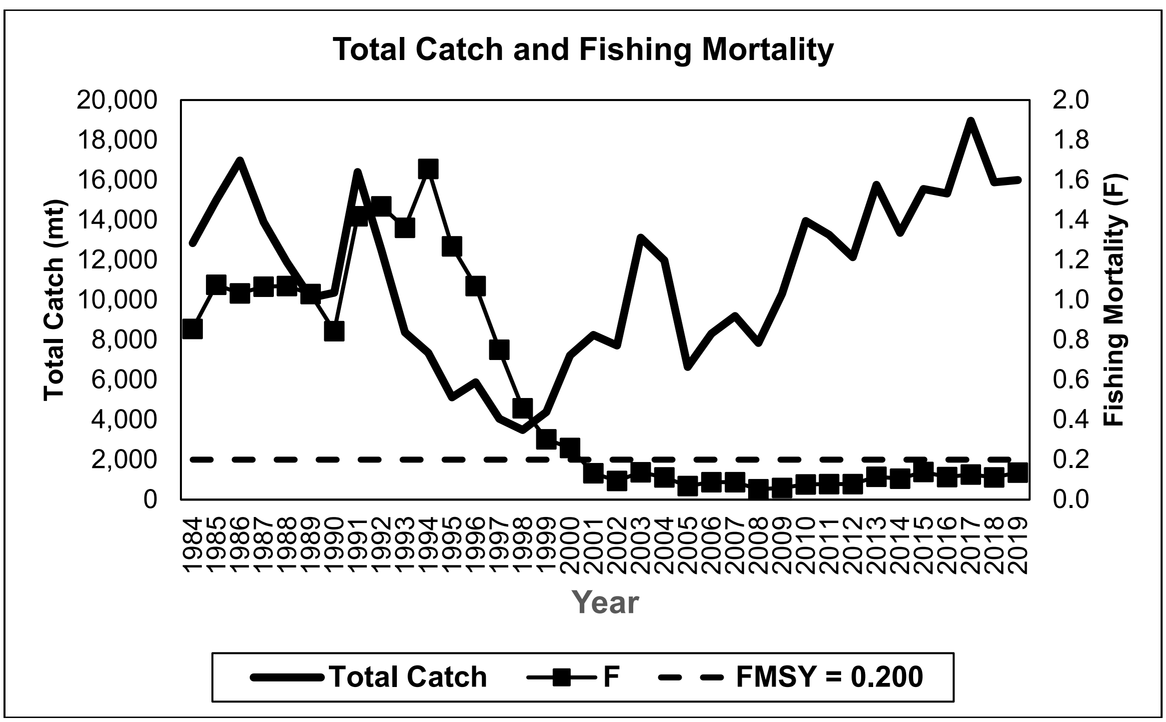

Figure 2: Scup total catch and fishing mortality, 1984-2019 from the 2021 management track stock assessment.

Table 5: Scup biological reference points from the 2019 operational stock assessment and 2021 management track stock assessment.

Reference Points and terminal year SSB and F estimates	2019 operational stock assessment[6] *Data through 2018*	2021 management track assessment[7] *Data through 2019*
$SSB_{MSY\ proxy} = SSB_{40\%}$ (biomass target)	207.28 mil lb/ 94,020 mt	198.46 mil lb/ 90,019 mt
½ SSB_{MSY} (biomass threshold defining an overfished status)	103.639 mil lb/ 47,010 mt	99.23 mil lb/ 45,010 mt
Terminal year SSB	411 mil lb/186,578 mt 198% of SSB_{MSY}	388.90 mil lb/ 176,404 mt 196% of SSB_{MSY}
$F_{MSY\ proxy} = F_{40\%}$ (threshold defining overfishing)	0.215	0.200
Terminal year F	0.158 27% below F_{MSY}	0.136 32% below F_{MSY}

Review of Prior SSC Recommendations

In September 2019, the SSC recommended, and the Council and Board adopted 2020 and 2021 ABCs for scup based on new stock status information and projections from the 2019 operational assessment. The revised 2020 measures were implemented via final rule May 15, 2020 (85 FR 29345). In December 2019, the Council adopted revisions to its risk policy. These revisions modified the ABC control rule to allow for a greater acceptable risk of overfishing at most biomass levels, while maintaining a risk of overfishing below 50% for all stocks. In July 2020, the SSC recommended that the 2021 ABC should be modified in accordance with the revised risk policy.

The SSC recommended that a CV of 60% be applied to the OFL estimate to derive the ABC for scup. This decision came from the high data quality and giving high weight to the OFL CV criterion, as well as consistency of signals from surveys, catch at age, and model results. There was also a relatively low effect of revised MRIP estimates in the stock assessment; only minor retrospective patterns in the statistical catch-at-age model; and the unlikelihood that additional adjustments (e.g., for ecological factors or below-average recruitment in the past two years) would increase uncertainty. Several surveys show declines or low abundance in early years to record lows in the mid-1990s and increases in abundance thereafter. Age structure in surveys shows a decline or low abundance of older ages in survey catches in early years and increases in abundance of older ages in recent years. Age structure in commercial landings-at-age and recreational landings-at-age show similar trends of increasing abundance of older ages in the stock. Several large recruitment events have been indicated by survey indices. In combination, these trends are

[6] A prepublication copy of the August 2019 operational stock assessment report prepared for the Council and the SSC is available at: http://www.mafmc.org/ssc-meetings/2019/september-9-11

[7] Available at: https://www.mafmc.org/council-events/2021/ssc-july-21-23

consistent with lower fishing mortality rates in recent years, and increasing stock abundance as indicated by model results. Although up to 40% of the catch weight is attributable to the recreational fishery, the increase in recreational catch related to new MRIP estimates is relatively low in comparison to other stocks.

In December 2019, the Council adopted revisions to its risk policy. These revisions modified the ABC control rule to allow for a greater acceptable risk of overfishing at most biomass levels, while maintaining a risk of overfishing below 50% for all stocks. In light of these changes, in July 2020, the SSC recommended an ABC of 15,791 mt for the 2021 fishing season, based on the Council's revised risk policy (P* = 0.49). The SSC noted that, although stock biomass remained well above B_{MSY}, indices of recruitment and stock biomass have declined in recent years. At the same time, total removals in 2019 were below ABC and the removals in 2020 were likely to be below the ABC as well.

Table 6 shows the previously approved OFLs and ABCs and the revised 2021 ABC. ABCs are based on projections that assume the ABC will be fully caught in each year; recruitment is sampled from 1984-2018. OFL total catches are catches in each year fishing at F_{MSY} = 0.215, prior to calculation of the associated annual ABC. The ABC projections were based on application of the Council's risk policy for a stock with a typical life history, resulting in an ABC P* of 40% in each year. As previously stated and described in more detail below, the Council has since revised their risk policy.

Table 6: Previously approved 2020 and 2021 OFLs, ABCs, and P* followed by the revised 2021 ABC and P* in response to changes in the Council's risk policy (Source: personal communication, Mark Terceiro, Northeast Fisheries Science Center).

Year	OFL total catch		ABC total catch		ABC P*
	mil lb	mt	mil lb	mt	
2020	41.17	18,674	35.77	16,227	0.40
2021 initial	35.30	16,012	30.67	13,913	0.40
2021 revised	35.30	16,012	34.81	15,791	0.49

The SSC considered the following to be the most significant sources of uncertainty in the 2019 operational assessment:[8]

- Following the record 2015 year class, recruitments in 2016, 2017, and 2018 have all been below the time series mean. If this trend continues, short-term projections, which assume random values from the recruitment distribution over the 1984-2018 time series, may overestimate allowable catches absent additional high recruitments. However, the stock is currently above the target level, so reduction back to the target biomass would be expected.
- The scup Statistical Catch at Age uses multiple selectivity blocks. The final selectivity block (2006-2018) is the longest in the model. The applicability of the most recent selectivity block to the current fishery condition is uncertain. If the fishery selectivity implied in this block changes,

[8]A summary of the September 2019 SSC meeting is available at: https://www.mafmc.org/ssc-meetings/2019/september-9-11

estimates of stock number, spawning stock biomass, and fishing mortality become less reliable.

- Most of the fishery-independent indices used in the model provide estimates of the abundance of scup < age 3. One consequence is that much of the information on the dynamics of scup of older ages arise largely from the fishery catch-at-age and from assumptions of the model, and are not conditioned on fishery-independent observations. As a result, the dynamics of these older fish remain uncertain. Knowledge of the dynamics of these older age classes will become more important as the age structure continues to expand.
- The projection on which the ABC was determined is based on an assumption that the quotas would be landed in 2019, 2020, and 2021.

The SSC also retained the following sources of uncertainty from the 2015 benchmark assessment:[9]

- Uncertainty exists with respect to the estimate of natural mortality used in the assessment.
- Uncertainty exists as to whether the MSY proxies ($SSB_{40\%}$, $F_{40\%}$) selected and their precisions are appropriate for this stock.
- Survey indices are particularly sensitive to scup availability, which results in high inter-annual variability. Efforts were made to address this question in the Stock Assessment Workshop and Stock Assessment Review Committee (SAW/SARC) that should be continued.

Staff Recommendation for 2022-2023 ABCs

The ABC projections sample from the estimated recruitment for 1984-2019 and assume the 2020-2021 ABCs were caught (Table 7 and Table 8). The ABC projections are based on application of the Council's risk policy, resulting in an ABC P* of 49% for the varying ABC approach and an average P* of 49% (2022-2023) for the averaged ABC approach. A CV of 60% was applied to the OFL, consistent with past SSC recommendations.

The SSC has been asked to recommend two sets of ABCs for 2022-2023, one based on assuming varying ABCs each year (Table 7) and one where ABCs are constant based on averaging the ABCs across 2022 and 2023 (Table 8). Whether or not to average the ABCs is a policy decision for the Council and Board. Because the Council is unable to recommend ABCs higher than what the SSC recommends for any given year, the SSC is asked to provide ABC recommendations for both approaches to allow the Council and Board to select their preferred approach.

The projected spawning stock biomass trajectory is similar in either scenario (Table 7 and Table 8) and there are tradeoffs to both ABC approaches. The average ABC approach would allow for stability in catch and landings limits across two years and would allow for a higher 2023 ABC than the standard approach; however, it would require a lower 2022 ABC than under the varying approach due to the declining biomass trajectory. The higher 2022 ABC using the varying approach will require less restriction on the recreational fishery in 2022 compared to the averaged approach and may allow time to address potential allocation issues associated with the much higher recreational harvest than previously known (e.g. Table 2). However, it will require a greater restriction of total catch in 2023 compared to the averaged approach and thus more restriction of the recreational fishery if sector allocations remain status quo. The commercial fishery has had 16-44% quota underages in the past 5 years. In 2019, the Council and Board recommended

[9] A summary of the July 2015 SSC meeting is available at: http://www.mafmc.org/ssc-meetings/2015/july-21-23

the varying ABC approach for 2020-2021 measures under similar decreasing biomass conditions and ongoing allocation discussions. For these reasons, staff recommend that the Council and Board adopt ABCs for 2022-2023 based on the varying ABC approach.

Updated estimates of SSB, F, and recruitment are expected to be available in 2023 to inform 2024-2025 specifications. Unless an interim data update (i.e., updated fishery and survey data without updated estimates of SSB, F, and recruitment) shows strong signals of unexpected changes in the stock, it is unlikely that the 2023 catch and landings limits will be updated in 2022 based on biological, fishery, or survey data.

Table 7. Scup 2021 management track assessment projections for varying 2022-2023 ABCs, including OFL and ABC total catch, ABC projected F, and projected SSB. These projections assume application of the current Council risk policy with a 60% OFL CV.

Year	OFL Total Catch		ABC Total Catch		ABC F	ABC P*	SSB	
	mil lb	mt	mil lb	mt			mil lb	mt
2021	39.69	18,005	34.81	15,791	0.166	0.406	383.59	173,993
2022	32.56	14,770	32.11	14,566	0.197	0.490	346.01	156,947
2023	30.09	13,648	29.67	13,460	0.197	0.490	307.88	139,650

Table 8. Scup 2021 management track assessment projections for averaged 2022-2023 ABCs, including OFL and ABC total catch, ABC projected F, and projected SSB. These projections assume application of the current Council risk policy with a 60% OFL CV.

Year	OFL Total Catch		ABC Total Catch		ABC F	ABC P*	SSB	
	mil lb	mt	mil lb	mt			mil lb	mt
2021	39.69	18,005	34.81	15,791	0.166	0.406	383.59	173,993
2022	32.56	14,770	30.89	14,013	0.189	0.462	346.49	157,165
2023	30.22	13,708	30.89	14,013	0.205	0.516	304.16	137,963

Other Management Measures

The Council and Board are currently developing an amendment to reconsider the allocation of catch or landings between the commercial and recreational sectors for summer flounder, scup, and black sea bass.[10] Final action on this amendment is scheduled for December 2021 and any changes are expected to be implemented starting in 2023. Thus, while the below discussion of sector specific limits for 2023 assumes the current allocations will apply in 2023, this may not necessarily be the case, and 2023 limits may need revisions based on any allocation changes made by the Council and Board. Allocation changes would not impact the ABCs discussed above.

Commercial and Recreational Annual Catch Limits (ACLs)

As specified in the FMP, 78% of the ABC is allocated to the commercial fishery as a commercial ACL

[10] http://www.mafmc.org/actions/sfsbsb-allocation-amendment

and 22% is allocated to the recreational fishery as a recreational ACL (Figure 3). The ABC allocation percentages were implemented through Amendment 8 (1996) and first came into effect in 1997. These allocations were based on the proportions of commercial and recreational catch during 1988-1992 and cannot be modified without an FMP action such as an amendment. ACLs include both landings and discards. For the averaged ABC approach, staff recommend averaging the expected discards and landings across the two years given minor differences in these projections, to ensure that all limits would be held constant over the two years (see Table 2).

Dead discards are typically apportioned based on the dead discards contribution from each fishing sector using a 3-year moving average percentage. Due to data issues related to COVID-19, dead discard data are not currently available for 2020 for the commercial or recreational fisheries. As such, recommendations for the split of projected dead discards between the commercial and recreational fisheries were developed using 2017-2019 data from the management track assessment. On average over these years, 83% of dead discards were attributable to the commercial fishery and 17% to the recreational fishery.

The allocated landings for each sector are added to the expected sector-specific dead discards to arrive at the commercial and recreational ACLs. Any deductions for management uncertainty (see below) would be deducted from the sector-specific ACLs to arrive at the sector-specific ACTs. Expected dead discards are subtracted from the sector ACTs to derive the commercial quota and RHL in each year.

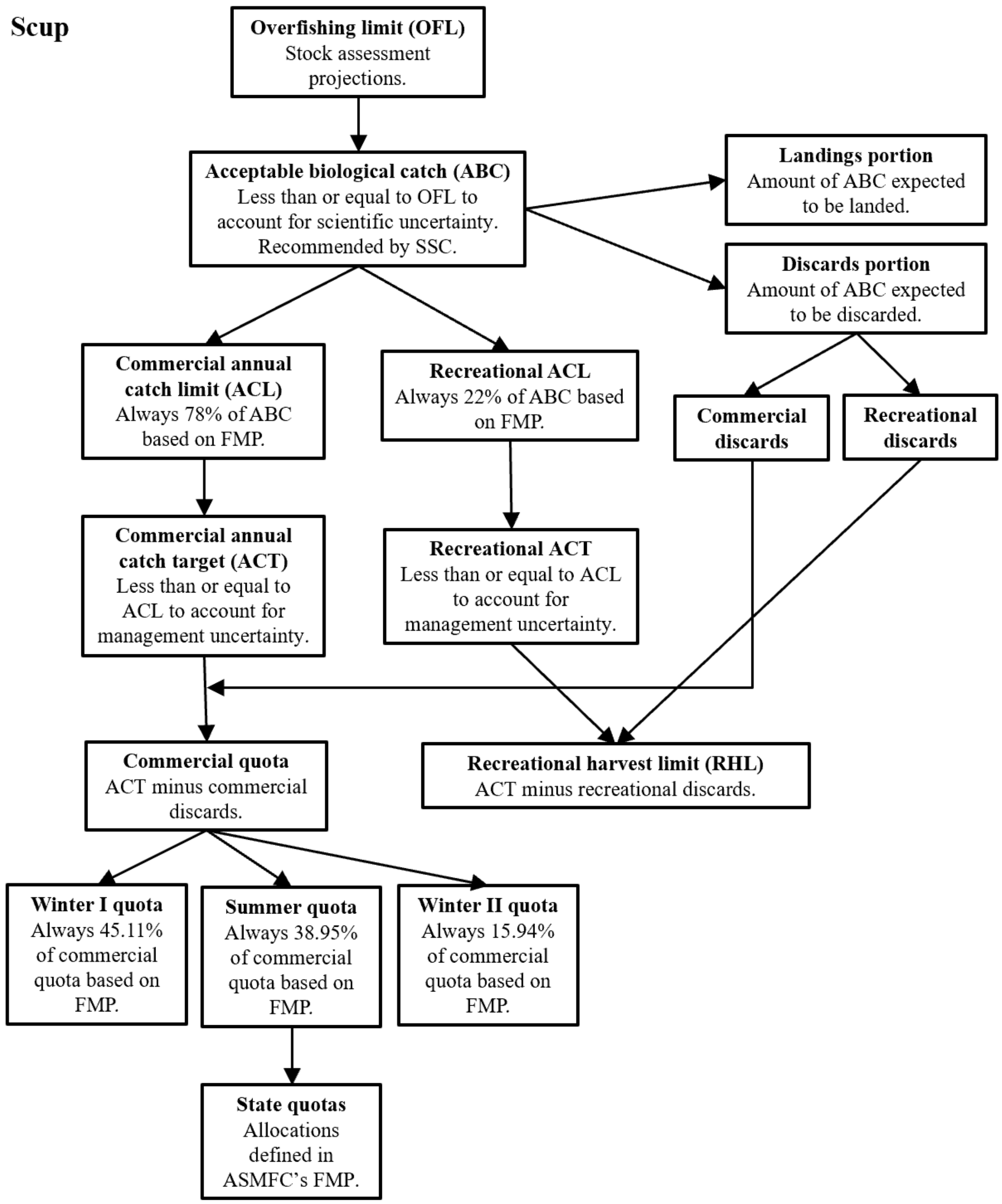

Figure 3: Scup catch and landings limit calculation methodology.

Annual Catch Targets (ACTs)

The Monitoring Committee recommends ACTs for the Council and Board's consideration. ACTs may be either equal to the ACLs or reduced from the ACLs to account for management uncertainty. Management uncertainty can include uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e. estimation errors). This can occur due to a lack of sufficient information about catch (e.g. due to late reporting, under-reporting, and/or misreporting of landings or discards) or due to a lack of management precision (i.e. the ability to constrain catch to desired levels).

The sector-specific landings performance for recent years is shown in Table 3; however, note that the recreational fishery data includes the old MRIP estimates given that past RHLs were set with assessment information based on the pre-calibration recreational time series. For this reason, the new MRIP data cannot reasonably be compared to past RHLs. From 2015-2018, commercial and recreational landings were consistently below the quota and RHL. MRIP data using the old methodology is unavailable for 2019; therefore, RHL performance cannot be evaluated for 2019. Data for 2020 are from the revised MRIP methodology and can be compared to the 2020 limits given that they were set using the new assessment which incorporated revised MRIP information. The commercial quota monitoring system is timely and typically successful in constraining landings to the commercial quota.

The Council and Board are considering a number of potential changes to recreational fisheries management through the Recreational Reform Initiative, with the goal of providing more stability in the recreational bag, size, and season limits from year to year, greater flexibility in the management process, and recreational accessibility aligned with availability. This is an ongoing effort. Specific changes could include greater consideration of stock status when setting recreational management measures, better addressing uncertainty in the MRIP data, and other changes.

<u>For 2022-2023, staff recommend no reduction in catch from the recreational or commercial ACLs so that each sector's ACT is set equal to the ACL (Table 2).</u>

Commercial Quotas and Recreational Harvest Limits (RHLs)

Projected discards are removed from the sector-specific ACTs to derive landings limits, which include annual commercial quotas and RHLs (Figure 3). For 2022-2023, the staff recommendation for a varying ABC approach in combination with the ACT and discard assumptions outlined above would result in a commercial quotas of 20.38 million pounds in 2022 and 17.87 million pounds in 2023 and RHLs of 6.08 million pounds in 2022 and 5.41 million pounds in 2023. Under the averaged ABC approach, the commercial quota would be 19.11 million pounds in 2022-2023, while the RHL would be 5.74 million pounds in 2022-2023 (Table 2). These calculations are dependent on the ABC recommendations of the SSC and may vary if the SSC adopts different recommendations than outlined in this memo.

Under the recommended commercial quota, the Winter I quota would be 9.19 million pounds, the Summer quota would be 7.94 million pounds, and the Winter II quota would be 3.25 million pounds in 2022. The 2023 Winter I quota would be 8.06 million pounds, the Summer quota would be 6.96 million pounds and the Winter II quota would be 2.85 million pounds. All Winter II quotas are prior to any quota rollover from Winter I, if applicable.

Commercial Winter I and Winter II Quota Period Possession Limits

Commercial possession limits are designed to help constrain landings to the seasonal period quotas. The Winter I possession limit is 50,000 pounds. After 80% of the Winter I quota is landed, the possession limit drops to 1,000 pounds. The Winter II possession limit is initially set at 12,000 pounds. If the Winter I quota is not fully harvested, as has been the case in recent years, the Winter II possession limit increases by 1,500 pounds for every 500,000 pounds of scup not landed during the Winter I period. There are no federal possession limits during the Summer quota period; however, there are state possession limits.

The quota period possession limits have not been modified since 2012, when the Winter I limit increased from 30,000 to 50,000 pounds and 2014 when the initial Winter II limit increased from 2,000 to 12,000 pounds. In 2018, the Council and Commission moved October from the Summer period to the Winter II period, resulting in a higher trip limit being in effect during that month.

In 2021, the Council received a proposal from Lund's Fisheries requesting that the Monitoring Committee consider either removing the Winter I possession limit or increasing it from 50,000 pounds to 100,000 pounds in 2022. [11] Staff will include additional discussion and recommendations related to this proposal in materials for the July 27, 2021 Monitoring Committee meeting where the group will be asked to recommend commercial measures.

Commercial Minimum Fish Size

The minimum size for retention of scup in the commercial fishery is 9 inches total length. This regulation applies to all commercial landings of scup, including landings of incidental catch. This measure was first implemented in 1996, when scup were first managed by the Council and Commission. The Council and Board considered modifying this measure in 2005, 2012, and in 2015. After reviewing this measure in detail 2015, the Monitoring Committee, Council, and Board all recommended no changes. The rationale for this recommendation is described in the Summer Founder, Scup, and Black Sea Bass Commercial Management Measures Review document from 2015.[12] In the past, advisors have expressed differing opinions on the commercial minimum fish size for scup.

In 2021, the Council received a proposal from Lund's Fisheries requesting that the Monitoring Committee consider reducing the minimum size from 9 inches to 8 inches.[10] Staff will include additional discussion and recommendations related to this proposal in materials for the July 27, 2021 Monitoring Committee meeting where the group will be asked to recommend commercial measures.

Commercial Trawl Mesh Size

Trawl vessels which possess more than 1,000 pounds of scup from October 1 through April 14, more than 2,000 pounds of scup from April 15 through June 15, and more than 200 pounds of scup from May 1 through August 31 must use a minimum mesh size of 5.0 inches. These regulations were modified in 2015 (effective in 2016) and 2018 (effective in 2019). In late 2015, the Council approved an increase in the November-April incidental limit from 500 to 1,000 pounds in recognition of the substantial increase in SSB and expansion of the age structure of the population since this measure was last modified in 2004. In August 2019, the Council approved an increase in the incidental scup possession limit during April 15-June 15 to 2,000 pounds to decrease discards in the spring inshore squid fisheries.

The Council recently funded a project which analyzed the selectivity of multiple codend mesh sizes relative to summer flounder, black sea bass and scup retention in the commercial bottom trawl fishery in the Mid-Atlantic region. Results confirmed that the current minimum mesh sizes for all three species are effective at releasing most fish smaller than the commercial minimum sizes (i.e., 14 inches total length for summer flounder, 9 inches total length for scup, and 11 inches total length for black sea bass). The study was not able to identify a common mesh size for all three species that would be effective at minimizing discards under the current minimum fish size limits. However, the authors concluded that a common mesh size of 4.5 or 5 inches diamond for scup and black sea bass would be effective at releasing

[11] https://www.mafmc.org/s/Lunds_scup_request2021.pdf

[12] The Summer Flounder, Scup, and Black Sea Bass Commercial Management Measures Review is available at: http://www.mafmc.org/briefing/december-2015

undersized fish.

The Monitoring Committee reviewed the results of this study in 2018 and recommended no changes to the commercial minimum mesh sizes for 2021. They recommended clarification of the objectives of the Council regarding consideration the mesh sizes (e.g., establishing a common minimum mesh size, minimizing discards, and/or maintaining or increasing catches of legal-sized fish). Input from the commercial fishing industry should be sought before any minimum mesh size changes are considered.

Staff will continue to work with the Monitoring Committee and Advisory Panel to further analyze and consider potential changes to mesh size regulations. Currently, staff recommend no changes to the scup minimum mesh sizes and associated possession limits for 2022.

Commercial Pot and Trap Regulations

NMFS dealer data show that pots/traps accounted for about 5% of scup commercial landings in 2019. Pots and traps used in the commercial scup fishery must have either a circular escape vent with a 3.1 inch minimum diameter or square or rectangular escape vents with each side being at least 2.25 inches in length. The Council and Commission hosted a workshop in 2005 to review several studies on vent size. Workshop participants did not recommend any changes in the vent sizes for the commercial scup fishery. The Monitoring Committee reviewed these measures in 2015 and recommend no changes. Staff recommend no changes to these measures for 2022.

Recreational Seasons, Possession Limits, and Minimum Size

The Council and Board will discuss 2022 recreational scup seasons, possession limits, and minimum fish sizes at their joint meeting in December 2021. Data from the first four "waves" (i.e. the two-month reporting increments for recreational data) of 2021 recreational landings are expected to be available in October 2021. The Monitoring Committee will meet in November to review these landings data and make recommendations for any necessary changes in recreational management measures. Staff have no recommendations for 2022 recreational management measures at this time.

Scup Management Track Assessment for 2021
(Lead: Mark Terceiro)

State of Stock: This 2021 Management Track Assessment (MTA) of scup (*Stenotomus chrysops*) is an update through 2019 of the commercial and recreational fishery catch data and any available research survey indices of abundance. Assessment model estimates of stock size and fishing mortality are updated through 2019.

The stock was not overfished and overfishing was not occurring in 2019 relative to the updated biological reference points (Figure 1). Spawning stock biomass (SSB) was estimated to be 176,404 mt in 2019, about 2 times the updated biomass target reference point SSB_{MSY} proxy = $SSB_{40\%}$ = 90,019 mt (Table 1, Figure 2). There is a 90% chance that SSB in 2019 was between 154,000 and 210,000 mt. Fishing mortality on the fully selected age 4 fish was 0.136 in 2019, 68% of the updated fishing mortality threshold reference point F_{MSY} proxy = $F_{40\%}$ = 0.200 (Table 1, Figure 3). There is a 90% probability that the fishing mortality rate in 2019 was between 0.106 and 0.166. The average recruitment from 1984 to 2019 is 136 million fish at age 0. The 2015 year class is estimated to be the largest in the time series at 415 million fish, while the 2017-2019 year classes are estimated to be below average, with the 2019 year class the smallest in the time series (Table 1, Figures 2 and 4).

The model estimate of SSB in 2019 adjusted for internal retrospective error (-14.4%) is within the model estimate 90% confidence interval. The model estimate of F in 2019 adjusted for internal retrospective error (+20.2%) is also within the model estimate 90% confidence interval. Therefore, no adjustment of these terminal year estimates has been made for stock status determination or projections. While the stock sustained catches above MSY during 2013-2019, stock biomass is projected to decrease toward the target unless more above average year classes recruit to the stock in the short term.

OFL Projections: Projections using the results of the 2021 MTA model (data through 2019) were made to estimate the OFL catches for 2022-2023. The projections assume that the 2020 and 2021 ABCs of 16,227 mt and 15,791 mt were caught and sample from the estimated recruitment for 1984-2019**. The preliminary estimate of 2020 catch is 15,226 mt, 94% of the 2020 ABC.** The OFL projection uses F2022-F2023 = updated FMSY proxy = F40% = 0.200. The OFL catches are 14,770 mt in 2022 (CV = 18%) and 13,626 mt in 2023 (CV = 18%).

OFL for 2022-2023
Catches and SSB in metric tons

Year	Catch	Landing	Discards	F	SSB
2020	16,227	14,300	1,927	0.137	191,096
2021	15,791	13,799	1,992	0.166	173,993
2022	14,770	12,112	2,658	0.200	156,850
2023	13,626	10,596	3,030	0.200	139,337

Catch: Reported 2019 commercial landings were 6,252 mt = 13.783 million lb. Estimated 2019 recreational landings were 6,403 mt = 14.116 million lb. Total commercial and recreational landings in 2019 were 12,655 mt = 27.899 million lb. Estimated 2019 commercial discards were 2,779 mt = 6.127 million lb. Estimated 2019 recreational discards were 560 mt = 1.235 million lb. The estimated total catch in 2019 was 15,994 mt = 35.261 million lb (Catch and Status Table below; Table 2). MSY is estimated to be 12,054 mt = 26.575 million lb.

Catch and Status Table: Scup

Catch weights in metric tons (mt); spawning stock biomass thousands of metric tons; recruitment in millions of age 0 fish; min, max and arithmetic mean values are for 1981/1984-2019. Commercial catches are latest reported landings and estimated discards. Recreational catches are 'New' MRIP calibrated landings and discards estimates.

Year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Commercial landings	4,866	6,819	6,751	8,105	7,239	7,725	7,147	7,007	6,064	6,252
Commercial discards	2,639	1,236	1,002	1,350	981	1,718	2,778	4,733	3,293	2,779
Recreational landings	5.660	4,682	3,751	5.739	4,659	5,527	4,536	6,143	5,887	6,403
Recreational discards	787	516	636	568	480	581	862	1,079	644	560
Catch used in assessment	13,952	13,253	12,139	15,762	13,359	15,550	15,332	18,961	15,888	15,994
Spawning stock biomass	226	229	230	233	224	195	210	213	199	176
Recruitment (age 0)	149	217	125	122	283	415	143	84	100	34
Full F (age 4)	0.076	0.079	0.078	0.115	0.105	0.140	0.114	0.126	0.111	0.136

Year	**Min**	**Max**	**Mean**
Commercial landings	1,207	8,105	4,887
Commercial discards	436	4,733	1,819
Recreational landings	824	6,430	3,893
Recreational discards	30	1,079	336
Catch used in assessment	3,485	18,961	11,430
Spawning stock biomass	4	233	95
Recruitment (age 0)	34	415	136
Full F (age 4)	0.052	1.655	0.525

Stock Distribution and Identification: The Mid-Atlantic Fishery Management Council (MAFMC) and Atlantic States Marine Fisheries Commission (ASMFC) Joint Fishery Management Plan defines the management unit as all scup from Cape Hatteras, North Carolina northeast to the US-Canada border (MAFMC 1999).

Assessment Model: The assessment model for scup is a complex statistical catch-at-age model (ASAP SCAA; Legault and Restrepo 1998; NFT 2013) incorporating a broad range of fishery and survey data (NEFSC 2015). The model assumes an instantaneous natural mortality rate (M) = 0.2. The fishery catch is modeled as four fleets: commercial landings, recreational landings, commercial discards and recreational discards.

Indices of stock abundance from NEFSC winter, spring, and fall, Massachusetts DMF spring and fall, Rhode Island DFW spring and fall, University of Rhode Island Graduate School of Oceanography (URIGSO), RI Industry Cooperative trap, Connecticut DEEP spring and fall, New York DEC, New Jersey DFW, Virginia Institute of Marine Science (VIMS) Chesapeake Bay, VIMS juvenile fish trawl, and NEAMAP spring and fall trawl surveys were used in the 2015 SAW 60 benchmark assessment (NEFSC 2015) and the 2017 (NEFSC unpublished report to the MAFMC SSC) and 2019 (NEFSC 2020) Operational Assessment updates. All indices were updated for this assessment.

There is a minor retrospective pattern evident in the scup assessment model. The internal model retrospective error tends to underestimate SSB by -14.4% and overestimate F by +20.2% over the last 7 terminal years. The model estimate of SSB in 2019 adjusted for internal retrospective error (201,806 mt) is within the model estimate 90% confidence interval (154,192 mt; 210,285 mt). The model estimate of F in 2019 adjusted for internal retrospective error (0.109) is within the model estimate 90% confidence interval (0.106; 0.166). Therefore, no adjustment of these terminal year estimates has been made for stock status determination or projections.

The 'historical' retrospective analysis (comparison between assessments) indicates that the general trends in spawning stock biomass, recruitment, and fishing mortality have been consistent over the history of the assessment (Figure 5).

Biological Reference Points (BRPs): Reference points were calculated using the non-parametric yield and SSB per recruit long-term projection approach. The cumulative distribution function of the 1984-2019 recruitment (corresponding to the period of input fishery catches-at-age) was re-sampled to provide future recruitment estimates for the projections used to estimate the biomass reference point.

The existing biological reference points for scup are from the 2019 Operational Assessment (NEFSC 2020). The reference points are F40% as the proxy for FMSY, and the corresponding SSB40% as the proxy for the SSBMSY biomass target. The F40% proxy for FMSY = 0.215; the proxy estimate for SSBMSY = SSB40% = 94,020 mt = 207.279 million lb; the proxy estimate for the ½ SSBMSY biomass threshold = ½ SSB40% = 47,010 mt = 103.639 million lb; and the proxy estimate for MSY = MSY40% = 12,927 mt = 28.499 million lb.

The F40% and corresponding SSB40% proxy biological reference points for scup were updated for this assessment. The updated fishing mortality threshold F40% proxy for FMSY = 0.200. The updated biomass target proxy estimate for SSBMSY = SSB40% = 90,019 mt = 198.458 million lb and the updated biomass threshold proxy estimate for ½ SSBMSY = ½ SSB40% = 45,010 mt = 99.230 million lb. The updated proxy estimate for MSY = MSY40% = 12,671 mt = 27.935 million lb.

Qualitative status description:

The age structure in current fishery and survey catches is greatly expanded compared to the truncated distribution observed in the early 1990s. Most survey aggregate biomass indices have recently been near their time series high. Survey indices suggest the recruitment of several large year classes during 2000-2015. These simple metrics indicate that mortality from all sources was lower than recruitment inputs to the stock during this period, which has resulted in a spawning stock biomass that is well above the management target. The high stock biomass sustained catches above MSY during 2013-2019. However, most recent indices suggest the 2017-2019 year classes are below average. Spawning stock biomass is projected to decrease toward the target unless more above average year classes recruit to the stock in the short term.

Research and Data Issues:

2015 SAW 60

A standardized fishery dependent CPUE of scup targeted tows, from either NEFOP observer samples or the commercial study fleet, might be considered as an additional index of abundance to complement survey indices in future benchmark assessments: *completed for 2015 SAW 60, CPUE indices not included model calibration*

Explore additional sources of length/age data from fisheries and surveys in the early parts of the time series to provide additional context for model results: *no success, likely alternative is to begin model in 1984 in next RTA*

Explore experiments to estimate the catchability of scup in NEFSC and other research trawl surveys (side-by-side, camera, gear mensuration, acoustics, etc.): *no progress*

Refine and update the Manderson *et al.* availability analysis when/if a new ocean model is available (need additional support). Explore alternative niche model parameterizations including laboratory experiments on thermal preference and tolerance*: no progress*

Explore the Study fleet data in general for information that could provide additional context and/or input for the assessment: *completed for 2015 SAW 60, CPUE indices not included model calibration*

A scientifically designed survey to sample larger and older scup would likely prove useful in improving knowledge of the relative abundance of these large fish: *no progress*

2019 OA

The recent recruitment of the largest year class in the assessment time series (the 2015 year class) has contributed to recent high commercial fishery discards. The exploration of management actions to reduce discarding in the event of future high recruitment events might include modification of the commercial fishery Gear Restricted Areas and modified commercial mesh sizes: *considered annually as part of the* *specifications process*

There is evidence of a decreasing trend in mean weights at age and maturity, perhaps indicative of density dependent effects. Potential effects on reference points and projected fishery yield should continue to be closely monitored: *ongoing monitoring in assessment*

MAFMC SSC 2019-2020

Characterize the pattern of selectivity for older ages of Scup in both surveys and Fisheries: *ongoing estimation in assessment*

Explore the applicability of the pattern of fishery selectivity in the model to the most recent catch data to determine whether a new selectivity block in the model is warranted: *updated in 2021 MTA – new 2013+ selectivity block added to model*

Mean weights-at-age have declined and age-at-maturity has increased slightly (the proportion mature at age 2 has decreased) in recent years. Continued monitoring of both is warranted: *ongoing monitoring in assessment*

It was conjectured that the increase in stock biomass since 2000 resulted from increased recruitments due to the imposition of gear restriction areas (GRAs), to minimize interactions between Scup and squid fisheries, and from increases in commercial mesh sizes. Long-term climate variation is a potential alternative explanation for increased recruitments from 2000 to 2015. Research to explore the validity of both hypotheses is warranted: *no new research progress*

Improve estimates of discards and discard mortality for commercial and recreational fisheries: *no progress, but no concerns expected if current levels of sampling are maintained*

Evaluate the degree of bias in the catch, particularly the commercial catch: *no stock-specific progress, but GARFO/NEFSC CAMS proposed for 2020+ data*

Conduct experiments to estimate catchability of Scup in NEFSC surveys: *no progress*

Explore the utility of incorporating ecological relationships, predation, and oceanic events that influence Scup population size on the continental shelf and its availability to resource surveys used in the stock assessment model: *no new research progress*

Explore additional source of age-length data from historical surveys to inform the early part of the time series, providing additional context for model results*: no success, likely alternative is to begin model in 1984 in next RTA*

An MSE could evaluate the effectiveness of Scup management procedures: *no progress*

The Scup Statistical Catch at Age assessment model uses multiple selectivity blocks. The final selectivity block (2006-2018) is the longest in the model. The applicability of the most recent selectivity block to the current fishery condition is uncertain. If the fishery selectivity implied in this block changes, estimates of stock number, spawning stock biomass, and fishing mortality become less reliable: *updated in 2021 MTA – new 2013+ selectivity block added to model*

Recruitment indices for Scup have been declining in recent years. The 2021 management track assessment should consider the implications on stock biomass projections should this trend continue: *evaluated in the 2021 MTA assessment model and associated projections*

Most of the fishery-independent indices used in the model provide estimates of the abundance of Scup < age 3. One consequence is that much of the information on the dynamics of Scup of older ages arises largely from the fishery catch-at-age and from assumptions of the model, and are not conditioned on fishery-independent observations. As a result, the dynamics of these older fish remain uncertain. Knowledge of the dynamics of these older age classes will become more important as the age structure continues to expand: *no new research progress, but assessment indicated the abundance of older fish in increasing in fishery and survey catches, and there is evidence of possible density dependent effects on growth and maturity*

The projection on which the ABC was determined assumes that the quotas would be landed in 2019, 2020, and 2021; however, landings in recent years have been below the quotas and perhaps a more realistic assumption should be used in future projections: *given the uncertainty of fishery dynamics and catch estimated for 2020, the 2021 MTA projections assumed the ABCs would be caught in 2020-2021*

Uncertainty exists with respect to the estimate of natural mortality used in the assessment: *no new research progress*

Uncertainty exists as to whether the MSY proxies (SSB40%, F40%) selected and their precisions are appropriate for this stock: *no new research progress*

Survey indices are particularly sensitive to Scup availability, which results in high inter-annual variability. Efforts were made to address this question in the Stock Assessment Workshop and Stock Assessment Review Committee (SAW/SARC) in 2017 that should be continued in the 2021 management track assessment: *no new research progress*

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Tables

Table 1. Summary assessment results; Spawning Stock Biomass (SSB) in metric tons (mt); Recruitment (R) at age 0 in millions; Fishing Mortality (F) for age of peak fishery selection (S = 1) age 4.

Year	SSB	R	F
1984	11,660	145,686	0.854
1985	15,176	133,452	1.076
1986	14,343	92,479	1.033
1987	11,901	69,155	1.066
1988	9,520	129,722	1.069
1989	8,891	74,488	1.029
1990	11,316	112,867	0.844
1991	9,280	99,376	1.419
1992	7,537	39,627	1.469
1993	5,729	39,796	1.361
1994	4,223	72,976	1.655
1995	3,535	42,726	1.267
1996	6,146	37,025	1.069
1997	6,350	93,345	0.751
1998	7,682	106,668	0.457
1999	16,216	223,962	0.301
2000	31,752	147,688	0.259
2001	58,646	141,201	0.133
2002	81,326	89,909	0.094
2003	102,041	91,455	0.137
2004	113,083	138,744	0.112
2005	115,917	218,815	0.069
2006	127,368	255,024	0.088
2007	140,420	257,622	0.087
2008	166,177	227,491	0.052
2009	187,171	129,655	0.058
2010	226,142	149,488	0.076
2011	228,854	216,850	0.079
2012	230,141	124,572	0.078
2013	233,337	122,412	0.115
2014	223,673	282,838	0.105
2015	195,380	415,041	0.140
2016	210,325	142,853	0.114
2017	213,059	84,306	0.126
2018	198,750	100,436	0.111
2019	176,404	34,113	0.136

Table 2. Total catch (metric tons) of scup from Maine through North Carolina. Commercial discards for 1981-1988 calculated from the mean ratio of discards to landings for 1989-1991.

Year	Commercial Landings	Commercial Discards	Recreational Landings	Recreational Discards	Total Catch
1981	9,856	4,495	5,054	108	19,514
1982	8,704	3,970	3,908	169	16,751
1983	7,794	3,555	3,911	76	15,336
1984	7,769	3,543	1,489	34	12,836
1985	6,727	3,068	5,122	72	14,989
1986	7,176	3,273	6,430	86	16,965
1987	6,276	2,862	4,722	42	13,902
1988	5,943	2,710	3,191	38	11,882
1989	3,984	1,277	4,781	54	10,097
1990	4,571	2,466	3,254	59	10,350
1991	7,081	3,388	5,857	75	16,401
1992	6,259	1,885	4,288	63	12,496
1993	4,726	1,510	2,101	31	8,368
1994	4,392	962	1,964	30	7,348
1995	3,073	974	1,030	38	5,114
1996	2,945	870	2,004	55	5,874
1997	2,188	675	1,152	38	4,053
1998	1,896	705	824	60	3,485
1999	1,505	735	2,098	51	4,390
2000	1,207	592	5,167	249	7,216
2001	1,729	1,671	4,434	417	8,251
2002	3,173	1,284	2,826	427	7,710
2003	4,405	436	7,806	462	13,109
2004	4,209	1,324	5,819	620	11,972
2005	3,711	565	1,949	413	6,637
2006	4,081	896	2,688	639	8,304
2007	4,193	1,364	3,221	407	9,184
2008	2,370	2,254	2,613	608	7,845
2009	3,721	3,184	2,851	552	10,308
2010	4,866	2,639	5,660	787	13,952
2011	6,819	1,236	4,682	516	13,253
2012	6,751	1,002	3,751	636	12,139
2013	8,105	1,350	5,739	568	15,762
2014	7,239	981	4,659	480	13,359
2015	7,725	1,718	5,527	581	15,550
2016	7,147	2,778	4,536	862	15,322
2017	7,007	4,733	6,143	1,079	18,961
2018	6,064	3,293	5,887	644	15,888
2019	6,252	2,779	6,403	560	15,994

Figures

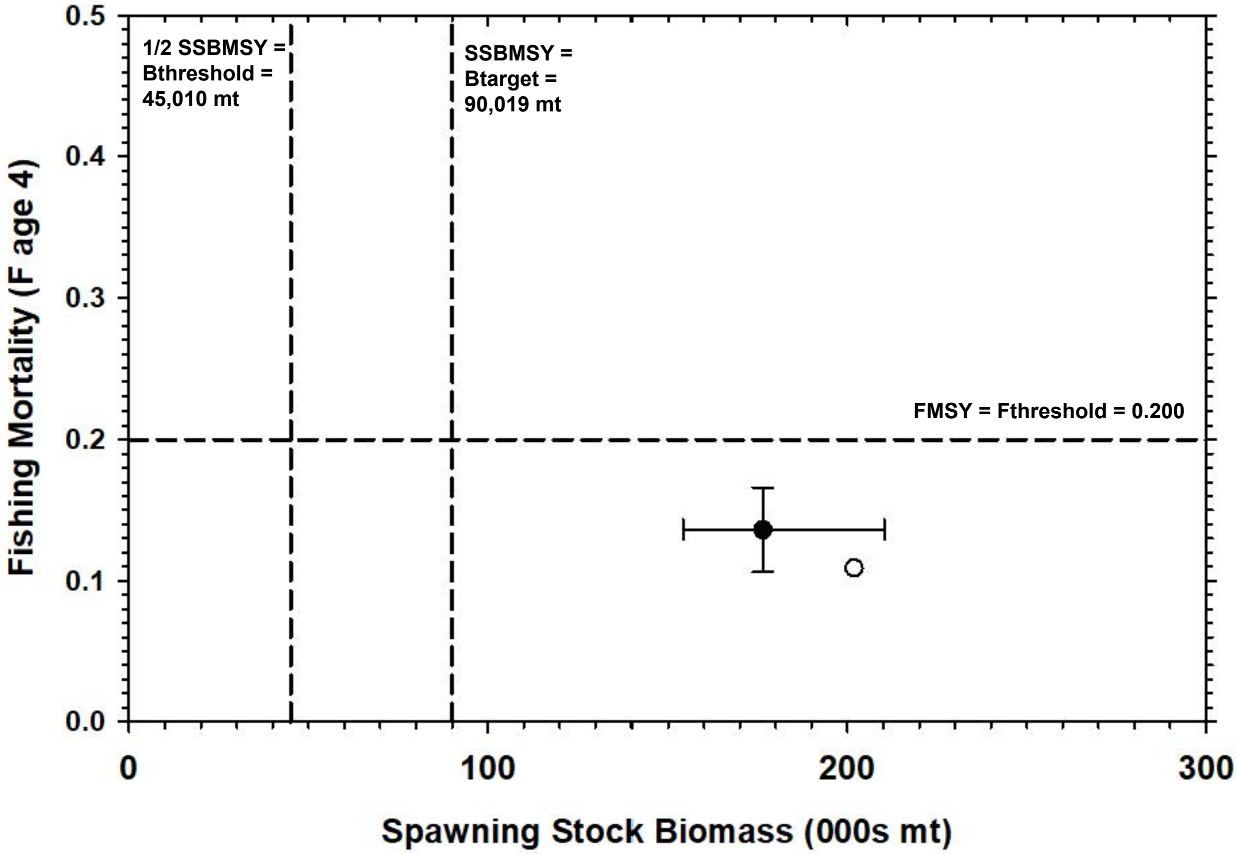

Figure 1. Estimates of scup spawning stock biomass (SSB) and fully-recruited fishing mortality (F, peak at age 3) relative to the updated biological reference points. Filled circle with 90% confidence intervals shows the assessment point estimates. The open circle shows the retrospectively adjusted estimates.

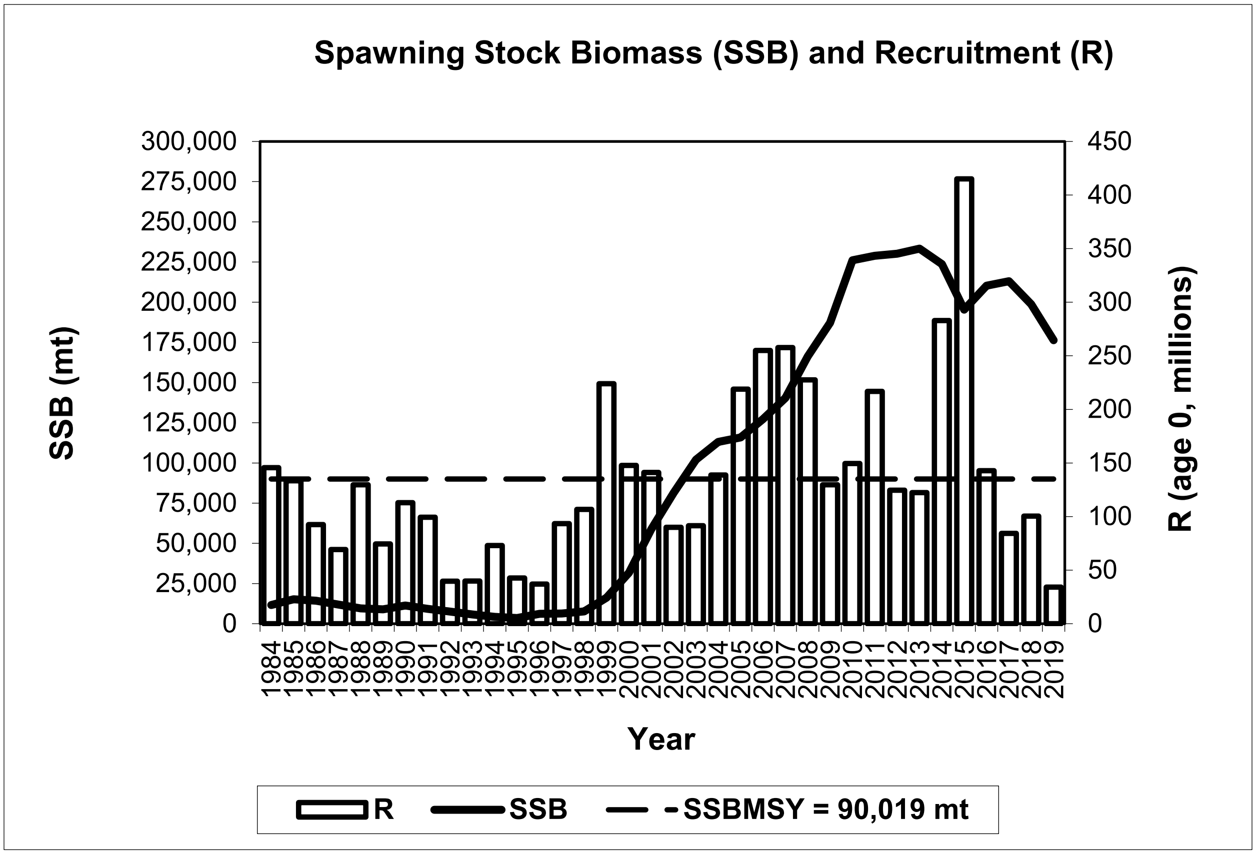

Figure 2. Scup spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars) by calendar year. The horizontal dashed line is the updated SSB_{MSY} proxy = $SSB_{40\%}$. Note this figure only shows years when fishery age data are available in the model.

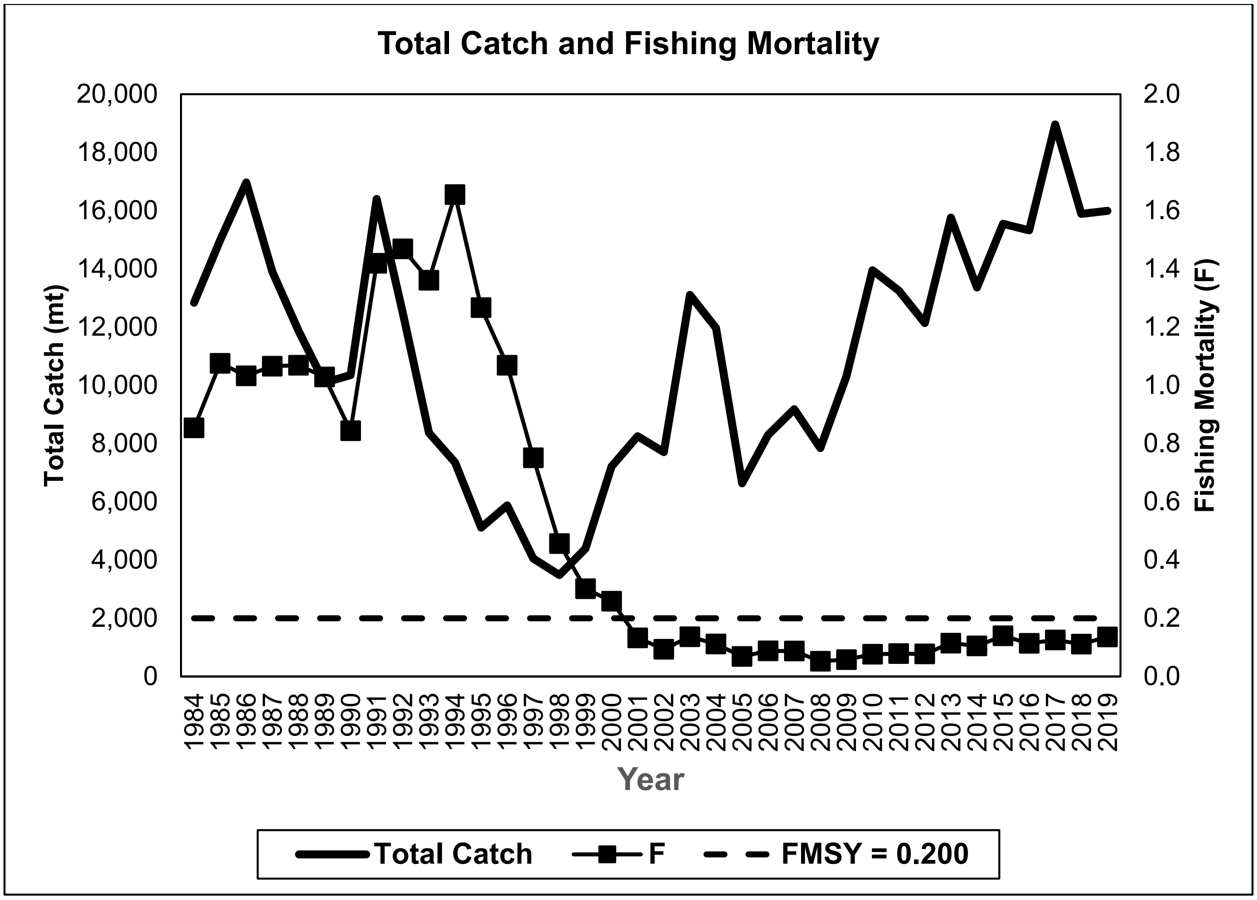

Figure 3. Total fishery catch (metric tons; mt; solid line) and fishing mortality (F, age 4 squares) for scup. The horizontal dashed line is the updated F_{MSY} proxy = $F_{40\%}$. Note this figure only shows years when fishery age data are available in the model.

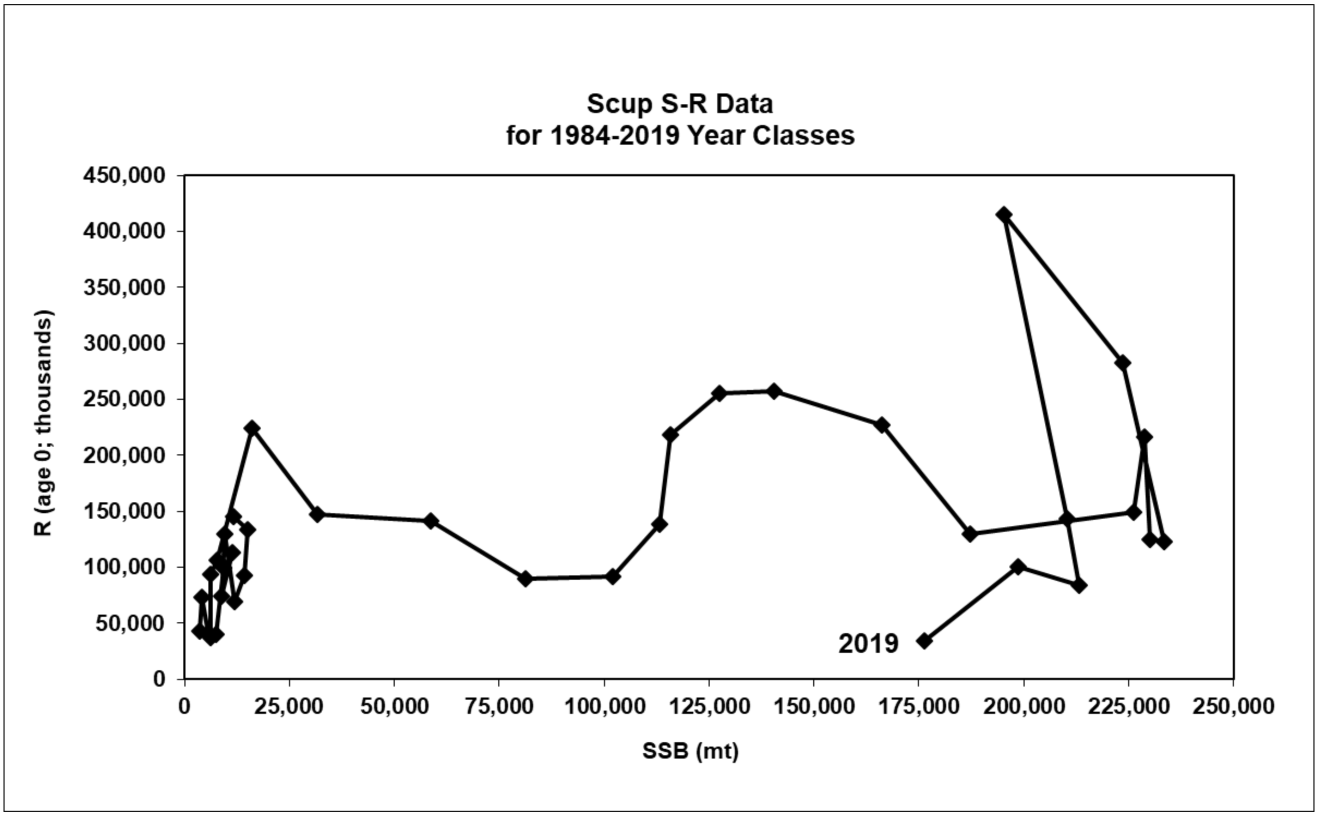

Figure 4. Spawning Stock Biomass (SSB) and Recruitment (R) scatter plot for scup. Note this figure only shows years when fishery age data are available in the model.

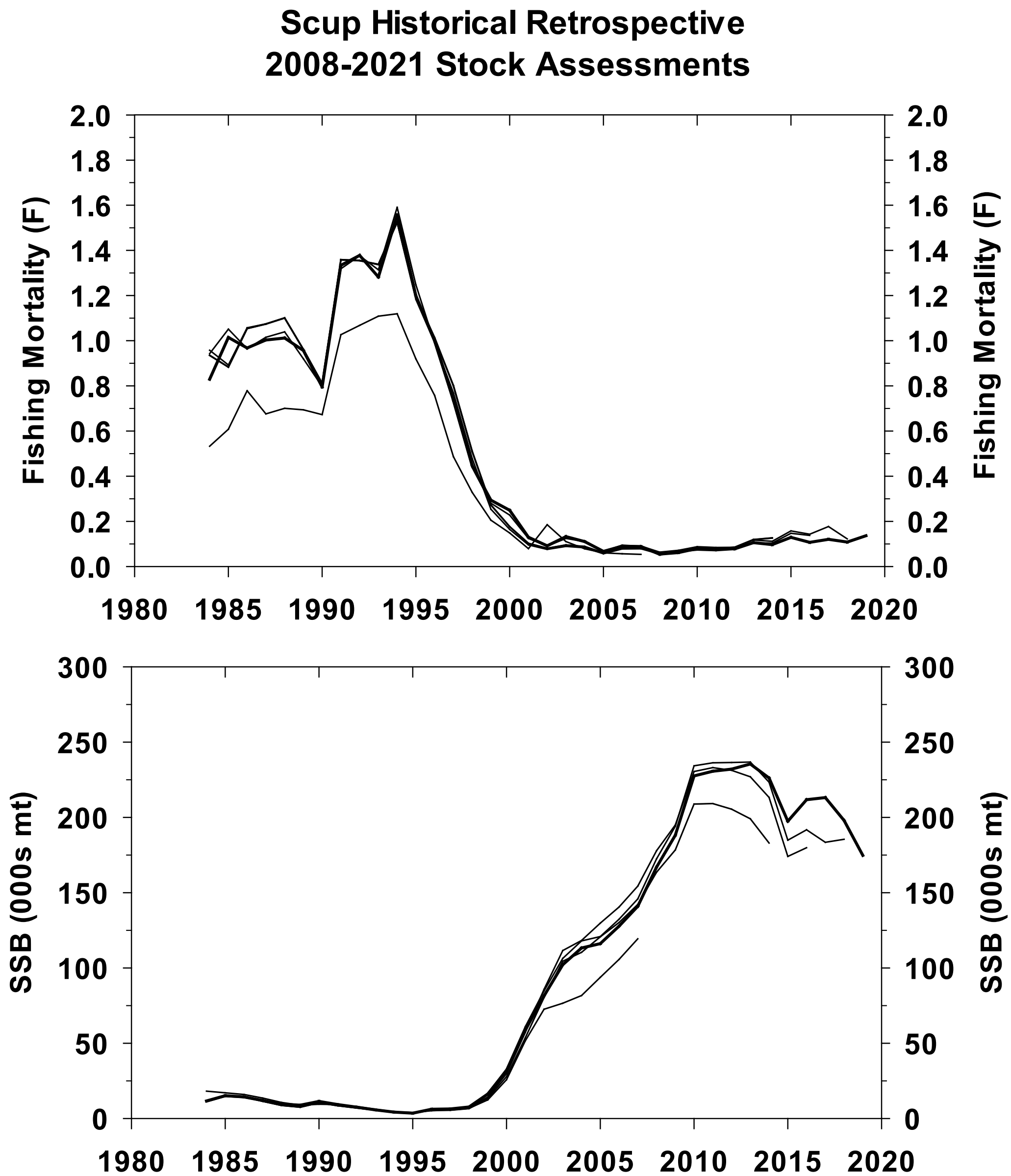

Figure 5. Historical retrospective of the 2008 (Data Poor Stocks; NEFSC 2009), 2015 (SAW 60; NEFSC 2015), 2017 (NEFSC unpublished report) and 2019 (Operational Assessment; NEFSC 2020) stock assessments of scup. The heavy solid lines are the current 2021 MTA estimates.

The Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report is behind Tab 2.

From:	Jeff Kaelin
To:	Coutre, Karson
Cc:	Moore, Christopher
Subject:	Monday"s Summer Flounder, Scup, and Black Sea Bass Advisory Panel Meeting
Date:	Friday, June 18, 2021 12:00:50 PM

Good morning Karson. I hope this note finds you (and Chris) well.

Although we had discussed that any changes to scup management would be taken up at the July 27 monitoring committee meeting, I see that the final agenda item for Monday's AP meeting concerns recommendations for regulatory changes for the 2022 and 2023 fishing year.

Unfortunately, I am not an AP member (and will have family here Monday so won't be able to call in) so I am hoping that this email can be used to identify our interest in having the monitoring committee consider two changes in scup management when they meet next month.

First, we ask that the monitoring committee analyze increasing the Winter I possession limit, to 100,000 pounds, and analyze eliminating it entirely. This change would help us to continue to build our frozen markets for scup.

Also, we ask that the monitoring committee analyze decreasing the commercial minimum fish size, from 9 inches to 8 inches, which would further support our developing these frozen markets, with value added domestic scup products becoming more widely available to consumers at the retail outlets where they shop.

I recall from the last time changing the minimum fish size was considered, that most 8" scup are sexually mature and, at that time, there were concerns about negative effects on the fresh market so that no changes were made.

Since markets have changed and developed since that time, we hope that the monitoring committee can evaluate the maturity issue and also identify the strength of those age classes in the coast wide stock. Also, if the data is available, evaluate whether or not 8" fish might be a significant portion of discards in the fishery.

Thank you for your consideration and for identifying our interest in these management changes in FYs 2022 & 2023 to the AP Monday.

With best regards,
Jeff

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Scup Fishery Information Document

June 2021

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for scup (*Stenotomus chrysops*) with an emphasis on 2020 (note that there are caveats associated with 2020 data due to COVID-19 related data gaps). Data Sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources on scup management, including previous Fishery Information Documents, please visit http://www.mafmc.org/sf-s-bsb/.

Key Facts:

- An operational assessment using data through 2018 indicated that the scup stock was not overfished, and overfishing was not occurring in 2018. An updated management track assessment will undergo peer review in July 2021.
- Commercial landings decreased by about 0.20 mil lb from 13.78 mil lb in 2019 to 13.58 mil lb in 2020.
- Price per pound and total ex-vessel value remained similar to 2019 and were $0.68 and $9.3 million in 2020.
- Recreational data collection was limited in 2020 by COVID-19. MRIP released 2020 estimates derived using imputation methods incorporating data from 2018 and 2019.
- Recreational landings decreased by about 1.2 mil lb from 14.12 mil lb in 2019 to 12.91 mil lb in 2020. The majority of scup harvested recreationally in 2020 was caught by private vessels (62%) and anglers fishing from shore (28%).

Basic Biology

Scup are a schooling, demersal (i.e., bottom-dwelling) species. They are found in a variety of habitats in the Mid-Atlantic. Scup essential fish habitat includes demersal waters, areas with sandy or muddy bottoms, mussel beds, and sea grass beds from the Gulf of Maine through Cape Hatteras, North Carolina. Scup undertake extensive seasonal migrations between coastal and offshore waters. They are found in estuaries and coastal waters during the spring and summer. In the fall and winter, they move offshore and to the south, to outer continental shelf waters south off New Jersey. Scup spawn once annually over weedy or sandy areas, mostly off southern New England. Spawning takes place from May through August and usually peaks in June and July.[1]

About 50% of scup are sexually mature at two years of age and about 17 cm (about 7 inches) total length. Nearly all scup older than three years of age are sexually mature. Scup reach a maximum age of at least 14 years. They may live as long as 20 years; however, few scup older than 7 years are caught in the Mid-Atlantic.[2, 3]

Adult scup are benthic feeders. They consume a variety of prey, including small crustaceans (including zooplankton), polychaetes, mollusks, small squid, vegetable detritus, insect larvae, hydroids, sand dollars, and small fish. The Northeast Fisheries Science Center's (NEFSC's) food habits database lists several predators of scup, including several shark species, skates, silver hake, bluefish, summer flounder, black sea bass, weakfish, lizardfish, king mackerel, and monkfish.[1]

Status of the Stock

The information below is based on the most recent stock assessment information available when this document was written. Updated stock assessment information will be available in July 2021.

Scup underwent an operational assessment in 2019 which indicated that the stock was not overfished and overfishing was not occurring in 2018 (Figures 1 and 2). Spawning stock biomass (SSB) was estimated to be about 411 million pounds in 2018, about 2 times the target level (i.e. $SSB_{40\%}$) of 207 million pounds (Figure 2).[3,4]

Fishing mortality on fully selected age 3 scup was 0.158 in 2018, about 73% of the F_{MSY} proxy reference point ($F_{40\%}$) of 0.215, which means that overfishing was not occurring in 2018. The 2015 year class (i.e., the scup spawned in 2015) is estimated to be the largest in the time series at 326 million fish, while the 2016-2018 year classes are estimated to be below average at 112 million fish, 93 million fish and 83 million fish, respectively (Figure 2).[4] The biological reference points for scup as revised through the 2019 operational assessment are described in Table 1.

A scup management track assessment will undergo peer review in July 2021 and will be used to inform 2022-2023 catch and landings limits. This assessment will consist of rerunning the existing model with data through 2019. Given data gaps for 2020 related to COVID-19 and the time required to address those gaps where possible, 2020 data could not be incorporated into this update.

Table 1: Scup biological reference points from the 2019 operational stock assessment.

Reference Points and terminal year SSB and F estimates	**2019 operational stock assessment**[4] Data through 2018
$SSB_{MSY\ proxy} = SSB_{40\%}$ (biomass target)	207.28 mil lb/ 94,020 mt
½ SSB_{MSY} (biomass threshold defining an overfished status)	103.639 mil lb/ 47,010 mt
Terminal year SSB	411 mil lb/186,578 mt (2018) 198% of SSB_{MSY}
$F_{MSY\ proxy} = F_{40\%}$ (threshold defining overfishing)	0.215

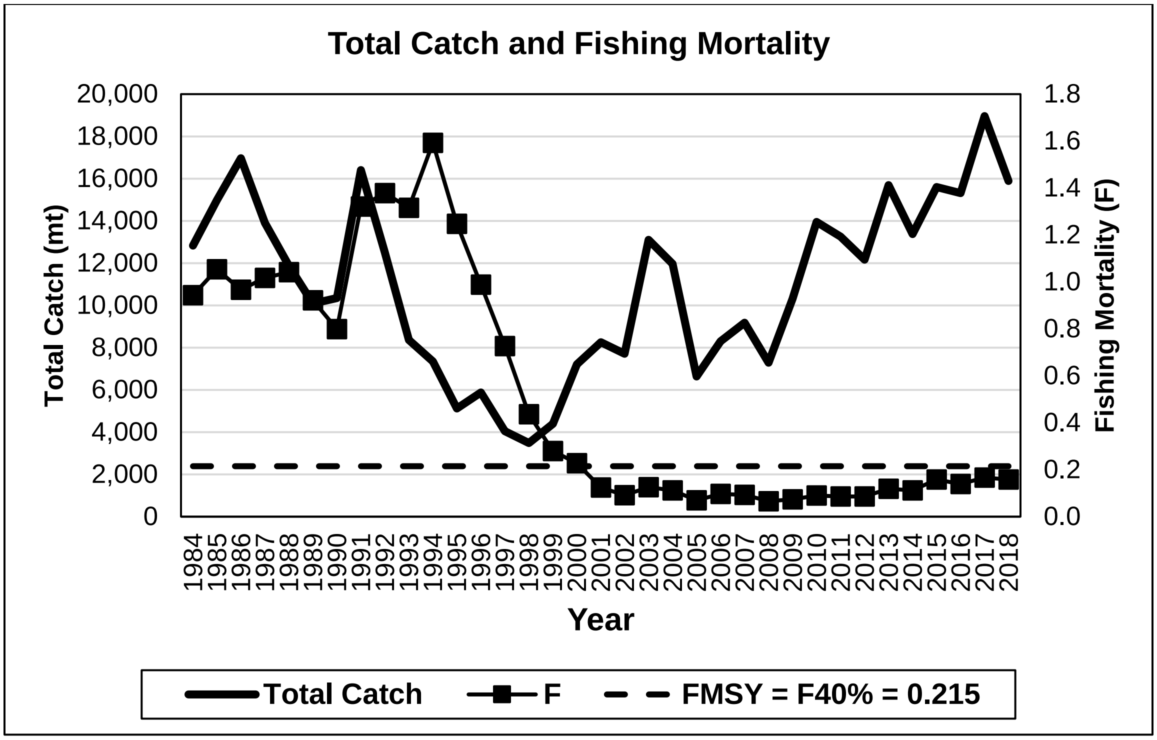

Figure 1: Total fishery catch and fishing mortality rate (F) for fully selected age 3 scup, 1984-2018. The horizontal dashed line is the fishing mortality reference point from the from the 2019 operational stock assessment. Overfishing is occurring when the fishing mortality rate exceeds this threshold.[4]

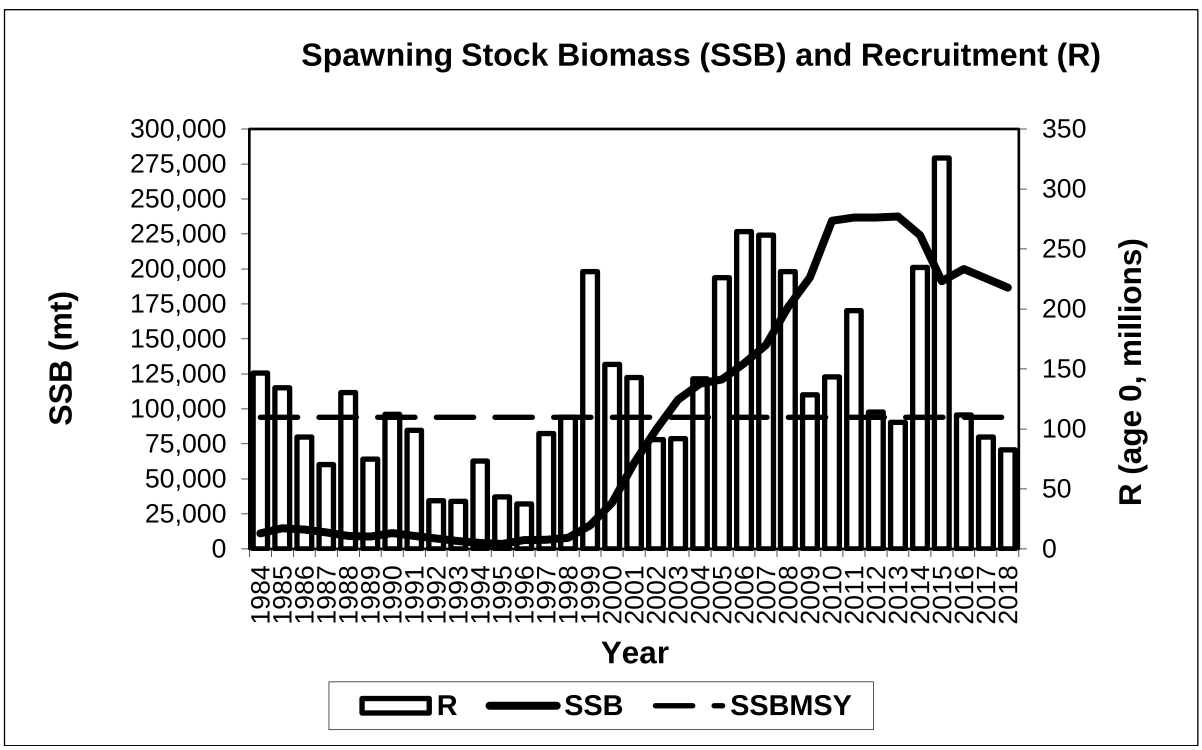

Figure 2: Scup spawning stock biomass and Recruitment, 1984-2018. The horizontal dashed line is the biomass target from the from the 2019 operational stock assessment.[4]

Management System and Fishery Performance

Management

The Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission) cooperatively develop fishery regulations for scup off the east coast of the United States. The National Marine Fisheries Service (NMFS) serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore). The management unit for scup includes U.S. waters from Cape Hatteras, North Carolina to the U.S./Canadian border.

The federal Fishery Management Plan (FMP) for scup has been in place since 1996, when scup were incorporated into the Summer Flounder FMP through Amendment 8. Amendment 8 established gear restrictions, reporting requirements, commercial quotas, a moratorium on new commercial scup permits, recreational possession limits, and minimum size restrictions for scup fisheries. The Council has made several adjustments to the FMP since 1996. The FMP and subsequent amendments and framework adjustments can be found at: www.mafmc.org/sf-s-bsb/.

The Council's Scientific and Statistical Committee (SSC) recommends annual Acceptable Biological Catch (ABC) levels for scup. The annual ABC is divided into commercial and recreational Annual Catch Limits (ACLs), based on the allocation percentages prescribed in the FMP (i.e. 78% commercial, 22% recreational). The Council and Commission are considering an ongoing FMP amendment to determine if these allocation percentages should be revised to reflect more recent data. Both ABCs and ACLs are catch-based limits, meaning they account for both landings and discards. Projected discards are subtracted to determine the commercial quota and recreational harvest limit (RHL), which are landings-based limits.

COVID-19 Data Issues in 2020

The COVID-19 pandemic impacted data collection in both the recreational and commercial fisheries. While effort and markets were impacted by COVID-19 to various degrees, data collection for commercial landings from seafood dealers continued uninterrupted. However, 2020 commercial discard estimates will be affected by missing observer data. Commercial discard estimates are developed using Standardized Bycatch Reporting Methodology (SBRM) approaches that rely heavily on observer data. On March 20, 2020, NMFS temporarily waived the requirement for vessels with Greater Atlantic permits to carry a fishery observer or at-sea monitor. This waiver was extended several times before observers were redeployed on August 14, 2020. At this time it is not clear whether alternative methodologies will be developed to generate 2020 commercial discard estimates for scup and other species.

The COVID-19 pandemic disrupted the recreational Access Point Angler Intercept Survey (APAIS). All Mid-Atlantic states suspended APAIS sampling starting in late March or April 2020. States resumed sampling between May and August 2020, depending on the state. NMFS used imputation methods to fill gaps in 2020 catch data with data collected in 2018 and 2019. These proxy data match the time, place, and fishing mode combinations that would have been sampled had the APAIS continued uninterrupted. Proxy data were combined with observed data to produce catch estimates using the standard estimation methodology. The mail and telephone surveys that collect recreational effort data continued largely uninterrupted. NMFS has indicated that when complete 2021 recreational data are available in 2022, they will evaluate the effects of including

2021 data (for example, alongside 2019 data and instead of 2018 data) in the imputation. Because these effects are unknown, the agency cannot predict whether it will seek to revise its 2020 catch estimates.

Fishery Landings Summary

Table 2 shows scup catch and landings limits from 2010 through 2021, as well as commercial and recreational landings through 2020.

Total scup landings (commercial and recreational) from Maine to North Carolina peaked in 1981 at over 32 million pounds and reached a low of 6 million pounds in 1998. In 2020, about 26.49 million pounds of scup were landed by commercial and recreational fishermen (Figure 3).[5,6]

Table 2: Summary of scup catch limits, landings limits, and landings, 2011 through 2021. Values are in millions of pounds unless otherwise noted.

Measure	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021[d]
ABC	51.7	40.88	38.71	35.99	33.77	31.11	28.4	39.14	36.43	35.77	34.81
TAC[a]	31.92	--	--	--	--	--	--	--	--	--	--
Commercial ACL	--	31.89	30.19	28.07	26.35	24.26	22.15	30.53	28.42	27.9	27.15
Commercial quota[b]	20.36	27.91	23.53	21.95	21.23	20.47	18.38	23.98	23.98	22.23	20.5
Commercial landings	15.03	14.88	17.87	15.96	17.03	15.76	15.45	13.38	13.78	13.58	--
% of commercial quota landed	74%	53%	76%	72%	80%	77%	84%	55%	57%	61%	--
Recreational ACL	--	8.99	8.52	7.92	7.43	6.84	6.25	8.61	8.01	7.87	7.66
RHL[b]	5.74	8.45	7.55	7.03	6.8	6.09	5.5	7.37	7.37	6.51	6.07
Recreational landings, old MRIP estimates	3.67	4.17	5.37	4.43	4.41	4.26	5.42	5.61	--	--	--
% of RHL harvested[c]	64%	49%	71%	63%	65%	70%	98%	76%	--	198%	--
Recreational landings, new MRIP estimates	10.32	8.27	12.64	10.27	12.17	10	13.53	12.98	14.12	12.91	--

[a] Prior to implementation of the 2011 Omnibus ACLs and AMs Amendment, the Council specified a Total Allowable Catch (TAC). After implementation of this amendment, the Council specified ABCs instead of TACs. Both terms refer to the total catch limit in a given year. The difference between the TAC and the ABC in 2011 was due to the Council specifying a more conservative limit than that recommended by the SSC.

[b] Commercial quotas and RHLs reflect the removal of projected discards from the sector-specific ACLs. For 2006-2014, these limits were also adjusted for Research Set Aside.

[c] The percent of RHL harvested is based on a comparison of the RHL to the old MRIP estimates through 2018. The RHLs prior to 2020 did not account for the new MRIP estimates, which were released in July 2018 and were not incorporated into a stock assessment until 2019; therefore, it would be inappropriate to compare past RHLs to the revised MRIP estimates. The first year that the RHL was set using the new MRIP estimates was 2020.

[d] The 2021 measures were revised in 2020 by the SSC, the Council, and the Commission in accordance with the Council's changes to their risk policy.

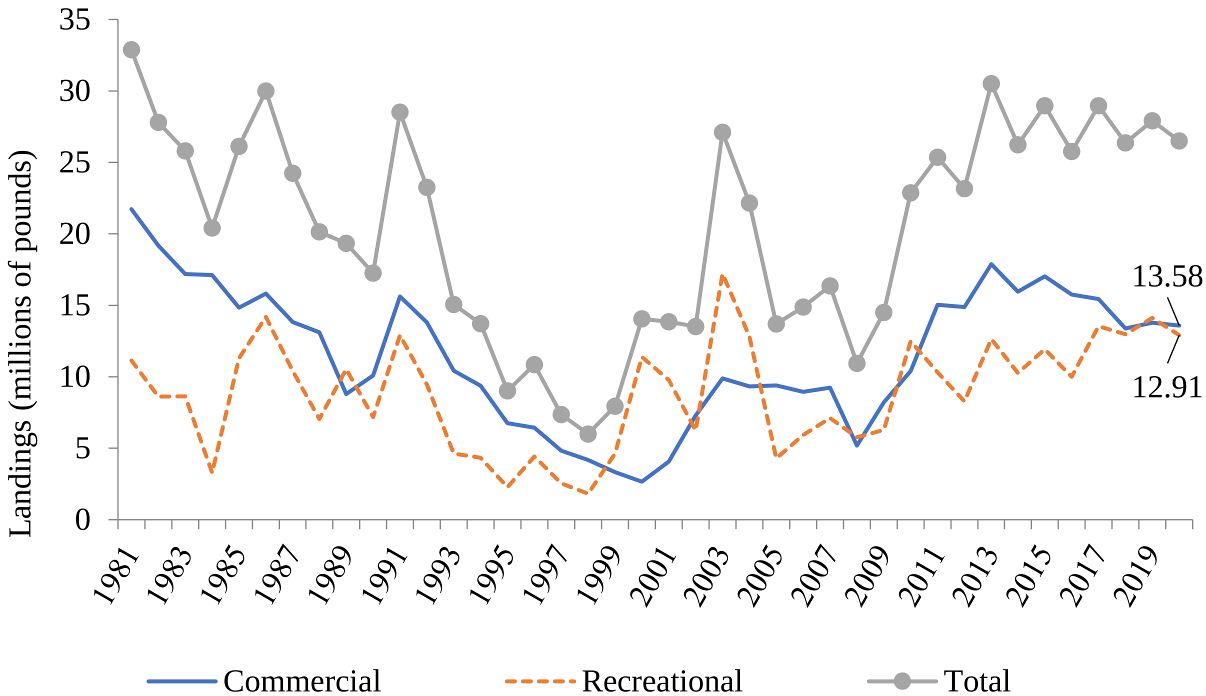

Figure 3: Commercial and recreational scup landings, Maine - North Carolina, 1981-2020 (2020 values are labeled on chart). Recreational landings are based on the new MRIP numbers.[5,6]

Commercial Fishery

Commercial scup landings peaked in 1981 at 21.73 million pounds and reached a low of 2.66 million pounds in 2000 (Figure 3). In 2020, commercial fishermen landed 13.58 million pounds of scup, about 61% of the commercial quota.[5]

As previously mentioned, 2020 commercial discard data are currently unavailable due to COVID-19 related interruptions in observer coverage. In 2019, about 6.13 million pounds of scup were discarded in commercial fisheries, representing a 9% decrease from 2018. Commercial discards increased from 2014-2017, peaking at about 10.42 million pounds in 2017. This was the highest number of discards since at least 1981 and was likely mainly due to the large 2015 year class, which is the largest year class since 1984. In 2017, these scup were very abundant, but mostly too small to be landed in the commercial fishery due to the commercial minimum fish size of 9 inches total length.[5]

The commercial scup fishery operates year-round, taking place mostly in federal waters during the winter and mostly in state waters during the summer. A coast-wide commercial quota is allocated between three quota periods, known as the winter I, summer, and winter II quota periods. These seasonal quota periods were established to ensure that both smaller day boats, which typically operate near shore in the summer months, and larger vessels operating offshore in the winter months can land scup before the annual quota is reached. The dates of the summer and winter II periods were modified in 2018 (Table 3). Both winter periods are managed under a coastwide quota while the summer period quota is divided among states according to the allocation percentages outlined in the Commission's FMP (Table 4).

Once the quota for a given period is reached, the commercial fishery is closed for the remainder of that period. If the full winter I quota is not harvested, unused quota is added to the winter II period. Any quota overages during the winter I and II periods are subtracted from the quota allocated to those periods in the following year. Quota overages during the summer period are subtracted from the following year's quota only in the states where the overages occurred.

A possession limit of 50,000 pounds is in effect during the winter I quota period. A possession limit of 12,000 pounds is in effect during the winter II period. If the winter I quota is not reached, the winter II possession limit increases by 1,500 pounds for every 500,000 pounds of quota not caught during winter I. During the summer period, various state-specific possession limits are in effect.

The commercial scup fishery in federal waters is predominantly a bottom otter trawl fishery. In 2020, about 96% of the commercial scup landings (by weight) reported by federal VTR data were caught with bottom otter trawls. Pots/traps accounted for about 2% of landings, while all other gear types each accounted for 1% or less of the 2020 commercial scup landings.[9]

Until 2019, trawl vessels could not possess 1,000 pounds or more of scup during October - April, or 200 pounds or more during May - September, unless they use a minimum mesh size of 5-inch diamond mesh, applied throughout the codend for at least 75 continuous meshes forward of the terminus of the net. In 2019, another threshold period was added from April 15-June 15 with a 2,000 pound possession limit to allow for higher retention in the small-mesh squid fishery (Table 5). Pots and traps for scup are required to have degradable hinges and escape vents that are either circular with a 3.1 inch minimum diameter or square with a minimum length of 2.25 inches on the side.

VTR data suggest that NMFS statistical areas 537, 616, 613, 539 and 611 were responsible for the largest percentage of commercial scup catch in 2020. Statistical area 539, off Rhode Island, had the highest number of trips which caught scup (Table 6, Figure 4).[9]

Over the past two decades, total scup ex-vessel revenue ranged from a low of $4.8 million in 2000 to a high of $12.3 million in 2015. In 2020, 13.58 million pounds of scup were landed by commercial fishermen from Maine through North Carolina. Total ex-vessel value in 2020 was $9.30 million, resulting in an average price per pound of $0.68. All revenue and price values were adjusted to 2020 dollars to account for inflation.[5]

In general, the price of scup tends to be lower when landings are higher, and vice versa (Figure 5). This relationship is not linear and many other factors besides landings also influence price. The highest average price per pound over the past two decades was $2.20 and occurred in 1998. The lowest average price per pound was $0.61 and occurred in 2013.[5]

Over 147 federally-permitted dealers from Maine through North Carolina purchased scup in 2020. More dealers in New York purchased scup than in any other state (Table 7).[5]

At least 100,000 pounds of scup were landed by commercial fishermen in 14 ports in 6 states in 2020. These ports accounted for approximately 91% of all 2020 commercial scup landings. Point Judith, Rhode Island was the leading port, both in terms of landings and number of vessels landing scup (Table 8).[5] Detailed community profiles developed by the Northeast Fisheries Science Center's Social Science Branch can be found at www.mafmc.org/communities/.

A moratorium permit is required to fish commercially for scup. In 2020, 605 vessels held commercial moratorium permits for scup.[10]

Table 3: Dates, allocations, and possession limits for the commercial scup quota periods. Winter period possession limits apply in both state and federal waters.

Quota Period	Dates	% of commercial quota allocated	Possession limit
Winter I	January 1 – April 30	45.11%	50,000 pounds, until 80% of winter I allocation is reached, then reduced to 1,000 pounds.
Summer	May 1 – September 30*	38.95%	State-specific
Winter II	October 1 – December 31*	15.94%	12,000 pounds. If winter I quota is not reached, the winter II possession limit increases by 1,500 pounds for every 500,000 pounds of scup not landed during winter I.

*Prior to 2018, the summer period was May 1 - October 31 and the winter II period was November 1 - December 31, with the same allocations as shown above.

Table 4: State-by-state quotas for the commercial scup fishery during the summer quota period (May-September).

State	Share of summer quota
Maine	0.1210%
Massachusetts	21.5853%
Rhode Island	56.1894%
Connecticut	3.1537%
New York	15.8232%
New Jersey	2.9164%
Maryland	0.0119%
Virginia	0.1650%
North Carolina	0.0249%
Total	99.9908%

Table 5: Changes in scup small mesh incidental possession limit for the commercial fishery from 2018 to 2019.

<table>
<tr><th></th><th>Jan</th><th>Feb</th><th>Mar</th><th colspan="2">Apr</th><th>May</th><th colspan="2">June</th><th>July</th><th>Aug</th><th>Sept</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>2018</td><td colspan="5">1,000 lb</td><td colspan="6">200 lb</td><td colspan="3">1,000 lb</td></tr>
<tr><td>2019-2021</td><td colspan="4">1,000 lb</td><td colspan="3">2,000 lb</td><td colspan="4">200 lb</td><td colspan="3">1,000 lb</td></tr>
</table>

Table 6: Statistical areas which accounted for at least 5% of the total commercial scup catch (by weight based on VTR data) in 2020, with associated number of trips.[9] Federal VTR data do not capture landings by vessels only permitted to fish in state waters.

Statistical area	% of 2020 commercial scup catch	Number of trips
537	20%	894
616	20%	585
613	17%	1,252
539	11%	2,365
611	11%	2,209

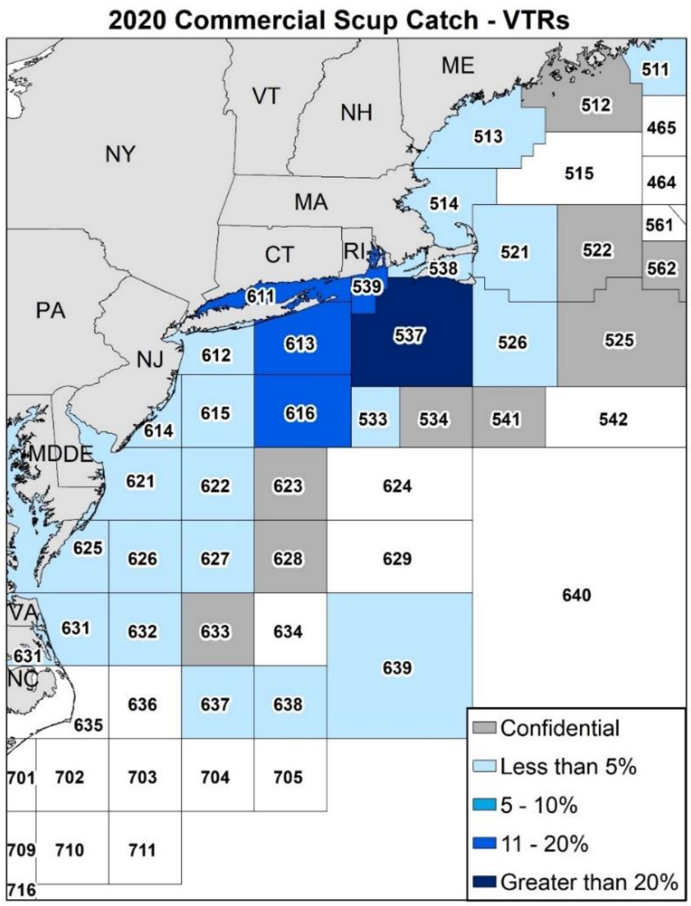

Figure 4: Proportion of scup catch by statistical area in 2020 based on federal VTR data. Statistical areas marked "confidential" are associated with fewer than three vessels and/or dealers. Statistical areas with confidential data collectively accounted for about 1% of commercial catch reported on VTRs in 2020. The amount of catch (landings and discards) that was not reported on federal VTRs (e.g., catch from vessels permitted to fish only in state waters) is unknown. In 2019, Northeast Fisheries Science Center Data ("AA tables") suggest that 18% of total commercial landings (state and federal) were not associated with a statistical area reported in federal VTRs; AA data for 2020 is not available.

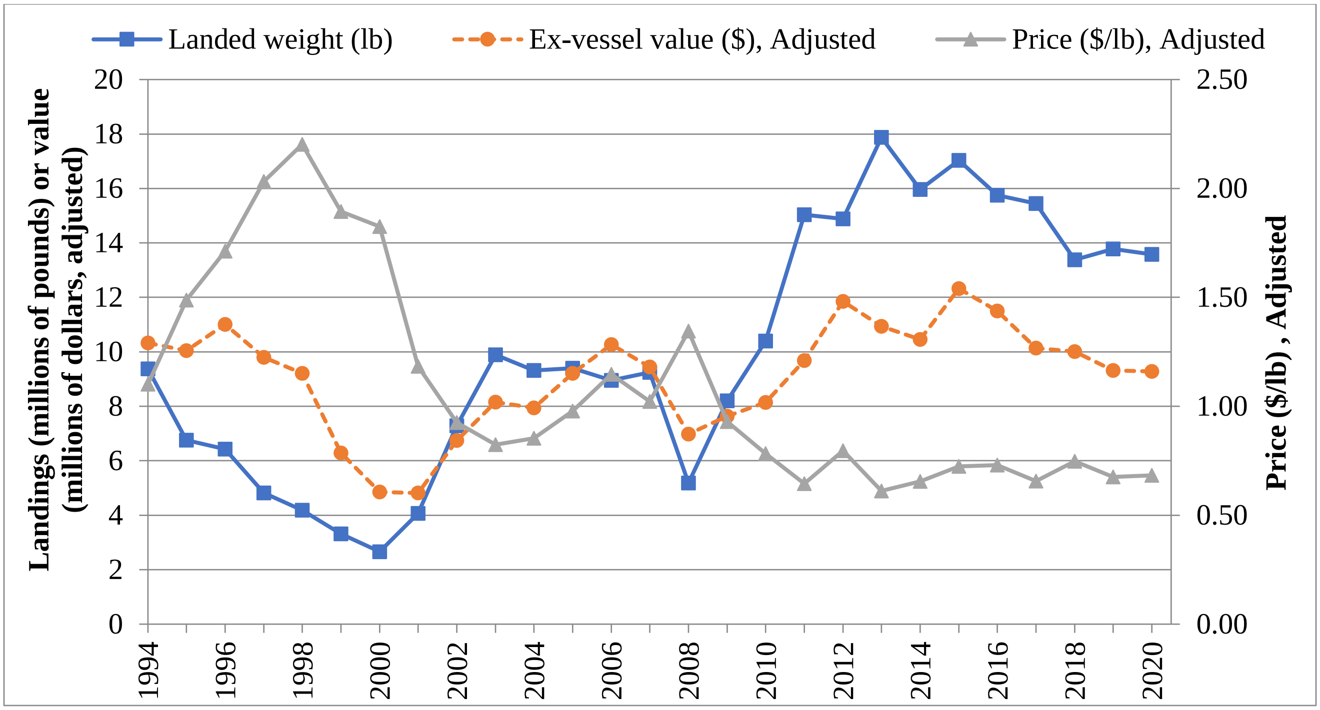

Figure 5: Landings, ex-vessel value, and price for scup from Maine through North Carolina, 1994-2020. Ex-vessel value and price are inflation-adjusted to 2020 dollars using the Gross Domestic Product Price Deflator.[5]

Table 7: Number of dealers per state which reported purchases of scup in 2020. C = Confidential.[5]

State	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC
Number of Dealers	C	26	26	12	38	17	C	4	10	11

Table 8: Ports reporting at least 100,000 pounds of scup landings in 2020, based on NMFS dealer data. C = Confidential.[5]

Port	Scup landings (lb)	% of total commercial scup landings	Number of vessels
POINT JUDITH, RI	3,555,514	26%	126
MONTAUK, NY	3,236,326	24%	84
PT. PLEASANT, NJ	1,352,306	10%	32
CAPE MAY, NJ	811,353	6%	25
MATTITUCK, NY	478,300	4%	5
NEW BEDFORD, MA	474,084	3%	54
HAMPTON BAY, NY	471,657	3%	25
STONINGTON, CT	438,887	3%	21
LITTLE COMPTON, RI	403,382	3%	12
NEW LONDON, CT	301,782	2%	6
HAMPTON, VA	265,945	2%	29
SHINNECOCK, NY	174,713	1%	6
EAST HAVEN, CT	163,196	1%	7
AMMAGANSETT, RI	C	C	C

Scup Gear Restricted Areas

Two scup gear restricted areas (GRAs) were first implemented in 2000 with the goal of reducing scup discards in small-mesh fisheries. The GRA boundaries have been modified multiple times since their initial implementation. The current boundaries are shown in Figure 6. Trawl vessels may not fish for or possess longfin squid, black sea bass, or silver hake in the Northern GRA from November 1 – December 31 and in the Southern GRA from January 1 – March 15 unless they use mesh which is at least 5 inches in diameter. The GRAs are thought to have contributed to the recovery of the scup population in the mid- to late-2000s.[8] As previously stated, commercial scup discards increased by 71% between 2016 and 2017, likely due to the large 2015 year class.[4] Although discards decreased by about 41% in 2019 compared with the record high discards in 2017, they still remain well above average. Further analysis is needed to evaluate the impact of the GRA modification on commercial scup discards in 2017-2020.

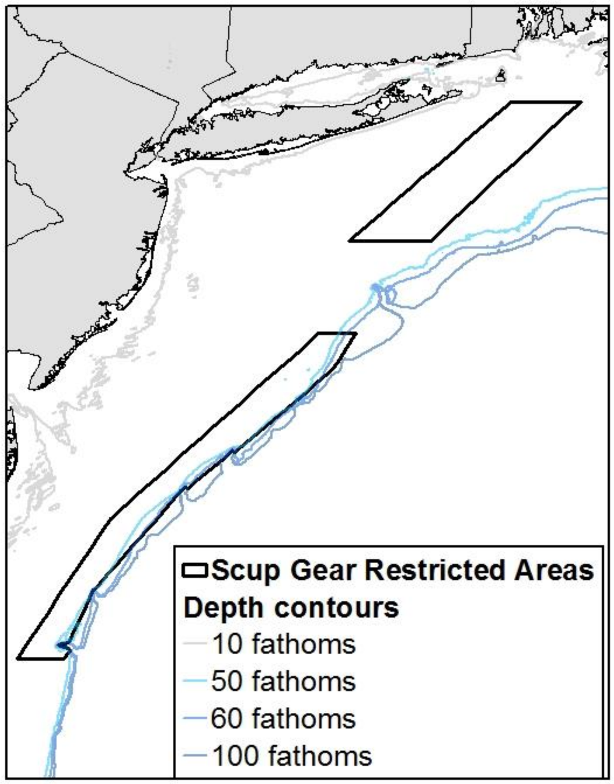

Figure 6: The Scup Gear Restricted Areas.

Recreational Fishery

The recreational scup fishery is managed on a coast-wide basis in federal waters. Current federal regulations include a minimum size of 9 inches total length, a year-round open season, and a possession limit of 50 scup (Table 9). These measures have been unchanged since 2015.

The Commission applies a regional management approach to recreational scup fisheries in state waters, where New York, Rhode Island, Connecticut, and Massachusetts develop regulations intended to achieve 97% of the RHL. The minimum fish size, possession limit, and open season for recreational scup fisheries in state waters vary by state. State waters measures remained unchanged from 2015 through 2017. Massachusetts through New Jersey liberalized their minimum size limits and/or seasons in 2018 compared to 2017 and there were very minor changes in the state regulations from 2018 to 2019. There were no changes to state measures from 2019 to 2021 (Table 10).

Recreational data are available from MRIP. In July 2018, MRIP released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology, including a transition from a telephone-based effort survey to a mail-based effort survey. The RHLs and other management measures through 2019 were based on the old MRIP estimates. The new estimates of catch and landings are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall scup catch and harvest estimates. Information presented in this section is based on the new estimates.

From 1981-2020, recreational catch of scup peaked in 2017 at 41.20 million scup and landings peaked in 1986 with an estimated 30.43 million scup landed by recreational fishermen from Maine through North Carolina. Recreational catch was lowest in 1998 when an estimated 6.86 million scup were caught and 2.74 million scup were landed. Recreational anglers from Maine through North Carolina caught an estimated 27.27 million scup and landed 14.49 million scup (about 12.91 million pounds) in 2020 (Table 11).[6]

The Council and Board agreed to leave the recreational bag, size, and season limits unchanged in 2020 despite an expected RHL overage (Table 2). This was viewed as a temporary solution to allow more time to consider how to fully transition the management system to use of the revised MRIP data, including ongoing considerations related to the commercial/recreational allocation and the Recreational Reform Initiative. The 2020 RHL overage will be discussed in development of 2022 recreational measures but is unlikely to impact the 2022 RHL and ACL given recent biomass estimates and the Council's Accountability Measures.[7]

Vessels carrying passengers for hire in federal waters must obtain a federal party/charter permit. In 2020, 740 vessels held scup federal party/charter permits. Many of these vessels also held party/charter permits for summer flounder and black sea bass.[10]

Most recreational scup catch occurs in state waters during the warmer months when the fish migrate inshore. Between 2018 and 2020, about 93.5% of recreational scup catch (in numbers of fish) occurred in state waters and about 6.5% occurred in federal waters (Table 12). New York, Connecticut, Rhode Island, Massachusetts, and New Jersey accounted for over 99.9% of recreational scup harvest in 2020 (Table 13).[6]

About 62% of recreational scup landings (in numbers of fish) in 2020 were from anglers who fished on private or rental boats. About 12% were from anglers fishing on party or charter boats, and about 28% were from anglers fishing from shore (Table 14).[6]

Table 9: Federal recreational measures for scup, 2005-2021.

Regulation	2005-2007	2008-2009	2010-2011	2012	2013	2014	2015-2021
Minimum size (total length)	10 in.	10.5 in.	10.5 in.	10.5 in.	10 in.	9 in.	9 in.
Possession limit	50	15	10	20	30	30	50
Open season	Jan 1–Feb 28 & Sept 18 – Nov 30	Jan 1–Feb 28 & Oct 1–Oct 31	Jun 6 – Sept 26	Jan 1 – Dec 31	Jan 1 – Dec 31	Jan 1 – Dec 31	Jan 1 – Dec 31

Table 10: State recreational fishing measures for scup in 2019-2021.

State	Minimum Size (inches)	Possession Limit	Open Season
MA (private & shore)	9	30 fish; 150 fish/vessel with 5+ anglers on board	April 13-December 31
MA (party/charter)	9	30 fish	April 13-April 30; July 1-December 31
		50 fish	May 1-June 30
RI (private & shore)	9	30 fish	January 1-December 31
RI shore program (7 designated shore sites)	8		
RI (party/charter)	9	30 fish	January 1-August 31; November 1-December 31
		50 fish	September 1-October 31
CT (private & shore)	9	30 fish	January 1-December 31
CT shore program (45 designed shore sites)	8		
CT (party/charter)	9	30 fish	January 1-August 31; November 1-December 31
		50 fish	September 1-October 31
NY (private & shore)	9	30 fish	January 1-December 31
NY (party/charter)	9	30 fish	January 1-August 31; November 1-December 31
		50 fish	September 1- October 31
NJ	9	50 fish	January 1- December 31
DE	8	50 fish	January 1-December 31
MD	8	50 fish	January 1-December 31
VA	8	30 fish	January 1-December 31
NC, North of Cape Hatteras (N of 35° 15’N)	8	50 fish	January 1-December 31

Table 11: Estimated recreational catch and harvest of scup, Maine - North Carolina, 2011 – 2020, based on the revised MRIP estimates.[6]

Year	Recreational catch (millions of fish)	Recreational harvest (millions of fish)	Recreational harvest (millions of pounds)	% of catch retained
2011	18.52	7.60	10.32	41%
2012	21.24	7.33	8.27	35%
2013	25.88	11.55	12.64	45%
2014	20.88	9.49	10.27	45%
2015	25.15	11.50	12.17	46%
2016	31.49	9.14	10.00	29%
2017	41.20	13.82	13.53	34%
2018	30.37	14.55	12.98	48%
2019	28.67	14.95	14.12	52%
2020	27.27	14.49	12.91	53%

Table 12: Estimated percent of scup (in numbers of fish) caught by recreational fishermen in state and federal waters, Maine - North Carolina, 2011 – 2020, based on the revised MRIP estimates.[6]

Year	State waters	Federal waters
2011	98.5%	1.5%
2012	99.7%	0.3%
2013	96.3%	3.7%
2014	96.5%	3.5%
2015	98.9%	1.1%
2016	93.5%	6.5%
2017	96.0%	4.0%
2018	96.2%	3.8%
2019	95.5%	4.5%
2020	88.6%	11.4%
2011-2020 average	**96.0%**	**4.0%**
2018-2020 average	**93.5%**	**6.5%**

Table 13: Recreational scup harvest by state, 2018- 2020. Percentages were calculated based on numbers of fish using the revised MRIP estimates.[6]

State	2018	2019	2020	2018-2020 average
Maine	0%	0%	0%	0%
New Hampshire	0%	0%	0%	0%
Massachusetts	22%	13%	9%	15%
Rhode Island	16%	22%	11%	16%
Connecticut	21%	17%	25%	21%
New York	37%	48%	49%	44%
New Jersey	3%	1%	6%	3%
Delaware	0%	0%	0%	0%
Maryland	0%	0%	0%	0%
Virginia	0%	0%	0%	0%
North Carolina	0%	0%	0%	0%

Table 14: Scup harvest (in numbers of fish) by recreational fishing mode, Maine - North Carolina, 2011 – 2020, based on the revised MRIP estimates. Some percentages do not sum to 100% due to rounding.[6]

Year	Shore	Party/charter	Private/rental	Total number
2011	22%	7%	72%	7,598,242
2012	14%	16%	69%	7,334,829
2013	34%	15%	51%	11,547,027
2014	20%	15%	65%	9,488,949
2015	17%	8%	76%	11,498,783
2016	34%	10%	56%	9,143,579
2017	23%	11%	65%	13,820,611
2018	43%	9%	48%	14,545,488
2019	29%	15%	56%	14,954,157
2020	28%	10%	62%	14,493,250
2011-2020 average	26%	12%	62%	**11,442,492**
2018-2020 average	33%	12%	55%	**14,664,298**

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[1] Steimle, F.W, C. A. Zetlin, P. L. Berrien, D. L. Johnson, S. Chang. 1999. Essential Fish Habitat source document: Scup, *Stenotomus chrysops*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-149; 39 p.

[2] Northeast Data Poor Stocks Working Group. 2009. The northeast data poor stocks working group report, part A: skate species complex, deep sea red crab, Atlantic wolf fish, scup, and black sea bass. Northeast Fish Science Center Reference Document 09-02; 496 p. Available at: http://www.nefsc.noaa.gov/publications/crd/crd0902/.

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[4] Northeast Fisheries Science Center. 2019. Prepublication copy of the August 2019 operational stock assessment report prepared for the Council and the SSC. Available at: http://www.mafmc.org/ssc-meetings/2019/september-9-11

[5] Unpublished NMFS commercial fish dealer data (i.e., "DERS"), which include both state and federal dealer data).

[6] Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed June 2020. Available at: https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index.

[7] Accountability Measures for Summer Flounder, Scup, and Black Sea Bass. Available at: https://www.mafmc.org/s/AMs-description_SF_scup-BSB_Dec2020.pdf

[8] Terceiro, M., A. Miller. 2014. Commercial fishery scup discarding and the Gear Restricted Areas (GRAs). White paper for the Mid-Atlantic Fishery Management Council. 30 p.

[9] Unpublished NMFS Vessel Trip Report data.

[10] Unpublished NMFS permit data.

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: August 3, 2021

To: Council and Board

From: Julia Beaty, staff

Subject: Black sea bass 2022-2023 specifications

On Monday, August 9, the Council and Board will consider black sea bass specifications for 2022-2023 after reviewing the recommendations of the SSC, Monitoring Committee, and Advisory Panel. Measures to be considered include 2022-2023 commercial and recreational catch and landings limits, as well as any changes to the commercial management measures desired for 2022. Materials listed below are provided for the Council and Board's consideration of this agenda item.

Please note that some materials are behind other tabs.

1) Monitoring Committee meeting summary from July 27, 2021*(behind Tab 2)*
2) Advisory Panel meeting summary from July 29, 2021 *(behind Tab 2)*
3) July 2021 Scientific and Statistical Committee meeting report *(behind Tab 14)*
4) Staff memo on 2022-2023 black sea bass specifications dated July 19, 2021
5) Black sea bass management track assessment for 2021
6) June 2021 Advisory Panel Fishery Performance Report and associated additional AP comments received through July 6, 2021 *(behind Tab 2)*
7) 2021 Black Sea Bass Fishery Information Document

The Summer Flounder, Scup, and Black Sea Bass Monitoring Committee Meeting Summary is behind Tab 2.

The Summer Flounder, Scup, and Black Sea Bass Advisory Panel Meeting Summary is behind Tab 2.

The SSC Report is behind Tab 14.

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 19, 2021

To: Chris Moore, Executive Director

From: Julia Beaty, staff

Subject: 2022-2023 Black Sea Bass Specifications

Executive Summary

This memorandum includes information to assist the Mid-Atlantic Fishery Management Council's (Council's) Scientific and Statistical Committee (SSC) and Monitoring Committee in recommending 2022-2023 catch and landings limits for black sea bass, as well as black sea bass commercial management measures for 2022.

The black sea bass stock from Maine through Cape Hatteras, North Carolina is cooperatively managed by the Council and the Atlantic States Fishery Management (Commission). Additional information on fishery performance and past management measures can be found in the 2021 Black Sea Bass Fishery Information Document and the 2021 Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report developed by advisors.[1]

A black sea bass management track stock assessment was peer reviewed and accepted in June 2021. This assessment found that the black sea bass stock north of Cape Hatteras, North Carolina was not overfished and overfishing was not occurring in 2019 compared to revised reference points. Spawning stock biomass (SSB) in 2019 was 65.63 million pounds (29,769 mt, adjusted for retrospective bias), 2.1 times the updated biomass reference point (i.e., $SSB_{MSY\ proxy} = SSB_{40\%}$=31.84 million pounds/14,441 mt). The average fishing mortality rate (F) on fully selected ages 6-7 fish in 2019 was 0.39 (adjusted for retrospective bias), 85% of the updated fishing mortality threshold reference point (i.e., $F_{MSY\ proxy} = F_{40\%}$ = 0.46).[2]

The Magnuson-Stevens Fishery Conservation and Management Act requires the Council's SSC to provide scientific advice for fishery management decisions, including recommendations for Acceptable Biological Catch limits (ABCs), prevention of overfishing, and achieving maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABCs recommended by the SSC.

[1] Available at: https://www.mafmc.org/fishery-performance-reports
[2] A draft of the 2021 management track stock assessment report prepared for the peer review and for Council and SSC consideration is available at: https://www.mafmc.org/ssc-meetings/2021/july21-23

Based on the SSC's recommended 2022-2023 ABCs, the Monitoring Committee will recommend commercial and recreational Annual Catch Limits (ACLs) and Annual Catch Targets (ACTs), commercial quotas, and recreational harvest limits (RHLs). The Monitoring Committee will also consider whether any revisions are needed to the commercial management measures (minimum fish size, minimum mesh size, and mesh exemption programs) for 2022.

The Council will meet jointly with the Commission's Summer Flounder, Scup, and Black Sea Bass Management Board (Board) in August 2021 to review the recommendations of the SSC and Monitoring Committee, as well as input from the Advisory Panel, and adopt catch and landings limits for 2022-2023 and any desired changes to the commercial management measures for 2022. Recreational bag limits, size restrictions, and open/closed seasons for 2022 will be considered in late 2021 after preliminary recreational harvest estimates through August 2021 are available.

This document includes two sets of ABC projections for 2022-2023 based on the 2021 management track assessment: one allowing for identical ABCs across the two years and one allowing for variable ABCs across the two years. Assumptions related to the projections are described on pages 10-12. Note that the assumption used in this memo regarding total 2021 dead catch differs from that used in the projections included in the draft assessment document. The SSC may recommend ABCs based on different assumptions.

Table 1 lists the commercial and recreational ACLs and ACTs, as well as commercial quotas and RHLs, resulting from the ABC projections provided in this memo. These sector-specific catch and landings limits assume no changes are made to the method used to calculate expected black sea bass dead discards in each sector. The Monitoring Committee may recommend different values for these catch and landings limits.

Staff do not recommend any changes to the current federal commercial management measures, including the minimum fish size, mesh size requirements and associated incidental possession limits, or pot/trap gear requirements for 2022.

Table 1: Implemented 2021 black sea bass catch and landings limits, as well as potential 2022-2023 catch and landings limits under constant and variable ABCs. Catch and landings limits in 2022 and 2023 are based on the staff recommended assumptions for ABC projections and discard calculations described later in this document.

Mgmt Measure	2021		2022 & 2023, avg ABCs recommended)		2022 & 2023, varying ABCs				Basis
					2022		2023		
	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	
OFL	17.68	8,021	19.26 (2022); 17.34 (2023)	8,735 (2022); 7,865 (2023)	19.26	8,735	17.01	7,716	Stock assessment projections
ABC	17.45	7,916	17.76	8,056	18.86	8,555	16.66	7,557	Stock assessment projections and Council risk policy
Expected com. dead discards	3.43	1,556	3.42	1,553	3.63	1,649	3.21	1,456	Calculated based on assumption that com. dead disc. would be 36% of com. catch in all 3 years (2016-2018 and 2017-2019 avg.)
Expected rec. dead discards	1.58	719	1.90	863	2.02	917	1.79	810	Calculated based on assumption that rec dead disc would be 20% of rec catch in 2021 (2016-2018 avg) and 23% of rec catch in 2022 & 2023 (2017-2019 avg)
ABC landings	12.44	5,641	12.43	5,640	13.20	5,990	11.66	5,291	ABC - expected com. and rec. dead discards
Com. ACL	9.52	4,320	9.51	4,316	10.10	4,583	8.93	4,048	49% of ABC landings portion + expected com. disc.
Com. ACT	9.52	4,320	9.51	4,316	10.10	4,583	8.93	4,048	Equal to the ACL; no deduction for management uncertainty
Com. quota	**6.09**	**2,764**	**6.09**	**2,763**	**6.47**	**2,934**	**5.71**	**2,592**	Com. ACT minus expected com. dead discards
Rec. ACL	7.93	3,596	8.25	3,740	8.76	3,972	7.74	3,509	51% of ABC landings portion + expected rec. disc.
Rec. ACT	7.93	3,596	8.25	3,740	8.76	3,972	7.74	3,509	Equal to the ACL; no deduction for management uncertainty
RHL	**6.34**	**2,877**	**6.34**	**2,877**	**6.74**	**3,055**	**5.95**	**2,699**	Rec. ACT minus expected rec. dead discards

Recent Catch and Landings

The COVID-19 pandemic impacted data collection in both the recreational and commercial fisheries in 2020. Commercial fisheries observer data collection was suspended from mid-March through mid-August 2020. Recreational data collection through the Access Point Angler Intercept Survey (APAIS) was suspended starting in late March or April and resumed between May and August 2020, depending on the state. Commercial seafood dealer reporting, submission of vessel trip reports (VTRs), and MRIP effort sampling through mail and phone surveys continued uninterrupted throughout 2020.

MRIP staff used imputation methods to fill 2020 data gaps resulting from temporary suspension of APAIS sampling with data collected in 2018 and 2019. These proxy data match the time, place, and fishing modes that would have been sampled had APAIS sampling continued uninterrupted. Proxy data were combined with observed data to produce 2020 catch estimates using the standard estimation methodology. When complete 2021 data are available in 2022, MRIP staff will evaluate the effects of including 2021 data (e.g., alongside 2019 data and instead of 2018 data) in the imputation. Because these effects are unknown, the agency cannot predict whether it will seek to revise the 2020 catch estimates in 2022.

Estimates of dead discards in both sectors in 2020 are not currently available. The method for estimating the weight of recreational discards relies on age and length information that is not complete at this time. Commercial dead discard estimates are not available for 2020 due to data gaps resulting from the temporary suspension of observer data collection. At this time, it is not known if alternative methodologies will be developed to generate 2020 commercial discard estimates. Estimates of dead discards in both sectors through 2019 are available in the draft 2021 management track stock assessment report.[3]

Commercial and recreational landings increased each year from 2018 through 2020. Commercial landings totaled about 4.21 million pounds in 2020, the highest level since the start of the joint Council/Commission management program in 1998. Commercial landings typically closely follow the commercial quota and the 2020 quota (5.58 million pounds) was higher than any previous quota (Table 2). The 2020 commercial quota was not fully landed in large part due to impacts of the COVID-19 pandemic on market demand.

Based on data reported through July 7, 2021, about 2.38 million pounds of black sea bass have been landed by commercial fishermen from Maine through Cape Hatteras, NC in 2021, corresponding to 39% of the 2021 commercial quota (6.09 million pounds; Table 3).

Recreational landings are more variable than commercial landings. In 2020, recreational landings totaled 9.05 million pounds, the highest level since 2016 and 2017, which are years with recreational harvest estimates that have been identified by the SSC and Monitoring Committee as implausibly high outliers. Recreational landings in 2020 were about 56% greater than the RHL (5.81 million pounds; Table 2). This recreational overage was not unexpected as the Council and Board agreed to leave the recreational bag, size, and season limits unchanged in 2020 despite an anticipated RHL overage. This was viewed as a temporary solution to allow more time to consider how to fully transition the management system to use of the revised time series of MRIP data released in 2018, including ongoing considerations related to the commercial/recreational allocations and many changes to recreational fisheries management

[3] Available at: https://www.mafmc.org/ssc-meetings/2021/july21-23

under consideration through the ongoing Recreational Reform Initiative.[4] The Council and Board also agreed to leave the recreational bag, size, and season limits unchanged in 2021 for similar reasons, despite a similar anticipated RHL overage in 2021.

As of this memo, recreational estimates for 2021 are only available through wave 2 (March/April), which does not provide meaningful insights into 2021 recreational harvest given that the recreational black sea bass fishery was closed through at least May 15, 2021 in all states except for Virginia and New Hampshire.

Table 2: Black sea bass commercial and recreational landings relative to quotas and RHLs (in millions of pounds), 2016-2020, and quota and RHL for 2021. The RHL overage/underage evaluation is based on recreational harvest estimates using the old MRIP-estimation methodology through 2018 and the revised MRIP estimates for 2020. 2019 estimates in the old MRIP units are not available. RHLs prior to 2020 should not be compared to harvest in the new MRIP units because those RHLs did not account for revisions to the data. As described above, the 2020 MRIP harvest estimate is partially based on imputed values.

Year	Com. landings	Com. quota	Quota overage/ underage	Rec. harvest (old MRIP estimates)	Rec. harvest (revised MRIP estimates)	RHL	RHL overage/ underage
2016	2.59	2.71	-4%	5.19	12.05	2.82	+84%
2017	4.01	4.12	-3%	4.16	11.50	4.29	-3%
2018	3.46	3.52	-2%	3.82	7.92	3.66	+4%
2019	3.53	3.52	0%	--	8.61	3.66	--
2020	4.21	5.58	-25%	--	9.05	5.81	+56%
2021	--	6.09	--	--	--	6.34	--

[4] More information on the Summer Flounder, Scup, and Black Sea Bass Commercial/Recreational Allocation Amendment is available at: https://www.mafmc.org/actions/sfsbsb-allocation-amendment. More information on the Recreational Reform Initiative is available at: https://www.mafmc.org/actions/recreational-reform-initiative

Table 3: 2021 black sea bass commercial landings by state, according to preliminary data reported through July 7, 2021. Data accessed July 13, 2020 from https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region.

State	Landings (lb)
ME	0
NH	0
MA	11,263
RI	349,189
CT	39,878
NY	200,961
NJ	666,053
DE	180,300
MD	414,650
VA	354,617
NC	165,714
Total	2,382,625
2021 Commercial Quota	6,090,000
Percent of Quota Landed	**39%**

Stock Status and Biological Reference Points

A black sea bass management track stock assessment was peer reviewed and accepted in June 2021. The following information is based on the draft assessment report prepared for the peer review and for use by the Council and SSC.[5] This assessment retained the model structure of the 2016 benchmark stock assessment[6] and incorporated fishery data and fishery-independent survey data through 2019. Data from 2020 were not incorporated due to significant gaps in some data sets as a result of the COVID-19 pandemic and the time required to consider how to best address those gaps.

As with the 2016 benchmark assessment, the 2021 management track assessment has a regional structure. The stock was modeled as two separate sub-units (north and south) divided at approximately Hudson Canyon. Each sub-unit was modeled separately and the average F and combined biomass and SSB across the two sub-units were used to develop stock-wide reference points.

Due to the lack of a stock/recruit relationship, a direct calculation of maximum sustainable yield (MSY) and associated reference points (F and SSB) is not feasible and proxy reference points were used. SSB calculations and SSB reference points account for mature males and females. The updated reference points are shown in Table 5 alongside the reference points from the previous assessment for comparison.

[5] A draft of the 2021 management track stock assessment report prepared for the peer review and for Council and SSC consideration is available at: https://www.mafmc.org/ssc-meetings/2021/july21-23

[6] 62nd Northeast Stock Assessment Workshop (2016) assessment report and peer review summaries are available at: https://www.nefsc.noaa.gov/saw/reports.html

A comparison of the 2019 SSB and F estimates to the reference points suggests that the black sea bass stock north of Cape Hatteras, North Carolina was not overfished and overfishing was not occurring in 2019. SSB in 2019 was estimated at 65.63 million pounds (29,769 mt, adjusted for retrospective bias), 2.1 times the updated biomass reference point (i.e., $SSB_{MSY\ proxy}$ = $SSB_{40\%}$=31.84 million pounds/14,441 mt). The average fishing mortality rate on fully selected ages 6-7 fish in 2019 was 0.39 (adjusted for retrospective bias), 85% of the updated fishing mortality threshold reference point (i.e., $F_{MSY\ proxy} = F_{40\%} = 0.46$; Table 5). The 2019 estimates of F and SSB were adjusted for internal model retrospective error (Figure 1). Figure 2 and Figure 3 show the time series of estimated SSB, recruitment, fishing mortality, and catch without retrospective adjustments.

The 2011 year class was estimated to be the largest in the time series at 170.4 million fish. The 2015 year class was the second largest at 93.8 million fish. Recruitment of the 2017 year class as age 1 in 2018 was estimated at 14.9 million, well below the 1989-2019 average of 39 million fish. However, the 2018 year class was above average at an estimated 46.2 million fish (79.4 million with the retrospective adjustment) at age 1 in 2019 (Figure 2).

Table 4: Black sea bass biological reference points from the 2019 operational stock assessment and the 2021 management track assessment.

Reference points and terminal year SSB and F estimates	**2019 operational stock assessment**[7] Data through 2018	**2021 management track stock assessment**[8]
$SSB_{MSY\ proxy} = SSB_{40\%}$ (biomass target)	31.07 mil lb / 14,092 mt	31.84 mil lb / 14,441 mt
½ SSB_{MSY} (biomass threshold defining an overfished status)	15.53 mil lb / 7,046 mt	15.92 mil lb / 7,221 mt
Terminal year SSB	73.65 mil lb / 33,407 mt (2018) Adjusted for retrospective bias 240% of SSB_{MSY}	65.63 mil lb / 29,769 mt (2019) Adjusted for retrospective bias 210% of SSB_{MSY}
$F_{MSY\ proxy} = F_{40\%}$ (threshold defining overfishing)	0.46	0.46
Terminal year F	0.42 (2018) Adjusted for retrospective bias Fully selected ages 6-7 9% below F_{MSY}	0.39 (2019) Adjusted for retrospective bias Fully selected ages 6-7 15% below F_{MSY}

[7] A draft of the 2021 management track stock assessment report prepared for the peer review and for Council and SSC consideration is available at: https://www.mafmc.org/ssc-meetings/2021/july21-23
[8] Draft available at: https://www.mafmc.org/council-events/2021/ssc-july-21-23

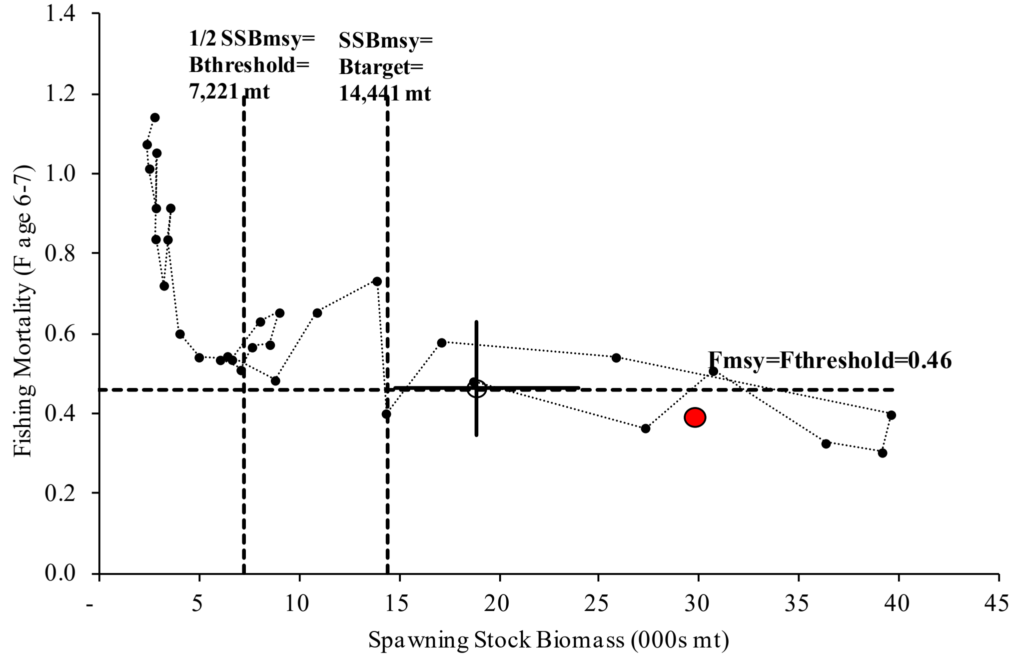

Figure 1: Estimates of black sea bass spawning stock biomass (SSB) and fully-recruited fishing mortality (F, peak at ages 6-7) relative to the updated 2021 biological reference points. Open circle with 90% confidence intervals shows the assessment point estimates. The filled circle shows the retrospectively adjusted estimates. Source: 2021 management track assessment.

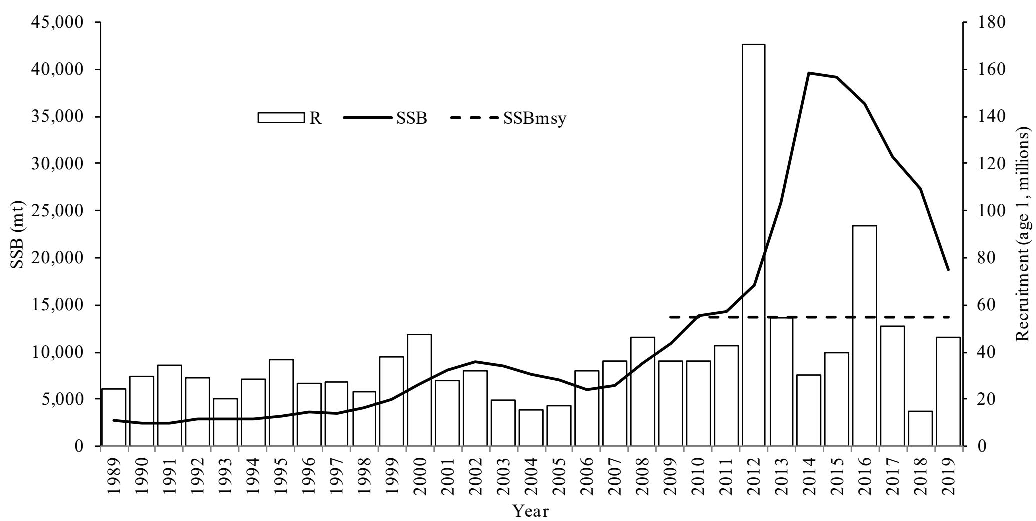

Figure 2: Black sea bass spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars) by calendar year. The horizontal dashed line is the updated SSB_{MSY} proxy = $SSB_{40\%}$ =14,441 mt. Source: 2021 management track assessment. Note that SSB and recruitment estimates were adjusted for a retrospective pattern in the stock assessment. The un-adjusted values are shown in this figure. Adjusted SSB in 2019 for comparison against the SSB_{MSY} proxy reference point is 29,769 mt. The adjusted recruitment value for 2019 is 79.4 million.

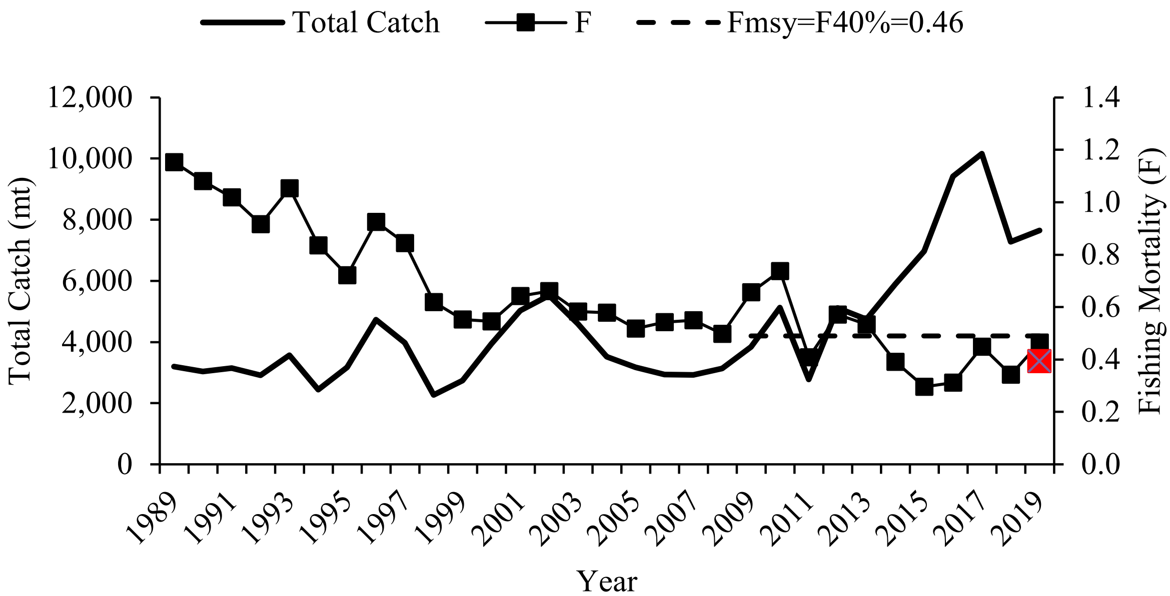

Figure 3: Total fishery catch (metric tons; mt; solid line) and fishing mortality (F, peak at age 6-7; squares) for black sea bass. The horizontal dashed line is the updated F_{MSY} proxy = $F_{40\%}$ = 0.46. The red square Is the retrospectively adjusted fishing mortality value for 2019. Source: 2021 management track assessment.

Review of Prior SSC Recommendations

In September 2019, the SSC recommended 2020 and 2021 ABCs for black sea bass based on stock status information and projections from the 2019 operational stock assessment. In July 2020, the SSC revised their 2021 ABC recommendation based only on a change in the Council's risk policy which allowed for a higher probability of overfishing for highly abundant stocks than the previous risk policy.

The SSC applied a 100% coefficient of variance (CV) to the overfishing limit (OFL) when developing their ABC recommendations for 2020-2021. This represents an increase from the 60% OFL CV used for their 2017-2019 ABC recommendations.[9] A higher OFL CV results in a greater buffer between the OFL and the ABC to account for scientific uncertainty. However, it should be noted that under the Council's revised risk policy which allows for a 49% probability of overfishing for stocks that are at least 150% of the biomass target level (which includes black sea bass), the OFL CV has a lesser impact on the ABC for very abundant stocks compared to the previous risk policy which allowed a maximum 40% probability of overfishing.

The following text was copied directly from the SSC's September 2019 meeting summary[10] and describes their rationale for applying a 100% OFL CV for 2020-2021:

- There is a strong retrospective bias present in the assessment results and this pattern differs between the two spatial sub-areas.
- The fishery has a large recreational component (~60-80% of total harvest in recent years), and thus a substantial reliance on MRIP. Updated MRIP numbers differ substantially from the old estimates, and the updated estimate for one year (2016) was considered

[9] The SSC's 2017-2019 ABC recommendations and supporting rationale are summarized here: https://www.mafmc.org/s/January-2017-SSC-Report.pdf

[10] Available at: https://www.mafmc.org/s/September-2019-SSC-Meeting-ReportRevised.pdf

implausible owing to high variance in wave-specific data.
- Spatially explicit models were implemented in the 2016 benchmark assessment, and there were detailed efforts to explore the consequences of the misspecification of the spatial resolution of these models on perceptions of stock status.
- There were broadly consistent patterns in the fishery independent indices.

The SSC determined the following to be the most significant sources of scientific uncertainty associated with determination of the 2020-2021 OFLs and ABCs in September 2019:

- The retrospective pattern was large enough to need the corrections (outside the 90% confidence intervals), and the additional uncertainty caused by applying the correction is unclear. The model for the northern sub-area has a larger retrospective pattern than the model for the southern sub-area.
- The natural mortality rate (M) used in the assessment —because of the unusual life history strategy, the current assumption of a constant M in the assessment model for both sexes —may not adequately capture the dynamics in M.
- The spatial distribution of productivity within the stock range.
- The level, temporal pattern, and spatial distribution of recreational catches.
- The nature of exchanges between the spatial regions defined in the assessment model.
- The extent to which the spatial structure imposed reflects the dynamics within the stock. The combination of the values from the northern and southern sub-areas is done without weighting based on landings or biomass. It is unclear whether or how the uncertainty should be treated when the biological reference points are combined using simple addition.
- Future effects of temperature on stock productivity and range are highly uncertain.

Staff Recommendations for 2022-2023 OFL and ABC Projections

The SSC is asked to recommend two sets of ABCs for 2022-2023, one allowing for varying catch and landings limits across the two years and one allowing for constant catch and landings limits based on an ABC that is the average of the ABCs under the varying approach. This will allow the Council and Board to select between these two options during their August 2021 joint meeting.

Table 6 and Table 7 show projected ABCs based on the varying and averaged approaches, respectively. The projections were made separately for the northern and southern sub-units at F_{MSY}=0.46, then combined for total OFL and ABC calculations.

Both sets of projections assume a 100% OFL CV, based on past SSC recommendations. Recruitment was sampled from the estimates for 2000-2019. The Council's risk policy was applied, resulting in a probability of overfishing (p*) of 49%.

These projections also apply a staff-recommended assumption regarding total dead catch in 2020 and 2021. It was assumed that total dead catch in 2020 and 2021 will be equal to the respective ABCs, with an adjustment for a 2020 recreational harvest overage and an assumed 2021 recreational overage (Table 2). Specifically, it was assumed that 2021 recreational harvest would be the same as estimated 2020 recreational harvest. Total dead catch in 2020 and 2021 was assumed to be the ABC plus the difference between the 2020 recreational harvest estimate and the 2020 or 2021 RHL. It was assumed that 2021 recreational harvest will be equal to 2020 recreational harvest given that the bag, size, and season limits were the same across both years. This assumption results in an ABC overage of about 25% in both 2020 and 2021. Note that this assumption differs from that used in the draft assessment document, which assumed 2021 catch would equal the ABC.

Total dead catch in 2020 is currently unknown, given the data gaps in commercial and recreational dead discard information described above. Future recreational harvest and future dead discards in both sectors are always challenging to predict. However, it is reasonable to assume that the ABC will be exceeded in both 2020 and 2021 due to recreational harvest that significantly exceeded the RHL in 2020 and is likely to also exceed the 2021 RHL given the recent scale of harvest (Table 2) and the virtually unchanged recreational bag, size, and season limits during 2018-2021. As previously stated, the Council and Board acknowledged that a 2021 RHL overage was likely when they agreed to leave the bag, size, and season limits unchanged. They recommended this as a short-term approach to prevent major negative impacts to the recreational sector while further considering how management may need to adapt to the revised MRIP data (e.g., through the ongoing Commercial/Recreational Allocation Amendment) and other improvements to recreational fisheries management under consideration through the Recreational Reform Initiative.

The SSC may recommend a different OFL CV and/or different projection assumptions during their July 2021 meeting. Northeast Fisheries Science Center staff may be able to provide revised projections at the request of the SSC.

The staff recommendations described in this memo result in a 2022 and 2023 ABC under the averaged approach that is 2% lower than the 2021 ABC. Under the varying approach, they result in a 2022 ABC that is 8% greater than the 2021 ABC and a 2023 ABC that is 12% lower than the 2022 ABC.

Council staff recommend that the Council and Board implement constant catch and landings limits in 2022 and 2023 based on the averaged ABC to provide predictability and stability in management measures for the commercial and recreational sectors across the two years.

Table 5: 2022-2023 OFL and ABC projections based on the **varying ABC** approach under the staff recommended projection assumptions. See text above for more information. (Source: personal communication, Kiersten Curti, Northeast Fisheries Science Center.)

Year	**Assumed Catch**		**OFL**		**ABC**		**ABC F**	**ABC p***	**SSB**		**B/ B_{MSY}**
	MT	Mil. lb	MT	Mil. lb	MT	Mil. lb			MT	Mil. lb	
2020	8,310	18.32	8,795	19.39	6,835	15.07	0.33	N/A	26,375	58.15	1.83
2021	9,149	20.17	8,021	17.68	7,916	17.45	0.40	N/A	25,057	55.24	1.74
2022	8,555	18.86	8,735	19.56	8,555	18.86	0.41	0.49	22,637	49.91	1.57
2023	7,557	16.66	7,716	17.01	7,557	16.66	0.41	0.49	19,538	43.07	1.35

Table 6: 2020-2021 OFL and ABC projections based on the **averaged ABC** approach under the staff recommended projection assumptions. (Source: personal communication, Kiersten Curti, Northeast Fisheries Science Center.)

Year	**Assumed Catch**		**OFL**		**ABC**		**ABC F**	**ABC p***	**SSB**		**B/ B_{MSY}**
	MT	Mil. lb	MT	Mil. lb	MT	Mil. lb			MT	Mil. lb	
2020	8,310	18.32	8,795	19.39	6,835	15.07	0.33	N/A	26,375	58.15	1.83
2021	9,149	20.17	8,021	17.68	7,916	17.45	0.40	N/A	25,057	55.24	1.74
2022	8,055	17.76	8,735	19.26	8,056	17.76	0.38	0.46	22,897	50.48	1.59
2023	8,055	17.76	7,865	17.34	8,056	17.76	0.43	0.51	19,683	43.39	1.36

Other Management Measures

Expected Commercial and Recreational Dead Discards

It is necessary to calculate expected dead discards by sector to derive the 2022 and 2023 commercial and recreational ACLs, commercial quota, and RHL from the ABC. The methodology to calculate sector-specific dead discards to calculate ACLs and landings limits is not prescribed in the FMP and can be modified on an annual basis.

Staff recommend continued use of the discard calculation methodology used when setting the 2021 black sea bass catch and landings limits. This method differs from that used for summer flounder and scup. Prior to the 2021 specifications, the method for calculating expected black sea bass dead discards was similar to that used for summer flounder. In 2020, the Monitoring Committee, Council, and Board agreed that a different method was needed for black sea bass to help prevent future ACL overages as the black sea bass ACL in both sectors had been exceeded every year since at least 2015, all or in part due to under-estimated future dead discards when setting the catch and landings limits.

The method used for 2021 specifications and recommended for 2022-2023 specifications assumes that dead discards as a proportion of total dead catch in each sector will be equal to the average proportions over the last three years (i.e., commercial dead discards will be 36% of commercial catch and recreational dead discards will be 23% of recreational catch based on NEFSC data for 2017-2019; as previously stated, complete information on 2020 discards is not currently available). The calculations also account for the required 49% commercial, 51% recreational allocation of the amount of the ABC that is expected to be landed. When the Monitoring Committee first developed this method in 2019, they noted that commercial black sea bass landings tend to closely follow changes in the quota and that dead discards tend to scale up or down with increases or decreases in landings (Figure 4). A similar trend is evident in the recreational fishery, though the relationship is not as strong as in the commercial fishery (Figure 5). The Monitoring Committee noted that sector-specific dead discards as a proportion of sector-specific dead catch were relatively consistent during recent years, even under varying landings limits and highly variable recreational harvest estimates (including 2016 and 2017, two years with outlier recreational estimates). Therefore, they agreed that it would be appropriate to use a recent three-year average of the proportion of total dead catch in each sector that is discarded when calculating the black sea bass catch and landings limits. This differs from the previous method in that it starts with sector-specific assumptions about discards, rather than first starting with an assumption about the proportion of the total ABC which will be landed vs. discarded.

Under the averaged ABC listed in Table 7, this method results in 3.42 million pounds (1,553 mt) of expected commercial black sea bass dead discards and 1.90 million pounds (863 mt) of expected recreational black sea bass dead discards in 2022 and 2023. Under the varying ABCs listed in Table 6, this method results in 3.63 million pounds (1,649 mt) of expected commercial black sea bass dead discards and 2.02 million pounds (917 mt) of expected recreational black sea bass dead discards in 2022 and 3.21 million pounds (1,456 mt) of expected commercial black sea bass dead discards and 1.79 million pounds (810 mt) of expected recreational black sea bass dead discards in 2023. These values were used to calculate the ACLs, ACTs, commercial quotas, and RHLs listed in the following sections and in Table 1.

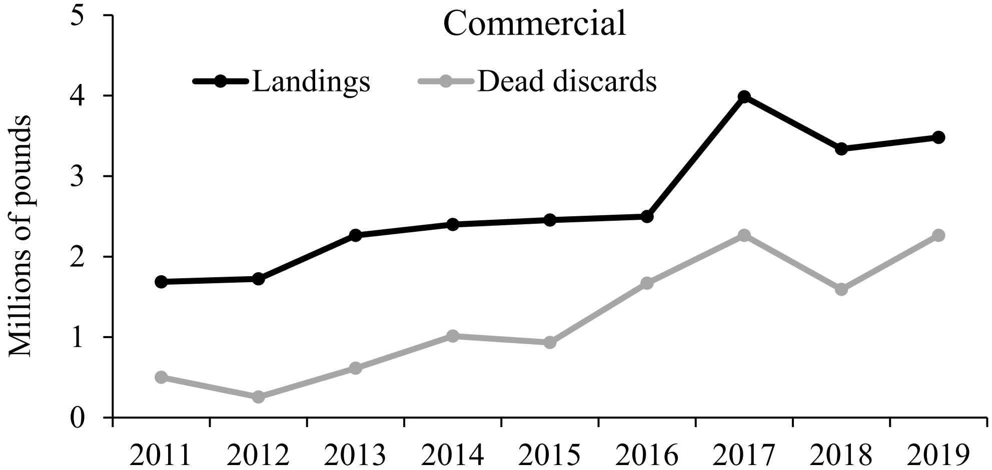

Figure 4: Commercial black sea bass landing and dead discards in millions of pounds, 2011-2019. Source: 2021 management track assessment.

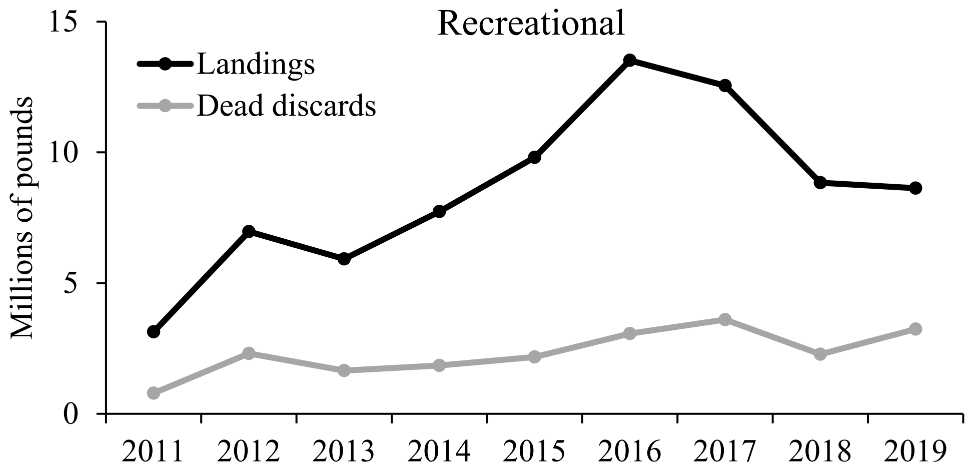

Figure 5: Recreational black sea bass landing and dead discards in millions of pounds, 2011-2019. Source: 2021 management track assessment.

Recreational and Commercial ACLs

Based on the allocation percentages defined in the FMP, 49% of the total allowable landings (i.e., the proportion of the ABC that is expected to be landed as opposed to discarded) are allocated to the commercial fishery and 51% to the recreational fishery. These allocations are combined with expected commercial and recreational dead discards to calculate sector-specific ACLs.

The 49% commercial/51% recreational landings-based allocation was implemented through Amendment 9 (1996) and first came into effect in 1998. This allocation was based on the proportions of commercial and recreational landings during 1983-1992. These allocation percentages do not reflect the current understanding of the proportion of catch and landings from the commercial and recreational sectors, in large part due to recent major changes in how the recreational harvest estimates are calculated. The Council and Board are developing an FMP amendment to consider changes to these allocations, with final action expected in December 2021. Any changes to these allocations cannot be implemented for the 2022 catch and landings limits. If changes to these allocations are approved, this may result in modifications to the 2023 catch and landings limits. Because final action on this amendment has not yet taken place, staff recommend setting 2022-2023 specifications based on the current commercial/recreational allocation and revising the 2023 specifications in 2022 if necessary based on any approved changes to the allocations.

The staff recommendations described above for ABC projections and discard calculations result in a commercial ACL of 9.51 million pounds (4,316 mt) and a recreational ACL of 8.25 million pounds (3,740 mt) in 2022 and 2023 under the averaged ABC approach. Under the varying ABC approach, they result in a 2022 commercial ACL of 10.10 million pounds (4,583 mt), a 2022 recreational ACL of 8.76 million pounds (3,972 mt), a 2023 commercial ACL of 8.93 million pounds (4,048 mt), and a 2023 recreational ACL of 7.74 million pounds (3,509 mt; Table 1).

Recreational and Commercial ACTs

ACTs are set less than or equal to the sector-specific ACLs to account for management uncertainty (Figure 5). Management uncertainty is comprised of two parts: uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e., estimation errors). Management uncertainty can occur because of a lack of sufficient information about the catch (e.g., due to late reporting, underreporting, and/or misreporting of landings or discards) or because of a lack of management precision (i.e., the ability to constrain catch to desired levels). The Monitoring Committee considers all relevant sources of management uncertainty in the black sea bass fishery when recommending ACTs.

Commercial landings are typically very close to the commercial quotas (Table 2). The commercial quota monitoring system is timely and generally successful in constraining landings to the quota. Recreational landings compared to the RHL are much more variable (Table 2). Recreational harvest is estimated through a statistical survey design (i.e., the MRIP program), as opposed to mandatory vessel and dealer reporting in the commercial fishery which is more of a census of the entire commercial fishery. The commercial fisheries are also mostly limited access (with some exceptions at the state level) and the commercial fisheries can be closed in-season when landings approach the quota. The recreational fisheries for these species are all open access and there is no in-season closure authority due to the timing of recreational data availability. For these reasons, recreational landings can be more difficult to constrain and predict than commercial landings.

When considering the scale of the RHL overages and underages shown in Table 2, it is important to note that the RHL was not set based on a peer reviewed and accepted stock assessment until 2017. The 2016 RHL was likely lower than it would have been had an approved stock assessment been available to set catch and landings limits that were reflective of biomass levels at that time. In addition, as previously described, the notable RHL overage in 2020 was the result of the Council and Board leaving the bag, size, and season limits unchanged despite an expected overage. They recommended this as a short-term approach to prevent major negative impacts to the recreational sector while further considering how management may need to adapt to the revised MRIP data (e.g., through the ongoing Commercial/Recreational Allocation Amendment) and other improvements to recreational fisheries management under consideration through the Recreational Reform Initiative.

The goal of the Recreational Reform Initiative is to provide more stability in the recreational bag, size, and season limits from year to year, greater flexibility in the management process, and recreational accessibility aligned with availability. Specific changes could include greater consideration of stock status when setting recreational management measures, better addressing uncertainty in the MRIP data when setting measures, and other changes. This is an ongoing effort.

Consistent with previous Monitoring Committee, Council, and Board recommendations, staff recommend no reduction from the 2020-2021 recreational or commercial ACLs to account for management uncertainty, such that each sector's ACT is set equal to the ACL.

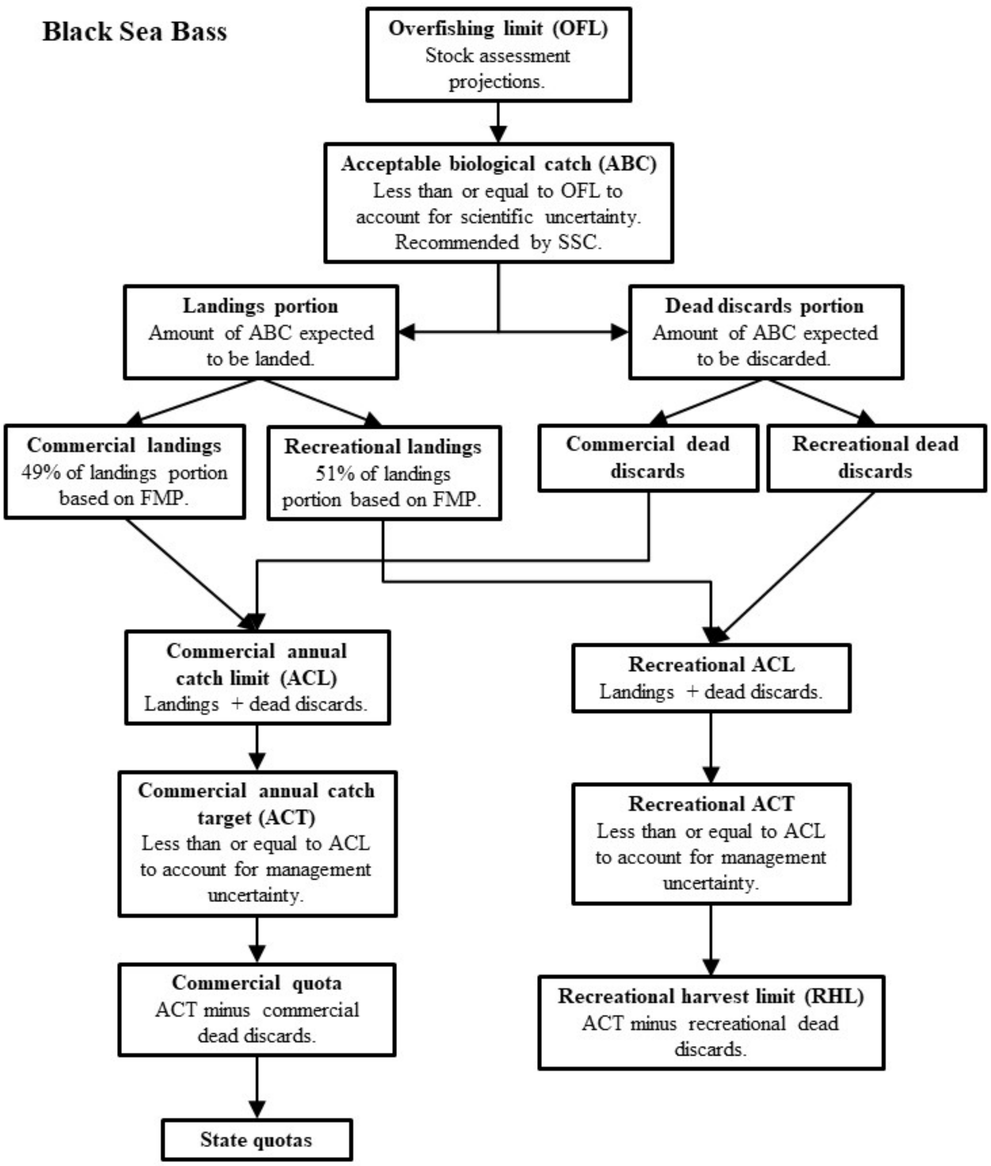

Figure 6: Flowchart for black sea bass catch and landings limits.

Commercial Quotas and Recreational Harvest Limits

Expected dead discards in each sector are subtracted from the sector-specific ACTs to derive annual commercial quotas and RHLs. The staff recommendation for calculating dead discards is described above.

Based on the recommendations outlined in this memo, the averaged ABC approach would result in a commercial quota of 6.09 million pounds (2,763 mt) and an RHL of 6.34 million pounds (2,877 mt) in both 2022 and 2023, virtually identical to the commercial quota and RHL implemented in 2021.

The varying ABC approach would result in a commercial quota of 6.47 million pounds (2,934 mt) and an RHL of 6.74 million pounds (3,055 mt) in 2022, about 6% higher than the commercial quota and RHL implemented in 2021. The varying ABC approach would result in a commercial quota of 5.71 million pounds (2,592 mt) and an RHL of 5.95 million pounds (2,699 mt) in 2023, about 11% lower than what would be in place for 2022.

Commercial Gear Regulations and Minimum Fish Size

Amendment 9 (1996) established a minimum fish size of 9 inches total length. The commercial minimum fish size was increased to 10 inches in 1998, and to 11 inches in 2002. The 11-inch minimum size has remained unchanged since 2002.

Amendment 9 also established gear regulations that became effective in December 1996 and were modified in 1998 and again in 2002. Current regulations, unchanged since 2002, state that trawl vessels whose owners have a black sea bass moratorium permit and possess 500 pounds or more of black sea bass from January 1 through March 31, or 100 pounds or more from April 1 through December 31, must fish with nets that have a minimum mesh size of 4.5-inch diamond mesh throughout the codend for at least 75 continuous meshes forward of the terminus of the net. For codends with less than 75 meshes, the entire net must have a minimum mesh size of 4.5-inch diamond mesh.

The Council and Commission adopted modifications to the circle vent size in black sea bass pots/traps, effective in 2007, based on the findings of a Council and Commission sponsored workshop. The minimum circle vent size requirements for black sea bass pots/traps were increased from 2.375 inches to 2.5 inches. The requirements of 1.375 inches x 5.75 inches for rectangular vents and 2 inches for square vents remained unchanged. In addition, two vents are required in the parlor portion of the pot/trap.

In the fall of 2015, the Monitoring Committee conducted a thorough review of the commercial management measures which can be modified through specifications.[11] This review indicated that further exploration of potential modifications to some measures may be justified. Specifically, for black sea bass, this included assessing the feasibility of a common trawl minimum mesh size with summer flounder and scup. Stemming from this discussion, the Council funded a project which analyzed the selectivity of multiple codend mesh sizes relative to retention of these three species in the commercial bottom trawl fisheries. Results confirmed that the current minimum mesh sizes for all three species are effective at releasing most fish smaller than the commercial minimum sizes (i.e., 14 inches total length for summer flounder, 9 inches total length for scup, and 11 inches total length for black sea bass). The study was not able to identify a common mesh size for all three species that would be effective at minimizing discards

[11] The summary report is available at: http://www.mafmc.org/s/Tab11_SF-S-BSB-Commercial-Measures.pdf.

under the current minimum fish size limits. However, the authors concluded that a common mesh size of 4.5 or 5 inches diamond for scup and black sea bass would be effective at releasing undersized fish.[12]

The Monitoring Committee reviewed the results of this study in 2018 and recommended no changes to the commercial minimum mesh sizes for 2019. They recommended clarification of the Council's objectives regarding consideration the mesh sizes (e.g., establishing a common minimum mesh size, minimizing discards, and/or maintaining or increasing catches of legal-sized fish). A few advisors have requested continued consideration of a standardized minimum mesh size across two or more of the species.

Staff will continue to work with the Monitoring Committee and Advisory Panel to further analyze and consider potential changes to mesh size regulations. However, given other workload constraints, it is not likely that additional work on this topic can be done in 2021. At this time, staff recommend no changes to the black sea bass commercial gear regulations for 2022.

Recreational Management Measures

Starting in 2018, the Council and Commission have provided states the opportunity to open their recreational black sea bass fisheries during the month of February under specific conditions. States must opt into this fishery. Participating states are required to have a 12.5 inch minimum fish size limit and a 15 fish possession limit during February (identical to the federal recreational measures during May 15 - December 31). Participating states are required to adjust their recreational management measures during the rest of the year to account for expected February harvest to help ensure that the participation in this optional opening does not increase the total annual harvest. Expected February harvest by state is pre-defined based on an analysis of vessel trip report data from federally permitted for-hire vessels in February 2013, the last year that the recreational fishery was open in February prior to 2018. Staff recommend no changes to this program for 2022. If the Council and Board desire changes to the February recreational opening, they should recommend those changes in August 2021 to allow time for any necessary rule making to implement the changes.

The recreational bag, size, and season limits for March - December 2022 will be considered in late 2021 after the first four waves (i.e., January - August) of preliminary 2021 recreational harvest data are available (expected October 2021). The Monitoring Committee will meet in November 2021 to review these data and make recommendations regarding any necessary changes in the recreational possession limits, minimum sizes, and seasons.

[12] Hasbrouck, E., S. Curatolo-Wagemann, T. Froelich, K. Gerbino, D. Kuehn, P. Sullivan, J. Knight. 2018. Determining Selectivity and Optimum Mesh Size to Harvest Three Commercially Important Mid-Atlantic Species - A Report to the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission. Available at: http://www.mafmc.org/s/Tab08_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf

A: Black Sea Bass Operational Assessment for 2021

National Marine Fisheries Service
Northeast Fisheries Science Center
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State of Stock: This assessment of black sea bass (*Centropristis striata*) is an update through 2019 of commercial and recreational catch data, research survey and fishery-dependent indices of abundance, and the analyses of those data. The black sea bass stock was not overfished and overfishing was not occurring in 2019 relative to the updated biological reference points (Figure A1). Spawning stock biomass (retro adjusted SSB) was estimated to be 29,769 mt in 2019, about 2.1 times the updated biomass target reference point SSB_{MSY} proxy = $SSB_{40\%}$ = 14,441 mt (Table A1, Figure A2). There is a 90% chance that SSB in 2019 was between 23,002 and 38,216 mt. Fishing mortality on the fully selected ages 6-7 fish was 0.39 in 2019 after adjusting for retrospective biases, which was 85% of the updated fishing mortality threshold reference point F_{MSY} proxy = $F_{40\%}$ = 0.46 (Table A1, Figure A3). There is a 90% probability that the fishing mortality rate in 2019 was between 0.30 and 0.53. The average recruitment from 1989 to 2018 is 39 million fish at age 1. The 2011 year class was estimated to be the largest in the time series at 170.4 million fish and the 2015 year class was the second largest at 93.8 million fish. Recruitment of the 2017 year class as age 1 in 2018 was estimated at 14.9 million, well below average. The 2018 year class at age 1 in 2019 was estimated at 46.2 million and 79.4 million with retro adjustment (Table A1, Figures A2 & A4). The 2019 model estimates of F and SSB adjusted for internal retrospective error are outside the model estimate 90% confidence intervals and so the terminal year estimates have been adjusted for stock status determination and projections (Figure A1).

OFL Projections: Projections using the 2021 Operational Assessment ASAP model (data through 2019) were made to estimate the OFL catches for 2022-2023. The projections assume the 2020 catch at the ABC plus an adjustment for actual 2020 recreational landings. Catch in 2021 is assumed as the ABC. Incoming recruitment was sampled from the estimated recruitment for 1989-2019. The OFL projection for combined regions uses F_{2022}-F_{2023} = updated F_{MSY} proxy = F40% = 0.46 (north) and 0.45 (south). The OFL catches are 9,383 mt in 2022 (CV =19%) and 8,014 mt in 2021 (CV =17%).

OFL for 2022-2023
Catches and SSB in metric tons

Year	Total Catch	F	SSB
2020	8,271	0.33	26,385
2021	6,835	0.29	26,256
2022	9,383	0.46	24,096
2023	8,014	0.46	20,166

Catch: Reported 2019 commercial landings were 1,579 mt = 3.482 million lbs. Estimated 2019 recreational landings were 3,914 mt = 8.630 million lbs. Total commercial and recreational landings in

2019 were 5,493 mt = 12.112 million lbs. Estimated 2019 commercial discards were 1,027 mt = 2.265 million lbs. Estimated 2019 recreational discards were 1,468 mt = 3.237 million lbs. The estimated total catch in 2019 was 7,988 mt = 17.614 million lbs. (Catch and Status Table below; Table A2).

Catch and Status Table: Black Sea Bass
(Weights in mt, recruitment in millions, arithmetic means, includes New MRIP estimates)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Commercial landings	751	765	782	1,027	1,088	1,113	1,133	1,808	1,514	1,579
Commercial discards[2]	134	227	116	278	459	423	757	1,027	722	1,027
Recreational landings	3,502	1,421	3,162	2,685	3,510	4,448	6,131	5,692	4,008	3,914
Recreational discards[2]	733	358	1,048	749	839	985	1,391	1,634	1,033	1,468
Catch used in assessment	5,121	2,771	5,108	4,739	5,896	6,969	9,412	10,162	7,277	7,988
Spawning stock biomass	14,596	14,347	17,114	25,834	39,577	39,137	36,315	30,687	27,298	18,716
Recruitment (age 1, millions)	35.8	42.8	170.4	54.8	30.6	39.6	93.8	51.2	14.9	46.2
F full[3]	0.73	0.41	0.57	0.53	0.39	0.30	0.31	0.45	0.34	0.47

[1] Years 1989-2019

[2] dead discards

[3] F on fully selected ages 6-7. Note that table values are not retro adjusted.

Year	Min[1]	Max[1]	Avg[1]
Commercial landings	523	1,808	1,177
Commercial discards[2]	10	1,027	239
Recreational landings	681	6,131	2,448
Recreational discards[2]	99	1,634	626
Catch used in assessment	2,263	10,162	4,491
Spawning stock biomass	3,116	41,121	13,233
Recruitment (age 1, millions)	10.1	167.4	38.8
F full[3]	0.30	1.15	0.65

[1] Years 1989-2019

[2] dead discards

[3] Average F on fully selected ages 6-7.

Note that table values are not retro adjusted.

Stock Distribution and Identification

The Mid-Atlantic Fishery Management Council (MAFMC) and Atlantic States Marine Fisheries Commission (ASMFC) Fishery Management Plan for black sea bass defines the management unit as all black sea bass from Cape Hatteras, North Carolina northeast to the US-Canada border (MAFMC 1999). The stock was partitioned into two sub-units to account for spatial differences in the assessment model. The sub-units are not considered to be separate stocks.

Assessment Model: The assessment models (separate north and south models) for black sea bass is a complex statistical catch-at-age model (ASAP SCAA; Legault and Restrepo 1998; NFT 2013) incorporating a broad range of fishery and survey data (NEFSC 2017). The model assumes an instantaneous natural mortality rate (M) = 0.4. The fishery catch in each region is modeled as two fleets:

trawl catch and non-trawl catch, which includes recreational landings, recreational discards, commercial fish pot and hand-line catch and catches from other non-trawl sources.

Indices of stock abundance for the north region used in the model were from NEFSC Albatross spring, MA DMF spring trawl, RI DFW spring trawl, CT DEEP spring Long Island trawl, New York DEC juvenile seine, NEFSC Bigelow spring, NEAMAP spring bottom trawl and MRIP catch per angler trip. The indices of abundance for the southern region were from NEFSC Albatross winter, NEFSC Albatross spring, New Jersey DEP spring trawl, DE DFW spring trawl, MD DNR spring coastal bays trawl, VIMS Chesapeake Bay juvenile trawl, NEAMAP spring trawl, NEFSC Bigelow spring trawl and MRIP catch per angler trip. Indices for both regions were comparable to those used in the 2016 benchmark assessment.

There remains a significant retrospective pattern in both the northern and southern assessment models. The retrospective pattern in the north over-estimates F by 62% over the last 5 terminal years and under-estimates SSB by 46%. In the southern region, the opposite pattern prevails where F is under-estimated by 16% and SSB is over-estimated by 16%. The 2019 regional model estimates of average F and SSB were adjusted for internal retrospective error (north F (0.56) adjusted for retrospective = 0.34, north SSB (13,438 mt) adjusted for retrospective = 24,968 mt; south F (0.41) adjusted for retrospective = 0.48, south SSB (5,323 mt) adjusted for retrospective = 4,608 mt). Since the retrospective corrected values generally fell outside the 90% confidence intervals of the terminal year estimates, the retrospective adjusted values were used for status determination and OFL's. The historical retrospective analysis (comparison between assessments) indicates that the trends in spawning stock biomass, recruitment and fishing mortality have been consistent between the benchmark assessment (2016) and the 2021 update.

Biological Reference Points (BRPs): Reference points were calculated using the non-parametric yield and SSB per recruit long-term projection approach. The cumulative distribution function of the 2000-2019 recruitments (equivalent to years used in 2016 benchmark assessment) was re-sampled to provide future recruitment estimates for the projections used to estimate the biomass reference point.

The existing biological reference points for black sea bass are from the 2019 Operational Assessment. The reference points are F40% as the proxy for F_{MSY}, and the corresponding SSB40% as the proxy for the SSB_{MSY} biomass target. The F40% proxy for F_{MSY} =0.46; the proxy estimate for SSB_{MSY} = SSB40% = 14,092 mt = 31.067 million lbs; the proxy estimate for the ½ SSB_{MSY} biomass threshold = ½ SSB40%=7,046 mt = 15.534 million lbs; and the proxy estimate for MSY = MSY40% = 4,773 mt=10.522 million lbs.

The F40% and corresponding SSB40% proxy biological reference points for black sea bass were updated for this 2021 Operational Assessment. The update fishing mortality threshold F40% proxy for F_{MSY} = 0.46. The updated biomass target proxy estimate for SSB_{MSY} = SSB40% = 14,441 mt = 31.837 million lbs. and the updated biomass threshold proxy estimate for ½ SSB_{MSY} = ½ SSB40% = 7,221 mt = 15.919 million lbs. The update proxy estimate for MSY = MSY40% = 5,334 mt =11.760 million lbs.

Qualitative status description:

The distribution of the fishery and catches has shifted north over the past decade. Most survey aggregate biomass indices are near their time series high. Recent survey indices suggest the recruitment of a large 2011 year class in the northern region and a strong 2015 year class in both regions. The 2017 cohort was well below average while the 2018 cohort is above average. Modest total catches over the past few years would indicate that current mortality from all sources is lower than recent recruitment inputs to the stock, which has resulted in a spawning biomass that is well above the management target.

Research and Data Issues:

The recent recruitment of large year classes in the assessment time series (the 2011 and 2015 year class) has contributed to increases in catch, particularly in the northern region. Additional research examining recruitment events, distribution shifts and the changing environment should be explored.

Spatial differences in recruitment and fisheries have been accounted for with independent assessment models for north and south regions. A single model which tracks the spatial differences in the population dynamics should be developed.

Allocation issues continue to be an important management issue. Development of a Management Strategy Evaluation (MSE) model could be helpful in determining the best approach.

References:

Legault CM, Restrepo VR. 1998. A flexible forward age-structured assessment program. ICCAT. Col. Vol. Sci. Pap. 49:246-253.

Mid-Atlantic Fishery Management Council. (MAFMC). 1999. Amendment 12 to the summer flounder, scup, and black sea bass fishery management plan. Dover, DE. 398 p + appendix.

Northeast Fisheries Science Center (NEFSC). 2017. 62th Northeast Regional Stock Assessment Workshop (62th SAW) Assessment Report. US Dept Commerce, Northeast Fish Sci Cent Ref Doc. 17-03; 822 p.

NOAA Fisheries Toolbox (NFT). 2013. Age Structured Assessment Program (ASAP) version 3.0.11. (Internet address: http://nft.nefsc.noaa.gov).

Table A1. Summary Black Sea Bass assessment results; Spawning Stock Biomass (SSB) in metric tons (mt); Recruitment (R) at age 1 in millions; Fishing Mortality (F) for age of peak fishery selection, ages 6-7. North-South averages, unadjusted for retrospective bias.

	SSB	R	F
1989	2,787	24,489	1.14
1990	2,399	29,922	1.08
1991	2,525	34,458	1.01
1992	2,857	29,266	0.92
1993	2,883	20,098	1.05
1994	2,841	28,754	0.84
1995	3,252	36,967	0.72
1996	3,576	26,625	0.92
1997	3,439	27,269	0.84
1998	4,039	23,149	0.60
1999	5,000	37,771	0.54
2000	6,657	47,726	0.54
2001	8,059	27,700	0.63
2002	9,023	32,088	0.65
2003	8,548	19,804	0.57
2004	7,659	15,685	0.57
2005	7,095	16,988	0.51
2006	6,064	31,800	0.54
2007	6,427	35,909	0.55
2008	8,810	46,010	0.48
2009	10,900	36,055	0.65
2010	13,887	35,934	0.73
2011	14,347	42,838	0.40
2012	17,114	170,362	0.58
2013	25,834	54,782	0.54
2014	39,577	30,553	0.40
2015	39,137	39,629	0.30
2016	36,315	93,799	0.33
2017	30,687	51,186	0.51
2018	27,298	14,872	0.36
2019	18,716	46,198	0.48

Table A2. Total catch (metric tons) of black sea bass from Maine through North Carolina. Includes the 'New' MRIP estimates of recreational catch. Recreational discards assume 15% mortality.

	Commercial Landings	Commercial Discards	Recreational Landings	Recreational Discards	Total
1989	1,105	109	1,881	99	3,194
1990	1,402	53	1,354	231	3,040
1991	1,190	10	1,766	175	3,142
1992	1,264	141	1,344	165	2,914
1993	1,353	78	2,022	120	3,573
1994	848	37	1,347	210	2,443
1995	889	24	1,860	397	3,171
1996	1,448	285	2,755	236	4,724
1997	1,197	55	2,470	251	3,973
1998	1,152	121	681	310	2,263
1999	1,290	45	856	545	2,736
2000	1,186	44	1,836	873	3,939
2001	1,279	240	2,621	886	5,025
2002	1,564	46	2,528	1,381	5,518
2003	1,347	114	2,492	641	4,595
2004	1,405	380	1,362	374	3,521
2005	1,297	89	1,437	350	3,173
2006	1,285	33	1,243	371	2,933
2007	1,037	104	1,425	354	2,920
2008	875	66	1,606	585	3,132
2009	523	167	2,525	623	3,838
2010	751	134	3,502	733	5,121
2011	765	227	1,421	358	2,771
2012	782	116	3,162	1,048	5,108
2013	1,027	278	2,685	749	4,739
2014	1,088	459	3,510	839	5,896
2015	1,113	423	4,448	985	6,969
2016	1,133	757	6,131	1,391	9,412
2017	1,808	1,027	5,692	1,634	10,162
2018	1,514	722	4,008	1,033	7,277
2019	1,579	1,027	3,914	1,468	7,988

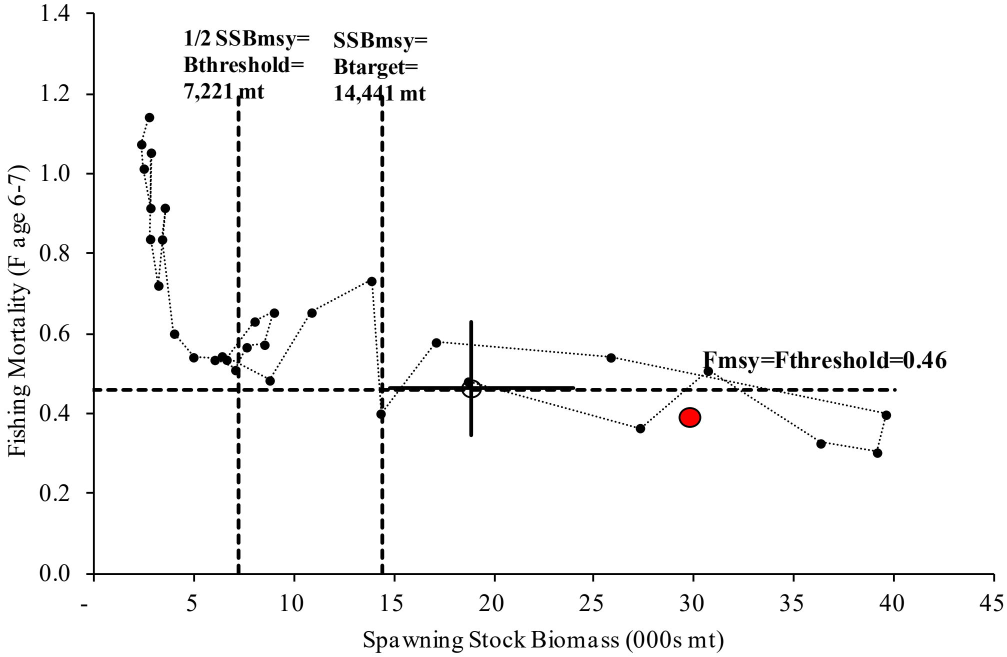


Figure A1. Estimates of black sea bass spawning stock biomass (SSB) and fully-recruited fishing mortality (F, peak at ages 6-7) relative to the updated 2021 biological reference points. Open circle with 90% confidence intervals shows the assessment point estimates. The filled circle shows the retrospectively adjusted estimates.

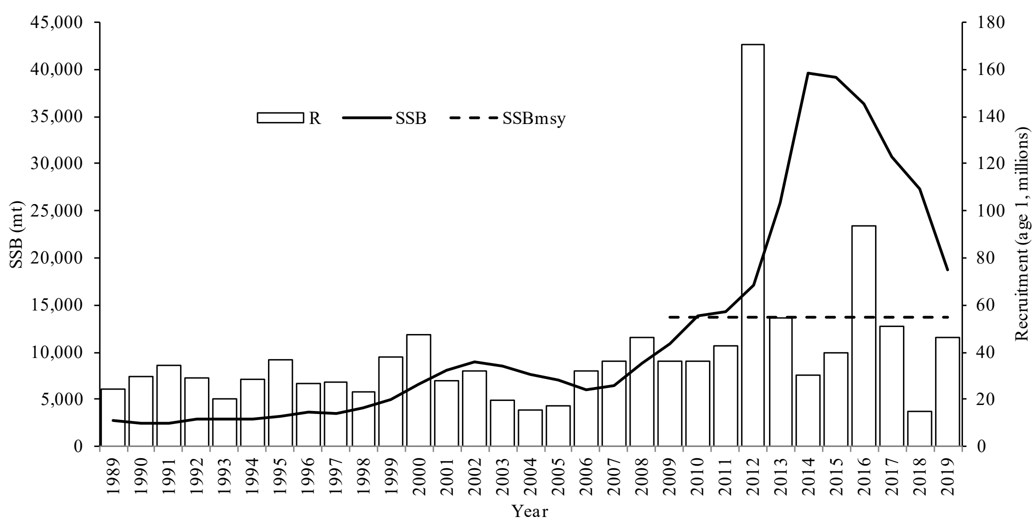


Figure A2. Black sea bass spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars) by calendar year. The horizontal dashed line is the updated SSB_{MSY} proxy = $SSB_{40\%}$ = 14,441 mt.

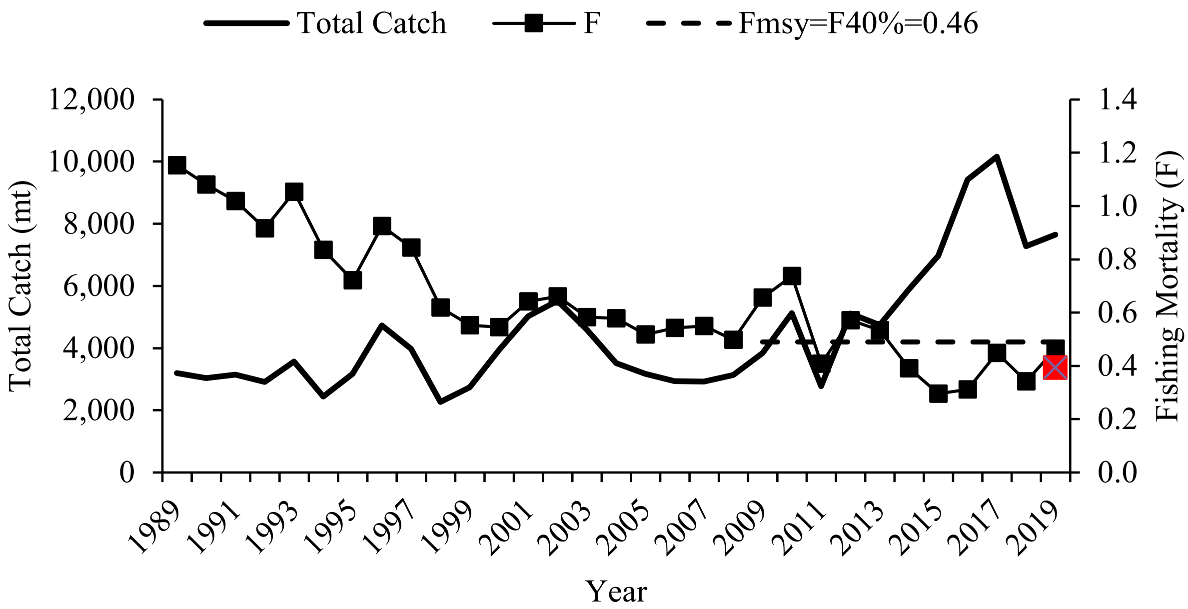


Figure A3. Total fishery catch (metric tons; mt; solid line) and fishing mortality (F, peak at age 6-7; squares) for black sea bass. The horizontal dashed line is the updated F_{MSY} proxy = $F_{40\%}$ = 0.46.

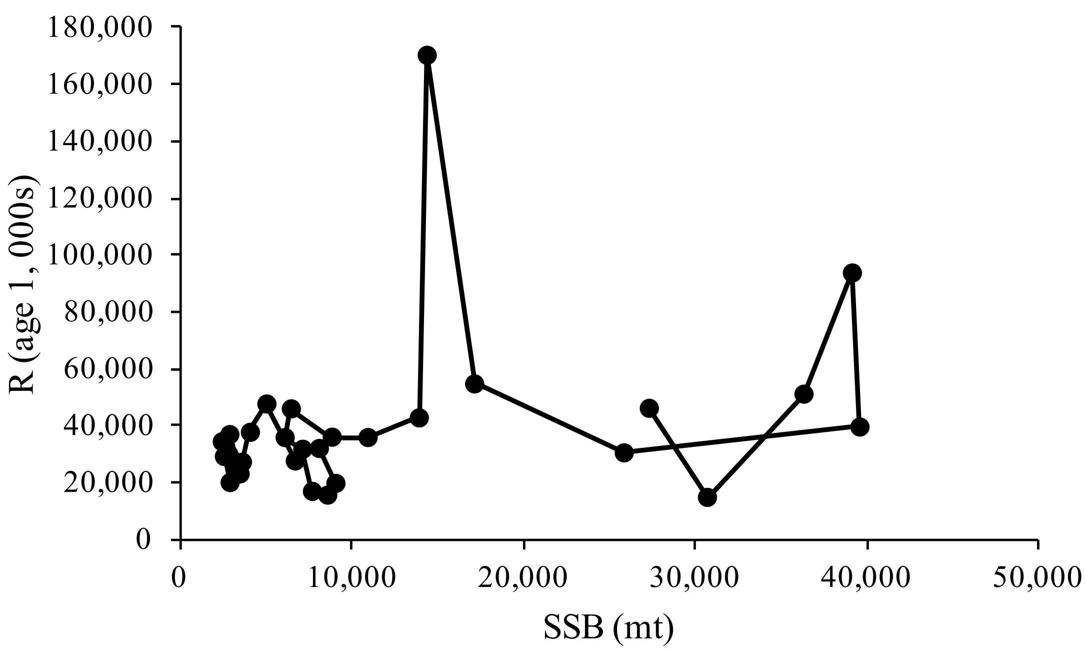
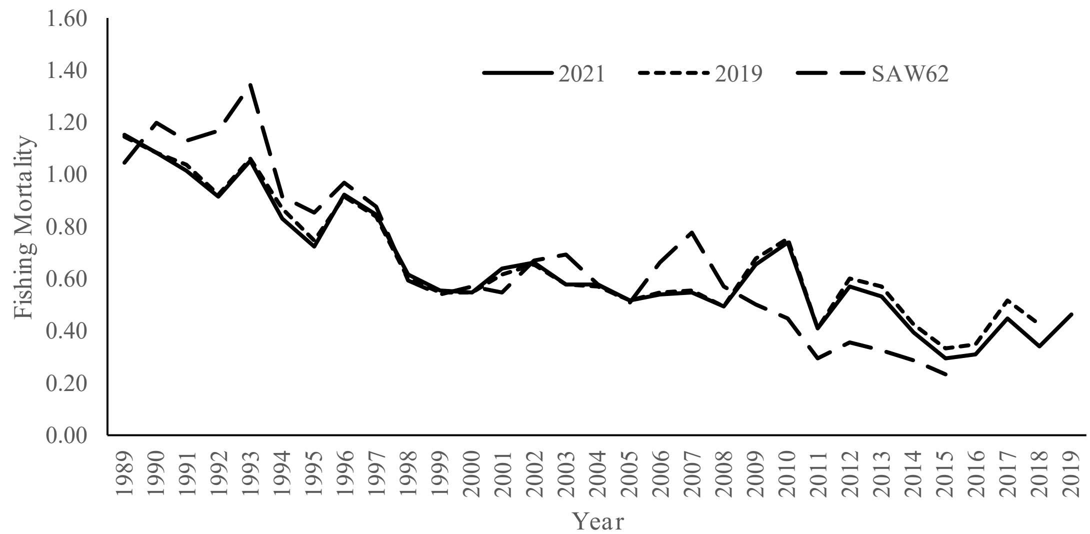


Figure A4. Spawning Stock Biomass (SSB) and Recruitment (R) scatter plot for black sea bass.



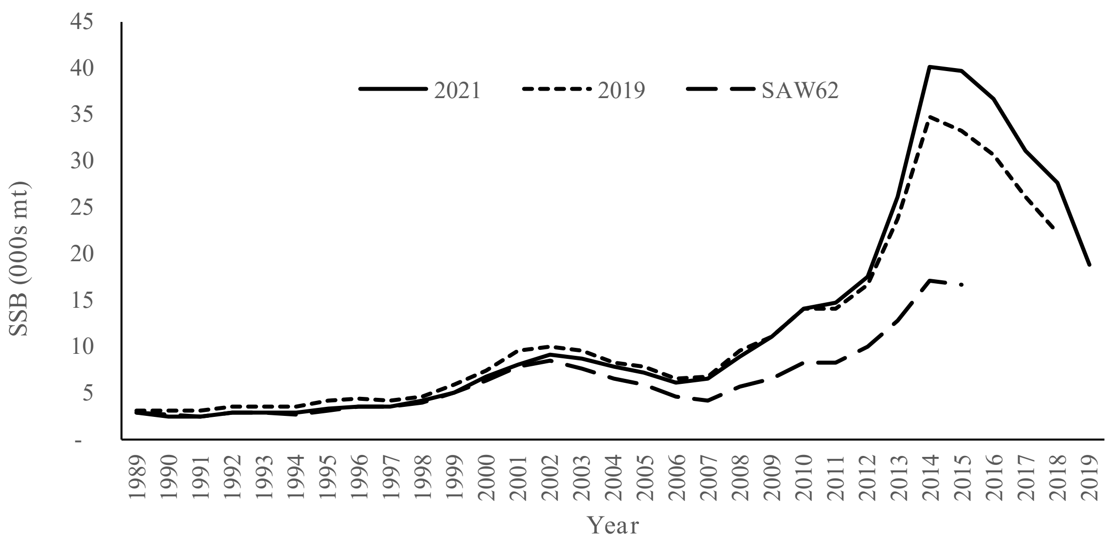


Figure A5. Historical retrospective of the 2016 (SAW 62; NEFSC 2017), 2019 and 2021 (Operational Assessment) stock assessments of black sea bass. The heavy solid lines are the 2021 Operational Assessment estimates. SAW62 did not include revised MRIP estimates.

The Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report is behind Tab 2.

Black Sea Bass Fishery Information Document

June 2021

This document provides a brief overview of the biology, stock condition, management system, and fishery performance for black sea bass (*Centropristis striata*) with an emphasis on 2020 (note that there are caveats associated with 2020 data due to COVID-19 related data gaps). Data sources include unpublished National Marine Fisheries Service (NMFS) commercial fish dealer reports, vessel trip reports (VTRs), permit data, as well as Marine Recreational Information Program (MRIP) data and stock assessment information. All 2020 data should be considered preliminary. For more information on black sea bass management, including previous Fishery Information Documents, please visit http://www.mafmc.org/sf-s-bsb.

Key Facts

- Black sea bass are not overfished and overfishing is not occurring, according to the most recent stock assessment, which included data through 2018. Incorporation of a revised time series of MRIP data and data on the large 2015 year class both contributed to an increase in estimated stock biomass compared to the previous assessment.
- Updated stock assessment information will be available in July 2021.
- In 2020, about 4.12 million pounds of black sea bass were landed by commercial fishermen, a 19% increase from 2019. Commercial fish dealers paid an average of $2.40 per pound of black sea bass, a 30% decrease from the 2019 average price. This decrease was likely influenced by impacts of the COVID-19 pandemic on market demand in 2020.
- Recreational fishermen harvested an estimated 9.05 million pounds of black sea bass in 2020, a 5% increase from 2019. Anglers fishing from private/rental vessels accounted for 86% of black sea bass harvest (in numbers of fish) in 2020.

Basic Biology

Black sea bass are distributed from the Gulf of Maine through the Gulf of Mexico. Genetic studies have identified three stocks within that region. This document focuses on the stock from the Gulf of Maine through Cape Hatteras, North Carolina.

Adult and juvenile black sea bass are mostly found on the continental shelf. Young of the year (i.e., fish less than one year old) can be found in estuaries. Adults show strong site fidelity during the summer and prefer to be near structures such as rocky reefs, coral patches, cobble and rock fields, mussel beds, and shipwrecks. Black sea bass migrate to offshore wintering areas starting in the fall. During the winter, young of the year are distributed across the shelf and adults and juveniles are found near the shelf edge. During the fall, adults and juveniles off New York and north move offshore and travel along the shelf edge to as far south as Virginia. Most return to northern inshore areas by May. Black sea bass off New Jersey to Maryland travel southeast to the shelf edge during the late fall. Black sea bass off Virginia and Maryland travel a shorter distance due east to the shelf edge, which is closer to shore than in areas to the north.[1,2]

Black sea bass are protogynous hermaphrodites, meaning they are born female and some later transition to males, usually around 2-5 years of age. Male black sea bass are either of the dominant or subordinate type. Dominant males are larger than subordinate males and develop a bright blue nuccal hump during the spawning season. About 25% of black sea bass are male at 15 cm (about 6 inches), with increasing proportions of males at larger sizes until about 50 cm, when about 70-80% of black sea bass are male. Results from a simulation model highlight the importance of subordinate males in spawning success. This increases the resiliency of the population to exploitation compared to other species with a more typical protogynous life history. About half of black sea bass are sexually mature by 2 years of age and 21 cm (about 8 inches) in length. Black sea bass reach a maximum size of about 60 cm (about 24 inches) and a maximum age of about 12 years.[2, 3]

Black sea bass in the Mid-Atlantic spawn in nearshore continental shelf areas at depths of 20-50 meters. Spawning usually takes place between April and October. During the summer, adult black sea bass share habitats with tautog, hakes, conger eel, sea robins and other migratory fish species. Essential fish habitat for black sea bass consists of pelagic waters, structured habitat, rough bottom, shellfish, sand, and shell, from the Gulf of Maine through Cape Hatteras, North Carolina. Juveniles and adults mostly feed on crustaceans, small fish, and squid. The Northeast Fisheries Science Center (NEFSC) food habits database lists spiny dogfish, Atlantic angel shark, skates, spotted hake, summer flounder, windowpane flounder, and monkfish as predators of black sea bass.[1]

Status of the Stock

The information below is based on the most recent stock assessment information available when this document was written. Updated stock assessment information will be available in July 2021.

A black sea bass operational stock assessment was peer reviewed and accepted in August 2019. It incorporated commercial and recreational fisheries data and fishery-independent survey data through 2018, including revised MRIP data for 1989-2018. The assessment concluded that the black sea bass stock north of Cape Hatteras, North Carolina was not overfished and overfishing was not occurring in 2018. Spawning stock biomass in 2018 was estimated to be 2.4 times the target level. The average fishing mortality rate on fully selected ages 6-7 fish in 2018 was 9% below the fishing mortality threshold reference point, meaning that overfishing was not occurring in 2018 (Table 1). Figure 1 and Figure 2 show the time series of estimated spawning stock biomass, recruitment, fishing mortality, and catch (landings and dead discards) from the August 2019 stock assessment. The values for fishing mortality and spawning stock biomass were adjusted for 2018 only to account for retrospective bias in the model.[4]

The 2011 year class (i.e., those fish spawned in 2011) was estimated to be the largest in the time series at 144.7 million fish. The 2015 year class was the second largest at 79.4 million fish. The 2011 year class had a major impact on recent stock dynamics and was much more prevalent off Massachusetts through New York compared to New Jersey and south. The large 2015 year class is more evenly distributed from southern New England through the Mid-Atlantic. Recruitment of the 2017 year class as age 1 in 2018 was estimated at 16.0 million fish, well below the 1989-2018 average of 36 million fish (Figure 1).[4] Recruitment estimates for the 2018-2020 year classes are not yet available.

An updated black sea bass stock assessment will be peer reviewed in July 2021 and will be used to inform 2022-2023 catch and landings limits. This assessment will include data through 2019. Given data gaps for 2020 related to COVID-19 and the time required to address those gaps where possible, 2020 data will not be incorporated into this update.

Table 1: Black sea bass biological reference points from the 2019 operational stock assessment.[4]

Reference Points and terminal year SSB and F estimates	**2019 operational stock assessment** Data through 2018
$SSB_{MSY\ proxy}$ = $SSB_{40\%}$ (biomass target)	31.07 mil lb / 14,092 mt
½ SSB_{MSY} (biomass threshold defining an overfished state)	15.53 mil lb / 7,046 mt
Terminal year SSB	73.65 mil lb / 33,407 mt (2018). Adjusted for retrospective bias. 240% of SSB_{MSY}. **Not overfished.**
$F_{MSY\ proxy}$ = $F_{40\%}$ (threshold defining overfishing)	0.46
Terminal year F	0.42 (2018). Adjusted for retrospective bias. Fully selected ages 6-7. 9% below F_{MSY}. **Overfishing not occurring.**

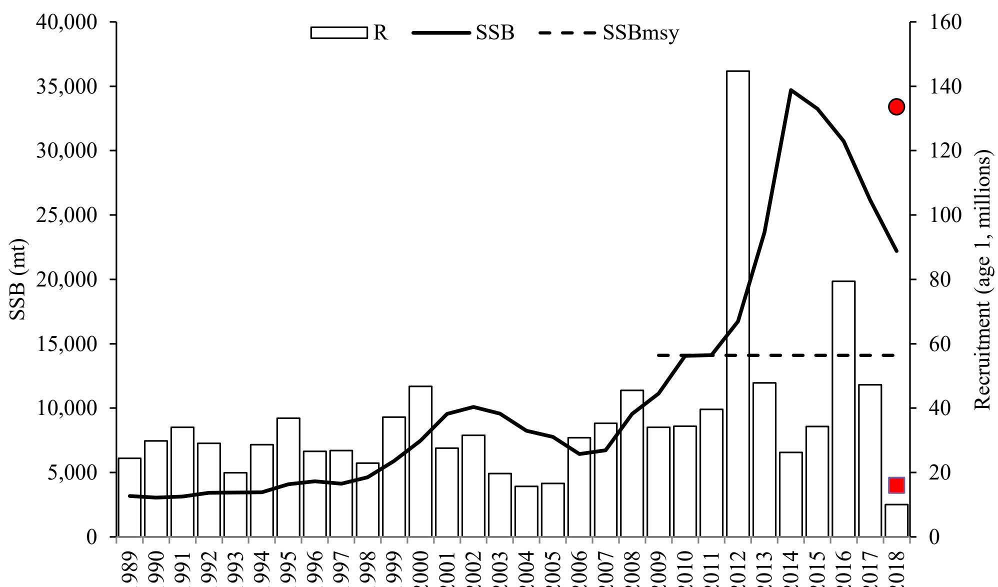


Figure 1: Black sea bass spawning stock biomass (solid line); recruitment (bars), 1989 - 2018; and biomass reference point (dashed line) from the 2019 operational stock assessment. Recruitment is shown as age 1 fish (e.g., the 2011 year class is shown in 2012). The red circle is the retro-adjusted spawning stock biomass value for 2018. The red square is the retro-adjusted recruitment value for 2018. These values were adjusted only for 2018. The adjustments were made to correct for retrospective bias in the assessment model. The adjusted spawning stock biomass estimate should be used for comparison against the reference point. The stock is overfished when spawning stock biomass is below this reference point. [4]

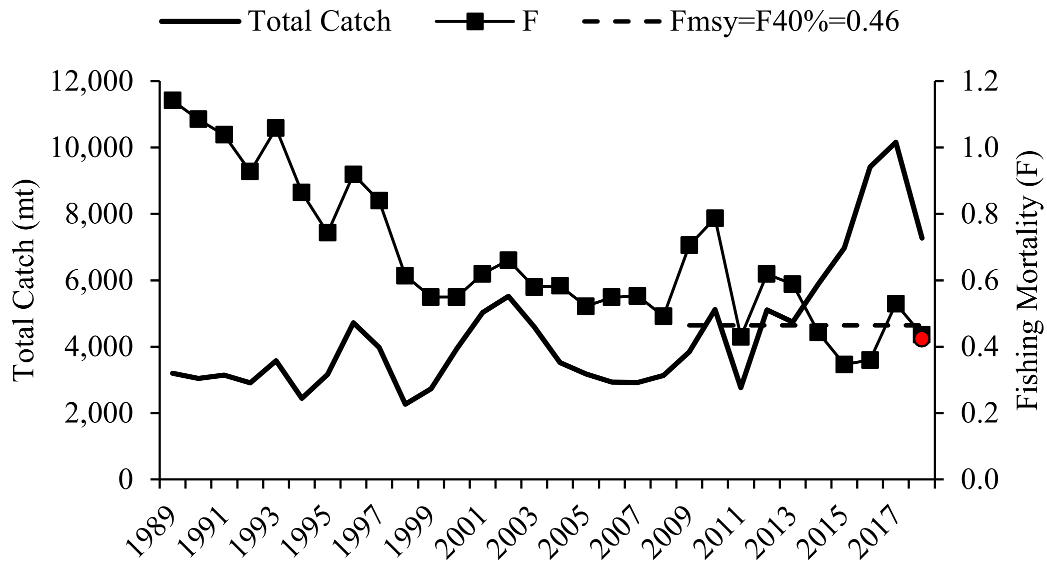


Figure 2: Fishing mortality rate (F) on black sea bass ages 6-7, the F_{MSY} proxy reference point from the 2019 operational stock assessment, and total catch (landings and dead discards), 1989-2018. The red circle is the retro-adjusted fishing mortality rate for 2018. This adjustment was made to correct for retrospective bias present in the assessment model and is used as the estimate to compare to the reference point. Overfishing is occurring when the fishing mortality rate exceeds this reference point.[4]

Management System and Fishery Performance

Management

The Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission) work cooperatively to develop commercial and recreational fishery regulations for black sea bass from Maine through Cape Hatteras, North Carolina. The Council and Commission work in conjunction with NMFS, which serves as the federal implementation and enforcement entity. This cooperative management system was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore). This joint management program began in 1996 with the approval of amendment 9 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP). The original FMP and subsequent amendments and framework adjustments are available at: www.mafmc.org/fisheries/fmp/sf-s-bsb.

Commercial and recreational black sea bass fisheries are managed using catch and landings limits, minimum fish sizes, open and closed seasons, gear regulations, permit requirements, and other regulations.

The Council's Scientific and Statistical Committee (SSC) recommends annual Acceptable Biological Catch (ABC) levels for black sea bass. The Council must either approve the ABC recommended by the SSC or a lower ABC. The ABC is divided into commercial and recreational Annual Catch Limits (ACLs) based on the allocations prescribed in the FMP (i.e., 49% commercial, 51% recreational, applied to the portion of the ABC that is expected to be landed) and the recent distribution of discards between the commercial and recreational fisheries. These allocations have been in place since 1998. The Council and Commission are considering an ongoing FMP amendment to determine if these allocation percentages should be revised to reflect more recent data.[5]

The Council and Commission also approve commercial and recreational annual catch targets (ACTs), which are set equal to or less than the respective ACLs to account for management uncertainty. To date, the black sea bass ACTs have always been set equal to the ACLs. The ABC, ACLs, and ACTs are catch limits which account for both landings and discards, while the commercial quota and recreational harvest limit (RHL) are landing limits. The commercial quota and RHL are calculated by subtracting expected discards from the respective ACTs.

COVID-19 Data Impacts in 2020

The COVID-19 pandemic impacted data collection in both the recreational and commercial fisheries. Commercial effort and markets were impacted by COVID-19 to various degrees; however, data collection for commercial landings from seafood dealers continued uninterrupted. Commercial discard estimates for 2020 will be affected by missing observer data. Commercial discard estimates are developed using approaches that rely heavily on observer data. On March 20, 2020, NMFS temporarily waived the requirement for vessels with Greater Atlantic permits to carry a fishery observer or at-sea monitor. This waiver was extended several times before observers were redeployed on August 14, 2020. At this time it is not clear whether alternative methodologies will be developed to generate 2020 commercial discard estimates for black sea bass and other species.

The COVID-19 pandemic disrupted the recreational Access Point Angler Intercept Survey (APAIS). All New England and Mid-Atlantic states suspended APAIS sampling starting in late March or April 2020. APAIS sampling resumed between May and August 2020, depending on the state. NMFS used imputation methods to fill gaps in 2020 catch data with data collected in 2018 and 2019. These proxy data match the time, place, and fishing mode combinations that would have been sampled had the APAIS continued uninterrupted. Proxy data were combined with observed data to produce catch estimates using the standard estimation methodology. The mail and telephone surveys that collect recreational effort data continued largely uninterrupted. NMFS has indicated that when complete 2021 recreational data are available in 2022, they will evaluate the effects of including 2021 data (for example, alongside 2019 data and instead of 2018 data) in the imputation. Because these effects are unknown, the agency cannot predict whether they will seek to revise they 2020 catch estimates.

Fishery Landings Summary

Table 2 shows black sea bass catch and landings limits from 2011 through 2021, as well as commercial and recreational landings through 2020. Total landings (commercial and recreational) peaked in 2017 at 15.5 million pounds. About 13.26 million pounds of black sea bass were landed by commercial and recreational fishermen from Maine through Cape Hatteras, North Carolina in 2020 (Figure 3).[6,7]

Table 2: Summary of catch and landings limits, and landings for commercial and recreational black sea bass fisheries from Maine through Cape Hatteras, NC 2010 through 2021. All values are in millions of pounds unless otherwise noted.[6,7]

Management measure	2011[a]	2012[a]	2013[a]	2014[a]	2015[a]	2016[b]	2017[c]	2018[c]	2019[c]	2020[c]	2021[d]
ABC	4.50	4.50	5.50	5.50	5.50	6.67	10.47	8.94	8.94	15.07	17.45
Commercial ACL & ACT	--	1.98	2.60	2.60	2.60	3.15	5.09	4.35	4.35	6.98	9.52
Commercial quota[e]	1.71	1.71	2.17	2.17	2.21	2.71	4.12	3.52	3.52	5.58	6.09
Commercial landings	1.69	1.72	2.26	2.40	2.38	2.59	4.01	3.46	3.53	4.21	--
% of com. quota landed	99%	101%	104%	111%	108%	96%	97%	98%	100%	75%	--
Recreational ACL & ACT	--	1.86	2.90	2.90	2.90	3.52	5.38	4.59	4.59	8.09	7.93
RHL[e]	1.78	1.32	2.26	2.26	2.33	2.82	4.29	3.66	3.66	5.81	6.34
Recreational landings, old MRIP estimates	1.17	3.18	2.46	3.67	3.79	5.19	4.16	3.82	--	--	--
Recreational landings, revised MRIP estimates	3.27	7.04	5.68	6.93	7.82	12.05	11.50	7.92	8.61	9.05[f]	--
% of RHL harvested (based on old MRIP estimates through 2018; new MRIP estimates for 2020)[g]	66%	241%	109%	162%	163%	184%	97%	104%	--[h]	156%	--

[a] Measures in 2010-2015 were based on a constant catch approach used by the Council's SSC to set the ABC.

[b] Measures in 2016 were based on ABC that was set using a data poor management strategy evaluation approach.

[c] Measures in 2017-2021 were set based on a peer reviewed and approved stock assessment. The 2020-2021 measures are based on a stock assessment update that incorporated the revised time series of MRIP data.

[d] The 2021 measures account for revisions to the Council's risk policy.

[e] The commercial quotas and RHLs for 2006-2014 account for deductions for the Research Set Aside program.

[f] 2020 recreational estimates were developed using imputation methods (incorporating 2018 and 2019 data) to account for missing 2020 APAIS data.

[g] The percent of RHL harvested is based on a comparison of the RHL to the previous or old MRIP estimates. The RHLs through 2019 did not account for the new MRIP estimates; therefore, it would be inappropriate to compare RHLs through 2019 to the revised MRIP estimates.

[h] 2019 estimates in the "old MRIP units" are not available. The 2019 RHL should not be compared to harvest in the new MRIP units because it did not account for revisions to the data.

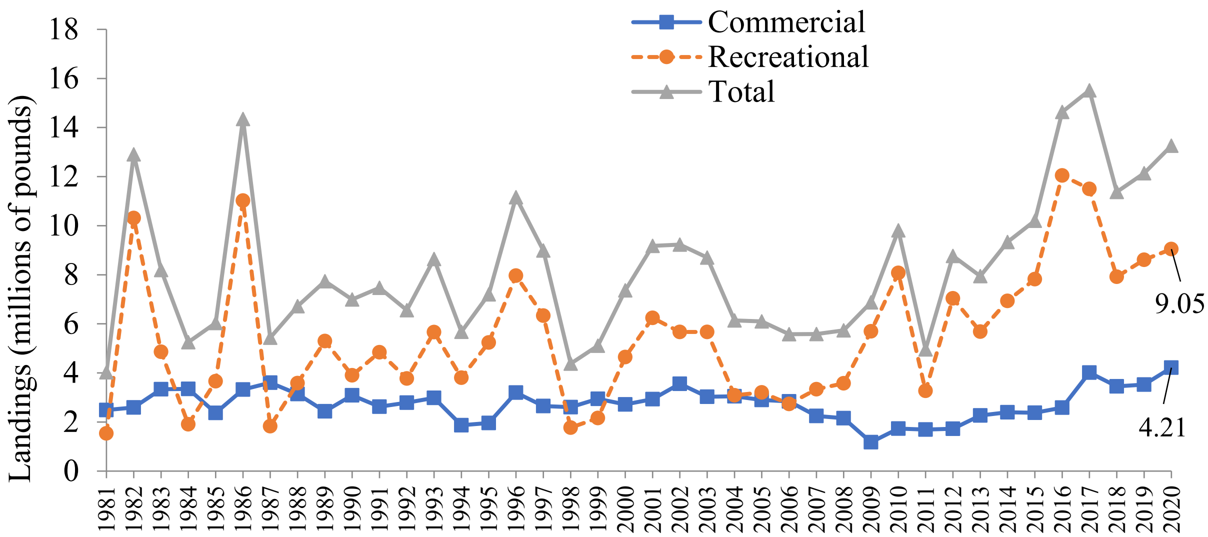


Figure 3: Commercial and recreational black sea bass landings in millions of pounds from Maine through Cape Hatteras, North Carolina, 1981-2020. Recreational landings are based on the revised MRIP estimates.[6,7]

Commercial Fishery

About 4.21 million pounds of black sea bass were landed in the commercial fishery in 2020. This is the highest amount of landings in the time series of available data from 1981 through 2020. Commercial black sea bass landings generally follow the coastwide quota and the 2020 quota of 5.58 million pounds was higher than any previous quota (Table 2, Figure 3). The 2020 quota was not fully harvested in large part due to impacts of the COVID-19 pandemic on market demand. Commercial black sea bass landings were lowest in 2009, when 1.18 million pounds were landed and the lowest quota in the time series was implemented (1.09 million pounds).[7]

Black sea bass are a valuable commercial species. Total ex-vessel value averaged $11.57 million per year during 2018-2020. Landings and average price per pound (adjusted to 2020 dollars) were generally stable from 2010 through 2016. Landings increased in 2017 with an increase in the quota. On an annual coastwide level, the average price per pound tended to decrease with increases in landings since 2016 (Figure 4).[7] Prices are impacted by many factors in addition to landings. The relationship between landings and price varies at the regional, state, and sometimes port level based on market demand, state-specific regulations (e.g., seasonal openings), or individual trawl trips with high landings, all of which can be inter-related.

Over 183 federally-permitted dealers from Maine through North Carolina purchased black sea bass in 2020. More dealers bought black sea bass in New York than in any other state (Table 3).[7]

According to federal VTR data, statistical area 616, which includes important fishing areas near Hudson Canyon, was responsible for the largest percentage (38%) of commercial black sea bass catch (landings and dead discards, as reported by captains) in 2020. Statistical area 621, off southern New Jersey, Delaware, and Maryland accounted for the second highest proportion of catch (8%), followed by statistical area 613, south of Long Island (8%); statistical area 615 off New Jersey (8%); statistical area 537, south of Massachusetts and Rhode Island (6%); and statistical area 539, inshore of area 537 (5%; Table 4, Figure 5). Statistical area 539 had the highest number of trips which reported black sea bass catch on federal VTRs in 2020 (2,102 trips), followed by statistical area 613 (1,092 trips).[8]

In 2020, most commercial black sea bass landings from state and federally-permitted vessels occurred in New Jersey (26%), followed by Massachusetts (17%), Rhode Island (13%), Virginia (12%), and Maryland (10%).[7]

The percentage of landings by state is generally driven by and closely matches the state-by-state commercial quota allocations that have been in place since 2003. States set measures to achieve their state-specific commercial quotas. In February 2021, the Council and the Commission's Summer Flounder, Scup, and Black Sea Bass Management Board approved changes to these allocations to partially account for biomass distribution. The State of New York successfully appealed the February 2021 decision and, as a result, further revisions to these allocations are expected later in 2021.[9]

At least 100,000 pounds of black sea bass were landed in each of 11 ports in 8 states from Maine through North Carolina in 2020. These 11 ports collectively accounted for over 67% of all commercial black sea bass landings in 2020 (Table 5).[7]

A moratorium permit is required to fish commercially for black sea bass in federal waters. In 2020, 710 federal commercial black sea bass permits were issued.[10]

A minimum commercial black sea bass size limit of 11 inches total length has been in place in federal waters since 2002. There is no federal waters black sea bass possession limit; however, states set possession limits for state waters.

About 72% of commercial black sea bass landings reported on federal VTRs in 2020 were caught with bottom otter trawl gear, 24% with pots/traps, and 3% with hand lines. Other gear types each accounted for 1% or less of total commercial landings reported on VTRs in 2020.[8] It is important to note that federal VTR data do not account for landings of black sea bass by vessels that are only permitted to fish in state waters. Some gear types (e.g., handlines) are more prevalent in state waters than in federal waters.

Any federally-permitted vessel which uses otter trawl gear and catches more than 500 pounds of black sea bass from January through March, or more than 100 pounds from April through December, must use nets with a minimum mesh size of 4.5-inch diamond mesh applied throughout the codend for at least 75 continuous meshes forward of the end of the net. Pots and traps used to commercially harvest black sea bass must have two escape vents with degradable hinges in the parlor. The escape vents must measure 1.375 inches by 5.75 inches if rectangular, 2 inches by 2 inches if square, or have a diameter of 2.5 inches if circular.

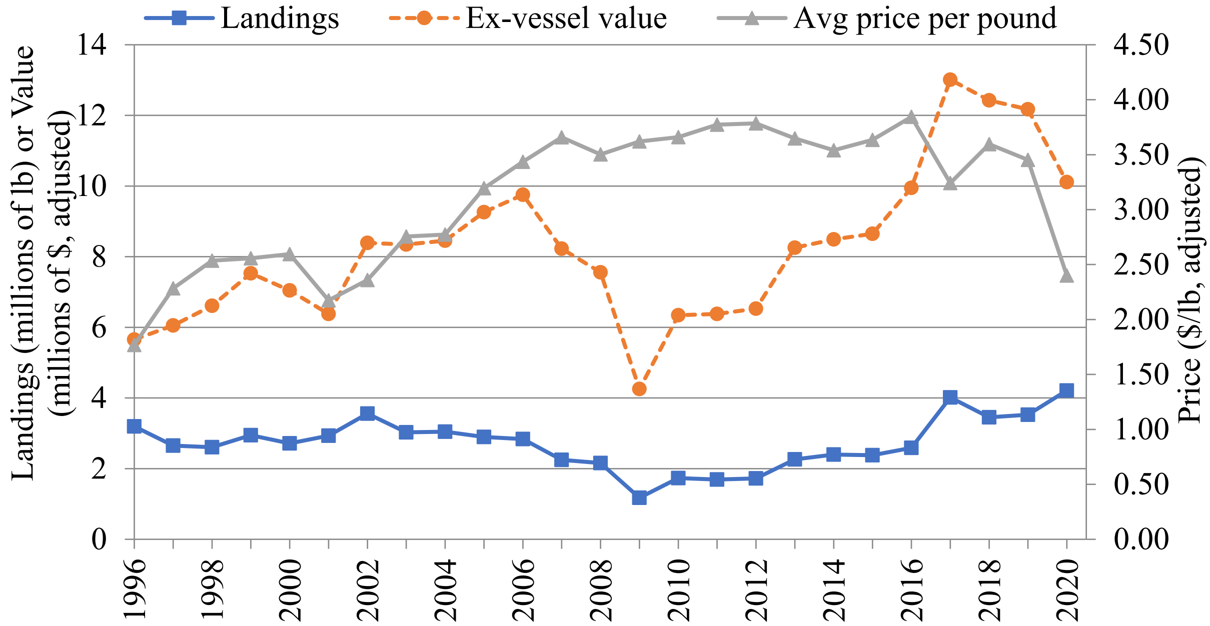


Figure 4: Landings, ex-vessel value, and average price for black sea bass, ME-NC, 1996-2020. Ex-vessel value and price are inflation-adjusted to 2020 dollars using the Gross Domestic Product Price Deflator.[7]

Table 3: Number of dealers, by state, reporting purchases of black sea bass in 2020. C = confidential.[7]

State	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC
Number of dealers	C	0	28	28	12	43	28	4	8	13	19

Table 4: Statistical areas that accounted for at least 5% of the total commercial black sea bass catch (landings and dead discards) in 2020 based on federal VTRs, with associated number of trips.[8] Federal VTR data do not capture landings by vessels only permitted to fish in state waters.

Statistical Area	Percent of 2020 Commercial Black Sea Bass Catch	Number of Trips
616	38%	587
621	8%	222
613	8%	1,092
615	8%	168
537	6%	828
539	5%	2,102

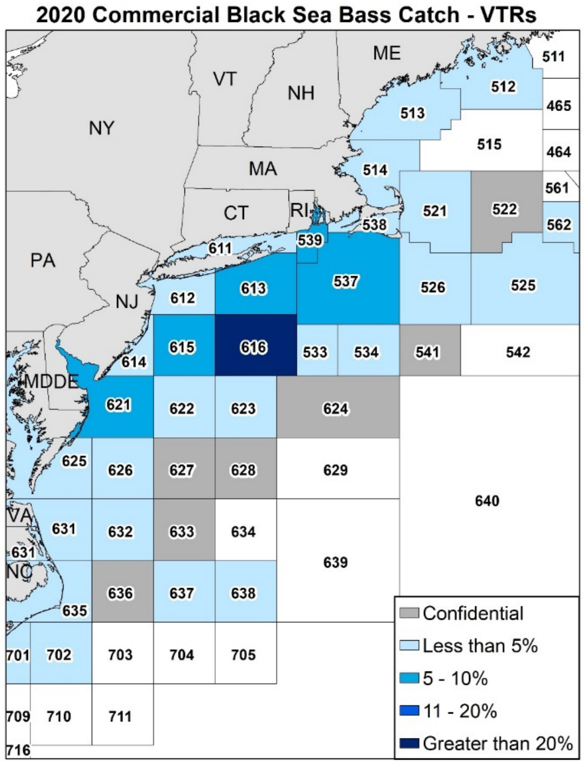


Figure 5: Proportion of black sea bass catch (landings and dead discards) by statistical area in 2020 based on federal VTR data. Confidential areas are associated with fewer than three vessels and/or dealers. Confidential areas collectively accounted for less than 1% of commercial catch reported on VTRs in 2020. The amount of catch not reported on federal VTRs (e.g., catch from vessels permitted to fish only in state waters) is unknown. In 2019, Northeast Fisheries Science Center Data ("AA tables") suggest that 20% of total commercial landings (state and federal) were not associated with a statistical area reported in federal VTRs; AA data for 2020 are not available.[8]

Table 5: Ports reporting at least 100,000 pounds of black sea bass landings in 2020, associated number of vessels, and percentage of total commercial landings. C = confidential.[7]

Port name	Pounds of black sea bass landed	% of total commercial black sea bass landed	Number of vessels landing black sea bass
Point Pleasant, NJ	682,754	16%	37
Ocean City, MD	396,825	9%	9
Point Judith, RI	395,813	9%	148
New Bedford, MA	289,393	7%	57
Montauk, NY	229,432	5%	91
Cape May, NJ	211,373	5%	30
Hampton, VA	208,316	5%	23
Newport News, VA	157,717	4%	14
Beaufort, NC	141,486	3%	42
Sea Isle City, NJ	131,149	3%	9
Lewes, DE	C	C	C

Recreational Fishery

The Council develops coast-wide regulations for the recreational black sea bass fishery in federal waters, including a minimum fish size limit, a possession limit, and open and closed seasons (Table 6). The Commission and member states develop recreational measures in state waters (Table 7).

In July 2018, MRIP released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology, namely a transition from a telephone-based effort survey to a mail-based effort survey. The revised estimates of catch and landings are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall black sea bass catch and harvest estimates. The RHLs and other management measures through 2019 were based on the previous MRIP estimates and should not be compared against the revised MRIP estimates. The revised MRIP estimates were incorporated into the stock assessment in 2019 and were used to derive the catch and landings limits for 2020 and beyond.

According to the most recent MRIP data, between 1981 and 2020, recreational catch (landings and live and dead discards) of black sea bass from Maine through Cape Hatteras, NC was lowest in 1984 at 4.73 million fish and was highest in 2017 at 41.19 million fish. Recreational harvest in weight was highest in 2016 at 12.05 million pounds; however, harvest in numbers of fish was highest in 1986 at 19.28 million fish. Recreational harvest in weight was lowest in 1981 at 1.53 million pounds, while harvest in numbers of fish was lowest in 1998 at 1.56 million fish.[6]

It should be noted that the coastwide 2016 and 2017 MRIP estimates for black sea bass are viewed as outliers by the Monitoring and Technical Committees and the Scientific and Statistical Committee due to the influence of very high estimates in individual states and waves (i.e., New York 2016 wave 6 for all modes and New Jersey 2017 wave 3 for the private/rental mode). Steps have been taken to address uncertainty in these specific estimates in the stock assessment and in management.

In 2020, an estimated 4.23 million black sea bass, at about 9.05 million pounds, were harvested by recreational anglers from Maine through Cape Hatteras, North Carolina (Figure 3, Table 9).[6] This represents a 56% overage of the 2020 RHL (Table 2). The Council and Board agreed to leave the recreational bag, size, and season limits unchanged in 2020 despite an expected RHL overage. This was viewed as a temporary solution to allow more time to consider how to fully transition the management system to use of the revised MRIP data, including ongoing considerations related to the commercial/recreational allocation and the Recreational Reform Initiative. The 2020 RHL overage will be discussed in development of 2022 recreational measures but is unlikely to impact the 2022 RHL and ACL given recent biomass estimates and the Council's Accountability Measures.[11]

In 2020, 56% of black sea bass harvested by recreational fishermen from Maine through North Carolina (in numbers of fish) were caught in state waters and 44% in federal waters (Table 9). Most of the recreational harvest in 2020 was landed in New York (30%), followed by New Jersey (19%), Rhode Island (15%), and Massachusetts (14%).[6]

For-hire vessels carrying passengers in federal waters must obtain a federal party/charter permit. In 2020, 850 vessels held a federal party/charter permit.[10]

About 86% of the recreational black sea bass harvest in 2020 came from anglers fishing on private or rental boats, about 12% from anglers aboard party or charter boats, and 2% from anglers fishing from shore (Table 11).[6] Party and charter fishing was restricted in all states for part of 2020 due to the COVID-19 pandemic.

Table 6: Federal black sea bass recreational measures, Maine - Cape Hatteras, NC, 2007 - 2020.[6]

Year	Min. size	Bag limit	Open season
2007-2008	12”	25	Jan 1 - Dec 31
2009	12.5”	25	Jan 1 - Oct 5
2010-2011	12.5”	25	May 22 - Oct 11; Nov 1 - Dec 31
2012	12.5”	25	May 19 - Oct 14; Nov 1 - Dec 31
2013	12.5”	20	Jan 1 - Feb 28; May 19 - Oct 14; Nov 1 - Dec 31
2014	12.5”	15	May 19 - Sept 18; Oct 18 - Dec 31
2015-2017	12.5”	15	May 15 - Sept 21; Oct 22 - Dec 31
2018-2021	12.5”	15	Feb 1 - 28; May 15 - Dec 31

Table 7: State waters black sea bass recreational measures in 2018-2021. The only changes made during these years were to maintain a Saturday opening (Massachusetts) or to account for harvest in the February opening (Virginia and North Carolina).[6]

State	Min. Size	Bag Limit	Open Season
Maine	13”	10	May 19 - Sept 21; Oct 18 - Dec 31
New Hampshire	13”	10	Jan 1 - Dec 31
Massachusetts	15”	5	2018: May 19 - Sept 12
			2019 & 2020: May 18 - Sept 8
			2021: May 18 – Sept 8
Rhode Island	15”	3	Jun 24 - Aug 31
		7	Sept 1 - Dec 31
Connecticut private & shore	15”	5	May 19 - Dec 31
CT authorized party/charter monitoring program vessels	15”	5	May 19 - Aug 31
		7	Sept 1- Dec 31
New York	15”	3	Jun 23 - Aug 31
		7	Sept 1- Dec 31
New Jersey	12.5”	10	May 15 - Jun 22
		2	Jul 1- Aug 31
		10	Oct 8 - Oct 31
	13”	15	Nov 1 - Dec 31
Delaware	12.5”	15	May 15 - Dec 31
Maryland	12.5”	15	May 15 - Dec 31
Virginia	12.5”	15	2018: Feb 1 - 28; May 15 - Dec 31
			2019: Feb 1-28; May 15-31; June 22-Dec 31
			2020: Feb 1 - 29; May 29 - Dec 31
			2021: Feb 1-28; May 15-May 31; Jun 16-Dec 31
North Carolina, North of Cape Hatteras (35° 15’N)	12.5	15	2018: Feb 1 - 28; May 15 - Dec 31
			2019: Feb 1 - 28; May 17 - Dec 31
			2020: Feb 1 - 29; May 17 - Nov 30
			2021: May 15 - Dec 31

Table 8: Estimated recreational black sea bass catch (harvest and live and dead discards) and harvest from Maine through Cape Hatteras, North Carolina, 2011-2021, based on the revised MRIP estimates.[6]

Year	Catch (millions of fish)	Harvest (millions of fish)	Harvest (millions of pounds)	% of catch retained
2011	12.47	1.78	3.27	14%
2012	34.95	3.69	7.04	11%
2013	25.71	3.01	5.68	12%
2014	23.29	3.81	6.93	16%
2015	23.17	4.39	7.82	19%
2016	35.80	5.84	12.05	16%
2017	41.19	5.70	11.50	14%
2018	24.99	3.99	7.92	16%
2019	32.32	4.38	8.61	14%
2020	34.11	4.23	9.05	12%

Table 9: Estimated percentage of black sea bass recreational harvest (in numbers of fish) in state and federal waters, from Maine through North Carolina, 2011-2021, based on the revised MRIP estiamtes.[6]

Year	State waters	Federal waters
2011	65%	35%
2012	69%	31%
2013	67%	33%
2014	68%	32%
2015	69%	31%
2016	59%	41%
2017	40%	60%
2018	61%	39%
2019	62%	38%
2020	56%	44%
2011-2020 average	**60%**	**40%**
2018-2020 average	**59%**	**41%**

Table 10: State-by-state contribution to total recreational harvest of black sea bass (in number of fish), Maine through Cape Hatteras, North Carolina, 2018 - 2020, based on the revised MRIP estimates.[6]

State	2018	2019	2020	2018-2020 average
Maine	0.0%	0.0%	0.0%	0.0%
New Hampshire	0.0%	0.0%	0.0%	0.0%
Massachusetts	17.0%	12.0%	13.6%	14.1%
Rhode Island	17.7%	11.8%	14.6%	14.6%
Connecticut	9.5%	11.8%	9.6%	10.3%
New York	21.4%	36.0%	30.1%	29.4%
New Jersey	26.0%	19.0%	19.2%	21.3%
Delaware	2.2%	1.0%	3.3%	2.2%
Maryland	3.9%	3.0%	1.9%	2.9%
Virginia	2.2%	5.3%	6.5%	4.7%
North Carolina	0.2%	0.1%	1.1%	0.5%

Table 11: Percent of total recreational black sea bass harvest (in numbers of fish) by recreational fishing mode, Maine through Cape Hatteras, North Carolina, 2011-2020, based on the revised MRIP estimates.[6]

Year	Shore	Party/charter	Private/rental	Total Number of Fish
2011	3%	21%	76%	1,782,519
2012	1%	19%	80%	3,690,188
2013	2%	9%	89%	3,014,535
2014	3%	16%	81%	3,806,448
2015	0%	12%	88%	4,392,452
2016	4%	9%	88%	5,841,460
2017	1%	9%	90%	5,704,072
2018	1%	12%	86%	3,992,628
2019	3%	18%	79%	4,377,491
2020	2%	12%	86%	4,227,860
2011-2020 avg	**2%**	**13%**	**85%**	**4,082,965**

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[5] More information on the Summer Flounder, Scup, and Black Sea Bass Commercial/Recreational Allocation Amendment is available at: https://www.mafmc.org/actions/sfsbsb-allocation-amendment.

[6] Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed June 2021. Available at: https://www.fisheries.noaa.gov/data-tools/recreational-fisheries-statistics-queries

[7] Unpublished NMFS commercial fish dealer data (i.e., "DERS"), which include both state and federal dealer data).

[8] Unpublished NMFS VTR data.

[9] More information on the Black Sea Bass Commercial State Allocation Amendment/Addendum is available at: https://www.mafmc.org/actions/bsb-commercial-allocation.

[10] Unpublished NMFS permit data.

[11] A summary of the accountability measures is available at: https://www.mafmc.org/s/AMs-description_SF_scup-BSB_Dec2020.pdf

Memorandum

Date: August 2, 2021

To: Council and the ASMFC ISFMP Policy Board

From: Recreational Harvest Control Rule FMAT and PDT

Subject: Update on development of the Recreational Harvest Control Rule Framework/Addendum

Table of Contents

1. Introduction and Background

The Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's (Commission's) Interstate Fishery Management Program Policy Board (Policy Board) are considering several changes to management of the recreational fisheries for summer flounder, scup, black sea bass, and bluefish through the Recreational Reform Initiative (Initiative). The goals of the Initiative are to provide stability in the recreational bag, size, and season limits (henceforth referred to as recreational management measures), develop strategies to increase management flexibility, and achieve accessibility aligned with availability/stock status for all four species. This initiative aims to address a range of challenges in recreational fisheries management including widespread angler dissatisfaction with some recreational management measures, stakeholder perception that measures are not reflective of stock status, and concerns about how Marine Recreational Information Program (MRIP) data are used to manage these fisheries.

In October 2020, the Council and Policy Board prioritized several topics for further development through the Initiative, all of which are described in more detail in a January 2021 staff memo. Given workload constraints and other ongoing actions for these species, in February 2021, the Council and Policy Board agreed to prioritize development of a proposal referred to as a Harvest Control Rule prior to further development of the other Initiative topics.

This memo summarizes a preliminary set of Harvest Control Rule alternatives developed by a joint Fishery Management Action Team (FMAT)/Plan Development Team (PDT) to be considered through a fishery management plan (FMP) framework/addendum. During their August 9, 2021 meeting, the Council and the Policy Board should provide feedback and guidance to the FMAT/PDT on this set of alternatives. The FMAT/PDT will continue to develop the alternatives approved by the Council and Policy Board for further development. As described in more detail below, certain aspects of these alternatives require further development before a final range of alternatives can be approved and taken out to public hearings.

Statement of the Problem

The overarching goal of the Harvest Control Rule is to rely less on expected fishery performance compared to a catch or harvest limit (see alternative 1 below), and instead to use a more holistic approach that places greater emphasis on traditional and non-traditional stock status indicators and trends. The alternatives will have predetermined management responses based on a suite of metrics. The type of response and the metrics used to guide the response vary by alternative.

Under the current process for setting recreational management measures, the Council and relevant Commission species Management Board adopt a combination of bag, size, and season limits that are intended to prevent overages of the coastwide RHL. This process relies on the assumption that if these measures remain unchanged, next year's harvest will be similar to harvest in the current year or a recent year's average. If unchanged measures are expected to result in harvest notably above or below the RHL, then the measures are adjusted to achieve a desired percent liberalization or reduction in harvest based on an analysis using the previous years' MRIP data. However, it is challenging to accurately predict recreational harvest under any combination of measures. Harvest is impacted by many factors, including regulations, weather, availability of multiple species, economic trends, and other factors. MRIP data often show considerable variations in harvest across years when the measures remain unchanged.

2. Initial Draft Range of Alternatives

Under all alternatives, changes are only considered to how the recreational bag, size, and season limits are set, and potential changes to recreational accountability measures (AMs). No changes are considered to how the recreational annual catch limits (ACLs) are set or the allocations between the commercial and recreational sectors. The alternatives do not consider any changes to commercial fisheries management. Under all alternatives MRIP data will continue to be the primary source of information on recreational catch, harvest, discards, fishing effort, and fishing mortality. However, MRIP data may not be the main driver in setting management measures, depending on the alternative. Methods to account for variability and uncertainty in the MRIP data (e.g., smoothing of outliers when appropriate) can be used under any of the alternatives below, including the no action alternative.

Alternatives 2-5 include restrictions on how liberal the recreational management measures could be, either as a maximum percentage liberalization or pre-defined set of the most liberal measures. In addition, alternatives 2-5 could require restrictions in the recreational fisheries (e.g., based on stock status considerations) when a strict MRIP to RHL comparison (see alternative 1) may not require restrictions. As such, there could be situations where the commercial fishery is allowed to increase but the recreational fishery is not. The commercial fishery will continue to be managed based on their quota, but the recreational fishery would be managed based on a number of metrics other than the RHL under alternatives 2-5. The FMAT/PDT agreed that these differences in approaches between the commercial and recreational sectors are appropriate given differences in how the fisheries are managed and monitored.

It should be noted that current management measures may not be the appropriate starting point for some alternatives for a variety of reasons (e.g., widespread angler dissatisfaction with some measures, potential for notable ACL overages for some species under current allocations). The FMAT/PDT is considering ways to define the appropriate starting point for each species under each alternative by using statistical models and other methods. Additional time is needed to further develop these ideas, and updates will be provided at a future Council and Policy Board meeting.

Some alternatives outline potential changes to recreational AMs. The Magnuson-Stevens Fishery Conservation and Management Act requires that Council FMPs contain provisions for ACLs and "measures to ensure accountability." The National Standards Guidelines state that AMs "are management controls to prevent ACLs, including sector-ACLs, from being exceeded, and to correct or mitigate overages of the ACL if they occur. AMs should address and minimize both the frequency and magnitude of overages and correct the problems that caused the overage in as short a time as possible" (50 CFR 600.310 (g)).

For all four species, states currently have the option to modify their management measures as long as their measures are deemed to be conservationally equivalent to the measures which would otherwise be implemented. The relevant species Management Board may determine that this process is not appropriate in some circumstances. Further consideration is needed regarding the Commission's conservation equivalency process under several alternatives. Many of the alternatives below rely on use of predetermined management measures. These alternatives may not achieve their desired outcomes if states have considerable flexibility to deviate from those measures.

2.1. Alternative 1: No Action (current process for setting recreational measures)

Under the current process, methods used to adjust measures can vary but generally use MRIP harvest data from one or more recent years to predict the impacts of changes in bag, size, and/or season limits. Although there are some differences in how measures are set for state and federal waters, the same general process and the same general assumptions are used to set measures in both federal and state waters. This process does not vary based on stock status and generally does not account for expected differences in availability or other factors in the upcoming year compared to previous years beyond assumptions accounted for when setting the RHL (e.g., assumptions about future recruitment are made when calculating the ABC from which the RHL is derived).

By aiming to prevent RHL overages, this method also aims to prevent ACL overages, and therefore overages of the acceptable biological catch limit (ABC). The RHL accounts for harvest only and is equal to the ACL minus expected dead discards. If expected dead discards are accurately predicted, then preventing RHL overages should also prevent ACL overages. However, as previously noted, it is challenging to accurately predict recreational harvest and discards under any combination of measures. Harvest and discards are impacted by many factors, including regulations, weather, availability of multiple species, economic trends, and other factors. MRIP data often show considerable variations in harvest across years when the measures remain unchanged.

The regulations and FMPs allow the federal waters recreational bag, size, and season limits for summer flounder and black sea bass to be waived in favor of the measures in the state where anglers land their catch. This is not allowed for scup or bluefish. This process, known as conservation equivalency (though different from the Commission's state conservation equivalency process described below), has been used for summer flounder since 2002. It has been allowed for black sea bass since 2020, though it has not been used to date. This process relies on the same assumptions as those described above. Specifically, in order for the federal waters measures to be waived, it must be demonstrated that state waters measures are collectively expected to prevent harvest from exceeding the RHL. This analysis is based on recent MRIP data.[1]

For all Commission-managed species, states have the option to modify their management measures as long as their measures are deemed to be conservationally equivalent to the measures which would otherwise be implemented. The methods for determining if measures are conservationally equivalent can vary;[2] however, in practice for summer flounder, scup, black sea bass, and bluefish, these methods usually aim to demonstrate that the modified management measures will result in the same level of harvest as the measures which would otherwise be implemented and this analysis relies on recent MRIP data.

Accountability Measures Under Alternative 1

The current recreational AMs for these four species were implemented through an omnibus amendment in 2013. Proactive AMs include adjustments to the management measures for the upcoming fishing year, if necessary, to prevent RHL and ACL overages. Due to the timing of availability of current-year MRIP data, in-season closures are not used as a proactive AM for these fisheries. Therefore, measures must be set in a manner that is reasonably expected to constrain harvest to the RHL.

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[1] The federal conservation equivalency process is described in more detail in the regulations at §648.102(d) and in Frameworks 2 and 6 for summer flounder and framework 14 for black sea bass (available at: https://www.mafmc.org/sf-s-bsb.)

[2] For example, see the guidelines available here: http://www.asmfc.org/files/pub/ConservationEquivalencyGuidance_2016.pdf.

Reactive recreational AMs include a set of possible responses to exceeding the ACL, depending on stock status and whether the ABC was also exceeded. To determine if a reactive AM has been triggered, the most recent 3-year average recreational ACL is compared against the most recent 3-year average recreational dead catch estimate. If average catch exceeds the average ACL, then the appropriate AM is determined based on stock status. Pound-for-pound ACL overage paybacks are only required when the stock is overfished, under a rebuilding plan, or stock status is unknown. If biomass is below the target level, but the stock is not overfished, then a payback is only required if the ABC was also exceeded. In this circumstance, the payback amount is less than the full overage and varies such that a greater payback is required under lower biomass levels than under higher biomass levels. In all other circumstances (i.e., biomass exceeds the target or biomass is below the target but above the threshold and the ABC was not exceeded), recreational ACL overages do not require paybacks but require consideration of changes to the bag, size, and season limits in future years to prevent further overages.

A more detailed summary of the AMs for summer flounder, scup, and black sea bass is available here. The bluefish AMs are very similar, but include additional considerations related to transfers between the commercial and recreational sectors.

2.2. Alternative 2: Percent Change Alternative

This alternative proposes a mechanism for recreational measures setting that continues to use a comparison of MRIP estimates to the RHL. It aims to provide more stability and predictability of measures while better incorporating stock status into the measures setting process. Recreational measures would be considered every other year to align with the anticipated schedule of stock assessment updates.

This alternative differs from the no action alternative (alternative 1) in that it includes an explicit consideration of biomass compared to the target level (B/B_{MSY}) when determining if the recreational management measures should be liberalized, reduced, or remain unchanged from one year to the next. The amount of change varies based on the magnitude of the difference between MRIP estimates and the RHL, as well as considerations related to B/B_{MSY}.

This alternative considers the upcoming RHL relative to the confidence interval (CI) of the most recent MRIP time-series estimate. If the RHL for the upcoming management period is within the CI of the most recent MRIP time series estimate, then measures would remain unchanged or result in a pre-defined percentage liberalization or reduction based on the B/B_{MSY} ratio. If the RHL is outside the CI of the most recent MRIP time series estimate, then one of the tables below would be used to determine the appropriate pre-defined scale of liberalization or reduction.

Further FMAT/PDT discussion is needed regarding the appropriate percentage values for the difference between the RHL and the MRIP estimate and the “a,” “b,” “c”, “d”, and “e” percentage change values in the tables below. The appropriate value may vary by species. It is, however, intended that this be mirrored up and down to provide similar consideration of the need for reductions and opportunities for liberalization.

The two tables below differ in their approach to enacting liberalizations/reductions. In Table 1, the response is based on a binned approach where percentage liberalizations and reductions are pre-defined. In Table 2 the percent difference between the future RHL and the current MRIP time-series average estimate is multiplied by a coefficient (“d” or “e”) to determine the percentage liberalization or reduction. The Table 1 provides stability and predictability in the percent liberalization or reduction. In contrast, Table 2 allows for a more proportional response to RHL underages or overages because the liberalizations and reductions are not predetermined but instead are a ratio of the RHL overage/underage.

This alternative considers changes from a starting point. The current management measures may not be the appropriate starting point for a variety of reasons (e.g., widespread angler dissatisfaction with some measures, potential for notable ACL overages for some species under current allocations). The FMAT/PDT is considering ways to define the appropriate starting point for each species under each alternative by using statistical models and other methods. Additional time is needed to further develop these ideas, and updates will be provided at a future Council and Policy Board meeting.

Accountability Measures Under Alternative 2

Under this alternative, when there is a potential for an RHL overage, the greater the potential overage, the lesser the chance to liberalize measures and the greater the likelihood of restrictions. This can be considered a proactive AM to prevent future RHL overages.

Further FMAT/PDT discussion is needed to determine if other changes to the AMs should be considered under this alternative.

Table 1: Binned approach to enacting changes in measures under alternative 2.[3]

Future RHL vs MRIP Estimate	B/B_{MSY}	Change in Measures
Future RHL more than X% higher than MRIP estimate (and outside CI)	> 1.5	c% Liberalization
	1 - 1.5	b% Liberalization
	< 1	0% (Status quo)
Future RHL up to X% higher than MRIP estimate (and outside CI)	> 1.5	b% Liberalization
	1-1.5	a% Liberalization
	< 1	0% (Status quo)
Future RHL within CI of MRIP estimate	> 1.5	a% Liberalization
	1-1.5	0% (Status quo)
	< 1	a% Reduction
Future RHL up to X% lower than MRIP estimate (and outside CI)	> 1.5	0% (Status quo)
	1-1.5	a% Reduction
	< 1	b% Reduction
Future RHL more than X% lower than MRIP estimate (and outside CI)	> 1.5	0% (Status quo)
	1-1.5	b% Reduction
	< 1	c% Reduction

[3] The proposed B/B_{MSY} inflection points are based on the Council's Risk Policy. Future changes to the Council risk policy may warrant reconsideration of this proposed process.

Table 2: Coefficient approach to enacting changes in measures under alternative 2. [4]

Future RHL vs MRIP Estimate	B/B_{MSY}	Change in Measures
RHL X% higher than MRIP estimate (and outside CI)	> 1.5	d% Liberalization
	1 - 1.5	e% Liberalization
	< 1	0% (Status Quo)
RHL within CI of MRIP estimate	> 1.5	e% Liberalization
	1-1.5	0% (Status Quo)
	< 1	e% Reduction
RHL X% lower than MRIP estimate (and outside CI)	> 1.5	0% (Status Quo)
	1-1.5	e% Reduction
	< 1	d% Reduction

2.3. Alternative 3: Fishery Score Alternative

This alternative would combine multiple metrics into one "fishery score" which would be used to determine the recreational management measures. The fishery score would be calculated each time updated stock assessment information is available (anticipated to be every other year); therefore, it may be appropriate to leave the recreational management measures unchanged in the interim years, even if other components of the fishery score (e.g., recent harvest) change. This would provide some level of stability in the fishery while also ensuring a management response to the best available information on stock status.

The FMAT/PDT proposes the following four metrics for calculating the fishery score: fishing mortality (F) relative to the threshold level (F_{MSY}) and biomass (B) relative to the target (B_{MSY}) or threshold level (½ B_{MSY}) from the terminal year of the stock assessment, as well as recruitment (R) trends, and a comparison of average harvest to the RHL. Each metric would have a weighting component such that metrics with a stronger relationship to harvest (e.g., F and biomass) would have more weight in the fishery score while still accounting for metrics that play a role but may not drive harvest as strongly. Other metrics can be added and weighting schemes adjusted. The overall goal of the fishery score is to have a single metric that is easily interpreted by stakeholders, provides early indication of stock declines, provides stability in recreational measures, and accommodates multiple metrics contributing to recreational harvest.

The fishery score would be calculated using the following formula:

$$F/F_{MSY}(W_F) + B/B_{MSY}(W_B) + R\ Trend(W_R) + Fishery\ performance\ (W_{FP}) = Fishery\ Score$$

Where W refers to the weight of each factor. As an example to help explain the methodology, the fishery score will range from 0 to 5; however, final values could vary based on further development of this alternative. Different fishery score values would be binned and assigned to different sets of recreational management measures. Example bins for consideration are defined in Table 3.

[4] See previous footnote.

The calculation of a fishery score can accommodate additional metrics that may be added in the future, such as socioeconomic information. An example of how the fishery score could be calculated based on the recent information for each species is provided in Appendix A.

Weights will have a minimum and maximum range (e.g., a minimum of 0.1 and a maximum of 0.5) to prevent any one metric from being weighed too heavily in relation to the others. The intent is to allow the Monitoring Committee to recommend changes to the weights through the specifications process based on their expert judgement and empirical methods when possible. Changes should be limited to provide stability in comparisons over time.

A declining fishery score over time could indicate negative trends in stock status. An examination of the individual fishery score metrics can provide insight into why the overall score is declining. This can also serve as an early warning of the need to use more restrictive measures in the future if the trend continues.

Accountability Measures Under Alternative 3

Further FMAT/PDT discussion is needed regarding AMs under the fishery score alternative. Movement from one bin to another could be considered a proactive AM.

If recreational catch or harvest exceeds the ACL or RHL for more than one stock assessment cycle, then this could trigger a revision to the management measures associated with each of the fishery score bins.

Table 3: Fishery Score bins related to level of concern, stock status and fishery performance outlook, and measures.

Fishery Score	Level of Concern	Stock Status and Fishery Performance Outlook	Measures
0-1.99	Highest Risk	Very Poor	Most Restrictive
2-2.99	High Risk	Poor	Restrictive
3-3.99	Medium Risk	Moderate	Liberal
4-5	Low Risk	Good	Most Liberal

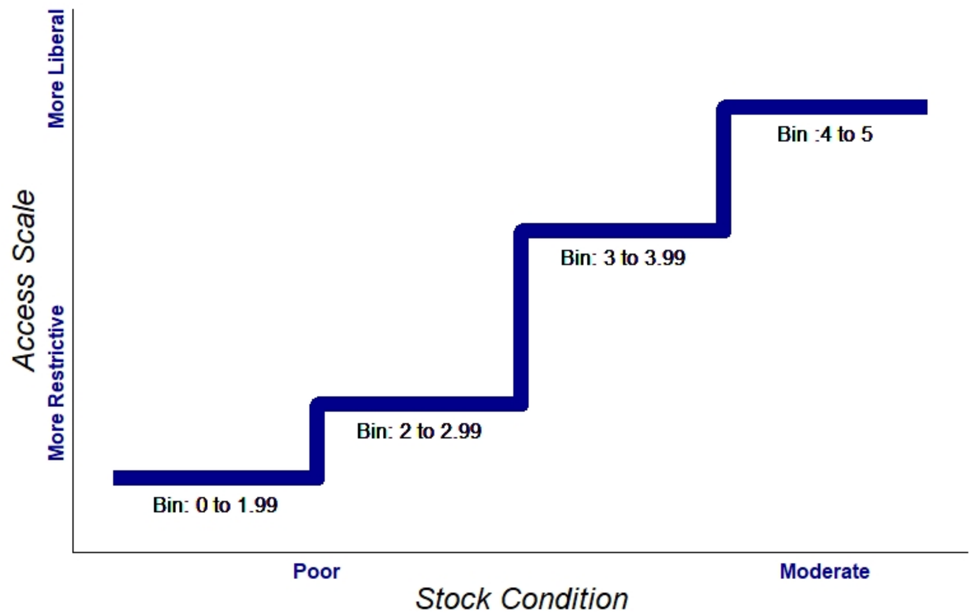

Figure 1: Illustration of fishery score bins relative to stock condition and level of recreational fishing access.

2.4. Alternative 4: Biological Reference Point Alternative

Under this alternative, the primary metrics of terminal year B/B_{MSY} and F/F_{MSY} from the most recent stock assessment would be used to guide selection of management measures. Management measures would be binned into seven potential "boxes," as illustrated in Figure 2. Each box would have a set of default measures which would be implemented the first time the stock is placed in that box.

To define the boxes under this alternative, F would be considered in two states (i.e., above or below the target) while B/B_{MSY} would be further divided to provide managers and anglers with more responsive levels of access. The following bins of B/B_{MSY} are proposed.

- Biomass is greater than or equal to 1.5x the target.
- Biomass is greater than or equal to the target but less than 1.5x the target.
- Biomass is less than the target, but greater than or equal to the threshold (the threshold is ½ the target).
- Biomass is less than the threshold (the stock is overfished).

Trends in biomass (see Appendix B) and recruitment are secondary metrics under this alternative which are used to fine tune default measures <u>only</u> when stock conditions (F/F_{MSY} and B/B_{MSY}) relative to the categories above have not changed between the prior and most recent assessments. In this case, biomass and recruitment trends can be used to further relax, restrict, or re-evaluate measures. As such, trends in biomass and recruitment would impact the management measures, but to a lesser extent than F/F_{MSY} and B/B_{MSY}.

Changes to the measures would be considered based on the following process when updated stock assessment information is available (anticipated to be every other year). The first time a stock is in a new box, the fishery would be subject to the default measures. If the box remains unchanged after a subsequent stock assessment update, then trends in recruitment and biomass would be considered to determine if measures remain unchanged or if limited liberalizations or reductions can be permitted. As described below, liberalizations within a box are only allowed in boxes 1 and 2, which are associated with a healthy stock status. Restrictions and/or re-evaluation within a box can be required based on secondary metrics for boxes 3-6. This allows for relative stability if stock status is unchanged, but also room for tuning of measures if biomass and/or recruitment trends warrant it. It is intended that the changes within a box would be based on predetermined guidelines.

Liberalizations within a box are not permitted when biomass is below the target level or when F exceeds F_{MSY}. For example, if a stock in box 2 (F below F_{MSY} and biomass above B_{MSY}, but below 150% of B_{MSY}) remains in box 2 based on an updated stock assessment, then measures may be liberalized to preset measures if recruitment and/or biomass are trending upwards. If either of those trends are down, then measures would stay status quo. If the updated stock assessment information indicates biomass exceeds 150% of B_{MSY}, then the stock would move into box 1, triggering a new set of default measures more relaxed than those from box 2. Alternatively, if biomass is below the target, then the stock would move to a more restrictive box (boxes 3-6).

Stocks in box 3 are not subject to overfishing and are not overfished, but are below their target biomass level. Stocks in boxes 4-6 are experiencing overfishing. The goal of the management measures in boxes 3-6 is to improve stock status by ending overfishing and/or increasing biomass. If the initial default measures do not accomplish this, but the primary metrics of F/F_{MSY} and B/B_{MSY} do not change, then secondary measures can inform how to better adjust regulations to reach the target through additional restrictions. This differs from stocks in boxes 1-2, where measures would not be adjusted in this circumstance. Additionally, when a stock is in boxes 3-6 (F exceeds F_{MSY}) and the current measures produce catch or harvest that exceed the ACL or RHL (e.g., based on a multi-year average), then the default measures should be re-evaluated.

Any overfished stock (biomass below ½ B/B_{MSY}) would fall into box 7 and would no longer be able to utilize the Harvest Control Rule. This stock would default back to a rebuilding plan as outlined in the FMP. The use of FMP rebuilding strategies allow the Council and Board the flexibility to draft a rebuilding plan, and it is not appropriate to have pre-defined measures when a stock is rebuilding.

While conditions that drive the box definitions would be consistent across all species, the specific combination of management measures, such as bag, season, and size limits, appropriate for each step would be species specific.

Appendix C provides examples of which box summer flounder, scup, and black sea bass would be placed in based on the most recent stock assessment information.

Accountability Measures Under Alternative 4

The main AM built into this alternative is the movement between boxes based on changes in stock status. The incorporation of an additional secondary metric of fishery performance when overfishing is occurring ensures there is accountability to an ACL or RHL by triggering a management response (i.e., restrict and re-evaluate measures) when the recreational fishery contributes to overfishing by exceeding their limits.

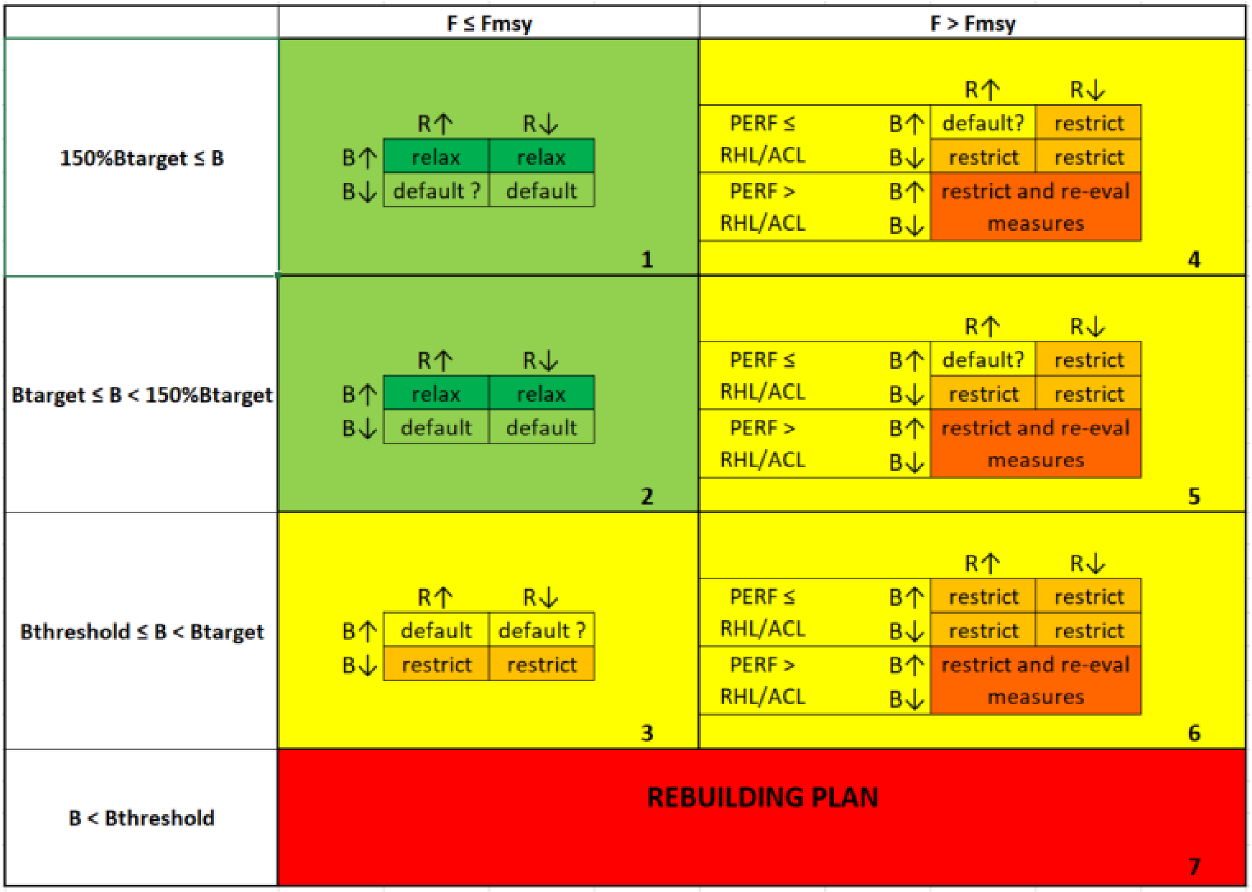

Figure 2: Illustration of example biological reference point "boxes" under alternative 4.

2.5. Alternative 5: Biomass Based Matrix Alternative

This alternative uses a matrix to set recreational measures based on two factors: B/B_{MSY} and the most recent trend in biomass (increasing, stable, or decreasing). Using these two factors and four parameters for each, as described below, provides a three-by-four matrix to determine the appropriate management measure "step." Step A represents the optimal conditions, while Step F represents the worst conditions. Certain pairs of conditions (e.g., a healthy stock that is increasing or an abundant stock with any biomass trend) are treated as equivalent to reduce the number of steps to six.

The specific combination of management measures (bag, season, and size limits) that are appropriate for each step will be species specific. However, the conditions that drive the steps can be the same across all species.

The use of this methodology will have a hard ceiling beyond which measures will not liberalize, even if the stock continues to improve, unless a revision is conducted. Additional FMAT/PDT discussion is needed to determine the criteria and circumstances that would trigger a revision and the process to make the revision. Additionally, even under increasing catch limits, if the fishing mortality comparison does not indicate overages, but the stock status metrics suggest downward trends, then the recreational fishery may have more conservative measures than if those measures were set based on an RHL comparison alone (e.g., alternative 1).

Definitions:

- Abundant = Stock is at least 150% of the target level (B_{MSY})
- Healthy = Stock is above the target, but less than 150% of the target
- Below Target = Stock is below the target, but above the threshold (½ B_{MSY})
- Overfished = The stock is below the threshold

When biomass exceeds 150% of the target level, regardless of the biomass trend, step A measures are selected. This special condition is aimed at providing an opportunity to keep recreational management measures aligned with stock status, which in this case, is significantly above the target. When a stock is fished at F_{MSY} it is expected that stock size will decrease towards the biomass target unless above average recruitment events occur. Thus, it is not necessarily a negative sign if the stock at such high biomass levels experiences a declining trend.

Evaluating biomass trends can be accomplished using a variety of statistical methods. The FMAT/PDT is working on a number of potential options (see Appendix B). The application of this alternative to summer flounder, scup, black sea bass and bluefish is provided in Appendix D.

Accountability Measures Under Alternative 5

Movement from one step to another could be considered a proactive AM under this alternative. The FMAT/PDT has discussed the possibility of using fishing mortality to evaluate fishery performance as a reactive AM, either as a stand alone metric or in conjunction with a comparison of catch to the ACL. Further FMAT/PDT discussion is needed regarding AMs under this alternative.

Table 4: Recreational management measure matrix under alternative 5.

		Biomass Trend		
		Increasing	**Stable**	**Decreasing**
Stock Status	**Abundant**	Step A		
	Healthy	Step A	Step B	
	Below Target	Step C	Step D	
	Overfished	Step E	Step F	

3. Next steps

This section lists the major next steps needed to complete this framework/addendum. The Council and Policy Board should provide guidance to the FMAT/PDT on their desired implementation date, considering the time needed to complete the tasks listed below alongside other priority actions for these species. For example, the FMAT/PDT noted that although final action in early 2022 (to inform 2022 measures) may be feasible, this would be very ambitious and may not allow sufficient time to thoroughly analyze the alternatives, refine analytical methods to develop example management measures, and incorporate revisions based on Monitoring Committee and public input.

This framework/addendum would define a process for setting recreational management measures; it would not prescribe specific management measures. However, development of example management measures will help facilitate comparison of potential impacts across alternatives and to allow for informed stakeholder input. Additional work is needed to develop example measures under each alternative. As described above, several alternatives require development of many different sets of measures associated with different stock status conditions. The FMAT/PDT recommends use of an analytical, model-based approach as the basis for setting the management measures, in combination with public input. Quantitative models can be used to estimate predicted catch or harvest under any combination of bag, size, and season limits. These measures can be further refined based on stakeholder input.

The FMAT/PDT has discussed the potential use of two models that are currently in development (i.e., an economic model developed for the summer flounder management strategy evaluation and the recreational fleet dynamics model originally developed in 2018 and 2019 through a contract funded by the Council). A sub-group of the SSC will review both models in late September 2021. These models may be revised based on SSC input. It should be noted that one model has so far only been developed for summer flounder (the management strategy evaluation model) and the other model has been developed for summer flounder and black sea bass (the recreational fleet dynamics model). Both models could be updated in the future for all four species; however, this will require additional time and likely cannot be done until at least mid to late 2022, depending on availability of the scientists who developed the models.

Major milestones in completion of this framework/addendum are listed below. Example completion dates for each milestone are provided; however, these dates are subject to change based on any delays during the process.

- Council and Policy Board approve draft alternatives for continued development (August 2021).
- Further development and refinement of the alternatives by the FMAT/PDT based on Board and Council feedback; development of draft addendum (August - October 2021).
- SSC sub-group peer review of two models (September 20, 2021).
- Revisions to the models, if needed based on SSC feedback (September - October 2021).
- Workgroups to solicit stakeholder input and ideas on different management scenarios (September and October 2021).
- FMAT/PDT begin using models to develop example management measures under each alternative (October 2021).
- Monitoring Committee and Advisory Panel meetings to provide input on draft alternatives and example management measures (November 2021).
- Council and Policy Board review refined draft alternatives and consider approval of a final range of alternatives for the framework/addendum and draft addendum document for public hearings (October 2021).
- Public hearings (November - December 2021).
- FMAT/PDT and Advisory Panel meetings to consider input received during public hearings and develop recommendations for final action (January 2021 or February 2022).
- Council and Policy Board meeting to consider final action (February 2022).
- Development of NEPA document for Council framework and federal rulemaking (February to mid to late 2022).

- Monitoring Committee, Council, and Board consideration of use in setting 2022 recreational management measures (Spring 2022).

4. Appendices

4.1. Appendix A: Fishery score example

This appendix provides an example of how the fishery score (see alternative 3) could be calculated for black sea bass. As described in Section 2.3, the fishery score would be calculated based on the following formula:

$$F/F_{MSY}(W_F) + B/B_{MSY}(W_B) + R\ Trend(W_R) + Fishery\ performance\ (W_{FP}) = Fishery\ Score$$

Where W refers to the weight of each factor. For the purposes of this example, the fishery score ranges from 0-5 and each factor in the score is assigned a value of 0-5.

Under this example, the B/B_{MSY} score would be assigned based on the following range of B/B_{MSY} ratios from the most recent stock assessment.

- 5: $B/B_{MSY} >= 2.0$
- 4: $2.0 < B/B_{MSY} >= 1.25$
- 3: $1.25 < B/B_{MSY} >= .75$
- 2: $0.75< B/B_{MSY} >=0.25$
- 1: $0.25=< B/B_{MSY}$

Under this example, the F/F_{MSY} score would be assigned based on the following range of F/F_{MSY} ratios from the most recent stock assessment.

- 5: $F/F_{MSY} < 1$
- 3: $F/F_{MSY} = 1$
- 1: $F/F_{MSY} > 1$

Under this example, recruitment trend is calculated by comparing the terminal year estimate from the stock assessment to the most recent three year average.

- 5: terminal year R greater than 20% above 3 year average
- 4: terminal year R less than 20% but more than 10% above 3 year average
- 3: terminal year R within 10% above and below 3 year average
- 2: terminal year R less than 20% but more than 10% above 3 year average
- 1: terminal year 1 greater than 20% below 3 year average

The following comparisons provide an example of how to evaluate recreational harvest compared to the RHL.

- 5: most recent 3 year average harvest at least 20% below upcoming RHL
- 4: most recent 3 year average harvest 5-20% below upcoming RHL
- 3: most recent 3 year average harvest 0-5% below upcoming RHL
- 2: most recent 3 year average harvest exceeds the upcoming RHL by 25% or less
- 1: most recent 3 year average harvest exceeds the upcoming RHL by more than 25%

According to the most recent black sea bass stock assessment B/B_{MSY} was 2.1 and F/F_{MSY} was 0.85 in 2019. This results in a value of 5 for both the B/B_{MSY} and F/F_{MSY} fishery score metrics.

Recruitment in 2019 was 21% greater than the 2017-2019 average, resulting in a fishery score metric of 5.

According to currently available MRIP data, the average black sea bass harvest from Maine through Cape Hatteras, NC was 8.53 million pounds in 2018-2020. The 2021 RHL (provided for example purposes only as RHLs beyond 2022 will be determined at a later date) is 6.34 million pounds. This results in a fishery score metric of 1.

The appropriate weighting of each factor in the fishery score requires further consideration. If it is assumed that each factor is assigned an equal weight, then the examples above would result in the following overall fishery score:

$$5(0.25) + 5(0.25) + 5(0.25) + 1\,(0.25) = 4$$

$$F/F_{MSY}(W_F) + B/B_{MSY}(W_B) + R\ Trend(W_R) + Fishery\ performance\ (W_{FP}) = Fishery\ Score$$

Based on the method outlined in Section 2.3, black sea bass would be considered healthy and the corresponding management measures would be the most liberal based on an overall fishery score of 4.0.

Based on this same methodology, summer flounder would be assigned an F score of 5, a B/B_{MSY} score of 3, a recruitment score of 4, and a fishery performance score of 2. This would result in an overall fishery score of 3.5.

Scup would be assigned an F score of 5, a B/B_{MSY} score of 5, a recruitment score of 1, and a fishery performance score of 1. This would result in an overall fishery score of 3.0.

4.2. Appendix B: Methods for Evaluating Biomass Trend

Alternatives 4 & 5 require evaluating trends in biomass. The FMAT/PDT is working on a number of potential options to evaluate trends. One possible approach would take the average percent change in spawning stock biomass from the three most recent years in the assessment and compare the average to pre-defined breakpoints. Figure 3 illustrates three potential breakpoints: 3%, 4%, and 4%. Increasing, decreasing, or stable would be defined as follows, based on a 3% example.

- Increasing: percent change ≥ 3%
- Decreasing: percent change ≤ -3%
- Stable: -3% < percent change < 3%

The FMAT/PDT also considered a method to evaluate biomass trend by examining slopes in spawning stock biomass. This is similar to methods that have been considered in multiple stock assessment contexts. The FMAT/PDT developed examples of both the averaging and slope methods. Both methods produced very similar results; therefore, the FMAT/PDT recommends further consideration of the averaging method given that it is computationally much simpler than the slope method.

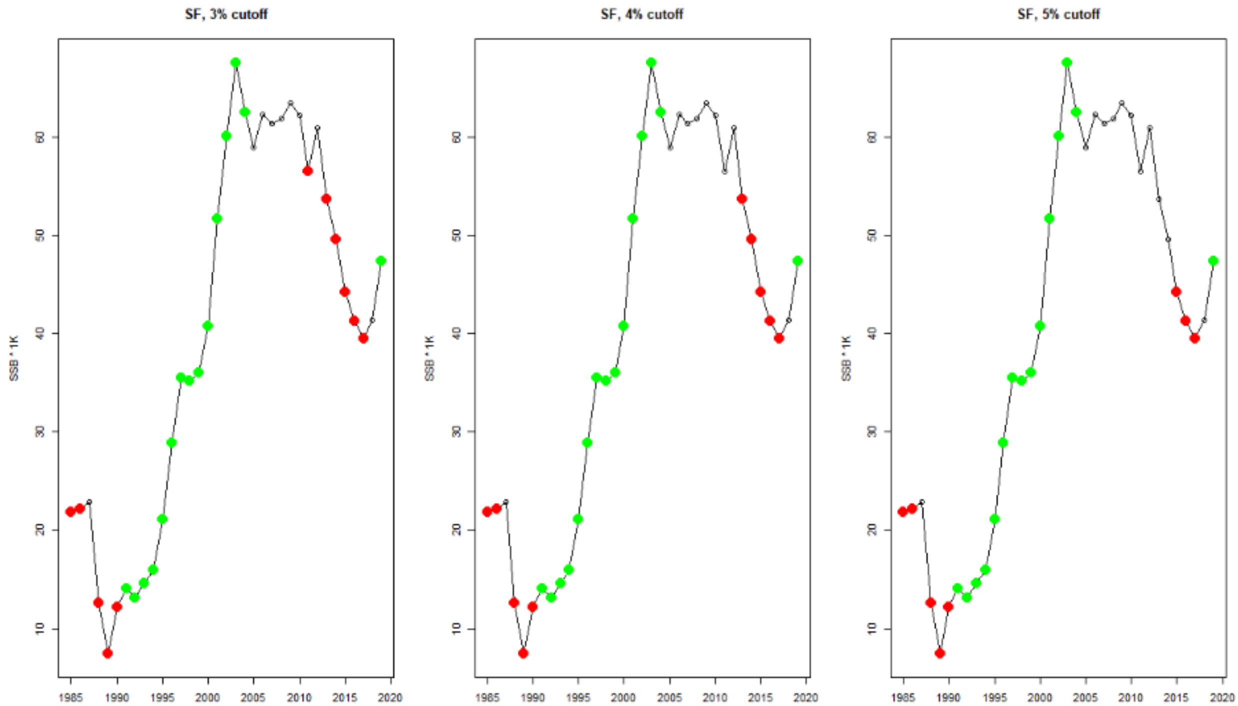

Figure 3: Trend sensitivity analysis for summer flounder. Green indicates years with an increasing biomass trend, as defined above. Red indicates years with a decreasing biomass trend. Black indicates stable biomass trend.

4.3. Appendix C: Biological Reference Point Alternative Examples

This appendix provides example of which "box" under the Biological Reference Point Alternative (alternative 4) each stock would be placed in based on recent information.

According to the 2021 management track assessment, black sea bass biomass in 2019 was about 210% of the target level. Fishing mortality in 2019 was 85% of F_{MSY}. This places black sea in box 1.

According to the 2021 management track assessment, summer flounder biomass in 2019 was about 85% of the target level. Fishing mortality was 81% of F_{MSY}. Based on these values, summer flounder would be placed in box 3.

According to the 2021 management track assessment, scup biomass in 2019 was about double the target level. Fishing mortality was 68% of F_{MSY}. Based on these values, scup would be placed in box 1.

According to the 2021 management track assessment, bluefish biomass in 2019 was about 5% below the threshold level, indicating that the stock was overfished. This places bluefish in box 7, which means the harvest control rule cannot be used and the rebuilding plan will be used to determine the recreational management measures.

4.1. Appendix D: Placement of Each Stock Within the Biomass Based Matrix (Alternative 5)

According to the 2021 management track assessment, black sea bass biomass in 2019 was about 210% of the target level and has been declining towards the target since a peak in 2014. This puts black sea bass in Step A under this alternative.

According to the 2021 management track assessment, scup biomass in 2019 was about double the target level and has been declining towards the target since 2017. This puts scup in Step A under this alternative.

According to the 2021 management track assessment, summer flounder biomass in 2019 was about 85% of the target level but has been increasing since 2017. This puts summer flounder in Step C under this alternative.

According to the 2021 management track assessment, bluefish biomass in 2019 was about 5% below the threshold level. The biomass trend has been generally stable over the past 6 years. This puts bluefish in Step F under this alternative.

Table 5: Recreational management measure matrix under alternative 5.

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="3">Biomass Trend</th></tr>
<tr><th>Increasing</th><th>Stable</th><th>Decreasing</th></tr>
<tr><th rowspan="4">Stock Status</th><th>Abundant</th><td colspan="3">Step A</td></tr>
<tr><th>Healthy</th><td>Step A</td><td colspan="2">Step B</td></tr>
<tr><th>Below Target</th><td>Step C</td><td colspan="2">Step D</td></tr>
<tr><th>Overfished</th><td>Step E</td><td colspan="2">Step F</td></tr>
</table>

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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EAFM Summer Flounder Management Strategy Evaluation
August 2021 Council Meeting

Prepared By: Brandon Muffley, Council Staff

July 29, 2021

This briefing document provides an update on recent activities regarding the summer flounder management strategy evaluation (MSE) project. Development of this MSE is part of the continued implementation of the Mid-Atlantic Fishery Management Council's (Council) Ecosystem Approach to Fisheries Management (EAFM) structured framework process.

At the August 2021 Council meeting, the Council will be meeting jointly with the Atlantic States Marine Fisheries Commission (ASMFC) Summer Flounder, Scup, and Black Sea Bass Board (Board) to review the progress made to date and provide feedback and direction on management objectives and alternatives for the project. The Council has been briefed on the MSE progress on several occasions, with the latest update at the April 2021 Council meeting[1]. While these previous updates have been scheduled around prior joint meetings (just before or after), this will be the first time the MSE project will be presented and discussed jointly with the Board.

Here we provide an overview of the summer flounder MSE project but will focus on recent activities of a core stakeholder group and the future direction of the project. Much more information about the summer flounder MSE project, including details and background documents for past/upcoming meetings and activities, technical work group and core group membership, and project work products and analysis can be found at: https://www.mafmc.org/actions/summer-flounder-mse.

During this meeting, the Council and Board will review the management objectives and alternatives developed by the core stakeholder group and during public scoping. The goal for the meeting will be to provide feedback on the proposed list objectives and alternatives (i.e., should something be deleted or added to the list) and then approve the project objectives and alternatives for further evaluation and consideration by the technical work group and core stakeholder group.

Background

Mid-Atlantic EAFM Process

As part of its EAFM Guidance Document, the Council established a structured framework process to incorporate ecosystem considerations into the evaluation of policy choices and trade-offs as they affect Council-managed species and the broader ecosystem (Figure 1). Analyzing

[1] See the April 2021 staff memo for additional information on last EAFM update found at: https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/605e3ce6dddddd69f62fc1ae/1616788711461/Tab01_EAFM-Updates_2021-04.pdf.

management procedures through a comprehensive management strategy evaluation (MSE) is the third step in the Council's EAFM structured framework process. The Council initiated the development of an MSE following the completion of an ecosystem conceptual model that considered different high-risk factors affecting summer flounder and its fisheries. Using the results of the conceptual model, the Council selected the following management question for further development and analysis through an MSE:

> *Evaluate the biological and economic benefits of minimizing discards (dead and alive) and converting discards into landings in the recreational sector. Identify management strategies to effectively realize these benefits.*

Figure 1. The Mid-Atlantic Fishery Management Council's EAFM structured decision framework to incorporate ecosystem considerations into management (from Gaichas et al. 2016).

When selecting this question, the Council discussed the various management challenges in addressing and reducing regulatory discards, particularly within the recreational sector of the summer flounder fishery. Evaluating recreational discard considerations with a new approach (i.e., an MSE) and within an ecosystem context could provide management with the tools and guidance to address a Council and stakeholder priority that has been difficult to resolve. Utilizing an MSE also provides a unique opportunity to align the EAFM process and the Council's typical recreational review and management process.

Why Management Strategy Evaluation?

MSE is a tool that allows scientists, managers, and stakeholders to test different strategies (e.g., regulations or harvest control rules) and their ability to achieve specified management objectives. In many cases, an MSE uses quantitative models to simulate a population, its ecosystem, the different strategies being considered, and the interaction between all of these components. In addition, an MSE can consider and evaluate uncertainty, risk, and broader ecosystem factors; therefore, MSEs are an integral part of the Council's EAFM structured framework process.

An MSE won't specify a single outcome or strategy that will solve and address all management issues or concerns associated with recreational summer flounder discards. It will, however, provide the Council and Board an opportunity to evaluate and balance different management strategies and their associated biological, social, and economic trade-offs that best address their management objectives in an ecosystem context. This allows the Council and Board to test different strategies before anything gets implemented and make more informed decisions when selecting a strategy or combination of strategies that are most likely to achieve the desired outcomes.

Stakeholder Engagement Overview

A critical component of successful MSE development is an inclusive stakeholder approach to ensure there is public input and engagement throughout the process to help guide management decisions. Providing for clear and defined opportunities for input and communication between stakeholders and managers can provide for a more robust and comprehensive MSE and provide greater buy-in and support for the results and potential management decisions. Stakeholder engagement has been a particularly important focus for this project since the MSE process is relatively new to the Council and Board and there has been mixed reaction to their use and success in other regions. Stakeholders will help the Council and Board identify clearly defined objectives, performance metrics, and management strategies to test as part of the MSE.

Opportunities for Input

In an effort to solicit as much stakeholder input for this project as possible, the technical work group developed an extensive outreach and engagement approach. A variety of scoping and outreach initiatives were conducted covering a range of targeted audiences and level of engagement for input (Figure 2). The goal was to invest a significant amount of time up front and early in the process on education, outreach, and input to help ensure more productive feedback and better outcomes at the end of the project. In addition, each outreach initiative would become more focused and build upon each other where the input and results from one activity would then be used to help inform the discussion and input in later activities.

The first stakeholder engagement initiative was a kick-off workshop[2] targeted to the relevant Council and ASMFC Advisory Panel (AP) membership. This workshop was held via webinar and introduced AP members to the MSE process and simulated a mock MSE workshop using an example fishery with the goal of familiarizing participants about MSE goals and expectations.

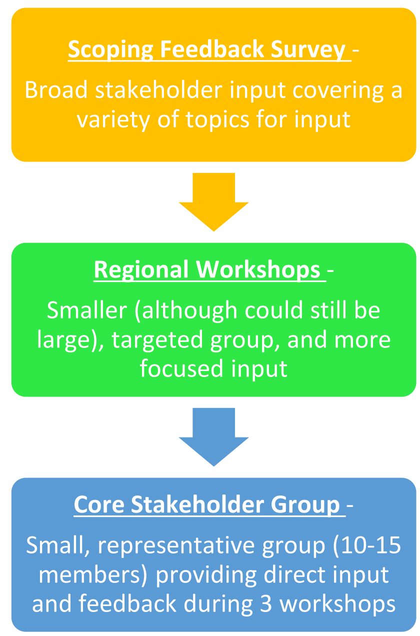

Figure 2. Process and approach for stakeholder engagement and input for EAFM summer flounder MSE project.

The next initiative was an online scoping survey to collect information and solicit input regarding stakeholder perspectives and experiences on current and future management of the recreational summer flounder fishery. Any interested stakeholder could complete the survey and answer questions covering a variety of topics such as recreational discard concerns and fishery implications, management objectives and strategies, data sources, and uncertainties. The response to the online survey was extremely strong with 818 individual responses covering all states from Massachusetts through North Carolina. The technical work group conducted a variety of analyses that evaluated all of the input received and developed a scoping feedback summary document that identified common themes and concerns, evaluated regional similarities/differences, and identified possible management priorities. The document also describes the potential use of stakeholder suggestions and ideas within the scope of the MSE (i.e., what ideas can/can't be modeled and what may/may not be within the scope of the MSE). The workgroup also developed an online interactive and searchable tool that allows users to review stakeholder scoping feedback for all survey questions by state, region, and stakeholder type. Given the high response, the input received from the scoping survey was used extensively in the other stakeholder engagement activities.

[2] The agenda, all meeting materials, presentations, and webinar recording for the September 22, 2020 AP meeting can be found at: https://www.mafmc.org/council-events/2020/eop-sfsbsb-ap-meeting-sept22

Following the scoping survey, a series of regional (MA-CT, NY-DE, and MD-NC) workshops[3] were held to provide for a more targeted engagement of stakeholders in order to get input and feedback about the recreational summer flounder fishery in a more structured and interactive approach. Similar to the scoping survey, the workshops provided an opportunity to provide ideas early in the process and before any decisions were made on topics such as recreational discard concerns, possible management objectives, and performance metrics to achieve these objectives. Regional findings from the scoping survey, tailored to each workshop, were used to help focus the discussion. In general, the feedback from the regional workshops was very similar to that found during the scoping survey but the interactive nature of the workshops allowed participants to provide greater context and detail on their concerns and priority management objectives and strategies.

MSE Core Stakeholder Group

With the broad stakeholder scoping activities complete, a shift to a more targeted and focused stakeholder engagement phase was started. A small core group of stakeholders representing the range of fishery perspectives was formed to help the Council more efficiently and effectively progress through the MSE process. This core stakeholder group will function as the main source of input to the technical work group and management and will provide feedback through a series of focused workshops designed to elicit their input on management outcomes and review model simulation results. Core stakeholder group members will participate and attend all workshops, represent both their interests and those of the fishery, be open minded and collaborative, and support the potential outcomes of the MSE process.

Throughout the various stakeholder engagement opportunities described in the previous section, a solicitation of interest to serve on the core stakeholder group was also conducted. Accounting for everyone that expressed interest in serving on the core group and those recommended by a peer to serve on the group, there were over 580 possible participants to fill the 10-15 spots that would comprise the core stakeholder group. Given the level of interest and limited space available, the technical work group developed a very thorough and deliberative approach to evaluate, refine, and identify potential core stakeholder group participants and is described in detail the Summer Flounder MSE Core Stakeholder Group Selection document.

The technical work group tried to achieve a regionally balanced and diverse composition of stakeholders to cover the range and diversity of summer flounder fishery participants. A minimum number of representatives for each region: MA-CT, NY-DE, and MD-NC and by stakeholder type: for-hire (party and charter), private recreational (shore and vessel), commercial, recreational secondary market (bait and tackle, boat rental, marine trades, and tackle manufacturers), and “other” (academia, NGO, national/coastwide organization) were established. There was some difficulty in achieving the minimum targets for each region and stakeholder type, but the final list of the 13 members of the core stakeholder group is very diverse and represents the broad range of fishing perspectives (Table 1). Additional detail on the core group membership, including region and stakeholder representation, can be found in the Summer Flounder MSE Core Stakeholder Group Selection document.

[3] The agenda, all meeting materials, and presentations for the three regional workshops can be found at: https://www.mafmc.org/workshop/summer-flounder-mse.

Table 1. Breakdown of the final MSE Core Stakeholder Group membership by region and stakeholder type.

Representation Type	# of Representatives
Regional	
MA-CT	5
NY-DE	6
MD-NC	2
Stakeholder Type	
For-Hire	5
Private Recreational	3
Commercial	1
Recreational Secondary Market	2
Other	2

The core stakeholder group will provide their input and help guide and inform the MSE through a series of three structured workshops. The first workshop, which was split into two sessions, was held via webinar on June 14[4] and July 14[5] which introduced members to the MSE and structured decision-making process, introduced the simulation model development with a focus on the bioeconomic model, and then development of a working definition of what the project should help answer and draft management objectives and alternatives (more on these outcomes below).

The second workshop will be a 2-day in-person workshop scheduled for late October/early November. The second workshop will review model development and preliminary results, evaluate and weight trade-offs between management objectives, and refine and adjust objectives and alternatives for continued analysis. The third workshop will also be a 2-day in-person workshop scheduled for March 2022. During this workshop, the core group will bring the entire process together and review "final" results, interpret the implications and trade-offs, and make recommendations to management.

In addition to attending and participating in the workshops, core group members are also asked to complete a variety of assignments prior to, and in between, each workshop. These "homework" assignments gives each core group member time to consider and develop their input, provides for a much more efficient and productive workshop to help accomplish all of the agenda objectives, and allows the MSE to continue to progress in between actual workshops.

Outcomes from Workshop 1, Session1

During the first session of workshop 1, the primary focus of the discussion was spent developing a consensus decision statement to help identify the expected outcomes the MSE may address once complete. Establishing an agreed to decision statement is a critical first step in the process and provides a baseline and common understanding for the core group as to what the focus of the MSE will evaluate and consider. While the Council specified the broad goals and objectives for the MSE to evaluate strategies designed to minimize discards in the recreational summer

[4] The agenda, all meeting materials, pre-recorded and in-workshop presentations for the June 14, 2021 Workshop 1, Session 1 webinar can be found at: https://www.mafmc.org/council-events/2021/summer-flounder-mse-workshop-june14.

[5] The agenda and workshop presentations for the July 14, 2021 Workshop 1, Session 2 webinar can be found at: https://www.mafmc.org/council-events/2021/summer-flounder-mse-workshop-july14.

flounder fishery, there are a variety of issues and factors that need to be considered to help frame this topic. For example, while there are clear connections/linkages between the commercial and recreation sector and both fishing fleets will be included in the modeling efforts, there was feedback during the workshop and during public scoping to consider commercial sector metrics such as allocation, minimum size, or gear types within the MSE. However, the direction from the Council was clear that this MSE would focus on the recreational sector only and decisions regarding allocation or other commercial considerations will be made by the Council/ASMFC through different actions and management processes. Talking through these considerations and identifying the bounds of the MSE early in the discission were very productive and helpful to frame the context of decision statement.

The decision statement developed by the core stakeholder group is as follows:

> *Decide how to meet the challenges of satisfying the diverse groups of anglers engaged in the recreational fluke fishery by addressing discarding, discard mortality, and data quality, while allowing for meaningful access to the fishery, accounting for temporal and spatial differences in recreational mode availability, considering the impacts of size and male to female take ratios, and achieving equity in recreational modes given the bounds of what is viable within the regulatory framework.*

The core stakeholder group will use the decision statement to help frame and develop the management objectives and alternatives to be considered and evaluated through the MSE process. These topics were the focus of the second session of workshop 1.

Outcomes of Workshop 1, Session 2

In preparation for the second session, core group members were tasked with developing their lists of management objectives and alternatives to potentially be considered and evaluated during the MSE. The lists developed by the core group and the objectives and alternatives identified during the scoping survey and regional workshops were then compiled, categorized, and grouped into common themes to create a comprehensive set of objectives and alternatives (see Tables 2 and 3, respectively, in next section). These compiled lists were then sent to the core group, and they were tasked with developing an initial ranking for each objective and alternative.

During the workshop, the core group discussed each management objective in detail and identified potential attributes or metrics to help define or measure success in achieving the management objective. The same process was then followed for the alternatives where the core group discussed broader alternative categories (e.g., size limits, gear modifications) and specific options with each alternative category. The core group was unable to discuss in detail all of the alternatives and associated options during the second session workshop timeframe. However, these objectives and alternatives will continue to be refined and considered as the MSE process continues.

Draft MSE Objectives and Alternatives

Below for Council and Board consideration are the draft management objectives and strategies developed by the core stakeholder group and from public input received during scoping and the regional workshops. At this stage of the MSE process, we are not deciding if a specific alternative option (e.g., a slot limit from 15 – 19 inches with 4 fish possession limit) should be included in the list. Instead, the Council and Board should review the current list of objectives and alternatives to ensure they capture the overall scope and range of considerations the MSE might evaluate – are there missing objectives or alternatives or should any of the currently identified objectives and strategies be removed? Not all objectives and/or alternatives listed will be modeled or be able to be fully evaluated during the project due to data and computation limitations, time constraints, and management priorities. After Council and Board approval, the technical work group and core stakeholder group will begin to further refine and prioritize the list of objectives and alternatives that will be analyzed and evaluated. The Council and Board will review and provide feedback on the refined list of objectives and alternatives in December 2021.

Management Objectives and Metrics

Management objectives are intended to help understand what a successful recreational fishery would look like that minimizes discards and discard mortality. Given the broad scope of the management objectives, sub-objectives and metrics or measurable attributes are also provided in order to help define the broad management objective and identify what can be measured to evaluate the success, or not, in achieving the desired objective. These objectives are specific to this MSE and are not connected to, nor would they replace, the summer flounder management objectives specified in the FMP.

Below are the top five draft management objectives, in priority order, identified by stakeholders concerning angler experience as well as biological, economic, and social sustainability:

1. Improve the quality of the angler experience
2. Maximize the equity of anglers' experience
3. Maximize stock sustainability
4. Maximize the economic sustainability of the fishery
5. Maximize the sustainability of participation in the fishery

Table 2 provides sub-objectives and, if available, potential metrics and measurable attributes associated with each of the five management objectives. It should be noted that many of these objectives, particularly the sub-objectives, are inter-connected and changes and improvements in one objective area could affect the outcomes and performance of achieving objectives in another area. The MSE will allow the Council and Board to evaluate the trade-offs and connections across management objectives.

Table 2. Draft summer flounder MSE fundamental management objectives , sub-objectives, and example metrics/measurable attributes developed by the core stakeholder group and comprehensive stakeholder scoping and input.

Management Objective	Sub-Objectives	Metrics or Measurable Attributes
Maximize the quality of the angler experience	• Maximize the chances a trip produces a legal sized summer flounder • Maximize ratio of legal size to discarded size catches per trip • Maximize likelihood of trophy catch • Maximize likelihood of successful subsistence fishing	• % of trips w/ legal size fish • keep/discard ratio per trip • % of trips with 10lb or 28" or larger catch • % of trips supplying a meal

	• Maximize likelihood of achieving bag limit per trip • Maximize management flexibility by customizing regulations by state • Maximize the quality of the recreational fishing experience • Minimize additional regulatory restrictions (e.g., changes to season or possession limit) • Maximize effective communication about the need for management • Minimize congestion on fishing grounds • Maximize ratio of fishing utility (food and enjoyment) to cost (equipment, license, etc.) • Maximize fishing site access • Minimize regulatory burden • Minimize likelihood of a truncated charter trip	• % of trips w/ bag limit • Differential evaluation of regs • • # of regulation changes per year • Survey response mgmt agreement • Angler interactions per trip • Utility/Cost ratio • Change in access locations • • % chance bag limit achieved during trip
Maximize the equity of anglers' experience	• Minimize the differences in regulations between neighboring states • Minimize regulatory uncertainty • Minimize changes in regulations from year to year (maximize regulatory stability) • Minimize rate of regulatory changes (1 large change better than many small changes) • Maximize recreational fishery participation in all sectors (e.g., shore, private boat, for-hire) • Minimize the differences in retention rates by fishing method (e.g., shore, private vessel, for-hire) • Minimize the number of anglers unable to retain legal sized summer flounder	• # of different regulations • Survey response mgmt process understanding • # of different regulations over time • • % or # of participants by sector over time • Retain/discard ratio by mode over time • Change in trips with keeper fish

Maximize stock sustainability	• Minimize negative biological impacts to the summer flounder stock
	    ○ Minimize discard mortality
	    ○ Minimize discards per trip
	    ○ Minimize mortality rate
	• Minimize risk of overfishing and risk of stock becoming overfished
	• Maximize regulatory compliance
	• Minimize harvest of female summer flounder
	• Maximize large female abundance
	• Maximize spawning stock biomass
		• Change in population size, length/age, growth
		• Change in mortality rate
		• # of discards/trip
		• Total mortality
		• % overfished in projection
		• # of violations/year
		• Female stock size/Female fishing mortality
		• Female # and size at age
		• Changes in SSB

Maximize economic sustainability	• Minimize the regulatory burden on recreational businesses (e.g., for-hire, bait and tackle, boat rentals)	• Cost and % time devoted to compliance

	• Consider the open seasons for other fisheries (e.g., black sea bass) • Maximize season length • Increase/stabilize the number of recreational businesses participating in fishery	• Overlap w/ other fisheries, # days in season • # of days in season • # of rec businesses, permits, boat reg. over time
Maximize fishery sustainability	• Maximize entry (especially of youth) into the fishery • Increase outreach, promotion, and communication of recreational fishing opportunities	• # of new participants, # of permits per year •

Alternatives and Strategies

Alternatives and specific strategies identified here would consist of potential management actions (e.g., slot limits, gear requirements, reporting requirements etc.) that should be evaluated in the MSE to determine if management objectives and specified metrics were successfully achieved. These represent the recreational management options and tools the Council and Board might select to implement at the end of the MSE. Given the diversity and extensive number of potential alternatives that could be considered, similar alternative approaches (e.g., size limit considerations) identified by the core group and stakeholders were grouped into categories and specific options are provided for each alternative category (Table 3).

As noted earlier, the goal at this stage of the MSE process is not to focus on a preference for specific alternative options, but to determine if the range of alternative types and options provided here cover the scope of alternatives that could be considered. The list of potential alternatives and alternative options will be further refined and prioritized to develop a more manageable range of alternatives for evaluation and analysis.

Table 3. Draft summer flounder MSE alternatives and options developed by the core stakeholder group and comprehensive stakeholder scoping and input.

Alternative Category	Potential Alternative Options

Size Limits	• Combinations of minimum, maximum, or total trip size limits
	  o bag size ranges:
	    ▪ Minimum options: 15, 16, 17, 18 inches
	    ▪ Maximum options: 20, 21, 22, 23, 24 inches
	  o Trip (total/cumulative) length limit: 54 - 128 inches
	  o No limits
	• Modify limits by sex ratio at length

Possession Limits	• Total per trip: 3 - 6 • Total per season: ## • Total by length: #/length • Total by sex: #/sex • Number of tags: (i.e., limited by tags owned) • Total per boat: #/vessel o Catch sharing • Bonus/Allowance:

	○ Injury exception ○ Purchased tags ○ Reward from incentive program(s)

Season Length	• Combinations of start and end dates
	  ○ Start: Jan 1, …
	  ○ End: Dec 31, Oct 1, Sept 1, …
	  ○ Within week closure: e.g. closed Tues. - Thurs.
	  ○ Match with similar species (e.g., sea bass, blackfish)
	• Multiple seasons w/ different bag/size limits
	  ○ e.g., 1/trip limit year round, …
	  ○ e.g. closed season (protect reproduction)
	• Derby style
	  ○ Season closes when quota is reached

Discard Allowance or Limits	• None
	• Limited per trip: 1-##
	• Limited per season: 1-##
	• Limited per length: 1-##
	• Unlimited
	• Banned or allowances for:
	  ○ Injured fish
	  ○ Gut hooked
	  ○ Retention time
	  ○ Special tag

Gear/Tackle Regulations	• Hook size: e.g., 5/0 • Hook type: e.g., circle only • Method: e.g., hook and line only • Bait type: e.g., no gulp bait • Require de-hooking device • Night fishing: ○ Lumen regulation

Mode Specific Regulations	Mode considerations:
	• Shore
	  ○ Different size limits
	  ○ Expand exemption locations
	• Offshore
	• For-hire
	  ○ Ban multiple day trips targeting a single assemblage
	• Charter
	• Party
	• Private boat owner
	• Hook and line
	• Gigging
	• Spearfishing

Spatial Considerations	Spatial scales: • Full region • States

<table>
<tr><td></td><td>Regions (across states)
Regions (within states)
Protected/closed areas (e.g., protect juveniles)</td></tr>
<tr><td>Dynamic Regulations</td><td>Time scales:
Multiple years
Annual
With-in season
Apply more restrictive regulations to regions/sectors with more liberal regulations first
Trial-framework:
Keep effective, remove ineffective regulations</td></tr>
<tr><td>Licensing</td><td>Out-of-state licensing:
None
Quota
More costly
Options:
Trophy license
Subsistence license
Price
Reporting</td></tr>
<tr><td>Recreational Fishing Enhancements</td><td>Build public piers
Open additional sites to fishing
Youth programs:
Separate license
Separate regulations
Additional incentive program(s)
New participant programs:
Separate license
Separate regulations
Additional incentive program(s)</td></tr>
<tr><td>Enforcement</td><td>Staff levels
Extend AmeriCorps Watershed Ambassador program
Penalties
Gear confiscation
Reporting system:
Electronic
Observer program
Application (e.g., ebird or i-angler, blueline tilefish as ex.)
Website
Surveys
Physical forms and drop boxes
At marinas
On vessels
With or without incentives
Mandatory or not
Citizen violation reporting
With reporting system</td></tr>
</table>

	○ With incentives
Education Program to Encourage Adherence to Best Practices	• Outreach program • Website • Link with licensing: ○ Passive voluntary ○ Active voluntary ○ Licensing test • App
Habitat Management	• Artificial reefs • Regulate pollution • Beach replenishment • Dredging
Data Collection	• MRIP: ○ As is ○ Augmented MRIP ○ MRIP Replacement • Tagging Program: ○ Tag releases ○ Incentive for reporting tags • Volunteer angler surveys
Regulate Forage Fish Status	• Regulate: ○ Menhaden ○ Squid ○ Shrimp

Next Steps, Anticipated Timeline and Other Considerations

To date, the MSE project has been progressing on schedule and the proposed next steps and anticipated timeline remain very similar to what was presented to the Council in April (Table 4). The technical work group will meet in September and take the feedback from the Council, Board, and core stakeholder group regarding management objectives and alternatives and will provide direction to the modeling sub-group on initial list of alternatives to begin to model and analyze. This will not be an exhaustive list but will identify some initial priorities to focus the analysis in order to show the core group how the modeling structure works and the types of results it can produce during the second workshop in the fall.

It was originally proposed that after each core stakeholder group workshop, the Council's Ecosystem and Ocean Planning (EOP) and Summer Flounder, Scup, and Black Sea Bass Committees, along with a sub-set of members from the Board would meet to review their feedback and input provided during these workshops. The intent of this step was to get some initial feedback and directions from a smaller group of managers to potentially help improve the efficiency and outcomes during the joint meetings. However, after reviewing the membership of the EOP and Summer Flounder, Scup, and Black Sea Bass Committees and likely participants from a sub-group of the Board, this would include nearly the entire Council and much of the Board – defeating the purpose of meet with a smaller group of managers. Therefore, to minimize the number of meetings, reduce duplication, and lessen the amount of planning and coordination, it was decided to skip this step and focus the discussion and feedback for the joint meetings when everyone was together. This approach will still allow for an iterative process with regular check-ins to ensure the technical work group is receiving input from stakeholders and managers to make sure project goals, objectives, and expectations are being met. The next check-in would occur in December 2021 following the core stakeholder workshop in late October/early November. Leadership from the EOP and Summer Flounder, Scup and Black Sea Bass Committee and Board continue to be copied on all technical work group correspondence and invited to attend and participate in all work group calls to ensure management is informed of all activities.

It is anticipated the final results and management alternatives will be presented to the Council and Board for consideration in April/May 2022. Any outcomes and decisions, depending on their scope, could potentially be implemented for the 2023 recreational season as the Council and Board begin specification and regulation review and development in August 2022.

Table 4. Anticipated timeline of activities associated with completion of the EAFM summer flounder management strategy evaluation project.

Task/Activity	**Timeframe** (subject to change)
Finalize technical work group membership and initial meeting	May 2020
Kick-off webinar and mock workshop with Council and ASMFC advisory panels (https://www.mafmc.org/council-events/2020/eop-sfsbsb-ap-meeting-sept22)	September 2020
Stakeholder scoping feedback form (https://www.mafmc.org/newsfeed/2021/summer-flounder-mse-comment-opportunity)	January 2021
Regional MSE workshops (https://www.mafmc.org/newsfeed/2021/council-to-hold-virtual-summer-flounder-management-strategy-evaluation-mse-workshops)	March – April 2021
Finalize core stakeholder group participants; core stakeholder group workshop 1 (session 1 and 2) and Council/Board meeting to develop objectives/performance metrics/alternatives; data synthesis, initial model development and linking existing models	May – August 2021
Simulation testing of management strategies; model refinement as necessary; deliver interim results at second stakeholder workshop and Council/Board meeting	September – December 2021
Continue with MSE analysis; third stakeholder workshop to review draft final results; refine models and results, as needed	January 2022 – March 2022
Review final results; Council and Board considers potential management alternatives and action to address recreational summer flounder discards	April/May 2022

Intersection with the Recreational Reform Initiative/Harvest Control Rule

During the August meeting, the Council and ASMFC Policy Board will be meeting jointly to discuss the Harvest Control Rule (HCR) framework/addendum[6]. This action is part of a larger Recreational Reform Initiative that considers a range of topics and issues aimed to improve the management of recreational fisheries. The HCR is a more holistic approach that would "use predetermined recreational management measure 'steps' associated with different biomass levels and stock indicators"[7].

While the HRC and the summer flounder MSE are distinct projects designed to address a specific issue(s), both are intended to improve recreational fisheries management and the implementation of measures that provide stock and fishery stability and sustainability. Given these inter-connected management goals, there is an opportunity to use the process, analysis, and outcomes from each project to help inform one another. For example, the potential management measures devised for the different "steps" of the HCR could be evaluated in the MSE framework to understand the potential discard implications associated with different management measures (at least for summer flounder). In addition, the bio-economic model currently under development for the MSE is also being considered as one potential model for use by the FMAT/PDT in developing recreational measures associated with the different HCR "steps". The FMAT/PDT is also recommend re-evaluating any management measures that are implemented to ensure they continue to achieve the desire goals. The MSE model(s) could be used in the future to help in this evaluation process.

The Council and Board should consider and discuss these potential intersections, project timelines, and how best utilize the results and information from each project to improve recreational management.

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[6] See the August 2021 Council briefing book for additional information on the Harvest Control Rule framework/addendum at: https://www.mafmc.org/briefing/august-2021.

[7] From Council staff briefing memo to Council and Policy Board for the June 2021 Council meeting - https://www.mafmc.org/briefing/june-2021.

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: July 28, 2021

TO: Chris Moore, Executive Director

FROM: Karson Coutre, Julia Beaty, and Kiley Dancy, Staff

SUBJECT: Additional Proposals for Summer Flounder, Scup, and Black Sea Bass Commercial/Recreational Allocation Amendment Alternatives

During the April 2021 joint meeting, the Council and Board voted to postpone final action on the Summer Flounder, Scup, and Black Sea Bass Commercial/Recreational Allocation Amendment until December 2021 to allow for further development of the Recreational Reform Initiative. The groups also agreed to consider proposals for additional commercial/recreational allocation alternatives from Council and Board members at their joint meeting in August 2021. Both bodies agreed that any additional proposals should be within the existing range of alternatives in the document to avoid further delaying final action. Proposals were required to include a description of the basis for the alternative, including whether the proposed percentages allocate catch or landings between the two sectors.

A group of Council and Board members submitted a proposal with two sets of additional allocation alternatives for each species (four additional alternatives for each species). The first proposed alternative set uses 2004-2018 base years with RHL overage years excluded and the second alternative set uses 50/50 weighting of the historical base years and recent base years with RHL overage years excluded. Both alternative sets provide catch and landings-based options for all three species. Rationale and percentage comparisons are outlined in the proposal behind this tab.

Staff have reviewed the proposed additional alternatives and have preliminarily determined that they are within the existing range, based on comparing the resulting example quotas and RHLs for each option. Example quotas and RHLs for the new proposed alternatives follow the same methodology used to develop example limits for the other options in the public hearing document.[1] Comparison to the current range of alternatives is done using these example limits as opposed to the percentages themselves because as described in the public hearing document,

[1] See Appendix C starting on page 61 of the public hearing document: https://www.mafmc.org/s/SFSBSB-Alloc-Am-PHD_Jan2021.pdf.

catch-based and landings-based percentages are not directly comparable due to different methods of handling dead discards.

The Council and Board should determine whether these proposed alternatives should be included in the range of options for consideration during final action at the joint meeting in December 2021.

For the Council and Board's quick reference, the existing range of alternatives for each species, along with associated example quotas and RHLs, are copied below from Tables 5-7 in Section 4.2 of the public hearing document.

Table 1: Example summer flounder commercial quotas and RHLs for each allocation alternative under the 2020 ABC (25.03 million pounds) and the assumptions outlined in Appendix C, with comparison to the 2020 implemented limits. Actual future limits will vary based on future ABCs and discard assumptions.

Alternative	1a-1	1a-2	1a-3	1a-4[a]	1a-5	1a-6	1a-7
	Catch-Based			Landings-Based			
Com. allocation	44%	43%	40%	60%	55%	45%	41%
Rec. allocation	56%	57%	60%	40%	45%	55%	59%
Example commercial quota	8.79	8.57	7.92	11.53[b]	10.20	8.38	7.65
% Difference from 2020 commercial quota	-24%	-26%	-31%	0%	-12%	-27%	-34%
Example RHL	10.24	10.47	11.15	7.69[b]	8.34	10.25	11.02
% Difference from 2020 RHL	33%	36%	45%	0%	8%	33%	43%

[a] Alternative 1a-4 is the no action/status quo alternative for summer flounder (i.e., the current commercial/recreational allocations).

[b] The actual implemented commercial quota and RHL for 2020 are shown under Alternative 1a-4 (no action/status quo).

Table 2: Example scup commercial quotas and RHLs for each allocation alternative under the 2020 ABC (35.77 million pounds) and the assumptions outlined in Appendix C, with comparison to the 2020 implemented limits. Actual future limits will vary based on future ABCs and discard assumptions.

Alternative	1b-1[a]	1b-2	1b-3	1b-4	1b-5	1b-6	1b-7
	Catch-Based				Landings-Based		
Com. allocation	78%	65%	61%	59%	57%	56%	50%
Rec. allocation	22%	35%	39%	41%	43%	44%	50%
Example commercial quota	22.23[b]	16.90	15.92	15.44	16.85	16.56	14.81
% Difference from 2020 commercial quota	0%	-24%	-28%	-31%	-24%	-26%	-33%
Example RHL	6.51 [b]	11.04	12.37	13.04	12.71	13.01	14.81
% Difference from 2020 RHL	0%	70%	90%	100%	95%	100%	127%

[a] Alternative 1b-1 is the no action/status quo alternative for scup (i.e., the current commercial/recreational allocations).

[b] The actual implemented commercial quota and RHL for 2020 are shown under Alternative 1b-1 (no action/status quo).

Table 3: Example black sea bass commercial quotas and RHLs under each allocation alternative using the 2020 ABC (15.07 million pounds) and the assumptions outlined in Appendix C, with comparison to the 2020 limits. Actual future limits will vary based on future ABCs and discard assumptions.

Alternative	1c-1	1c-2	1c-3	1c-4 [a]	1c-5	1c-6	1c-7
	Catch-Based			Landings-Based			
Com. allocation	32%	28%	24%	49%	45%	29%	22%
Rec. allocation	68%	72%	76%	51%	55%	71%	78%
Example commercial quota	3.31	2.99	2.66	5.58[b]	5.04	3.38	2.61
% Difference from 2020 commercial quota	-41%	-46%	-52%	0%	-10%	-39%	-53%
Example RHL	8.16	8.65	9.14	5.81[b]	6.15	8.28	9.27
% Difference from 2020 RHL	40%	49%	57%	0%	6%	43%	60%

[a] Alternative 1c-4 is the no action/status quo alternative for black sea bass (i.e., the current commercial/recreational allocations).

Proposal for Additional Allocation Alternatives
Summer Flounder, Scup, and Black Sea Bass Commercial/Recreational Allocation Amendment

June 24, 2021

Submitted by Nichola Meserve (MA Division of Marine Fisheries), Joe Cimino (NJ Fish & Wildlife), Justin Davis (CT Dept of Energy & Enviro Protection), and Chris Batsavage (NC Division of Marine Fisheries)

Overview

During the April 2021 joint meeting, the Council and Board voted to postpone final action on the Summer Flounder, Scup, and Black Sea Bass Commercial/Recreational Allocation Amendment until December 2021 to allow for further development of the Recreational Reform Initiative, while also allowing for additional options within the existing range of alternatives to be submitted for consideration. Herein we provide two sets of additional proposals that seek to provide a more complete set of alternatives in response to public comment on the draft amendment.

Proposed Alternative Set 1: 2004-2018 Base Years with RHL Overage Years Excluded

Recent base years options (the last 5, 10, and/or 15 years through 2018) incorporating the recalibrated MRIP data were included in the draft amendment for all three species in landings and catch. However, as highlighted in the public comment, these options did not recognize the fundamental difference between the quota-managed commercial fisheries and target-managed recreational fisheries, in that only one sector may harvest significantly in excess of its limit which can result in a fairness and equity issue for reallocation based on these data. The objective of this proposal is thus to provide an allocation alternative for each species based on recent years fishery performance that does not reward the recreational fishery for overages of their annual harvest target when the commercial fishery was not allowed to have similar overages of their annual harvest quota from which to benefit.

This approach would remove the years from the time series in which the uncalibrated MRIP coastwide harvest estimate exceeded the RHL[1]. The 15-year time series (2004–2018) was selected in order to have sufficient years remaining in the calculations (10 years for summer flounder and scup, and seven years for black sea bass; the 10- and 5-year time series result in only two and one years left in the calculation for black sea bass). This method was applied to both the catch data and landings data (Table 1).

The effect of removing the RHL overage years on the allocations is minor for summer flounder and scup, and more pronounced for black sea bass. For summer flounder, the catch and landings based allocations for 2004–2018 are changed by 1–2 percentage points in favor of the commercial fishery by removing the RHL overage years; for scup, it is 2–3 percentage points in favor of the commercial fishery; and for black sea bass, it is 8–10 percentage points in favor of the commercial fishery.

The catch-based and landings-based options for all three species are within the range of the existing alternatives based on the example commercial quotas and RHLs depicted in the draft amendment. The

[1] It is not appropriate to use the calibrated MRIP coastwide harvest estimates for this comparison because the RHLs were based on stock assessments utilizing the uncalibrated MRIP estimates. It also would not be appropriate to cap an exceeding year's harvest at the RHL given the intent to transition to the use of calibrated MRIP data. Hence our approach to remove the year's data from the calculation entirely.

allocation shares are also within the range of existing alternatives for the scup catch-based option and the summer flounder and black sea bass landings-based options.

Proposed Alternative Set 2: 50/50 Weighting of the Historical Base Years and Recent Base Years with RHL Overage Years Excluded

The draft amendment included allocation options based on historical base years (which were largely favored by commercial interests during public comment) and options based on recent base years (which were largely favored by recreational interests during public comment). The objective of this proposal is to add a weighted approach that balances commercial and recreational stakeholder interests in an allocation method that acknowledges both the historical fisheries' dependence and the recent fisheries' performance in a manner that is fair and equitable and uses the recalibrated MRIP data as the best available science. Specifically, the approach gives equal weighting to the historical base years (or reasonably proxy thereof, see below) and the last 15 years excluding those in which the recreational harvest limit was exceeded (as described above), through averaging their resulting allocations.

In order to present this option in both a landings and catch basis, we needed to address that the draft amendment did not include catch-based historic base years allocations for summer flounder and black sea bass due to missing discard information during the species' historic base years. To do so, we adopted the Council staff's recommendation[2] for summer flounder as an approach to provide a reasonable proxy of catch-based historical base years allocations using the best available data for both summer flounder and black sea bass. That recommendation for summer flounder applied the landings-based historic base years allocation percentages (1a-5: 55% com/45% rec) as a catch-based allocation "to allow for a continued use of the existing base years with a transition to a catch-based allocation approach." For black sea bass, this meant likewise applying the landings-based historical base years allocation percentages (1c-5: 45% com/55% rec) as a catch-based allocation. In support of these being "reasonable proxies" for historical catch-based allocations, we note how the landings-based and catch-based allocation percentages for summer flounder and black sea bass for a particular time series within the draft amendment are generally within a percentage point or two of one another (e.g., the summer flounder 2004-2018 time series results in com/rec allocation percentages of 44/56 catch-based and 45/55 landings-based, indicating that the inclusion of discards in the data does not change the resulting allocation much).

The allocations resulting from this approach are provided in Table 2. It is notable that this approach results in a catch-based black sea bass allocation similar to the 42% com/58% rec recommended by Council staff that was developed through an ad hoc approach meant to balance the tradeoffs for both sectors. The approach herein provides a more transparent and repeatable process that can be applied consistently across the three species.

The catch-based and landings-based options for all three species are within the range of the existing alternatives based on the example commercial quotas and RHLs depicted in the draft amendment. The allocation shares are also within the range of existing alternatives for the scup catch-based option and the summer flounder and black sea bass landings-based options.

Table 3 provides the historical base year allocations (or reasonable proxy thereof) used in the development of this proposed option for reference.

[2] Memo available at:
https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/60623c25ccb56c56e8609595/1617050680759/Tab02_SFSBSB-Allocation-Amd_2021-04.pdf

Table 1. Allocation Options Using the 2004–2018 Base Years with RHL Overage Years Excluded

	Landings-based					Catch-based				
	Alternative Label and Basis	Allocation		Example Fishery Limits (mlb)		Alternative Label and Basis	Allocation		Example Fishery Limits (mlb)	
		Com	Rec	CQ	RHL		Com	Rec	CQ	RHL
Summer Flounder	**Fluke-1:** 2004-2018 Landings Excluding Years with RHL Overages (2006-2008, 2014 & 2016 excluded)	47%	53%	8.75	9.87	**Fluke-2:** 2004-2018 Catch Excluding Years with RHL Overages (2006-2008, 2014 & 2016 excluded)	45%	55%	9.01	10.02
Scup	**Scup-1:** 2004-2018 Landings Excluding Years with RHL Overages (2004 & 2007-2010 excluded)	59%	41%	17.43	12.11	**Scup-2:** 2004-2018 Catch Excluding Years with RHL Overages (2004 & 2007-2010 excluded)	62%	38%	16.17	12.04
Black Sea Bass	**Bass-1:** 2004-2018 Landings Excluding Years with RHL Overages (2009-2010, 2012-2016 & 2018 excluded)	37%	63%	4.23	7.20	**Bass-2:** 2004-2018 Catch Excluding Years with RHL Overages (2009-2010, 2012-2016 & 2018 excluded)	36%	64%	3.63	7.68

Table 2. Allocation Options Using a 50/50 Weighting of the Historical Base Years (or Reasonable Proxy Thereof; see Table 3) and 2004–2018 Base Years with RHL Overage Years Excluded (see Table 1)

	Landings-based					Catch-based				
	Alternative Label and Basis	Allocation		Example Fishery Limits (mlb)		Alternative Label and Basis	Allocation		Example Fishery Limits (mlb)	
		Com	Rec	CQ	RHL		Com	Rec	CQ	RHL
Summer Flounder	**Fluke-3:** Average of Historical Base Years and Modified Recent Years	51%	49%	9.48	9.10	**Fluke-4:** Average of Historical Base Years and Modified Recent Years	50%	50%	10.11	8.89
Scup	**Scup-3:** Average of Historical Base Years and Modified Recent Years	58%	42%	17.14	12.41	**Scup-4:** Average of Historical Base Years and Modified Recent Years	63.5%	36.5%	16.53	11.54
Black Sea Bass	**Bass-3:** Average of Historical Base Years and Modified Recent Years	41%	59%	4.63	6.67	**Bass-4:** Average of Historical Base Years and Modified Recent Years	40.5%	59.5%	4.00	7.13

Table 3. Historic Base Years Allocations (or Reasonable Proxy Thereof) Used in Development of Table 2

	Landings-based			Catch-based		
	Basis	Allocation		Basis	Allocation	
		Com	Rec		Com	Rec
Summer Flounder	1981-1989 Landings (1a-5)	55%	45%	1981-1989 Landings (1a-5) Applied as Catch	55%	45%
Scup	1988-1992 Landings (1b-5)	57%	43%	1988-1992 Catch (1b-2)	65%	35%
Black Sea Bass	1983-1992 Landings (1c-5)	45%	55%	1983-1992 Landings (1c-5) Applied as Catch	45%	55%

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 29, 2021

To: Chris Moore, Executive Director

From: Karson Coutre, Staff

Subject: Update on Atlantic Large Whale Take Reduction Team discussions relative to the Mid-Atlantic region

NMFS is expecting the final rule this summer for modifications to the Atlantic Large Whale Take Reduction Plan (ALWTRP) intended to achieve at least a 60 percent reduction in mortalities or serious injuries of right whales in the Northeast Jonah crab and lobster trap/pot fisheries. These fisheries deploy about 93 percent of the buoy lines fished in areas where right whales occur. Measures in this rule include line reduction, restricted areas/times for buoy lines, testing out ropeless fishing, weak line or inserts, and gear marking.

In 2021, the Atlantic Large Whale Take Reduction Team (ALWTRT) will be asked to recommend risk reduction measures for other Atlantic trap/pot and gillnet fisheries along the entire east coast. Depending on the proposed measures, this could impact MAFMC managed fisheries for monkfish, spiny dogfish, black sea bass, bluefish, and scup, due to their use of pot/trap or gillnet gear. This spring and summer the ALWTRT has worked to develop and expand the Decision Support Tool to cover all trap/pot and gillnet fisheries in ALWTRP waters. On June 28 and July 1, 2021, the full team had a two-day meeting to determine what types of measures to take to scoping.

Upcoming steps in this process include:

- Public scoping meetings are anticipated to occur in August/September, including presentations to the Councils.
- The full ALWTRT will reconvene soon after scoping to discuss scoping results, assemble potential alternatives, and further identify data needs to support decision making.
- The full team will develop and provide recommendations to NMFS to analyze for proposed rulemaking in spring 2022.

More information on the ALWTRT meetings including recordings and presentations can be found on the Atlantic Large Whale Take Reduction Plan webpage.

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MEMORANDUM

Date: July 29, 2021

To: Council

From: Mary Sabo

Subject: Conserving and Restoring America the Beautiful – Preliminary Report

On August 10, the Council will receive a briefing from Mr. Sam Rauch (NOAA Fisheries) on a preliminary report titled "Conserving and Restoring America the Beautiful." As directed by President Biden's Executive Order on Tackling the Climate Crisis at Home and Abroad, this report provides recommendations on how the United States should achieve the goal of conserving at least 30 percent of our lands and waters by 2030. The preliminary report, submitted to the National Climate Task Force on May 6, 2021, was developed by the U.S. Departments of the Interior, Agriculture and Commerce, and the White House Council on Environmental Quality. Behind this memo is a press release from the Department Interior (also available here).

The full report is available online: Conserving and Restoring America the Beautiful.

Biden-Harris Administration Outlines "America the Beautiful" Initiative

Initial report details vision for 10-year, locally led and voluntary nationwide effort to restore and conserve America's lands, waters, and wildlife

5/6/2021

Date: Thursday, May 6, 2021
Contact: Interior_Press@ios.doi.gov

WASHINGTON, D.C. —Today the Biden-Harris administration outlined a vision for how the United States can work collaboratively to conserve and restore the lands, waters, and wildlife that support and sustain the nation. The recommendations are contained in a report released today, outlining a locally led and voluntary nationwide conservation goal to conserve 30 percent of U.S. lands and waters by 2030.

The report calls for a decade-long effort to support locally led and voluntary conservation and restoration efforts across public, private, and Tribal lands and waters in order to create jobs and strengthen the economy's foundation; tackle the climate and nature crises; and address inequitable access to the outdoors.

The report, submitted to the National Climate Task Force, was developed by the U.S. Departments of the Interior, Agriculture and Commerce, and the White House Council on Environmental Quality. It outlines eight principles that should guide the nationwide effort, including a pursuit of collaborative approaches; a commitment to supporting the voluntary conservation efforts of farmers, ranchers, and fishers; and honoring of Tribal sovereignty and private property rights.

"The President's challenge is a call to action to support locally led conservation and restoration efforts of all kinds and all over America, wherever communities wish to safeguard the lands and waters they know and love," write Interior Secretary Deb Haaland, Agriculture Secretary Tom Vilsack, Commerce Secretary Gina Raimondo, and White House Council on Environmental Quality Chair Brenda Mallory in the report. "Doing so will not only protect our lands and waters but also boost our economy and support jobs nationwide."

Based on feedback gathered in the Administration's first 100 days, the report identifies six priority areas for the administration's early focus, investments, and collaboration:

- Creating more parks and safe outdoor opportunities in nature-deprived communities.
- Supporting Tribally led conservation and restoration priorities.
- Expanding collaborative conservation of fish and wildlife habitats and corridors.
- Increasing access for outdoor recreation.
- Incentivizing and rewarding the voluntary conservation efforts of fishers, ranchers, farmers, and forest owners.
- Creating jobs by investing in restoration and resilience projects and initiatives, including the Civilian Climate Corps.

The Biden-Harris administration is already taking steps to support outdoor recreation and equitable access to the outdoors:

- In late April, USDA expanded the Conservation Reserve Program by offering new incentives, higher rental rates, and more focused attention on sensitive lands with a goal of enrolling 4 million acres and capturing 3.6 million metric tons of CO_2 equivalent in this voluntary conservation program.
- This week, the U.S. Fish and Wildlife Service announced a proposal for the largest expansion in recent history of hunting and sport fishing opportunities for game species across 2.1 million acres at 90 national wildlife refuges and on the lands of one national fish hatchery.
- The National Oceanic and Atmospheric Administration (NOAA) recently announced the expansion of the Flower Garden Banks National Marine Sanctuary, nearly tripling the size of the sanctuary and protecting 14 reefs and banks that are habitat for recreationally important fish.
- In the coming days, the National Park Service will announce $150 million in funding for the Outdoor Recreation Legacy Partnership Program, which helps build parks in underserved communities.
- NOAA is working in partnership with the State of Connecticut to create a living classroom for education, research, and recreation by designating a National Estuarine Research Reserve in Long Island Sound. The final designation paperwork is expected by January 2022, which will make it the 30th estuary reserve in the national system.

To help measure and track progress toward the nation's first conservation goal, the report calls for the establishment of an interagency working group, led by the U.S. Geological Survey, the Natural Resources Conservation Service and NOAA in partnership with other land and ocean management agencies. The working group will develop the American Conservation and Stewardship Atlas, a tool that will better reflect the voluntary contributions of farmers, ranchers, forest owners and private landowners; the contributions of fishery management councils; and other existing conservation designations on lands and waters across federal, state, local, Tribal, and private lands and waters across the nation.

In line with Executive Order 14008, the agencies developed the recommendations after hearing from Tribal leaders, governors and their staff, Members of Congress and their staff, county officials, state elected officials, state fish and wildlife agencies, leaders on equity and justice in conservation policy, environmental advocacy organizations, hunting and fishing organizations, regional fisheries management councils, farming and ranching organizations, trade associations, forestry representatives, outdoor recreation businesses and users, the seafood industry, and others.

The report recommends additional dialogue with key partners – including states and Tribes – to inform early collaborative conservation efforts and the development of the American Conservation and Stewardship Atlas.

“This report is only the starting point on the path to fulfilling the conservation vision that President Biden has outlined,” says the report. “Where this path leads over the next decade will be determined not by our agencies, but by the ideas and leadership of local communities. It is our job to listen, learn, and provide support along the way to help strengthen economies and pass on healthy lands, waters, and wildlife to the generations to come.”

Department of Commerce Announces 2021 Appointments to the Regional Fishery Management Councils

June 28, 2021

The Secretary of Commerce announces the appointment of 31 new and returning members of the eight regional fishery management councils.

News | National

The U.S. Department of Commerce today announced the appointment of 31 members to the regional fishery management councils that partner with NOAA Fisheries to manage marine fishery resources.

Established by the Magnuson-Stevens Fishery Conservation and Management Act, councils are responsible for developing region-specific fishery management plans that safeguard and enhance the nation's fisheries resources. Council members represent diverse groups, including commercial and recreational fishing industries, environmental organizations, and academia. They are vital to fulfilling the act's requirements to end overfishing, rebuild fish stocks, and manage them sustainably.

NOAA Fisheries works closely with the councils through the process of developing fishery management plans. We also review, approve, and implement the plans.

Each year, the Secretary of Commerce appoints approximately one-third of the total 72 appointed members to the eight regional councils. The Secretary selects members from nominations submitted by the governors of fishing states, territories, and tribal governments.

Council members are appointed to both state-specific and regional seats—also known as obligatory and at-large seats, respectively. Council members serve a three-year term and may be reappointed to serve three consecutive terms.

An asterisk preceding a member's name indicates a reappointment.

Mid-Atlantic Council

The Mid-Atlantic Council includes members from the states of Delaware, Maryland, New Jersey, New York, North Carolina, Pennsylvania, and Virginia. 2021 appointees will fill two obligatory seats for New Jersey and Virginia, and two at-large seats.

Obligatory seats:

*Adam Nowalsky (New Jersey)
Skip Feller (Virginia)

At-large seats:

*Sara Winslow (North Carolina)
Thomas Schlichter (New York)

2.4 OFFICERS AND TERMS OF OFFICE

2.4.1 General

(a) A Chair and a Vice Chair shall be elected annually at the first Council meeting following the seating of new Council members (on or after August 11 of each year) by the voting members of the Council present and voting; each such officer shall serve for a period of one year and until a successor is elected.
(b) Officers may succeed themselves.
(c) The Council may elect other officers as it deems necessary.

2.4.2 Nominations

The Chair shall appoint a Nominating Committee, who shall make its nominations (at least two for each office) at the beginning of the election process. Following the Committee's nomination, any voting member may nominate additional candidates from the floor. When nominations are closed the election shall be held.

2.4.3 Elections

(a) The election of Chair will be held first, followed by the election for Vice Chair. If only one candidate accepts the nomination for an office, the Chairman of the Nominating Committee shall cast all votes for that candidate. If there are two or more candidates, the election shall be by a secret ballot with the votes tabulated by two or more Tellers appointed by the Council Chair.
(b) The Tellers shall use the following rules to determine the winning candidate:
   (1) To win, a candidate must receive a majority of the votes cast.
   (2) If no candidate receives a majority of the votes, the Tellers shall declare no election. If there are more than two candidates, the candidate receiving the lowest number of vote shall be dropped from consideration and a vote will be taken for the remaining candidates. This process will continue until a candidate receives a majority of the vote cast.
   (3) Those preferring not to vote for any candidate shall check "ABSTAIN" on the ballot.
   (4) The number of ballots cast for an individual shall not be announced. Any Council member who questions the result may review the ballots. The ballots will not identify which Council member cast a particular ballot.

2.4.4 Special Elections

In the event that the Chair cannot fulfill the Chair's obligations for the balance of the Chair's term, a special election will be held at the next scheduled Council meeting to fill the position of Chair. In the event that the Vice Chair cannot fulfill the Vice Chair's obligations for the balance of the Vice Chair's term, a special election will be held at the next scheduled Council meeting to fill the position of Vice Chair. The procedures for nominations and elections set forth above will be followed for special elections.

2.4.5 Authority of the Chair

(a) The Council Chair shall be the chief executive officer of the Council. Subject only to the authority of the Council, the Chair shall have general charge and supervision over, and responsibility for the business and affairs of the Council. Unless otherwise directed by the Council, the Chair may enter into and execute in the name of the Council, contracts or other instruments in the regular course of business or contract or other instruments not in the regular course of business which are authorized, either generally or specifically, by the Council. The Council Chair shall have the general powers and

duties of management usually vested in the office of the Chair of the Board of a corporation.
(b) The Council Chair shall have the authority to appoint and dissolve committees of Council members, name their officers and membership, and describe their functions, duties, and responsibilities consistent with the Charter of the Council, the Act, and other applicable law.
(c) The Council Chair shall also have the full authority to call meetings as necessary for the conduct of the Council's business.
(d) The Council Chair shall have the authority to authorize reimbursement of travel expenses and/or compensation of any eligible members of the Council, its committees or subpanels except that proper notification, at the direction of the Chair, in the Federal Register of a regular meeting of the Council or one of its committees or subpanels shall constitute authorization for travel expenses and/or compensation to be paid to eligible members.
(e) The Council Chair shall have the authority to authorize, approve, or disapprove all meetings of Council subpanels or committees.
(f) In the event of the absence or inability of the Council Chair to serve or fulfill the Chair's obligations, the Council Vice-Chair shall assume authority and duties of the Chair.

2.2 Oath of Office

As trustees of the nation’s fishery resources, all voting members must take an oath specified by the Secretary as follows:

I, [name of the person taking oath], as a duly appointed member of a Regional Fishery Management Council established under the Magnuson-Stevens Fishery Conservation and Management Act, hereby promise to conserve and manage the living marine resources of the United States of America by carrying out the business of the Council for the greatest overall benefit of the Nation. I recognize my responsibility to serve as a knowledgeable and experienced trustee of the Nation’s marine fisheries resources, being careful to balance competing private or regional interests, and always aware and protective of the public interest in those resources. I commit myself to uphold the provisions, standards, and requirements of the Magnuson-Stevens Fishery Conservation and Management Act and other applicable law, and shall conduct myself at all times according to the rules of conduct prescribed by the Secretary of Commerce. This oath is given freely and without mental reservation or purpose of evasion.

From: Michael Pentony - NOAA Federal <michael.pentony@noaa.gov>
Sent: Wednesday, July 28, 2021 3:29 PM
To: Adam Nowalsky <captadamnj@gmail.com>; Winslow, Sara <fishsqueezers@yahoo.com>; Skip Feller <skip.feller@gmail.com>; Schlichter, Thomas <outdoortom@optonline.net>
Cc: Luisi, Michael <michael.luisi@maryland.gov>; Moore, Christopher <cmoore@mafmc.org>; Almeida, John <john.almeida@noaa.gov>; Bland, Sarah <Sarah.Bland@noaa.gov>
Subject: Council Member Swearing In "Ceremony"

Good afternoon,

In two weeks at the Council meeting, we will be swearing you in as either a newly appointed or re-appointed Council member. Ordinarily, we would all be together, and I would have you all stand up and recite the oath along with me, and then I would present you with your official certificates signed by the Secretary of Commerce. However, for a variety of reasons I will be participating in the meeting virtually (as some of you may be doing too), so we have to do things a little differently.

Rather than have you read the oath along with me, which would be a problem for the webinar with us all speaking at the same time, instead I will read the oath as a series of four questions, and at the end of each question, I will call on you individually to affirm that you agree ("I do").

So that you're prepared, here is the oath as I will read it in question form:

"Do you, as a duly appointed member of a Regional Fishery Management Council established under the Magnuson-Stevens Fishery Conservation and Management Act, hereby promise to conserve and manage the living marine resources of the United States of America by carrying out the business of the Council for the greatest overall benefit of the Nation?

"Do you recognize your responsibility to serve as a knowledgeable and experienced trustee of the Nation's marine fisheries resources, being careful to balance competing private or regional interests, and always aware and protective of the public interest in those resources?

"Do you commit yourself to uphold the provisions, standards, and requirements of the Magnuson-Stevens Fishery Conservation and Management Act and other applicable law, and shall you conduct yourself at all times according to the rules of conduct prescribed by the Secretary of Commerce?

"Is this oath given freely and without mental reservation or purpose of evasion?"

At the end of each question, I will then call on you in the following order: Adam, Sara, Skip, and Tom. When I call on you, simply say "I do" (I'm pretty sure no one will end up inadvertently married) to affirm that you agree with that provision of the oath, and then I'll call on the next person. When you've each agreed, I'll move on to the next question. Because I don't know which of you may also be participating remotely or will be present in the meeting room, let's assume we're all virtual. To avoid the pauses from muting and unmuting each time someone speaks, the Council staff has confirmed that the five of us can remain unmuted throughout the swearing in (just make sure you're unmuted when we start) and you can just respond when called on. I'll do a roll call before I get started just to make sure you are all on and we can hear you. For those of you physically in the Council meeting room, I will ask you to stand and you may have to speak loudly for me to hear you.

Also, we don't have the nice certificates for you yet, but we're working on it and will get them to you as soon as we can.

If you have any questions, please let me know.

Mike

--
Michael Pentony
Regional Administrator
Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930
Phone: 978-281-9283
50 Years of Science, Service, and Stewardship

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: June 29, 2021

To: Council

From: José Montañez, Staff

Subject: Tilefish - Multi-year Specifications Framework – Meeting #2

Council staff is a developing a framework document to make two minor process related modifications to the golden tilefish management system. In addition, this framework document will be used to set specifications for the 2022-2024 fishing seasons. The Council selected the preferred process related alternatives at the first framework meeting (April 17, 2021). At the second framework meeting, the Council is expected to review alternatives, select preferred catch and landings limits for the 2022-2024 fishing years, and approve the framework document for submission (final action).

The following materials are enclosed on this subject:

1) Report of the July 2021 Meeting of the MAFMC Tilefish MC
2) July 2021 SSC Report – See Committee Reports Tab
3) Draft 2021 Golden Tilefish Management Track Stock Assessment Report
4) Draft 2021 Management Track Peer Review Panel Summary Report (available online only)
5) 2021 Golden Tilefish Advisory Panel Fishery Performance Report
6) 2021 Golden Tilefish Fishery Information Document (version 2)
7) Staff Memo: 2022-2024 Golden Tilefish Specifications Recommendations
8) Multi-year Specifications Framework Document (Draft Environmental Assessment) (available online only)

Tilefish Monitoring Committee
Webinar Meeting Summary
July 22, 2021

Attendees: José Montañez (Council Staff), Douglas Potts (GARFO), Michael Auriemma (NJ Division of Fish and Wildlife), John Maniscalco (NYSDEC Division of Marine Resources), Paul Nitschke (NEFSC), and Laurie Nolan (Golden Tilefish Fishing Industry). **Others in attendance:** Scott Lenox (Vice-Chair of the MAFMC Tilefish Committee), and Dewey Hemilright (MAFMC Tilefish Committee).

Discussion: The Tilefish Monitoring Committee (MC) was presented with a summary of the Scientific and Statistical Committee (SSC) deliberations of the July 21, 2021 SSC meeting, where the SSC reviewed the 2021 Golden Tilefish Management Track Assessment, the 2021 Golden Tilefish Advisory Panel Fishery Performance Report, and the 2021 Golden Tilefish Advisory Panel Information Document. The SSC made recommendations to change the 2022 interim acceptable biological catch or ABC (previously set in 2020) and set new ABCs for 2023-2024. Based on the updated information presented, the SSC derived ABC recommendations based on the traditional approach of varying ABCs in each year, and a constant ABC approach derived from the projected ABCs (as requested under ToR #3). The SSC accepted the CV of 100% in the OFL as the foundation for the ABC. Using the Council's published risk policy, the recommended ABCs are as follows:

	Traditional - ABC	Constant – ABC (Staff/MC recommended)
2022	1,911,408 pounds (867 mt)	1,964,319 pounds (891 mt)
2023	2,021,639 pounds (917 mt)	1,964,319 pounds (891 mt)
2024	1,962,114 pounds (890 mt)	1,964,319 pounds (891 mt)

While the SSC reported ABC values under two scenarios, they mentioned the benefits of a constant ABC in providing fishery stability. The monitoring committee discussed the different components of the golden tilefish catch and recent fishery trends.

<u>The Monitoring Committee's Comments and Recommendations</u>

Annual Catch Targets and Landings Limits and Basis for Derivation

The recommendations in this section were made for the next three years (2022-2024). The MC recommended catch and landings limits for the 2022-2024 period that slightly vary from the staff recommendation (Tables 1 and 2). The MC recommended the use of the ABCs from the constant approach to derive annual catch limits (ACLs), annual catch targets (ACTs), and total allowable landings (TALs) for 2022-2024. As defined in Framework Adjustment 2 to the Tilefish FMP, ABC is equivalent to the ACL. The MC did not recommend an adjustment for management uncertainty (reduction from ACL to derive ACT). However, they recommended an overall ACT that is lower than ABC/ACL recommended by the SSC (basis for this recommendation are detailed in the next three paragraphs below). The overall ACT is 1,856,293 pounds (842 mt) for each year 2022, 2023, and 2024 (i.e., ~108,000 pounds lower than the ABC/ACL). The IFQ fishery ACT is 1,763,478 pounds (800 mt) and the incidental fishery ACT is 92,815 pounds (42 mt) for each year 2022, 2023, and 2024. The committee recommended a reduction in catch from the incidental ACT of 17,405 pounds (7.895 mt)[1] to account for discards in that component of the fishery. The MC recommended no reduction in catch from the individual fishing quota (IFQ) ACT. The MC recommended an IFQ fishery TAL of 1,763,478 pounds (799.9 mt) and an incidental TAL of 75,410 pounds (34.205 mt) for each year 2022, 2023, and 2024. The overall TAL (IFQ + incidental) recommended by the MC is slightly lower (5.5% lower) than the overall TAL recommended by staff.

The MC recommends a TAL of 1,763,478 pounds (799.9 mt) for the IFQ fishery and a TAL of 75,410 pounds (34.205 mt) for the incidental fishery. This is a 13% increase in the overall TAL from 2021. The MC recommends that TALs should be set more in line with the long-term productivity of the stock at $MSY_{40\%}$. An increase in the TAL is supported by the positive results from the 2021 management track assessment. However, the MC does not recommend basing the TAL on the short-term projections from the 2021 management track ASAP model given the concerns that these projections rely on limited, uncertain information. Sensitivity analyses indicate that the large increase in catch advice is due to an initial indication of a stronger than average 2017 year class based upon 2 samples from the terminal year (2020) of unclassified market category fish from the incidental fishery (16 measurements). Unclassified fish tend to be very small fish (25-35 centimeters or ~ 10-14 inches) that come from incidental trawl fisheries as they have not yet recruited to the directed fishery. The larger increase in the projection based catch advice recommended by staff rely on this strong year class materializing in the population and these short-term, higher catches (2022-2024) are expected to fish the stock back down to the SSB_{MSY} reference point in the long term. The MC therefore suggest a TAL that is more in line with the long-term productivity of the stock at $MSY_{40\%}$ rather than higher estimates which relay on uncertain indications of stronger than average year class strength since the potential consequence of being wrong with regards to the uncertain year class estimates from the model could result in more severe future reductions after the next assessment.

The successful management of the tilefish fishery appears to be partly due to relatively stable constant quotas over long periods of time despite relativity large fluctuations in CPUE due to year class effects. This has also resulted in economic benefits to the fishery with stable, higher, prices and a more constant supply of fish to the markets. Large changes to the TAL could potentially result in sensitive market disruptions and lower prices. Large increases in the TAL relative to status quo could also encourage targeting of the smaller fish (smalls and kittens) in order to catch the TAL which may result in additional higher risk to the stock. The AP has recommended stability in

[1] According to the "Discard Estimation, Precision, and Sample Size Analysis" conducted by the NEFSC, an average of 17,405 pounds (7.895 mt) were discarded for the 2016-2020 period (mostly large/small mesh trawls and gillnets).

the TAL in a multiyear specification setting process. The TAL recommended by the MC should help achieve that goal with a more moderate increase rather than risk dramatic swings in the TAL in the future due to uncertain model projections. Basing the TAL on the longer term rebuilt sustainable level is also more likely to support stable quotas into the next specifications cycle as projections from the 2021 model indicate decreased TALs in the out years.

The tilefish fishery was managed under a constant TAL for 14 years starting in 2001 (approximately 1.995 million pounds or 905 mt). This TAL limited total effort on the golden tilefish stock and helped promote rebuilding from levels before the implementation of the FMP. However, two subsequent assessments (2014 SARC 58, 2017 operational assessment) resulted in further reductions from the 1.995 million pounds (905 mt) TAL to approximately 1.626 million pounds (736 mt) from 2018-2021. The 2021 management track assessment shows signs of improvement under the 1.626 million pounds (736 mt) TAL which suggests a higher TAL is now warranted. Thew MC is concerned that TALs approaching 1.995 million pounds (905 mt) seems to risk less stable TALs with more dramatic reductions in the future with the increased potential for less optimistic assessments given the long-standing history of management's implementation of the 1.995 million pounds (905 mt) TAL. The 2021 management tracks assessment indicates that the golden tilefish stock has not crossed the SSB_{MSY} target since the implementation of the FMP in 2001, but is now approaching the SSB_{MSY} reference point in 2020 (96% of SSB_{MSY}). It is only in the projections that the SSB_{MSY} target is exceeded, allowing for the higher levels of landings needed to bring the stock back down to the SSB_{MSY} target. The MC recommends a TAL based on the more stable long-term productivity of the stock to acknowledge the positive development in the stock status but also to mitigate the potential risk to the stability and success in managing this relatively data poor fishery. The research track assessment scheduled for 2024 could further refine the productivity of the resource with the additional data collected under the more moderate increase in the TAL. All catch and landings limits recommended by the MC are shown in Table 1. Catch and landings limits for the current specifications cycle are shown in Table 3.

The difference between the MC overall TAL recommendation for 2022-2024 compared to the staff recommendation and current (2021) TAL level are as follows:

	Staff recommended overall TAL (pounds)	MC recommended overall TAL (pounds)	Percent difference of MC recommended TAL from staff recommended TAL	Percent difference of MC recommended TAL from 2021 overall TAL (1.625 million lb)
2022	1,946,914	1,838,888	-5.5%	+13.2%
2023	1,946,914	1,838,888	-5.5%	+13.2%
2024	1,946,914	1,838,888	-5.5%	+13.2%

The MC shares the SSC's concern over the poorly described level of recreational catch for golden tilefish, and recreational catch is currently unaccounted for within the stock assessment. However, it was noted that the newly implemented (August 17, 2020) recreational fishing permitting and reporting requirements for golden tilefish and blueline tilefish may improve quality of catch estimates.

Adjusted IFQ TAL and Incidental TAL for 2022

The MC discussed the framework document that considers measures to revise the specifications process by considering the duration for setting multi-year management measures and the timing of the fishing year. The MC noted that at the first framework meeting (April 2021), the Council selected preferred alternatives for these two process related issues. Regarding the issue of the timing of the fishing year, the Council selected an alternative that sets the golden tilefish fishing year as the 12-month period beginning with January 1, annually. Therefore, the fishing year will be from January 1 – December 31 (compared to the current November 1 – October 31 fishing year). The other action would modify the annual specifications process, so that they could be set for the maximum number of years needed to be consistent with the Northeast Regional Coordinating Council approved stock assessment schedule. In addition, this framework will set new specifications (catch and landings limits) for 2022-2024.

To facilitate the transition from the current fishing year (November 1 through October 31) to January 1 to December 31, a one-time only adjustment to bridge the gap will be necessary. More specifically, the 2022 fishing year will be extended from November 1, 2021 to December 31, 2022 (14-month period). Then, for 2023 and 2024, the Council would implement specifications starting on January 1 and ending in December 31.

When the MC recommended overall TAL for 2022 of 1,838,888 pounds (834.105 mt) is compared to the overall initial TAL for 2021 (1,624,305 pounds or 736.773 mt), it results in a 13% increase in the quota level between those two periods. In order to make a more robust comparison of quota changes as result of the proposed staff recommendations during the gap year, the fishing year quotas for 2021 and 2022 are broken down to a common monthly denominator basis to assess impacts of the 14-month 2022 fishing year compared to 2021 12-month fishing year. The current 2021 overall commercial quota of 1,624,305 pounds is equivalent to 135,359 pounds/month (1,624,305 pounds / 12 months) and the 2022 overall MC recommended quota is equivalent to 131,349 pounds/month (1,838,888 pounds / 14 months). Therefore, on a common monthly denominator basis, the overall commercial quota is slightly decreased (by only 3%) in gap 2022 fishing year compared to 2021 fishing year. For each, 2023 and 2024, the overall commercial quota is 13% higher compared to 2021 fishing year. The MC does not think that this small reduction in landings in gap fishing year 2022 will adversely impact the fishery given recent trends in commercial landings. In addition, the MC explicitly recommends that the overall 2022 TAL not be prorated to account for the longer 2022 fishing year.

Relevant Sources of Management Uncertainty

Past sector-specific performance and catch performance can be used as a basis for qualifying management uncertainty (implementation error), and as an indicator of future availability to achieve the 2022-2024 ACTs. The commercial fishery landings performance has been in line with expectations and the MC recommends that an adjustment to address this aspect of management uncertainty is not necessary. The MC noted that IFQ vessels have been landing nearly the entirety of the IFQ from 2018 to 2019. In 2020, commercial landings were 1.403 million pounds or 14% below the overall TAL (1.626 million pounds). Furthermore, since the IFQ system became effective, golden tilefish landings are closely scrutinized. The incidental fishery landed 25,864 pounds (37% of their allocation) in 2020 fishing year, and this year the landings trajectory is slightly ahead when compared to last year's landings trajectory.

Commercial Discards

Development of a time series of discards was not done in the assessment model since discarding was considered negligible and information on discards do not exist for most of the time series. The Monitoring Committee also discussed that commercial discards are not generated by the IFQ fishery. Very low or insignificant discards were estimated in other fisheries (incidental tilefish fisheries). There is higher uncertainty (high CVs) on some of the low recent discard estimates since the discarding of tilefish is a rare event on observed trips. Therefore, an average of several years was used to judge the recent relative magnitude of discarding in other fisheries. Following the process created by the ACL/AM Omnibus Amendment, the monitoring committee adjusted the incidental TAL from the incidental ACT using average annual discards for 2016-2020 as presented in "Discard Estimation, Precision, and Sample Size Analysis" conducted by the NEFSC (17,405 pounds or 7.895 mt). The MC recommends no reduction in catch from the IFQ ACT.

Other Management Measures

Incidental Trip Limit

The MC did not recommend changes to the current 500 pounds (227 kg) or 50 percent, by weight, of all fish, including the golden tilefish, on board the vessel, whichever is less.

Recreational Bag Limit

The MC discussed recent trends in recreational landings. The MC expressed concern about the increase in effort in the recreational fishery in recent years and the fact that we do not have a good understanding of the magnitude of those landings. The MC is hopeful that the recreational data collection requirements recently implemented for blueline and golden tilefish will provide additional information regarding tilefish landings in the recreational fishery. The MC also indicated that the fishery is performing well and no changes to the recreational management measures (i.e., 8-fish per angler per trip) are required at the moment.

Other Issues

Doug Potts provided a brief update on the new private recreational tilefish permit and reporting requirement. As of June 1,2021, GARFO had issued 444 vessel permits for 2021. This is much higher than initially expected and may be a good sign that outreach efforts have been successful. The number of Vessel Trip Reports has been low, at just 23. It is not clear to what extent this reflects a low level of activity in the recreational fishery versus poor compliance with the reporting requirement. Outreach efforts will continue, and the high number of permits could allow for targeted reminders about the need to report. GARFO will provide an update on the number of permits and trip reports at the August Council meeting, and has committed to giving a presentation on the early successes and challenges of this program at the October Council meeting. Dewey Hemilright asked if permit and trip report data will be broken out by state. Doug replied that level of detail may not be in the August update, which will be part of the Regional Administrator's report. However, that detail could be included in the presentation in October, barring any data confidentiality restrictions.

Lastly, the MC shares the SSC significant concern with reductions in the biological port sampling that may negatively affect future assessments, including the next research track assessment model in 2024. The MC recommends that the Council writes a letter to the port sampling program regarding the need to maintain/increase port sampling.

Table 1. Summary of MC recommended catch and landings limits (in pounds unless otherwise noted) for 2022 (revised), 2023, and 2024.

	2022 (revised)	2023	2024	Basis
OFL	2,228,873 (1,011 mt)	2,226,669 (1,010 mt)	2,151,712 (976 mt)	Projections
ABC	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	Staff recommendation based on overfishing probability averaging
ACL	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	ABC = ACL
IFQ fishery ACT	1,763,478 (800 mt)	1,763,478 (800 mt)	1,763,478 (800 mt)	Deduction from management uncertainty = 0. IFQ ACT = 95% of the ACL and incidental ACT = 5% of the ACL. However, the MC is recommending an ACT that is below the ABC/ACL derived from the SSC recommendation and it is based on the more stable long-term productivity of the stock to acknowledge the positive development in the stock status but also to mitigate the potential risk to the stability and success in managing this relative data poor fishery
Incidental fishery ACT	92,815 (42 mt)	92,815 (42 mt)	92,815 (42 mt)	
Projected IFQ fishery discards	0	0	0	Data indicates no discards in the IFQ fishery (directed fishery). IFQ fishery discards are prohibited in the FMP
Projected incidental fishery discards	17,405 (8 mt)	17,405 (8 mt)	17,405 (8 mt)	Average discards (2016-2020) mostly sm/lg mesh OT and Gillnet gear
IFQ fishery TAL = IFQ fishery quota	1,763,478 (799.900 mt)	1,763,478 (799.900 mt)	1,763,478 (799.900 mt)	IFQ fishery TAL = IFQ fishery ACT – IFQ fishery discards. No additional reductions applied between IFQ TAL amounts and final IFQ fishery quota amounts
Incidental fishery TAL = incidental fishery quota	75,410 (34.205 mt)	75,410 (34.205 mt)	75,410 (34.205 mt)	IFQ fishery TAL = IFQ fishery ACT – IFQ fishery discards. No additional reductions applied between IFQ TAL amounts and final IFQ fishery quota amounts

Note: Initial OFL and ABC values are in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds the numbers may change due to rounding. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds.

Table 2. Summary of staff recommended catch and landings limits (in pounds unless otherwise noted) for 2022 (revised), 2023, and 2024.

	2022 (revised)	2023	2024	Basis
OFL	2,228,873 (1,011 mt)	2,226,669 (1,010 mt)	2,151,712 (976 mt)	Projections
ABC	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	Staff recommendation based on overfishing probability averaging
ACL	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	ABC = ACL
IFQ fishery ACT	1,866,103 (846 mt)	1,866,103 (846 mt)	1,866,103 (846 mt)	Deduction from management uncertainty = 0. ACT = 95% of the ACL
Incidental fishery ACT	98,216 (45 mt)	98,216 (45 mt)	98,216 (45 mt)	Deduction from management uncertainty = 0. ACT = 5% of the ACL
Projected IFQ fishery discards	0	0	0	Data indicates no discards in the IFQ fishery (directed fishery). IFQ fishery discards are prohibited in the FMP
Projected incidental fishery discards	17,405 (8 mt)	17,405 (8 mt)	17,405 (8 mt)	Average discards (2016-2020) mostly sm/lg mesh OT and Gillnet gear
IFQ fishery TAL = IFQ fishery quota	1,866,103 (846.450 mt)	1,866,103 (846.450 mt)	1,866,103 (846.450 mt)	IFQ fishery TAL = IFQ fishery ACT – IFQ fishery discards. No additional reductions applied between IFQ TAL amounts and final IFQ fishery quota amounts
Incidental fishery TAL = incidental fishery quota	80,811 (36.665 mt)	80,811 (36.655 mt)	80,811 (36.655 mt)	Incidental fishery TAL = incidental fishery ACT – incidental fishery discards. No additional reductions applied between incidental TAL amounts and final incidental fishery quota amounts

Note: Initial OFL and ABC values are in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds the numbers may change due to rounding. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds.

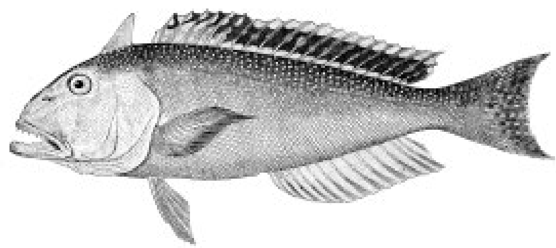
Table 3. Catch and landings limits (in million pounds unless otherwise noted) for the current specifications cycle (2021-2022).

	2021 (initial values)*	2021 IFQ TAL w/ Max Carryover**	2022 (interim)	Basis
ABC	1.636 m lb (742 mt)	–	1.636 m lb (742 mt)	SSC recommendation, based on data update, recent fishing trends, and scheduled 2021 management track assessment update that will be used to revise 2022 interim specifications
ACL	1.636 m lb (742 mt)	–	1.636 m lb (742 mt)	ABC = ACL
Management Uncertainty	0	–	0	Derived by Monitoring Committee (MC)
IFQ ACT	1.554 m lb (705 mt)	–	1.554 m lb (705 mt)	95% ACL
Incidental ACT	0.082 m lb (37 mt)	–	0.082 m lb (37 mt)	5% ACL
IFQ Discards	0	–	0	Discards in the IFQ fishery are prohibited
Incidental Discards	0.011 m lb (5 mt)	–	0.011 m lb (5 mt)	Avg. discard (2015-2019) mostly sm/lg mesh OT and Gillnet gear. NEFSC
IFQ TAL	1.554 m lb (705 mt)	1.601 m lb (726 mt)	1.554 m lb (705 mt)	IFQ ACT - IFQ Discards
Incidental TAL	0.070 m lb (32 mt)	–	0.070 m lb (32 mt)	Incidental ACT - Incidental Discards

*ABC values are typically reported in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds (m lb) the numbers may change due to rounding. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds. **Due to the COVID-19 national emergency, the Council requested the service to consider an emergency action to allow a 5% rollover of unused IFQ 2020 quota allocation for the golden tilefish fishing year November 1, 2020 through October 31, 2021. Only the IFQ TAL would be affected by the requested emergency carryover. All other specifications would remain at proposed 2021 values.

The SSC Report is behind Tab 14.

Golden Tilefish, *Lopholatilus chamaeleonticeps,* Management Track Assessment through 2020 in the Middle Atlantic-Southern New England Region



Paul Nitschke
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, MA 02543
June 23, 2021

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State of Stock: This assessment of Golden tilefish is an update through 2020 of commercial fishery landings and size and age data, commercial catch per unit effort (CPUE) indices of abundance, and the analyses of those data. The Golden tilefish stock was not overfished and overfishing was not occurring in 2020 relative to the newly updated biological reference points (Figure 1).

The 2017 operational assessment ASAP model was updated with landings, catch at length distributions, catch at age and mean weights at age using updated pooled and year specific age-length keys, and commercial CPUE data from 2017-2020 (Figures 2 to 7). The ASAP model developed at the SARC 58 benchmark assessment and updated at the 2017 operational assessment used a pool age-length-key due to the lack of age data during the development of the analytical model. Increases in available age data with this management track assessment allowed for the use of additional age data within the pooled age-length-key and the use of year specific age keys for more recent years.

The F_{MSY} proxy was updated using the new average of the fishing mortality during 2002-2012 (a period when the stock was rebuilding under constant quota = 905 mt or metric ton), providing an updated F_{MSY} proxy of 0.261 (equal to $F_{40\%}$), compared to the 2017 operational assessment value of 0.310 (equal to $F_{38\%}$). The SSB_{MSY} and MSY proxies were also updated using the same procedures as in the SARC 58 assessment. The updated SSB target = SSB_{MSY} = $SSB_{40\%}$ = 10,995 mt (compared to the 2017 operational assessment $SSB_{38\%}$ = 9,492 mt) and the updated SSB threshold = one-half $SSB_{40\%}$ = 5,498 mt (compared to the 2017 operational assessment one-half $SSB_{38\%}$ = 4,746 mt). The updated $MSY_{40\%}$ = 935 mt (compared to the 2017 operational assessment $MSY_{38\%}$ = 957 mt).

Based on the ASAP model the stock was at high biomass and lightly exploited during the early 1970s. As the longline fishery developed during the late 1970s, fishing mortality rates increased and stock biomass decreased to a time series low by 1998. Since the implementation of constant landings quota of 905 mt in 2002, the stock has increased approaching the biomass target reference point (SSB_{MSY} proxy).

The fishing mortality rate was estimated to be 0.160 in 2020, below the updated reference point F_{MSY} proxy = 0.261. There is a 90% probability that the fishing mortality rate in 2020 was between 0.110 and 0.222 (Figures 8 and 9). SSB was estimated to be 10,562 mt in 2020, 96% of the updated biomass target reference point SSB_{MSY} proxy = 10,995 mt. There is a 90% chance that SSB in 2020 was between 6,238 and 16,438 mt (Figures 8 and 9). Average recruitment from 1971 to 2020 was 1.48 million fish at age-1. Recent large year classes occurred in 1998 (3.0 million), 1999 (2.9 million) and 2005 (2.6 million). A recent large year class is estimated at 2.5 million in 2014. This year class has started to recruit to the large-medium market category in 2020. The updated 2020 final run had a minor retrospective pattern in fishing mortality (Mohn's Rho = -0.09), spawning stock biomass (Mohn's Rho = +0.02) and age-1 recruitment (Mohn's Rho = +0.03) (Figures 10 to12).

Catch: Total commercial landings (live weight) increased from less than 125 mt during 1967-1972 to more than 3,900 mt in 1979 during the development of the directed longline fishery (Figure 2). Landings prior to the mid-1960s were landed as a bycatch in the trawl fishery. Annual landings ranged between 454 and 1,838 mt from 1988 to 1998. Landings from 1999 to 2002 were below 900 mt (ranging from 506 to 874 mt). An annual quota of 905 mt was implemented in November of 2001. Landings in 2003 and 2004 were slightly above the quota at 1,130 mt and 1,215 mt, respectively. Landings from 2005 to 2009 were at or below the quota, while landings in 2010 at 922 mt were slightly above the quota (Figure 2). Since 2010 landings have been below the quota and decreased to an estimated 494 mt in 2016. The landings have increase slightly to an average of 698 mt from 2017 to 2020. The Total Allowable Landings (TAL) was reduced for the first time in 2015 to 796 mt from the TAL of 905 mt which was in place from 2001-2014. The TAL in 2016 and 2017 was increased to 856 mt based on projections from the SARC 58 assessment. The TAL was then reduced to 738 mt from 2018 to 2021 based on the 2017 operational assessment.

During the late 1970s and early 1980s Barnegat, NJ was the principal tilefish port; more recently Montauk, NY has accounted for most of the landings. Most of the commercial landings are taken by the directed longline fishery. Discards in the trawl and longline fishery appear to be a minor component of the catch. Recreational catches are estimated to be low and were not included as a component of the removals in the assessment model.

Catch and Status Table: Golden Tilefish. Landings, SSB, Recruitment (age-1), and Fishing Mortality (FMULT) (weights in '000 mt live, recruitment in millions)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Max[1]	Min[1]	Mean[1]
Commercial landings	0.9	0.8	0.8	0.8	0.6	0.5	0.7	0.7	0.7	0.6	4.0	0.1	1.3
SSB	9.8	9.9	9.0	7.2	8.1	10.0	8.4	9.2	9.5	10.6	31.9	3.0	9.4
Recruitment	0.8	0.5	0.9	2.2	2.5	0.8	0.7	2.1	1.4	1.2	4.0	0.4	1.5
Fishing mortality	0.199	0.207	0.264	0.400	0.313	0.220	0.267	0.191	0.159	0.160	1.058	0.005	0.375

[1] Over period 1971-2020.

Commercial CPUE, market category and size composition data: Changes in the CPUE can be generally explained by the impact of strong incoming year classes that track through the landings size composition over time. Since the SARC 58 assessment there appear to be increases in CPUE due to one or two new strong year classes. In general, strong year classes and proportion of larger fish in the catch appear to persist longer in the fishery after the FMP's quota based management came into effect, which is evident in both the CPUE and size composition data. The decrease in the CPUE from 2011 to 2016 is consistent with the ageing of the strong year class in 2005. The CPUE has increased since 2016 with another strong year class in 2014.

A recent broad size distribution and market category proportions show evidence of small fish while also showing the presence of larger fish in the catch. The increases in CPUE from the last strong year class in 2014 appears to be persisting longer than past increases cause by year class effects.

Projections: The projections are conditioned on the ABC being taken (742 mt) in 2021 and fishing at the F_{MSY} proxy = 0.261 from 2022 to 2026. Overfishing is not projected to occur in 2021 at a 17% probability with the removals of 742 mt.

Catch, Fishing Mortality (F), Spawning Stock Biomass (SSB),
Probability of $F>F_{MSY}$ and $SSB<SSB_{MSY}/2$
Catch and SSB in metric tons

Year	Total Catch	F	SSB	$P(F>F_{MSY})$	$P(SSB<SSB_{MSY}/2)$
2021	742	0.207	10,061	0.172	0.026
2022	1,011	0.261	10,491	-	0.015
2023	991	0.261	11,165	-	0.004
2024	949	0.261	11,586	-	0.001

Stock Distribution and Identification: Golden Tilefish, *Lopholatilus chamaeleonticeps,* inhabit the outer continental shelf from Nova Scotia to South America and are relatively abundant in the Southern New England to Mid-Atlantic region at depths of 80 to 440 m. Tilefish have a relatively narrow temperature preference of 9 to 14 °C. The Virginia- North Carolina border defines the boundary between the northern and southern Golden Tilefish management units.

Data, Assessment Model and Model Sensitivity Runs: The surplus production model ASPIC was used to assess the Golden Tilefish stock in assessments previous (Nitschke et al. 1998, NEFSC 2005, 2009) to SARC 58 (NEFSC 2014). The availability of length and age data facilitated application of a forward projecting age-structured model ASAP (Legault and Restrepo 1998; NFT 2013) using a pooled age-length key in the SARC 58 stock assessment. The same pooled age-length key was used in the 2017 model update. However, new age data was available through 2020 for this 2021 management track assessment. Due to the additional age information the pooled age-length-key was updated to provide a more comprehensive key for use in years where age data did not exist. Actual year specific keys were used for 2007, 2009 to 2012, and 2014 to 2020 since improvements in age data now exists with efforts made towards production aging for golden tilefish (run2).

First, a bridge year run was made which used the existing data through 2016 from the 2017 operational assessment and used all available age data in the pooled age-length-key for years 2017 through 2020 (Figure 13). Then the first updated run used the new updated pooled age-length-key for all years (run 1, Figure 1). The final run takes one step further and used the updated pooled age-length-key for years with age data gaps and uses the year specific information in the recent years as production aging continues for golden tilefish. In general, there were similar trends among the model runs (Figure 1). The final run 2 does produce slightly lower Fishing mortality, a larger buildup of SSB in recent years with a slight shift to higher recruitment. The final run 2 that uses the available year specific data results in slightly more optimistic stock status (F/F_{MSY} = 0.615 and SSB/SSB_{MSY} = 0.961) relative to run one which used the update pooled age key for all year (F/F_{MSY} = 0.670 and SSB/SSB_{MSY} = 0.852). An additional sensitivity model run was made to determine the sensitivity of the model results to the estimated dome shaped selectivity assumption through an assumed shift of the age of full selection. This sensitivity tested the influence of a shift in fully selection from age 5 to 6 in the second selectivity block (Figure 14). However, the sensitivity run 3 still estimated full selectivity at age 5 (Figure 15). Forcing full selectivity at age 6 resulted in a shift to lower estimates of SSB. Not surprising, the scaling of SSB estimates will be sensitivity to assumptions surrounding the dome shaped selectivity since the commercial CPUE index of abundance possesses the same selectivity assumption. Run 3 is only used to illustrate the uncertainty with regards to the selectivity assumption since there is no justification to change full selection to age 6 and because the model still estimates full selection at age 5 in the second selectivity block.

There are no fishery independent surveys available for this stock, so commercial CPUE is relied upon for indications of population abundance. Over the last twenty years, the commercial length and more recent age data indicate that increases in fishery CPUE and model estimated biomass are predominantly due to the influence of strong year classes in 1998, 1999, 2005 and 2014 (Figure 3). The 2014 year class is now passing through the fishery with predicted lower selection as the year class ages. Given the historical pattern, CPUE would be expected to decline in next few years with the aging of the strong 2014 year class if another new strong year class does not materialize. Review of commercial fishery practices and markets help justify the use of a dome-shaped selectivity pattern used in the assessment model developed at SARC 58. There is an indication for a dome shape selectivity pattern from spatial effects and from possible gear hook size selection from the 2017 pilot and 2020 tilefish longline surveys. This work has not been fully completed at this time. Uncertainty remains with the ability to quantify the degree of doming in the fishery.

Biological Reference Points (BRPs): Golden Tilefish are estimated to live about 40 years, and this information along with the SARC 58 likelihood profiles of the ASAP model indicated that a value for instantaneous natural mortality (M) of 0.15 was appropriate (NEFSC 2014). The long lifespan and relatively low M would suggest that a fishing mortality rate BRP of $F_{40\%}$ or higher %MSP would be appropriate. Under a management regime using a constant landings quota of 905 mt from 2002-2012, with actual landings close to the quota each year, the stock increased to 9,883 mt in 2012. SARC 58 (NEFSC 2014) therefore recommended using the average of the fishing mortality during 2002-2012, a period when the stock was rebuilding under constant quota = 905 mt, as the F_{MSY} proxy for Golden Tilefish.

This update indicates that fishing mortality rates have averaged 0.261 from 2002-2012, and by coincidence the updated yield per recruit analysis shows that this fishing rate now corresponds to $F_{40\%}$, compared to the $F_{38\%}$ estimate calculated in the 2017 operational assessment. Therefore, the updated BRPs proxies using the same average F calculations as in SARC 58 and the 2017 operational assessment produced a F_{MSY} proxy = 0.261 (overfishing threshold), with corresponding SSB_{MSY} proxy = 10,995 mt (SSB target), one-half SSB_{MSY} = 5,498 mt (SSB threshold), and MSY = 935 mt. SSB_{MSY} was calculated from median estimates of long term (100 years) stochastic projections fishing at the F_{MSY} proxy = 0.261 which resampled from the CDF of empirical recruitment from 1971-2020.

Fishing Mortality: Fishing mortality on the fully selected age class (age 5, F_{MULT}) increased with the development of the directed longline fishing from near zero in 1971 to 1.058 in 1987 (Figure 8). Fishing mortality then remained relatively high through the 1990s. Fishing mortality has been lower since 1999 and was estimated to be 0.160 in 2020. F_{MULT} 90% confidence intervals were 0.110 and 0.222 in 2020 (Figure 9).

Spawning Stock Biomass: Spawning stock biomass decreased substantially early in the time series from 31,876 mt in 1974 to 4,375 mt in 1998, lowest in the time series (Figure 8). SSB has since increased to 10,562 mt in 2016. Spawning stock biomass 90% confidence intervals were 6,238 and 16,438 mt in 2020 (Figure 9).

Recruitment: Average recruitment from 1971 to 2020 was 1.48 million fish at age 1. Recent large year classes occurred in 1998 (3.0 million), 1999 (2.9 million) and 2005 (2.6 million). A recent large year class is estimated at 2.5 million in 2014 (Figure 1). An above average year class is estimated at 2.1 million in 2017. However, the size of the 2017 year class remains highly uncertain since it just began to enter the fishery in 2020.

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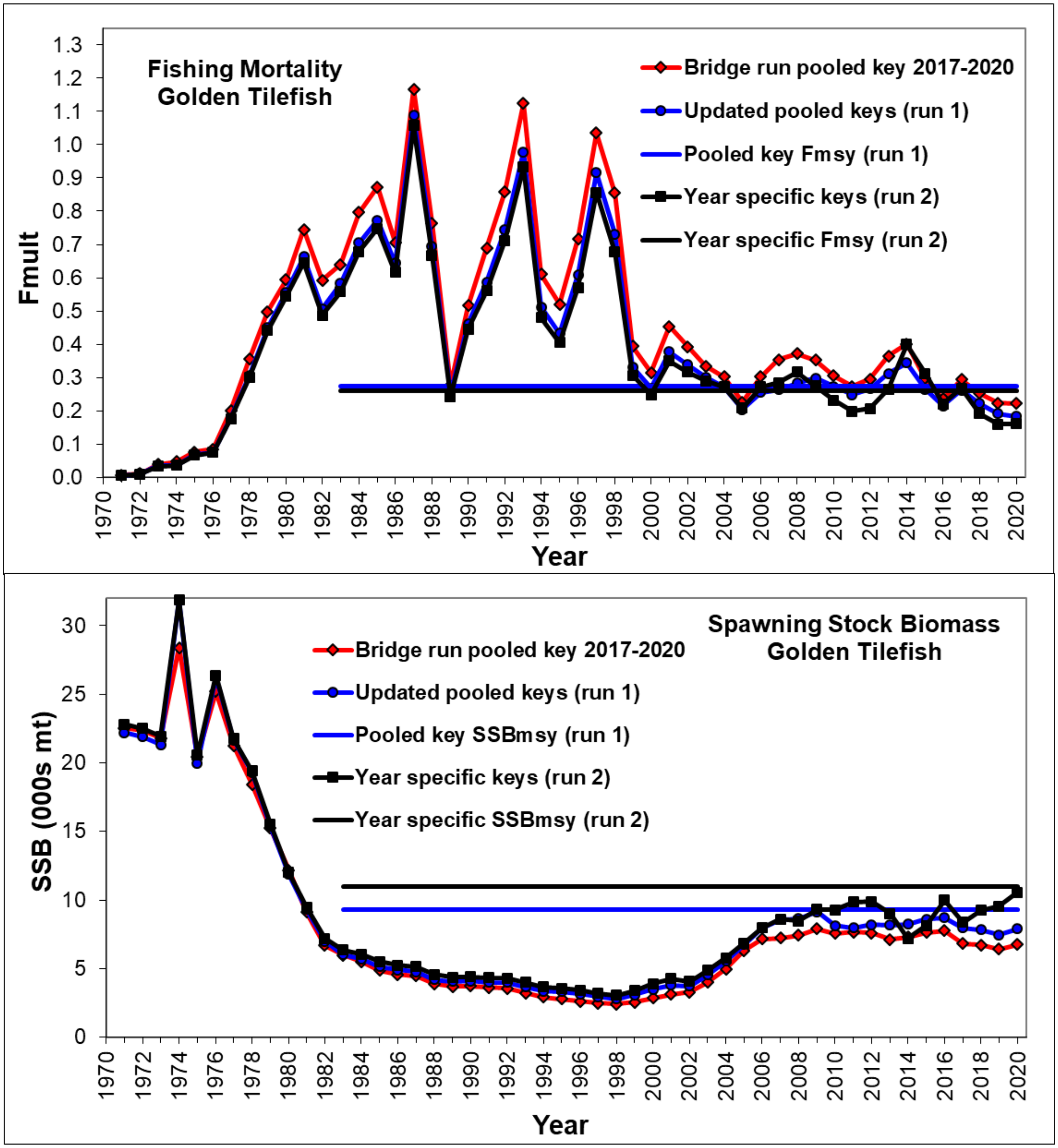


Figure 1. F_{MULT}, spawning stock biomass (SSB), and age-1 recruitment comparison of the 2017 operational assessment model bridge ASAP model, updated pooled age key run (run 1) and the final update run 2 using the updated pooled-age-key and year specific keys for years where age data is available. The updated pooled key run 1 and final year specific key run 2 estimated F_{MSY} and SSB_{MSY} biological reference points during the second selectivity block are also shown for comparison.

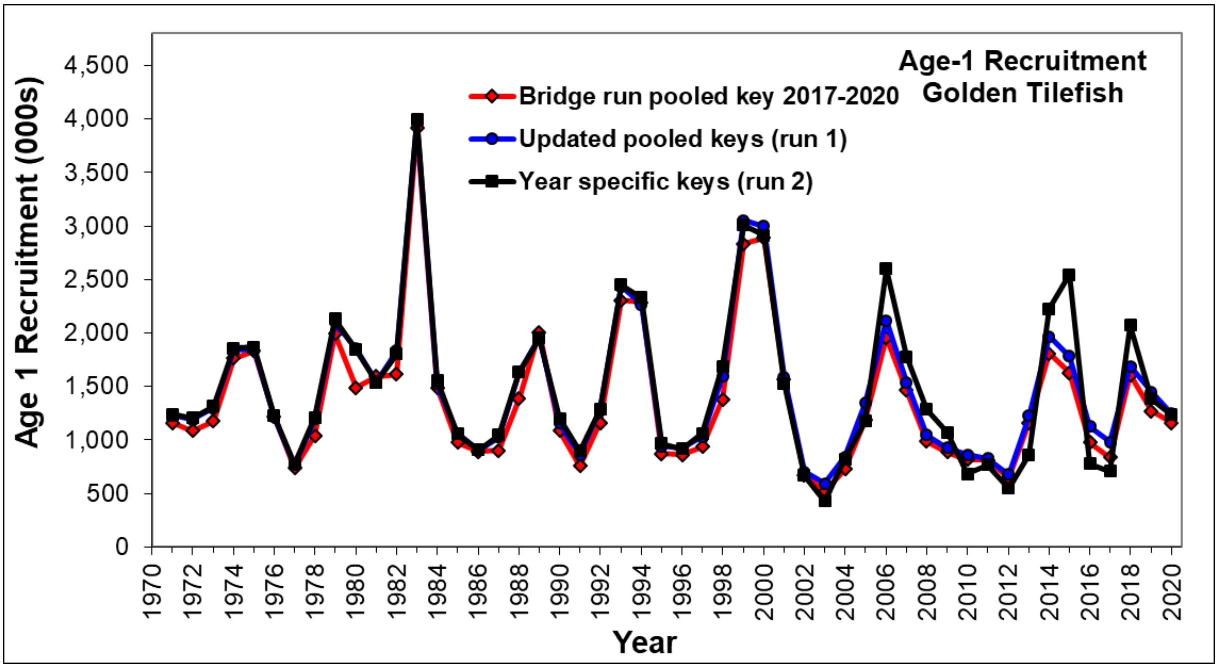
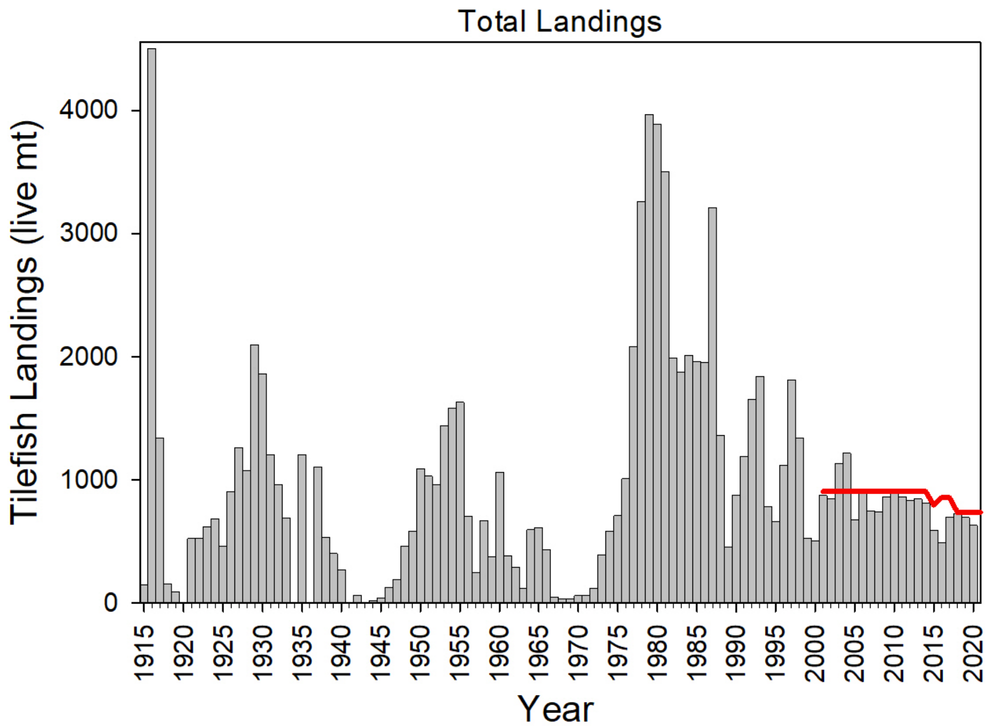


Figure 1. Cont. F_{MULT}, spawning stock biomass (SSB), and age-1 recruitment comparison of the 2017 operational assessment model bridge ASAP model, updated pooled age key run (run 1) and the final update run 2 using the updated pooled age key and year specific keys for years where age data is available. The updated final run 2 estimated F_{MSY} and SSB_{MSY} biological reference points during the second selectivity block are also shown for comparison.



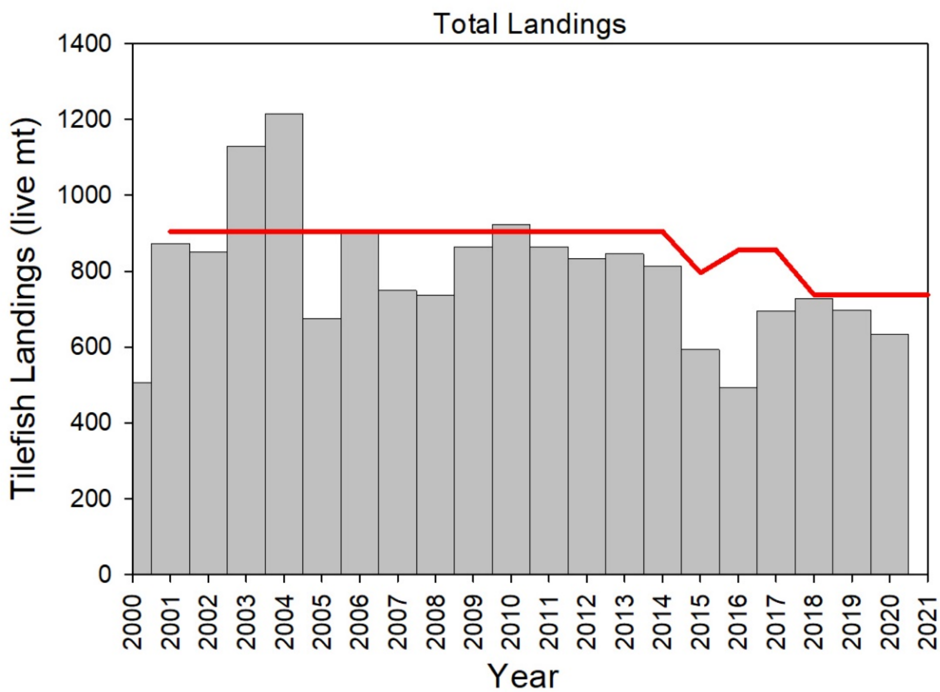


Figure 2. Landings of tilefish in metric tons from 1915-2020 (top) and from 2000-2020 (bottom). Landings in 1915-1972 are from Freeman and Turner (1977), 1973-1989 are from the general canvas data, 1990-1993 are from the weighout system, 1994-2003 are from the dealer reported data, and 2004-2020 is from dealer electronic reporting. Red line is the Total Allowable Landings (TAL) from 2001-2021.

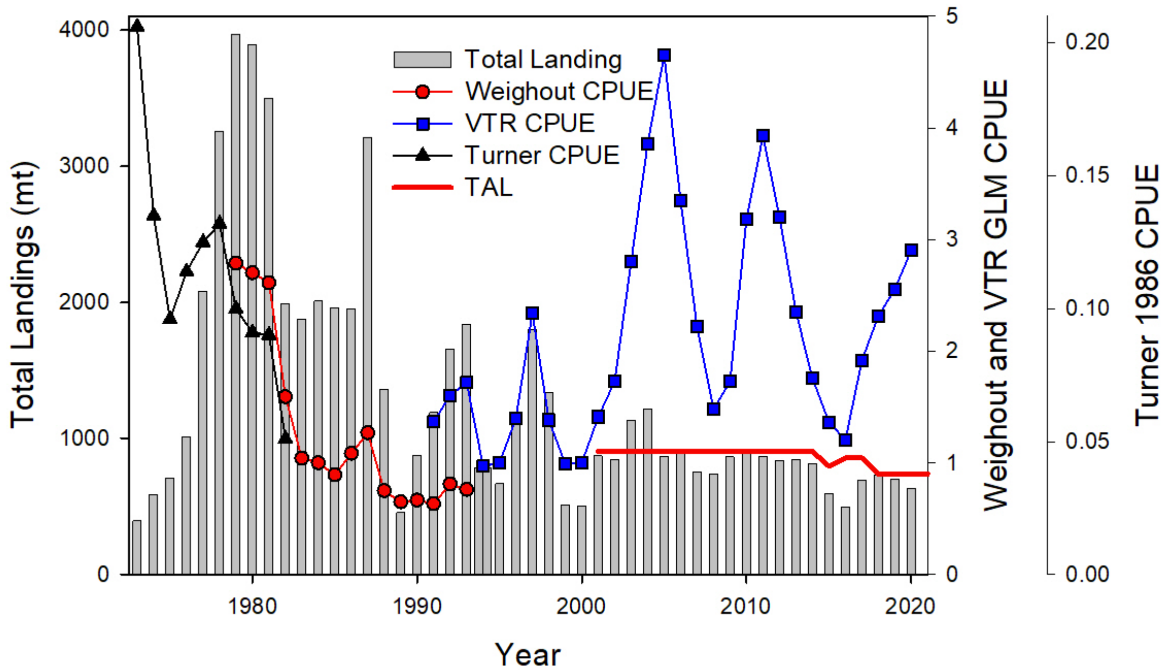


Figure 3. General Linear Model (GLM) Catch Per Unit Effort (CPUE) for the Weighout and Vessel Trip report (VTR) data split into two series with additional New York logbook CPUE data from three vessels (1991-1994) added to the VTR series. Four years of overlap between the Turner (1986) and Weighout CPUE series can also be seen. ASAP relative changes in qs among CPUE series were not incorporated into the plot. Assumed total landings are also shown. Landings in 2005 were taken from the Interactive Voice Reporting (IVR) system. Red line is the Total Allowable Landings (TAL).

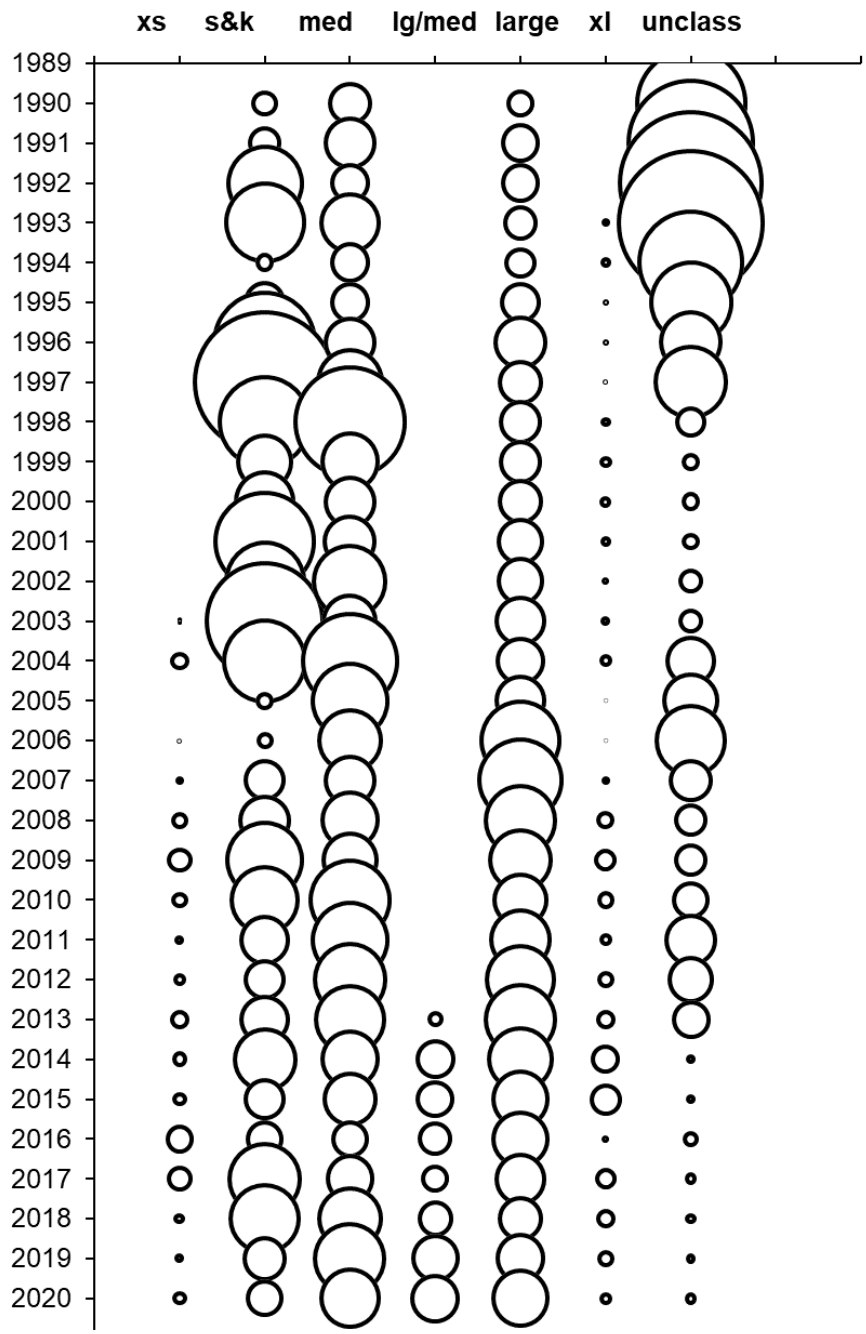


Figure 4. Bubble plot of Golden tilefish landings by market category. Large-medium market category code was added in 2013 which appears to have resulted in a decrease in the unclassified. Smalls and Kittens (s&k) were combined since these categories possess similar size fish.

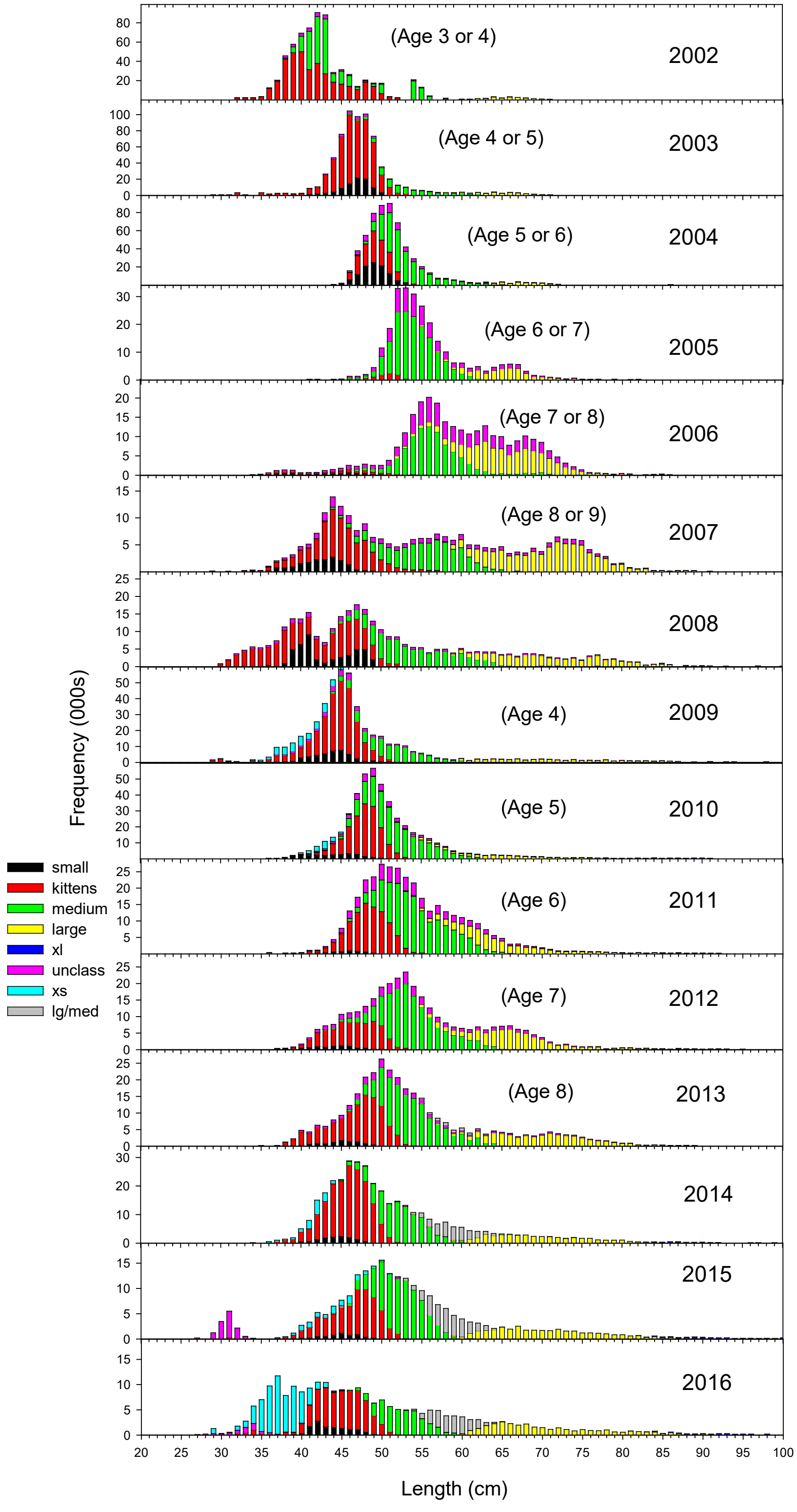


Figure 5. Expanded length frequency distributions from 2002 to 2016. Kittens lengths were used to characterize the extra small category in 2013. **Y-axis is allowed to rescale.**

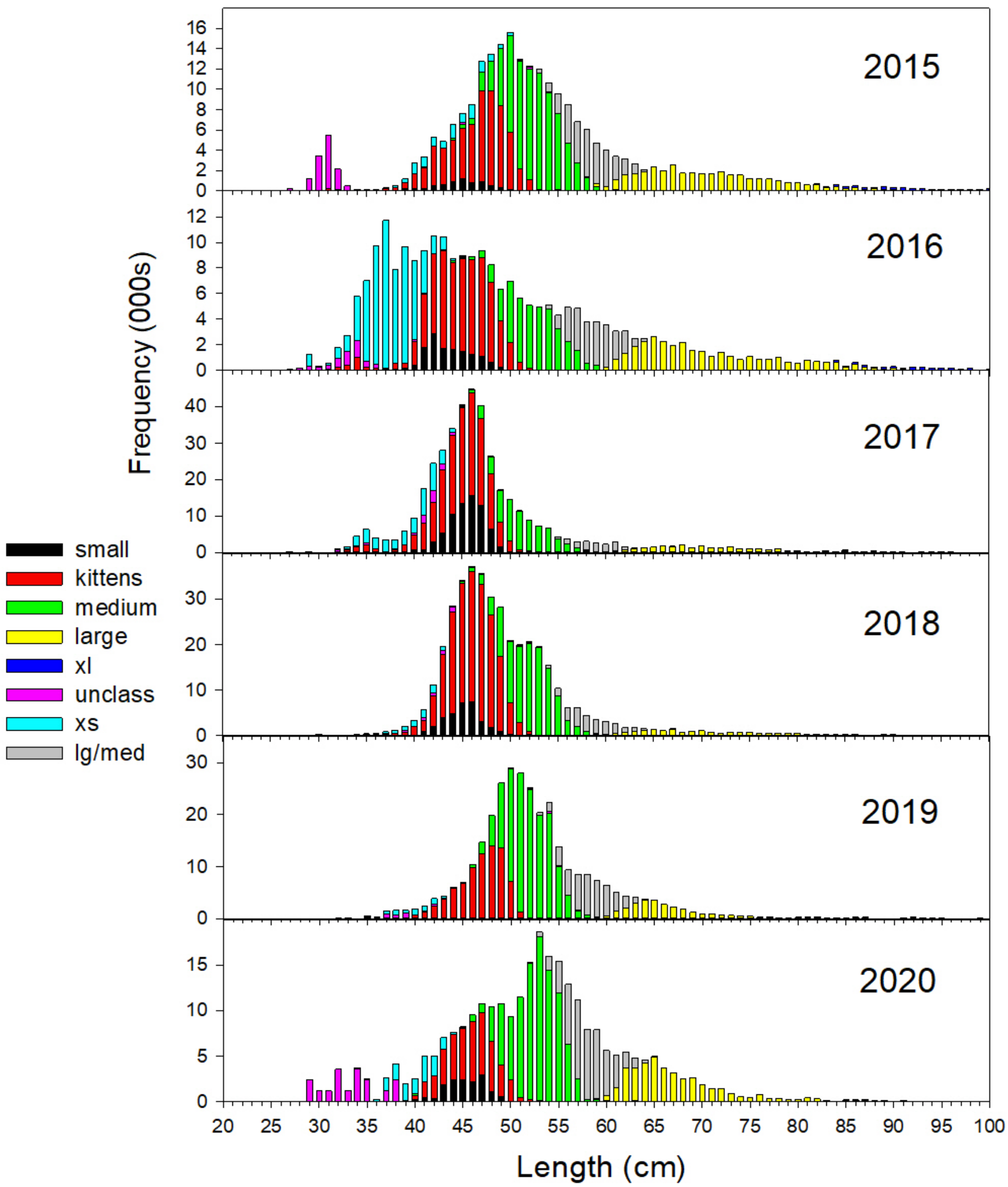


Figure 6. Expanded length frequency distributions from 2015 to 2020. Unclassifieds in 2015 and 2020 are based on two samples. **Y-axis is allowed to rescale.**

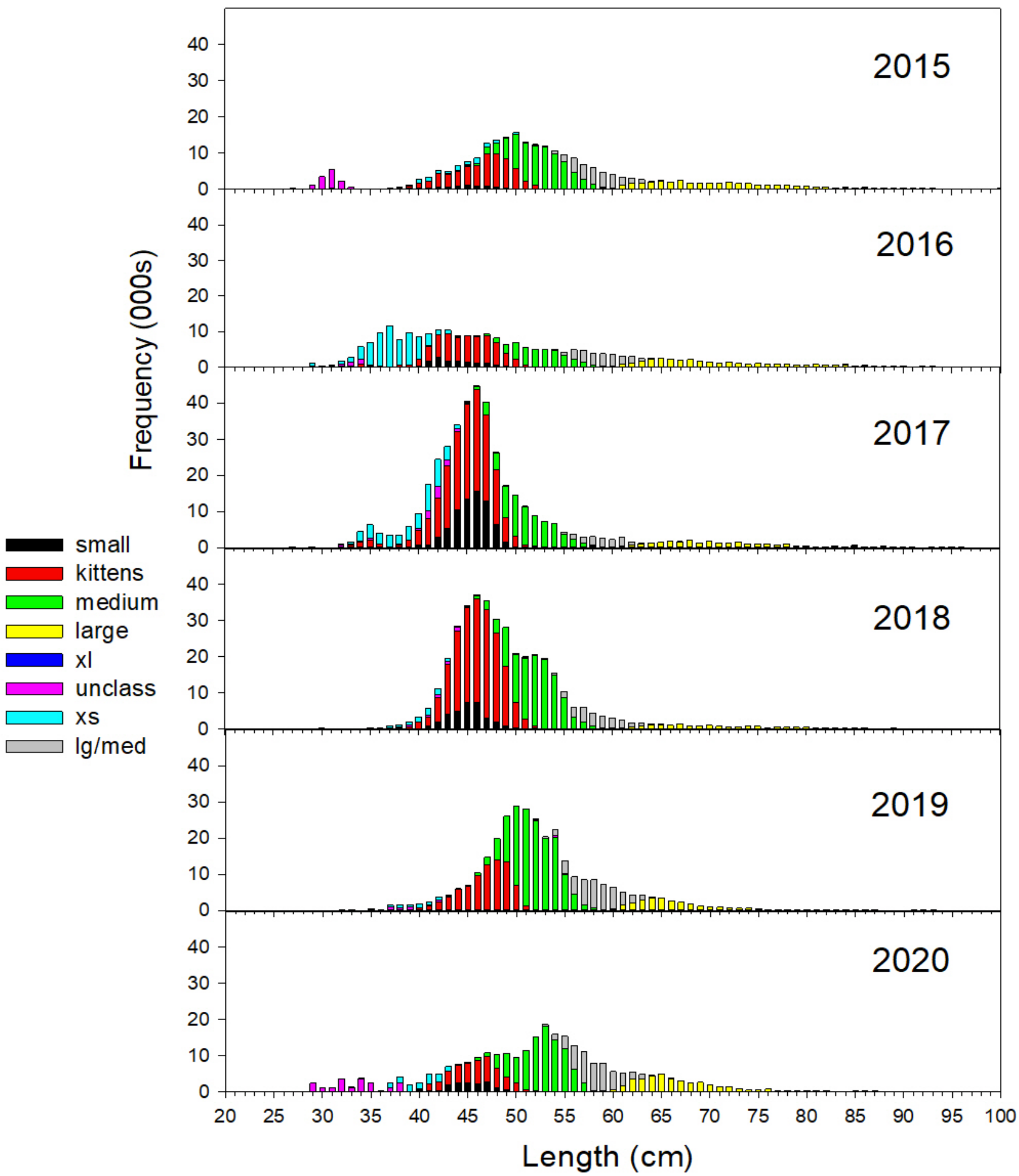
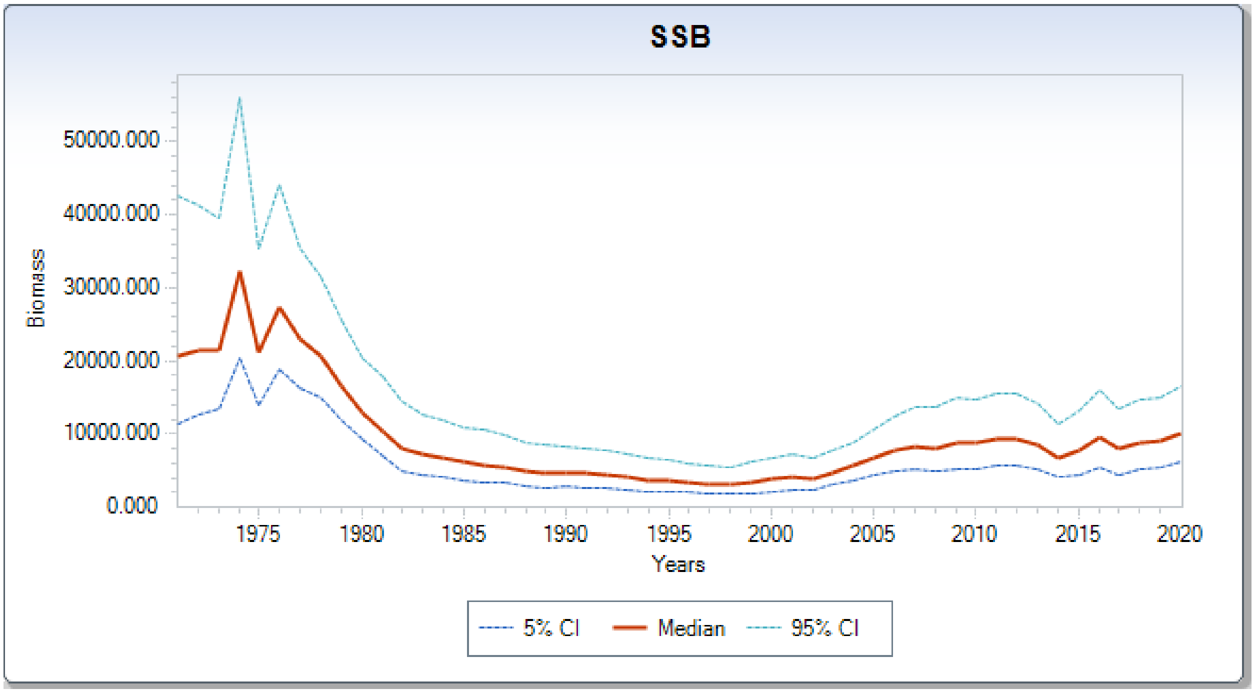


Figure 7. Expanded length frequency distributions from 2015 to 2020. Unclassifieds in 2015 and 2020 are based on two samples. **Y-axis is fixed to the same scale across years.**



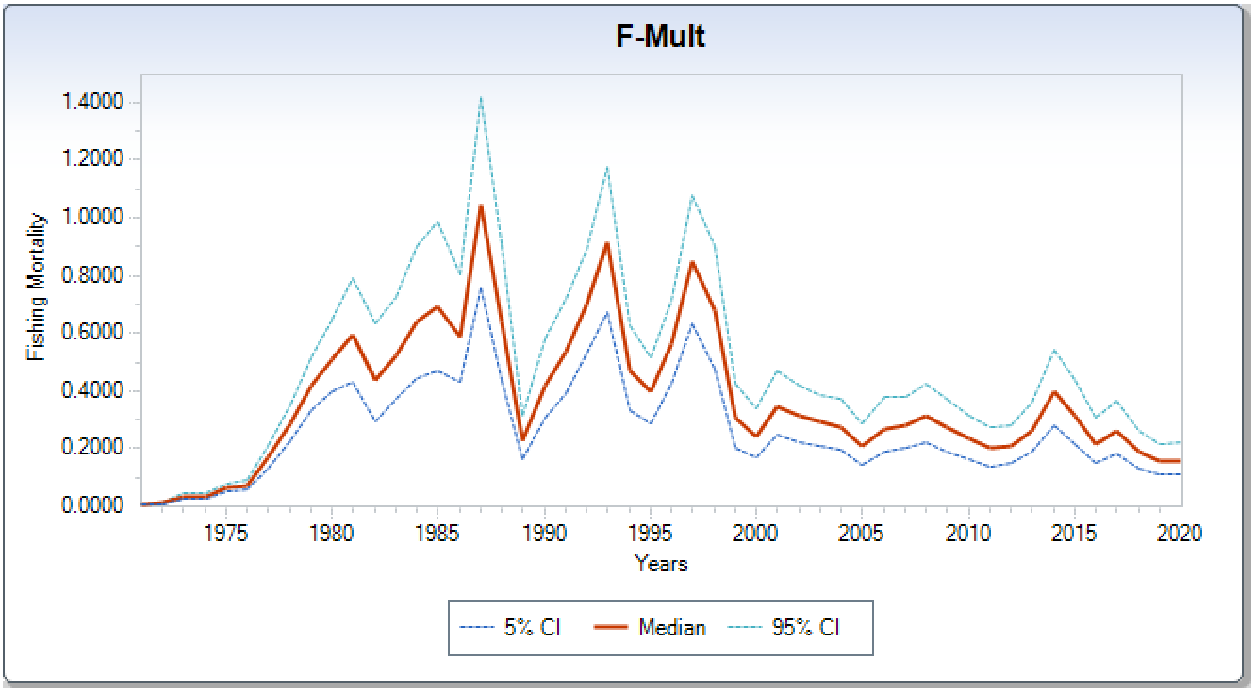
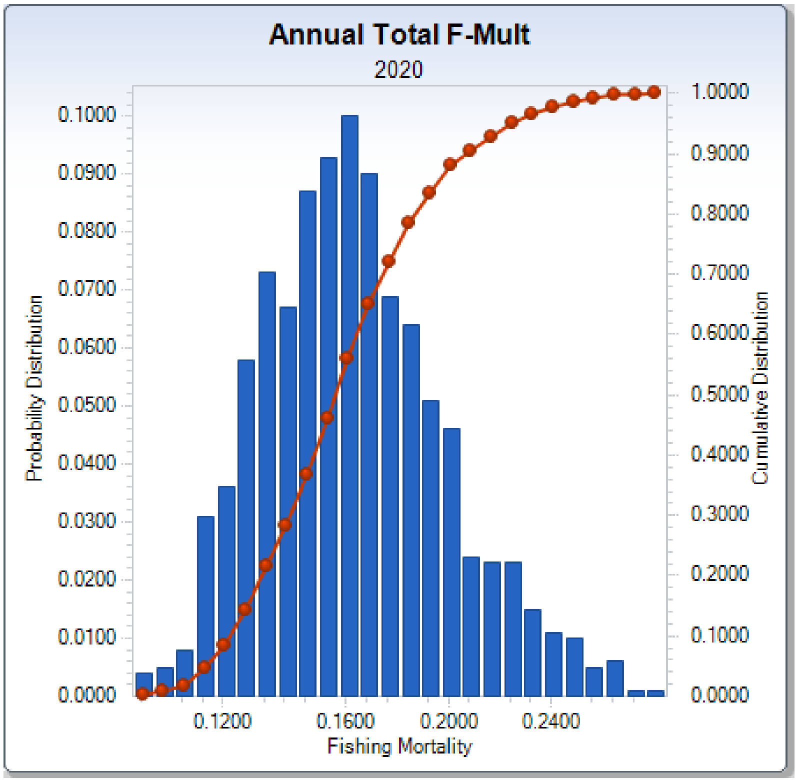


Figure 8. Updated 2021 final run 2 ASAP model estimated fishing mortality (FMULT) and SSB with MCMC estimated 90% confidence intervals.



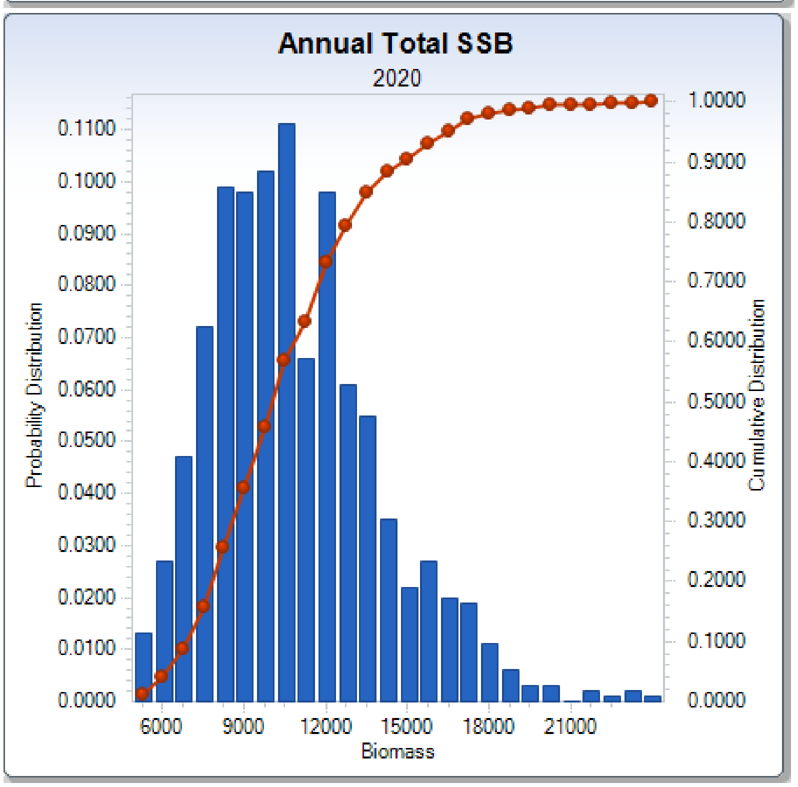


Figure 9. MCMC 2020 distributions for fishing mortality (FMULT) and SSB. The percent confidence intervals can be taken from the cumulative frequency. The 2016 point estimate for fishing mortality = 0.160 and SSB = 10,562 mt.

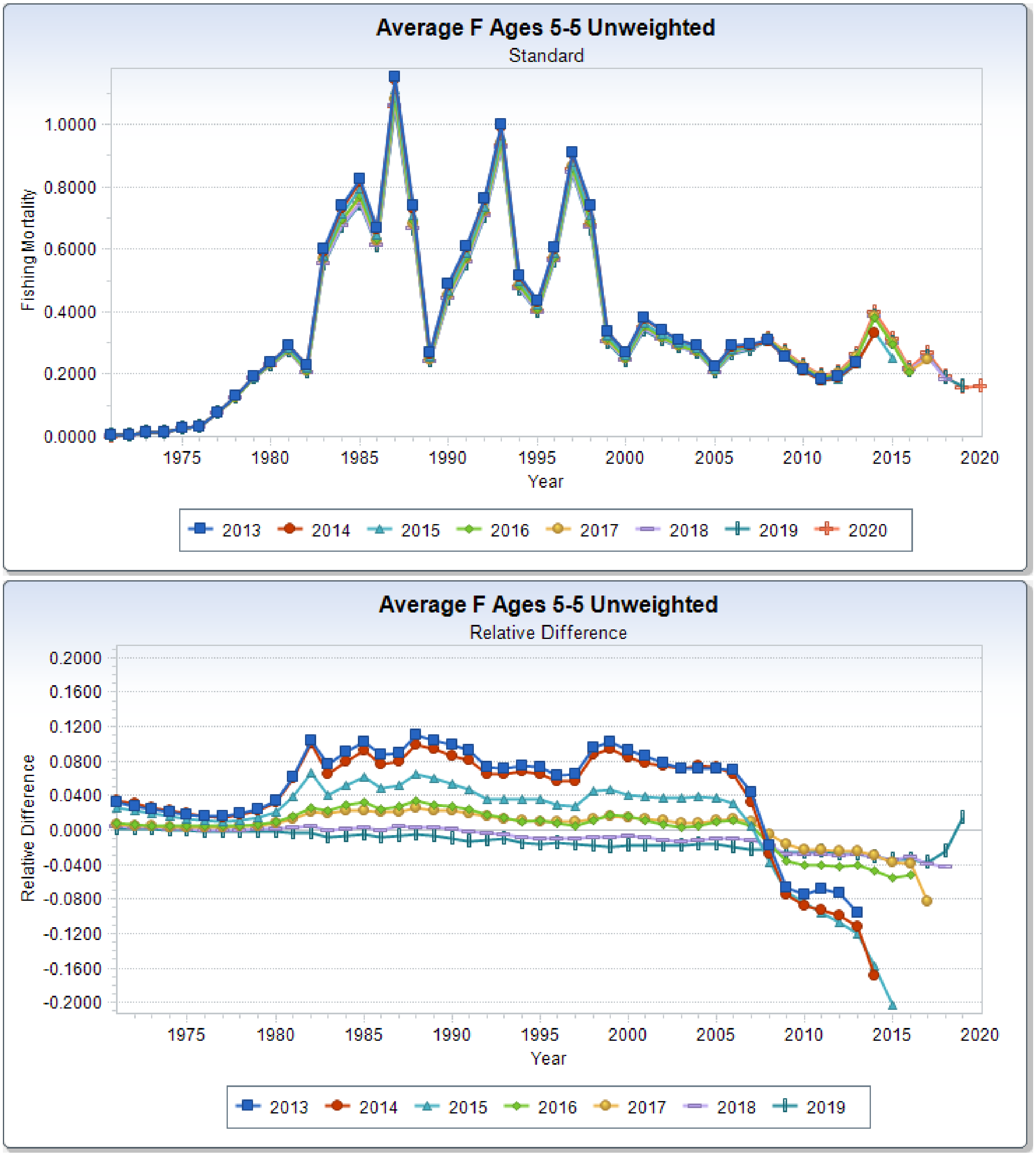


Figure 10. Updated 2017 model 7 peel retrospective analysis: fully recruited F age 5 = F_{Mult}; Mohn's Rho = -0.09.

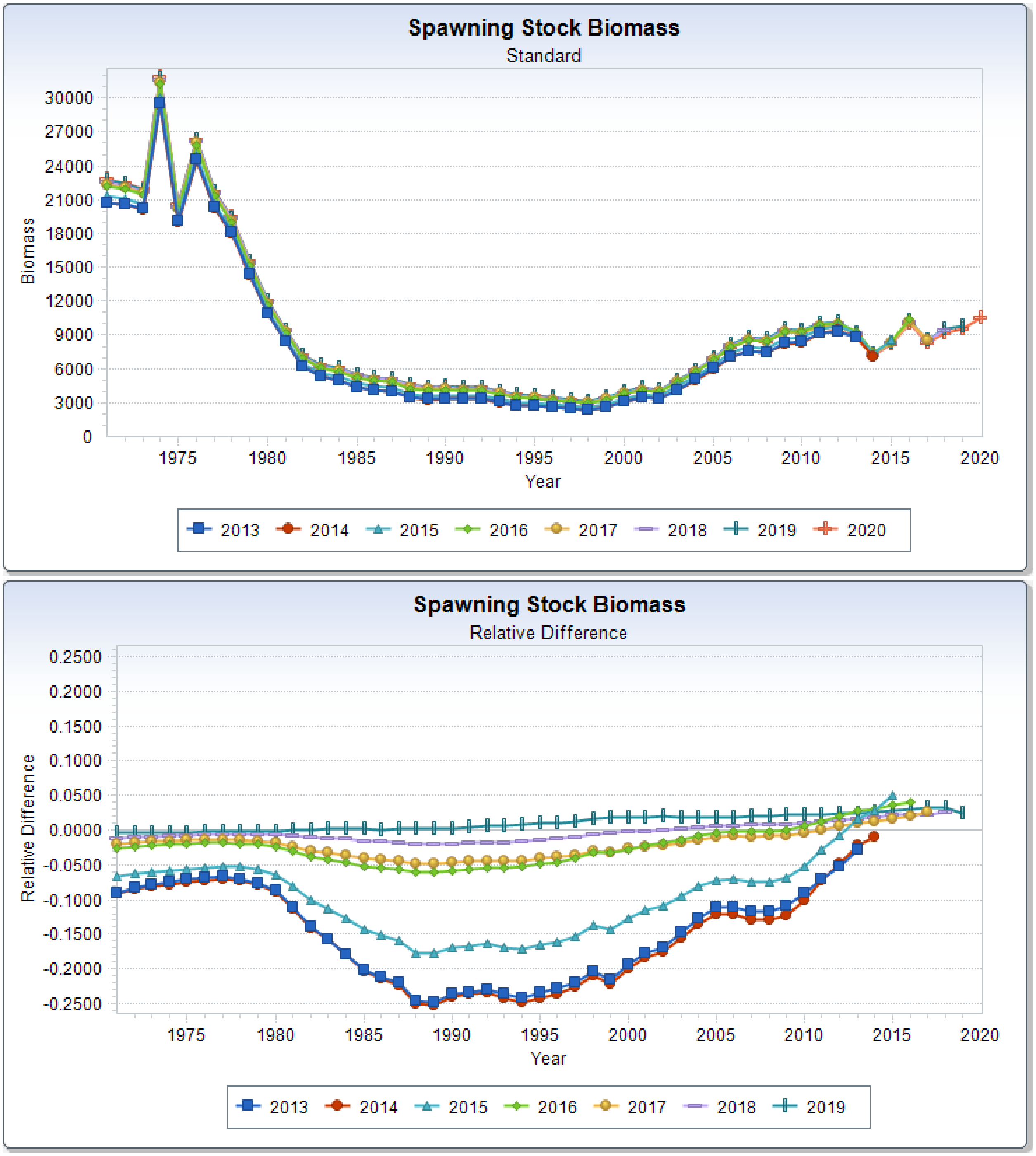
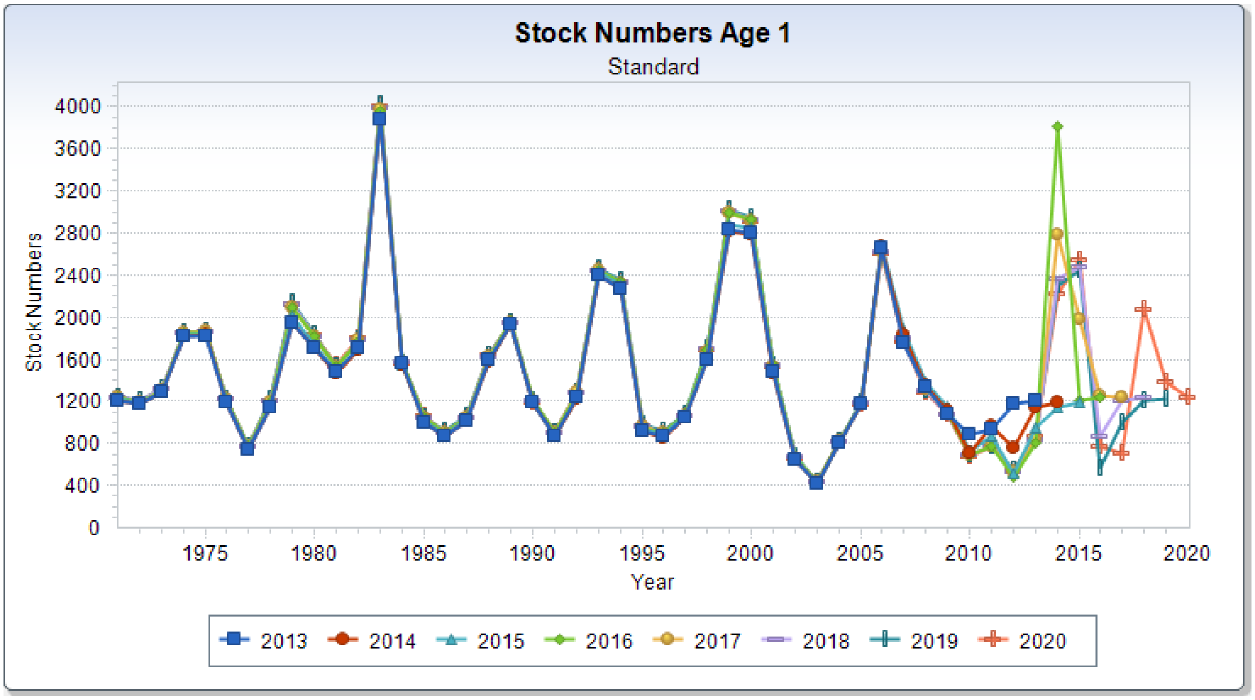


Figure 11. Updated 2017 model 7 peel retrospective analysis: Spawning Stock Biomass; Mohn's Rho = +0.02.



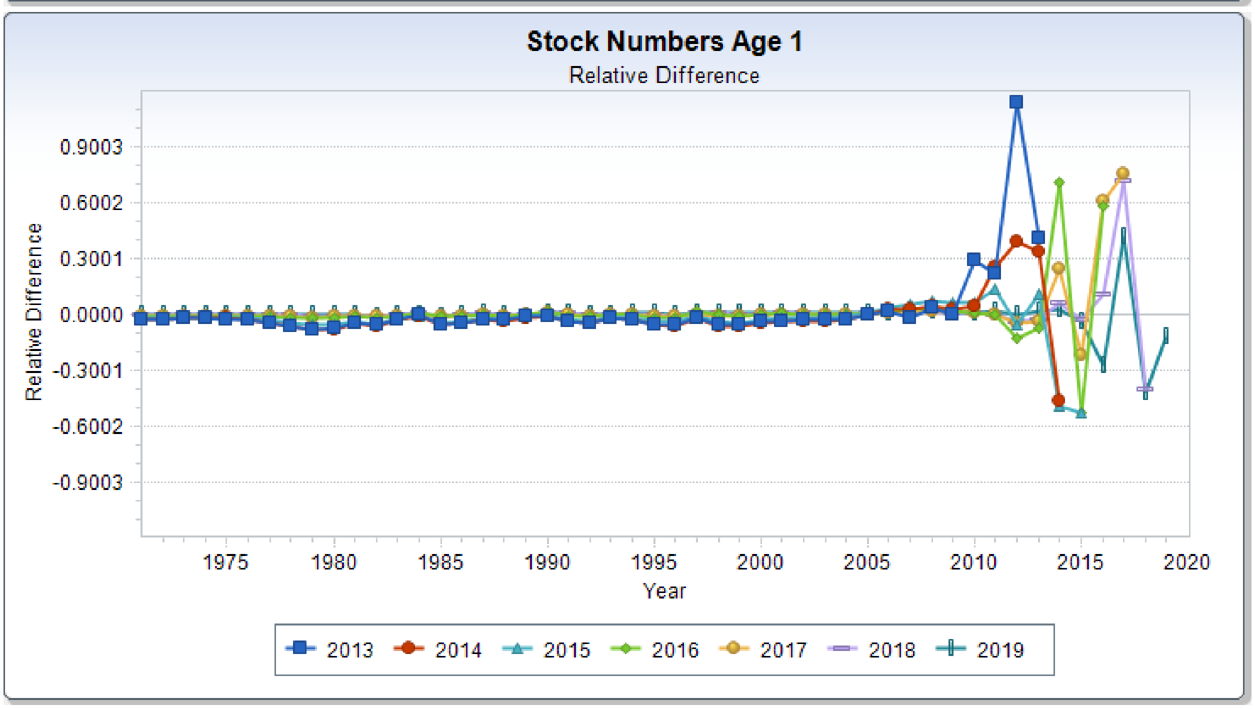


Figure 12. Updated 2017 model 7 peel retrospective analysis: Age-1 Recruitment; Mohn's Rho = +0.03.

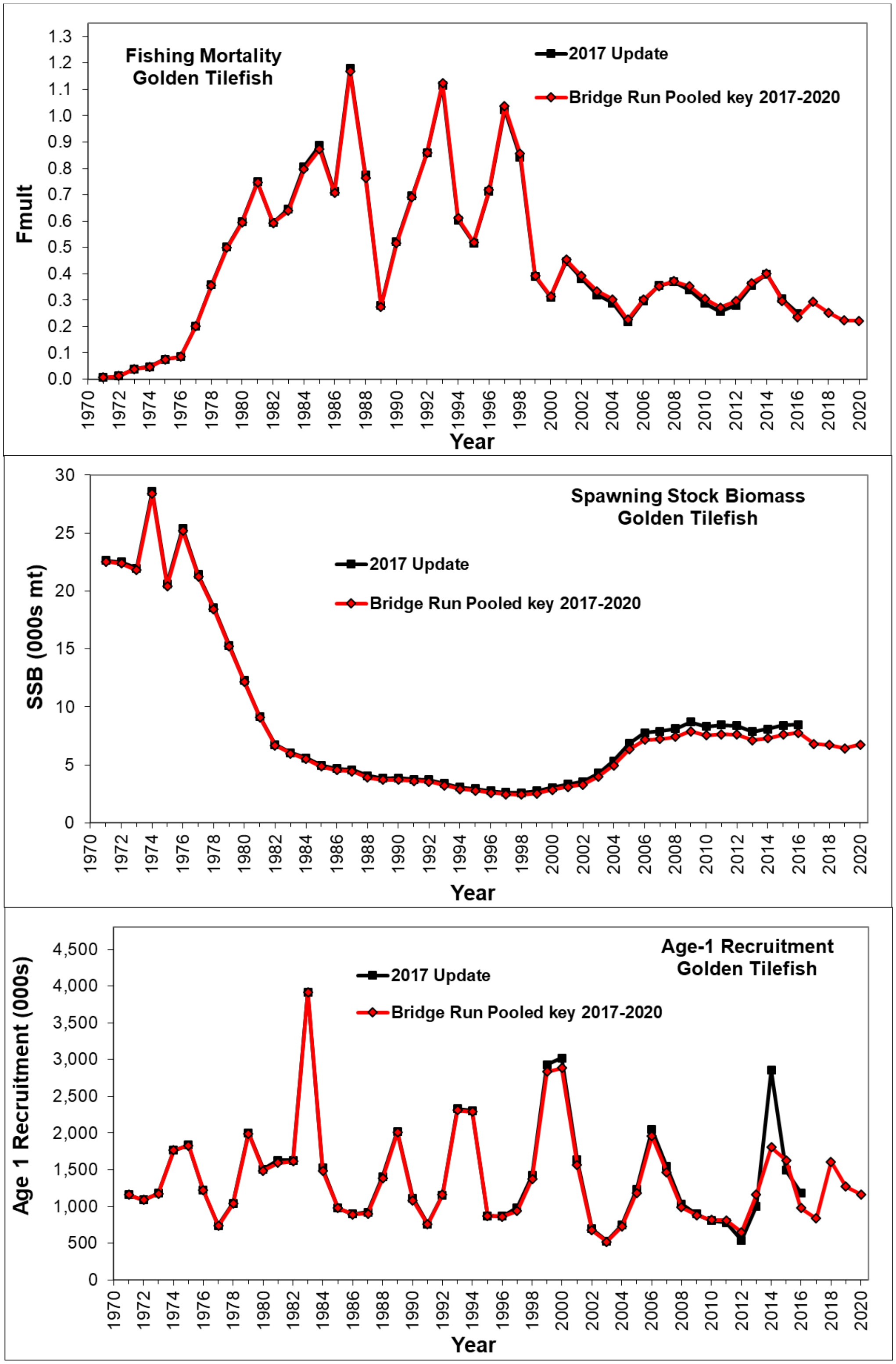


Figure 13. F_{MULT}, spawning stock biomass (SSB), and age-1 recruitment comparison of the 2017 operational run with the 2021 bridge run that added 2017 to 2020 data.

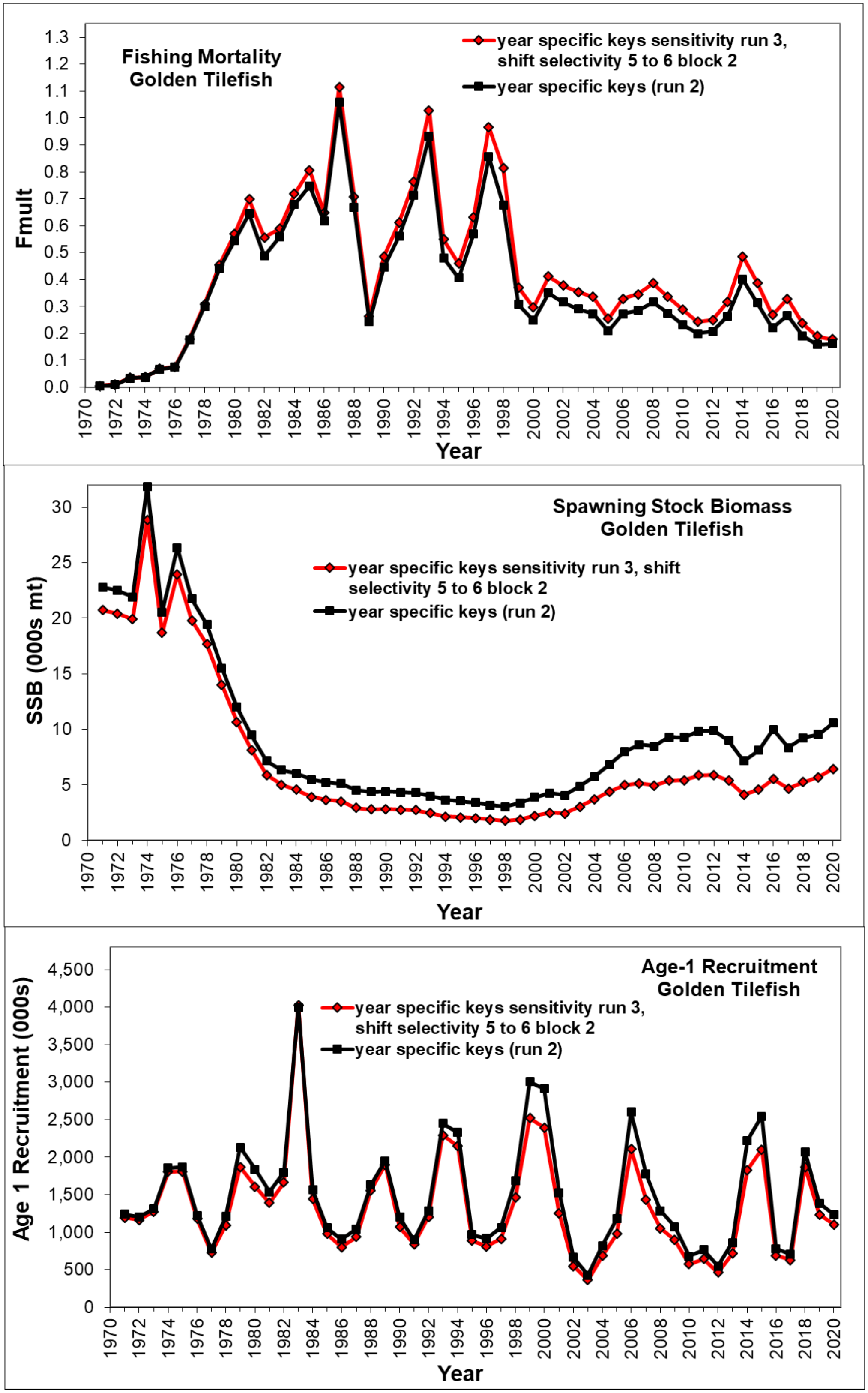


Figure 14. F_{MULT}, spawning stock biomass (SSB), and age-1 recruitment comparison of the 2021 final run 2 to a sensitivity run 3 which shifted the assumed age of full selectivity from age 5 to age 6 in the second selectivity block (1983-2020).

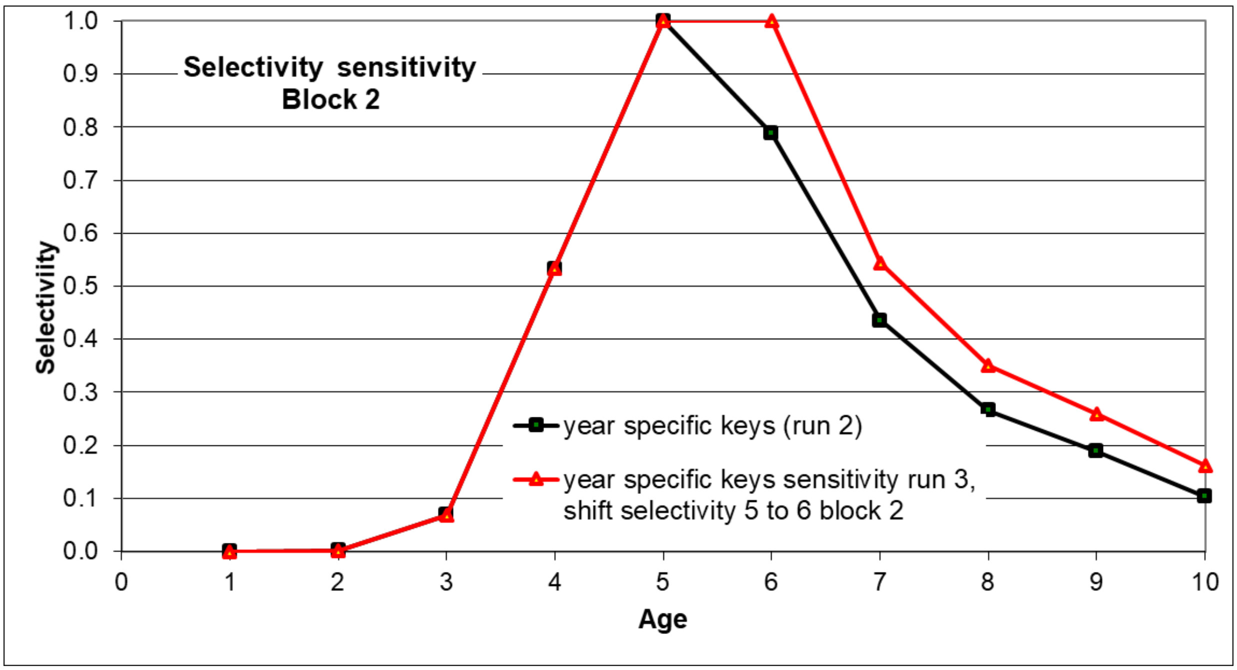


Figure 15. Estimated selectivity at age comparison of the 2021 final run 2 to a sensitivity run 3 which shifted the assumed age of full selectivity from age 5 to age 6 in the second selectivity block (1983-2020).

Golden Tilefish Fishery Performance Report

February 2021

The Mid-Atlantic Fishery Management Council's (Council) Tilefish Advisory Panel (AP) met via webinar on February 17, 2021 to review the Fishery Information Document and develop the following Fishery Performance Report. The primary purpose of this report is to contextualize catch histories by providing information about fishing effort, market trends, environmental changes, and other factors. A series of trigger questions listed below were posed to the AP to generate discussion of observations in the golden tilefish fishery. Please note: Advisor comments described below are not necessarily consensus or majority statements.

Advisory Panel members present: Fred Akers (Private), Gregory Hueth (Private/For-hire), Robert Bogan (For-hire), Douglas Zemeckis (Rutgers), Skip Feller (For-hire), and Michael Johnson (Commercial).

Others present: Paul Nitschke (NEFSC), Dan Farnham (Council Member), Scott Lenox (Council Member), Sonny Gwin (Council member), Dewey Hemilright (Council Member), Joe Cimino (Council Member), Michelle Duval (Council Member), James Fletcher (UNFA), Laurie Nolan (Commercial), Doug Potts (GARFO), Paul Rago (SSC), Matthew Seeley (Council Staff), and José Montañez (Council Staff).

Trigger questions:

1. What factors have influenced recent catch (markets/economy, environment, regulations, other factors)?
2. Are the current fishery regulations appropriate? How could they be improved?
3. What would you recommend as research priorities?
4. What else is important for the Council to know?

Market/Economic Conditions

The COVID-19 pandemic caused a large reduction in the demand for golden tilefish with restaurant closures. As a consequence, there was a dramatic reduction in effort by all vessels. Full-time vessels in New York capped their trips at about 16,000 pounds and only one vessel landed each week. Barnegat Light (New Jersey), capped landings at about 8,000 to 10,000 pounds per week. Spreading landings helped stabilize prices.

Tilefish prices have remained stable because the tilefish industry continues to coordinate times of landings to avoid market gluts and market floods and spread tilefish landings throughout the year. The ability to do this has improved since IFQs came into place. Overall, prices have been relatively stable in all market categories. However, due to COVID-19, large price reduction occurred, especially at the beginning of the pandemic.

Environmental Conditions

Commercial fishermen indicated that they continue to see aggregations of large fish in all canyons in the Mid-Atlantic region.

Overall, environmental conditions did not adversely impact catch in 2020.

Management Issues

AP members noted appreciation in the positive way the Council and GARFO responded to the industry request of a one-time roll over of a 5% of unused IFQ 2020 quota allocation to the 2021 fishing year.

AP members also indicated support for the proposed Council work to initiate a golden tilefish multi-year specifications framework as listed under the 2021 Council proposed actions and deliverables. The AP members also support changing the current fishing year (November 1 – October 31) to January 1 – December 31. The industry feels ending the fishing year in December, rather than October, will create more stability in harvesting their full allocation. October can be a very stormy month with fish on the move.

General Fishing Trends

Fishermen indicated a good mix of fish in 2020, perhaps better than in previous years. In addition, a larger amount of small or kittens (2 to 3.5 pounds) were present in 2020 compared to previous years. That is, a higher percentage of small or kitten fish were landed on a trip per trip basis (3,000 pounds per trip in 2020 versus 1,000 pounds per trip around 2018-2019). The number of small/kittens landed have continued to increase in 2021.

Industry members commented CPUE increased in 2020. More fish are being caught with the same trip effort than were caught in 2019.

Other Issues

Another AP member indicated that while there are five headboats that fish for tilefish (both blueline and golden) in the mid-Atlantic they have a limited number of dedicated tilefish trips throughout the season (summertime). For example, the boat that has the largest number of trips scheduled during the year (a boat Point Pleasant) has about 24 scheduled trips per year and not all trips are conducted (i.e., taking 50 to 60% of scheduled trips) and in some instances not all of them are full. The other four boats have substantially less tilefish trips scheduled per year.

For-hire effort was reduced in 2020 due to COVID-19, and the industry is expecting the same for 2021. In addition, the industry experienced cancellations of overnight trips in 2020 due to the pandemic. Furthermore, in 2020, tuna fishing was better than average, which resulted in less boats targeting golden tilefish. As a general rule, when tuna fishing is not good, anglers offset those trips by targeting tilefish.

AP members indicated that Captains and crew should be included in the comingled bag limit (recreational possession limit) for a trip. In other words, the Captain and Crew should also be allotted a bag limit.

AP members indicated that the landings monitoring program of the IFQ system is very reliable. In all, there is good accountability mechanisms to track landings in the directed commercial fishery (IFQ vessel) and VTR data (commercial and recreational vessels). However, there is concern that directed incidental trips (non-otter trawl vessels) may be missing. Currently, there is no accurate information of catch/landings by private recreational anglers. However, it is expected that as the new private reporting continues, we will have better information on this sector of the fishery.

Some AP members would like the Council to consider a differential trip limit (for-hire vs private) and longer recreational trips. In addition, they suggested that the Council considers recreational management strategies (e.g., longer recreational trips, multi-day bag limits), structured after the Gulf of Mexico regulations (would make filling trips easier). Multi-day bag limits are important because a hand full of boats target tilefish in January-February when the black sea bass season is closed and while they do not catch much tilefish, this management change could help their business sell more trips. These management changes could be considered when a quota liberalization is on the table (quota going up).

Some AP members would like the Council to consider a recreational allocation.

Some AP members indicated concerns about relaxing recreational regulations (as they could potentially lead to higher recreational landings) while the commercial quota could remain at *status quo* levels or potentially decrease in the future.

A commercial AP member expressed concerns over increasing any effort, bag limit or quota in the fishery at this time. They felt it would be unfair to allow for an increase in effort/bag limit in the recreational sector while maintaining *status quo* for the commercial sector.

Some AP members indicated that the number of golden tilefish reported under the private VTR data for the August – December 2020 period appears to be low. Council staff responded that the low landings associated with private anglers may be attributed to the short fishing season (as a result of when implementation occurred), this being the first-time recreational anglers are required to report, and the COVID-19 pandemic likely decreasing effort further offshore. Another AP member indicated that given that the private boat permit reporting was started late in the season, the low reported landings are not a good representation of the full year private boat catch.

Another AP member indicated that he disagreed that the private boat recreational effort was decreased by COVID-19. He saw more private recreational fishing boats everywhere in state and federal waters, and have read that recreational boat sales were very high in 2020.

Research Priorities

A list of the comprehensive five year (2020-2024) research priorities (see below) was presented to the AP members to review the process on these priorities. Staff asked the AP members what priorities should stay, be removed, and/or added to the list. The text in *italics* after each research priority indicates current status.

1) Investigate stock structure utilizing otolith microchemistry and other genetic analyses for different Mid-Atlantic stocks (including golden tilefish).

No recent progress. The work of Katz et al. (1983) used significant differences in allelic frequencies to identify distinct stocks between mid-Atlantic and South Atlantic tilefish. Those authors also felt that certain aspects of golden tilefish distribution, life history and ocean circulation patterns supported their two stock hypothesis for the United States Atlantic.

Furthermore, Jill Olin (Michigan Technology University) and her team are in the process of acquiring otolith microchemistry data from samples of golden tilefish collected during the 2017 pilot survey. They are exploring early life history questions (related to timing of settlement from pelagic) and differences in collection location (assess if Hudson individuals differ from Veatch individuals) among other research questions.

2) Implement novel supplemental surveys to derive fishery independent indices of abundance.

Work in progress. Results from the pilot tilefish fishery independent bottom longline survey in 2017 were used to design the longline golden tilefish survey conducted in July 2020. A presentation of the 2020 survey results will be made to the SSC in March 2021.

3) Utilize fishery-independent information to assess whether the dome-shaped selectivity curve used in the assessment reflects fishery selectivity or availability, or both.

Work in progress. Data from the two surveys using different hook sizes provide the information needed to track cohorts and to inform assessment model selectivity (e.g., dome-shaped selectivity). More analysis is needed to complete this task.

4) Evaluate data collection methods to increase information on gear conflicts, species interactions (i.e., spiny dogfish), and bait type to understand their effects on the commercial CPUE index.

No progress.

5) Collect and analyze biological samples to improve life history, maturity, and distribution information.

The two longline tilefish surveys collected new information on tilefish spatial distributions, life history, sex, and maturity. However, fishery dependent biological sampling has decreased in recent years (see discussion below).

6) Develop sampling programs to increase information of recreational landings at size and age.

No progress. However, to improve tilefish management and reporting, GARFO implemented mandatory private recreational permitting and reporting for tilefish anglers in August 2020. This action was approved in late 2017, but with delayed implementation. Outreach materials and webinars were provided by GARFO and the Council leading up to the final rule and will continue to be circulated as these regulations become commonplace. Under this rule, private recreational vessels (including for-hire operators using their vessels for non-charter, recreational trips) are required to obtain a federal vessel permit to target or retain golden or blueline tilefish north of the Virginia/North Carolina border. These vessel operators are also required to submit VTRs electronically within 24 hours of returning to port for trips where tilefish were targeted or retained.

7) Assess the accuracy and reliability of aging techniques.

No progress. However, comparison of survey age and length distributions to fishery dependent age and length distributions could inform the reliability of the age data.

Advisory panel members comments and overall discussion:

Panel members indicated concern about the lack of biological sampling of landings on the dock.

Paul Nitschke (NEFSC) indicated that there has been a reduction in the funding of the fishery dependent shoreside biological sampling (length and age) program in recent years. In addition, the COVID-19 pandemic may have also impacted sampling collection in early 2020. Biosampling is particularly important for golden tilefish as the ASAP model (catch at age assessment model) requires adequate sampling of all market categories to characterize the catch at length and/or age and to estimate mean weights at age. There is no additional size and age information in the assessment due to the lack of a fishery independent survey time series. The 2020 sampling data will be assessed when the 2021 management track assessment update is conducted, at that point, we will know if there was sufficient sampling in 2020. Paul Rago (SSC) expressed concerns about the decrease in port sampling and how this will negatively impact future assessments and projections, particularly golden tilefish as it relies critically on cyclical recruitment.

Panel members indicated that they would like to have larger input in future golden tilefish survey design (e.g., selecting areas to be sample). In addition, they indicated that when conducting surveys, researchers should follow the vessels' captain input when deciding where to fish/sample. [Staff note: It is important to keep the survey as fishery independent]

Golden Tilefish Fishery Information Document

February 2021 (Version 2)

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for golden tilefish with an emphasis on 2020. Data sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources, including previous Fishery Information Documents, please visit http://www.mafmc.org/tilefish/.

Key Facts

- There has been no change to the status of the golden tilefish stock in 2020; the stock is not overfished and overfishing is not occurring.
- In 2020, 1.3 million pounds (landed weight) of golden tilefish were landed with an ex-vessel value (revenues) of $4.8 million. This represented a decrease in golden tilefish landings and ex-vessel value of approximately 9% and 11%, respectively, when compared to 2019. For 2020, the mean price for golden tilefish was $3.75 per pound, this represented a 2% decrease from 2019 ($3.81 per pound).
- According to VTR data, party/charter vessel landed 3,466 golden tilefish in 2020. This represented a 36 percent decrease from 2019 (5,424 fish landed).
- Private Recreational Angler Permitting and Reporting started August 2020. According to VTR data, private recreational vessels landed a total of 50 golden tilefish in 2020 (August 2020 to December 2020).
- Given the COVID-19 national emergency, The Council requested an emergency action to allow a one-time 5% rollover of unused IFQ 2020 quota allocation for the golden tilefish fishing year November 1, 2020 thru October 31, 2021.

Basic Biology

The information presented in this section can also be found in the Tilefish Fishery Management Plan (FMP) (MAFMC, 2001; http://www.mafmc.org/fisheries/fmp/tilefish). Golden tilefish (*Lopholatilus chamaeleonticeps*; tilefish from this point forward in this section) are found along the outer continental shelf and slope from Nova Scotia, Canada to Surinam on the northern coast of South America (Dooley 1978 and Markle et al. 1980) in depths of 250 to 1500 feet. In the southern New England/mid-Atlantic area, tilefish generally occur at depths of 250 to 1200 feet and at temperatures from 48°F to 62°F or 8.9°C to 16.7°C (Nelson and Carpenter 1968; Low et al. 1983; Grimes et al. 1986).

Katz et al. (1983) studied stock structure of tilefish from off the Yucatan Peninsula in Mexico to the southern New England region using both biochemical and morphological information. They identified two stocks – one in the mid-Atlantic/southern New England and the other in the Gulf of Mexico and the south of Cape Hatteras.

Tilefish are shelter seeking and perhaps habitat limited. There are indications that at least some of the population is relatively nonmigratory (Turner 1986). Warme et al. (1977) first reported that tilefish occupied excavations in submarine canyon walls along with a variety of other fishes and invertebrates, and they referred to these areas as "pueblo villages." Valentine et al. (1980) described tilefish use of scour depressions around boulders for shelter. Able et al. (1982) observed tilefish use of vertical burrows in Pleistocene clay substrates in the Hudson Canyon area, and Grimes et al. (1986) found vertical burrows to be the predominant type of shelter used by tilefish in the mid-Atlantic/southern New England region. Able et al. (1982) suggested that sediment type might control the distribution and abundance of the species, and the longline fishery for tilefish in the Hudson Canyon area is primarily restricted to areas with Pleistocene clay substrate (Turner 1986).

Males achieve larger sizes than females, but do not live as long (Turner 1986). The largest male reported by Turner was 44.1 inches at 20 years old, and the largest female was 39 years at 40.2 inches FL (fork length). The oldest fish was a 46 year old female of 33.5 inches, while the oldest male was 41.3 inches and 29 years. On average, tilefish (sexes combined) grow about 3.5 to 4 inches FL per year for the first four years, and thereafter growth slows, especially for females. After age 3, mean last back-calculated lengths of males were larger than those of females. At age 4, males and females averaged 19.3 and 18.9 inches FL, respectively, and by the tenth year males averaged 32.3 while females averaged 26.4 inches FL (Turner 1986).

The size of sexual maturity of tilefish collected off New Jersey in 1971-73 was 24-26 inches TL (total length) in females and 26-28 inches TL in males (Morse 1981). Idelberger (1985) reported that 50 percent of females were mature at about 20 inches FL, a finding consistent with studies of the South Atlantic stock, where some males delayed participating in spawning for 2-3 years when they were 4-6 inches larger (Erickson and Grossman 1986). Grimes et al. (1988) reported that in the late 1970s and early 1980s, both sexes were sexually mature at about 19-26 inches FL and 5-7 years of age; the mean size at 50 percent maturity varied with the method used and between sexes. Grimes et al. (1986) estimated that 50 percent of the females were mature at about 19 inches FL using a visual method and about 23 inches FL using a histological method. For males, the visual method estimated 50 percent maturity at 24 inches FL while the histological method estimated 50 percent maturity at 21 inches FL. The visual method is consistent with NEFSC (Northeast Fisheries Science Center) estimates for other species (O'Brien et al. 1993). Grimes et al. (1988) reported that the mean size and age of maturity in males (but not females) was reduced after 4-5 years of heavy fishing effort. Vidal (2009) conducted an aging study to evaluate changes in growth curves since 1982, the last time the reproductive biology was evaluated by Grimes et al. (1988). Histological results from Vidal's study indicate that size at 50 percent maturity was 18 inches for females and 19 inches for males (NEFSC 2009).

Nothing is known about the diets and feeding habits of tilefish larvae, but they probably prey on zooplankton. The examination of stomach and intestinal contents by various investigators reveal that tilefish feed on a great variety of food items (Collins 1884, Linton 1901a,b, and Bigelow and Schroeder 1953). Among those items identified by Linton (1901a,b) were several species of crabs, mollusks, annelid worms, polychaetes, sea cucumbers, anemones, tunicates, and fish bones. Bigelow and Schroeder (1953) identified shrimp, sea urchins and several species of fishes in tilefish stomachs. Freeman and Turner (1977) reported examining nearly 150 tilefish ranging in length from 11.5 to 41.5 inches. Crustaceans were the principal food items of tilefish with squat lobster (*Munida*) and spider crabs (*Euprognatha*) the most important crustaceans. The authors report that crustaceans were the most important food item regardless of the size of tilefish, but that small tilefish fed more on mollusks and echinoderms than larger tilefish. Tilefish burrows provide habitat for numerous other species of fish and invertebrates (Able et al. 1982 and Grimes et al. 1986) and in this respect, they are similar to "pueblo villages" (Warme et al. 1977).

Able et al. (1982) and Grimes et al. (1986) concluded that a primary function of tilefish burrows was predator avoidance. The NEFSC database only notes goosefish as a predator. While tilefish are sometimes preyed upon by spiny dogfish and conger eels, by far the most important predator of tilefish is other tilefish (Freeman and Turner 1977). It is also probable that large bottom-dwelling sharks of the genus *Carcharhinus*, especially the dusky and sandbar, prey upon free swimming tilefish.

Status of the Stock

There has been no change to the status of the golden tilefish stock in 2020; the stock is not overfished and overfishing is not occurring.

Biological Reference Points

The biological reference points for golden tilefish were updated during the 2017 stock assessment update (Nitschke 2017), as a result of a change to the recruitment penalty used in the assessment model (i.e., likelihood constant turned off).[1] The fishing mortality (F) threshold for golden tilefish is $F_{38\%}$ (as $F_{MSY\ proxy}$) = 0.310, and stock spawning biomass (SSB) is $SSB_{38\%}$ ($SSB_{MSY\ proxy}$) = 21 million pounds (9,492 mt).

Stock Status

The last assessment update was completed in February 2017. Fishing mortality in 2016 was estimated at F=0.249; 20 percent below the fishing mortality threshold of F=0.310 ($F_{MSY\ proxy}$). SSB in 2016 was estimated at 18.69 million pounds (8,479 mt), and was at 89 percent of the biomass target ($SSB_{MSY\ proxy}$). As such, the golden tilefish stock was not overfished and overfishing was not occurring in 2016, relative to the newly updated biological reference points.

Data Update

The 2020 data update indicated that CPUE in 2019 increased relative to 2018 as predicted from growth of the strong 2013 year class. In addition, tracking of the strong 2013 year class is also

[1] Incorporation of likelihood constants into the objective function can cause biases in assessment models. This bias can result in reductions in the estimated recruitment and biomass. For additional details see: Nitschke 2017; Golden Tilefish, *Lopholatilus chamaeleonticeps*, stock assessment update through 2016 in the Middle Atlantic-Southern New England Region. NMFS/NEFSC, Woods Hole, MA. Available at: http://www.mafmc.org/council-events/2017/march-2017-ssc-meeting.

reflected in the landings market category proportions and the landings at length distributions (Nitschke 2020).

The next management track assessment for golden tilefish will be conducted in the Spring of 2021.

Management System and Fishery Performance

Management

There have been no changes to the overall golden tilefish management system since the Individual Fishing Quota (IFQ) system was implemented in 2009 (Amendment 1). However, Framework 2 to the Tilefish FMP (implemented in 2018) made several changes to the management system intended to improve and simplify the administration of the golden tilefish fishery. These changes include removing an outdated reporting requirement, proscribing allowed gear for the recreational fishery, modifying the incidental trip landings, requiring commercial golden tilefish be landed with the head attached, and revising how assumed discards are accounted for when setting harvest limits.

The commercial golden tilefish fisheries (IFQ and incidental) are managed using catch and landings limits, commercial quotas, trip limits, gear regulations, permit requirements, and other provisions as prescribed by the FMP. While there is no direct recreational allocation, Amendment 1 implemented a recreational possession limit of eight golden tilefish per angler per trip, with no minimum fish length. Golden tilefish was under a stock rebuilding strategy beginning in 2001 until it was declared rebuilt in 2014. The Tilefish FMP, including amendments and frameworks, are available on the Council website at: http://www.mafmc.org/fisheries/fmp/tilefish.

Commercial Fishery

In 2020, 1.3 million pounds (landed weight) of golden tilefish were landed with an ex-vessel value (revenues) of $4.8 million. This represented a decrease in golden tilefish landings and ex-vessel value of approximately 9 percent and 11 percent, respectively, when compared to 2019. For 2020, the mean price for golden tilefish (unadjusted) was $3.75 per pound, this represented a 2 percent decrease from 2019 ($3.81 per pound).

For the 1970 to 2020 calendar years, golden tilefish landings have ranged from 128 thousand pounds live weight (1970) to 8.7 million pounds (1979). For the 2001 to 2020 period, golden tilefish landings have averaged 1.8 million pounds live weight, ranging from 1.1 (2016) to 2.5 (2004) million pounds. In 2020, commercial golden tilefish landings were 1.4 million pounds live weight (Figure 1).

The principal measure used to manage golden tilefish is monitoring via dealer weighout data that is submitted weekly to the Greater Atlantic Regional Fisheries Office (GARFO). The directed fishery is managed via an IFQ program. If a permanent IFQ allocation is exceeded, including any overage that results from golden tilefish landed by a lessee in excess of the lease amount, the permanent allocation will be reduced by the amount of the overage in the subsequent fishing year. If a permanent IFQ allocation overage is not deducted from the appropriate allocation before the IFQ allocation permit is issued for the subsequent fishing year, a revised IFQ allocation permit reflecting the deduction of the overage will be issued. If the allocation cannot be reduced in the subsequent fishing year because the full allocation had already been landed or transferred, the IFQ allocation permit would indicate a reduced allocation for the amount of the overage in the next fishing year.

The commercial/incidental trip limit (for vessels that possess a Commercial/Incidental Tilefish Permit without an IFQ Allocation Permit) is 500 pounds or 50 percent, by weight, of all fish (including the golden tilefish) onboard the vessel, whichever is less. If the incidental harvest exceeds 5 percent of the TAL for a given fishing year, the incidental trip limit of 500 pounds may be reduced in the following fishing year.

Table 1 summarizes the golden tilefish management measures for the 2005-2022 fishing years. Commercial golden tilefish landings have been below the commercial quota specified each year since the Tilefish FMP was first implemented except for fishing years 2003-2004 (not shown in Table 1), and 2010. In 2003 and 2004, the commercial quota was exceeded by 0.3 (16 percent) and 0.6 (31 percent) million pounds, respectively.[2] In 2019 and 2020, 1.4 million pounds (96 percent of the quota) and 1.6 million pounds (86 percent of the quota) of golden tilefish were landed, respectively.

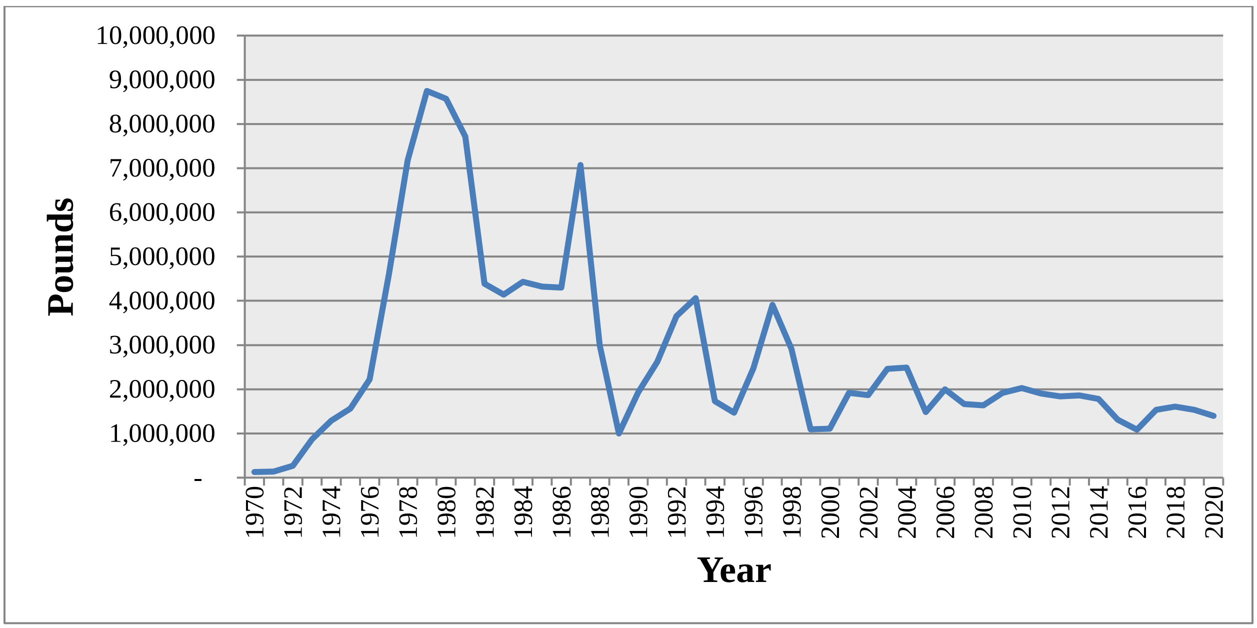


Figure 1. Commercial U.S. Golden Tilefish Landings (live weight) from Maine-Virginia, 1970-2020 (calendar year). Source: 1970-1993 Tilefish FMP; 1994-2020 NMFS unpublished dealer data.

Golden tilefish are primarily caught by longline and bottom otter trawl. Based on dealer data from 2016-2020, the bulk of the golden tilefish landings are taken by longline gear (97 percent) followed by bottom trawl gear (< 2 percent). No other gear had any significant commercial landings. Minimal catches were also recorded for hand line, gillnets, and dredge (Table 2).

[2] As a result of the decision of the Hadaja v. Evans lawsuit, the permitting and reporting requirements for the FMP were postponed for close to a year (May 15, 2003 through May 31, 2004). During that time period, it was not mandatory for permitted golden tilefish vessels to report their landings. In addition, during that time period, vessels that were not part of the golden tilefish limited entry program also landed golden tilefish.

Table 1. Summary of management measures and landings for fishing year 2005-2022.[a]

Management Measures	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
ABC (m lb)	-	-	-	-	-	-	-	-	2.013	2.013	1.766	1.898	1.898	1.636	1.636	1.636	1.636	1.636
TAL (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.755	1.887	1.887	1.626	1.626	1.626	1.625	1.625
Com. quota- (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.755	1.887	1.887	1.626	1.626	1.626	1.625/ 1.701*	1.625
Com. landings	1.497	1.898	1.777	1.672	1.887	1.997	1.946	1.856	1.839	1.830	1.354	1.060	1.487	1.626	1.563	1.403	-	-
Com. Overage / underage (m lb)	-0.498	-0.097	-0.218	-0.323	-0.108	+0.002	-0.049	-0.139	-0.156	-0.165	-0.401	-0.827	-0.401	<-0.001	-0.064	-0.223	-	-
Incidental trip limit (lb)	133	300	300	300	300	300	300	500	500	500	500	500	500	500	500	500	500	500
Rec. possession limit	-	-	-	-	-	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]

[a] Fishing year 2005 (November 1, 2004 – October 31, 2005). [b] Eight fish per person per trip. *The Council requested for emergency action to allow unharvested 2020 IFQ pounds to be carried over into the 2021 fishing year, up to 5 percent of the quota shareholders initial 2020 allocation. For additional information, see <u>2021-2022 Specifications Cycle and Carryover</u> at the end of this section (page 19).

Table 2. Golden tilefish commercial landings ('000 pounds live weight) by gear, Maine through Virginia, 2016-2020 (calendar year).

Gear	Pounds	Percent
Otter Trawl Bottom, Fish	126	1.8
Otter Trawl Bottom, Other	5	*
Gillnet, Anchored/Sink/Other	8	*
Lines, Hand	26	*
Lines, Long Set with Hooks	6,950	97.1
Pot & Trap	1	*
Dredge, other	6	*
Unknown, Other Combined Gears	38	*
All Gear	7,159	100.0

Note: * = less than 1,000 pounds or less than 1 percent. Source: NMFS unpublished dealer data.

Approximately 47 percent of the landings for 2020 were caught in statistical area 616; statistical area 537 had 37 percent; statistical areas 539 and 526 had 5 and 3 percent, respectively; and statistical area 626 had 2 percent (Table 3). NMFS statistical areas are shown in Figure 2.

For the 1999 to 2020 period, commercial golden tilefish landings are spread across the years with no strong seasonal variation (Tables 4 and 5). However, in recent years, a slight downward trend in the proportion of golden tilefish landed during the winter period (November-February) and a slight upward trend in the proportion of golden tilefish landed during the May-June period are evident when compared to earlier years (Table 5).

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Table 3. Golden tilefish percent landings by statistical area and year, 1996-2020 (calendar year).

Year	525	526	537	539	612	613	616	622	626	Other
1996	0.05	5.21	64.04	0.39	*	1.09	27.81	0.01	-	1.40
1997	0.03	0.67	79.51	0.02	*	2.59	16.41	0.01	*	0.74
1998	1.26	2.19	81.95	0.04	0.02	5.45	8.55	*	*	0.53
1999	0.97	0.22	55.79	0.02	0.22	3.71	36.60	0.02	0.02	0.43
2000	0.36	3.79	46.10	0.01	0.05	2.36	43.94	0.47	0.14	2.78
2001	0.23	3.09	23.92	*	0.01	3.16	68.96	*	0.10	0.52
2002	0.12	8.73	35.86	0.07	0.01	18.50	36.54	0.02	0.02	0.14
2003	0.88	1.81	38.48	0.10	-	11.85	46.51	0.05	0.05	0.26
2004	1.03	2.59	62.85	0.05	5.28	0.70	25.95	0.03	0.06	1.66
2005	0.12	0.25	62.99	0.02	0.03	6.11	25.68	0.03	0.20	4.56
2006	*	1.54	64.30	0.50	1.24	0.71	30.09	0.04	0.05	1.53
2007	0.02	0.42	57.61	0.01	-	5.53	33.93	0.85	0.45	1.18
2008	1.09	0.06	44.07	0.01	-	4.62	46.94	2.05	0.02	1.14
2009	2.17	0.01	42.62	1.30	0.04	4.37	46.12	1.34	1.16	0.88
2010	0.01	0.01	57.14	0.55	0.02	8.39	32.83	0.69	0.04	0.31
2011	0.02	*	53.06	0.01	-	3.12	39.98	0.31	0.06	3.44
2012	0.01	0.01	52.54	0.03	*	0.58	43.92	0.20	0.10	2.62
2013	*	0.67	56.22	1.06	0.03	0.68	35.39	1.21	4.59	0.16
2014	0.01	0.52	49.36	1.89	0.01	1.29	42.85	2.67	0.35	1.06
2015	3.06	0.98	30.00	2.55	-	0.01	55.02	2.34	5.53	1.50
2016	1.03	4.77	32.33	0.01	-	0.98	54.50	0.17	5.81	0.39
2017	0.01	5.45	27.73	2.69	0.01	0.94	55.33	0.16	5.49	2.19
2018	*	1.65	46.99	3.27	-	0.06	41.18	0.57	6.13	0.15
2019	0.01	1.38	55.43	1.86	*	1.69	38.50	0.06	0.34	0.74
2020	0.02	3.45	36.79	4.92	0.02	1.42	47.03	0.10	2.20	4.07
All	0.48	1.90	53.28	0.75	0.42	3.64	36.64	0.48	1.09	1.31

Note: - = no landings; * = less than 0.01 percent. Source: NMFS unpublished VTR data.

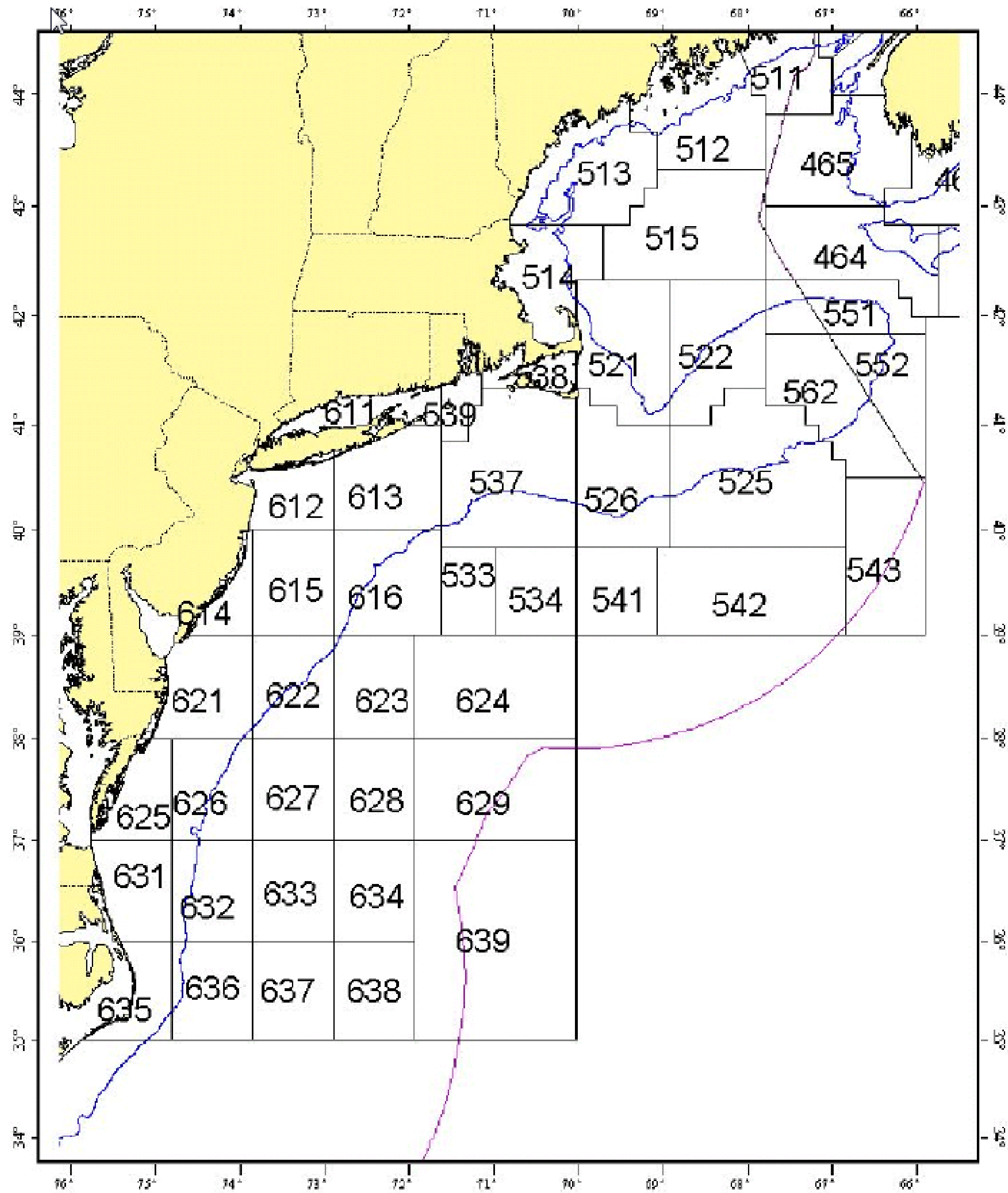

Figure 2. NMFS Statistical Areas.

Table 4. Golden tilefish commercial landings ('000 pound live weight) by month and year, Maine through Virginia, 1999-2020 (calendar year).

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1999	118	114	124	103	93	91	55	106	83	59	77	75	1,096
2000	52	105	159	101	107	99	34	91	42	107	96	112	1,105
2001	107	151	159	188	153	179	177	157	156	156	161	176	1,920
2002	143	232	257	144	164	117	107	141	148	146	68	200	1,867
2003	183	181	295	254	209	185	152	180	210	202	189	223	2,463
2004	192	354	514	323	143	56	113	122	181	236	71	189	2,492
2005	127	159	234	168	33	57	117	104	96	94	141	158	1,487
2006	210	226	292	125	127	124	86	152	116	140	169	228	1,996
2007	122	118	192	147	159	96	131	133	125	174	77	189	1,664
2008	235	206	219	173	124	123	62	90	101	90	109	104	1,636
2009	90	145	185	200	237	211	184	157	157	128	94	134	1,922
2010	149	133	273	216	195	157	149	157	176	188	98	137	2,027
2011	152	94	269	209	227	137	138	149	120	194	65	150	1,905
2012	146	114	142	207	151	131	157	204	186	221	39	139	1,836
2013	105	115	146	269	234	193	147	157	126	169	67	133	1,862
2014	114	93	146	183	187	233	215	171	134	149	50	102	1,778
2015	68	70	144	128	181	146	130	127	123	82	48	62	1,308
2016	43	53	91	71	110	119	131	136	91	96	83	64	1,089
2017	86	69	77	193	195	179	135	134	105	180	47	133	1,533
2018	81	134	124	194	149	196	181	148	133	103	64	98	1,606
2019	91	106	131	130	234	164	131	137	158	119	40	96	1,537
2020	75	95	143	54	187	159	147	133	93	180	65	65	1,396
Total	2,687	3,067	4,319	3,780	3,601	3,151	2,878	3,086	2,860	3,212	1,918	2,966	37,523
Avg. 11-20	96	94	141	164	186	166	151	150	127	149	57	104	1,585

Source: NMFS unpublished dealer data.

Table 5. Percent of golden tilefish commercial landings (live weight) by month and year, Maine through Virginia, 1999-2020 (calendar year).

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1999	10.75	10.38	11.28	9.41	8.50	8.29	4.99	9.66	7.55	5.36	6.98	6.86	100.00
2000	4.68	9.48	14.41	9.13	9.67	8.95	3.05	8.26	3.78	9.71	8.70	10.18	100.00
2001	5.59	7.88	8.30	9.77	7.95	9.32	9.24	8.16	8.13	8.11	8.40	9.14	100.00
2002	7.64	12.43	13.76	7.73	8.78	6.28	5.74	7.56	7.91	7.85	3.63	10.70	100.00
2003	7.44	7.33	11.98	10.31	8.47	7.52	6.18	7.32	8.52	8.19	7.68	9.05	100.00
2004	7.69	14.21	20.64	12.95	5.74	2.23	4.52	4.88	7.25	9.46	2.87	7.57	100.00
2005	8.54	10.71	15.77	11.28	2.24	3.82	7.85	6.98	6.43	6.32	9.46	10.60	100.00
2006	10.50	11.32	14.65	6.28	6.38	6.22	4.33	7.60	5.82	7.04	8.46	11.41	100.00
2007	7.35	7.08	11.55	8.83	9.56	5.79	7.86	7.99	7.53	10.48	4.63	11.35	100.00
2008	14.37	12.59	13.40	10.56	7.60	7.50	3.77	5.53	6.18	5.49	6.66	6.35	100.00
2009	4.67	7.55	9.64	10.39	12.36	10.97	9.56	8.18	8.16	6.65	4.88	6.99	100.00
2010	7.35	6.54	13.49	10.68	9.61	7.73	7.37	7.75	8.68	9.25	4.81	6.74	100.00
2011	7.96	4.96	14.13	10.99	11.93	7.20	7.24	7.82	6.30	10.18	3.41	7.88	100.00
2012	7.94	6.22	7.72	11.26	8.22	7.11	8.57	11.09	10.14	12.03	2.15	7.55	100.00
2013	5.66	6.18	7.84	14.47	12.54	10.37	7.90	8.46	6.75	9.08	3.60	7.14	100.00
2014	6.41	5.25	8.20	10.31	10.50	13.09	12.07	9.63	7.55	8.40	2.84	5.74	100.00
2015	5.21	5.38	10.97	9.79	13.86	11.16	9.91	9.71	9.40	6.24	3.67	4.73	100.00
2016	3.94	4.85	8.34	6.52	10.11	10.97	12.00	12.47	8.39	8.85	7.66	5.91	100.00
2017	5.59	4.52	5.05	12.56	12.72	11.67	8.84	8.72	6.87	11.73	3.05	8.68	100.00
2018	5.02	8.37	7.73	12.07	9.31	12.20	11.28	9.22	8.31	6.40	3.99	6.10	100.00
2019	5.93	6.87	8.53	8.46	15.24	10.64	8.49	8.92	10.26	7.77	2.62	6.27	100.00
2020	5.39	6.78	10.27	3.86	13.43	11.40	10.52	9.52	6.67	12.86	4.62	4.68	100.00
Total	7.16	8.17	11.51	10.07	9.60	8.40	7.67	8.22	7.62	8.56	5.11	7.90	100.00

Source: NMFS unpublished dealer data.

For the 1999 to 2020 calendar years, commercial golden tilefish landings (landed weight) have ranged from 1.0 million pounds in 2016 (calendar year) to 2.3 million pounds in 2004. Commercial golden tilefish ex-vessel revenues have ranged from $2.5 million in 2000 to $5.9 million in 2013 from 1999-2020. In 2020, 1.3 million pounds (landed weight) of tilefish were landed with an ex-vessel value (revenues) of $4.84 million.

From 1999-2019, the mean price for golden tilefish (adjusted) has ranged from $1.10 per pound in 2004 to $4.24 per pound in 2016 (Figure 3). For 2020, the mean price for golden tilefish (unadjusted) was $3.75 per pound.

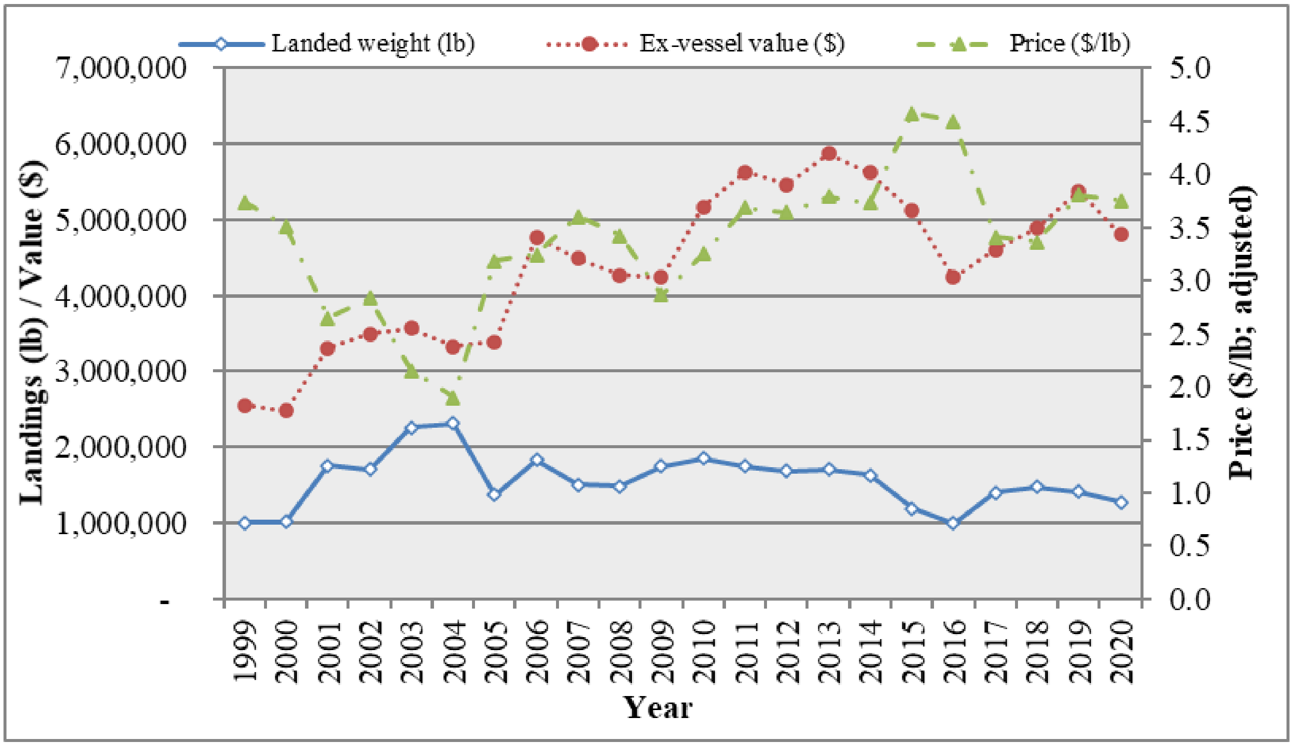

Figure 3. Landings (landed weight), ex-vessel value, and price for golden tilefish, Maine through Virginia combined, 1999-2020 (calendar year). Note: Price data have been adjusted by the GDP deflator indexed for 2019. (2020 – unadjusted as GDP deflator for that year was not available when this figure was produced). Source: NMFS unpublished dealer data.

The 2016 through 2020 coastwide average ex-vessel price per pound for all market categories combined was $3.64. Price differential indicates that larger fish tend to bring higher prices (Table 6). Nevertheless, even though there is a price differential for various sizes of golden tilefish landed, golden tilefish fishermen land all fish caught as the survival rate of discarded fish is very low (L. Nolan 2006; Kitts et al. 2007). Furthermore, Amendment 1 to the Tilefish FMP prohibited the practice of highgrading (MAFMC 2009).

Table 6. Landings, ex-vessel value, and price of golden tilefish by size category, from Maine thought Virginia, 2016-2020 (calendar year).

Market category	Landed weight (pounds)	Value ($)	Price ($/pound)	Approximate market size range (pounds)
Extra large	233,934	1,079,040	4.61	> 25
Large	1,543,603	7,448,229	4.83	7 – 24
Large/medium[a]	892,318	3,681,030	4.13	5 – 7
Medium	1,885,084	6,545,801	3.47	3.5 – 5
Small or kittens	1,747,962	4,507,553	2.58	2 – 3.5
Extra small	202,636	442,690	2.18	< 2
Unclassified	68,890	197,607	2.87	– – –
All	6,574,427	23,901,950	3.64	– – –

[a]Large/medium code was implemented on May 1, 2016. Prior to that, golden tilefish sold in the large/medium range were sold as unclassified fish. Source: NMFS unpublished dealer data.

The ports and communities that are dependent on golden tilefish are fully described in Amendment 1 to the FMP (section 6.5; MAFMC 2009; found at http://www.mafmc.org/fisheries/fmp/tilefish). Additional information on "Community Profiles for the Northeast US Fisheries" can be found at https://apps-nefsc.fisheries.noaa.gov/read/socialsci/communitySnapshots.php.

To examine recent landings patterns among ports, 2019-2020 NMFS dealer data are used. The top commercial landings ports for golden tilefish are shown in Table 7. A “top port” is defined as any port that landed at least 10,000 pounds of golden tilefish. Ports that received 1 percent or greater of their total revenue from golden tilefish are shown in Table 8.

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Table 7. Top ports (≥ 10,000 pounds per year) of landing (live weight) for golden tilefish, based on NMFS 2019-2020 dealer data (calendar year). Since this table includes only the "top ports," it may not include all of the landings for the year.

Port	2019		2020	
	Landings (pounds)	# Vessels	Landings (pounds)	# Vessels
Montauk, NY	910,338 (906,619)	16 (3)	782,026 (779,977)	13 (4)
Barnegat Light/Long Beach, NJ	398,374 (398,374)	5 (5)	376,294 (376,374)	5 (5)
Hampton Bays, NY	201,246 (C)	5 (C)	188,556 (C)	5 (C)
Point Judith, RI	5,763 (0)	51 (0)	9,792 (0)	52 (0)

[a]Values in parentheses correspond to IFQ vessels. Note: C = Confidential. Source: NMFS unpublished dealer data. Note: ports that may have had landings ≥ 10,000 pounds not added to this table due to confidentiality issues.

Table 8. Ports that generated 1 percent or greater of total revenues from golden tilefish, 2016-2020 (calendar year).

Port	State	Ex-vessel revenue all species combined	Ex-vessel revenue golden tilefish	Golden tilefish contribution to total port ex-vessel revenues
Ocean City	NJ	12,441	4,565	37%
East Hampton	NY	63,090	11,698	19%
Montauk	NY	84,058,877	13,381,066	16%
Hampton Bays	NY	30,107,477	3,924,172	13%
Lynnhaven	VA	552,687	45,679	8%
Barnegat & Barnegat Light/Long Beach	NJ	122,929,588	6,056,760	5%
Shinnecock	NY	6,153,917	203,603	3%

Source: NMFS unpublished dealer data.

In 2020 there were 50 federally permitted dealers who bought golden tilefish from 105 vessels that landed this species from Maine through Virginia. In addition, 54 dealers bought golden tilefish from 106 vessels in 2019. These dealers bought approximately $5.4 and $4.8 million of golden tilefish in 2019 and 2020, respectively, and are distributed by state as indicated in Table 9. Table 10 shows relative dealer dependence on golden tilefish. In 2020, 1,937 open access commercial/incidental tilefish permits (valid for both golden and blueline tilefish) were issued.

Table 9. Dealers reporting buying golden tilefish, by state in 2019-2020 (calendar year).

Number of dealers	MA		RI		CT		NY		NJ		VA		Other	
	'19	'20	'19	'20	'19	'20	'19	'20	'19	'20	'19	'20	'19	'20
	4	6	10	10	10	6	16	13	8	7	C	4	6	4

Note: C = Confidential. Source: NMFS unpublished dealer data.

Table 10. Dealer dependence on golden tilefish, 2016-2020 (calendar year).

Number of dealers	Relative dependence on tilefish
67	<5%
7	5%-10%
2	10% - 25%
4	25% - 50%
2	50% - 75%
1	90%+

Source: NMFS unpublished dealer data.

According to VTR data, no discarding was reported by longline vessels that targeted golden tilefish from 2018-2020 (Table 11). In addition, the 2014 golden tilefish stock assessment (NEFSC 2014) and stock assessment update (Nitschke 2017) indicate that golden tilefish discards in the trawl and longline fishery appear to be a minor component of the catch.

Table 11. Catch disposition for directed golden tilefish trips[a], Maine through Virginia, 2018, 2019, and 2020 (calendar year).

(2018)

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	1,247,057	100.00%	94.55%	0	0.00%	--	1,247,057	0.00
SPINY DOGFISH	58,560	100.00%	4.44%	0	0.00%	--	58,560	0.00
SMOOTH DOGFISH	6,321	100.00%	0.48%	0	0.00%	--	6,321	0.00
CONGER EEL	2,386	100.00%	0.18%	0	0.00%	--	2,386	0.00
BLUELINE TILEFISH	2,213	100.00%	0.17%	0	0.00%	--	2,213	0.00
DOLPHIN FISH	458	100.00%	0.03%	0	0.00%	--	458	0.00
SILVER HAKE (WHITING)	438	100.00%	0.03%	0	0.00%	--	438	0.00
SILVER HAKE (WHITING)	438	100.00%	0.03%	0	0.00%	--	438	0.00
BLACK BELLIED ROSEFISH	370	100.00%	0.03%	0	0.00%	--	370	0.00
SKATES OTHER	298	100.00%	0.02%	0	0.00%	--	298	0.00
BLUEFISH	217	100.00%	0.02%	0	0.00%	--	217	0.00
ANGLER	133	100.00%	0.01%	0	0.00%	--	133	0.00

YELLOWFIN TUNA	60	100.00%	0.00%	0	0.00%	--	60	0.00
WHITE HAKE	27	100.00%	0.00%	0	0.00%	--	27	0.00
TRIGGERFISH	20	100.00%	0.00%	0	0.00%	--	20	0.00
ALL SPECIES	1,318,558	100.00%	100.00%	0	0.00%	--	1,318,558	0.00

[a] Directed trips for golden tilefish were defined as trips comprising 75 percent or more by weight of golden tilefish landed. Number of trips = 93. Source: NMFS unpublished VTR data.

(2019)

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	1,316,702	100.00%	95.87%	0	0.00%	--	1,316,702	0.00
SPINY DOGFISH	41,605	100.00%	3.03%	0	0.00%	--	41,605	0.00
SMOOTH DOGFISH	5,315	100.00%	0.39%	0	0.00%	--	5,315	0.00
BLUELINE TILEFISH	3,551	100.00%	0.26%	0	0.00%	--	3,551	0.00
CONGER EEL	2,134	100.00%	0.16%	0	0.00%	--	2,134	0.00
YELLOWFIN TUNA	2,086	100.00%	0.15%	0	0.00%	--	2,086	0.00
BIG EYE TUNA	734	100.00%	0.05%	0	0.00%	--	734	0.00
SAND TILEFISH	506	100.00%	0.04%	0	0.00%	--	506	0.00
DOLPHIN FISH	455	100.00%	0.03%	0	0.00%	--	455	0.00
ANGLER	119	100.00%	0.01%	0	0.00%	--	119	0.00
SKATES OTHER	80	100.00%	0.01%	0	0.00%	--	80	0.00
ALBACORE TUNA	50	100.00%	0.00%	0	0.00%	--	50	0.00
BLACK BELLIED ROSEFISH	44	100.00%	0.00%	0	0.00%	--	44	0.00
SILVER HAKE (WHITING)	43	100.00%	0.00%	0	0.00%	--	43	0.00
SHKIPJACK TUNA	24	100.00%	0.00%	0	0.00%	--	24	0.00
BLACK SEA BASS	9	100.00%	0.00%	0	0.00%	--	9	0.00
ALL SPECIES	1,373,457	100.00%	100.00%	0	0.00%	--	1,373,457	0.00

[a] Directed trips for golden tilefish were defined as trips comprising 75 percent or more by weight of golden tilefish landed. Number of trips = 92. Source: NMFS unpublished VTR data.

(2020)

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	1,088,194	100.00%	96.09%	0	0.00%	--	1,088,194	0.00
SPINY DOGFISH	35,350	100.00%	3.12%	0	0.00%	--	35,350	0.00
BLUELINE TILEFISH	3,433	100.00%	0.30%	0	0.00%	--	3,433	0.00
SMOOTH DOGFISH	2,425	100.00%	0.21%	0	0.00%	--	2,425	0.00

CONGER EEL	1,512	100.00%	0.13%	0	0.00%	--	1,512	0.00
YELLOWFIN TUNA	733	100.00%	0.06%	0	0.00%	--	733	0.00
DOLPHIN FISH	451	100.00%	0.04%	0	0.00%	--	451	0.00
MAKO SHORTFIN SHARK	100	100.00%	0.01%	0	0.00%	--	100	0.00
BIG EYE TUNA	80	100.00%	0.01%	0	0.00%	--	80	0.00
WHITE HAKE	68	100.00%	0.01%	0	0.00%	--	68	0.00
ALBACORE TUNA	60	100.00%	0.01%	0	0.00%	--	60	0.00
BLACK BELLIED ROSEFISH	28	100.00%	0.00%	0	0.00%	--	28	0.00
SILVER HAKE (WHITING)	14	100.00%	0.00%	0	0.00%	--	14	0.00
SWORDFISH	40	100.00%	0.00%	0	0.00%	--	40	0.00
ANGLER	2	100.00%	0.00%	0	0.00%	--	2	0.00
ALL SPECIES	1,132,490	99.95%	100.00%	0	0.05%	--	1,132,490	0.00

[a] Directed trips for golden tilefish were defined as trips comprising 75 percent or more by weight of golden tilefish landed. Number of trips = 82.
Source: NMFS unpublished VTR data.

Golden tilefish incidental commercial fishery landings in fishing year 2021 are the same as fishing year 2020 landings for the same time period (Figure 4; for data reported through January 27, 2021). Incidental golden tilefish commercial landings for 2013-2020 fishing years are shown in Table 12.

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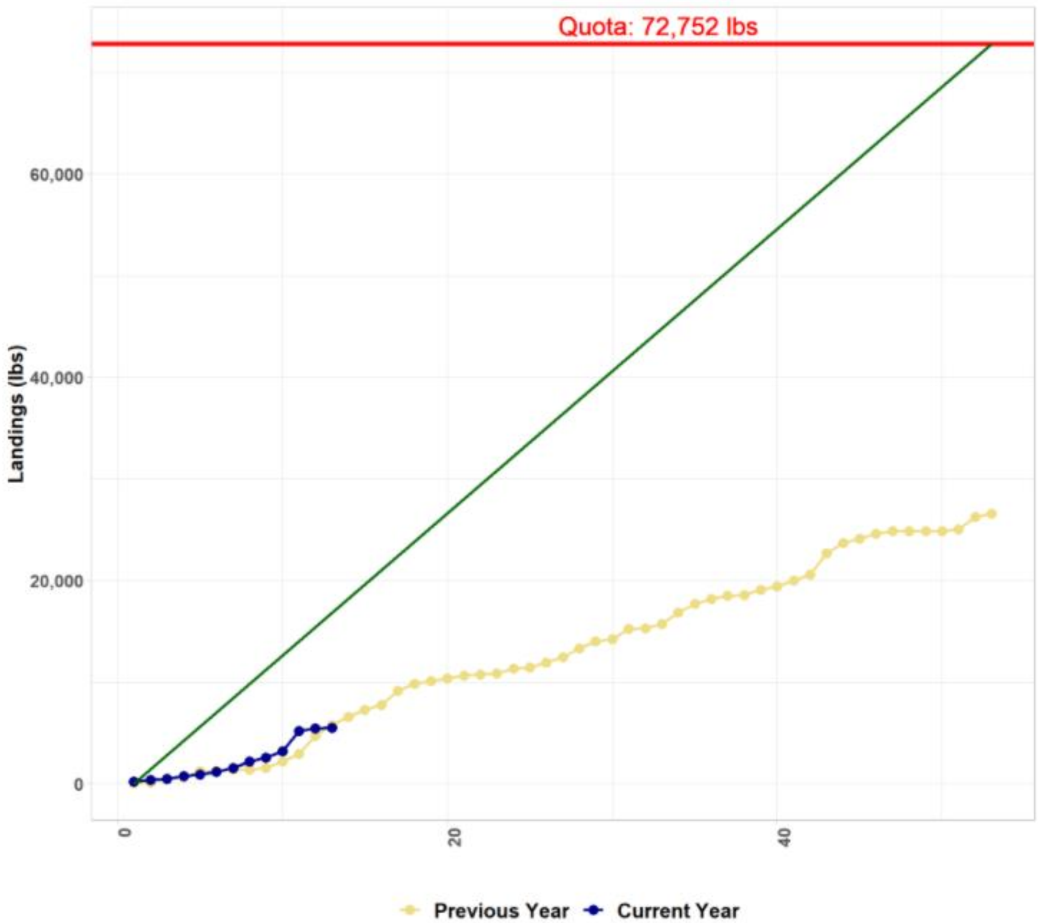

Figure 4. Incidental commercial landings for 2021 fishing year (FY) to date (for data reported through January 27, 2021). Blue Line = FY 2021, Yellow Line = FY 2020.
Source: https://www.fisheries.noaa.gov/new-england-mid-atlantic/quota-monitoring-greater-atlantic-region.

Table 12. Incidental golden tilefish commercial landings for fishing year 2013-2020.

Fishing year	Landings (pounds)	Incidental quota (pounds)	Percent of quota landed (%)
2013	36,442	99,750	37
2014	44,594	99,750	45
2015	18,839	87,744	21
2016	20,929	94,357	22
2017	60,409	94,357	64
2018	61,254	72,752	84
2019	22,246	72,752	31
2020	25,864	70,548*	37*

Source: https://www.fisheries.noaa.gov/new-england-mid-atlantic/quota-monitoring-greater-atlantic-region. *Values were updated from prior document version.

2021-2022 Specifications Cycle and Carryover

Following approval of the proposed 2021-2022 specifications, the Council approved a motion to request NMFS take emergency action. The Council approved the following motion: *Move that given the COVID-19 national emergency, to request the service to consider an emergency action to allow a 5% rollover of unused IFQ 2020 quota allocation for the golden tilefish fishing year November 1, 2020 thru October 31, 2021*.

NMFS has interpreted this request to mean each IFQ quota shareholder could carry over all 2020 IFQ quota pounds that are not used to harvest tilefish before the end of the fishing year, up to a maximum amount of 5% of their initial 2020 IFQ quota pounds. To assess the maximum potential impact, the full 5% of the 2020 IFQ TAL is assumed to be carried over into 2021. This would result in a maximum potential IFQ TAL for 2021 of 1.631 million pounds or 740 mt (compared to the initial IFQ TAL (without any rollover) of 1.554 million pounds or 705 mt). However, it is expected that actual carryover would end up being less than this full amount as not all quota shareholders will carryover the full 5% allowance. Even if the overall IFQ landings are more than 5% below the TAL some quota shareholders may harvest more than 95% of their initial quota pounds and would not be eligible for the full 5% carryover, while those that harvested less than 95% of their 2020 quota pounds would be limited to only 5% carryover.

Because any increase in the 2021 IFQ TAL would necessarily reflect 2020 IFQ TAL that was not harvested the total landings for 2020 and 2021 would remain at or below the combined IFQ TAL for the two years. This minimizes any potential risk that allowing this one-time carryover could result in overfishing. In 2017, the SSC recommended a constant harvest ABC of 742 mt for 2018-2020, which is 300 mt (28%) below the average overfishing limit (OFL) for the same period (1,042 mt) from the most recent stock assessment. While that buffer is meant to account for multiple sources of potential uncertainty, its magnitude further reduces the risk that a one-time 5% carryover of unharvested IFQ quota pounds could result in overfishing in this golden tilefish stock (MAFMC 2020).

Recreational Fishery

In 2020, 606 open access charter/party tilefish permits were issued. According to vessel trip report (VTR) data, 26 party/charter vessels reported a total of 77 trips that landed golden tilefish in 2020.

VTR data indicates that party/charter vessel landed 3,466 golden tilefish in 2020. This represented a 36 percent decrease from 2019 (5,424 fish landed).

A small recreational fishery briefly occurred during the mid-1970's, with less than 100,000 pounds landed annually (MAFMC 2001). Subsequent recreational catches have been low for the 1982 - 2020 period, ranging from zero for most years to approximately 213,000 fish in 2010 according to NMFS recreational statistics (Table 13). In 2019, approximately 11,000 fish were landed. No landings were reported in 2020.

VTR data indicates that the number of golden tilefish kept by party/charter vessels from Maine through Virginia is low, ranging from 81 fish in 1996 to 8,297 fish in 2015 (Table 14). Mean party/charter effort ranged from less than one fish per angler in 1999 throughout 2002 and 2005 to approximately eight fish per angler in the late 1990s, averaging 2.8 fish for the 1996-2020 period.

According to VTR data, for the 1996-2020 period, the largest number of golden tilefish caught by party/charter vessels were made by New Jersey vessels (50,701; average = 2,028), followed by New York (12,960; average = 518), Virginia (1,139; average = 46), Delaware (846; average = 35), Massachusetts (528; average = 21), and Maryland (597; average = 24; Table 15). The number of golden tilefish discarded by recreational anglers is low. According to VTR data, on average, approximately 5 fish per year were discarded by party/charter recreational anglers for the 1996-2020 period (136 discarded fish in total). The quantity of golden tilefish discarded by party/charter recreational anglers ranged from zero in most years to 60 in 2015.

Recreational anglers typically fish for golden tilefish when tuna fishing especially during the summer months (Freeman, pers. comm. 2006). However, some for-hire vessels from New Jersey and New York are golden tilefish fishing in the winter months (Caputi pers. comm. 2006). In addition, recreational boats in Virginia are also reported to be fishing for golden tilefish (Pride pers. comm. 2006). However, it is not known with certainty how many boats may be targeting golden tilefish. Nevertheless, accounting for information presented in the Fishery Performance Reports (2012-2014) and a brief internet search conducted by Council Staff in 2014 indicates that there have been approximately 10 headboats actively engaged in the tilefish fishery in the Mid-Atlantic canyons in recent years. It is estimated that approximately 4 of these boats conducted direct tilefish fishing trips, while the other 6 boats may have caught tilefish while targeting tuna/swordfish or fishing for assorted deep water species. In addition, it appears that recreational interest onboard headboats for tilefish has increased in the last few years as seen in the FPRs, internet search conducted by Council staff, and recent VTR recreational party/charter statistics (MAFMC 2014).

Anglers are highly unlikely to catch golden tilefish while targeting tuna on tuna fishing trips. However, these boats may fish for golden tilefish at any time during a tuna trip (i.e., when the tuna limit has been reached, on the way out or on the way in from a tuna fishing trip, or at any time when tuna fishing is slow). While fishing for tuna recreational anglers may trawl using rod and reel (including downriggers), handline, and bandit gear.[3] Rod and reel is the typical gear used in the recreational golden tilefish fishery. Because golden tilefish are found in relatively deep waters, electric reels may be used to facilitate landing (Freeman and Turner 1977).

Private Recreational Angler Permitting and Reporting

To improve tilefish management and reporting, GARFO implemented mandatory private recreational permitting and reporting for tilefish anglers in August 2020. This action was approved in late 2017, but with delayed implementation. Outreach materials and webinars were provided by GARFO and the Council leading up to the final rule and will continue to be circulated as these regulations become commonplace.

Under this rule, private recreational vessels (including for-hire operators using their vessels for non-charter, recreational trips) are required to obtain a federal vessel permit to target or retain golden or blueline tilefish north of the Virginia/North Carolina border. These vessel operators would also be required to submit VTRs electronically within 24 hours of returning to port for trips

[3] Bandit gear is a vertical hook and line gear with rods attached to the vessel when in use. Manual, electric, or hydraulic reels may be used to retrieve lines.

where tilefish were targeted or retained. For more information about the proposed requirements, check out the Recreational Tilefish Permitting and Reporting FAQs.

Permitting

Get your federal private recreational tilefish vessel permit through Fish Online. This new permit is required even if a vessel already holds a for-hire tilefish permit. Call the GARFO Permit Office at 978-282-8438 for questions about the permitting process.

Reporting

NOAA Fisheries is encouraging anglers not already using another electronic VTR system to utilize NOAA Fish Online, which is available through a mobile app or a web-based portal. Other systems that may be suitable for recreational anglers include SAFIS eTrips/mobile and SAFIS eTrips Online. You can access information about approved applications and other aspects of electronic reporting on the NOAA Fisheries website.

Additionally, a new app has been released to make the reporting process increasingly easy and convenient. Harbor Light Software's *eFin Logbook* has received certification from NOAA Fisheries as an approved application through which anglers can report their trips. Funded by the Council, *eFin Logbook* is a user-friendly application designed specifically for recreational tilefish anglers. The app is available for use on all Apple and Android mobile devices (iPhone, iPad, Android phone, and Android tablet).

At present, *eFin Logbook* can only be used by tilefish recreational anglers to satisfy reporting requirements. Future modifications may expand its capabilities to other reporting and personal fishing log applications. For-hire operators, many of whom have other reporting requirements, are encouraged to choose different software. To learn more about other electronic reporting options and decide which one is right for you, visit the NOAA Fisheries Greater Atlantic Region Electronic Reporting Web Page.

Given these requirements have only been in place since August 2020, the following data should be considered preliminary. As of February 1, 2021, 340 tilefish permits have been issued for private recreational anglers. This permit allows recreational anglers to land both golden and blueline tilefish. For the 2020 fishing year, 50 fish were reported landed on 4 private recreational trips (with 5 fish discarded). The low landings associated with private anglers may be attributed to the short fishing season (as a result of when implementation occurred), this being the first-time recreational anglers are required to report, and the COVID-19 pandemic likely decreasing effort further offshore.

Table 13. Recreational golden tilefish data from the NMFS recreational statistics databases, 1982-2020 (calendar year).

Year	Landed no. A and B1				Released no. B2			
	Party/charter		Private/rental		Party/charter		Private/rental	
1982	0		2,225	(102.0)	0		0	
1983	0		0		0		0	
1984	0		0		0		0	
1985	0		0		0		0	
1986	0		0		0		0	
1987	0		0		0		0	
1988	0		0		0		0	
1989	0		0		0		0	
1990	0		0		0		0	
1991	0		0		0		0	
1992	0		0		0		0	
1993	0		0		0		0	
1994	555	(101.6)	0		0		0	
1995	0		0		0		0	
1996	1,765	(80.5)	0		0		0	
1997	0		0		0		0	
1998	0		0		0		0	
1999	0		0		0		0	
2000	0		0		0		0	
2001	98	(101.4)	0		0		0	
2002	0		122,443	(85.7)	0		8,163	(85.7)
2003	967	(75.2)	0		0		0	
2004	55	(102.2)	0		0		0	
2005	0		0		0		0	
2006	471	(103.7)	0		0		0	
2007	1,837	(71.4)	0		0		0	
2008	0		0		0		0	
2009	168	(89.8)	0		0		0	
2010	4,754	(81.9)	213,382	(98.4)	0		0	
2011	0		0		0		0	
2012	0		0		0		0	
2013	1,145	(0)	0		0		0	
2014	0		0		0		0	
2015	0		0		0		0	
2016	0		26,691	(70.4)	0		0	
2017	0		59,413	(59.4)	0		0	
2018	7,925	(80.3)	893	(102.9)	4	(106.8)	0	
2019	0		10,503	(64.4)	0		0	
2020	0		0		0		0	

Source: Recreational Fisheries Statistics Queries: https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index. PSE (proportional standard error) values in parenthesis expresses the standard error of an estimate as a percentage of the estimate and is a measure of precision. A PSE value greater than 50 indicates a very imprecise estimate. 2020 values are preliminary.

Table 14. Number of golden tilefish kept by recreational anglers and mean effort from Maine through Virginia, 1996-2020 (calendar year).

Year	Party/Charter		Private[a]	
	Number of golden tilefish kept	Mean effort	Number of golden tilefish kept	Mean effort
1996	81	1.4	---	---
1997	400	7.5	---	---
1998	243	8.1	---	---
1999	91	0.4	---	---
2000	147	0.5	---	---
2001	172	0.7	---	---
2002	774	0.9	---	---
2003	991	1.6	---	---
2004	737	1.2	---	---
2005	498	0.9	---	---
2006	477	1.2	---	---
2007	1,077	1.2	---	---
2008	1,100	1.3	---	---
2009	1,451	1.3	---	---
2010	1,866	2.0	---	---
2011	2,938	3.4	---	---
2012	6,424	2.8	---	---
2013	6,560	3.2	---	---
2014	6,958	3.1	---	---
2015	8,297	4.2	---	---
2016	5,919	4.1	---	---
2017	7,014	4.6	---	---
2018	7,110	3.9	---	---
2019	5,424	3.1	---	---
2020	3,466	3.2	50	5.0
All	70,215*	2.8	50	5.0

[a] Landings reported from August 1 to December 31, 2020. Source: NMFS unpublished VTR data. *Value was updated from prior document version.

Table 15. Number of golden tilefish caught by party/charter vessels by state, 1996-2020 (calendar year).

Year	NH	MA	RI	CT	NY	NJ	DE	MD	VA	Unknown	All
1996	0	0	0	0	81	0	0	0	0	-	81
1997	0	0	0	0	400	0	0	0	0	-	400
1998	0	0	102	0	141	0	0	0	0	-	243
1999	0	0	1	0	88	0	0	2	0	-	91
2000	0	0	0	0	108	39	0	0	0	-	147
2001	0	0	0	0	122	51	0	0	0	-	173
2002	0	0	0	0	401	373	0	0	0	-	774
2003	0	0	3	0	86	902	0	0	0	-	991
2004	0	0	0	0	12	628	0	0	104	-	744
2005	0	0	72	0	82	318	14	0	16	-	502
2006	0	0	0	0	265	65	2	133	12	-	477
2007	0	0	0	0	447	459	88	5	80	-	1,079
2008	0	0	3	0	488	545	22	32	10	-	1,100
2009	0	0	0	0	720	675	18	7	31	-	1,451
2010	0	0	0	0	595	1,194	19	23	48	-	1,879
2011	0	496	0	0	720	1,654	60	5	14	-	2,949
2012	0	0	1	0	1,116	5,146	42	23	98	-	6,426
2013	0	0	0	0	1,900	4,568	39	12	41	-	6,560
2014	0	0	0	3	957	5,716	180	40	73	-	6,969
2015	14	0	0	0	637	7,376	100	56	174	-	8,357
2016	0	0	0	0	676	5,073	69	43	67	-	5,928
2017	0	0	0	0	424	6,373	118	76	38	-	7,029
2018	0	0	0	0	1,202	5,573	46	87	193	9	7,110
2019	0	0	0	0	845	1,771	29	30	58	2,692	5,425
2020	0	32	0	0	447	2,202	-	23	82	680	3,466
All	14	528	182	3	12,960	50,701	846	597	1,139	3,381	70,351
Avg. 96-20	<1	21	7	<1	518	2,028	35	24	46	135	2,814

Source: NMFS unpublished VTR data.

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 7, 2021

To: Chris Moore, Executive Director

From: José Montañez, Staff

Subject: Golden Tilefish 2022 (interim) Specifications Review/Revise and 2023-2024 Specifications Setting

Summary

In 2020, the Council set specifications for 2021 and interim specifications for 2022. The 2022 interim specifications were set because of potential timing constraints associated with the 2021 management track assessment and administrative efficiencies. The Council anticipated the use of the 2021 golden tilefish management track assessment to review and possibly revise the interim 2022 specifications and set specifications for the 2023 and 2024 fishing seasons.

Based on the results of the management track assessment received in June 2021, the tilefish resource is not overfished and overfishing is not occurring in assessment terminal year (2020; Nitschke 2021a). The 2020 stock (23.28 million pounds or 10,562 mt) is at 96% of the updated biomass target reference point (SSB_{MSY} proxy = $SSB_{40\%}$ = 24.23 million pounds or 10,995 mt). The fishing mortality rate (F) in 2020 was 0.160, 39% below the fishing mortality updated threshold reference point F_{MSY} proxy = $F_{40\%}$ = 0.261.

Staff recommend 2022 interim specifications be revised and set additional specifications for years 2023 and 2024.[1] Staff recommend the accepted biological catch (ABC) for each year 2022, 2023, and 2024 be set at 1,964,319 pounds (891 mt).[2] This is based on an SSC-modified OFL probability distribution, the application of the Council risk policy, and a constant average ABC for 2022-2024. The FMP specifies that the annual catch limit (ACL) equals the ABC. Staff recommend an annual catch target (ACT) = ACL of 1,964,319 pounds (891 mt) for each year (i.e., no reduction for management uncertainty). After removing projected discards, the resulting IFQ quota is 1,866,103 pounds (846.450 mt) and the incidental category quota is 80,811 pounds (36.655 mt) for each year.

Staff do not recommend any changes to the current recreational possession limit (8-fish per angler per trip with no minimum size), or incidental trip limit (500 pounds (227 kg) or 50 percent, by weight, of all fish, including the golden tilefish, on board the vessel, whichever is less).

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[1] A golden tilefish research track stock assessment is scheduled for spring of 2024. This research track assessment will be used to set specifications for 2025, 2026, and 2027.

[2] 1 mt = 2,204.6226 pounds.

Introduction

The Magnuson-Stevens Act requires each Council's SSC (Scientific and Statistical Committee) to provide ongoing scientific advice for fishery management decisions, including recommendations for ABC, preventing overfishing, and maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. In addition, the Monitoring Committee (MC) established by the Fishery Management Plan (FMP) is responsible for developing recommendations for management measures designed to achieve the recommended catch limits.

Multi-year specifications may be set for golden tilefish for up to three years at a time. The SSC must recommend ABCs that addresses scientific uncertainty, while the MC must recommend ACTs that address management uncertainty. Based on the SSC and MC recommendations, the Council will make a recommendation to the National Marine Fisheries Service (NMFS) Greater Atlantic Regional Administrator. In this memorandum, information is presented to assist the SSC and MC in developing recommendations for the Council to consider for the 2022-2024 fishing years for golden tilefish.

Additional relevant information about fishery performance and past management measures is presented in the 2021 Golden Tilefish Fishery Information Document prepared by Council staff and the 2021 Fishery Performance Report developed by the Council Tilefish Advisory Panel. The NMFS Northeast Fisheries Science Center (NEFSC) provided the 2021 Golden Tilefish Management Track Assessment to support this specifications process (Nitschke 2021a). [3]

Catch and Landings Update

Commercial landings (calendar year) from 1970 to 2020 are presented graphically in Figure 1 of the 2021 Golden Tilefish Fishery Information Document (FID; MAFMC 2021a) and landings for fishing years 2005 through 2020 are presented in Table 1 below. Except for 2010 fishing year, commercial golden tilefish landings have been below the commercial quota specified each year since the IFQ system was first implemented in 2009.

Commercial discards are described in the FID (page 15). According to VTR data, no discarding was reported by longline vessels that targeted tilefish for the 2018 through 2020 period (Table 11 of the FID). According to the “Discard Estimation, Precision, and Sample Size Analysis” conducted by the NEFSC, discard estimations for commercial fisheries (mostly large/small mesh trawls and gillnets) appears to be low (several metric tons per gear type).[4] For the last five years (2016-2020), on average 17,405 pounds (7.895 mt) of tilefish were discarded.

Recreational catches and landings are described in the FID (pages 19-24). A small recreational fishery briefly occurred during the mid-1970's, with less than 100,000 pounds annually (MAFMC 2000). Recreational catches have been low for the 1982 - 2020 period, ranging from zero for most years to approximately over 200,000 fish in 2010 according to NMFS recreational statistics (Table 13 of the FID). VTR data indicates that the number of tilefish caught by party/charter vessels from Maine through Virginia is low, ranging from 81 fish in 1996 to 8,297 fish in 2015 (Table 14 of the FID). On average, 2,562 tilefish were caught by party/charter vessels during the 1996-2020 period.

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[3] These documents are available at: https://www.mafmc.org/council-events/2021/ssc-july-21-23
[4] 2016-2020 Discard Estimation, Precision, and Sample Size Analysis. http://www.nefsc.noaa.gov/femad/fsb/SBRM/

In 2020, party/charter boats reported 3,466 fish landed, a 36% decrease from 2019 (5,424 fish landed). The industry experienced cancellations of for-hire overnight trips in 2020 due to the COVID-19 pandemic. Furthermore, in 2020, tuna fishing was better than average, which resulted in less boats targeting golden tilefish. As a general rule, when tuna fishing is not good, anglers offset those trips by targeting tilefish (MAFMC 2021b).

Recreational catches have been traditionally considered an insignificant component of the removals and not included into the assessment. To improve tilefish management and reporting, GARFO implemented mandatory private recreational permitting and reporting for tilefish anglers in August 2020. This action was approved in late 2017, but with delayed implementation. Outreach materials and webinars were provided by GARFO and the Council leading up to the final rule and will continue to be circulated as these regulations become commonplace. Given these requirements have only been in place since August 2020, the following data should be considered preliminary. As of February 1, 2021, 340 tilefish permits have been issued for private recreational anglers. This permit allows recreational anglers to land both golden and blueline tilefish. For the 2020 fishing year, 50 golden tilefish were reported landed on 4 private recreational trips (with 5 fish discarded). The low landings associated with private anglers may be attributed to the short fishing season (as a result of when implementation occurred), this being the first-time recreational anglers are required to report.

<u>Review of SSC Recommendations from March 2020</u>

In March 2020, the SSC meet to recommend an ABC for tilefish for 2021 and 2022 (interim). Given the implementation of the new stock assessment review process approved by the Northeast Regional Coordinating Council (NRCC), a management track stock assessment was not expected to be available until June 2021. The previous stock assessment update, conducted in 2017, provided the basis for ABCs through October 31, 2020. As a result, the SSC was asked to recommend an ABC for 2021 and an interim ABC for 2022. The interim 2022 ABC was expected to be replaced with updated Overfishing Limits (OFL) and resultant ABCs following the June 2021 assessment peer review. The 2021 management track assessment would then be used to revise the interim 2022 specifications and set specifications for the 2023 and 2024 fishing seasons. The interim 2022 measures also provide a placeholder in the event that there is insufficient administrative time for Council approval and rulemaking for the start of the 2022 fishing year (i.e., November 1, 2021).

"The SSC noted the difficulties of this process from the perspective of scientific uncertainty, wherein ABCs in 2022 are being set by model results from 2017. However, the expected joint availability of results from a 2021 assessment update and the 2020 cooperative fishery independent golden tilefish longline survey was reassuring to the SSC. No compelling evidence from either the data update or the reports from the Advisory Panel suggested the need to change the current ABC. The SSC noted that this is a textbook example of an equilibrium fishery, with stable catches, high constant prices, stable seasonal supply, and low levels of discards. Past assessments have revealed that the fishery depends on the periodic recruitment of year classes. As a result, the CPUE is characterized by cycles of increasing and decreasing stanzas. Currently much of the fishery is dependent on the 2013 year class and, based on historical patterns, further increases in CPUE are expected."

Table 1. Summary of management measures and landings for fishing year 2005-2022.[a]

Management Measures	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
ABC (m lb)	-	-	-	-	-	-	-	-	2.013	2.013	1.766	1.898	1.898	1.636	1.636	1.636	1.636	1.636
TAL (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.755	1.887	1.887	1.626	1.626	1.626	1.625	1.625
Com. quota- (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.755	1.887	1.887	1.626	1.626	1.626	1.625/ 1.701*	1.625
Com. landings (m lb)	1.497	1.898	1.777	1.672	1.887	1.997	1.946	1.856	1.839	1.830	1.354	1.060	1.487	1.626	1.563	1.403	-	-
Com. Overage / underage (m lb)	-0.498	-0.097	-0.218	-0.323	-0.108	+0.002	-0.049	-0.139	-0.156	-0.165	-0.401	-0.827	-0.401	<-0.001	-0.064	-0.223	-	-
Incidental trip limit (lb)	133	300	300	300	300	300	300	500	500	500	500	500	500	500	500	500	500	500
Rec. possession limit	-	-	-	-	-	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]

[a] Fishing year 2005 (November 1, 2004 through October 31, 2005). [b] Eight fish per person per trip. *The Council requested for emergency action to allow unharvested 2020 IFQ pounds to be carried over into the 2021 fishing year, up to 5 percent of the quota shareholders initial 2020 allocation.

The SSC agreed with the MAFMC Staff recommendation for *status quo* ABC in 2021 and 2022 at a level of 1,635,830 pounds (742 mt). The SSC expressed both positive and negative factors regarding the interim measures for 2022 with respect to their uncertainty including:

- No major evidence commercial and recreational fisheries that stock conditions have changed substantially.
- Absence of direct evidence of new recruitment.
- An observed a decline in recreational harvest but explained by decline in effort due to weather. Overall, the Committee expressed concerns about precision of recreational catch but noted that a new recreational fishing permitting and reporting initiative may improve quality of estimates.
- CPUE in the commercial fishery has been increasing over the past 4-5 years.

2021 Golden Tilefish Management Track Assessment

Biological Reference Points

The biological reference points for golden tilefish were updated during the 2021 management track assessment (Nitschke 2021a). The fishing mortality threshold for golden tilefish is $F_{40\%}$ (as F_{MSY} proxy) = 0.261, and $SSB_{40\%}$ (SSB_{MSY} proxy) is 24.23 million pounds (10,995 mt).

Stock Status

The latest assessment indicates that the golden tilefish stock was not overfished and overfishing was not occurring in 2020, relative to the newly updated biological reference points. Fishing mortality in 2020 was estimated at F=0.160; 39% below the fishing mortality threshold of F=0.261 ($F_{MSY\ proxy}$). SSB in 2020 was estimated at 23.28 million pounds (10,562 mt), and was at 96% of the biomass target ($SSB_{MSY\ proxy}$).

Advisory Panel Fishery Performance Report

Advisors meet on February 17 to develop the 2021 Fishery Performance Report.[5] A summary of key issues is presented below.

- Large reduction in the demand for golden tilefish with restaurant closures due to COVID-19.
- Large price reduction at the beginning of the pandemic. Prices are better now.
- Industry continues to spread landings throughout the year to stabilize price.
- In regard to the CPUE increase in 2020. Industry indicated that more fish are being landed with the same trip effort than were caught in 2019.
- For-hire effort was reduced in 2020 due to COVID-19, and industry is experiencing the same for 2021.
- The 2020 tuna fishing season was better than average, resulting in less boats targeting golden tilefish.
- Concerns over the low numbers reported under the new private reporting system.
- Concerns over the lack of biological sampling if fish on the dock.

[5] This document is available at: https://www.mafmc.org/council-events/2021/ssc-july-21-23

- AP members indicated support for the proposed Council work to initiate a golden tilefish multi-year specifications framework as listed under the 2021 Council proposed actions and deliverables. They support changing the current fishing year (November 1 – October 31) to January 1 – December 31, as it will create more stability in terms of harvesting their full allocation.

Projections[6] and Basics for 2022-2024 ABC Recommendation

Estimated 2022-2024 OFLs and ABCs following the Council's risk policy assuming lognormal distributions CVs of 100% for time varying ABC (scenario 1) and average ABC (scenario 2) are shown in Table 2 below. The estimated fishing mortality and probability of overfishing and probability of being overfished are also given. The average constant ABC under scenario 2 was calculated from the average ABC derived from scenario 1. Both scenarios 1 and 2 result in near identical P* from year-to-year and an average P* of 0.45 for the entire 2022-2024 period. Also, a *status quo* scenario at the current ABC level was developed (scenario 5), resulting in an average P* of 0.35.

In addition, two other scenarios (scenarios 3 and 4) were developed for reference and comparison purposes only as they do not comply with the Council's risk policy and/or the maximum number of years allowed for multi-year specifications setting. Under scenario 3, projections are set for 5 years using the Council's risk policy assuming lognormal distribution CVs of 100% for time varying ABC. Scenario 3 provides projections for a longer time period (2022 through 2026) when compared to scenarios 1, 2, and 5 above. Overall, scenario 3 shows that the OFL decreases from 2022 to 2025 and then increases again in 2026, with an average P* of 0.45 for the entire projection period. Lastly, scenario 4 is not based on projections; it is based on a biomass at SSB_{MSY} and simply assumes a constant ABC. Scenario 4 also has an average P* of 0.45 for the entire projection period.

Staff recommend measures be developed for 3-years, the maximum under the FMP to provide for continued stability in the fishery and markets.

Staff recommend ABCs for 2022-2024 consistent with the projection methodology under scenario 2. The recommended ABC in each 2022, 2023, and 2024 is 1,964,319 pounds (891 mt) based on modified OFL probability distributions with CV of 100% and a risk policy to set a constant average ABC for 2022-2024; current stock status; average projected SSB/SSB_{MSY} = 102% for the 2022-2024 period; and provide for continued stability in the fishery and markets (Table 3 below). Overall, for the last several specifications cycles, the Council has set constant year-to-year catch and landings limits (Table 1 above). The relatively stability of the population, stock dynamics, and fishery also lend itself to a constant catch and landings limits approach. In addition, industry members have argued that a constant quota or landings level allow them to better plan fishing operations and allow for continued stability in the fishery and markets when compared to a variable quota or landings level from year-to-year.

[6] The approach used to specify biomass projections assumes that the ABC was caught in the preceding year. The ABC in the current year is then updated based on the assumed catch.

Table 2. Golden tilefish projected OFL and ABC (in mt) levels and associated fishing mortalities for 2022-2024.

Scenario 1	100% CV							projection probability	
year	OFL	ABC	SSB/SSB_{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished
2022	1,011	867	0.95	0.86	0.43	100%	0.22	0.28	0.02
2023	1,013	917	1.03	0.91	0.45	100%	0.24	0.35	0.01
2024	975	890	1.08	0.91	0.46	100%	0.24	0.38	0.01
avg	1,000	891	1.02	0.89	0.45		0.23	0.34	0.01

Scenario 2	891 constant avg 100% CV							projection probability	
year	OFL	ABC	SSB/SSB_{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished
2022	1,011	891	0.95	0.88	0.44	100%	0.23	0.32	0.02
2023	1,010	891	1.03	0.88	0.44	100%	0.23	0.32	0.01
2024	976	891	1.08	0.91	0.46	100%	0.24	0.38	0.01
avg	999	891	1.02	0.89	0.45		0.23	0.34	0.01

Scenario 3	5 year 100% CV							projection probability	
year	OFL	ABC	SSB/SSB_{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished
2022	1,011	867	0.95	0.86	0.43	100%	0.22	0.28	0.02
2023	1,013	917	1.03	0.91	0.45	100%	0.24	0.35	0.01
2024	975	890	1.08	0.91	0.46	100%	0.24	0.38	0.01
2025	959	872	1.06	0.91	0.45	100%	0.24	0.36	0.01
2026	971	882	1.05	0.91	0.45	100%	0.24	0.35	0.01
avg	986	886	1.03	0.90	0.45		0.23	0.34	0.01

Scenario 4	SSB_{MSY} constant 100% CV							projection probability	
year	OFL	ABC	SSB/SSB_{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished
2022	935	842	1.00	0.90	0.45	100%	0.22	0.25	0.02
2023	935	842	1.00	0.90	0.45	100%	0.21	0.25	0.01
2024	935	842	1.00	0.90	0.45	100%	0.22	0.30	0.01
avg	935	842	1.00	0.90	0.45		0.22	0.26	0.01

Scenario 5	742 constant status quo 100% CV							projection probability	
year	OFL	ABC	SSB/SSB_{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished
2022	1,011	742	0.95	0.73	0.36	100%	0.19	0.11	0.02
2023	1,031	742	1.05	0.72	0.35	100%	0.18	0.11	0.01
2024	1,012	742	1.11	0.73	0.36	100%	0.19	0.13	0.00
avg	1,018	742	1.04	0.73	0.35		0.19	0.12	0.01

Source: Paul Nitschke, Personal Communication. 2021b. Note: The approach used to specify biomass projections assumes that the ABC was caught in the preceding year. The OFL and ABC in the current year is then updated based on the assumed catch. Scenarios 3 and 4 were developed for reference and comparison purposes only as they do not comply with the Council's risk policy and/or the maximum number of years allowed for multi-year specifications setting. Scenarios 2 and 5 are based on constant catch projections and not from an ABC determination from the OFL. Scenario 4 is not based on projections; it is based on a biomass at SSB_{MSY} and simply assumes a constant ABC.

Oher Management Measures

Annual Catch Limits

As defined in the Framework Adjustment 2 to the Tilefish FMP, ABC is equivalent to the total allowable catch (ACL; Figure 1 below). Table 3 below shows the ACLs associated with the staff recommendations for ABC based on assuming lognormal distributions CVs of 100% for an average ABC, for tilefish. Table 4 below shows the catch and landings limits for the current specifications cycle (2021 and 2022 interim).

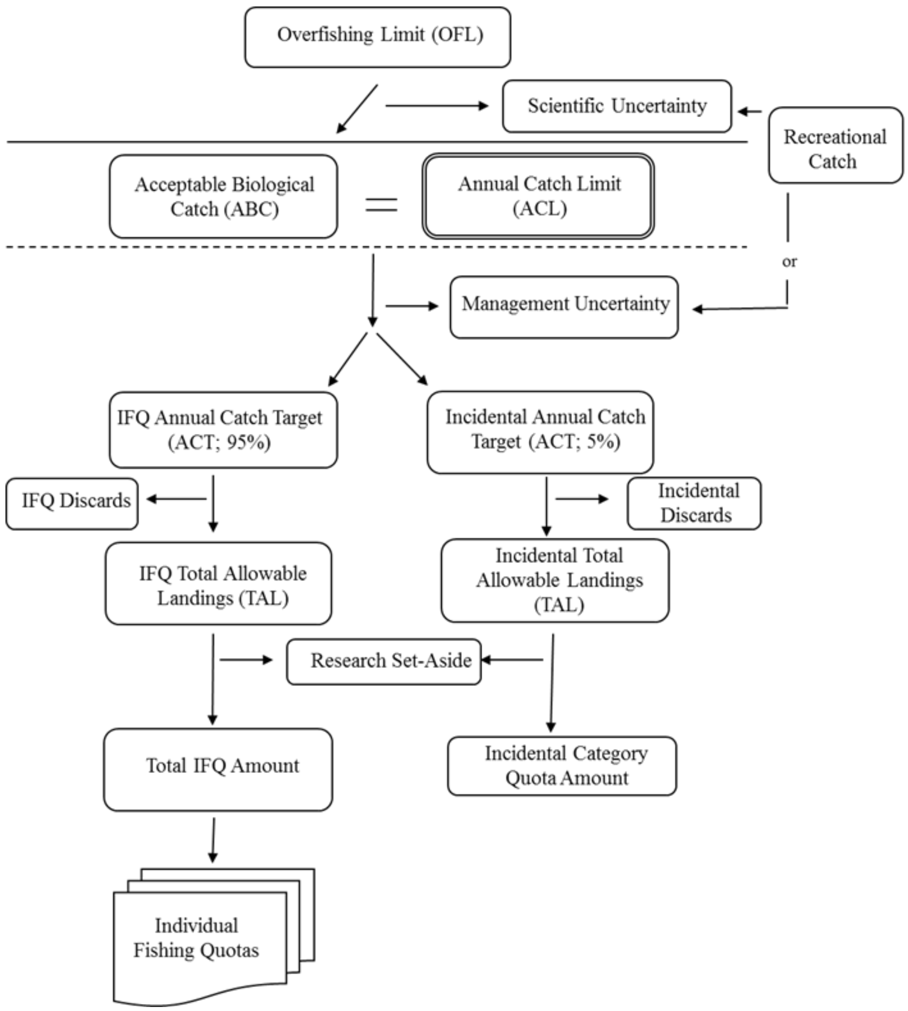

Figure 1. Flowchart for golden tilefish catch and landings limits.

Table 3. Staff recommended catch and landings limits (in pounds unless otherwise noted) for 2022 (revised), 2023, and 2024.

	2022 (revised)	2023	2024	Basis
OFL	2,228,873 (1,011 mt)	2,226,669 (1,010 mt)	2,151,712 (976 mt)	Projections
ABC	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	Staff recommendation based on overfishing probability averaging
ACL	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	ABC = ACL
IFQ fishery ACT	1,866,103 (846 mt)	1,866,103 (846 mt)	1,866,103 (846 mt)	Deduction from management uncertainty = 0. ACT = 95% of the ACL
Incidental fishery ACT	98,216 (45 mt)	98,216 (45 mt)	98,216 (45 mt)	Deduction from management uncertainty = 0. ACT = 5% of the ACL
Projected IFQ fishery discards	0	0	0	Data indicates no discards in the IFQ fishery (directed fishery). IFQ fishery discards are prohibited in the FMP
Projected incidental fishery discards	17,405 (8 mt)	17,405 (8 mt)	17,405 (8 mt)	Average discards (2016-2020) mostly sm/lg mesh OT and Gillnet gear
IFQ fishery TAL = IFQ fishery quota	1,866,103 (846.450 mt)	1,866,103 (846.450 mt)	1,866,103 (846.450 mt)	IFQ fishery TAL = IFQ fishery ACT – IFQ fishery discards. No additional reductions applied between IFQ TAL amounts and final IFQ fishery quota amounts.
Incidental fishery TAL = incidental fishery quota	80,811 (36.665 mt)	80,811 (36.655 mt)	80,811 (36.655 mt)	Incidental fishery TAL = incidental fishery ACT – incidental fishery discards. No additional reductions applied between incidental TAL amounts and final incidental fishery quota amounts.

Note: Initial OFL and ABC values are in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds the numbers may change due to rounding. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds.

Table 4. Catch and landings limits (in pounds unless otherwise noted) for the current specifications cycle (2021-2022).

	2021 (initial values)*	2021 IFQ TAL w/ Max Carryover**	2022 (interim)	Basis
ABC	1.636 m lb (742 mt)	–	1.636 m lb (742 mt)	SSC recommendation, based on data update, recent fishing trends, and scheduled 2021 management track assessment update that will be used to revise 2022 interim specifications
ACL	1.636 m lb (742 mt)	–	1.636 m lb (742 mt)	ABC = ACL
Management Uncertainty	0	–	0	Derived by Monitoring Committee (MC)
IFQ ACT	1.554 m lb (705 mt)	–	1.554 m lb (705 mt)	95% ACL
Incidental ACT	0.082 m lb (37 mt)	–	0.082 m lb (37 mt)	5% ACL
IFQ Discards	0	–	0	Discards in the IFQ fishery are prohibited
Incidental Discards	0.011 m lb (5 mt)	–	0.011 m lb (5 mt)	Avg. discard (2015-2019) mostly sm/lg mesh OT and Gillnet gear. NEFSC
IFQ TAL	1.554 m lb (705 mt)	1.631 m lb (740 mt)	1.554 m lb (705 mt)	IFQ ACT - IFQ Discards
Incidental TAL	0.070 m lb (32 mt)	–	0.070 m lb (32 mt)	Incidental ACT - Incidental Discards

*ABC values are typically reported in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds (m lb) the numbers may change due to rounding. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds. **Due to the COVID-19 national emergency, the Council requested the service to consider an emergency action to allow a 5% rollover of unused IFQ 2020 quota allocation for the golden tilefish fishing year November 1, 2020 through October 31, 2021. Only the IFQ TAL would be affected by the requested emergency carryover. All other specifications would remain at proposed 2021 values.

Annual Catch Targets

The Tilefish MC is responsible for recommending ACTs for the IFQ and incidental sectors of the fishery, which are intended to account for management uncertainty, for the Council to consider. The ACTs, technical basis for ACTs considerations, sources of management uncertainty should be described and technical approaches to mitigating these sources of uncertainty should be defined and provided to the Council. The relationship between the ACTs and other catch/landing components are given in Figure 1 above.

Management uncertainty is comprised of two parts: uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e., estimation errors). Management uncertainty can occur because of a lack of sufficient information about the catch (e.g., due to late reporting, underreporting, and/or misreporting of landings or discards) or because of a lack of management precision (i.e., the ability to constrain catch to desired levels).

Staff recommend the MC consider past specific landings performance, as a basis for quantifying management uncertainty (i.e., implementation error) and as an indicator of future ability to achieve catch target when developing the 2022-2024 ACT recommendation for the IFQ and incidental sectors (Table 3 above). The MC should also consider the potential imprecision/variability in expected observed commercial and recreational catch to ensure the ACLs are not exceeded.

The tilefish fishery is managed via an IFQ system and managers believe that all tilefish commercial landings values under this program are reliable. The IFQ monitoring system is timely and successful in managing the landings. The commercial landings performance for the last 10 years has been near or below the commercial quotas (Table 1 above). The recreational catch is minimal.[7] Staff recommend no reduction in catch from the ACL. The recommended ACTs in each 2022, 2023, and 2024 are 1,866,103 pounds (846 mt) for the IFQ fishery and 98,216 pounds (45 mt) for the incidental fishery (Table 3 above).

Total Allowable Landings

Management uncertainty can occur because of insufficient information about discards (Figure 1 above). Development of a time series of discards was not done in prior assessment models since discarding was considered negligible and information on discards do not exist for most of the time series. Therefore, discards have not been included in the assessment due to the high uncertainty associated with the discard estimates over the time series. Very low or insignificant discards have been estimated for recent years according to the discard estimation, precision, and sample size analysis conducted by the NEFSC. There is higher uncertainty (CVs) on the low recent discard estimates since the discarding of tilefish is a rare event on observed trips. Therefore, an average of several years was used to judge recent relative magnitude of discarding for this fishery. For the last five years (2016-2020), on average 17,405 pounds (7.895 mt) of tilefish were discarded according to the discard estimation, precision, and sample size analysis conducted by the NEFSC. Commercial discards are not generated by the IFQ fishery due to the fact that all fish caught (given the standard hook size/type use by the industry) are marketable. In addition, even though there is a price differential for various sizes of golden tilefish landed, golden tilefish fishermen land all fish caught as the survival rate of discarded fish is very low (Nolan, pers. comm. 2006; Kitts et al. 2007). Furthermore, Amendment 1 to the Tilefish FMP prohibited the practice of highgrading (MAFMC 2009). It is estimated that most of the discards that have occurred in recent years have been by large/small mesh trawls and gillnets used by the incidental fishery. Staff recommend a reduction in catch from the incidental ACT to account for discards in that component of the fishery. Staff recommends no reduction in catch from the IFQ ACT. The recommended IFQ TAL is 1,866,103 pounds (846.450 mt) and the resulting incidental TAL is 80,811 pounds (36.665 mt) for each 2022, 2023, and 2024 (Table 3 above).

Adjusted IFQ TAL and Incidental TAL for 2022

The Council is in the process of developing a framework document that considers measures to revise the specifications process by considering the duration for setting multi-year management measures and the timing of the fishing year. At the first framework meeting (April 2021), the Council selected preferred alternatives for these two process related issues. Regarding the issue of the timing of the fishing year, the Council selected an alternative that sets the golden tilefish fishing

[7] Recreational tilefish trips appear to be limited and a minor component of the catch as indicated in the FID, the FPR, and the 2021 Golden Tilefish Management Trach Assessment (Nitschke 2021a).

year as the 12-month period beginning with January 1, annually. Therefore, the fishing year will be from January 1 – December 31 (compared to the current November 1 – October 31 fishing year). The other action would modify the annual specifications process, so that they could be set for the maximum number of years needed to be consistent with the NRCC approved stock assessment schedule. In addition, this framework will set new specifications (catch and landings limits) for 2022-2024.

To facilitate the transition from the current fishing year (November 1 through October 31) to January 1 to December 31, a one-time only adjustment to bridge the gap will be necessary. More specifically, the 2022 fishing year will be extended from November 1, 2021 to December 31, 2022 (14-month period). Then, for 2023 and 2024, the Council would implement specifications starting on January 1 and ending in December 31.

When the staff recommended overall commercial quota for 2022 of 1,946,914 pounds is compared to the overall initial quota for 2021 (1,624,305 pounds), it results in a 20% increase in the quota level between those two periods. In order to make a more robust comparison of quota changes as result of the proposed staff recommendations during the gap year, the fishing year quotas for 2021 and 2022 are broken down to a common monthly denominator basis to assess impacts of the 14-month 2022 fishing year compared to 2021 12-month fishing year. The current 2021 overall commercial quota of 1,624,305 pounds is equivalent to 135,359 pounds/month (1,624,305 pounds / 12 months) and the 2022 overall staff recommend quota is equivalent to 139,065 pounds/month (1,946,914 pounds / 14 months). Therefore, on a common monthly denominator basis, the overall commercial quota is increased by only 3% in gap 2022 fishing year compared to 2021 fishing year. For each, 2023 and 2024, the overall commercial quota is 20% higher compared to 2021 fishing year.

Recreational Bag Limit

A recreational bag limit was implemented under Amendment 1 in 2009 (MAFMC 2009). Current regulations require an 8-fish recreational bag-size limit per angler per trip. This limit was set at the upper range of mean effort observed during the 1996-2005 period. VTR data indicates that mean effort for the 2006 to 2020 period has ranged from 1.2 to 4.6 fish per angler. In 2020, mean effort was 3.2 fish per angler. The recreational bag limit may be changed based on the recommendations of the MC. Staff does not recommend any changes to the recreational bag limit.

Incidental Trip Limit

When the Council created the tilefish IFQ system, it allocated a separate quota and commercial possession limit to allow small landings of tilefish caught by non-IFQ vessels targeting other species. The current 500 pound incidental trip limit has been in place since 2012 (Table 1 above). Framework Adjustment 2 to the Tilefish FMP (implemented in 2018) adjusted the commercial golden tilefish landing limit to: 500 pounds (227 kg) or 50 percent, by weight, of all fish, including the golden tilefish, on board the vessel, whichever is less. This was an effort to ensure that the incidental fishery functions as originally intended, the Framework Adjustment 2 action modified the commercial possession limit to ensure that vessels are targeting other species, and only incidentally catching golden tilefish.

Fishing regulations state that if the incidental harvest exceeds the incidental TAL for a given fishing year, the incidental trip limit specified may be reduced in the following fishing year. In addition, the harvest of the tilefish incidental TAL monitoring is based on dealer reports and other available information, and determines the date when the incidental tilefish TAL has been landed. The Regional Administrator publishes a notice in the Federal Register notifying vessel and dealer permit holders that, effective upon a specific date, the incidental tilefish fishery is closed (in-season closure of the incidental fishery) for the remainder of the fishing year. Golden tilefish incidental commercial fishery landings in 2021 fishing year are slightly ahead of 2020 fishing year landings for the same time period (Figure 2 below). As of June 9, 2021, 20,921 pounds of incidentally caught tilefish have been reported (approximately 30% of the 70,548 pounds incidental quota). Incidental golden tilefish commercial landings for the last eight fishing years are shown in Table 12 below. Staff does not recommend any changes to the incidental trip limit.

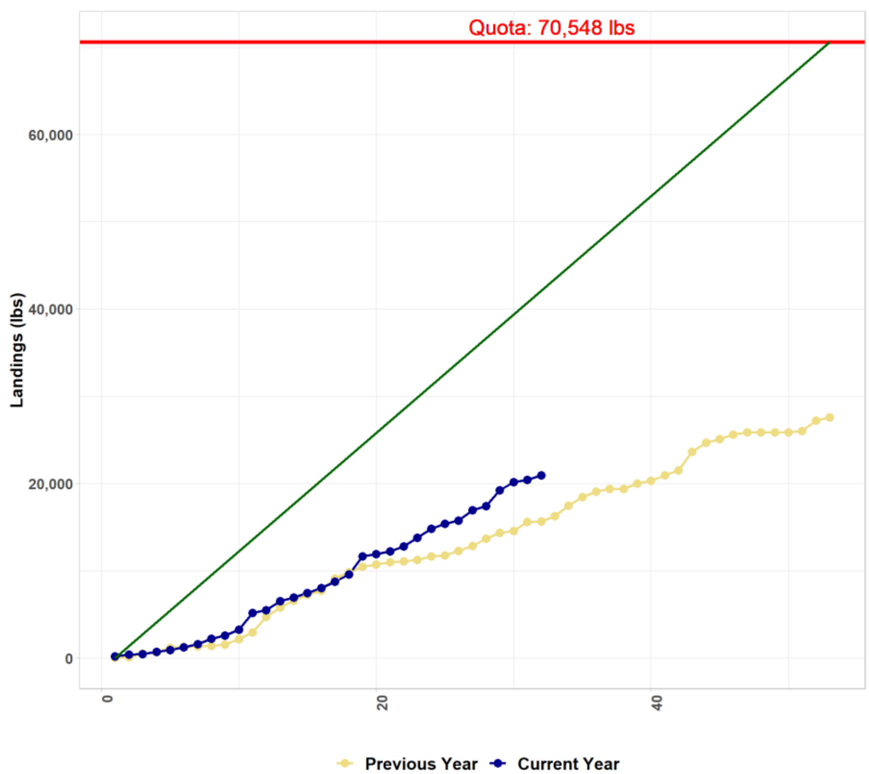

Figure 2. Incidental commercial landings for 2022 fishing year to date (for data reported through June 9, 20212021). Blue Line = fishing year 2021, Yellow Line = fishing year 2020.
Source: https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region

Table 12. Incidental golden tilefish commercial landings for fishing year 2013-2020.

Fishing year	Landings (pounds)	Incidental quota (pounds)	Percent of quota landed (%)
2013	36,442	99,750	37
2014	44,594	99,750	45
2015	18,839	87,744	21
2016	20,929	94,357	22
2017	60,409	94,357	64
2018	61,254	72,752	84
2019	22,246	72,752	31
2020	25,864	70,548	37

Source: https://www.fisheries.noaa.gov/new-england-mid-atlantic/quota-monitoring-greater-atlantic-region.

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MEMORANDUM

Date: July 29, 2021

To: Council

From: J. Didden, Staff

Subject: Mackerel Agenda Items

Atlantic Mackerel

The purposes of this portion of the Council meeting are to consider requesting emergency action for mackerel and begin a framework to revise mackerel rebuilding.

Materials included to support the Council are listed below. Underlined page numbers in the bottom right hand corner represent a running total for this briefing tab.

MSB Monitoring Committee Meeting Summary

July 26, 2021
Webinar

The Mid-Atlantic Fishery Management Council's (Council) Mackerel, Squid, and Butterfish (MSB) Monitoring Committee met on July 26, 2021 at 10 am. The purpose of this meeting was to develop recommendations related to Atlantic mackerel management.

MSB Monitoring Committee Attendees: Jason Didden, Kiersten Curti, Daniel Hocking, and Chuck Adams.

Other Attendees: Jeff Kaelin, Alissa Wilson, Greg DiDomenico, Katie Almeida, Zach Greenberg, Zoe Goozner, Eric Reid, James Fletcher, Meghan Lapp, and Mary Sabo.

Atlantic Mackerel

Jason Didden described the Scientific and Statistical Committee's (SSC's) recommendations regarding mackerel. The Monitoring Committee discussion focused on the potential to take emergency action[1] for reducing and/or ending overfishing in 2021 and 2022 while a new rebuilding plan is developed – the SSC also provided initial input regarding rebuilding considerations, which is considered by staff in a separate memo. There appear to be two primary options for quick emergency action, each with some pros and cons discussed below. NMFS Greater Atlantic Regional Fisheries Office (GARFO) staff previously indicated that for an emergency action the Council is not necessarily limited to the SSC's catch recommendation, but the best scientific information available must support that the emergency action would reduce overfishing. Staff will be looking to confirm several procedural details with GARFO before the August 6, 2021 Mackerel, Squid, and Butterfish (MSB) Committee and Advisory Panel meeting. Since recreational measures have not been previously contemplated, their use would slow down any emergency action, but are likely needed for rebuilding options.

Emergency Action Option 1

Use the SSC's recommended catch of 8,760 MT, which was based on a catch of 23,184 Metric Tons (MT) in 2021 and application of a P* (tolerated risk of overfishing) of 0.4 (40%) in 2022. The SSC recommended minimizing additional catch in 2021, but made the assumption that the 2021 ABC will be caught so as to not underestimate 2021 catch and avoid setting rebuilding back further.

The primary pro with this option is that once implemented, this catch will have a 60% probability of ending overfishing even if 2021 catch was 23,184 MT, and is based on a recruitment assumption reflective of recruitment during the last ten years. These two

[1] Emergency actions are generally effective for six months and may be extended for an additional six months.

assumptions were recommended by the SSC and maximize that chance that the short-term projections are not overly optimistic in their projected rebuilding of SSB. After the Canadian quota (2021's 4,000 MT used) and recreational catch (3,503 MT is the 2015-2019 average) are accounted for, the Commercial Allocation would be 1,257 MT. With the current 3% management uncertainty buffer and a 98 MT discard set-aside (average MT 2015-2019), the commercial quota (DAH) would be 1,121 MT. Currently the directed fishery closes at 90% of the DAH so directed fishing would likely close after 1-2 weeks of fishing in 2022. Performance in terms of the discard assumption and incidental or smaller directed catches after a closure would be somewhat uncertain, but catch would likely be substantially reduced with this approach, thus reducing if not eliminating overfishing.

The primary con with this approach is uncertainty in timing. This approach would be outside the bounds of the existing Environmental Assessment (EA), and likely require the creation of an unplanned EA by GARFO staff, who are already fully occupied with existing priorities (including working with staff on the *Illex* permit EA). If even typical timing issues caused implementation to slide into the 2022 fishery (generally January 1-April 1) the existing quota of 17,312 MT would prevail until changed, potentially continuing substantial overfishing when combined with recreational and Canadian catch. If this option could be implemented before substantial fishing occurred in 2022, then this option would likely have the most beneficial impact on the mackerel stock because it would result in the lowest DAH for the 2022 winter U.S. fishery (late season catches from 2010-2019 October-December landings ranged from 28 MT - 4,520 MT so late 2021 landings might not be that high even if this option is not implemented until January 2022). Council staff plans to confirm the likely implementation timing of this option with GARFO before the August meeting.

Emergency Action Option 2

In the last EA for mackerel specifications, the lowest U.S. ABC considered was 9,456 MT (10,000 MT was deducted for Canada based on the Canadian quota at that time) and resulted in a U.S. commercial quota of 7,911 MT. If both this U.S. commercial quota (7,911 MT) and the current Canadian quota (4,000 MT) are fully caught in 2021 and the U.S. recreational catch equals the 5-year average of 3,503 MT, total 2021 removals would be 15,512 MT (also includes 98 MT of commercial discards). Compared to catch of 23,184 MT with the U.S. ABC and lower Canadian landings, a catch of 15,512 MT would substantially reduce fishing mortality by over a third to around 0.3, versus 0.48, assuming the recruitment scenario recommended by the SSC. The con with this option is that once implemented, overfishing would only be reduced, not eliminated or reduced as much as in Option 1. The pro is that if the existing EA can be utilized to streamline the NEPA process, the likelihood of achieving rapid implementation before substantial additional fishing occurs is higher (staff requesting additional GARFO input about the likely timeline). If catch was limited to 15,512 MT in 2021/2022, while overfishing would occur, stock biomass would still be predicted to slightly increase.

Public Comments:

Greg DiDomenico: What would happen if under these scenarios there was much higher than expected recreational catch? Staff: Post-season accounting is handled by GARFO, and it is not clear to staff how that accounting and paybacks would work if operating under an emergency rule – staff will ask GARFO. How similar is mackerel situation to bluefish situation – we appear to be waiting for recruitment with both, that may never appear…? Staff reviewed bluefish assessment versus mackerel assessment, and noted that we are in different places in terms of process – bluefish is initiating rebuilding while mackerel is reacting to likely lack of progress over first several years of rebuilding.

Jeff Kaelin: Monitoring Committee and Council should consider that limited rebuilding occurs even with no catch (F_0). Staff reviewed that with no catch, and the recent/lower recruitment, the stock is projected to rebuild in eight years, i.e. in 2030. With some moderate background catch however (7,500 MT from Canada and recreational), the stock would not rebuild in 10 years with the recent/lower recruitment. The question of whether low recruitment is tied to environmental conditions or stock size or both is not known.

Staff Recommendation:

The Monitoring Committee did not have a particular recommendation between the two options other than highlighting the various pros and cons. Staff considered the two options discussed by the Monitoring Committee. If an abbreviated NEPA process can be utilized, then Option 2 may be the better option as it would have a higher chance of being implemented in time to avoid substantial overfishing in late 2021 or early 2022. If GARFO was completely sure that a new EA could be created and measures implemented by January 2022, then Option 1 would be better for the mackerel stock because it has a greater probability of eliminating overfishing in 2022 and results in a lower quota during the primary U.S. fishery that occurs in January-April. The impacts on fishing communities would also be higher with Option 1. **Given staff's understanding of current workload and timing issues, Option 2 is recommended at this time.** GARFO should have additional information on the NEPA process details by the August 6, 2021 MSB Committee Meeting.

Mid-Atlantic Fishery Management Council
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Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 29, 2021

To: Dr. Chris Moore, Executive Director

From: J. Didden, Staff

Subject: Mackerel Rebuilding, Framework Meeting 1

Atlantic Mackerel Rebuilding

Key Points

-The mackerel stock has not responded as predicted and recommendations from the SSC indicate changes are needed relative to rebuilding. The timeline for final action depends on resolving several key questions (see below) but could potentially be as early as October or December 2021.

-Recruitment has been low in recent years; projections indicate continued low recruitment will make it very challenging to rebuild to reference points that are based on higher recruitment, unless nearly zero catch occurs. Impacts on fishery participants could involve nearly a complete loss of mackerel revenues for the duration of the rebuilding period.

-Unless higher recruitment occurs, the fishery will not produce the Maximum Sustainable Yield (MSY) as estimated in the Management Track Assessment (which used a longer time series with a higher median recruitment). If low recruitment persists, the stock is projected to be able to make it to the biomass target, but sustained catches at or near MSY would cause the stock to decline since the MSY value is predicated on higher recruitment. Use of lower recruitment in calculating reference points would make it easier to rebuild on paper, but the MSY yields would be substantially less.

-The SSC noted that given the patterns in recruitment, a longer rebuilding timeline is likely needed.

The Magnuson-Stevens Act (MSA) states that rebuilding shall:

i) be as short as possible, taking into account the status and biology of any overfished stocks of fish, the needs of fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock of fish within the marine ecosystem; and

(ii) not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise;
(B) allocate both overfishing restrictions and recovery benefits fairly and equitably among sectors of the fishery…

Given the recent trends in catch, abundance, recruitment, and SSC input, staff suggests the following range options for a new rebuilding plan:

1. Confirm with GARFO staff that because mackerel would be predicted to rebuild in 8 years with no fishing, neither the low recruitment situation nor the inability to control Canadian catch could qualify mackerel for a *longer than 10-year* rebuilding plan. Assuming not, staff suggests basing a reset of the rebuilding plan on 10-years, starting in 2022.

2. Request that the range of alternatives be developed in collaboration with NMFS and the SSC such that the expected probability of rebuilding within 10-years be either 50%, 60%, or 75%. A quick survey by staff of recent rebuilding plans suggests this range would cover approaches previously used by the Mid-Atlantic Fishery Management Council and/or other Councils (though rebuilding probabilities greater than 50% appear in some cases to be weakly quantified).

3. Request that the SSC provide a recommendation on what the "Best Scientific Information Available" would be for assumed recruitment used in rebuilding projections in order to most closely achieve the targeted probabilities of rebuilding identified by the Council. Also request that the SSC provide a recommendation on how long a change in recruitment should persist before a regime change is apparent (and when reference points should be updated).

4. Include measures for all sectors to meet the rebuilding fairness requirements of the MSA.

As with the initial rebuilding plan, additional mid-course adjustments are likely. Given the high variability seen in mackerel recruitment, the probability of being precisely on any projected rebuilding trajectory is likely low – it is more likely that the stock will be substantially below or above the anticipated rebuilding trajectory after several years.

The river herring and shad cap for the mackerel fishery would be set when specifications stemming from the rebuilding plan are set. Unless directed otherwise, staff would add alternatives that take a similar approach as the current cap.

The SSC Report is behind Tab 14.

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 13, 2021

To: C. Moore

From: J. Didden

Subject: Mackerel Rebuilding Modification/Re-assessment and Potential Emergency Action; SSC Meeting

Atlantic Mackerel

The current mackerel Acceptable Biological Catch (ABC) of 29,184 metric tons (MT), is based on the projected catch in the first year (2019) of a rebuilding program designed to rebuild mackerel in 2023. Catches in 2020 and 2021 were originally slated to increase above 29,184 MT given the projected increases in biomass. These projections were predicated on a strong 2015 year class and typical year classes subsequently. At its May 2019 meeting, the SSC considered results from the 2019 Canadian Atlantic mackerel assessment, which indicated lower than expected recruitment in 2016-2018. The SSC determined that it would not be appropriate to recommend the planned higher ABCs with 2016-2018 recruitment levels likely lower than anticipated (i.e. lower than typical). Instead, in 2019 the SSC recommended maintaining the 29,184 MT ABC, and in 2020 endorsed the same ABC for 2021-2022 pending the 2021 mackerel management track assessment.

The 2018 stock assessment (2016 terminal year) and the 2021 assessment (2019 terminal year) both estimate that the mackerel stock reached a low point around 2012-2014 at around 8%-9% of the biomass target at that time[1]. They both found that by their respective terminal years, the stock had increased to 22% and 24% of the biomass target. However, the 2018 assessment and associated projection methods estimated that more substantial stock rebuilding would have occurred by 2019 given the observed catches. The current estimates and trends indicate that rebuilding is very unlikely by the original target (2023) though staff notes that almost none of the data in the new assessment occurred while a rebuilding plan was in effect (since November 29, 2019). Potential causes of the apparent trends appear to be continued lower than typical recruitment, and changes in maturity and/or weight at age.

Several projections conducted for the current SSC meeting demonstrate the sensitivity of stock trajectory to recruitment. Using a lower recruitment draw for projections from 2009-on compared

[1] This would have led to a complete fishery closure based on the Council's risk policy that states the P* (probability of overfishing) should = 0 (i.e. catch = zero) when stock biomass is at or less than 10% the target.

to 1975-on reduces recruitment by almost a quarter. While 5-year average catch (18,419 MT) is predicted to rebuild in about 5 years (2022-2027) with the higher recruitment, at the lower recruitment with the same catch, the stock would be predicted to be only at 39% of the biomass target after 10 years (2022-2032). This creates a conundrum for setting future rebuilding catches, as assuming the higher recruitment may not be reflective of current conditions, but assuming lower recruitment makes it very difficult to achieve a target biomass that is itself based on the higher recruitment.

According to the most recent Canadian stock assessment conducted in 2021, Atlantic mackerel (in its 2020 terminal year of data) was "in the critical zone" (at about 58% of the limit reference point — the stock level below which productivity of the resource is sufficiently impaired to cause serious harm), with limited chance for rebuilding in the near future.[2]

Staff notes that stock-wide total mackerel catches have been relatively stable from 2011-2019, ranging from about 14,200 MT to 22,300 and that fishing mortality has decreased substantially over that time period as biomass has apparently more than doubled (a 148% increase). If A) Canada catches its 4,000 MT quota in 2021 (which seems likely), B) the U.S. commercial fishery performs similarly to last year from this point in time and ends around 6,000 MT for 2021, and C) the U.S. recreational fishery catches its recent five year average (about 3,500 MT), then the total 2021 catch would be about 13,500 MT[3]. This would be lower than any catch in the entire time series and would be closer to ending overfishing according to the assessment projections. The lowest catch in the time series occurred in 2015, 14,185 MT.

Given the observed apparent stock growth (at lower stock sizes) since 2011 with similar or higher catches, and pending the outcome of the SSC meeting, staff is considering recommending that as a rebuilding plan is modified or re-assessed, the Council request A) for NMFS to take emergency action to close the commercial mackerel fishery when landings are expected to reach 95% of 6,685 MT [14,185 MT (lowest time series catch) - 4,000 MT (Canadian quota) - 3,500 MT (expected U.S. Recreational catch) = 6,685 MT] and also B) close federal waters to harvest of mackerel by recreational fishermen. The 2018-2019 precision estimates of recreationally-harvested mackerel in federal waters were reasonable (Proportional Standard Error below 30%) and indicated federal waters (which the Council can affect) accounted for 10%-13% of harvest by weight. The Magnuson-Stevens Act requires that rebuilding harvest restrictions or recovery benefits be allocated fairly and equitably among sectors, so some impact on the recreational sector would appear warranted (U.S. recreational catch accounted for 28% of U.S. mackerel catch in 2019). These measures could likely be in effect until additional action regarding rebuilding is implemented, i.e. for part of the remainder of 2021 and initially for 2022.

Such an action, if catch was limited to around 14,185 MT, would further reduce fishing mortality to nearer to the overfishing reference point (regardless of the assumed recruitment scenario). Based

[2] https://www.gazette.gc.ca/rp-pr/p2/2021/2021-05-26/html/sor-dors100-eng.html When available, the Canadian assessment will be posted, and a draft may be available for the SSC members before the meeting.

[3] It has also been estimated by Canadian DFO Science that there could be between 2,000 and 5,000 metric tons of unreported catches per year, which includes fishing mortality from various sources, notably recreational and some unreported commercial (including bait) harvests, discards and other mortalities. (see footnote 1 link above) These potential catches have not been included in any assessments.

on observations since 2011 and approximating from the available projections, some rebuilding would still be expected at this catch from 2020 to 2021 and again from 2021 to 2022 even if realized recruitment is the median of the more recent, lower time series. Under the lower recruitment scenario, catches of 23,184 MT in 2021 (current ABCs/quotas) and 18,419 MT (5-year average recent catch) in 2022 (41,603 MT combined) are projected to reduce biomass from 2020 to 2022 by 5% (but still be 34% above 2019), while Fmsy catches of 11,622 MT in 2021 and 12,762 in 2022 (24,384 MT combined) are projected to increase biomass from 2020 to 2022 by 18% (and be 66% above 2019). Catches of 28,370 MT (two times 14,185 MT) would be substantially closer to the lower (i.e. Fmsy) of the above-referenced projections, so some additional stock growth would be expected at annual catches of 14,185 MT (staff hopes that the NEFSC can run a projection for 14,185 MT to confirm). Staff notes that recruitment was estimated to actually have been above the lower assumed median amount in 4 out of the last 5 years.

Staff hopes that additional projections are available for the SSC meeting that can be considered and used to craft advice for the Council as further action on mackerel rebuilding is considered. These should include the standard P* calculations based on the Council's risk policy even though the risk policy to use P* is likely not binding for 2021-2022 given the Council's previous decision to base decisions on a rebuilding fishing mortality for 2019-2023. At the same time however, the recent assessment would appear to preclude continued implementation of the existing rebuilding fishing mortality (it would constitute overfishing). Accordingly, SSC recommendations for 2021 and initially 2022 may be better conceptualized as interim fishing level recommendations rather than traditional ABCs. A framework action (meeting #1) is scheduled for the August Council meeting (preceded by a joint MSB Committee and Advisory Panel meeting), and additional projections can be requested based on discussions/recommendations by the SSC, MSB Committee, MSB Advisory Panel, and Council for SSC review and rebuilding recommendations in September prior to Council action in October. For example, Council staff has asked NEFSC staff if assumed recruitment could be stepped from the lower to higher time series medians over 10 years, to build in some caution at the beginning, but acknowledge that to really get to a normal rebuilt stock you have to have normal recruitment (by definition, the current biomass and catch reference points could not be maintained without typical recruitment).

Given the divergence from P* was specific to the original rebuilding plan initiation, if the Council wants the next rebuilding time series to also have higher catches than P*, a similar risk policy modification would need to be included (the base risk policy dictates choosing the lower of a rebuilding F catch or a P*-derived catch). This was an intentional design of the rebuilding plan, so that divergence from P* would have to be directly considered in each instance. While not yet available when this document was written, it is anticipated that, P*-derived catches would likely be very low, possibly below just the combined anticipated Canadian and recreational catch, especially if the more recent, lower recruitment time series is used.

While the above-proposed course of action is a relatively rapid response, it is in line with the spirit of the Council's original rebuilding plan, which stated "…we also expect that a 2020 mackerel stock assessment update will be available to provide relatively quick feedback on initial rebuilding results."

Atlantic Mackerel
Fishery Performance Report
July 2021

The Mid-Atlantic Fishery Management Council's (Council) Mackerel-Squid-Butterfish (MSB) Advisory Panel (AP) met via webinar on July 7, 2021 to review an Atlantic mackerel Fishery Information Document and develop the following Fishery Performance Report. The primary purpose of the report is to contextualize catch histories for the Scientific and Statistical Committee (SSC) by providing information about fishing effort, market trends, environmental changes, and other factors. The trigger questions below were posed to the AP to generate discussion. The AP was also asked about preliminary thoughts on potential rebuilding modifications given the recent mackerel assessment. Please note: The AP comments described below are not necessarily consensus or majority statements.

Advisory Panel members present: Jeff Kaelin, Sam Martin, Emerson Hasbrouck, Daniel J Farnham, G. Lovgren, Gerry O' Neill, Katie Almeida, Pam Lyons Gromen, Zack Greenberg, Greg DiDomenico, and Meghan Lapp.

Others present: Jason Didden, Doug Christel, Aly Pitts, Dave Secor, David Stormer, Alissa Wilson, Paul Rago, and Mark Holliday.

Trigger questions:

1. What factors have influenced recent catch (markets, environment, regulations, etc.)?
2. Are the current fishery regulations appropriate? How could they be improved?
3. What would you recommend as research priorities?
4. What else is important for the Council to know?

1.1 General

Concern was voiced that shifting thermal habitat suitability is impacting the distribution and/or productivity of MSB species, and needs to be taken into account by assessments/management.

There is concern that assessments will be hurt if surveys are limited by wind development.

Concern was voiced about the potential effects of data gaps (surveys, observer, etc.) due to COVID-19.

Tariffs affect prices and profitability, and therefore trade. If a buyer is in China, that buyer may try to negotiate price based on what they know they will have to absorb in tariffs.

The costs of importing/exporting containers from/to overseas has increased (doubled in cases) and will likely be a factor going forward for quite some time.

1.2 Mackerel

Market/Economic Conditions

In 2020 spring fish disappeared before COVID-19 effects were substantially affecting fishing. 2021 landings would also have been impacted by uncertainty around Covid – all fisheries have been fragile and participants have worked to ensure the market is not flooded by multiple vessels landing at one time.

There are two very different markets – fresh and frozen. Export demand has been fairly steady. The fresh market has been more negatively impacted by Covid.

Given low herring quotas, prices may have been somewhat elevated just to keep boats going.

Environmental Conditions

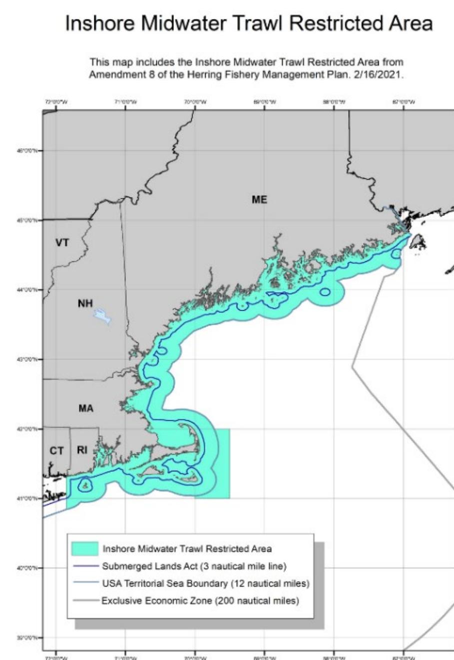
See point above in general section about shifting thermal habitat. Mackerel availability continues to be highly variable and hard to predict year to year.

Management Issues

The RH/S cap had substantial negative impacts on the mackerel fishery in 2018/2019. There are discrepancies between New England and the Mid-Atlantic that can hamstring the mackerel fishery (especially given it's a high-volume fishery), while substantial RH/S cap remains in the Atlantic herring fishery.[1]

Fall 2020 – lack of Atlantic herring RSA restricts northern late-season mackerel landings in areas 3/1a.

New England's 12-mile line has been affecting landings since implementation – impacted 2021 and will impact future years. The effective limit is substantially more than 12 miles in some places.



[1] Recall Council discussion of this in February 2021

The Atlantic Herring fishery has become a choke-species for the Atlantic mackerel fishery.

In early 2020, the fishery collaborated to avoid RH/S and also luckily encountered mackerel further north early with observers onboard to benefit the cap estimates and give the fishery a chance (the previous year's ratio is used in a transition method until enough new trips are observed, so the fishery can potentially be shut down based on the previous year's data).

Cornell still has its real-time avoidance program through the squid-trawl network but has been slowed in last year due to Covid and switch away from BoatTracs.

Other Issues

AP members requested more info on trends in the relatively recent jig fishery.

More information on the Canadian fishery/assessment/quota decisions would be helpful.

We are under a current rebuilding plan that is not likely to succeed, if we are heading to a new rebuilding plan, the Council should be aware of current events such as Canadian assessment and quota cut (8,000 MT to 4,000 MT).

The current status of mackerel remains overfished. Focusing on biomass alone (and not age structure) may be short-sighted in terms of overall rebuilding and resiliency.

Paul Rago asked: Is there a preference for particular rebuilding time series – e.g. constant catch, lower then higher catch, etc.

There was some preference voiced for a constant-catch scenario. There was some preference voiced for rebuilding that starts with low F rates, especially considering ecosystem/food web interactions.

Performance at Fzero may be necessary to evaluate value in cutting quotas. It doesn't seem likely that much would improve with no catch, so need to consider extending rebuilding timeframe.

The lack of ability to control recreational catch needs to be considered in any rebuilding action.

Research Priorities

Related to RH/S – ASMFC partnered with USGS on RH/S genetic repository – see ASMFC web-page. Relates to trying to get to biological-based RH/S caps – they will need samples from the relevant fisheries (including mackerel) and the Council should encourage submission of relevant samples.

Council staff will re-distribute the MSB research priorities in case there are additional suggestions.

Atlantic Mackerel Fishery Information Document

July 2021

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for Atlantic mackerel ("mackerel" hereafter), with an emphasis on 2020. Data sources for Fishery Information Documents include unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources, including previous Fishery Information Documents, please visit http://www.mafmc.org/msb.

Key Facts

- Mackerel began a rebuilding program on November 29, 2019, which was designed to rebuild the stock by 2023.
- Compared to the previous assessment, the Spawning Stock Biomass (SSB) in 2016 (the terminal year from that previous assessment), was revised downward by 29% in the new (still draft) 2021 Management Track Assessment (MTA).
- The new MTA indicated that SSB increased 39% from 2016 to 2019. The SSB in 2019 is estimated to be 24% of the updated biomass target. Overfishing was still occurring through 2019 and was 108% greater than the overfishing proxy. Rebuilding by 2023 appears very unlikely.
- SSB is estimated to have increased 180% from 2014 (the time series minimum) to 2019.
- The 2017 recruitment estimate was the lowest in the time series and recruitment has been below the long term median since 2008 except for one year (the 2015 year class).
- In the new MTA, the estimated proxy for Maximum Sustainable Yield declined by 17% (to 34,103 metric tons (MT) annually) compared to the previous assessment.
- The new MTA's conclusions are consistent with the 2021 Canadian assessment.
- The SSB estimates from the range-wide egg survey, a key index in the assessment, reached a minimum in 2010 and have been below the median since 2005.
- The fishery was not constrained by the river herring and shad (RH/S) cap in 2020, and ended the year at about 46% of the commercial quota.
- 2019 and 2020 catches were below even the most conservative rebuilding option (with the lowest 2019-2020 catch limits), so regardless of which rebuilding plan the Council had selected, the current findings would have persisted.

Basic Biology

Mackerel is a semi-pelagic/semi-demersal (may be found near the bottom or higher in the water column) schooling species primarily distributed between Labrador (Newfoundland, Canada) and North Carolina. The stock is considered to comprise two spawning contingents: a northern contingent spawning primarily in the southern Gulf of St. Lawrence and a southern contingent spawning in the Mid-Atlantic Bight, Southern New England and the western Gulf of Maine. The two contingents mix during winter months on the Northeast U.S. shelf. The Canadian fishery likely primarily catches the northern contingent while the U.S. fishery likely catches both contingents.

Mackerel spawning occurs during spring and summer and progresses from south to north as surface waters warm. Atlantic mackerel are serial, or batch spawners. Eggs are pelagic. Post-larvae gradually transform from planktonic to swimming and schooling behavior at about 30-50 mm. Almost all fish are mature by age 3 in most years. Age 2 maturity appears to vary between around 50% to nearly 100%. Atlantic mackerel are opportunistic feeders that can ingest prey either by individual selection of prey organisms or by passive filter feeding. See https://www.nefsc.noaa.gov/nefsc/habitat/efh/ for more life history information.

Status of the Stock

Based on the 2018 assessment (NEFSC 2018, available at http://www.mafmc.org/ssc-meetings/2018/may-8-9), the mackerel stock was declared overfished, with overfishing occurring in 2016 (the last year of data in the assessment). A 2021 management track assessment (MTA) indicates that while trends since 2014 are positive, the stock is only 24% of the biomass rebuilding target. The productivity of the stock appears to have declined. In the recent MTA, the estimated proxy for Maximum Sustainable Yield declined by 17% to 34,103 metric tons (MT) compared to the previous assessment. Past assessments (which used different methods and data) appear to have been overly optimistic about the stock's productivity.[1]

Management System and Fishery Performance

Management

The Mid-Atlantic Fishery Management Council (the Council or MAFMC) established management of mackerel in 1978 and the management unit includes all federal East Coast waters. Expected Canadian landings are deducted from the total Acceptable Biological Catch (ABC) that is recommended by the Council's Scientific and Statistical Committee (SSC).

Access is limited with several tiers having different trip limits. Stricter trip limits are triggered when the quota is approached. Additional summary regulatory information is available at https://www.fisheries.noaa.gov/region/new-england-mid-atlantic.

[1] Referencing 1997 Federal Register publications, the 1997 mackerel allowable biological **catch** was specified about **ten times higher than** what we now think the **total SSB** was in that year.

At its May 2019 meeting, the SSC considered preliminary results from the 2019 Canadian Atlantic mackerel assessment, which indicated lower than expected recruitment in 2016-2018. The SSC determined that it would not be appropriate to recommend the original higher 2020 rebuilding ABC level based on recruitment levels in 2016-2018 that may be lower than those anticipated in the rebuilding plan. Instead, the SSC recommended maintaining the ABC for 2020 at the level established for 2019 (ABC = 29,184 mt). In 2020 the SSC endorsed maintenance of the existing ABC for 2021-2022 (2022 interim), pending the findings of the above-referenced MTA.

Fisheries

Figure 1 describes mackerel catches (all known sources) 1960-2019. Figures 2-3 describe domestic landings, ex-vessel revenues (nominal), and prices (inflation adjusted) since 1996. Figures 4-5 illustrate preliminary landings throughout the year for 2019-2021.

Table 1 describes 2020 Mackerel landings by state, and Table 2 describes 2020 Mackerel landings by gear type. Figures 6/7 describe the location of 2018/2019 mackerel landings.

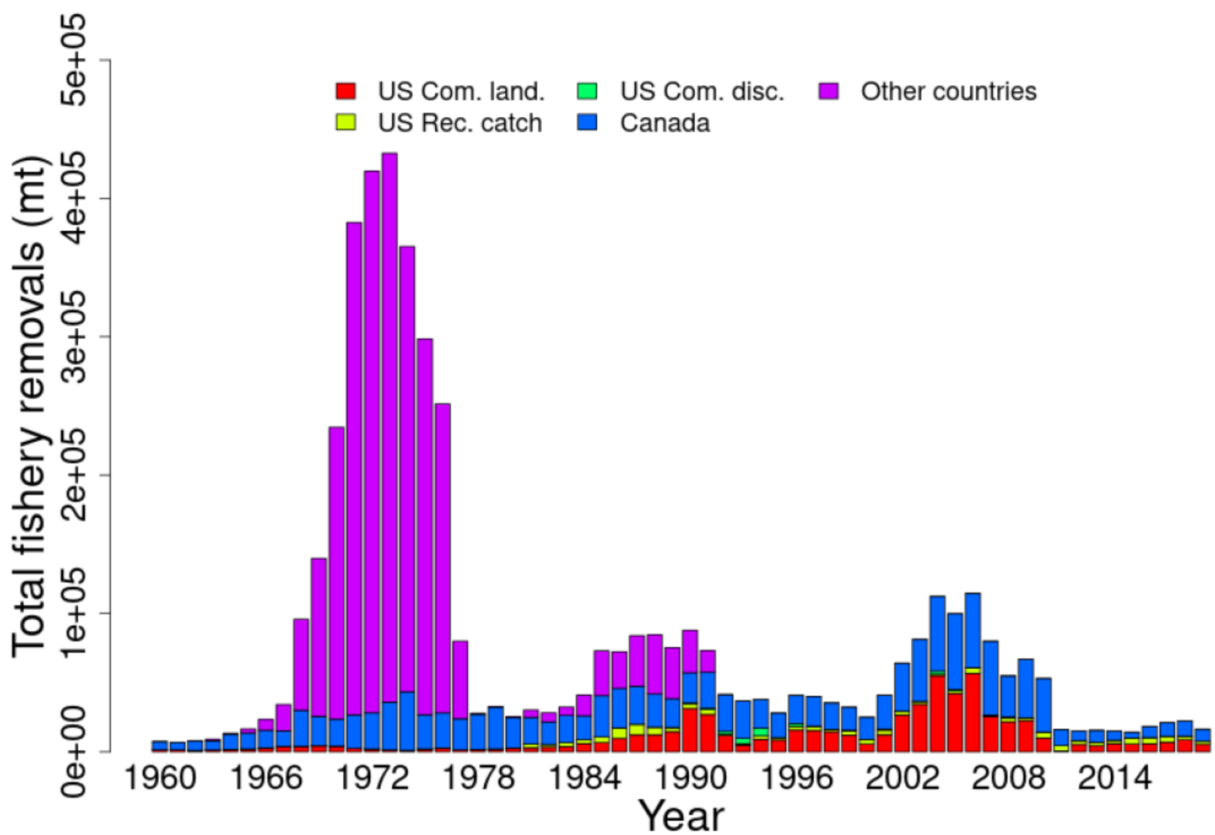


Figure 1. Total catch of northwest Atlantic mackerel between 1960 and 2019 by all known sources. U.S. recreational catch represents recreational landings plus discards, Canada represents Canadian landings (discards are not available), and other countries represents landings by all other countries.

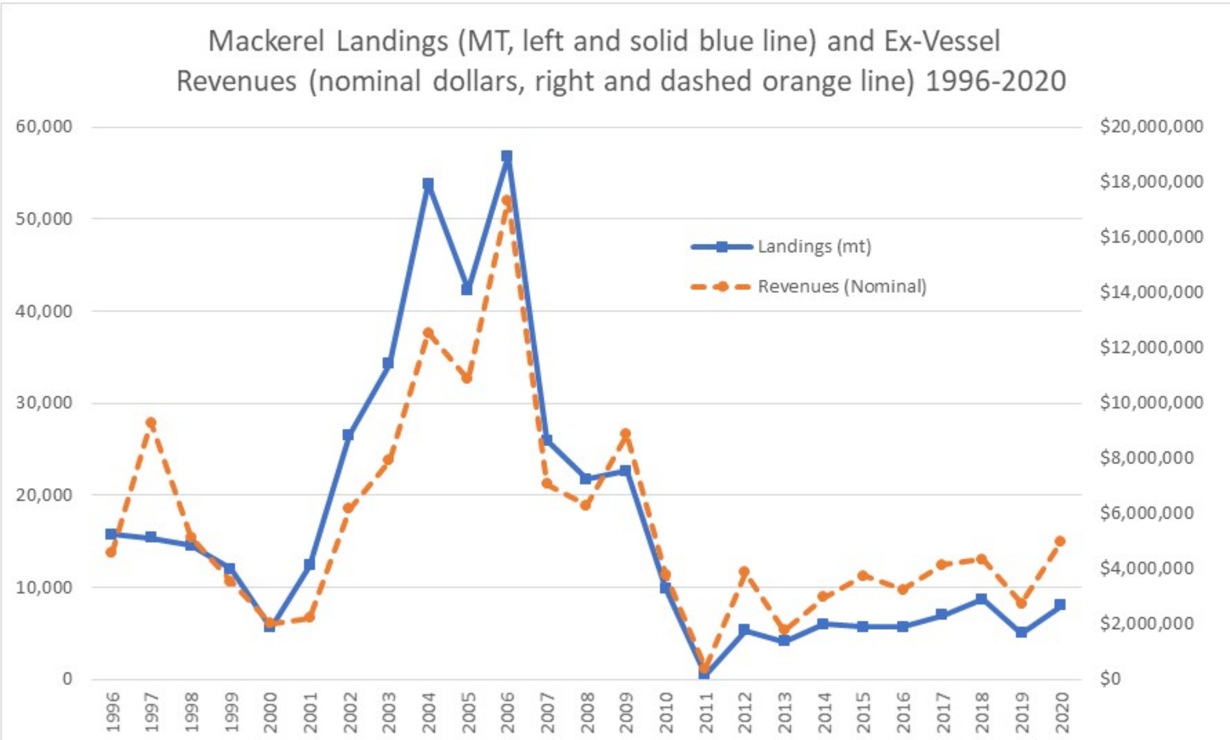


Figure 2. U.S. Mackerel Landings and Nominal Mackerel Ex-Vessel Values 1996-2020. Source: NMFS unpublished dealer data.

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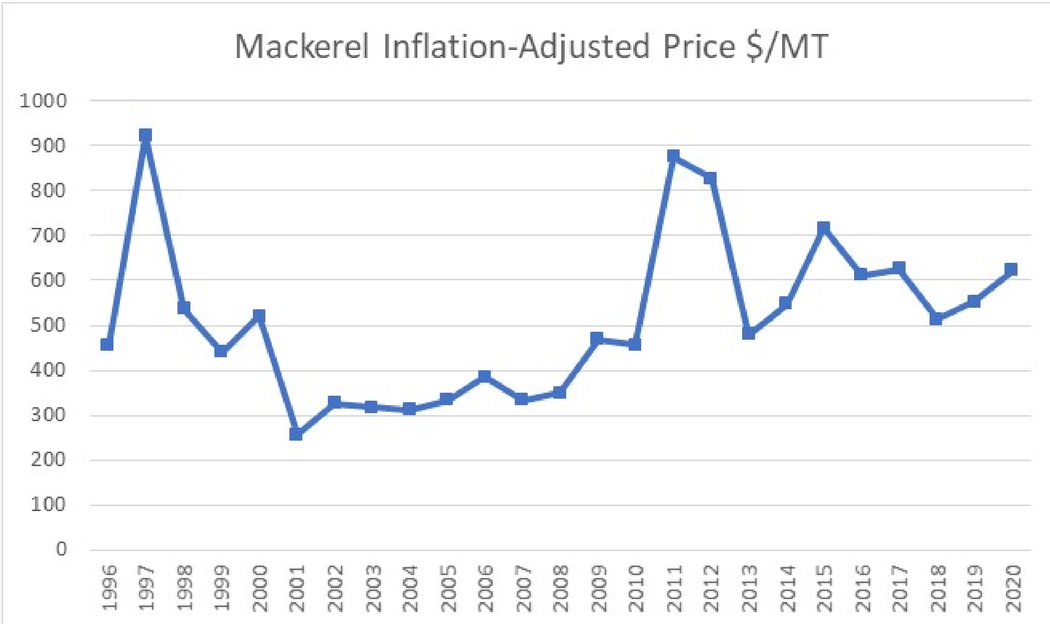

Figure 3. Ex-Vessel Mackerel Prices 1996-2020 Adjusted to 2020 Dollars Source: NMFS unpublished dealer data.

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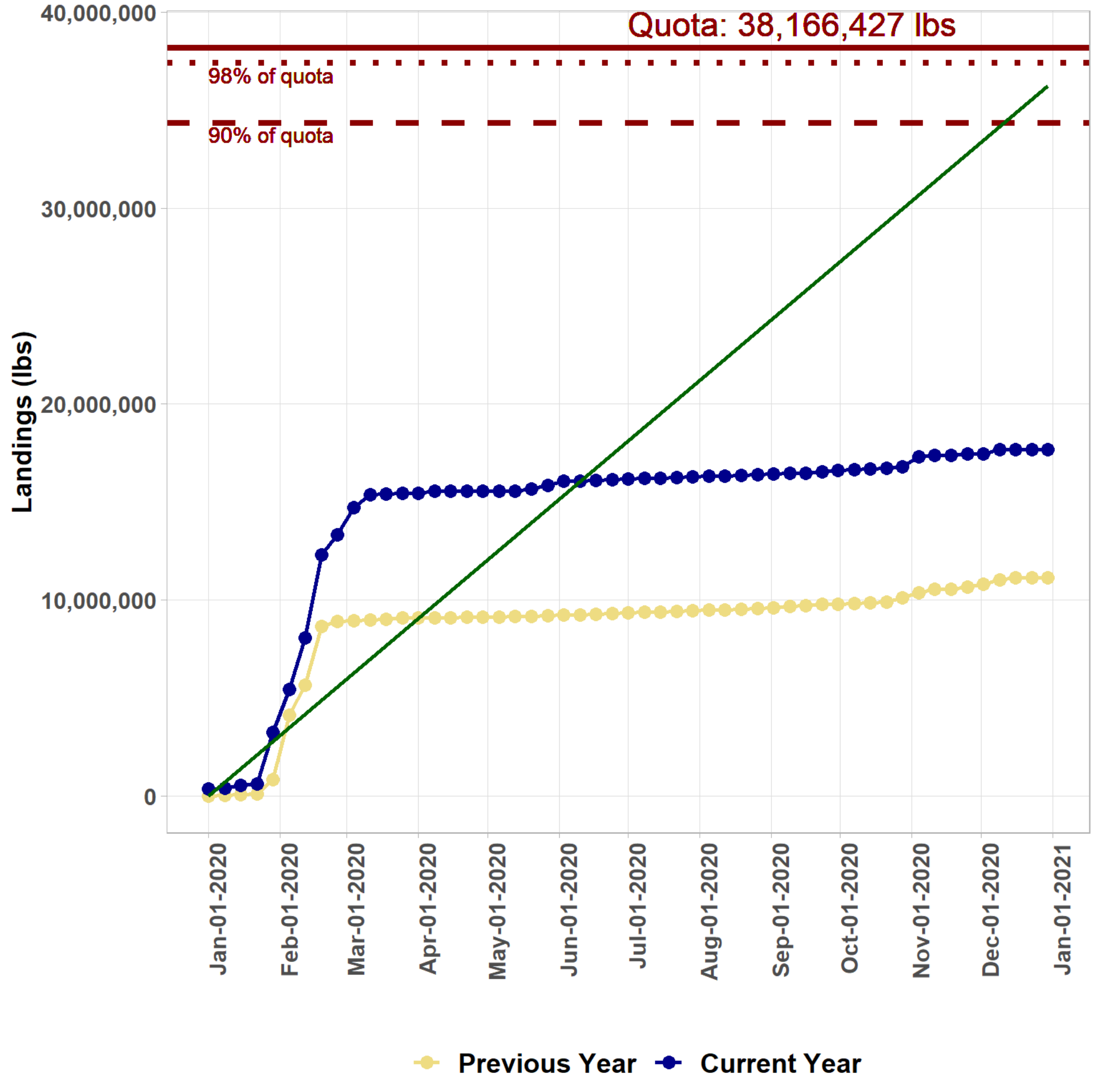

Figure 4. U.S. Preliminary Mackerel landings; 2020 in blue, 2019 in yellow-orange. Source: https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region.

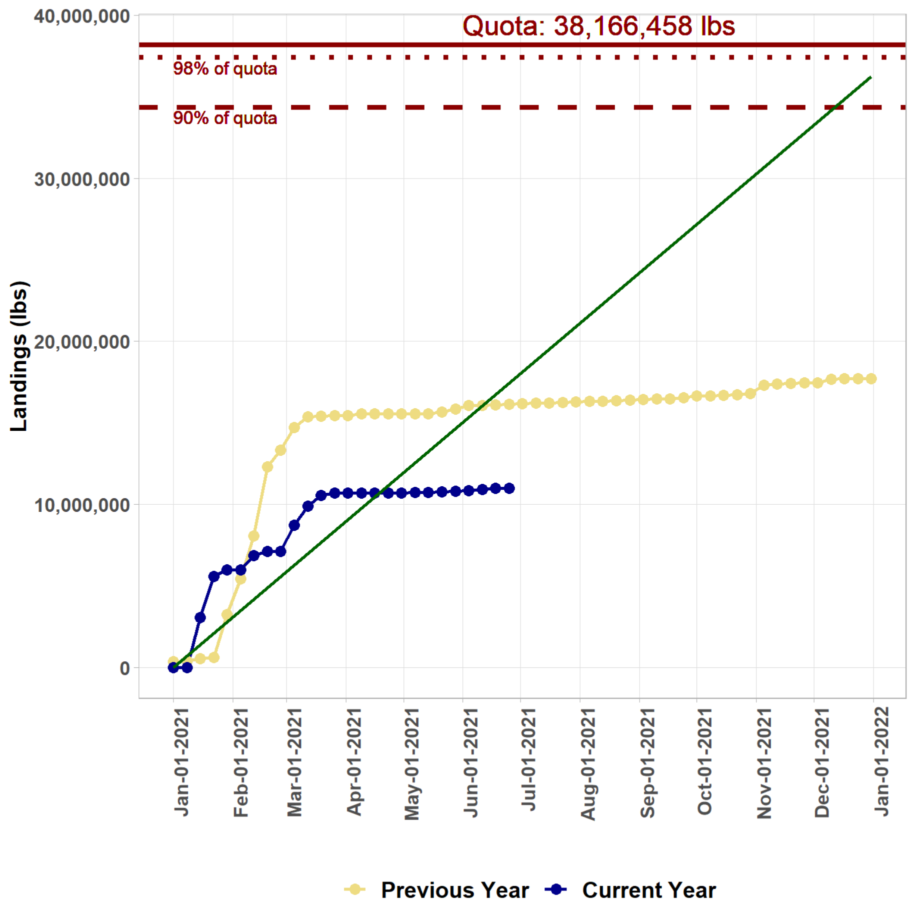

Figure 5. U.S. Preliminary Mackerel landings; 2021 in blue, 2020 in yellow-orange. Source: https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region.

Table 1. Commercial Mackerel landings (live weight) by state in 2020. Source: NMFS unpublished dealer data.

State	Metric_Tons
MA	3,991
NJ	2,412
RI	1,171
ME	436
Other	29
Total	8,039

Table 2. Commercial Mackerel landings (live weight) by gear in 2020. Source: NMFS unpublished dealer data.

GEAR	gmt
TRAWL,OTTER,BOTTOM, FISH	3,151
TRAWL,OTTER,MIDWATER	2,440
TRAWL,OTTER,MIDWATER PAIRED	1,369
PURSE SEINE, OTHER	408
LONGLINE, BOTTOM	251
Other	420
Total	8,039

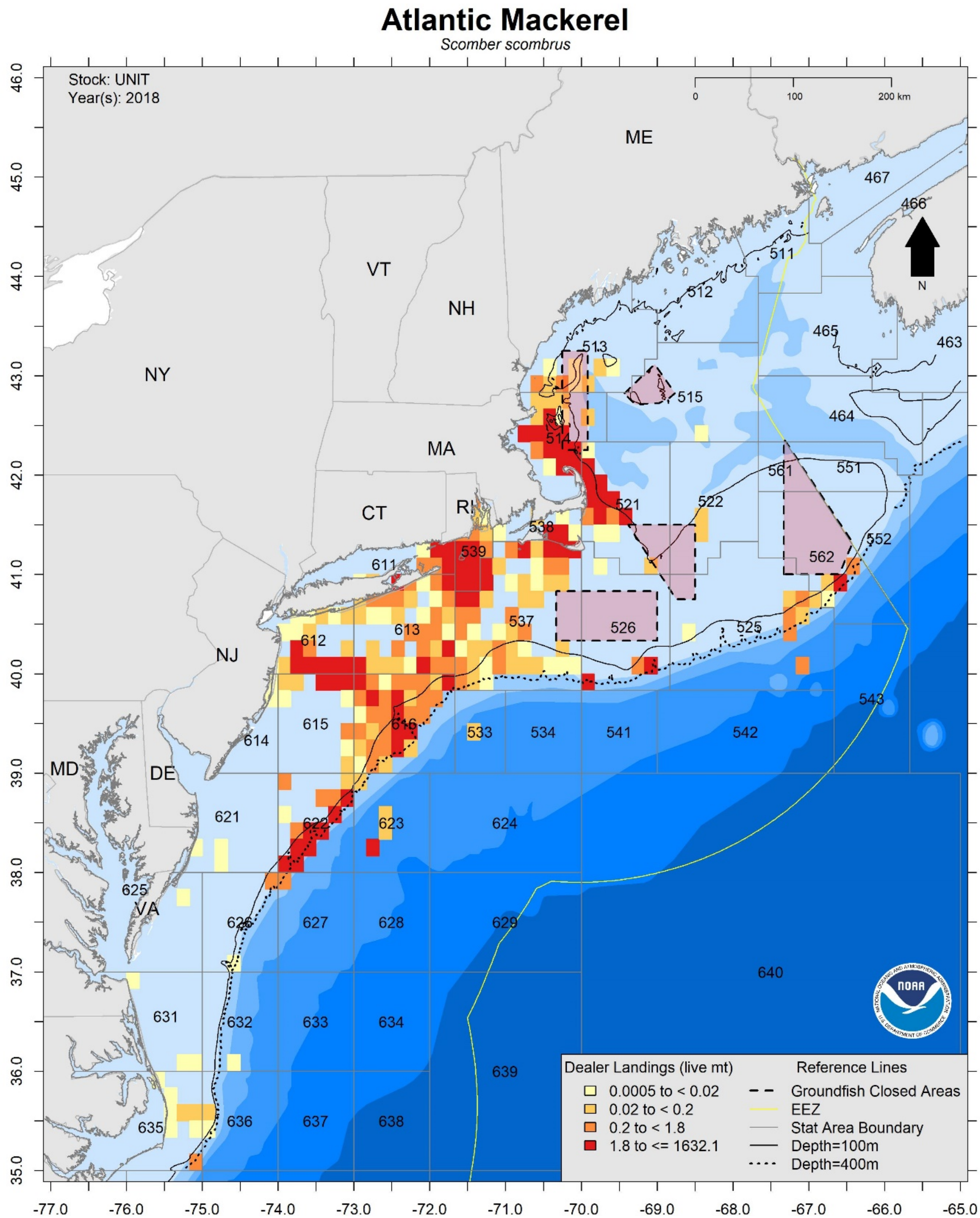

Figure 6. Approximate Primary 2018 Mackerel Catch Locations (from dealer and VTR data)

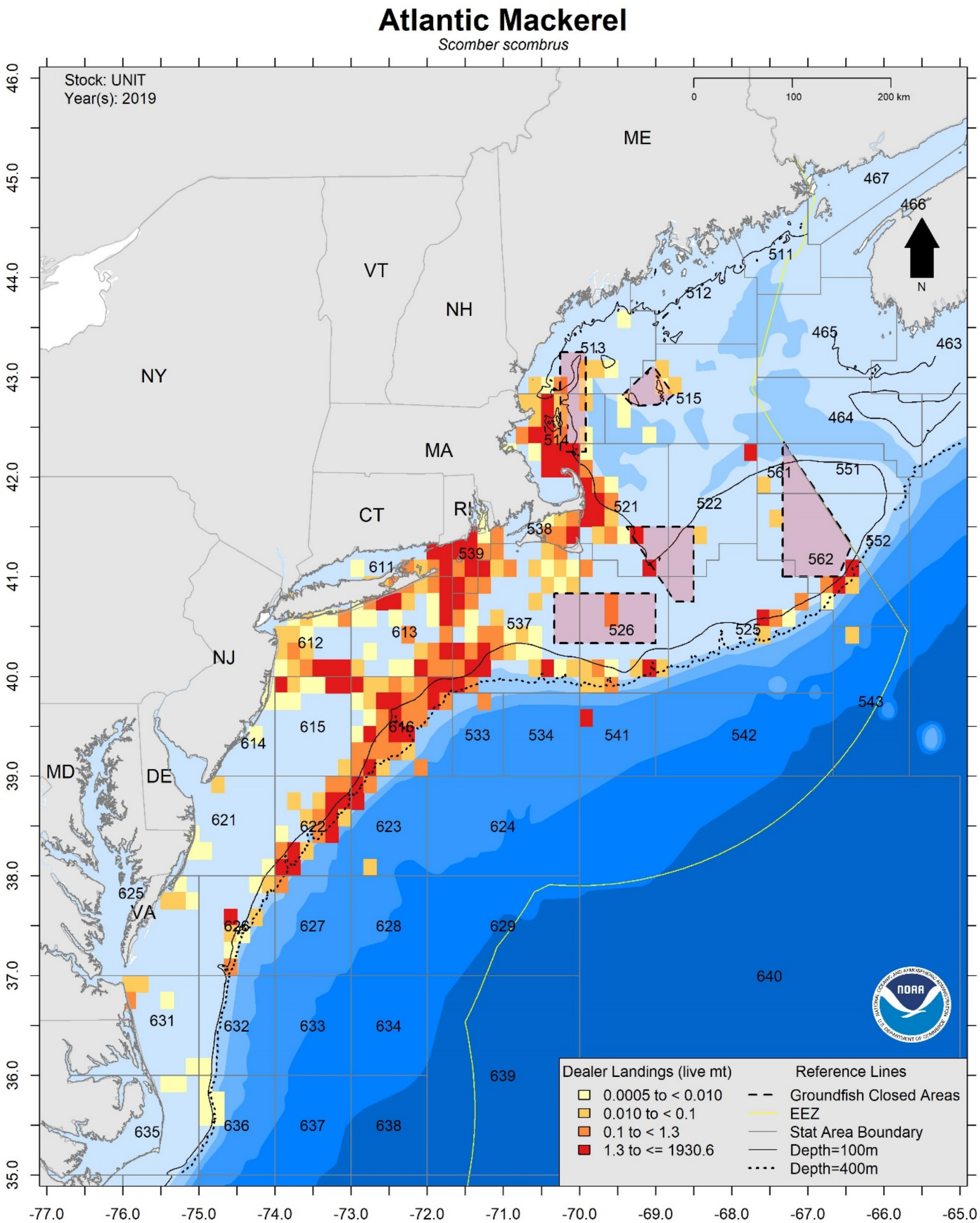

Figure 7. Approximate Primary 2019 Mackerel Catch Locations (from dealer and VTR data)

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draft working paper for peer review only

Northwest Atlantic mackerel

2021 Management Track Assessment Report

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts

Compiled June 2021

This assessment of the northwest Atlantic mackerel (Scomber scombrus) stock is a level 2 management track assessment of the existing 2017 benchmark assessment (NEFSC 2018). Based on the previous assessment, the stock was overfished and overfishing was occurring. This assessment updates commercial and recreational fishery catch data, research survey indices of abundance, the analytical ASAP assessment model and reference points through 2019. Additionally, stock projections have been updated through 2023.

State of Stock: Based on this management track assessment, the northwest Atlantic mackerel (*Scomber scombrus*) stock is overfished and overfishing is occurring (Figures 1-2). Retrospective patterns were minor and retrospective adjustments for terminal year estimates were not needed. Spawning stock biomass (SSB) in 2019 was estimated to be 42,862 (mt), corresponding to 24% of the biomass target (SSB_{MSY} *proxy* = 181,090; Figure 1). The 2019 fully selected fishing mortality was estimated to be 0.458, corresponding to 208% of the overfishing threshold proxy (F_{MSY} *proxy* = 0.22; Figure 2).

Table 1: Catch and status table for northwest Atlantic mackerel. All weights are in (mt), recruitment is in (000s), and F represents the fishing mortality on fully selected ages (ages 6+). Model results are from the current ASAP assessment updated through 2019.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
					Data					
US commercial landings	9,877	533	5,333	4,372	5,905	5,616	5,687	6,975	8,717	5,379
US recreational catch	4,288	4,040	2,670	2,406	2,296	4,274	4,569	4,161	2,394	2,117
US commercial discards	97	38	33	20	51	13	18	83	177	200
Canada	38,701	11,508	6,849	8,675	6,680	4,281	8,057	9,786	10,964	8,626
Other countries	0	0	0	0	0	0	0	0	0	0
Total catch	52,962	16,118	14,885	15,473	14,932	14,185	18,331	21,005	22,252	16,322
					Model Results					
Spawning Stock Biomass	24,412	17,317	17,018	17,877	15,319	20,266	30,870	40,190	47,554	42,862
F	2.151	1.248	1.424	1.27	1.194	1.081	0.82	0.638	0.576	0.458
Recruits (age1)	27,537	128,850	90,792	40,653	87,113	147,315	387,668	25,474	145,584	135,882

Table 2: Comparison of reference points estimated in the previous assessment (2017) and from the current management track assessment. An $F_{40\%}$ proxy was used for the overfishing threshold and was based on long-term stochastic projections.

	2017	2021
$F_{40\%}$	0.26	0.22
SSB_{MSY} *proxy* (mt)	196894	181090 (102292 - 386653)
MSY proxy (mt)	41334	34103 (19404 - 70927)
Median recruits (age 1) (000s)	180,572	178,743
Overfishing	Yes	Yes
Overfished	Yes	Yes

Projections: Short-term projections were derived by sampling from a cumulative distribution function of recruitment estimates from 1975 onward from the final ASAP model. Additional short-term projections were completed using recruitment estimates from 1999 and 2009 onward, and are presented in the supplementary material as sensitivity analyses. The annual fishery selectivity, maturity ogive, and mean weights-at-age used in the projections represent the most recent 5-year averages.

Table 3: Short-term projections of total fishery catch and spawning stock biomass for northwest Atlantic mackerel based on a harvest scenario of fishing at F_{MSY} *proxy* between 2022 and 2023. The primary U.S. commercial mackerel fishery in 2020 occurred before the COVID pandemic began and discards represent a small proportion of total catch; therefore, the preliminary 2020 total catch estimate of 18,038 (mt) was used in projections.. Catch in 2021 is assumed as the sum of the U.S. ABC and the Candian quota (23,184 (mt)).

Year	Catch (mt)	SSB (mt)	F
2020	18038	62039 (27791 - 120790)	0.366

Year	Catch (mt)	SSB (mt)	F
2021	23184	70137 (29523 - 140000)	0.412
2022	14881	84382 (38079 - 188330)	0.22
2023	18596	103970 (52807 - 261522)	0.22

Special Comments:

- Sources of uncertainty:
  Natural mortality was assumed to be constant over both time and age. During the 2017 benchmark, the working group acknowledged that natural mortality likely varied over time, but concluded that the percent occurrence of mackerel in the diets of those predators well sampled by the NEFSC bottom trawl surveys was not sufficient to inform time-varying natural mortality rates. In addition, estimates of predation mortality were not available for the months the northern contingent was outside of the NEFSC trawl survey area. The working group also discussed the possibility of modeling natural mortality as age-varying, though time-invariant. However, recent work on the performance of assessment models across varying assumed natural mortality rates indicated that an assumed age-invariant natural mortality that approximates the average natural mortality across ages performed similarly to age-varying natural mortality values (Deroba and Schueller 2013). Accordingly, the working group moved forward with the assumption that natural mortality was constant across all ages and years. To consider evidence of different natural mortality rates, a likelihood profile for natural mortality was completed and is included in the supplementary material.
  Canadian catch estimates represent a subset of total Canadian catch because bait fishery, recreational fishery and commercial discard estimates are not available.
  To create a range-wide egg index, SSB estimates from Canada's dedicated egg survey and the U.S.'s ecosystem surveys are used. However, GSI estimates are not available for the southern contingent because the primary U.S. fishery does not overlap with the spawning season and the seasonal bottom trawl surveys occur before or after the spawning season. Consequently, an average spawning seasonality function was used to calculate annual egg production. Similarly, due to a lack of fecundity estimates for the southern contingent, annual fecundity estimates from the Gulf of St. Lawrence were used to calculate spawning stock biomass from annual egg production. Efforts are currently underway to collect spawning mackerel from both contingents to provide updated fecundity estimates.

- Retrospective analysis (a major retrospective pattern occurs when the adjusted SSB or F_{Full} lies outside of the approximate joint confidence region for SSB and F_{Full}):
  The 5-year Mohn's ρ, relative to SSB, was 0.162 in the 2017 assessment and 0.326 in 2019. The 5-year Mohn's ρ, relative to F, was 0.112 in the 2017 assessment and -0.093 in 2019. The retrospective pattern for this assessment was considered to be minor because the ρ-adjusted estimates of 2019 SSB (SSB_{ρ}=32323) and 2019 F (F_{ρ}=0.505) were within the approximate 90% confidence intervals around SSB (24,782 - 74,133) and F (0.25 - 0.84). Consequently, a retrospective adjustment of spawning stock biomass or fishing mortality in 2019 was not required.

- Population projections
  The stochastic short-term projections completed for this management track assessment followed the

methodology accepted during the 2017 benchmark (NEFSC 2018) where recruitment is modeled by sampling from an empirical cumulative density function derived using recruitment estimates from 1975 onward. Due to recent low recruitment, additional short-term projections were completed using recruitment estimates from 1999 onward and 2009 onward. These projections are presented in the supplementary material as sensitivity analyses.

Northwest Atlantic mackerel is currently in a rebuilding plan and after the 2017 benchmark assessment, a target fishing mortality of 0.237 was selected as the F that would rebuild the stock in five years (by 2023). The short-term projections completed for the rebuilding plan were largely driven by a strong incoming (2015) year class. While this management track assessment indicates that 2016 recruitment is only 15% lower than that estimated during the 2017 assessment (and the only recruitment estimate since 2008 above the time-series median), the subsequent projected increase in SSB was not realized. As a result, even in the absence of fishing, the stock is not projected to be rebuilt by 2023. The absence of an increase in SSB is likely due to a combination of factors, including the increase in total removals in recent years due to the recalibrated MRIP estimates, a time-series low recruitment estimate for 2017, a minor retrospective pattern that resulted in an overestimation of spawning stock biomass, and a recent (2017-2019) decline in age-2 and age-3 maturity. Temporal trends in the proportion mature-at-age are included in the supplementary material.

- Changes made to the current assessment, beyond incorporating additional years of data:

  U.S. catch was updated to include the recalibrated MRIP estimates. Updating the MRIP estimates did not impact the general temporal trend in recreational catch; however, from 2008-2016 the recalibrated catch estimates were approximately 213% higher than the original estimates used in the 2017 benchmark assessment (NEFSC 2018). A comparison of the original and realibrated MRIP estimates is included in the supplementary material. Additionally, updates to Canadian catch, catch-at-age and weight-at-age (WAA) were provided by Canada's Department of Fisheries and Oceans (DFO). The updated total catch and WAA estimates resulted in only minor changes to SSB and did not impact the temporal trend in fishing mortality, but the magnitude of F increased from 2010 onward by up to 20%. Minor updates were also provided for the U.S. egg index; these updates had a negligible impact on resulting model estimates. A comparison of the results from these bridge runs is provided in the supplementary material.

- Changes in stock status:

  The stock status of northwest Atlantic mackerel has not changed since the previous assessment (NEFSC 2018).

- Qualitative description of stock condition:

  Fishery composition data show a truncation in age structure, though age-9 fish were observed in the 2019 catch for the first time since 2012. After reaching a time-series minimum in 2010, range-wide SSB estimates developed from the egg surveys generally increased until 2017 but declined in 2018 and 2019. With the exception of 2017, these range-wide SSB estimates have been below the time-series median since 2005. However, egg production estimates for the southern contingent were approximately an order of magnitude greater in 2018 and 2019 compared to the previous ten years, and in 2018 and 2019 the southern contingent represented 54% and 18%, respectively, of the range-wide spawning stock biomass. With the exception of the 2015 year class (2016 recruitment), recruitment estimates have been below the corresponding time-series median since 2008 and the 2016 year class was the smallest of the time series.

- Research recommendations:

  As mentioned in the above section on sources of uncertainty, fecundity estimates for the southern contingent are needed to improve spawning stock biomass estimates developed from the egg surveys. Additionally, further work on stock structure and the extent of contingent mixing is needed. Arai et al. (2021) demonstrated a shift in baseline otolith natal isotopic composition values of the two spawning contingents during the past two decades. Redding et al. (2020) found that for the 1998-2000 year classes, the majority of age-3+ fish collected from US waters in March represented the northern contingent. However, Arai et al. (2021) found that the southern contingent was dominant in age-3 and age-4 fish collected during the U.S. winter fishery in more recent years (2011-2016 year classes), and that contingent mixing levels varied among year classes. Consequently, in order to develop spatially-explicit assessment models that consider the dynamics *of each spawning contingent separately, year-class-specific baselines and annual estimates of contingent composition in fishery catches would be needed. Genetic work is also needed to distinguish the two spawning contingents and samples are currently being collected for a genetics study recently initiated by Canada's DFO.*

- Additional issues:

  DFO Canada is currently finalizing an assessment of the northern spawning contingent of northwest Atlantic mackerel, which indicates that the northern contingent has been in the Critical Zone, as defined by DFOs precautionary approach framework, since 2009. Estimated spawning stock biomass in 2020 was 29,109 mt and represented the second lowest estimate of the time series. Estimated 2020 fishing mortality for fully selected fish (age-5+) was 1.30 and above $F_{40\%}$. *The 2015 year class was the only year class estimated to be greater than the time-series median since 2009, with this cohort now representing less than 8% of the harvested catch in 2020.*

References:

Arai, K., M. Castonguay, and D. H .Secor. 2021. Multi-decadal trends in contingent mixing of Atlantic mackerel (*Scomber scombrus*) in the Northwest Atlantic from otolith stable isotopes. Sci Rep 11, 6667 (2021). https://doi.org/10.1038/s41598-021-86116-2

Deroba, J.J. and A.M. Schueller. 2013. Performance of stock assessments with misspecified age-and time-varying natural mortality. Fisheries Research 46: 27-40.

Northeast Fisheries Science Center (NEFSC). 2018. 64^{th} Northeast Regional Stock Assessment Workshop (64^{th} SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 18-04; 529 p. Available from: http://www.nefsc.noaa.gov/publications/

Redding, S. G., L. W. Cooper, M. Castonguay, C. Wiernicki, and D. H. Secor. 2021. Northwest Atlantic mackerel population structure evaluated using otolith d18O composition. ICES Journal of Marine Science. doi:10.1093/icesjms/fsaa117.

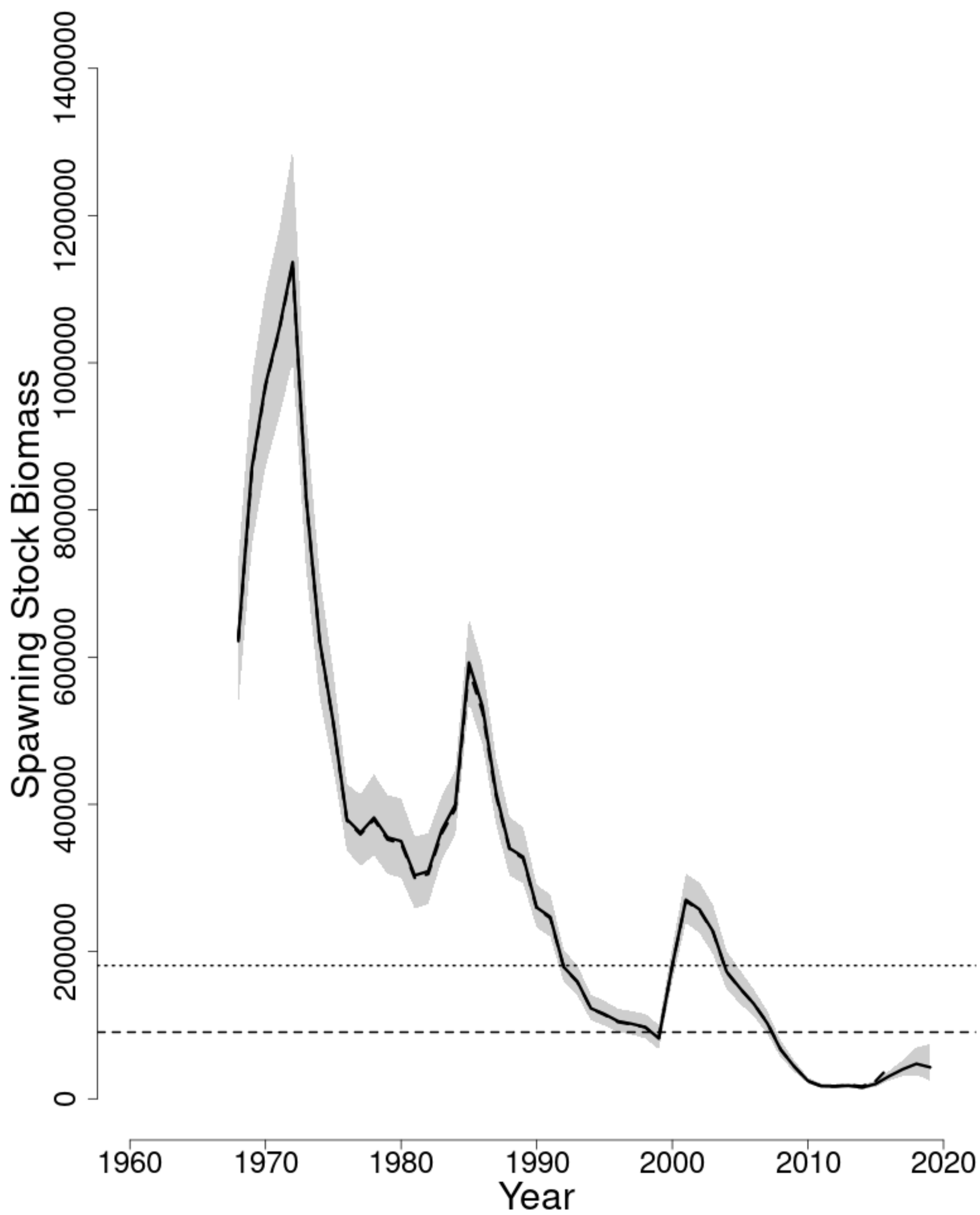


Figure 1: Trends in spawning stock biomass (mt) of northwest Atlantic mackerel between 1968 and 2019 from the current (solid line) and previous (dashed line) assessment and the corresponding $SSB_{Threshold}$ ($\frac{1}{2}$ SSB_{MSY} *proxy*; horizontal dashed line) as well as SSB_{Target} (SSB_{MSY} *proxy*; horizontal dotted line) based on the 2021 assessment. The approximate 90% lognormal confidence intervals are shown.

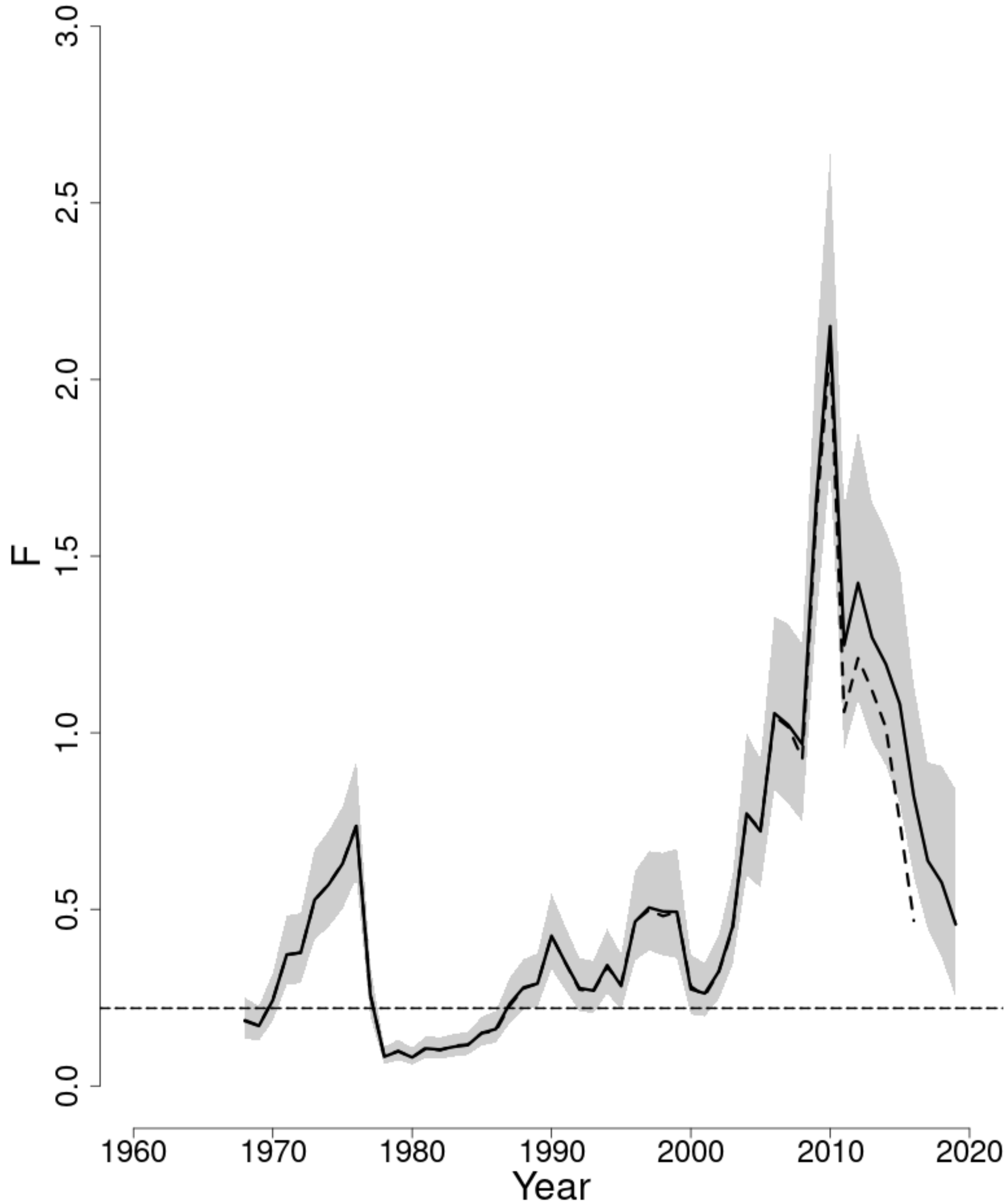


Figure 2: Trends in the fully selected fishing mortality (F) of northwest Atlantic mackerel between 1968 and 2019 from the current (solid line) and previous (dashed line) assessment and the corresponding $F_{Threshold}$ (F_{MSY} *proxy*=0.22; horizontal dashed line). The approximate 90% lognormal confidence intervals are shown.

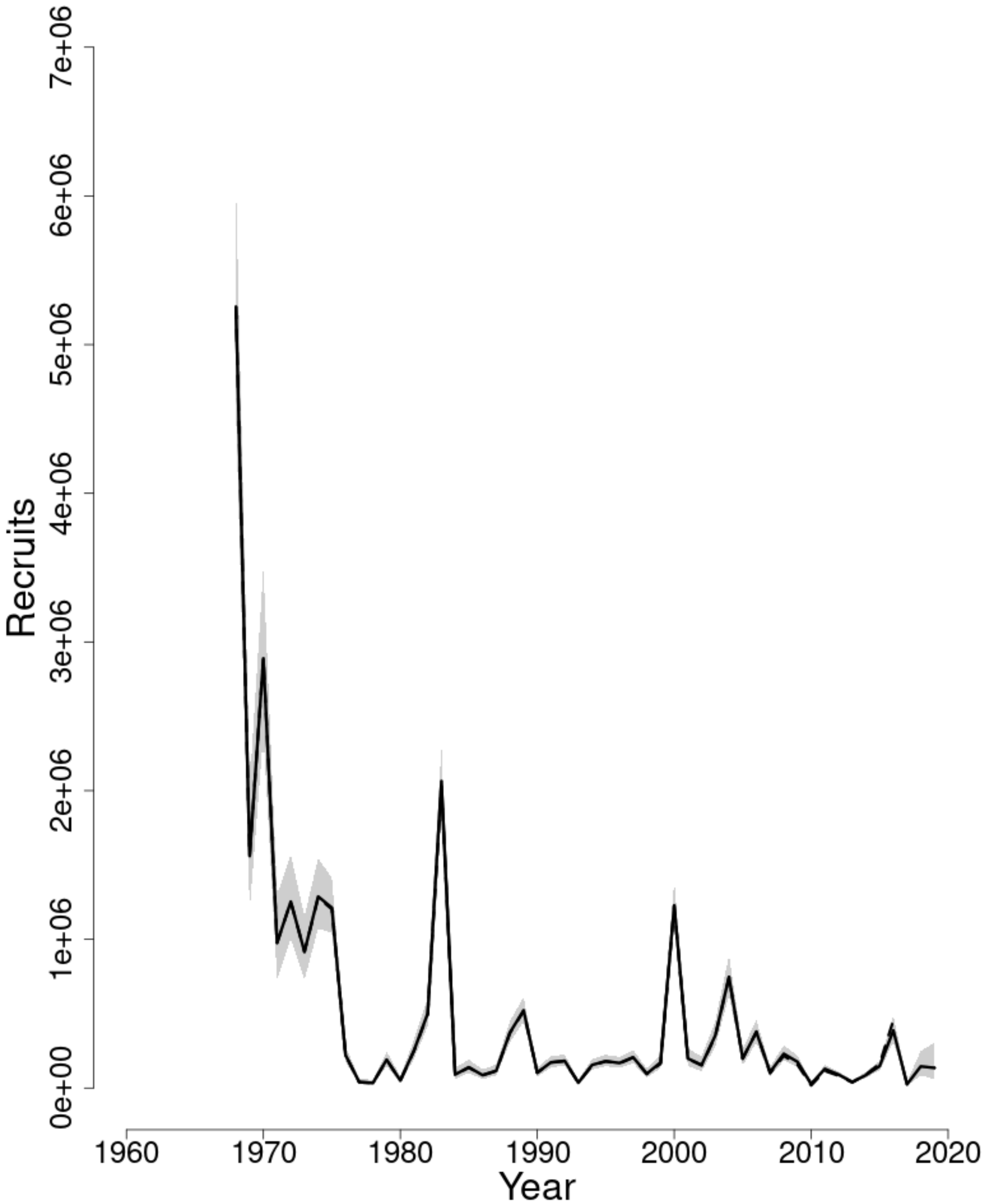


Figure 3: Trends in Recruits (age-1) (000s) of northwest Atlantic mackerel between 1968 and 2019 from the current (solid line) and previous (dashed line) assessment. The approximate 90% lognormal confidence intervals are shown.

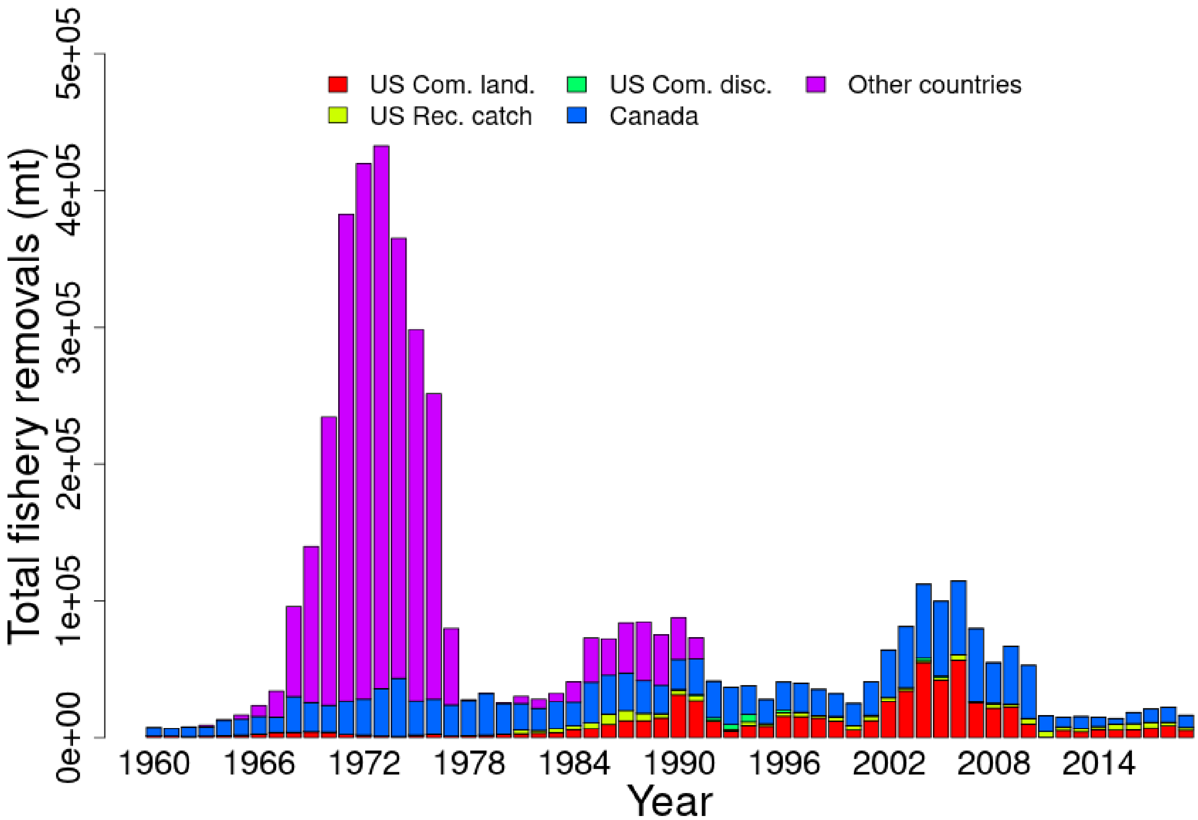


Figure 4: Total catch of northwest Atlantic mackerel between 1968 and 2019 by all sources. U.S. recreational catch represents recreational landings plus discards, Canada represents Canadian landings (discards are not available), and other countries represents landings by all other countries.

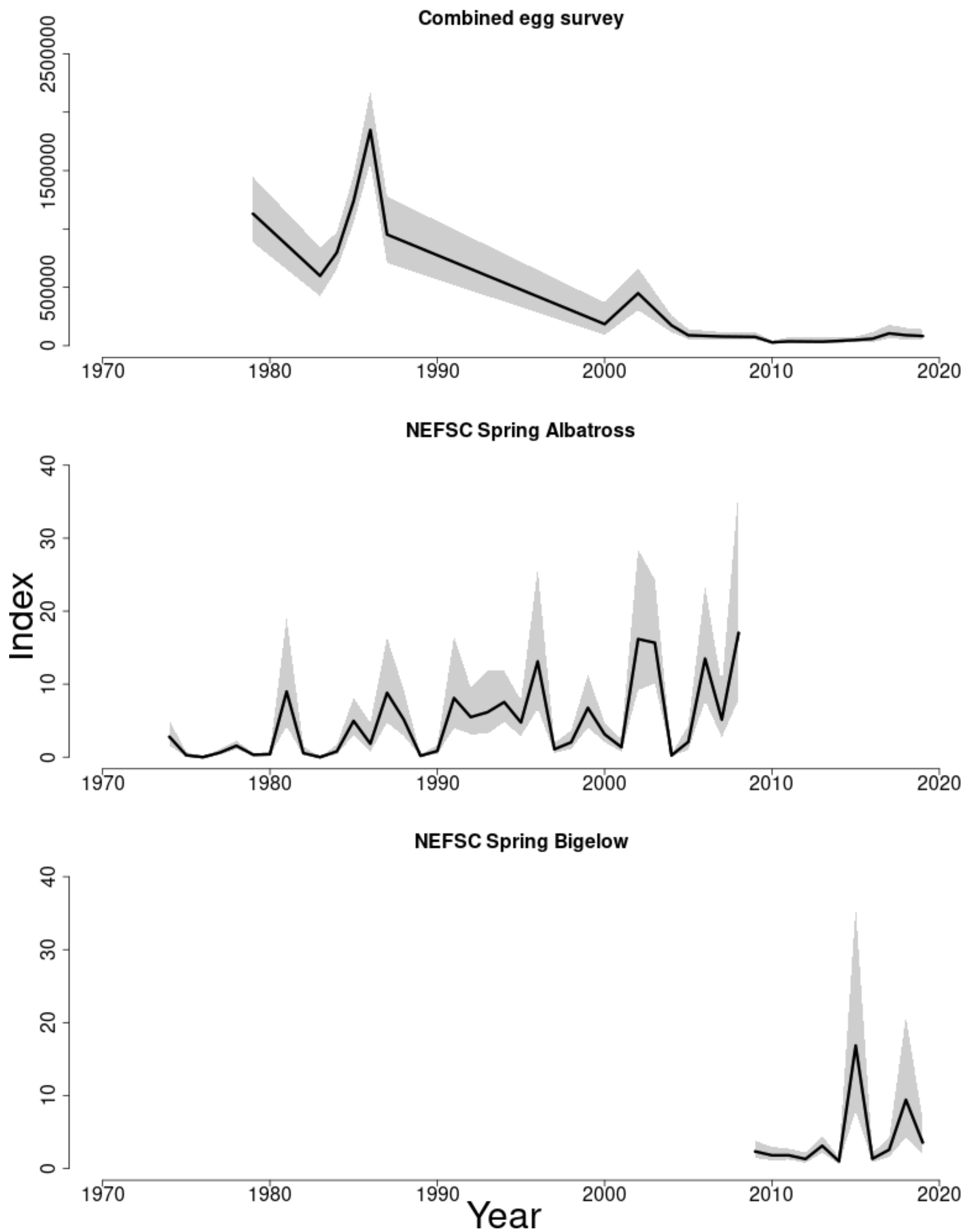


Figure 5: Indices of spawning stock biomass (mt) from the combined egg surveys and age-3+ fish/tow from the NEFSC spring bottom trawl survey for northwest Atlantic mackerel between 1974 and 2019.

Northwest Atlantic Mackerel Supplementary Material

Table S1: Northwest Atlantic mackerel short-term projections at $F_{MSY\ proxy}$ derived by sampling from an empirical cumulative distribution function based on recruitment estimates from 1999 onward

		2020	2021	2022	2023
SSB (mt)	Median	62,039	69,471	83,273	102,420
	5th Percentile	27,791	29,489	38,175	53,347
	95th Percentile	120,790	138,228	168,577	212,244
Recruitment (000s)	Median	155,704	155,515	155,323	155,708
	5th Percentile	27,511	27,684	27,526	27,570
	95th Percentile	743,849	746,511	746,913	746,040
January 1 biomass (mt)	Median	91,810	106,585	119,000	141,340
	5th Percentile	52,409	57,350	58,516	76,176
	95th Percentile	159,039	199,304	238,154	280,802
Catch (mt)	Median	18,038	23,184	14,673	18,276
	5th Percentile	18,038	23,184	6,508	9,281
	95th Percentile	18,038	23,184	29,171	37,018

Table S2: Northwest Atlantic mackerel short-term projections at $F_{MSY\ proxy}$ derived by sampling from an empirical cumulative distribution function based on recruitment estimates from 2009 onward

		2020	2021	2022	2023
SSB (mt)	Median	60,343	58,709	60,723	69,562
	5th Percentile	25,875	19,329	22,146	33,033
	95th Percentile	119,169	126,956	126,182	125,118
Recruitment (000s)	Median	128,885	128,784	128,338	128,886
	5th Percentile	26,493	26,517	26,500	26,508
	95th Percentile	280,899	281,681	281,799	281,542
January 1 biomass (mt)	Median	84,110	86,355	83,327	93,484
	5th Percentile	44,831	42,761	36,047	48,580
	95th Percentile	151,571	160,115	159,473	159,522
Catch (mt)	Median	18,038	23,184	10,808	12,571
	5th Percentile	18,038	23,184	3,712	5,683
	95th Percentile	18,038	23,184	23,175	23,335

Figure S1: Time series of northwest Atlantic mackerel catch (mt) with two-year projections at $F_{msy\ proxy}$ for 2005-2023. Short-term projections are shown for three recruitment scenarios, developed by sampling from an empirical cumulative distribution function based on recruitment estimates from 1975 onward, 1999 onward and 2009 onward. Catch in 2020 was assumed to equal preliminary estimates of total catch and 2021 catch was assumed to equal the sum of current US and Canadian quotas. The solid lines represent the reported catches and the median of the catch for each recruitment scenario. The dotted lines represent the 90% confidence intervals.

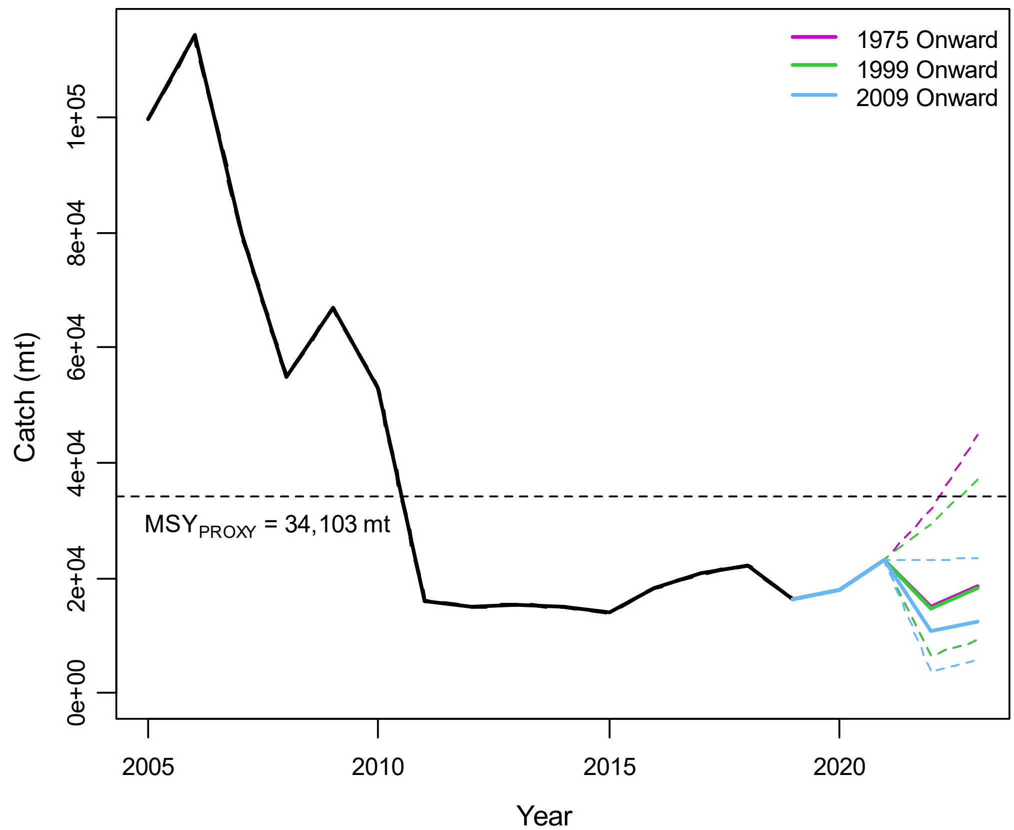


Figure S2: Time series of northwest Atlantic mackerel spawning stock biomass (mt) with two-year projections at $F_{msy\ proxy}$ for 2005-2023. Short-term projections are shown for three recruitment scenarios, developed by sampling from an empirical cumulative distribution function based on recruitment estimates from 1975 onward, 1999 onward and 2009 onward. Catch in 2020 was assumed to equal preliminary estimates of total catch and 2021 catch was assumed to equal the sum of current US and Canadian quotas. The solid lines represent the reported catches and the median of the catch for each recruitment scenario. The dotted lines represent the 90% confidence intervals.

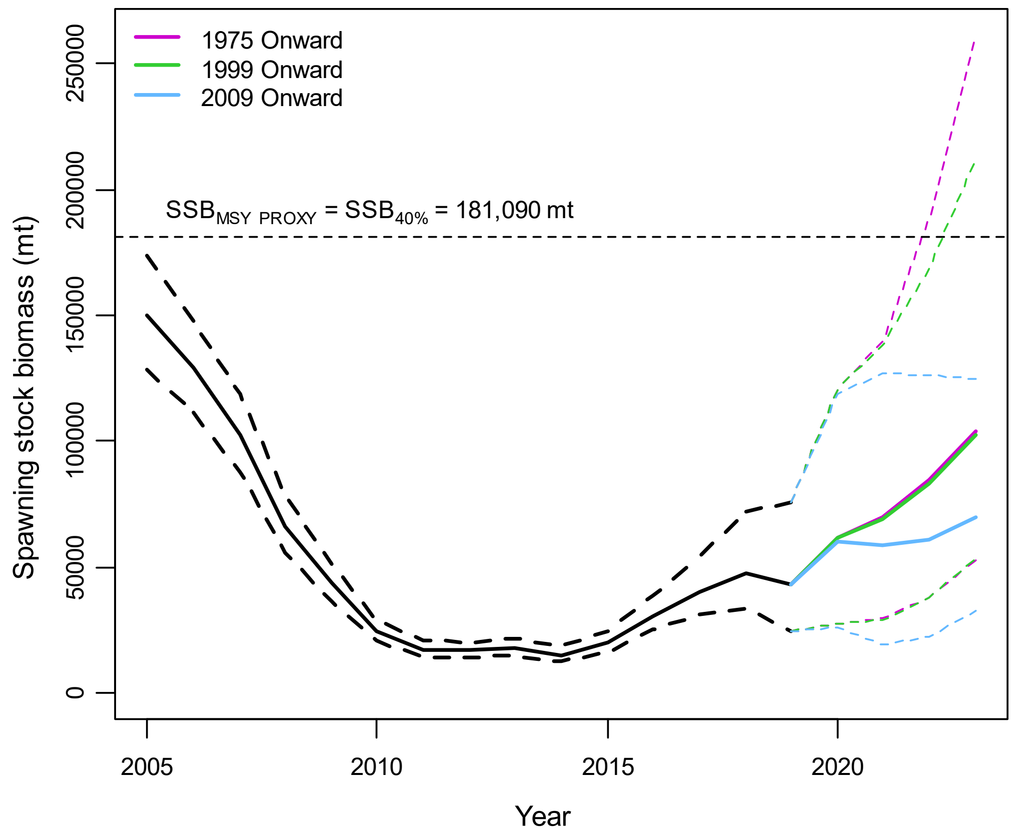


Figure S3: Likelihood profile of natural mortality for the final ASAP model. A constant natural mortality of 0.2 (blue circle) was used in the final ASAP model and the minimum value from the profile corresponded to a natural mortality of 0.26 (orange circle).

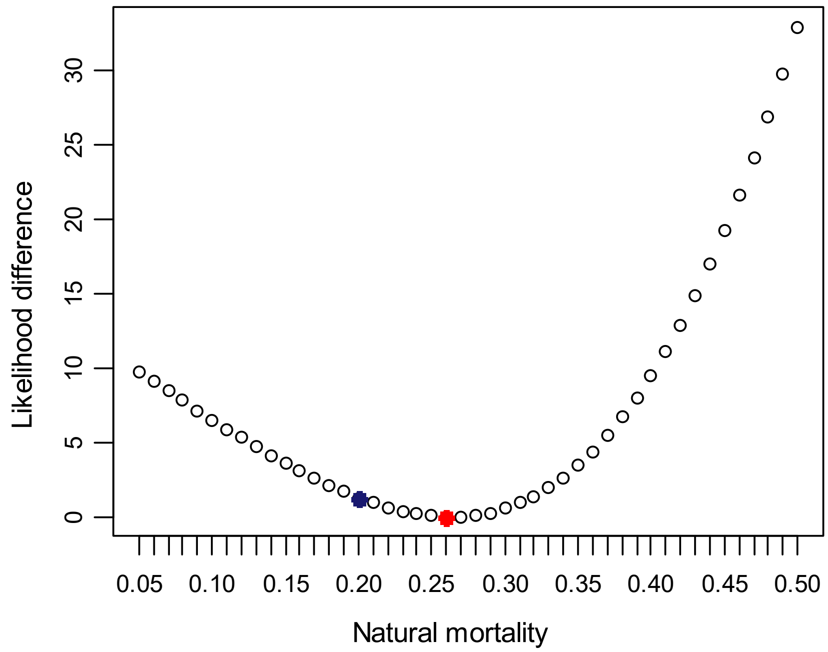


Figure S4: Northwest Atlantic mackerel maturity-at-age estimates derived from fishery-dependent Canadian samples.

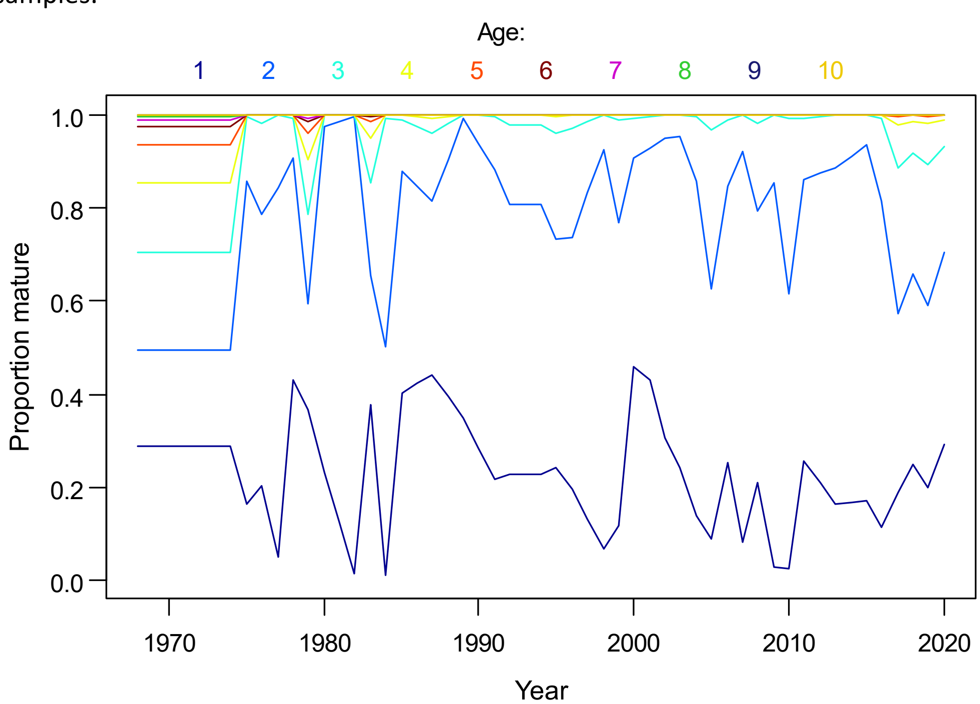
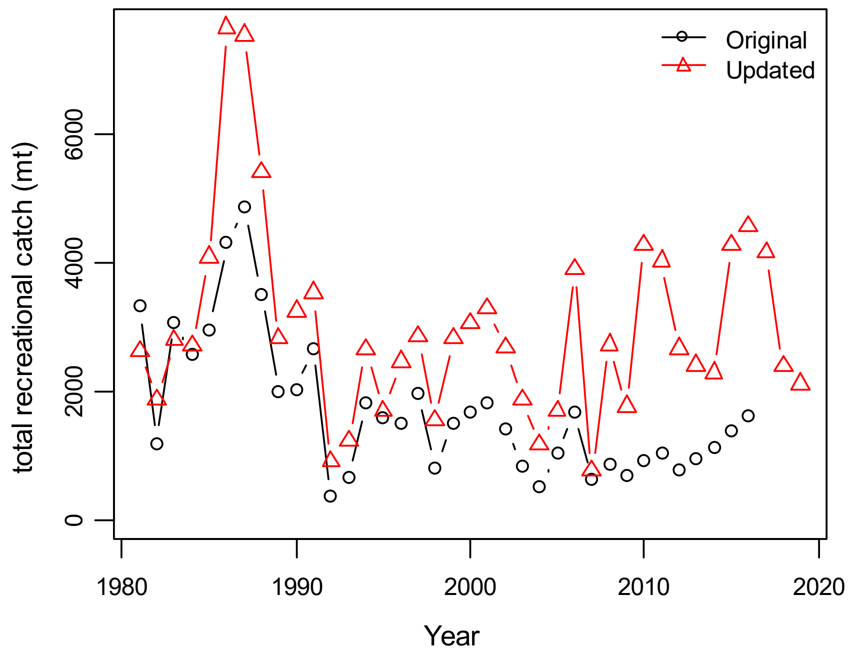


Figure S5: Comparison of northwest Atlantic mackerel (A) recreational fishery (B) and total fishery catch estimates (mt) from the original method and the updated estimates calibrated to the new effort survey.

A)



B)

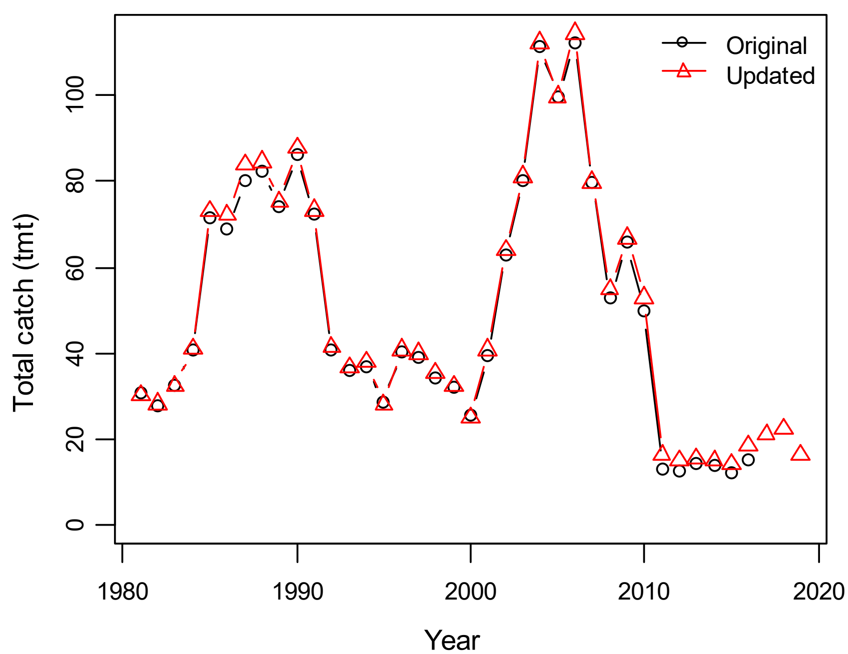
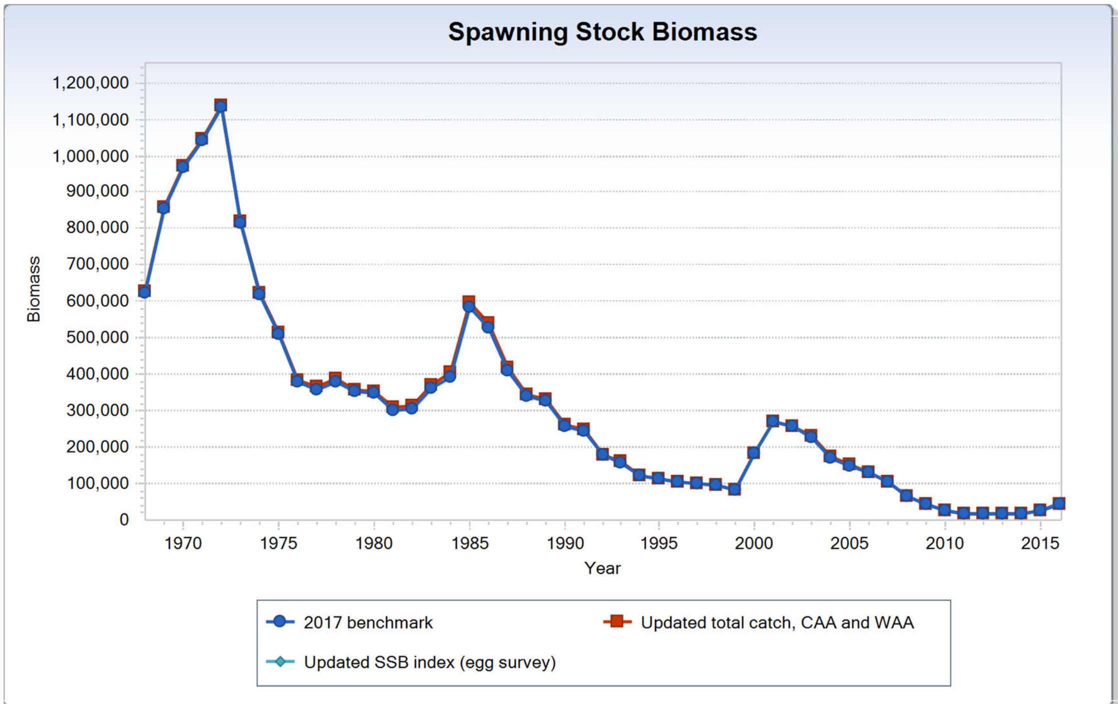
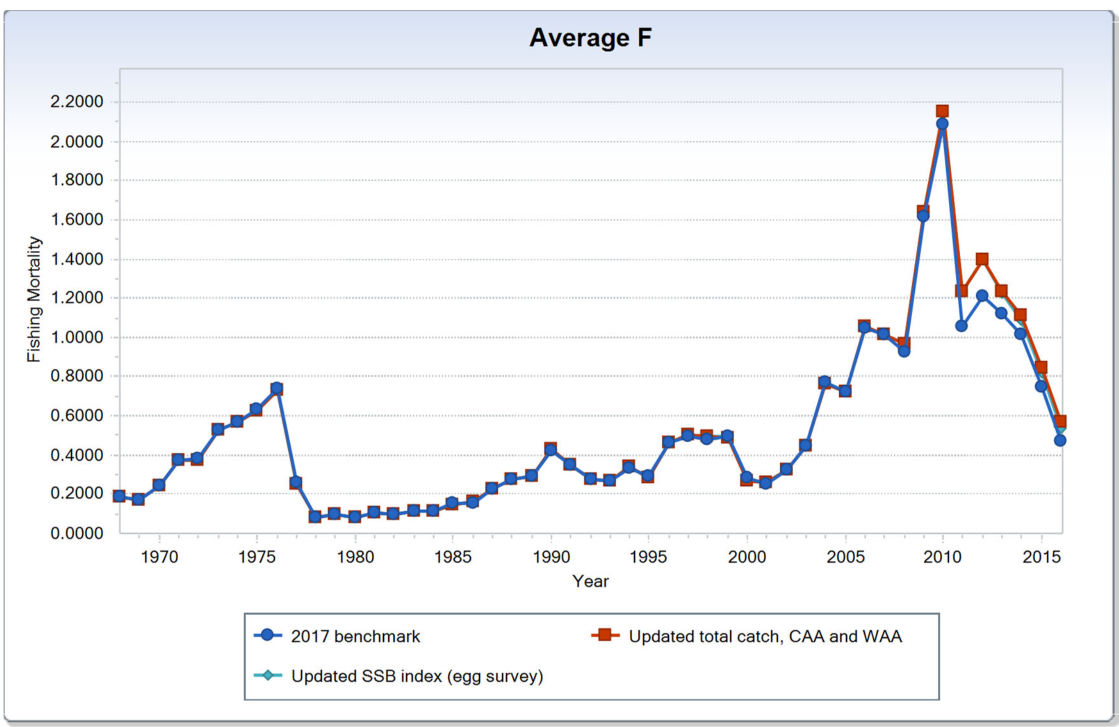


Figure S6: Comparison of (A) spawning stock biomass and (B) fishing mortality estimates from bridge runs updating the fishery catch time series and fishery-independent spawning biomass index in the 2017 benchmark model.

A)



B)



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June 9, 2021

Samuel D. Rauch, III,
Deputy Assistant Administrator for Regulatory Programs
National Marine Fisheries Service, NOAA Fisheries
1315 East-West Highway Silver Spring, MD 20910

RE: Comments on the May 26, 2021, Proposed Rule for 2021-2022 Specifications for Atlantic Mackerel, Squid, and Butterfish Fisheries, NOAA-NMFS-2021-0048[1]

The Pew Charitable Trusts (Pew) appreciates the opportunity to comment on NOAA Fisheries' proposed 2021-2022 Atlantic mackerel specifications. We urge NOAA Fisheries to reduce U.S. Atlantic mackerel catch for 2021-2022 in response to the species' declining populations[2] and the recent Fisheries and Oceans Canada (DFO) decision to reduce catch by 50%[3].

As prey for a wide array of fish, seabird and marine mammal predators, mackerel are an important component of the forage base that supports the Northeast Shelf Large Marine Ecosystem (NES LME). A broader look at the NES LME forage base reveals other depleted forage species – in fact this very rule is recommending a 72% reduction in butterfish due to lower than expected recruitment. Scientists increasingly agree[4] that catch levels for forage fish like mackerel should be set to maintain high abundance to ensure that the species' predators have plenty to eat. Healthy mackerel stocks would benefit the Atlantic ecosystems and the coastal communities that depend on them. In 2018, commercial landings of mackerel were valued at $10.7 million in Canada and $4.3 million in the United States,[5,6] and these values do not consider the additional economic and ecological values that mackerel provide as forage.

In 2019 when the current rebuilding plan and specifications were established, we and others pointed out that the fishery has a retrospective pattern. Every time there is a sign of recovery, managers increased catch leading to its current overfished and overfishing designations.[7] We argued that it was a mistake to increase catch on a stock that had just been declared overfished and subject to overfishing based on projections from the terminal year of a stock assessment and in such a way that required the Mid-Atlantic Fishery Management Council (MAFMC) to adjust its own risk policy[8].

Unfortunately, those concerns have been realized as the best available science shows stronger conservation is necessary. The 2021 Canadian stock assessment indicates that "the number of spawning-age mackerel are at a historic low"[9]. In response to this latest science and to recover the fishery, DFO is taking a significant step of reducing catch by 50% as compared to 2020. In this decision, The Honourable Bernadette Jordan, Minister of Fisheries, Oceans and the Canadian Coast Guard, stated, "if the spawning biomass does not increase over the next two years, we are likely heading towards a commercial Atlantic mackerel fishery closure"[10].

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[1] Fisheries of the Northeastern United States; Atlantic Mackerel, Squid, and Butterfish Fisheries; Specifications, National Oceanic and Atmospheric Administration. Federal Register, Docket No. 210517-0107, May 26, 2021, Link

[2] Mid-Atlantic Fishery Management Council, Atlantic Mackerel Rebuilding Framework with Specifications (MSB Framework 13), Accessed June 8, 2021, Link

[3] Fisheries and Oceans Canada, Minister Jordan announces Atlantic mackerel quota for 2021, Press Release, May 21, 2021, Link

[4] Lenfest Ocean Program, Lenfest Forage Fish Task Force, May 1, 2008, Link

[5] Fisheries and Oceans Canada, Minister Jordan announces Atlantic mackerel quota for 2021, Press Release, May 21, 2021, Link

[6] NOAA Fisheries, Atlantic mackerel, Species Directory, accessed June 3, 2021, Link

[7] "64th Northeast Regional Stock Assessment Workshop (64th Saw) Assessment Summary Report," (2018), Link

[8] Fisheries of the Northeastern United States; Framework Adjustment 13 to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan, Docket No. 191022-0069, November 29, 2019, Link

[9] Fisheries and Oceans Canada, Minister Jordan announces Atlantic mackerel quota for 2021, Press Release, May 21, 2021, Link

[10] Ibid.

We strongly recommend that NOAA Fisheries, MAFMC and its Scientific and Statistical Committee, review this new Canadian science now and reduce the 2021 annual catch limit appropriately. Although the comment deadline for this Proposed Rule precedes the 2021 management track assessment peer review later this month, and the next mackerel stock assessment update does not take place until 2022, we recommend that NOAA Fisheries reduce 2021 and 2022 catch, and make additional necessary adjustments to the mackerel rebuilding plan moving forward.

The next few years will be critical for Atlantic mackerel. The Magnuson-Stevens Act calls for rebuilding mackerel as quickly as possible and applying the best available science. We encourage NOAA Fisheries to embrace this opportunity to effectively rebuild one of the most important forage fisheries on the east coast, taking into consideration the shared nature of the mackerel stock and the recent actions taken by DFO, and finalize U.S. catch limits for 2021-2022 that will have a high likelihood of success. Reducing U.S. catch now would be a wise investment in the longevity of the fishery to the benefit of fisheries, communities, predators and our shared ecosystem.

Sincerely,

Joseph Gordon
Project Director, Conserving Marine Life in the United States
The Pew Charitable Trusts

OCEANS NORTH
1533 Barrington St, Suite 200, Halifax, NS, B3J 1Z4
www.oceansnorth.org

RE: Comments on the May 26, 2021 Proposed Rule for 2021-2022 Specifications for Atlantic Mackerel, Squid, and Butterfish Fisheries, NOAA- NMFS-2021-0048[1]

June 10, 2021

Samuel D. Rauch III
Deputy Assistant Administrator for Regulatory Programs
National Marine Fisheries Service, NOAA Fisheries 1315 East-West Highway
Silver Spring, MD 20910

Dear Mr. Rauch,

Oceans North is a Canadian environmental non-governmental organization working on marine conservation in partnership with Indigenous and coastal communities. We appreciate the opportunity to comment on NOAA Fisheries' proposed 2021-2022 Atlantic mackerel specifications, as we have an interest in mackerel given the population is shared between Canada and the United States. We have been advocating for sustainable management of Atlantic mackerel for years through Fisheries and Oceans Canada (DFO)'s scientific and advisory processes. It is disappointing to witness the continued decline of this population to the lowest levels on record. In response to the latest scientific assessment from DFO and given Canada's decision to reduce its 2021 TAC by 50%,[2] we urge NOAA to follow suit and reduce allowable catches to a similar level.

The results of the most recent DFO mackerel stock assessment are incredibly concerning, but they are not surprising considering management decisions by Canada and the U.S. to date. The 2015-year class once offered a glimmer of hope for some recovery following decades-long decline. However, due largely to high exploitation rates, that year class was only 7% of the spawning stock biomass in 2020.[3] The assessment also highlights that the spawning stock biomass is at the lowest ever observed (at 58% of the limit reference point) and has been in or near the Critical Zone, according to Canadian policy, for over 10 years. The stock assessment also revealed that there are almost no (<1 %) fish over 5 years, exploitation is focused on fish aged 2-5 years, and that there have been no notable recruitment events in recent years.[4]

As in the U.S., mackerel are important part of the economy in Atlantic Canada as a commercial, bait and recreational fishery. Additionally, mackerel support the broader ecosystem as a forage

[1] Fisheries of the Northeastern United States; Atlantic Mackerel, Squid, and Butterfish Fisheries; Specifications, National Oceanic and Atmospheric Administration. Federal Register, Docket No. 210517-0107, May 26, 2021
[2] Minister Jordan announces Atlantic mackerel quota for 2021
[3] Spawning-age mackerel at record lows in Atlantic Canada
[4] DFO science presentations from the Atlantic Mackerel Advisory Committee meeting, March 30, 2021

fish. However, past quotas have not allowed the stock to rebuild and have jeopardized future revenues. A 2020 cost-benefit analysis revealed that minimizing fishing could lead to benefits estimated at over $54 million, with a 12.9% return on the "investment" in stock rebuilding.[5]

In light of the new Canadian assessment and catch reduction, we therefore urge NOAA Fisheries, MAFMC and its Scientific and Statistical Committee to reduce the 2021 annual catch for the benefit of our shared mackerel stocks, coastal livelihoods and ecosystem.

Sincerely,

Katie Schleit
Senior Fisheries Advisor
Oceans North

[5] The Jig is Up: Millions at stake in DFO's failed actions to rebuild the Atlantic mackerel stock.

Joint Meeting of the Mid-Atlantic Fishery Management Council &

Scientific and Statistical Committee

Wednesday, August 11, 2021

3:30 P.M. – 5:00 P.M.

Philadelphia, PA (in-person and remote)

AGENDA

3:30 Welcome/Introductions

3:35 Update from the SSC Economic Work Group (G. DePiper, Economic Work Group Chair)

- Update on the RSA re-development case study – progress to date, plan for rest of year, early challenges and lessons
- Potential process and approaches for future SSC Economic Work Group engagement

4:05 Advancing Ecosystem Science and Management Application (S. Gaichas, Interim Ecosystem Work Group Chair)

- Report from SSC Ecosystem Work Group on short/long term priorities, analyses, and potential work products and outcomes
- Ecosystem science needs and considerations to support management decisions, planning, and priorities

4:35 Stock Rebuilding – Science and Policy Considerations (P. Rago, SSC Chair)

- Potential guidance, approaches, and considerations – biological, economic, uncertainty etc. – for stocks under a rebuilding plan

5:00 Adjourn

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 29, 2021

To: Council
Scientific and Statistical Committee

From: Brandon Muffley, staff

Subject: Background Information for 2021 Joint Council-SSC Meeting

Introduction:

In August 2019, the Mid-Atlantic Fishery Management Council (Council) and its Scientific and Statistical Committee (SSSC) met jointly for the first time in order to discuss a number of pertinent topics and issues[1]. The meeting also provided an opportunity to foster greater dialogue and build relationships between the Council and SSC given the limited interaction between the two groups. Given the overall success of the first meeting, a second joint meeting was convened in October 2020, and one is planned in 2021 during the August 9 – 12, 2021 Council meeting in Philadelphia, PA.

The August meeting week was chosen for the joint meeting in an effort to have the topics and discussion help provide input and direction on potential future Council and SSC priorities. This early feedback would allow for any potential priorities or topics be considered as the Council develops its Implementation Plan for next year and as the SSC considers future agenda topics.

At their July meeting, the SSC discussed a number of potential topics for the joint meeting. Topics considered were prior recommendations made to Council, ongoing activities of the SSC, and new topics and challenges identified during the July SSC meeting. Three topics were prioritized and additional background material for each agenda item is provided below and were developed by members of the SSC. This information is intended to provide an introduction to the topic and hopefully stimulate discussion between the Council and SSC and offer feedback on the future direction and approach for these topics.

Update from the SSC Economic Work Group:

Work Group Members:

Lee Anderson, John Boreman, Geret DePiper (Work Group Chair), Mark Holliday, Jorge Holzer, Olaf Jensen, Yan Jiao, Paul Rago (SSC Chair)

[1] More information about the 2019 and 2020 joint Council-SSC meeting, including agenda and meeting materials, can be found at: https://www.mafmc.org/briefing/august-2019 and https://www.mafmc.org/briefing/october-2020, respectively.

Background:

The Council agreed to the Economic Work Group engaging in a Research Set Aside Re-development case study during their December 2020 Council meeting. The aims of this case study are twofold:

1) Provide economic expertise to the Research Steering Committee, particularly around the selection of candidate fisheries and research projects to be funded, maximizing funding available for research projects, and monitoring and enforcement issues.
2) Develop a programmatic process for engaging SSC economic expertise in support of Council decision-making.

The Research Steering Committee is hosting three preliminary workshops in the run-up to a final in-person workshop, the latter in which recommendations to the Council will be developed. Workshop 1 was held on Thursday, July 15, 2021, and focused on Research. Workshop 2 is scheduled for August 31, 2021, and will focus on Funding, while Workshop 3 is slated for October 14 with a focus on Enforcement.

Current Status

The Economic Work Group formed three sub-groups centered around the preliminary workshop topics: Dr. Mark Holliday leads the Research subgroup, Dr. Jorge Holzer leads the Funding subgroup, and Dr. Lee Anderson leads the Enforcement subgroup. Each subgroup is tasked with leading a discussion of economic considerations during the Workshop corresponding to their topic, as well as developing supporting information and/or analyses. For example, Dr. Holliday and the other members of the Work Group developed one-page briefing papers and presented them for the most salient economic issues surrounding Research:

1) Consistency with Stated Council Plans/Objectives & Linkages to Management Goals; Application of Benefit/Cost Principles in Proposal Evaluation
2) Peer Review and Principal Investigator (PI) Communications: Before, During, and After Completion of RSA projects
3) RSA Program Transparency and Conflicts of Interest
4) Universal data access and transparency
5) Decoupling allowances and forage and ecosystem species

Drs. Holzer and Anderson, in conjunction with the rest of the Economic Work Group, will develop supporting information for the Funding and Enforcement Workshops, respectively, later this summer and fall, with an ultimate aim of developing a combined white paper for delivery to the Council's use in consideration of the Research Set Aside re-development.

Lack of anticipated access to RSA auction data has relegated the Economic Work Group's guidance to be strategic in nature. The Work Group has also had to assume the goals and objectives of any redeveloped RSA program would align with historical objectives to provide input prior to workshops, as only in Workshop 4 are final recommendations regarding these objectives ultimately going to be developed.

Future Direction

Preliminarily, the Economic Work Group has found the overall work process on developing Council economic advice to be productive so far and would like to continue work on future

Council priorities, with their consent. In consideration of any possible future work the SSC Economic Work Group will align any transition to new work with the Council's discussion and selection of 2022 priorities.

Advancing Ecosystem Science and Management Application:

Background:

The MAFMC is already leading many other Councils on the use of ecosystem information with the overall EAFM approach, annual EAFM risk assessment, recent conceptual modeling, and in-progress MSE.

Based on feedback from annual State of the Ecosystem (SOE) report reviews, both the Council and SSC would like to make better use of existing ecosystem information presented each year, and to develop more tailored products and processes to use this information in management.

Potential Considerations:

Working with the Council, the SSC would like to establish short term and long term objectives to advance the operational use of ecosystem information in management decisions. This information can include, but is not limited to, the information already provided in the SOE reports. The NEFSC is currently developing prototype stock-specific ecosystem data and reporting capability which can be tailored to needs identified by the Council and SSC.

In May 2021, an SSC ecosystem subgroup was formed (members include: Sarah Gaichas, Geret DePiper, Gavin Fay, Dave Secor, Mike Wilberg, Rob Latour, Wendy Gabriel, Yan Jiao, and Paul Rago). Possible tasks for this subgroup include:

1. Review and prioritize current ecosystem indicator work (analyses of indicators/groups, thresholds, etc) for the 2022 SOE report or prototype stock specific reports
2. Develop and test decision frameworks that use ecosystem information in setting Acceptable Biological Catch (ABC) for individual stocks
3. Provide scientific support for MAFMC's comprehensive review and update of EAFM risk assessment, and for the Council's use of SOE and risk assessment in strategic planning.

At present, the main MAFMC SSC decision for each stock is the level of scientific uncertainty (CV) in the OFL (overfishing limit; the catch associated with the fishing mortality threshold, typically a stock assessment output) which results in the ABC (catch level that sets an upper bound for the Annual Catch Limit). This decision includes an assessment of data quality, model appropriateness, retrospective analysis, empirical comparisons, ecosystem factors, recruitment trends, prediction error, informative levels of fishing mortality, and whether MSE has evaluated uncertainty. Therefore, identifying specific ecosystem factors and associated indicators that impact scientific uncertainty for individual and multiple stocks is critical to operational use of these indicators in the OFL CV decision. At its July 2021 meeting, the SSC included the results of the Northeast Climate Vulnerability Analysis (Hare et al 2016) in its assessment of ecosystem factors for OFL CV, in addition to any analyses conducted as part of the stock assessment.

The SSC subgroup could also consider and provide advice on the use of ecosystem information in estimating reference points and parameters for rebuilding depleted stocks.

The SSC subgroup is scheduled to meet 4 August, and an overview of the outcomes of that initial meeting will be shared with the Council during the 11 August joint meeting. The Council's iterative approach to developing the EAFM policy guidance, risk assessment, conceptual modeling, and MSE have been quite successful to date. We foresee continuing this iterative approach with regular consultations between the Council, SSC subgroup, and ecosystem data providers to achieve Council objectives.

For this discussion, it would be beneficial to get feedback from the Council on the types of ecosystem data/information, tools, or approaches that may be missing or would be informative to help support Council decision making, strategic planning, and priority setting (management and research). This input could help provide early guidance to the SSC subgroup, Council staff, and ecosystem data/model providers for consideration as they begin to develop new or updated ecosystem products.

Two concrete examples of the types of tools which could be developed are:

1) The North Pacific Fishery Management Council has used Ecosystem Status Reports to inform OFL and ABC setting for coming years - (https://doi.org/10.3389/fmars.2020.00703, https://academic.oup.com/icesjms/article/74/1/421/2669560).
2) California Department of Fish and Wildlife utilizes habitat compression and forage indices to inform their Risk Assessment and Mitigation Program for humpback whales, blue whales, and Pacific leatherback turtles - (https://wildlife.ca.gov/Conservation/Marine/Whale-Safe-Fisheries#559972749-2020-21-season)

Stock Rebuilding – Science and Policy Considerations:

Background:

Rebuilding a stock is one of the most difficult tasks in fisheries management and science. Science and management are inseparable; neither alone can provide a sufficient basis for rebuilding. Rebuilding must strike a balance between knowledge of stock dynamics and constraints imposed by legal requirements, management goals, and risk policy. Considerations include not only the usual specification of time lines, but also the more difficult policy challenges of dealing with unexpected changes. The essential feature of rebuilding is that multiple paths towards rebuilding are feasible and some may have lower economic impacts for stakeholders. Incorporation of economic factors in rebuilding plans could be an important advance.

Potential Considerations:

The SSC would appreciate further discussion with the Council and managers on the general topic of rebuilding. The upcoming challenges of rebuilding Atlantic Mackerel and Bluefish will bring these issues into sharp relief. Statutory guidelines for rebuilding start and end dates, as informed by current understanding of stock status and dynamics, constitute the primary policy guidelines. Beyond these constraints, policy issues include the desired probability of rebuilding within the period (e.g., a value greater than 50% may be desirable), application of the Council Risk Policy to interim fishing mortality rates during rebuilding, and responses to stock assessment updates within the rebuilding period.

Rebuilding timelines are conditioned on expected values of future recruitment, continuation of current growth and maturation rates, and no change in discard patterns. Interim stock assessments will reveal how well these assumptions are satisfied. If reality falls short of expectations, then what are the appropriate, feasible, and legal management responses, i.e., policy changes? For example, if recruitment is very low, the current fishing mortality rates for rebuilding would either need to be reduced or the length of the rebuild period would need to be extended. Similarly, a very strong year class can accelerate rebuilding but might cause excessive discards in some fisheries. This situation not only wastes fish but will change the assumptions under which the rebuilding targets were set. Uncontrollable factors could include harvests occurring in other jurisdictions and the efficacy of management efforts in some fisheries. Explicit consideration of the economics of rebuilding could lead to lower interannual fluctuations in landings and better economic returns during the rebuild period. Ecosystem factors may also be important for Atlantic Mackerel as it does fall under the Council's policy for forage species. Explicit consideration of this policy could have implications for target rebuilding probabilities.

In summary, the SSC would like to engage with the Council, GARFO and NEFSC to explore the policy aspects of rebuilding. Drawing upon experiences in other regions would also be helpful. We anticipate that such discussion will more result in more effective specification of ABCs and responses to unexpected changes in resource condition.

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: August 1, 2021

To: Michael P. Luisi, Chairman, MAMFC

From: Paul J. Rago, Ph.D., Chair, MAFMC Scientific and Statistical Committee (SSC)

Subject: Report of the July 2021 SSC Meeting

The SSC met via webinar from 21st - 23rd of July, 2021 to address the following topics:

- Golden Tilefish ABC specifications for 2022-2024 fishing years
- Atlantic Mackerel ABC specifications for 2022-2023 fishing years
- Scup ABC specifications for 2022-2023 fishing years
- Summer Flounder ABC specifications for 2022-2023 fishing years
- Black Sea Bass ABC specifications for 2022-2023 fishing years
- Bluefish ABC specifications for 2022-2023 fishing years
- Review Research Set Aside project update
- Discuss Joint Council-SSC meeting

See Attachment 1.

Most SSC members were able to participate for all or part of the meeting (Attachment 2). Other participants included Council members, Council staff, NEFSC and GARFO staff, and representatives of industry, stakeholder groups, and the general public. Council staff provided outstanding technical support before, during and after the meeting. I thank Sarah Gaichas for her excellent meeting notes and members of the SSC and Council Staff for their comments on an earlier draft of this report. Presentations and contributions of stock assessment scientists from NEFSC and Council Staff were uniformly outstanding. This professionalism greatly facilitated the work of the SSC. A special thanks is also given to Brandon Muffley whose careful orchestration ensured seamless integration of a complex meeting.

This meeting required in-depth participation by a large fraction of SSC members. I thank species leads John Boreman (Scup and Golden Tilefish), David Secor (Atlantic Mackerel), Michael Wilberg (Summer Flounder), Olaf Jensen (Black Sea Bass), and Cynthia Jones (Bluefish) who expertly led the SSC through the TOR and drafted the initial OFL CV summary. We were also the beneficiaries of outstanding rapporteurs for each stock including (Sarah Gaichas (Golden Tilefish, Atlantic Mackerel), Thomas Miller (Scup), Olaf Jensen (Summer

Flounder), Gavin Fay (Black Sea Bass) and Michael Wilberg (Bluefish). Apart from minor editorial changes, the summaries of the Terms of Reference herein, and the completed worksheets for determining the OFV CV (Attachments 4-8) are exactly as presented in the public meeting. Guidelines for preparation of the OFL CV templates are presented in Attachment 3.

All documents referenced in this report can be accessed via the SSC's meeting website https://www.mafmc.org/ssc-meetings/2021/july-21-23. This report uses many acronyms: a comprehensive guide is listed in Attachment 9.

The meeting opened with a quick overview of the agenda and a brief note on the retirement of our colleague Gary Shepherd who has produced outstanding stock assessments for the Council for many decades. We also noted the passing of Robert Mohn, an intellectual giant and friend, whose work on retrospective patterns has improved stock assessments worldwide. The references herein to "Mohn's Rho" reflect his enduring legacy.

Overview of SSC Process for ABC Determination

Six stock assessments, prepared by the Northeast Fisheries Science Center (NEFSC), were reviewed by the SSC. The discussions are guided by the Terms of Reference (TOR) written by Council staff, in consultation with Council and SSC leadership, and guided by evolving historical precedents within the SSC. The primary focus of the SSC review is to characterize the full scientific uncertainty of the overfishing limit (OFL) to recommend an Acceptable Biological Catch (ABC). Simulation studies have suggested that the uncertainty of catch estimates is underestimated by the within model estimates of variation (SSC, 2016) Accordingly, the SSC uses a composite level of uncertainty, or coefficient of variation (CV) derived by following a template described in the SSC's OFL CV Guidance Document (2020)**.** Nine criteria are considered to develop an overall measure of the coefficient of variation. Each criterion is assigned one of three separate levels of CV and a composite CV, based on the preponderance of the evidence, is assigned by the SSC. The rationale for each criterion is summarized in the Attachments 4 to 8.

The SSC is acutely aware of the importance of its ABC determination. The SSC strives to use a process to derive the OFL CV that is open, transparent, and well documented. Prior to the meeting the SSC's lead for each species collaboratively developed a template of key factors for each criterion. The initial results were provided on the Council's website prior to the SSC meeting. No determinations of CVs are made in this stage. Rather, these initial lists served as template for the broader SSC discussions during which factors were modified, added, or deleted. After a plenary discussion, a consensus determination of CV category was made for each criterion. Finally, an overall determination of the OFL CV was derived based on the overall evidence. No formal weighting of criteria was applied; instead, it was based on the expert judgement of the group. To date, the overall determination has usually been clear-cut. More difficult decisions could arise in the future as assessment circumstances change. Overall, the process strikes a realistic balance between ensuring transparency and efficiency. The advance preparation also ensures that previous discussions are reviewed for current applicability, that group decisions can be made within a limited period, and that future decisions will have sound documentation.

The ABCs for each species and requested scenario are summarized below. Further discussion of the basis for these decisions may be found in the individual species sections.

Table 1. Summary of Estimated OFLs and Recommended ABCs by Stock.

Species	Year	Overfishing Limit (OFL) (mt)	Acceptable Biological Catch (ABC) (mt)	Probability of Overfishing (P*)
Golden Tilefish (Scenario 1/Scenario 2)	2022	1,011/1,011	867/891	0.43/0.44
	2023	1,013/1,010	917/891	0.45/0.44
	2024	975/976	890/891	0.46/0.46
Atlantic Mackerel	2021	11,622	ND[3]	ND[3]
	2022	10,817[1]	8,760[2]	0.40
Scup	2022	14,770	14,566	0.49
	2023	13,708	13,460	0.49
Summer Flounder, P*	2022	16,458	15,403	0.452
	2023	15,759	14,639	0.447
Summer Flounder, constant harvest	2022	16,458	15,021	0.435
	2023	15,865	15,021	0.461
Black Sea Bass	2022	8,735	8,555	0.49
	2023	7,716	7,557	0.49
Bluefish	2022	18,399	11,460	0.320
	2023	20,490	13,890	0.362

[1]The OFL for 2022 assumes 23,184 mt harvested in 2021. See text.
[2]ABC is based on OFL=10,817 with a P*=0.40
[3]Not Determined

Golden Tilefish

Paul Nitschke, NEFSC opened with a summary of the MTA results. Beginning with an overview of the biology he then summarized the major changes in the assessment methods that had occurred over time. Bottom trawl surveys are not useful for Golden Tilefish monitoring but two recent longline surveys may prove useful. These will be more fully evaluated in an upcoming Research Track Assessment (RTA) in 2024. Relative abundance of Golden Tilefish is monitored by a commercial CPUE estimates derived from a generalized linear model. A major change in the current assessment was the inclusion of more year-specific age-length keys. Previous assessments had relied on pooled age length keys. Concerns were expressed about recent declines in numbers of biological samples taken by port agents.

As the assessment relies exclusively on commercial fishery data and has a terminal year of 2020, there were no information gaps due to Covid 19 sampling that affected other stock assessments. Model results indicate that the stock is not overfished (B_{2020}~95% B_{msy}) and overfishing is not occurring (F2020~61% F_{msy}). The biological reference points are derived empirically by estimating average Fs between 2002-2012 when the stock was rebuilding. Re-evaluation of this basis is expected in the 2024 RTA. Catches have been relatively stable at about 900 mt since 2000. CPUE has oscillated over this period as new recruits enter the fishery. Recruits are not precisely identifiable and there may be smearing of several year classes. Current increases in catches and abundance appear to be driven by the 2013-2014 year classes. If historical patterns prevail, CPUE is expected to decline in coming years. The model estimates a dome-shaped selectivity pattern which implies a large population of older, relatively invulnerable cryptic adults.

Mohn's Rho estimates of retrospective pattern reveal low values, suggesting no obvious conflicts between the model assumptions and data. Sensitivity analyses indicated that a small sample of 16 unclassified fish had a major impact on the estimate of abundance for the 2017 cohort. This was raised as a source of concern regarding potential undue optimism over projected stock sizes.

José Montañez provided an overview of management issues, concerns expressed by industry Advisory Panel (AP), and recommendations for an ABC based on the latest model results and application of the previously used OFL CV=100%. Prices and total revenue declined in 2020 owing to effects of the pandemic but landings in 2021 are ahead of last year. Golden Tilefish are rarely encountered in MRIP angler intercepts. A mandatory reporting system for recreational fish was implemented in late 2020 but data are scant to date. It was hypothesized that recreational Golden Tilefish landings increase when tuna fishing is poor. In any event, results of mandatory reporting are not yet interpretable. José also noted the desire to synchronize the fishing year to the calendar year but noted that the 2021 fishing year will be 14 months (Nov 1, 2021 to December 31, 2022).

A general discussion of both science and management issues followed. A member of industry expressed the desire of industry to have stable harvest levels, even at slightly lower levels, to ensure proper development of markets and avoid oscillations between years that cause price changes. Industry reported large proportions of 2 - 3.5 lb fish in current landings, suggesting an incoming year class.

Terms of Reference: Golden Tilefish

Following this general discussion, the SSC addressed the Terms of Reference (italics) for Golden Tilefish. Responses by the SSC (standard font) to the Terms of Reference provided by the MAFMC are as follows:

For Golden Tilefish, the SSC will provide a written report that identifies the following for the 2022-2024 fishing years:

1) *Based on the criteria identified in the acceptable biological catch (ABC) control rule, assign the stock to one of four types of control rules (analytically derived, modified by the assessment team, modified by the SSC, or OFL cannot be specified) the SSC deems most appropriate for the information content of the most recent stock assessment;*

The Peer Review Committee for the most recent management track assessment of Golden Tilefish (2021) deemed the assessment-derived OFLs in 2022, 2023, and 2024 are appropriate for use by management. The SSC determined that the level of uncertainty of OFL in the assessment requires an SSC-specified CV.

2) *If possible, determine the level of catch (in weight) associated with the overfishing limit (OFL) for each requested fishing year based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy, and the associated coefficient of variation recommended by the SSC and its basis;*

Based on projection estimates provided in the 2021 management track assessment for Golden Tilefish, the level of catch associated with the OFL for 2022-2024, based on an SSB_{msy} proxy of $SSB_{40\%}$ and assuming that ABCs in 2020 and 2021 are caught, is:

Year	OFL (mt)
2022	1,011

OFLs for 2023 and 2024 depend on whether the constant or varying approach to ABC is selected and are listed under TOR 3.

The SSC recommends using an OFL coefficient of variation (CV) level of 100% for the following reasons. The SSC notes consistency between input data and model dynamics, the available model diagnostics, and the lack of a pathological retrospective pattern. Projections are sensitive to inclusion of the unclassified market category (small sample of small fish) from recent years, as this is the only indication of potential recruitment. Increased availability of age data in 2021allowed for the use of additional data within the pooled age-length key, and the use of year-specific age keys for the most recent years. The final model run used the updated pooled age-length key for years with age data gaps. Bridge run performance in the 2021 management track assessment showed good agreement between assessments. The SSC re-expresses its concern that the assessment relies solely on fishery-dependent data; the MSY estimate relies on a dome-shaped selectivity curve, which suggests a large portion of the population is not vulnerable to harvest.

3) *The level of catch (in weight) and the probability of overfishing (P*) associated with the ABC for each requested fishing year, based on: 1) the traditional approach of varying ABCs in each year, and 2) a constant ABC approach derived from the projected ABCs. If appropriate, specify interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration;*

The SSC accepted the CV of 100% in the OFL as the foundation for the ABC. Using the Council's published risk policy, the recommended ABCs are as follows:

	ABC (mt)	OFL (mt)	ABC (mt)	OFL (mt)
Year	Traditional (Scenario 1)		Constant (Scenario 2)	
2022	867	1,011	891	1,011

2023	917	1,013	891	1,010
2024	890	975	891	976

Interim metrics: Landings and length/age distributions from fishery; need to maintain/increase port sampling.

4) *The most significant sources of scientific uncertainty associated with determination of OFL and ABC;*

- Reliance on fishery-dependent data in the assessment.
- Reliability of the F_{msy} proxy and its relationship to potential SPR-based reference points.
- The dome-shape selectivity curve that makes a strong assumption about the presence of older fish in the population, for which strong empirical evidence is lacking.
- The extent of site fidelity of individuals, uncertainty in the stock range and distribution, and the consequences of the newly closed areas on stock dynamics that increase uncertainty and potential bias in assessment results.
- The lack of reliable recreational catch information.
- The use of a pooled age-length key for years in which an age-specific key is unavailable that may lead to misspecification of age structure and reduced ability to both follow and estimate the size of year classes.
- The lack of a recruitment index that places a heavy burden on the estimation of past recruitments from size composition in the landings.

5) *Ecosystem considerations accounted for in the stock assessment, as appropriate, and any additional ecosystem considerations that the SSC considered in selecting the ABC, including the basis for those additional considerations;*

No specific additional ecosystem considerations were taken into account by the SSC in reaching its ABC recommendation. The climate vulnerability of Golden Tilefish was considered in the OFL CV deliberations (Hare et al. 2016).

6) *Research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or could be considered for the 2024 research track assessment;*

- Continue to explore development of a fishery independent survey to estimate abundance and distribution.
- Continue to perform exploratory analyses of fish distributions to assess whether the dome-shaped selectivity curve used in the assessment reflects fishery selectivity or availability, or both.
- Expand observer coverage to improve index standardization of fishery-dependent data.
- Leverage existing fishing activity to provide samples to improve life history and distribution information.
- Assess the accuracy and reliability of aging techniques.
- Evaluate the role of sanctuaries on the Golden Tilefish stock and its fisheries.

- Given the results of the assessment update, it seems reasonable to change the overfishing definition to $F_{40\%}$.
- Continuation of adequate age sampling is critical to the switch from the use of pooled age-length-key to year specific age-length-keys for more appropriate characterization of age structure and better tracking of year classes.
- There is a significant concern with reductions in the biological port sampling that may negatively affect future assessments, including the next RT assessment model in 2024.
- Due to the lack of information on incoming recruitment at the end of the time series (no fishery independent surveys that capture young fish), alternatives to the TAL calculations based on projections that rely on uncertain indications of year class strength should be considered. A conservative approach to changes in the TAL over time appear to have resulted in overall benefits for both the Golden Tilefish stock and for the fishery.

7) *The materials considered by the SSC in reaching its recommendations;*

- SSC TORs for Golden Tilefish
- Staff Memo: 2022-2024 Golden Tilefish Specification Recommendations
- Draft 2021 Golden Tilefish Management Track Stock Assessment Report
    - See the Stock Assessment Support Information (SASINF) Search Tool for additional information including tables, figures, and additional analyses
- Draft 2021 Management Track Peer Review Panel Summary Report
- OFL/ABC Golden Tilefish Stock Projections
- Draft Golden Tilefish OFL CV Decision Criteria Summary
- 2017 Golden Tilefish Stock Assessment Update Report
- 58th SAW/SARC Stock Assessment Report (2014)
- 2021 Golden Tilefish Advisory Panel Fishery Performance Report
- 2021 Golden Tilefish Fishery Information Document
- Hare, J. A., Morrison, W. E., Nelson, M. W., Stachura, M. M., Teeters, E. J., Griffis, R. B., Alexander, M. A., *et al.* 2016. A Vulnerability Assessment of Fish and Invertebrates to Climate Change on the Northeast U.S. Continental Shelf. PLOS ONE, 11: e0146756. Supplemental information at https://www.st.nmfs.noaa.gov/data-and-tools/NE-CVA/pdf/Tilefish.pdf

All documents without citation can be accessed via the SSC meeting website: https://www.mafmc.org/council-events/2021/ssc-july-21-23

8) *A conclusion that the recommendations provided by the SSC are based on scientific information the SSC believes meets the applicable National Standard guidelines for best scientific information available.*

The SSC believes that the recommendations provided are based on scientific information that meets the applicable National Standard guidelines for best scientific information available.

Atlantic Mackerel

Kiersten Curti, NEFSC, presented an overview of the most recent MTA, quickly noting the severe management and scientific challenges for this resource. Following the November 2017 Benchmark assessment at SAW 64 the stock was only 22% of B_{msy} and fishing mortality was nearly double (~180% of) F_{msy}. Unfortunately, the stock in 2019 (current assessment terminal year) remained overfished (23.7% B_{msy}) and overfishing increased slightly to 208% of F_{msy}. Rebuilding remains a primary concern for Atlantic Mackerel and most of the SSC discussion focused on this aspect.

The population is modeled with an age structured model (ASAP) that uses a constant M over ages and time. Fishery-independent surveys are used to estimate SSB, most notably an egg survey in Canada (northern contingent) and a long-term NMFS ecosystem monitoring survey. The spring NEFSC bottom trawl survey is split into RV Albatross and FSV Bigelow survey years (post 2009) to reflect the different catchabilities of the combined vessel and trawl changes.

The catch history suggests a much more productive early period (mid 1970s), with catches consistently exceeding 250,000 mt, followed by a drop to about 50,000 in the late 1970s and early 1980s. Exclusion of foreign vessels in the late 1970s was the primary reason for this drop in landings. Two later peaks in catches occurred in the late ’80s -early ‘90s and then again in the mid 2000s. Since 2009 landings have been low; US catches have been around 10,000 mt. Inclusion of MRIP-adjusted catches increased the overall scale of the population, but the magnitude of the increase varied over time. Prior to 2009 the revised MRIP catches were about 60% higher than before. After 2008, the catches were 213% higher. Total catches however, changed by much smaller fractions because recreational catches have usually represented a relatively small percent of overall removals in the US. Commercial discards, and recreational and bait catches in Canada are not estimated.

Model estimates of total stock biomass have declined over time, paralleling the overall catch trends. Abundance has increased slightly in the most recent years but remains well below historic levels.

Recruitment was estimated to be strong in 1982, 1999, and, most recently, in 2015. Recruitment in 2016 however was the lowest on record and estimates since 2008 have been below the median, except in 2015. The ratio of R/SSB has been increasing since 2010, suggesting possible compensation for low stock sizes.

Natural mortality is estimated as 0.2, but a profile likelihood analysis suggests slightly stronger support for a higher M of 0.26. Retrospective patterns can rarely be traced to specific changes, but the potential misspecification of M and differential rescaling effects of revised MRIP data may have led to an increase in retrospective patterns in SSB and R compared to the benchmark assessment in 2017. For rebuilding, the Mohn’s Rho for recruitment (=0.431) is especially problematic since rebuilding depends strongly on the realization of average recruitment, irrespective of the time stanza used.

Compared to the previous Benchmark Assessment, the perception of stock status has been revised substantially downward in the new Management Track Assessment (MTA). Key differences include:

- SSB in 2016 (terminal year of benchmark) was revised down by 29%;
- The estimated proxy for Maximum Sustainable Yield declined by 17%;
- Projected biomass in 2020 (first projection year from new MTA) is just one third (about 60,000 MT) that predicted for 2020 in projections that were used to develop initial rebuilding after the Benchmark Assessment (about 177,000 mt).

Projections from the 2017 benchmark suggested that rebuilding was possible by 2023, even with modest increases in catches. Updated projections from the 2021 MTA suggest that rebuilding could not occur even if fishing mortality was zero. Multiple factors have changed between assessments, and it is not possible to isolate a primary factor for the disparity. The downward adjustment of the 2015 year class was only -15%, but the very low 2016 and subsequent year classes are important. Median age at maturity increased, and weights-at-age declined. Potential causes of the absence of rebuilding and the choice of an appropriate time series for rebuilding projections are discussed under the Terms of Reference section below.

Jason Didden, MAFMC, followed Kiersten Curti with a reprise of the management issues for Atlantic Mackerel. The official rebuilding program began in November 2019 with an expected rebuild date of 2023. Actual catches since 2012 have been relatively steady but below allowable levels – 2021 landing to date has been relatively low. Revenues have also been relatively steady. The absence of rebuilding raises important concerns about age structure and resiliency of the stock. Recreational harvest is less controlled than commercial harvest and Canadian landings are considered fixed – both are accounted for with deductions from total catch recommendations. If emergency measures were invoked in 2021 to reduce overfishing it is unlikely that a complete cessation of fishing for the remainder of the year would be sufficient to end overfishing. Catch in 2021 appears likely to reach 13,500 mt, depending on the late-season performance of the U.S. fisheries and the potential for emergency action. Most US fishing occurs in the first quarter, so 2022 would offer the first opportunity to implement meaningful controls, though the potential timing of implementing new limits is somewhat uncertain.

Given the revised assessment basis, a new rebuilding schedule can be implemented in 2022. The multitude of options and absence of essential management guidance precluded further consideration of specific options for 2021. The complexity of options is further considered by the SSC in the Terms of Reference below.

Terms of Reference: Atlantic Mackerel

Following this general discussion, the SSC addressed the Terms of Reference (italics) for Atlantic Mackerel. Responses by the SSC (standard font) to the Terms of Reference provided by the MAFMC are as follows:

For Atlantic Mackerel, the SSC will provide a written statement that identifies the following for the 2021 fishing year and interim 2022 fishing year:

1. *As an interim approach to support emergency action, provide catch levels for the remainder of the 2021 fishing season and initial 2022 fishing season to end and/or minimize overfishing while the existing rebuilding plan is modified or reassessed later in 2021;*

SSC recommends separate actions for 2021 and 2022:

- For 2021, the stock is almost certain to be subject to overfishing given the current catch trajectory relative to the estimated OFL of 11,622 mt. Therefore, SSC recommends that measures be taken to eliminate or minimize additional catch during the current year.
- For 2022, SSC recommends that F_{msy} = 0.22 be utilized (estimate from the Management Track Assessment) with a P* of 0.4, resulting in an ABC of 8,760 mt. This calculation assumes 2021 catch equals 23,184 mt, i.e., the sum of the U.S. ABC (19,184 mt) and the 4,000 MT 2021 Canadian quota. The SSC recognizes that 2021 catch will likely be lower than the ABC level, given recent U.S. catch history and potential pending action by the Council/NMFS. Because the 2021 catch remains uncertain, the safest way to not underestimate 2021 catch (which would in turn over-specify 2022 catch) is to assume the full 23,184 mt catch. The static P* = 0.4 (OFL CV=100%, low recruitment scenario) is used as an interim measure to account for some scientific uncertainty while rebuilding is re-considered given stock size is certainly well below B_{msy}. (Standard application of the Council's P* risk policy under the low recruitment scenario would result in a catch recommendation of 3,931 MT with an 11% tolerated risk of overfishing.)

Informing this advice were the following topics:

- Current rebuilding plan —The current rebuilding plan will fail to meet the 2023 target.
- Recent SSC ABC guidance —Given uncertainty in how recent low recruitments would impact expected increases in SSB, SSC recommended no increase in ABC from 2019 to 2020 (29,184 mt in both years), and to await results of the Management Track Assessment for 2021 specifications. The 2021 MTA indicates that the projected rebuilding from the benchmark assessment remains far from being achieved.
- Preface to rebuilding —Preliminary rebuilding scenarios indicate long-term rebuilding will be required for this stock. Immediate and substantial reductions in catch is needed to begin rebuilding.
- Continued stock depletion —The perception of the stock has been revised substantially downward in the new Management Track Assessment (MTA) with respect to the previous Benchmark Assessment. Examples include: SSB in 2016 (terminal year of benchmark) was revised down by 29%; historically low recruitment since 2015; the estimated proxy for Maximum Sustainable Yield declined by 17%; projected biomass in 2020 (first projection year from new MTA) is just 1/3 (about 60,000 mt) of what was predicted for 2020 in projections used to develop initial rebuilding after the Benchmark Assessment (about 177,000 mt).
- DFO 2021 Quota — Canada DFO has reduced quota by half to 4,000 mt to allow for immediate rebuilding.
- Current landings information — Most US landings occur within the first quarter (Jan-Mar) curtailing the effectiveness of a 2021 emergency action. Combined harvests and bycatch

may be around 13,500 mt in 2021 based on fishery performance so far, a historical low in the series (staff memo). There can be substantial landings later in the year, however.

- Alternatives —The SSC also considered three 2021-2022 catch levels stipulated at 1) the lowest recorded harvest (staff recommendation), 2) alternate P* levels, and 3) F = 0.

2. *Provide guidance and scientific advice regarding the approaches, projection considerations, and associated risk for different rebuilding plan alternatives to be considered by the Council in August 2021 (note: the SSC will review rebuilding plan alternatives again and provide catch/ABC recommendations in September before final Council action).*

The SSC advances strategic considerations for rebuilding plan policies and the lists some specific issues specific to Atlantic mackerel rebuilding.

General Rebuilding Considerations:

- Components of a rebuilding plan — Key variables in rebuilding include,
  - T-min: The minimum amount of time a stock rebuilds at F=0.
  - T-max: The maximum time allowed for a stock to rebuild, which is typically 10 years but can exceed 10 years when T-min>10 in which case T-max=10 + mean generation time.
  - T-target: The target number of years for rebuilding; lies between T-min and T-max.
  - P_R-max: The probability of rebuilding by T-max.
  - P_R-target: The probability of rebuilding by T-target.
- Science-determined —T-min and T-max are scientifically derived values estimated from projections. Their values depend upon assessment assumptions and uncertainties.
- Council-determined —The Council sets T-target, P_R-max, and P_R-target based on risk policy, feasibility, and catch-rebuilding trade-offs.
- Feasibility — In considering catch-rebuilding trade-offs, there may only be a limited set of controls across classes of removals. For instance, Canadian Atlantic Mackerel harvests are outside Council control.
- Risk and long rebuilding — Longer rebuilding plans often need revision with changes in recruitment and Biological Reference Points. This can result in unstable quotas. Simulation and data synthesis indicate that, establishing P_R-max = 0.5 (i.e., a greater than 50% chance of rebuilding to the target date) is risk-prone. Values greater than 0.5 are associated with shorter rebuilding time and greater catch stability (Punt and Ralston 2007; Neubauer et al. 2013; Wetzel and Punt 2016).
- Forage Species — Atlantic Mackerel is managed as a forage species. MAFMC policy is to "support the maintenance of an adequate forage base in the Mid-Atlantic to ensure ecosystem productivity, structure and function and to support sustainable fishing communities." As laid out in the MAFMC EAFM Guidance Document, forage species require additional precaution, including the possibility of a more risk-averse harvest control rule.

Atlantic Mackerel Rebuilding Issues:

- Risk — Preliminary estimates of T-min indicate a long rebuilding period if recruitment persists at low levels. Given uncertainties in projections and strategic considerations (see above), SSC recommends P_R-max values >0.5. Because the Council lacks experience in setting P_R-max, reaching out to other Councils and staff may be helpful in learning from their experiences.
- Feasibility — Rebuilding choices will be constrained by classes of removals that are beyond the control of the Council or are difficult to control. These include Canadian catch, unmonitored components of the Canadian fishery, recreational fishing in state waters, and predation removals.
- Catch data streams — Harvest controls during rebuilding could result in very low commercial catches affecting data streams that are important in evaluating stock status and rebuilding.
- Recruitment assumptions —Estimates of T-min, T-max, and projection realizations of P_R-max and T-target are very sensitive to recruitment assumptions, whether recruitment expectations are drawn for the longer historical period (1975-present) or the more recent period (2009--present).
  - Initial T-min (zero total catch) estimates are 3 years for the longer recruitment series and 8 years for the shorter series (if rebuilding starts from 2022).
  - The longer series includes historical strong year-classes, and results in a more optimistic forecast for rebuilding
  - The shorter series will likely provide greater certainty against underperforming short-term forecasts, but is influenced less by historical strong year-classes.
  - Trends in R/SSB are slightly increasing over the historical series, suggesting some degree of compensation in recent time (greater recruitment per spawner).
  - The issue of recruitment assumptions will require additional science deliberation. Additionally, there may be better analytical approaches in using past recruitment patterns in making projections, including an autoregressive sampling approach.
- Biological Reference Points — The SSC recommends that regardless of which recruitment time series is used for rebuilding projections, that Biological Reference Points continue to be derived from the longer assessed period (1975-present).
- Risk of overfishing — P* (probability of overfishing) does not have explicit rebuilding time built in, but application of the P* control rule may lead to rebuilding within a certain period. During rebuilding, we should continue to assess P* as an interim stock metric.
- Adaptation during rebuilding — Longer rebuilding plans and associated projection uncertainty increase the likelihood of needing modifications to the plan. Assessment and projection updates may require revision to risk policy as stock trajectories change with respect to T-target.

Materials Considered in SSC Guidance

- Staff Memo: Atlantic Mackerel Recommendations
- Draft 2021 Atlantic Mackerel Management Track Stock Assessment Report
- Draft 2021 Management Track Peer Review Panel Summary Report
- OFL/ABC Atlantic Mackerel Stock Projections (Excel file)

- 2021 Canadian Mackerel Assessment Summary
- 64th SAW/SARC Stock Assessment Report (2017)
- 2021 Atlantic Mackerel Advisory Panel Fishery Performance Report
- 2021 Atlantic Mackerel Fishery Information Document
- Presentation: 2021 Atlantic mackerel management track assessment
- Neubauer, P., O.P. Jensen, J.A. Hutchings, and J.K. Baum. 2013. Resilience and recovery of overexploited marine populations. Science. 340:347-349.
- Punt, A.E., Ralston, S., 2007. A management strategy evaluation of rebuilding revision rules for overfished rockfish stocks. Biology, Assessment, and Management of North Pacific Rockfishes, 23, 329-+ pp.
- Wetzel, C.R., Punt, A.E., 2016. The impact of alternative rebuilding strategies to rebuild overfished stocks. ICES Journal of Marine Science, 73(9): 2190-2207.

Scup

Mark Terceiro, NEFSC, reported the major conclusions from the current Management Track Assessment (2021). The stock is not overfished and overfishing is not occurring. The most recent benchmark for Scup was 2015, but it has been updated for review by the SSC every other year. The Scup assessment is supported by three synoptic NEFSC surveys and 14 state and regional surveys. The 2021 MTA involved the inclusion of one additional year of data from the 2019 update. There were no changes in the model structure apart from the addition of a selectivity stanza for 2013 onward. The biomass and fishing mortality estimates have insignificant retrospective patterns. Importantly, from a conservation perspective, these patterns suggest consistent underestimation of biomass and overestimation of F. The large 2015 year class resulted in higher than expected discards from 2015 to 2018. Discards are expected to decline in 2020 (incomplete data) and later years.

Changes in mean weights-at-age and maturation were factored into revised biological reference points. Changes in F_{msy} were modest 0.215 to 0.200. SSB remained nearly double B_{msy} of 90,019 mt, but is expected to trend downward over the next few years in the absence of another strong year class. There is no strong indication of a trend in recruitment. The ratio of R/SSB is declining as expected with a population well above B_{msy}. It is anticipated that a parametric stock-recruitment model will be examined in the next Research Track Assessment.

Comparisons across recent assessments suggests strong agreement and low prediction error of stock biomass forecasts. However, the updating of the assessment with revised MRIP estimates increased the overall scale of the population, compromising the utility of the prediction error metric as a measure of model performance.

Karson Coutré, MAFMC, summarized the Council’s recent actions and the conclusions of the Advisory Panel (AP). Karson noted the effects of Covid 19 on monitoring efforts in 2020, especially the reductions in observer monitoring. The AP expressed concerns about the veracity of the MRIP estimates. Additional AP concerns were effects of increased shark abundance inshore, importance of surfactants on early life history survival rates, and unknown impacts of wind energy development.

Opposing AP viewpoints were expressed regarding the utility of various size restrictions and overall trip limits. Jeff Kaelin, Lunds Seafood, noted that Lunds and SeaFreeze are pursuing MSC certification for Scup to facilitate marketing of frozen fish to supermarkets. SSC members commented that more formal analyses of economic considerations would be valuable in these discussions.

The SSC noted that a Staff recommendation for constant ABC quota included years in which P*>0.5. Exceeding a 50:50 chance of overfishing is not a viable option under the provision of the MSA. Accordingly, the SSC could not consider this alternative further.

Terms of Reference: Scup

Following this general discussion, the SSC addressed the Terms of Reference (italics) for Scup. Responses by the SSC (standard font) to the Terms of Reference provided by the MAFMC are as follows:

For Scup, the SSC will provide a written report that identifies the following for the 2022-2023 fishing years:

1. *Based on the criteria identified in the acceptable biological catch (ABC) control rule, assign the stock to one of four types of control rules (analytically derived, modified by the assessment team, modified by the SSC, or OFL cannot be specified) the SSC deems most appropriate for the information content of the most recent stock assessment;*

The Peer Review Committee for the most recent management track assessment of Scup (2021) deemed the assessment-derived OFLs in 2022 and 2023 are appropriate for use by management. The SSC determined that the level of uncertainty of OFL in the assessment requires an SSC-specified CV.

2. *If possible, determine the level of catch (in weight) associated with the overfishing limit (OFL) for each requested fishing year based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy, and the associated coefficient of variation recommended by the SSC and its basis;*

Based on projection estimates provided in the 2021 management track assessment for Scup, the level of catch associated with the OFL for 2022-2023, based on an OFL proxy of $F_{40\%}$ and assuming that ABCs in 2020 and 2021 are caught, are:

Year	OFL (mt)
2022	14,770
2023	13,708

The SSC recommends using an OFL coefficient of variation (CV) level of 60% for the following reasons. There is high data quality, as well as consistency of signals, from surveys, catch-at-age, and model results; the data agree with theory throughout. There is also a relatively low effect of revised MRIP estimates; only minor retrospective patterns in the statistical catch-at-age model, and the unlikelihood that additional adjustments (e.g., for ecological factors or below-average recruitment in the past three years) would increase uncertainty. Several surveys show declines or low abundance in early years to record lows in the mid-1990s and increases in abundance thereafter. Age structure in surveys shows a decline or low abundance of older ages in survey catches in early years and increases in abundance of older ages in recent years. Age structure in commercial landings-at-age and recreational landings-at-age show similar trends of increasing abundance of older ages in the stock. Several large recruitment events have been indicated by survey indices. In combination, these trends are consistent with lower fishing mortality rates in recent years, and increasing stock abundance as indicated by model results. Although up to 44% of the catch weight is attributable to the recreational fishery, the increase in recreational catch related to new MRIP estimates is relatively low in comparison to other stocks. There has been no obvious or clear trend in recent recruitment over the past decade, although a declining trend in recruitment is beginning to emerge, so adjustment of projected recruitment currently appears unwarranted. There is no discernable impact of thermal habitat on interannual variation in availability, so adjustment of survey indices to account for thermal habitat effects also appears unwarranted.

3. *The level of catch (in weight) and the probability of overfishing (P*) associated with the ABC for each requested fishing year, based on: 1) the traditional approach of varying ABCs in each year, and 2) a constant ABC approach derived from the projected ABCs. If appropriate, specify interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration;*

The SSC used a CV of 60 % in the OFL as the foundation for the ABC. Using the Council's published risk policy for a stock for which B/BMSY > 1, the SSC implemented a P*=0.49 strategy. The Council's request for ABCs that are constant for 2022 and 2023 leads to an ABC recommendation for 2023 that is associated with a P* value = 0.516. The SSC is precluded from setting an ABC that results in overfishing in any one year; therefore, only ABCs associated with the traditional (variable) approach are offered.

The recommended ABCs are as follows:

Year	Traditional (mt)
2022	14,566
2023	13,460

As a general observation, the Council's risk policy that implements p*=0.49 will likely result in instances in which a constant ABC approach, as currently implemented, will result in estimates of P* for individual years that are P*>0.5. The SSC cannot recommend an ABC in any single year in which P*>0.5. The SSC recommends the implementation of the constant ABC policy be re-evaluated to assess if there are methods that could preclude P* values higher than are permitted.

Interim metrics:

(1) The SSC will examine as many surveys as are available for the next SSC meeting, with a focus on the NEFSC surveys.
(2) Catch and Landings information, as available.

4. *The most significant sources of scientific uncertainty associated with determination of OFL and ABC;*

- While older age Scup (age 3+) are represented in the catch used in the assessment model, most indices used in the model do not include ages 3+. As a result, the dynamics of the older ages of Scup are driven principally by catches and inferences regarding year class strength.
- A sizeable portion of the stock biomass is in older age classes which are assumed to have low Fs as a result of the selectivity pattern imposed in the model.
- Uncertainty exists with respect to the estimate of natural mortality (M) used in the assessment.
- Uncertainty exists as to whether the MSY proxies ($SSB_{40\%}$, $F_{40\%}$) selected and their calculated precisions are appropriate for this stock.
- The SSC assumed that OFL has a lognormal distribution with a CV = 60%, based on a meta-analysis of survey and statistical catch at age (SCAA) model accuracies.
- Survey indices are particularly sensitive to Scup availability, which results in high inter-annual and regional variability – efforts were made to address this question by weighting surveys in the SAW/SARC that should be continued.
- The projection on which the ABC was determined is based on an assumption that the 2020 and 2021 ABCs will be caught.

5. *Ecosystem considerations accounted for in the stock assessment, as appropriate, and any additional ecosystem considerations that the SSC considered in selecting the ABC, including the basis for those additional considerations;*

The ABCs were not modified based on ecosystem considerations. The most recent benchmark assessment included ecosystems considerations, specifically efforts to estimate habitat suitability based on a thermal niche model that was fit to survey catchability, but this did not improve model fits.

The climate vulnerability assessment (Hare et al. 2016) indicates Scup is moderately vulnerable to climate effects.

6. *Research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level;*

  - Characterize the pattern of selectivity for older ages of Scup in both surveys and fisheries.
  - Mean weights-at-age have declined and age-at-maturity has increased slightly (the proportion mature at age 2 has decreased) in recent years. Continued monitoring of both is warranted.
  - It was conjectured that the increase in stock biomass since 2000 resulted from increased recruitments due to the imposition of gear restriction areas (GRAs), to minimize interactions between Scup and squid fisheries, and from increases in commercial mesh sizes. Long-term climate variation is a potential alternative

explanation for increased recruitments from 2000 to 2015. Research to explore the validity of both hypotheses is warranted.

- Improve estimates of discards and discard mortality for commercial and recreational fisheries.
- Evaluate the degree of bias in the catch, particularly the commercial catch.
- Conduct experiments to estimate catchability of Scup in NEFSC surveys.
- Explore the utility of incorporating ecological relationships, predation, and oceanic events that influence Scup population size on the continental shelf and its availability to resource surveys used in the stock assessment model.
- Explore additional source of age-length data from historical surveys to inform the early part of the time series, providing additional context for model results.
- An MSE could evaluate the effectiveness of Scup management procedures.
- Most of the fishery-independent indices used in the model provide estimates of the abundance of Scup < age 3. One consequence is that much of the information on the dynamics of Scup of older ages arises largely from the fishery catch-at-age and from assumptions of the model and are not conditioned on fishery-independent observations. As a result, the dynamics of these older fish remain uncertain. Knowledge of the dynamics of these older age classes will become more important as the age structure continues to expand.
- SSC is concerned over the reduction in port sampling which has the potential to exacerbate concerns about the dynamics of older fish.
- Uncertainty exists with respect to the estimate of natural mortality used in the assessment.
- Uncertainty exists as to whether the MSY proxies ($SSB_{40\%}$, $F_{40\%}$) selected and their precisions are appropriate for this stock.
- Survey indices are particularly sensitive to Scup availability, which results in high inter-annual variability. Further consideration of ecosystem factors controlling, and potentially forecasting availability of Scup is warranted.

7. *The materials considered by the SSC in reaching its recommendations;*

- SSC TORs for Scup
- Staff Memo: 2022-2023 Scup ABC Recommendations
- Draft 2021 Scup Management Track Stock Assessment Report
    - o See the Stock Assessment Support Information (SASINF) Search Tool for additional information including tables, figures, and additional analyses
- Draft 2021 Management Track Peer Review Panel Summary Report (same as GTF report above)
- OFL/ABC Scup Stock Projections
- Draft Scup OFL CV Decision Criteria Summary
- 60th SAW/SARC Stock Assessment Report (2015)
- 2021 Summer Flounder, Scup, and Black Sea Bass Advisory Panel Fishery Performance Report

- 2021 Scup Fishery Information Document
- Hare, J. A., Morrison, W. E., Nelson, M. W., Stachura, M. M., Teeters, E. J., Griffis, R. B., Alexander, M. A., *et al.* 2016. A Vulnerability Assessment of Fish and Invertebrates to Climate Change on the Northeast U.S. Continental Shelf. PLOS ONE, 11: e0146756. Supplemental information at https://www.st.nmfs.noaa.gov/data-and-tools/NE-CVA/pdf/Tilefish.pdf

All documents without citation can be accessed via the SSC meeting website: https://www.mafmc.org/council-events/2021/ssc-july-21-23

8. *A conclusion that the recommendations provided by the SSC are based on scientific information the SSC believes meets the applicable National Standard guidelines for best scientific information available.*

The SSC believes that the recommendations provided are based on scientific information that meets the applicable National Standard guidelines for best scientific information available.

Summer Flounder

Results of the Management Track Assessment for Summer Flounder were presented by the lead assessment scientist, Mark Terceiro, NEFSC. The Assessment Oversight Panel categorized this MTA as a Level 1 assessment requiring no prior external review before coming to the SSC. As with Scup, this assessment reflected the effects of a single year of new data. Total commercial catch could not be estimated in 2020 with the same accuracy as in prior years due to lack of observer coverage.

Despite the effects of Covid 19, some of the fishery independent surveys were conducted in 2020. Most survey abundances were low, mean lengths and average weights at age declined, and age at maturity appears to be increasing. Collectively these changes resulted in slight declines in estimate F_{msy} and B_{msy} proxies. The stock is not overfished and overfishing is not occurring.

The inclusion of revised MRIP estimates of recreational landings and discards in the previous assessment resulted in a major change in population scale but no change in status. Projection error, computed as the mean square error of projected biomass for year t minus biomass estimated for the same year in later assessments (t+n) revealed high agreement. As with Scup, the scale changes due to revised MRIP data reduced the utility of this metric of model performance. Nonetheless the Summer Flounder assessment continues to be one of the most stable assessments in the Mid-Atlantic. Changes in reference points between assessments are minimal.

Near target fishing mortality rates in recent decades have allowed for a broad expansion of age classes of both males and females in the population. In particular, increased proportions of males in the population reduces support for a previous hypothesis of differential natural mortality rates by sex. Monitoring commercial catches by port agents has declined. Such changes, if they continue, risk the loss of valuable information to improve our understanding of the underlying biology of Summer Flounder.

Evidence of strong stock-recruitment relationship is poor although R/SSB has declined as expected with high stock sizes in a Beverton-Holt type stock recruitment model.

Kiley Dancy, MAFMC, provided an overview of the Fishery Performance Report, the Advisory Panel and staff recommendations for ABCs in 2022 and 2023. Commercial landings were below their quota in 2020 but appeared to be on track for achieving their quota in 2021. Advisors expressed concerns about the effects of imputation on MRIP catch estimates for 2020, as it predicted a 31% overage in 2020. Disparate views regarding overall recreational effort were expressed by the advisors. Some advisors favored a reduction in the minimum size limits and removal of the small mesh exemption area.

Terms of Reference: Summer Flounder

Following this general discussion, the SSC addressed the Terms of Reference (in *italics*) for Summer Flounder. Responses by the SSC (in normal font) to the Terms of Reference provided by the MAFMC are as follows:

For Summer Flounder, the SSC will provide a written report that identifies the following for the 2022-2023 fishing years:

1. *Based on the criteria identified in the acceptable biological catch (ABC) control rule, assign the stock to one of four types of control rules (analytically derived, modified by the assessment team, modified by the SSC, or OFL cannot be specified) the SSC deems most appropriate for the information content of the most recent stock assessment;*

The approach to estimating uncertainty in the OFL has not changed since the previous benchmark (SAW/SARC 66). Accordingly, the SSC maintains its determination that the assessment should be considered to require an “SSC-modified OFL.”

2. *If possible, determine the level of catch (in weight) associated with the overfishing limit (OFL) for each requested fishing year based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy, and the associated coefficient of variation recommended by the SSC and its basis;*

The SSC accepts the Maximum Fishing Mortality Threshold ($F_{35\%}$ = 0.422) used in the assessment. The SSC recommends the use of the most recent nine-year recruitment series for OFL projections, because near-term future conditions are more likely to reflect recent recruitment patterns than those in the entire 38-year time series.

3. *The level of catch (in weight) and the probability of overfishing (P*) associated with the ABC for each requested fishing year, based on: 1) the traditional approach of varying ABCs in each year, and 2) a constant ABC approach derived from the projected ABCs. If appropriate, specify interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration;*

The SSC continues to use the 60% OFL CV based on the following characteristics: (1) the latest management track assessment did not result in major changes to the quality of the data and model that the SSC has previously determined to meet the criteria for a 60% CV; (2) the Summer Flounder assessment continues to be a data rich assessment with many fishery-independent surveys incorporated and with relatively good precision of the fishery-dependent data; (3) several different models and model configurations were considered and evaluated by SAW-66, most of which showed similar stock trends and stock status; and (4) no major persistent retrospective patterns were identified in the most recent model. Significant improvements in quality of data and investigations of alternate model structures affirm the specification of the 60% OFL CV by the SSC.

Variable ABC			
Year	OFL	ABC	P*
2022	16,458	15,403	0.452
2023	15,759	14,639	0.447
Constant ABC			
Year	OFL	ABC	P*
2022	16,458	15,021	0.435
2023	15,865	15,021	0.461

Interim metrics include NMFS bottom trawl survey indices (relative abundance, weight-at-length, length-at-age, if available) and catch levels, especially the revised imputed MRIP estimates for 2020.

4. *The most significant sources of scientific uncertainty associated with determination of OFL and ABC;*

- Changes in life history are apparent in the population; for example, declining growth rates and differences in sex-specific age structure.
- Uncertainty regarding recreational catch and discard estimates from MRIP, especially for 2020 where some data were imputed.
- Potential changes in productivity of the stock, which may affect estimates of Biological Reference Points. Changes in size-at-age, growth, and recruitment may be environmentally mediated, but mechanisms are unknown.
- Potential changes in availability of fish to some surveys and to the fishery as a result of changes in the distribution of the population.

5. *Ecosystem considerations accounted for in the stock assessment, as appropriate, and any additional ecosystem considerations that the SSC considered in selecting the ABC, including the basis for those additional considerations;*

No specific additional ecosystem information was used by the SSC for consideration in forming its ABC recommendation. The SSC notes that summer flounder were considered to have “moderate” vulnerability in the NEFSC Climate Vulnerability Assessment results (https://www.st.nmfs.noaa.gov/data-and-tools/NE-CVA/pdf/Summer_Flounder.pdf). The assessment reviewed potential causal factors for changes in distribution or growth rates, but none were identified as significant.

6. *Research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level;*

The SSC endorses the research recommendations provided in the SAW-66 assessment report.

The SSC also recommends that research should be conducted to:

- Understand the objectives and performance measures for the fishery from a socioeconomic perspective, to evaluate the balance of costs and benefits of ABC specifications; Reconsider stock structure based on modern approaches (see Hoey et al. 2020, https://doi.org/10.1111/mec.15414);
- Evaluate the causes of decreased recruitment and changes in the recruit per spawner relationship in recent years;
- Evaluate uncertainties in biomass to determine potential modifications to the OFL CV employed;
- Evaluate causes and consequences of Summer Flounder declines in Chesapeake Bay
- Evaluate fully the sex and size distributions of landed and discarded fish in the Summer Flounder fisheries;
- Evaluate the effects of past and possible future changes to size regulations on retention and selectivity in stock assessments and projections;
- Incorporate sex-specific differences in size-at-age into the stock assessment through model structures as well as data streams;
- Validate the otolith-based age determination;
- Further develop understanding of effects of ecosystem changes (e.g., temperature, trophic structure changes) on population dynamics; and
- The SSC is concerned over the reduction in port sampling which has the potential to exacerbate concerns about the dynamics of older fish.

7. *The materials considered by the SSC in reaching its recommendations;*

- SSC TORs for Summer Flounder
- Staff Memo: 2022-2023 Summer Flounder ABC Recommendations
- Draft 2021 Summer Flounder Management Track Stock Assessment Report
- See the Stock Assessment Support Information (SASINF) Search Tool for additional information including tables, figures, and additional analyses
- OFL/ABC Summer Flounder Stock Projections
- Draft Summer Flounder OFL CV Decision Criteria Summary
- 66th SAW/SARC Stock Assessment Report (2018)
- 2021 SF/S/BSB Advisory Panel Fishery Performance Report
- 2021 Summer Flounder Fishery Information Document

- Hare, J.A., Morrison, W.E., Nelson, M.W., Stachura, M.M., Teeters, E.J., Griffis, R.B., Alexander, M.A., Scott, J.D., Alade, L., Bell, R.J. and Chute, A.S., 2016. A vulnerability assessment of fish and invertebrates to climate change on the Northeast US Continental Shelf. *PloS one*, *11*(2), p.e0146756.

All documents without citation can be accessed via the SSC meeting website: https://www.mafmc.org/council-events/2021/ssc-july-21-23

8. *A conclusion that the recommendations provided by the SSC are based on scientific information the SSC believes meets the applicable National Standard guidelines for best scientific information available.*

The SSC believes that the recommendations provided are based on scientific information that meets the applicable National Standard guidelines for best scientific information available.

Black Sea Bass

The Black Sea Bass assessment, reviewed at the MTA at the end of June 2021, was led by Gary Shepherd. Gary retired on July 1 and Kiersten Curti expertly presented the results of the assessment and prepared the various projections requested by Council staff. The stock is not overfished and overfishing is not occurring; the retrospectively adjusted $F_{2019} = 0.41 < F_{msy} = 0.46$, and $B_{2019} = 29{,}668$ mt > $B_{msy} = 14{,}092$ mt. The most recent benchmark for Black Sea Bass was 2017 and the assessment was updated again in 2019. A major change in the 2019 updated assessment was the inclusion of the revised MRIP recreational catch data, which resulted in an overall increase in stock abundance. Black Sea Bass are modeled as two spatial area units to reflect substantial differences in recruitment north and south of Hudson River Canyon. Overall stock status is determined by combining the results of each spatial unit. No migration rates between these units are estimated or assumed.

A relevant point for ABC determination is the increased retrospective pattern in the northern unit and a reciprocal but smaller retrospective pattern in the south. In the previous two assessments (2017, 2019) these effects generally “cancelled” each other. For this assessment, the overall pattern was dominated by the northern retrospective pattern. The PRC attributed these patterns to uncertainties of catch location, timing of surveys, and movements of fish between areas. As noted in their report: “There was no clear approach identified to overcome these challenges.” A Research Track Assessment (RTA), planned for November 2022, is expected to investigate potential causes for the different patterns.

The current high level of abundance reflects the strong 2011 and 2015 year classes. The 2011 year class graduated to the “plus group” in 2019 and will increase the model uncertainty since its contribution as a cohort is pooled with year classes greater than eight years old. The SSC discussed whether the use of simple averaging of fishing mortality rates between areas was appropriate, but did not recommend an alternative approach.

Julia Beaty, MAFMC, provided an overview of the fishery performance report and concerns of the Advisory Panel. It was noted that the preliminary landings for 2020 were available, but estimates of dead discards in commercial catches were not available due to reduced sampling by observers during the Covid 19 pandemic. Recreational catches exceeded the RHL in 2020 by about 50% and it is anticipated that a similar overage will occur in 2021.

Terms of Reference: Black Sea Bass

Following this general discussion, the SSC addressed the Terms of Reference (in *italics*) for Black Sea Bass. Responses by the SSC (standard font) to the Terms of Reference provided by the MAFMC are as follows:

For Black Sea Bass, the SSC will provide a written report that identifies the following for the 2022-2023 fishing years:

1. *Based on the criteria identified in the acceptable biological catch (ABC) control rule, assign the stock to one of four types of control rules (analytically derived, modified by the assessment team, modified by the SSC, or OFL cannot be specified) the SSC deems most appropriate for the information content of the most recent stock assessment;*

The approach to estimating uncertainty in the OFL has not changed since the previous benchmark. Accordingly, the SSC maintains its determination that the assessment should be considered an "SSC-modified OFL" status.

2. *If possible, determine the level of catch (in weight) associated with the overfishing limit (OFL) for each requested fishing year based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy, and the associated coefficient of variation recommended by the SSC and its basis;*

The SSC accepts the OFL proxy ($F_{40\%} = 0.46$) used in the assessment. The SSC recommends the use of the method described in the staff memo for estimating total 2021 dead catch for OFL projections, because the previous method had underestimated the dead catch.

3. *The level of catch (in weight) and the probability of overfishing (P*) associated with the ABC for each requested fishing year, based on: 1) the traditional approach of varying ABCs in each year, and 2) a constant ABC approach derived from the projected ABCs. If appropriate, specify interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration;*

The SSC continues to use the 100% OFL CV. The SSC's rationale for continuing the OFL CV of 100% in 2020 was as follows:

- There is a strong retrospective bias present in the assessment results and this pattern differs between the two spatial sub-areas.
- The fishery has a large recreational component (~60-80% of total harvest in recent years), and thus a substantial reliance on MRIP. Updated MRIP numbers differ substantially from the old estimates, and the updated estimate for one year (2016) was considered implausible owing to high variance in wave-specific data.

- Spatially explicit models were implemented in the 2016 benchmark assessment, and there were detailed efforts to explore the consequences of the misspecification of the spatial resolution of these models on perceptions of stock status.
- There were broadly consistent patterns in the fishery independent indices.

All of these factors remain relevant based on the 2021 management track assessment, although the retrospective bias has increased and uncertainty in the 2020 recreational harvest and dead discards are high because of COVID-related disruptions to the MRIP survey in 2020.

Interim metrics include the 2021 MRIP recreational harvest, discard estimates, and trawl survey indices.

The projections based on averaged ABC approach, presented as a staff alternative, cannot be used by the SSC for catch advice because this results in a P*>0.5 in 2023.

The SSC had to use the varying ABC approach as the basis for projections to determine ABCs for 2022 and 2023. (Table 5 of staff memo for 22 & 23). These projections used the 2020 recreational harvest for 2021 and not the ABC, which was a departure from prior implementations.

The SSC recommends an ABC of 8,555 mt for the 2022 fishing season and an ABC of 7,557 mt for the 2023 fishing season, based on the Council's revised risk policy (P* = 0.49 for both 2022 and 2023)

Table 5: 2022-2023 OFL and ABC projections based on the varying ABC approach under the staff recommended projection assumptions. See text above for more information. (Source: personal communication, Kiersten Curti, Northeast Fisheries Science Center.)

Year	Assumed Catch		OFL		ABC		ABC F	ABC p*	SSB		B/ B_{MSY}
	MT	Mil. lb	MT	Mil. lb	MT	Mil. lb			MT	Mil. lb	
2020	8,310	18.32	8,795	19.39	6,835	15.07	0.33	N/A	26,375	58.15	1.83
2021	9,149	20.17	8,021	17.68	7,916	17.45	0.40	N/A	25,057	55.24	1.74
2022	8,555	18.86	8,735	19.56	8,555	18.86	0.41	0.49	22,637	49.91	1.57
2023	7,557	16.66	7,716	17.01	7,557	16.66	0.41	0.49	19,538	43.07	1.35

4. *The most significant sources of scientific uncertainty associated with determination of OFL and ABC;*

- The retrospective pattern was large enough to need the corrections (outside the 90% confidence intervals), and the additional uncertainty caused by applying the correction is unclear. The model for the northern sub-area has a larger retrospective pattern than the model for the southern sub-area.
- The natural mortality rate (M) used in the assessment — because of the unusual life history strategy, the current assumption of an equal M in the assessment model for both sexes — may not adequately capture potential sex-based differences in M.
- The spatial distribution of productivity within the stock range.
- The level, temporal pattern, and spatial distribution of recreational catches.
- The nature of exchanges between the spatial regions defined in the assessment model.

- The extent to which the spatial structure imposed reflects the dynamics within the stock. The combination of the values from the northern and southern sub-areas is conducted without weighting based on landings or biomass. It is unclear whether or how the uncertainty should be treated when the biological reference points are combined using simple addition.
- Future effects of temperature on stock productivity and range are highly uncertain.
- Estimates of 2020 harvest and dead discards in both the recreational and commercial sectors are highly uncertain because of COVID-related pauses in observer coverage and MRIP intercept surveys.

5. *Ecosystem considerations accounted for in the stock assessment, as appropriate, and any additional ecosystem considerations that the SSC considered in selecting the ABC, including the basis for those additional considerations;*

No specific additional ecosystem information was used by the SSC for consideration in forming its ABC recommendation.

The climate vulnerability of Black Sea Bass was considered in the OFL CV deliberations.

6. *Research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or could be considered for the 2022 research track assessment;*

The SSC endorses the list of research recommendations included in the 62nd SARC report. In addition, the SSC recommends:

- Consider alternative approaches for calculating fishing mortality and fishing mortality reference points for comparison, given the spatial nature of the assessment, for example calculated from summed numbers over the northern and southern models.
- Investigate the implications of size structure (progression of strong year classes) on projected discard mortality
- Improve precision of discard estimates, estimate uncertainty in discards
- Update discard mortality rates based on new research (to the extent that these depth-specific mortality estimates can be appropriately matched to recreational catch from similar depths).
- Re-evaluate the basis for the spatial structure of the stock assessment, including further development of assessment models that account for spatial stock structure.
- Investigate methods and modeling approaches that address the implications of climate drivers on spatial dynamics
- Recent research shows diurnal vertical migration for this stock (Secor et al. 2021), suggesting catchability differences that could affect survey-based estimates. Day/night differences in catch should be evaluated in the NEFSC trawl survey.

7. *The materials considered by the SSC in reaching its recommendations;*

- SSC TORs for Black Sea Bass
- Staff Memo: 2022-2023 Black Sea Bass ABC Recommendations (revised 7/21/21)
- Draft 2021 Black Sea Bass Management Track Stock Assessment Report
    - See the Stock Assessment Support Information (SASINF) Search Tool for additional information including tables, figures, and additional analyses
- Draft 2021 Management Track Peer Review Panel Summary Report
- OFL/ABC Black Sea Bass Stock Projections
- Draft Black Sea Bass OFL CV Decision Criteria Summary
- 62nd SAW/SARC Assessment Summary Report (2016)
- 2021 SF/S/BSB Advisory Panel Fishery Performance Report
- 2021 Black Sea Bass Fishery Information Document
- Kiersten Curti's presentation (additional projections in the presentation)
- Hare, J.A., Morrison, W.E., Nelson, M.W., Stachura, M.M., Teeters, E.J., Griffis, R.B., Alexander, M.A., Scott, J.D., Alade, L., Bell, R.J. and Chute, A.S., 2016. A vulnerability assessment of fish and invertebrates to climate change on the Northeast US Continental Shelf. *PloS one*, *11*(2), p.e0146756.
- Hare, J.A., Morrison, W.E., Nelson, M.W., Stachura, M.M., Teeters, E.J., Griffis, R.B., Alexander, M.A., Scott, J.D., Alade, L., Bell, R.J. and Chute, A.S., 2016. A vulnerability assessment of fish and invertebrates to climate change on the Northeast US Continental Shelf. *PloS one*, *11*(2), p.e0146756.
- Secor, D.H., Bailey, H., Carroll, A., Lyubchich, V., O'Brien, M.H.P. and Wiernicki, C.J., 2021. Diurnal vertical movements in black sea bass (Centropristis striata): Endogenous, facultative, or something else?. *Ecosphere*, *12*(6), p.e03616.

All documents without citation can be accessed via the SSC meeting website: https://www.mafmc.org/council-events/2021/ssc-july-21-23

8. *A conclusion that the recommendations provided by the SSC are based on scientific information the SSC believes meets the applicable National Standard guidelines for best scientific information available.*

The SSC believes that the recommendations provided are based on scientific information that meets the applicable National Standard guidelines for best scientific information available.

Bluefish

Tony Wood, NEFSC, provided a comprehensive summary of the results from the Management Track Assessment (MTA) for 2021. The stock is overfished (B_{2019} = 95,742 mt = 47.5% of B_{msy} proxy = 201,729 mt), but overfishing is not occurring (F_{2019} = 0.172 = 95% of F_{msy} proxy = 0.181). The F_{2019} is the lowest in the time series. The last benchmark assessment in 2015 was updated in 2019, wherein the revised MRIP estimates were incorporated. The resultant rescaling increased the estimated biomass about two-fold. The assessment relies on an MRIP abundance index of catch per angler trip and eight fishery independent indices. Available abundances, either 2019 or 2020, were generally low with some near their time series minimums. SSB has increased slightly over the past five years but catches have been lower, perhaps due to greater abundance offshore.

The SSC questioned the methods for estimating the weight of recreational discards and the disparity between the use of volunteer angler data and the assumptions used in MRIP. MRIP estimates assume that discards have the same average weight as sampled landings. Angler data suggest a higher average weight of discarded fish due to preferences for smaller fish for consumption. Given the overall importance of recreational dead discards in the fishery, it was noted that selectivity patterns in the model could be affected by changes in handling of average weights.

The SSC noted low recruitment estimates in 2019 and asked whether it was possible to detect shifts between spring vs late summer recruiting cohorts. Such data are not available annually. It was suggested that this topic, as well as related questions about changes in average weights, could be evaluated in the next benchmark study, scheduled for 2022.

Matthew Seeley, MAFMC, provided an overview of the fishery, comments from the Advisory Panel (AP), and recommendations for rebuilding as specified by the Council. Landings were summarized by state and by fishery. Most recreational landings are within state waters with average landings-per-trip down from an average to 1.5 fish-per-trip to 1.0 in 2020. Commercial landings were lower in 2019 and 2020; a similar pattern is expected in 2021. AP members reported increasing abundance coastwide, larger fish offshore, and localized pockets of highly successful fishing inshore. Owing to data gaps caused by Covid 19 restrictions, the efficacy of newly instituted recreational regulations is unknown.

Consideration of the Council-approved rebuilding schedule generated considerable discussion within the SSC. A focal point for these discussions was the treatment of the rebuilding F proposed by the Council and its implications for generating ABCs. The Council's rebuild policy is to achieve rebuilding within a seven-year period commencing in 2022. A constant F strategy was selected such that biomass in 2028 has a 50% chance of exceeding the B_{msy} proxy. Given the basis for the rebuilding, the SSC determined that the constant F for rebuilding in seven years (denoted as $F_{rebuild,7} = 0.154$) should be treated as a F_{msy} proxy. As such, the usual Council risk policy, P* criteria, and OFL CV process should apply. Failure to include scientific uncertainty through the direct application of $F_{rebuild,7}$ alone could generate instances where the probability of overfishing exceeded 0.5 between 2022 and 2028.

Terms of Reference: Bluefish

Following this general discussion, the SSC addressed the Terms of Reference (italics*)* for Bluefish. Responses by the SSC (standard font) to the Terms of Reference provided by the MAFMC are as follows:

For Bluefish, the SSC will provide a written report that identifies the following for the 2022-2023 fishing years:

1) *Based on the criteria identified in the acceptable biological catch (ABC) control rule, assignthe stock to one of four types of control rules (analytically derived, modified by the*

assessment team, modified by the SSC, or OFL cannot be specified) the SSC deems most appropriate for the information content of the most recent stock assessment;

The SSC deems the assessment uncertainty level that requires an SSC-derived coefficient of variation (CV) for the OFL as the most appropriate for the new management track assessment.

2) *If possible, determine the level of total catch (in weight) for each requested fishing year that is consistent with the constant 7-year rebuilding fishing mortality rate ($F_{rebuild}$) selected by the Council and, if appropriate, the associated coefficient of variation recommended by the SSC and its basis;*

Based on projection estimates provided in the 2021 management track assessment for Bluefish, the level of catch associated with the OFL for 2022-2023 assuming that ABCs in 2020 and 2021 are caught, are:

Year	OFL (mt)
2022	18,399
2023	20,490
2024	22,773
2025	24,043
2026	25,787

Note that the OFL is calculated on a constant $F_{rebuild}$ (0.154).

The SSC recommends that a CV of 100% be applied to the OFL estimate as an appropriate ABC for Bluefish (*Pomatomus saltatrix*). The chief uncertainty for Bluefish relates to patterns in the revised MRIP estimates. Bluefish are predominantly harvested by recreational anglers who average 80% or more of landings. The new calibrated MRIP time series for Bluefish resulted in a substantial increase in catch that approximately follows a similar pattern as seen in the old survey. While both Black Sea Bass and Scup MRIP catches converge in the 1980s when the telephone survey was deemed reliable, Bluefish catches do not converge in the 1980s, and this adds to the uncertainty in the catch time series. In addition, the importance of dead discards has increased for this stock over time. Because MRIP data is an important component of input data to the ASAP model, it adds to uncertainty in model projections.

3) *The level of catch (in weight) associated with the ABC for each requested fishing year consistent with the 7-year rebuilding fishing mortality rate ($F_{rebuild}$) selected by the Council. If appropriate, specify interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration;*

The SSC has calculated the ABC to account for scientific uncertainty in achieving the Maximum Fishing Mortality Threshold ($F_{rebuild}$). The approach for calculating the ABC involves using F-rebuild to calculate the OFL. The ABC is then calculated using the P* approach and the Council's risk policy.

Year	ABC (mt)
2022	11,460
2023	13,890
2024	16,960
2025	19,094
2026	22,103

The SSC notes that performance of the approach the Council is applying for rebuilding plans have not been simulation tested. However, one would expect that the ABCs should result in fishing mortality rates lower than F-rebuild and faster rebuilding times.

4) *The most significant sources of scientific uncertainty associated with determination of totalcatch and the ABC;*

In order of importance:

- The revised MRIP estimates are an important new source of uncertainty. In particular, the trend of the recreational catch estimates has an important influence on recent estimates of biomass and on the stock status estimates. The revised MRIP estimates had a different trend (relative to the old estimates) than was present for the other species reviewed. The pattern in the new MRIP data are an important source of uncertainty in determination of stock status and in short term projections.
- Increased importance of dead discards implies that the selectivity pattern in the fishery might be changing.
- The differences in the average weight of recreational discards will affect projections and fishery performance.
- A key source of uncertainty is whether the ABC will be caught.
- Approximately 60% of the population biomass is in the aggregated 6+ age group for which there is relatively little information.
- The extent to which the MRIP index and MRIP catch are partially redundant in the assessment needs to be determined.
- Commercial discards are assumed to be negligible, which may not be the case.

5) *Ecosystem considerations accounted for in the stock assessment, as appropriate, and any additional ecosystem considerations that the SSC considered in selecting the ABC, includingthe basis for those additional considerations;*

The SSC concluded that ecosystem considerations did not alter its consideration of uncertainty in determining ABCs (see OFL CV table).

The 2015 benchmark stock assessment included ecosystem considerations:

- An index of habitat suitability was calculated based on a thermal niche model. It was fit as a covariate to survey catchability, but did not improve model fits.
- Diet compositions from multiple surveys were included as auxiliary information

- Bluefish have a low CVA ranking (Hare et al. 2016)

6) *Research or monitoring recommendations that would reduce the scientific uncertainty in theABC recommendation and/or could be considered for the 2022 research track assessment;*

Arising from the management track assessment:

- A primary source of uncertainty is the recreational catch time series. The MRIP trend does not seem consistent with hypothesized reasons for differences between the mail and phone surveys. This historical correction to the MRIP estimates for bluefish should be explored further to evaluate the causes of differences from other species and to consider their plausibility.
- Investigate whether and how the selectivity pattern in discards has changed over time.
- Investigate reliability of the recreational CPUE: evaluate species associations with recreational angler trips targeting Bluefish to potentially modify the MRIP index used in the assessment. Explore alternative definitions for targeting for calculating CPUE (e.g., directed trips or directed trips + incidental harvest)
- Investigate patterns and trends in recent recruitments.

Arising from the benchmark assessment:

- Develop a fishery-independent index that better captures older, larger fish, which would reduce reliance on MRIP sampling.
- Long term environmental variability may have caused changes in the timing of the movement of juvenile Bluefish and the distribution of adults throughout the region that, in turn, may have affected availability.
- Changes in the selectivity of age-0 Bluefish in the survey relative to water column or surface temperature and date should be examined.
- Evaluate methods for integrating disparate indices produced at multiple spatial and temporal resolutions into a stock-wide assessment model, especially for a migratory species like Bluefish.
- Initiate fishery-dependent and fishery-independent sampling of offshore populations of Bluefish.

7) *The materials considered by the SSC in reaching its recommendations;*

- Staff Memo: 2022-2026 Bluefish specifications
- Atlantic bluefish Operational Assessment for 2021
- 2021 Operational Assessment ABC Projection for 2022-2026 and a 7 year rebuilding projection (2022-2028) and a 7 year rebuilding projection (2022-2026) with constant fishing mortality.
- OFL/ABC Bluefish Stock Projections
- Draft Bluefish OFL CV Framework Discussion Table
- 60th SAW/SARC Assessment Summary Report (2015)
- also add full benchmark report
- 2021 Advisory Panel Bluefish Fishery Performance Report

- 2021 Bluefish Fishery Information Document
- Public hearing document from the bluefish allocation and rebuilding amendment.
- Updated projections and ABC calculations
- Hare, J.A., Morrison, W.E., Nelson, M.W., Stachura, M.M., Teeters, E.J., Griffis, R.B., Alexander, M.A., Scott, J.D., Alade, L., Bell, R.J. and Chute, A.S., 2016. A vulnerability assessment of fish and invertebrates to climate change on the Northeast US Continental Shelf. *PloS one*, *11*(2), p.e0146756.

All documents without citation can be accessed via the SSC meeting website: https://www.mafmc.org/council-events/2021/ssc-july-21-23

8) *A conclusion that the recommendations provided by the SSC are based on scientific information the SSC believes meets the applicable National Standard guidelines for bestscientific information available.*

The SSC believes that the recommendations provided are based on scientific information that meets the applicable National Standard guidelines for best scientific information available.

Economics Working Group Activities

Mark Holliday, SSC, presented a comprehensive summary of the recent activities of the Economics Working Group, highlighting a successful joint meeting with the Council's Research Steering Committee. The focal point of this meeting was a discussion of research priorities under Research Set Aside (RSA) programs. Five separate theme papers were prepared in advance of the meeting and short presentations of each were made at the meeting.

1. Consistency with Stated Council Plans/Objectives & Linkages to Management Goals; Application of Benefit/Cost Principles in Proposal Evaluation
2. Peer Review and Principal Investigator (PI) Communications: Before, During, and After Completion of RSA projects.
3. RSA Program Transparency and Conflicts of Interest
4. Universal data access and transparency
5. Decoupling allowances and forage and ecosystem species

Feedback received from the workshop participants was considered valuable for refining the overall scope of research activities funded by RSA.

Two additional webinar meetings are planned in August and October, 2021 to be followed by a final meeting in December, in time for Council action. The August meeting will address alternative funding mechanisms, including refinements of the auction process. Raw data from previous auctions have not been made available so the Economics Work Group will rely on more theoretical analyses of potential advantages and disadvantages of auctions for this meeting. The October meeting will address concerns about monitoring of landings and enforcement issues. The final meeting will represent a synthesis of the previous meetings with a focus on developing a list of recommendations for action by the Council at its December 2021 meeting. Mark concluded by noting the advantages of greater participation by the SSC in this process. Michelle Duval, Council member and Research Steering Committee vice chair, expressed appreciation for the work of the Economics Working Group.

Other Business

Topics for Joint SSC-Council Meeting in August 2021

Brandon Muffley, MAFMC, offered a number of topics for discussion by the SSC and Council at the upcoming August meeting. These topics follow from prior recommendations made to council, ongoing activities of the SSC, and new topics, notably the challenges of rebuilding as identified at this SSC meeting.

Topic	***Rationale***
Economic Working Group: Research Set Aside re-development progress	Discussion of progress to date, plans for remainder of year and suggestions for improvement. Future areas of collaboration for consideration could include the Recreational Reform Initiative and economic aspects of rebuilding plans.
Ecosystems Working Group	In May, the SSC formed an Ecosystem Work Group to begin to identify ways to “operationalize” ecosystem information for SSC decisions and to improve science advice to the Council regarding ecosystem priorities and planning. The first meeting on 8/4/21 will begin development of short and long-term tasks and ideas for the 2022 State of the Ecosystem (SOE) report. Expected outcomes include a general work plan through 2022, identification of ecosystem issues from the 2021 SOE, broader use of SOE report, utility for identifying Council priorities and strategic planning.
Offshore Wind	Offshore wind development has important biological consequences for stocks, implications for habitat alteration and ecosystem changes, and economic consequences for fisheries. Further refinement of the role of the SSC amid the many groups studying these topics would be useful.
Considerations for Emerging Fisheries.	As distributions of species continue to change, what are the scientific and economic issues of exploratory fishing on new stocks?
Science and Research Needs to Provide Advice for Data Limited Stocks	For data limited stocks and those for which previously approved models have been rejected, quantification of ABCs and associated risk is difficult to impossible. Consideration should be given to alternative approaches for developing assessment methods.
Policy Considerations for Rebuilding Strategies	Rebuilding a stock is one of the most difficult tasks in fisheries management and science. Science and management are inseparable; neither alone can provide a sufficient basis for rebuilding. Considerations include not only the usual specification of time lines, but also the more difficult challenges include dealing with unexpected changes, such as lower than average recruitment, increases in discards, changes in growth

	rates and uncontrollable sources of mortality when fish are harvested in other jurisdictions. Multiple paths towards rebuilding are feasible and some may have lower economic impacts for stakeholders. Incorporation of economic factors in rebuilding plans could be an important advance.

Review of Process

At the end of the meeting the SSC commented on various aspects of the review process followed and potential improvements. It was noted that a more timely specification of TORs would improve preparation of relevant syntheses for ABC determination. In some instances, greater specificity of the TORs would have been welcome. No explicit concerns were raised about the process for addressing the TOR nor the process of filling out the OFL CV matrix of evaluation criteria. So far, it seems like a proper balance between transparency and efficiency has been struck.

The SSC spent a considerable amount of time discussing the topic of rebuilding. The vigorous discussions were valuable for refining the application of uncertainty to derived OFLs. Further consideration of rebuilding topics is warranted.

The SSC received six assessments through the NRCC's Management Track Assessment (MTA) process, ranging from Level 1 (Summer Flounder) to 3 (Atlantic Mackerel). The SSC was pleased with the quality of all the assessments, but requested further clarification of the scope for changes in the MTA. The MTA Peer Review Committee (PRC) expressed some additional concerns about the quality of the Plan B options and the overall communication process between the NEFSC and the PRC.

Additional Public Comment

During the course of the meeting a number of topics were raised by members of the public. One commenter noted the growing empirical evidence of noise from offshore wind construction activities on fishing success. These could have important implications for future survey monitoring as well. To date, most effects have focused on the potential impacts of reduced survey domains rather than the effects of changes in catchability due to noise levels. It was noted that some of these concerns were raised at an earlier SSC meeting. SSC members also noted that a large-scale simulation study of potential effects on fishery independent surveys just began in June.

Another commenter noted the importance of terrestrial runoff of pollutants and atmospheric deposition of contaminants as potential factors affecting the lower recruitment of some species. To date there have been no comprehensive investigations of the potential role of these factors.

Attachment 1

Mid-Atlantic Fishery Management Council

Scientific and Statistical Committee Meeting

July 21 – 23, 2021 via Webinar

Webinar Information
(Note: same information for all three days)
Link: July 2021 SSC Meeting
Call-in Number: 1-844-621-3956
Access Code: 173 421 7574##

REVISED AGENDA*

*** Note: the agenda for Thursday, July 21st was revised slightly to include additional time from 2:00 – 3:00 p.m. to continue the Atlantic Mackerel discussion from Wednesday, July 21st. Other minor modifications to scheduled times were also adjusted to account for the mackerel addition.**

Wednesday, July 21, 2021

12:30 Welcome/Overview of meeting agenda (P. Rago)

12:40 Golden Tilefish ABC specifications for 2022-2024 fishing years
- Review of 2021 management track assessment and peer review (P. Nitschke)
- Review of staff memo and 2022 (review) and 2023-2024 ABC recommendations (J. Montañez)
- 2022 (review) and 2023-2024 SSC ABC recommendations (A. Sharov)

3:00 Atlantic Mackerel ABC specifications for the 2022-2023 fishing years
- Review of 2021 management track assessment and peer review (K. Curti)
- Review of staff memo and 2022-2023 ABC recommendations (J. Didden)
- 2022-2023 SSC ABC recommendations (D. Secor)

5:30 Adjourn

Thursday, July 22, 2021

8:30 Scup ABC specifications for 2022-2023 fishing years
- Review of 2021 management track assessment and peer review (M. Terceiro)
- Review of staff memo and 2022-2023 ABC recommendations (K. Coutre)
- 2022-2023 SSC ABC recommendations (J. Boreman)

11:00 Summer Flounder ABC specifications for the 2022-2023 fishing years
- Review of 2021 management track assessment (M. Terceiro)
- Review of staff memo and 2022-2023 ABC recommendations (K. Dancy)
- 2022-2023 SSC ABC recommendations (M. Wilberg)

12:00 Lunch

12:30 Continue with Summer Flounder 2022-2023 ABC specifications

2:00 Continue Atlantic Mackerel discussion from Wednesday, July 21st

3:00 Black Sea Bass ABC specifications for 2022-2023 fishing years
- Review of 2021 management track assessment and peer review (K. Curti)
- Review of staff memo and 2022-2023 ABC recommendations (J. Beaty)
- 2022-2023 SSC ABC recommendations (O. Jensen)

5:30 Adjourn

Friday, July 23, 2021

8:30 Bluefish ABC specifications for 2022-2023 fishing years
- Review of 2021 management track assessment (T. Wood)
- Review of staff memo and 2022-2023 ABC recommendations (M. Seeley)
- 2022-2023 SSC ABC recommendations (C. Jones)

11:00 Review and discuss RSA project update by SSC Economic Work Group

12:00 Other Business
- Joint Council-SSC meeting topics

12:30 Adjourn

Note: agenda topic times are approximate and subject to change

Attachment 2

MAFMC Scientific and Statistical Committee

July 21 – 23, 2021

Meeting Attendance via Webinar

<u>Name</u>	<u>Affiliation</u>
SSC Members in Attendance:	
Paul Rago (SSC Chairman)	NOAA Fisheries (retired)
Tom Miller	University of Maryland – CBL
Ed Houde	University of Maryland – CBL (emeritus)
Dave Secor	University of Maryland – CBL
John Boreman	NOAA Fisheries (retired)
Lee Anderson (July 21 and 22 only)	University of Delaware (emeritus)
Jorge Holzer (July 21 and 22 only)	University of Maryland
Yan Jiao	Virginia Tech University
Rob Latour	Virginia Institute of Marine Science
Brian Rothschild (July 21 and 23 only)	Univ. of Massachusetts – Dartmouth (emeritus)
Olaf Jensen	Rutgers University
Sarah Gaichas	NOAA Fisheries NEFSC
Wendy Gabriel (July 23 only)	NOAA Fisheries (retired)
Mike Wilberg (Vice-Chairman)	University of Maryland – CBL
Mike Frisk	Stony Brook University
Mark Holliday	NOAA Fisheries (retired)
Cynthia Jones	Old Dominion University
Gavin Fay	U. Massachusetts—Dartmouth
Others in attendance (only includes presenters and members of public who spoke):	
Paul Nitschke (July 21 only)	NEFSC
Kiersten Curti (July 21 and 22 only)	NEFSC
José Montañez	MAFMC staff
Jason Didden	MAFMC staff
Brandon Muffley	MAFMC staff
Laurie Nolan (July 21 only)	F/V Sea Capture
Doug Christel (July 21 and 22 only)	GARFO
Mark Terceiro (July 22 only)	NEFSC
Bonnie Brady	Long Island Commercial Fisheries Assoc
Karson Coutré	MAFMC staff
Kiley Dancy	MAFMC staff
Julia Beaty	MAFMC staff
Jeff Kaelin	Lunds Fisheries
Cynthia Ferrio (July 23 only)	GARFO
Tony Wood (July 23 only)	NEFSC
James Fletcher (July 22 and 23 only)	United National Fisherman’s Assoc.

Attachment 3

OFL CV Decision Table Criteria (updated June 2020)

Decision Criteria	Default OFL CV=60%	Default OFL CV=100%	Default OFL CV=150%
Data quality	One or more synoptic surveys over stock area for multiple years. High quality monitoring of landings size and age composition. Long term, precise monitoring of discards. Landings estimates highly accurate.	Low precision synoptic surveys or one or more regional surveys which lack coherency in trend. Age and/or length data available with uncertain quality. Lacking or imprecise discard estimates. Moderate accuracy of landings estimates.	No reliable abundance indices. Catch estimates are unreliable. No age and/or length data available or highly uncertain. Natural mortality rates are unknown or suspected to be highly variable. Incomplete or highly uncertain landings estimates.
Model appropriateness and identification process	Multiple differently structured models agree on outputs; many sensitivities explored. Model appropriately captures/considers species life history and spatial/stock structure.	Single model structure with many parameter sensitivities explored. Moderate agreement among different model runs indicating low sensitivities of model results to specific parameterization.	Highly divergent outputs from multiple models or no exploration of alternative model structures or sensitivities.
Retrospective analysis	Minor retrospective patterns.	Moderate retrospective patterns.	No retrospective analysis or severe retrospective patterns.
Comparison with empirical measures or simpler analyses	Assessment biomass and/or fishing mortality estimates compare favorably with empirical estimates.	Moderate agreement between assessment estimates and empirical estimates or simpler analyses.	Estimates of scale are difficult to reconcile and/or no empirical estimates.
Ecosystem factors accounted	Assessment considered habitat and ecosystem effects on stock productivity, distribution, mortality and quantitatively included appropriate factors reducing uncertainty in short term predictions. Evidence outside the assessment suggests that ecosystem productivity and habitat quality are stable. Comparable species in the region have synchronous production characteristics and stable short-term predictions. Climate vulnerability analysis suggests low risk of change in productivity due to changing climate.	Assessment considered habitat/ecosystem factors but did not demonstrate either reduced or inflated short-term prediction uncertainty based on these factors. Evidence outside the assessment suggests that ecosystem productivity and habitat quality are variable, with mixed productivity and uncertainty signals among comparable species in the region. Climate vulnerability analysis suggests moderate risk of change in productivity from changing climate.	Assessment either demonstrated that including appropriate ecosystem/habitat factors increases short-term prediction uncertainty, or did not consider habitat and ecosystem factors. Evidence outside the assessment suggests that ecosystem productivity and habitat quality are variable and degrading. Comparable species in the region have high uncertainty in short term predictions. Climate vulnerability analysis suggests high risk of changing productivity from changing climate.
Trend in recruitment	Consistent recruitment pattern with no trend.	Moderate levels of recruitment variability or modest consistency in pattern or trends. OFL estimates adjusted for recent trends in recruitment. OFL estimate appropriately accounted for recent trends in recruitment.	Recruitment pattern highly inconsistent and variable. Recruitment trend not considered or no recruitment estimate.
Prediction error	Low estimate of recent prediction error.	Moderate estimate of recent prediction error.	High or no estimate of recent prediction error.

Assessment accuracy under different fishing pressures	High degree of contrast in landings and surveys with apparent response in indices to changes in removals. Fishing mortality at levels expected to influence population dynamics in recent years.	Moderate agreement in the surveys to changes in catches. Observed moderate fishing mortality in fishery (i.e., lack of high fishing mortality in recent years).	Relatively little change in surveys or catches over time. Low precision of estimates. Low fishing mortality in recent years. "One-way" trips for production models.
Simulation analysis/MSE	Can be used to evaluate different combinations of uncertainties and indicate the most appropriate OFL CV for a particular stock assessment.		

Attachment 4

SSC-Approved OFL CV Decision Table for Golden Tilefish

Decision Criteria	**Summary of Decision Criteria Considerations**	**Assigned OFL CV Bin** (60/100/150)
Data quality	**Surveys** • No fishery-independent survey data are available, but pilot fishery-independent surveys have been conducted in 2017 and 2020. • Three commercial CPUE indices have been developed from longline fleet records: 1973-1982, 1979-1993, and 1990-2020. • A VTR index has been updated with data through 2020. **Landings and discards** • Historical commercial landings data are available since 1915. • The assessment uses commercial landings data since 1970. • Commercial discard estimates are low (1.2% of landings in the last five years), as is recreational harvest; neither was used as a component of catch removals in the assessment model. • Improved collection and processing of age data to make year specific age length keys (see below). • Projections are sensitive to inclusion of unclassified market category (small sample of small fish) from recent years as this is the only indication of potential recruitment.	100%
Model appropriateness and identification process	• The last full assessment was completed in 2017, using data through 2016. The most recent update in 2021 is a management track assessment (MTA) with expedited peer review. • The assessment uses a forward-projection age-structured model updated with landings, catch-at-age and mean weight-at-age by using updated pooled and year-specific age-length keys, and commercial CPUEs through 2020. • Increased availability of age data in 2021allowed for the use of additional data within the pooled age-length key, and the use of year-specific age keys for the most recent years. The final model run used the updated pooled age-length key for years with age data gaps. • The MSY estimate relies on a dome-shaped selectivity curve, which suggests a large portion of the population is not vulnerable to harvest.	100%
Retrospective analysis	• The final model run in the 2021 MTA had minor retrospective patterns in F, SSB, and age-1 recruitment. No retrospective adjustments were made to the assessment output. • Bridge run performance showed good agreement between assessments.	60%
Comparison with empirical measures or simpler analyses	• The 2021 MTA identified qualitative metrics of stock status, including VTR-based CPUE trends, that concluded stock biomass has been increasing over time. • Landings-at-length suggest a broad distribution of both younger and older fish in the fishery, with no evidence of size or age truncation in the most recent years of the time series.	150%

	• No assessment independent estimates of population scale.	
Ecosystem factors accounted	• Ecosystem factors were not incorporated into the 2017 assessment nor the 2021 MTA update. • Climate vulnerability analysis (Hare et al. 2016) ranked tilefish high risk (https://www.st.nmfs.noaa.gov/data-and-tools/NE-CVA/pdf/Tilefish.pdf).	150%
Trend in recruitment	• A recent large year class (2014) has started to recruit to the commercial fishery's large-medium market category in 2020. Another above-average year class likely occurred in 2017, but its size remains highly uncertain since it just began recruiting to the fishery. • Estimates of recruitment to the fishery are very uncertain because there is a lack of information on the abundance of young fish in the commercial index and a lack of fishery independent surveys that capture young fish. • Doesn't appear to be a substantial trend in recruitment, so no need to constrain how recruitment is used in forecasts.	100%
Prediction error	• A comparison of the 2018-2020 assessment-based projections of SSB with a constant 742 mt ABC to estimates of SSB based on year-specific aging keys suggests a low prediction error in recent years. • Unable to consider more than two assessments for consistency.	100%
Assessment accuracy under different fishing pressures	• F, SSB, and indices of recruitment have been relatively level for more than a decade. Management has been steady over this period. • SSB declined precipitously in the late 1970s and early 1980s, which was associated with a steep increase in F. A reduction in F in the late 1990s is associated with an increase in SSB to its current level beginning around 2010. • F has been near the management reference point in recent years, such that it should have measurable effects on population dynamics.	100%
Simulation analysis/MSE	• No formal MSE-type analyses have been conducted for this stock. • Simulation analysis for golden tilefish management currently in progress.	NA

Attachment 5

SSC-Approved OFL CV Decision Table for Scup

<table>
<tr><th>Decision Criteria</th><th>Summary of Decision Criteria Considerations</th><th>Assigned OFL CV Bin (60/100/150)</th></tr>
<tr><td>Data quality</td><td>Surveys
Synoptic surveys over the stock area include the NEFSC spring and autumn bottom trawl surveys, but these surveys show large interannual fluctuations that reflect availability rather than abundance in any single year.
Surveys generally rarely catch fish age three and older, although older ages are present in commercial and recreational catch at ages. Other surveys do not cover the entire stock area, and most catch few fish over age 2. The inclusion of multiple state surveys, which by themselves are geographically restricted, do provide broad coverage of the stock area in aggregate.
Covid related issues limited coverage of state and federal surveys.
Landings and discards
Commercial landings have been well sampled for length and age since 1995.
Commercial discards have been fairly well sampled since 2000, although discard observations are highly variable and skewed.
New MRIP data were used to estimate recreational landings and discards.
About 44% of the total catch in weight is based on new MRIP estimates.
Length sampling of recreational landings has generally been adequate since 1988.
Recreational discard is low.
Covid-related issues introduce uncertainty into catch estimates, requiring imputation methods for 2020 estimates.</td><td>60%</td></tr>
<tr><td>Model appropriateness and identification process</td><td>The assessment model is based on a complex statistical catch-at-age model (ASAP SCAA).
Catch is modelled as four fleets (commercial and recreational landings and discards).
Life history does not require special modelling adjustments.
Addition of new selectivity block improved the model diagnostics for the 2021 management track assessment.
A significant portion of the stock biomass is represented by the plus group, which is assumed to be lightly exploited because of the selectivity pattern applied.
About 25 different configurations were explored in the 2015 benchmark.
The effect of new MRIP estimates on continued validity of prior sensitivity analyses depends on the magnitude of the change.</td><td>100%</td></tr>
</table>

	Because proportion of landings attributable to new MRIP estimates is relatively low, we could expect sensitivity analyses to remain valid. • Biological reference points were updated in the latest management track assessment.	
Retrospective analysis	• Retrospective patterns were not degraded from earlier assessment results following the addition of the 2013-present selectivity block. • Retrospective patterns were minor: F was overestimated by 20% and SSB was underestimated by 14% over the last seven terminal years. • Adjusted 2019 estimates were within the model estimate 90% confidence intervals. • General trends in retrospective patterns for SSB, R, and F have been consistent for the past four assessments.	60%
Comparison with empirical measures or simpler analyses	• Age structure in fishery and survey catches has been expanding since the 1990s. • Aggregate survey indices remain near time series highs, although there is evidence of declines in the last three years. • Several large recruitment events likely gave rise to survey index highs. • Given the potential effects of availability in any given year, swept area estimates of biomass are less reliable than for some other stocks. • No empirical estimates of scale are available.	100%
Ecosystem factors accounted	• No ecosystem factors were considered in the assessment, but mean weights at age and maturity have been declining. • Previous assessments examined thermal habitat models to evaluate factors affecting availability, but no strong signals were observed. • Scup are considered moderately vulnerable to climate effects in the Hare et al. (2016) report.	100%
Trend in recruitment	• Trends in recruitment have been consistent with no apparent trend; although the year classes in 2014 and (especially) 2015 were above average, the 2016 – 2019 year classes were below average. • R/SSB has declined over the time series and has remained low, as would be expected as a result of the large stock size. • OFL projections were sampled from estimated recruitment for 1984-2019; the SSC found this to be appropriate.	60%
Prediction error	• No estimate of prediction error is feasible at this point, given the inclusion of revised MRIP data in the updated assessment and attendant effects on biomass estimates. However, the updated MRIP data lead to relatively little change in estimates of F and SSB of Scup, so prediction error is unlikely to increase.	100%
Assessment accuracy under different fishing pressures	• Fishing mortality declined by more than four-fold over the assessment series, while SSB increased more than ten-fold. • In the most recent years, fishing mortality rates have been moderate and at levels expected for management targets. • Fishing mortality in the past 17 years has been low, but increases in SSB, R, C, and survey indices are consistent.	60%
Simulation analysis/MSE	• No formal MSE-type analyses have been conducted for this stock.	NA

Attachment 6

SSC-Approved OFL CV Decision Table for Summer Flounder

Decision Criteria	Summary of Decision Criteria Considerations	Assigned OFL CV Bin (60/100/150)
Data quality	**Surveys** • R/V Bigelow indices take account of trawl efficiency estimates at length from 'sweep-study' experiments. • Data rich assessment with many fishery-independent surveys incorporated and with relatively good precision of the fishery dependent data. **Landings and discards** • Estimates of recreational catch came from newly calibrated MRIP time-series. • Uncertainty from imputation of MRIP recreational catch in 2020 influences projections, though not the assessment itself.	60%
Model appropriateness and identification process	• The research track assessment (SAW-66) included consideration of alternative models (sex-specific ASAP and sex-specific state space), model configurations, and sensitivity analyses of key assumptions. • Most of which (alternative models) showed similar stock trends and stock status.	60%
Retrospective analysis	• No major persistent retrospective patterns were identified in the most recent model.	60%
Comparison with empirical measures or simpler analyses	• The last benchmark assessment included a comparison with swept area biomass. Simple to more complex models have generally shown consistent estimates of biomass.	60%
Ecosystem factors accounted	• No ecosystem factors were included in the assessment. • No factor ("driver") was identified as strongly influencing the spatial shift in spawner biomass or the level of recruitment. • Classified as "moderate climate vulnerability" by Hare et al. (2016).	100%
Trend in recruitment	• The most recent 9-year recruitment series is used for OFL projections, because near-term future conditions are more likely to reflect recent recruitment patterns than those in the entire 38-year time series. • There has been no apparent recent temporal trend in stock-wide recruitment.	60%
Prediction error	• Prior assessments were largely consistent prior to the change in MRIP estimates (and since this change), but the scale change with changes in assumptions about the MRIP data is substantial.	100%
Assessment accuracy under different fishing pressures	• Fishing mortality has been relatively high during the time series.	60%
Simulation analysis/MSE	• An MSE is currently being conducted, but has not yet been completed.	NA

Attachment 7

SSC-Approved OFL CV Decision Table for Black Sea Bass

Decision Criteria	Summary of Decision Criteria Considerations	Assigned OFL CV Bin (60/100/150)
Data quality	**Surveys** • Fishery-independent data are derived from both NEFSC and state surveys. • NEFSC surveys provide coverage of all ages. • State surveys in the northern portion of the Mid-Atlantic provide estimates of all ages, but state surveys in the southern sub-area index age-1fish only, requiring use of a Recreational Catch Per Angler (CPA) index. • Recreational CPUE time series for both the northern and southern regions were used in model fitting. **Landings and discards** • Large recreational component (~60-80% of total in recent years) places reliance on MRIP. • Updated MRIP numbers show an understandable pattern of large increases in northern sub-area in recent years, but less so in the south. • MRIP data for 2016 are considered implausible owing to high variance in wave-specific data, but attempts to account for this observation did not materially affect model results. • MRIP coverage in 2020 was only partial requiring some imputation.	100%
Model appropriateness and identification process	• Black Sea Bass uses a two-area model for assessment, with no exchange between sub-areas (North/South). • A range of alternative model structures were presented at SAW 62, including a single area model, and a two-area model with exchange. Most of this wide range of different models give qualitatively similar conclusions about stock status and trends. • The two-area model responds to presence of a dominant 2011 year class in the northern sub-area but not in the southern. Adoption of the two sub-area model greatly improved model fit, especially of the 2011 year class data. The current approach for calculating the fishing mortality rate and the fishing mortality reference point uses a fixed and equal weighting between the northern and southern regions despite evidence for changing stock distribution and catches among the two regions. • Growth rates are different between sub-areas as well. However, the division of the stock into two sub-areas was based on exchange and stock structure with limited support in the ecological literature: tagging data, oceanographic data, and a need to have a relatively equitable division of available data.	60%
Retrospective analysis	• Substantial retrospective bias in both northern and southern sub-areas was present in the 2019 operational assessment (Mohn's r>0.4) – although the direction of bias is in opposite directions in the two sub-areas.	150%

	• The retrospective pattern continued in the 2021 MTA but was larger in magnitude. The retrospective biases were 2-3x larger in the north than in the south. • Retrospectively adjusted SSB is approximately 40-50% higher than unadjusted, but adjustments do not change stock status. This pattern was also present in SAW 62.	
Comparison with empirical measures or simpler analyses	• The relationship between the recreational CPA index and a swept area index of exploitable biomass from the NESFC spring survey was presented at the 2019 operational assessment, as a part of a "Plan B" approach. • The swept-area estimate was coherent and broadly consistent with model output.	60%
Ecosystem factors accounted	• No ecosystem factors were considered in the assessment. • Clear northward shift in the stock's geographic distribution suggests an influence of temperature and changing ecosystem dynamics, especially at the northern edge of the range. • Analysis of temperature-linked surplus production suggests that BSB productivity has thus far increased with warming (Free et al. 2019). • Black Sea Bass were determined to have high climate vulnerability (Hare et al. 2016).	150%
Trend in recruitment	• OFL is calculated based on most recent, higher, but more variable recruitment. • Black Sea Bass stock abundance has been dominated by several recent strong year classes. Most notably, a 2011 year class was strong in the northern sub-area but very weak in the southern sub-area. This year class has supported a large fraction of the fishery. • Evidence exists for a second recent strong year class in 2015, which was more evenly distributed. This year class is now beginning to enter the fishery. Continued evidence to support strong 2015 year class. • The 2017 year class may be one of the lowest in the time series.	100%
Prediction error	• In the past, the SSC could compare across successive stock assessment predictions of OFL, but inclusion of the revised MRIP data increased the population scale proportionately throughout the entire time series, rendering prediction comparisons less useful as a metric of model performance. • Combining model predictions from the two sub-areas into a single stock projection makes understanding prediction error considerably more challenging.	100%
Assessment accuracy under different fishing pressures	• Long-term catch and survey index history shows substantial contrast, including periods of high (early 1990s) and low (recent decade) F and a 6-fold increase in SSB since F's were reduced; i.e., a strong response to declining F. Recent F's have been near Fmsy.	60%
Simulation analysis/MSE	• No formal MSE-type analyses have been conducted for this stock.	NA

Attachment 8

SSC-Approved OFL CV Decision Table for Bluefish

Decision Criteria	Summary of Decision Criteria Considerations	Assigned OFL CV Bin (60/100/150)
Data quality	**Surveys** • A fishery-dependent measure of abundance is obtained as catch-per-unit effort from the MRIP intercept survey (1985-2019), which constitutes a large component of data (recreational catch [landings+discards] = 88% of total on average). • Newly revised historical MRIP catch estimates were used in assessment. The new estimates scale up the entire MRIP catch series instead of converging in the 1980s as expected. • NEFSC fall survey data are available for all years (except fall 2017 Bigelow) in the assessment. This survey does not cover the southern portion of the species range. Bigelow estimates adjusted for results of cooperative research studies on gear efficiency. • Additionally, eight regional surveys are used in model tuning. **Landings and discards** • Age data available for all years in surveys (1982-2019), and age-length keys from surveys were applied to commercial landings and recreational landings. • Lengths of recreational discards were obtained through angler self-reporting from the Volunteer Angler Survey and minimal information from MRIP. • Commercial discards are low, considered negligible and not included in analysis. • Recreational discards are high at approximately 50% of the recreational landings over the time series, but greater than landings in 2019 thus, adding a level of uncertainty. • The MRIP calibration for live discards converges as expected in the 1980s to the MRFSS values, unlike the calibrated catch time series. Note also that recent discards are larger fish. Live discards are assumed to have a 0.15 discard mortality rate.	100%
Model appropriateness and identification process	• A complex ASAP SCAA model was used with fixed M=0.2 was used in the assessment model. This may not account for age-specific predation of bluefish by other predators. • The fishery is modeled with two fleets: commercial and recreational. • The benchmark assessment authors tested several configurations of the ASAP SCAA before the current configuration was accepted. • The model is strongly driven by the MRIP index. YPR and AGEPRO models were also used to assess BRP and projections.	100%
Retrospective analysis	• Retrospective patterns in the operational assessment are considered minor, with retrospective errors over the last 7 terminal years averaging -22% for Fand +23% for SSB. • The SARC60 benchmark and subsequent updates showed similar trends for SSB, F, and recruitment.	100%

	• Moreover, as the assessment has been updated more of the time series shows overfishing with the retrospective patterns, indicating that the stock has been overfished with overfishing occurring over the past six years. • New calibrated MRIP data resulted in a rescaling of SSB, F, and R to higher estimates compared with old data.	
Comparison with empirical measures or simpler analyses	• Simple measures of comparison were used for age composition and weight-at-age. • Comparisons with simpler estimates of biomass have not been done. • Comparisons of mortality rates with catch-curve estimates were made.	100%/150%
Ecosystem factors accounted	• Aspects of the ecosystem seem to be changing in recent years. • The benchmark assessment used a thermal niche model to assess survey catchability of Bluefish, but thermal niche modeling was not found to improve the assessment. • Bluefish have a low CVA ranking (Hare et al. 2016).	100%
Trend in recruitment	• Average recruitment from 1985 to 2019 is 46 million fish at age 0 with no real trend over time. • Recruitment has been approximately 15% below average over the last decade, except in 2013 when recruitment was higher. • The highest recruitment occurred in 1989 and the lowest in 2019 (approximately 3-fold variability).	100%
Prediction error	• Prior to the 2015 benchmark, comparisons of annual forecasts of stock biomass with realized estimates of stock biomass in subsequent assessments reveal a one-year ahead forecasting error with a CV=14%. For two-year forecasts the CV is 26%, and for 3 year forecasts the CV is also 26%. • The average percentage difference between the projection and the subsequent estimate for 1, 2, and 3-yr projections was +12%, +23% and +24%, respectively. • The MRIP calibration results in different patterns across the species that rely on this measure, hence increasing uncertainty. Because this stock is a very large recreational utilization (>80% of the catch), it is heavily influenced by MRIP estimates. • Finally, the mode of fishing shows a trend to increasing shore fishing in the most recent years because shore fishing has a larger adjustment in MRIP than the other categories.	100%
Assessment accuracy under different fishing pressures	• Fishing mortality has varied over a 3-fold range during the assessment period, with a major decline in 2018 but a slight increase in 2019 to 0.172 that may be dependent on the MRIP recalibration. • Over the past decade F has fluctuated around the series average of F = 0.35, except for the dramatic decline in 2018 to F = 0.15. Recent Fs over the 2010-2019 period have been relatively high with several recent ones low, resulting in better data contrast for modeling.	60%
Simulation analysis/MSE	• No formal MSE-type analyses have been conducted for this stock.	NA

Attachment 9

List of Acronyms used in this report.

Acronym	***Definition***
ABC	Acceptable Biological Catch
AOP	Assessment Oversight Panel
AP	Advisory Panel
ASAP	A Stock Assessment Program
Bmsy	Biomass level at MSY
CV	Coefficient of Variation
DFO	Department of Fisheries and Oceans
EAFM	Ecosystem Appoach to Fisheries Management
Fmsy	Fishing Mortality rates at MSY
FSV	Fishery Survey Vessel
GARFO	Greater Atlantic Regional Fisheries Office
GRA	Gear Restriction Areas
MAFMC	MidAtlantic Fishery Management Council
MRIP	Marine Recreational Information Program
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
MTA	Management Track Assessment
NEFSC	Northeaset Fisheries Science Center
NMFS	National Marine Fisheries Service
NRCC	Northeast Region Coordinating Council
OFL	Overfishing Limit
PRC	Peer Review Committee
RHL	Recreational Harvest Limit
RSA	Research Set Aside
RTA	Research Track Assessment
RV	Research Vessel
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Workshop
SSC	Scientfic and Statistical Committee
TAL	Total Allowable Landings
TOR	Terms of Reference

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: August 3, 2021

To: Council

From: Chris Moore

Subject: Executive Director's Report

The following materials are enclosed for review during the Executive Director's Report at the August 2021 Council Meeting:

1. 2021 Planned Council Topics
2. Revised Northeast Trawl Advisory Panel (NTAP) Charter
3. Research Set-Aside (RSA) Workshop Overview
4. RSA Workshop 1 Agenda
5. Staff Memo: Offshore Wind Energy Updates
6. Staff Memo: Thread herring exempted fishing permit
7. Staff Memo: Magnuson-Stevens Act Reauthorization Updates
8. Letter from Sustainable Fisheries Association regarding proposed shark fin legislation
9. MAFMC letter to SERO regarding for-hire eVTR requirements
10. SERO response to MAFMC and NEFMC eVTR letters
11. Correspondence with GARFO regarding eVTR at sea compliance issue
12. Staff Memo: Rationale for adding black sea bass state allocations to the Council FMP
13. Staff Memo: Spiny Dogfish Ageing

2021 Planned Council Meeting Topics

Updated 7/26/21

August 9-12, 2021 Council Meeting (Philadelphia, PA)

- Summer Flounder, Scup, and Black Sea Bass 2022-2023 Specifications and Commercial Measures: Approve (Joint with SFSBSB Board)
- Bluefish 2022-2023 Specifications: Approve (Joint with Bluefish Board)
- Recreational Reform Initiative: Update (Joint with Policy Board)
- EAFM Summer Flounder Management Strategy Evaluation: Update and Feedback (Joint with SFSBSB Board)
- Joint Council-SSC Meeting
- SSC Economic Work Group: Update on RSA Redevelopment Case Study
- Golden Tilefish Multi-Year Specifications Framework: Final Action
- Golden Tilefish Specifications: Review 2022 and Approve 2023-2024
- Atlantic Mackerel 2021-2022 Specifications: Review
- Atlantic Mackerel Rebuilding Modifications Framework (including RH/S cap): Meeting #1

October 5-7, 2021 Council Meeting (New York, NY)

- 2022 Implementation Plan: Discuss Draft Deliverables (Executive Committee)
- HMS Diet Study Final Report: Review
- Chub Mackerel 2022 Specifications: Review
- ~~Action to Implement a Possession Limit for Bullet and Frigate Mackerel: Update~~
- Thread herring exempted fishing permit discussion
- 2022 Spiny Dogfish Specifications: Review
- Spiny Dogfish Trip Limit Analyses: Review and Recommend Changes if Appropriate
- ~~Ocean City, MD Video Project: Review Results~~
- Private Tilefish Permitting/Reporting Evaluation
- Surfclam and Ocean Quahog Species Separation Requirements: Review White Paper and Identify Next Steps

December 13-16, 2021 Council Meeting (Annapolis, MD)

- 2022 Implementation Plan: Approve
- Recreational Reform Initiative: Update (Joint with Policy Board)
- Summer Flounder, Scup, and Black Sea Bass Commercial/Recreational Allocation Amendment: Final Action (Joint with SFSBSB Board)
- Summer Flounder, Scup, and Black Sea Bass 2022 Recreational Management Measures: Approve (Joint with SFSBSB Board)
- Bluefish 2022 Recreational Management Measures: Approve (Joint with Bluefish Board)
- Biennial Review of 2020-2024 Research Priorities Document: Review and Approve
- EAFM Summer Flounder Management Strategy Evaluation: Update and Feedback (Joint with SFSBSB Board)

- RSA Workshop Report: Review
- Habitat Activities Update (including wind and aquaculture)
- Ocean City, MD Video Project: Review Results
- Aquaculture Policy Document and Aquaculture in the Mid-Atlantic Region Background Document: Review and Approve
- Climate Change Scenario Planning: Update

Charter for Northeast U.S. Trawl Advisory Panel
Revised as of 7/28/2021

Section 1: Panel Purpose

The Northeast Trawl Advisory Panel (NTAP) is established to bring commercial fishing, fisheries science, and fishery management professionals together to identify concerns about regional research survey performance and data, to identify methods to address or mitigate these concerns, and to promote mutual understanding and acceptance of the results of this work among their peers and in the broader community.

Section 2: Objectives

There are three primary areas of focus: understanding the existing NOAA/NEFSC trawl survey gear performance and methodology, evaluating the potential to complement or supplement this and other regional research surveys, and improving understanding and acceptance of NOAA/NEFSC trawl survey data quality and results.

Understanding the trawl gear performance and methodology

Including but not limited to:

- Survey design (station selection, temporal, and spatial considerations)
- Survey operations
- Sweep efficiency/selectivity
- Fish behavior effects on trawl performance (*e.g.*, herding/avoidance)
- Vertical distribution effects on trawl performance
- Day/night differences in trawl performance
- Current effects on trawl performance

Evaluate the potential to complement or supplement current NEFSC surveys

Included but not limited to:

- Inter-calibrations between industry vessels and NOAA FS/V *Henry B. Bigelow and FS/V Pisces*. This would allow industry partners to supplement survey activity and be better positioned to perform the survey in the event that the *Bigelow* is not available.
- Increased trawl survey station density using industry vessels. This effort may improve precision of indices for species that are presently at low abundance.
- New industry-based surveys to supplement/complement existing research trawl surveys. This might include fixed-gear surveys in untrawlable habitat or a dedicated trawl survey for bottom tending species.
- Inter-calibration among the established regional research surveys: NEFSC Ecosystem Survey, Northeast Monitoring and Assessment Program (NEAMAP) and the Massachusetts and Maine New Hampshire state research surveys.

Improving understanding and acceptance of NEFSC trawl survey data quality and results

Included but not limited to:

- Developing routine reporting products and distribution.

- Explaining similarities and differences between research survey and commercial trawl operations.
- Identifying preferred routine, near real-time research survey data types and format.
- How to reconcile perceptions derived from survey data trends and commercial catch per unit of effort.
- Best practices for keeping peers informed about the panel's work and results.

Action Plan

To fulfill its objectives, NTAP will:

1. Review progress and accomplishments since it was re-established in 2015.
2. Consider the use of fishery independent data in other regions (particularly within the North Atlantic, as well as internationally).
3. Brainstorm concerns about the performance of trawl surveys relative to the reliability of scientific advice:
    a. considering differences between species or species types and bottom types, if appropriate,
    b. considering existing information relevant concerns,
    c. identifying short term analysis that are likely to be informative regarding concerns,
    d. prioritizing (in terms likelihood and importance) concerns.
4. Recommend data collection, analyses, and procedures to address priority concerns. Recommendations may include alternative methods of collecting fisheries independent information.
5. Review progress and advice on course corrections, as necessary.

Section 3: Organizational Structure

The NTAP is a joint advisory panel of the New England Fishery Management Councils (NEFMC) and the Mid-Atlantic Fishery Management Council (MAFMC). It is composed of Council members, fishing industry, academic, and government and non-government fisheries experts who shall provide advice and direction on the conduct of trawl research. The MAFMC is designated as the lead organization for administering the panel. The NTAP shall report directly to the Fishery Management Councils (FMC's), and the NTAP's recommendations will be forwarded by the FMCs, and then the Northeast Fisheries Science Center (NEFSC) only upon the approval of both FMC's. However, the NEFSC should be able to act based on scientific information that is available from NTAP meetings. The NEFSC is committed to the serious consideration of all recommendations brought forth through this process and will strive to implement them, although it is possible that not all recommendations will be enacted due to fiscal or statutory requirements.

Section 4: Membership

The NTAP will consist of 20 members drawn from the NEFMC and MAFMC, industry experts, the Atlantic States Marine Fisheries Commission (ASMFC), non-federal scientists and NEFSC:

- 2 fishery management council members from each Council (4)
- 3 fishery stakeholder representatives appointed by each Council (6)
- 2 academic and non-academic scientists appointed by each Council (4)
- 2 members from the ASMFC (2)
- 4 staff members of the NEFSC (4)

Minor deviations for this composition plan may be permitted if both Co-Chairs approve. Each fishery management council shall be responsible for making council, fishery stakeholder and scientific nominations. The Science and Research Director of the NEFSC shall recommend four NEFSC staff members for Panel membership.

Key areas of expertise that will be important in success of the panel include:

- Gear design and construction
- Trawl gear efficiency
- Trawl mensuration
- Fish behavior
- Fishery acoustics
- Survey statistics and stock assessment

Section 5: Panel Leadership

The panel will be co-chaired by representatives of the NEFMC and MAFMC who will be jointly responsible for conducting meetings and for coordinating with NEFSC to ensure that summaries and other products from meetings are produced and distributed.

Section 6: Panel/Membership Longevity

The NTAP shall operate at the discretion of the FMC's and is contingent upon the availability of funding. Panel membership will be reviewed by the co-chairs annually or at any time that the primary focus areas are modified. The co-chairs shall also appoint and annually review the NTAP working group membership.

Section 7: Meetings

The NTAP and or NTAP Working Group shall hold in-person meetings two to three times annually. If the NTAP determines that more frequent meetings are warranted, scheduling of additional meetings is subject to budget availability. Additional panel business may be conducted through teleconferences or electronic communications, but any decisions made by the NTAP must be made in a public forum. All in-person meetings shall be announced through established fishery management council processes.

For a meeting that develops formal recommendations, at least 10 members are required to constitute a quorum. This total must include at least half of the designated representatives from each Council, the NEFSC, and the ASMFC.

NEFMC/MAFMC representatives: 4 of 7 required for quorum

ASMFC representatives: 1 of 2 required for quorum
NEFSC representatives: 2 of 4 required for quorum
Total representatives: 10 of 18 required for quorum

Section 8: Panel Organizational Support

Travel costs, staff support, and administrative costs associated with panel operations shall be financially supported funds made available to the MAFMC. Panel activities including communications, meeting and venue scheduling, meeting equipment support shall be supported by staff of the MAFMC. Travel cost reimbursement for non-federal government members of the NTAP shall be coordinated through the MAFMC.

NEFSC staff shall be responsible for the development of a draft agenda for approval by the co-chairs. Meeting summaries and/or reports shall be the responsibility of NEFSC staff. Analytical support will be provided by the NEFSC as needed.

Research Set-Aside Workshop Overview

3 Webinars and 1 In-Person Meeting
July – November 2021

Redevelopment of the Mid-Atlantic Fishery Management Council (Council) Research Set-Aside (RSA) Program

Purpose

The Council is hosting a series of 4 workshops (3 webinars and 1 in-person meeting) to develop recommendations for the possible redevelopment of the RSA program. Each webinar will target a separate topic related to RSA (research, funding, and enforcement). The Scientific and Statistical Committee (SSC) Economic Working Group will work collaboratively with the Council's Research Steering Committee (RSC) to provide economic input specific to each webinar topic, as well as develop meeting reports and briefing materials for the in-person workshop in the fall. During the final in-person workshop, participants will review the recommendations from the first three webinars and develop final recommendations for RSA program redevelopment. Workshop participants will include a core group of individuals who will be invited to attend all four workshops. Staff may solicit additional participants with topic-specific expertise to participate in each workshop. All workshops will be open to the public.

Below is an outline of the workshop structure with meeting-specific goals and trigger questions, a proposed participant list, and timeline.

Workshop Dates, Topics, and Objectives

Workshop Webinar Meeting 1 (July 15th): Research

Objectives:

- Identify how research goals will be prioritized, projects will be screened, and results will inform management/be communicated to the Council and stakeholders.
- SSC Economic Working Group discussion on Research

Trigger Questions:

- How should research needs (to be fulfilled by RSA) be prioritized?
- What criteria should be met to qualify as a successful applicant?
- What criteria should be developed for how project results will be reviewed and articulated to the Council?

Workshop Webinar Meeting 2 (August 31st): Funding

Objectives:

- Confirm how the program will be administered (federal grant program), discuss funding mechanism, and indicate that projects should be tied to management/assessment needs.
- Discuss how Council, RSC, and SSC input will impact project selection.
- SSC Economic Working Group discussion on Funding

Trigger Questions:

- How should the auction system or other funding mechanism be revised to improve RSA?
- What would be the benefits (if any) of adopting a posted-price offer per quota lot rather than an auction?
- What are the fishing exemptions that (achieving the same conservation objectives) would maximize revenue for the RSA program?

Workshop Webinar Meeting 3 (October 14th): Enforcement

Objectives:

- Identify potential program modifications that could prevent reoccurrence of previous enforcement issues.
- Identify how the Council will collaborate with the Commission and other agencies to ensure compliance that addresses enforcement objectives.
- SSC Economic Working Group discussion on Enforcement

Trigger Questions:

- What recommendations should be made to improve enforcement efforts on RSA trips?
- What changes to enforcement have occurred since the suspension of RSA? Were they successful?
- Are there ways the Council can work more effectively with its management and enforcement partners to identify and address RSA enforcement issues in a timely manner?

In-Person Workshop (1-day) (November 16th): Final Recommendations

Location: the Sheraton Baltimore Washington Airport Hotel – BWI, 1100 Old Elkridge Landing Road, Linthicum Heights, Maryland 21090

Objectives:

- Recap meetings 1-3
- Develop detailed recommendations (with timelines) for the Council identifying whether and how RSA should be redeveloped with input from the SSC Economic Working Group

Trigger Questions:

- Should the Council redevelop the RSA program?
- What changes should be implemented to address previously identified concerns related to the RSA program including research, funding, program administration, and enforcement?

- What timelines should be developed to improve the overall RSA process (e.g., data and research needs, incorporate RSA into specifications cycle, grant applications, fishing "season", report deadlines, etc.)?

Participants

- **Primary Participants:**
  - MAFMC Research Steering Committee Members
  - Mid-Atlantic Council Staff
  - New England Council Staff
  - Atlantic States Marine Fisheries Commission (ASMFC) Staff
  - ASMFC Law Enforcement Committee
  - NOAA Office of Law Enforcement (OLE)
  - Northeast Fisheries Science Center
  - Greater Atlantic Regional Fisheries Office (GARFO)
  - Scientific and Statistical Committee (e.g., Economic Working Group members and SSC Chair)
  - NOAA General Counsel
- **Other Invited Participants:**
  - National Fisheries Institute
  - State representatives (e.g., MAFMC and ASMFC Administrative Commissioners)
  - MAFMC Advisory Panels
  - Previously successful RSA participants
  - Science Center for Marine Fisheries
  - Other individuals

Timeline

Date	Event/Topic
April Council Meeting	RSC Committee Report detailing the RSA Workshop structure
June 2nd	RSC Meeting – Finalize workshop logistics (e.g., dates, participants, agendas, structure, trigger questions)
July 15th	RSA Workshop Meeting 1 (Webinar) - Research
August	Council Meeting: Economic WG progress report to Council
August 31st	RSA Workshop Meeting 2 (Webinar) - Funding
September	SSC Meeting: Economic WG progress report to SSC
October 14th	RSA Workshop Meeting 3 (Webinar) - Enforcement
November 16th	RSA Workshop Meeting 4 (In-person)
December	Council Meeting: RSC and Economic WG report to Council
February	Council Meeting: RSC makes a formal recommendation on the status of RSA for Council consideration.

MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

Research Set-Aside Workshop

Workshop Meeting 1 (Research)

Thursday, July 15, 2021
10:00 a.m. – 4:00 p.m. EST

Webinar Link

Meeting Number (Access code): 179 522 6122; **Password:** mafmc

Meeting Page: https://www.mafmc.org/council-events/rsa-workshop-1

Purpose

The Mid-Atlantic Fishery Management Council and its Research Steering Committee (RSC) are hosting a Research Set-Aside (RSA) Workshop, which will consist of 3 webinars from June to October and 1 in-person meeting in November. The goal of the four workshops is to have the RSC develop a recommendation to the Council with public input on whether and how to redevelop the Mid-Atlantic RSA program. *The goal of Workshop Meeting 1 (Research) is to identify how research goals will be prioritized, projects will be screened, and results will inform management/be communicated to the Council and stakeholders.* For additional background information and details on the other workshops, please visit: https://www.mafmc.org/workshop/rsa.

Briefing Materials

- RSA Workshop Overview
- Comprehensive Mid-Atlantic RSA Timeline
- RSA Numbers by Species and Year

Agenda

10:00 a.m. – 10:30 a.m.	**Welcome** • Adam Nowalsky (RSC Chair) and Mike Luisi (Council Chair) **Ground rules** • Andrew Loftus (Facilitator) **Presentation: "What is RSA?"** • Ryan Silva (GARFO Staff) **Presentation: "RSA in the Mid-Atlantic"** • Matt Seeley (MAFMC Staff)
10:30 a.m. – 12:00 p.m.	**Discussion with the SSC Economic Working Group (WG)** • Presentation by the WG – Mark Holliday (MAFMC SSC) • Discuss topics on lessons learned with focus on future economic outcomes • Public questions/comment

12:00 p.m. – 12:45 p.m.	**Lunch**
12:45 p.m. – 1:40 p.m.	**How should research needs (to be fulfilled by RSA) be developed and prioritized?** • Presentation by a previous RSA participant – Emerson Hasbrouck (Cornell) • Discussion of previous issues and proposed revisions • Develop recommendations with public input • Public questions/comment
1:40 p.m. – 2:35 p.m.	**What criteria should be used to evaluate RSA applicants and research proposals?** • Discussion of previous issues and proposed revisions • Develop recommendations with public input • Public questions/comment
2:35 p.m. – 2:50 p.m.	**Break**
2:50 p.m. – 3:45 p.m.	**What criteria should be developed for how project results will be reviewed and articulated to the Council?** • Discussion of previous issues and proposed revisions • Develop recommendations with public input • Public questions/comment
3:45 p.m. – 4:00 p.m.	**Next Steps and Public Comment**
4:00 p.m.	**Adjourn**

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 30 2021

To: Chris Moore, Executive Director

From: Julia Beaty, staff

Subject: Offshore Wind Energy Updates

Offshore wind energy development off the U.S. east coast is advancing at a rapid pace. For example, since the last Council meeting in June 2021, the Bureau of Ocean Energy Management has published notices of intent to prepare draft Environmental Impact Statements for four offshore wind projects. This is a milestone in environmental review of these projects prior to considerations related to federal approval or disapproval. In addition, BOEM announced plans to lease additional areas in the New York Bight for wind energy development.

Council staff continue to work with New England Fishery Management Council staff to maintain a website with updates on offshore wind energy development and to write joint comment letters for all relevant comment periods (see https://www.mafmc.org/northeast-offshore-wind). Mid-Atlantic Council staff also send out approximately monthly email updates on offshore wind and fisheries to a public email list (https://www.mafmc.org/email-list).

In addition, in July 2021, the Mid-Atlantic Council sent a letter to the developers of seven Mid-Atlantic offshore wind energy projects requesting a suspension of survey work using sub-bottom profilers during September 15 - November 15, 2021 due to concerns about impacts on recreational fisheries.

The SSC will discuss offshore wind energy development during their September 2021 meeting.

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MEMORANDUM

Date: July 30, 2021

To: Chris Moore, Executive Director

From: Julia Beaty and Brandon Muffley, staff

Subject: Thread herring exempted fishing permit

In June 2021, the Council discussed an exempted fishing permit (EFP) application submitted by Lund's Fisheries to the Greater Atlantic Regional Fisheries Office (GARFO). The application requested the ability to catch up to 3,000 MT (6.6 million pounds) of Atlantic thread herring in 2022. This requires an exemption from the 1,700-pound possession limit implemented through the Council's Unmanaged Forage Omnibus Amendment. The stated goal of the EFP is to demonstrate the potential for a commercial thread herring purse seine fishery in Mid-Atlantic federal waters.

Based on the June 2021 Council meeting discussion, the following next steps are proposed. The SSC will review the EFP application during their September meeting. The Ecosystem and Ocean Planning (EOP) Committee will meet later in September to consider SSC recommendations and develop their own recommendations regarding the EFP. A summary of the SSC and EOP Committee meetings will be provided to the full Council in October.

Lund's Fisheries may decide to revise and resubmit their EFP application to GARFO after considering the advice of the SSC and EOP Committee. Once GARFO publishes a Federal Register Notice with an associated public comment period, the Council may decide to submit a comment letter based on the SSC and EOP Committee recommendations.

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MEMORANDUM

Date: July 29, 2021

To: Chris Moore

From: Mary Sabo

Subject: MSA Reauthorization Update

On July 26, Congressman Jared Huffman (D-California), Chair of the Water, Oceans, and Wildlife Subcommittee, and subcommittee member Ed Case (D-Hawaii) introduced the Sustaining America's Fisheries for the Future Act, legislation to update and reauthorize the Magnuson-Stevens Act (MSA). According to the press release: "This legislation is the culmination of a two year-long process Rep. Huffman led to get stakeholder input, including a nationwide listening tour and release of a discussion draft for feedback – part of his ongoing effort to foster a uniquely transparent, inclusive, science-based approach to updating this important law governing fisheries in American waters."

The following supporting documents are enclosed behind this memo:

- A one-pager of the bill (also available here)
- A section-by-section summary of the bill (also available here.)

The full text of the proposed legislation is available here.

Sustaining America's Fisheries for the Future Act One Pager

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the country's primary statute governing fisheries management in federal waters and has made the United States a world leader in sustainable fisheries. Despite the strengths of the MSA, it was last reauthorized in 2006 and updates are needed to address the many new challenges facing fisheries management and fishing communities in an era of climate change, new technologies, and changing ocean use.

This reauthorization has taken a stakeholder-driven, science-based approach to provide important and timely updates to the MSA. The viewpoints and proposals heard during discussions, 8 listening sessions, and public comments have resulted in this comprehensive legislation. In addition, several bipartisan bills are included in whole or in part. The legislation also reflects feedback from over 50 organizations and individuals that sent comments on the discussion draft released in December 2020.

These amendments to the MSA, along with additional provisions to support fishing communities and fisheries management, will ensure the MSA meets the needs of stakeholders now and into the future.

Title I. Climate-ready fisheries: Requires consideration of climate change in regional fishery management council priorities and planning. Provides new tools and approaches to address shifting stocks and other climate impacts on fisheries management. Tackling climate change is crucial as oceans and fisheries are facing some of the largest impacts due to ocean warming, acidification, and other climate stressors.

Title II. Supporting fishing communities: Addresses the needs of fishermen, businesses, and coastal communities through an improved disaster relief program, a working waterfront grant program, and increased support for seafood marketing. This title also acknowledges the importance of subsistence fishing and how it is defined under the MSA.

Title III. Strengthening public process and transparency: Increases representation of different viewpoints on regional fishery management councils and improves transparency, accountability, and stakeholder participation in fisheries management. This title expands NOAA's sexual assault and sexual harassment policies to include coverage for fishery observers and Council staff.

Title IV. Modernizing fisheries science and data: Expands electronic technologies and data management systems, updates cooperative research and management, and improves data collection and methods. This title requires NOAA to develop operating plans for emergencies that make it impractical to use human observers and conduct stock assessments, as occurred during the Covid-19 pandemic.

Title V. Sustaining fisheries through healthy ecosystems and improved management: Strengthens essential fish habitat consultation, builds on MSA conservation standards to improve outcomes for overfishing and rebuilding, and conserves forage fish. This title also replaces the term "overfished" with "depleted" to encompass the complexity of threats to fish stocks.

SUSTAINING AMERICA'S FISHERIES FOR THE FUTURE ACT

Section by Section Summary

Title I: Climate-Ready Fisheries

Sec. 101. Findings, purpose, and policy. Amendments to incorporate climate change.

Sec. 102. Promoting climate resilience in fisheries management. Requires fishery management plans to incorporate climate change by promoting stock resilience, identifying data needs, examining the vulnerability of a fishery and its participants to climate change, and assessing the anticipated impacts of climate change.

Sec. 103. Incorporating climate science. Includes climate change and ecosystem-based management as possible training topics for new council members. Adds climate to fisheries research priorities.

Sec. 104. Climate-ready fisheries innovation program *(also in H.R.3764 in the 117th Congress)***.** Establishes a program to develop innovative tools and approaches to increase the adaptive capacity of fishery management to the impacts of climate change.

Sec. 105. Managing shifting stocks. Establishes a framework for designating Council jurisdiction for cross-jurisdictional stocks and requires developing a strategy for coordinated research and management for international stocks impacted by climate change.

Sec. 106. Emerging fisheries. Requires a report on managed fisheries and gear types. Creates a framework for establishing a new fishery or gear type and requires Councils to analyze potential impacts and management of the new fishery or gear type.

Title II: Supporting Fishing Communities

Sec. 201. Fishery resource disaster relief *(H.R.5548 in the 116th Congress)***.** Sets a timeline for the federal government to respond to a fishery disaster request and for disbursal of appropriated funds and clarifies the disaster request process, including by allowing direct payments to be made to affected members of fishing communities as an eligible use of relief funds.

Sec. 202. Subsistence fishing. Recognizes and defines subsistence fishing.

Sec. 203. Working Waterfronts Grant Program *(H.R.3160 in the 117th Congress)***.** Establishes a Working Waterfront Grant Program to provide matching grants to coastal states to preserve and expand access to coastal waters for dependent businesses; creates a 5-year pilot loan fund for waterfront preservation; and establishes a Working Waterfront Task Force at the Department of Commerce to identify and prioritize critical needs for working waterfronts.

Sec. 204. Seafood marketing. Directs USDA and NOAA to work together to increase and support seafood industry participation in USDA Agricultural Marketing Service programs. Directs NOAA to study the possibility of establishing similar marketing support programs housed within the agency.

Sec. 205. Community participation in limited access privilege programs. Adds the participation of fishing communities as a requirement for limited access privilege programs; updates requirements for community sustainability plans; and adds provisions for Councils to identify eligible fishing communities and provide a process for communities to participate in new programs.

Sec. 206. Findings. Technical amendment to findings.

Title III. Strengthening Public Process and Transparency

Sec. 301. Tribal representation at the Pacific Fishery Management Council. Removes the limit on the number of Tribal representatives that must be nominated for the Tribal seat on the Pacific Council and removes term limits for the Tribal seat.

Sec. 302. Tribal representation at the North Pacific Fishery Management Council. Adds two seats on the North Pacific Council to represent Indian Tribes in Alaska.

Sec. 303. Atlantic Councils. Adds a voting seat for a Mid-Atlantic Council member on the New England Council and a voting seat for a New England Council member on the Mid-Atlantic Council. These liaisons would represent the interests of the fisheries under their jurisdictions on neighboring Councils, which is particularly important as stocks shift with climate change.

Sec. 304. Council procedures and participation. Requires greater access to Council meetings, requires roll call votes for nonprocedural Council matters, and directs Councils to allow for remote participation in meetings.

Sec. 305. Council accountability and membership. Establishes stricter requirements related to ethics and lobbying by Council members. Expands the criteria for Council member nominations to ensure a balance of viewpoints and stakeholders are represented. Extends the statute of limitations on agency actions to 60 days. Requires geographic representation for at-large seats on the Western Pacific Council.

Sec. 306. Amendments to the Western Pacific Sustainable Fisheries Fund. Adds public notice requirements for marine conservation plans. Establishes an advisory panel for the Fund, directs the panel to provide public notice and minutes of meetings, requires the Secretary to submit an annual report to Congress on funded projects, and requires the Secretary to provide written explanation for funded projects that are not ranked by the advisory panel.

Sec. 307. NOAA Sexual Harassment and Assault Prevention *(H.R.2865 in the 117th Congress)*. Expands NOAA's sexual assault and sexual harassment policies to include coverage for fishery observers and Council staff and strengthens resources and reporting.

Sec. 308. Saltonstall-Kennedy Act reform. Creates an Advisory Committee to assist in the awarding of fisheries marketing, research, and development grants through Saltonstall-Kennedy funding *(H.R.1218/S.494 in the 116th Congress)*. Returns funding intended for the Saltonstall-Kennedy Act grants, which has been used to backfill NOAA's budget, to its original purpose.

Title IV: Modernizing Fisheries Science and Data

Sec. 401. Data modernization. Requires NOAA to provide to Congress an implementation plan for its Fisheries Information Management Modernization initiative to ensure continued progress in the modernization of NMFS fisheries data management systems to facilitate improvements in the collection, intake, use, storage, and access to data from federal and non-federal sources.

Sec. 402. Expanding and improving electronic technologies. Sense of Congress that expresses the importance of electronic technologies and adapting to management needs, especially in the context of climate change, and includes consideration of technologies in fishery independent data collection. Facilitates implementation of electronic technologies for monitoring and reporting, requires a review of existing electronic technology capabilities in NMFS, establishes an electronic technologies innovation prize, and establishes an advisory panel on electronic technologies.

Sec. 403. Stock assessments. Requires the Secretary to report to Congress on NMFS' progress on prioritizing and improving stock assessments.

Sec. 404. Cooperative research and management. Clarifies authorities for cooperative research and management projects to make the use of these more consistent and requires public reports of project results. Updates priorities for cooperative research, including electronic technologies and climate research, and requires the Secretary to issue guidance on the development of cooperative management agreements, oversight, and enforcement. Adds to MSA findings that science and statistical committees should consider outside sources of information when seeking the best scientific information available.

Sec. 405. Northeast regional pilot research trawl survey and study. Sets up a pilot study to develop a fishing industry-based Northeast regional research trawl survey and study to enhance and provide improvements to current vessel trawl surveys, in coordination with the relevant councils and the Northeast Area Monitoring and Assessment Program.

Sec. 406. Recreational data consistency. Requires the Secretary to establish guidelines to improve recreational data and ensure data consistency. Creates a program to research and improve recreational data survey methods.

Sec. 407. Emergency operating plans. Requires NOAA, in consultation with stakeholders, to develop a contingency plan for pandemics or other emergencies that make it impractical to use human observers and conduct stock assessments, and to report to Congress on the plan.

Sec. 408. Zeke Grader Fisheries Conservation and Management Fund. Renames the Fisheries Conservation and Management Fund to the Zeke Grader Fisheries Conservation and Management Fund, allows climate change research to be an eligible use of funds, and allows funds to be used in the region in which they were generated.

Sec. 409. Offshore wind collaboration. Requires the Departments of Commerce and Interior to enter into a cooperative agreement to fund additional stock assessments and fisheries and marine wildlife research if impacted by offshore wind energy development.

Title V: Sustaining Fisheries Through Healthy Ecosystems and Improved Management

Sec. 501 Sense of Congress. States that the protection of essential fish habitat ensures healthy fisheries, and that essential fish habitat consultation should be consistently applied to fishing and non-fishing activities.

Sec. 502. Essential fish habitat consultation. Strengthens essential fish habitat (EFH) consultation and requires federal agency actions to avoid adverse effects to EFH or minimize and mitigate the adverse effects. Adds a definition of "adverse effect" and requires monitoring of impacts to EFH. Requires Councils to identify Habitat Areas of Particular Concern (HAPC), develop plans to protect EFH, and periodically review habitat protection plans and EFH and HAPC designations.

Sec. 503. Reducing bycatch. Removes loopholes that prevent effective bycatch management and creates a nation-wide standardized bycatch reporting system. Updates the Bycatch Reduction Engineering Program to expand outreach, technical assistance, and adoption of bycatch reduction methods.

Sec. 504. Improving rebuilding outcomes. Requires more detailed information in NOAA's annual status of stocks report to identify stocks subject to overfishing and in need of rebuilding plans;

specifies that conservation and management measures are required to improve stock status for stocks approaching an overfished condition; amends the rebuilding timeline to be specific to stock biology; requires adequate and measurable criteria and progress in rebuilding plans; and strengthens requirements for responding to rebuilding failures.

Sec. 505. Depleted fisheries and preventing overfishing. Replaces “overfished” with “depleted” throughout the Act. Includes a rule of construction regarding “overfished”. Requires that objective and measurable criteria are used to identify overfished stocks and stocks experiencing overfishing, clarifies that Councils cannot be less precautionary than science and statistical committee (SSC) recommendations, and requires SSCs to provide advice on accounting for all sources of mortality, promoting resilience to climate change, and objective and measurable criteria for overfishing and depleted stocks. Includes a technical correction on an existing rule of construction.

Sec. 506. Preparation and review of secretarial plans. Requires the Secretary to develop fishery management plans when Councils do not complete plans within a reasonable amount of time.

Sec. 507. Councils. Requires Councils to include climate change in research priorities, to develop objective and measurable criteria for identifying overfishing and depleted fisheries, and to develop measurable targets for essential fish habitat and regularly update habitat protection plans.

Sec. 508. Forage Fish Conservation *(H.R.2236 in the 116th Congress)***.** Directs the Secretary to define forage fish, requires an assessment of the potential impacts of a new commercial forage fish fishery, and requires consideration of predator needs in existing fishery management plans.

Sec. 509. Funding for monitoring implementation of Northeast Multispecies fishery management plan. Adds monitoring, including electronic monitoring, as a use of funds related to implementation of the plan.

Sec. 510. Authorization of appropriations. Authorizes funding for FY22-FY26. Increases authorization levels by 50%, accounting for inflation, to provide the necessary resources for the new requirements in this act and to better equip fisheries science and management.

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 28, 2021

To: Council

From: J. Didden, Staff

Subject: Pending Shark Fin Legislation

Please find attached below a letter from John F. Whiteside, Jr. on behalf of the Sustainable Fisheries Association, Inc regarding pending legislation on shark fins. The legislation referenced in the letter can be accessed at:

House Finning Bill text
Senate Finning Bill text

July 16, 2021

Dr. Christopher M. Moore
Executive Director
Mid-Atlantic Fishery Management Council
VIA EMAIL ONLY

Re: Shark Fin Sales Elimination Act of 2021

Dear Dr. Moore:

I am writing to you on behalf of the members of the Sustainable Fisheries Association (SFA) regarding the two (2) bills entitled "Shark Fin Sales Elimination Act of 2021", which are currently in the Senate (S.1260) and House (H.R.2811). S.1260 passed the Senate and H.R.2811 is still in committee.

H.R.2811 provides a 5 ½ year exemption for smooth and spiny dogfish fins. On January 1, 2027 the Secretary of Commerce must report to Congress and recommend whether to continue the dogfish exemption or terminate it. If H.R.2811 passes in its current form and S.1260 is merged into it in committee, the January 1, 2027 date will essentially be a raised guillotine over the dogfish industry.

Since it takes years to develop markets for different species, it would be sensible and prudent for fishermen and processors to swiftly shift away from landing dogfish to other species without a looming closure threat. Left unchecked by commercial fishing, the dogfish biomass will boom - decimating stocks in recovery, stocks that are currently healthy and irreparably harm the ecosystem of New England and Mid-Atlantic, erasing decades of conservation work by thousands of stakeholders.

We ask that the Council take every action available to give dogfish a permanent exemption.

Thank you for your consideration of and attention to this issue.

Sustainable Fisheries Association, Inc.
By

John F. Whiteside, Jr.

John F. Whiteside, Jr.
General Counsel
John@JWhiteside.com

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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July 1, 2021

Andy Strelcheck
Acting Regional Administrator
Southeast Regional Office
National Marine Fisheries Service
263 13th Avenue South
St. Petersburg, FL 33701-5505

Dear Andy:

The Mid-Atlantic Council is concerned about the new reporting requirements related to the South Atlantic Fishery Management Council's (SAFMC) 2017 For-hire Reporting Amendment that were implemented by SERO beginning January 4, 2021. As you know, these new reporting requirements impacted not only SERO for-hire permit holders but also GARFO for-hire permit holders who were already required to report electronically. Although a single report via eTrips mobile can accommodate the requirements for each region, four additional reporting fields are required under the SERO permits including socioeconomic questions related to trip fees, fuel usage, and prices.

Mid-Atlantic Council members and stakeholders are concerned that the addition of these questions increases reporting burden and possibility of inaccurate data. For example, a captain who does not easily know the amount of fuel used or the price of fuel may file an inaccurate report to meet their reporting deadline. In addition, the lack of clarity regarding the utility of these questions as well as the lack of stakeholder support is undermining the support for electronic data collection and our relationship with these constituents.

According to the Final Rule, economic data are being collected from charter vessels to enhance the ability of the South Atlantic Council and NMFS to estimate the economic impacts and values specific to charter vessels and support research efforts aimed at increasing net benefits to these stakeholders as well as the U.S. economy. Instead of a regulatory requirement, an alternative might be to make the answers to these questions voluntary combined with increased outreach to indicate their importance and promote participation. Completeness and accuracy of data are the foundations for gathering quality data and the Mid-Atlantic Council is concerned that these few additional fields will not only result in dubious information for those data elements but jeopardize the quality of the other data as well.

Please contact me if you have any questions.

Sincerely,

Christopher M. Moore, Ph.D.
Executive Director

Cc: M. Luisi, P. Townsend, J. Carmichael, T. Nies, K. Coutre

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
https://www.fisheries.noaa.gov/region/southeast

07/29/2021

Christopher M. Moore, Ph.D
Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201
Dover, DE 19901

Thomas A. Nies
New England Fishery Management Council
50 Water Street
Newburyport, MA 01950

Dear Chris and Thomas,

Thank you for your letters regarding the reporting requirements for the Southeast For-Hire Integrated Electronic Reporting Program (For-Hire Reporting Program). I appreciate the feedback on the additional southeast permit-specific data elements that were incorporated into the Atlantic Coastal Cooperative Statistic Program's (ACCSP) eTrips electronic reporting application. The regulations implemented for permit holders in the charter vessel/headboat Atlantic dolphin wahoo fishery, Atlantic coastal migratory pelagic fishery, and South Atlantic snapper grouper fishery, are requirements of the permit that apply regardless of where the permit holder fishes.

Regarding your concern over the collection of socioeconomic data, the Magnuson-Stevens Fishery Conservation Act (MSA) and the National Environmental Policy Act (NEPA) require NOAA Fisheries to assess the social and economic impacts of management actions. Although some economic data has been comprehensively collected by NOAA Fisheries for the commercial sector (price and revenue) and for headboats (fuel cost), the economic data that was collected from charter vessels historically was episodic and often based on small sample sizes. Further, that economic data was often outdated when socioeconomic analyses were needed for management and regulatory actions. Through the For-Hire Reporting Program, the detailed economic data entered by fishermen in real time through the additional questions added to the eTrips application will enhance the ability of NOAA Fisheries and the fishery management councils to understand potential impacts of proposed management and regulatory change(s) on the for-hire sector (e.g., changing bag limits, area closures, etc.). These data will also allow us to better monitor the economic health of the industry over time. In addition, the economic information will help fishery managers and scientists assess the value of the for-hire sector that will allow for economic recovery in the event of a fishery disaster. Fisheries economists will use these data in their cost-benefit and economic impact analyses for actions and amendments that propose regulatory changes. These data will always be used in a confidential manner. The information can also be used to inform quota allocation decisions, fisheries research, and disaster recovery damage assessments.

During the development of the For-hire Reporting Amendment, the South Atlantic Fishery Management Council (South Atlantic Council) identified all of the data elements to be included and determined that the collection of economic information was essential to the For-Hire Reporting Program.

The NOAA Fisheries' Southeast Regional Office (SERO) and Greater Atlantic Regional Fisheries Office (GARFO) staff identified approximately 300 permit holders that have both GARFO and SERO permits. These permit holders would be required to submit electronic logbook reports to both GARFO and SERO. However, in an effort to reduce possible duplication, ease the reporting burden on permit holders, and create a one-stop reporting platform, staffs from SERO, GARFO, and NOAA Fisheries' Highly Migratory Species Division (HMS) worked with the ACCSP staff to modify an existing reporting application (eTrips) to recognize these multi-region permit holders.

The eTrips application is able to determine which questions the permit holder should see and answer, based on the existing reporting requirements for SERO, GARFO and HMS. If the permit holder has a SERO permit, the eTrips form will include the required four socio-economic questions: fuel price per gallon, amount of fuel used, charter fee, and number of paying passengers. These questions *only apply* when a person has a SERO vessel permit. GARFO permit holders who do not have a SERO permit would not see these additional four socio-economic questions. In addition, eTrips also includes additional data element questions related to HMS (e.g., fight time, estimated weight, hook size, etc.) when any of six HMS species are landed (bluefin tuna, blue marlin, white marlin, roundscale spearfish, sailfish, and swordfish).

The For-Hire Reporting Program is a new data collection process for NOAA Fisheries SERO, and we know that modifications to the program may be needed to fine-tune the program in the future. However, the South Atlantic Council will need to review and recommend any changes to the structure of the program, including changes to the data elements. At their September 2021 meeting, the South Atlantic Council will receive an update on the For-Hire Reporting Program and plans to discuss the concerns you have outlined in your letters.

Sincerely,

STRELCHECK.ANDREW.JAMES.1365863152 Digitally signed by STRELCHECK.ANDREW.JAMES.1365863152 Date: 2021.07.29 13:30:12 -04'00'

Andrew J. Strelcheck
Acting Regional Administrator

From: Moira Kelly - NOAA Federal
To: Coutre, Karson
Cc: Gouveia, Dave; Barry Clifford; Greg Power; Moore, Christopher; Loftus, Andrew; Bland, Sarah; Katherine Pohl - NOAA Federal; Sakowski, Scott; Mitch Macdonald; Almeida, John
Subject: Re: eVTR at sea compliance issue
Date: Thursday, July 29, 2021 11:36:43 AM

Karson,

Thank you for bringing this to our attention. As you note, the intention of the Councils' framework was that all vessel trip reporting be done electronically, and the regulations were written with that in mind. As you recall, during the development of the action, the issue of what to do in circumstances where a device fails or falls overboard were discussed. The resolution was that vessel operators should make every effort to be in compliance with the regulations, and that in the case of an enforcement boarding, additional support may be used, and must be available for inspection, to provide whatever information that would form the basis of the eVTR.

As such, the regulations were intended to mean that vessel owners/operators will be obligated to have on board a device with approved eVTR software, in order to initiate each trip and to enter all information ascertainable into the eVTR prior to returning to port. The eVTR must be submitted within 48 hours of returning to port.

Staff, in particular our Port Agents and OLE Compliance Office, are available to assist any operator who has questions or concerns about their ability to comply with the new requirements. We also strongly encourage all operators to attend one of the upcoming informational webinars or get in touch with your local Port Agent for more support in transitioning to eVTRs.

Thanks,

Moira

On Fri, Jul 23, 2021 at 3:27 PM Coutre, Karson <KCoutre@mafmc.org> wrote:

> Hi Barry, Dave, Moira and Greg,
>
> The Council has been hearing increasingly from commercial fishing constituents who, for a variety of reasons, do not have the ability to comply with the upcoming eVTR requirement but who do have a strong desire to report their catches accurately and comply with the law. For example, one constituent cannot read or write at a functional level. At present, his wife fills out the necessary parts of the paper VTR before he leaves in the morning, he keeps track of the numbers of each species caught during the day, and his wife transcribes it all onto a final VTR before mailing it in. There are other legitimate scenarios that have also come to our attention. Some of these were raised prior to the for-hire eVTR action but at that time the option existed to have a paper VTR onboard during the fishing trip and transcribing it to electronic platform for submission within 48 hours. This option may have been removed with the publication of the final rule to go into effect in November.

The regulation for the upcoming rule begins:

§ 648.7 Recordkeeping and reporting

requirements.

(b) * * *

(1) Fishing Vessel Trip Reports. The owner or operator of any vessel issued a valid permit, or eligible to renew a limited access permit under this part must maintain on board the vessel, and submit, an accurate fishing log report for each fishing trip, regardless of species fished for or taken, by electronic means. This report must be entered into and submitted through a software application approved by NMFS.

*****

I believe the intent of this was to have the eVTR completed on-the-water on an electronic device but the sentence structure could be interpreted to mean that only the submission of the report needs to be electronic.

The Council strongly supports a system that provides for both electronic completion and submission of VTRs and the eventual complete elimination of any paper in the process. However, we recognize that accommodations need to be made for the unusual circumstances as described above and want to explore with you possibilities that make these accommodations without unduly incentivizing others from using on-the-water recording when they have the means for electronic.

Accordingly, we would like to request a legal interpretation of whether at-sea electronic recording of VTRs is required or if it is legally permissible for paper recording followed by electronic submission (within 48 hours).

If the interpretation of the rule stands that at-sea electronic recording is required, then we would like to suggest a rule modification that, in circumstances where at-sea electronic recording is not possible, a paper record will be acceptable for law enforcement purposes (but electronic submission via one of the software applications still be required within 48 hours) as long as a valid VTR number is filled in (see scenario below). If this is done, GARFO could still move away from printing paper VTR forms by making an electronic PDF version of the VTR form available that does not include a VTR number (since paper VTR numbers will be obsolete), allowing the generic form to be downloaded, printed, and copied as many times as needed.

Under this scenario, someone (e.g., the commercial operator who cannot take a device onboard, the spouse of the illiterate fisherman, etc.) would start an electronic VTR on an approved platform prior to leaving for the day. The VTR number would be generated by the software once basic information is entered (Vessel/Permit number, Time sailed, number of crew, and trip type) so someone could start it before leaving home or port and have that number to put on the paper record that they will use at sea as well as to provide to dealers at the end of the trip. Once back home, the catch information would be transferred to the eVTR that was started earlier in the day and then submitted to GARFO.

Let me reiterate that the Council still strongly supports electronic submission within 48 hours and the move toward an end-to-end electronic process, but we are cognizant that some constituents may need some assistance in certain situations.

With November 10 rapidly approaching, we need to act quickly on a resolution to assist these constituents in complying. If we need to get on a call to further address this, please let us know.

Thanks,

Karson Coutre

Fishery Management Specialist

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Moira Kelly
(she/her)

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: August 2, 2021

To: Chris Moore, Executive Director

From: Julia Beaty, staff

Subject: Rationale for adding black sea bass state allocations to the Council FMP

In December 2020, both the Council and the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board (Board) passed a motion to add the black sea bass commercial state allocations to the Council's Fishery Management Plan (FMP). These allocations were previously only included in the Commission's FMP.

The Council and Board passed the motion for the following reasons:

1. Most commercial landings of black sea bass come from federal waters.

During 2010-2019, on average, 64% of commercial black sea bass landings from Maine through North Carolina came from federal waters and 17% from state waters. The remaining 18% was categorized as "unknown" (source: NEFSC dealer "AA tables," which include landings from state and federal fisheries).

2. It brings the allocations in line with other aspects of the joint management program.

Most other aspects of the management program are jointly developed and approved by the Council and Commission. This joint process has been in place for close to 30 years and has served both organizations well. Including these allocations in the Council's FMP ensures that both the Council and Board will jointly decide on any future changes to the state allocations and importantly supports this joint process.

3. The Magnuson-Stevens and National Environmental Policy Act requirements ensure a thorough review and a transparent process.

If the allocations are in the Council's FMP, any changes to the allocations would be subject to rigorous requirements under the Magnuson-Stevens Fishery Conservation and Management Act and the National Environmental Policy Act. These requirements ensure a transparent process with thorough analysis of impacts and multiple opportunities for stakeholder input.

4. The overall changes in administrative burden are minor.

No new administrative processes are needed to add the black sea bass allocations to the Council's FMP as all mechanisms are already in place for summer flounder and bluefish. The state allocations for summer flounder and bluefish are included in both the Council and

Commission FMPs. Note that there are many similarities between the summer flounder, bluefish, and black sea bass fisheries.

If the black sea bass allocations are added to the Council's FMP, the National Marine Fisheries Service (NMFS) would manage the state quotas, including quota transfers among states, rather than the Commission. This could increase the administrative burden on NMFS for monitoring state level landings, notifying states when they are approaching their quotas, and managing transfers among states. However, this would decrease the administrative burden on the Commission, which would no longer be responsible for managing these tasks.

Any overall increase in administrative burden should be slight given that monitoring state level landings would not create an additional burden on NMFS as the agency already closely monitors landings in-season and has mechanisms in place for monitoring bluefish and summer flounder landings against state quotas. In addition, the implementation of eVTR reporting requirements in November 2021 will significantly reduce the administrative burden associated with tracking commercial landings by state by requiring electronic reports instead of paper.

MID-ATLANTIC | FISHERY MANAGEMENT COUNCIL

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 31, 2021

To: Dr. Chris Moore, Executive Director

From: J. Didden, Staff

Subject: Spiny Dogfish Ageing

During the first (July 30, 2021) meeting of the Spiny Dogfish Research Track Assessment Working Group, staff recorded the following notes regarding spiny dogfish ageing:

The workgroup identified recent spine ageing work (per recent research) as a critical need/gap that could be helpful to this current assessment if filled - but NEFSC staff does not have expertise (at a minimum west coast NMFS staff and/or WA State do). Uncertain if could be done in time for this assessment. Options include contracting out to those who do have expertise, or sending NEFSC staff to west coast for training, but not in current work plans for NEFSC staff…

Staff notes that this aligns with previous research recommendations from the Council's Scientific and Statistical Committee (also contained in the Council's Five Year Research Priorities):

Continue aging studies for Spiny Dogfish age structures (e.g., fins, spines) obtained from all sampling programs (include additional age validation and age structure exchanges), and conduct an aging workshop for Spiny Dogfish, encouraging participation by NEFSC, Canada DFO, other interested state agencies, academia, and other international investigators with an interest in dogfish aging (US and Canada Pacific Coast, ICES).

Given the spirit of research track assessments to advance assessment science, and the need to have previously-collected spines aged, staff suggests that the Council recommend that the Northeast Fisheries Science Center explore options to get its in-hand spines aged, through contracting, training, or both in time to be incorporated into this assessment. Otherwise it appears that an opportunity to make substantial advances within this research track assessment will be missed. An ageing workshop or similar collaboration should also be considered.