



## 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 27, 2023  
**To:** Council  
**From:** Jason Didden  
**Subject:** 2024-2025 Atlantic Mackerel Specifications

The Mackerel, Squid, and Butterfish Monitoring Committee met via webinar on July 27, 2023 to review Atlantic mackerel (mackerel) specifications and make recommendations based on the Scientific and Statistical Committee's (SSC) Acceptable Biological Catches (ABCs). The Monitoring Committee's longfin squid discussions are summarized in the longfin squid briefing materials tab.

Due to a change in overfishing status, the process requires additional peer review for the recent mackerel assessment. The SSC has also suggested additional analyses that may be presented for peer review (planned for September 2023). Therefore mackerel specifications will have to be approved on a preliminary basis and may need to be revisited in December 2023 after the SSC considers the peer review at an October 2023 SSC meeting.

Members of the Monitoring Committee on the call included Jason Didden, Carly Bari, Lisa Hendrickson, Kiersten Curti, and Daniel Hocking. Other attendees included Alissa Wilson, Brad Schondelmeier, Gerry O' Neill, James Boyle, Katie Almeida, Maria Fenton, Meghan Lapp, Melissa Smith, Renee Zobel, "dj," and "Todd."

The SSC recommended ABCs of 2,726 metric tons (MT) for 2024 and 3,900 MT for 2025. For this fishery, first Canadian catches are deducted to determine the U.S. ABC/Annual Catch Limit (ACL). The Canadian fishery was generally closed for the 2022-2023 fishing years, and the Canadian assessment recorded 74 MT of landings in 2022. Given recent Canadian management decisions, the Monitoring Committee recommends deducting 74 MT for 2024/2025 specifications for a U.S. ABC/ACL of 2,652MT/3,826 MT.

Next, recreational catches and commercial discards are deducted to determine landings available for the U.S. commercial quota. No management uncertainty buffer is currently used, but no ACL overages have occurred in this fishery. The Monitoring Committee recommended deducting the status-quo for recreational catch, 2,143 MT. This amount was set in the last mackerel rebuilding action to account for likely recreational catch with a 20-fish trip limit, first implemented in 2023. Without 2023 catch information, and reviewing recent and historic variability in recreational catch estimates, the Monitoring Committee could not find justification to change the recreational set-aside. Changes to recreational measures (i.e. the 20-fish limit) are complicated by the majority of catch occurring in state waters, and would best be addressed through a separate

action if the Council wanted to consider such changes. The status-quo 115 MT commercial discards set-aside seems reasonable to maintain given recent and historic discard estimates, which in the last ten years have usually been below 100 MT but have been as high as 199 MT. Setting aside any less for recreational catch or commercial discards would add the risk of more substantial ACL overages (and paybacks) in the future.

Given the SSC's ABCs, and setting aside 74 MT for Canada, 2,143 MT for recreational catch, and 115 MT for commercial discards, the remainder for commercial landings is 394 MT for 2024 and 1,568 MT for 2025.

Monitoring Committee members are still analyzing possible incidental trip limit options for limited access and open access mackerel participants that should restrain landings to these low levels. Results will be posted to the briefing book website as soon as possible.

Additional supporting materials in this tab include a memo regarding potential emergency action in 2023, the staff ABC memo to the SSC, the Advisory Panel Fishery Performance Report, the staff Fishery Information Document, and two letters from Fisheries & Oceans Canada. The summary of the SSC meeting relating to mackerel is in the Committee Reports tab.



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## MEMORANDUM

**Date:** July 27, 2023  
**To:** Chris Moore  
**From:** Jason Didden  
**Subject:** 2023 Atlantic Mackerel Emergency Action

Staff recommends that the Council request NMFS take emergency action to limit directed fishing for mackerel in 2023 as soon as possible. In addition, the Council should recommend a 20,000-pound trip limit for limited access permits to reduce directed fishing but still allow for some incidental catches for herring fishery participants (who mostly also have limited access mackerel permits).

Open access mackerel permits currently have a 20,000 pound trip limit that reduces to 5,000 pounds per trip when the directed fishery closes. The recommendation would also include lowering the trip limit for open access permits to 5,000 pounds.

Projections indicate that landing the full 2023 quota will likely lead to overfishing in 2023. Limiting additional directed fishing will help to mitigate this situation.

For additional details regarding Atlantic mackerel stock status, please refer to the July 2023 Scientific and Statistical Committee meeting summary in the Committee Reports tab.



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# MEMORANDUM

**Date:** July 18, 2023  
**To:** Chris Moore, Executive Director  
**From:** Jason Didden, staff  
**Subject:** Lower Atlantic Mackerel ABCs recommended for 2024-2025

## Summary

1. Stock biomass has not increased as predicted.
2. Staff recommends an ABC of 3,314 metric tons (MT) for 2024 and 2025 to rebuild the stock and avoid excessive regulatory discards.

## Current Measures and Review of Prior SSC Recommendations

The primary measures used in the mackerel fishery to control catch include set-asides for Canadian catch, recreational catch, and discards, as well as tiered limited access and weekly quota monitoring that is coupled to closure triggers and post-closure trip limits.

The 2023 Acceptable Biological Catch (ABC) of 8,094 metric tons (MT) was based on the mackerel rebuilding plan and a *fishery mortality rate* (F) of 0.12, which was predicted (based on the 2021 assessment) to have a 61% probability of rebuilding the mackerel stock by 2032. The rebuilding projections assume that future recruitment stays low near recent (now 2009-2022) median recruitment when spawning stock biomass (SSB) is low and then the projections assume that as SSB increases, future recruitment increases to near (but somewhat below) 1975-2022 median recruitment (which is what the stock's rebuilding goal is based on). Since the Canadians did not open their mackerel fishery in 2023, total 2023 catch now appears unlikely to exceed 5,953 MT (the potential Canadian catch stays set-aside).

## Recent Catch and Landings

In 2022, U.S. commercial landings declined to the 2<sup>nd</sup> lowest amount since 1996 after being relatively stable since 2012. Recreational catch declined by 29% from 2021 to 2022 after being relatively stable from 2018-2021.

## Stock Status and Biological Reference Points

Based on the 2023 management track stock assessment, the stock is still overfished – declining back to an all-time low in 2021 and increasing somewhat in 2022. Due to relatively low U.S. removals in 2022 and the near-total closure of the Canadian commercial fishery in 2022, overfishing (updated to  $F_{msy-proxy} = 0.21$ ) appears to have ended for the first time in 35 years ( $F_{2022} = 0.18$ ). However, the target biomass and maximum sustainable yield proxy catch continue to decline. The change in overfishing may require additional peer review of the draft assessment.

## **Staff Recommendation**

Considering the information below, an ABC of 3,314 MT is recommended by staff for both 2024 and 2025 because this ABC should A) facilitate continued rebuilding by 2032 with the Council's 61% probability target (remaining consistent with the overall rebuilding plan), B) avoid a scenario where regulatory discarding becomes excessive, C) account for potential recreational catches, and D) allow some continuous collection of fishery-dependent data for future assessments. An ABC of 3,314 MT would be substantially lower than the standard re-calculated rebuilding projections from the direct assessment model outputs. Supporting information:

1. The Council's previous action was designed to have a 61% chance of rebuilding the Atlantic mackerel stock by 2032.
2. The last two assessments (2021, 2023) indicate the assessment model has been over-predicting both the terminal year biomass estimates and stock rebuilding rate.
3. The relatively high 2022 recruitment estimate is projected to cause a rapid increase in biomass that is inconsistent with experiences from recent assessments.
4. Staff requested a sensitivity analysis to examine the impact on projected rebuilding if once again the strong terminal year (2022) recruitment (Age 1 fish) does not result in the expected biomass gains. The analysis indicated that if the 2022 recruitment results in 65% less Age 2 fish than expected in 2023, a substantially lower F of 0.07 would be required to rebuild the stock by 2032 (with 61% confidence). Age 2 fish were reduced by 65% because recent median recruitment is 65% lower than the 2022 estimated recruitment, and modeling limitations would not allow just scaling down the 2022 recruitment estimate. The analysis illustrates the sensitivity of the standard projections to strong terminal year recruitments and assumed survival into older fish. An F of 0.07 would result in 2024-2025 ABCs of 2,726 MT and 3,900 MT (see spreadsheet on July 2023 SSC meeting page reporting results of staff-requested sensitivity analysis).
5. A mackerel moratorium or very low trip limits will create regulatory discards while further limiting the data for the next assessment in 2025.
6. 2022 recreational catch could be a low statistical outlier, and the previous recreational catch set-aside of 2,143 MT still seems reasonable. We do not yet have data on the impacts of the 20-fish possession limit implemented for 2023.
7. The U.S. assessment is generally consistent with the Canadian assessment. Given recent Canadian policy choices, it seems likely that Canadian commercial catches will stay low for the near future.
8. Staff conferred with NMFS quota monitoring staff, and based on 2021-2023 data, if limited access vessels were limited to 20,000 pounds per trip and open access vessels were limited to 5,000 pounds per trip, commercial U.S. mackerel landings (largely incidental) in 2024 and 2025 would not be expected to exceed 1,000 MT.
9. Combining expected Canadian catch, recreational catch, discards, and U.S. commercial incidental landings would result in a catch of approximately 3,314 MT in 2024.
10. Pending consultation with the Monitoring Committee, staff will likely recommend that the Council request NMFS take emergency action to close directed mackerel fishing for the remainder of 2023 given that the anticipated F from the SSB sensitivity analysis would lead to overfishing if the full quota is caught (predicted  $F_{2023}=0.23$ ).



## **Atlantic Mackerel Fishery Performance Report July 2023**

The Mid-Atlantic Fishery Management Council's (Council) Mackerel-Squid-Butterfish (MSB) Advisory Panel (AP) met via webinar to review the Longfin Squid and Atlantic Mackerel Fishery Information Documents and develop Fishery Performance Reports. Separate reports were created for each species/fishery. 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. AP member comments are not consensus or majority statements – the summary below may represent the perspective of one or multiple AP members. Some staff follow-up information has been added and noted where applicable.

**Advisory Panel members present:** Dan Farnham Jr, Eleanor Bochenek, Emerson Hasbrouck, Greg DiDomenico, Jeff Kaelin, Katie Almeida, Meghan Lapp, Pam Lyons Gromen, Peter Kaizer, and Robert Ruhle

Others present: Jason Didden, Peter Hughes, Mark Holliday, Alissa Wilson, BB, Brad Schondelmeier, Carly Bari, Hannah Hart, Jessica Blaylock, Maria Fenton, and Mark Binsted.

Trigger questions posed to the AP to generate discussion:

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?

### **Market/Economic Conditions**

Mackerel demand has been strong for years – markets have not been a limiting factor. Persistent inability to supply product consistently will eventually lead to market problems for the U.S. industry.

### **Environmental Conditions**

Nothing particularly unusual was reported; there are few reports of fish from more southern areas.

## Management Issues

The New England Fishery Management Council's (NEFMC) inshore mid-water trawl buffer zone affected landings when in operation – the buffer zone started February 2021 and ended (court order) March 29, 2022. It was noted that the NEFMC is revisiting buffer zones.

The lack of herring RSA quota has limited mackerel landings later in the year in recent years – but trawl boats are allowed to catch herring in the third trimester in area 1A which does allow trawled herring/mackerel catch.

Horsepower restrictions, and resulting speed limitations, may be affecting the size of the fish that the commercial fishery can catch (larger fish are faster); also possible research topic.

An 89 MT river herring and shad (RH/S) cap would have substantially impacted mackerel landings in 2023 at the observed RH/S interaction rates early in the year. An 89 MT RH/S cap would also have degraded the estimation protocols in terms of getting enough observer trips to use representative in-season data. (Staff note: the fishery looked likely to close earlier this year due to the RH/S cap before additional observer data reduced the RH/S cap ratio and cap estimates.)

A lower RH/S cap may have incentivized a change in 2023 behavior, making it hard to predict what might have happened in 2023 at a lower RH/S cap in terms of potential closures.

The criticism of the mackerel fishery has made the creation of a fishery performance report moot – in the current situation we can't catch the quota we have, and therefore can't provide fishery-dependent information which will increase assessment uncertainty.

## Other Issues

Recreational catch and its precision and impact on biomass remain a concern. There was discussion regarding the 29% drop (totals of 10.7 million fish to 7.6 million fish) in mackerel catch from 2021 to 2022 after relative stability from 2018-2021. Follow-up examination of MRIP estimates indicates that while catches declined across private/rental boat modes in Maine, Massachusetts, and New Hampshire (this group accounts for most mackerel catch each year), about 2/3 of the total decline occurred in the Massachusetts private/rental boat mode group. The numbers of angler trips for this estimate stayed about the same, so angler effort does not appear to have been the cause of the decline in catch. For the Massachusetts' private/rental boat mode estimates, observed harvests (MRIP type As) were similar in 2021 and 2022 with most of the decline represented by lower rates (catch per angler trip) for *reported but not observed harvests* (MRIP B1s) and *reported discards* (MRIP B2s). There was also discussion whether state permitting may shift some reported catch from the recreational sector to the commercial sector, but that should only potentially affect 2023 and future catches.

The potential use of size limits and US-Canada alignment remains a concern. The bulk of use of the available mackerel quota should be dedicated to more selective gear (e.g. purse seining).

With Industry-Funded Monitoring in the Herring Fishery suspended, we also get less mackerel observer coverage to support RH/S cap monitoring. The program was suspended due to the inability of the Agency to pay for its portion of the program. The current observer case at the Supreme Court may impact the ability of the Agency to require industry-funded observer coverage outside of the North Pacific (which is also revenue capped), foreign fishing, and/or

limited access privilege programs (aka ITQs). It's regrettable that the voluntary bycatch avoidance program is no longer in operation – the program was important re: RH/S avoidance. It's worth exploring potentially using Standardized Bycatch Reporting Methodology (SBRM) modifications to direct more observer coverage to fleets relevant for RH/S.

**Research Priorities**

Research priorities were reviewed, but no related input was provided.

**Additional Public Input:**

No additional input was provided.





## Atlantic Mackerel Fishery Information Document

July 2023

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 2022. 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. A revised rebuilding plan was implemented in 2023, based on catches that had a predicted 61% probability of rebuilding the stock by 2032.
- The 2023 rebuilding Acceptable Biological Catch (ABC) is 8,094 metric tons (MT); the predicted 2024 rebuilding ABC was 9,274 MT.
- The results of the 2023 mackerel management track assessment are not yet available. NMFS Northeast Fisheries Science Center staff will use those results to project catches that have a 61% probability of rebuilding by 2032
- The 2023 Canadian assessment showed a continued decline in spawning stock size estimates from 2020 to 2021/2022. Canadian Spawning stock size estimates are at an all-time low.
- The mackerel fishery was not constrained by its river herring and shad (RH/S) cap in 2021 or 2022.

### 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 historically 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 appears to catch 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 a 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 based on data through 2016. A 2021 management track assessment (MTA) indicated rebuilding from 2014 to 2018 but the stock was at only 24% of the biomass rebuilding target in 2019 (and still overfishing). However, the productivity of the stock appears to have declined - in the 2021 MTA, the estimated proxy for Maximum Sustainable Yield declined by 17% to 34,103 metric tons (MT) compared to the previous assessment.

Historical assessments (which used different methods and data) appear to have been substantially over-optimistic about the stock's productivity: the 1997 mackerel allowable biological **catch** was specified about **ten times higher than** what we now think the **total SSB** was in that year.

A 2023 MTA that uses data through 2022 is pending and will be posted to the relevant meeting pages as soon as possible. A 2023 Canadian assessment<sup>1</sup> showed the Northern Mackerel Contingent continued a decline from 2020 to 2021/2022 (to all-time lows). The Canadian and U.S. assessments share much of the same data but the U.S. assessment combines the Canadian egg data with egg data collected by a U.S. Ecosystem Monitoring survey conducted in late May and June.

## 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), but there is no formal sharing agreement. If Canada keeps its fishery closed, as occurred in 2022 and 2023, the fish set aside for expected Canadian catch remain set aside.

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>.

After the initial rebuilding plan appeared infeasible due to slow stock growth, a revised rebuilding plan was implemented for 2023 to achieve a 61% probability of rebuilding the stock by 2032. The 2023 ABC is 8,094 MT. From the ABC, 2,197 MT was deducted for potential Canadian landings,

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<sup>1</sup> <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41111126.pdf>

2,143 MT was deducted for expected recreational catch, and 115 MT was deducted for expected commercial discards, resulting in a commercial quota of 3,639 MT. The initial series of rebuilding catches is provided in Table 1 with the 2024+ catches conditional on the expected increase in biomass.

Table 1. Revised rebuilding plan catch and initial biomass trajectory.

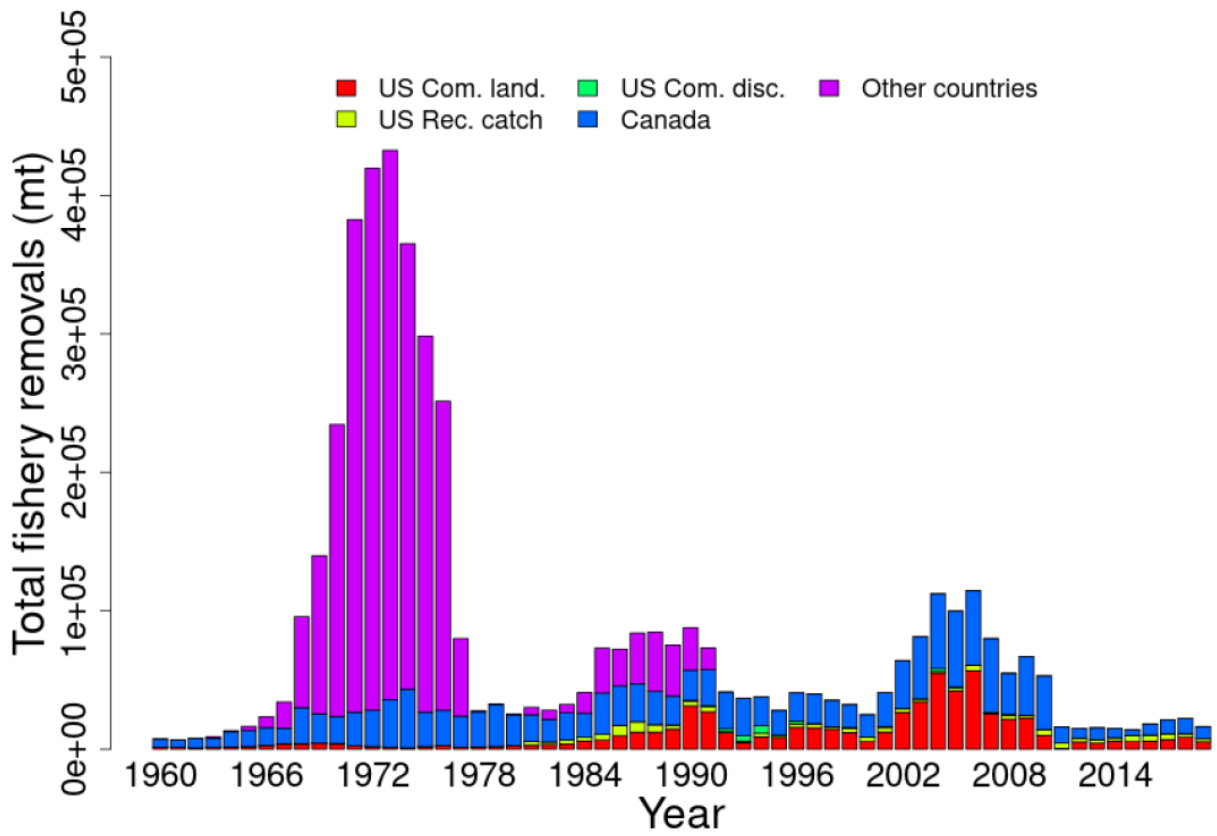
	Catch (MT)	Biomass (MT)
2023	8,094	80,745
2024	9,274	91,738
2025	10,540	103,756
2026	11,906	116,857
2027	13,408	131,291
2028	15,004	146,553
2029	16,631	162,239
2030	18,261	177,731
2031	19,814	192,045
2032	21,215	204,796

### *Fisheries*

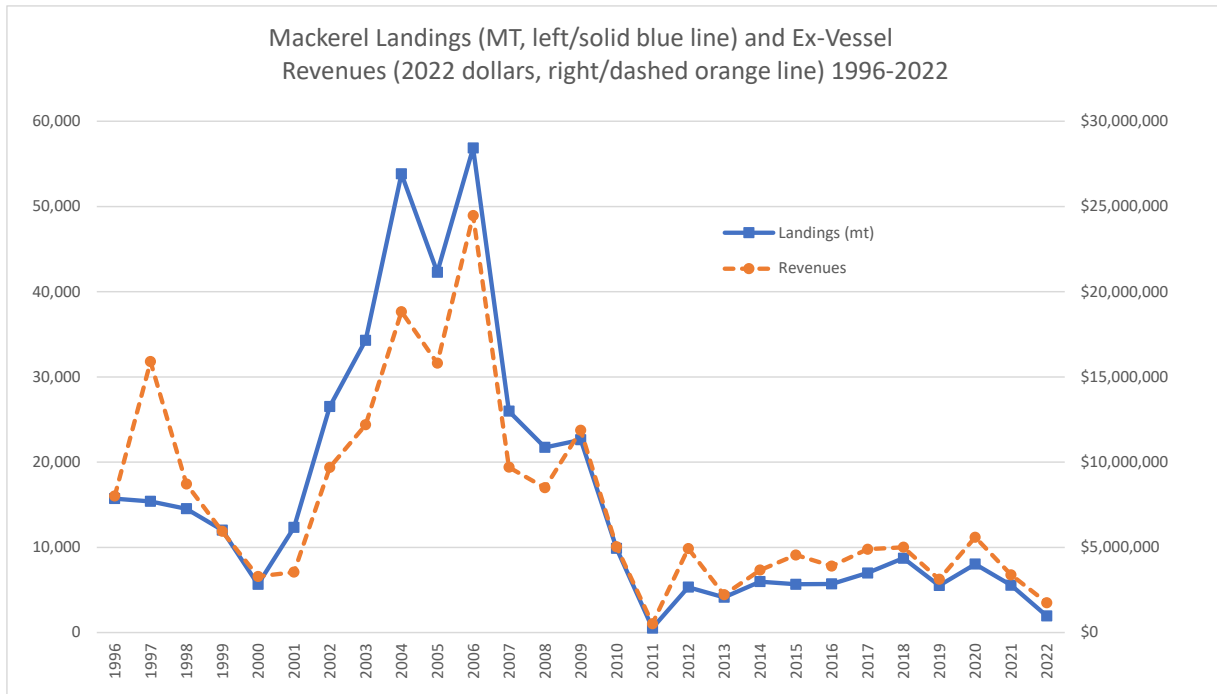
Figure 1 describes mackerel catches (all known sources) 1960-2019 and highlights the scale of the early foreign fishery in the late 1960s and 1970s. Figures 2-3 describe domestic landings, ex-vessel revenues, and prices (inflation adjusted) since 1996. Domestic landings dropped dramatically from 2006-2011 and have been relatively low since. Prices have shown an increasing trend since 2001 and the price jump in 2022 may have been associated with the complete Canadian fishery closure in 2022. Figure 4 describes preliminary weekly landings throughout the year for 2023 and 2022. Early season landings were higher in 2023 compared to 2022.

Table 2 describes 2022 commercial mackerel landings by state and Table 3 describes 2022 commercial mackerel landings by gear type. Table 4 describes 2021 and 2022 commercial mackerel landings by NMFS statistical area. While variable, the landings patterns are generally consistent with recent operation of the fishery.

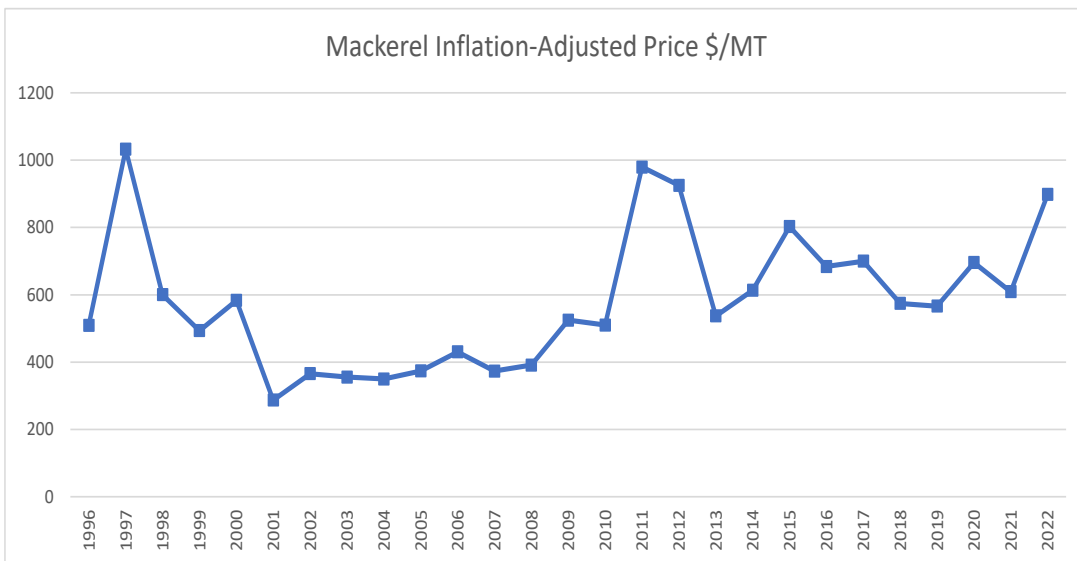
Figure 5 describes 2018-2022 Atlantic mackerel recreational annual total catches (numbers of fish, VA-ME, all modes combined, all areas combined) and indicates stable catches from 2018-2021 with a decline in 2022. Most recreational catch is retained, most occurs in the private/rental mode, and most catch occurs in state waters (predominantly Massachusetts, New Hampshire, and Maine). Data after 2018 are not affected by calibrations that were applied to earlier data due to methods changes to the Marine Recreational Information Program (MRIP).



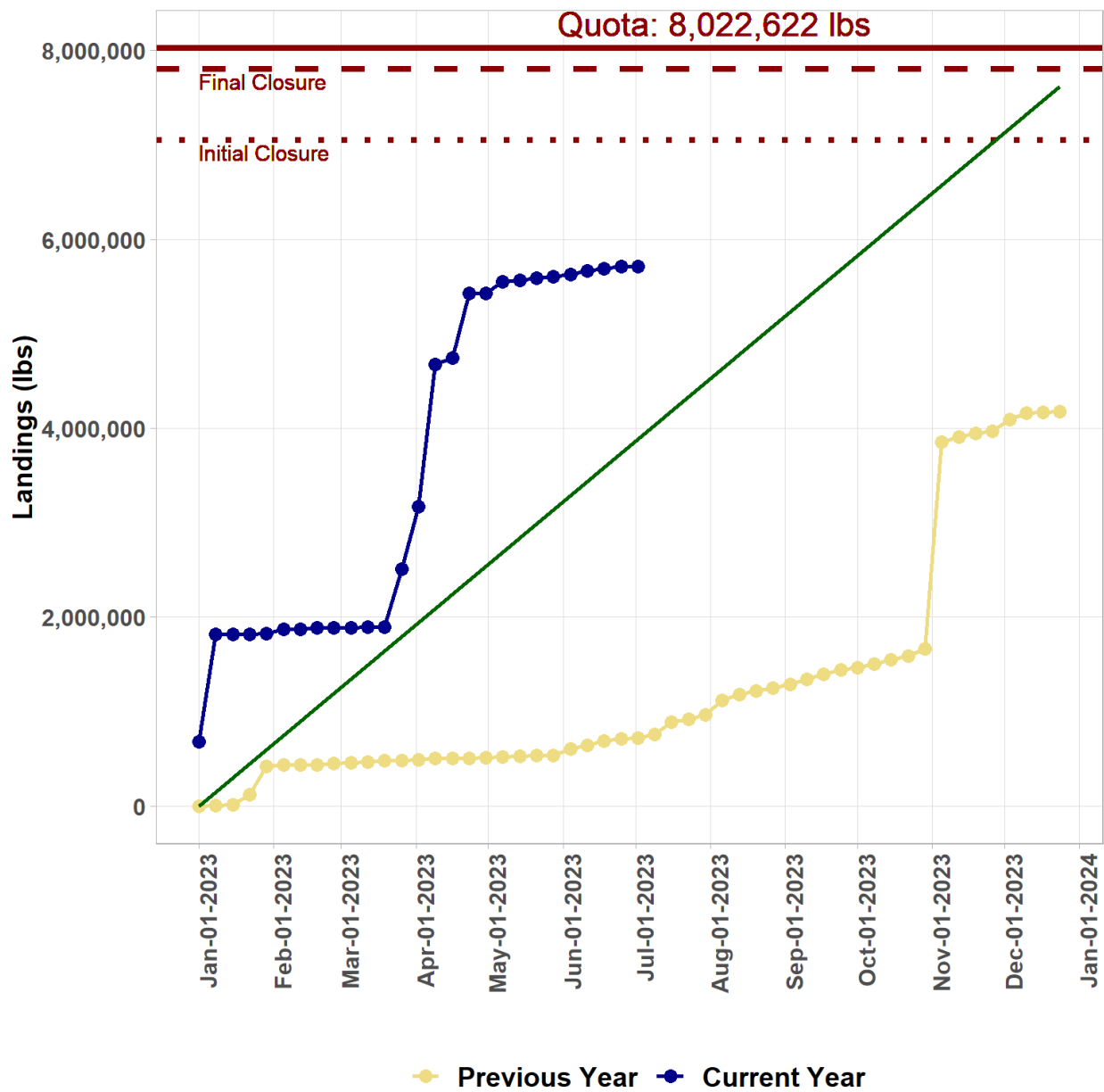
**Figure 1.** Total catch of northwest Atlantic mackerel between 1960 and 2019 by all known sources. U.S. recreational catch represents recreational landings plus discards, Canada represents Canadian landings (discards are not available), and other countries represents landings by all other countries.



**Figure 2.** U.S. Mackerel Landings and Mackerel Ex-Vessel Values 1996-2022. Source: NMFS unpublished dealer data. [PRELIMINARY]



**Figure 3.** Ex-Vessel Mackerel Prices 1996-2022, Inflation-Adjusted to 2022 Dollars Source: NMFS unpublished dealer data. [PRELIMINARY]



**Figure 4.** U.S. Preliminary Mackerel landings; 2023 in blue, 2022 in yellow-orange. As of July 6, 2023. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>.

**Table 2.** Commercial Mackerel landings (live weight) by state in 2022. Source: NMFS unpublished dealer data.

State	Metric_Tons
MA	1,530
ME	302
RI	88
NY	11
Other	17
Total	1,948

**Table 3.** Commercial Mackerel landings (live weight) by gear in 2022. Source: NMFS unpublished dealer data.

GEAR	MT
TRAWL,OTTER,MIDWATER	1,155
HAND LINE, OTHER	249
LONGLINE, BOTTOM	247
UNKNOWN	165
TRAWL,OTTER,BOTTOM,FISH	90
Other	42
Total	1,948

**Table 4.** Commercial mackerel landings by statistical area in 2021 and 2022. Source: NMFS unpublished VTR data.

2021		2022	
Stat Area	Metric Tons	Stat Area	Metric Tons
522	2,023	514	1,412
521	1,854	522	147
612	992	521	47
514	450	537	35
Other/CI	332	539	25
Total	5,652	611	22
		616	12
		Other/CI	27
		Total	1,725

Note: VTR expected to be lower than dealer database due to state landings.

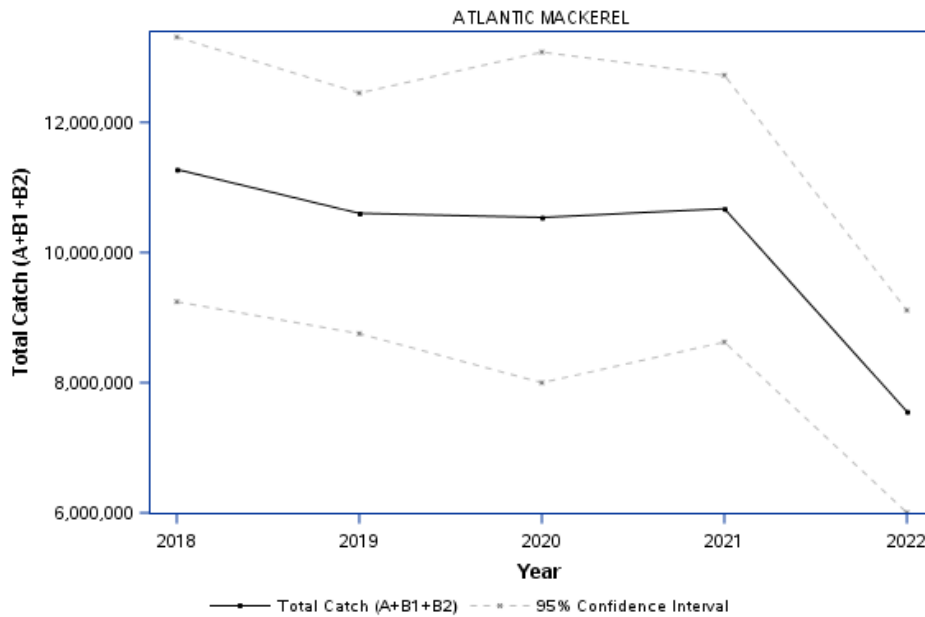


Figure 5. 2018-2022 Atlantic mackerel recreational total catches (numbers of fish), annual, VA-ME, all modes combined, all areas combined Source: NMFS MRIP query <https://www.fisheries.noaa.gov/data-tools/recreational-fisheries-statistics-queries>.

(Data after 2018 not affected by calibrations that must be applied to earlier data due to methods changes.)



*Non-Target Catches and Discards*

Environmental Assessments for mackerel specifications developed by staff include tables of incidental catches using a directed fishery definition of at least 50% of retained catch being mackerel. Since the Standardized Bycatch Reporting Methodology focuses on discards of managed stocks rather than discards in managed fisheries, staff analyses of discards vary fishery by fishery depending on data availability and historical practices. Staff updated previous analyses using 2019-2022 data – 2020 data was severely impacted by Covid-19 but most observed mackerel trips would generally occur early in the year before 2020’s disruptions. There were only 14 total observed mackerel trips (as defined) during this time period.

Using discard ratio data from these observed hauls and 2019-2022 average mackerel landings (5,267 MT), Table 5 below approximates annual catch/discards in the directed mackerel fishery from 2019-2022, for species with extrapolated catch of at least 10,000 pounds. The method used for the estimates in the table is a custom staff analysis, and is best considered as a relative indicator of species that may be affected by the fishery rather than precise amounts (especially given the low number of observed trips in this fishery). On the trips identified in this analysis, the 2019-2022 overall discard rate was 0.4 % (similar to previous analyses).

Preliminary weekly 2023/2022 river herring and shad (RH/S) cap performance is described in Figure 6 (next page).

The observer program creates individual records for some species of interest, mostly larger pelagics and/or less common sharks/rays, as well as tagged fish. However, on these trips only three unknown sharks and one bluefin tuna were noted.

Table 5. Mackerel Target/Non-Target Catches

NE Fisheries Science Center Common Name	Pounds Observed Caught	Pounds Observed Discarded	Of all discards observed, percent that comes from given species	Percent of given species that was discarded	Pounds of given species caught per mt mackerel Kept	Pounds of given species discarded per mt mackerel Kept	Rough Annual Catch (pounds) based on 4-year (2019-2022) average of mackerel landings (5,267 mt)	Rough Annual Discards (pounds) based on 4-year (2019-2022) average of mackerel landings (5,267 mt)
MACKEREL, ATLANTIC	2,238,955	321	2%	0%	2,205	0	11,613,397	1,663
HERRING, ATLANTIC	930,524	1,022	7%	0%	916	1	4,826,604	5,302
BUTTERFISH	20,760	3	0%	0%	20	0	107,680	16
MENHADEN, ATLANTIC	15,492	2	0%	0%	15	0	80,354	8
DOGFISH, SPINY	14,132	9,316	66%	66%	14	9	73,301	48,321
HERRING, BLUEBACK	14,098	892	6%	6%	14	1	73,124	4,628
HAKE, SILVER (WHITING)	7,601	21	0%	0%	7	0	39,427	110
ALEWIFE	6,094	50	0%	1%	6	0	31,608	258
FISH, NK	2,441	2,281	16%	93%	2	2	12,661	11,831

Report Run on: 2023-07-07  
 Quota Year: 2023 (January 1, 2023 to December 31, 2023)

Catch Cap	Quota (mt)	Cumulative Catch (mt)	Percent Quota Caught
Atlantic Mackerel River Herring/Shad	129	105.9	82%

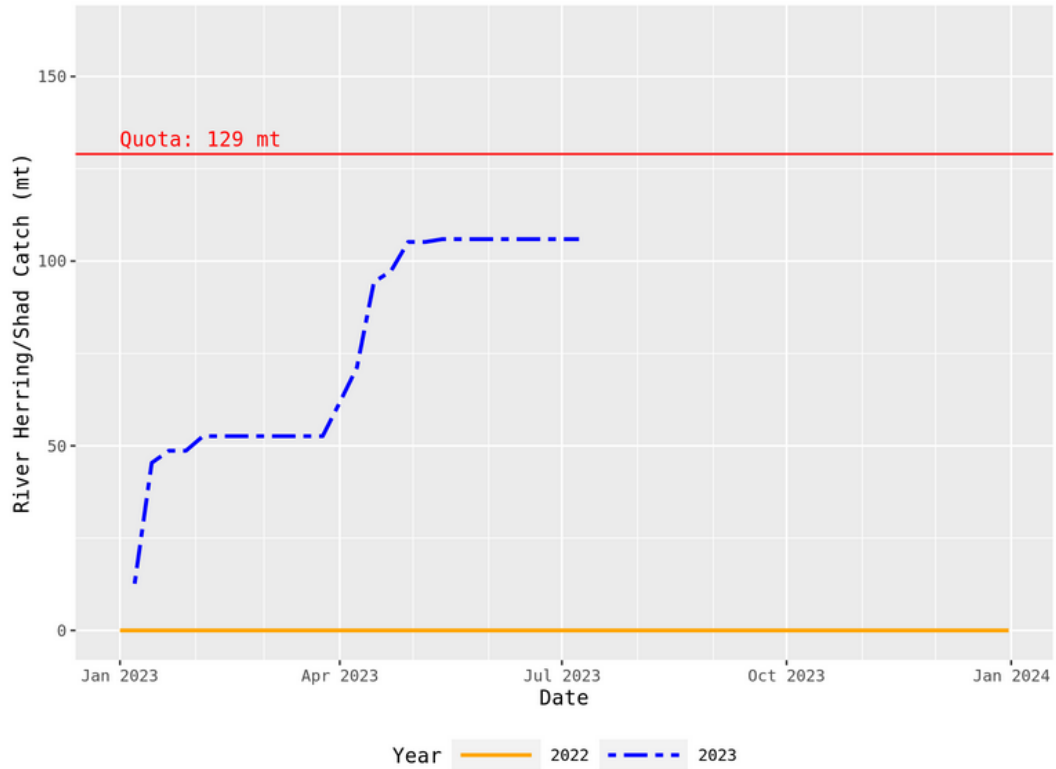


Figure 6. Preliminary Weekly RH/S Cap Monitoring; 2023 in blue, 2022 in yellow-orange. As of July 7, 2023. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>.

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Email: [cmoore@mafmc.org](mailto:cmoore@mafmc.org)

Dear Dr. Moore,

Canada and the United States (U.S.) have a longstanding and productive relationship in collaborative fisheries science and management, as exemplified by the number of bilateral mechanisms we have in place as well as a healthy ongoing dialogue on fisheries issues of mutual concern. Canada values and appreciates the ongoing scientific collaboration between Canadian and U.S. scientists and scientific processes; this work affects a number of important transboundary fish stocks, including Atlantic mackerel. We believe it is important to make use of every opportunity to contribute to each others' understanding of this stock and the fishing pressures upon it so we all have a strong foundation for science-based decision-making.

As the United States is conducting a stock assessment of Atlantic mackerel, Canada wishes to share the results of the Atlantic mackerel stock assessment completed by Fisheries and Oceans Canada (DFO) earlier in 2023, especially as these findings pertain to its transboundary nature. The full report can be found here: [https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2023/2023\\_015-eng.html](https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2023/2023_015-eng.html)

DFO applies the Precautionary Approach Framework when making decisions regarding harvest levels in Canadian fisheries. Stock status can be defined based on zones (healthy, cautious, critical), which are delineated by reference points; the Limit Reference Point (LRP) is the boundary between the critical and cautious zones, and an Upper Stock Reference Point (USR) is the boundary between the cautious and healthy zones. The LRP represents the stock status below which serious harm is occurring to the stock and there may also be resultant impacts to the ecosystem, associated species and a long-term loss of fishing opportunities.

The Canadian stock assessment for Atlantic mackerel is on a two-year assessment schedule and assesses the northern contingent of the Northwest Atlantic (NWA) mackerel stock. This differs from the U.S. assessment, which assesses the combined NWA stock with both southern and northern contingents.

The latest Canadian stock assessment took place in February 2023 (with data up to 2022) and found that the northern contingent of Atlantic mackerel has been in or near the critical zone, below the stock's LRP, since 2011. This is akin to the stock being in an overfished state. The spawning stock biomass has continued to decline since the last stock assessment in 2021 and was estimated to be at its lowest-observed values of 40 per cent of the LRP in 2021 and 42 per cent of the LRP in 2022.



The age structure of the northern contingent continues to see a loss of older, more fecund individuals from the population compared to the pre-2000 period. The age structure collapsed during a time of high fishing mortality. The last notable recruitment event occurred in 2015 but fish belonging to this cohort only represented a minor proportion (3 per cent or less) of the stock's abundance in 2021 and 2022. This stock typically had fish aged 1-10+, and the erosion of the age structure of the population has increased over time. There were very few fish over age 5 in 2021 and 2022 (3 per cent or less). The age structure of the population in 2021 and 2022 was not dominated by a particular cohort.

The 2023 assessment included an initial investigation of predation pressure on mackerel by various predators in Canadian and U.S. waters, which suggests an overall increase in predation-induced mackerel mortality over the last few decades, with high interannual variability. As additional data on predation of mackerel by various predators becomes available, values used for estimating biomass of mackerel that they consume will be refined.

As part of new Canadian legal requirements to rebuild stocks that are in the critical zone, the 2023 stock assessment estimated the minimum time required for the stock to rebuild in the absence of all fishing. Rebuilding the northern contingent stock to above the LRP with a 75 per cent likelihood in the absence of all fishing ( $F=0$ ; no Canadian spawned fish removed from the water) was estimated to be 6 to 7 years. However, an alternative minimum time to rebuild the stock that accounts for removals beyond control will be used, with an estimate of 7-9 years.

Both contingents mix in winter in deeper warmer waters, on the edge of the continental shelf from Sable Island, Nova Scotia to the waters off Cape Lookout, North Carolina. During this time, they are subject to the U.S. fishing fleet. There is small but significant genetic differentiation between the northern and southern contingents. The level of mixing during winter remains highly uncertain, but is likely large and variable between years. In the latest Canadian assessment, the assumption was that the proportion of northern contingent fish within U.S. landings ranged from 20-80 per cent, in accordance with the most recent knowledge on stock mixing.

With the results of Canada's 2023 stock assessment, DFO has announced the continued closure of the commercial and bait Atlantic mackerel fisheries for the 2023 season to support the rebuilding of this stock. We continue to value the open exchange of information that we have enjoyed with U.S. officials on small pelagic stocks for the purposes of science and management, including Canadian scientists' participation in the U.S. stock assessment, and we look forward to further strengthening collaboration on this species. Canada is optimistic that the Atlantic mackerel stock can rebuild, and we urge the United States to continue the positive steps it has already taken in its rebuilding efforts for this important transboundary stock.

Kind regards,

Mark Waddell  
Director General, Fisheries Policy  
Fisheries and Oceans Canada



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Dear Dr. Moore,

I write to you today to reiterate the urgency and importance of the United States (U.S.) and Canada taking coordinated action on rebuilding Atlantic mackerel stocks. Our two countries have a longstanding and productive relationship in collaborative fisheries management, as exemplified by the number of bilateral mechanisms we have in place, as well as the healthy ongoing dialogue on fishery issues of mutual concern. In that spirit, Fisheries and Oceans Canada (DFO) would like to offer some comments on Atlantic mackerel for consideration in the deliberations of the Mid-Atlantic Fishery Management Council (MAFMC).

As you know, the Honourable Joyce Murray, then-Minister of Fisheries, Oceans, and the Canadian Coast Guard, announced a closure of Canada's Atlantic mackerel commercial and bait fisheries on March 30, 2022, in order to allow the stock to rebuild. On June 28, 2023, this closure was extended for the rest of the 2023 fishing season. Atlantic mackerel recreational and Indigenous food, social and ceremonial fisheries will continue as they make up a small percentage of overall removals, and will be monitored to ensure that our goal of rebuilding this stock is not undermined.

We were encouraged to see that the U.S. significantly reduced its allowable commercial catch in 2022 due to conservation concerns. We also commend your adoption in February 2023 of the new 10-year Atlantic Mackerel Rebuilding Plan, as well as new specifications for 2023. DFO is currently revising the Canadian rebuilding plan for Atlantic mackerel. The plan is expected to be finalized by March 31, 2024.

We have been following the progress of the 2023 U.S. Management Track Assessment Report as we know that current and future management actions under the U.S. Atlantic Mackerel Rebuilding Plan hinge on the result of this update. DFO scientists have participated in this assessment process, and DFO also provided the results of Canada's 2023 Atlantic mackerel stock assessment (northern contingent only) for consideration by the Scientific and Statistical Committee (SSC). As stated in that letter, the Canadian assessment found that the northern contingent has been in or near the critical zone, below the stock's limit reference point (LRP), since 2011. This is akin to the stock being in an overfished state. The spawning stock biomass has continued to decline since the last Canadian stock assessment in 2021 and was estimated to be at its lowest-observed values of 40 per cent of the LRP in 2021 and 42 per cent of the LRP in 2022.



Based on the U.S. Management Track Assessment Report, although the stock is overfished, overfishing is not occurring for the first time in 35 years. The assessment also suggests that this change (overfishing not occurring) is likely owing to Canadian closures and low U.S. removals. However, the results of the sensitivity analysis of the impact of recruitment assumptions on expected biomass gains, requested by MAFMC staff, suggests that current fishing mortality may result in overfishing if the full U.S. 2023 quota is caught.

Considering that the 2023 Management Track Assessment Report and Canada's 2023 Stock Assessment Report are generally consistent with one another, it is important that our two countries adopt complementary approaches to managing and rebuilding the Atlantic mackerel stock.

The MAFMC staff recommendations, published by your organization on July 18, 2023, have increased our confidence that the sacrifices made by Canadian harvesters to rebuild the stock will not be undermined by U.S. catches. That memo suggests that foregone Canadian catch will stay set-aside and that your organization will recommend a lower Acceptable Biological Catch (ABC) and a potential emergency action to close the directed mackerel fishery to avoid the risk of another overfishing event. We were also encouraged by the preliminary recommendation from SSC on July 26 to use a lower fishing mortality level ( $F_{\text{rebuild}}$ ) to calculate the ABC for 2024 and 2025.

Atlantic mackerel plays a critical role in this marine ecosystem. We need Atlantic mackerel – and other pelagic forage stocks – to be healthy to protect our shared ecosystems and support the fisheries of the future. Commercial fishing by both Canadian and U.S. fish harvesters has a significant influence on the status of the Atlantic mackerel stock. If we want to give the stock a fair chance to recover, it is essential that we both minimize this fishing pressure in order to protect spawning fish, which are at the lowest level ever observed.

As we are presently organized, the unilateral decisions of either of our governments have the potential to impact the livelihoods of the other country's fish harvesters. Canada and the U.S. must take action without delay to develop more rigorous cooperation mechanisms and shared management approaches on this stock. With this in mind, we are encouraged that discussions are taking place at every opportunity between our Minister and Dr. Richard Spinrad, the Under Secretary of Commerce for Oceans and Atmosphere & National Oceanic and Atmospheric Administration (NOAA) Administrator, on aligning our approaches. DFO officials value the exchanges that we have enjoyed with U.S. officials on the science and management of small pelagic stocks, and we look forward to closer collaboration with you on this important species.

I urge you to not use the continued closure of Canada's commercial and bait fisheries for Atlantic mackerel, and the resulting reduction in Canadian removals, as an opportunity to maintain a U.S. commercial quota. Such an action would undermine the conservation and rebuilding efforts that both our countries are undertaking and detract from the collaborative bilateral relationship that we currently enjoy on numerous.



I also strongly encourage MAFMC to consider complementary measures to those already taken by Canada in the development of your advice for the management of the U.S. Atlantic mackerel fishery. To this end, we support the MAFMC staff's recommendations to lower the ABC, institute trip limits that encourage a bycatch-only fishery, and to take emergency action to close the 2023 U.S. mackerel fishery to avoid the risk of overfishing. We believe these steps are necessary to rebuild the stock and will ensure the long-term sustainability for both Canadian and U.S. fisheries.

We look forward to ongoing collaboration with the U.S. to support a sustainable fishery for future generations of fish harvesters.

Kind regards,

Mark Waddell  
Director General, Fisheries Policy  
Fisheries and Oceans Canada