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, 2022

To: Council and Board

From: Hannah Hart, Staff

Subject: 2023 Scup Specifications

On Tuesday, August 9, the Council and Board will review previously adopted 2023 scup specifications and recommend revisions as needed. Measures to be considered include 2023 commercial and recreational catch and landings limits, as well as any changes to the commercial management measures needed for 2023. As described in the staff memo, previously approved 2023 commercial and recreational catch and landings limits will require revisions based on recent modifications to the commercial/recreational allocation percentages.

Materials listed below are provided for the Council and Board's consideration of this agenda item. Please note that some materials will be posted as supplemental, as noted below, some materials are behind other tabs, and some will be available on the August 2022 Meeting page at a later date.

1) Monitoring Committee meeting summary from July 28, 2022 (*behind Tab 3*)

2) July 2022 Scientific and Statistical Committee meeting report (*behind Tab 15*)

3) Staff memo on 2023 scup specifications dated July 14, 2022

4) June 2022 Advisory Panel Fishery Performance Report and additional AP email comments received through July 8, 2021 (*behind Tab 3*)

5) 2022 Scup Data Update

6) 2022 Scup Fishery Information Document

The following document is also posted on the August 2022 Meeting page as a supplemental briefing document:

1) Scup Management Track Assessment for 2021

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 14, 2022

TO: Chris Moore, Executive Director

FROM: Hannah Hart, Staff

SUBJECT: Scup Specifications for 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 reviewing the previously adopted 2023 catch and landings limits for scup, as well as scup commercial management measures for 2023, and recommending revisions as needed. Additional information on fishery performance and past management measures can be found in the 2022 Scup Fishery Information Document and the 2022 Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report developed by advisors.[1]

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.

In July 2021, the SSC recommended ABCs for 2022-2023 based on a management track stock assessment for scup using data through 2019.[2] The 2021 stock assessment update indicated that the scup stock was not overfished and overfishing was not occurring in 2019.

In August 2021, the Council and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) approved catch and landings limits for 2022-2023. The final 2022 specifications and projected 2023 specifications were published in the Federal Register on December 23, 2021 (86 FR 72859).

The SSC should review the previously adopted 2023 ABC to consider if changes are needed. Staff recommend no changes to the 2023 ABC of 29.67 million pounds (13,460 mt) as there is no new information to suggest a change is needed. Following the SSC's consideration of the 2023 ABCs, the Monitoring Committee should review previously adopted 2023 sector specific catch and

[1] Available at: https://www.mafmc.org/fishery-performance-reports
[2] Available at https://apps-nefsc.fisheries.noaa.gov/saw/sasi/uploads/2021_scup_MTA_report.pdf

landings limits including the commercial and recreational Annual Catch Limits (ACLs) and Annual Catch Targets (ACTs), commercial quotas, and recreational harvest limits (RHLs; Table 1). These values will require revisions based on modifications to the commercial/recreational allocation percentages approved by the Council and Board in December 2021. The Monitoring Committee could also consider whether any revisions are needed to the commercial management measures (minimum size limit, minimum mesh size, possession limits, etc.) through the annual specification process for 2023. Recreational measures for 2023 will be considered later in 2022.

As shown in table 1, staff recommend maintaining the previously adopted 2023 ABC but modifying the 2023 catch and landing limits to reflect the revised commercial/recreational allocation for scup adopted in December 2021. Staff recommend no changes to the commercial measures for the scup fishery, including the minimum size limit, mesh size requirements and associated incidental possession limits, or pot/trap gear requirements in 2023.

Table 1. Previously adopted 2022-2023 scup catch and landings limits as well as 2023 staff recommended changes. The final 2023 values may differ based on the recommendations of the SSC, Monitoring Committee, Council, and Board.

Mgmt. measure	2022 (*Previously adopted*)		2023 (*Previously adopted*)		Basis	2023 (*Staff recommendation*)		Basis
	mil lbs.	mt	mil lbs.	mt		mil lbs.	mt	
OFL	32.56	14,770	30.09	13,648	Assessment projections	30.09	13,648	Same basis as previously approved.
ABC	32.11	14,566	29.67	13,460	Assessment projections & risk policy	29.67	13,460	Same basis as previously approved.
ABC discards	5.65	2,564	6.39	2,900	Assessment projections	6.39	2,900	Same basis as previously approved.
Com. ACL	25.05	11,361	23.15	10,499	78% of ABC (per FMP)	19.29	8,749	65% of ABC (*new commercial allocation*)
Com. ACT	25.05	11,361	23.15	10,499	Set equal to com. ACL; no deduction for management uncertainty	19.29	8,749	Same basis as previously approved.
Projected com. discards	4.67	2,117	5.28	2,394	82.6% of ABC discards (avg. % of dead discards from commercial fishery, 2017-2019)	5.28	2,394	Same basis as previously approved.
Com. quota	20.38	9,245	17.87	8,105	Commercial ACT minus projected commercial discards	14.01	6,355	Same basis as previously approved.
Rec. ACL	7.06	3,205	6.53	2,961	22% of ABC (per FMP)	10.39	4,711	35% of ABC (*new recreational allocation*)
Rec. ACT	7.06	3,205	6.53	2,961	Set equal to recreational ACL; no deduction for management uncertainty	10.39	4,711	Same basis as previously approved.
Projected rec. discards	0.99	447	1.12	506	17.4% of the ABC discards (avg. % of dead discards from rec. fishery, 2017-2019)	1.12	506	Same basis as previously approved.
RHL	6.08	2,757	5.41	2,455	Recreational ACT minus projected recreational discards	9.27	4,205	Same basis as previously approved.

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,[3] and incorporated fishery catch and fishery-independent survey data through 2019.

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 2).

Table 2: Scup biological reference points from the 2021 management track stock assessment.

	Spawning stock biomass	Fishing mortality rate (F)
Terminal year estimate (2019)	388 mil lbs. (176,404 mt)	0.136
Target	198.46 mil lbs. (90,019 mt)	N/A
Threshold	99.230 mil lbs. (45,010 mt)	0.200
Status	**Not overfished**	**Not overfishing**

According to the 2021 assessment, the scup stock from Cape Hatteras, North Carolina extending north to the US-Canada border was not overfished and overfishing was not occurring in 2019.[4] Spawning stock biomass (SSB) was estimated to be about 388 million pounds (176,404 mt) in 2019, about 2 times the SSB_{MSY} proxy reference point of 198.46 million pounds (90,019 mt, Figure 1), meaning that the stock was not overfished in 2019. There was a notable increasing trend in SSB since the early 2000s; however, in recent years SSB has declined from a peak in 2013 (Figure 1).

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).

A data update provided by the NEFSC in July 2022 indicates that the NEFSC spring survey index of scup stock biomass increased by 34% from 2019 to 2022; the fall index increased by 132% from 2019 to 2021. The NEFSC fall survey indices suggest that a very large year class recruited to the stock in 2015 with below average recruitment since.[5]

The Northeast Regional Coordinating Council (NRCC)'s stock assessment process now has scup 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.

---

[3] 60th Northeast Stock Assessment Workshop (2015) assessment report and peer review summaries are available at: https://www.nefsc.noaa.gov/saw/reports.html

[4] Available at: https://repository.library.noaa.gov/view/noaa/39406

[5] Scup Data Update for 2022 provided by the Northeast Fisheries Science Center. Available at https://www.mafmc.org/ssc-meetings/2022/july-25-26

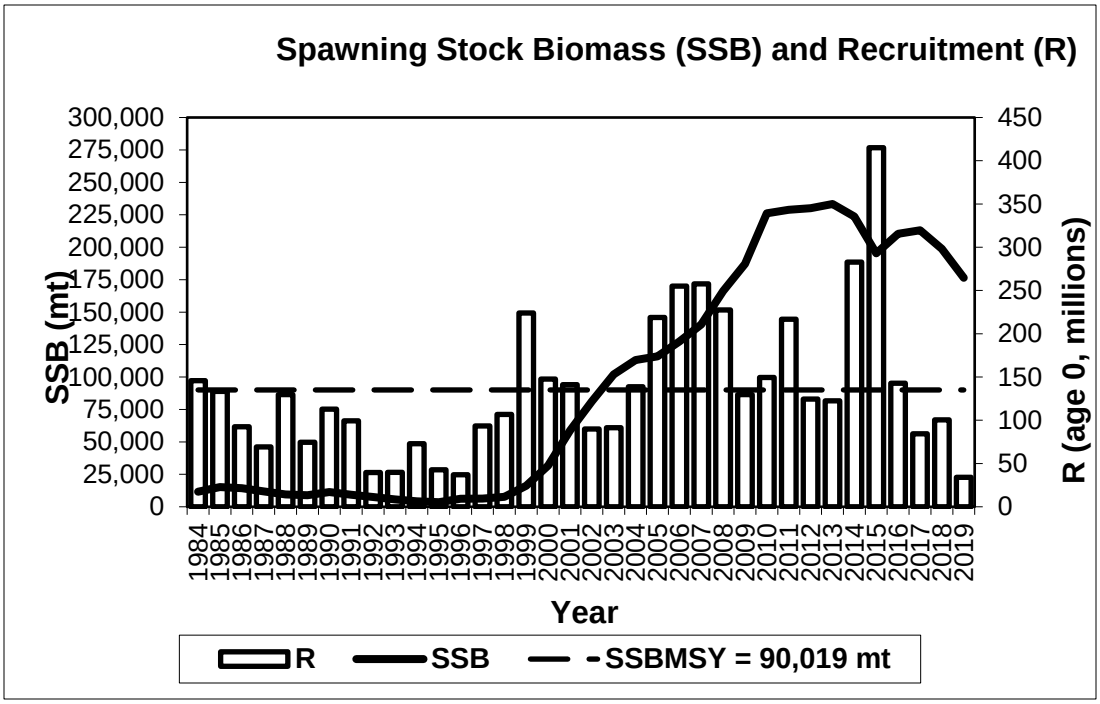


Figure 1: Scup spawning stock biomass and recruitment, 1984-2019. The horizontal dashed line is the biomass target from the 2021 management track stock assessment.

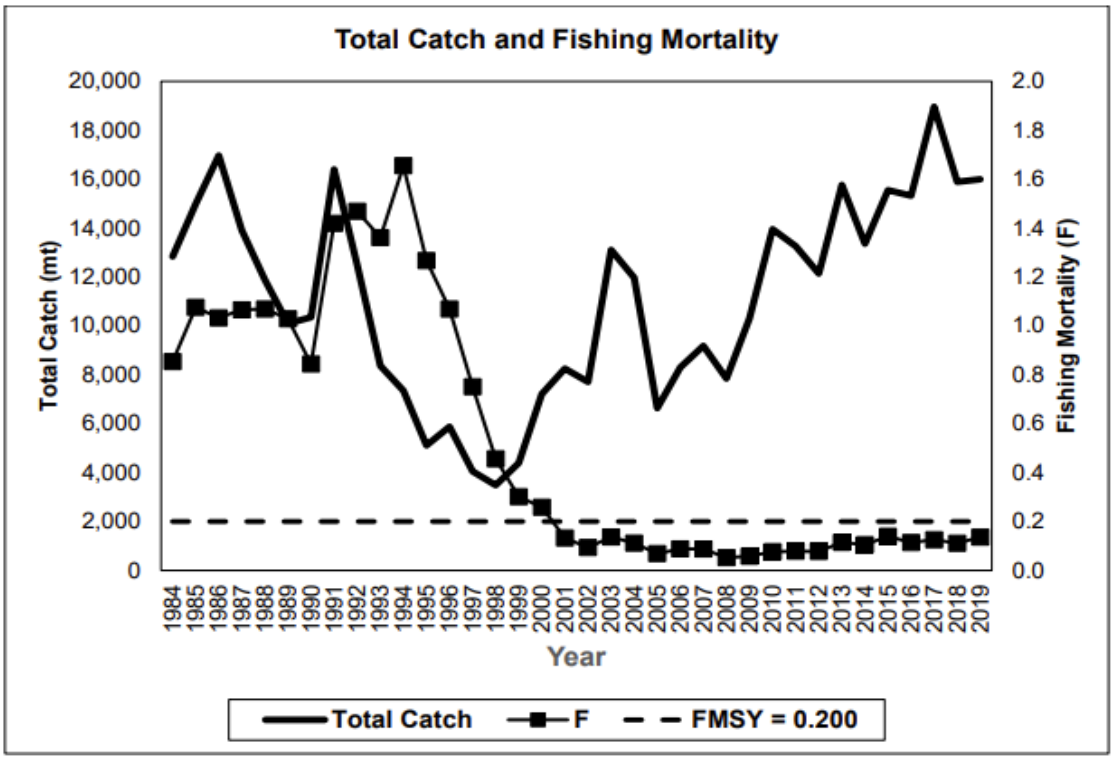


Figure 2: Total fishery catch and fishing mortality rate (F) for fully selected age 4 scup, 1984-2019. The horizontal dashed line is the fishing mortality reference point from the 2021 management track stock assessment. Overfishing is occurring when the fishing mortality rate exceeds this threshold.

Recent Catch and Fishery Performance

In 2021, the commercial fishery landed 12.93 million pounds (5,865 mt) of scup, about 63% of the 2021 commercial quota of 20.5 million pounds (9,299 mt, Table 3). Commercial dead discard estimates are not currently available for 2021 due to delays in observer data processing for 2021. As such, it is not currently possible to evaluate 2021 commercial catch against the commercial ACL.

According to MRIP estimates, recreational landings in 2021 were 16.62 million pounds (7,539 mt), 274% of the 2021 RHL of 6.07 million pounds (2,752 mt, Table 4). This is the second largest estimate of recreational harvest in the time series going back to 1981, with the highest estimate at 17.21 million pounds in 2007. Recreational dead discard estimates in weight are not available for 2021.

The commercial scup fishery has consistently underharvested their quota since 2012 (Table 3). Based on preliminary 2022 dealer data, about 33% of the total commercial scup quota had been landed thus far. Preliminary 2022 dealer data by quota period thus far shows a similar trend to 2021 commercial harvest.

In 2018, MRIP released revisions to the entire time series of recreational harvest and discard estimates. The scup recreational catch and landings limits did not account for these revisions until 2020; therefore, recreational fishery performance compared to the catch and landings limits must be evaluated using the older MRIP data through 2019 and the revised MRIP estimates starting in 2020. A performance evaluation for 2012-2021 using old or new MRIP data, depending on the year, is provided in (Table 4). Recreational performance has been variable relative to the RHLs given the difficulty in 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. Recreational harvest has been greater than the RHL in two of the last five years (2020-2021). Recreational catch has generally been below the recreational ACL since 2012 (calculated in old MRIP units through 2019) with the exception of a 1% overage in 2017 (Table 4).

Table 3: Scup commercial landings, dead discards, and dead catch compared to the commercial quota, projected commercial dead discards, and commercial ACL, 2012-2021. ACLs for scup were first used starting in 2012. All values are in millions of pounds.

Year	Com. landings[a]	Com. quota[b]	Quota overage/ underage	Com. dead discards[a]	Projected com. dead discards[c]	Projected dead discards overage/underage	Com. dead catch[a]	ACL	ACL overage/ underage
2012	14.88	27.91	-47%	2.21	3.98	80%	17.09	31.89	-46%
2013	17.87	23.53	-24%	2.98	6.66	124%	20.84	30.19	-31%
2014	15.96	21.95	-27%	2.16	6.12	183%	18.12	28.07	-35%
2015	17.03	21.23	-20%	3.79	5.11	35%	20.82	26.35	-21%
2016	15.76	20.47	-23%	6.12	3.79	-38%	21.88	24.26	-10%
2017	15.45	18.38	-16%	10.43	3.77	-64%	25.88	22.15	17%
2018	13.37	23.98	-44%	7.26	4.43	-39%	20.63	30.53	-32%
2019	13.78	23.98	-43%	6.13	4.43	-28%	19.91	28.42	-30%
2020	13.58	22.23	-39%	*Not available*	5.80	*TBD*	*TBD*	27.90	-51%
2021	12.93	20.50	-37%	*Not available*	6.65	*TBD*	*TBD*	27.15	-52%

[a] Based on NEFSC data as provided in 2021 management track assessment (data through 2019) and 2022 data update (2020 and 2021 values).
[b] The commercial quotas shown for 2012-2014 reflect a 3% deduction for Research Set Aside.
[c] Based on specifications calculations used to set the commercial ACL and quota.

Table 4: Scup recreational landings, dead discards, and dead catch compared to the RHL, projected recreational dead discards, and recreational ACL, 2012-2021. ACLs for scup were first used starting in 2012. Values are provided in the "old" and "new" MRIP units where available as the ACLs and RHLs did not account for the revised MRIP data until 2020. Therefore, overage/underage evaluations must be based in the old MRIP units through 2019 and the new MRIP units starting in 2020. All values are in millions of pounds.

Year	Rec. landings old MRIP units[a]	Rec. landings new MRIP units[b]	RHL[c]	RHL overage/ underage[d]	Rec. dead disc. old MRIP units[a]	Rec. dead disc. new MRIP units[b]	Projected rec. dead disc.[e]	Projected dead disc. overage/ underage[d]	Rec. dead catch old MRIP units[a]	Rec. dead catch new MRIP units[b]	ACL	ACL overage/ underage[d]
2012	4.17	8.27	8.45	-51%	0.51	1.40	0.54	-6%	4.68	9.67	8.99	-48%
2013	5.37	12.64	7.55	-29%	0.49	1.25	0.97	-49%	5.87	13.89	8.52	-31%
2014	4.43	10.27	7.03	-37%	0.50	1.06	0.89	-43%	4.93	11.33	7.92	-38%
2015	4.41	12.17	6.80	-35%	0.50	1.28	0.63	-21%	4.91	13.45	7.43	-34%
2016	4.26	10.00	6.09	-30%	0.78	1.90	0.75	4%	5.04	11.90	6.84	-26%
2017	5.42	13.53	5.50	-1%	0.90	2.38	0.75	20%	6.32	15.91	6.25	1%
2018	5.61	12.98	7.37	-24%	0.60	1.42	0.65	-8%	6.21	14.40	8.61	-28%
2019	5.41	14.12	7.37	-27%	1.23	1.23	0.65	91%	6.64	15.35	8.01	-17%
2020	*N/A*	12.91	6.51	98%	*N/A*	*Not available*	1.36	*TBD*	*N/A*	*TBD*	7.87	*TBD*
2021	*N/A*	16.62	6.07	174%	*N/A*	*Not available*	1.59	*TBD*	*N/A*	*TBD*	7.66	*TBD*

[a] Based on the data update provided by the NEFSC in 2018 (most recent data from NEFSC in "old" MRIP units). Values for 2018 and 2019 were provided by GARFO.

[b] Based on NEFSC data as provided in 2021 management track assessment (data through 2019) and 2022 data update (2020 and 2021 values).

[c] The RHLs shown for 2012-2014 reflect a 3% deduction for Research Set Aside.

[d] Based on a comparison with old MRIP data through 2018, 2019 based on comparison with values provided by the NEFSC to GARFO, and new MRIP data starting in 2020.

[e] Based on specifications calculations used to set the commercial ACL and RHL.

Review of Prior SSC Recommendations

In July 2021, the SSC recommended 2022 and 2023 ABCs for scup based on new stock status information and projections from the 2021 management track stock assessment.

The SSC recommended that a 60% coefficient of variation (CV) be applied to the overfishing limit (OFL) estimate to derive the ABC for scup. This decision came from the high data quality, 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 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.

Table 5 shows the SSC's previously recommended 2022-2023 OFLs, ABCs, and P* values. 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} = 0.200, 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 49% in each year. Due to the Council's risk policy adopted in 2019, only ABCs associated with the traditional (variable) approach could be offered for 2022 and 2023.

Table 5: Previously recommended 2022 and 2023 OFLs, ABCs, and P* (Source: personal communication, Mark Terceiro, Northeast Fisheries Science Center).

Year	OFL total catch		ABC total catch		ABC P*
	mil lbs.	mt	mil lbs.	mt	
2022	32.56	14,770	32.11	14,566	0.49
2023	30.09	13,648	29.67	13,460	0.49

The SSC considered the following to be the most significant sources of scientific uncertainty with determination of the OFL and/or 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.

Staff Recommendation for 2023 ABC

Staff recommend maintaining the previously adopted 2023 ABC for scup of 29.67 million pounds (13,460 mt). The 2022 data update indicates little evidence to suggest that stock condition has changed substantially from what was indicated in the 2021 management track assessment.

Recent Management Actions

The following sections briefly summarize recent management actions that should be considered during the discussion of sector-specific catch and landings limits for 2023.

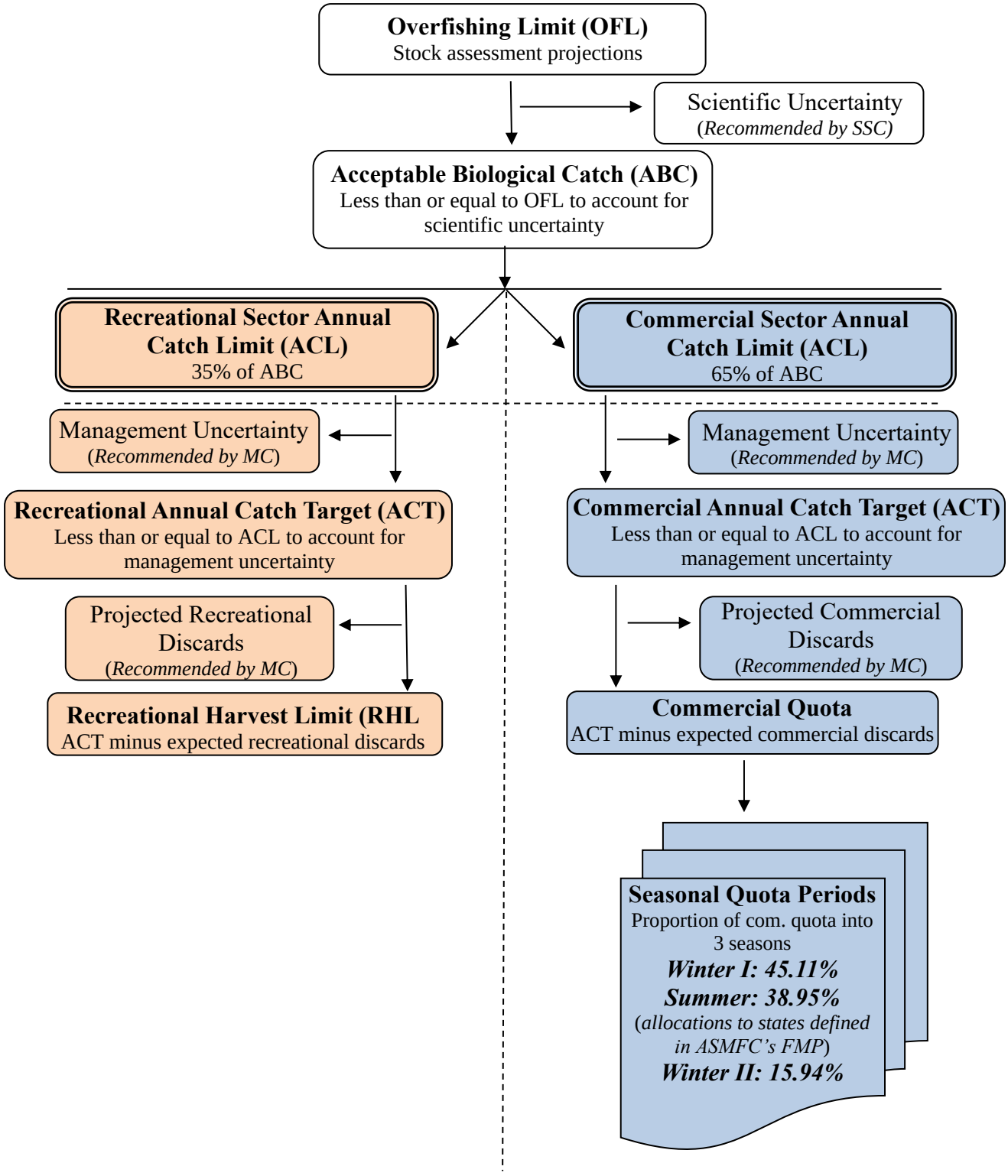
Commercial/Recreational Allocation Revisions

In December 2021, the Council and Board took final action on an amendment to revise the allocation of catch or landings between the commercial and recreational sectors for summer flounder, scup, and black sea bass.[6] For scup, the previous (through 2022) catch-based allocation specified that 78% of the ABC is allocated to the commercial fishery as a commercial ACL and 22% is allocated to the recreational fishery as a recreational ACL (Figure 3). Beginning in 2023, the revised catch-based allocations specifies that 65% of the ABC be allocated to the commercial fishery and 35% to the recreational fishery. Figure 3 illustrates how specification will be set under the revised catch-based allocation. Given previous scup allocations were already catch-based, the only change to the flowchart below is the percentage of the ABC allocated to the commercial/recreational sectors used to derive the sector-specific ACLs (figure 3).

The revised allocations are pending review by NMFS and if approved, are expected to be effective January 1, 2023. Therefore, the Monitoring Committee should recommend 2023 commercial and recreational ACLs, and other specifications that derive from the ACLs, based on the revised allocations.

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

Figure 3: Flowchart for scup catch and landings limits based on pending revisions to the commercial/recreational allocations. Compared to previous years (process through 2022), updates to the flowchart include the percentage of the ABC allocated to the commercial/recreational sectors.



Recreational Harvest Control Rule Framework/Addenda

In June 2022, the Council and the Commission's Interstate Fishery Management Program Policy Board took final action on the Recreational Harvest Control Rule Framework/Addenda, with the goal of using a new approach, called the Percent Change Approach, to set recreational measures for summer flounder, scup, and black sea bass starting in 2023. Under the Percent Change Approach, recreational measures will not be tied as closely to an RHL (or, by extension, an ACL) as previously required. Instead, the target harvest level will vary based on a comparison of a confidence interval around expected harvest under status quo measures to the upcoming two-year average RHL, as well as biomass compared to the biomass target. This approach will allow for RHL overages in some cases (and therefore, by extension, likely ACL overages) and underages in other cases.[7]

It is not possible to predict the target level of harvest for 2023 recreational measures because the 2023 RHL has not been set and calculations of expected harvest under status quo measures will not be finalized until later in 2022.

The Monitoring Committee should consider the implications of this approach when making recommendations for 2023 recreational specifications, including considerations related to management uncertainty and projected dead discards

Sector-Specific Catch and Landings Limits

Commercial and Recreational Annual Catch Limits

Under the revised allocations described above, the commercial and recreational ACLs will be calculated by applying the revised 65% commercial/35% recreational allocation to the 2023 ABC. If no changes are made to the previously adopted 2023 ABC of 29.67 million pounds, this would result in a 2023 commercial ACL of 19.29 million pounds (8,749 mt) and a recreational ACL of 10.39 million pounds (4,711 mt; Table 1).

Annual Catch Targets

The Monitoring Committee recommends ACTs for the Council and Board's consideration. ACTs may be set less than or equal to sector-specific ACLs to account for management uncertainty. 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 should consider all relevant sources of management uncertainty in the scup fishery when recommending ACTs.

Recreational harvest is estimated through a statistical survey design (the Marine Recreational Information Program), while commercial harvest is more census based due to mandatory vessel and dealer reporting requirements. Given these differences, the commercial fishery can be closed in-season when landings approach the quota but there is no in-season closure authority for the recreational fishery due to the timing

[7] For more details on the Percent Change Approach, see https://www.mafmc.org/newsfeed/2022/mafmc-amp-asmfc-take-first-step-toward-recreational-management-reform-for-bluefish-sumer-flounder-scup-and-black-sea-bass

of recreational data availability. For these reasons, recreational landings can be more difficult to constrain and predict than commercial landings.

The commercial quota monitoring system has largely been successful in preventing quota overages for scup, and as shown in 3, commercial landings have not exceeded the quota since 2012.

From 2012-2018, recreational landings were consistently below the RHL but from 2019-2021 recreational landings were consistently above the RHL. In 2020 and 2021, the Council and Board agreed to leave the recreational bag, size, and season limits unchanged in despite expected RHL overages. This was a short-term approach to prevent major negative impacts to the recreational sector while changes to management were considered through the Commercial/Recreational Allocation Amendment and the Recreational Harvest Control Rule Framework/Addenda. The temporary status quo approach could not be maintained in 2022; therefore, the Council and Board approved a 33% reduction in recreational harvest compared to the 2018-2021 average in all states and federal waters with the goal of preventing an overage of the 2022 RHL. The impacts of these restrictions on harvest in 2022 cannot be evaluated with currently available data.

As previously described, the impact of the Percent Change Approach on recreational scup measures in 2023 is not yet known; therefore, the likelihood of this approach resulting in ACL overages in 2023 cannot be accurately assessed at this time.

Consistent with the previously adopted 2023 measures, staff recommend the commercial and recreational ACTs remain equal to their respective ACLs for 2023, such that no reduction in catch is taken for management uncertainty (Table 1).

Projected Dead Discards, 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). The methodology to calculate projected dead discards is not prescribed in the FMP and can be modified on an annual basis. The methodology can also vary by sector.

Staff recommend that 2023 projected recreational and commercial dead discards be calculated using the same method as prior years. In prior years, scup dead discards by sector were calculated based on a 3-year moving average of the proportion of dead discards from each sector, applied to the total projected dead discards provided by the NEFSC for the upcoming fishing year(s). The NEFSC projected total discards assume total dead catch will be equal to the ABC and also account for the recent age structure of the population and selectivity of the fisheries. The NEFSC projections can account for higher or lower than average year classes when estimating discards in future years. For example, high discards in 2017 were likely driven by the peak in recruitment seen in 2015 as shown in figure 1. This year class would not be expected to contribute to high discards in 2023 given fisheries selectivity and the likely greatly diminished size of the year class.

For the previously adopted 2022-2023 specifications, projected dead discards by sector were developed using 2017-2019 data from the management track assessment (2020 dead discards were not available). On average over these years, 82.6% of dead discards were attributable to the commercial fishery and 17.4% to the recreational fishery. These percentages applied to the total expected discards resulted in the limits shown in Table 1.

Given dead discard estimates are not available for 2020 or 2021, the most recent 3-year time frame to calculate the proportion of discards by sector remains 2017-2019. Applying these same proportions to the 2023 projected total dead discards of 6.39 million pounds (2,900 mt), results in projected commercial dead discards of 5.28 million pounds (2,394 mt) and recreational dead discards of 1.12 million pounds (506 mt). These are the same projected discards applied to the previously adopted 2023 specifications (Table 1).

These discard projections result in a staff-recommended commercial quota of 14.01 million pounds (6,355 mt) and an RHL of 9.27 million pounds (4,205 mt; Table 1).

Commercial Management Measures

The commercial measures that can be modified during specifications are discussed below, including the commercial Winter I and Winter II quota period possession limits, minimum size limit, minimum mesh sizes, and commercial pot and trap regulations. Given there is no new information to suggest changes to commercial management measure are needed, staff recommend no changes to commercial measures for 2023.

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[8]. These quota period possession limits have not been modified since 2012.

Commercial Minimum Fish Size

The commercial minimum size limit for scup is 9 inches total length and has been in place since 1996. The minimum size limit applies to all commercial landings of scup, including landings of incidental catch. Over the years, advisors have expressed differing opinions on the commercial minimum size limit, but no changes have been adopted.

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.

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

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

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 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. However, given other workload constraints, it is unlikely that additional work on this topic will be completed in 2022.

Commercial Pot and Trap Regulations

NMFS dealer data show that pots/traps accounted for about 3% of total commercial scup landings in 2021. Pots and traps used to commercially harvest scup must have either a circular escape vent measuring at least 3.1 inches in diameter, square escape vents with each side being at least 2.25 inches in length, or rectangle escape vents of equal or greater size.

Recreational Management Measures

The recreational bag, size, and season limits for 2023 will be considered in late 2022 after the first four waves (i.e., January - August) of preliminary 2022 recreational harvest data are available (expected October 2022). Improved statistical methods for predicting the impacts of bag, size, and season limits on recreational harvest (i.e., the Recreational Economic Demand Model and the Recreational Fleet Dynamics Model) may also be available by fall 2022. The Monitoring Committee will meet in November 2022 to review available data and model outputs and to make recommendations for recreational bag, size, and season limits for 2023. As previously described, 2023 will be the first year that recreational measures for summer flounder, scup, and black sea bass will be set using the Percent Change Approach.

Scup Data Update for 2022

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

Reported 2021 landings in the commercial fishery were 5,904 mt = 13.016 million lb, a decrease of 5% from 2020, and 63% of the 2021 commercial quota (Figure 1). Estimated 2021 landings in the recreational fishery were 7,540 mt = 16.623 million lb, an increase of 29% from 2020, and 2.74 times the 2021 recreational harvest limit (Figure 1). Total commercial and recreational landings in 2021 were 13,444 mt = 29.639 million lb, an increase of 10% from 2020. Final estimates of fishery discards for 2020-2021 are not yet available.

The NEFSC fall 2015 and spring 2016 bottom trawl survey biomass indices were record highs for the time series. No valid NEFSC bottom trawl survey indices are available for fall 2017 or spring and fall 2020. Both seasonal indices have generally decreased since the 2015-2016 record highs (Figure 2). The NEFSC spring survey index of scup stock biomass increased by 34% from 2019 to 2022; the fall index increased by 132% from 2019 to 2021. The NEFSC fall survey indices suggest that a very large year class recruited to the stock in 2015 with below average recruitment during 2016-2021 (Figure 3).

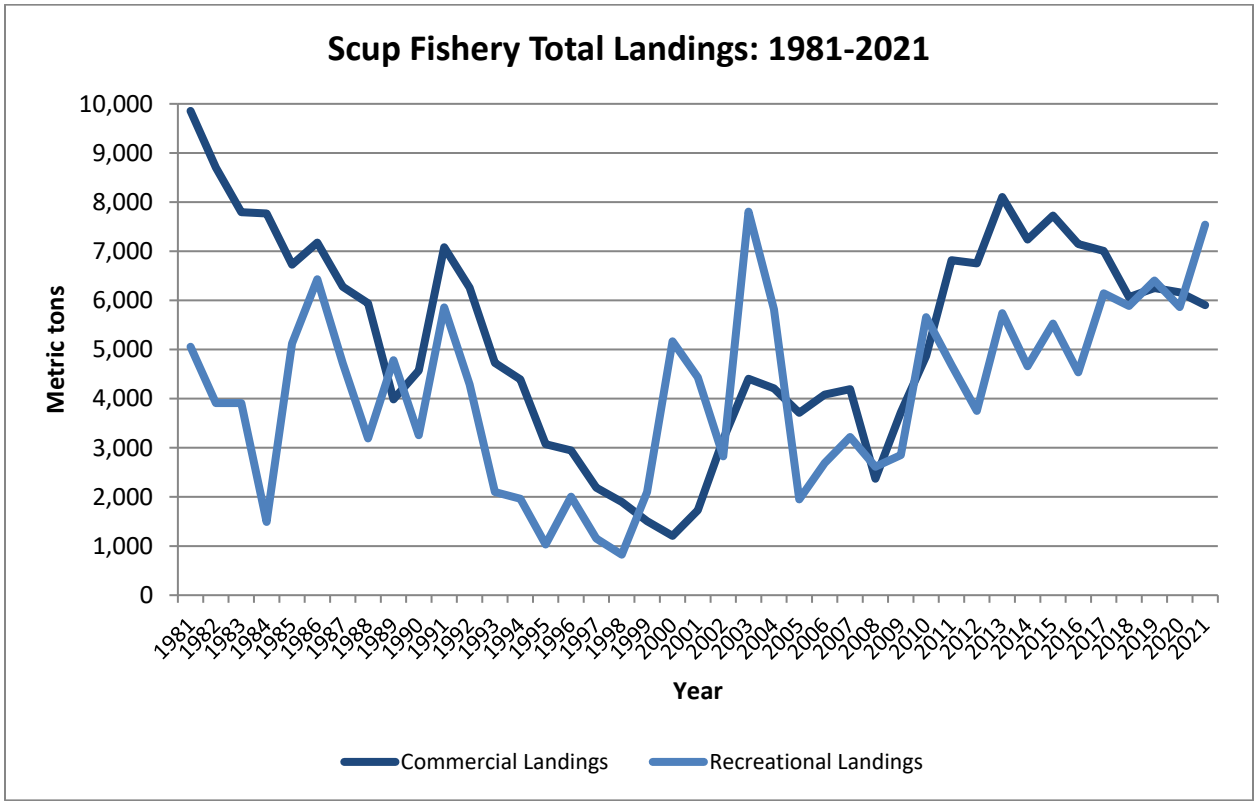


Figure 1. Scup fishery total landings.

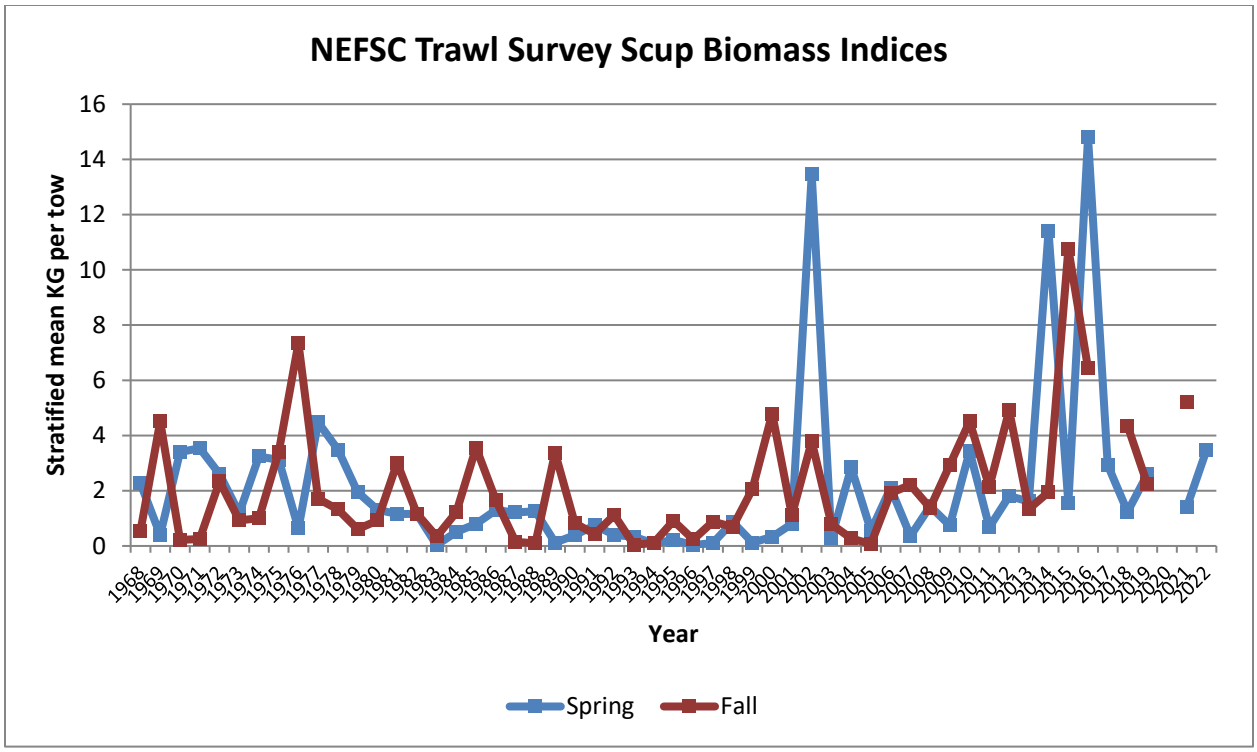


Figure 2. NEFSC bottom trawl survey biomass indices for scup. Indices are FSV Albatross IV equivalents. There are no valid fall 2017 or spring and fall 2020 indices for scup.

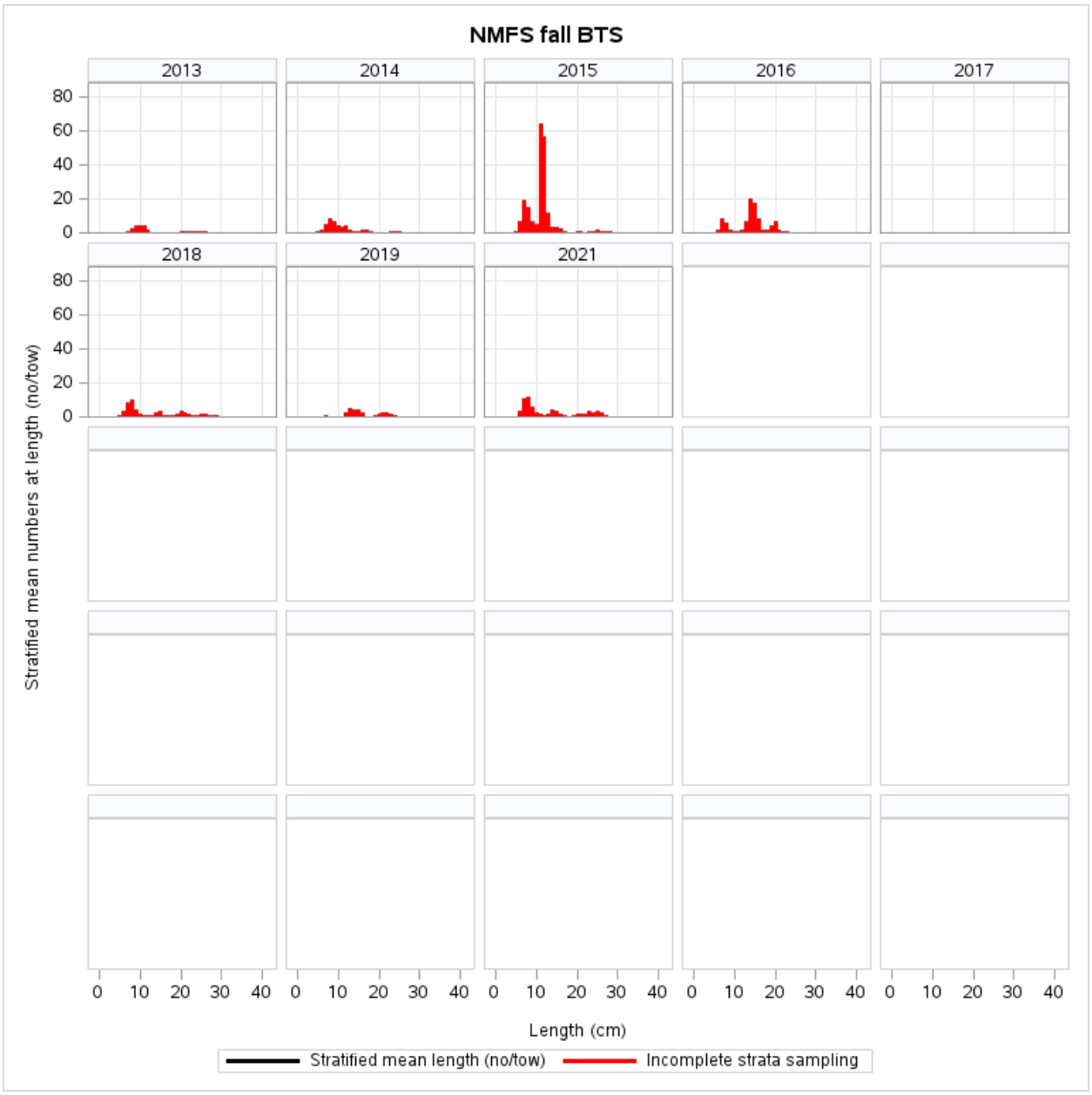


Figure 3. Northeast Fisheries Science Center (NEFSC) fall bottom trawl survey FSV HB Bigelow indices at length since 2013. There was an incomplete survey conducted in 2017 and no survey conducted in 2020.

Scup Fishery Information Document

June 2022

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 2021. 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:

- A 2021 management track assessment using data through 2019 indicated that the scup stock was not overfished, and overfishing was not occurring in 2019.
- Commercial landings decreased from 13.58 mil lbs. in 2020 to 12.93 mil lbs. in 2021.
- Price per pound and total ex-vessel value remained similar to 2020 and were $0.76 and $9.8 million in 2021.
- Recreational landings increased from 12.91 mil lbs. in 2020 to 16.62 mil lbs. in 2021. The majority of scup harvested recreationally in 2021 was caught by private vessels (73%), followed by anglers fishing from shore (18%), and anglers fishing from for-hire vessels (9%).

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

In June 2021, the NEFSC provided a management track assessment for scup which used commercial and recreational fishery data and fishery-independent survey 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.

The 2021 management track assessment indicates that the scup stock was not overfished and overfishing was not occurring in 2019 (Figures 1 and 2). Spawning stock biomass (SSB) was about 2 times the target level in 2019, and there was a notable increasing trend since the early 2000s; however, in recent years stock has declined (Figure 2, Table 1).[3,4]

Overfishing was not occurring in 2019. Fishing mortality in 2019 was 32% below the threshold level that defines overfishing (Figure 1). The 2015 year class (i.e., the scup spawned in 2015) 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 2019 year class the smallest in the time series (Figure 2).[4]

Table 1: Scup biological reference points from the 2021 management track stock assessment.

	Spawning stock biomass	**Fishing mortality rate (F)**
Terminal year estimate (2019)	388 mil lbs. (176,404 mt)	0.136
Target	198.46 mil lbs. (90,019 mt)	N/A
Threshold	99.230 mil lbs. (45,010 mt)	0.200
Status	**Not overfished**	**Not overfishing**

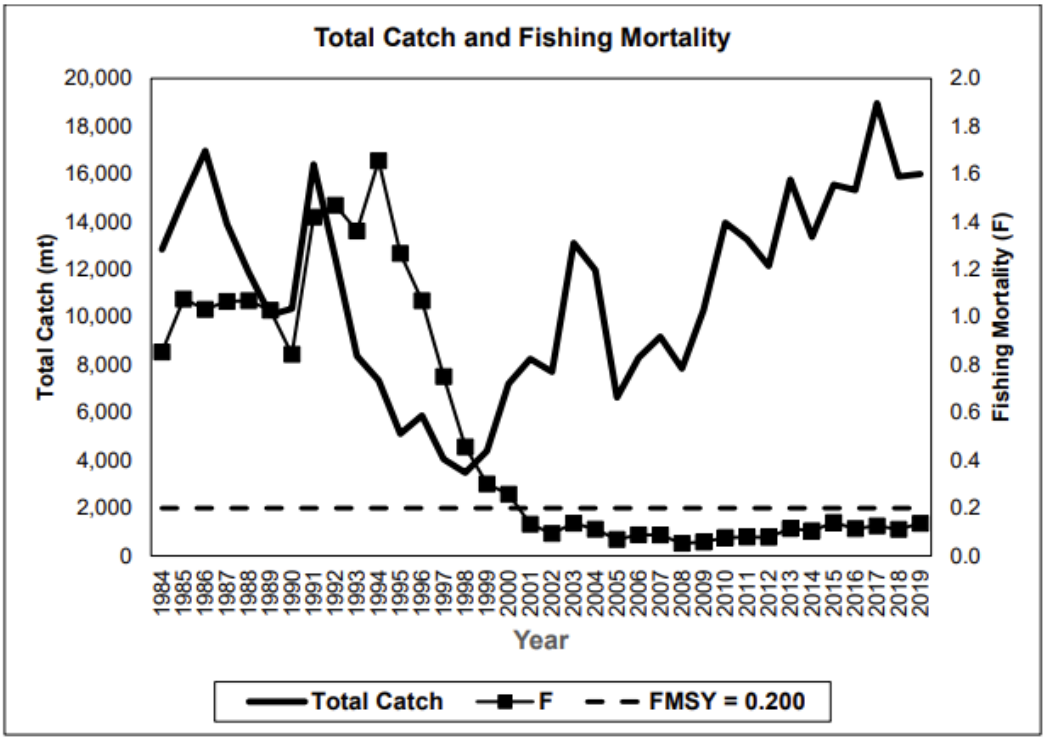


Figure 1: Total fishery catch and fishing mortality rate (F) for fully selected age 4 scup, 1984-2019. The horizontal dashed line is the fishing mortality reference point from the 2021 management track stock assessment. Overfishing is occurring when the fishing mortality rate exceeds this threshold.[4]

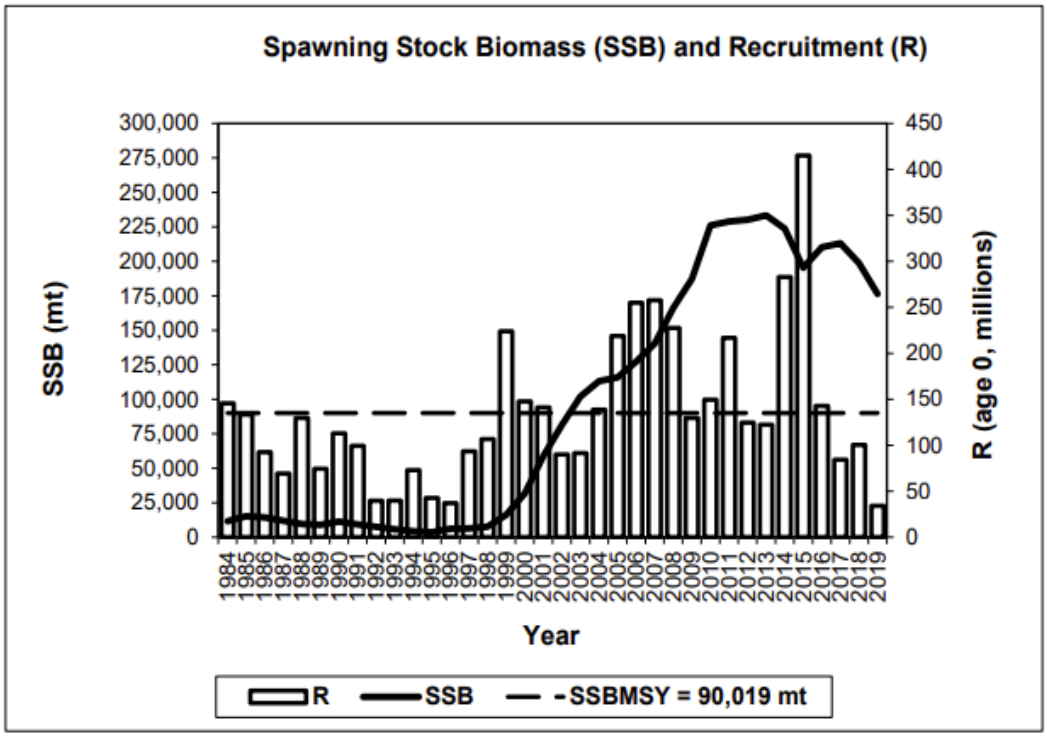


Figure 2: Scup spawning stock biomass and recruitment, 1984-2019. The horizontal dashed line is the biomass target from the from the 2021 management track stock assessment.[4]

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. Through 2022 the allocation was 78% commercial, 22% recreational. In December 2021, the Council and Commission revised the allocations to 65% commercial and 35% recreational. These changes are pending review by NMFS and if approved, are expected to be effective January 1, 2023 (see https://www.mafmc.org/s/SFSBSB-Allocation-FAQs.pdf for more detail). 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.

Fishery Landings Summary

Table 2 shows scup catch and landings limits from 2012 through 2023, as well as commercial and recreational landings through 2021. 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 2021, about 29.55 million pounds of scup were landed by commercial and recreational fishermen (Figure 3).[5,6]

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. All recreational estimates in this document reflect revised MRIP estimates except where otherwise noted.

Recreational harvest estimates for 2020 were impacted by temporary suspension of shoreside intercept surveys due to the COVID-19 pandemic. 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 previously indicated that 2020 data may be revised based on

potential incorporation of 2021 data into these imputation methods; as of completion of this document no updates have been made. Commercial landings reporting in 2020 continued uninterrupted; however, as of completion of this document discard data are currently unavailable due to COVID-19 related interruptions in observer coverage.

Table 2: Summary of scup catch limits, landings limits, and landings, 2012 through 2023. Values are in millions of pounds unless otherwise noted.

Measure	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023[c]
ABC	40.88	38.71	35.99	33.77	31.11	28.4	39.14	36.43	35.77	34.81	32.11	29.67
Com. ACL	31.89	30.19	28.07	26.35	24.26	22.15	30.53	28.42	27.9	27.15	25.05	23.15
Com. quota	27.91	23.53	21.95	21.23	20.47	18.38	23.98	23.98	22.23	20.5	20.38	17.87
Com. landings	14.88	17.87	15.96	17.03	15.76	15.45	13.38	13.78	13.58	12.93	--	--
% of com. quota landed	53%	76%	72%	80%	77%	84%	55%	57%	61%	63%	--	--
Rec. ACL	8.99	8.52	7.92	7.43	6.84	6.25	8.61	8.01	7.87	7.66	7.06	6.53
RHL[a]	8.45	7.55	7.03	6.8	6.09	5.5	7.37	7.37	6.51	6.07	6.08	5.41
Rec. landings, old MRIP estimates	4.17	5.37	4.43	4.41	4.26	5.42	5.61	--	--	--	--	--
Rec. landings, new MRIP estimates	8.27	12.64	10.27	12.17	10	13.53	12.98	14.12	12.91	16.62	--	--
% of RHL harvested[b] (*2012-2019 based on old MRIP estimates; 2020 and beyond based on new MRIP estimates*)	49%	71%	63%	65%	70%	98%	76%	191%	198%	274%	--	--

[a] Commercial quotas and RHLs reflect the removal of projected discards from the sector-specific ACLs. For 2012-2014, these limits were also adjusted for Research Set Aside.

[b] 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.

[c] Previously adopted limits for 2023 will be reviewed in 2022 by the SSC, Monitoring Committee, and Council/Commission. Sector-specific limits including the commercial recreational ACLs, commercial quota, and RHL are expected to be revised given recently adopted changes to the commercial/recreational allocation, expected to be effective January 1, 2023.

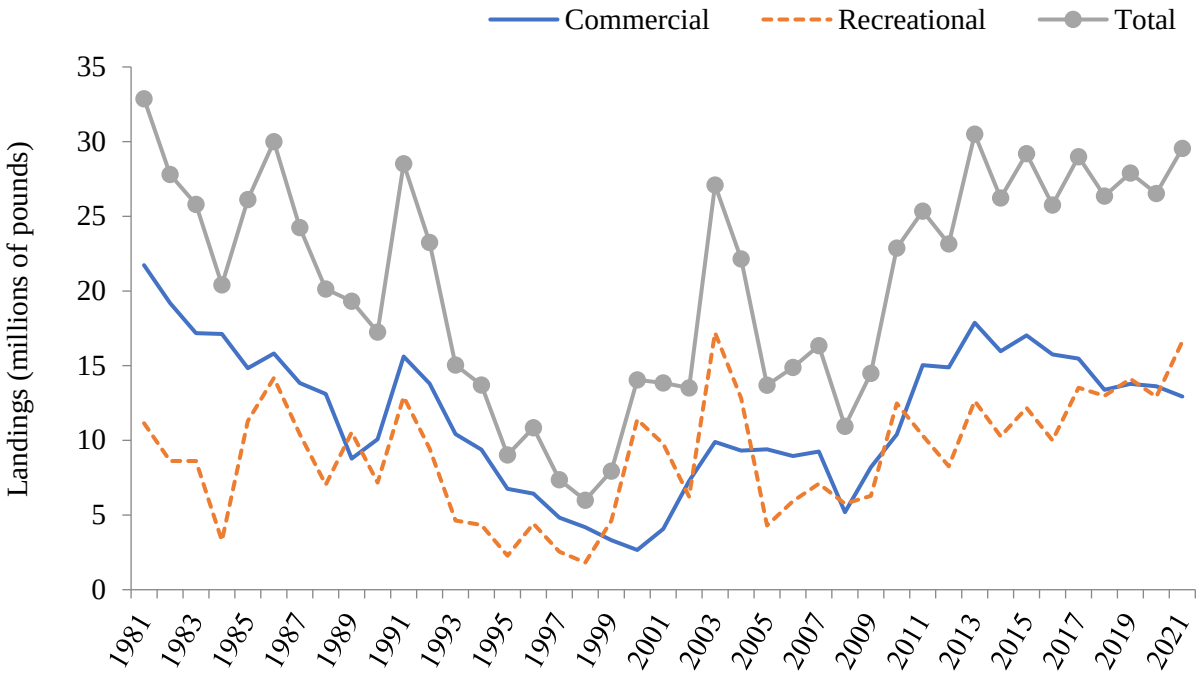


Figure 3: Commercial and recreational scup landings, Maine - North Carolina, 1981-2021.

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 2021, commercial fishermen landed 12.93 million pounds of scup, about 63% 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).

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	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[a]	38.95%	State-specific
Winter II	October 1 – December 31[a]	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.

[a] 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%

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 2021, 97% of the commercial scup landings (by weight) reported by federal VTR data were caught with bottom otter trawls. Pots/traps accounted for about 3% of landings, while all other gear types each accounted for less than 1% of the 2021 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. 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 613, 616, 537, 539 and 611 were responsible for the largest percentage of commercial scup catch in 2021. Statistical area 539, off Rhode Island, had the highest number of trips which caught scup (Table 5, Figure 5).9

Table 5: Statistical areas which accounted for at least 5% of the total commercial scup catch (by weight based on VTR data) in 2021, 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 2021 commercial scup catch	Number of trips
613	26%	1,103
616	17%	446
537	17%	839
539	10%	1,993
611	9%	1,500

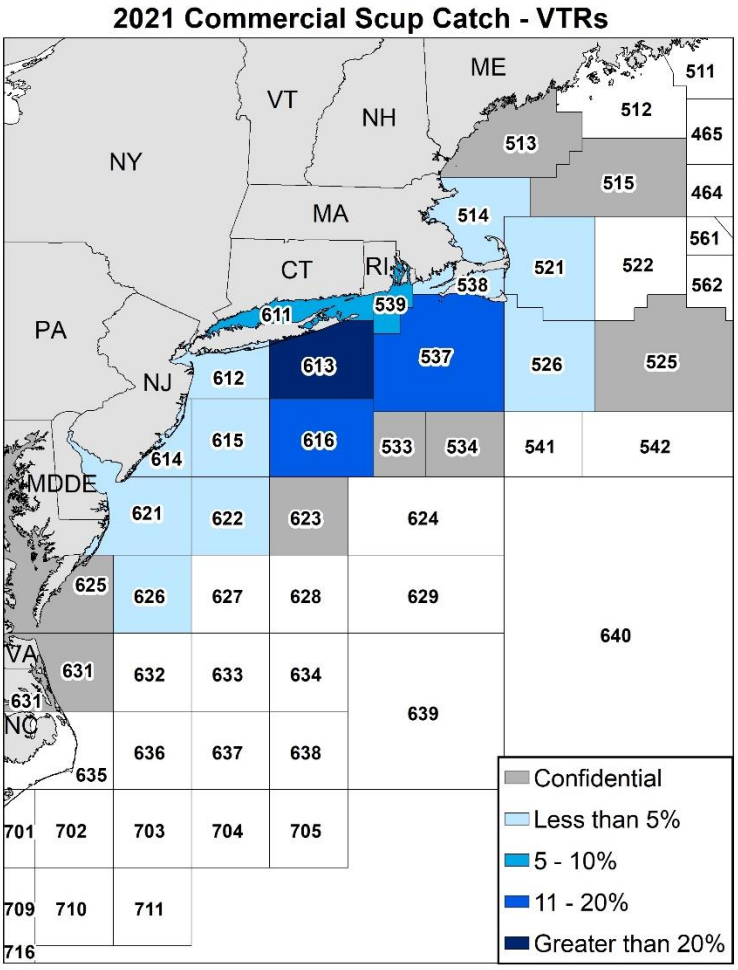


Figure 4: Proportion of scup catch by statistical area in 2021 based on federal VTR data. Statistical areas marked "confidential" are associated with fewer than three vessels and/or dealers. The amount of catch (landings and discards) that was not reported on federal VTRs (e.g., catch from vessels permitted to fish only in state waters) is unknown.

Over the past two decades, total scup ex-vessel revenue ranged from a low of $3.3 million in 2000 to a high of $11.3 million in 2015. In 2021, 12.93 million pounds of scup were landed by commercial fishermen from Maine through North Carolina. Total ex-vessel value in 2021 was $9.8 million, resulting in an average price per pound of $0.76. All revenue and price values were adjusted to 2021 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 $2.30 and occurred in 1998. The lowest average price per pound was $0.64 and occurred in 2013.[5]

Over 138 federally-permitted dealers from Maine through North Carolina purchased scup in 2021. More dealers in New York purchased scup than in any other state (Table 6).[5]

At least 100,000 pounds of scup were landed by commercial fishermen in 15 ports in 6 states in 2021. These ports accounted for approximately 91% of all 2021 commercial scup landings. Point Judith, Rhode Island was the leading port, both in terms of landings and number of vessels landing

scup (Table 7).[5] Detailed community profiles developed by the Northeast Fisheries Science Center's Social Science Branch can be found at www.mafmc.org/communities/.

Since 1996, a moratorium permit has been required to fish commercially for scup. In 2021, 589 vessels held commercial moratorium permits for scup.[10]

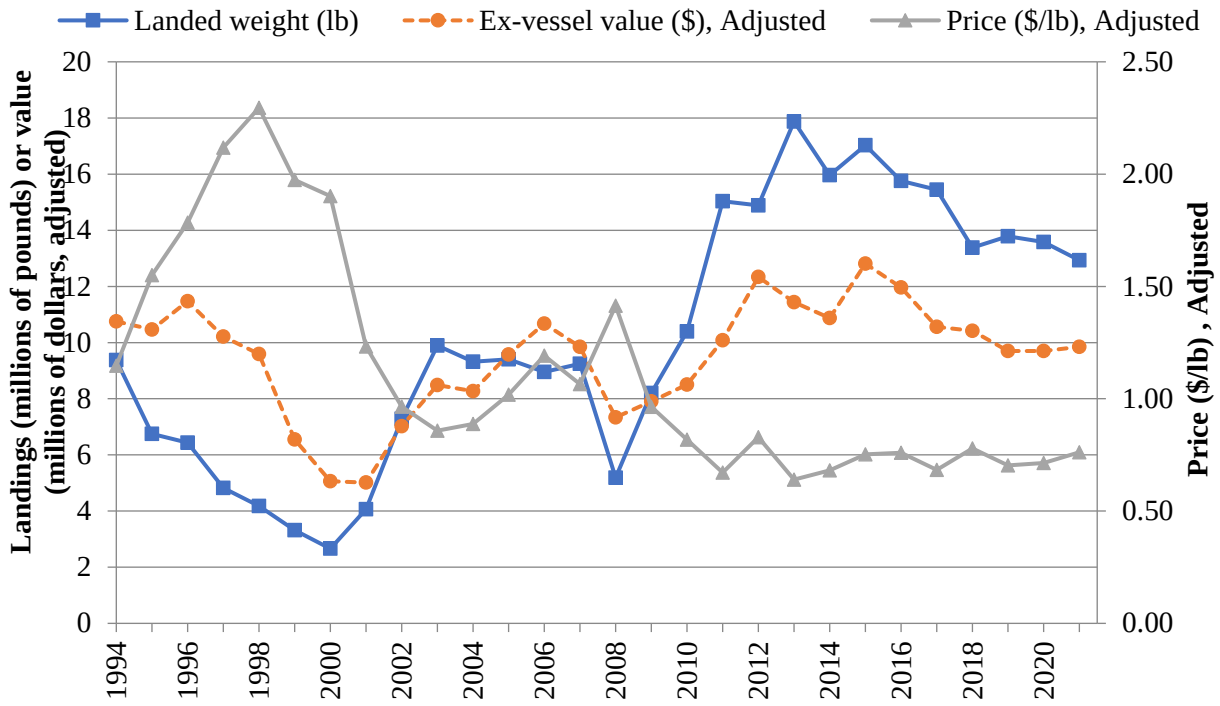


Figure 5: Landings, ex-vessel value, and price for scup from Maine through North Carolina, 1994-2021. Ex-vessel value and price are inflation-adjusted to 2021 dollars using the Gross Domestic Product Price Deflator.[5]

Table 6: Number of dealers per state which reported purchases of scup in 2021. C = Confidential.[5]

State	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC
Number of Dealers	C	27	19	12	38	17	C	5	9	9

Table 7: 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 landings	Number of vessels
POINT JUDITH, RI	3,662,556	28.3197	128
MONTAUK, NY	2,807,098	21.7051	84
PT. PLEASANT, NJ	1,106,813	8.5581	32
CAPE MAY, NJ	1,104,045	8.5367	26
NEW BEDFORD, MA	581,622	4.4972	55
MATTITUCK, NY	538,703	4.1654	5
STONINGTON, CT	296,288	2.291	22
LITTLE COMPTON, RI	294,645	2.2783	8
NEW LONDON, CT	267,818	2.0708	4
HAMPTON, VA	262,377	2.0288	26
HAMPTON BAY, NY	250,693	1.9384	26
SHINNECOCK, NY	171,485	1.326	9
TIVERTON, RI	133,628	1.0332	5
AMMAGANSETT, NY	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. Commercial discard data for 2020 and 2021 are not yet available for analysis. Further analysis is needed to evaluate the impact of the GRA modification on commercial scup discards in 2017-2021.

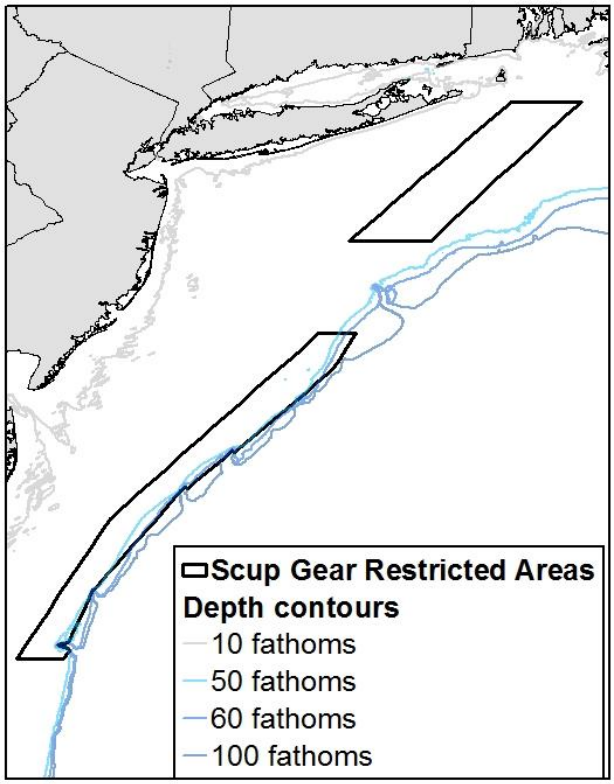


Figure 6: The Scup Gear Restricted Areas.

Recreational Fishery

The recreational scup fishery is managed on a coast-wide basis in federal waters. Federal waters measures remained unchanged from 2015-2021 (Table 8). For the 2022 fishing year, the Council and Commission proposed a 1-inch increase to the scup recreational minimum size in state and federal waters. In federal waters, this results in a 10-inch total length minimum size limit. Collectively, the increased size limits in state and federal waters is expected to achieve an approximate 33% reduction in harvest for 2022 compared to the 2019-2021 average. The 2021 RHL overage will be discussed in development of 2023 recreational measures but is unlikely to impact the 2023 RHL and ACL given recent biomass estimates and the Council's Accountability Measures.[7]

Table 8: Federal recreational measures for scup, 2005-2022.

Regulation	2005-2007	2008-2009	2010-2011	2012	2013	2014	2015-2021	2022[a]
Minimum size (total length)	10 in.	10.5 in.	10.5 in.	10.5 in.	10 in.	9 in.	9 in.	10 in.
Possession limit	50	15	10	20	30	30	50	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	Jan 1 – Dec 31

[a] Revised based on publication of final rule (2022-12450) on June 8, 2022.

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, there were very minor changes in the state regulations from 2018 to 2019, and no changes to state measures from 2019 to 2021. In 2022, due to the Council and Commission's proposed 1-inch increase in scup recreational minimum size limits, as of the completion of this document, most states updated the minimum size limits in state waters (Table 9).

Table 9: State recreational fishing measures for scup in 2021 and 2022. Note: the minimum size limit was the only regulation updated in 2022 and timing of implementation varied by state.

State	2021 Minimum Size (inches)	2022 Minimum Size (inches)	Possession Limit	Open Season
MA (private & shore)	9	10	30 fish; 150 fish/vessel with 5+ anglers on board	April 13-December 31
MA (party/charter)	9	10	30 fish	April 13-April 30; July 1-December 31
			50 fish	May 1-June 30
RI (private & shore)	9	10	30 fish	January 1-December 31
RI shore program (7 designated shore sites)	8	9		
RI (party/charter)	9	10	30 fish	January 1-August 31; November 1-December 31
			50 fish	September 1-October 31
CT (private & shore)	9	10	30 fish	January 1-December 31
CT shore program (45 designed shore sites)	8	9		
CT (party/charter)	9	10	30 fish	January 1-August 31; November 1-December 31
			50 fish	September 1-October 31
NY (private & shore)	9	9	30 fish	January 1-December 31
NY (party/charter)	9	9	30 fish	January 1-August 31; November 1-December 31
			50 fish	September 1- October 31
NJ	9	10	50 fish	January 1- December 31
DE	8	9	50 fish	January 1-December 31
MD	8	9	50 fish	January 1-December 31
VA	8	9	30 fish	January 1-December 31
NC, North of Cape Hatteras (N of 35° 15'N)	8	9	50 fish	January 1-December 31

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 (in number of fish) 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 31.70 million scup and landed 16.56 million scup (about 16.62 million pounds) in 2021 (Figure 7).[6]

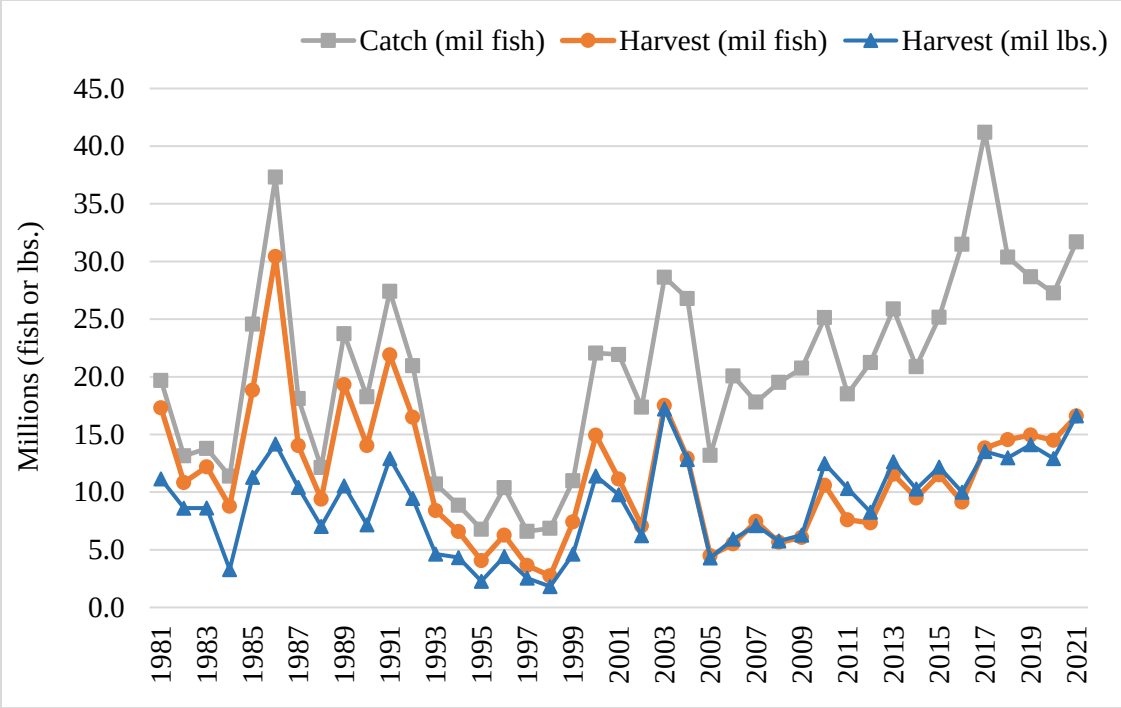


Figure 7: MRIP estimates of recreational scup harvest in numbers of fish and pounds and catch in numbers of fish, ME - NC, 1981-2021.

Vessels carrying passengers for hire in federal waters must obtain a federal party/charter permit. In 2021, 780 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 2019 and 2021, on average 92.9% of recreational scup catch (in numbers of fish) occurred in state waters and about 7.1% occurred in federal waters (Table 10). New York,

Connecticut, Rhode Island, Massachusetts, and New Jersey accounted for over 99% of recreational scup harvest in 2021 (Table 11).[6]

About 73% of recreational scup landings (in numbers of fish) in 2021 were from anglers who fished on private or rental boats and about 18% were from anglers fishing from shore. Additionally, about 9% were from anglers fishing on party or charter boats (Table 12).[6]

Table 10: Estimated percent of scup caught by recreational fishermen in state and federal waters, Maine - North Carolina, 2012 – 2021. Percentages calculated based on numbers of fish[6]

Year	State waters	Federal waters
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	95.9%	4.1%
2018	96.2%	3.8%
2019	95.5%	4.5%
2020	88.6%	11.4%
2021	94.4%	5.6%
2012-2021 average	**95.6%**	**4.4%**
2019-2021 average	**92.9%**	**7.1%**

Table 11: Estimated percent of scup harvested by state, 2019 – 2021. Percentages calculated based on numbers of fish.[6]

State	2019	2020	2021	2019-2021 average
Maine	0%	0%	0%	0%
New Hampshire	0%	0%	0%	0%
Massachusetts	14%	9%	23%	15%
Rhode Island	20%	10%	15%	15%
Connecticut	16%	23%	17%	19%
New York	49%	48%	43%	47%
New Jersey	1%	9%	1%	4%
Delaware	0%	0%	0%	0%
Maryland	0%	0%	0%	0%
Virginia	0%	0%	1%	0%
North Carolina	0%	0%	0%	0%

Table 12: Scup harvest (in numbers of fish) by recreational fishing mode, Maine - North Carolina, 2012 – 2021. Note: percentages may not sum to 100% due to rounding.[6]

Year	Private/rental	Shore	Party/charter	Total number
2012	69%	14%	16%	7,334,831
2013	51%	34%	15%	11,547,030
2014	65%	20%	15%	9,488,947
2015	76%	17%	8%	11,498,780
2016	56%	34%	10%	9,143,579
2017	65%	24%	11%	13,820,610
2018	48%	43%	9%	14,545,489
2019	56%	29%	15%	14,954,157
2020	62%	28%	10%	14,493,250
2021	73%	18%	9%	16,595,455
2012-2021 average	**62%**	**26%**	**12%**	**12,342,213**
2019-2021 average	**64%**	**25%**	**11%**	**15,347,621**

References

[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/.

[3] Northeast Fisheries Science Center. 2015. 60th Northeast Regional Stock Assessment (60th SAW) assessment report. Northeast Fisheries Science Center Reference Document 15-08. Available at: http://www.nefsc.noaa.gov/publications/.

[4] Northeast Fisheries Science Center. 2021. Prepublication copy of the 2021 management track stock assessment report prepared for the Council and the SSC. Available at: https://www.mafmc.org/ssc-meetings/2021/july21-23

[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 May 3, 2022. Available at: http://www.st.nmfs.noaa.gov/recreational-fisheries/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 as of February 1, 2022.

[10] Unpublished NMFS permit data as of February 1, 2022.