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: Kiley Dancy, Staff

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

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

The 2021 stock assessment update indicated that the summer flounder stock was not overfished and overfishing was not occurring in 2019. In July 2021, the SSC provided recommendations for both varying and averaged two-year ABCs for 2022-2023 based on a management track stock assessment for summer flounder using data through 2019.[2]

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 constant catch and landings limits for 2022-2023 based on the two-year averaging approach. The final 2022 specifications and projected 2023 specifications were published in the Federal Register on December 23, 2021 (86 FR 72859).

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

The SSC should review the previously adopted 2023 ABC to consider if changes are needed. Staff recommend no changes to the 2023 ABC of 33.12 million pounds (15,021 mt) as there is no new information to suggest a change is needed.

Following the SSC's consideration of the 2023 ABC, the Monitoring Committee should review previously adopted 2023 sector specific catch and landings limits including the commercial and recreational Annual Catch Limits (ACLs) and Annual Catch Targets (ACTs), commercial quota, and recreational harvest limit (RHL) (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 and pending implementation for 2023. The staff recommendations for revised 2023 sector specific limits are described in more detail in the "Sector-Specific Catch and Landings Limits" section of this memo and are summarized in Table 1.

The Monitoring Committee should also consider whether any revisions are needed to the commercial management measures which can be modified through the annual specifications process (minimum fish size, minimum mesh size, and mesh exemption programs). Recreational measures for 2023 will be considered later in 2022. Staff recommend no changes to the commercial minimum size, minimum mesh size, or mesh exemption programs for 2023. As described below in the "Commercial Management Measures" section, staff continue to recommend further evaluation of potential changes to the commercial minimum mesh size and exemption programs in a future year, likely following the development of other ongoing actions for this Fishery Management Plan (FMP) given limited current staff capacity.

Table 1: Previously approved 2022-2023 catch and landings limits for summer flounder as well as staff recommended revisions for 2023. The final 2023 values may differ based on the recommendations of the SSC, Monitoring Committee, Council, and Board. *(Revised 7/27/22 to correct error in 2022-2023 commercial discards)*

	2022-2023		Basis	2023 Staff Rec.		Basis
Measure	**mil lb**	**mt**		**mil lb**	**mt**	
OFL	36.28 (2022) 34.98 (2023)	16,458 (2022) 15,865 (2023)	Stock assessment projections	34.98	15,865	Stock assessment projections
ABC	33.12	15,021	July 2021 SSC recommendation	33.12	15,021	July 2021 SSC recommendation (staff rec. no changes to previous ABC)
ABC landings	25.89	11,743	ABC projections provided by the NEFSC; averaged 2022-2023 expected landings	NA	NA	Not needed under new catch-based allocation
ABC dead discards	7.23	3,279	ABC projections provided by the NEFSC; averaged 2022-2023	7.23	3,279	Same basis as previously approved.
Com. ACL	18.48	8,382	60% of ABC landings portion (current FMP allocation) + expected comm. dead discards	18.21	8,262	55% of ABC (revised commercial allocation)
Com. ACT	18.48	8,382	No deduction from ACL for management uncertainty	18.21	8,262	Staff rec: Same basis as previously approved.
Expected com. dead discards	2.95	1,336	59% of ABC dead discards portion, based on 2017-2019 average % dead discards by sector	2.95	1,336	Staff rec: Same basis as previously approved.
Com. quota	15.53	7,046	Comm. ACT, minus expected comm. dead discards	15.27	6,925	Same basis as previously approved.
Rec. ACL	14.64	6,639	40% of ABC landings portion (FMP allocation) + expected rec. dead discards	14.90	6,759	45% of ABC (revised recreational allocation)
Rec. ACT	14.64	6,639	No deduction from ACL for management uncertainty	14.90	6,759	Staff rec: Same basis as previously approved.
Expected rec. dead discards	4.28	1,942	59% of ABC dead discards portion, based on 2017-2019 average % dead discards by sector	4.28	1,942	Staff rec: Same basis as previously approved.
RHL	10.36	4,697	Rec. ACT minus expected rec. dead discards	10.62	4,817	Same basis as previously approved.

Stock Status and Biological Reference Points

In June 2021, the Northeast Fisheries Science Center (NEFSC) provided a management track assessment for summer flounder with data through 2019, based on and update to the model developed through the 66th Stock Assessment Workshop/Stock Assessment Review Committee (SAW/SARC) in 2018.

The 2021 management track assessment update made minor revisions to the biological reference points for spawning stock biomass and fishing mortality. The 2021 management track assessment results indicated that the summer flounder stock was not overfished and overfishing was not occurring in 2019. SSB has generally decreased since 2003 and was estimated to be 104.49 million lb (47,397 mt) in 2019, about 86% of the updated biomass target reference point $SSB_{MSY\ proxy}$ = 121.73 million lb (55,217 mt). This estimate is 72% above the overfished threshold of ½ $SSB_{MSY\ proxy}$ = ½ $SSB_{35\%}$ = 60.87 million lb (27,609 mt; Figure 1; Table 2). There is a 90% chance that SSB in 2019 was between 42,000 and 54,000 mt.

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

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

A data update provided by the NEFSC in July 2022 indicates that the NEFSC spring survey index of summer flounder stock biomass decreased by 41% from 2019 to 2022, and the fall index increased by 6% from 2019 to 2021. No surveys were conducted in 2020. The NEFSC fall survey length frequency distributions support the conclusion that an above average year class recruited to the stock in 2018 with average to below average recruitment since.[3]

The Northeast Regional Coordinating Council (NRCC)'s stock assessment process[4] now has summer flounder receiving management track assessments every two years. The next management track assessment is expected in 2023 to inform 2024-2025 limits.

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

[4] http://www.mafmc.org/s/Stock-assessment-process-FINAL.pdf.

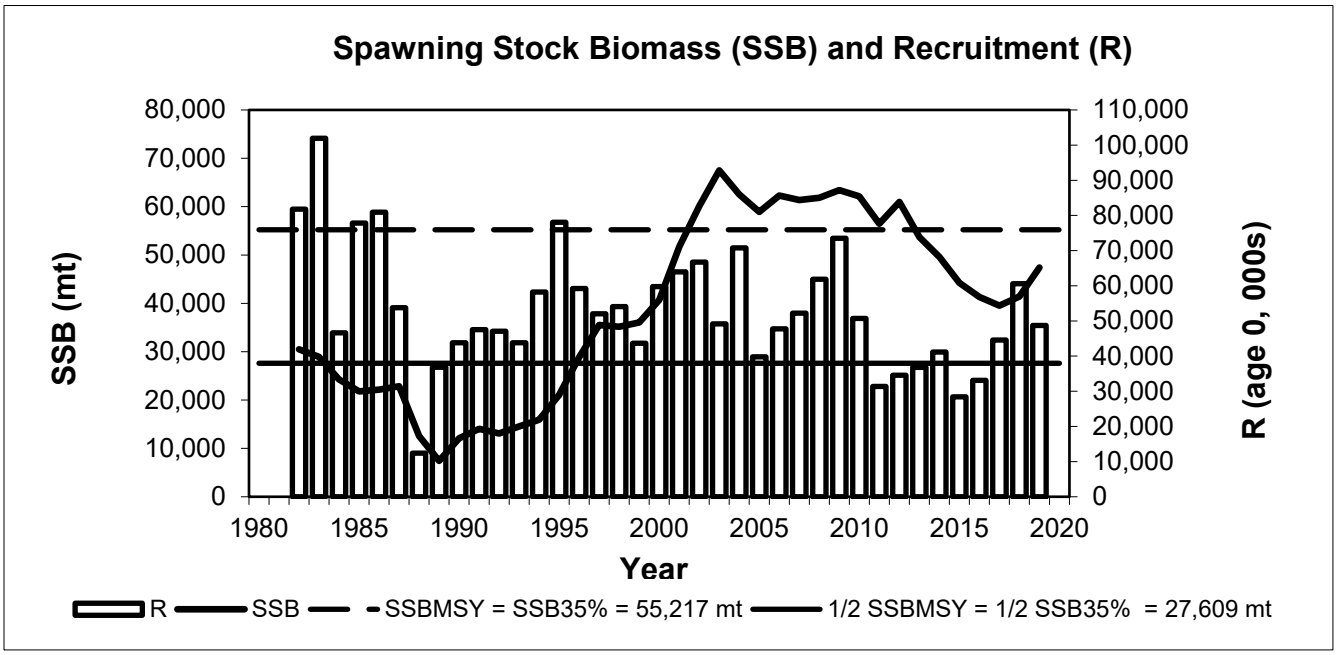

Figure 1: Summer flounder spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars),1982-2019. The horizontal dashed line is the updated target biomass reference point. The horizontal solid line is the updated threshold biomass reference point. Source: 2021 management track assessment.

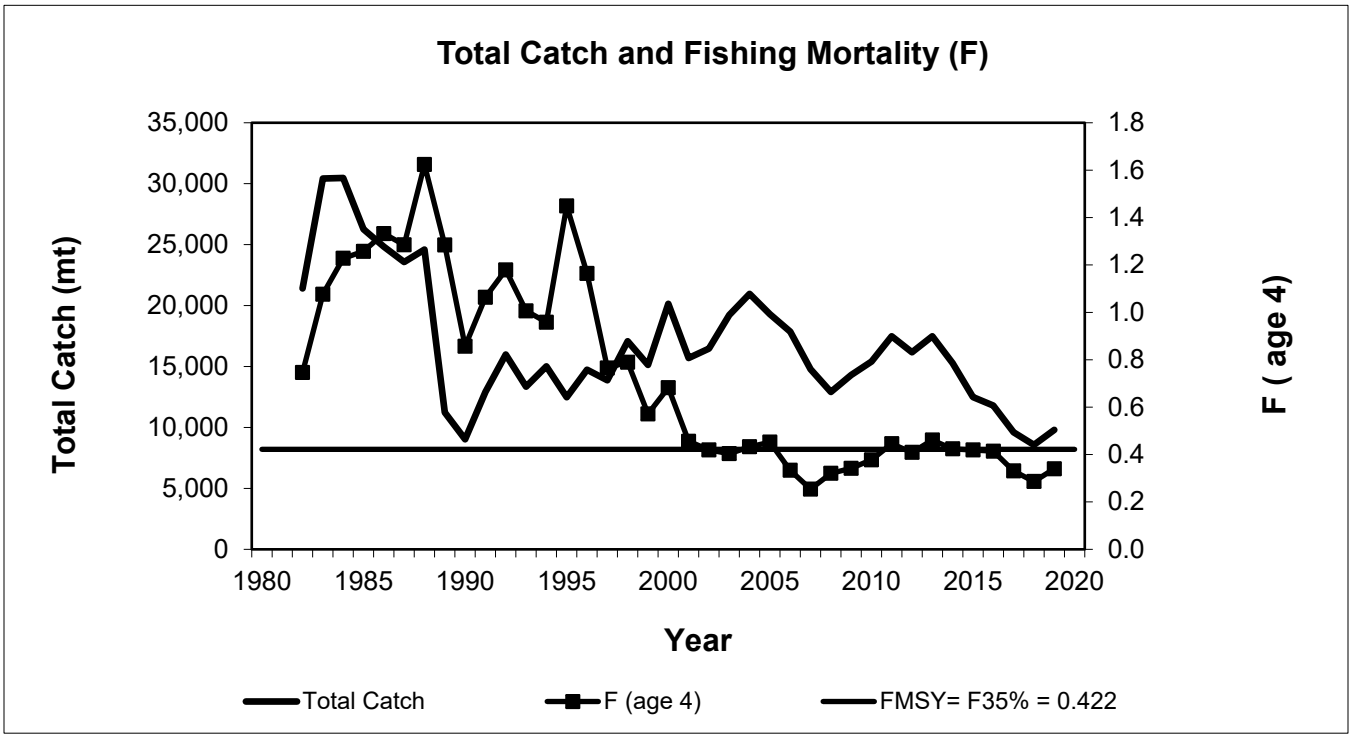

Figure 2: Total fishery catch (metric tons; mt; solid line) and fully-recruited fishing mortality (F, peak at age 4; squares) of summer flounder, 1982-2019. The horizontal solid line is the updated fishing mortality reference point. Source: 2021 management track assessment.

Table 2: Biomass and fishing mortality rate reference points and terminal year estimates for summer flounder from the 2021 management track assessment.

	Spawning stock biomass	Fishing mortality rate (F)
Terminal year estimate (2019)	104.49 million lb (47,397 mt)	0.340
Target	121.73 mil lb (55,217 mt)	N/A
Threshold	60.87 million lb (27,609 mt)	0.422
Status	**Not overfished**	**Not overfishing**

Recent Catch and Fishery Performance

Commercial landings in 2021 were approximately 10.36 million pounds (4,699 mt), about 83% of the commercial quota of 12.49 million pounds (5,663 mt). 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.

The recreational harvest was estimated at approximately 6.82 million pounds (3,093 mt) in 2021, about 82% of the 2021 RHL of 8.32 million pounds. This is the second lowest estimate of recreational harvest in the time series going back to 1981, with the lowest being 5.66 million pounds harvested in 1989. Recreational dead discard estimates in weight are not yet available for 2021.

The commercial fishery has underharvested their quota since 2018 (Table 3). The larger underages since 2019 (18-21%) are likely due in large part to a substantial increase in quota starting in mid-2019, with possible additional influence from market factors related to COVID-19. Performance of commercial dead discards relative to projected discard levels has been variable, with 2017 and 2018 seeing higher than expected discards, leading to ACL overages (19% and 8% ACL overages in 2017 and 2018, respectively). In those years, commercial ACLs were well below average, and it is likely that discard projections did not include appropriate consideration for the effects of below average landings limits. In 2019, commercial catch was 20% below the ACL. There are no discard estimates currently available to evaluate total commercial catch in 2020 or 2021, but given the performance of landings relative to the quota, it is unlikely that ACLs were exceeded in these years (Table 3).

Recreational fishery performance relative to RHLs through 2018 cannot be evaluated using the revised MRIP data, since past RHLs were set based on assessments that used the old data. A performance evaluation for 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 below the RHL in three of the last five years (2017 and 2018). In 2021, harvest was estimated to be 6.82 million pounds, the second lowest harvest estimate in the time series going back to 1981, and 18% below the 2021 RHL of 8.32 million pounds. Recreational catch has generally been below the recreational ACL since 2012 (calculated in old MRIP units through 2018), with the exception of 4% and 12% overages in 2014 and 2016, respectively (Table 4).

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

Year	Com. Landings [a]	Com. quota[c]	Quota overage/ underage	Com. dead discards [a,b]	Projected com. dead discards [c]	Projected dead discards overage/underage	Com. dead catch [a,b]	ACL	ACL overage/ underage[b]
2012	13.05	13.14	**-1%**	1.66	0.46	**261%**	14.71	14.00	**5%**
2013	12.56	11.44	**10%**	1.90	0.33	**477%**	14.46	12.11	**19%**
2014	11.00	10.51	**5%**	1.83	2.03	**-10%**	12.83	12.87	**0%**
2015	10.71	11.07	**-3%**	1.55	2.27	**-32%**	12.26	13.34	**-8%**
2016	7.80	8.12	**-4%**	1.70	1.31	**30%**	9.50	9.43	**1%**
2017	5.83	5.66	**3%**	2.00	0.92	**117%**	7.83	6.57	**19%**
2018	6.14	6.63	**-7%**	2.20	1.07	**105%**	8.34	7.70	**8%**
2019	9.05	10.98	**-18%**	1.73	2.00	**-14%**	10.79	13.53	**-20%**
2020	9.11	11.53	**-21%**	--	2.00	**--**	--	13.53	**--**
2021	10.36	12.49	**-17%**	--	2.14	**--**	--	18.48	**--**

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

[b] Dead discards for 2020 and 2021 are not yet available.

[c] From past staff memos, specifications documents, and *Federal Register* notices. The commercial quotas shown for 2012-2014 reflect a 3% deduction for Research Set Aside (RSA).

Table 4: Summer flounder recreational landings, dead discards, and dead catch compared to the RHL, projected recreational dead discards, and recreational ACL, 2012-2021. ACLs for summer flounder 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 2019. Therefore, overage/underage evaluations must be based in the old MRIP units through 2018 and the new MRIP units starting in 2019. Old MRIP values and performance calculations are highlighted with italics. All values are in millions of pounds.

Year	Rec. land. OLD MRIP[a]	Rec. land. NEW MRIP[c]	RHL[e]	RHL over/ under[d]	Rec. dead disc. old MRIP units[a,b]	Rec. dead disc. new MRIP units[b]	Proj. rec. dead disc.[e]	Projected dead disc. over/under[c]	Rec. dead catch OLD MRIP[a]	Rec. dead catch NEW MRIP[c,d]	Rec ACL	Rec ACL over/ under[d]
2012	*6.49*	16.13	8.76	***-26%***	*1.80*	4.79	2.55	***-30%***	8.29	20.92	11.58	***-28%***
2013	*7.36*	19.41	7.63	***-4%***	*1.67*	4.67	2.37	***-29%***	9.03	24.08	10.23	***-12%***
2014	*7.39*	16.23	7.01	***5%***	*2.05*	4.61	1.84	***12%***	9.44	20.84	9.07	***4%***
2015	*4.72*	11.83	7.38	***-36%***	*1.24*	3.47	2.06	***-40%***	5.96	15.30	9.44	***-37%***
2016	*6.18*	13.24	5.42	***14%***	*1.48*	3.27	1.41	***5%***	7.66	16.51	6.84	***12%***
2017	*3.19*	10.09	3.77	***-15%***	*0.94*	3.30	0.95	***-1%***	4.13	13.39	4.72	***-13%***
2018	*3.35*	7.60	4.42	***-24%***	*0.97*	2.21	1.11	***-13%***	4.32	9.81	5.53	***-22%***
2019	NA	7.80	7.69	**1%**	NA	3.04	3.82	**-20%**	NA	10.84	11.51	**-6%**
2020	NA	10.06	7.69	**31%**	NA	--	3.82	**--**	NA	--	11.51	**--**
2021	NA	6.82	8.32	**-18%**	NA	--	4.16	**--**	NA	--	12.48	**--**

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

[b] Dead discards for 2020 and 2021 are not yet available due to data issues associated with COVID-19 and delays in processing commercial observer data.

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

[d] Based on a comparison with old MRIP data through 2018 and new MRIP data starting in 2019.

[e] From past staff memos, specifications documents, and *Federal Register* notices. The RHLs shown for 2012-2014 reflect a 3% deduction for Research Set Aside (RSA).

The 2022 commercial landings as of July 6, 2022, indicate that 39% of the 2022 coastwide commercial quota has been landed.[5] As of this memo, recreational harvest estimates for 2022 are only available through wave 2 (March/April), which does not provide meaningful information about 2022 recreational harvest trends for summer flounder given that in recent years wave 2 has accounted for less than 1% of annual summer flounder harvest.

Review of Prior SSC Recommendations

In July 2021, as requested by the Council, the SSC recommended two alternative sets of two-year ABC recommendations based on the information and projections from the 2021 management track assessment: one with varying ABCs each year, and one with a constant ABC across 2022-2023.

The SSC indicated that the approach to estimating uncertainty in the OFL had not changed since the previous benchmark (SAW/SARC 66 in 2018). Accordingly, the SSC maintained its determination that the assessment should be assigned an "SSC-modified OFL probability distribution." In this type of assessment, the SSC provides its own estimate of uncertainty in the distribution of the OFL.

The SSC continued the application of a 60% OFL coefficient of variation (CV), because: (1) the latest management track assessment did not result in major changes to the quality of the data and model that the SSC has previously determined to meet the criteria for a 60% CV; (2) the summer flounder assessment continues to be a data rich assessment with many fishery independent surveys incorporated and with relatively good precision of the fishery dependent data; (3) several different models and model configurations were considered and evaluated by SAW-66, most of which showed similar stock trends and stock status; and (4) no major persistent retrospective patterns were identified in the most recent model. The SSC noted that significant improvements in quality of data and investigations of alternate model structures affirm the specification of the 60% OFL CV by the SSC.

The SSC accepted the OFL proxy ($F_{35\%} = 0.422$) used in the management tack assessment. Given recent trends in recruitment for summer flounder, the SSC recommended the use of the most recent 9-year recruitment series for OFL projections (2011-2019) because near-term future conditions were more likely to reflect recent recruitment patterns than those in the entire 38-year time series.

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

- Changes in life history are apparent in the population; for example, declining growth rates and differences in sex-specific age structure.
- Uncertainty regarding recreational catch and discard estimates from MRIP, especially for 2020 where some data were imputed.
- Potential changes in productivity of the stock, which may affect estimates of biological reference points. Changes in size-at-age, growth, and recruitment may be environmentally mediated, but mechanisms are unknown.
- Potential changes in availability of fish to some surveys and to the fishery as a result of changes in the distribution of the population.

Table 5 shows the SSC recommended 2022-2023 ABCs along with the associated OFLs and P* values. In August 2021, the Council and Board ultimately adopted the SSC-recommended ABCs based on the

[5] Based on data available at https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region

two-year averaged approach, implementing a constant ABC of 33.12 million pounds (15,021 mt) in each year 2022-2023.

Table 5: SSC-recommended 2022-2023 OFLs, ABCs, and P* values for the variable and averaged ABC approaches.

Variable ABCs			
Year	**OFL**	**ABC**	**P***
2022	36.28 mil lb 16,458 mt	33.96 mil lb 15,403 mt	0.452
2023	34.74 mil lb 15,759 mt	32.27 mil lb 14,639 mt	0.447
Averaged ABCs[a]			
Year	**OFL**	**ABC**	**P***
2022	36.28 mil lb 16,458 mt	33.12 mil lb 15,021 mt	0.435
2023	34.98 mil lb 15,865 mt		0.461

[a] Reflects currently approved ABCs adopted by Council and Board in August 2021.

Staff Recommendation for 2023 ABC

Staff recommend maintaining the previously adopted ABC for summer flounder of 2023 ABC of 33.12 million pounds (15,021 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 Commission revised the summer flounder commercial/ recreational allocation such that 55% of the ABC will be allocated to the commercial fishery and 45% to the recreational fishery.[6] Under the previous allocation, 60% of the amount of the landings portion of the ABC was allocated to the commercial fishery and 40% to the recreational fishery. This represents a change from a landings-based allocation to a catch-based allocation. The allocation will now be applied directly to the ABC. Figure 3 illustrates the differences in how specifications will be set under the revised catch-based allocation compared to the previous landings-based allocation.

The revised and previous allocations are not directly comparable due to the change from a landings-based to a catch-based allocation. However, as illustrated by the recommended specifications shown Table 1, the revised allocations are expected to slightly increase the recreational ACL and RHL and slightly decrease the commercial ACL and quota compared to the previous allocations.

The allocation revisions 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 allocation.

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

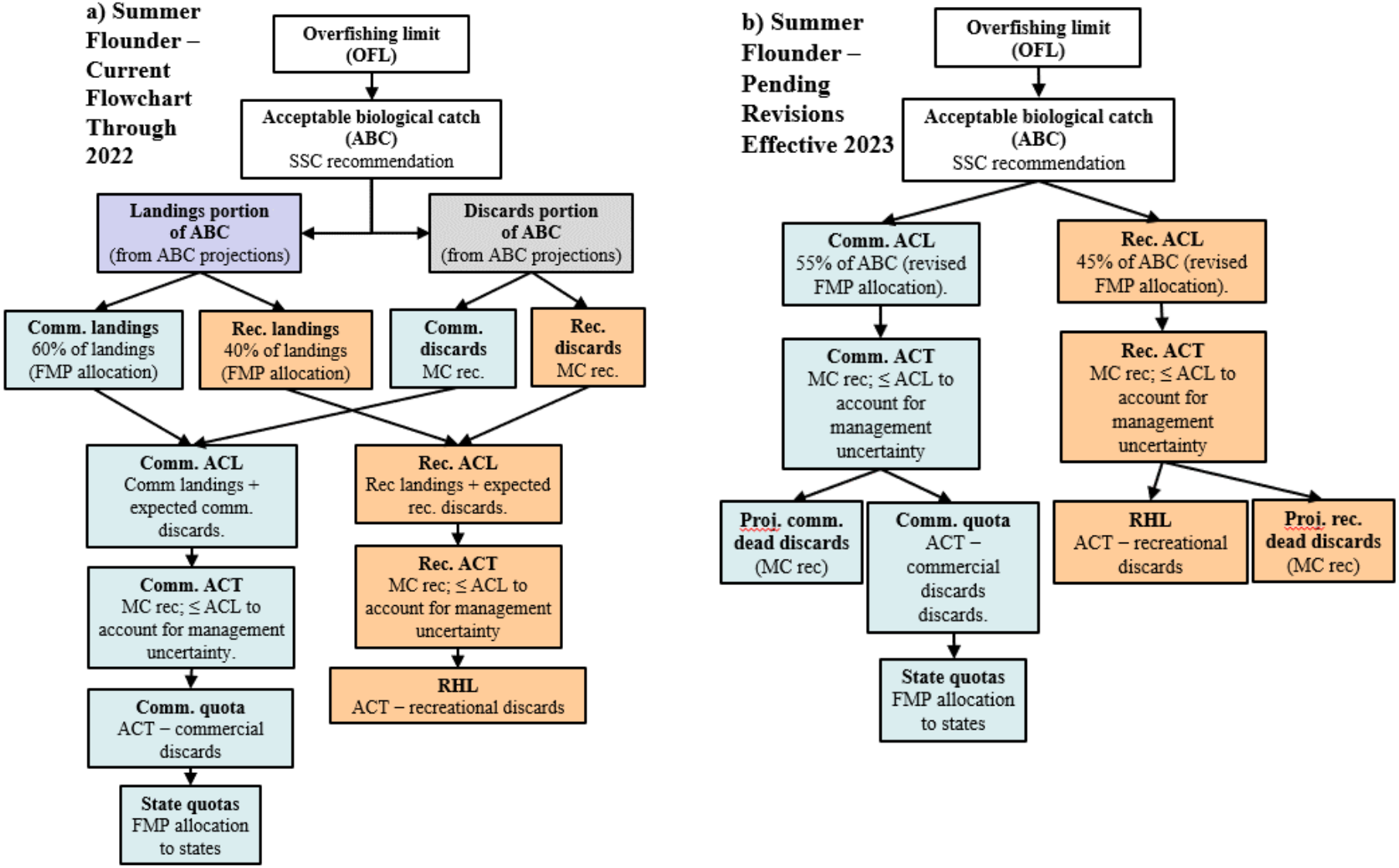

Figure 3: Flowcharts for summer flounder catch and landings limits based on a) the process through 2022, and b) pending revisions to the commercial/recreational allocations.

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

Recreational and Commercial Annual Catch Limits

Under the revised catch-based allocations described above, the commercial and recreational ACLs are calculated with a straightforward application of the revised allocation percentages to the 2023 ABC. If no changes are made to the previously adopted 2023 ABC of 33.12 million pounds, this would result in a 2023 commercial ACL of 18.21 million pounds (8,262 mt) and a recreational ACL of 14.90 million pounds (6,759 mt; Table 1).

Annual Catch Targets

ACTs are set less than or equal to the 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 summer flounder fishery when recommending ACTs.

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

As noted by the MC when originally recommending 2023 specifications, commercial fishery landings are well controlled with in-season closure authority and commercial quota monitoring systems which

[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

typically allow timely reactions to landings levels that approach quotas. The commercial fishery has underharvested their quota since 2018, more notably since 2019 when quotas were increased mid-year by approximately 50% (Table 3). Commercial dead discards estimates are only available through 2019. The Monitoring Committee had previously recommended closely monitoring commercial discards trends due to discards-driven overages of the commercial ACL in 2017 and 2018; however, in these years, a large proportion of discards were likely the result of below-average quotas. Observer data for observed trawl hauls from 2015-2019 support this conclusion (Table 6). Commercial discards decreased to below projected levels in 2019, possibly due in part to increased quotas, as commercial discards for summer flounder tend to decrease within increasing catch limits.

Table 6: Percent of observed bottom otter trawl hauls with discarded summer flounder by discard reason, 2015-2019. Complete observer data are not available for 2020 or 2021.

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

Recreational fishery performance relative to recreational ACLs and RHLs has been more variable, but generally near or below these limits since 2017, with the exception of a 31% RHL overage in 2020. As previously noted, 2021 harvest was estimated to be below average and 18% below the 2021 RHL. As previously described, the impact of the Percent Change Approach on recreational summer flounder measures in 2023 is not yet known, and it is not possible to accurately evaluate the likelihood of this approach resulting in differences in recreational fishery performance compared to the RHL or ACL compared to recent trends.

Based on these considerations, staff do not believe there is new information to support a deviation from the MC's previous recommendation of ACL=ACT for 2023.

Projected Dead Discards, Commercial Quotas and Recreational Harvest Limits

The MC should recommend projected discards for each sector, to be removed from the sector-specific ACTs to derive the commercial quota and RHL (Figure 3). This recommendation will likely need to rely on discard data through 2019, as estimates for 2020 and 2021 are not currently available as of the completion of this memo.

The previous landings-based allocation (through 2022) has required first separating the ABC into total expected discards and landings, and applying the FMP allocation percentages to the landings portion of the ABC (which for summer flounder has typically been provided by the NEFSC with ABC projections). Typically, discards have been apportioned based on a 3-year moving average of the proportion of discards from each sector, applied to the total projected discards for the upcoming fishing year(s).

Under the pending catch-based allocation, the MC could consider different approaches to recommending sector specific discards. Staff have considered several options, including:

- An approach similar to current methods, where total projected dead discards provided by NEFSC are split into expected commercial and recreational dead discards based on a moving 3-year

average of the proportion of dead discards by sector. These projected sector discards are then removed from the sector-specific ACTs.

- A linear regression approach examining sector dead discards as a function of sector catch, ACLs, or landings. These approaches were used to develop example landings limits during the development of the commercial/recreational allocation amendment. While this would provide a systematic, data driven approach to estimating discards, the correlations associated with the regressions examined for summer flounder to date are not very strong.
- A simple moving average (3-year or other time frame) of discards in pounds for each sector. This approach has the advantage of being straightforward and reflective of recent fishery trends, but it may be problematic in situations where fishery conditions (stock status, catch limits, availability, etc.) change notably over the relevant time frame. For 2023, staff does not recommend this approach (which would use 2017-2019 discard data) because catch limits in 2017 and 2018 were much lower than current levels, and the fishery was under notably different constraints and regulations than are expected for 2023. Additionally, an above average 2018 year class has been observed that was largely not reflected in discard estimates through 2019.

Staff recommend that for 2023, sector discards continue to be calculated by applying the 3-year moving average proportion of discards by sector to total projected dead discards. This approach relies on projections of total discards from the NEFSC which account for age structure of the population. Because 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. Over this time period, 59% of dead discards came from the recreational fishery and 41% from the commercial fishery. Applying this to the total 2023 projected dead discards of 7.23 million pounds (3,279 mt), resulting projected commercial dead discards are 2.95 million pounds (1,336 mt) and projected recreational dead discards are 4.28 million pounds (1,942 million pounds). These are the same projections of dead discards that were applied to the previously adopted 2023 specifications (Table 1). When comparing these projections to recent estimates of discards through 2019, it's possible that this method may overpredict discards. However, this may not ultimately be the case as the full impacts of higher landings limits since 2019 and of the large 2018 year class on discards are yet to be seen given the lack of data since 2019.

These discard projections result in a staff-recommended commercial quota of 15.27 million pounds (6,925 mt) and an RHL of 10.62 million pounds (4,817 mt) (Table 1). These values represent a 1.7% decrease in the commercial quota and a 2.5% increase in the RHL compared to the previously adopted values for 2022-2023.

The commercial quota is divided among the states based on the allocation percentages specified in the FMP, and each state sets measures to achieve their state-specific commercial quotas (including but not limited to the measures described below that are required by the joint FMP). The commercial allocations to the states were modified via Amendment 21, which became effective on January 1, 2021. The revised allocation system modifies the state-by-state commercial quota allocations in years when the annual coastwide commercial quota exceeds the specified trigger of 9.55 million pounds. Annual coastwide commercial quota of up to 9.55 million pounds is distributed according to the previous state allocations. In years when the coastwide quota exceeds 9.55 million pounds, the *additional* quota amount beyond this trigger is distributed in equal shares to all states except Maine, Delaware, and New Hampshire, which split 1% of the additional quota (Table 7). The total percentage allocated annually to each state is dependent on how much additional quota beyond 9.55 million pounds, if any, is available in any given year. This allocation system is designed to provide for more equitable distribution of quota when biomass is relatively higher, while also considering the historic importance of the fishery to each state.

Table 7: Allocation of summer flounder commercial quota to the states (effective January 2021 via Amendment 21).

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

Commercial Management Measures

Commercial measures that can be modified during specifications are discussed in the sections below, including the commercial minimum fish size, gear regulations, minimum mesh sizes, and exemptions. These measures have remained generally constant since 1999.

Commercial Gear Regulations and Minimum Fish Size

The minimum fish size and mesh requirements may be changed through specifications based on the recommendations of the Monitoring Committee. The current commercial minimum fish size is 14 inches total length (TL) and has been in place since 1997. Current trawl gear regulations require a 5.5-inch diamond or 6.0-inch square minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder, i.e., 200 lb in the winter (November 1-April 30) and 100 lb in the summer (May 1-October 31).

In September 2019, the Monitoring Committee discussed various mesh size issues for summer flounder, scup, and black sea bass, and revisited the 2018 mesh selectivity study for summer flounder, scup, and black sea bass by Hasbrouck et al. (2018)[8]. Hasbrouck et al. study suggests that, in general, the current minimum mesh sizes are effective at releasing catch of most undersized and immature fish, but modifications could be considered to allow for consistent mesh sizes for black sea bass and scup, and to potentially reduce discards of undersized summer flounder. As described in the meeting summary, the MC identified additional analyses and input needed from industry before recommending changes to the mesh size regulations.

For summer flounder, the MC had noted that the selectivity curve described in the study for 6.0" square mesh does not appear to be equivalent to that of the 5.5" diamond. Instead, the 6.0" square is much more similar to a 5.0" diamond mesh. The 6.0" square mesh releases less than 50% of minimum size fish. The

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

MC had some concerns with the amount of undersized summer flounder caught with the 6.0" square mesh and recommended further exploring the impacts of this mesh size. Phasing out the use of 6.0" square mesh for summer flounder could reduce discards of undersized fish. The MC noted that further analysis should be done on how many vessels are currently using 6.0" square vs. 5.5" diamond mesh.

In recent discussions on this topic, the MC has been supportive of continuing to analyze this issue, but has also recognized that it should be a lower priority in the near term given other pressing management concerns for this FMP. The Council and Board have also agreed that while this issue should still be pursued, it has not been a near-term priority given other management activities. Staff will continue to work with the Monitoring Committee and Advisory Panel to further analyze and consider potential changes to mesh size regulations. However, given other workload constraints, it is not likely that additional work on this topic can be done in 2022. Staff recommend no changes to the current 14-inch minimum fish size, or seasonal possession thresholds triggering the minimum mesh size for 2023.

Minimum Mesh Size Exemption Programs

Small Mesh Exemption Area

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

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

Due to issues accessing observer data, staff have been unable to complete this analysis for the November 1, 2020-April 30, 2021 period. If data can be accessed prior to upcoming meetings, staff will provide the analysis as a supplemental document.

The most recent analysis includes examination of observer data from November 1, 2019 through approximately March 19, 2020.[9] Last year, staff were unable to evaluate observer data from the full time period of November 1, 2019 through April 30, 2020 in given COVID related gaps in observer coverage in early 2020. For this time period, a total of 397 trips with at least one tow were observed east of 72° 30.0'W and 204 of these trips used small mesh (Table 8). Of those 204 trips, 97 trips (47%) reported landing more than 200 lb of summer flounder. Of those 97 trips, 24 trips (25%) discarded more than 10% of their summer flounder catch. The percentage of trips that met all these criteria relative to the total number of observed trips east of 72° 30.0'W is 6.0% (24/397 trips).

The number of vessels issued a letter of authorization (LOA) for the small mesh exemption program has remained relatively stable since 2013, fluctuating around an average of 67 vessels (Figure 4).

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

The MC had previously identified concerns with an increased percentage in the number of observed trips in the small mesh exemption area landing over 200 pounds of summer flounder but discarding more than 10% of their summer flounder catch (Table 8). While the amount of observed discards from these trips is low relative to the commercial catch limit, because these observed trips are a subset of the fishery operating under this exemption, the actual extent of discards under the exemption program is not known. The MC has also noted that these increases in discards were possibly related to decreased commercial quotas, especially from 2017 through the first half of 2019, and that increases in quota since 2019 should reduce the rates of discarding in general, including under this exemption. General analysis of recorded discard reasons in the observer data (not specific to this exemption program) indicate that discards in recent years prior to 2019 have been more heavily driven by quota-related reasons, but in 2019 quota-related reasons accounted for a much smaller percentage of observed discards. The MC indicated that an analysis of the recorded discard reasons specifically for vessels operating under this exemption program would be useful in the future.

The MC should consider whether changes may be needed to this exemption program. Staff recommend no changes to this exemption program for 2023, but that it be more thoroughly evaluated for potential changes in a future year. Similar to the mesh size discussion above, additional work is unlikely on this issue in the near term due to other management priorities.

Table 8: Numbers of observed trips that meet specific criteria based on NEFOP data from November 1-April 30 for 2014 through 2020; observer data for 2020 is only available through mid-March due to the COVID-19 related suspension of the observer program.

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

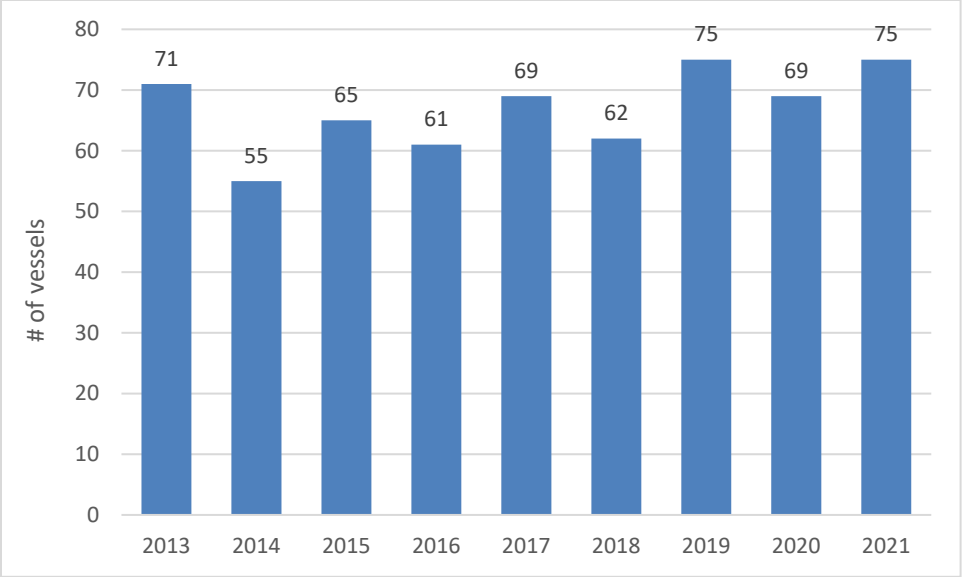

Figure 4: Number of vessels issued the small mesh LOA for the SMEP from fishing year 2013-2021. Source: Pers. Comm., GARFO Analysis & Program Support Division, July 11, 2022.

Flynet Exemption Program

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

Typically, the MC reviews data from the North Carolina flynet fishery as the bulk of flynet landings in the Greater Atlantic region originate from North Carolina, though the flynet fishery in North Carolina is small. The supplemental memo from Lorena de la Garza dated June 24, 2022 (see Attachment) indicates that no summer flounder were landed in the North Carolina flynet fishery from 2015-2021. Flynet landings in North Carolina have declined in recent years due to shoaling issues at Oregon Inlet.

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

In response to public and Board member comments, the MC has previously noted a need to better understand the use and configuration of flynet and high rise trawl nets as they relate to this exemption. Past discussion of this issue led to the MC identifying a possible compliance and enforcement issue of vessels that don't strictly meet the regulatory definition (which specifies a two-seam net) possibly fishing under the flynet exemption with four-seam high rise nets. The MC recommended exploration of

[10] See the report at: http://www.mafmc.org/s/Tab11_SF-S-BSB-Commercial-Measures.pdf.

the extent to which existing datasets allow for evaluation of specific trawl gear configurations, and noted the need for input from gear experts, industry, and enforcement on this issue.

As described above, there has not been sufficient staff time to dedicate to a more in depth evaluation of this exemption in 2022. Staff recommend no changes to this exemption for 2023, and that additional analysis be conducted in a future year if prioritized by the Council and Board.

Recreational Management Measures

Recreational management measures for 2023 will be determined later in 2022. Typically, the Council and Board review preliminary current year data through Wave 4 (July-August) to set recreational bag, size, and season limits for the upcoming year. 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) are expected to be available for summer flounder 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. 2023 will be the first year that recreational measures for summer flounder, scup, and black sea bass will be set using the recently approved Percent Change Approach.

Attachment

ROY COOPER
Governor

ELIZABETH S. BISER
Secretary

KATHY B. RAWLS
Director

Memorandum

To: Kiley Dancy, MAFMC

From: Lorena de la Garza, NCDMF

Date: June 24, 2022

Subject: Species composition and landings from the 2021 North Carolina flynet fishery

The 2021 North Carolina flynet fishery landed 5,889 pounds of finfish consisting of black sea bass, scup, and smooth dogfish. The 2021 North Carolina flynet fishery landings are not reported within a table because the data are confidential and cannot be distributed to sources outside the North Carolina Division of Marine Fisheries (North Carolina General Statute 113-170.3 (c)). Confidential data can only be released in a summarized format that does not allow the user to track landings or purchases to an individual. Summer flounder were not landed in the 2013, 2015, 2016, 2017, 2018, 2019, 2020 and 2021 flynet fisheries. Total flynet landings in 2021 are the second lowest since the trip ticket program began in 1994 (2013 being the lowest at 5,797 pounds). Reduced fishing effort on targeted fish species and shoaling at Oregon Inlet continue to result in a low number of flynet boats landing at North Carolina ports.