



Mid-Atlantic Fishery Management Council
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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: November 4, 2021
To: Chris Moore, Executive Director
From: Kiley Dancy and Karson Coutr , Staff
Subject: Summer Flounder Recreational Management Measures for 2022

Background and Summary

The information in this memo is intended to assist the Monitoring Committee (MC), Advisory Panels, the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Management Board (Board) in developing recommendations for summer flounder recreational measures for 2022.

In August 2021, the Council and Board adopted commercial quotas and recreational harvest limits (RHLs) for summer flounder for the 2022-2023 fishing years based on the June 2021 management track assessment, which incorporated fishery catch and fishery independent survey data through 2019. The 2022 RHL is 10.36 million lb. This represents a 25% increase from the 2021 RHL. As described in more detail below, staff recommend an assumption that 2022 harvest under status quo measures will be similar to 2018-2021 average harvest, with 2021 harvest based on coastwide projections. This assumption indicates that **an approximate 33% liberalization in harvest could occur to allow harvest to meet, but not exceed the 2022 RHL.**

The MC is tasked with recommending recreational management measures (possession limits, size limits, and seasons) to constrain harvest to the RHL. For summer flounder, this includes recommending the use of coastwide measures (identical measures in all states and federal waters) or conservation equivalency (state- or region-specific measures in state waters, and "non-preferred" federal measures that are waived in favor of the state measures). In either case, the combination of measures is designed to constrain harvest to the RHL.

Staff recommend continuation of regional conservation equivalency in 2022. As discussed below, **staff recommend that the MC consider potential liberalizations to the current conservation equivalency measures with a focus on reductions in the current minimum size limits. Given the increase in the RHL, staff recommend a one inch size limit adjustment to the non-preferred coastwide measures to include an 18 -inch TL size limit, a 4-fish possession limit, and an open season from May 15-September 15, 2022. Staff recommend maintaining the current precautionary default measures that include a 20-inch TL minimum size, 2 fish possession limit, and open season from July 1-August 31, 2022.**

Data Considerations

In July 2018, the Marine Recreational Information Program (MRIP) released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology (i.e., a transition from a telephone-based effort survey to a mail-based effort survey). The revised estimates of catch and landings are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall summer flounder catch and harvest estimates. On average, the new landings estimates for summer flounder (in pounds) are 1.8 times higher over the revised time series (1981-2017), and 2.3 times higher in recent years (2008-2017). Recreational data included in this memo reflect revised MRIP data except where otherwise stated.

MRIP estimates for 2020 were impacted by the COVID-19 pandemic. The mail-based Fishing Effort Survey (FES), continued uninterrupted in 2020; however, the Access Point Angler Intercept Survey (APAIS), which forms the basis for catch estimates, was suspended starting in late March or April and resumed between May and August 2020, depending on the state.

The National Marine Fisheries Service (NMFS) used imputation methods to fill gaps in 2020 intercept data with data collected in 2018 and 2019. These proxy data match the time, place, and fishing mode combinations that would have been sampled had the APAIS continued uninterrupted. Proxy data were combined with observed data to produce 2020 catch estimates using the standard estimation methodology. NMFS has indicated that when complete 2021 recreational data become available in 2022, they will evaluate the effects of including 2021 data (for example, alongside 2019 data and instead of 2018 data) in the imputation. Because these effects are unknown, the agency cannot predict whether it will seek to revise its 2020 catch estimates.

Estimates of recreational dead discards in weight for 2020 are not currently available. The method for estimating the weight of recreational discards relies on age and length information that is not complete at this time. Estimates of dead discards through 2019 are available in the draft 2021 management track stock assessment report.¹

¹ Available at: <https://www.mafmc.org/ssc-meetings/2021/july21-23>

Past Fishery Performance and Management Measures

RHLs for summer flounder were first implemented in 1993. Since then, they have varied from a high of 11.98 million lb in 2005 to a low of 3.77 million lb in 2017. Performance relative to RHLs through 2018 can only be evaluated using pre-revision ("old") MRIP data, since past RHLs were set using assessments that incorporated the previous MRIP time series. Recreational harvest (pre-revision data) relative to the RHL has varied from a high of 122% over the RHL (2000) to a low of 49% under the RHL (2011; Table 1).

From 1993-2000, coastwide measures were in place for all states and federal waters, with possession limits ranging from 3-10 fish and size limits ranging from 14.0-15.5 inches. Starting in 2001, conservation equivalency was implemented, and has been used as the preferred management system each year since (Table 1). Under conservation equivalency, individual states or multi-state regions set measures that collectively are designed to constrain harvest to the coastwide RHL. Federal regulations are waived and anglers are subject to the summer flounder regulations of the state in which they land. State-by-state conservation equivalency was adopted each year from 2001 through 2013, with each state implementing different sets of management measures. Each year from 2014 through 2021, the Board has approved the use of regional conservation equivalency, where the combination of regional measures is expected to constrain the coastwide harvest to the RHL.

In December 2020, the Council and Board adopted conservation equivalency for the summer flounder recreational fishery in 2021. Region-specific possession limits in 2021 range from 2-6 fish with size limits ranging from 15-19 inches, with various seasons (Table 2).

Under conservation equivalency, the Council and Board must adopt two associated sets of measures: the non-preferred coastwide measures, and the precautionary default measures. The **non-preferred coastwide measures** are a set of measures that would be expected to constrain harvest to the RHL if implemented on a coastwide basis (the same measures in all states and in federal waters). The combination of state or regional measures under conservation equivalency is designed to be equivalent to this set of non-preferred coastwide measures in terms of coastwide harvest. These coastwide measures are included in the federal regulations but waived in favor of state- or region-specific measures. **The non-preferred coastwide measures adopted in 2021 include a 4-fish possession limit, a 19-inch total length (TL) minimum size, and an open season from May 15-September 15.**

The **precautionary default measures** would be implemented in any state or region that failed to develop adequate measures to constrain or reduce landings as required by the conservation equivalency guidelines. **The precautionary default measures in 2021 include a 2-fish possession limit with a 20-inch TL minimum fish size and an open season from July 1-August 31.**

Table 1: Summary of federal management measures for the summer flounder recreational fishery, 1995-2022.

Measure	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
ABC (m lb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Recreational ACL (land+disc; m lb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RHL (m lb)	7.76	7.41	7.41	7.41	7.41	7.41	7.16	9.72	9.28	11.21	11.98	9.29	6.68	6.22
Harvest - OLD MRIP (m lb)	5.42	9.82	11.87	12.48	8.37	16.47	11.64	8.01	11.64	11.02	10.92	10.5	9.34	8.15
% Over/Under RHL ^c	-30%	33%	60%	68%	13%	122%	63%	-18%	25%	-2%	-9%	13%	40%	31%
Harvest - NEW MRIP	9.02	15.02	18.52	22.86	16.7	27.03	18.56	16.29	21.49	21.2	18.55	18.63	13.89	12.34
Possession Limit	8-Jun	10	8	8	8	8	3	a	a	a	a	a	a	a
Size Limit (TL in)	14	14	14.5	15	15	15.5	15.5	a	a	a	a	a	a	a
Open Season	1/1 -	1/1 -	1/1 -	1/1 -	5/29 -	5/10 -	4/15 -	a	a	a	a	a	a	a
	31-Dec	31-Dec	31-Dec	31-Dec	11-Sep	2-Oct	15-Oct							
Measure	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
ABC (m lb)	21.5	25.5	33.95	25.58	22.34	21.94	22.57	16.26	11.3	13.23	25.03	25.03	27.11	33.12
Recreational ACL (land+disc; m lb)	-	-	-	11.58	10.23	9.07	9.44	6.83	4.72	5.53	11.51	11.51	12.48	14.64
RHL (m lb) - landings only	7.16	8.59	11.58	8.49	7.63	7.01	7.38	5.42	3.77	4.42	7.69	7.69	8.32	10.36
Harvest - OLD MRIP (m lb)	6.03	5.11	5.96	6.49	7.36	7.39	4.72	6.18	3.19	3.35	-	-	-	-
% Over/Under RHL ^c	-16%	-41%	-49%	-24%	-4%	5%	-36%	14%	-15%	-24%	1%	31%	-	-
Harvest - NEW MRIP	11.66	11.34	13.48	16.13	19.41	16.24	11.83	13.24	10.06	7.60	7.80	10.06	-	-
Possession Limit	a	a	a	a	a	b	b	b	b	b	b	b	b	-
Size Limit (TL in)	a	a	a	a	a	b	b	b	b	b	b	b	b	-
Open Season	a	a	a	a	a	b	b	b	b	b	b	b	b	-

^a State-specific conservation equivalency measures.

^b Region-specific conservation equivalency measures.

^c Based on a comparison with old MRIP data through 2018 and new MRIP data starting in 2019.

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

State	2019-2021		
	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	17	5 fish	May 23-October 9
Rhode Island (Private, For-Hire, and all other shore-based fishing sites)	19	6 fish	May 3-December 31
RI 7 designated shore sites	19	4 fish ^a	
	17	2 fish ^a	
Connecticut	19	4 fish	May 4- September 30
CT Shore Program (45 designed shore sites)	17		
New York	19		
New Jersey	18	3 fish	2019: May 24- September 21 2020 and 2021: May 22- September 19
NJ Shore program site (ISBSP)	16	2 fish	
New Jersey/Delaware Bay COLREGS	17	3 fish	
Delaware	16.5	4 fish	January 1- December 31
Maryland			
PRFC			
Virginia			
North Carolina	15	4 fish	2019: January 1-September 3 2020: August 16-September 30 ^b 2021: September 1-14 ^b

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

^b North Carolina restricted the recreational season at the end of 2019 and for 2020 for all flounders in North Carolina (southern, gulf, and summer flounder) due to the need to end overfishing on southern flounder. North Carolina manages all flounder in the recreational fishery under the same regulations. In 2021, the season was further restricted to account for a southern flounder harvest overage in 2020.

Recreational Catch and Landings Trends

Table 3 provides the revised annual MRIP time series of recreational harvest (in number and weight) and catch (in number of fish) for 1981-2020, as well as the estimates for waves 1-4 for 2021. Under the revised MRIP estimates, the time series high of harvest is 36.74 million lb or 25.78 million fish in 1983, with a low harvest of 5.66 million lb or 3.10 million fish (1989). Catch in numbers of fish (harvest plus live and dead releases) reached a high of 58.89 million fish in 2010 and a low in catch of 5.06 million fish in 1989 (Table 3). Table 3 also shows the percent of summer flounder released² (relative to total catch in numbers of fish) and the mean weight of landed summer flounder each year from 1981-2020, and 2021 through wave 4.

Landings by state in recent years in thousands of pounds are shown in Table 4 including full year estimates for 2016-2020 and wave 1-4 estimates for 2021.

The percent of summer flounder harvest (in numbers of fish) from state waters (0-3 miles from shore) averaged 75% from 2016-2020 (Figure 1). Over the same time period, most harvest originated from private/rental mode trips (86%), while party/charter mode and shore mode accounted for an average of 4% and 10% of the harvest, respectively (Figure 2).

² Reported as released alive, with 10% of those live releases assumed to die post-release.

Table 3: Summer flounder recreational catch and landings under revised MRIP estimates, Maine through North Carolina, 1981-2020, all waves. 2021 preliminary estimates are shown through wave 4.

Year	Catch (mil fish)	Harvest (mil fish)	Harvest (mil lb)	% Released (Released Alive)^a	Average Weight of Harvested Fish
1981	22.77	17.02	15.85	25%	0.93
1982	26.07	19.29	23.72	26%	1.23
1983	36.35	25.78	36.74	29%	1.43
1984	39.82	23.45	28.23	41%	1.20
1985	26.28	21.39	25.14	19%	1.18
1986	32.52	16.38	26.47	50%	1.62
1987	29.94	11.93	23.45	60%	1.97
1988	25.45	14.82	20.79	42%	1.40
1989	5.07	3.10	5.66	39%	1.82
1990	15.47	6.07	7.75	61%	1.28
1991	24.83	9.83	12.91	60%	1.31
1992	21.11	8.79	12.67	58%	1.44
1993	36.18	9.80	13.73	73%	1.40
1994	26.11	9.82	14.29	62%	1.45
1995	27.84	5.47	9.02	80%	1.65
1996	29.75	10.18	15.02	66%	1.47
1997	31.87	11.04	18.53	65%	1.68
1998	39.09	12.37	22.86	68%	1.85
1999	42.88	8.10	16.70	81%	2.06
2000	43.26	13.05	27.03	70%	2.07
2001	43.68	8.03	18.56	82%	2.31
2002	34.48	6.51	16.29	81%	2.50
2003	36.21	8.21	21.49	77%	2.62
2004	37.95	8.16	21.20	79%	2.60
2005	45.98	7.04	18.55	85%	2.63
2006	37.90	6.95	18.63	82%	2.68
2007	35.27	4.85	13.89	86%	2.86
2008	39.48	3.78	12.34	90%	3.26
2009	50.62	3.65	11.66	93%	3.20
2010	58.89	3.51	11.34	94%	3.23
2011	56.04	4.33	13.48	92%	3.12
2012	44.71	5.74	16.13	87%	2.81
2013	44.96	6.60	19.41	85%	2.94
2014	44.58	5.37	16.24	88%	3.02
2015	34.14	4.03	11.83	88%	2.92
2016	31.24	4.30	13.24	86%	3.08
2017	28.03	3.17	10.06	89%	3.18
2018	23.55	2.41	7.60	90%	3.15
2019	30.75	2.39	7.80	92%	3.26
2020	33.25	3.49	10.07	90%	2.89
2021 (w1-4)	18.08	1.82	5.12	90%	2.81

^a For summer flounder, 10% of recreational releases are assumed to die.

Table 4: Summer flounder recreational harvest MRIP estimates (thousands of pounds), by state for all waves (January-December), 2016-2020. 2020 recreational estimates were developed using imputation methods (incorporating 2018 and 2019 data) to account for missing 2020 APAIS data. 2021 values are preliminary estimates through wave 4 (January-August).

	2016	2017	2018	2019	2020	2021 (w1-4)
NH	-	-	-	-	-	-
MA	240	172	143	145	176	69
RI	341	597	604	837	480	188
CT	1,024	403	549	292	388	170
NY	5,744	4,214	2,385	2,442	2,390	807
NJ	4,718	3,602	3,155	3,229	5,492	3,122
DE	435	254	205	225	534	204
MD	98	171	122	206	187	79
VA	529	528	345	369	381	482
NC	110	147	92	53	38	2
Coast	13,239	10,088	7,600	7,798	10,065	5,122

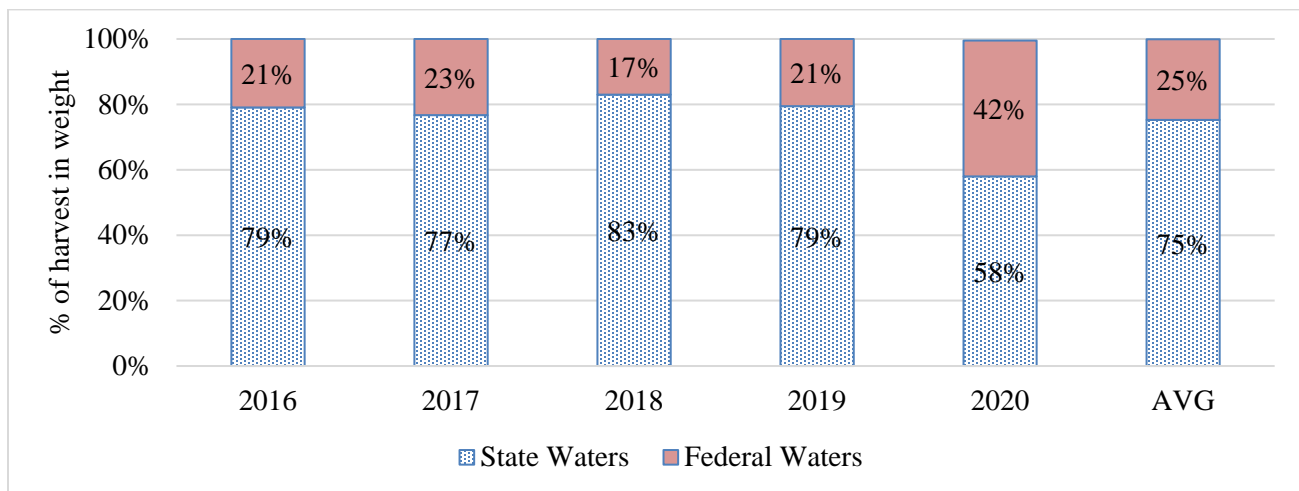


Figure 1: State vs. federal waters harvest (in weight) for summer flounder, 2016-2020. 2020 recreational estimates were developed using imputation methods (incorporating 2018 and 2019 data) to account for missing 2020 APAIS data. Fishing area information is self-reported by anglers.

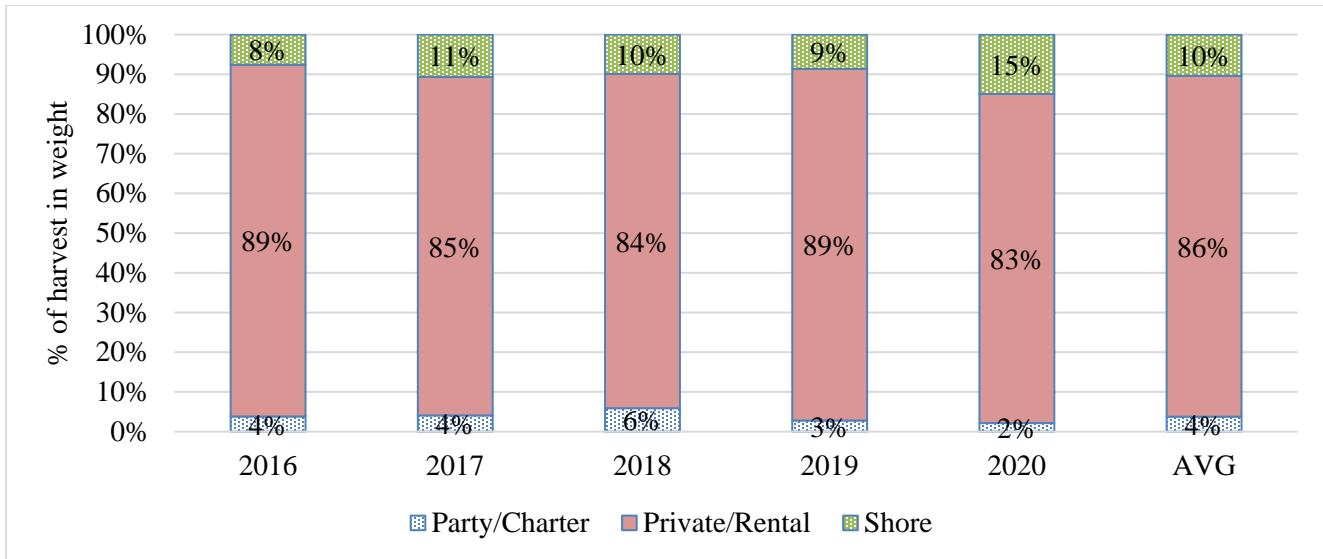


Figure 2: Summer flounder harvest by fishing mode (in weight), 2016-2020. 2020 recreational estimates were developed using imputation methods (incorporating 2018 and 2019 data) to account for missing 2020 APAIS data.

2021 Harvest Projections and Expected 2022 Harvest

2021 Harvest Projections

MRIP data for 2021 are incomplete and preliminary, with only the first four waves (January through August) available. Typically, staff project landings for the current year by using preliminary wave 1-4 data and assuming the same proportion of catch and landings by wave as in the previous year (with some adjustments to this methodology as appropriate). To project 2021 harvest, this would mean applying the 2020 proportion of harvest by wave and state to the 2021 preliminary estimates for waves 1-4. Because 2020 recreational data were derived using imputation methods to account for missing APAIS data, staff recommend caution in relying on 2020 data broken down by wave and state in developing 2021 projections. The degree of imputation needed varied by state and wave due to variations in APAIS suspension. As such, **staff recommend using an average of 2019-2020 for the proportions of harvest by wave to project 2021 harvest.**

The MC has previously considered projection methods that rely on summing individual state projections (the typical method for summer flounder), or projecting by first summing coastwide harvest for waves 1-4 and using the coastwide proportion of wave 1-4 harvest from the prior year. Both methods are provided for 2021 projections in Table 5 below. **Staff recommend using the coastwide projection methods for 2021 due to the greater uncertainty in the breakdown of state and wave data in 2020.**

Using this coastwide method, the **2021 projected harvest is 5.71 million pounds**. Alternatively, the combined state-by-state projection method results in a projected 2021 harvest of 5.66 million pounds (Table 5). The MC should consider the merits of various projection methods and years used as the basis for proportions of harvest by wave.

Changes in seasonal management measures should be considered when making harvest projections. Between 2019-2021, all states maintained status quo measures except for North Carolina, which further

restricted their season to account for a southern flounder overage, and New Jersey, which modified their season start and end dates by two days between 2019 and 2020 (see Table 2).

Table 5: Projected 2021 harvest (in pounds) based on proportions of harvest by wave from 2019-2020. Coastwide totals are given both as the combination of individual state projections and as a coastwide projection using the coastwide wave 1-4 proportion from 2019-2020.

State	2019-2020 wave 1-4 harvest as % of annual harvest	2021 wave 1-4 harvest (lb)	2019-2020 average annual harvest (lb)	2021 projected annual harvest (lb)
ME	0%	0	0	0
NH	0%	0	0	0
MA	89%	69,321	160,396	78,311
RI	99%	188,233	658,349	190,525
CT	91%	170,146	340,096	187,278
NY	86%	806,625	2,415,709	940,029
NJ	91%	3,122,420	4,360,369	3,432,362
DE	91%	203,707	379,386	222,851
MD	68%	78,841	196,801	116,757
VA	97%	481,623	375,059	494,266
NC	74%	1,563	45,402	2,127
Coastwide	90%	5,122,479	8,931,567	--
Projected total 2021 harvest as sum of state projections (lb)				5,664,505
Projected total 2021 harvest using coastwide W1-4 proportion (lb)				5,705,114

Expected 2022 Harvest

It is typically assumed that if regulations remain unchanged, effort and harvest in the upcoming year will be similar to projected harvest in the current year. This assumption does not always hold true. Harvest is impacted by many interacting factors including management measures, availability, factors influencing fishing effort other than regulations, weather, economic conditions, angler demographics, and availability and management measures for other recreational species. The impacts of these factors on harvest in future years can be difficult to accurately predict.

Table 6 provides estimates of the number of trips where summer flounder was reported as the primary target and the estimated percentage of these directed summer flounder trips relative to directed trips from all species from Maine through North Carolina. The number of directed recreational summer flounder trips generally declined from 2011 through 2019, with an indication of a rebound in directed effort in 2020. Summer flounder trips remain a relatively substantial portion of total fishing trips within the management unit (14% in 2020; Table 6).

Table 6: Number of summer flounder directed recreational fishing trips, and percentage of total directed trips, Maine through North Carolina, 2009 to 2020.

Year	Number of Summer Flounder Directed Trips (millions) ^a	Percentage of Directed Trips Relative to Total Trips ^{a,b}
2009	10.42	11%
2010	11.92	12%
2011	13.03	14%
2012	11.89	13%
2013	11.23	13%
2014	11.49	13%
2015	10.61	13%
2016	10.19	12%
2017	8.62	10%
2018	8.59	12%
2019	8.67	11%
2020	11.27	14%

^a Revised MRIP estimated number of recreational fishing trips (expanded) where the primary target species was summer flounder, Maine through North Carolina. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 1, 2021.

^b Source of total trips for all species combined, revised MRIP data: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 1, 2021.

Summer flounder year class strength can be variable and can impact availability of the fish to anglers. The management track assessment for 2021 indicates that the time series average recruitment was 53 million fish at age 0 from 1982-2019. Recruitment was below average during 2011-2017, ranging from 31 to 45 million and averaging 36 million fish. The 2018 year class is estimated at 61 million fish, which is above average and the largest since 2009, while the 2019 year class is below average at 49 million fish.

The 2018 year class will be recruiting to the fishery landings as age 4 fish in 2022. Age-length information from the stock assessment indicates that age 4 fish are on average about an 18 inch fish, but generally range from about 15 inches to 23 inches. There is high variation in length at this age as the growth rates of the sexes diverge with sexual maturity.

Recreational measures at the regional level have remained largely unchanged since 2018. Measures from 2019-2021 are shown in Table 2. Measures in 2018 were nearly identical, but with the absence of a shore program in Rhode Island and a slightly different season in New Jersey. Despite these mostly constant measures, estimated recreational harvest has varied from 7.60 million pounds in 2018 to 10.06 million pounds in 2020. If considering the 2021 projected value of 5.71 million pounds, the variation in harvest over these years would vary by over 4 million pounds. Given this variation, **staff recommend using the average harvest from 2018 through 2021 (projected) to derive an expected 2022 harvest under status quo measures from which to determine an appropriate liberalization percentage.** This average is 7.79 million pounds, which is similar to harvest in 2018 and 2019. Relative to this harvest level, this would allow for an approximate 33% liberalization compared to the 2022 RHL of 10.36 million pounds.

Table 7: Harvest estimates from 2018-2020 and projected harvest for 2021.

Year	Harvest estimate or projection (mil lb)
2018	7.60
2019	7.80
2020	10.06
2021 (projected, using coastwide wave 1-4 proportion from 2019-2020)	5.71
Average	7.79
Percent liberalization from average harvest to 10.36 mil lb RHL	33%

Accountability Measures

Federal regulations include proactive accountability measures (AMs) to prevent the summer flounder recreational Annual Catch Limit (ACL) from being exceeded and reactive AMs to respond when an ACL is exceeded. Proactive recreational AMs include adjusting management measures (bag limits, size limits, and season) for the upcoming fishing year that are designed to prevent the RHL and ACL from being exceeded. The regulations do not allow for in-season closure of the recreational fishery if the RHL or ACL is expected to be exceeded. For reactive AMs, paybacks of ACL overages may be required in a subsequent fishing year, depending on stock status and the magnitude of the overage, as described below. ACL overages in the recreational fishery are evaluated by comparing the most recent 3-year average recreational ACL against the most recent 3-year average of recreational dead catch (i.e., landings and dead discards). If average dead catch exceeds the average ACL, then the appropriate AM is determined based on the following criteria:

1. If the stock is overfished ($B < \frac{1}{2} B_{MSY}$), under a rebuilding plan, or the stock status is unknown: The exact amount, in pounds, by which the most recent year’s recreational ACL has been exceeded, will be deducted in the following fishing year, or as soon as possible once catch data are available.
2. If biomass is above the threshold, but below the target ($\frac{1}{2} B_{MSY} < B < B_{MSY}$), and the stock is not under a rebuilding plan:
 - If only the recreational ACL has been exceeded, then adjustments to the recreational management measures (bag, size, and seasonal limits) would be made in the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measures and the conditions that precipitated the overage.
 - If the Acceptable Biological Catch ($ABC = \text{recreational ACL} + \text{commercial ACL}$) is exceeded in addition to the recreational ACL, then a single year deduction will be made as a payback, scaled based on stock biomass. The calculation for the payback amount in this case is: $(\text{overage amount}) * (B_{msy} - B) / \frac{1}{2} B_{msy}$.
3. If biomass is above the target ($B > B_{MSY}$): Adjustments to the recreational management measures (bag, size, and seasonal limits) would be considered for the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measures and the conditions that precipitated the overage.

As previously discussed, 2020 recreational data collection was impacted by suspension of the intercept survey in all states due to COVID-19. While MRIP developed 2020 harvest estimates using imputation methods, discard estimates in weight for 2020 are not available due to the need for age and length information that is not available.

Thus, the most recent three years of complete recreational catch data available are 2017-2019. Recreational ACLs for 2017 and 2018 were set using assessments that used the pre-revision MRIP data; therefore, it is necessary to use catch estimates based on the old MRIP estimation methodology to compare pre-2019 recreational catch to the ACLs. The evaluation shown in Table 8 thus uses old MRIP data for 2017-2018 and revised MRIP data for 2019. This evaluation indicates that recreational catch was below the recreational ACLs for summer flounder in each year from 2017-2019. A reactive AM would not be triggered based on this comparison. Although the 2020 RHL was exceeded by about 31%, it is not possible at this time to evaluate total dead catch in 2020 relative to the ACL. NMFS will make final determinations regarding AM evaluations. It is not yet known if the agency will be able to use 2020 catch estimates in their evaluation.

Table 8: Evaluation of summer flounder recreational AMs using the 2017-2019 average recreational ACL compared to the 2017-2019 average recreational dead catch. Comparison of 2020 harvest to the RHL is also shown. Because revised MRIP estimates were incorporated into the RHL setting process starting in 2019, old MRIP data is used for 2017-2018 comparisons and revised MRIP for 2019. Recreational dead discards in weight are not available for 2020; therefore, 2020 recreational dead catch cannot be evaluated against the ACL.

	Recreational Harvest (mil lb)	Recreational Dead Discards (mil lb)	Total Dead Recreational Catch (mil lb)	Recreational ACL (mil lb)	% Over/ Under ACL
2017 (old MRIP)	3.19	0.94	4.13	4.72	-13%
2018 (old MRIP)^a	3.35	0.97	4.32	5.53	-22%
2019 (new MRIP)	7.80	3.04	10.84	11.51	-6%
2020 (new MRIP)^b	10.06 ^c	Not available	Not available	11.51	Not available

^a MRIP stopped publicly releasing pre-calibration MRIP data after 2017, but back-calibrated 2018 recreational harvest data were provided to Council staff by request. 2018 dead discards were estimated by assuming the same ratio of recreational discards to landings for the 2018 pre- and post-revision MRIP data (using post-revision data from the 2019 Northeast Fisheries Science Center data update).

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

^c The recreational harvest estimate for 2020 exceeded the 2020 RHL (7.69 mil lb) by 31%.

2022 Staff Recommendation

As described above, **staff recommend using the average harvest from 2018 through 2021 (projected) as an expected 2022 harvest level of 7.79 million pounds to serve as the basis for any adjustments to management measures. This would allow for a 33% percent liberalization.**

However, staff recommend that caution be taken when considering liberalizations due to a number of data and management factors for 2022, including:

- **Uncertainty in 2020 recreational data by state and wave.** As discussed above, due to imputation methods used to fill missing 2020 catch intercept data, the extent of which varied by state and wave, staff recommend that the MC use caution in using 2020 data at fine scales for projections or calculations of liberalizations or reductions.
- **Uncertainty in recent and future effort trends.** As shown in Table 6, the number of estimated directed summer flounder trips increased in 2020. It is not clear whether this trend will continue in 2021 and 2022.
- **Variation in harvest from 2018-2021 under nearly constant measures.** As described above, factors other than management measures have influenced recreational harvest and resulted in fluctuations in harvest under similar or identical management measures.
- **Unknown outcomes of the ongoing Harvest Control Rule Framework/Addendum and other Recreational Reform Initiative actions, as well as the Commercial/Recreational Allocation Amendment.** Final action on the Commercial/Recreational Allocation Amendment is expected in December 2021, to allow for implementation for the 2023 fishing year. Final action on the Recreational Harvest Control Rule Framework/Addendum may occur in 2022, with the potential for use in setting 2023 measures. Other Recreational Reform Initiative Actions may not be implemented by 2023. The Council and Board have not yet taken final action on any of these actions; therefore, it is unknown how they may impact recreational fisheries management in 2023 and beyond. It is important to emphasize that the Recreational Harvest Control Rule Framework/Addendum and the other Recreational Reform Initiative Actions will not change the Magnuson-Stevens Fishery Conservation and Management Act requirements for ACLs and prevention of overfishing.

Staff recommend the continued application of regional conservation equivalency to achieve the 2022 RHL, and that moderate liberalizations be considered at the state and regional level, with consideration of decreases to the minimum size limits as the liberalization method.

Many managers, advisors, and other stakeholders have repeatedly expressed concerns with the minimum size limits implemented in some states under conservation equivalency. These limits are perceived by many as being too high and associated with negative socioeconomic and biological outcomes. Since 2002, size limits have fluctuated substantially in some states, especially under state by state conservation equivalency prior to 2014. Size limits were generally highest in 2008-2010, were liberalized in the next few years, and increased again after 2016 when a large coastwide reduction in harvest was required (Table 9). Many stakeholders have argued that the current size limits focus fishing pressure disproportionately on the largest, most fecund female summer flounder, potentially influencing the sex ratio of the population and the reproductive potential of the stock.

Anglers have also expressed frustration with high release rates and low retention ability for summer flounder in the recreational fishery due to size limit regulations. The high rate of discards has decreased

angler satisfaction and angler ability to keep fish for personal consumption. In addition, there is increasing concern regarding perceived waste in the fishery and the mortality associated with discards. Over the past 10 years (2011-2020), approximately 89% of summer flounder caught recreationally were estimated to be released (Table 3), with a 10% assumed discard mortality rate applied to those released fish. Decreases to the size limits where possible may allow for increased retention of summer flounder that would otherwise be discarded. It is important to note that the Council is currently conducting a management strategy evaluation (MSE) which will evaluate different management strategies designed to minimize discards in the recreational summer flounder fishery, but it is unknown at this time which management changes may result from this effort.³

Many advisors and other stakeholders have requested evaluation of alternatives to high minimum size limits. Examples include slot limits (specification of a minimum and maximum size limit, with or without trophy fish allowance) or cumulative length limit (where all summer flounder of any length would count toward a total length allowance per angler). Slot limits were extensively discussed at the MC's November 2019 meeting.⁴ MC members expressed some interest in further exploring slot limits at the state and regional level, but did not support coastwide slot limits due to differential impacts by region.⁵ States could consider testing the application of slot limits through the Commission process as a means of liberalization.

³ Additional information available at: <https://www.mafmc.org/actions/summer-flounder-mse>

⁴ Meeting materials available at <https://www.mafmc.org/council-events/2019/sfsbsb-mc-nov-13-14>.

⁵ The full Monitoring Committee meeting summary from this meeting can be found in: https://www.mafmc.org/s/Tab12_Summer-Flounder-Rec-Measures_2019-12.pdf.

Table 9: Summer flounder size limits by state under conservation equivalency, 2002-2021. Includes the size limit in place for most of the state for most of the fishing season; does not account for special size limit programs such as shore mode programs or different size limits by area. Information is from prior recreational memos and has not been validated by states.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
MA	16.5	16.5	16.5	17	17.5	17.5	17.5	18.5	18.5	17.5	16.5	16	16	16	16	17	17	17	17	17
RI	18	17.5	17.5	17.5	17.5	19	20	21	19.5	18.5	18.5	18	18	18	18	19	19	19	19	19
CT	17	17	17	17.5	18	18	19.5	19.5	19.5	18.5	18	17.5	18	18	18	19	19	19	19	19
NY	17	17	18	17.5	18	19.5	20.5	21	21	20.5	19.5	19	18	18	18	19	19	19	19	19
NJ	16.5	16.5	16.5	16.5	16.5	17	18	18	18	18	17.5	17.5	18	18	18	18	18	18	18	18
DE	17.5	17.5	17.5	17.5	17	18	19.5	18.5	18.5	18	18	17	16	16	16	17	16.5	16.5	16.5	16.5
MD	17	17	16	15.5	15.5	15.5	17.5	18	19	18	17	16	16	16	16	17	16.5	16.5	16.5	16.5
VA	17.5	17.5	17	16.5	16.5	18.5	19	19	18.5	17.5	16.5	16	16	16	16	17	16.5	16.5	16.5	16.5
NC	15.5	15.5	14	14	14	14	14	15	15	15	15	15	15	15	15	15	15	15	15	15
Average	16.9	16.9	16.7	16.6	16.7	17.4	18.4	18.7	18.6	17.9	17.4	16.9	16.8	16.8	16.8	17.6	17.4	17.4	17.4	17.4
Weighted Average^a	16.8	16.7	16.8	16.7	16.6	17.8	18.8	18.5	18.6	18.2	17.9	17.9	17.5	17.5	17.7	18.2	18.1	18.1	18.1	-

^a Average weighted by percent of harvest (in numbers of fish) from each state.

Under conservation equivalency, a set of **non-preferred coastwide measures** must be identified. The non-preferred coastwide measures must consist of a minimum fish size, possession limit, and season for 2022 that if implemented on a coastwide basis, would be expected to constrain harvest to the 10.36 million pound RHL in 2022. Under conservation equivalency, these measures are written into the federal regulations, but waived in favor of the state- or region-specific measures. For 2021, the non-preferred coastwide measures include a 19-inch minimum fish size, 4 fish bag limit, and open season from May 15-September 15.

Because the RHL increases between 2021 and 2022 by about 25%, the non-preferred coastwide measures for 2022 could be adjusted to reflect this increase. However, since conservation equivalency has been implemented at the state or regional level for many years, it has become very difficult to predict the impacts of coastwide measures. It is also often more challenging to predict the effects of liberalizations compared to reductions given data constraints and changes in angler behavior. It is therefore difficult to identify exactly how the non-preferred coastwide measures should be adjusted. As a starting point, **staff recommend a one inch decrease to the size limit for the 2022 non-preferred coastwide measures from 19 inches to 18 inches, and maintaining the 4 fish bag limit and open season from May 15-September 15.**

Harvest and discard length frequencies can be used to evaluate what lengths are landed vs. discarded under the current regulations. It is difficult to predict how this distribution would change under modified regulations; however, the length frequency data from 2019 gives some sense of the recent availability of different sizes classes to anglers (Figure 3). Information from 2019 is provided as discard length frequencies are not currently available for 2020.

Based on harvest at length and expanded dead discard at length data, an estimated 643,000 fish in the 18" size bin (18.00-18.99 inches) were either harvested (564,064) or subject to discard mortality (78,941) in 2019 (Figure 3). Many of these discards are assumed to be due to the minimum size limit. Under a coastwide 18" size limit it can be assumed that most discards in the 18" size bin would not have been discarded. The dead discard estimate here could be scaled up by a factor of 10 (given the 10% discard mortality rate) to 789,410 live and dead fish to represent what may be harvested under an 18" minimum size. This would represent an increase of approximately 33%. This is a rough estimate as it is based on 2019 data and does not account for non-compliance, changes in effort or availability, or the average weight at different lengths. The MC may wish to provide advice on how to best address this. Based on this evaluation, it is expected that a coastwide 18" minimum size would be appropriate to constrain harvest to the 10.36 million pound RHL in 2022.

Conservation equivalency also requires **precautionary default measures** that are intended to be more restrictive than measures any state would need to implement to achieve a necessary reduction, to deter states from deviating from the conservation equivalency guidelines. The Commission would require adoption of the precautionary default measures by any state that either does not submit a summer flounder management proposal to the Commission’s Summer Flounder Technical Committee, or submits measures that are inconsistent with the conservation equivalency guidelines. In 2021, the precautionary default measures consist of a 20-inch minimum size, a 2-fish possession limit, and an open season of July 1-August 31. Because these measures are intended to be a deterrent to implementing measures inconsistent with the conservation equivalency guidelines, and because this default is likely to be more restrictive than any measure an individual state would implement in 2022, **staff recommend no changes to the current precautionary default measures.**

In summary, staff recommend that the summer flounder recreational fishery be managed under regional conservation equivalency in 2022, and consideration of up to a 33% liberalization to regional management measures given a projected underage of the 2022 RHL. Staff recommend non-preferred coastwide measures that include an 18-inch TL size limit, a 4-fish possession limit, and an open season from May 15-September 15, 2022, as well as precautionary default measures that include a 20-inch TL minimum size, 2 fish possession limit, and open season from July 1-August 31, 2022.

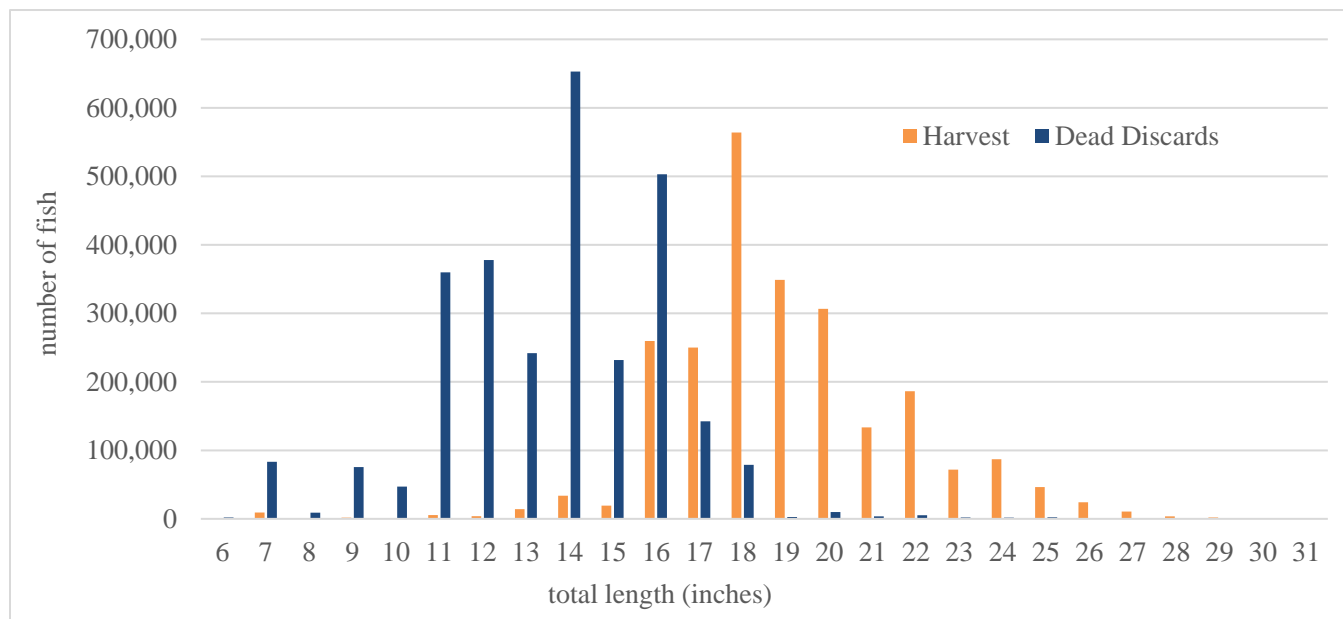


Figure 3: 2019 expanded recreational dead discard and landings length frequency data for summer flounder. Data from M. Terceiro, pers. comm., 11/3/21. Length bins include harvest or discards from X.0 to X.99 inches. These data use the NEFSC method for allocating the catches to length, including the use of supplemental state, academic, and American Littoral Society tagging data where available. As such, the proportions at length will not exactly match MRIP-provided expansions.