



**Mid-Atlantic Fishery Management Council**  
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**Date:** July 30, 2020  
**To:** Council and Board  
**From:** Kiley Dancy, Staff  
**Subject:** Summer Flounder Specifications Review for 2021

On Tuesday, August 11, the Council and Board will review previously adopted 2021 specifications for summer flounder and consider modifications based on revised SSC and Monitoring Committee recommendations. These modified recommendations were developed to update the 2021 specifications for consistency with the Council's revised risk policy adopted in December 2019. Materials listed below are provided for the Council and Board's consideration of this agenda item.

Please note that some materials are behind other tabs and some will be posted to supplemental materials.

- 1) July 2020 Scientific and Statistical Committee meeting report (*behind Tab 11*)
- 2) Staff memo on 2021 summer flounder specifications dated July 7, 2020
- 3) Summer Flounder Data Update for 2020
- 4) June 2020 Advisory Panel Fishery Performance Report and additional AP comments received through July 9, 2020
- 5) Additional written comments received through July 29, 2020
- 6) 2020 Summer Flounder Fishery Information Document

The following documents will be added as supplemental meeting materials on the August meeting page on the Council's website:

- 1) Monitoring Committee meeting summary from July 27
- 2) Advisory Panel meeting summary from July 29

**SSC Report is behind**

**Tab 11**



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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**DATE:** July 7, 2020

**TO:** Chris Moore, Executive Director

**FROM:** Kiley Dancy, Staff

**SUBJECT:** Review of Summer Flounder Specifications for 2021

### Executive Summary

In 2019, multi-year specifications for summer flounder were set for 2019 (revised) through 2021 based on the results of a benchmark stock assessment developed and peer reviewed in 2018 through the 66<sup>th</sup> Stock Assessment Workshop/Stock Assessment Review Committee (SAW/SARC 66; NEFSC 2019).<sup>1</sup> The assessment incorporated data through 2017, including the revised time series (1981-2017) of recreational catch provided by the Marine Recreational Information Program (MRIP).<sup>2</sup>

The 2018 stock assessment indicates that the summer flounder stock was not overfished and overfishing was not occurring in 2017. Spawning stock biomass (SSB) was estimated to be 98.22 million lb (44,552 mt) in 2017, 78% of SSB at maximum sustainable yield ( $SSB_{MSY} = 126.01$  million lb/57,159 mt). The fishing mortality rate (F) in 2017 was 0.334, 25% below the fishing mortality threshold reference point ( $F_{MSY\ proxy} = F_{35\%} = 0.448$ ).

In February 2019, the Council and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) approved constant three-year catch and landings limits for 2019-2021 based on a three-year averaging approach. The revised 2019 specifications were implemented via interim final rule on May 17, 2019 (84 FR 22392), and the 2020-2021 specifications were implemented via final rule on October 9, 2019 (84 FR 54041).

The measures currently implemented include an Acceptable Biological Catch (ABC) for 2019-2021 of 25.03 million lb (11,354 mt). This ABC and the corresponding sector-specific catch and landings limits for 2021 may remain unchanged if the Scientific and Statistical Committee (SSC), Council, and Board determine that no changes are warranted. However, the Council recommended revisions to their risk

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<sup>1</sup> Northeast Fisheries Science Center (NEFSC). 2019. 66th Northeast Regional Stock Assessment Workshop (66th SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 19-01; 40 p. Available from: <https://www.nefsc.noaa.gov/publications/crd/crd1908/>.

<sup>2</sup> 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 for most years are several times higher than the previous estimates for shore and private boat modes.

policy in December 2019 with the intent that 2021 specifications would reflect the new policy. As such, the SSC should consider whether the 2021 summer flounder ABC warrants revision.

Similarly, the Monitoring Committee will review recent fishery performance and make a recommendation to the Council and Board regarding any potential modifications to the implemented 2021 commercial and recreational Annual Catch Limits (ACLs) and Annual Catch Targets (ACTs) as well as the set of commercial management measures that can be modified through specifications.

The currently implemented 2021 catch and landings limits are shown in Table 1. Staff recommend modifying the currently implemented catch and landings limits for 2021 to reflect recent changes to the Council's risk policy recommended in December 2019 (Table 2). The revised risk policy includes an increased acceptable risk of overfishing at most biomass thresholds, and as such would result in an 8% increase in the 2021 summer flounder ABC if applied. The methods used to derive these measures are described in more detail later in this memo.

**Table 1:** Currently implemented catch and landings limits for summer flounder for 2021. These measures are identical to those implemented for 2019 and 2020, with the exception of the OFL which varies slightly in each year. The sector-specific catch and landings limits are initial limits prior to any deductions for past overages.

Measure	2021		Basis
	mil lb	mt	
OFL	31.67	14,367	Stock projections
ABC	25.03	11,354	SSC recommendation for 3-year averaged approach with projections sampling from recent 7-year recruitment series
ABC Landings Portion	19.21	8,715	Stock projections
ABC Discards Portion	5.82	2,639	Stock projections
Expected Commercial Discards	2.00	907	34% of ABC discards portion, based on 2015-2017 average % discards by sector (using new MRIP data)
Expected Recreational Discards	3.82	1,732	66% of ABC discards portion, based on 2015-2017 average % discards by sector (using new MRIP data)
Commercial ACL	13.53	6,136	60% of ABC landings portion (FMP allocation) + expected commercial discards
Commercial ACT	13.53	6,136	No deduction from ACL for management uncertainty
Commercial Quota	11.53	5,229	Commercial ACT, minus expected commercial discards
Recreational ACL	11.51	5,218	40% of ABC landings portion (FMP allocation) + expected recreational discards
Recreational ACT	11.51	5,218	No deduction from ACL for management uncertainty
RHL	7.69	3,486	Recreational ACT, minus expected recreational discards

**Table 2:** Staff recommended revisions to 2021 catch and landings limits for summer flounder based on the revised Council risk policy recommended in December 2019. The sector-specific catch and landings limits are initial limits prior to any deductions for past overages.

Measure	2021		Basis
	mil lb	mt	
OFL	31.67	14,367	Stock projections
ABC	27.11	12,297	Staff recommendation applying revised Council risk policy to existing OFL
ABC Landings Portion	20.81	9,439	Maintains existing projections for discards: landings proportions
ABC Discards Portion	6.30	2,858	Maintains existing projections for discards: landings proportions
Expected Commercial Discards	2.14	972	Maintains current discards split: 34% of ABC discards portion, based on 2015-2017 average % discards by sector (using new MRIP data)
Expected Recreational Discards	4.16	1,886	Maintains current discards split: 66% of ABC discards portion, based on 2015-2017 average % discards by sector (using new MRIP data)
Commercial ACL	14.63	6,635	60% of ABC landings portion (FMP allocation) + expected commercial discards
Commercial ACT	14.63	6,635	Staff recommendation: Maintain no deduction from ACL for management uncertainty
Commercial Quota	12.49	5,663	Commercial ACT, minus expected commercial discards
Recreational ACL	12.48	5,662	40% of ABC landings portion (FMP allocation) + expected recreational discards
Recreational ACT	12.48	5,662	Staff recommendation: Maintain no deduction from ACL for management uncertainty
RHL	8.32	3,776	Recreational ACT, minus expected recreational discards

Staff recommend no changes to the commercial minimum size or mesh exemption requirements for 2021. As described below in "Commercial Management Measures," staff recommend further evaluation of commercial mesh size issues in 2021 for potential application in 2022, in particular consideration of phasing out the 6" square minimum mesh size regulation, leaving the 5.5" diamond minimum mesh size in place. In addition, the MC should consider whether changes to the small mesh exemption program should be evaluated.

Additional relevant information about the fishery and past management measures is presented in the Fishery Performance Report for summer flounder developed by the Council and Commission Advisory Panels, as well as in the corresponding Summer Flounder Fishery Information Document prepared by Council staff.<sup>3</sup>

<sup>3</sup> The Fishery Information Document and Fishery Performance Report are available at: <https://www.mafmc.org/council-events/2020/july-ssc-meeting>.

## **Introduction**

The Magnuson-Stevens Act requires the Council's SSC to provide ongoing scientific advice for fishery management decisions, including recommendations for 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. In addition, the Monitoring Committee is responsible for developing recommendations for management measures designed to achieve the recommended catch limits. The SSC is responsible for recommending ABCs that address scientific uncertainty, while the Monitoring Committee recommends ACTs that address management uncertainty and management measures to constrain landings to the ACTs.

In early 2019, the SSC recommended revised 2019 and new 2020-2021 specifications based on the 2018 benchmark stock assessment results. The Council and Board adopted three-year specifications for 2019-2021 based on an averaged ABC approach, where the initial catch and landings limits in each of the three years are identical.

The SSC is asked to review the 2021 ABC and recommend changes if warranted. Similarly, the Monitoring Committee will review the previously implemented 2021 ACL and ACT recommendations, as well as the commercial quota and recreational harvest limit, recommending any changes as needed. The Monitoring Committee will also consider whether any revisions are needed to the commercial management measures (minimum fish size, minimum mesh size, and mesh exemption programs). The Council will meet jointly with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Board (Board) in August 2020 to review the SSC, Monitoring Committee, and Advisory Panel recommendations.

## **Recent Fishery Catch**

Landings in the commercial fishery in 2019 were approximately 9.06 million pounds (4,109 mt), about 83% of the adjusted commercial quota (after overage deductions) of 10.98 million pounds (4,981 mt). Commercial dead discards were estimated<sup>4</sup> at 1.73 million pounds (783 mt). Total commercial catch (10.79 million pounds or 4,892 mt) was estimated at about 20% below the commercial ACL. This is likely due to the mid-year revisions of the commercial quota, and the fact that not all states were able to adjust their management measures mid-year to encourage full quota utilization.

Recreational harvest in 2019 was 7.80 million pounds (3,537 mt), about 101% of the revised 2019 RHL of 7.69 million pounds (which was set based on the 2018 assessment incorporating revised MRIP estimates). Recreational dead discards were estimated at 3.04 million pounds (1,379). Total recreational catch (10.84 million pounds or 4,916 mt) was approximately 6% below the recreational ACL of 11.51 million pounds (5,218 mt).

The 2020 commercial landings as of June 24, 2020, indicate that 34% of the 2020 coastwide commercial quota has been landed (Table 3). Last year, 39% of the 2019 revised commercial quota had been landed as of June 22, 2019. Both of these values are below average for landings through the last week in June; on average from 2015-2018, 60% of the commercial summer flounder quota was taken by this point in the year. In 2019, mid-year quota increases were implemented on May 17, 2019, impacting the quota utilization trajectory for 2019. In 2020, advisors and others have reported that markets and ex-vessel

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<sup>4</sup> These estimates were generated by the NEFSC and may differ from commercial dead discard estimates generated by GARFO. The Northeast Regional Coordinating Council is working toward a unified database and methodology for estimating dead discards.

prices (and therefore landings) are substantially down due to the COVID-19 pandemic.

**Table 3:** The 2020 state-by-state commercial quotas and the amount of summer flounder landed by commercial fishermen, in each state as of June 24, 2020.

State	Cumulative Landings (lb)	Quota (lb) <sup>a</sup>	Percent of Quota (%)
ME	0	5,484	
NH	0	53	
MA	213,963	786,399	27%
RI	1,003,205	1,808,248	55%
CT	104,853	260,241	40%
NY	346,635	881,698	39%
NJ	568,284	1,928,391	29%
DE	0	0	0%
MD	27,757	235,108	12%
VA	864,440	2,457,822	35%
NC	788,890	3,164,505	25%
<b>Totals</b>	<b>3,918,027</b>	<b>11,530,000</b>	<b>34%</b>

<sup>a</sup> Quotas adjusted for overages. Source: NMFS Weekly Quota Report with data reported through June 24, 2020.

As of this memo, recreational estimates for 2020 are only available through wave 2 (March/April), which does not provide meaningful information about 2020 recreational harvest trends for summer flounder given that in recent years wave 2 has accounted for less than 1% of annual summer flounder harvest.

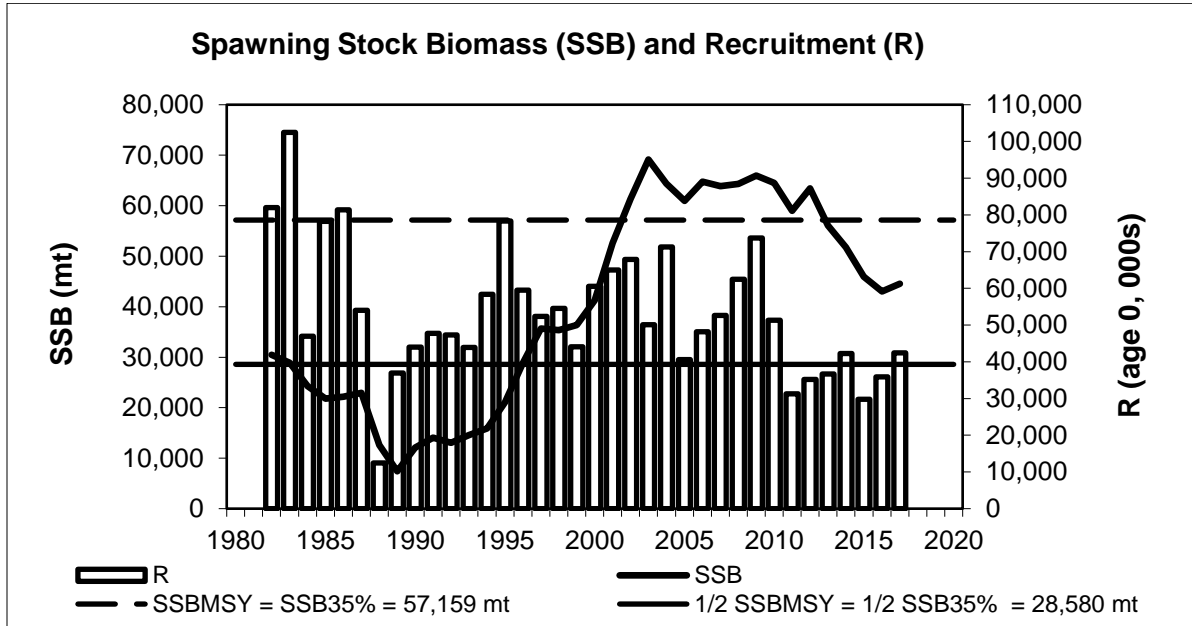
### **Stock Status and Biological Reference Points**

The recent benchmark stock assessment was developed through the 66<sup>th</sup> SAW process, and peer reviewed at the 66<sup>th</sup> SARC from November 27-30, 2018. The assessment incorporated the revised time series of recreational catch from MRIP, which is 30% higher on average compared to the previous summer flounder estimates for 1981-2017. The MRIP estimate revisions account for changes in both the angler intercept survey and recreational effort survey methodologies. While fishing mortality rates were not strongly affected by incorporating these revisions, increased recreational catch resulted in increased estimates of stock size compared to past assessments.

The biological reference points for summer flounder as revised through the SAW/SARC 66 process include a fishing mortality threshold of  $F_{MSY} = F_{35\%}$  (as the  $F_{MSY}$  proxy) = 0.448, and a biomass reference point of  $SSB_{MSY} = SSB_{35\%}$  (as the  $SSB_{MSY}$  proxy) = 126.01 million lb = 57,159 mt. The minimum stock size threshold ( $1/2 SSB_{MSY}$ ), is estimated to be 63.01 million lb (28,580 mt; Figure 1).

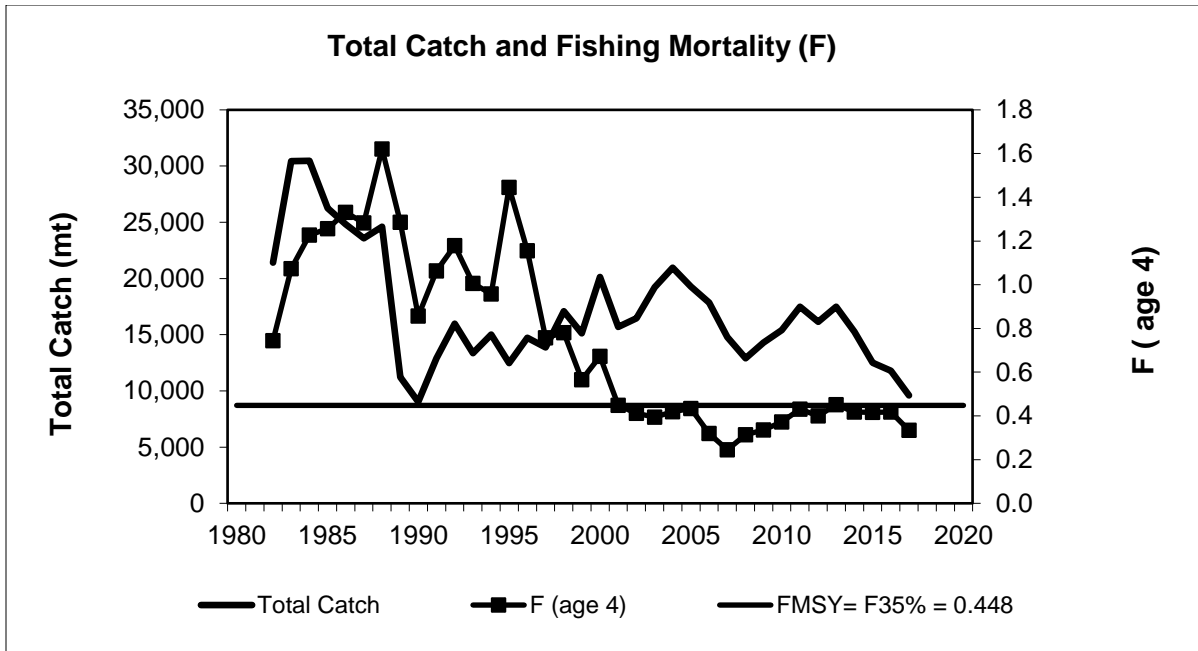
Assessment results indicate that the summer flounder stock was not overfished and overfishing was not occurring in 2017. Fishing mortality on the fully selected age 4 fish ranged between 0.744 and 1.622 during 1982-1996 and then decreased to 0.245 in 2007. Since 2007 the fishing mortality rate (F) has increased, and in 2017 was estimated at 0.334, below the SAW 66  $F_{MSY}$  proxy of  $F_{35\%} = 0.448$  (Figure 2). The 90% confidence interval for F in 2017 was 0.276 to 0.380.

SSB decreased from 67.13 million lb (30,451 mt) in 1982 to 16.33 million lb (7,408 mt) in 1989, and then increased to 152.46 million lb (69,153 mt) in 2003. SSB has decreased since 2003 and was estimated to be 98.22 million lb (44,552 mt) in 2017, about 78% of  $SSB_{MSY} = 126.01$  million lb (57,159 mt), and 56% above the  $\frac{1}{2} SSB_{MSY}$  proxy =  $\frac{1}{2} SSB_{35\%} = 63.01$  million lb (28,580 mt; Figure 1). The 90% confidence interval for SSB in 2017 was 39,195 to 50,935 mt.



**Figure 1:** Summer flounder spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars) 1980-2017. The horizontal dashed line is the 2018 SAW66 recommended target biomass reference point proxy,  $SSB_{MSY} = SSB_{35\%} = 57,159$  mt. The horizontal solid line is the 2018 SAW66 recommended threshold biomass reference point proxy  $\frac{1}{2} SSB_{MSY} = \frac{1}{2} SSB_{35\%} = 28,580$  mt. Source: NEFSC 2019.





**Figure 2:** Total fishery catch (mt; solid line) and fully-recruited fishing mortality (F, peak at age 4; squares) of summer flounder. The horizontal solid line is the 2018 SAW66 recommended fishing mortality reference point proxy FMSY = F35% = 0.448. Source: NEFSC 2019.

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

In June 2020, the Northeast Fisheries Science Center (NEFSC) provided a data update for 2020<sup>5</sup>, including updated landings information as well as federal trawl survey indices through 2019. The data update indicates that the NEFSC spring survey index of summer flounder stock biomass decreased by 4% from 2018 to 2019 and the fall index decreased by 36% from 2018 to 2019. The NEFSC fall survey length frequency distributions suggest that an above average year class recruited to the stock in 2018. The 2020 data update does not provide information on state survey indices.

### **Review of Prior SSC Recommendations**

In February 2019, the SSC recommended, and the Council and Board adopted, three-year ABCs for summer flounder for 2019-2021, based on new stock status information and projections from the 2018 assessment.

The SSC indicated that the approach to estimating uncertainty in the overfishing limit (OFL) had not changed since the previous benchmark (SAW/SARC 57). Accordingly, the SSC maintained its determination that the assessment should be assigned an “SSC-modified OFL probability distribution.” In this type of assessment, the SSC provides its own estimate of uncertainty in the distribution of the OFL. The SSC continued the application of a 60% OFL CV, because: (1) the latest benchmark assessment did not result in major changes to the quality of the data and model that the SSC has

<sup>5</sup> Available at [https://www.mafmc.org/s/Summer\\_flounder\\_2020\\_Data\\_Update.pdf](https://www.mafmc.org/s/Summer_flounder_2020_Data_Update.pdf).

previously determined to meet the criteria for a 60% CV; (2) the summer flounder assessment continues to be a data rich assessment with many fishery independent surveys incorporated and with relatively good precision of the fishery dependent data; (3) several different models and model configurations were considered and evaluated by SAW-66, most of which showed similar stock trends and stock status; and (4) no major persistent retrospective patterns were identified in the most recent model. The SSC noted that significant improvements in quality of data and exhaustive investigations of alternate model structures affirm the specification of the 60% OFL CV by the SSC.

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

As requested by the Council, the SSC recommended two alternative sets of three-year ABCs based on the SAW66 assessment: ABCs for 2019-2021 fishing years derived by the “typical” approach resulting in ABCs varying each year, and a constant ABC for all three fishing years derived by averaging the three ABCs resulting from the “typical” approach. The Council and Board ultimately adopted the SSC-recommended ABCs based on the three-year averaging approach. Table 4 shows these ABCs along with the associated OFLs and P\* values.

**Table 4:** SSC-recommended OFLs, ABCs, and P\* values for both the 3-year averaged ABC approach adopted by the Council and Board.

Year	OFL	ABC	P*
2019	30.00 mil lb (13,609 mt)	25.03 mil lb (11,354 mt)	0.372
2020	30.94 mil lb (14,034 mt)		0.351
2021	31.67 mil lb (14,367 mt)		0.336

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

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

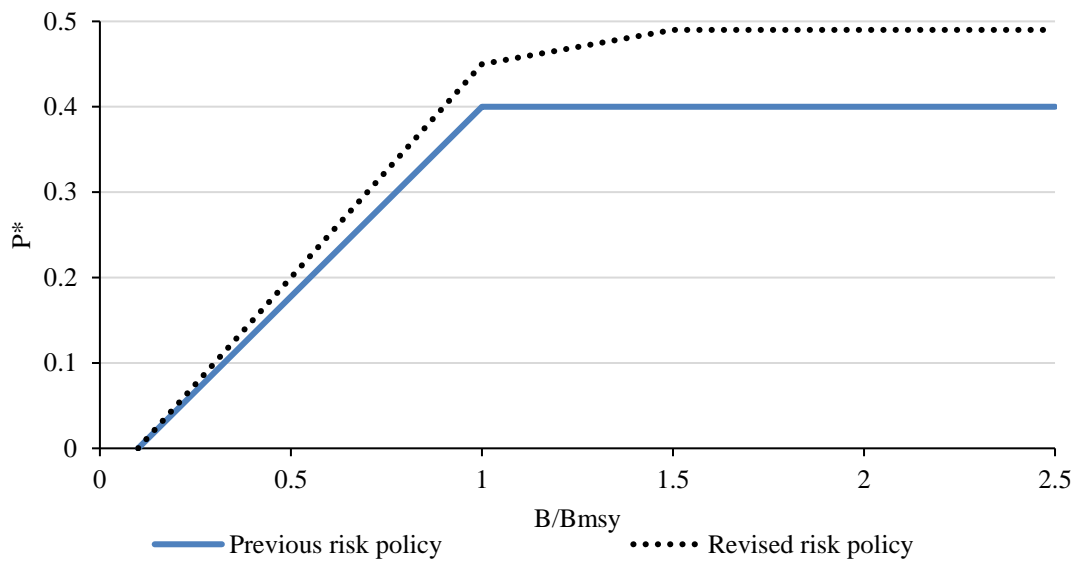
### **Revisions to the Council's Risk Policy**

The Council first implemented a risk policy and ABC control rule in 2011 to comply with the 2006 re-authorization of the MSA. In 2017, the Council expressed interest in more comprehensively considering economic and social factors in addition to biological factors in its risk policy. In 2019, a workgroup comprised of NOAA Fisheries staff, SSC members, academics and Council staff was formed and tasked with developing and analyzing various risk policy alternatives in order to assess the short and long-term trade-offs between stock biomass protection and economic yield and benefits. Members of the

workgroup built off their existing biological and economic management strategy evaluation (MSE) models.

The Council considered nine different risk policy alternatives at its December 2019 meeting, ultimately approving a combination of two alternatives described in the document.<sup>6</sup> The approved risk policy allows for increased risk under high stock biomass conditions (increased  $p^*$  at most biomass levels, compared to the previous risk policy; Figure 3). The change is greatest for stocks with biomass above the target level ( $B_{MSY}$ ). The revised risk policy retains the previous stock replenishment threshold (i.e., biomass levels where  $P^*=0$ ) of  $B/B_{MSY} \leq 0.1$ . The policy uses a linear ramping for  $B/B_{MSY}$  values less than 1.0 up to a maximum  $P^*$  of 0.45 when stock biomass is at its target. For stocks with  $B/B_{MSY}$  values over 1.0, a second linear ramp is used up to a maximum  $P^*$  of 0.49 for stocks at or above  $B/B_{MSY} = 1.5$ .

In addition to the changes described above, the Council also approved removing the typical/atypical designation associated with the current risk policy.



**Figure 3:** Acceptable probability of overfishing ( $p^*$ ) at different biomass levels under the Council’s previous and revised risk policies.

<sup>6</sup> Alternatives 2 and 8 described in the December 2019 discussion document available at <http://www.mafmc.org/briefing/december-2019>.

## **Staff Recommendation for 2021 ABC**

Staff recommend revising the previously implemented specifications for summer flounder for the 2021 fishing year based on the recent revisions to the Council's risk policy, as described in Table 5. This would revise the 2021 ABC from 25.03 million pounds (11,354 mt) to 27.11 million pounds (12,297 mt). This represents an 8% increase in the ABC. Recommended revisions were calculated based on the Council's revised risk policy using the currently implemented 2021 OFL of 31.67 million pounds (14,365 mt), a projected 2021 B/Bmsy of 0.88, and the SSCs currently applied OFL CV of 60%.

**Table 5:** Current and staff recommended 2021 ABCs and P\* values.

<b>Measure</b>	<b>2021: Current</b>	<b>2021: Staff Recommendation</b>
ABC	25.03 mil lb (11,354 mt)	27.11 mil lb (12,297 mt)
P*	0.34	0.39

## **Sector-Specific Catch and Landings Limits**

### ***Recreational and Commercial Annual Catch Limits***

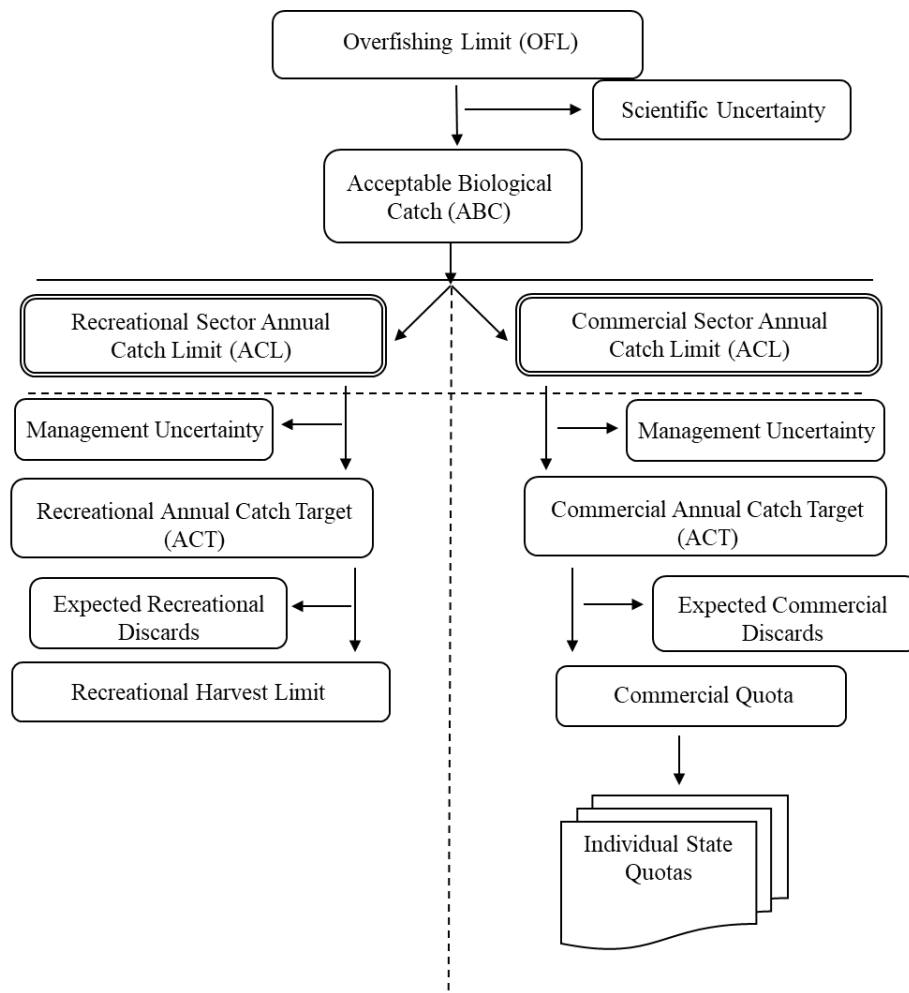
The summer flounder ABC includes both landings and discards, and is divided into the commercial and recreational ACLs (Figure 4). Staff recommend maintaining the currently implemented split of the ABC into expected discards (23%) and landings (77%), which was included in the NEFSC's ABC projections based on the proportion at age of discards vs. landings for the terminal 5 years in the assessment (i.e., 2013-2017). This proportion is very close to average estimated discards/landings for the past several years (Table 6).

**Table 6:** Percentage of total summer flounder catch from actual fishery landings and estimated discards, 2015-2019, based on NEFSC data.

	<b>Landings</b>	<b>Discards</b>
<b>2015</b>	82%	18%
<b>2016</b>	81%	19%
<b>2017</b>	75%	25%
<b>2018</b>	76%	24%
<b>2019</b>	78%	22%

Based on the allocation percentages in the FMP, 60% of the amount of the ABC expected to be landed is allocated to the commercial fishery, and 40% to the recreational fishery. Discards are typically apportioned based on the discards contribution from each fishing sector using a 3-year moving average percentage.

When 2019-2021 specifications were set in early 2019, the most recent three-year period of available data was 2015-2017. The discard percentages by sector were calculated using the revised MRIP data, resulting in an estimated at 66% of dead discards attributable to the recreational fishery and 34% to the commercial fishery (Table 1). The Monitoring Committee should consider whether more recent data should be used to split the expected discards between the commercial and recreational fisheries, such as the three-year average of discards by sector from 2017-2019 (estimated at 59% from the recreational fishery and 41% from the commercial fishery). This would result in a shift of 441,000 pounds (200 mt) of projected discards from the recreational ACL to the commercial ACL and does not impact the landings limits. Staff recommend maintaining the current distribution of projected discards based on 2015-2017 given that this difference is minor, and recent discards trends indicate that neither configuration is expected to meaningfully influence whether either sector exceeds its ACL. In addition, the proportions of discards by sector from 2015-2017 are more consistent with trends in most of the last 10 years (using revised MRIP data), while the proportion from 2017-2019 is more heavily influenced by the year 2018 which saw a lower proportion of recreational discards than usual (a 50/50 split between the sectors).



**Figure 4:** Flowchart for summer flounder catch and landings limits.

### ***Annual Catch Targets and Accountability Measures***

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

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

Commercial landings have generally been near the commercial quotas for the last five years (2015-2019), with the exception of 2019 which had a more notable underage given a substantial mid-year increase in quota (Table 7). The NMFS Regional Administrator has in-season closure authority for the commercial summer flounder fishery, and commercial quota monitoring systems in place are typically effective in allowing timely reactions to landings levels that approach quotas. As such, any landings-based overages tend to be small in magnitude and are deducted from state quotas in the following years. Commercial ACL overages caused by higher than projected discards result in a payback amount scaled based on estimates of stock biomass relative to the biomass target. This occurred in 2019 based on a 2017 ACL overage driven by discards; the revised 2019 commercial ACT was reduced by 547,000 pounds based on the scaling calculation using the biomass estimate from the most recent assessment. For 2020, no commercial AM was triggered based on 2018 performance. While 2019 catch estimates are available from the NEFSC, GARFO estimates of commercial catch used in the ACL evaluation may differ and are still being finalized for 2019. Thus, it is not known at this time what the magnitude of any reductions would be for the 2021 commercial ACT.

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 supports this conclusion (Table 8). Commercial discards decreased in 2019, possibly due in part to increased quotas although this is difficult to determine given the mid-year quota change. Note that observer data show an increased proportion of observed discards attributed to "too small," possibly driven by an above average 2018 year class as indicated by fishery independent surveys. The commercial sector was under their commercial ACL by approximately 20% in 2019.

Staff recommend maintaining commercial ACTs set equal to the ACLs for 2021, such that no reduction in catch is taken for management uncertainty.

For the recreational fishery, performance relative to past RHLs cannot be evaluated using the revised MRIP data, since past harvest limits were set based on assessments that used the old data. A performance evaluation for 2015-2019 using a combination of old and new MRIP data is provided in Table 7 (2015-2018 uses pre-calibration MRIP data). Data for 2019 are from the revised MRIP methodology and can be compared to the 2019 limits given that they were set using the new assessment which incorporated revised MRIP information. Compared to the commercial fishery, recreational performance has been much more variable relative to the RHLs given the difficulty forecasting

recreational effort and catch rates in any given year, as well as the lack of timely in-season data and in-season closure authority for the recreational fishery. Between 2015-2019, recreational harvest was below the RHLs in three of the five years, notably in 2015 when the recreational fishery experienced a large underage, with landings 36% below the RHL.

The Monitoring Committee should continue its ongoing work to incorporate estimates of uncertainty in the recreational data and more fully consider various factors that may influence recreational catch and harvest. For example, the impacts of management changes on recreational discards and the impacts of year class size and trends in biomass projections should be more thoroughly considered with the goal of better predicting impacts of management measure changes. The Council and Board are currently considering both short-term and long-term modifications to the recreational management system to address some of these uncertainties in recreational management and achieve a balance of flexibility and stability in the recreational measures.

Recreational AMs are evaluated based on a three-year moving average of recreational catch compared to the average recreational ACL over the same time period. These are typically evaluated in the fall during the setting of recreational measures for the upcoming fishing year. Given recreational ACL underages during 2017-2019, a recreational AM is not expected to be triggered for summer flounder in 2021; however, GARFO will conduct their own ACL evaluations later this fall.

For 2021, staff recommend maintaining the previously implemented recreational ACTs set equal to the ACLs, such that no reduction in catch is taken for management uncertainty.

**Table 7:** Summer flounder commercial and recreational fishery performance relative to quotas and RHLs, 2015-2019. Recreational data shows pre-revision MRIP estimates for 2015-2018 to allow comparison to past RHLs, and 2019 is evaluated with the new MRIP estimates given that the 2019 RHL was set with the new assessment which incorporated the revised MRIP data.

Year	Comm. Landings (mil lb) <sup>a</sup>	Comm. Quota (mil lb) <sup>b</sup>	Comm. Percent Overage(+)/ Underage(-)	Rec. Harvest - OLD MRIP (mil lb) <sup>c</sup>	Rec. Harvest - REVISED MRIP (mil lb) <sup>c</sup>	RHL(mil lb) <sup>d</sup>	Rec. Percent Overage(+)/ Underage(-)
2015	10.68	11.07	-4%	4.72	11.83	7.38	-36%
2016	7.81	8.12	-4%	6.18	13.24	5.42	+14%
2017	5.83	5.66	+3%	3.19	10.08	3.77	-15%
2018	6.14	6.44	-5%	3.35	7.60	4.42	-24%
2019	9.06	10.98	-17%	N/A	7.80	7.69	+1%
5-yr Avg.	-	-	-5%	-	-	-	-12%

<sup>a</sup> Source: NMFS dealer data, as of June 2020.

<sup>b</sup> Commercial quotas are post-deduction for past landings and discard overages.

<sup>c</sup> Source: 2015-2017 pre-calibration MRIP data from NMFS MRIP calibration comparison query accessed June 27, 2019. 2018 back-calibrated data is from personal communication with NMFS. 2019 recreational landings are from a NMFS recreational fisheries statistics query May 12, 2020. Recreational landings are from Massachusetts through North Carolina.

<sup>d</sup> RHLs for 2015-2018 were set using a prior assessment that did not incorporate revised MRIP values. The 2019 RHL was set using the 2018 assessment which incorporated revised MRIP values.

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

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

***Commercial Quotas and Recreational Harvest Limits***

Projected discards are removed from the sector-specific ACTs to derive landings limits, which include annual commercial quotas and RHLs (Figure 4). For 2021, the staff recommendation would revise the 2021 commercial quota from 11.53 million pounds to 12.49 million pounds, and the RHL from 7.69 million pounds to 8.32 million pounds due to the change in the Council’s risk policy (Table 2).

The commercial quota has historically been divided amongst the states based on the allocation percentages in the FMP, shown in Table 9. However, in March 2019, the Council and Board approved modifications to the commercial allocations through a Summer Flounder Commercial Issues Amendment (see: <http://www.mafmc.org/actions/summer-flounder-amendment>). These changes are pending implementation by the National Marine Fisheries Service, and if approved, are expected to take effect on January 1, 2021.

The Council and Board approved an allocation system which 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 will continue be distributed according to the current allocations. In years when the coastwide quota exceeds 9.55 million pounds, the *additional* quota amount beyond this trigger would be distributed by equal shares to all states except Maine, Delaware, and New Hampshire, which would split 1% of the additional quota (Table 9). The total percentage allocated annually to each state is dependent on how much additional quota beyond 9.55 million pounds, if any, is available to be distributed in any given year. This allocation system is designed to provide for more equitable distribution of quota when stock biomass is high, while also considering the historic importance of the fishery to each state.



**Table 9:** The current summer flounder quota allocations for the commercial fisheries in each state, and the proposed revisions expected to be effective January 1, 2021. Allocated poundage shown under a 11.53 mil lb coastwide quota (currently implemented for 2020 and 2021) and the staff recommended 2021 coastwide quota of 12.49 mil lb.

State	Existing Allocations		Revised Allocation System (Pending NMFS Approval and Implementation)		
	Allocation (%)	Status Quo Quotas under 11.53 mil lb quota (2020)	Allocation of baseline quota ≤9.55 mil lb (%)	Allocation of additional quota beyond 9.55 mil lb (%)	State Quotas under revised alloc. and 12.49 mil lb quota (2021 staff rec)
<b>ME</b>	0.04756	5,484	0.04756	0.333	14,342
<b>NH</b>	0.00046	53	0.00046	0.333	9,844
<b>MA</b>	6.82046	786,399	6.82046	12.375	1,015,179
<b>RI</b>	15.68298	1,808,248	15.68298	12.375	1,861,550
<b>CT</b>	2.25708	260,241	2.25708	12.375	579,376
<b>NY</b>	7.64699	881,698	7.64699	12.375	1,094,113
<b>NJ</b>	16.72499	1,928,391	16.72499	12.375	1,961,062
<b>DE</b>	0.01779	2,051	0.01779	0.333	11,499
<b>MD</b>	2.03910	235,108	2.03910	12.375	558,559
<b>VA</b>	21.31676	2,457,822	21.31676	12.375	2,399,576
<b>NC</b>	27.44584	3,164,505	27.44584	12.375	2,984,903
<b>Total</b>	100	11,530,000	100	100	12,490,001

Specific management measures that will be used to achieve the RHL for the recreational fishery in 2021 will not be determined until later in 2020. Typically, the Council and Board review data through Wave 4 (July-August) in the current year to set specifications in the upcoming year. The Monitoring Committee meets in November to review these data and make recommendations regarding any necessary changes in the recreational management measures (i.e., bag limit, minimum size, and season).

## **Commercial Management Measures**

### ***Commercial Gear Regulations and Minimum Fish Size***

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

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

In September 2019, the Monitoring Committee discussed various mesh size issues for summer flounder, scup, and black sea bass, and revisited the 2018 mesh selectivity study for summer flounder, scup, and

black sea bass by Hasbrouck et al. (2018)<sup>7</sup>. The document provided for that discussion is available at <https://www.mafmc.org/s/FSB-Mesh-Size-Issues-Overview-Sept-2019.pdf>, and the MC report can be found at: [https://www.mafmc.org/s/SFSBSB\\_MC\\_Summary\\_Sept\\_2019\\_FINAL.pdf](https://www.mafmc.org/s/SFSBSB_MC_Summary_Sept_2019_FINAL.pdf). The Hasbrouck et al. study suggest 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 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 Monitoring Committee noted that further analysis should be done on how many vessels are currently using 6.0" square vs. 5.5" diamond mesh.

While the MC was supportive of continuing to analyze this issue, the group recognized that it should be a lower priority issue in the near term given other pressing management concerns for this FMP such as responding to the 2019 scup and black sea bass operational assessments, and the amendment to address sector allocation concerns for all three species driven by recent recreational estimate changes. The Council and Board also agreed that while this issue should still be pursued, it was not a near-term priority given other management activities.

Staff recommend no changes to the current 14-inch minimum fish size, or seasonal possession thresholds triggering the minimum mesh size at this time. Staff recommend that additional work to evaluate minimum mesh requirements be conducted in 2021 for potential application in 2022, in particular consideration of phasing out the 6.0" square mesh size for summer flounder.

### ***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.

Over the past few years, these evaluations have shown an increased percentage in the number of

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<sup>7</sup> Available at: [http://www.mafmc.org/s/Tab08\\_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf](http://www.mafmc.org/s/Tab08_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf)

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. The MC has identified this as a potential management issue which should be tracked to determine if changes to the program are needed. The MC has also noted that these increases in discards are possibly related to decreased commercial quotas, especially from 2017 through the first half of 2019.

Staff evaluated NEFOP data for the relevant November-April periods from November 1, 2012 through April 30, 2019. For 2019, a total of 646 trips with at least one tow were observed east of 72° 30.0'W and 354 of these trips used small mesh (Table 10). Of those 354 trips, 164 trips (46%) reported landing more than 200 lb of summer flounder. Of those 164 trips, 53 trips (32%) 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 8.2% (53/646 trips). The prior two relevant time periods showed 6.5% of observed trips east of the line that met the criteria. In prior years, this percentage has been closer to 2-5% (Table 10). While the amount of observed discards from these trips is low relative to the commercial catch limit, because these observed trips are a subset of the fishery operating under this exemption, the actual extent of discards under the exemption program is not known.

The MC should consider whether changes may be needed to this exemption program given the increased proportion of observed trips discarding more than 10% of their summer flounder catch while using this exemption program. Because similar data is not yet available for the November 2019-April 2020 period, it is possible that the quota increase implemented for 2019-2021 will reduce the rates of summer flounder discarding observed under the below-average quotas of 2017-2019 (pre-revision).

The number of vessels issued a letter of authorization (LOA) for the small mesh exemption program has remained relatively stable since 2013, with a slight increase in 2019 (Table 11).

Based on the information described above, staff recommend that the MC identify additional analysis or industry input needed to inform potential changes to the small mesh exemption program, likely to be conducted in 2021 for potential application in 2022.

**Table 10:** Numbers of observed trips that meet specific criteria based on NEFOP data from November 1-April 30 from November 2012 through April 2019.

Criteria		Nov. 1, 2012 – Apr. 30, 2013	Nov. 1, 2013 – Apr. 30, 2014	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
A	Observed trips with at least one catch record east of 72° 30' W Longitude	395	382	401	391	555	724	646
B	That met the criteria in row A <u>and</u> used small mesh at some point during their trip	139	113	172	252	376	364	354
C	That met the criteria in rows A-B <u>and</u> landed more than 200 pounds summer flounder on whole trip	63	35	72	92	150	135	164
D	That met the criteria in rows A-C <u>and</u> discarded >10% of summer flounder catch east of 72° 30' W Longitude	8	7	21	18	36	47	53
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)	2.00%	1.80%	5.20%	4.60%	6.50%	6.50%	8.20%
F	Total summer flounder discards (pounds) from trips meeting criteria in A-D	1,472	2,140	14,579	16,470	14,640	33,868	18,186
G	Total summer flounder landings (pounds) from trips meeting criteria in A-D	4,342	5,876	15,224	23,295	25,472	76,780	59,960
H	Total catch (pounds) from trips meeting criteria in A-D	5,814	8,016	29,804	39,763	40,113	110,648	69,145

**Table 11:** Number of vessels issued the small mesh LOA for the SMEP from fishing year 2013-2019.

Year	Vessels Enrolled
2013	71
2014	55
2015	65
2016	61
2017	69
2018	62
2019	75

### **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 Lee Paramore dated July 7, 2020 (see Attachment) indicates that no summer flounder were landed in the North Carolina flynet fishery in 2013, 2015, 2016, 2017, 2018, or 2019. 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.<sup>8</sup> The MC determined at the time that other states, including Virginia, New Jersey, and Maryland may have small amounts of flynet landings; however, data were limited or unavailable for most other states and flynet landings of summer flounder in these states were believed to be insignificant.

A recent (January 2020) public comment from a New Jersey fisherman<sup>9</sup> asserts that this exemption is being used more frequently than indicated by the Monitoring Committee analyses, and that many New Jersey vessels have been using this exemption to increase their flexibility to retain summer flounder on multispecies trips. He states that these vessels are using "high rise" nets that fall under the flynet definition, and as a result they are able to retain more than 200 pounds of summer flounder during the November 1-April 30 period without switching to summer flounder mesh sizes. He also requests a change in the definition of exempt flynet gear to include four-seam nets (in addition to two-seam nets) as well as some clarifying modifications to the regulatory language. Staff will continue to explore these comments with state technical representatives prior to the meeting. The MC should discuss whether the

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<sup>8</sup> See the report at: [http://www.mafmc.org/s/Tab11\\_SF-S-BSB-Commercial-Measures.pdf](http://www.mafmc.org/s/Tab11_SF-S-BSB-Commercial-Measures.pdf).

<sup>9</sup> See attachment at: <https://www.mafmc.org/s/Fluke-mesh-exemption-memo-MC-May-2020.pdf>.

comments raised represent a potential issue with the flynet definition, compliance, or enforcement, and whether future analyses of this exemption program need to be modified.

Based on this information, staff preliminarily recommend no change to the summer flounder flynet exemption program in 2021. However, staff recommend further evaluation of the use of flynets or flynet-type gear in other states that may be utilizing this exemption and exploration of whether changes to the exemption or annual analysis are needed.



ROY COOPER  
*Governor*

MICHAEL S. REGAN  
*Secretary*

STEPHEN W. MURPHEY  
*Director*

**Memorandum**

**To:** Kiley Dancy, MAFMC

**From:** Lee Paramore, NCDMF

**Date:** July 7, 2020

**Subject:** Species composition and landings from the 2019 North Carolina fly net fishery

The 2019 North Carolina fly net fishery landed 62,374 pounds of finfish and squid consisting of five species including black sea bass, scup, butterfish, blueline tilefish and longfin squid. All 2019 North Carolina fly net 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 and 2019 fly net fisheries. Total fly net landings in 2019 are the second lowest since the trip ticket program began in 1994 and were only slightly higher than those in 2018 (40,460 pounds). Reduced fishing effort on targeted fish species and increased shoaling at Oregon Inlet continue to result in a low number of fly net boats landing at North Carolina ports.

## Summer flounder Data Update for 2020

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

### Fishery and Survey Data

Reported 2019 landings in the commercial fishery were 4,109 mt = 9.059 million lb, an increase of 47% from 2018, and 82% of the 2019 commercial quota. Estimated 2019 landings in the recreational fishery were 3,537 mt = 7.798 million lb, an increase of 3% from 2018, and 101% of the 2019 recreational harvest limit. Total commercial and recreational landings in 2019 were 7,646 mt = 16.857 million lb, an increase of 23% from 2018.

The NEFSC spring survey index of summer flounder stock biomass decreased by 4% from 2018 to 2019; the fall index decreased by 36% from 2018 to 2019 (Figure 2). The NEFSC fall survey length frequency distributions suggest that an above average year class (mode at about 20 cm total length) recruited to the stock in 2018 (Figure 3).

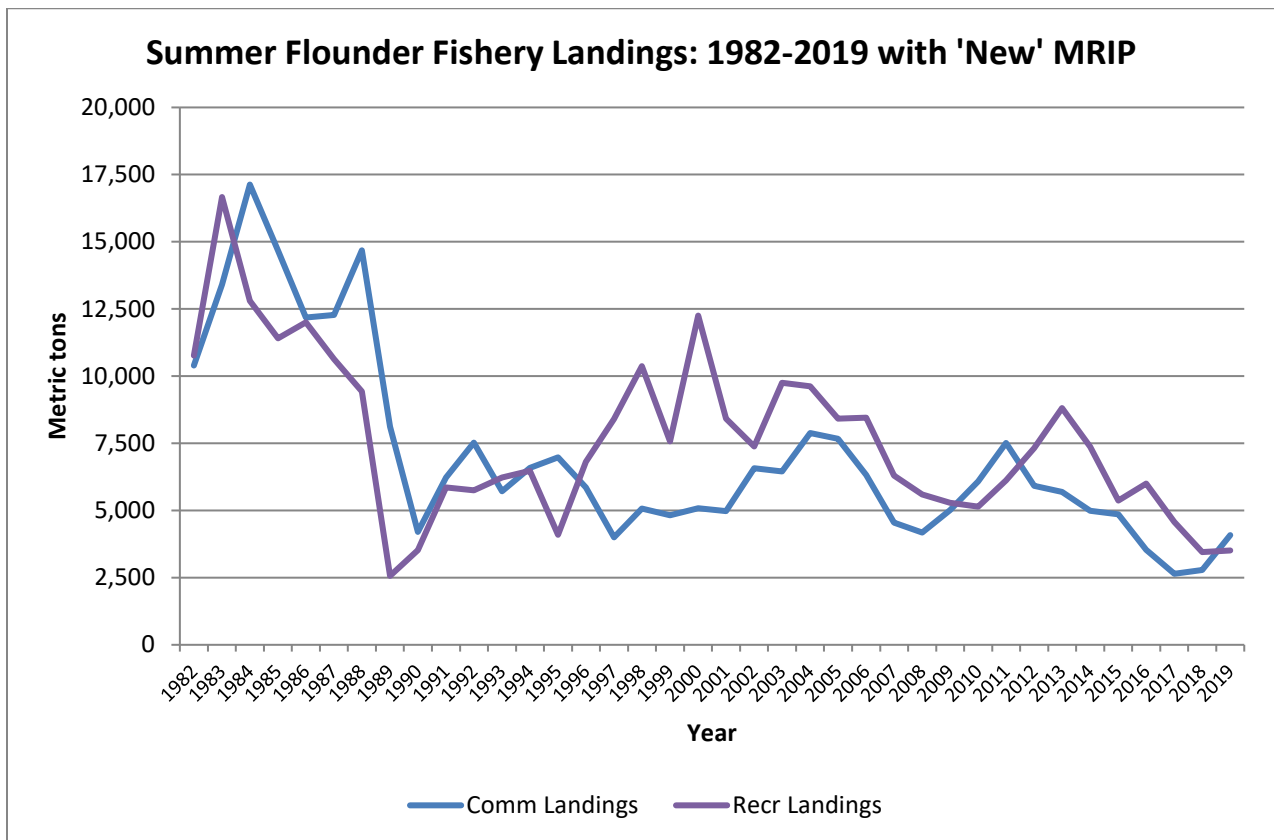


Figure 1. Summer flounder fishery landings (includes 'New' Marine Recreational Information Program [MRIP] estimates of recreational landings).



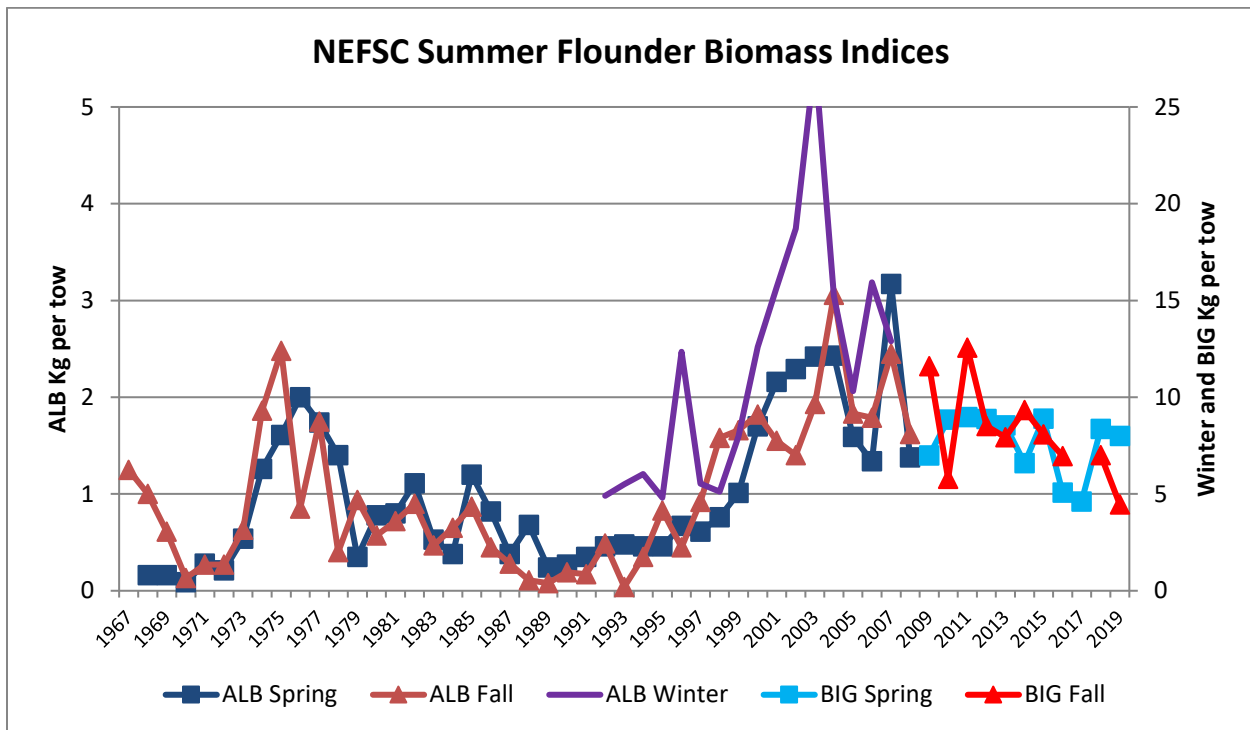


Figure 2. Northeast Fisheries Science Center (NEFSC) trawl survey aggregate biomass indices for summer flounder. ALB indices are FSV Albatross IV indices. BIG indices are FSV HB Bigelow indices. ALB spring and fall indices are plotted on the left-hand Y-axis. ALB winter and BIG spring and fall indices are plotted on the right-hand Y-axis. Note that the ALB and BIG indices are now independent series; there is no valid BIG Fall 2017 index for summer flounder.

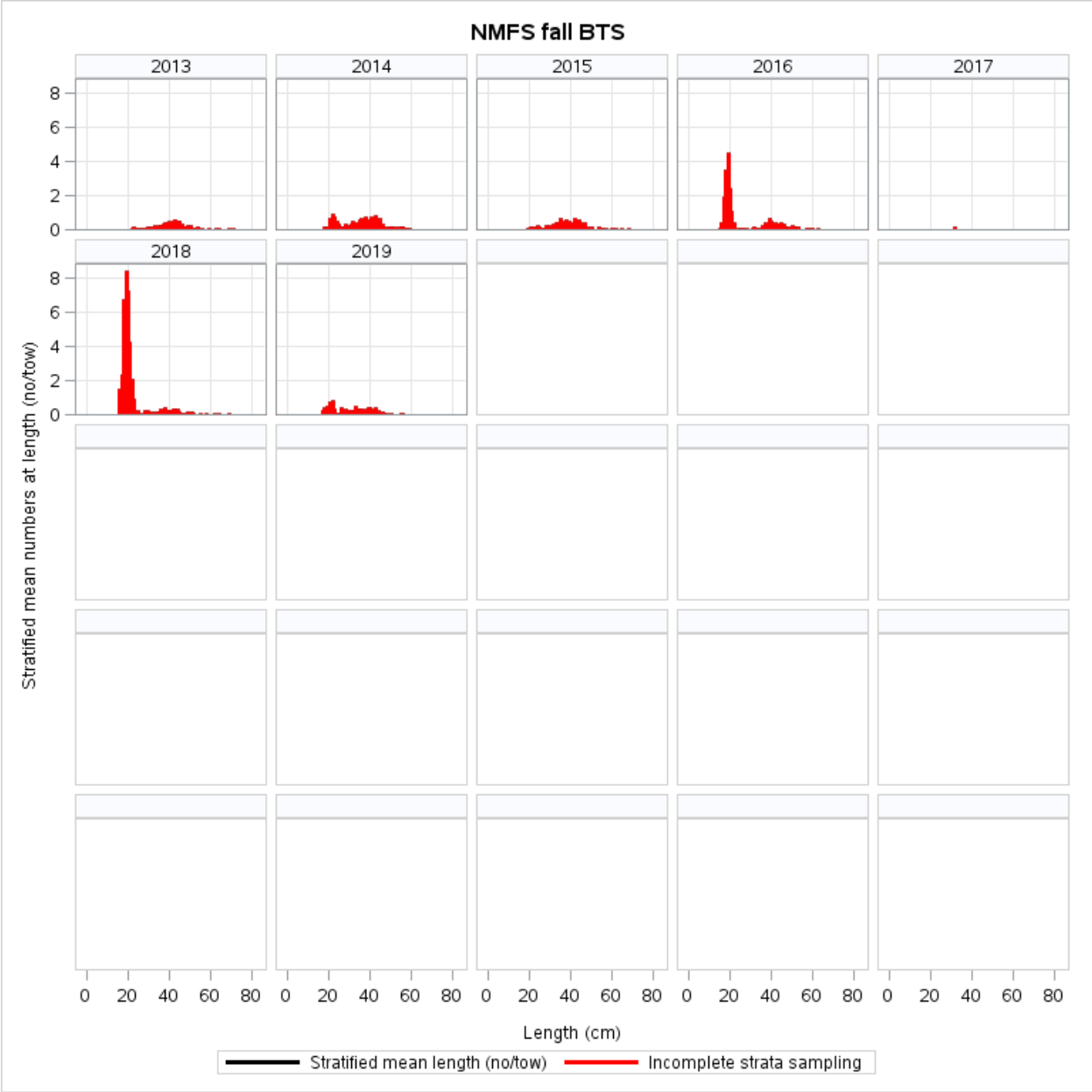


Figure 3. Northeast Fisheries Science Center (NEFSC) fall trawl survey FSV HB Bigelow indices at length.



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

June 2020

The Mid-Atlantic Fishery Management Council's (Council's) Summer Flounder, Scup, and Black Sea Bass Advisory Panel (AP) met jointly with the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass AP on June 29, 2020 to review the Fishery Information Documents and develop the following Fishery Performance Report for the three species. The primary purpose of this report is to contextualize catch histories for the Scientific and Statistical Committee (SSC) by providing information about fishing effort, market trends, environmental changes, and other factors. A series of questions listed below were posed to the AP to generate discussion. Please note: Advisor comments described below are not necessarily consensus or majority statements.

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

**Council Advisory Panel members present:** Bonnie Brady (NY), Jeff Deem (VA), Skip Feller (VA), James Fletcher (NC), Carl Forsberg (NY), Robin Scott (NJ), Chris Spies (NY), Joan Berko (NJ)

**Commission Advisory Panel members present:** Frank Blount (RI), Jack Conway (CT), Greg DiDomenico (NJ), Marc Hoffman (NY), Bill Shillingford (NJ)

**Others present:** Chris Batsavage (Council/Board member, NC DMF), Julia Beaty (MAFMC Staff), Alan Bianchi (NC DMF), Steve Cannizzo (NY RFHFA), Joe Cimino (Council/Board member, NJ DEP), Dustin Colson Leaning (ASMFC Staff), Karson Coutr  (MAFMC Staff), Kiley Dancy (MAFMC Staff), Steve Doctor (MD DNR), Emily Keiley (NMFS GARFO), Caitlin Starks (ASMFC Staff), Corinne Truesdale (RIDEM)

### Trigger questions

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

## **General Comments**

One advisor asked if the Council and Commission are violating the recent Presidential Executive Order by forcing fishermen to discard fish that could be used.

### ***Impacts of COVID-19 on Fishing Effort***

Multiple advisors described how the for-hire fishery is recovering from recent COVID-19 closures. Even with the current restrictions on the number of people per trip, they are booking many trips and are attempting to make up for lost opportunity earlier in the season. One advisor said the for-hire and bait and tackle industries feel extreme pressure to make up for as much lost business as possible before the fall when demand typically drops off. One advisor said the for-hire industry is also being negatively impacted by decreased availability of fishing equipment due to tackle warehouse shortages.

Advisors reported that commercial markets and ex-vessel prices have been down substantially due in large part to restaurant closures, as described for each species below.

Additional species-specific comments on COVID-19 impacts are described later in this document.

### ***Environmental Conditions***

One advisor noted that since additional restrictions have been put on the menhaden fishery, there are more sharks inshore due to an overabundance of menhaden. He believes the increased abundance of sharks may be having an impact on other species, for example by chasing bluefish and striped bass offshore. He questioned what additional impacts sharks are having on managed species such as black sea bass and summer flounder.

### ***Recreational Data Concerns***

A few advisors expressed concern with the Marine Recreational Information Program (MRIP) data, which they see as inaccurate and fundamentally flawed.

One advisor stated that MRIP uses an estimated number of anglers in New York that is at least twice the true number. He also stated that MRIP has refused to tell him exactly how many anglers they are estimating for New York. Staff and others clarified that MRIP estimates effort in number of trips and does not use a specific number of anglers to generate catch and harvest estimates.

One advisor requested that the Council implement mandatory private angler reporting via cell phones, specifically using technology associated with the Bluefin Data trip ticket system used by North Carolina. He has spoken with representatives of this company who have said that they could implement such a system for the recreational fisheries. He said if the Council and SSC don't pursue private angler reporting despite the ability to do so, they should produce a statement explaining why they don't want recreational data that is comparable to the commercial data.

### ***Advisory Panel Participation***

Advisors had multiple suggestions for how to improve AP participation. Multiple advisors requested that future webinar AP meetings occur in the evenings to increase attendance. One advisor noted that different groups have different needs and although evening webinars may work best for most of the group, some commercial fishermen may find them challenging as they are often up at 3:00 or 4:00 am. A few advisors noted that the weeks before and after July 4<sup>th</sup> and

Labor Day are some of the worst times to hold AP meetings. One AP member requested more frequent reminders of upcoming meetings.

One member of the public said AP participation may also be low because advisors are frustrated and the Council and Commission should do a better job of listening to and addressing advisor concerns.

## **Summer Flounder**

### ***Market/Economic Conditions***

Several advisors said summer flounder has been selling for a much cheaper price than usual. The market is primarily restaurants and demand has been greatly reduced due to COVID-19 and restaurant closures.

One advisor said supermarket demand is mostly for farmed fish. The ex-vessel price for summer flounder has been so low that it has not been worth it for many vessels to go fishing. One advisor reported about \$1 per pound recently, compared to the \$3-4 coastwide average in recent years, and also noted that New York is more beholden than other states to a fresh fish market.

One advisor noted that medium size summer flounder set the market price. Restaurants can portion the fish; however, the consumer who cooks at home does not want a large fish and this impacts demand at fish markets. He believes it is a problem that imported fish tend to fit the size that consumers want and fisheries like summer flounder are at a disadvantage due to the current minimum size limits. This advisor supported lowering the minimum size below 14 inches to be able to target smaller male fish.

### ***Environmental Conditions and General Fishing Trends***

One advisor said commercial fishermen on the north side of Long Island Sound are seeing fewer summer flounder than they have seen in years, and the catch per day is down. One member of the public disagreed with this statement, saying that in his discussions with a for-hire captain who fishes in Long Island Sound, their season has been very good so far for summer flounder due to a warm winter followed by a cold spring, and they are reporting some of the best fishing in years. However, he noted that on the south shore and west end of Long Island, trends have been the opposite, with low catch rates and a slow season that has just started to improve in the last few years.

One advisor stated that fishing in Rhode Island has been slow and some of the worst catch rates they have seen in years.

Another advisor reported that on the eastern shore of Virginia, recreational fishing was slow to get started this year due to a cold spring and the impacts of COVID-19, but effort has been high in recent weeks. He said summer flounder fishing has been good so far, with a higher rate of keepers per throwback than usual.

### ***Management Issues***

A few advisors questioned the recreational data from MRIP on summer flounder landings by recreational fishing mode. One questioned the estimate that 10% of summer flounder landings come from shore-based anglers, stating that based on data he has seen, it should be more like 80%.

Another advisor said he believed 10% from shore is too high for the eastern shore of Virginia, but otherwise the proportions by mode seemed approximately correct. Another advisor said it's difficult to believe that three times as many fish are caught from the private and shore modes compared to party/charter, but he also said MRIP is unreliable in general.

One advisor requested consideration by the SSC and Council/Board of a recreational total length limit for summer flounder (i.e., a cumulative length limit where anglers can keep up to a specified total number of inches of fish) with mandatory retention of all fish caught until the length limit is reached.

## **Scup**

### ***Management Issues***

One advisor said that in earlier years, any size scup could be landed and larger fish were being left in the population. During this time he said that biomass was at its lowest while recruitment was high. In recent years, biomass is high and recruitment is low because we are removing the spawning adults due to size restrictions. He also felt the mesh size and minimum size for scup should be decreased in the commercial fishery. He said there used to be a market for small scup but due to management, this market has transitioned to imported fish such as tilapia. He also reiterated the need for a cumulative length limit in the recreational fishery to eliminate discards along with cellphone reporting.

One advisor said that in Massachusetts the primary for-hire season for scup is during wave 3, which was partially closed this year due to COVID-19 restrictions. Once for-hire businesses were permitted to reopen, charter vessels were restricted to 8 people to comply with social distancing guidelines. He wanted to know how management was going to address the gap in collection of MRIP intercept data due to COVID-19 and hoped that managers take into account the impacts the pandemic has had on fishing effort, specifically the reduced for-hire effort.

### ***Market/Economic Conditions***

One advisor noted that along with the COVID-19 issues that apply to all three species, scup markets started becoming depressed back in January of this year when foreign markets for scup were being impacted by the pandemic. Scup prices got as low as \$0.10 per pound when the market collapsed.

Another advisor agreed and added that although they are seeing an abundance of scup, there is no market on the commercial side. On the recreational side, people are catching them and taking them home. He felt that recreational effort was greatly reduced and was concerned about what MRIP would estimate for catch this season given greatly reduced intercept sampling due to COVID-19.

## **Black Sea Bass**

### ***Market Issues***

Commercial black sea bass landings through mid-June 2020 are on a very similar trajectory as 2019, despite widespread restaurant closures due to the coronavirus pandemic. One advisor said that although the price of black sea bass decreased from as much as \$4-6 per pound to \$1.50 per pound due to decreased demand, the price was still higher than many other species (see above).

For this reason, fishermen who continued to fish despite the greatly decreased market demand tended to target black sea bass rather than other species.

### ***Biological Issues***

One advisor said most trawl surveys don't sample more than three miles from shore, yet black sea bass have been caught as far as 100 miles from shore in lobster pots. This could result in the stock assessment under-estimating biomass. Council staff clarified that the Northeast Fisheries Science Center trawl surveys operate well beyond 3 miles from shore. He added that black sea bass are so abundant that they are wiping out populations of shellfish such as lobsters and clams. He requested an emergency opening of the recreational fishery and an increase in the commercial quota to help bring down the black sea bass population and take pressure off other stocks.

One advisor said he has heard that 2020 has been a good year so far for commercial and recreational black sea bass fisheries off Virginia. Another advisor said it has been a very good spring for recreational black sea bass fishing off Virginia. He added that the February recreational fishery was phenomenal and September through December were also very good.

### ***Commercial Catch Locations and Distribution of Stock***

Advisors discussed the figure in the Fishery Information Document which shows that statistical area 616 had the highest proportion of commercial black sea bass catch in 2019 based on federal VTR data. Multiple advisors agreed that the distribution of black sea bass catch is impacted by fishing effort targeting summer flounder. For example, one advisor said that vessels intending to land summer flounder in North Carolina and Virginia travel to the Hudson Canyon area to target summer flounder. They do not make dedicated black sea bass trips, but catch black sea bass on trips where they are primarily targeting summer flounder. Another advisor added that the distribution of black sea bass catch is also driven by vessels based in other states in addition to North Carolina and Virginia. Many vessels hold summer flounder permits in multiple states and some of those permits allow an incidental limit of black sea bass. For example, she said New York fishermen have to buy summer flounder permits from multiple states in order to be competitive in the market due to New York's comparatively low allocation of the summer flounder quota.

A few advisors asked if most of the commercial catch in statistical area 616 occurred during the winter. One advisor said most North Carolina summer flounder landings occur during November through February, with an occasional trip in April or May and black sea bass landings may follow a similar pattern. He also noted that the summer flounder trip limits impact black sea bass effort. Subsequent examination of the data revealed that 91% of the catch reported on federal VTRs for statistical area 616 in 2019 occurred during January-April and December. This information was not provided during the AP meeting.

One advisor said the black sea bass stock has expanded both north and south.

### ***Recreational Fishery***

One advisor said the MRIP estimates showing much higher black sea bass catch from anglers on private and rental boats compared to party/charter boats are unbelievable.

A few advisors asked why staff referred to the 2016 and 2017 black sea bass recreational harvest estimates as outliers. They also asked why other estimates are not considered outliers and why the outlier estimates have not been replaced by more reasonable estimates. Staff explained that the

Monitoring and Technical Committees agreed that the 2016 and 2017 black sea bass estimates are unbelievably high due to individual state/wave/mode level estimates (i.e., New York in wave 6 2016 for all modes and New Jersey in wave 3 2017 for the private/rental mode only). One advisor said the New York wave 4 estimate for 2015 should also be considered an outlier.

Staff explained that the MRIP estimates are calculated through a national, standardized process; therefore, MRIP staff have said they are unwilling to revise the official estimates unless they detect an error in the calculations, which is not the case for black sea bass. However, the Council and Commission can use modified estimates in the management process. Staff noted that one goal of the ongoing Recreational Reform Initiative is to develop a standardized and statistically robust process that can be used to examine all MRIP estimates for both high and low outliers and adjust those estimates as appropriate.<sup>1</sup> This would make it more likely that adjusted estimates could be used in more parts of the management process. One member of the public said he supported this concept. He added that separate management of the private and for-hire sectors could help address some issues of MRIP uncertainty as the for-hire sector reports their catch through vessel trip reports.

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<sup>1</sup> More information on the Recreational Reform Initiative is available at: <https://www.mafmc.org/actions/recreational-reform-initiative>.



----- Forwarded Message -----

**Subject:**TOP 25 DEFINITION OF INSANITY QUOTES | A-Z Quotes

**Date:**Mon, 29 Jun 2020 11:41:21 -0400

**From:**James Fletcher <[unfa34@gmail.com](mailto:unfa34@gmail.com)>

**Reply-To:**[unfa34@gmail.com](mailto:unfa34@gmail.com)

**To:**Beaty, Julia <[jbbeaty@mafmc.org](mailto:jbbeaty@mafmc.org)>

<https://www.azquotes.com/quotes/topics/definition-of-insanity.html>

PERHPS THE ADVISORS SHOULD READ ! I WOUNDER IF GROUP THINK SCIENCE WILL UNDERSTAND?

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

## Kiley Dancy

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**From:** James Fletcher <bamboosavefish@gmail.com>  
**Sent:** Tuesday, June 30, 2020 9:27 AM  
**To:** Muffley, Brandon; Didden, Jason; Moore, Christopher; Kellogg, Chris; Kiley Dancy; Batsavage, Chris  
**Subject:** Eco based fishery management in nut shell commercial & Recreational

NO DISCARDS TOTAL RETENTION! FISHERY MANAGEMENT.

COMMERCIAL: DOLLAR VALUE PER YEAR, BASED ON LENGTH OF VESSEL; MUST LAND & SELL ALL CATCH. COMPLIES WITH EXECUTIVE ORDER.

No market each area would have dehydration plant ! fish meal 80 cent to \$2,00 per pound TOTAL RETENTION TOTAL UTILIZATION

RECREATIONAL: TOTAL LENGTH FOR ALL SPECIES; ALL FISH MUST BE RETAINED! BARBLESS HOOKS FOR THOSE FISHING FOR FUN

FISHING FOR FOOD CAN HAVE BARBED HOOKS [TWO TYPES OF LICENSE!] BASED ON FISHING FOR FOOD OR FUN / RECREATION.

**MUST HAVE CELL PHONE REPORTING for recreational**

**BUILT ON BLUE FIN DATA SYSTEM! SAME USED BY N.C. & NMFS! COMPLY WITH EXECUTIVE ORDER.**

**WHY IS COUNCIL WASTING TIME?**

**WILL SOME ONE FOR COUNCIL EXPLAIN WHY MREP OR MERPS DATA INSTEAD OF CELL PHONE DATA REPORTING?**

WHY WON'T MREP REQUIRE CELL PHONE REPORTING? PLEASE GIVE A COUNCIL / NATIONAL MARINE FISHERIES DEPARTMENT OF COMMERCE EXPLANATION WHY NO CELL PHONE REPORTING \*\*\*\*\*PLEASE EXPLAIN OFFICIALLY \*\*\*\*\*!

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

## Kiley Dancy

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**From:** Vetcraft Sportfishing <vetcraft@aol.com>  
**Sent:** Tuesday, June 30, 2020 1:53 PM  
**To:** Kiley Dancy  
**Subject:** AP comments

I would like to submit the following research opportunities which I think could benefit the management of our fisheries.

1. Numbers of fish vs pounds.....I do not believe that Magnuson has any language that prohibits managing fisheries based on numbers of fish rather than poundage. While the commercial sector is paid based on the poundage of their catch, the recreation sector survival is based on allowable numbers of fish allowed to be retained. Clearly with the present management system, when we manage in pounds and increase the minimum size, we reduce the allowable numbers of fish to be retained. This is very detrimental to the recreational sector as angler satisfaction decreases with declining allowable retention limits. I think we could look back to the time period (1980-1989) and look at the numbers of fish caught in that time frame and regulate the recreational sector accordingly.

2. Commercial and recreational best outcomes.....Again, when we manage in poundage, the outcome may not be as we intend. For example, with the increased millions of pounds given to the commercial sector (based on revised MRIP data and other factors), the corresponding price per pound dropped (even before COVID became a factor). The figures presented in the AP documents clearly show the lack of benefit. With an extra 3 million pounds of quota, the benefit was only 1.5 million dollars with the lower appreciated dockside price. While this factor is not demonstrated in all species and over all historical trends, it is something that should be certainly looked at, perhaps with a consortium of commercial representatives that could best provide feedback on quota changes and profitability.

In the recreational sector, here too we should look at angler satisfaction vs potential outcome for the industry. For example with a historic 8 fish per person limit for fluke, we do not see a proportional decline in participation at a 3 fish per person (in NJ where I fish). Angler satisfaction is really what drives the industry and I would suggest looking at sampling angler participation for guidelines or what parameters would could be implemented that would encourage fishing, but perhaps save stock for future allocation.

In both scenarios, stock could be given to a sector not necessarily used in that given year, but instead preserved for better outcomes in future years.

3. MRIP data.....We continue to struggle with reliable recreational data, which is creating much dissatisfaction voiced by both the rec and commercial sectors. Any system based on memory, or voluntary submission is not likely to prove successful. I would submit that the data is already out there to tell us when people are out fishing. With cell phone tracking systems in place, data is available that can tell how many people are out on the water on any given day. GPS data will provide info on which boats are on known fishing grounds. I would look into recruiting IT folks who are familiar with such data sources and start to formulate a data plan that could really tell us how many people are out fishing.

4. Regional depletions.....We continue to see regional depletions of fluke in New Jersey and elsewhere. By this I mean that even though the stock may be a satisfactory biomass, access to the fishery is quite disparate. Some sections on New Jersey see a reasonable mass of legal fluke whereas some communities see only sparse concentrations. I have long suspected that concentrated fishing for this species can lead to regional depletions. We have historically seen this happen with yellowtail flounder, herring, and Pacific salmon, to name a few.

We have very limited knowledge of the migration pattern of fluke from their offshore spawning grounds back to the inner shelf waters in the spring. By allowing regional concentrated fishing efforts, we now have southern commercial boats having to motor hundreds of miles to the north to catch their quota. Similarly we have regions of New Jersey, Virginia, and Delaware that are seeing an overall depletion in their fluke stocks.

This year so far is interesting in that the fluke fishing has been rather good for the recreational fleet out of New Jersey, mostly caused, I believe by the reduced commercial harvest related to the lack of marketability from the loss of the restaurant demand.

I think we can not manage fluke successfully if we don't fully understand their migration pathway. Tagging studies, although expensive and time consuming, done on the spawning grounds, would help to show us how these fish are

migrating back inshore. Much valuable data could be obtained knowing where these fish return and could help us manage the fishery better to prevent the long haul for the commercial fleet and also even out the inshore fishery for the recreational sector. Oceanic dynamic metrics have not been drastic enough to explain the sparsity of the stock in the southern end of its' range, where it once thrived in abundance.

Capt Harv  
Vetcraft Sportfishing  
Cape May, New Jersey  
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[www.vetcrafsportfishing.com](http://www.vetcrafsportfishing.com)

**From:** [Katie Almeida](#)  
**To:** [Beaty, Julia](#)  
**Subject:** RE: Fishery Performance Report for your review and next AP meeting  
**Date:** Monday, July 6, 2020 3:13:52 PM

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Hi Julia,

Here are our answers to the questions that were asked. Sorry for not being able to make it.

Fluke:

1a. prices have been stable, markets available (especially for fluke). Cost of fuel is not a huge factor at this point.

1b. we've been seeing warmer temperatures

1c. an increase of quota will decrease discards

2. N/A

3. More industry based research with industry participation in surveys.

Black sea Bass:

Answers are similar to Fluke

Scup:

1a. Not enough of a market to withstand supply. Price can be cheap which effects fuel price. If bsb is too cheap it's not worth spending the fuel to go out for it.

1b. warmer waters

1c. No

**From:** PAUL CARUSO [mailto:pkcaruso@comcast.net]

**Sent:** Monday, July 6, 2020 2:17 PM

**To:** Dustin C. Leaning <DLeaning@asmfc.org>

**Subject:** [External] Re: Fishery Performance Report for your review and next AP meeting

Sorry Dustin, Don't know how I missed that call. For recreational performance in MA, 2019 fluke fishing was even worse than in 2018. Few legal (17" plus) were inshore and available to the shore, and most of the private boat mode anglers. If you wanted legal fluke the run was 23+miles, out of reach for vessels under 25 feet. There seemed to be little for forage inshore (no sand eels). Sea bass fishing was good in 2019 but the lack of a late fall season continues to restrain recreational harvest here in MA. Even though only few of the PB mode vessels here target scup there seemed to be plenty of scup of all sizes around in 2019, as in 2018.

**From:** [James Fletcher](#)  
**To:** [Beaty, Julia](#)  
**Subject:** Re: Fishery Performance Report for your review and next AP meeting  
**Date:** Tuesday, July 7, 2020 8:54:49 AM

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Ms. Julia; Thank you for including many suggestions in performance report, especially recreational data. **DID I FORGET TO MENTION OCEAN RANCHING & ENHANCEMENT GENETICALLY FOR THESE STOCKS? IF SO MY FAULT!** Probably need to ask FM & SSC if other countries enhance stocks & how. Ask SSC to review 30 year old Yamaha Fisheries Journal for comparable stocks in far east. Matching summer flounder scup & sea bass, different name same spot in environment. off Japan coast. **ASK SSC TO CONSIDER A TOTAL RETENTION OF ALL CATCH BY BOTH SECTORS AS A ECO SYSTEM MANAGEMENT PLAN.**

THANK YOU!

**From:** HOFFMAN [mailto:mkhoffman@optonline.net]

**Sent:** Wednesday, July 8, 2020 6:44 PM

**To:** Dustin C. Leaning <DLeaning@asmfc.org>

**Subject:** [External] Re: Fishery Performance Report for your review and next AP meeting

Dustin

Please be aware that Steve Canizzo's comment about the abundance of fluke came from a party boat captain whose website is designed to sell fares on his boat. The captain is notorious for making statements that are self-serving. I have no problem with anybody having a different opinion than mine. Bonnie Brady confirmed my statement about fluking being slow. We were talking about the same area. Frank Blount from Rhode Island also stated that fluking was slow in his area which is just across Long Island Sound from where Bonnie and I were speaking of.

As to MRIP's mysterious numbers that I have been asking for, The dock intercepts give them the average catch per angler. The mail survey tells them how often an angler goes fishing. Then the numbers are applied to a multiple. Whatever the name of that multiple factor is (# of fishermen, x factor), you cannot get to a total number of trips without it. What is that multiple factor for each state? Why is it so secret?

With regard to the biomass surveys, Bob Beal told me that almost all of the surveys are within 3 miles as well as other people involved with the fisheries. Do some surveys go out to 4 or 5 miles? Certainly, but no surveys go 10 miles out. That was agreed to by your staff, the same person who said they go beyond 3 miles.

Try talking to some of your other panel members on the lobster and other shell fish panels. Ask how far out the lobstermen are getting seabass in their traps. How come the inshore lobsterman is extinct south of Cape Cod? Could it be that the seabass ate all the juveniles? We have 250% of the targeted biomass inshore. How many fish are outside of the limited trawl surveys. Why don't we try to find out? If we went to 10 fish per angler at 14" and I am dead wrong, the worst that could happen is that in five years we would fall back to 200%.

How has the vast increase in menhaden affected other species? How has the increase in sharks to inshore areas affected other species? Has it caused bluefish to move further offshore? Has it affected fluke?

Everything that happens to one species affects many others.

These are my comments with regard to your summary.

Regards,

Marc Hoffman



## Kiley Dancy

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**From:** Katie Almeida <kalmeida@towndock.com>  
**Sent:** Tuesday, July 28, 2020 11:50 AM  
**To:** Kiley Dancy  
**Subject:** RE: Reminder and materials: Wed. July 29 Advisory Panel meeting

**Categories:** SFSCBSB

Hi Kiley,

I'm not going to be able to make tomorrow night's call, but I do want to say that I am in support of the quota increases for fluke, scup and bsb. Regarding the range of alternatives for the fluke, scup and bsb comm/rec allocation amendment there seems to be a decent range of alternatives to work with. Has the committee met regarding this yet?

Thank you,  
Katie

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## Kiley Dancy

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**From:** James Fletcher <bamboosavefish@gmail.com>  
**Sent:** Wednesday, July 29, 2020 9:21 AM  
**To:** Kiley Dancy  
**Subject:** Re: Reminder and materials: Wed. July 29 Advisory Panel meeting

SOME ON MC. STATED 6000 VESSEL PERMITS. THIS IS NOT CORRECT!

As an advisor I AM UPSET THE MC WOULD NOT ADDRESS ELECTRONIC REPORTING BY RECREATIONAL FISHERS! Also not addressing total length retention. WHAT IS THE MC JOB?

Would you allow advisors to discuss electronic reporting by recreational & total length WHO IS SUPPOSED TO ADDRESS THESE TWO ISSUES?

IWHAT IS REASON FOR NOT NEEDING ELECTRONIC REPORTING FROM EEZ.?



## Summer Flounder Fishery Information Document

June 2020

This document provides a brief overview of the biology, stock condition, management system, and fishery performance for summer flounder (*Paralichthys dentatus*) with an emphasis on 2019. Data sources include unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources on summer flounder management, including previous Fishery Information Documents, please visit <http://www.mafmc.org/sf-s-bsb>.

### Key Facts:

- The 2018 benchmark stock assessment found that in 2017, summer flounder was not overfished and overfishing was not occurring. Incorporation of a revised time series of recreational data from MRIP contributed to an increase in estimated stock biomass compared to the previous assessment.
- The 2019 and 2020 data updates show signs of an above-average 2018 year class.
- Commercial quotas and recreational harvest limits were increased mid-year in 2019 by about 50% each. Given that the revised MRIP harvest estimates for the recreational fishery were approximately equal to the new recreational harvest limit for 2019, recreational measures could not be liberalized in 2019.
- Commercial landings increased by about 47% between 2018 and 2019 (from 6.14 mil lb to 9.06 mil lb), while recreational landings were similar between these two years (7.60 mil lb and 7.80 mil lb).
- Average commercial ex-vessel price consistently increased from 2011 through 2017 to a high of \$4.40 per pound, but fell somewhat in 2019 to \$3.15 per pound.

### Basic Biology

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

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

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

### Status of the Stock

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

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

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

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

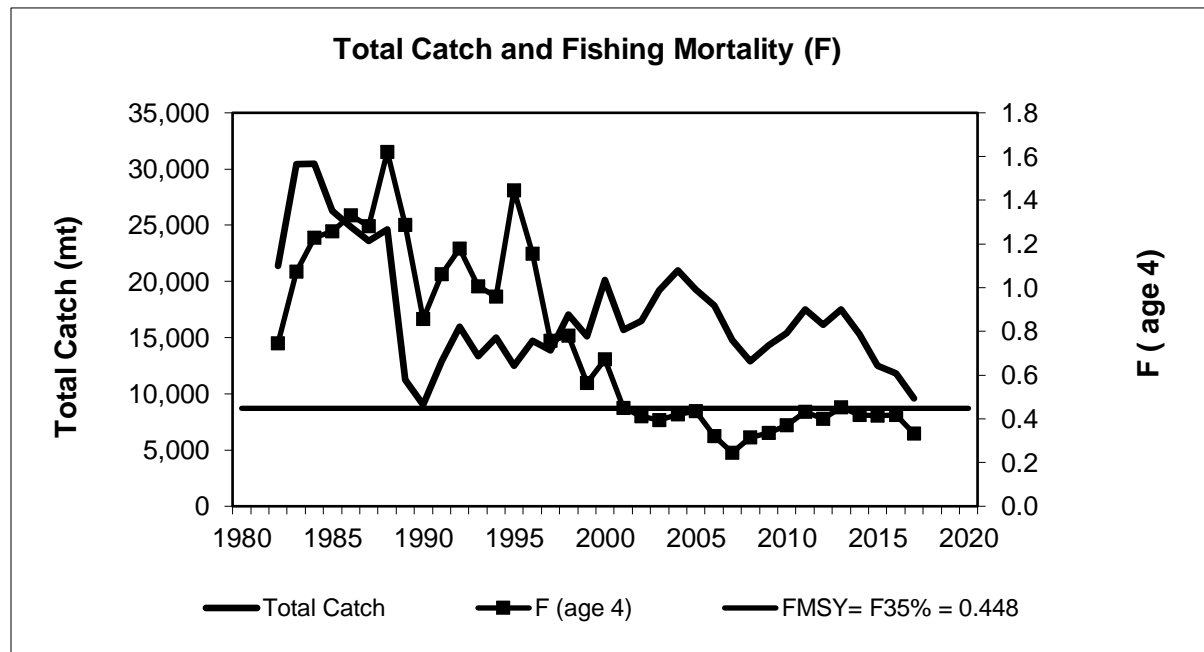
	<b>2018 stock assessment Biological Reference Points and stock status results (data through 2017)</b>
<b>SSB<sub>MSY</sub> (biomass target)</b>	126.01 mil lb (57,159 mt)
<b>1/2 SSB<sub>MSY</sub> (minimum stock size, or overfished, threshold)</b>	63.01 mil lb (28,580 mt)
<b>Terminal year SSB (2017)</b>	98.22 mil lb (44,552 mt) 78% of SSB <sub>MSY</sub> ( <b>not overfished</b> )
<b>F<sub>MSY PROXY</sub> = F<sub>35%</sub> (overfishing threshold)</b>	0.448
<b>Terminal year F (2017)</b>	0.334 25% below F <sub>MSY</sub> ( <b>not overfishing</b> )

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

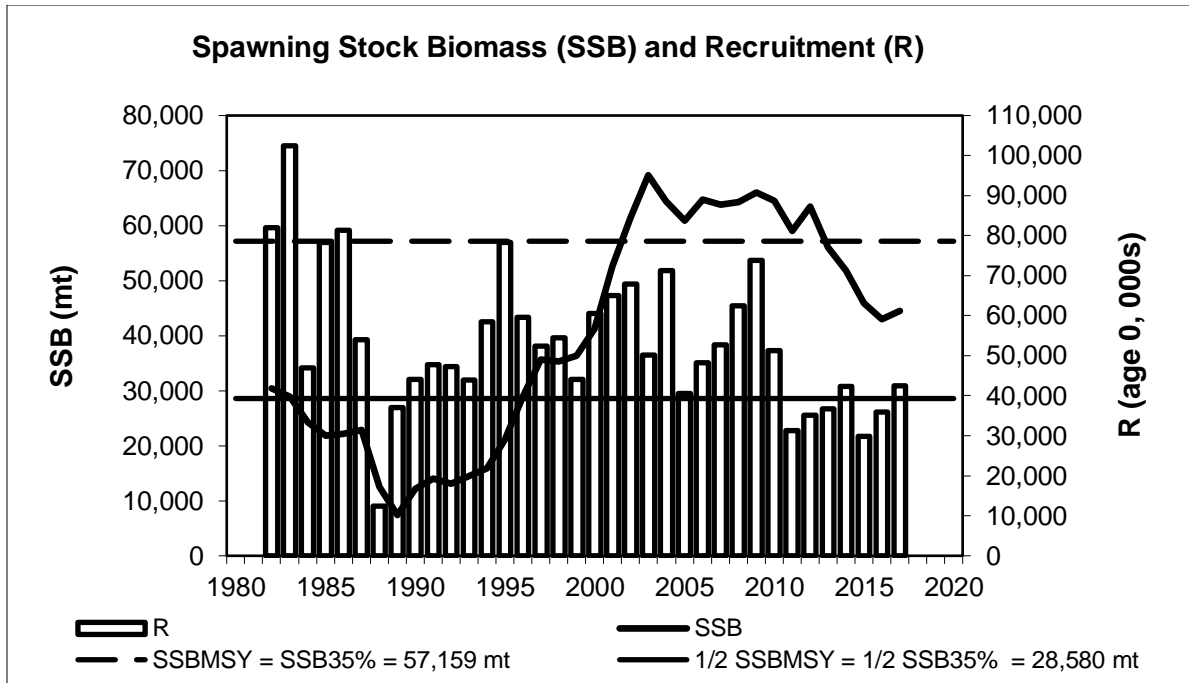
SSB decreased from 67.13 million lb (30,451 mt) in 1982 to 16.33 million lb (7,408 mt) in 1989, and then increased to 152.46 million lb (69,153 mt) in 2003. SSB has decreased since 2003 and was estimated to be 98.22 million lb (44,552 mt) in 2017, about 78% of  $SSB_{MSY} = 126.01$  million lb (57,159 mt), and 56% above the  $\frac{1}{2} SSB_{MSY}$  proxy =  $\frac{1}{2} SSB_{35\%} = 63.01$  million lb (28,580 mt; Figure 2).<sup>3</sup>

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

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



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



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

## Management System and Fishery Performance

### Management

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

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

There are large commercial and recreational fisheries for summer flounder. These fisheries are managed primarily using output controls (catch and landings limits), with 60 percent of the total allowable landings allocated to the commercial fishery as a commercial quota and 40 percent allocated to the recreational fishery as a recreational harvest limit. Management also uses minimum fish sizes, gear regulations, permit requirements, and other provisions as prescribed by the FMP. The Summer Flounder FMP, including subsequent Amendments and Frameworks, are available on the Council website at: <http://www.mafmc.org/fisheries/fmp/sf-s-bsb>.

The Council’s Scientific and Statistical Committee (SSC) recommends annual Acceptable Biological Catch (ABC) levels for summer flounder, which are then approved by the Council and Commission and submitted to NMFS for final approval and implementation. The ABC is divided into commercial and recreational Annual Catch Limits (ACLs), based on the landings allocation prescribed in the FMP and the recent distribution of discards between the commercial and recreational fisheries. The Council first implemented recreational and commercial ACLs, with a system of overage accountability, in 2012. Both the ABC and the ACLs are catch limits (i.e., include both projected landings and discards), while the commercial quota and the recreational harvest limit are landing limits. Table 2 shows summer flounder catch and landings limits from 2008 through 2021, as well as commercial and recreational landings through 2019. Note that 2021 measures are expected to be revised slightly due to changes to the Council's risk policy adopted in December 2019.

Total (commercial and recreational combined) summer flounder landings, taking into account the revised recreational data from MRIP, generally declined throughout the early 1980s, and increased again in the mid-2000s before dropping to a time series low of 13.74 million lb in 2018 (Figure 3).<sup>5,6</sup>

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

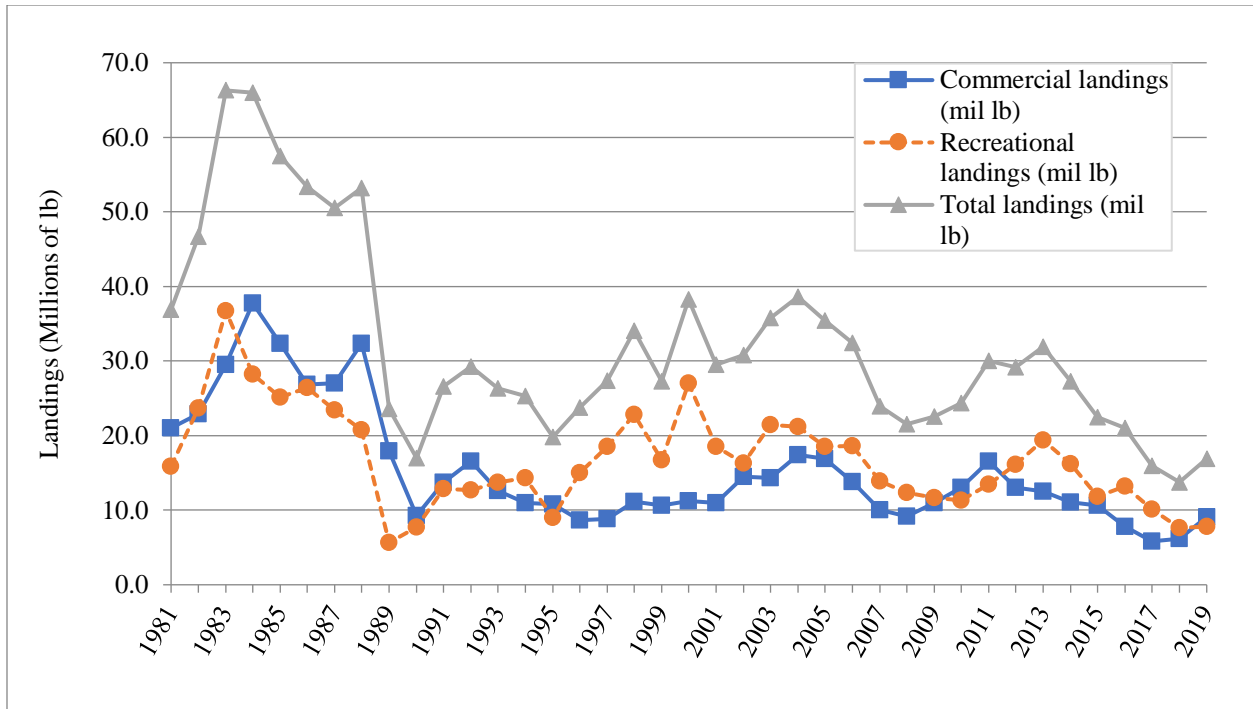
Management measures	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021 <sup>a</sup>
ABC	25.50	33.95	25.58	22.34	21.94	22.57	16.26	11.30	13.23	25.03	25.03	25.03
Commercial ACL	--	--	14.00	12.11	12.87	13.34	9.43	6.57	7.70	13.53	13.53	13.53
Commercial quota <sup>b,c</sup>	12.79	17.38	12.73	11.44	10.51	11.07	8.12	5.66	6.63	10.98	11.53	11.53
Commercial landings	13.04	16.56	13.03	12.49	11.07	10.68	7.81	5.83	6.14	9.06	--	--
% of commercial quota landed	102%	95%	102%	109%	105%	96%	96%	103%	93%	83%	--	--
Recreational ACL	--	--	11.58	10.23	9.07	9.44	6.84	4.72	5.53	11.51	11.51	11.51
Recreational harvest limit <sup>b</sup>	8.59	11.58	8.49	7.63	7.01	7.38	5.42	3.77	4.42	7.69	7.69	7.69
Harvest - OLD MRIP	5.11	5.96	6.49	7.36	7.39	4.72	6.18	3.19	3.35	--	--	--
% of RHL landed (Old MRIP 2010-2018; New MRIP 2019) <sup>d</sup>	59%	51%	76%	96%	105%	64%	114%	85%	76%	101%	--	--
Harvest - NEW MRIP	11.34	13.48	16.13	19.41	16.24	11.83	13.24	10.08	7.60	7.80	--	--

<sup>a</sup> Implemented via final rule October 9, 2019 (84 FR 54041), but subject to review by the SSC and Council/Board in summer 2020. Limits are expected to be adjusted somewhat due to Council revisions to its risk policy in December 2019.

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

<sup>c</sup> Commercial quotas also reflect deductions from prior year landings overages and discard-based Accountability Measures.

<sup>d</sup> The revised MRIP data cannot be compared to RHLs prior to 2019, given that these limits were set based on an assessment that used previous MRIP data.



**Figure 3:** Commercial and recreational summer flounder landings in millions of pounds, Maine-North Carolina, 1981-2019. Recreational landings are based on revised MRIP data.<sup>5,6</sup>

### Commercial Fishery

Commercial landings of summer flounder peaked in 1984 at 37.77 million pounds and reached a low of 5.83 million pounds in 2017. In 2019, commercial fishermen from Maine through North Carolina landed 9.06 million pounds of summer flounder, about 83% of the commercial quota (10.98 million pounds after deductions for prior year landings and discard overages; Table 2). Total ex-vessel value in 2019 was \$28.54 million, resulting in an average price per pound of \$3.15 (Figure 4).

A moratorium permit is required to fish commercially for summer flounder in federal waters. In 2019, 738 vessels held such permits.<sup>7</sup>

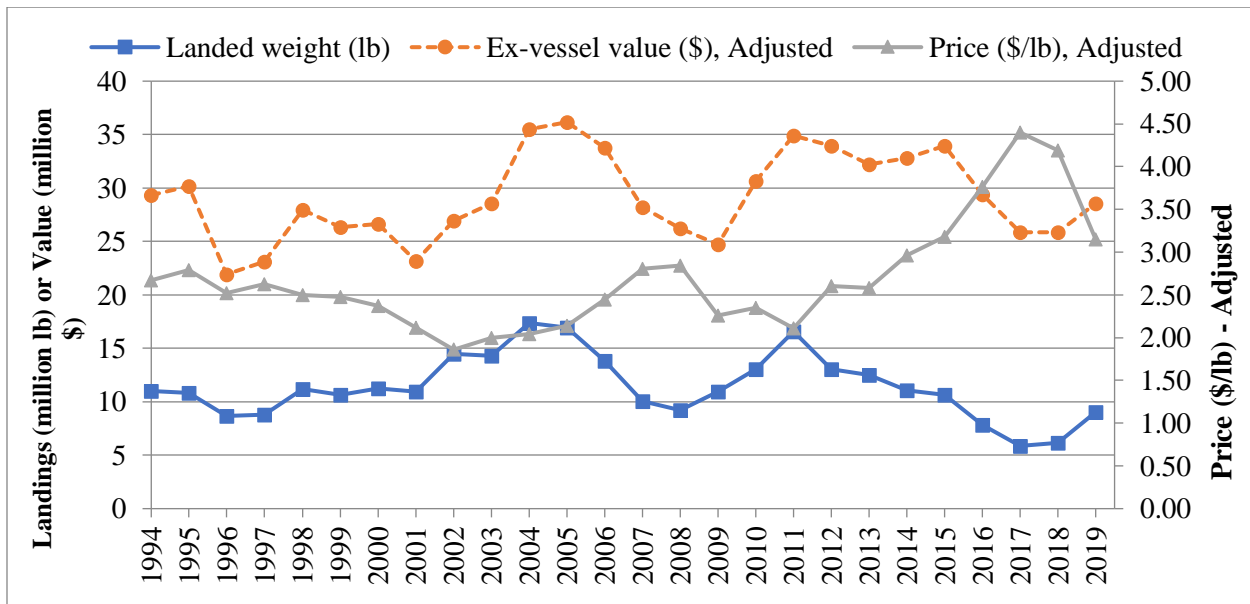
The commercial quota is divided among the states based on the allocation percentages given in Table 3 and each state sets measures to achieve their state-specific commercial quotas. The Council and ASFMC recently approved modifications to the commercial allocations through a Summer Flounder Commercial Issues Amendment (see: <http://www.mafmc.org/actions/summer-flounder-amendment>). A summary of the commercial allocation changes is available at: <http://www.mafmc.org/s/SF-Allocation-Revisions-Fact-Sheet-March-2019.pdf>. These changes are pending implementation by the National Marine Fisheries Service, and if approved, are expected to take effect on January 1, 2021.



**Table 3:** State-by-state percent share of commercial summer flounder allocation.

State	Allocation (%)
ME	0.04756
NH	0.00046
MA	6.82046
RI	15.68298
CT	2.25708
NY	7.64699
NJ	16.72499
DE	0.01779
MD	2.03910
VA	21.31676
NC	27.44584
Total	100

For 1994 through 2019, NMFS dealer data indicate that summer flounder total ex-vessel revenue from Maine to North Carolina ranged from a low of \$21.93 million in 1996 to a high of \$36.16 million in 2005 (values adjusted to 2019 dollars to account for inflation). The mean price per pound ranged from a low of \$1.86 in 2002 to a high of \$4.40 in 2017 (both values in 2019 dollars). In 2019, 9.06 million pounds of summer flounder were landed generating \$28.54 million in total ex-vessel revenue (an average of \$3.15 per pound; Figure 4).<sup>5</sup>



**Figure 4:** Landings, ex-vessel value, and price per pound for summer flounder, Maine through North Carolina, 1994-2019. Ex-vessel value and price are adjusted to real 2019 dollars using the Gross Domestic Product Price Deflator (GDPDEF).<sup>5</sup>

VTR data for 2019 indicate that the bulk of the summer flounder landings were taken by bottom otter trawls (97 percent). All other gear types each accounted for less than 1 percent of landings.<sup>8</sup> Current regulations require a 14-inch total length minimum fish size in the commercial fishery. Trawl nets are required to have 5.5-inch diamond or 6-inch square minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder (i.e., 200 lb from November 1-April 30 and 100 lb from May 1-October 31).

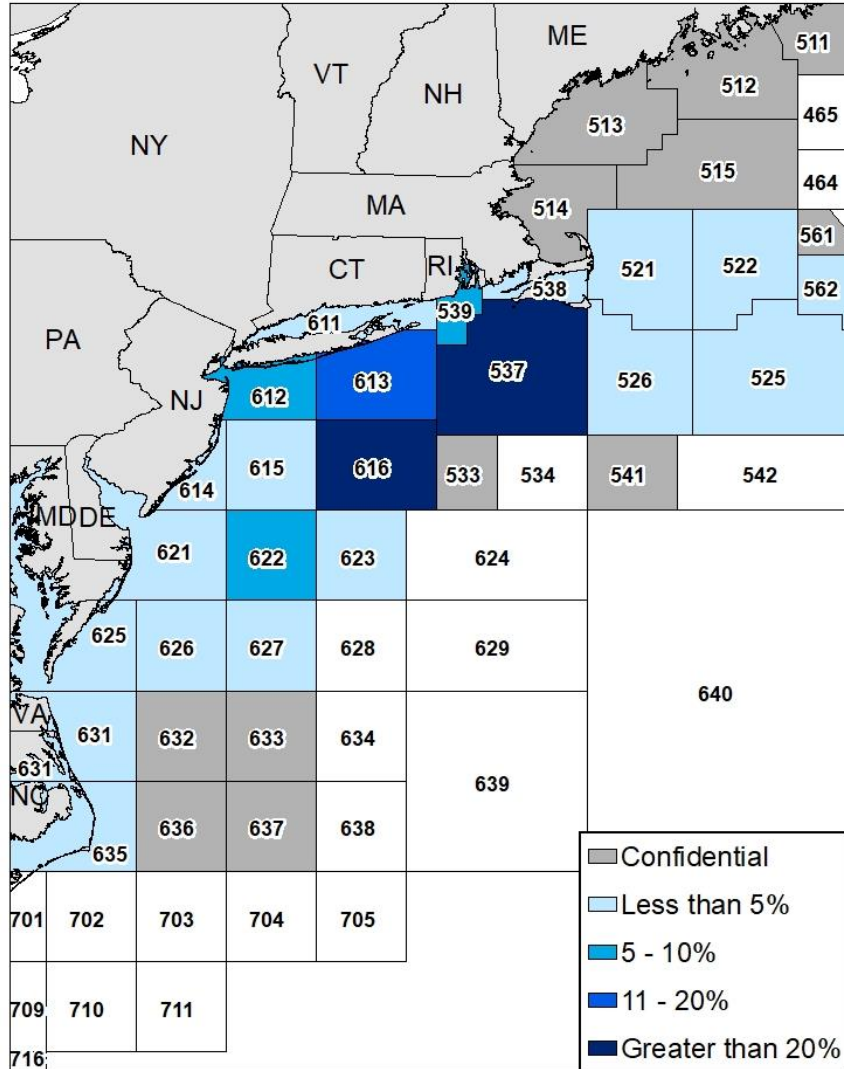
According to federal VTR data, statistical areas 616 and 537 were responsible for the highest percentage of commercial summer flounder catch (27% and 23% respectively; Table 4). While statistical area 539 accounted for only 6% of 2019 summer flounder catch, this area had the highest number of trips that caught summer flounder (2,510 trips).<sup>8</sup> Note that discards on VTRs are self-reported (Table 4; Figure 5).

At least 100,000 pounds of summer flounder were landed by commercial fishermen in 17 ports in 8 states in 2019. These ports accounted for 87% of all 2019 commercial summer flounder landings. Point Judith, RI and Beaufort, NC were the leading ports in 2019 in pounds of summer flounder landed, while Point Judith, RI was the leading port in number of vessels landing summer flounder (Table 5).<sup>5</sup>

Over 175 federally permitted dealers from Maine through North Carolina bought summer flounder in 2019. More dealers from New York bought summer flounder than any other state (Table 6). All dealers combined bought approximately \$28.54 million worth of summer flounder in 2019.<sup>5</sup>

**Table 4:** Statistical areas that accounted for at least 5 percent of the total summer flounder catch in 2019, with associated number of trips.<sup>8</sup>

Statistical Area	Percent of 2019 Commercial Summer Flounder Catch	Number of Trips
616	27%	1,052
537	23%	1,469
613	13%	1,455
622	8%	272
612	7%	1,076
539	6%	2,510



**Figure 5:** Proportion of summer flounder catch by NMFS statistical area in 2019 based on federal VTR data. Statistical areas marked “confidential” are associated with fewer than three vessels and/or dealers. Statistical areas with confidential data collectively accounted for less than 1% of commercial catch reported on VTRs in 2019. 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. Northeast Fisheries Science Center Data (“AA tables”) suggest that 8% of total commercial landings (state and federal) in 2019 were not associated with a statistical area reported in federal VTRs.<sup>8</sup>

**Table 5:** Ports reporting at least 100,000 pounds of commercial summer flounder landings in 2019, based on dealer data.<sup>5</sup>

Port	Commercial summer flounder landings (lb)	% of total 2019 commercial summer flounder landings	Number of vessels landings summer flounder
POINT JUDITH, RI	1,446,867	16%	120
BEAUFORT, NC	1,220,608	13%	61
HAMPTON, VA	975,621	11%	58
PT. PLEASANT, NJ	936,899	10%	48
NEWPORT NEWS, VA	713,569	8%	49
MONTAUK, NY	494,045	5%	68
WANCHESE, NC	244,898	3%	14
BELFORD, NJ	235,410	3%	16
CAPE MAY, NJ	226,271	2%	44
ENGELHARD, NC	221,177	2%	10
NEW BEDFORD, MA	214,518	2%	53
CHINCOTEAGUE, VA	212,628	2%	23
HAMPTON BAYS, NY	186,292	2%	31
ORIENTAL, NC	158,368	2%	8

**Table 6:** Number of dealers per state which reported purchases of summer flounder in 2019. C = Confidential.<sup>5</sup>

State	MA	RI	CT	NY	NJ	DE	MD	VA	NC
# of Dealers	24	31	16	51	30	C	5	17	25

### *Recreational Fishery*

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

The recreational fishery has been managed using conservation equivalency each year since 2001. From 2001 through 2013, measures were developed under state-by-state conservation equivalency. Since 2014, a regional approach has been used, under which the states within each region must have identical size limits, possession limits, and season length. The 2019 and 2020 regional conservation equivalency measures are given in Table 7. Changes in measures between 2019 and 2020 included a shift in the season of two days for the state of New Jersey, and restrictions to the season in North Carolina due to the need to restrict mortality on southern flounder.

**Table 7:** Summer flounder recreational fishing measures in 2019 and 2020, by state, under regional conservation equivalency. 2019 and 2020 regions 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.

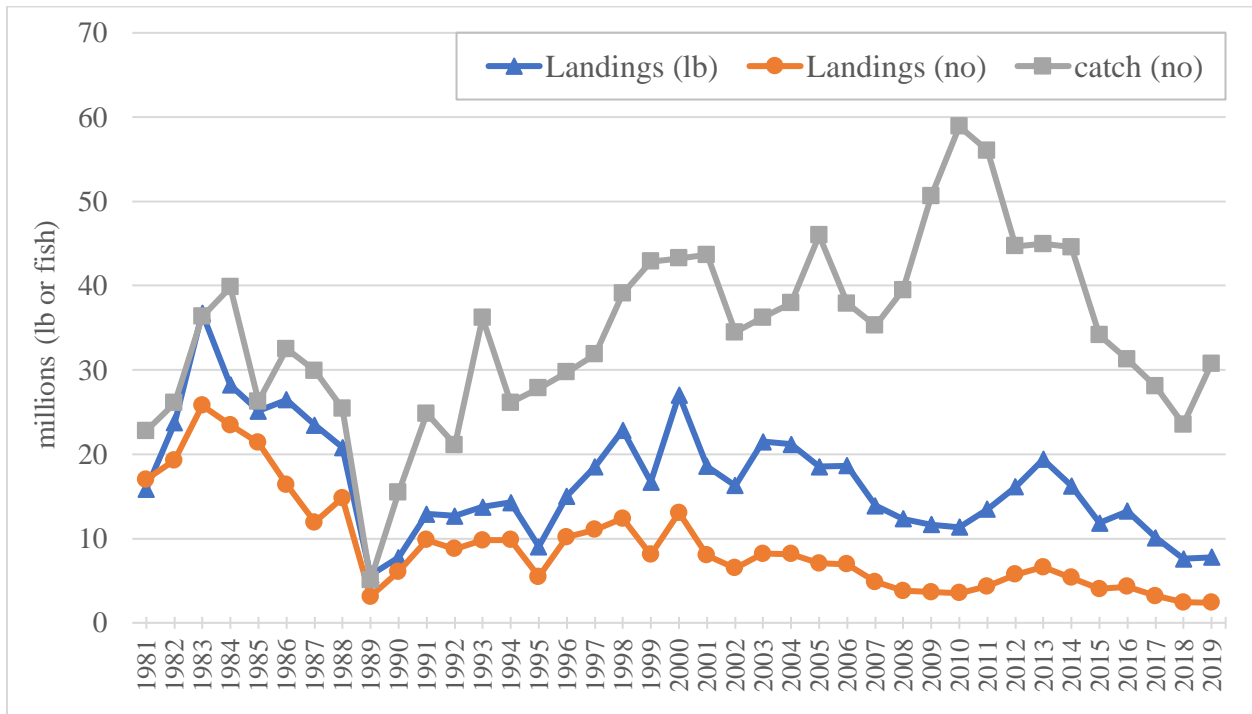
State	2019 and 2020		
	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	17	5 fish	May 23-October 9
Rhode Island (Private, For-Hire, and all other shore-based fishing sites)	19	6 fish	May 3-December 31
RI 7 designated shore sites	19	4 fish <sup>a</sup>	
	17	2 fish <sup>a</sup>	
Connecticut	19	4 fish	May 4- September 30
CT Shore Program (45 designed shore sites)	17		
New York	19		
New Jersey	18	3 fish	<b>2019:</b> May 24- September 21 <b>2020:</b> 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	<b>2019:</b> January 1-September 3 <b>2020:</b> August 16-September 30 <sup>b</sup>

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

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

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

Revised MRIP estimates indicate that recreational catch for summer flounder peaked in 2010 with 58.89 million fish caught. Recreational harvest peaked in 1983, with 25.78 million fish landed, totaling 36.74 million pounds. Recreational catch reached a low in 1989 with 5.06 million fish caught. Recreational harvest in numbers of fish reached a low in 2019 with 2.38 million fish landed (7.80 million pounds), while recreational harvest in pounds was lowest in 1989 at 5.66 million pounds (Figure 6).<sup>6</sup>



**Figure 6:** MRIP estimates of recreational summer flounder harvest in numbers of fish and pounds and catch in numbers of fish, ME - NC, 1981 - 2019. All series represent revised MRIP estimates.<sup>6</sup>

For-hire vessels carrying passengers in federal waters must obtain a federal party/charter permit. In 2019, 821 vessels held summer flounder federal party/charter permits.<sup>7</sup> Many of these vessels also hold recreational permits for scup and black sea bass.

On average, an estimated 83 percent of the recreational landings (in numbers of fish) occurred in state waters over the past ten years, and about 79 percent of landings came from state waters in 2019 (Table 8). The majority of summer flounder were landed in New York and New Jersey in 2019 (70%; Table 9).<sup>6</sup>

About 87% of recreational summer flounder harvest in 2019 was from anglers who fished on private or rental boats. About 3% was from party or charter boats, and about 10% was from anglers fishing from shore. The revised MRIP methodology resulted in an increase in the amount of harvest estimated to occur from private and shore modes while making only minor changes to the estimates for party/charter modes, modifying the percentages attributable to each mode (Table 10).<sup>6</sup>

**Table 8:** Estimated percentage of summer flounder recreational landings (in numbers of fish) from state vs. federal waters, Maine through North Carolina, 2010-2019 (revised MRIP data).<sup>6</sup>

Year	State <= 3 mi	EEZ > 3 mi
2010	93%	7%
2011	94%	6%
2012	86%	14%
2013	77%	23%
2014	78%	22%
2015	82%	18%
2016	79%	21%
2017	80%	20%
2018	83%	17%
2019	79%	21%
<b>Avg. 2010 - 2019</b>	<b>83%</b>	<b>17%</b>
<b>Avg. 2017 - 2019</b>	<b>81%</b>	<b>19%</b>

**Table 9:** State contribution (as a percentage) to total recreational landings of summer flounder (in numbers of fish), from Maine through North Carolina, 2017-2019 (revised MRIP data).<sup>6</sup>

State	2017	2018	2019	2017-2019 average
Maine	0%	0%	0%	0%
New Hampshire	0%	0%	0%	0%
Massachusetts	2%	3%	2%	2%
Rhode Island	5%	7%	9%	7%
Connecticut	4%	6%	4%	5%
New York	37%	27%	24%	29%
New Jersey	38%	43%	46%	43%
Delaware	3%	4%	4%	3%
Maryland	2%	2%	3%	2%
Virginia	6%	6%	6%	6%
North Carolina	3%	2%	1%	2%
Total	100%	100%	100%	100%

**Table 10:** The percent of summer flounder landings (in number of fish) by recreational fishing mode, Maine through North Carolina, 1981-2019 (revised MRIP data).<sup>6</sup>

Year	Shore	Party/Charter	Private/Rental	Total number of fish landed (millions)
2010	10%	4%	86%	3.51
2011	4%	3%	93%	4.33
2012	9%	3%	88%	5.74
2013	11%	4%	85%	6.60
2014	7%	8%	84%	5.36
2015	7%	7%	86%	4.03
2016	8%	4%	89%	4.30
2017	13%	4%	83%	3.17
2018	11%	6%	84%	2.41
2019	10%	3%	87%	2.38
<b>% of Total, 1981-2019</b>	14%	7%	78%	--
<b>% of Total, 2015-2019</b>	9%	6%	85%	--

## References

- <sup>1</sup> Packer, D. B, S. J. Griesbach, P. L. Berrien, C. A. Zetlin, D. L. Johnson, and W.W. Morse. 1999. Essential Fish Habitat Source Document: Summer Flounder, *Paralichthys dentatus*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-151.
- <sup>2</sup> Northeast Fisheries Science Center. 2019. Data Update for Summer Flounder.
- <sup>3</sup> Northeast Fisheries Science Center (NEFSC). 2019. 66th Northeast Regional Stock Assessment Workshop (66th SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 19-01; 40 p. Available from: <https://www.nefsc.noaa.gov/publications/crd/crd1908/>.
- <sup>4</sup> Northeast Fisheries Science Center. 2020. Data Update for Summer Flounder.
- <sup>5</sup> Unpublished NMFS dealer data as of May 7, 2020.
- <sup>6</sup> Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed May 12, 2020. Available at: <http://www.st.nmfs.noaa.gov/recreational-fisheries/index>.
- <sup>7</sup> Unpublished NMFS permit data as of January 17, 2020.
- <sup>8</sup> Unpublished NMFS Vessel Trip Report (VTR) data as of February 28, 2020.