



**Mid-Atlantic Fishery Management Council**  
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## MEMORANDUM

**Date:** November 7, 2019  
**To:** Chris Moore, Executive Director  
**From:** Karson Coutre, Staff  
**Subject:** Scup Recreational Management Measures for 2020

### **Background and Summary**

The information provided in this memo is intended to assist the Monitoring Committee, Advisory Panels, the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Management Board (Board) in developing recommendations for federal waters scup size limits, possession limits, and open/closed seasons for 2020.

In October 2019, the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) approved scup recreational harvest limits (RHLs) of 6.51 million pounds for 2020 and 5.43 million pounds for 2021. The RHLs are based on the 2019 scup operational stock assessment and the advice of the Scientific and Statistical Committee (SSC) and Monitoring Committee.

According to the 2019 operational assessment, the scup stock was not overfished, and overfishing was not occurring in 2018 relative to the updated biological reference points calculated through the assessment. Spawning stock biomass (SSB) was estimated to be about 411 million pounds (186,578 mt) in 2018, about 2 times the  $SSB_{MSY}$  proxy reference point (i.e.  $SSB_{40\%}$ ) of 207 million pounds (94,020 mt). Fishing mortality on fully selected age 3 scup was 0.158 in 2018, about 73% of the  $F_{MSY}$  proxy reference point ( $F_{40\%}$ ) of 0.215. Spawning stock biomass is projected to decrease toward the target unless above average year classes recruit to the stock.

Each year, the Council and Board agree to federal waters recreational management measures for scup for the upcoming year, consisting of a minimum fish size limit, a possession limit, and open/closed seasons that apply throughout federal waters from Maine through North Carolina. State waters measures will be determined through the Commission process in early 2020.

2020 will be the first year that scup catch and landings limits and management measures will account for changes to the recreational data provided by the Marine Recreational Information Program (MRIP). In July 2018, MRIP released revisions to their time series of recreational catch and harvest estimates based on adjustments for a revised angler intercept methodology and a new

effort estimation methodology, namely, a transition from a telephone-based effort survey to a mail-based effort survey. The revised estimates for most years are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall scup catch and harvest estimates (e.g., Table 1). The revised MRIP estimates were incorporated into the 2019 scup operational stock assessment. Because the new MRIP data show that scup harvest is much higher than previously thought, a 59% reduction in recreational harvest compared to 2019 could be required to prevent an overage of the 2020 RHL.

In order to prevent an RHL overage in 2020, significant restrictions to management measures would be needed such as a coastwide 3 fish bag limit or an open season of June 26-September 5. However, given challenges associated with transitioning to management based on the new MRIP data, high availability of scup, and a very healthy stock status, there may be a consideration that recreational management measures remain unchanged in 2020 compared to 2019 to allow more time for the Council and Board to consider changes to the management system to account for changes in the MRIP data. Status quo harvest would be expected to result in a 2% ABC overage and a 11% OFL underage and overfishing would not be expected to occur. This would be intended as a short-term approach to allow the Council and Board more time to consider any potential modifications to the current management system in light of the implications of the changes in the MRIP estimates.

### **Past RHLs and Management Measures**

Scup RHLs were first implemented in 1996. Since then, the RHL varied from a low of 1.24 million pounds in 1999 and 2000 to a high of 8.45 million pounds in 2012. As previously stated, the RHLs are 6.51 million pounds in 2020 and 5.43 million pounds in 2021 (Table 1).

Until 2002, the recreational scup fishery was managed with coastwide measures as dictated by the FMP. These measures included a common minimum fish size, possession limit, and open season that were implemented in both state and federal waters. Since 2003, the Commission has applied a regional management approach to recreational scup fisheries in state waters, where New York, Rhode Island, Connecticut, and Massachusetts develop regulations intended to achieve 97% of the RHL. In federal waters, regulations have been unchanged since 2015 and include a minimum size of 9 inches total length, a year-round open season, and a possession limit of 50 scup (Table 1). Management measures in state waters vary by state, mode (e.g., private, for-hire), and season. State waters measures remained unchanged from 2015 through 2017. The states of Massachusetts through New York reduced their recreational minimum size limits and New Jersey extended their recreational fishing season to the full year in 2018. In 2019, Massachusetts through New York increased their party/charter bag limit from 45 to 50 fish during a portion of their open season. Rhode Island through New York extended their recreational fishing season to the full year (opening fishing during waves 1 and 2) and Massachusetts extended theirs by 18 days. All other state waters measures remained unchanged from 2018 to 2019 (Table 2 and Table 3).

### **Recreational Catch and Harvest Trends and 2019 Projections**

Since 1981, estimated recreational scup catch fluctuated from a peak of 37.31 million fish in 1986 to a low of 6.60 million fish in 1997. Estimated harvest fluctuated from a high of 14.18 million pounds and 30.43 million fish in 1986 to a low of 1.82 million pounds and 2.74 million fish in 1998. In 2018, recreational harvest was about 14.55 million fish and 12.98 million pounds, and approximately 30.37 million scup were caught, with a release rate of 52% (Table 3).

Recreational catch and landings data from MRIP are currently available as preliminary estimates

for the first four waves (January - August) of 2019. The Council and Board develop federal waters recreational management measures for the next year late in the current year after reviewing preliminary wave 1-4 (i.e., January - August) MRIP data for the current year. Preliminary MRIP estimates indicate that through August 2019, 18.89 million scup were caught and 10.10 million scup, corresponding to about 9.31 million pounds, were harvested from Maine through North Carolina (Table 5).

Preliminary wave 1-4 data for 2019 were used to project harvest in weight and numbers of fish for the entire year by assuming the same proportion of landings by wave and state as in 2018 (with the exception of Maryland, Delaware and Virginia, as described below; Table 7 and Table 8). A single year was used instead of a multiple year average because changes to the open seasons and bag limits in 2018 and 2019 in some state waters likely impacted the proportion of harvest by wave compared to previous years. Federal recreational scup regulations were unchanged from 2015 to 2019 while some states had minor changes (Table 1 and Table 2). In 2019, Rhode Island through New York extended their season to waves 1 and 2, however they did not have scup catch during those waves in 2019 based on preliminary estimates.

In 2015-2017, 100% of estimated harvest in Maryland occurred during waves 5 and 6. In 2018, 98% of the estimated harvest occurred in wave 4. Preliminary estimates for 2019 show no scup harvest in Delaware, Maryland, and Virginia during waves 1 – 4. Projected 2019 Maryland, Delaware and Virginia harvest values were calculated as the sum of preliminary wave 1-4 harvest in 2019 and 2018 wave 5 and 6 harvest (Table 7 and Table 8).

Based on the methodology outlined in the previous two paragraphs, projected 2019 harvest from Maine through North Carolina is 16.03 million pounds and 17.13 million fish. For comparison purposes, 2019 projected annual harvest was also calculated using the coastwide (i.e., Maine through North Carolina) proportions of harvest by wave in 2018, rather than projecting by state. This resulted in a projected 2019 harvest of 14.55 million pounds and 15.78 million fish. This methodology does not account for varying proportions of harvest by wave by state so was not used to inform 2020 harvest.

During 2014-2018 about 4% of recreational scup harvest (in pounds) originated in federal waters and 96% came from state waters (Table 10). Recreational scup landings in Massachusetts through New Jersey and Virginia were predominantly from state waters and landings in Delaware and North Carolina mostly originated in federal waters. The landings were split evenly between federal and state waters in Maryland (Table 11).

Neither the preliminary 2019 wave 1-4 estimates nor the projected values should be compared to the 2019 RHL as the 2019 RHL did not account for the revisions to the MRIP data. These projections should be used as a starting point for discussion of potential 2020 recreational management measures.

### **Predicting 2020 Harvest and the Impacts of Management Measures**

The Monitoring Committee must consider and recommend management measures to ensure that landings in 2020 will not exceed the 2020 RHL. Recreational possession limits, minimum fish size limits, and seasons can be modified to achieve this goal.

Projected 2019 harvest is used as a proxy for 2020 harvest when considering such measures under the assumption that conditions in 2020 will be similar to those in 2019 if no changes are made to the management measures.

Changes in fishing site characteristics (e.g., catch rates, available species, water quality), fishery management measures (e.g., possession limits, size restrictions, closed seasons), and angler demographics affect recreational fishing effort. This poses challenges for predicting changes in angler behavior under any potential changes in management measures. Typically, the Monitoring Committee assumes that fishing behavior in the upcoming year will be similar to recent years; however, this assumption does not always hold true.

The 2015 year class was estimated to be the largest in the time series at 326 million fish, while the 2016-2018 year classes were estimated to be below average.<sup>1</sup> Scup reach the minimum size for retention in the recreational fishery (9 inches total length in federal waters and 8 inches in some states, Table 3) when they are two or three years old.<sup>2</sup> Availability of scup to anglers was likely high during 2016-2019 due to the abundant 2015 year class. Availability may slightly decline in 2020 due to lower than average recruitment from 2016-2018.

### **Accountability Measures**

Federal regulations include proactive accountability measures (AMs) to prevent the scup ACL from being exceeded and reactive AMs to respond when an ACL is exceeded. Proactive recreational AMs include adjusting management measures (bag limits, size limits, and season) for the upcoming fishing year, if necessary, to prevent the RHL and ACL from being exceeded. The NMFS Regional Administrator no longer has in-season closure authority for the recreational fishery if the RHL or ACL is expected to be exceeded. For reactive AMs, paybacks of ACL overages may be required in a subsequent fishing year, depending on stock status and the magnitude of the overage, as described below. ACL overages in the recreational fishery are evaluated by comparing the most recent 3-year average recreational ACL against the most recent 3-year average of recreational dead catch (i.e., landings and dead discards). If average catch exceeds the average ACL, then the appropriate AM is determined based on the following criteria:

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

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<sup>1</sup> A prepublication copy of the 2019 operational stock assessment is available at: [http://www.mafmc.org/s/Operational-Assessments-for-Black-Sea-Bass\\_Scup\\_Bluefish.pdf](http://www.mafmc.org/s/Operational-Assessments-for-Black-Sea-Bass_Scup_Bluefish.pdf)

<sup>2</sup> Northeast Fisheries Science Center. 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Report. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document 15-08. Available at: <http://www.nefsc.noaa.gov/saw/>

3. If biomass is above the target ( $B > B_{MSY}$ ): Adjustments to the recreational bag, minimum fish size, and/or season limits will be considered for the following year, or as soon as possible once catch data are available. These adjustments will take into account the performance of the measures and conditions that precipitated the overage.

AMs have not been triggered for the recreational scup fishery based on a comparison of average 2016-2018 catch to the 2016-2018 average ACL.

### **Staff Recommendation**

Based on the harvest projections of 16.03 million pounds, significant changes to management measures would be needed to prevent the 2020 harvest from exceeding the RHL of 6.51 million pounds. The need for this 59% reduction is largely driven by the transition to the new MRIP estimation methodology which resulted in a major change in our understanding of the scale of recreational harvest (e.g., Table 1). The new MRIP estimates have been incorporated into the 2019 scup operational stock assessment as well.

In order to achieve an estimated 59% reduction in harvest to prevent exceeding the RHL, bag limit reductions, size restrictions, and/or season closures could be used. Changing the bag limit from 50 fish to 3 fish in state and federal waters would result in an estimated 57% decrease in total harvest (Table 11). Bag limit analyses assume that levels of non-compliance with a revised bag limit would be identical to levels of non-compliance with the 2019 bag limit.

Reducing harvest through seasonal closures could also be considered. Currently, the scup recreational fishery is open year-round in federal waters and in most state waters. Based on 2018 estimates, waves 3-5 comprise >99% of the total recreational scup harvest (Table 6). An open season coastwide from June 26 to September 5, would keep wave 4 open while closing the majority of waves 3 and 5, and would result in a 59% reduction in harvest. This approach may also require closing waves 1, 2, and 6 (<1% of harvest) to prevent the transfer of fishing effort due to the closure of waves 3 and 5, resulting in a 71-day open season. Closures by wave would not apply harvest reductions equitably across the states with high harvest (e.g., Table 6 and Table 9). Season closure calculations assume full compliance with season regulations and evenly distributed harvest throughout each wave.

While considering changes to federal measures it is important to note that only 4% of scup recreational harvest occurred in federal waters based on the most recent 5-year average (Table 10). Because of this, the MC may decide that it's more appropriate to recommend the bulk of the 59% reduction occur in state waters where the majority of harvest is occurring. To achieve a 59% reduction, a 10 fish bag limit with status quo size limit and season in federal waters in 2020 could result in a 20% coastwide harvest reduction. These measures take some reduction in federal waters while allowing states flexibility to develop measures that would further reduce harvest. These measures are meant to prevent large differences in state and federal measures, implement an equitable reduction across states, and allow states to address their specific needs (e.g., different seasonal availability). Note however, in combination with these federal measures states would need to further restrict harvest to meet the full 59% reduction needed.

The assumptions of full compliance under seasonal closures and identical levels of non-compliance under a bag limit reduction may not be accurate due to the degree of restriction these measures would impose on the recreational fishery compared with the current year-round open season and 50 fish bag limit.

Restrictions such as decreasing the bag limit by 47 fish or closing up to 5 waves raise concern over the negative socioeconomic impacts to the recreational sector resulting from changes in the MRIP estimation methodology rather than a conservation need. The scale of these impacts could not be accurately predicted prior to completion of the operational stock assessment in the summer of 2019. This left the Council and Board with little time to consider how to most appropriately respond to the changes in the MRIP estimates before they must be used in management. In addition, the scup stock is healthy with SSB estimated to be about 2 times the  $SSB_{MSY}$  proxy reference point in 2018. Because of this situation, the Council and Board may consider status quo recreational management measures in state and federal waters in 2020 to allow time to transition to management based on the new MRIP estimates.

If status quo measures are implemented, the projected total scup catch (i.e., commercial and recreational landings and dead discards) estimates in 2020 would be 36.53 million pounds, which is 2% above the 2020 ABC of 35.77 million pounds and 11% below the 2020 OFL of 41.17 million pounds. These total catch estimates use 2020 projected total discards from the stock assessment, 2018 commercial harvest, and the 2020 recreational harvest projections described on pages 2-3 of this document. The SSC recommended 2020 and 2021 ABCs included an OFL CV of 60% as a buffer to account for uncertainty in the OFL. The SSB projections assuming the ABC would be caught predict that SSB will be 1.62 times the target in 2021. Given these projections, it is possible that a slight overage of the ABC could occur which would be expected to bring SSB closer to, but not below the target, suggesting that this level of catch is not a major conservation concern.

**Table 1:** Summary of federal management measures for the scup recreational fishery, 1997-2020. ABCs, TACs, ACLs, RHLs, and harvest are in millions of pounds. Recreational harvest values are for Maine through North Carolina and old and revised MRIP estimates are shown.

<b>Year</b>	<b>TAC/ABC</b>	<b>Rec. ACL</b>	<b>RHL</b>	<b>Rec. harvest (Old MRIP)</b>	<b>% over/under RHL</b>	<b>Rec. harvest (New MRIP)</b>	<b>Bag limit (# of fish)</b>	<b>Size limit (inches, total length)</b>	<b>Open season</b>
<b>1997</b>	9.10	-	1.95	1.20	-38%	2.54	-	7	1/1 - 12/31
<b>1998</b>	7.28	-	1.55	0.87	-44%	1.82	-	7	1/1 - 12/31
<b>1999</b>	5.92	-	1.24	1.89	+52%	4.63	-	7	1/1 - 12/31
<b>2000</b>	5.92	-	1.24	5.44	+339%	11.39	-	-	1/1 - 12/31
<b>2001</b>	8.37	-	1.76	4.26	+142%	9.77	50	9	8/15 - 10/31
<b>2002</b>	12.92	-	2.71	3.62	+34%	6.23	20	10	7/1 - 10/2
<b>2003</b>	18.65	-	4.01	8.48	+111%	17.21	50	10	1/1 - 2/28 7/1 - 11/30
<b>2004</b>	18.65	-	3.99	7.28	+82%	12.83	50	10	1/1 - 2/28 9/7 - 11/30
<b>2005</b>	18.65	-	3.96	2.69	-32%	4.30	50	10	1/1 - 2/28 9/18 - 11/30
<b>2006</b>	19.79	-	3.99	3.72	-7%	5.93	50	10	1/1 - 2/28 9/18 - 11/30
<b>2007</b>	13.97	-	2.74	4.56	+66%	7.10	50	10	1/1 - 2/28 9/18 - 11/30
<b>2008</b>	9.9	-	1.83	3.79	+107%	5.76	15	10.5	1/1 - 2/28 9/18 - 11/30
<b>2009</b>	15.54	-	2.59	3.23	+25%	6.28	15	10.5	1/1 - 2/28 10/1 - 10/31
<b>2010</b>	17.09	-	3.01	5.97	+98%	12.48	10	10.5	1/1 - 2/28 10/1 - 10/31
<b>2011</b>	31.92	-	5.74	3.67	-36%	10.32	10	10.5	6/6 - 9/26
<b>2012</b>	40.88	31.89	8.45	4.17	-51%	8.27	20	10.5	1/1 - 12/31
<b>2013</b>	38.71	30.19	7.55	5.37	-29%	12.57	30	10	1/1 - 12/31
<b>2014</b>	35.99	28.07	7.03	4.43	-37%	9.84	30	9	1/1 - 12/31
<b>2015</b>	33.77	26.35	6.8	4.41	-35%	11.93	50	9	1/1 - 12/31
<b>2016</b>	31.11	6.84	6.09	4.26	-30%	10.00	50	9	1/1 - 12/31
<b>2017</b>	28.4	6.25	5.50	5.42	-1%	13.54	50	9	1/1 - 12/31
<b>2018</b>	39.14	8.61	7.37	5.61	-24%	12.98	50	9	1/1 - 12/31
<b>2019</b>	36.43	8.01	7.37	-	-	16.03 <sup>a</sup>	50	9	1/1 - 12/31
<b>2020</b>	35.77	7.87	6.51	-	-	-	TBD	TBD	TBD

<sup>a</sup> Projected - methodology described on pages 2-3.

**Table 2:** State recreational fishing measures for scup in 2019.

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



**Table 2:** State recreational fishing measures for scup in 2018.

State	Minimum Size (inches)	Possession Limit	Open Season
MA	9	30 fish; 150 fish/vessel with 5+ anglers on board	May 1-December 31
MA party/charter	9	45 fish	May 1-June 30
		30 fish	July 1-December 31
RI private & shore	9	30 fish	May 1-December 31
RI shore program (7 designated shore sites)	8		
RI party/charter	9	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
CT private & shore	9	30 fish	May 1-December 31
CT shore program (46 designated shore sites)	8		
CT party/charter	9	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
NY private & shore	9	30 fish	May 1-December 31
NY party/charter	9	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1- October 31
NJ	9	50 fish	January 1- December 31
DE	8	50 fish	January 1-December 31
MD	8	50 fish	January 1-December 31
VA	8	30 fish	January 1-December 31
NC, North of Cape Hatteras	8	50 fish	January 1-December 31

**Table 3:** Recreational scup catch and harvest by year, ME - NC, 1981-2019 based on new MRIP estimates. 2019 values are preliminary and are for waves 1-4 only.

<b>Year</b>	<b>Catch</b> (millions of fish)	<b>Harvest</b> (millions of fish)	<b>Harvest</b> (millions of pounds)	<b>% Released</b>	<b>Avg. weight of landed fish</b> (pounds)
1981	19.68	17.31	11.14	12%	0.64
1982	13.14	10.83	8.62	18%	0.80
1983	13.78	12.19	8.62	12%	0.71
1984	11.38	8.78	3.28	23%	0.37
1985	24.56	18.84	11.29	23%	0.60
1986	37.31	30.43	14.18	18%	0.47
1987	18.11	14.03	10.41	23%	0.74
1988	12.14	9.39	7.03	23%	0.75
1989	23.73	19.32	10.54	19%	0.55
1990	18.26	14.04	7.17	23%	0.51
1991	27.41	21.90	12.91	20%	0.59
1992	20.96	16.50	9.45	21%	0.57
1993	10.71	8.40	4.63	22%	0.55
1994	8.86	6.58	4.33	26%	0.66
1995	6.78	4.06	2.27	40%	0.56
1996	10.38	6.27	4.42	40%	0.70
1997	6.60	3.64	2.54	45%	0.70
1998	6.86	2.74	1.82	60%	0.66
1999	10.99	7.41	4.63	33%	0.62
2000	22.06	14.94	11.39	32%	0.76
2001	21.93	11.13	9.77	49%	0.88
2002	17.36	7.07	6.23	59%	0.88
2003	28.63	17.52	17.21	39%	0.98
2004	26.79	12.94	12.83	52%	0.99
2005	13.19	4.49	4.30	66%	0.96
2006	20.07	5.52	5.93	72%	1.07
2007	17.80	7.46	7.10	58%	0.95
2008	19.51	5.65	5.76	71%	1.02
2009	20.75	6.06	6.28	71%	1.04
2010	25.13	10.60	12.48	58%	1.18
2011	18.52	7.60	10.32	59%	1.36
2012	21.24	7.33	8.27	65%	1.13
2013	25.79	11.49	12.57	55%	1.09
2014	20.37	9.17	9.84	55%	1.07
2015	24.87	11.33	11.93	54%	1.05
2016	31.49	9.14	10.00	71%	1.09
2017	41.20	13.84	13.54	66%	0.98
2018	30.37	14.55	12.98	52%	0.89
2019 (w1-4 only)	18.89	10.10	9.31	47%	0.92

**Table 5:** Recreational scup catch and harvest, waves 1-4 (January - August), 2015-2019, Maine through North Carolina, based on MRIP data downloaded October 22, 2019. 2019 values are preliminary.

<b>Year</b>	<b>Wave 1-4 catch (millions of fish)</b>	<b>Wave 1-4 harvest (millions of fish)</b>	<b>Wave 1-4 harvest (millions of pounds)</b>
<b>2015</b>	12.78	6.32	6.72
<b>2016</b>	21.30	6.69	7.71
<b>2017</b>	27.59	9.35	9.06
<b>2018</b>	19.58	9.50	8.39
<b>2019</b> (preliminary)	18.89	10.10	9.31

**Table 6:** Percent of scup harvest (in weight) by wave and state in 2018, based on MRIP data downloaded October 22, 2019. Only North Carolina has MRIP sampling during wave 1. Values may not add to 100% due to rounding.

<b>State</b>	<b>Wave 1</b>	<b>Wave 2</b>	<b>Wave 3</b>	<b>Wave 4</b>	<b>Wave 5</b>	<b>Wave 6</b>
ME	0%	0%	0%	0%	0%	0%
NH	0%	0%	0%	0%	0%	0%
MA	0%	0%	53%	34%	13%	0%
RI	0%	0%	23%	53%	25%	0%
CT	0%	0%	29%	39%	31%	0%
NY	0%	0%	19%	31%	50%	1%
NJ	0%	0%	0%	10%	85%	5%
DE	0%	0%	0%	1%	2%	97%
MD	0%	0%	0%	98%	0%	1%
VA	0%	0%	0%	0%	0%	0%
NC	0%	90%	2%	0%	8%	0%
Total	0%	0%	29%	36%	35%	1%

**Table 4:** 2019 projected recreational harvest (**in pounds**) by state and values used to calculate projections. Values are based on new MRIP estimates. Projections were calculated using methodology outlined on pages 2-3.

State	2018 wave 1-4 harvest as % of annual harvest	2019 wave 1-4 harvest	2018 annual harvest	2019 projected annual harvest	% of projected 2019 total harvest
ME	0%	0	0	0	0%
NH	0%	0	0	0	0%
MA	87%	1,030,370	3,021,961	1,180,577	7%
RI	75%	1,703,835	2,030,259	2,267,281	14%
CT	69%	1,377,875	2,574,307	2,010,040	13%
NY	49%	5,194,213	4,906,043	10,552,583	66%
NJ	10%	1,298	443,699	12,763	0%
DE	1%	0	362	357	0%
MD	98%	0	369	6	0%
VA	0%	0	0	0	0%
NC	92%	2,526	420	2,734	0%
<b>Total</b>	<b>64%</b>	<b>9,310,117</b>	<b>12,977,420</b>	<b>16,026,341</b>	<b>100%</b>

**Table 8:** 2019 projected recreational harvest (**in numbers of fish**) by state and values used to calculate projections. Values are based on new MRIP estimates. Projections were calculated using methodology outlined on pages 2-3.

State	2018 wave 1-4 harvest as % of annual harvest	2019 wave 1-4 harvest	2018 annual harvest	2019 projected annual harvest	% of projected 2019 total harvest
ME	0%	0	0	0	0%
NH	0%	0	0	0	0%
MA	88%	1,063,769	3,265,715	1,205,180	7%
RI	76%	1,990,340	2,376,849	2,626,301	15%
CT	68%	1,571,705	3,071,109	2,322,036	14%
NY	50%	5,469,029	5,370,588	10,967,968	64%
NJ	14%	1,406	460,134	10,262	0%
DE	2%	0	329	323	0%
MD	99%	0	418	6	0%
VA	0%	0	0	0	0%
NC	90%	1,786	349	1,985	0%
<b>Total</b>	<b>64%</b>	<b>10,098,035</b>	<b>14,545,491</b>	<b>17,134,062</b>	<b>100%</b>

**Table 9:** Recreational scup harvest (in numbers of fish) by state, waves 1-6 (January – December), 2010-2019, based on new MRIP estimates. 2019 values are preliminary waves 1-4 (January – August) estimates.

State	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 (w1-4)
ME	0	0	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	0	1,893	0	0
MA	2,349,088	2,124,508	2,548,922	3,783,126	2,802,294	1,977,462	1,790,614	2,110,443	3,265,715	1,063,769
RI	838,992	1,195,957	1,031,964	2,490,473	2,663,951	1,218,822	1,550,667	1,384,182	2,376,849	1,990,340
CT	2,217,056	1,940,332	1,839,883	1,837,524	1,184,119	1,179,608	1,352,121	1,693,871	3,071,109	1,571,705
NY	3,276,823	2,141,028	1,636,283	2,907,277	2,469,479	6,865,853	3,644,607	6,495,758	5,370,588	5,469,029
NJ	1,896,905	160,409	271,957	464,299	44,640	84,131	655,391	2,154,157	460,134	1,406
DE	0	36	497	0	37	565	0	229	329	0
MD	18	12	0	0	0	319	186	15	418	0
VA	15,107	34,935	2,871	4,461	0	3,356	149,995	0	0	0
NC	4,656	1,020	2,453	760	1,783	3,474		359	349	1,786
<b>Total</b>	<b>10,598,645</b>	<b>7,598,237</b>	<b>7,334,830</b>	<b>11,487,920</b>	<b>9,166,303</b>	<b>11,333,590</b>	<b>9,143,581</b>	<b>13,840,907</b>	<b>14,545,491</b>	<b>10,098,035</b>

**Table 10:** Percentage of recreational scup harvest (in pounds) in state and federal waters, ME-NC, 2014-2018 based on new MRIP estimates. Area information is self-reported based on the area where the majority of fishing activity occurred on each trip.

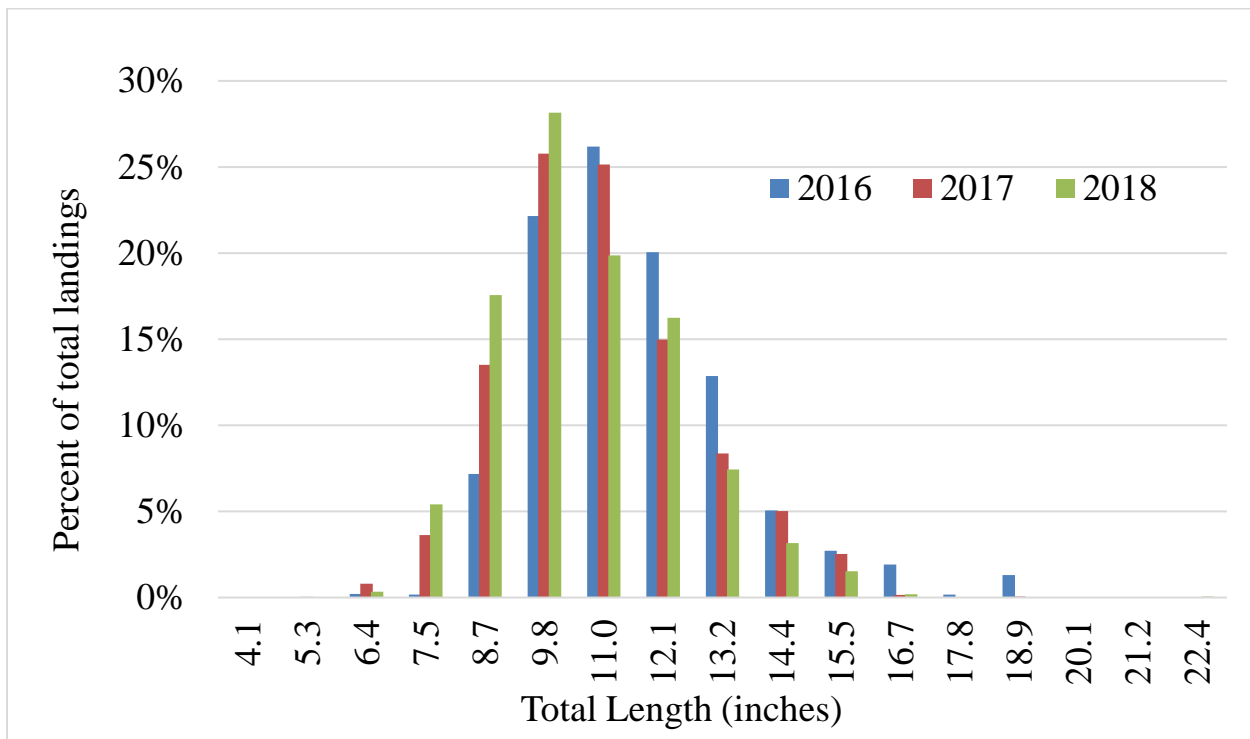
Year	State Waters (<= 3 miles)	EEZ (> 3 miles)
2014	96%	4%
2015	98%	2%
2016	95%	5%
2017	96%	4%
2018	95%	5%
Average	96%	4%

**Table 11:** Proportion of 2014-2018 recreational harvest (in pounds) from state and federal waters by state based on new MRIP estimates. Area information is self-reported based on the area where the majority of fishing activity occurred for each trip.

State	State Waters (<= 3 miles)	EEZ (> 3 miles)
MAINE	--	--
NEW HAMPSHIRE	100%	0%
MASSACHUSETTS	96%	4%
RHODE ISLAND	97%	3%
CONNECTICUT	98%	2%
NEW YORK	96%	4%
NEW JERSEY	91%	9%
DELAWARE	3%	97%
MARYLAND	50%	50%
VIRGINIA	100%	0%
NORTH CAROLINA	20%	80%

**Table 12:** Predicted percent change in total harvest under various bag limits based on new MRIP estimates from 2015-2019. Data for 2015-2018 include waves 1-6. Data for 2019 are preliminary and include only waves 1-4. During 2015-2019, the state and federal waters bag limits were 30-50 fish, depending on the state, mode, and time of year.

Bag Limit	Predicted Change in Harvest
25	-3%
15	-10%
10	-20%
5	-41%
3	-57%
2	-67%



**Figure 1:** Expanded length frequencies of scup landed, 2016-2018, from Maine through North Carolina, as a percent of total scup recreational landings. MRIP estimates length frequencies in fork length which was converted to total length based on Hamer 1979 ( $TL = 1.14 * FL - 0.44$ ).