Summer Flounder, Scup, and Black Sea Bass Advisory Panel Webinar

Monday, November 19, 2018
1:00-4:00 PM

Connection Information

Webinar: http://mafmc.adobeconnect.com/sfsbsb_ap_nov2018/
Audio only: 1-800-832-0736, room #5068871

Meeting Objective

Provide comments and recommendations on recreational management measures for summer flounder, scup, and black sea bass in 2019.

Meeting Materials

Posted at: http://www.mafmc.org/council-events/2018/sfsbsb-ap-meeting

Agenda

Times are subject to change based on the pace of discussion

1:00pm	2019 summer flounder recreational measures
2:00pm	2019 scup recreational measures
3:00pm	2019 black sea bass recreational measures
4:00 pm	Adjourn

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: November 7, 2018

To: Chris Moore, Executive Director

From: Julia Beaty, Staff

Subject: Black Sea Bass Recreational Management Measures for 2019

Introduction and Background

In August 2018, the Council and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) recommended a 3.27 million pound recreational harvest limit (RHL) for 2019, an 11% reduction from the 2018 RHL (Table 1). The recommended 2019 RHL is based on the Scientific and Statistical Committee's (SSC's) acceptable biological catch (ABC) recommendation, the Monitoring Committee's recommendation that the annual catch target be set equal to the annual catch limit (ACL), and an assumption that the proportion of total landings and total discards, as well the proportions of commercial and recreational discards, will be the same as in 2013 - 2015.

The proposed 2019 RHL has not yet been approved and implemented by the National Marine Fisheries Service (NMFS). Staff at the NMFS Greater Atlantic Regional Fisheries Office (GARFO) have indicated that they may implement the 2018 RHL of 3.66 million pounds in 2019, rather than the Council and Board proposed 2019 RHL of 3.27 million pounds. Since the proposed rule has not yet published, GARFO's justification for a *status quo* RHL is unknown at this time.

The SSC's 2019 ABC recommendation is based on biomass projections provided with the 2016 benchmark stock assessment and application of the Council's ABC control rule and risk policy for a species with a typical life history. The 2016 benchmark stock assessment concluded that the stock was not overfished and overfishing was not occurring in 2015. Spawning stock biomass (SSB) in 2015 was approximately 2.3 times the SSB target. The fishing mortality rate in 2015 was 25% below the fishing mortality threshold reference point.[1]

The 2011 year class was nearly three times the 1989-2015 average and has had a major impact on abundance, availability, and fishery catches in recent years. The size of the 2014 year class (the most recent year class for which abundance estimates are available) was comparable to average recruitment during 1989 - 2015.[2] Estimates of the size of the 2015-2018 year classes are not

[1] The 2016 benchmark stock assessment is available at: https://www.nefsc.noaa.gov/publications/crd/crd1703/

[2] Ibid

currently available; however, data on fishery catch, landings, and discards, as well as Northeast Fisheries Science Center (NEFSC) and state survey catches through 2017 suggest that the 2015 year class is above average in both the northern and southern states (Maine - New Jersey and Delaware - Cape Hatteras, North Carolina, respectively).[3]

Estimates of the size of the 2015 year class were not available to be incorporated into the 2016 benchmark stock assessment and associated biomass projections. As such, the SSC's 2019 ABC recommendation does not explicitly account for the size of 2015 year class. In July 2018, the SSC considered fishery and survey catches through 2017 and concluded that, in the absence of new biomass projections, there was no compelling reason to modify their 2019 ABC recommendation, which they first recommended in 2017 after considering the results of the 2016 benchmark stock assessment.[4]

Each year, the Monitoring Committee is tasked with recommending recreational management measures to constrain recreational harvest to the upcoming year's RHL. There are unique circumstances regarding the data available to inform development of 2019 recreational management measures. In July 2018, the Marine Recreational Information Program (MRIP) released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology, 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 black sea bass catch and harvest estimates (Figure 1). Until these revised estimates are incorporated into stock assessments, the implications for stock status, biomass, and catch limits are uncertain. A black sea bass operational stock assessment update incorporating the new MRIP data as well as fishery and survey data through 2017 is expected to be completed in April 2019. Council staff recommend that the revised MRIP estimates not be used in management until after the operational stock assessment update is complete and the impacts of the new MRIP estimates on stock status and catch limits are known.

Back-calculated estimates based on the previous MRIP estimation methodology are currently available through August 2018. All 2018 estimates are preliminary. Council staff recommend that these back-calculated estimates be used to develop 2019 recreational management measures. Depending on the timing of availability of the results of the forthcoming operational stock assessment update and the priorities of the Council and Board, it may be possible to revise the 2019 recreational measures mid-year based on the new assessment information and the new MRIP estimates.

Past RHLs and Management Measures

Black sea bass RHLs ranged from a high of 4.29 million pounds in 2017 to a low of 1.14 million pounds in 2009. The RHLs have been declining since 2017 based on declining biomass projections associated with the 2016 benchmark stock assessment. As previously stated, the 2018 RHL is 3.66 million pounds and the Council and Board recommended 2019 RHL is 3.27 million pounds (Table 1).

[3] Available at: http://www.mafmc.org/s/3_2018-Black-Sea-Bass-Data-Update_06_18.pdf

[4] The July 2018 SSC meeting report is available at: http://www.mafmc.org/s/July-2018-SSC-Report.pdf

Black sea bass from Maine through Cape Hatteras, North Carolina are managed jointly by the Council in federal waters and the Commission and member states in state waters. NMFS implements and enforces measures in federal waters. Until 2010, the recreational black sea bass fishery was managed with coastwide measures as dictated by the Fishery Management Plan, which included an identical minimum fish size, possession limit, and open season in both state and federal waters. Since 2011, the Commission has developed addenda to enable state-specific and regional management measures in state waters, which has been referred to as "ad hoc regional management." In recent years, this process has essentially resulted in two regions: the northern states of Massachusetts through New Jersey, which set state-specific measures, and the southern states of Delaware through North Carolina (north of Cape Hatteras), which typically set measures consistent with federal measures given that most harvest from those states is taken in federal waters. Most recreational harvest in the northern states occurs in state waters (Table 2); thus, landings in the northern states have been primarily constrained by state measures rather than federal measures. Where state and federal measures differ, federal party/charter permit holders are bound by whichever regulations are more restrictive, regardless of where they fish. The federal party/charter permit is an open access permit, which enables individuals to drop their federal permit when state waters are open but federal waters are closed, allowing them to fish in state waters during this time. They can reapply for the federal permit after this period of inconsistency is complete.

Since 2011, there has not been a consistent approach to achieving reductions or liberalizations in state and federal waters. Reductions in recreational harvest were required each year from 2013 through 2015, requiring implementation of more restrictive bag, size, and/or season limits in some or all states and in federal waters, depending on the year. Most harvest in recent years (e.g., approximately 94% during 2013-2017) came from Massachusetts - New Jersey (Figure 2); therefore, these states took greater reductions in 2015 and 2016 compared to Delaware - North Carolina and compared to federal waters. In 2016 and 2017, measures remained essentially unchanged from 2015 with minor changes in some states. Some liberalizations took place in 2018 (e.g., removal of the fall federal waters closure and liberalizations in some state waters seasons; Table 3 and Table 4).

In 2018, the Council and Board provided states the opportunity to open their recreational black sea bass fisheries during February for the first time since 2013 under specific constraints. They agreed to continue this approach in 2019. States must opt in to this fishery. Participating states will have a 12.5 inch minimum fish size limit and a 15 fish possession limit during February 2019. Those states may need to adjust their recreational management measures during the rest of the year to account for expected February harvest to help ensure that the coast-wide RHL is not exceeded. Expected February harvest by state will be defined as shown in Table 5 based on the recommendations of the Council and Board. At this time, it is not known which states intend to participate in the February 2019 fishery. In 2018, only Virginia and North Carolina participated in this fishery.

Recreational Catch and Landings Trends and 2018 Projections Based on Pre-Calibration MRIP Estimates

Recreational black sea bass catch fluctuated from a peak of 29.17 million fish in 1986 to a low of 4.33 million fish in 1984. Harvest fluctuated from a peak of 21.90 million fish and 12.46 million pounds in 1986 to a low of 0.82 million fish and 1.17 million pounds in 2011. Harvest from

Maine through Cape Hatteras, NC was estimated to be 4.16 million pounds in 2017, 3% below the 2017 RHL of 4.29 million pounds. This was the first time since 2011 that harvest was below the RHL (Table 1).

MRIP data for 2018 are currently incomplete and preliminary. To date, only the first four waves (January - August) of catch and landings data for 2018 are available. Preliminary data based on the "pre-calibration" MRIP methodology indicate that 7.62 million black sea bass were caught and 1.25 million black sea bass, or 2.47 million pounds, were harvested from Maine through Cape Hatteras, North Carolina during January - August 2018 (Table 6). Harvest in weight through August 2018 was about 13% below wave 1-4 harvest in 2017 and corresponds to about 67% of the 2018 RHL of 3.66 million pounds.

Preliminary wave 1-4 data for 2018 were used to project catch and harvest for the entire year by assuming the same proportion of catch and landings by wave and state as the 2015-2017 average proportions. Using 2015-2017 averages, as opposed to 2017 proportions by wave, should help account for interannual variability in MRIP estimates and interannual variability in availability of the strong 2011 and 2015 year classes. Modifications were made to the projections for Massachusetts, Delaware, Maryland, Virginia, and North Carolina to account for changes in the open seasons in 2018 compared to previous years.

The wave 1 harvest estimate for Virginia was increased by 3,166 fish and 6,459 pounds to account for recreational harvest during February 2018, which was not sampled by MRIP. The Virginia wave 1 catch estimate was increased by 4,175 fish. These catch and harvest estimates are based on data provided by Virginia Marine Resources Commission staff.

The projected wave 5 catch and harvest estimates for Delaware - North Carolina were doubled to account for an approximate doubling of the number of open days in wave 5 in those states in 2018 compared to 2015-2017.

The recreational black sea bass fishery in Massachusetts was open for 12 days during wave 5 in 2018 (September 1 - 12). Wave 5 had previously been closed in Massachusetts for several years, thus it is not possible to use past proportions of harvest by wave to predict 2018 wave 5 harvest in Massachusetts. Instead, the average wave 4 daily harvest in 2015-2017 was multiplied by 12 to generate a 2018 wave 5 harvest estimate. This is likely an over-estimate given that effort during wave 4 (July-August) is likely greater than during the wave 5 (September-October).

Council staff considered revising projected wave 5 harvest in Rhode Island to account for changes in the open season in 2018 compared to 2017. All of wave 5 was open in Rhode Island during 2018, 2016, and 2015; however, only 30 days were open in 2017. Staff calculated the average harvest per day in wave 5 during 2015-2017 and multiplied it by the number of open days in wave 5 in 2018. This resulted in 275,848 pounds of 2018 wave 5 harvest, compared to 316,353 pounds when projecting based on average proportions of harvest by wave during 2015-2017. Staff used the latter estimate when calculating the total coast-wide (Maine - Cape Hatteras, NC) 2018 projected harvest.

Based on this methodology, projected 2018 harvest from Maine through Cape Hatteras, North Carolina is 3.85 million pounds, 5% greater than the 2018 RHL of 3.66 million pounds. Projected harvest in numbers of fish is 1.97 million fish and projected catch is 14.16 million fish (Table 7 -

Table 10). As shown in Table 8, projected 2018 harvest is 7% lower than both 2017 harvest and average 2015-2017 harvest.

Wave 5 may account for a lesser proportion of 2018 landings in New York due to changes in the regulations in 2018 compared to 2016-2017 and 2015.[5] Adjustments were not made to account for these changes in regulations. As such, projected 2018 wave 5 harvest in New York may be an over-estimate (Table 8).

New Jersey had four different bag limits, depending on the time of year, in 2018, three different bag limits in 2016 and 2017 and two different bag limits in 2015. New Jersey had two different minimum fish sizes during different times of year in 2018 and 2016 and a single minimum fish size in 2015 and 2017 (Table 3 and Table 4). These changes in regulations may invalidate the assumption that 2018 proportions of harvest by wave will be similar to 2015-2017 average proportions; however, due to the complexity of the regulation changes, no adjustments were made to the projections to account for these changes (Table 8).

For comparison purposes, when using only 2017 proportions of harvest by wave and the state-specific modifications described above, projected 2018 harvest is 4.36 million pounds, 13% greater than the estimate based on average 2015-2017 harvest. As previously stated, using 2015-2017 averages helps account for inter-annual variability in the MRIP data and in availability of black sea bass. As such, Council staff recommend using 2015-2017 averages as the basis for the 2018 projections.

Accountability Measures

Pound-for-pound paybacks of recreational ACL overages are not necessarily required in a subsequent fishing year. Instead, AMs are tied to stock status, and though paybacks are required in some circumstances, payback amounts are scaled relative to biomass, as described below.

The 3-year average recreational ACL is evaluated against the 3-year average of total catch. Both landings and dead discards are evaluated when determining if the 3-year average recreational ACL has been exceeded. If so, the appropriate AM will be determined based on the following criteria:

1. If the stock is overfished ($B < ½ B_{MSY}$), 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 ($½ B_{MSY} < B < B_{MSY}$), and the stock is not under a rebuilding plan:
    a. If only the recreational ACL has been exceeded, then adjustments to the recreational management measures (bag, size, and seasonal limits) would be made in the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measure and conditions that precipitated the overage.

[5] 2018 measures included a 15 inch minimum size with a 3 fish bag limit during June 23 - August 31 and a 7 fish bag limit during September 1 - December 31. Measures in 2016 and 2017 included a 15 inch minimum size with a 3 fish bag limit during June 27 - August 31, an 8 fish bag limit during September 1 - October 31, and a 10 fish bag limit during November 1 - December 31. Measures in 2015 included a 14 inch minimum size with a 8 fish bag limit during July 15 - October 31 and a 10 fish bag limit during November 1 - December 31.

b. If the ABC 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) * $(B_{msy}-B)/½\ B_{msy}$.

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

Average recreational catch in 2015-2017 was 4.38 million pounds, about 47% higher than the 2015-2017 average recreational ACL of 3.93 million pounds (Table 11). Given that biomass is currently above the target, the AM regulations require consideration of adjustments to the recreational bag, size, and/or season limits in response to this overage, taking into account the performance of the measures and conditions that precipitated the overage. Previous Monitoring Committee comments on this issue indicated that the 2015 and 2016 overages occurred when the stock was rapidly expanding and availability to anglers was very high. At the same time, due to the lack of an approved stock assessment, the RHLs were set at levels that were not reflective of the large and increasing stock abundance.[6] The results of the 2016 benchmark stock assessment suggest that the 2015 and 2016 ACLs were not reflective of stock status and could have been much higher if a new assessment had been available at the time, and recreational overages would likely not have occurred to the same degree. For this reason, as in 2017, staff recommend that a recreational AM not be applied based on a comparison of 2015-2017 average catch to the 2015-2017 average ACL.

Monitoring Committee Responsibility

The Monitoring Committee is tasked with recommending recreational management measures that will ensure that the 2019 RHL is not exceeded. As previously stated, the Council and Board-recommended 2019 RHL is 3.27 million pounds, an 11% decrease from the 2018 RHL of 3.66 million pounds. GARFO may propose maintaining the 2018 RHL of 3.66 million pounds in 2019. A proposed rule for the 2019 RHL has not yet published.

Projected 2018 recreational harvest is 3.85 million pounds, 5% greater than the 2018 RHL and 18% greater than the Council and Board-recommended 2019 RHL. As such, the Monitoring Committee should consider if more restrictive bag, size, or season limits are necessary in state and/or federal waters to ensure that the 2019 RHL is not exceeded. The Monitoring Committee should also consider if any adjustments are needed to the projection methodology described on pages 3-4.

State waters measures will be determined in early 2019 through a separate Commission process after preliminary 2018 wave 5 and 6 data are available. As such, any Monitoring Committee recommendations for state waters measures will be revisited in early 2019. The state waters measures in Delaware through North Carolina (north of Cape Hatteras) have matched the federal waters measures for the past several years. Most recreational harvest in those states originates in federal waters, as opposed to Massachusetts through New Jersey, where state waters account for a greater proportion of harvest (Table 2). The Monitoring Committee should keep this in mind when

[6] See January 26, 2017 Monitoring Committee meeting summary, available at: http://www.mafmc.org/s/Tab06_BSB-Specifications.pdf, pages 2-9.

recommending state and federal waters measures for 2019.

To aid in consideration of potential changes to management measures, additional information is provided on projected percent liberalizations or reductions in harvest associated with opening or closing one day per wave in Delaware - North Carolina (north of Cape Hatteras; Table 12), and on the length frequency of recreational harvest and discards (Figure 3). Staff recommendations for potential regulatory changes are provided later in this document.

Fishing Trips and Year Class Effects

In general, recreational fishing effort, catch, and harvest in the upcoming year is expected to be similar to harvest in the current year; however, this assumption does not always hold true.

Predicting the recreational fishing effort in 2019 is not straightforward. The number of directed recreational black sea bass trips is variable, but has been generally increasing since 2011 (Table 13). Changes in fishing site characteristics (travel costs, catch rates, available species, water quality, etc.), fishery management measures (e.g., possession limits, size restrictions, closed seasons), and angler demographics can affect fishing effort. 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.

Year class strength influences fish availability, which in turn influences recreational catch and the impacts of management measures. For example, the 2011 year class was nearly three times the 1989-2015 average and has been much more prevalent in the northern states than in the southern states. This has resulted in much higher black sea bass availability in the northern states than in the southern states over the past several years, which has had a notable impact on recreational catches. The 2012 - 2014 year classes are estimated to be similar in abundance to the 1988-2014 average.[7] Estimates of the size of the 2015 year class are not currently available, but catches in fisheries independent surveys and fishery discards suggest that the 2015 year class is above average in both the northern and southern states.[8] In 2019, most of the remaining fish in the 2015 will year class will be large enough to be retained in the recreational fishery in most states and federal waters, assuming the minimum fish sizes remain unchanged from 2018 (Gary Shepherd, NEFSC, personal communication). This should be considered when developing recommendations for 2019 recreational management measures.

Staff Recommendation for 2019 Federal Recreational Measures

As previously stated, state waters measures for 2019 will be developed through a separate Commission process in early 2019. State waters measures in Delaware through North Carolina (north of Cape Hatteras) typically match the federal waters measures. Projected 2018 recreational harvest from Maine through Cape Hatteras, North Carolina is 3.85 million pounds. The Council and Board-recommended 2019 RHL is 3.27 million pounds. GARFO has indicated that they may implement a 3.66 million pound RHL for 2019 (identical to the 2018 RHL). Projected 2018 harvest

[7] Northeast Fisheries Science Center. 2017. 62nd Northeast Regional Stock Assessment Workshop (62nd SAW) Assessment Report. US Department of Commerce, Northeast Fisheries Science Center Reference Doc. 17-03; 822 p. Available: at http://nefsc.noaa.gov/publications/.

[8] Northeast Fisheries Science Center. 2018. Black Sea Bass 2017 Catch and Survey Information for Stock North of Cape Hatteras, NC - Report to the Mid-Atlantic Science and Statistical Committee. Available at: http://www.mafmc.org/ssc-meetings/2018/july-17-18

is 18% greater than the Council and Board-recommended 2019 RHL and 5% greater than the 2018 RHL. These values may change once preliminary wave 5 and 6 data are available and may change based on Monitoring Committee recommendations for revisions to the projection methodology, if any.

If a status quo RHL of 3.66 million pounds is implemented, then the 2018 harvest projections suggest that harvest should be reduced by 5% to ensure that the 2019 RHL is not exceeded. Given some level of uncertainty regarding the accuracy of the projections, combined with the current condition of the stock (i.e., SSB well above the target, fishing mortality below the threshold, and signs of an above-average 2015 year class), and given the forthcoming operational assessment update, which will incorporate the revised MRIP estimates and will provide updated information on stock status, Council staff recommend no changes to any state or federal waters recreational measures for 2019 if a *status quo* RHL of 3.66 million pounds is implemented.

If the Council and Board-recommended 2019 RHL of 3.27 million pounds is implemented, then the 2018 harvest projections suggest that harvest should be reduced by 18% to ensure that the 2019 RHL is not exceeded. In past years, given that most of the coastwide harvest occurs in Massachusetts - New Jersey state waters (Table 2, Figure 2), Council staff and the Monitoring Committee have recommended that those states adjust their measures to account for most of the needed reductions while the southern states (Delaware through North Carolina, north of Cape Hatteras) and federal waters measures remain unchanged. For 2019, staff recommend that measures be adjusted in northern and southern states and in federal waters to address the 18% reduction in harvest that will be necessary if a 3.27 million pound RHL is implemented. Federal waters and Delaware - North Carolina state waters measures were notably liberalized in 2018 due to removal of the September 22 - October 21 closure. Some northern states also liberalized their measures in 2018 (Table 3 and Table 4).

As previously stated, state waters measures will be developed through a separate process in early 2019 after preliminary wave 5 - 6 data are available. The needed 18% reduction under a 3.27 million pound RHL may be modified based on wave 5 - 6 data. Specific recommendations for federal waters measures are presented below. These recommendations are based on their expected impacts on harvest in Delaware - North Carolina (north of Cape Hatteras) based on the assumption that state waters measures in those states will continue to match the federal waters measures. Changes in the minimum fish size were not analyzed, given strong opposition to increases in minimum fish sizes in the past.

The analysis supporting the following recommendations assumed that changes in regulations would not result in changes in fishing behavior in 2019 compared to 2015-2017. For example, it was assumed that levels of non-compliance with a revised bag limit would be identical to levels of non-compliance with the 2018 bag limit. It was assumed that there would be full compliance with the season regulations. It was also assumed that harvest is evenly distributed throughout each wave. These assumptions are undoubtedly inaccurate; however, they are necessary given the data available and the difficulty in predicting changes in fishing behavior.

As previously stated, during 2015-2017, federal waters and state waters in Delaware through North Carolina (north of Cape Hatteras), and some other states, were closed for 30 days in wave 5; however, all of wave 5 was open in 2018. If this closure were to be re-instated in 2018, it would be expected to result in a 20% reduction in harvest in Delaware - North Carolina. To achieve an

18% reduction in harvest in Delaware - North Carolina, 26 days could be closed in wave 5, or 10 days in wave 5 and all of wave 6 could be closed. If days in both wave 5 and wave 6 are closed, staff recommend that they be consecutive (e.g., October 22 - December 31).

A year-round 6 fish bag limit would be needed to achieve an 18% reduction in harvest in Delaware - North Carolina (north of Cape Hatteras) if all other regulations were unchanged from 2018. A 6 fish bag limit achieves a nearly 21% reduction, while a 7 fish bag limit achieves a 17% reduction. A bag limit reduction of this magnitude is likely not desirable.

A combination of a year-round 12 fish bag limit (which alone achieves only a 4% reduction in harvest) and a closure during October 27 - December 31 results in an 18% reduction in harvest in Delaware through North Carolina (north of Cape Hatteras).

Similar to past years, the Council and Board should approve a set of backstop measures, to be implemented coastwide if Massachusetts through New Jersey do not take action to address the needed reduction. For 2018, the Council and Board approved a 14 inch minimum size, a 5 fish possession limit, and a season of May 15 - September 15 as backstop measures. These measures were calculated to achieve the 2018 RHL if implemented in all states and in federal waters. Council staff have not made similar calculations for backstop measures based on the Council and Board-recommended 2019 RHL of 3.27 million pounds. If the Monitoring Committee supports this approach, they should develop recommendations for appropriate backstop measures.

Table 1: Summary of federal waters management measures for the black sea bass recreational fishery, 1997-2018. All measures are in millions of pounds, unless otherwise noted.

Year	ABC	Rec. ACL	RHL[a]	Rec. harvest[b]	% over/ under RHL	Possession limit (# of fish)	Size limit (inches, total length)	Open season
1997	-	-	-	4.4	-	-	9	1/1-12/31
1998	-	-	3.15	1.29	-59%	-	10	1/1-7/30 8/16-12/31
1999	-	-	3.15	1.7	-46%	-	10	1/1-12/31
2000	-	-	3.15	4.12	+31%	-	10	1/1-12/31
2001	-	-	3.15	3.6	+14%	25	11	1/1-2/28 5/10-12/31
2002	-	-	3.43	4.44	+29%	25	11.5	1/1-12/31
2003	-	-	3.43	3.45	+1%	25	12	1/1-9/1 9/16-11/30
2004	-	-	4.01	1.97	-51%	25	12	1/1-9/7 9/22-11/30
2005	-	-	4.13	1.88	-54%	25	12	1/1-9/7 9/22-11/30
2006	-	-	3.99	1.8	-55%	25	12	1/1-12/31
2007	-	-	2.47	2.17	-12%	25	12	1/1-12/31
2008	-	-	2.11	2.03	-4%	25	12	1/1-12/31
2009	-	-	1.14	2.56	+125%	25	12.5	1/1-12/31
2010	4.50	-	1.83	3.19	+74%	25	12.5	1/1-10/5
2011	4.50	-	1.84	1.17	-36%	25	12.5	5/22-10/1 11/1-12/31
2012	4.50	-	1.32	3.18	+141%	15 or 25[c]	12.5	1/1-2/29 5/19-10/14 11/1-12/31
2013	5.50	2.9	2.26	2.46	+9%	20	12.5	5/19-10/14 11/1-12/31
2014	5.50	2.9	2.26	3.67	+62%	15	12.5	5/19-9/21 10/18-12/31
2015	5.50	2.9	2.33	3.79	+63%	15	12.5	5/15-9/21 10/22-12/31
2016	6.67	3.52	2.82	5.19	+84%	15	12.5	5/15-9/21 10/22-12/31
2017	10.47	5.38	4.29	4.16	-3%	15	12.5	5/15-9/21 10/22-12/31
2018	8.94	4.59	3.66	3.85[d]	+5%	15	12.5	5/15-12/31
2019	7.97	4.10	3.27[e]	-	-	TBD	TBD	TBD

[a] RHLs for 2006-2014 are adjusted for Research Set Aside.

[b] Harvest values prior to 2004 are for Maine through North Carolina. Values from 2004 through 2018 are for Maine through Cape Hatteras, North Carolina. All values are based on pre-calibration MRIP estimates.

[c] 15 fish from 1/1-2/29; 25 fish from 5/19-10/14 and 11/1-12/31.

[d] Projected using the methodology described on pages 3-4

[e] Recommended by the Council and Board in August 2018. Not yet implemented.

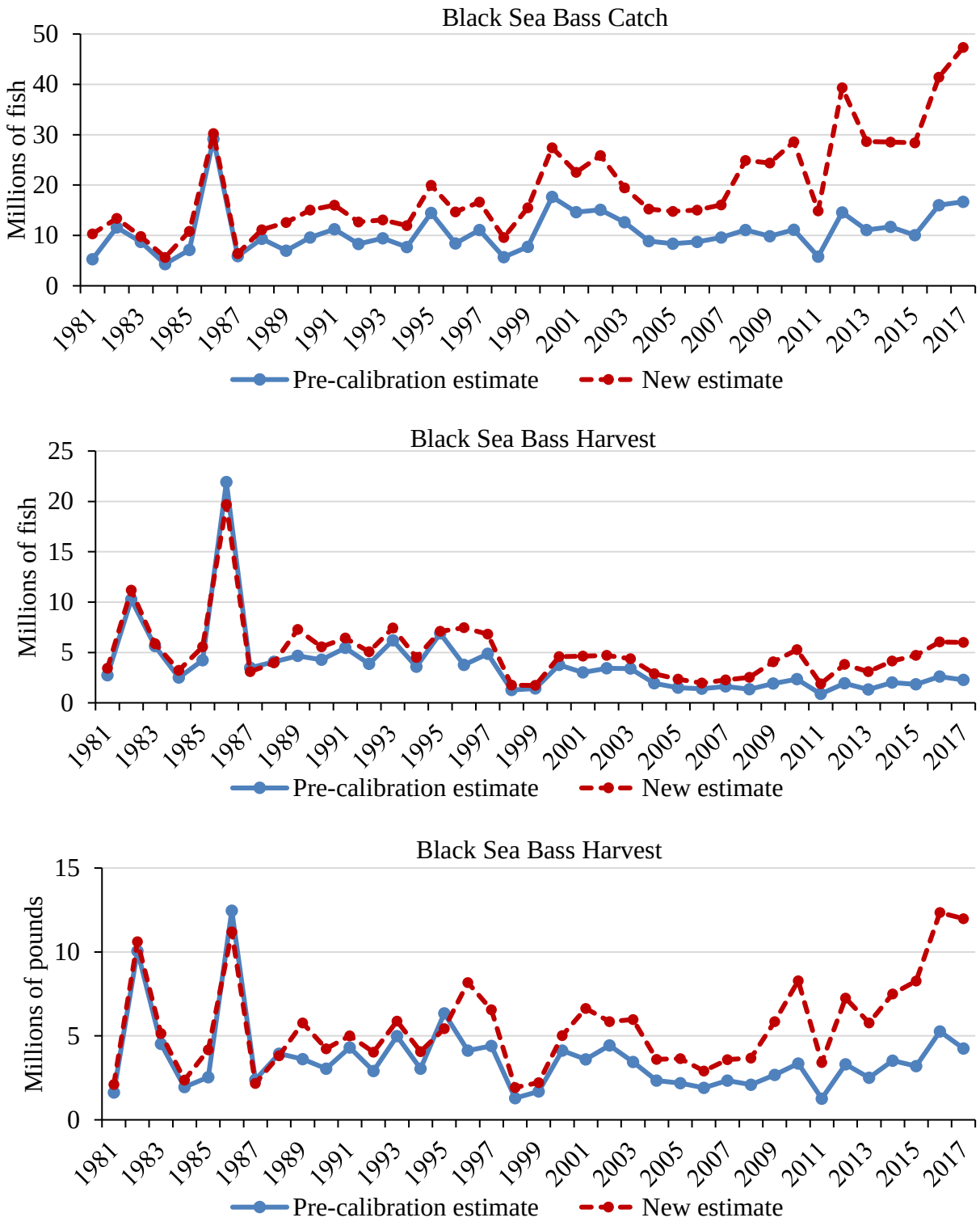

Figure 1: Recreational black sea bass catch in numbers of fish and harvest in numbers of fish and pounds, ME - NC, 1981 - 2017 based on pre-calibration MRIP estimates and revised MRIP estimates released July 2018.

Table 2: Average proportion of annual black sea bass recreational harvest in numbers of fish from state waters, by state based on pre-calibration MRIP estimates.

State	2014	2015	2016	2017	2018 (w1-4)	Average
ME	-	-	-	-	-	**-**
NH	-	-	-	-	-	**-**
MA	88%	100%	94%	80%	89%	**90%**
RI	78%	76%	83%	85%	83%	**81%**
CT	90%	96%	96%	90%	100%	**94%**
NY	74%	86%	51%	39%	66%	**62%**
NJ	8%	19%	34%	31%	32%	**25%**
DE	4%	5%	8%	7%	7%	**6%**
MD	0%	21%	49%	1%	0%	**18%**
VA	68%	4%	14%	7%	20%	**16%**
NC[a]	21%	4%	10%	7%	0%	**11%**
ME-NJ	**64%**	**76%**	**68%**	**55%**	**69%**	**66%**
DE-NC	**14%**	**9%**	**27%**	**5%**	**13%**	**13%**

[a] Through Cape Hatteras

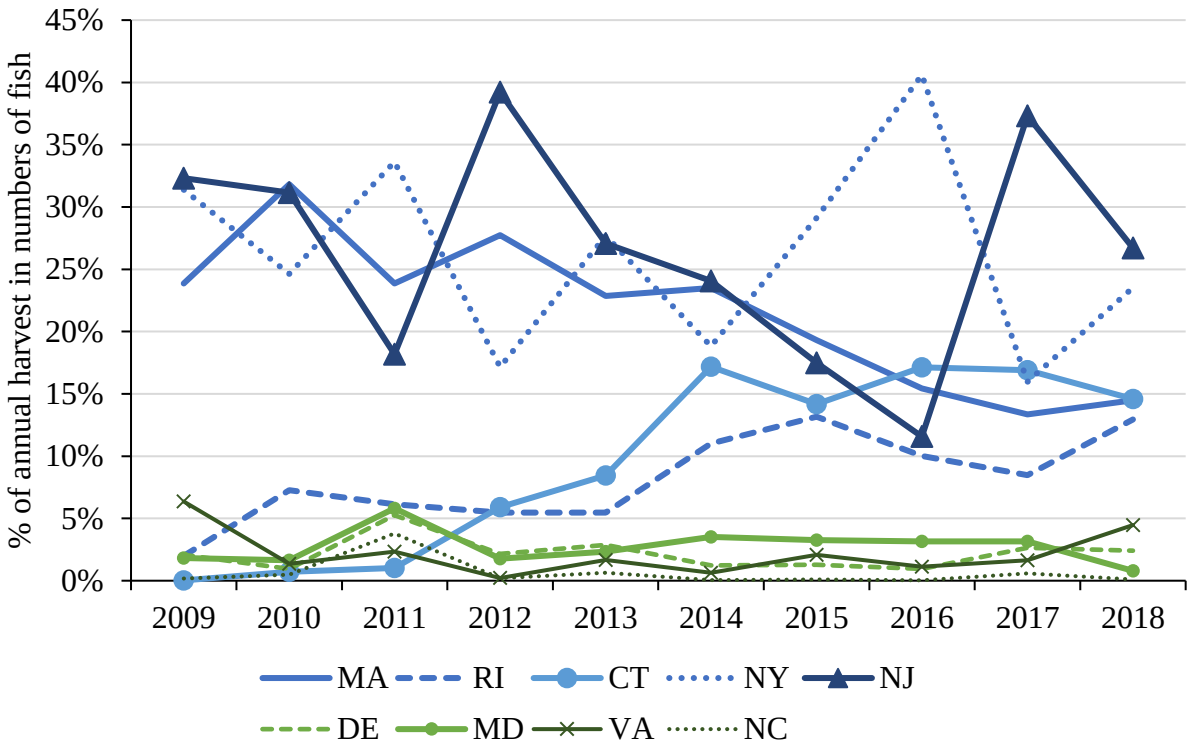

Figure 2: Percent of coastwide (i.e., Maine through Cape Hatteras, NC) annual harvest of black sea bass (in numbers of fish) by state, 2009-2018 based on pre-calibration MRIP estimates. 2018 values are projected based on the methodology described on pages 3-4.

Table 3: Black sea bass recreational management measures by state in 2017.

State	Minimum Size (inches)	Possession Limit	Open Season
ME	13	10 fish	5/19 - 9/21 & 10/18 - 12/31
NH	13	10 fish	1/1 - 12/31
MA	15	5 fish	5/21 - 8/31
RI	15	3 fish	5/25 - 8/31
		7 fish	9/1 - 9/21 & 10/22 - 12/31
CT private & shore	15	5 fish	5/1 - 12/31
CT authorized party/charter vessels	15	8 fish	5/1 - 12/31
NY	15	3 fish	6/27 - 8/31
		8 fish	9/1 - 10/31
		10 fish	11/1 - 12/31
NJ	12.5	10 fish	5/26 - 6/18
		2 fish	7/1 - 8/31
		15 fish	10/22 - 12/31
DE, MD, VA, & NC North of Cape Hatteras	12.5	15 fish	5/15 - 9/21 & 10/22 - 12/31

Table 4: Black sea bass recreational management measures by state in 2018.

State	Minimum Size (inches)	Possession Limit	Open Season
ME	13	10 fish	5/19 - 9/21 & 10/18 - 12/31
NH	13	10 fish	1/1 - 12/31
MA	15	5 fish	5/19 - 9/12
RI	15	3 fish	6/24 - 8/31
		7 fish	9/1 - 12/31
CT private & shore	15	5 fish	5/19 - 12/31
CT authorized party/charter vessels	15	5 fish	5/19 - 8/31
		7 fish	9/1 - 12/31
NY	15	3 fish	6/23 - 8/31
		7 fish	9/1 - 12/31
NJ	12.5	10 fish	5/15 - 6/22
	12.5	2 fish	7/1 - 8/31
	12.5	10 fish	10/8 - 10/31
	13	15 fish	11/1 - 12/31
DE, MD, VA, & NC North of Cape Hatteras	12.5	15 fish	5/15 - 12/31

Table 5: State allocations of 100,000 pounds of expected February black sea bass harvest.

State	Proportion of Wave 1 Catch	Allocation of 100,000 pounds
RI	0.29%	288
CT	0.06%	57
NY	9.41%	9,410
NJ	82.85%	82,850
DE	1.30%	1,297
MD	0.54%	541
VA	5.50%	5,496
NC[a]	0.06%	62
Total	**100.00%**	**100,000**

[a] North of Cape Hatteras

Table 6: Recreational black sea bass harvest (in numbers of fish) by state, waves 1-4 (January - August), 2014-2018, based on pre-calibration MRIP estimates. 2018 values are preliminary.

State	2014	2015	2016	2017	2018
ME	0	0	0	0	0
NH	0	0	0	0	0
MA	349,059	338,465	360,575	293,573	252,263
RI	110,393	98,676	125,003	116,397	159,053
CT	127,188	117,860	367,191	242,910	196,957
NY	234,754	290,134	525,327	123,956	240,335
NJ	307,797	228,227	203,234	628,240	354,075
DE	18,010	12,383	16,858	31,979	10,846
MD	32,434	13,391	30,677	62,900	7,605
VA	4,384	34,441	23,934	16,397	31,012
NC[a]	619	1,237	807	12,675	1,793
Total	**1,184,638**	**1,134,814**	**1,653,606**	**1,529,027**	**1,253,939**

[a] Through Cape Hatteras

Table 7: Average percent of black sea bass harvest (in weight) by wave and state in 2017, based on pre-calibration MRIP estimates.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
ME	N/A	N/A	N/A	N/A	N/A	N/A
NH	N/A	N/A	N/A	N/A	N/A	N/A
MA	0%	0%	79%	21%	0%	0%
RI	0%	0%	28%	32%	39%	2%
CT	0%	0%	7%	58%	36%	0%
NY	0%	0%	0%	31%	54%	14%
NJ	0%	0%	56%	21%	14%	8%
DE	0%	0%	55%	5%	23%	17%
MD	0%	0%	23%	69%	3%	5%
VA	0%	0%	21%	21%	42%	16%
NC[a]	0%	0%	32%	64%	1%	3%
Total	**0%**	**0%**	**36%**	**32%**	**26%**	**6%**

[a] Through Cape Hatteras

Table 8: Summary of 2018 harvest projections by state based on pre-calibration MRIP estimates.

State	2017 harvest	Avg 2015-2017 harvest	2015-2017 wave 1-4 as % of annual harvest	2018 wave 1-4 harvest	2018 projected annual harvest	% of projected 2018 harvest
ME	0	0	-	0	0	0%
NH	0	0	-	0	0	0%
MA	743,617	784,386	98%	639,437[a]	706,307	18%
RI	426,405	478,370	51%	350,683[b]	692,167	18%
CT	825,447	718,576	69%	462,892[b]	672,408	17%
NY	770,850	1,302,874	45%	454,317[b]	1,005,842	26%
NJ	1,137,317	654,705	76%	487,817[b]	638,787	17%
DE	75,895	44,909	62%	15,993[c]	29,876	1%
MD	102,656	94,901	53%	9,886[c]	25,380	1%
VA	59,988	63,649	76%	49,892[c]	79,271	2%
NC[d]	18,681	8,195	90%	2,521[c]	2,967	0%
Total	**4,160,856**	**4,150,565**		**2,473,437**	**3,850,749**	

[a] Wave 6 was projected based on 2018 wave 1 - 4 harvest and average 2015-2017 proportions of harvest by wave. Wave 5 harvest was set equivalent to average wave 4 harvest per day in 2015-2017 multiplied by 12 (the number of open days in wave 5 2018).

[b] Harvest in waves 5 and 6 was projected based on 2018 wave 1 - 4 harvest and average 2015-2017 proportions of harvest by wave.

[c] Harvest in waves 5 and 6 was projected based on 2018 wave 1 - 4 harvest and average 2015-2017 proportions of harvest by wave. The wave 5 values were doubled to account for a doubling of the open days in wave 5 in 2018 compared to 2015-2017.

[d] Through Cape Hatteras

Table 9: Recreational black sea bass harvest (in numbers of fish) by state, waves 1-6 (January - December), 2014-2018, based on pre-calibration MRIP estimates. 2018 values are based on the projection methodology described on pages 3-4.

State	2014	2015	2016	2017	2018 projected
ME	0	0	0	0	0
NH	0	0	0	0	0
MA	457,100	342,554	392,239	294,467	284,902
RI	214,464	233,631	254,704	186,791	254,549
CT	334,201	251,643	435,624	372,730	287,109
NY	366,133	516,967	1,032,607	352,205	462,734
NJ	468,400	310,297	294,313	823,164	525,427
DE	23,878	22,899	24,168	58,082	47,200
MD	68,468	57,631	79,951	69,397	15,603
VA	12,605	36,863	28,913	35,977	87,886
NC[a]	696	1,966	864	13,062	2,203
Total	**1,945,945**	**1,774,451**	**1,510,776**	**2,205,875**	**1,967,614**

[a] Through Cape Hatteras

Table 10: Recreational black sea bass catch and harvest by year, 1981-2018 based on pre-calibration MRIP estimates. 2018 values are based on the projection methodology described on pages 3-4. Catch and harvest values prior to 2004 are for Maine through North Carolina. Values from 2004 through 2018 represent Maine through Cape Hatteras, North Carolina.

Year	**Catch** (millions of fish)	**Harvest** (millions of fish)	**Harvest** (millions of lb)	**% Released**	**Avg. weight of landed fish** (lb)
1981	5.30	2.73	1.23	48%	0.45
1982	11.62	10.25	10.05	12%	0.98
1983	8.71	5.63	4.53	35%	0.80
1984	4.33	2.49	1.96	42%	0.79
1985	7.13	4.22	2.54	41%	0.60
1986	29.17	21.90	12.46	25%	0.57
1987	5.91	3.47	2.39	41%	0.69
1988	9.36	4.06	3.94	57%	0.97
1989	7.00	4.65	3.62	34%	0.78
1990	9.62	4.27	3.05	56%	0.71
1991	11.22	5.46	4.32	51%	0.79
1992	8.30	3.87	2.91	53%	0.75
1993	9.45	6.20	4.98	34%	0.80
1994	7.69	3.57	3.05	54%	0.85
1995	14.48	6.89	6.34	52%	0.92
1996	8.44	3.76	4.13	55%	1.10
1997	11.09	4.87	4.4	56%	0.90
1998	5.70	1.26	1.29	78%	1.02
1999	7.76	1.41	1.7	82%	1.21
2000	17.67	3.76	4.12	79%	1.10
2001	14.63	3.01	3.6	79%	1.20
2002	15.08	3.42	4.44	77%	1.30
2003	12.65	3.39	3.45	73%	1.02
2004	7.24	1.53	1.97	79%	1.29
2005	7.04	1.26	1.88	82%	1.49
2006	7.60	1.29	1.8	83%	1.40
2007	8.73	1.53	2.17	82%	1.42
2008	10.65	1.29	2.03	88%	1.57
2009	9.22	1.81	2.56	80%	1.41
2010	9.96	2.21	3.19	78%	1.44
2011	4.74	0.82	1.17	83%	1.43
2012	12.54	1.87	3.18	85%	1.70
2013	9.81	1.28	2.46	87%	1.92
2014	10.87	2.12	3.67	80%	1.73
2015	9.43	2.21	3.79	77%	1.71
2016	14.14	2.54	5.19	82%	2.04
2017	15.03	2.21	4.16	85%	1.88
2018 projected	14.16	1.97	3.85	86%	1.95

Table 11: AM evaluation for the black sea bass recreational fishery, comparing 2015-2017 average recreational catch from Maine through Cape Hatteras, NC to the 2015-2017 average recreational ACL.[9]

Year	Rec. ACL (mil lb)	Rec. Catch (mil lb)	% Over/Under
2015	2.90	3.79	+59%
2016	3.52	5.19	+82%
2017	5.38	4.16	+1%
Average	3.93	4.38	+47%

Table 12: Percent of Delaware through North Carolina (north of Cape Hatteras) black sea bass harvest (in numbers of fish) by wave, day per wave, and state, 2016-2017 based on pre-calibration MRIP estimates.

		DE-NC[a]		DE		MD		VA		NC[a]	
Wave	Days open 2016 & 2017[b]	% of 2016-2017 ME-NC[a] harvest	% of 2016-2017 ME-NC[a] harvest per day in wave	% of 2016-2017 ME-NC[a] harvest	% of 2016-2017 ME-NC[a] harvest per day in wave	% of 2016-2017 ME-NC[a] harvest	% of 2016-2017 ME-NC[a] harvest per day in wave	% of 2016-2017 ME-NC[a] harvest	% of 2016-2017 ME-NC[a] harvest per day in wave	% of 2016-2017 ME-NC[a] harvest	% of 2016-2017 ME-NC[a] harvest per day in wave
1 Jan-Feb	0	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-
2 Mar-Apr	0	0.09%	-	0.00%	-	0.00%	-	0.00%	-	0.09%	-
3 May-Jun	47	28.31%	**0.32%**	12.28%	**0.13%**	10.66%	**0.09%**	5.26%	**0.06%**	1.96%	**0.02%**
4 Jul-Aug	62	30.73%	**0.27%**	3.46%	**0.03%**	19.48%	**0.14%**	7.73%	**0.06%**	2.29%	**0.02%**
5 Sept-Oct	31	26.14%	**0.42%**	5.27%	**0.08%**	14.63%	**0.02%**	6.25%	**0.10%**	0.03%	**0.00%**
6 Nov-Dec	61	10.52%	**0.09%**	5.50%	**0.05%**	3.34%	**0.03%**	1.66%	**0.01%**	0.12%	**0.00%**
Total	**201**	95.79%		26.50%		48.11%		20.90%		4.49%	

[a] Through Cape Hatteras

[b] The number of open days in each wave was unchanged from 2016 through 2018, with the exception of wave 5, which had 61 open days in 2018.

[9] Recreational harvest is based on "pre-calibration" MRIP estimates downloaded in July 2018. Recreational dead discard estimates are from the 2018 data update from the NEFSC, available at: http://www.mafmc.org/s/3_2018-Black-Sea-Bass-Data-Update_06_18.pdf

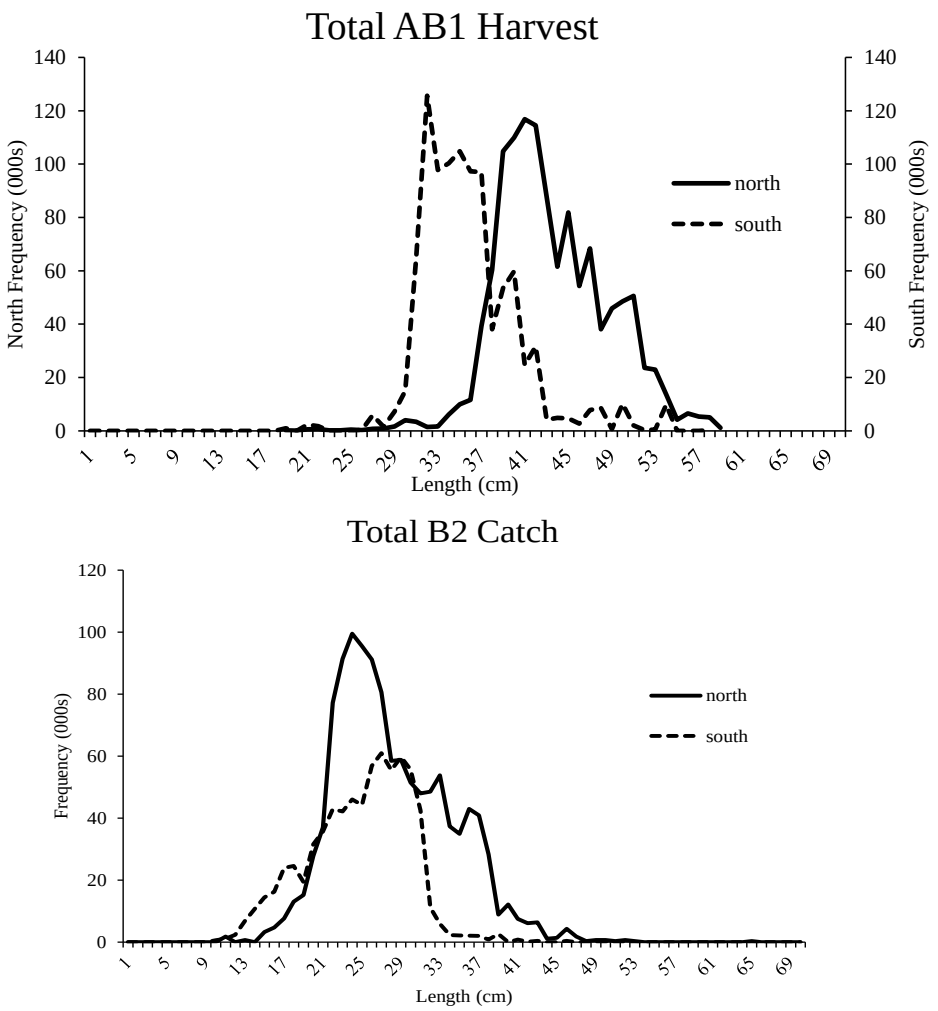

Figure 3: Top: length frequency (total length) of 2017 black sea bass recreational harvest, by region with Maine through New York corresponding to the northern region and New Jersey through Cape Hatteras, NC corresponding to the southern region. Bottom: Length frequency (total length) of 2017 black sea bass recreational dead discards (B2*15%), by region. In 2017, the recreational minimum fish size was 12.5 inches (31.75 cm) in federal waters and the southern states and was 13 or 15 inches (33.02 or 38.10 cm) in northern states. Both figures are from the 2018 data update from the NEFSC, available at: Available at: http://www.mafmc.org/ssc-meetings/2018/july-17-18.

Table 13: Number of recreational fishing trips for which black sea bass was the primary target species, Maine - North Carolina, based on pre-calibration MRIP estimates.

Year	Number of Directed Black Sea Bass Trips	Directed Black Sea Bass Trips As Percent of All Recreational Trips
2007	368,042	1.0%
2008	256,341	0.7%
2009	393,389	1.3%
2010	417,663	1.4%
2011	193,655	0.7%
2012	267,932	0.8%
2013	261,582	1.0%
2014	403,624	1.0%
2015	505,571	2.3%
2016	483,604	1.9%
2017	Not available	Not available

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: October 31, 2018

To: Chris Moore, Executive Director

From: Kiley Dancy, Staff

Subject: Summer Flounder Recreational Management Measures for 2019

In August 2018, the Council and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) recommended an interim 2019 commercial quota and recreational harvest limit (RHL) for summer flounder. The interim 2019 RHL is 5.15 million lb (an increase of approximately 16% relative to the 2018 RHL of 4.42 million lb). The Council and Board are expected to reconsider these measures in February 2019 based on the results of a forthcoming benchmark stock assessment that will undergo peer review in late November 2018. It is unknown at this time how the previously approved 2019 RHL could change as the result of this assessment.

Each year, the Monitoring Committee (MC) is tasked with recommending recreational management measures (recreational possession limits, size limits, and seasons) to constrain recreational harvest to the RHL. Given the unique circumstances this year regarding the timing of the stock assessment for summer flounder, staff recommend that the MC, Council, and Board delay recommending 2019 recreational management measures until early 2019 when the assessment outcomes and potential revisions to the 2019 RHL are known. The MC is scheduled to meet in late January and the Council and Board will meet jointly in mid-February.

The benchmark stock assessment will incorporate revised recreational data over the full time series of estimated recreational catch (1981-2017) from the Marine Recreational Information Program (MRIP). In July 2018, MRIP released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology (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, substantially raising the overall summer flounder catch and harvest estimates. On average, the post-calibration landings estimates for summer flounder (in pounds) are 1.8 times higher over the full time series (1981-2017), and 2.3 times higher over the past 10 years (2008-2017).

Until these revised estimates are incorporated into the stock assessment, the implications for stock status, biomass, and catch limits are uncertain. Using the new MRIP data to develop recreational management measures before the assessment is complete would create a management disconnect between the data sources used to develop the current RHL and the data used to develop management measures. Back-

calculated estimates based on the previous MRIP estimation methodology ("pre-calibration estimates") were requested through August 2018 and are provided in this memo for informational purposes (all 2018 estimates are preliminary). Once the new assessment results are considered and incorporated into revised RHL recommendations, 2019 recreational measures can be developed using the revised MRIP estimates ("post-calibration estimates"). An overview of pre-calibration data trends, a tentative timeline for future consideration of 2019 measures, and a brief comparison of pre- and post-calibration MRIP trends are presented below.

Recreational Catch and Landings (Pre-Calibration MRIP Data)

Recreational catch (kept fish, dead discards, and live releases) of summer flounder have varied from a high of 32.06 million fish in 1983 to a time series low of 2.68 million fish in 1989. Landings have fluctuated from a peak of 27.97 million lb in 1983 to a low of 3.16 million lb in 1989. Landings were estimated to be 3.19 million lb in 2017 (Table 1), approximately 15% below the 2017 RHL of 3.77 million lb.

MRIP data for 2018 are incomplete and preliminary, with only the first four waves (January through August) available. Preliminary pre-calibration data indicate that 8.03 million summer flounder have been caught and 0.92 million summer flounder have been landed through wave 4 in 2018. By weight, landings through wave 4 were 2.97 million lb, with the mean weight at approximately 3.22 lb per fish (Table 2).

Preliminary wave 1-4 data for 2018 were used to project catch and landings for the entire year by assuming the same proportion of catch and landings by wave in 2017. These projections are typically assumed to be overestimates for states with more restrictive seasonal measures in remaining waves of the current year, and underestimates for those with less restrictive seasonal measures. Between 2017 and 2018, some states liberalized their measures slightly, including seasonal expansions (particularly in wave 5) in Massachusetts, Connecticut, New York, and New Jersey (see Table 6); thus, the projections may be somewhat underestimated on a coastwide basis.

Total projected catch for 2018 is 8.99 million fish, and projected landings are 3.25 million lb or 1.01 million fish (Table 1). These 2018 projections are very similar to the final 2017 numbers (8.44 million summer flounder caught, 3.19 million pounds landed, 1.03 million fish landed). Landings by state in recent years, in thousands of fish, are shown in Table 3 and Table 4 (for waves 1-4 and all waves, respectively). Projected 2018 landings by state (in numbers of fish) are shown in Table 4 and Table 6.

Table 1: Summer flounder recreational catch and landings (pre-calibration data) by year, Maine through North Carolina, 1981-2018, all waves (2018 projected), with % released and mean weight of landed fish.[a]

Year	Catch (mil fish)	Landings (mil fish)	Landings (mil lb)	% Released	Mean weight of landed fish (lb)
1981	13.579	9.567	10.081	30%	1.05
1982	23.562	15.473	18.233	34%	1.18
1983	32.062	20.996	27.969	35%	1.33
1984	29.785	17.475	18.765	41%	1.07
1985	13.526	11.066	12.490	18%	1.13
1986	25.292	11.621	17.861	54%	1.54
1987	21.023	7.865	12.167	63%	1.55
1988	17.171	9.960	14.624	42%	1.47
1989	2.677	1.717	3.158	36%	1.84
1990	9.101	3.794	5.134	58%	1.35
1991	16.075	6.068	7.960	62%	1.31
1992	11.910	5.002	7.148	58%	1.43
1993	22.904	6.494	8.831	72%	1.36
1994	17.725	6.703	9.328	62%	1.39
1995	16.308	3.326	5.421	80%	1.63
1996	18.994	6.997	9.820	63%	1.40
1997	20.027	7.167	11.866	64%	1.66
1998	22.086	6.979	12.477	68%	1.79
1999	21.378	4.107	8.366	81%	2.04
2000	25.384	7.801	16.468	69%	2.11
2001	28.187	5.294	11.637	81%	2.20
2002	16.674	3.262	8.008	80%	2.45
2003	20.532	4.559	11.638	78%	2.55
2004	20.336	4.316	11.022	79%	2.55
2005	25.806	4.027	10.915	84%	2.71
2006	21.400	3.950	10.505	82%	2.66
2007	20.732	3.108	9.337	85%	3.00
2008	22.897	2.350	8.151	90%	3.47
2009	24.085	1.806	6.030	93%	3.34
2010	23.722	1.501	5.108	94%	3.40
2011	21.559	1.840	5.956	91%	3.24
2012	16.528	2.272	6.490	86%	2.86
2013	16.060	2.506	7.311	84%	2.92
2014	18.452	2.378	7.140	87%	3.00
2015	11.930	1.540	4.474	87%	2.91
2016	14.171	2.028	6.182	86%	3.05
2017	8.442	1.028	3.189	88%	3.12
2018 (proj.)[b]	8.99	1.01	3.25	89%	3.22

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 22, 2018. 1981-2003 data are from MRFSS, 2004-2018 data are from MRIP (pre-calibrated).

[b] Projected using proportion by wave from 2017 MRIP data and 2018 MRIP pre-calibration wave 1-4 data.

Table 2: Summer flounder recreational catch and landings (pre-calibration data) for **waves 1-4** (January-August), Maine through North Carolina, 1981-2018.[a]

Year	Catch (mil fish)	Landings (mil fish)	Landings (mil lb)	Mean Weight of landed fish (lb)
1981	11.774	8.071	8.899	1.10
1982	20.108	12.599	15.289	1.21
1983	26.979	17.128	22.523	1.31
1984	26.355	14.614	15.245	1.04
1985	10.626	8.535	9.691	1.14
1986	21.321	8.885	13.274	1.49
1987	18.749	6.656	10.393	1.56
1988	13.906	7.918	11.728	1.48
1989	2.120	1.465	2.715	1.85
1990	7.277	3.025	4.125	1.36
1991	13.977	5.186	6.796	1.31
1992	9.830	3.992	5.688	1.42
1993	17.636	4.750	6.553	1.38
1994	15.052	5.499	7.603	1.38
1995	14.315	2.765	4.629	1.67
1996	17.206	6.175	8.685	1.41
1997	14.466	4.657	7.636	1.64
1998	19.015	5.944	10.567	1.78
1999	19.113	3.629	7.441	2.05
2000	22.131	6.867	14.148	2.06
2001	25.661	4.810	10.651	2.21
2002	14.442	2.842	7.008	2.47
2003	18.177	4.123	10.615	2.57
2004	17.998	3.931	10.088	2.57
2005	22.874	3.630	9.800	2.70
2006	20.515	3.685	9.813	2.66
2007	18.659	2.898	8.803	3.04
2008	21.792	2.277	7.951	3.49
2009	23.482	1.758	5.905	3.36
2010	22.725	1.428	4.902	3.43
2011	19.347	1.708	5.511	3.23
2012	14.390	1.968	5.680	2.89
2013	14.627	2.296	6.732	2.93
2014	16.235	2.128	6.454	3.03
2015	10.412	1.382	4.044	2.93
2016	12.213	1.830	5.599	3.06
2017	7.516	0.942	2.930	3.11
2018	8.033	0.922	2.970	3.22

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 22, 2018. 1981-2003 data are from MRFSS, 2004-2018 data are from MRIP (pre-calibrated).

Table 3: Summer flounder recreational landings (in thousands of fish; pre-calibration data) by state for waves 1-4 (January-August), 2009-2018.[a,b]

State	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ME	-	-	-	-	-	-	-	-	-	-
NH	-	-	-	<1	-	-	-	-	-	-
MA	50	45	33	74	29	113	66	53	27	18
RI	71	118	152	103	122	184	160	84	61	77
CT	45	35	47	62	268	115	81	216	83	95
NY	298	331	349	482	501	418	366	695	196	230
NJ	817	551	719	905	1,095	1,046	462	602	414	404
DE	78	50	56	44	49	86	44	84	28	29
MD	64	14	10	19	36	27	43	17	26	20
VA	275	235	301	249	167	113	131	69	90	39
NC	59	50	40	31	30	25	29	10	19	10

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 22, 2018.
[b] In August 2016 MRIP revised some estimates to address small sample size issues. Revised estimates are only available at the annual level. Thus, some landings are excluded from the following wave/mode/state results due to insufficient sample sizes, including: 2013 CT, NJ, and RI charter, 2014 CT, NY, and VA charter, 2015 CT and NY charter.

Table 4: Summer flounder recreational landings (in thousands of fish; pre-calibration data) by state for all waves (January-December), 2009-2018.[a]

State	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 (proj)[b]
ME	-	-	-	-	-	-	-	-	-	-
NH	-	-	-	<1	-	-	-	-	-	-
MA	50	45	58	76	31	113	79	55	27	18
RI	72	118	161	103	123	185	164	87	63	79
CT	45	35	47	63	270	120	90	218	88	101
NY	299	334	376	509	518	433	417	712	222	260
NJ	825	552	737	1,130	1,225	1,175	497	755	451	441
DE	87	54	67	45	58	93	51	90	33	36
MD	65	25	15	23	53	80	44	22	26	21
VA	289	260	318	260	183	134	156	72	92	40
NC	75	77	60	63	45	46	41	18	26	13
Total	1,806	1,501	1,840	2,272	2,506	2,378	1,540	2,028	1,028	101

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 22, 2018.
[b] Projected using proportion by wave from 2017 MRIP data and 2018 MRIP wave 1-4 data.

Past Harvest Limits and Management Measures

RHLs for summer flounder were first implemented in 1993. Since that time they have varied from a high of 11.98 million lb in 2005 to a low of 3.77 million lb in 2017. Recreational harvest relative to the RHL has also varied from a high of 122% over the RHL (2000) to a low of 49% under the RHL (2011) (Table 5).

From 1993-2001, coastwide measures were in place for all states and federal waters, with possession limits ranging from 3-10 fish and size limits ranging from 14.0-15.5 inches. Starting in 2002, conservation equivalency was implemented, and has been used as the preferred management system each year since (Table 5). Under conservation equivalency, individual states or multi-state regions set measures that collectively are designed to constrain landings to the coastwide RHL. Federal regulations are waived and anglers are subject to the summer flounder regulations of the state in which they land. State level conservation equivalency was adopted each year from 2002 through 2013, with each state implementing different sets of management measures. Each year from 2014 through 2018, the Board has approved the use of regional conservation equivalency, where the combination of regional measures is expected to constrain the coastwide harvest to the RHL.

Last December, the Council and Board adopted regional conservation equivalency for the summer flounder recreational fishery in 2018. Region-specific possession limits in 2018 range from 2-6 fish with size limits ranging from 15.0-19.0 inches, with various seasons (Table 6).

Under conservation equivalency, the Council and Board must adopt two associated sets of measures: the non-preferred coastwide measures, and the precautionary default measures. The non-preferred coastwide measures are a set of measures that would be expected to constrain harvest to the RHL if implemented on a coastwide basis. The combination of state or regional measures under conservation equivalency is designed to be "equivalent" to this set of non-preferred coastwide measures in terms of coastwide harvest. These coastwide measures are included in the federal regulations, but waived in favor of state- or region-specific measures. The non-preferred coastwide measures adopted in 2018 include a 4-fish possession limit, a 19-inch total length (TL) minimum size, and an open season from May 15-September 15.

The precautionary default measures would be implemented in any state or region that failed to develop adequate measures to constrain or reduce landings as required by the conservation equivalency guidelines. The precautionary default measures in 2018 include a 2-fish possession limit with a 20-inch TL minimum fish size and an open season from July 1-August 31.

Table 5: Summary of federal management measures for the summer flounder recreational fishery, 1993-2018.

Measure	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
ABC (m lb)	-	-	-	-	-	-	-	-	-	-	-	-	-
Recreational ACL (land+disc; m lb)	-	-	-	-	-	-	-	-	-	-	-	-	-
RHL (m lb)	8.38	10.67	7.76	7.41	7.41	7.41	7.41	7.41	7.16	9.72	9.28	11.21	11.98
Landings (m lb)	8.83	9.33	5.42	9.82	11.87	12.48	8.37	16.47	11.64	8.01	11.64	11.02	10.92
% Over/Under RHL	+5%	-13%	-30%	+33%	+60%	+68%	+13%	+122%	+63%	-18%	+25%	-2%	-9%
Possession Limit	6	8	6/8	10	8	8	8	8	3	[a]	[a]	[a]	[a]
Size Limit (TL in)	14	14	14	14	14.5	15	15	15.5	15.5	[a]	[a]	[a]	[a]
Open Season	5/15 - 9/30	4/15 - 10/15	1/1 - 12/31	1/1 - 12/31	1/1 - 12/31	1/1 - 12/31	5/29 - 9/11	5/10 - 10/2	4/15 - 10/15	[a]	[a]	[a]	[a]
Measure	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
ABC (m lb)	-	-	-	21.50	25.50	33.95	25.58	22.34	21.94	22.57	16.26	11.30	13.23
Recreational ACL (land+disc; m lb)	-	-	-	-	-	-	11.58	10.23	9.07	9.44	6.83	4.72	5.53
RHL (m lb) - landings only	9.29	6.68	6.22	7.16	8.59	11.58	8.49	7.63	7.01	7.38	5.42	3.77	4.42
Landings (m lb)	10.50	9.34	8.15	6.03	5.11	5.96	6.49	7.31	7.14	4.47	6.18	3.19	3.25[c]
% Over/Under RHL	+13%	+40%	+31%	-16%	-41%	-49%	-24%	-4%	+2%	-39%	+14%	-15%	-
Possession Limit	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[b]	[b]	[b]	[b]	[b]
Size Limit (TL in)	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[b]	[b]	[b]	[b]	[b]
Open Season	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[b]	[b]	[b]	[b]	[b]

[a] State-specific conservation equivalency measures. [b] Region-specific conservation equivalency measures. [c] Projected.

Table 6: Summer flounder recreational management measures and landings (in thousands of fish and thousands of pounds; 2018 projected) by state and region, 2017 and 2018.

		2017					2018				
Region	**State**	**Min. Size (inches)**	**Poss. Limit**	**Open Season**	**Landings (‘000 fish)**	**Landings ('000 lb)**	**Min. Size (inches)**	**Poss. Limit**	**Open Season**	**Proj. Landings (‘000 fish)**	**Proj. Landings ('000 lb)_**
1	**MA**	17	4 fish	May 22-Sept. 23	27	78	17	5 fish	May 23-Oct. 9	18	40
2	**RI**	19	4 fish	May 1-Dec. 31	63	230	19	6 fish	May 1-Dec. 31	79	280
3	**CT**	19	3 fish	May 17-Sept. 21	88	299	19	4 fish	May 4 - Sept. 30	101	362
		17 (41 designated shore sites)					17 (45 designated shore sites)				
	NY	19			222	750	19			260	982
4	**NJ**	18	3 fish	May 25-Sept. 5	451	1,371	18	3 fish	May 25-Sept. 22	441	1,325
		16 (1 shore site)	2 fish				16 (1 shore site)	2 fish			
		17 (NJ Delaware Bay)	3 fish				17 (NJ Delaware Bay)	3 fish			
5	**DE**	17	4 fish	Jan. 1- Dec. 31	33	88	16.5	4 fish	Jan. 1-Dec. 31	36	81
	MD				26	78				21	54
	PRFC				--	--				--	--
	VA				92	253				40	103
6	**NC**	15	4 fish	Jan. 1- Dec. 31	26	42	15	4 fish	Jan. 1-Dec. 31	13	21

Accountability Measures

The Council's recreational accountability measures (AMs) were modified in 2013 to remove in-season closure authority for the summer flounder recreational fishery previously held by the National Marine Fisheries Service (NMFS) Regional Administrator. Additionally, in the event of a recreational Annual Catch Limit (ACL) overage, recreational AMs no longer necessarily include a direct pound-for-pound payback of the overage amount in a subsequent fishing year. Instead, AMs are tied to stock status, and though poundage paybacks may be required in some circumstances, any potential payback amounts would be scaled relative to biomass, as described below.

The recreational AMs are as follows: the 3-year recreational sector ACL is evaluated against a 3-year moving average of total catch. Both landings and dead discards are evaluated in determining if the 3-year average recreational sector ACL has been exceeded. If the recreational ACL is exceeded, the appropriate AM will be determined based on the following criteria:

1. If the stock is overfished ($B < ½ B_{MSY}$), 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 ($½ B_{MSY} < B < B_{MSY}$), and the stock is not under a rebuilding plan:
    - If only the recreational ACL has been exceeded, then adjustments to the recreational management measures (bag, size, and seasonal limits) would be made in the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measures and the conditions that precipitated the overage.
    - If the Acceptable Biological Catch (ABC = recreational ACL + commercial ACL) is exceeded in addition to the recreational ACL, then a single year deduction will be made as a payback, scaled based on stock biomass. The calculation for the payback amount in this case is: (overage amount) * $(B_{msy}-B)/½\ B_{msy}$.
3. If biomass is above the target ($B > B_{MSY}$): Adjustments to the recreational management measures (bag, size, and seasonal limits) would be made in the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measures and the conditions that precipitated the overage.

AMs for the 2019 recreational summer flounder fishery are evaluated by comparing the average 2015-2017 catch to the 2015-2017 average ACL. The post-calibration MRIP data released in July for 2015-2017 cannot be compared to the 2015-2017 average ACL given that these ACLs were set based on an assessment that used pre-calibration MRIP data. Pre-calibration MRIP data for 2015-2017 indicate that average catch (5.97 million pounds) is below the average 2015-2017 ACL (7.00 million pounds), meaning that no recreational AM has been triggered for 2019.

2019 Staff Recommendation and Timeline for 2019 Recreational Measures

As described above, the pending November 2018 peer review of the summer flounder benchmark stock assessment has implications for the timing of recreational measures development for 2019. It is unknown at this time what a potential revised RHL in 2019 would look like. Staff recommend waiting until the peer reviewed assessment can be incorporated into management via review by the SSC and Council/Board in early 2019. This would result in development of 2019 recreational measures concurrently with the development of a revised 2019 RHL (similar to the process for adopting revised black sea bass measures in early 2017 based on the December 2016 assessment). A tentative timeline for incorporating the assessment results and developing 2019 recreational measures is provided in Table 7.

In January, the MC will consider and recommend whether coastwide measures or conservation equivalency (state-by-state or voluntary regional) are appropriate for 2019 (Table 7). If conservation equivalency is selected by the Council and Board, a set of non-preferred coastwide measures must be identified, along with a set of precautionary default measures. Specifically, the Committee must recommend measures that will ensure the revised RHL is not exceeded in 2019. Staff will provide an additional memo with revised MRIP data analysis and 2019 recommendations in January.

In summary, staff recommend that the summer flounder recreational measures be considered once the 2018 benchmark stock assessment becomes available, in conjunction with consideration of revised recreational catch and landings limits (see Table 7). In the interim, starting January 1, 2019, the implemented 2018 non-preferred coastwide measures will technically be in effect, including an 18-inch TL size limit, a 4-fish possession limit, and an open season from May 15-September 15, 2019. It is expected that conservation equivalency and associated state measures, or revised coastwide measures, would be implemented in spring 2019. Staff are aware of the importance of implementing revisions quickly and will work with GARFO to implement measures as soon as possible in 2019.

Table 7: Tentative timeline and process for considering 2018 stock assessment results, implementing revised 2019 catch limits, and establishing 2019 summer flounder recreational management measures. Some elements (labeled "if applicable") apply only if conservation equivalency is selected as the preferred strategy for 2019.

August 2018	• Council/Board recommend interim 2019 catch and landings limits
October 2018	• 2018 MRIP data available through wave 4 (pre-calibration estimates provided by MRIP)
November 2018	• MC reviews preliminary 2018 data; considers plan for 2019 recreational measures development (no specific recommendations needed at this meeting) • **November 27-30:** Summer flounder Stock Assessment Review Committee (SARC)
December 2018	• Preliminary SARC outcomes known • **Dec. 12-14: Council/Board joint meeting** o Review preliminary 2018 data; consider plan for 2019 recreational measures development (staff recommend delaying recommendations until Feb.2019) o Board considers approval of Addendum XXXII (could modify state/region specific rec. measures process for summer flounder) • 2018 MRIP data available through wave 5 (mid-December)
January 2019	• Preliminary SARC report available for SSC review (mid-January) • **SSC meets January 28** to recommend 2019-2021 ABCs for summer flounder • **MC/Technical Committee meets January 29** o Recommends 2019-2021 ACLs and ACTs for summer flounder o Determines overall adjustment in recreational harvest needed for 2019 o Recommends use of coastwide measures or state conservation equivalency and associated measures o Technical Committee discusses state/regional measures guidelines and methodologies for 2019 conservation equivalency
February 2019	• **Feb. 12-14: Council/Board joint meeting** o Adopt revisions to 2019 catch and landings limits; adopt 2020-2021 limits o Adopt 2019 recreational strategy (conservation equivalency vs. coastwide) and associated measures • Conservation equivalency guidelines distributed to states (if applicable)
March 2019	• States submit conservation equivalency proposals to Commission (if applicable) • Technical Committee meeting to review proposals (if applicable) • Council staff submits 2019 catch limit revisions[a] and 2019 recreational measures package to NMFS
April 2019	• Board call to review and approve/disapprove conservation equivalency proposals (if applicable) • Board submits letter to NMFS with certification of conservation equivalency measures (if applicable)
May/June 2019	• NMFS publishes proposed and final rules for 2019 catch limit revisions[a] and recreational measures

[a] 2019 catch limit revisions for summer flounder may be developed through a separate package and rulemaking than 2020-2021 specifications, if it allows for faster implementation of 2019 revisions. If so, the 2020-2021 package would be developed in the fall of 2019.

Comparison of Pre- and Post-Calibration MRIP Data

While detailed consideration of revised MRIP data is not needed at this time, the revised data will be considered in early 2019. Thus, an initial exploration of the MRIP changes for summer flounder are presented below so that the MC can begin to consider impacts on recreational methodology for 2019 and beyond. All calibration comparisons include calibration for both intercept methodology changes and effort survey changes.

Overall Differences

Over the time series 1981-2017, the ratio of revised MRIP harvest estimates to pre-calibration harvest estimates (in pounds) varies from 1.30 (1982) to 3.16 (2017), with a time series average of 1.84 and a 10-year average (2008-2017) of 2.31 (Figure 1; Table 8). In general, the ratio of new:old estimates increases over time, especially since 2007 (Figure 1). Trends are similar for harvest in numbers of fish. Changes between pre- and post-calibration estimates of catch are generally greater than for harvest, especially at the end of the time series (Figure 2; Table 8).

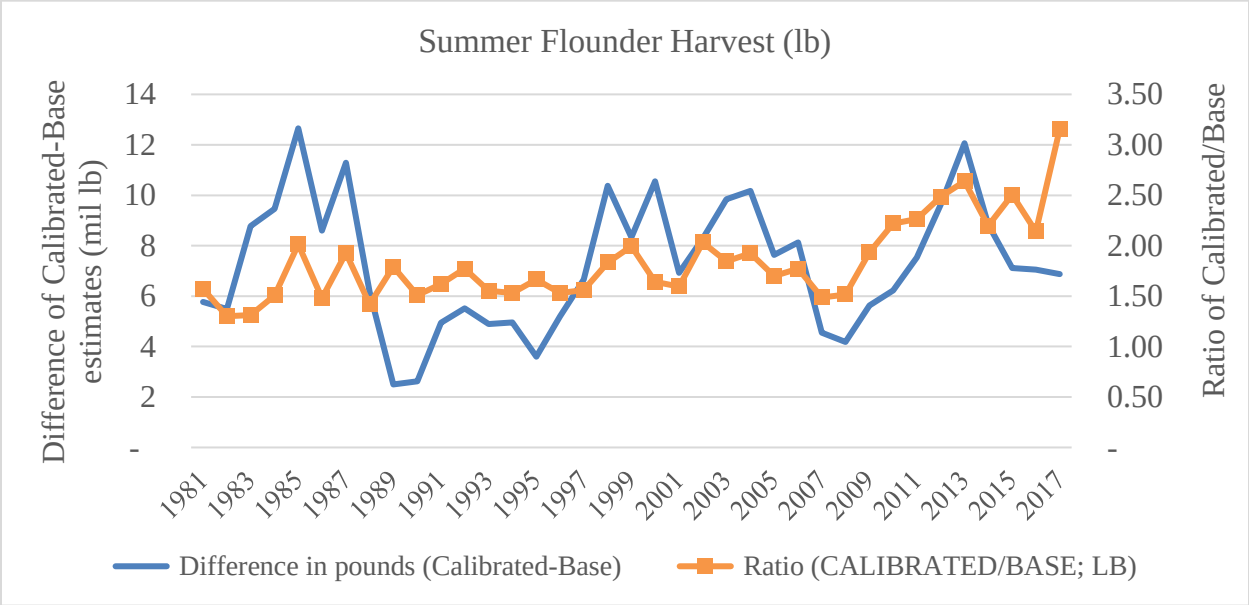

Figure 1: Difference in pounds and ratio between post-calibrated and pre-calibrated estimates of recreational harvest for summer flounder in pounds, 1981-2017, ME-NC. Calibrations include effects of both intercept survey methodology change and effort survey change. Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 22, 2018.

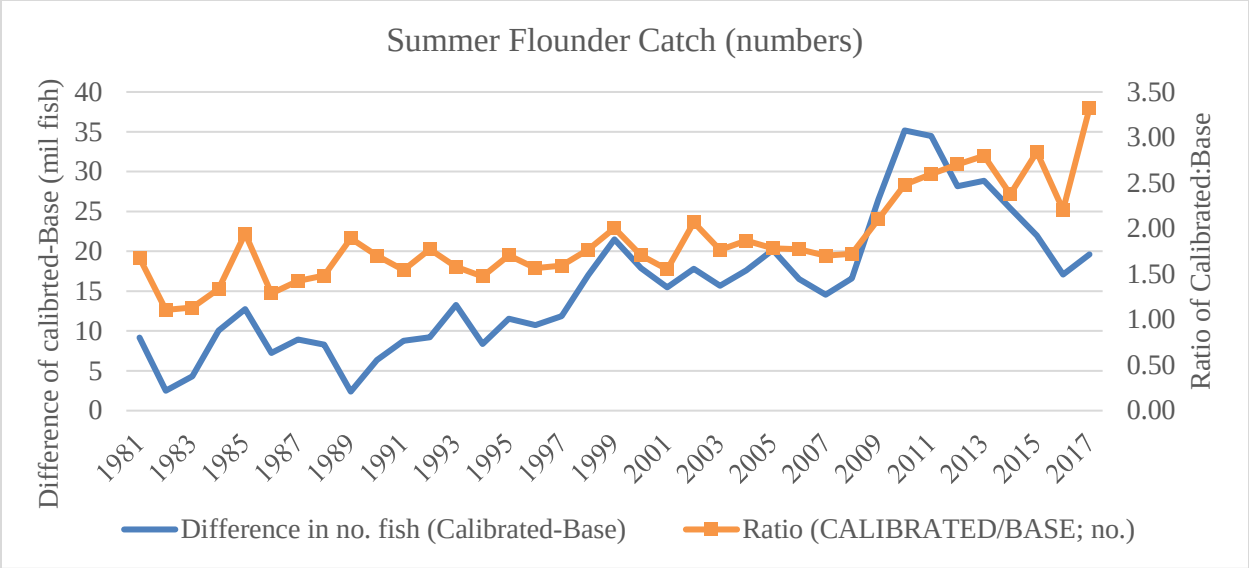

Figure 2: Difference in number of fish and ratio between post-calibrated and pre-calibrated estimates of recreational catch (kept harvest, dead discards, and live discards) for summer flounder, 1981-2017, ME-NC. Calibrations include effects of both intercept survey methodology change and effort survey change. Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 22, 2018.

Table 8: Ratios of post-calibration to pre-calibration estimates for harvest (pounds and numbers) and catch of summer flounder, ME-NC.

	Harvest (lb)	Harvest (numbers)	Catch (numbers)
1981-2017 average ratio new:old estimates	1.84	1.82	1.87
2008-2017 average ratio new:old estimates	2.31	2.33	2.52
Highest ratio new:old estimates	3.16 (2017)	3.08 (2017)	3.32 (2017)
Lowest ratio new:old estimates	1.30 (1982)	1.23 (1983)	1.11 (1982)

By State

The changes in summer flounder MRIP harvest estimates vary somewhat by state (Figure 3). From 2008-2017, most states averaged about 2.4 times higher harvest estimates (in numbers of fish) under the post-calibration data; however, North Carolina saw higher ratios (3.0 times higher on average over these years), and Rhode Island and Connecticut saw lower ratios (1.9 times higher on average).

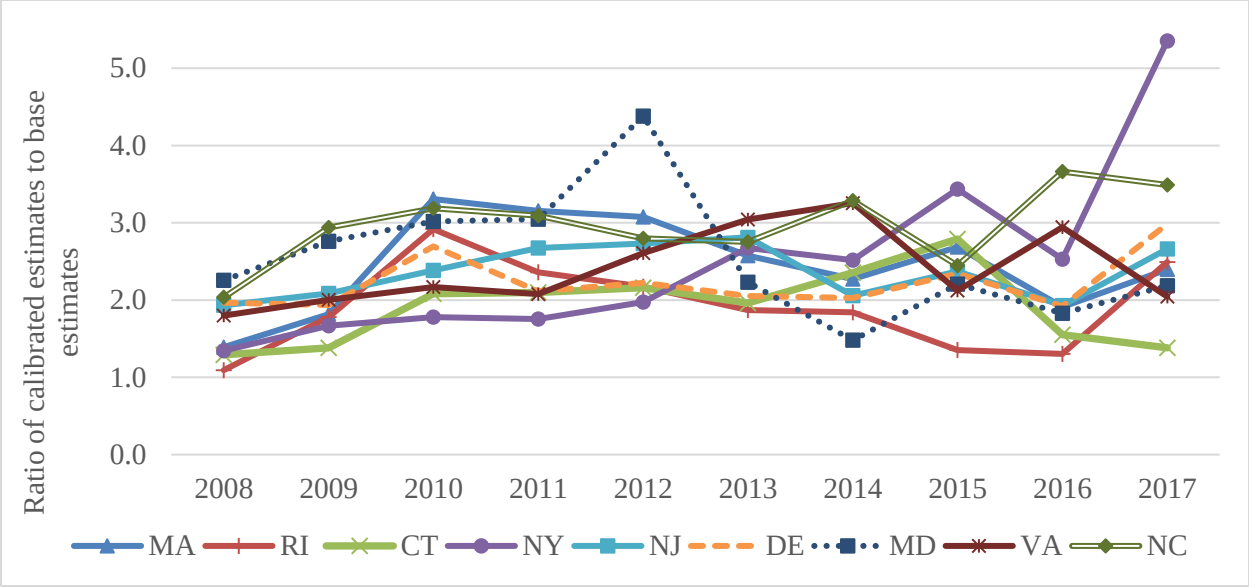

Figure 3: Ratio of post-calibrated to pre-calibrated MRIP harvest estimates (in number of fish) for summer flounder by year and state, 2008-2017, MA-NC. Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 22, 2018.

By Mode

By fishing mode, shore estimates increased much more than private angler or party/charter estimates. Party/charter estimates were only impacted by the intercept methodology change (not by changes in the effort survey); therefore, the changes in this mode are relatively minor. In contrast, shore mode post-calibration estimates averaged 4.6 times higher for summer flounder from 2003-2017 and were 8.1 times higher in 2017 (Figure 4).

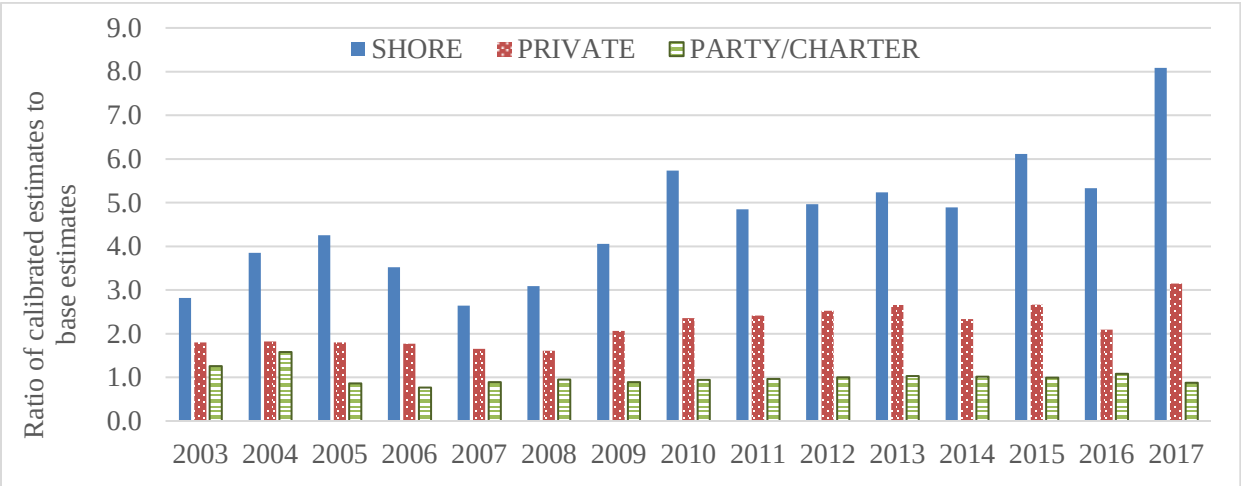

Figure 4: Ratio of post-calibrated to pre-calibrated MRIP harvest estimates (in number of fish) for summer flounder by year and fishing mode, 2003-2017, ME-NC. Calibrations include effects of both intercept survey methodology change and effort survey change; party/charter estimates are unaffected by the effort survey change. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 22, 2018.

As a percentage of the coastwide harvest, the calibration decreased the percentage of harvest attributable to the party/charter sector from 2008-2017 (from 9.9% to 4.2%) and increased the percentage of harvest from shore mode (from 3.7% to 8.2%; Figure 5).

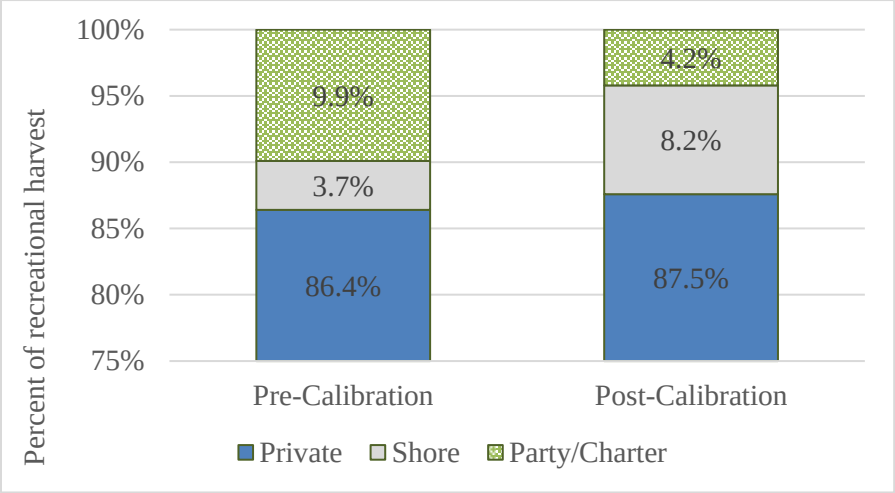

Figure 5: Comparison of pre- and post-calibration percent of summer flounder recreational harvest (in number of fish) by mode, 2008-2017, ME-NC.

By Area

Pre- and post-calibration MRIP data indicate only very minor differences in harvest by area (state vs. federal waters) for 2003-2017, especially since 2008 (Figure 6). On average since 2008, there is a 0% difference between pre- and post-calibration estimates in the proportion of harvest estimated from state waters. However, the past 5 years (2013-2017) have indicated a decrease in the percent of landings from state waters compared to the years prior, for both pre- and post-calibration estimates.

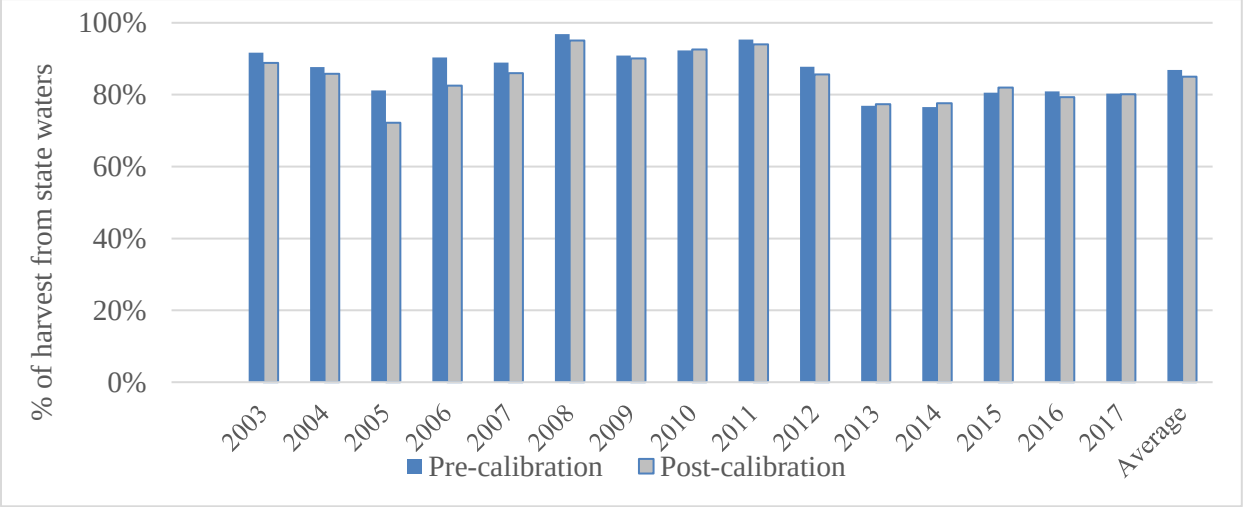

Figure 6: Percent of recreational harvest (in number of fish) estimated to originate from state waters, 2003-2017, ME-NC. Calibration includes effects of both intercept survey methodology change and effort survey change. Area information is self-reported by anglers. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 22, 2018.

Directed Trips

Table 9 provides estimates of the number of trips where summer flounder was reported as the primary target from Maine through North Carolina, and the estimated percentage of these directed summer flounder trips relative to directed trips from all species Maine through North Carolina. Both pre- and post-calibrated estimates are provided for comparison. While both pre-calibration and post-calibration data show that summer flounder trips continue to be a substantial component of total angler trips, the percentage of directed summer flounder trips relative to trips for all species appears to have decreased slightly with the revised MRIP estimates, to approximately 10-13% from 2006-2017 (Table 9).

Table 9: Number of summer flounder directed recreational fishing trips, and percentage of total directed trips, Maine through North Carolina, 2006 to 2017.

Year	Pre-Calibration		Post-Calibration	
	Number of Summer Flounder Directed Trips (millions)[a]	Percentage of Directed Trips Relative to Total Trips[a,b]	Number of Summer Flounder Directed Trips (millions)[c]	Percentage of Directed Trips Relative to Total Trips[c,d]
2006	4.99	13.6%	9.61	10.5%
2007	5.49	14.5%	9.85	10.9%
2008	4.93	13.4%	8.84	9.5%
2009	4.60	15.6%	10.42	11.0%
2010	4.45	15.1%	11.92	12.0%
2011	4.50	16.8%	13.03	13.6%
2012	4.24	16.4%	11.89	12.6%
2013	3.73	14.6%	11.23	12.6%
2014	4.06	15.6%	11.49	12.9%
2015	3.39	15.4%	10.61	12.5%
2016	3.61	14.2%	10.19	11.7%
2017	Not available	Not available	8.62	10.1%

[a] Pre-calibration estimated number of recreational fishing trips (expanded) where the primary target species was summer flounder, Maine through North Carolina. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 23, 2017. 2017 pre-calibrated estimate was not available at time of writing.

[b] Source of total trips for all species combined, pre-calibration: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 23, 2017. 2017 pre-calibrated estimate was not available at time of writing.

[c] Post-calibration estimated number of recreational fishing trips (expanded) where the primary target species was summer flounder, Maine through North Carolina. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 24, 2018.

[d] Source of total trips for all species combined, post-calibration: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 24, 2018.

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

MEMORANDUM

Date: October 31, 2017

To: Chris Moore, Executive Director

From: Julia Beaty, Staff

Subject: Scup Recreational Management Measures for 2019

Introduction and Background

In August 2018, 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) recommended no changes to the previously implemented 2019 scup recreational harvest limit (RHL) of 7.37 million pounds. This RHL is identical to the 2018 RHL and is based on the most recent scup stock assessment update and the advice of the Scientific and Statistical Committee (SSC) and Monitoring Committee.

The Monitoring Committee is tasked with recommending federal recreational management measures for 2019 that will constrain harvest to the 2019 RHL. This document summarizes recreational catch and landings data to support the Monitoring Committee's deliberations. State waters measures will be determined through the Commission process in early 2019.

There are unique circumstances regarding the data available to inform development of 2019 recreational management measures. In July 2018, the Marine Recreational Information Program (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 (Figure 1). Until these revised estimates are incorporated into a stock assessment, the implications for stock status, biomass, and catch limits are uncertain. A scup operational stock assessment update incorporating the new MRIP data, as well as fishery and survey data through 2017, is expected to be completed in April 2019. Council staff recommend that the revised MRIP estimates not be used in management until after the operational stock assessment update is completed and the impacts of the new MRIP estimates on stock status and catch limits are known.

The methods used to develop the 2019 RHL did not incorporate the new MRIP estimates. Back-calculated estimates based on the previous MRIP estimation methodology (i.e., "pre-calibration" estimates) are available through August 2018 (all 2018 estimates are preliminary). Council staff

recommend that these back-calculated estimates be used to develop 2019 recreational management measures.

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 2018 and 2019 RHLs are both 7.37 million pounds (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. 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 for 2018. New Jersey extended their recreational fishing season to the full year in 2018. All other state waters measures remained unchanged from 2017 to 2018 (Table 2 and Table 3).

Recreational Catch and Harvest Trends and 2018 Projections

According to pre-calibration MRIP estimates, since 1981, recreational scup catch fluctuated from a peak of 30.87 million fish in 1986 to a low of 2.67 million fish in 1998. Harvest fluctuated from a high of 11.60 million pounds and 24.82 million fish in 1986 to a low of 0.87 million pounds and 1.21 million fish in 1998. In 2017, recreational harvest was about 5.50 million fish and 5.42 million pounds, approximately 98% of the 2017 RHL of 5.50 million pounds. Approximately 14.53 million scup were caught, with a release rate of 62% (Table 4).

Recreational catch and landings data from MRIP are currently available as preliminary estimates for the first four waves (January - August) of 2018. The Council and Commission make management recommendations late in the current year to give the states time to enact changes to their regulations for the upcoming year; therefore, the Monitoring Committee reviews MRIP data and develops their recommendations once preliminary wave 4 data are available. Preliminary MRIP estimates based on the old estimation methodology ("pre-calibration" estimates) indicate that through August 2018, 8.25 million scup were caught and 4.07 million scup, corresponding to about 3.57 million pounds, were harvested from Maine through North Carolina (Table 5).

Preliminary wave 1 - 4 estimates were used to project catch and harvest for all of 2018. For all states except Maryland and Virginia, preliminary pre-calibration 2018 wave 1 - 4 estimates were used to project catch and harvest for the entire year by assuming the same proportions of catch and landings by wave as in 2015-2017 (Table 6 and Table 7). Federal and state recreational scup regulations were unchanged during 2015-2017 (Table 1 and Table 2); therefore, any changes in the proportion of catch by wave during those years would be the result of factors other than scup regulations.

Projected 2018 Maryland harvest was calculated assuming that 90% of 2018 harvest would occur in waves 5 and 6, as opposed to 100% in waves 5 and 6 during 2015-2017. 2018 is the first year since 2008 that any amount of recreational scup harvest was estimated for Maryland during waves 1 - 4. Given past proportions of landings by wave in Maryland, 90% of harvest occurring in waves

5 and 6 in 2018 was considered a reasonable assumption by staff; however, the Monitoring Committee should review this assumption (Table 7).

Preliminary pre-calibration estimates for 2018 show no scup harvest in Virginia during waves 1 - 4; therefore, projected 2018 harvest in Virginia was set equal to 2015-2017 average annual harvest (Table 7).

As previously stated, the recreational scup season in New Jersey was open year-round in 2018. During 2015-2017, the recreational scup season in New Jersey was closed during waves 2 and 3 (March - June). This change may result in a greater contribution of waves 2 and 3 to 2018 scup harvest in New Jersey. As such, the projected 2018 harvest estimate for New Jersey shown in Table 8 may be an over-estimate.

Using this same methodology, it was projected that 6.20 million scup would be landed by recreational fishermen in 2018 (Table 8). The Commission sets a target for the states of Massachusetts, Rhode Island, Connecticut, and New York to land the number of scup which is equivalent to 97% of the RHL. This target is not projected to be exceeded in 2018 (Table 9).

As shown in Table 6, the proportion of annual harvest that occurs in waves 1-4 and 5-6 can vary considerably year to year. This is a source of uncertainty in the projected 2018 estimates.

During 2013-2017 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. Landings in Delaware, Maryland, and North Carolina mostly originated in federal waters (Table 11).

Accountability Measures

In 2013, the Council modified the recreational accountability measures (AMs) for Mid-Atlantic species through the Omnibus Recreational AM Amendment. This amendment removed the in-season closure authority for the scup recreational fishery that was previously held by the National Marine Fisheries Service (NMFS) Regional Administrator. Additionally, in the event of an Annual Catch Limit (ACL) overage, recreational AMs no longer necessarily require a direct pound-for-pound payback of the overage amount in a subsequent fishing year. Instead, AMs are tied to stock status. Though paybacks may be required in some circumstances, any potential payback amount is scaled relative to biomass, as described below.

The 3-year recreational ACL is evaluated against a 3-year moving average of recreational catch, including both harvest and dead discards. If the 3-year average ACL is exceeded, the appropriate AM is determined based on the following criteria:

1. If the stock is overfished ($B < ½ B_{MSY}$), 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 ($½ B_{MSY} < B < B_{MSY}$), 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)* $(B_{msy}-B)/½\ B_{msy}$.

3. If biomass is above the target ($B > B_{MSY}$): 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.

AMs have not been triggered for the recreational scup fishery based on a comparison of average 2015-2017 catch to the 2015-2017 average ACL.

Monitoring Committee Responsibility

The Monitoring Committee must consider and recommend management measures to ensure that landings in 2019 will not exceed the 2019 RHL. Recreational possession limits, minimum fish size limits, and seasons can be modified to achieve this goal.

Projected 2018 harvest is used as a proxy for 2019 harvest when considering such measures under the assumption that conditions in 2019 will be similar to those in 2018. Based on the projected 2018 harvest estimate of 5.40 million pounds, it is assumed that *status quo* recreational management measures will result in a 27% underage compared to the 2018 and 2019 RHL of 7.37 million pounds.

The Monitoring Committee should also review the projection methodology described in this memo and recommend modifications if necessary.

Angler Behavior and Year Class Effects

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 (i.e., those scup spawned in 2015) is estimated to be the largest since at least 1984. The 2016 year class is estimated to be below average.[1] Estimates of the size of the 2017 and 2018 year classes are not available, but survey catches suggest that these year classes are not notably above or below average.[2] 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

[1] Northeast Fisheries Science Center. 2017. Scup Stock Assessment Update for 2017. Available at: http://www.mafmc.org/ssc-meetings/2017/july-19-20

[2] Northeast Fisheries Science Center. 2018. Scup Stock Assessment Update for 2018. Available at: http://www.mafmc.org/ssc-meetings/2018/july-17-18

two or three years old.[3] Availability of scup to anglers was likely high during 2016-2018 due to the abundant 2015 year class. Availability is expected to continue to be high in 2019.

Request from Massachusetts for a 6-inch Scup "Bait Tolerance"

In June 2018, the Council received a request from Massachusetts asking the Monitoring Committee to consider changing the recreational minimum fish size for scup to allow anglers to retain small scup for use as live bait. Specifically, the proposal suggested that the Monitoring Committee consider the potential for a five fish possession limit for scup as small as 6 inches total length, to be used in combination with the current minimum size limit of 8 or 9 inches and bag limit of 30-50 fish, depending on the location (Table 3).[4]

The Monitoring Committee considered this proposal during their July 2018 meeting and agreed that a 5 fish possession limit with a 6-inch minimum size, in combination with a higher bag limit at a higher minimum size would add complexity to the regulations, which would make the regulations more challenging to enforce and would complicate analysis of the impacts of regulations. They also noted that only about 20% of 6-inch scup are mature and recommended an analysis of how many immature scup would be harvested if this change were made. They suggested that this change could be accommodated through a special permit, which would allow for data collection and a better understanding of the impacts of this change. The Monitoring Committee should revisit this discussion when considering 2019 recreational management measures.

Staff Recommendation

Projected 2018 recreational harvest is 27% lower than the 2018 and 2019 RHL of 7.37 million pounds. Existing federal waters recreational management measures for scup are already quite liberal at a 50 fish bag limit, a 9 inch minimum size limit, and a year-round open season. Advisors have largely expressed satisfaction with these measures over the past few years. For these reasons, staff recommend *status quo* recreational scup management measures in 2019.

[3] 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/

[4] The full request is available at: http://www.mafmc.org/s/MA_DMF_scup_rec_size_request_MC_12Jun18.pdf

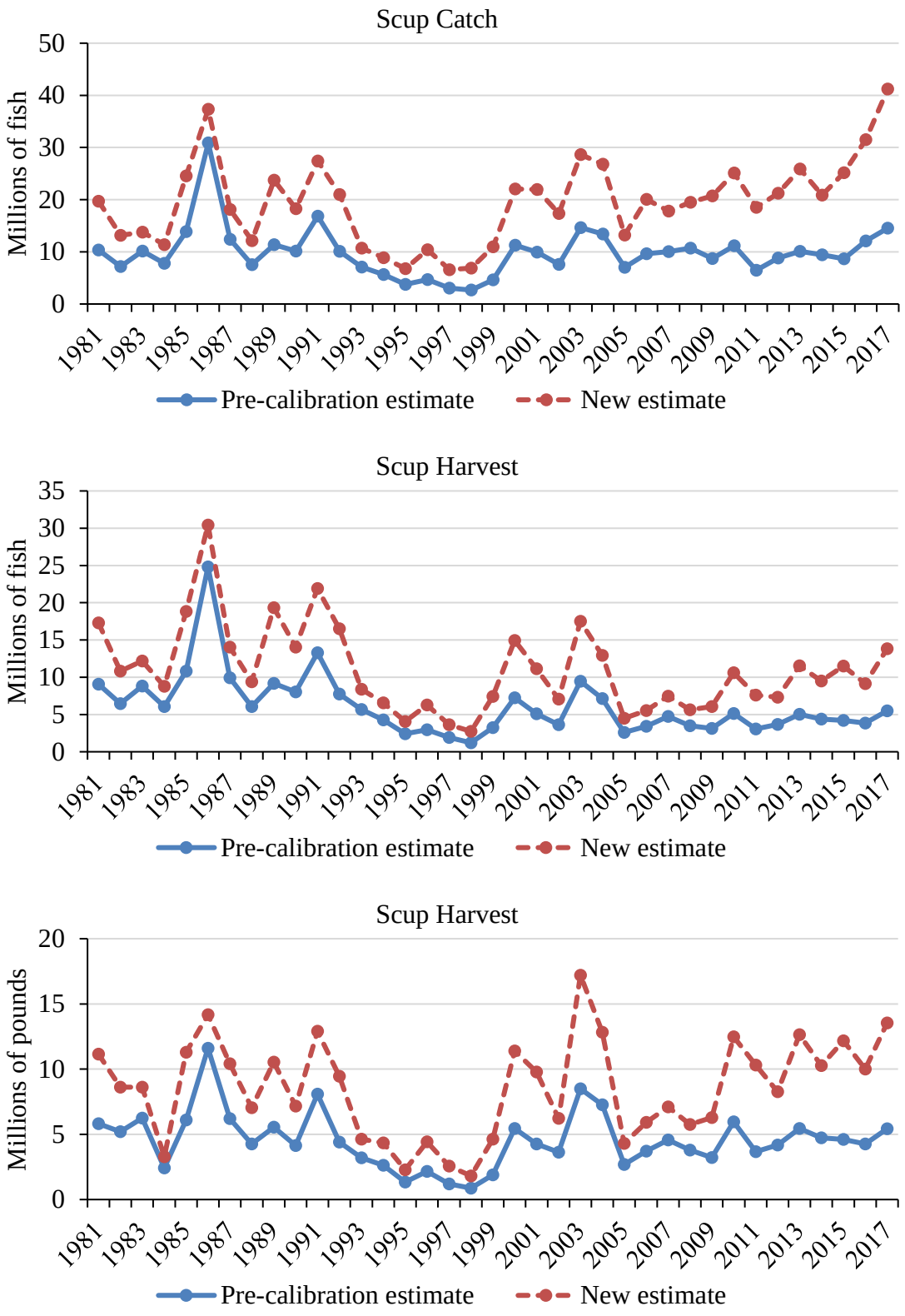

Figure 1: Recreational scup catch in numbers of fish and harvest in numbers of fish and pounds, ME - NC, 1981 - 2017 based on pre-calibration MRIP estimates and revised MRIP estimates released July 2018.

Table 1: Summary of federal management measures for the scup recreational fishery, 1997-2019. ABCs, TACs, ACLs, RHLs, and harvest are in millions of pounds.

Year	TAC/ ABC[a]	Rec. ACL[b]	RHL	Rec. harvest[c]	% over/ under RHL	Possession limit (# of fish)	Size limit (inches, total length)	Open season
1997	9.10	-	1.95	1.20	-38%	-	7	1/1 - 12/31
1998	7.28	-	1.55	0.87	-44%	-	7	1/1 - 12/31
1999	5.92	-	1.24	1.89	+52%	-	7	1/1 - 12/31
2000	5.92	-	1.24	5.44	+339%	-	-	1/1 - 12/31
2001	8.37	-	1.76	4.26	+142%	50	9	8/15 - 10/31
2002	12.92	-	2.71	3.62	+34%	20	10	7/1 - 10/2
2003	18.65	-	4.01	8.48	+111%	50	10	1/1 - 2/28 7/1 - 11/30
2004	18.65	-	3.99	7.28	+82%	50	10	1/1 - 2/28 9/7 - 11/30
2005	18.65	-	3.96	2.69	-32%	50	10	1/1 - 2/28 9/18 - 11/30
2006	19.79	-	3.99	3.72	-7%	50	10	1/1 - 2/28 9/18 - 11/30
2007	13.97	-	2.74	4.56	+66%	50	10	1/1 - 2/28 9/18 - 11/30
2008	9.9	-	1.83	3.79	+107%	15	10.5	1/1 - 2/28 9/18 - 11/30
2009	15.54	-	2.59	3.23	+25%	15	10.5	1/1 - 2/28 10/1 - 10/31
2010	17.09	-	3.01	5.97	+98%	10	10.5	1/1 - 2/28 10/1 - 10/31
2011	31.92	-	5.74	3.67	-36%	10	10.5	6/6 - 9/26
2012	40.88	31.89	8.45	4.17	-51%	20	10.5	1/1 - 12/31
2013	38.71	30.19	7.55	5.37	-29%	30	10	1/1 - 12/31
2014	35.99	28.07	7.03	4.43	-37%	30	9	1/1 - 12/31
2015	33.77	26.35	6.8	4.41	-35%	50	9	1/1 - 12/31
2016	31.11	6.84	6.09	4.26	-30%	50	9	1/1 - 12/31
2017	28.4	6.25	5.50	5.42	-1%	50	9	1/1 - 12/31
2018	39.14	8.61	7.37	5.40[d]	-27%	50	9	1/1 - 12/31
2019	36.43	8.01	7.37	-	-	TBD	TBD	TBD

[a] Prior to 2009, the Council specified a Total Allowable Catch (TAC) instead of an ABC for scup. During 2009 - 2011, prior to implementation of the Omnibus ACLs and AMs amendment, both a TAC and an ABC were specified. In 2009 and 2011, the TAC differed from the ABC and was used as the basis for management. The values shown above for 2009 and 2011 represent the TAC, not the ABC. After 2012, only an ABC was specified.

[b] Since 2011, the Council has also specified a recreational annual catch target (ACT), which is set equal to or less than the ACL to account for management uncertainty. The RHL is derived by subtracting expected recreational discards from the ACT. In all years except 2008, the ACT was set equal to the ACL. In 2008, the Council adopted a lower ACT, which allowed for identical RHLs in 2018 and 2019.

[c] Maine through North Carolina, based on "pre-calibration" MRIP estimates. 2018 harvest is projected based on the methodology described on pages 2-3.

[d] Projected - methodology described on pages 2-3.

Table 2: Scup recreational management measures by state, 2015-2017.

State	Min. Size (inches)	Possession Limit	Fishing Season
MA private & shore	10	30 fish	May 1- December 31
MA party/charter	10	45 fish	May 1 - June 30
		30 fish	July 1 - December 31
RI private and shore	10	30 fish	May 1- December 31
RI shore program (7 designated sites)	9	30 fish	May 1- December 31
RI party/charter	10	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
CT private angler	10	30 fish	May 1- December 31
CT 45 designated shore sites	9		
CT party/charter	10	30 fish	May 1-August 31 and November 1-December 31
		45 fish	September 1-October 31
NY private and shore	10	30 fish	May 1- December 31
NY party/charter	10	30 fish	May 1- August 31 and November 1-December 31
		45 fish	September 1- October 31
NJ	9	50 fish	Jan 1-Feb 28 and July 1 – December 31
DE	8	50 fish	All Year
MD	8	50 fish	All Year
VA	8	50 fish	All Year
NC, North of Cape Hatteras	8	50 fish	All Year

Table 3: Scup recreational management measures by state, 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 4: Recreational scup catch and harvest by year, ME - NC, 1981-2018 based on "pre-calibration" MRIP estimates. 2018 values are based on the projection methodology described on pages 2-3.

Year	**Catch** (millions of fish)	**Harvest** (millions of fish)	**Harvest** (millions of pounds)	**% Released**	**Avg. weight of landed fish** (pounds)
1981	10.38	9.08	5.81	13%	0.64
1982	7.18	6.45	5.20	10%	0.81
1983	10.16	8.84	6.25	13%	0.71
1984	7.77	6.06	2.42	22%	0.40
1985	13.86	10.81	6.09	22%	0.56
1986	30.87	24.82	11.60	20%	0.47
1987	12.38	9.92	6.20	20%	0.63
1988	7.54	6.06	4.27	20%	0.70
1989	11.39	9.18	5.56	19%	0.61
1990	10.17	8.04	4.14	21%	0.51
1991	16.85	13.28	8.09	21%	0.61
1992	10.08	7.76	4.41	23%	0.57
1993	7.08	5.66	3.20	20%	0.57
1994	5.65	4.27	2.63	24%	0.62
1995	3.77	2.42	1.34	36%	0.55
1996	4.68	2.97	2.16	37%	0.73
1997	3.07	1.92	1.20	37%	0.63
1998	2.67	1.21	0.87	55%	0.72
1999	4.64	3.25	1.89	30%	0.58
2000	11.28	7.24	5.44	36%	0.75
2001	9.93	5.10	4.26	49%	0.84
2002	7.58	3.65	3.62	52%	0.99
2003	14.66	9.45	8.48	36%	0.90
2004	13.43	7.15	7.28	47%	1.02
2005	7.04	2.59	2.69	63%	1.04
2006	9.61	3.43	3.72	64%	1.08
2007	10.05	4.75	4.56	53%	0.96
2008	10.71	3.49	3.79	67%	1.09
2009	8.70	3.13	3.23	64%	1.03
2010	11.15	5.15	5.97	54%	1.16
2011	6.47	3.06	3.67	53%	1.20
2012	8.83	3.67	4.17	58%	1.14
2013	10.02	4.98	5.37	50%	1.08
2014	8.99	4.13	4.43	54%	1.07
2015	8.39	4.05	4.41	52%	1.09
2016	12.10	3.84	4.26	68%	1.11
2017	14.53	5.50	5.42	62%	0.99
2018 (projected)	13.25	6.20	5.40	53%	0.87

Table 5: Recreational scup harvest (in numbers of fish) by state, waves 1-4 (January - August), 2014-2018, based on "pre-calibration" MRIP estimates. 2018 values are preliminary.

State	2014	2015	2016	2017	2018
ME	0	0	0	0	0
NH	0	0	0	1,131	0
MA	1,312,497	921,709	852,632	1,134,104	1,262,597
RI	682,850	473,608	551,586	432,034	626,452
CT	241,934	268,255	425,006	796,872	992,666
NY	553,269	659,248	909,041	949,443	1,142,557
NJ	0	2,257	61,406	155,172	43,644
DE	35	0	0	6	61
MD	0	0	0	0	192
VA	0	33	19,165	0	0
NC	423	612	0	253	83
Total	**2,791,008**	**2,325,722**	**2,818,836**	**3,469,015**	**4,068,252**

Table 6: Wave 1 - 4 (January - August) recreational scup catch in numbers and harvest in numbers of fish and pounds as a percentage of annual catch and harvest based on "pre-calibrated" MRIP estimates.

Year	Wave 1-4 catch (numbers of fish) as % of annual catch	Wave 1-4 harvest (numbers of fish) as % of annual catch	Wave 1-4 harvest (pounds) as % of annual catch
2015	52%	58%	57%
2016	71%	73%	78%
2017	58%	63%	63%
2015-2017 average	**61%**	**64%**	**67%**

Table 7: 2018 projected recreational harvest (in pounds) by state and values used to calculate projections. Values are based on "pre-calibration" MRIP estimates.

State	2015-2017 wave 1-4 harvest as % of annual harvest	2018 wave 1-4 harvest	Average annual harvest 2015-2016	2018 projected annual harvest	% of projected 2018 total harvest
ME	N/A[a]	0	0	0 [b]	0%
NH	100%	0	493	0 [b]	0%
MA	89%	1,103,222	1,255,983	1,239,575 [b]	23%
RI	89%	521,731	535,421	586,215 [b]	11%
CT	60%	895,860	780,299	1,493,100 [b]	28%
NY	54%	1,019,426	1,824,498	1,887,826 [b]	35%
NJ	16%	29,794	294,683	186,213 [b]	3%
DE	2%	38	230	1,900 [b]	0%
MD	0%	317	111	352 [c]	0%
VA	50%	0	5,334	5,334 [d]	0%
NC	90%	168	173	187 [b]	0%
Total	**66%**	**3,570,556**	**4,697,224**	**5,400,701**	**100%**

[a] There was no estimated recreational harvest during 2015 - 2017.

[b] Calculated using 2018 wave 1-4 harvest and the proportion of annual harvest by wave in 2015-2017.

[c] Calculated assuming that 90% of 2018 harvest would occur in waves 5 and 6. During 2009-2017, all estimated recreational scup harvest in Maryland occurred during waves 5 and 6. 2018 is the first year since 2008 that any amount of recreational scup harvest was estimated for Maryland during waves 1 -4.

[d] Equal to average annual landings, 2015-2017.

Table 8: Recreational scup harvest (in numbers of fish) by state, waves 1-6 (January - December), 2009-2018, based on "pre-calibration" MRIP estimates. 2018 values are projected using the methodology described on pages 2-3.

State	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 (projected)
ME	0	0	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	0	0	1,131	0
MA	1,069,275	925,222	785,204	1,587,005	2,042,667	1,634,103	1,196,802	866,793	1,300,208	1,468,136
RI	139,576	398,177	567,698	497,504	802,105	975,812	542,197	577,471	496,989	696,058
CT	288,702	1,087,680	932,637	868,474	896,560	556,030	458,745	823,830	1,035,160	1,551,040
NY	1,460,314	1,990,336	714,790	592,237	1,096,407	912,720	1,816,092	1,255,061	1,846,130	2,240,308
NJ	174,810	739,900	44,813	119,961	144,711	45,847	31,491	296,044	820,188	229,706
DE	821	0	40	85	0	35	494	0	152	6,135
MD	32	18	11	0	0	0	309	160	3	1,918
VA	527	5,283	10,413	1,425	1,264	0	1,360	19,165	0	6,842
NC	0	1,653	606	1,799	631	769	623	0	330	91
Total	**3,134,057**	**5,148,269**	**3,056,212**	**3,668,490**	**4,984,345**	**4,125,316**	**4,048,113**	**3,838,524**	**5,500,291**	**6,200,234**

Table 9: Projected recreational scup harvest (in number of fish) relative to Commission target for 2018, by state.

State	2018 Target	2018 Projected Harvest[a]
ME	None	0
NH	None	0
MA	7,077,411[b]	1,468,136
RI		696,058
CT		1,551,040
NY		2,240,308
MA-NY total		5,955,542
NJ	None	229,706
DE	None	6,135
MD	None	1,918
VA	None	6,842
NC	None	91
Total		6,200,234

[a] Based on the projection methodology described on pages 2-3 using the "pre-calibration" MRIP estimates.

[b] The target for MA-NY is 97% of the RHL in numbers of fish. The 2018 target shown is approximate, calculated using the 2018 RHL (7.37 million pounds) and the 2017 mean weight of landed fish (0.99 pounds).

Table 10: Percentage of recreational scup harvest (in pounds) in state and federal waters, ME-NC, 2013-2017 based on "pre-calibration" 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)
2013	96%	4%
2014	96%	4%
2015	97%	3%
2016	94%	6%
2017	96%	4%
Average	96%	4%

Table 11: Proportion of 2013-2017 recreational harvest (in pounds) from state and federal waters by state based on "pre-calibration" 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	96%	4%
CONNECTICUT	97%	3%
NEW YORK	95%	5%
NEW JERSEY	95%	5%
DELAWARE	4%	96%
MARYLAND	0%	100%
VIRGINIA	100%	0%
NORTH CAROLINA	15%	85%