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: September 25, 2019

To: Council and Board

From: Karson Coutre, Staff

Subject: Scup Specifications for 2020-2021

The Council and Board will consider revised 2020 and 2021 specifications for scup on Tuesday, October 8, 2019. Materials listed below are provided for the Council and Board's consideration of this agenda item.

Please note that some materials are behind other tabs.

1) Monitoring Committee recommendation summary

2) September 2019 Scientific and Statistical Committee meeting report *(behind Tab 18)*

3) Staff memo on 2020-2021 scup specifications dated August 26, 2019

4) 2019 Operational Assessment and Peer Review Panel Report: Bluefish, Black Sea Bass, Scup *(behind Tab 7)*

5) August 2019 Advisory Panel Fishery Performance Report

6) Additional written comments from advisors related to summer flounder, scup, and black sea bass Fishery Performance Reports

7) 2019 Scup Fishery Information Document

An Advisory Panel meeting summary from their September 24, 2019 webinar, as well as additional written comments from advisors related to this meeting, will be added to the supplemental meeting materials on the October meeting page on the Council's website.

Summer Flounder, Scup, and Black Sea Bass Monitoring Committee (MC)
September 16-17, 2019 Meeting Summary
Baltimore, MD

Monitoring Committee Attendees: Alex Aspinwall (VMRC), Julia Beaty (MAFMC staff), Peter Clarke (NJ F&W), Dustin Colson Leaning (ASMFC staff), Karson Coutre (MAFMC staff), Kiley Dancy (MAFMC staff), Steve Doctor (MD DNR), Emily Gilbert (GARFO), John Maniscalco (NY DEC), Jason McNamee (RI F&W; via webinar), Kirby Rootes-Murdy (ASMFC staff; Tuesday only), Caitlin Starks (ASMFC staff), Mark Terceiro (NEFSC; via webinar), T.D. VanMiddlesworth (NC DMF), Greg Wojcik (CT DEEP)

Additional Attendees: Alan Bianchi (NC DMF; via webinar), Steve Cannizzo (NY RFHFA; via webinar), Greg DiDomenico (GSSA; Tuesday only), Nichola Meserve (MADMF; via webinar)

Black Sea Bass 2020-2021 Specifications

Under the MC's recommended approach to estimating discards (described below), the black sea bass commercial quota and recreational harvest limit (RHL) would increase by up to 56% in 2020 compared to 2019 (Table 1). **The MC agreed that a commercial quota increase of this magnitude from one year to the next could have unintended socioeconomic consequences**, especially if reductions are needed in future years, as would be required under standard/varying acceptable biological catch (ABC) limits or if the sector allocations are modified through an amendment.

The MC agreed that there is some uncertainty regarding how the commercial fishery will respond to a quota increase of this magnitude. For example, some members from states with comparatively high quota allocations said the commercial fisheries in their states might not harvest their full allocations, while others from states with lower allocations said their states would harvest the full increase. The group agreed that this uncertainty does not justify a management uncertainty buffer between the annual catch limit (ACL) and the annual catch target (ACT) as the commercial fishery is well-monitored and controlled. They agreed that **both the commercial and recreational ACTs should be set equal to their respective ACLs**, consistent with past practice for this species.

Although the RHL could increase by 56% from 2019 to 2020, recreational harvest will likely need to be notably restricted in 2020 to prevent the RHL from being exceeded. For example, under the revised Marine Recreational Information Program (MRIP) data, recreational harvest in 2018 was 7.92 million pounds, 39 - 44% higher than the potential 2020 RHL, depending on the approach used to establish the ABC. Several MC members agreed that **a reduction in recreational harvest of over 30% in 2020 is very hard to justify given that biomass is 240% of the biomass target, availability is very high, and restrictions of that magnitude would likely lead to increased discards which could result in an ACL overage**. The group has strong concerns about the potential necessary reductions in recreational harvest given these circumstances.

The MC stressed that **it is imperative that the Council and Board take action to address the commercial and recreational allocation percentages defined in the Fishery Management Plans (FMPs) for summer flounder, scup, and black sea bass**. These allocations do not reflect

recent patterns of commercial and recreational catch based on the new MRIP data. This is one of many factors driving the need to restrict recreational black sea bass landings while allowing an increase in commercial landings.

The MC acknowledged that they have a very limited ability to impact the 2020 RHL. For example, they can recommend a management uncertainty buffer from the ACL to the ACT and they can recommend the most appropriate values for expected discards. Other options such as a transfer of quota from the commercial sector to the recreational sector or a change in the allocations defined in the FMP are not possible without an amendment, which could not be implemented in time to impact the fishery in 2020.

The MC had a thorough discussion of the appropriate methodology for calculating expected discards in 2020 and 2021. For several years, the MC has calculated expected black sea bass discards by first dividing the ABC into a landings portion and a discards portion based on the most recent three year average proportions of total (commercial and recreational) landings and discards based on data provided by the Northeast Fisheries Science Center (NEFSC, the same data used in the stock assessment). The discards portion was then further divided into expected commercial discards and recreational discards based on the most recent three year average of discards by sector based on NEFSC data.

The National Marine Fisheries Service Greater Atlantic Regional Fisheries Office (GARFO) uses the NEFSC recreational discard estimates for recreational ACL monitoring; however, they calculate separate commercial discard estimates for commercial ACL monitoring. The GARFO and NEFSC estimates can differ substantially in some years. Some MC members suggested that if the GARFO estimates are used for ACL accountability, then they should also be used to calculate ACLs, ACTs, and quotas. Other MC members noted that there are ongoing discussions between GARFO and NEFSC regarding the differences in their estimates and their appropriate use. The MC agreed to continue using the NEFSC discard estimates in recommending specifications until they can consider the differences in the two sets of estimates in greater detail and until the NEFSC and GARFO discussions reach a conclusion.

The MC discussed whether an increase in the commercial quota would be expected to cause discards to decrease because more fish could be landed, or if increased fishing effort would result in discards also increasing. Trends in commercial quotas, landings, and discards since 1998 suggest that commercial black sea bass landings closely follow changes in the quota and that discards tend to scale up or down with increases or decreases in landings. The MC also noted that sector-specific discards as a proportion of sector-specific catch have been relatively consistent over at least the past three years, even under varying commercial quotas and RHLs and highly variable recreational harvest estimates over that time period (including two years with outlier recreational estimates). They also noted that their past approach of using the most recent three-year average proportions of total landings, total discards, and sector-specific discards has notably under-predicted discards, leading to ACL overages in both sectors in many recent years. The MC, therefore, agreed that consideration of a new approach to predicting black sea bass discards was warranted.

The MC recommended that expected commercial and recreational discards in 2020-2021 be calculated based on the assumption that discards in each sector as a proportion of catch in each sector would be equal to the 2016-2018 average proportions based on NEFSC data (Table 2). The calculations also factored in the requirement that 49% of the landings proportion of

the ABC must be allocated to the commercial fishery and 51% to the recreational fishery. The resulting expected discard values are shown in Table 1. The MC agreed that this methodology is more appropriate than the previous methodology for estimating black sea bass discards as it scales discards with expected changes in landings (assuming the commercial quota and RHL will be fully landed and not exceeded), consistent with observed patterns in the fishery. It also gives equal weight to the sector-specific proportions in each of the three years, thus downplaying the influence of any potential single year outliers. The resulting discard values combined with the allocation percentages defined in the FMP and the Monitoring Committee's recommendation that the ACTs be set equal to their ACLs result in the catch and landings limits shown in Table 1.

As previously stated, the values in Table 1 include 42-76% increases in the ABC and commercial and recreational catch and landings limits in 2020 relative to 2019, depending on the measure and ABC approach used. The MC agreed that **the Council and Board should be cautious when making such large adjustments in a single year as this could have unintended biological and socioeconomic consequences**. They agreed that there could be benefits to taking the increase incrementally over multiple years; however, they did not feel that they had the ability to recommend an appropriate incremental approach under the constraints of the current management system and considering the different implications of the 2020 catch limits for the commercial and recreational sectors.

The MC recommended no changes to the commercial minimum fish size of 11 inches, the 4.5 inch diamond minimum mesh size and associated seasonal incidental possession limits (i.e., 500 pounds during January - March and 100 pounds during April - December), and the current gear requirements for pots/traps for 2020. No new information or public comments supported changes in these regulations for 2020.

One member of the public provided comments during the meeting. He echoed the MC's concerns about increasing catch limits drastically from one year to the next. He said instability in management measures is an enormous problem. He added that stakeholders will argue for as much quota as possible, even if it may not be used, due to fears about future reallocations. He added that better monitoring, improved reporting, and changes to the permit regulations are needed for both the commercial and recreational sectors.

Summer Flounder 2020 Specifications

The MC made no changes to their previous recommendations for 2020 specifications. This includes commercial and recreational summer flounder ACTs that are set equal to their respective ACLs, with no reduction for management uncertainty. The previously adopted commercial and recreational catch and landings limits are shown in Table 3.

At both the February 2019 meeting and this September 2019 meeting, the MC expressed concern with recent ACL overages caused by higher than expected commercial discards. Observer data indicate that a high proportion of discards in 2017 and 2018 were likely driven by quotas that were well below average. The MC expects that discards will decrease in 2019 as the result of increased quotas. However, it is worth noting that the MC also discussed the relationship between landings and discards for scup and black sea bass and found that the relationship between quota changes and discards is not always clear and varies by species. The MC will continue to monitor discards in the commercial fishery for potential changes that may be needed to discard projections or management measures in future years.

Recreational fishery performance is variable and many factors influence recreational catch and effort. The MC has increased efforts to address management uncertainty through the recreational measures setting process, including approaches to respond to imprecision in the recreational data and development of additional tools to evaluate changes in measures. Similar to discards in the commercial fishery, the relationship between RHLs and recreational discards should be explored in more detail. Methods for calculating and responding to recreational discards in the recreational fishery may be modified in the next round of specifications for summer flounder. The MC agreed that no changes to their previous recommendations for 2020 recreational catch and landings limits are necessary, including their previous recommendation that the recreational ACT be set equal to the ACL.

The MC agreed with the staff recommendation that no changes be made to the commercial minimum fish size (14-inch total length), commercial gear requirements, and exemption programs for 2020. As discussed in the "Minimum Mesh Size Regulations" section below, the MC revisited the 2018 commercial mesh size selectivity study results for summer flounder. The MC recommends no changes to the minimum mesh size for 2020, but will revisit this issue following further evaluation and analysis of potential effects of mesh size changes and input from industry.

Scup 2020-2021 Specifications and Scup Discards Report

The MC felt that it was appropriate to continue to monitor scup discards and no immediate management action is needed. One member suggested analyzing discards from a hypothesis testing approach in the future (e.g., focusing on the question of did changes in the scup Gear Restricted Areas impact discards coming from the squid fishery) and noted that there are several confounding factors like seasonality in where the fishery operates and seasonality in discards, so the problem is multivariate in nature, and a hypothesis testing approach may help to focus in on the important questions and reduce the complexity of the analysis. MC members and one member of the public felt that high recruitment had more of an impact on discards than the recent change to the southern gear restricted area (GRA) boundary. MC members agreed that discards may continue to decline due to the strong relationship between discards and recruitment and the below average recruitment since 2016. One member of the public commented that discards are a problem and everyone wants to address them, adding that the Science Center for Marine Fisheries has funding to conduct an analysis of discards to further understand the issue. He also added that this year there are large scup south of Hudson Canyon for the first time in 10 years. In addition, he said some discards could be turned into landings by considering an 8” minimum size. Multiple MC members noted that scup are not fully mature at that size and did not want to consider a minimum size that included a high proportion of immature fish.

The MC discussed the appropriate methodology for calculating expected scup discards in 2020 and 2021. For the past several years, projected discards from the stock assessment have been apportioned between commercial and recreational fisheries using the average percent of dead discards attributable to each sector over the previous three years based on NEFSC data. The MC felt that using a 10-year average would help smooth out year-to-year variability which can be driven by recruitment and other factors and may better estimate expected discards. Additionally, since there is a relationship between recruitment and discards, using a longer term average is more consistent with how recruitment is handled in the stock assessment projections, therefore this creates a logical consistency between the discard assumptions being used by the MC and aspects

of the assessment projection methodology. **The MC therefore recommended using the current method of calculating the proportion of discards by sector using a 10-year average instead of a 3-year average.** The MC discussed that scup discards are sensitive to large recruitment events and unlike black sea bass, landings and discards don't have a consistent relationship for both sectors. Therefore, they agreed that it was appropriate to use a different methodology for scup compared to black sea bass. One MC member added that in future years the MC can be flexible on how to calculate discard proportions to account for factors such as large recruitment events. The resulting expected discards and the **MC recommendation that the ACTs be set equal to their ACLs** result in the catch and landings limits shown in Table 4.

Based on the revised MRIP data, recreational harvest in 2018 was 12.98 million pounds, 99-136% higher than the potential 2020 RHL, depending on the approaches used for the ABC and expected discards. Recreational harvest will need to be restricted in 2020 to prevent the RHL from being exceeded. The MC again discussed the importance of a Council and Board action to re-evaluate the commercial and recreational allocation defined in the FMPs.

The MC also discussed the varying and averaged ABC approaches. One benefit of the varying approach is that there would be a smaller decrease in RHL in 2020 and there may be the possibility of allocation issues being alleviated through Council action by 2021. However after some discussion, MC members felt that due to the potential large reductions to the recreational fishery, stability across the two years may be preferable to the back-to-back reductions under the varying ABC approach. The MC generally preferred the averaged ABC approach. They also **recommended no changes to the commercial minimum fish size, minimum mesh size, possession limits, gear requirements, and quota period regulations for 2020.**

Minimum Mesh Size Regulations

The MC revisited the 2018 mesh selectivity study for summer flounder, scup, and black sea bass by Hasbrouck et al. (2018)[1] which they previously discussed in July 2018. The results suggest that, in general, the current minimum mesh sizes are effective at releasing catch of most undersized and immature fish, but modifications could be considered to allow for consistent mesh sizes for black sea bass and scup, and to potentially reduce discards of undersized summer flounder. The MC had previously identified additional analyses and input needed from industry before recommending changes to the mesh size regulations. Other recent management priorities such as responding to recent scup and black sea bass operational assessments, sector allocation concerns driven by recent recreational estimate changes, and other tasks have lowered the near-term priority of further exploring mesh size issues.

The study indicated that the current minimum mesh sizes for summer flounder of 5.5" diamond or 6.0" square do not appear to be equivalent to each other in terms of selectivity. The 6.0" square mesh releases less than 50% of fish at or below the minimum size, and its selectivity appears more similar to a 5.0" diamond mesh. The MC has concerns with the amount of undersized summer flounder caught with the 6.0" square mesh and previously recommended exploration of phasing out the use of 6.0" square mesh to reduce discards of undersized fish. This year, the MC agreed that they still support further exploring these issues and are especially interested in hearing feedback from industry on mesh size use in the summer flounder fishery. They indicated that

[1] Available at: http://www.mafmc.org/s/Tab08_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf

further evaluation should include: 1) clarifying which vessels or fleets are currently using square mesh, 2) estimating costs to industry from changing mesh sizes, 3) evaluating the biological benefits of phasing out the 6.0" square mesh, and 4) determining if a square mesh regulation is still needed and if there is a more appropriate square mesh equivalent to the 5.5" diamond.

For scup and black sea bass, the study results indicate that a consistent mesh size of either 4.5" or 5.0" could likely be specified for these species. The MC requested additional analyses of the potential biological and economic impacts of a mesh size change for each species, as well as input from industry on the overlap in these fisheries and the current mesh sizes used in the black sea bass fishery.

The MC agreed that pursuing further analyses and gathering Advisory Panel and other industry input for minimum mesh size regulations should still be a priority; however, it may be a lower near-term priority relative to other management issues. The MC will revisit this issue following further evaluation and analysis of potential effects of mesh size changes and input from industry.

2020 Recreational Measures

The MC had a brief discussion to plan for setting 2020 recreational measures later this fall. The MC will meet again in mid-November to recommend recreational measures for all three species for consideration at the December Council/Board meeting.

The MC discussed the possibility of exploring new approaches for summer flounder recreational management such as more truly regional measures and/or alternatives to a single minimum size limit (e.g., slot limits or a split size limit). Several MC members expressed support in theory for alternative size limit measures but identified potential difficulties with implementing them in practice. Past analyses have indicated that it would be difficult to constrain harvest under these types of alternative measures without corresponding drastic reductions in season and/or possession limit. New Jersey has been exploring modeling slot limit options, but it would potentially require a very narrow slot (e.g., half an inch), and still require a reduced season. MC members noted that alternatives to large minimum sizes would likely provide more equitable access to fish in different parts of the management unit that have access to different sizes of summer flounder, but increased harvest of smaller summer flounder could have negative biological impacts if it allowed for harvest of smaller fish that have not yet spawned. Overall, the group supported further exploration of these types of management strategies.

GARFO staff clarified that at this time, it is not clear whether or not the final rule for Framework 14 (black sea bass conservation equivalency, slot limits for summer flounder and black sea bass in federal waters, and Block Island transit provisions) will publish in time to use these strategies for 2020. Slot limits can currently be used by individual states in state waters.

For scup and black sea bass, as discussed above, the group acknowledged that depending on the RHLs adopted by the Council and Board and the expected level of harvest in 2020, large recreational harvest reductions for these species are likely to be necessary. The MC discussed the importance of approaching any reductions in an equitable manner, including minimizing regulatory discrepancies between state and federal waters.

Table 1: Currently implemented 2019 and interim 2020 black sea bass catch and landings limits and potential 2020 (revised) and 2021 catch and landings limits, based on the SSC's OFL and ABC recommendations and the MC's recommendations for expected discards and management uncertainty. Numbers may not add precisely due to unit conversions and rounding.

Measure	2019 and interim 2020		2020 (revised) and 2021, standard ABC approach				2020 (revised) and 2021, average ABC approach				Basis for 2020 (revised) and 2021
			2020		2021		2020		2021		
	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	
OFL	10.29	4,667	19.39	8,795	17.82	8,083	19.39	8,795	17.68	8,021	SSC recommendations based on stock assessment projections
ABC	**8.94**	**4,055**	**15.70**	**7,123**	**14.43**	**6,546**	**15.07**	**6,835**	**15.07**	**6,835**	SSC recommendations based on stock assessment projections and Council risk policy
ABC discards	1.76	799	4.51	2,046	4.15	1,882	4.33	1,964	4.33	1,964	Calculated based on the sector-specific discards described below and the requirement that 49% of the landings portion of the ABC be allocated to the commercial fishery and 51% to the recreational fishery
Projected com. discards	0.83	377	3.08	1,397	2.83	1,284	2.96	1,343	2.96	1,343	Calculated based on an assumption that commercial discards would be 20% of commercial catch (2016-2018 avg. proportion based on NEFSC data)
Projected rec. discards	0.93	422	1.43	649	1.31	594	1.37	621	1.37	621	Calculated based on an assumption that recreational discards would be 36% of recreational catch (2016-2018 avg. proportion based on NEFSC data)
Com. ACL	4.35	1,974	8.56	3,885	7.87	3,569	8.22	3,729	8.22	3,729	49% of ABC landings portion + projected com. discards
Com. ACT	4.35	1,974	8.56	3,885	7.87	3,569	8.22	3,729	8.22	3,729	Set equal to the ACL, no deduction for management uncertainty (staff recommendation)
Com. quota	**3.52**	**1,596**	**5.48**	**2,488**	**5.04**	**2,285**	**5.26**	**2,387**	**5.26**	**2,387**	Com. ACT minus projected com. discards
Rec. ACL	4.59	2,083	7.14	3,238	6.55	2,973	6.85	3,106	6.85	3,106	51% of ABC landings portion + projected rec. discards
Rec. ACT	4.59	2,083	7.14	3,238	6.55	2,973	6.85	3,106	6.85	3,106	Set equal to the ACL, no deduction for management uncertainty (staff recommendation)
RHL	**3.66**	**1,661**	**5.71**	**2,589**	**5.24**	**2,378**	**5.48**	**2,484**	**5.48**	**2,484**	Rec. ACT minus projected rec. discards

Table 2: Black sea bass commercial and recreational landings and dead discards in millions of pounds during 2016-2018 based on values provided by the NEFSC.

Value	2016	2017	2018	Avg
Commercial landings	2.50	3.99	3.34	**3.28**
Commercial discards	1.67	2.26	1.59	**1.84**
Recreational landings	13.52	12.55	8.84	**11.64**
Recreational discards	3.07	3.60	2.28	**2.98**
Commercial discards as % of com. catch	18%	22%	20%	**20%**
Recreational discards as % of rec. catch	40%	36%	32%	**36%**

Table 3: Currently implemented catch and landings limits for summer flounder for 2020. These measures are identical to those implemented for 2019 and 2021, with the exception of the OFL which varies slightly in each year. The sector-specific catch and landings limits are initial limits prior to any deductions for past overages.

Measure	2020		Basis
	mil lb	mt	
OFL	30.94	14,034	Stock projections
ABC	25.03	11,354	SSC recommendation for averaged approach with projections sampling from recent 7-year recruitment series
ABC Landings Portion	19.21	8,715	Stock projections
ABC Discards Portion	5.82	2,639	Stock projections
Expected Commercial Discards	2.00	907	34% of ABC discards portion, based on 2015-2017 average % discards by sector (using new MRIP data)
Expected Recreational Discards	3.82	1,732	66% of ABC discards portion, based on 2015-2017 average % discards by sector (using new MRIP data)
Commercial ACL	13.53	6,136	60% of ABC landings portion (FMP allocation) + expected commercial discards
Commercial ACT	13.53	6,136	No deduction from ACL for management uncertainty
Commercial Quota	11.53	5,229	Commercial ACT, minus expected commercial discards
Recreational ACL	11.51	5,218	40% of ABC landings portion (FMP allocation) + expected recreational discards
Recreational ACT	11.51	5,218	No deduction from ACL for management uncertainty
RHL	7.69	3,486	Recreational ACT, minus expected recreational discards

Table 4: Currently implemented 2019 and interim 2020 scup catch and landings limits and Monitoring Committee recommended 2020 (revised) and 2021 catch and landings limits based on the standard and average ABC approaches.

Management measure	2019 and interim 2020		2020 (revised) and 2021 standard ABC approach				2020 (revised) and 2021 average ABC approach				Basis
			2020		2021		2020		2021		
	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	
OFL	41.03	18,612	41.17	18,674	35.30	16,012	41.17	18,674	35.62	16,159	Assessment projections
ABC	**36.43**	**16,525**	**35.77**	**16,227**	**30.67**	**13,913**	**33.22**	**15,070**	**33.22**	**15,070**	Assessment projections & risk policy
ABC discards	5.08	2,304	7.03	3,190	7.26	3,295	6.53	2,963	7.85	3,560	Assessment projections
Commercial ACL	28.42	12,890	27.90	12,657	23.92	10,852	25.91	11,755	25.91	11,755	78% of ABC (per FMP)
Commercial ACT	28.42	12,890	27.90	12,657	23.92	10,852	25.91	11,755	25.91	11,755	Set equal to commercial ACL
Projected commercial discards	4.43	2,011	5.27	2,393	5.45	2,471	5.39	2,446	5.39	2,446	75% of ABC discards (avg. % of dead discards from commercial fishery, 2009-2018)
Commercial quota	**23.98**	**10,879**	**22.63**	**10,265**	**18.48**	**8,381**	**20.52**	**9,308**	**20.52**	**9,308**	Commercial ACT minus discards
Recreational ACL	8.01	3,636	7.87	3,570	6.75	3,061	7.31	3,315	7.31	3,315	22% of ABC (per FMP)
Recreational ACT	8.01	3,636	7.87	3,570	6.75	3,061	7.31	3,315	7.31	3,315	Set equal to recreational ACL
Projected recreational discards	0.65	293	1.76	798	1.82	824	1.80	815	1.80	815	25% of the ABC discards (avg. % of dead discards from rec. fishery, 2009-2018)
RHL	**7.37**	**3,342**	**6.11**	**2,772**	**4.93**	**2,237**	**5.51**	**2,500**	**5.51**	**2,500**	Recreational ACT minus discards

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: August 26, 2019

TO: Chris Moore, Executive Director

FROM: Karson Coutre, Staff

SUBJECT: 2020-2021 Scup Specifications

Executive Summary

This memorandum includes information to assist the Mid-Atlantic Fishery Management Council's (Council's) Scientific and Statistical Committee (SSC) and Monitoring Committee in recommending revised 2020 and new 2021 catch and landings limits for scup, as well as commercial management measures for 2020. Additional information on fishery performance and past management measures can be found in the 2019 Scup Fishery Information Document[1] and the 2019 Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report developed by advisors.[2]

A scup operational stock assessment was peer reviewed and accepted in August 2019. This assessment incorporated fishery catch and fishery-independent survey data through 2018, including revised recreational catch data provided by the Marine Recreational Information Program (MRIP) for 1989-2018. The revised MRIP data are based on a new estimation methodology accounting for changes to the angler intercept methodology and the recent transition from a telephone-based effort survey to a mail-based effort survey. The revised estimates of catch and landings are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall scup catch and harvest estimates.

A scup operational stock assessment was peer reviewed and accepted in August 2019. According to this assessment, the scup stock was not overfished, and overfishing was not occurring in 2018 relative to the updated biological reference points calculated through the assessment. Spawning stock biomass (SSB) was estimated to be about 411 million pounds (186,578 mt) in 2018, about 2 times the SSB_{MSY} proxy reference point (i.e. $SSB_{40\%}$) of 207 million pounds (94,020 mt). Fishing mortality on fully selected age 3 scup was 0.158 in 2018, about 73% of the F_{MSY} proxy reference point ($F_{40\%}$) of 0.215. The 2015 year class is estimated to be the largest in the time series at 326 million fish, while the 2016-2018 year classes are estimated to be below average.[3]

[1] Available at: http://www.mafmc.org/sf-s-bsb
[2] Advisors will meet to write the 2019 Fishery Performance Report on August 29, 2019. Once the final document is available, it will be posted to http://www.mafmc.org/sf-s-bsb
[3] A prepublication copy of the August 2019 operational stock assessment report prepared for the Council and the SSC is available at: http://www.mafmc.org/ssc-meetings/2019/september-9-11

Interim 2020 catch and landings limits for scup were adopted by the Council and the Atlantic States Marine Fisheries Commission's (ASMFC's) Summer Flounder, Scup, and Black Sea Bass Management Board (Board) in March 2019 (Table 1). These catch and landings limits are identical to those implemented for 2019 and are intended to be replaced as soon as possible with revised catch and landings limits based on the August 2019 operational stock assessment.

The Council's SSC is tasked with recommending a revised 2020 scup Acceptable Biological Catch (ABC) limit and a 2021 scup ABC during their September 2019 meeting. Following that meeting, the Monitoring Committee will meet to recommend 2020-2021 Annual Catch Targets (ACTs), Annual Catch Limits (ACLs), landings limits, and any necessary modifications to commercial gear restrictions, minimum fish sizes, and other commercial measures. The Council and Board will meet jointly in October 2019 to review the recommendations of the SSC and Monitoring Committee, as well as input from advisors, and adopt revised catch and landings limits for 2020 and new catch and landings limits for 2021, as well as any desired changes to the commercial management measures for 2020. Recreational management measures (bag limits, size restrictions, and open/closed seasons) for 2020 will be considered in late 2019 after preliminary recreational catch data through August 2019 are available.

Two sets of ABC projections for 2020-2021 are available, the "standard" approach projects annually varying 2020-2021 ABCs and the "average" approach projects averaged 2020-2021 ABCs. Under the standard approach, the 2020 ABC (35.77 mil lb/ 16,227 mt) would be a 2% decrease from the current interim 2020 ABC (36.43 mil lb/ 16,525 mt). The 2021 ABC (30.67 mil lb/13,913 mt) would be 14% lower than the revised 2020 ABC and 16% lower than the current interim ABC. Under the average approach, the ABCs in 2020 and 2021 would be identical at 33.22 million pounds (15,070 mt, a 9% decrease compared to the current interim 2020 ABC). There are tradeoffs to both ABC approaches. The averaging approach would allow for stability in catch and landings limits across two years and would allow for a higher 2021 ABC than the standard approach; however, this would require a lower 2020 ABC than is possible under the standard approach. Staff recommend the standard ABC approach.

Based on the above ABCs, the standard ABC approach would result in a 2020 commercial ACL of 27.90 million pounds (12,657 mt), a 2020 recreational ACL of 7.87 million pounds (3,570 mt), a 2021 commercial ACL of 23.92 million pounds (10,852 mt), and a 2021 recreational ACL of 6.75 million pounds (3,061 mt). The averaged ABC approach would result in a 2020-2021 commercial ACL of 25.91 million pounds (11,755 mt), and a 2020-2021 recreational ACL of 7.31 million pounds (3,315 mt). Staff recommend no reduction from the commercial and recreational ACLs to the sector-specific ACTs to account for management uncertainty; therefore, both the commercial and recreational ACTs would be set equal to their respective ACLs for 2020 and 2021. Table 1 lists the 2020-2021 commercial quotas and recreational harvest limits (RHLs) which result from subtracting expected discards from the ACTs under varying and constant ABCs. Staff recommend no changes to the commercial measures for the scup fishery, including the minimum fish size, mesh size requirements and associated incidental possession limits, or pot/trap gear requirements for 2020.

Table 1: Currently implemented 2019 and interim 2020 scup catch and landings limits and potential 2020 (revised) and 2021 catch and landings limits based on the standard and average ABC approaches. The standard approach is recommended by staff. Under the average approach, the average of projected ABC discards was used for constant landings limits in both years.

Management measure	2019 and interim 2020		2020 (revised) and 2021 standard ABC approach				2020 (revised) and 2021 average ABC approach				Basis
			2020		2021		2020		2021		
	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt	
OFL	41.03	18,612	41.17	18,674	35.30	16,012	41.17	18,674	35.62	16,159	Assessment projections
ABC	**36.43**	**16,525**	**35.77**	**16,227**	**30.67**	**13,913**	**33.22**	**15,070**	**33.22**	**15,070**	Assessment projections & risk policy
ABC discards	5.08	2,304	7.03	3,190	7.26	3,295	7.19	3,262	7.19	3,262	Assessment projections
Commercial ACL	28.42	12,890	27.90	12,657	23.92	10,852	25.91	11,755	25.91	11,755	78% of ABC (per FMP)
Commercial ACT	28.42	12,890	27.90	12,657	23.92	10,852	25.91	11,755	25.91	11,755	Set equal to commercial ACL (staff recommendation)
Projected commercial discards	4.43	2,011	5.67	2,574	5.86	2,659	5.80	2,632	5.80	2,632	80.7% of ABC discards (avg. % of dead discards from commercial fishery, 2016-2018)
Commercial quota	**23.98**	**10,879**	**22.23**	**10,083**	**18.06**	**8,194**	**20.11**	**9,123**	**20.11**	**9,123**	Commercial ACT minus discards
Recreational ACL	8.01	3,636	7.87	3,570	6.75	3,061	7.31	3,315	7.31	3,315	22% of ABC (per FMP)
Recreational ACT	8.01	3,636	7.87	3,570	6.75	3,061	7.31	3,315	7.31	3,315	Set equal to recreational ACL (staff recommendation)
Projected recreational discards	0.65	293	1.36	616	1.40	636	1.39	630	1.39	630	19.3% of the ABC discards (avg. % of dead discards from rec. fishery, 2016-2018)
RHL	**7.37**	**3,342**	**6.51**	**2,954**	**5.34**	**2,424**	**5.92**	**2,685**	**5.92**	**2,685**	Recreational ACT minus discards

Introduction

The Magnuson-Stevens Act (MSA) requires that the Council's SSC provide scientific advice for fishery management decisions, including recommendations for ABCs, prevention of overfishing, and achieving maximum sustainable yield (MSY). The SSC must recommend ABCs that address scientific uncertainty. The MSA mandates that the Council's catch limit recommendations cannot exceed the respective ABCs recommended by the SSC.

The Monitoring Committee is responsible for developing recommendations for management measures to achieve the ABCs recommended by the SSC. Specifically, the Monitoring Committee recommends ACTs that are equal to or less than the ACLs to address management uncertainty, and also recommends management measures designed to achieve these ACTs.

Summer flounder, scup, and black sea bass are cooperatively managed by the Council and the Atlantic States Marine Fisheries Commission (the Commission) under a joint Fishery Management Plan (FMP). The Council and the Commission's Summer Flounder, Scup, and Black Sea Bass Management Board meet jointly each year to consider SSC and Monitoring Committee recommendations before deciding on proposed scup catch limits and other scup management measures. The Council and Board may set specifications for scup for up to three years at a time. The Council and Board submit their recommendations to the National Marine Fisheries Service (NMFS), which is responsible for implementation and enforcement of federal fisheries regulations.

The SSC should consider recommending both variable ABCs (using the standard risk policy application) and constant ABCs from 2020-2021 based on recent adjustments to the Council's risk policy that allow for multi-year ABC averaging. On April 11, 2018, the final rule published implementing the Omnibus ABC Framework Adjustment (Framework 11 to the Summer Flounder, Scup, and Black Sea Bass FMP; 83 FR 15511). This framework adjustment allows the SSC to specify constant multi-year ABCs if the average of the probabilities of overfishing meet the Council's risk policy goals and if the resulting ABC always results in less than a 50% probability of overfishing in any one year. The SSC should recommend both variable and averaged ABCs so that the Council can select their preferred approach based on their policy goals. Additional considerations and recommendations for ABC averaging are described in the "Staff ABC Recommendations" section of this memo.

Recent Catch and Landings

In 2018, the commercial scup fishery landed 13.37 million pounds (6,064 mt) of scup, about 55% of the 2018 commercial quota of 23.98 million pounds (10,877 mt, Table 2). According to the 2019 operational assessment, commercial dead discards were 7.26 million pounds (3,293 mt) in 2018, a 30% decrease from 2017, which was the highest since 1981. Total commercial removals in 2018 were 20.63 million pounds (9,358 mt), about 68% of the 2018 commercial ACL (30.53 million pounds/ 13,848 mt). An analysis of commercial scup discards through 2018 will be presented to the SSC, Monitoring Committee and Council and Board during the 2020-2021 specifications process.

According to revised MRIP data, estimated recreational landings in 2018 were 12.98 million pounds (5,888 mt). This estimate should not be compared to the 2018 RHL as the RHL was set using an assessment that did not include the revised MRIP estimates. MRIP staff provided back-calculated estimates based on the old MRIP methodology which suggest that 5.61 million pounds (2,545 mt) of

recreational scup harvest would have been estimated for 2018 based on the old MRIP methodology. This is about 76% of the 2018 RHL (7.37 million pounds/ 3,343 mt). According to the 2019 operational assessment, recreational dead discards totaled 1.42 million pounds in 2018 (644 mt).[4] A rough estimate of recreational dead discards in "old MRIP units" can be calculated by dividing the value calculated through the assessment by 2.2, the average ratio of revised to old MRIP estimates during 2013-2017. This results in 645,353 pounds (293 mt) of recreational discards in "old MRIP units." This suggests that total 2018 recreational catch in old MRIP units was about 6.26 million pounds (2,837 mt), about 73% of the recreational ACL (8.61 million pounds/ 3,905 mt). Recreational catch (harvest and discards) in 2018 based on the new estimation methodology was estimated to be 14.40 million pounds (6,532 mt).

The commercial scup quota is allocated among three quota periods: Winter I (January 1 – April 30, allocated 45.11% of the annual quota), Summer (May 1 – September 30, allocated 38.95% of the annual quota), and Winter II (October 1 – December 31, allocated 15.94% of the annual quota).[5] Based on preliminary 2019 dealer data, about 47% of the 2019 Winter I commercial scup quota was landed. As of August 10, 2019, 40% of the Summer commercial scup quota had been landed (Table 3).

Table 2: Scup commercial and recreational landings relative to quotas and RHLs (in millions of pounds), 2014-2018. The RHL overage/underage evaluation is based on recreational harvest estimates using the old MRIP-estimation methodology.

Year	Com. landings	Com. quota	Quota underage	Rec. harvest (old MRIP estimates)	RHL	RHL underage	Rec. harvest (new MRIP estimates)
2014	15.96	21.95	-27%	4.43	7.03	-37%	10.27
2015	17.03	21.23	-20%	4.41	6.80	-35%	12.17
2016	15.76	20.47	-23%	4.26	6.09	-30%	10.00
2017	15.44	18.38	-16%	5.42	5.50	-1%	13.54
2018	13.37	23.98	-44%	5.61	7.37	-24%	12.98

Table 3: Commercial scup landings during the 2019 Winter I and Summer quota periods (as of the week ending August 10, 2019), according to preliminary data from NMFS weekly landings reports. The Winter I quota is a coast-wide quota. The Summer period quota is allocated among states under the Commission's FMP.

State	**Winter I** Landings (pounds) January 1 – April 27, 2019*	**Summer** Landings (pounds) May 1 – August 10, 2019*
Maine	0	0
New Hampshire	0	12
Massachusetts	363,605	502,881
Rhode Island	760,333	1,701,518

[4] A prepublication copy of the August 2019 operational stock assessment report prepared for the Council and the SSC is available at: http://www.mafmc.org/ssc-meetings/2019/september-9-11

[5] Prior to 2018, October was included in the summer quota period. The allocation percentages were the same as shown above.

Connecticut	529,068	270,742
New York	1,615,910	1,227,983
New Jersey	1,175,271	22,301
Delaware	0	0
Maryland	159,753	118
Virginia	345,483	0
North Carolina	156,011	16,108
Other	0	0
Total landings	**5,105,434**	**3,741,663**
Quota	**10,820,000**	**9,340,986**
Percent of Quota	**47%**	**40%**

*Note: The Winter I period lasts from January 1 through April 30. The 2019 Summer period lasts from May 1 through September 30. Landings in this table are from the NMFS quota monitoring site (https://www.greateratlantic.fisheries.noaa.gov/aps/monitoring/scup.html), which reports landings by week, rather than by quota period; thus, the Winter I landings shown above do not account for 100% of the 2019 Winter I landings.

Table 4: Preliminary recreational scup harvest estimates, waves 1-3 (January - June), 2019. (Source: personal communication, NMFS Fisheries Statistics Division, August 22, 2019; https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index). These estimates should not be compared to the 2019 RHL as the 2019 RHL did not account for the new MRIP estimation methodology.

State	Harvest (lb)
ME	0
NH	0
MA	582,759
RI	515,947
CT	586,141
NY	2,321,152
NJ	249
DE	0
MD	0
VA	0
NC	2,523
Total	**4,008,771**

Stock Status and Biological Reference Points

A scup operational stock assessment was peer reviewed and accepted in August 2019. This assessment

retained the model structure of the previous benchmark stock assessment, completed in 2015,[6] and incorporated fishery catch and fishery-independent survey data through 2018, including revised recreational data provided by MRIP for 1989-2018. The following information is based on the prepublication draft of the August 2019 operational assessment prepared for use by the Council and SSC.[7]

Updated F40% and corresponding SSB40% proxy biological reference points from the 2019 operational stock assessment include a fishing mortality reference point of F_{MSY} proxy = $F_{40\%}$ = 0.215, a biomass reference point of SSB_{MSY} proxy = $SSB_{40\%}$ = 207.279 million pounds (94,020 mt), and a minimum biomass threshold of ½ SSB_{MSY} proxy = ½ $SSB_{40\%}$ = 103.639 million pounds (47,010 mt, Table 5).

The scup stock north of Cape Hatteras, North Carolina extending north to the US-Canada border was not overfished and overfishing was not occurring in 2018 compared to the revised reference points. Spawning stock biomass (SSB) was estimated to be about 411 million pounds (186,578 mt) in 2018, about 2 times the SSB_{MSY} proxy reference point (i.e. $SSB_{40\%}$) of 207 million pounds (94,020 mt, Figure 1). Fishing mortality on fully selected age 3 scup was 0.158 in 2018, about 73% of the F_{MSY} proxy reference point ($F_{40\%}$) of 0.215 (Figure 2). The 2015 year class is estimated to be the largest in the time series at 326 million fish, while the 2016-2018 year classes are estimated to be below average at 112 million fish, 93 million fish and 83 million fish, respectively (Figure 1).

[6] 60th Northeast Stock Assessment Workshop (2015) assessment report and peer review summaries are available at: https://www.nefsc.noaa.gov/saw/reports.html

[7] Available at: http://www.mafmc.org/ssc-meetings/2019/september-9-11

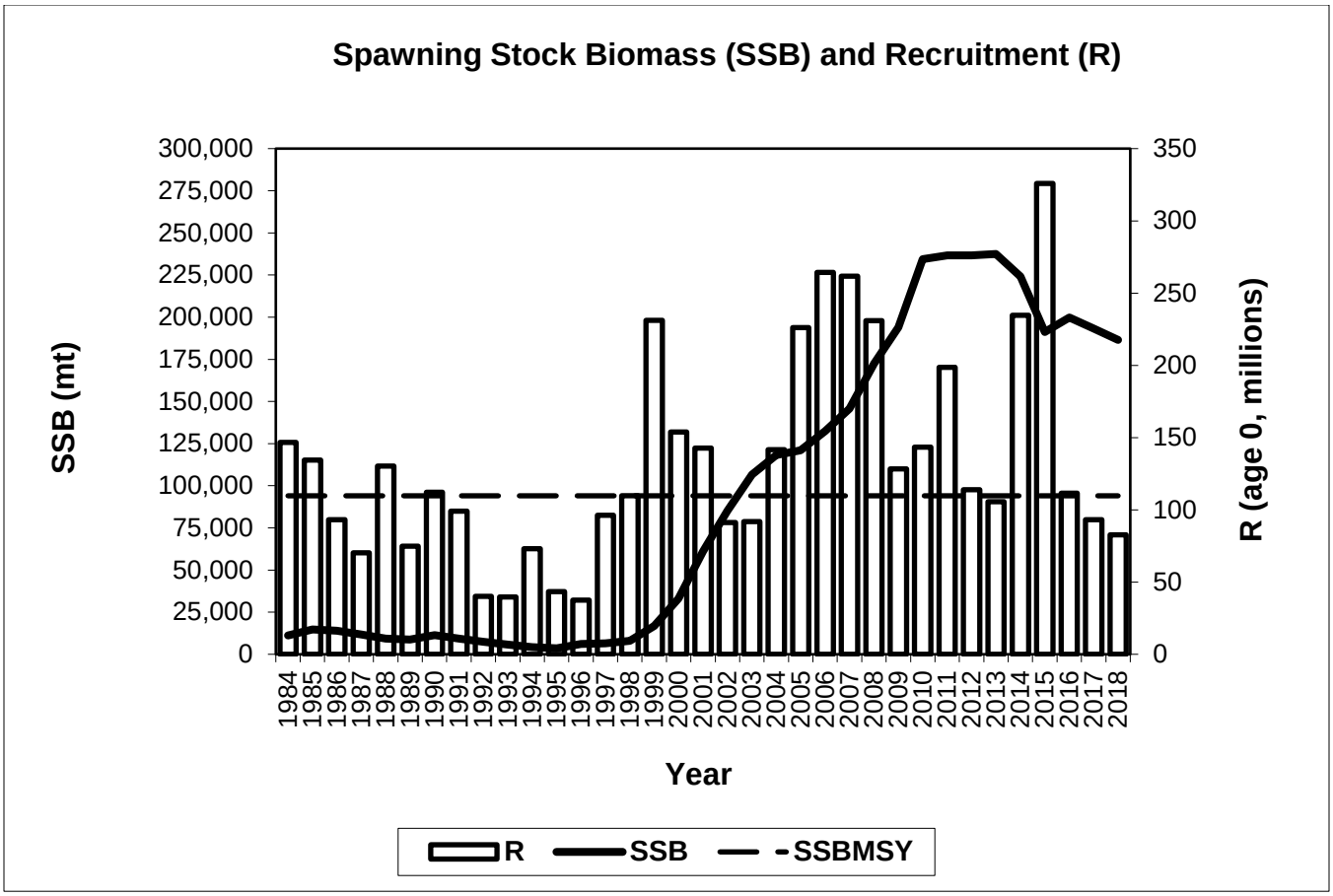

Figure 1: Scup SSB and recruitment at age 0, 1984-2018 from the 2019 operational stock assessment.

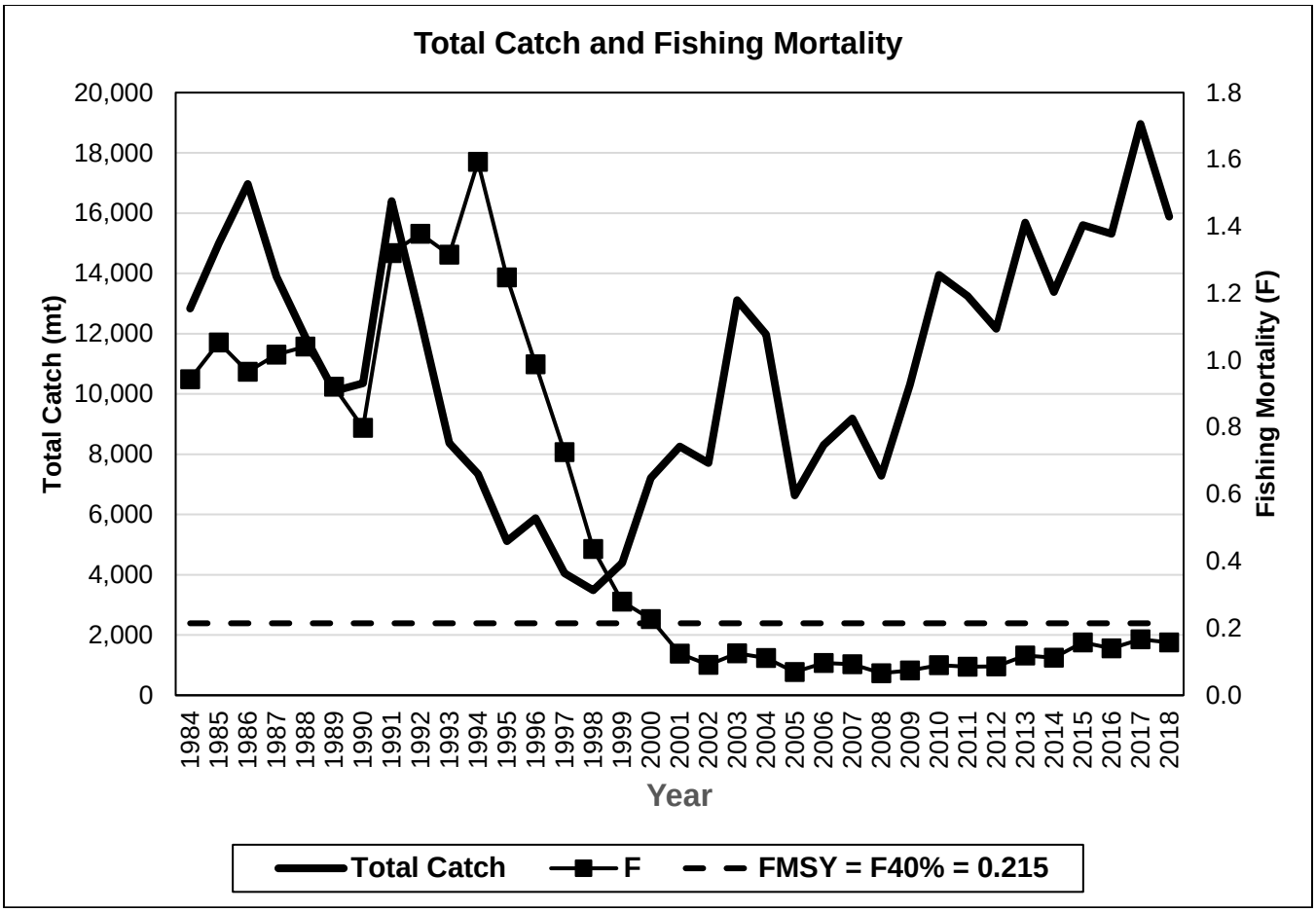

Figure 2: Scup total catch and fishing mortality, 1984-2018 from the 2019 operational stock assessment.

Table 5: Scup biological reference points from the 2015 benchmark stock assessment and 2019 operational stock assessment.

Reference Points and terminal year SSB and F estimates	**2015 benchmark stock assessment**[8] Data through 2014	**2019 operational stock assessment**[9] Data through 2018
$SSB_{MSY\ proxy} = SSB_{40\%}$ (biomass target)	192.47 mil lb/ 87,302 mt	207.28 mil lb/ 94,020 mt
½ SSB_{MSY} (biomass threshold defining an overfished status)	96.23 mil lb/ 43,651 mt	103.639 mil lb/ 47,010 mt
Terminal year SSB	403.26 mil lb/ 182,915 mt (2014) 210% of SSB_{MSY}	411 mil lb/186,578 mt (2018) 198% of SSB_{MSY}
$F_{MSY\ proxy} = F_{40\%}$ (threshold defining	0.220	0.215

[8] 60th Northeast Stock Assessment Workshop (2015) assessment report and peer review summaries are available at: https://www.nefsc.noaa.gov/saw/reports.html

[9] A prepublication copy of the August 2019 operational stock assessment report prepared for the Council and the SSC is available at: http://www.mafmc.org/ssc-meetings/2019/september-9-11

overfishing)		
Terminal year F	0.127 (2014) 42% below F_{MSY}	0.158 (2018) 27% below F_{MSY}

Review of Prior SSC Recommendations

In 2015, the Council and Board set scup specifications for 2016-2018 based on the recommendations of the SSC and Monitoring Committee. The SSC derived their ABC recommendations from the Council's risk policy and OFL projections provided with the 2015 benchmark stock assessment.[10] These projections assumed that 75% of the 2015 ABC would be caught and that F in 2016 and 2017 would be 0.22 (F_{MSY}). The SSC assigned a 60% coefficient of variation (CV) to the OFL. The SSC used a probability of overfishing (p*) of 40% to derive the 2016-2018 ABCs, based on the Council's risk policy for a species with a typical life history.

The SSC revised their 2018 OFL and ABC recommendations and adopted a 2019 OFL and ABC in July 2018 after reviewing a stock assessment update provided by the NEFSC.[11] These ABC recommendations were based on biomass projections provided with the assessment update. The projections assumed, based on patterns in the 2016 fishery, that 87% of the 2017 ABC would be caught and F in 2018 and 2019 would be 0.22 (i.e. the F_{MSY} proxy).The projections also used an OFL CV of 60% and a 40% probability of overfishing, based on the SSC's previous OFL CV recommendation and application of the Council's risk policy. This resulted in a 2019 OFL of 41.03 million pounds (18,612 mt) and a 2019 ABC of 36.43 million pounds (16,525 mt).

The SSC considered the following to be the most significant sources of uncertainty in the 2015 benchmark assessment:[12]

- While older age Scup (age 3+) are represented in the catch used in the assessment model, most indices used in the model do not include ages 3+. As a result, the dynamics of the older ages of scup are driven principally by catches and inferences regarding year class strength.
- Uncertainty exists with respect to the estimate of natural mortality used in the assessment.
- Uncertainty exists as to whether the MSY proxies ($SSB_{40\%}$, $F_{40\%}$) selected and their precisions are appropriate for this stock.
- The SSC assumed that OFL has a lognormal distribution with a 60% CV, based on a meta-analysis of survey and statistical catch at age model accuracies.
- Survey indices are particularly sensitive to scup availability, which results in high inter-annual variability. Efforts were made to address this question in the Stock Assessment Workshop and Stock Assessment Review Committee (SAW/SARC) that should be continued; and
- The projection on which the ABC was determined assumes that the quotas would be landed in 2016, 2017, and 2018.

[10] 60th Northeast Stock Assessment Workshop (2015) assessment report and peer review summaries are available at: https://www.nefsc.noaa.gov/saw/reports.html
[11] Scup Assessment Update for 2017 is available at: http://www.mafmc.org/ssc-meetings/2017/july-19-20
[12] A summary of the July 2015 SSC meeting is available at: http://www.mafmc.org/ssc-meetings/2015/july-21-23

In July 2018, the SSC reviewed their recommended 2019 ABC and noted that the biomass projections, which served as the basis for the 2019 ABC, assumed that 87% of the 2017 ABC would be caught. However, preliminary catch information indicated that 113% of the 2017 ABC was caught. The SSC agreed that this was a source of implementation error in setting the 2019 ABC.[13]

2020-2021 OFL and ABC Projections

Tables 6 and 7 show projected OFLs and ABCs based on the standard and average approaches, respectively. The projections assume the 2019 ABC of 16,525 mt (36.43 million pounds) with recreational catch in 'New' MRIP equivalents will be taken in 2019, providing an estimated catch of 20,711 mt (45.66 million pounds) in 2019. OFL Total Catches are catches in each year fishing at FMSY = 0.215, prior to calculation of the associated annual ABC. The projections sample from the estimated recruitment for 1984-2018. The ABC projections are based on application of the Council's risk policy for a stock with a typical life history, resulting in an ABC P* of 40% for the standard ABC approach and an average P* of 40% (2020-2021) for the average ABC approach. A CV of 60% was applied to the OFL, consistent with past SSC recommendations.

Table 6: OFL and ABC projections from the 2019 operational stock assessment using the standard ABC approach. Note: 2019 ABC total catch represents expected catch in 2019 (under revised MRIP estimates), not the implemented 2019 ABC (Source: personal communication, Mark Terceiro, Northeast Fisheries Science Center).

Year	OFL total catch		ABC total catch		ABC F	ABC P*	SSB	
	mil lb	mt	mil lb	mt			mil lb	mt
2019	--	--	45.66	20,711	0.208	--	403.75	183,137
2020	41.17	18,674	35.77	16,227	0.185	0.40	362.73	164,530
2021	35.30	16,012	30.67	13,913	0.185	0.40	335.80	152,318

Table 7: OFL and ABC projections from the 2019 operational stock assessment using the average ABC approach. Note: 2019 ABC total catch represents expected catch in 2019 (under revised MRIP estimates), not the implemented 2019 ABC (Source: personal communication, Mark Terceiro, Northeast Fisheries Science Center).

Year	OFL total catch		ABC total catch		ABC F	ABC P*	SSB	
	mil lb	mt	mil lb	mt			mil lb	mt
2019	--	--	45.66	20,711	0.208	--	403.75	183,137
2020	41.17	18,674	33.22	15,070	0.171	0.35	363.76	164,997
2021	35.62	16,159	33.22	15,070	0.20	0.45	337.37	153,027

Staff Recommendations for 2020-2021 ABCs

The SSC has been asked to recommend two sets of ABCs for 2020-2021, one based on the standard approach and one based on the averaging approach. The averaged ABC approach would allow for stability in catch and landings limits across two years and would allow for a higher 2021 ABC than the

[13] A summary of the July 2018 SSC meeting is available at: http://www.mafmc.org/ssc-meetings/2018/july-17-18

standard approach (Table 1); however, it would require a lower 2020 ABC than under the standard approach. The averaged approach results in a P* of 0.35 in 2020 and 0.45 in 2021, resulting in an average P* of 0.40 from 2020-2021 (Table 7). The projected spawning stock biomass trajectory is approximately the same in either scenario (Table 6 and Table 7). Under the standard ABC approach, the 2020 ABC (35.77 mil lb/ 16,227 mt) would be a 2% decrease from the current interim 2020 ABC (36.43 mil lb/ 16,525 mt). The 2021 ABC (30.67 mil lb/13,913 mt) would be 14% lower than the revised 2020 ABC and 16% lower than the current interim ABC. Under the average ABC approach, the ABCs in 2020 and 2021 would be identical at 33.22 million pounds (15,070 mt, a 9% decrease compared to the current interim 2020 ABC). There are tradeoffs to both ABC approaches. The higher 2020 ABC using the standard approach will require less restriction on the recreational fishery in 2020 compared to the averaged approach and may allow time to address potential allocation issues associated with the much higher recreational harvest than previously known (e.g. Table 2). However, it will require a greater restriction of total catch in 2021 compared to the averaged approach. Staff recommend the standard ABC approach.

Updated estimates of SSB, F, and recruitment are expected to be available in 2021 to inform 2022-2023 specifications. Unless an interim data update (i.e., updated fishery and survey data without updated estimates of SSB, F, and recruitment) shows strong signals of unexpected changes in the stock, it is unlikely that the 2021 catch and landings limits will be updated in 2020 based on biological, fishery, or survey data.

Other Management Measures

Commercial and Recreational Annual Catch Limits (ACLs)

As specified in the FMP, 78% of the ABC is allocated to the commercial fishery as a commercial ACL and 22% is allocated to the recreational fishery as a recreational ACL (Figure 3). ACLs include both landings and discards. The ABC allocation percentages were implemented through Amendment 8 (1996) and first came into effect in 1997. These allocations were based on the proportions of commercial and recreational catch during 1988-1992 and cannot be modified without an FMP action such as an amendment.

If the SSC adopts the ABCs recommended in the previous section, the standard ABC approach would result in a 2020 commercial ACL of 27.90 million pounds (12,657 mt), a 2020 recreational ACL of 7.87 million pounds (3,570 mt), a 2021 commercial ACL of 23.92 million pounds (10,852 mt), and a 2021 recreational ACL of 6.75 million pounds (3,061 mt).

The averaged ABC approach would result in a 2020 and 2021 commercial ACL of 25.91 million pounds (11,755 mt) and a 2020 and 2021 recreational ACL of 7.31 million pounds (3,315 mt).

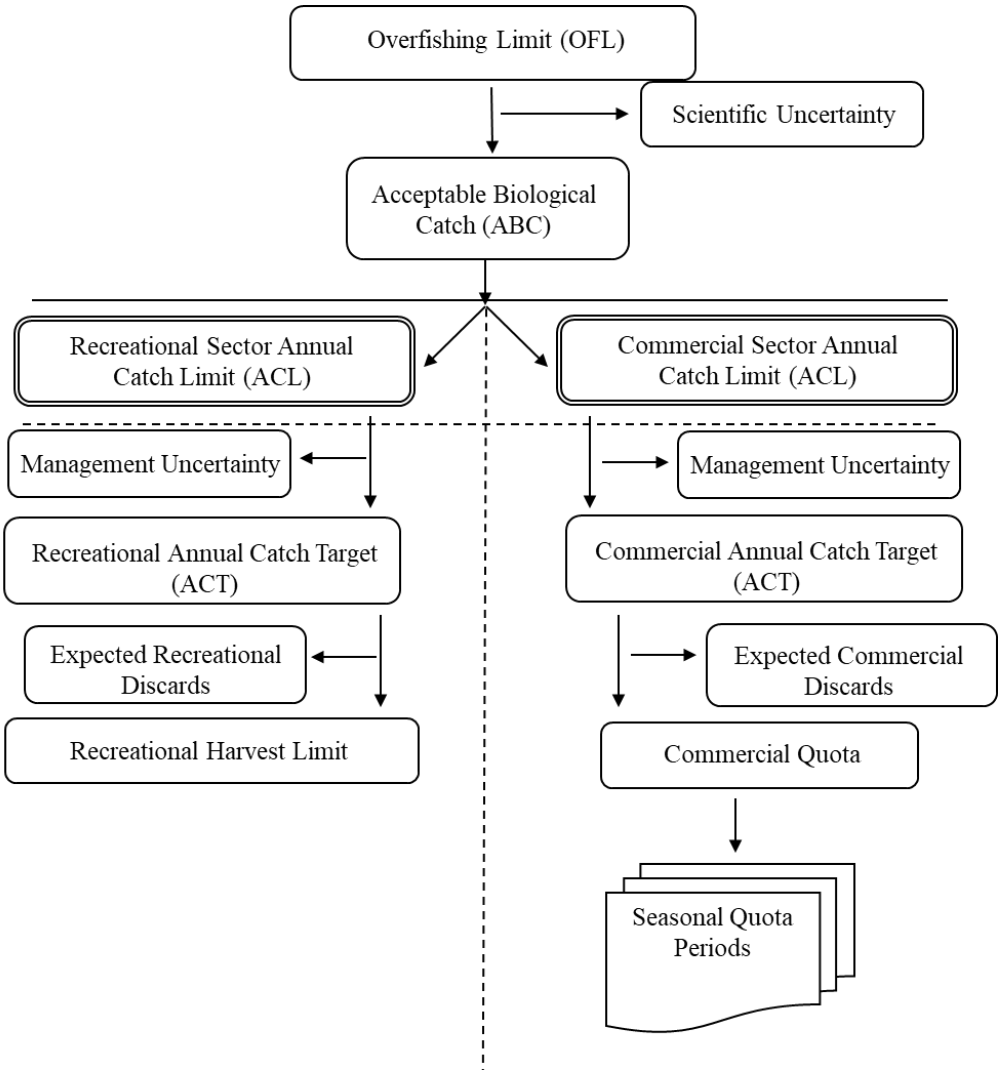

Figure 3: Scup catch and landings limit calculation methodology.

Annual Catch Targets (ACTs)

The Monitoring Committee recommends ACTs for the Council and Board's consideration. ACTs may be either equal to the ACLs or reduced from the ACLs to account for management uncertainty. Management uncertainty can include uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e. estimation errors). This can occur due to a lack of sufficient information about catch (e.g. due to late reporting, under-reporting, and/or misreporting of landings or discards) or due to a lack of management precision (i.e. the ability to constrain catch to desired levels).

The sector-specific landings performance for recent years is shown in Table 2; however, note that the recreational fishery data includes the old MRIP estimates given that past RHLs were set with assessment information based on the pre-calibration recreational time series. For this reason, the new MRIP data cannot reasonably be compared to past RHLs. From 2014-2018, commercial and recreational landings have been consistently below the quota and RHL. The commercial quota monitoring system is timely and typically successful in constraining landings to the commercial quota.

In recent years, the Monitoring Committee and the Commission's Technical Committee have spent a great deal of time developing new and alternative methodologies to evaluate management uncertainty in the recreational fishery, the predictability and uncertainty in recreational catch estimates, and the influence of recreational regulations on harvest. These Committees plan to continue to work to make improvements to the evaluation process for recreational measures. For 2020, staff recommend no reduction in catch from the recreational or commercial ACLs so that each sector's ACT is set equal to the ACL.

Commercial Quotas and Recreational Harvest Limits (RHLs)

Commercial scup quotas and RHLs are calculated by subtracting projected discards from the sector-specific ACTs. Projected discards from the stock assessment are apportioned between commercial and recreational fisheries using the average percent of dead discards attributable to each sector over the past three years (Figure 4, Table 1). This requires the assumption that patterns in discards will be similar in future years as in past years. Changes in regulations, availability, year class strength, market demand, and other factors can impact discards from one year to the next. The Monitoring Committee should discuss the methodology for calculating expected discards during their September 2019 meeting.

According to the 2019 operational stock assessment, commercial discards accounted for an average of 80.7% and recreational dead discards accounted for an average of 19.3% of all dead discards from 2016 through 2018. The increase in the proportion attributable to the recreational fishery compared to previous years (e.g., 12.7% during 2014-2016)[14] is based in part on the revisions to the MRIP data which suggest that recreational catch, harvest, and discards are higher than previously thought.

After subtracting projected discards from the recommended ACTs, the recommended commercial quotas under the standard ABC approach are 22.23 million pounds (10,083 mt) in 2020 and 18.06 million pounds (8,194 mt) in 2021 (Table 1). Under these recommended commercial quotas, the 2020 Winter I quota would be 10.03 million pounds (4,549 mt), the Summer quota would be 8.66 million pounds (3,927 mt), and the Winter II quota would be 3.55 million pounds (1,608 mt). The 2021 Winter I quota would be 8.15 million pounds (3,693 mt), the Summer quota would be 7.04 million pounds (3,191 mt), and the Winter II quota would be 2.88 million pounds (1,306 mt). All Winter II quotas are prior to any quota rollover from Winter I, if applicable.

In the projections provided by the NEFSC for the average approach, the projected ABC discards vary slightly in each year, resulting in differing projected discards by sector and different landings limits in each year. Because the difference is very minor, for the sake of simplicity and stability, staff recommend using the average discards from 2020-2021, which would produce identical constant catch and landings limits for each sector in both years (Table 1). The Monitoring Committee should consider whether this approach is appropriate. The commercial quotas under the average approach would be 20.11 million pounds (9,123 mt) in 2020 and 2021 (Table 1). Under these commercial quotas, the 2020 and 2021 Winter I quota would be 9.07 million pounds (4,115 mt), the Summer quota would be 7.83 million pounds (3,553 mt), and the Winter II quota would be 3.21 million pounds (1,455 mt). All Winter II quotas are prior to any quota rollover from Winter I, if applicable.

After subtracting projected discards from the recommended ACTs, under the standard ABC approach

[14] Scup Assessment Update for 2017 is available at: http://www.mafmc.org/ssc-meetings/2017/july-19-20

the recommended RHLs are 6.51 million pounds (2,954 mt) in 2020 and 5.34 million pounds (2,424 mt) in 2021. Under the average ABC approach and averaging the 2020 and 2021 projected ABC discards, the recommended RHL for 2020 and 2021 is 5.92 million pounds (2,685 mt, Table 1). Under both the standard and average approach, the RHLs will be too low to accommodate recent patterns in recreational landings based on the new MRIP data (e.g. Table 2).

Commercial Winter I and Winter II Quota Period Possession Limits

Commercial possession limits are designed to help constrain landings to the seasonal period quotas. The Winter I possession limit is 50,000 pounds. After 80% of the Winter I quota is landed, the possession limit drops to 1,000 pounds. The Winter II possession limit is initially set at 12,000 pounds. If the Winter I quota is not fully harvested, as has been the case in recent years, the Winter II possession limit increases by 1,500 pounds for every 500,000 pounds of scup not landed during the Winter I period. There are no federal possession limits during the Summer quota period; however, there are state possession limits.

Most commercial scup trips in recent years landed well below the Winter I and Winter II possession limits. These possession limits have not been modified since 2012, when the Winter I limit increased from 30,000 to 50,000 pounds and 2014 when the initial Winter II limit increased from 2,000 to 12,000 pounds. In 2018, the Council and Commission moved October from the Summer period to the Winter II period, resulting in a higher trip limit being in effect during that month. Staff recommend no changes to the Winter I and Winter II possession limits for 2020.

Commercial Minimum Fish Size

The minimum size for retention of scup in the commercial fishery is 9 inches total length. This regulation applies to all commercial landings of scup, including landings of incidental catch. This measure was first implemented in 1996, when scup were first managed by the Council and Commission. The Council and Board considered modifying this measure in 2005, 2012, and in 2015. After reviewing this measure in detail 2015, the Monitoring Committee, Council, and Board all recommended no changes. The rationale for this recommendation is described in the Summer Founder, Scup, and Black Sea Bass Commercial Management Measures Review.[15] In the past, advisors have expressed differing opinions on the commercial minimum fish size for scup. Staff recommend that this regulation remain unchanged in 2020.

Commercial Trawl Mesh Size

Trawl vessels which possess more than 1,000 pounds of scup from October 1 through April 14, more than 2,000 pounds of scup from April 15 through June 15, and more than 200 pounds of scup from May 1 through August 31 must use a minimum mesh size of 5.0 inches. These regulations were modified in 2015 (effective in 2016) and 2018 (effective in 2019). In late 2015, the Council approved an increase in the November-April incidental limit from 500 to 1,000 pounds in recognition of the substantial increase in SSB and expansion of the age structure of the population since this measure was last modified in 2004. In August 2019, the Council approved an increase in the incidental scup possession limit during April 15-June 15 to 2,000 pounds to decrease discards in the spring inshore squid fisheries.

[15] The Summer Flounder, Scup, and Black Sea Bass Commercial Management Measures Review is available at: http://www.mafmc.org/briefing/december-2015

The Council recently funded a project which analyzed the selectivity of multiple codend mesh sizes relative to summer flounder, black sea bass and scup retention in the commercial bottom trawl fishery in the Mid-Atlantic region. Results confirmed that the current minimum mesh sizes for all three species are effective at releasing most fish smaller than the commercial minimum sizes (i.e., 14 inches total length for summer flounder, 9 inches total length for scup, and 11 inches total length for black sea bass). The study was not able to identify a common mesh size for all three species that would be effective at minimizing discards under the current minimum fish size limits. However, the authors concluded that a common mesh size of 4.5 or 5 inches diamond for scup and black sea bass would be effective at releasing undersized fish.

The Monitoring Committee reviewed the results of this study in 2018 and recommended no changes to the commercial minimum mesh sizes for 2019. They recommended clarification of the objectives of the Council regarding consideration the mesh sizes (e.g., establishing a common minimum mesh size, minimizing discards, and/or maintaining or increasing catches of legal-sized fish). Input from the commercial fishing industry should be sought before any minimum mesh size changes are considered.

Staff will continue to work with the Monitoring Committee and Advisory Panel in 2019 to further analyze and consider potential changes to mesh size regulations. Currently, staff recommend no changes to the scup minimum mesh sizes and associated possession limits for 2020.

Commercial Pot and Trap Regulations

NMFS Vessel Trip Report data show that pots/traps accounted for about 1.7% of scup commercial landings in 2018. Pots and traps used in the commercial scup fishery must have either a circular escape vent with a 3.1 inch minimum diameter or square or rectangular escape vents with each side being at least 2.25 inches in length. The Council and Commission hosted a workshop in 2005 to review several studies on vent size. Workshop participants did not recommend any changes in the vent sizes for the commercial scup fishery. The Monitoring Committee reviewed these measures in 2015 and recommend no changes. Staff recommend no changes to these measures for 2020.

Recreational Seasons, Possession Limits, and Minimum Size

The Council and Board will discuss 2020 recreational scup seasons, possession limits, and minimum fish sizes at their joint meeting in December 2019. Data from the first four “waves” (i.e. the two-month reporting increments for recreational data) of 2019 recreational landings are expected to be available in October 2019. The Monitoring Committee will meet in November to review these landings data and make recommendations for any necessary changes in recreational management measures. Staff have no recommendations for 2020 recreational management measures at this time. However, it should be noted that the potential 2020-2021 RHLs described above will likely require notable restrictions in the recreational fishery due to the adoption of the revised MRIP data and the fixed commercial/recreational ACL allocation percentages defined in the FMP.

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

August 2019

The Mid-Atlantic Fishery Management Council's (Council's) Summer Flounder, Scup, and Black Sea Bass Advisory Panel (AP) met jointly with the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass AP on August 29, 2019 to review the Fishery Information Documents and develop the following Fishery Performance Report for the three species. The primary purpose of this report is to contextualize catch histories for the Scientific and Statistical Committee (SSC) by providing information about fishing effort, market trends, environmental changes, and other factors. A series of trigger questions listed below were posed to the AP to generate discussion of observations in the summer flounder, scup, and black sea bass fisheries. Please note: Advisor comments described below are not necessarily consensus or majority statements.

Council Advisory Panel members present: Joan Berko (NJ), Jeff Deem (VA), James Fletcher (NC), Jeff Gutman (NJ), Howard King (MD), Michael Plaia* (CT), Chris Spies (NY), Doug Zemeckis (NJ)

Commission Advisory Panel members present: Paul Caruso (MA), Greg DiDomenico (NJ), Marc Hoffman (NY), Michael Plaia* (RI), Jimmy Ruhle (NC)

*Serves on both Council and Commission Advisory Panels.

Others present: Julia Beaty (MAFMC Staff), John Boreman (MAFMC SSC Chair), Dustin Colson Leaning (ASMFC Staff), Karson Coutré (MAFMC Staff), Kiley Dancy (MAFMC Staff), Mark Holliday (MAFMC SSC), Michael Luisi (MAFMC Chair), Tom Miller (MAFMC SSC vice chair), Kirby Rootes-Murdy (ASMFC Staff), Caitlin Starks (ASMFC Staff)

Trigger questions

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

General Comments

Recreational Data Concerns

Multiple advisors said they had no faith in the data from the Marine Recreational Information Program (MRIP), which they see as inaccurate and fundamentally flawed. One advisor said people concerned about MRIP should focus on the high percent standard errors (PSEs) of the estimates being used.

One advisor stated that MRIP uses an estimated number of anglers in New York that is at least twice the true number. He also stated that MRIP has refused to tell him exactly how many anglers they are estimating for New York. Staff and others clarified that MRIP estimates effort in number of trips and does not use a specific number of anglers to generate catch and harvest estimates. Multiple advisors said better information is needed to help explain the MRIP methodologies to the fishing public, and MRIP staff could be more helpful in explaining how estimates are scaled up from the intercept survey.

One advisor questioned whether the MRIP numbers reflect catch from anglers going back to private docks, since they would not be accounted for in the intercept survey. He believes that recreational harvest is underestimated as a result. Staff responded that the effort of these anglers should be reflected in the effort survey, and assuming their catch rates are similar to anglers intercepted at public sites, the MRIP estimates should account for this catch. In response, this advisor said if law enforcement is less likely to visit private docks, the catch rates would be much different than at public sites. He also questioned why the Council and Board have not pursued the use of electronic reporting via mobile apps for private recreational anglers.

Another advisor noted that in New York, it seems that MRIP intercept activity disproportionately occurs in the Montauk area, which leads to overestimation of the state-wide catch and harvest.

One advisor expressed frustration that congressionally mandated revisions to the MRIP program took more than a decade to complete.

One advisor said that with the new MRIP data, the Council should consider whether past biomass targets for all species were appropriate. Another advisor responded that the biomass target is updated with every stock assessment and the most recent target accounts for the transition to the new MRIP data.

Monitoring and Reporting

One advisor said issues with uncertain recreational estimates could be addressed by a complete overhaul of the permitting, monitoring, and reporting process. He added that this is needed for both sectors. He said many commercial fisheries have issues with open access permits that are not monitored the way they should be, and many limited access permits that are not used. The Council and Board should address latent effort in commercial and recreational permits at both the state and federal levels. Federal for-hire permit holders are now required to report electronically, but there are hundreds more permits issued than are actually reporting, indicating latent permits. In addition, this advisor suggested that there appears to be an issue in the state of New York where "for-hire guides" on private boats are not held to the same reporting requirements as other for-hire vessels and are flying under the radar.

In response to comments about permit holders not reporting landings, a few AP members noted that there used to be a requirement to submit "did not fish" reports, but that requirement was recently deemed unnecessary and eliminated.

One AP member said he gets every permit available even if he does not currently use it, due to constantly changing regulations for different species and the possibility of losing permits in the future due to limited access programs.

One advisor said the organization he represents has for many years asked the Council and Commission to require the same level of reporting in the recreational fishery as in the commercial fishery (e.g., vessel and operator permits, mandatory vessel trip reports for all fishing trips). He added that challenges associated with the transition to the new MRIP data could have been avoided if better data were reported by the recreational fisheries. Another advisor agreed with the idea of enhancing monitoring and reporting, stating that he does not believe the recreational fishery is catching what MRIP is estimating, and recreational accounting could be improved. However, another advisor disagreed with the recommendation for mandatory private angler reporting, arguing that private anglers fish for fun and should not be burdened with requirements to report their catch from every trip. In addition, such reports may not be accurate as private anglers often do not keep accurate counts of their catches.

Summer Flounder

Market/Economic Conditions

One advisor noted that in the last two or three years, the price per pound received for jumbo summer flounder (about 4 pounds or larger) has decreased, and vessels are now getting about 50 cents less per pound for jumbos compared to smaller sizes. He believes that market conditions changed as the result of drops in quotas over the past few years, and market demand is currently higher for smaller summer flounder that fit better on a plate. As a result, some vessels have been discarding more jumbo fluke than in years past, which is not likely captured in any management data streams. This advisor noted that this is occurring on vessels that have conveyer sorting systems, and the fish are generally released alive and in good condition.

Environmental Conditions

One advisor noted that last year, the fall NEAMAP survey hit a dead zone, from approximately Shrewsbury Rocks to the Delaware Bay, where salinity and dissolved oxygen were way down in an offshore area. Water quality plays a role in what is happening the summer flounder fishery. The timing of the trawl surveys needs to be improved, as spawning behavior has changed. For example, off Ocean City there are lots of small summer flounder being caught in other smaller mesh fisheries, and the surveys are not capturing it. There has been a big uptick in landings from the Baltimore Canyon area indicating a recruitment event, but this has been missed by trawl surveys.

An advisor from Virginia noted that when you compare this year's recreational estimates to last year’s, they are likely to be lower, given that 2019 had a colder and wetter spring.

Management Issues

Advisors discussed the revised MRIP estimates for summer flounder. One advisor said the idea that the shore mode caught twice as many keeper fluke compared to party boats is ludicrous. Another AP member noted that in the late 1990s and early 2000s, recreational overages were very

large, so even under the old estimates, recreational harvest was higher in some years than the 40% allocated to the recreational fishery in the Fishery Management Plan. The new MRIP estimates don't necessarily reflect an overall change in the proportions of recreational and commercial harvest, but instead reflect continued fluctuations of those harvest proportions over time.

Another advisor stated that he perceives summer flounder management to be a failure, particularly recreational management. In the 1990s when size and bag limits were first implemented for the recreational fishery, stock size increased through the early 2000s. When size limits went too high, the stock started to decline again. This advisor questioned whether management over the last decade has truly been helpful in rebuilding and suggested that managers more seriously look at implementing a smaller minimum size in the recreational fishery and/or managing based on harvested number of fish instead of pounds. Anglers are very unhappy having to throw back summer flounder all day and with having to go further and further offshore to catch keepers. If management were based on a bag limit alone or a bag limit in combination with a smaller minimum size, anglers would catch what they can keep and then go home. This advisor believed that management should let people take home more fish and reduce the number of recreational discards, and that one strategy to do this was to go back to measures that were implemented during rebuilding. This advisor requested that for the next meeting, advisors review more information on the proportion of harvest vs. discards in recent years compared to during the rebuilding process and the peak years of stock biomass.

Other advisors also expressed general dissatisfaction with the high size limits used to manage the summer flounder recreational fishery. One noted that as seen with the recent examples of older fish described in the 2019 data update, summer flounder are now dying of old age because anglers are not allowed to keep them. There may be environmental factors that have changed recruitment, but managers should go back to allowing anglers to keep more and smaller fish.

Two advisors discussed their support for exploring a cumulative length limit (i.e., a total length limit where anglers can keep up to a specified total number of inches of fish) with mandatory retention of all fish caught until the length limit is reached. One advisor said this has been brought up for years and law enforcement has said it's not enforceable. Millions of dollars have been spent on studying the survival of discards, but the current limits are creating many more discards than necessary. He requested that the idea of a total length limit be revisited with a trial run. Managers need to consider anglers fishing from the beach trying to catch a meal.

Another advisor responded that on head boats, a cumulative length limit would be very difficult to enforce given that it's difficult to control passenger behavior to that degree. Groups of anglers comingle their catch in coolers and it would be very difficult to keep track of individual total length limits with that many anglers on board. In addition, it would be difficult to enforce in states that allow filleting at sea. Another advisor responded that different sectors of the recreational fleet could have different regulations and that this did not necessarily need to apply to party boats.

One advisor said we do not need more discard mortality studies; instead the fishery should be managed with 100% retention and a prohibition on discards. In response to this, another advisor stated that this would be impossible because managers cannot compel people to keep fish that they don't want or can't hold, making this type of system difficult to monitor and enforce.

One advisor requested flexibility in the size limit regulations for the recreational fishery in the upper Chesapeake Bay so that anglers there can have the opportunity to land some summer

flounder. This would involve different size limits by area similar to what New Jersey has for the Delaware Bay.

General Fishing Trends

A recreational advisor said, in the last few years, anglers have been seeing fewer summer flounder inshore in the recreational fishery in Massachusetts, likely because of higher water temperatures. Legal sized fish are now mostly offshore. Because of the higher size limit for the recreational fishery, the commercial fishery essentially gets a two-year head start on catching the summer flounder in state waters. This advisor also noted that while Massachusetts quota allocations were set during a time when the fishery was doing better in the area, the commercial quota now may be too high for the overall biomass available, thus hindering access to legal sized fish for the recreational fishery.

Another advisor noted that summer flounder fishing in southern New Jersey has been very tough recently. An AP member from New York indicated that some areas are having a decent fluke season (such as off Montauk), but others have had a poor season (such as in Sheepshead Bay). He also has not heard good fishing reports from the north side of Long Island Sound.

An advisor from Rhode Island indicated that keeper fluke have been very difficult to find near Block Island.

Research Priorities

One advisor requested more research on discard survival, stating that he does not believe the currently assumed discard mortality rates. Studies have shown that survivability varies based on temperature and other factors, and he noted the need to consider how environmental conditions and depth can affect mortality so that those factors can be built into discard mortality calculations.

In response, another advisor said more tagging research would be helpful to evaluate discard mortality rates. Studies that use cages can bias results because the fish don't experience normal rates of predation or normal feeding opportunities. Tagging studies can show what happens when fish are released and allowed to recover naturally.

Another advisor requested research into recreational gear impacts on discard mortality, including how the use of circle hooks impacts mortality.

One advisor thought that a study on the history of management and its successes and failures would be beneficial, in particular for the recreational fishery given the variety of factors that influence angler behavior and effort from year to year. Staff responded that a recent Council-funded recreational summer flounder Management Strategy Evaluation addresses some of those issues but may not fully address what this advisor suggested.

One advisor requested a full audit of fishery participation in the summer flounder recreational and commercial fisheries, including reporting requirements for all participants. An SSC member stated that managers have been trying to improve information on fishery participation, and such an undertaking would likely be useful. Some fishery participants used to apply for permits just to stay informed on the fisheries even if the permits were not used, but the management and permitting environment today is different and further evaluation of latent permits may be useful.

Finally, one advisor noted that there should be more research into spawning behavior and stock structure for summer flounder to update older studies.

Scup

Market/Economic Conditions

Multiple advisors noted that scup were removed from the market for too long during rebuilding and other fish such as croaker and tilapia took its place. Before rebuilding, fishermen would get over $2.00/lb for jumbo scup. One advisor said he would like to see a time series of the amount and price of imported tilapia. He said the price of tilapia drives the price of scup, while changing seasons and closures also affects the market.

One advisor noted that in Rhode Island there are many efforts to increase the market for scup and try to make it more appealing to the public. Another advisor added that the Rhode Island Commercial Fishermen's Association is experimenting with different ways to clean fish to get the bones out and market filets, etc.

One advisor said that the winter scup fishery has become predictable and east coast ethnic grocery stores rely on scup on a weekly basis. The higher demand and better prices are helpful for New Jersey scup fishermen.

Recreational Fishery

Multiple advisors noted that angler interest is currently driving the recreational scup harvest. One advisor said that in the north, no one is fishing to catch their limit because people don't want to keep that many fish. The season is essentially wide open and the bag limit is high. The for-hire fishery sometimes uses their full bag limit but others are not really interested.

One advisor said that the actual fishing season is much shorter than the open season because in October the scup move to deeper water. Another advisor said the winter recreational fishery is really important to party boats in Rhode Island. One advisor added that charter boats use small scup for striped bass bait but otherwise scup are only targeted by party boats.

One advisor felt that the shore mode estimate of scup harvest in 2018 of 43% was way too high and the revised MRIP estimates should be disregarded.

Environmental Conditions

One advisor asked how SSB could be going down when there was such a high 2015 year class. Another advisor responded that a high number of recruits doesn't necessarily add up to much in pounds of biomass. Staff also added that discards or density dependent effects can play a role in a strong year class not resulting in higher SSB.

One advisor noted that in 2019, statistical area 626 had a significant number of trawl caught scup for the first time in 18 years. These fish were probably landed in Chincoteague or Hampton, VA and show that the northeast migration is reversible.

One advisor said a mild fall meant that the fish were never driven offshore.

Management Issues

Effective in 2018, the commercial scup quota periods were modified so that October was moved from the Summer quota period to Winter II. Several advisors spoke favorably about this modification and one advisor noted that it probably had some effect on reducing discards and stabilizing the fishery. Another advisor said it may not have had much of an effect this year due to market price.

One advisor asked if the 50,000 lb trip limit causes the price to fall so much that dealers won't accept scup. Multiple advisors said dealers would still accept scup and one added that they just wouldn't pay much. One advisor said the50,000 lb trip limit was probably the best thing that had happened to owner/operators of trawlers in New Jersey and New York.

Research Priorities

The Council's 2016-2020 research plan includes a recommendation for a management strategy evaluation (MSE) to evaluate the effectiveness of scup management. Several advisors said that conducting an MSE for scup is not a priority right now because the stock is doing so well.

One advisor said that it could be helpful to look at why the stock is doing so well and compare that to what is being done with other stocks.

One advisor recommended researching the long-term effects of management. While we want the resource to be in good shape, maybe we shouldn't rebuild too quickly for market reasons.

One advisor said there should be research on aquaculture in federal waters for scup and asked why the Council didn't have an aquaculture plan. The Council chairman responded that currently there are contradictory court rulings about whether aquaculture is something that can be managed under Magnuson-Stevens Act by the Councils. Until those are resolved the Council has taken aquaculture off its priorities list.

Black Sea Bass

Biological Issues and Biomass Projections

One advisor said the lower than average 2018 recruitment could be influenced by the high abundance of large black sea bass, some of which eat juveniles.

One advisor noted that the retrospective adjustment to estimated 2018 SSB shows high abundance; however, the unadjusted values for 2014-2018 show a steep decline. He also noted that the Acceptable Biological Catch (ABC) projections for 2020-2021 show notable declines in biomass. Other advisors expressed concern about this decline. One advisor asked if this means the stock is in crisis. Staff clarified that the unadjusted biomass estimates do not show biomass declining below the target. In addition, the projected ABCs are based on projected Overfishing Limits (OFLs). The OFL is the level of catch which should bring biomass to the target level. Since black sea bass biomass is above the target, fishing at the ABC should bring biomass down closer to, but not below, the target. This does not mean the stock is in crisis.

One advisor said most trawl surveys don't sample more than 10 miles from shore, yet black sea bass have been caught as far as 150 miles from shore in lobster pots. This could result in the stock assessment under-estimating biomass.

One advisor noted that a recent paper suggests that sea whips are important habitat for black sea bass off Maryland and asked if sea whips are found in more northern areas. Other advisors said they have not observed sea whips north of Maryland.

Commercial Catch Locations and Distribution of Stock

One advisor cautioned that the higher prevalence of the large 2011 year class in the northern region (north of Hudson Canyon) compared to the southern region should not be interpreted to mean that black sea bass are no longer abundant in the southern region. He added that statistical area 616 had the highest proportion of commercial black sea bass catch in 2018 in part because vessels from southern states (e.g., North Carolina) travel to that area to target summer flounder. They do not make dedicated black sea bass trips, but target black sea bass on their summer flounder trips. For this reason, the map of catch locations in the Fishery Information Document is not reflective of the distribution of abundance. Another advisor agreed and added that for this reason, when summer flounder catch is reduced, it can also look like black sea bass catch is reduced as captains won't make trips to those areas just for black sea bass.

One advisor reminded the group that the locations reported on Vessel Trip Reports (VTRs) can be imprecise. For example, many captains will report all catch from a trip on a single VTR under a single location (usually the location of the first haul) even if fishing occurred in multiple statistical areas. When fishermen move from one statistical area to another or change gear types, they should fill out a new VTR; however, this is viewed as burdensome and is often not done.

One advisor noted that the study fleet collects tow-by-tow location data and should be used at least as a comparison to VTR data. The study fleet was meant to enhance the stock assessment process.

One advisor said the location of black sea bass catches from pots and traps can be impacted by lobster closures in areas 4 and 5 (off New York through Cape Hatteras) in the spring. These closures exclude black sea bass pot fishing.

Recreational Fishery

One advisor expressed frustration that despite high biomass, a loosening of the restrictions on the recreational fishery never seems possible. He added that for-hire fishermen depend on black sea bass for their livelihoods.

One advisor and party boat captain said he fishes every day for black sea bass when he can, as do most other for-hire captains he knows. He said the MRIP estimates showing much higher catch from anglers on private and rental boats compared to party/charter boats are unbelievable.

One advisor requested that next year's Fishery Information Document include a summary of discards by mode (private/rental, party/charter, and shore). He said this could support consideration of a total cumulative length limit in the recreational fishery. Another advisor cautioned that breaking the estimates down by mode can lead to high PSEs.

Management Issues

Two advisors said some commercial fishermen use 5.5 inch trawl mesh to target black sea bass, rather than the required minimum mesh size of 4.5 inches. This allows them to target summer flounder and black sea bass with the same net and releases more small black sea bass from the net. Since black sea bass are so abundant, fishermen are still able to catch enough sea bass with this larger mesh.

Advisors discussed potential issues related to the commercial/recreational allocation percentages defined in the Fishery Management Plan and the adoption of the new MRIP data, which show much higher recreational catches than previously thought. One advisor said the recreational fishery will be thrown under the bus yet again due to changes in the MRIP data.

Another advisor noted that before implementation of the current accountability measure system, the commercial fishery was required to take reductions due to overages in the recreational fishery. He feared that upcoming Council and Board discussions of allocations could result in the commercial fishery losing allocation due to changes in the recreational data. He cautioned that the Council and Board should avoid issues associated with groundfish catch shares where those who created the biggest problems were rewarded. He added that he has nothing against the recreational fishery as they were not responsible for the changes in the MRIP data; however, the commercial fishery has also been constrained for a long time.

One advisor said that if the recreational fishery receives a higher allocation in the future, it should be coupled with additional measures to improve reporting and accountability, which could include different measures for the for-hire and private sectors.

Research Priorities

The Council's 2016-2020 research plan includes a recommendation for a directed study of the genetic structure in the population of black sea bass north of Cape Hatteras. One advisor said this should be expanded to include stock mixing and migration patterns.

Another advisor said greater sampling of black sea bass in inshore areas could be beneficial.

Kiley Dancy

From: James Fletcher <unfa34@gmail.com>
Sent: Tuesday, July 16, 2019 9:02 AM
To: Kiley Dancy; Beal, Robert
Subject: Re: Meeting Location & Hotel Block for August 29th Advisory Panel meeting

Ms. Dancy Mr. Beal:
Can the PDT or Monitoring Committee {ASMFC What ever group} be asked to discuss, what a total length retention regulation could affect all MANAGED species with NO DISCARDS. ALSO ASK THE PDT GROUP TO DEFINE PHYSICAL WASTE OF FISHERIES; As refereed to in Article 1 section 1 of Atlantic Stated Marine Fisheries Compact.
Ask that they discuss the benefits of not targeting female fish and no dead discards with size regulations and write a report for advisors.
Ms. Dancy would you compile a total import of fish used as replacements in the market for these species. Will total retention by length affect import of fish?
Mr. Beal CAN ASMFC at the up coming meeting; discuss physical waste & total length retention for all ASMFC recreational fisheries?

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

Kiley Dancy

From: James Fletcher <unfa34@gmail.com>
Sent: Tuesday, July 16, 2019 10:46 AM
To: Kiley Dancy; Moore, Christopher
Subject: IMPORTS - TRADE2010.pdf

https://www.st.nmfs.noaa.gov/st1/trade/documents/TRADE2010.pdf

PAGE 3 SHOWS FLOUNDER Imports; for 2010 My computer skills are not good will you try to bring 2016-2018 import of flounder scup black sea bass substitute imports information for advisors.
Dr.Moore would you consider asking your staff to show imports for species that take market share from our U.S. fishermen during each discussion?
On aquaculture: what is MAFMC aquaculture position in EEZ?
Instead of Chub Mackerel perhaps a plan for aquaculture?

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

Kiley Dancy

From: James Fletcher <unfa34@gmail.com>
Sent: Tuesday, July 16, 2019 11:14 AM
To: Kiley Dancy
Subject: Imports and Exports of Fishery Products Annual Summary, 2017 - Trade2017.pdf

https://www.st.nmfs.noaa.gov/Assets/commercial/trade/Trade2017.pdf found this advisors could discuss imports & size restriction vs total length retention of all fish

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

Kiley Dancy

From: Katie Almeida <kalmeida@towndock.com>
Sent: Monday, August 19, 2019 10:35 AM
To: Kiley Dancy
Subject: Fluke/Scup/BSB

HI Kiley,

Sorry I can't make the AP meeting, but I had a vacation scheduled and we leave that afternoon. I did do a little asking around and got some answers to your list of questions.

1) It's a lot of work to fish for scup because of the size issues (min limits and market driven). You might get more people to fish for scup if there was a 5% allowance for undersized scup.
   Discuss the option to increase the minimum size for scup? It's too hard to move the smaller culls.
   Perhaps we'd come closer to reaching the quota? When squid comes around some people will choose to fish for squid over directing on scup.
   For Fluke and BSB the main issue is the quota, especially for BSB! Happy to have the increase in quota for fluke!

3) Would like to see some research on how to fix the seabass issue for example, look into a dedicated bsb assessment.
4) Possible decrease the scup quota and increase the bsb and fluke quotas

Feel free to reach out to me for any questions.

Thanks!
Katie

Katie Almeida
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www.towndock.com

Kiley Dancy

From: Katie Almeida <kalmeida@towndock.com>
Sent: Thursday, August 29, 2019 9:02 AM
To: Beaty, Julia
Cc: Kiley Dancy; Coutre, Karson; Donald Fox
Subject: RE: Fluke/Scup/BSB

Hi Julia,

I've added Donald Fox in case he'd like to add anything to this response.

Regarding the scup, increase the min size for scup. It's hard to move the smaller fish, right now there isn't a market.

For black sea bass, what I should have said was that we'd like to see a dedicated SURVEY for bsb.

Thanks,
Katie

From: Beaty, Julia <jbeaty@mafmc.org>
Sent: Tuesday, August 27, 2019 10:42 AM
To: Katie Almeida <kalmeida@towndock.com>
Cc: Kiley Dancy <kdancy@mafmc.org>; Coutre, Karson <KCoutre@mafmc.org>
Subject: RE: Fluke/Scup/BSB

Hi Katie,

Sorry to hear that you can't make the AP meeting. I wanted to follow up on some of your comments to make sure I understand them.

Does this statement mean to say decrease (as opposed to increase) the minimum size to allow people to keep more small scup? "Discuss the option to increase the minimum size for scup? It's too hard to move the smaller culls."

I'm also not sure what specifically you are referring to when you say the sea bass issue and what you mean by a dedicated BSB assessment. BSB just went through an operational stock assessment. Do you mean some other type of assessment?

Thanks!

Julia

Julia Beaty
Fishery Management Specialist
Mid-Atlantic Fishery Management Council
800 N. State Street, Suite 201

Kiley Dancy

From: Beaty, Julia
Sent: Monday, August 26, 2019 12:09 PM
To: Kiley Dancy
Subject: FW: COMPLYING ASMFC / STOCK ENHANCEMENT.
Attachments: Scan0596.pdf

-----Original Message-----
From: James Fletcher <unfa34@gmail.com>
Sent: Monday, August 26, 2019 9:55 AM
To: Beaty, Julia <jbeaty@mafmc.org>; Batsavage, Chris <chris.batsavage@ncdenr.gov>
Subject: COMPLYING ASMFC / STOCK ENHANCEMENT.

Ms. Julia add for Baltimore if possible: Discussion of physical waste. ALSO HARD DISCUSSION OF TOTAL LENGTH FOR ALL MAFMC MANAGED SPECIES.
MUST STOP DISCARDS!
Mr. BATSAVAGE, IS ARTICLE 1 OF ASMFC BINDING ON NORTH CAROLINA?

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

THE FISHING INDUSTRY DOES NOT ENDORSE THE PRESENT FORM OF MANAGEMENT FOR SOUTHERN FLOUNDERS.
The management of Southern Flounders; harvesting the large female flounders leaving the slower growing males, has resulted in less fish and smaller fish for harvest.

Therefore the Fishing Industry demands a policy of Stock Enhance for southern flounders be implemented immediately by North Carolina Marine Fisheries in place of regulatory action to restrict harvest.

Yamaha Fisheries Journal 37 published October 1991 outlines the basics for flounder stock enhancement. Southern Flounder: A Hot Candidate for Aquaculture {Coast watch} is published data indicating female fish grow two to three times faster than male flounder.

The Fishing Industry feels that National Marine Fisheries, Councils {Mid Atlantic - New England – South Atlantic; Atlantic States Marine Fisheries Commission have not managed the fisheries to the benefit of the Nation.
Management of fisheries resources by these agencies and the states has resulted in the United States importing 93 % of seafood consumed; Why does the Country with the second largest Exclusive Economic Zone in the world import 93% of seafood consumed?

The Fishing Industry believes Stock enhancement / Ocean Ranching is a logical method for increasing production for Southern Flounder in North Carolina. Stock Enhancement by North Carolina Marine Fisheries or Contracting with the major Hatchery owners of the world should be implemented.

UNITED NATIONAL FISHERMAN'S ASSOCIATION
123 APPLE Rd MANNS HARBOR NC 27953
PH 252-473-3287 CELL 757 435 8475

James Fleetwood

STEVE HOUSE DARE COUNTY COMMISSIONER

2005 North Carolina Code - General Statutes § 113-252. Atlantic States Marine Fisheries Compact and Commission.

§ 113-252. Atlantic States Marine Fisheries Compact and Commission.

The Governor of this State is hereby authorized and directed to execute a compact on behalf of the State of North Carolina with any one or more of the states of Maine, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Delaware, Maryland, Virginia, South Carolina, Georgia, and Florida and with such other states as may enter into the compact, legally joining therein in the form substantially as follows:

ATLANTIC STATES MARINE FISHERIES COMPACT

The contracting states solemnly agree:

Article I

The purpose of this Compact is to promote the better utilization of the fisheries, marine, shell and anadromous, of the Atlantic seaboard by the development of a joint program for the promotion and protection of such fisheries, and by the prevention of the physical waste of the fisheries from any cause. It is not the purpose of this Compact to authorize the states joining herein to limit the production of fish or fish products for the purpose of establishing or fixing the price thereof, or creating and perpetuating monopoly.

Article II

This agreement shall become operative immediately as to those states executing it whenever any two or more of the states of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, South Carolina, North Carolina, Georgia and Florida have executed it in the form that is in accordance with the laws of the executing state and the Congress has given its consent. Any state contiguous with any of the aforementioned states and riparian upon waters frequented by anadromous fish, flowing into waters under the jurisdiction of any of the aforementioned states, may become a party hereto as hereinafter provided.

Definition of *waste* (Entry 2 of 3)

transitive verb

1 : to lay waste especially : to damage or destroy gradually and progressively reclaiming land *wasted* by strip-mining
2 : to cause to shrink in physical bulk or strength : emaciate, enfeeble a body *wasted* by disease
3 : to wear away or diminish gradually : consume
4a : to spend or use carelessly : squander waste valuable resources
b : to allow to be used inefficiently or become dissipated

Waste - definition of waste by The Free Dictionary https://www.thefreedictionary.com/wast

waste (wāst)

v. **wast·ed, wast·ing, wastes**
v.tr.

1. To use, consume, spend, or expend thoughtlessly or carelessly.

2. To cause to lose energy, strength, or vigor; exhaust, tire, or enfeeble: *Disease wasted his body.*

3. To fail to take advantage of or use for profit; lose: *waste an opportunity.*

4.

Organization and development of stock enhancement in Japan

Sugaya, Takuma

Date published: 2006

Springer

Undulated flooring in the rearing tank decreases hypermelanosis in Japanese flounder *Paralichthys olivaceus*

Fisheries Science

November 2017, Volume 83, Issue 6, pp 1027–1035 | Cite as

Original Article Aquaculture

First Online: 23 October 2017

Abstract

In the aquaculture of the Japanese flounder *Paralichthys olivaceus*, hypermelanosis, a malpigmentation condition in which the scales of a significant area on the blind side express the characteristics of those on the ocular side, remains a major concern. Since introducing sand into the rearing tank effectively suppresses hypermelanosis, the inhibitory effects of various characteristics of the surface of the tank floor were investigated. Although an inhibitory effect was observed in both tanks with a sand-image floor and a sand-pasted floor, the strongest effect was found in tanks with a dimpled floor. In addition, covering the inner surface of the tank with net also inhibited hypermelanosis. Using a commercially available corrugated plate, the inhibition of hypermelanosis was confirmed with a noted increase in this effect when combined with light coloration. Juveniles tended to situate themselves in the valley portions of the corrugated plate, suggesting that floor contact with the blind side may contribute to hypermelanosis inhibition. Further observations on the floor contact area with various floor configurations suggested that hypermelanosis is locally suppressed in the areas with floor contact. Therefore, suppression by an undulated (both dimpled and corrugated) floor is likely due to an increase in floor contact area with the blind side.

Southern Flounder: A Hot Candidate for Aquaculture

By PAM SMITH

Sea Grant researchers at North Carolina State University are turning up the heat on Southern flounder to produce all-female cultured stocks. The controlled-breeding method relies on water temperature manipulation during the flounder's early development — not on genetic engineering.

From a pure science standpoint, their research results are important, since most temperature-dependent sex determination has been documented in reptiles, such as some turtles and lizards, and all crocodiles and alligators.

"From an economic standpoint, that is significant," says Russell Borski, a zoology professor and member of the flounder research "dream team."

The production of all-female stock pushes the Southern flounder up a notch as a candidate for aquaculture in North Carolina, he says.

Studies show that female flounder grow two to three times the size of male flounder within two years — a reasonable grow-out period for aquaculture operations. Given the high consumer demand and high world-market value for flounder, the ability to produce larger fish in a short period of time could add up to handsome investment returns.

The production of farm-raised finfish, such as hybrid striped bass, tilapia and trout, is expanding in North

Kiley Dancy

From: Vetcraft Sportfishing <vetcraft@aol.com>
Sent: Monday, August 26, 2019 2:23 PM
To: Kiley Dancy
Subject: Re: Meeting materials for 8/29 Advisory Panel meeting, and additional scheduled AP webinar for 9/24

Kiley.....I would like to submit the following comments for inclusion in the minutes of the August 29, 2019 AP meeting.

First I would like to give you an update for the southern half of New Jersey, the area of which I am most familiar. Our fluke fishing is continuing to worsen each year, with the possibility of the average angler having a keeper size fish, diminishing by the year. I see many of the head boats tied to the dock because they don't have enough patrons to make the trip worthwhile. On the days they do sail, the boat is sparsely populated. Most of the artificial reefs continue to show a diminished number of fluke, with this year being extremely poor.

Charter boats like mine are lucky if we can get one keeper per person on most days. Most charter boats in my area continue to have poor revenue or have gone out of business. The recreational sector is in dire need of an economic incentive to keep the industry afloat. South Jersey has lost its striped bass fishery and fluke is not far behind with the current high size limits.

Another problem that adds to our difficulty is the pressure on the inshore fish by the commercial fleet. I, myself, have seen commercial boats trawling circles around the artificial reefs where I fish, intercepting the fluke before they can take up summer residence on the reefs. Also, this year, when we finally had an influx of fish on some flat bottom, here too the draggers moved in and swept up a lot of the fish.

In fairness to the recreational sector, and to prevent further economic destruction of our sector, I would recommend the following:

1. Allow a minimum size of 16" for all land based anglers, even if the quota were one per person

2. Allow a size parameter (14-16") for one fish so at least anglers will have one fish to take home

3. Establish a 12 mile limit off the southern states (NJ, Del, MD, Va) for dragging activity during the recreational season

For research recommendations, I think we have to put money into researching some basic science facts regarding fluke, as it is hard to correct problems such as low recruitment, regional depletion, dead discards, without a better science base.

1. Determine why recruitment is so poor for fluke.....is it related to the epicenter shift?

2. Determine when the main spawning period is for different lattitudes so the stock can not be removed during its spawning aggregations.

3. Determine fluke migration patterns better so we understand how regional depletion can occur.

4. Find better ways to limit dead discards in the recreational sector.....hook size, circle hooks, etc.

5. Find better ways to limit dead discards in the commercial sector.....Revisit net size (If 75% of fluke retained are over 3 pounds (NOAA stats) does it make sense to use a net size that retains 14" fish, reduction of discarded fluke in non target sectors, etc

Capt Harv
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www.vetcraftsportfishing.com

Kiley Dancy

From: Dustin C. Leaning <DLeaning@asmfc.org>
Sent: Tuesday, August 27, 2019 1:59 PM
To: Art Smith
Cc: BRENT FULCHER; Beaty, Julia; Coutre, Karson; cstarks@asmfc.org; Kiley Dancy
Subject: RE: August 29, 2019 AP meeting

Good Afternoon Art,

Thank you for comments, your feedback is appreciated. We will be sure to incorporate your comments into the fishery performance reports for summer flounder and scup.

Best,
Dustin

From: ARTHUR D SMITH [mailto:artsmith@gotricounty.com]
Sent: Monday, August 26, 2019 4:35 PM
To: Dustin C. Leaning <DLeaning@asmfc.org>
Cc: BRENT FULCHER <bjseafood@earthlink.net>
Subject: August 29, 2019 AP meeting

Good Afternoon Dustin,

My name is Art Smith and I am an AP member from North Carolina. I will not be able to attend the meeting in Baltimore but have reviewed all of the information you provided and would like to offer the following.

If I have reviewed the information correctly it appears all of the stocks are in fairly good shape. I would really like for the councils to try to do something about discards. The reports are telling me that 20% of summer flounder caught commercially are discarded dead. 25% discards multiplied by 80% mortality rate equals 20% dead discards. This is such a waste. The management of the fishery should be changed to allow (require) the fishermen to retain everything they catch even if this means landing fish that are less than 14". You are not going to catch too many undersized fish pulling a 5.5" bag. Some of the discards may be a result of needing 10 baskets to finish your trip and catching 20 baskets on your last tow, but still it is a terrible waste to throw fish overboard.

Also, I was dismayed to see that nearly 7 million pounds of scup were discarded in I believe was 2017. The mortality on these fish is probably close to 100%. These fish should be landed even if the market value is not very great. There is a segment of the seafood consuming public that needs a supply of low priced fresh fish.

I firmly believe that the current gear restrictions and quotas will effectively manage the fish stocks and undersized fish are not the problem.

I realize my concerns are way outside the box of current fisheries management thinking but maybe the thinking needs to change. A dead fish is not going to reproduce so why not land it. Throwing away perfectly fine seafood is such a waste.

Thank you for your time. I appreciate all of the work that you and the other managers do in enhancing the fisheries resources.

Art Smith
North Carolina

Kiley Dancy

From: Dustin C. Leaning <DLeaning@asmfc.org>
Sent: Wednesday, August 28, 2019 9:43 AM
To: Kiley Dancy
Subject: FW: Meeting materials for 8/29 Advisory Panel meeting, and additional scheduled AP webinar for 9/24

From: bjseafood@earthlink.net [mailto:bjseafood@earthlink.net]
Sent: Wednesday, August 28, 2019 7:40 AM
To: Dustin C. Leaning <DLeaning@asmfc.org>
Subject: Re: Meeting materials for 8/29 Advisory Panel meeting, and additional scheduled AP webinar for 9/24

Dustin,
Good Morning. I wanted to let you know that I had planned on being at the meeting today, but some untimely business to come up that prevents me from being present. My thoughts are similar to Art Smiths , as we should reduce our dead discards on both sectors, Recreational and Commercial . My thoughts are we should allow a smaller size limit on Recreational Harvest to help to reduce dead discards. Again sorry I will not be able to be present.
Regards,
Brent Fulcher

Sent from my iPad

Kiley Dancy

From: James Fletcher <unfa34@gmail.com>
Sent: Tuesday, September 3, 2019 9:38 AM
To: Kiley Dancy; Batsavage, Chris
Subject: Environmental endocrinology of salmon smoltification - ScienceDirect

https://www.sciencedirect.com/science/article/pii/S0016648010002418

It occured to me that summer & southern Flounder management needs review by SSC,
IF both soecies spawn in the ocean & larva move inshore then chemicals in the inshore waters can stop inshore migration.
The surfactants used for spruce bud worms affected the Atlantic Salmon. Is the decline in both species of flounder related to chemicals in water preventing inshore migration?
Is North Carolina southern flounder population problem due to CHEMICALS?

IS SPAWNING & RELEASING LARVA INSHORE A SOLUTION?
THE SSC MUST BE ASKED TO COMMENT ON SPRUCE BUD WORM SURFACTANT DECLINE IN SALMON & THE DECLINE IN SOUTHERN & SUMMER FLOUNDER.
WERE THE SMALLER FISH HISTORICALLY CAUGHT OFF N.C. MALE SOUTHERN FLOUNDER THAT CAN NO LONGER MIGRATE OUT OF THE SOUNDS DUE TO CHEMICAL SURFACTANTS?

WOULD RELEASE OF LARVAL FLOUNDER IN SOUND & CHESAPEAKE, DELAWARE BAY PROVE THE PROBLEMS WITH CHEMICALS; ARTICLE 1V OF ASMFC ALLOWS STOCKING.

LARVA STOCKING IS COST EFFECTIVE ! THIS ADVISOR ASK SSC TO COMMENT IN WRITTEN FORM.

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

Kiley Dancy

From: Monty Hawkins <capt.montyhawkins@gmail.com>
Sent: Wednesday, September 4, 2019 9:53 AM
To: Kiley Dancy
Cc: Advisors - SFSBSB; Beaty, Julia; Leaning, Dustin Colson; Coutre, Karson; Rootes-Murdy, Kirby; cstarks@asmfc.org; Luisi, Michael; Boreman, John; Gilbert, Emily; Moore, Christopher; Hare, Jon
Subject: A BSB Comment..

Here a comment to sea bass managers everywhere..
Fishery management is a frustrating bit of business. In my youth there were no regulations at sea. None that I was aware of. From the stories of old-timers, however, it seemed pretty obvious which way things would continue to trend if we didn't act soon.
In 1985 Maryland led the charge with a complete closure on striped bass. The feds followed & acted on stripers too. And then nothing for other species for a long while.
In 1992 I put a boat limit on sea bass - 9 inches. Might sound laughably small now. Was a big deal to many clients then. No one had ever thrown any back before. "They all die anyway!" was one common response; was what I'd been taught too. Yet we'd see little sea bass with even 5 hook wounds in their lip by end of summer. By 1996 I'd tagged thousands with ALS Tagging - one important Result was unexpected: sea bass have nearly absolute habitat fidelity. Even returning to the exact same reef after offshore winter migration.
What we threw back stayed there and would return there next year.
We were throwing back spawners knowing they'd end up in a frying pan before too long.

The single most important reason for choosing 9 inches as a size limit back then was the assertion that "all sea bass have spawned by 9 inches, some twice" that was made to me by a MD State biologist, Nancy Butowski in 1991. Research confirmed what I was already seeing at sea, that many cbass had indeed transitioned to male by 7 1/2 inches. (First I suppose you have to understand nearly all sea bass begin life as female. Only some will switch to male to keep a reef's spawning population in balance.)
What we saw over the next few years in the pre-regulatory era carved it in stone -- Areas where we fished with our own size limit became much better despite heavy pressure. There were many more sea bass. Every artificial reef we built back then filled up with sea bass—and this our greatest period of reef expansion. Tautog were returning in good number too and colonizing every reef we built.
Before management even began on our reef fish, I knew it was going to work. Had already witnessed wonderful success.

With the 9 inch limit, populations grew despite intense fishing pressure. When fed/state management began in 1997 they too went with a 9 inch limit.
Sea bassing got better & better. We were protecting an entire year class of spawners...

So what happened? Why isn't sea bass fishing today just off the charts?
Best I ever saw was in 2002/2003.
In 2003 I limited clients at 25 fish apiece more often than not.

At a huge national meeting a scientist sits at the table and listens ..but not very well.
"So after you began overfishing, how long before sea bass collapsed?"

Numbskull.. In the 1980s we threw nothing back — Ever. When sea bass got tough we killed tog. When tog and sea bass were tough, we boxed up red hake ('ling' in these parts.)
I saw many days with nearly a hundred sea bass a man. Some days where high-hook would have close to 200..
Regulation put an end to all that. THAT's what overfishing looked like - not this tightly regulated mess of today.

Still, with today's far stricter regulation than in early/pre regulation, we now witness far less spawning production.

Here's where management's disconnect comes in. Science has been thrown askew from implausible Recreational Catch Estimates from MRFSS & MRIP.
NOAA asserts the most asinine catches to small private boats. Regular readers will have seen hundreds of examples in my reports.
Here's just one. In November/December 2016/2017 NOAA's MRIP recreational catch estimates show New York's private Boats landing more sea bass, over 3 million pounds in perhaps 20-some fishable early winter days, than All Party/Charter from Hatteras north caught all year..
NY skippers on big-water Partyboats report no such fleet of private boats as to make this a remote possibility.
Those estimates are off by about 3 million pounds..

That's where 'overfishing' comes from today. A computer screen with LOL dumb statistics on it..

We now - and since 2002 - have had a 12 1/2 inch black sea bass size limit because of repeated MRFSS reports where, in the face of steeply declining for-hire catches owing stricter regulation, private boats are calculated to have crushed all sea bass catch records despite increasing regulatory constraints. These assertions of overfishing have triggered management actions to raise the size limit multiple times in other states/regions, and are often accompanied by emergency and routine closures.

It took me a while to piece it together. Why the decline when we were catching vastly fewer fish?
I explored discard mortality in detail. Were our throwbacks at this higher size limit not making it? Commercial pressure spiking where our fish winter?
Was it the little bit of hardbottom habitat loss I'd witnessed as summer flounder regulation finally loosened on trawl gear?
Was it, as many thought; that increasing trap pressure on artificial reefs were forcing a decline?
I explored all these. Our throwbacks do fine. Despite an enormous spike in trawl in late winter 2004, I'd seen no sign of another.
Traps were tightening up because the fish were too. Very unfortunate for reef builders, but the sea bass decline from that early 2000s high was seen broadly across all habitat types - not just artificial reef.
By 2006 I was telling management
that since 2002 the recreational size limit had lowered spawning production.
They still don't get it. May never. Maybe you won't either. But I'll try to explain it!

Management might ask, "Well, what does age at maturity matter so long as we're applying more & more catch restriction? Doesn't taking less result in more?"
Well, No.
It isn't.
And managers believe, to their very soul, that successful fishery management must include BOFF - Big Old Fecund Females. (fecund meaning lots of eggs)
Well, for a long time now we've had larger female sea bass than science even believed existed prior to 2000. Sometimes a client's fish pool winner will be a female - beating all others aboard.

The "Iron-Clad Rule" (Murawski) of fish populations becoming far more numerous if ***fished*** at the appropriate level relies heavily on several simple assumptions that no scientist or manager should make without careful consideration; especially when dealing with reef fisheries: To be true --for fish to become far more numerous-- ***age at maturity*** must either remain constant or its changes factored into management; And the base area, the footprint, of reef habitat must remain ***unchanged or increasing***.
The 'rule' is now being applied with opposite force as fish perceive population characteristics of a mature reef—they look around and see big scary large males that will likely kill or wound them if they switch to male while too young. Their spawning behavior is - SLOW DOWN, there's too many big guys..
Today we rarely see males less than 11.5 inches. Just as they mature they also become legal. There is therefore no longer a spawning size-limit protection. Hasn't been since 2002 when we forced sea bass to mature later.

From the 1996 Chesapeake Bay & Atlantic Coast Black Sea Bass Fishery Management Plan: ***Fifty percent of black sea bass are sexually mature at 7.7 inches*** Available at NSCEP by searching title
From NOAA Technical Memorandum NMFS-NE-143, BSB EFH Source Document: ***50% are mature at about 19 cm SL (7.5 inches) and 2-3 years of age*** (today we know 7.5 inches is early age one) Brien *et al.* 1993..
Also from the EFH Source Document: ***In the South Atlantic Bight, Cupka et al. (1973) reported that both sexes mature at smaller sizes (14-18 cm SL) (5.5 to 7.1inches)***
Able & Fahay "The First Year in the Life of Estuarine Fishes" Pub 1998, citing Lavenda 1949, Mercer 1978 & Werner et al 1986: ***..that matures first as female, then changes to a male at ages of 1 to 8 years:***
That first 9 inch size limit agreed perfectly with my own observations. When lit-up in spawning color, male sea bass -- blue heads or knot heads-- are very simple to spot. It follows that where small 7/8/9 inch sea bass are observed to have transitioned from female to male there ought to be active females of similar or same size. What science claimed *then* was true ***then***: Yes, by 9 inches every sea bass has spawned
The claim some sea bass had even spawned twice made perfect sense to me..
Age at maturity in sea bass is now noticeably older than it used to be: Where we used to see numerous small male sea bass under 9 inches, even as small as 6 3/4 inches; We now see males transitioning mostly at the new size limit, at 12 to 13 inches and only rarely at 9 inches.
It's my understanding that the transition to male is at even larger sizes up north where 15 inch size limits are common.

There was a bad growth curve back then in the science.. Where it says 50***% are mature at about 19 cm SL (7.5 inches) and 2-3 years of age*** we now know those fish are barely age one, not 2 to 3 years of age.
From Mercer 1978: ***"..Black Sea Bass had significantly faster growth rates in the Mid-Atlantic.."***
Early Fishery Management Plans (FMPs) had just 4% of the cbass population over 3 years old (and thought that was 7 1/2 inches?) Because sea bass presently have a 12 1/2 inch size limit (age 3) a large percentage of the population should be age 3 -- In today's fishery only those 3 year olds and a fewer older fish that survive fishing pressure are recruited to the spawning stock, whereas previously virtually every sea bass over 6 months of age was at least trying to spawn.
Whether accelerated spawning experienced for decades in pre/early management was a result of **more young fish spawning** or young fish **learning to spawn earlier** makes no difference: Spawning Was Accelerated, Fish & Fisher Both Benefited.
Now we don't.

Prior to 1997 recreational fishers averaged roughly 4 million sea bass a year with no size limit and no creel limit. Despite my own boat's management beginning in 92, back then very few Mid-Atlantic cbass EVER saw their 3rd birthday. In fact, many were taken before they'd even ***had*** a birthday. But we still averaged 4 million a year in the lowest point of fishing's history, before cbass management had even begun.
Since 2004 I believe we have factually averaged well under a million fish landed per year in the Mid-Atlantic States, all of which were at least 3 or 4 years old.

If habitat, winter trawl & age at maturity had remained constant within the several distinct regional populations, or -far better- were actively managed for productivity, we'd *conservatively* be 2.5 million fish to the good every year just from recreational measures.
The other 50% of cbass quota goes commercial and their catch too is measurably declined from premanagement -- If management were humming along we'd be 5 million cbass to the good *annually.*
Sea bass live about 12 years..
That would be 35 million cbass having escaped harvest just since 2009 - and at least that many again since. Consider too the added boost which should be occurring from spawning population increase..

Yeah, No, it's not working. We're receiving no benefit whatever from catch restriction based management using the most amazingly ludicrous statistics ever called science—what are NOAA's MRIP & MRFSS catch estimates..

We have nicer fish--bigger fish, than the premanagement era, but less of them than straightforward math would have.

Counter-intuitive though it may seem, management has turned spawning activity down to 'simmer' in the Mid-Atlantic via larger & larger size limits--they have unwittingly used spawning biology to reduce the spawning stock size. Owing grossly overinflated catch estimates, Management and science remain unaware their actions are steadily eroding the recreational cbass fishery.
Management overweights assertions of overfishing, favors catch restriction policies to the point of exclusivity:
Tools using biological considerations such as age at spawning/maturity, habitat production & habitat fidelity remain unused.

As Reef populations declined, spawning size regression never occurred. Small fish remain predominantly absent the spawning population

..except for a large scale experiment management didn't see coming.
In 2013 MD Wind Energy Area surveys began.
I complained bitterly that sub-bottom profiler survey equipment was driving sea bass and summer flounder from about 500 sq miles of bottom.
I wasn't guessing. In 2007 I was anchored up and catching like crazy at the Jackspot artificial reef site when a 50 foot state survey boat, run by a good friend, came in to finalize our permit conditions with a survey. That's why I was there - history in the making. (To me at least!)
But when Rick came in for his first leg, the sea bass bite - a magnificent bite - instantly shut off.
Literally like a switch.
I asked him what he'd turned on. "My sub-bottom profiler."
When he turned it back off the bite resumed at a far more tepid pace...
Now picture 150 footers with much more powerful sub-bottom profiler equipment running back and forth 12 miles, day & night, for 3.5 summers..
The fish simply left. They couldn't stand it. The bottom was barren, devoid of sea bass and fluke.
These "sub bottom profilers" are NOT the extremely loud oil/gas survey equipment. Some hold they mimic a gigantic echolocating mammal — a humongous dolphin — and scare fish that way.
I made a video at surveys' conclusion. (YouTube search "Survey effects off Maryland")
I predicted to management that when surveys were over, the entire area would be recolonized and that spawning size of sea bass would regress to that early/pre management size of under 9 inches.
That's exactly what happened. Production shot straight up too. We've enjoyed much better sea bassing the last few years owing, I believe, to a boost in spawning population as age 1 sea bass rejoined the spawning stock on this massive area of uncolonized reef..

We've now worked through it. Saw the very last of the under-9 inch spawners this spring (2019) and none after early July.
We'll now witness spawning production fall again as it must with far-fewer participants in the spawning population.

I believe it is visual cues that drive spawning urge; that larger fishes' presence prevent whatever hormonal response is needed for age 0, 1, & 2 cbass to join the spawning class.
I believe we have managed the black sea bass stock to a point where only a quarter or a fifth of the stock engage in spawning.
May well be less than that...

In 2003 I thought, and wrote, that I believed we were at holding capacity — that we could not possibly have a larger sea bass population along DelMarVa; That our reef habitats couldn't hold anymore..
If readers comprehend "holding capacity" as a function of environment--either in forage or physical dimension--where there simply must be enough to eat; If you can then imagine a reef with no fishing pressure whatever reaching its climax population, a point where natural recruitment of young fish replaces natural mortality — where that reef's population is in balance: If so, then you can imagine a method of doubling that population of fish by simply doubling the size of the reef.

Fishery managers should be interested in means by which they can double a population of fish..

I have several videos on the web that document DelMarVa's remnant natural hardbottoms as well as artificial reef.
(http://www.youtube.com/watch?v=-cMC8JVa2Bk) &
(http://www.youtube.com/watch?v=n77WF9XQRJM&feature=related or YouTube search, "Common seafloor habitats" & "Maryland corals."

Here from a **1961** study: California Fish Bulletin 146, Man-Made Reef Ecology: Summary & Conclusions -- Page 198
Brackets { } are mine, **BOLD** original but emphasized. Parenthesis ( ) & quotes are original.
..it is apparent that "non-productive" areas of nearshore ocean floor can be made "productive" by installation of relief structures {artificial reef}. *Initially, these structures attract fishes from surrounding areas and present a substrate suitable for development of the complex biotic assemblages* {reef growths, e.g. mussels & coral} *typical of natural reefs. As these new reefs mature, biological succession occurs and fishes which may have been initially attracted only to the structures are incorporated into the reef community in response to increasingly available food and shelter.* ***Ultimately (in about 5 years) a natural situation is attained*** *and the plant & animal populations exhibit fluctuations typical of* {natural} *reef ecosystems.*

Artificial reef substrates create natural reef production.

It remains true that there were more sea bass caught from 1950 to 1961 than in all the decades since combined.
Sea bass can never be rebuilt to the population of the 1950s with the habitat footprint of today. They'll never *stay* rebuilt without winter quotas specific to region. Habitat & habitat fidelity —Spawning Site Fidelity — are tools which must be grasped for quota assignment & size limits that maximize spawning potential. We have an ocean to work with; yet, for the most part, Recreational regulation is driven almost solely by catch statistics no one any longer believes.

Lowering the size limit on sea bass to 11 inches would swiftly lower their age at maturity.

We'd soon see a far larger spawning population..

Were NOAA to discover the seafloor reef habitat footprint of the late 1940s and restore it; lower the size limit as a tool to enhance spawning production; use habitat fidelity in quota management: we'd make incredible strides in fisheries abundances - especially sea bass..

Regards,
Monty

Capt. Monty Hawkins
Partyboat Morning Star OCMD
Mhawkins@morningstarfishing.com

Kiley Dancy

From: Monty Hawkins <capt.montyhawkins@gmail.com>
Sent: Wednesday, September 4, 2019 11:30 AM
To: Kiley Dancy; Beaty, Julia; Coutre, Karson; Leaning, Dustin Colson; Rootes-Murdy, Kirby; Gilbert, Emily
Subject: Fwd: An MRIP comment..

And now as an 'adviser'..
Thanks
Monty

Begin forwarded message:

> **From:** Monty Hawkins <capt.montyhawkins@gmail.com>
> **Date:** November 30, 2018 at 6:59:41 AM EST
> **To:** cmoore@mafmc.org, Mike Luisi <Michael.Luisi@Maryland.gov>, Angel Willey -Dnr- <angel.willey@maryland.gov>, sdoctor@dnr.state.md.us, John Boreman <jgboremanjr@gmail.com>, Jon Hare - NOAA Federal <jon.hare@noaa.gov>, john.manderson@noaa.gov, Mary Clark Sabo <msabo@mafmc.org>, Julia Beaty <jbeaty@mafmc.org>, Emily Gilbert <emily.gilbert@noaa.gov>, bmuffley@mafmc.org, Kirby Rootes-Murdy <krootes-murdy@asmfc.org>, Kiley Dancy <kdancy@mafmc.org>
> **Cc:** Frank Blount <Francesflt@aol.com>, Carl Forsberg <lito325@msn.com>, Jeff Gutman <Jgutman28@comcast.net>, Robert Bogan <captbogan@aol.com>, Skip Feller <sfeller3@verizon.net>
> **Subject: An MRIP comment..**
>
> Greetings All,
> This is from my fish report 11/28/18 - some thoughts on recent MRIP sea bass estimates. What was already a bad guess has become unfathomably far from true.
> Regards,
> Monty
> ****
> Shocker: NOAA's taking some very bad guesses at what we recreational fishers catch.
> Yawn..
> But it's a big deal where our quotas are concerned. It's these constant and forever over-estimates by MRIP that have lead to ever stricter regulation.
> So far as sea bass go, we're fortunate to have great managers battling for us along DelMarVa. All states above DE Bay have more restrictive regs. New Jersey is down to just 2 cbass in high summer. MA, RI, CT, & NY all have 15 inch size limits & small bag limits.. We're still at 15 fish at 12.5 inches.
> Truth is, while we have had managers who isolated us from MRIP's madness up north, we're simply lucky we've not had an MRIP recreational catch estimate along DelMarVa showing insane levels of catch that absolutely no one should believe ..It just doesn't matter to NOAA - unbelieved estimates get ground through the system anyway as "Recreational Overfishing."
>
> NY's Nov/Dec Private Boat sea bass harvest in 2016 & 2017 jumped from well below 100,000 pounds to about 3 Million lbs.. That's WAY MORE for just NY's Private Boats THIS TIME OF YEAR than ALL PARTY CHARTER BOATS FROM FLORIDA TO MAINE CAUGHT ALL YEAR! That's 2.7 million more pounds of JUST Private Boat catch, In JUST one state, in two REALLY COLD MONTHS than for All Party/Charter along the whole east coast ALL YEAR.
> Believe that?

NOAA does.. They "Have To" they say.. Fisheries law says NOAA has to use "The Best Scientific Information Available." Because MRIP's estimates are all there is - they use them.

And that, dear reader, is how our recreational sea bass quota disappears.
Nobody believes NY's Private Boat guys caught that. No one.
But when Council is discussing recreational harvest - those numbers are folded right in.
Accused & convicted of overfishing via statistic - NY's recreational fishers had to fight like crazy to keep just 7 sea bass at 15 inches from Sept to December in 2018.
Pretty sure I know what would happen to my trips with a limit like that..

Every couple trips I see a private boat or two this time of year. A hundred fifty miles north, & that much colder, NY's incredible Private Boat sea bass estimate in 2017 is oddly counterbalanced with MRIP showing NY Party/Charter catching just 25,000 pounds of Nov/Dec sea bass. While Private Boats caught almost exactly 3 million pounds in Nov/Dec 2017 - All NY Party/Charter took just 25K lbs..
Really? This time of year I carry a LOT of boat owners who have (wisely!) winterized their boats. The private boat fleet is largely in storage.
Oh sure, some guys are ready - waiting. Looking forward to the winter striper run especially.
But the parking lot behind my boat is getting FULL of boats - all sitting "On The Hard" as some like to say.
NY, apparently, is not that way. Not according to MRIP...

Forcing Bad Statistics into our system of recreational regulation make good science & management impossible. "Overfishing" rears its head Every Year! We're forever going past our allotted quotas.. NOAA makes everyone in system use 'The Best Available Data' - period. Because MRIP is NOAA's recreational catch estimating darling, results will be what they are so long as NOAA's "Must Use MRIP" remains policy - And because management MUST act to PREVENT "overfishing" - for we rec fishers MRIP creates a bad regulatory result - management is always having to further reduce our catch with tighter regs..

The National Academy of Science glows with pride; MRIP issues press release after press release telling managers how great they're doing.

Have a look. This is a tiny fraction of what I see in MRIP - and just for one species!
In the summer of 2000 MRIP says NJ Shore anglers landed just over 200K sea bass. They weighed 5 to a pound. (no bag limit then, just an 11 inch size limit as memory serves. Maybe 10. Wasn't 12 yet.) From that year, 2000, until last summer, 2017, no other sea bass were reported from the NJ Shore -- no NJ sea bass taken from shore at all between 2000 & 2017. But this summer, in 2018, NJ—whose anglers were allowed just two sea bass at 12.5 inches in high summer—is said to have averaged 1.7 pound keepers from shore.
That didn't happen. It's never happened.
It was only 15,500 sea bass. Not enough to disrupt our regulatory flow. But the MRIP system let it though.
Still, those 15K cbass from shore become 26,371 lbs. This is more than MRIP shows for All NJ Party Boats in the same period. It's more than half of what All Party Boats are estimated to have caught throughout the entire Mid-Atlantic region in high summer.

Many of us are targeting sea bass in summer.
I'm pretty sure NJ's dedicated jetty fishers would have been having a time reporting that many "1.7 Pound Average" sea bass from shore.

It's interesting too that 1.7 pounds is half a pound higher than any of NJ's boat caught fish.
Though some Shore anglers are certainly skilled beyond belief, there's just no way NJ Shore anglers could land larger keepers than skilled Party/Charter or Private Boat skippers. It's not how the fish behave.

Back in Sept/Oct 2016 MRIP claimed Maryland had 129,000 sea bass from Shore averaging 1.4 pounds. That's equal to several years worth of MD Party/Charter catch. 178,000 pounds of sea bass from shore - in the internet era - and I could only find one guy, a fellow who fishes down by the inlet frequently; one man who claimed to have caught a legal sea bass. One.
Takes a couple inches beyond our 12.5 inch size limit to make a sea bass 1.4 pounds. There were no 1.4 pound sea bass caught from shore.

In May/June of this year, 2018, there was really only Massachusetts' big spike in Private Boat landings. According to MRIP data NOAA will force managers to use: Just MA's Private Boats, as is so common in MRIP, landed more sea bass during those weeks of open spring season, about 1.5 million MORE pounds, than All Party/Charter Boats in the Mid & North Atlantic will catch all year - All Combined. MA catches over a million and a half more pounds than ALL of last year's For-Hire total..

MRIP's July/Aug 2018 numbers are out now too. They show NY Party/Charter catching just 4.8% of that state's sea bass. RI For Hire had 5.3% - CT 3.5% - DE 3%..

I've written numerous times about how a method of testing MRIP's accuracy could be devised by generating "Percentages of the Fishery" -- what For-Hire and sharp Private Boat skippers think is a fair division of actual catch based on "While Out Fishing Observation." Wherever MRIP is wildly divergent from what skilled anglers perceive as a reasonable percentage calculation; closer scrutiny might call for tossing the number------Or At Least Figuring Out WHY It's So Messed Up!

Professionals have to turn in catch reports daily. Not that MRIP doesn't botch it, but being too far off when We Tell Them What We Caught is inexcusable.
In fact, I believe a BETTER ESTIMATE for some fisheries could be devised using "percentage of the catch" alone.
For Instance: Maryland's For-Hire summer sea bass catch shows 11,000 pounds. MD's summer Private Boat catch estimate in 2018 is zero. Rather than plugging a zero into the system, I think a sit down with fishers actually engaged in the sea bass fishery would show Private Boats catching approximately 20% of our total sea bass landings.
Here MD's Private Boat landings would now become 2,200 pounds.

In NY one skipper recently told me he thought Party/Charter responsible for 60% of that state's sea bass landings. Because NY For-Hire landed 41,574 lbs of sea bass in MRIP estimate; by using percentage of the fishery calculation Private Boats would show 24,944 lbs..
Instead, NY's Private Boats show 825,000 pounds of summer sea bass -- this while anglers were allowed just three fish at 15 inches.
Yes, the number we turn in would have to be examined. And many skippers would have to be consulted - not just one - but a reasonable percentage division could be found..
MRIP has NY For-Hire at 4.8% of the summer sea bass landings. Boy, do I doubt that. No NY skipper I've ever spoken with thought Party/Charter catch was less than 50% in sea bass.

Fisheries are being stolen by bad data.
We really need to fix it.

I've watched fairly closely since 1998. Instead of even minutely better, every repair to recreational catch estimates since 2005 has made the system worse.
Way Worse.

Quota disappears in an electronic puff of bad data.
Shorter seasons/closed seasons/smaller bag limits/longer minimum sizes -- bad data has the helm.
We MUST find a way to allow management to call Bad Statistics! Bad Science!

Better still -- instead of just allowing managers to unglue obviously bad estimates, we ought to also bring MRIP back to earth. Who could guess how many millions of dollars have been lost in the recreational fisheries owing MRIP's bad data - let alone the money squandered creating that data.

Fish do not fall from the sky. They are a product of habitat.
Quota, however, can be sopped-up - completely spent - in a few bad estimates.
Would that NOAA might begin to consider the Mid-Atlantic seafloor's remaining hardbottoms & examine their diminishment over time -- from the period immediately after WWII especially.
It remains true that there were more sea bass caught and sold by the pound from 1950 to 1961 than in all the years since combined.
That's a lot of fish. A huge difference.
Delve into that -- there's where "Fisheries Restoration" will stem from.
Choking off commerce through ever-tightening catch restriction -- by using data no one believes to create an aura of "overfishing" that's simply Not True -- could fairly be said the opposite.
"Fishery," of course. includes the human-use side of a fish population. Shall we settle for whatever population can be mustered via regulations' diminished catch? Or ought we look to the facts of Fisheries Production to discover how in the world sea bass were once so much more prolific..
I tell all who will read: Reef Restoration Makes Fisheries Restorations More Simple!

I witnessed, and my clients very much enjoyed, a wonderful increase in sea bass population when there was still no bag limit at all and the size limit was 9, 10, & 11 inches. Anglers this time of year would often box up over 100 sea bass -- even 200 sometimes!
Know this from that era - the following year there'd be more sea bass in spring than in the previous year..
In 2001 I wrote a piece about the expansion of natural hardbottom habitats from 12 to 30 miles off our coast as summer flounder trawl quota was unfathomably low -- no one was dragging those hardbottoms - they regrew where a hard substrate remained. Cbass were flourishing on those bottoms, and Production, Spawning Production! - was in full gear..
I now believe the story of that population is far more complex - and far more difficult to convince managers of. It turns out that all sea bass scientific papers from before 2000 show sea bass beginning to spawn by age one - 9 inches or less. Sometimes they'd even spawn in their first year of life - what science calls "age zero."
I've chronicled sea bass "age at maturity" shifting to age three (even 4) for many years now. Have written about it extensively.
Understanding why the sea bass fishery remained viable in the era of NO regulation, then positively flourished under light regulation - and is now idling along at perhaps 15 to 20 percent of 2001's spawning production - requires we understand regulation's ability to alter spawning biology.
Or, as NOAA is certainly doing today, claim a restoration victory based on recreational catch restriction -- and these ever-tighter restrictions based on illusions of catch that never happened.

In a couple months we'll see whether MRIP's one arm bandit style of estimating catch will allow regulators to loosen, or force managers to restrict yet again.
We'll be no closer to the truth of fisheries restorations' factual needs - and we'll witness, again, recreational estimates no one believes cartwheel regulation off in new directions.

Regards,
Monty

Capt. Monty Hawkins
mhawkins@morningstarfishing.com
Party Boat Morning Star
Ocean City, Maryland

Sent from my iPhone

Kiley Dancy

From: Monty Hawkins <capt.montyhawkins@gmail.com>
Sent: Wednesday, September 4, 2019 11:35 AM
To: Beaty, Julia; Kiley Dancy; Rootes-Murdy, Kirby; Coutre, Karson; Leaning, Dustin Colson; Gilbert, Emily; Hare, Jon; Moore, Christopher; Beal, Robert
Subject: Fwd: On MRIP's Failing: A Comment

Sent this after a request for comment - "Does MRIP meet standards in 'Quality of Information Act."
You might guess, correctly; I don't think MRIP, I'd printed, is fit to line a bird cage.
As a comment to management in my 'advisor' role please.
Thanks
Monty

Sent from my iPhone

Begin forwarded message:

> **From:** Monty Hawkins <capt.montyhawkins@gmail.com>
> **Date:** July 21, 2019 at 5:26:00 PM EDT
> **To:** RDML Tim Gallaudet <Timothy.Gallaudet@noaa.gov>
> **Cc:** MRIP Comment <nmfs.mrip@noaa.gov>, Chris Oliver <chris.w.oliver@noaa.gov>, Bob Beal <rbeal@asmfc.org>, cmoore@mafmc.org, Mike Luisi <Michael.Luisi@maryland.gov>, Angel Willey -Dnr- <angel.willey@maryland.gov>, linda.barker@maryland.gov, Jon Hare - NOAA Federal <jon.hare@noaa.gov>, sdoctor@dnr.state.md.us, lynn.fegley@maryland.gov
> **Subject: On MRIP's Failing: A Comment**
>
> Greetings Admiral Gallaudet & everyone else too!
>
> *MRIP should be discarded immediately after a hearty public flogging for crimes against fisheries science, fisheries management, & theft of full potential for all US East Coast & Gulf Coast marine recreational fisheries.*
>
> Comment by Capt. Monty Hawkins, Partyboat Morning Star, OC MD, on NOAA's Marine Recreational Information Program--MRIP--which replaced NOAA's previous program, the Marine Recreational Fishing Statistics Survey--MRFFS--in 2012. At question is whether MRIP can be considered scientifically suitable as demanded of the "Quality of Information Act."
>
> NO! MRIP cannot meet any standard of quality, let alone a scientific standard.
>
> Greetings All,
> Having fought for repair of recreational catch estimates since 1998, I cannot imagine a worse result from Congress's 2007 demand that MRFSS be repaired or replaced.
> Where MRFSS was wildly inaccurate, MRIP has blown recreational catch further skyward with such absurdity that even non-fishers can plainly see the impossibly of MRIP's 'new & improved' recreational catch estimates.
> MRIP should be discarded immediately after a hearty public flogging for crimes against fisheries science,

fisheries management, & theft of full potential for all US East Coast & Gulf Coast marine recreational fisheries.

In the event a NOAA reader, or any other, should want to understand how I came to such strong conclusions, I've included a small part of this story below.

Every recreational regulatory tightening for all marine species is based primarily on NOAA's catch estimates. With the regulatory community playing whack-a-mole/close-a-fishery whenever MRFSS showed a sudden increase in recreational landings, fisheries science & marine ecology based fisheries productions never had a chance. So far as I'm concerned, the most important aspects of fisheries restorations remain wholly unfound.

We suffered a 2 week sea bass closure in 1998 when MRFSS showed a million more sea bass caught by NJ Partyboats in 1997.. (Oh? Only a million more? It was routine then for MRFSS to show astronomical estimates in the For-Hire fleet & not at all for Private Boats..)
After several regulatory tightenings, NOAA RA Pat Kurkel closed sea bass by 'emergency' based on MRFSS' estimates in 2009. (This closure very nearly bankrupted me..)
Much of the Mid & North Atlantic's sea bass season remains seasonally closed owing spikes in recreational catch data.
There was an emergency all right - NOAA using bad data to destroy our fiscal potential & blind science to several means of achieving true fisheries restorations.

Closures brutal; further regulatory tightening would ensue after the 2009 closure had expired. Some states now have such restrictive sea bass regulation in place that their fishery may as well be closed.
Make no mistake, MRIP's failings are not just about sea bass. That one reef fishery happens to be my primary fishery. I can examine any marine recreational fishery and swiftly find implausible landings estimates.
As has been the case since 2003, recreational Party/Charter landings are far more stable - & they're required to be reported for each trip. Because professionals are on the water whenever it's fit, we naturally have a better grasp of true fishing pressure; not only from competition, but from private boats as well. Very few fisheries have Private Boat effort greater than Party/Charter's fisheries extractions.

To demonstrate how wildly flawed MRIP's recreational catch data might be, here's an example of comparing the somewhat better known Party/Charter landings from the tautog fishery:
In mid-2010 I was raising a stink about the Wave 2 (March/April) NJ Shore 2010 tautog landings estimate. MRFSS had NJ's shivering early spring anglers catching more tautog (when they Are Not biting from shore!) than All Party/Charter throughout the species full range. At about 64,000 fish, it would have been funny had it not been "science."
Already foremost in mind, this was the very first estimate I checked when MRIP was released in 2012. The new and loudly cheered MRIP had taken a purely ridiculous shore tautog estimate and made it unfathomably impossible — they'd added 100,000 more tautog to NJ's March/April Shore estimate..
But that MRIP nonsense was just the beginning. Now, after MRIP's two "recalibration" events, that same estimate - where a couple fellows are trying to catch NJ's very first shore-caught tog in mid/late April - is now shown as over 800,000 lbs.
That's more tautog in a few weeks from the jetties of one state than All Party/Charter & All Commercial fishers catch ***in a year*** throughout the species entire range.

The estimate still stands. You can look it up.
It's really dumb ..yet shows in grand fashion how an estimate test can be devised; a method of creating Bayesian statistical stops that would hold MRIP's statistical spikes in check.
I've suggested "Percentage of the Catch" comparative testing for nearly 2 decades & especially at meetings prior to MRIP's formation. Ask professional & frequent recreational participants, "What percentage split is seen in the (whatever) fishery between Party/Charter & Private Boat. Using Party/Charter estimates & reported VTR (Federal Vessel Trip Reports) landings to create a fairly hard landings value, it's then simple math to calculate Private Boat landings from participant's suggested percentage values..
(Say a number of Connecticut fishers believe For-Hire catches 70 to 80% of that state's sea bass—from the known value of Party/Charter reported landings & NOAA's estimate, it's a simple calculation to create a catch estimate which also includes the Private Boats' 30%.. The Private Boat catch would never be shown as many-times higher than Party/Charter again..)

Instead of developing an honest look at recreational extraction, however, MRIP's developers instead chose to cower in fear of mighty recreational Shore & Private Boat fishers who, in MRIP's view, are easily capable of outfishing any amount of professional effort -- even, as above, ALL Commercial & Party/Charter combined, and outfish their annual landings in short time-spans — even just weeks.. Management is now more afraid of recreational catch than foreign factory trawlers of yore.

Another example: Black Sea Bass 2017 (here from Fish Report 3/27/19 where I had weeks of work in gathering "Percentage of Catch" info from For-Hire participants in every state between VA & MA and then devised coastal landings estimates state by state; first from MRIP's Party/Charter values and Private Boat Percentage of the Catch, then actual For-Hire VTR reported landings & Private Boat percentages..)
11,447,940 lbs of recreational sea bass was MRIP's actual 2017 value for all recreational sea bass catch north of Cape Hatteras. (Eleven and a half million would be over 3 years of all commercial catch..)
4,160,000 was the catch assigned by Science/Management - Ignoring MRIP (A First! Demonstrates managers' level of trust.. Sea Bass would have been closed for at least 2 years to all recreational effort had the 11.5 million number not been reduced..)
1,961,129 is my total pounds calculation using MRIP's Party/Charter landings & a For-Hire/Private Boat Percentage of the Catch estimate..
1,226,473 if calculated via actual VTR reported values & For-Hire Percentage of the Catch estimate..

MRIP, by my method, is dern-near TEN MILLION POUNDS TOO HIGH in their total estimate.
10.5 Million Pounds is MRIP's 2017 estimate for all Private Boat sea bass effort north of Hatteras.
That's ***Far More*** than ***All Commercial Trawl/Trap & All Party/Charter Landed in 2017..***
Have you EVER heard anyone complain about private boats wiping out a reef's sea bass population? I guess the folks at MRIP sure have..
Conversely, some of MRIP's biggest cheerleaders routinely bash Party/Charter for taking too many fish. Yet, plain as day in MRIP's data, Party/Charter extraction is inconsequential in today's recreational fisheries.
Just one problem: in reality For-Hire effort truly is a powerful extractive force. Far higher than Private Boat in many fisheries, especially sea bass & scup. We even take a dern good chunk of recreational summer flounder & striped bass.
Boy, you'd never know if MRIP tables were your only picture of recreational fishing pressure....

Here's a hint at the evil & wholly uncontrollable overfishing goblins hiding in NOAA's closet & under it's bed - here's what they're afraid of: One of MRIP's lead statisticians told me, (as if I were a bit dull in the

head, and maybe he has a point..) "There are a lot more Private Boats than For-Hire boats. They Have To Catch More Fish."
Oyyyyy... despite the For-Hire recreational fisheries' innumerable NOAA/State Fisheries Permits, (really, there are a LOT of fishing permits needed to take people fishing as a business!) and despite For-Hire's obvious potential for large harvest/catch/landings; and especially despite what we see fishing, where many-many days For-Hire anglers are the only folks soaking a line—especially in shoulder & winter seasons: immediately after the 2003 repair to For-Hire estimates; in 2004 NOAA's official recreational catch estimates began increasing Private Boat to where today MRIP invariably shows Party/Charter For-Hire landings as unworthy of consideration.

In fact, of the last two years (2017 & 2018) For-Hire have, according to MRIP, landed less than 10% of the Mid & North Atlantic's sea bass. (9.7% in 2017 & 7.9% in 2018)
For summer flounder (fluke) it's often less than 5%.. (3.8% in 2017 & 5.4% in 2018)
Why must For-Hire skippers do all this paperwork if there's no real impact on the fisheries? ..at least 'no impact' according to NOAA's MRIP Recreational Catch Data..
My response to, "*There are a lot more Private Boats than For-Hire boats. They Have To Catch More Fish."* is, there are a LOT more people who DO NOT have a boat than do. Not everyone who likes to fish has a boat! Then too, we carry boat owners when their boat's put up for winter, or when they travel..
Yeah, MRIP's got this really messed up.
Using the more precise (but nowhere near perfect) MRIP/VTR For-Hire landings values in conjunction with somewhat loose percentage splits would cast a far better picture of true recreational catch.

A couple more doozies..
Briefly consider NY's Nov/Dec 2016/2017 Private Boat sea bass estimates -- where MRIP claims For-Hire only caught 0.8% of NY's sea bass in early winter 2017 and professional effort was outfished by Private Boats 120 to 1 when NY Private Boats landed 3 million pounds.. Though professional skippers doubt seriously Private Boats catch even 10% of NY Nov/Dec sea bass landings, MRIP has those few NY Private Boats who actually fish in early winter landing nearly the entirety of the annual Mid/North-Atlantic recreational quota.
If the good folks at MRIP had a chart in front of them saying the NY Wave 6 (Nov/Dec) Percentage Split was 90% For-Hire and only 10% Private Boat, that egregious estimate would have never made it to a computer screen.
Even upping it to 20% for Private Boat's share, NY's sea bass tally would have been 31,759 lbs - not 3 million lbs.. Upping it to 50% would not make it much higher.
To achieve that three million pound Private Boat estimate, caught in early winter when I could only get out 21 days in my partyboat, would require 2,496 Private Boats, with everyone catching a limit, going every fishable day.
That would be 357 Private Boats running Every Fishable Day from EACH of NY's inlets w/winter sea bass access.
That sure isn't what those big NY Partyboat operators saw offshore...

While that estimate's ineptitude is glaringly obvious, creating "percentage of the fishery" comparisons offer much finer detail as well.

There's not been any concern for MRIP's 2018 Wave 5 (Sept/Oct) Black Sea Bass recreational catch estimate in Maryland (an estimate I'm deeply familiar with) - MRIP now has 200,036 lbs total for MD Wave 5 sea bass.
Holy Moly!! That's a LOT of sea bass!

But, by MRIP's calculation, only 4.4% of the total catch was by MD For-Hire boats. For every 95.6 pounds of MD Private Boat catch, there'd only be 4.4 pounds of For-Hire Party/Charter sea bass..
I beg to differ.
It should be quite the opposite, if perhaps a tad higher (maybe) for Private Boats. That is, For-Hire should show about 80% of landings for sea bass in Sept/Oct - not a mere 4.4%!
Percentages are funny. Merely jumping For-Hire catch to 9% would more than double For-Hire landings. Since doubling the For-Hire estimate would be HUGE --it's already pretty tight(ish) - we tell NOAA what we caught!-- it seems far more likely an out-of-step estimate would require a lowering (or, on rare occasion, raising) of Private Boat catch.
Here, based on "Percentage of the Catch," MD's actual combined sea bass landings in Sept/Oct 2018 would far more likely be about 11,137 lbs -- not 200,000..

How high has MRIP jacked-up recreational private boat catch?
Here are some MRFSS sea bass tables from 2011, the year before MRIP was released. They were included in my comment titled "Course Correction" from 2011. These tables contain MRFSS "numbers of fish" estimates which Party/Charter fishers actually involved with the sea bass fishery thought wrong in the extreme.
Now shown as incredibly higher, I've added MRIP's latest nonsense in {brackets} beside old version MRFSS estimates.

Species: BLACK SEA BASS - Massachusetts - Wave 3 - May/June - Private Boat Note "0" for both programs in 2006..		
Year	**HARVEST (TYPE A + B1)**	**PSE**
2003	16,282 {35,000}	36.6
2004	17,177 {30,000}	46.7
2005	53,349 {91,000}	32.3
2007	28,281 {37,000}	85.3
2008	65,376 {86,000}	29.1
2009	26,827 {69,000}	38.9
2010	221,028 {1,014,000}	31.3
2011	70,305 {232,000!}	31.6

Species: BLACK SEA BASS - Rhode Island - Wave 3 - May/June - Private Boat		
Year	**HARVEST (TYPE A + B1)**	**PSE**
2003	1,745 {4,000}	46.9
2004	5,686 {7,000}	29.4
2005	6,160 {7,000}	57.2
2006	1,975 {1,000}	70.4
2007	3,601 {2,000}	43
2008	0 {0}	0
2009	989 {2,000}	90.4

2010	36,182 {100,000}	50.7
2011	0 {0}	0

2011 MRFSS
Species: BLACK SEA BASS
- Massachusetts - Wave 4 - July/Aug - Private Boat

Year	HARVEST (TYPE A + B1)	PSE
2003	39,289 {66,982}	36.7
2004	33,003 {45,386}	35.5
2005	43,478 {61,925}	42.6
2006	27,518 {39,079}	44.1
2007	13,062 {10,542}	71.3
2008	13,548 {22,972}	69.4
2009	164,483 {443,502}	25.6
2010	138,748 {251,805}	35.1
2011	31,565 {126,675}	29.3

Species: BLACK SEA BASS - New York - Wave 5 - Sept/Oct - Private Boat

Year	HARVEST (TYPE A + B1)	PSE
2003	101,350 {209,000}	31.7
2004	29,863 {51,000}	49.2
2005	7,749 {7,000}	50.3
2006	58,398 {105,000}	32.7
2007	42,352 {133,000}	25.7
2008	54,352 {161,000}	34.7
2009	105,256 {401,000}	45.1
2010	325,074 {561,000}	24.4

Species: BLACK SEA BASS - New Jersey - Wave 5 - Sept/Oct - Private Boat

Year	HARVEST (TYPE A + B1)	PSE
2003	238,830 {503,000}	22.1
2004	350,981 {781,000}	28.3
2005	73,860{159,000}	43.6
2006	97,767 {164,000}	44
2007	18,116 {15,000}	69.4

2008	160,799 {1,022,000}	35.8
2009	32,815 {161,000}	34.6
2010	234,150 {1,518,000}	44

In 2011 I wrote of these MRFSS estimates: "*Just these 5 data sets, wildly divergent from the mean & incredibly divergent from the historical trend of for-hire fishers catching more sea bass than the private boat fleet; These few sets alone account 812,000 fish above the mean, a substantial part of the modern recreational quota.* ***Just this difference is more than twice as many sea bass as the entire Mid-Atlantic party/charter fleet is said to have caught in all of 2010."***

Now, with MRIP having undergone two "recalibrations," these five single-state/single-mode (Private Boat) two-month 'wave' periods in 2010 are now 2.49 million fish higher than with MRFSS; and, in total, 3.44 million fish are now shown by this pathetic 'repair' of MRFSS.

The true harvest of black sea bass is primarily by Party/Charter.
Even in states like MA where Private Boat harvest is significant, no For-Hire skipper I've spoken with thought Private Boats catch more sea bass except on summer Saturdays when Private Boat effort spikes ..yet MRIP has just these five single wave sets as 2.97 million more sea bass than all Party/Charter's 0.474 million from Cape Hatteras north..
It's quite likely the For-Hire estimate is also too high. Even though we tell NOAA what we caught, they add handsomely to Recreational VTR reported landings - It's the other ghost in NOAA's closet: unreported For-Hire effort.

Did Maryland Shore fishers land 178,000 lbs of sea bass in Sept/Oct 2016 that averaged 1.4 lbs apiece? (No! They caught, near as I can tell, ONE legal sea bass from shore. It was 12.5 inches or a bit over half a pound.)
Did New York Private Boats land six million lbs of sea bass in 2016 & 2017? (No! One state's highly regulated private boats could not land more sea bass than all commercial trawl & trap..)
What's the chance 1.6 M lbs of cod crossed recreational docks from NY Private Boats in hearty winter weather, and their Partyboat fleet didn't get in on it.. (Zero. There's no chance that happened.)
In 2017 MRIP has MA & CT at nearly a million pounds of shore caught striped bass while Rhode Island's shore landings were only 3/4 of a million - but get this - here's the "Average Size" of those shore-caught stripers.. CT 19.6 lbs - MA 33.4 lbs - RI 33.8 lbs..
And the grand prize for "Average" Shore caught stripers is RI in 2018 at 45.1 lbs! (Nice! Would that it were true..)
In Delaware's estimates last year, 2018, sea bass caught from Shore 'averaged' 1.9 lbs! (Yeah, No. That didn't happen either..)

There is No Recreational Marine Species that's not affected by MRIP's estimates. This statistical baloney is positively blinding fisheries science.
It has to stop.
It has to get repaired.
MRIP is the worst possible result from Congress's 2007 intent to repair or replace MRFSS.
MRIP cannot possibly meet the Quality of Information Act's standards.

Regards,
Capt. Monty Hawkins
Partyboat Morning Star

Scup Fishery Information Document

August 2019

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for scup (*Stenotomus chrysops*) with an emphasis on 2018. Data Sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources on scup management, including previous Fishery Information Documents, please visit http://www.mafmc.org/sf-s-bsb/.

Key Facts:

- An assessment update using data through 2016 indicated that the scup stock was not overfished, and overfishing was not occurring in 2016. An updated stock assessment was peer reviewed in August 2019; however, final results from that peer review are not currently available.
- Commercial landings decreased by about 2 million pounds and recreational landings decreased by about 0.6 million pounds from 2017 to 2018.
- Commercial discards decreased by 30% from 2017 to 2018 but remain above average.
- Price per pound increased by $0.12 and total ex-vessel value increased by $0.4 million in 2018.
- Private vessels and anglers fishing from shore caught the majority of the 12.98 million pounds of scup harvested recreationally in 2018.

Basic Biology

Scup are a schooling, demersal (i.e., bottom-dwelling) species. They are found in a variety of habitats in the Mid-Atlantic. Scup essential fish habitat includes demersal waters, areas with sandy or muddy bottoms, mussel beds, and sea grass beds from the Gulf of Maine through Cape Hatteras, North Carolina. Scup undertake extensive seasonal migrations between coastal and offshore waters. They are found in estuaries and coastal waters during the spring and summer. In the fall and winter, they move offshore and to the south, to outer continental shelf waters south off New Jersey. Scup spawn once annually over weedy or sandy areas, mostly off southern New England. Spawning takes place from May through August and usually peaks in June and July.[1]

About 50% of scup are sexually mature at two years of age and about 17 cm (about 7 inches) total length. Nearly all scup older than three years of age are sexually mature. Scup reach a maximum

age of at least 14 years. They may live as long as 20 years; however, few scup older than 7 years are caught in the Mid-Atlantic.[2, 3]

Adult scup are benthic feeders. They consume a variety of prey, including small crustaceans (including zooplankton), polychaetes, mollusks, small squid, vegetable detritus, insect larvae, hydroids, sand dollars, and small fish. The Northeast Fisheries Science Center's (NEFSC's) food habits database lists several predators of scup, including several shark species, skates, silver hake, bluefish, summer flounder, black sea bass, weakfish, lizardfish, king mackerel, and monkfish.[1]

Status of the Stock

A benchmark stock assessment was peer reviewed and approved in 2015. An update to that assessment using commercial and recreational fishery data and fishery-independent survey data through 2016 indicated that the stock was not overfished and overfishing was not occurring. Spawning stock biomass (SSB) was estimated to be 396.6 million pounds in 2016, about 2.1 times the target SSB level (Figures 1 and 2).[3,4]

The NEFSC bottom trawl survey biomass indices for scup in fall 2015 and spring 2016 were record highs for the time series (i.e. 1963 - 2017 for the fall survey and 1968 -2017 for the spring survey). Both seasonal indices decreased after 2016. Several state fisheries-independent surveys show similar trends.[5]

Fishing mortality was estimated to be 0.139 in 2016, 37% below the fishing mortality reference point (Figure 1). The 2015 year class (i.e. those scup spawned in 2015) was estimated to be 252 million fish, about 2.1 times the average recruitment from 1984 to 2016. The 2016 year class is estimated to be 65 million fish, about 47% below the average (Figure 2).[4]

Scup recently underwent an operational assessment for use in management for 2020 and beyond and will be final by the end of August. The assessment will include the revised MRIP values and is expected to change the current biological reference points and estimated biomass and fishing mortality. New assessment information was not available during the development of this fishery information document.

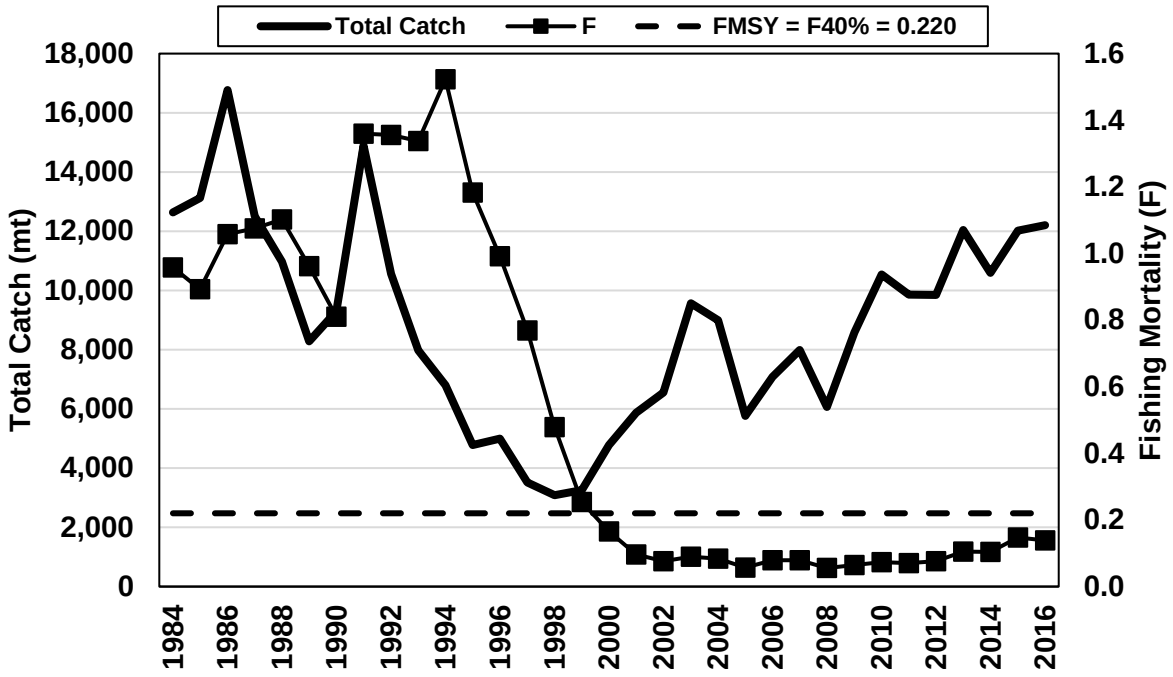

Figure 1: Total fishery catch and fishing mortality rate (F) for fully selected age 3 scup, 1984-2016. The horizontal dashed line is the fishing mortality reference point from the 2015 benchmark stock assessment. Overfishing is occurring when the fishing mortality rate exceeds this threshold.[4]

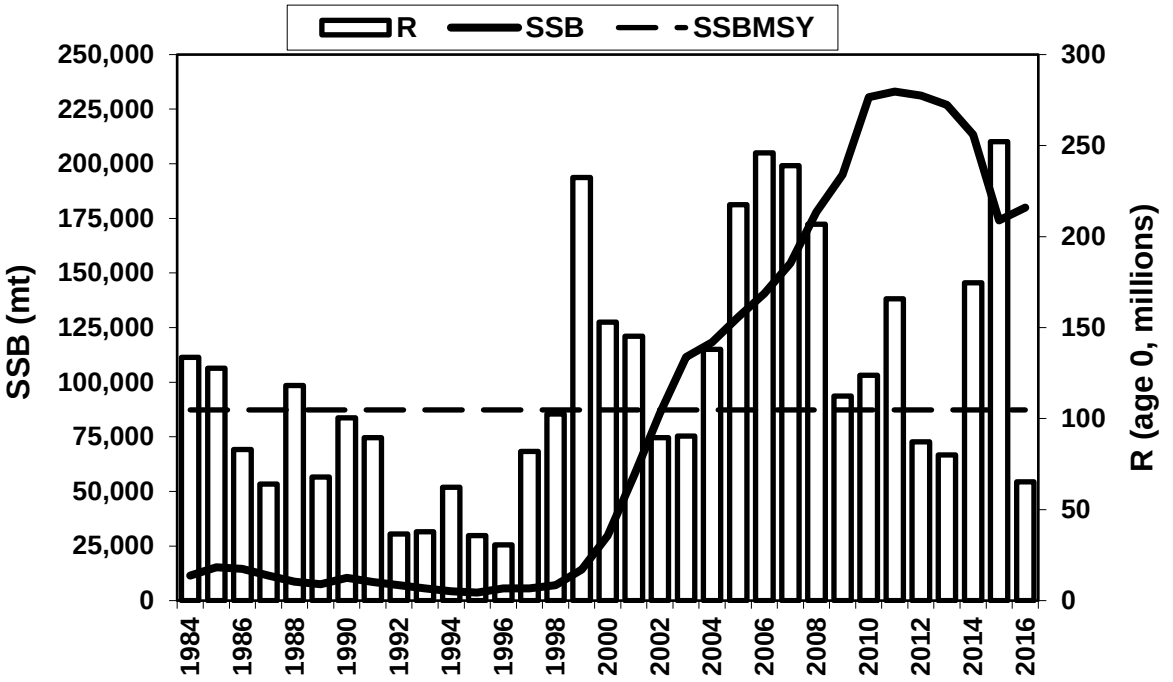

Figure 2: Scup spawning stock biomass and Recruitment, 1984-2016.[4]

Management System and Fishery Performance

Management

The Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission) cooperatively develop fishery regulations for scup off the east coast of the United States. The National Marine Fisheries Service (NMFS) serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore). The management unit for scup includes U.S. waters from Cape Hatteras, North Carolina to the U.S./Canadian border.

The federal Fishery Management Plan (FMP) for scup has been in place since 1996, when scup were incorporated into the Summer Flounder FMP through Amendment 8. Amendment 8 established gear restrictions, reporting requirements, commercial quotas, a moratorium on new commercial scup permits, recreational possession limits, and minimum size restrictions for scup fisheries. The Council has made several adjustments to the FMP since 1996. The FMP and subsequent amendments and framework adjustments can be found at: www.mafmc.org/sf-s-bsb/.

The Council's Scientific and Statistical Committee (SSC) recommends annual Acceptable Biological Catch (ABC) levels for scup. The annual ABC is divided into commercial and recreational Annual Catch Limits (ACLs), based on the allocation percentages prescribed in the FMP (i.e. 78% commercial, 22% recreational). Both ABCs and ACLs are catch-based limits, meaning they account for both landings and discards. Projected discards are subtracted to determine the commercial quota and recreational harvest limit (RHL), which are landings-based limits. Table 1 shows scup catch and landings limits from 2009 through 2019, as well as commercial and recreational landings through 2018.

Total scup landings (commercial and recreational) from Maine to North Carolina peaked in 1981 at over 32 million pounds and reached a low of 6 million pounds in 1998. In 2018, about 26.35 million pounds of scup were landed by commercial and recreational fishermen (Figure 3).[6,7]

Recreational data are available from 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, including a transition from a telephone-based effort survey to a mail-based effort survey. The new estimates of catch and landings are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall scup catch and harvest estimates. The RHLs and other management measures through 2019 were based on the old MRIP estimates. Once the new estimates are incorporated into a peer reviewed and accepted stock assessment (expected August 2019), they will be used to derive RHLs and other management measures for future years.

Table 1: Summary of scup catch limits, landings limits, and landings, 2009 through 2019. Values are in millions of pounds unless otherwise noted.

Measure	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
ABC	11.70	17.09	51.70	40.88	38.71	35.99	33.77	31.11	28.40	39.14	36.43
TAC[a]	15.54	17.09	31.92	--	--	--	--	--	--	--	--
Commercial ACL	--	--	--	31.89	30.19	28.07	26.35	24.26	22.15	30.53	28.42
Commercial quota[b]	8.37	10.68	20.36	27.91	23.53	21.95	21.23	20.47	18.38	23.98	23.98
Commercial landings	8.20	10.40	15.03	14.88	17.87	15.96	17.03	15.76	15.44	13.37	--
% of commercial quota landed	98%	97%	74%	53%	76%	72%	80%	77%	84%	55%	--
Recreational ACL	--	--	--	8.99	8.52	7.92	7.43	6.84	6.25	8.61	8.01
RHL[b]	2.59	3.01	5.74	8.45	7.55	7.03	6.80	6.09	5.50	7.37	7.37
Recreational landings, old MRIP estimates	3.23	5.97	3.67	4.17	5.37	4.43	4.41	4.26	5.42	5.61	--
% of RHL harvested (based on old MRIP estimates)[c]	125%	198%	64%	49%	71%	63%	65%	70%	98%	76%	--
Recreational landings, new MRIP estimates	6.28	12.48	10.32	8.27	12.64	10.27	12.17	10.00	13.54	12.98	

[a] Prior to implementation of the 2011 Omnibus ACLs and AMs Amendment, the Council specified a Total Allowable Catch (TAC). After implementation of this amendment, the Council specified ABCs instead of TACs. Both terms refer to the total catch limit in a given year. The difference between the TAC and the ABC in 2009 is due to NMFS specifying a revised catch limit after new scientific information became available. In 2011, the difference was due to the Council specifying a more conservative limit than that recommended by the SSC.

[b] Commercial quotas and RHLs reflect the removal of projected discards from the sector-specific ACLs. For 2006-2014, these limits were also adjusted for Research Set Aside.

[c] The percent of RHL harvested is based on a comparison of the RHL to the previous or old MRIP estimates. The RHLs did not account for the new MRIP estimates, which were released in July 2018 and were not incorporated into a stock assessment until 2019; therefore, it would be inappropriate to compare past RHLs to the revised MRIP estimates.

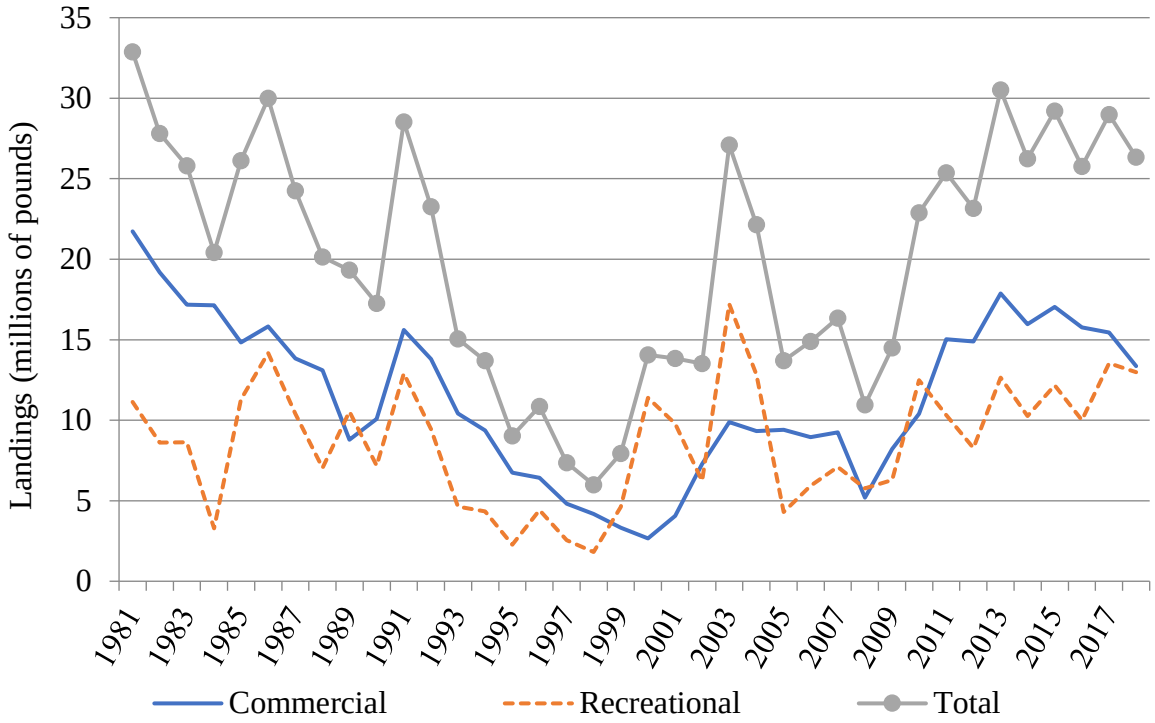

Figure 3: Commercial and recreational scup landings, Maine - North Carolina, 1981-2018. Recreational landings are based on the new MRIP numbers.[6,7]

Commercial Fishery

Commercial scup landings peaked in 1981 at 21.73 million pounds and reached a low of 2.66 million pounds in 2000 (Figure 3). In 2018, commercial fishermen landed 13.37 million pounds of scup, about 55% of the commercial quota.[6]

In 2018, about 7.26 million pounds of scup were discarded in commercial fisheries, representing a 30% decrease from 2017. Commercial discards increased from 2014-2017, peaking at about 10.42 million pounds in 2017. This was the highest number of discards since at least 1981 and resulted in the 2017 commercial ACL being exceeded by about 17% and the ABC being exceeded by about 11%, despite a quota underage. This increase in discards was likely mainly due to the large 2015 year class, which is the largest year class since at least 1984. In 2017, these scup were very abundant, but mostly too small to be landed in the commercial fishery due to the commercial minimum fish size of 9 inches total length.[5]

The commercial scup fishery operates year-round, taking place mostly in federal waters during the winter and mostly in state waters during the summer. A coast-wide commercial quota is allocated between three quota periods, known as the winter I, summer, and winter II quota periods. These seasonal quota periods were established to ensure that both smaller day boats, which typically operate near shore in the summer months, and larger vessels operating offshore in the winter months can land scup before the annual quota is reached. The dates of the summer and winter II periods were modified in 2018 (Table 2). Both winter periods are managed under a coastwide quota while the summer period quota is divided among states according to the allocation percentages outlined in the Commission's FMP (Table 3).

Once the quota for a given period is reached, the commercial fishery is closed for the remainder of that period. If the full winter I quota is not harvested, unused quota is added to the winter II period. Any quota overages during the winter I and II periods are subtracted from the quota allocated to those periods in the following year. Quota overages during the summer period are subtracted from the following year's quota only in the states where the overages occurred.

A possession limit of 50,000 pounds is in effect during the winter I quota period. A possession limit of 12,000 pounds is in effect during the winter II period. If the winter I quota is not reached, the winter II possession limit increases by 1,500 pounds for every 500,000 pounds of quota not caught during winter I. The winter II possession limit was 28,500 pounds in 2018 due to quota rollover from the winter I period. During the summer period, various state-specific possession limits are in effect.

The commercial scup fishery in federal waters is predominantly a bottom otter trawl fishery. In 2018, about 97% of the commercial scup landings (by weight) reported on VTRs were caught with bottom otter trawls. Pots/traps accounted for about 1.7% of landings while all other gear types each accounted for less than 1% of the 2018 commercial scup landings.[9]

In 2018, trawl vessels could not possess 1,000 pounds or more of scup during October - April, or 200 pounds or more during May - September, unless they use a minimum mesh size of 5-inch diamond mesh, applied throughout the codend for at least 75 continuous meshes forward of the terminus of the net. In 2019, another threshold period was added from April 15-June 15 with a 2,000 pound possession limit to allow for higher retention in the small-mesh squid fishery (Table 4).

Pots and traps for scup are required to have degradable hinges and escape vents that are either circular with a 3.1 inch minimum diameter or square with a minimum length of 2.25 inches on the side.

VTR data suggest that NMFS statistical areas 537, 539, 611, 612, 613, and 616 were responsible for the largest percentage of commercial scup catch in 2018. Statistical area 539, off Rhode Island, had the highest number of trips which caught scup (Table 5, Figure 4).[9]

Over the past two decades, total scup ex-vessel revenue ranged from a low of $2.36 million in 2000 to a high of $10.77 million in 2015. In 2018, 13.37 million pounds of scup were landed by commercial fishermen from Maine through North Carolina. Total ex-vessel value in 2018 was $9.70 million, resulting in an average price per pound of $0.73. All revenue and price values were adjusted to 2018 dollars to account for inflation.[6]

In general, the price of scup tends to be lower when landings are higher, and vice versa (Figure 5). This relationship is not linear and many other factors besides landings also influence price. The highest average price per pound over the past two decades was $1.46 ($1.00 in 2018 dollars) and occurred in 1998. The lowest mean price per pound was $0.55 ($0.50 in 2018 dollars) and occurred in 2013.[6]

Over 176 federally-permitted dealers from Maine through North Carolina purchased scup in 2018. More dealers in New York purchased scup than in any other state (Table 6).[6]

At least 100,000 pounds of scup were landed by commercial fishermen in 17 ports in 6 states in 2018. These ports accounted for approximately 93% of all 2018 commercial scup landings. Point Judith, Rhode Island was the leading port, both in terms of landings and number of vessels landing scup (Table 7).[6] The ports and communities with the greatest participation in the scup fishery are

described in Amendment 13 to the FMP (available at **http://www.mafmc.org/sf-s-bsb/**). Detailed community profiles developed by the Northeast Fisheries Science Center's Social Science Branch can be found at **www.mafmc.org/communities/**.

A moratorium permit is required to fish commercially for scup. In 2018, 618 vessels held commercial moratorium permits for scup.[10]

Table 2: Dates, allocations, and possession limits for the commercial scup quota periods. Winter period possession limits apply in both state and federal waters.

Quota Period	Dates	% of commercial quota allocated	Possession limit
Winter I	January 1 – April 30	45.11%	50,000 pounds, until 80% of winter I allocation is reached, then reduced to 1,000 pounds.
Summer	May 1 – September 30*	38.95%	State-specific
Winter II	October 1 – December 31*	15.94%	12,000 pounds. If winter I quota is not reached, the winter II possession limit increases by 1,500 pounds for every 500,000 pounds of scup not landed during winter I.

*Prior to 2018, the summer period was May 1 - October 31 and the winter II period was November 1 - December 31, with the same allocations as shown above.

Table 3: State-by-state quotas for the commercial scup fishery during the summer quota period (May-September).

State	Share of summer quota
Maine	0.1210%
Massachusetts	21.5853%
Rhode Island	56.1894%
Connecticut	3.1537%
New York	15.8232%
New Jersey	2.9164%
Maryland	0.0119%
Virginia	0.1650%
North Carolina	0.0249%
Total	99.9908%

Table 4: Changes in scup small mesh incidental possession limit for the commercial fishery from 2018-2019.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2018	1,000 lb				200 lb					1,000 lb		
2019	1,000 lb			2,000 lb			200 lb			1,000 lb		

Table 5: Statistical areas which accounted for at least 5% of the total commercial scup catch (by weight) in 2018, with associated number of trips.[9]

Statistical area	% of 2018 commercial scup catch	Number of trips
616	27%	823
537	20%	988
539	14%	2,628
613	14%	1,217
611	8%	2,016
612	7%	627

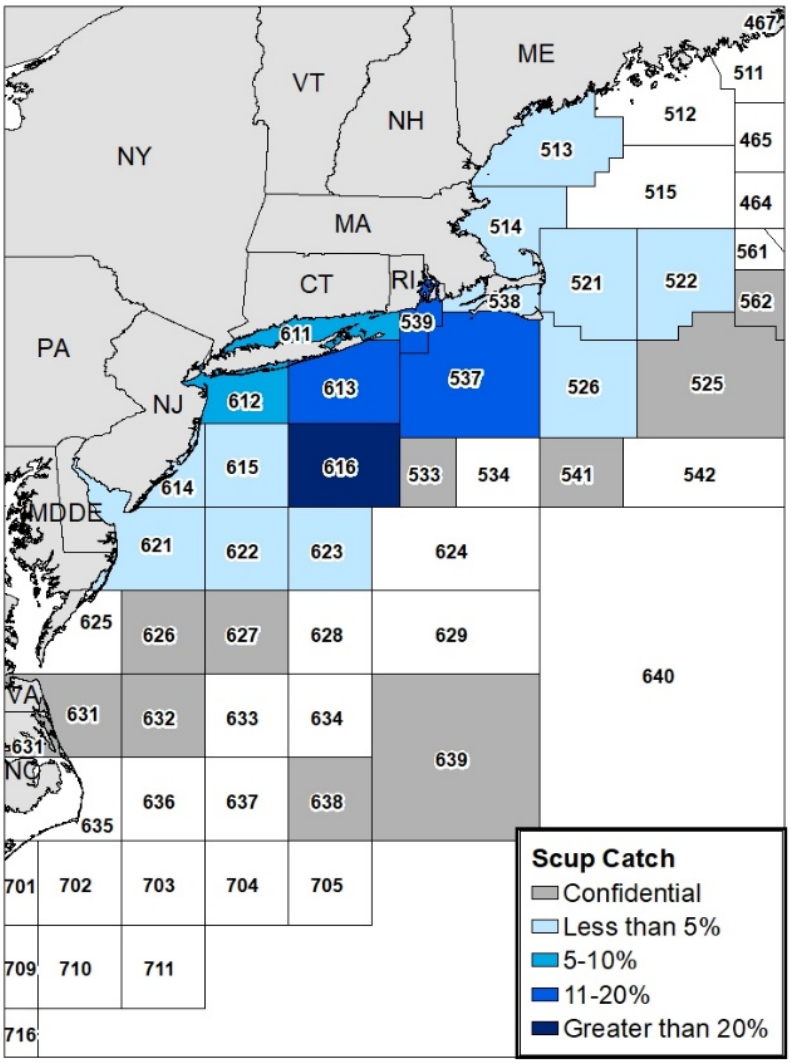

Figure 4: Proportion of scup catch by statistical area in 2018. Statistical areas marked "confidential" are associated with fewer than three vessels and/or dealers. [9]

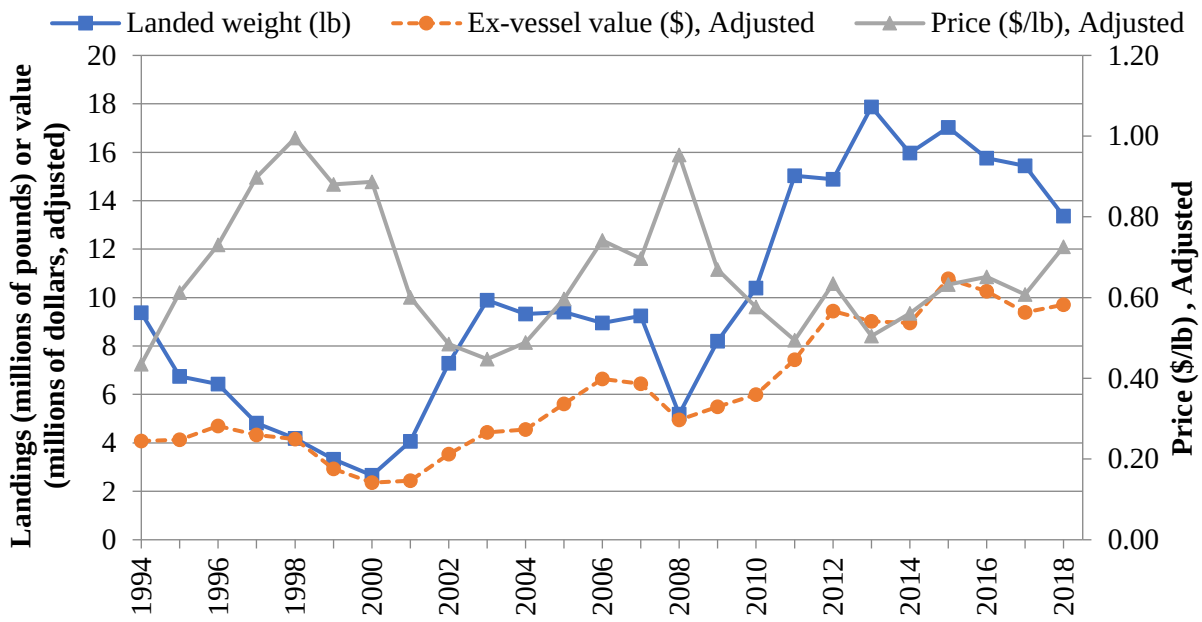

Figure 5: Landings, ex-vessel value, and price for scup from Maine through North Carolina, 1994-2018. Ex-vessel value and price are adjusted to show real 2018 dollars using the Gross Domestic Product Price Deflator.[6]

Table 6: Number of dealers per state which reported purchases of scup in 2018. C = Confidential.[6]

State	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC
Number of Dealers	C	32	31	14	48	20	C	5	11	15

Table 7: Ports reporting at least 100,000 pounds of scup landings in 2018, based on NMFS dealer data. C = Confidential.[6]

Port	Scup Landings (lb)	% of total commercial scup landings	Number of vessels
POINT JUDITH, RI	3,947,294	30%	136
MONTAUK, NY	2,406,758	18%	78
PT. PLEASANT, NJ	2,159,292	16%	37
NEW BEDFORD, MA	1,116,915	8%	60
STONINGTON, CT	428,232	3%	17
LITTLE COMPTON, RI	394,109	3%	11
MATTITUCK, NY	341,233	3%	4
NEW LONDON, CT	264,862	2%	10

HAMPTON, VA	258,591	2%	41
HYANNIS, MA	179,220	1%	10
NEWPORT, RI	154,140	1%	12
AMMAGANSETT, NY	153,223	1%	C
BELFORD, NJ	144,198	1%	20
HAMPTON BAYS, NY	134,307	1%	33
CHINCOTEAGUE, VA	132,210	1%	13
CAPE MAY, NJ	127,329	1%	24
GREENPORT, NY	102,215	1%	C

Scup Gear Restricted Areas

Two scup gear restricted areas (GRAs) were first implemented in 2000 with the goal of reducing scup discards in small-mesh fisheries. The GRA boundaries have been modified multiple times since their initial implementation. The current boundaries are shown in Figure 6. Trawl vessels may not fish for or possess longfin squid, black sea bass, or silver hake in the Northern GRA from November 1 – December 31 and in the Southern GRA from January 1 – March 15 unless they use mesh which is at least 5 inches in diameter. The GRAs are thought to have contributed to the recovery of the scup population in the mid- to late-2000s.[8] As previously stated, commercial scup discards increased by 71% between 2016 and 2017, likely due to the large 2015 year class.[5] Although discards decreased by about 30% in 2018, they still remain well above average. Further analysis is needed to evaluate the impact of the GRA modification on commercial scup discards in 2017 and 2018.

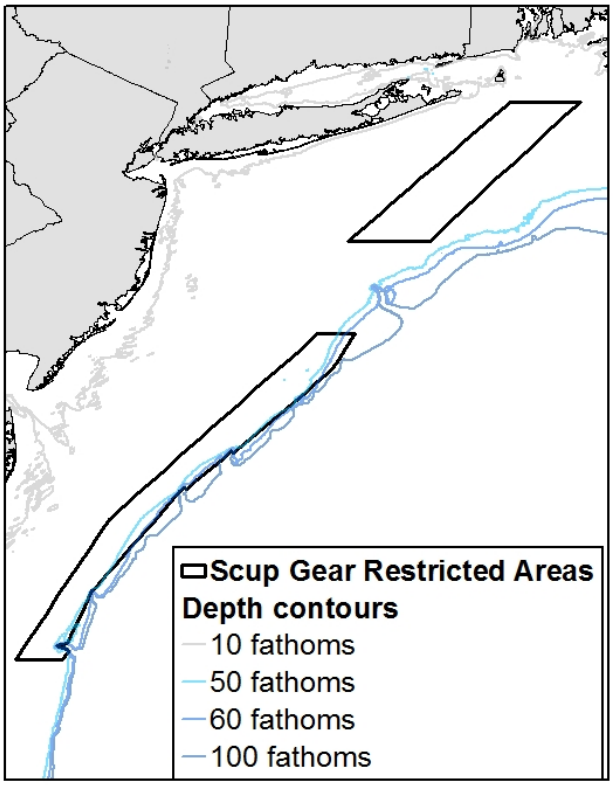

Figure 6: The Scup Gear Restricted Areas.

Recreational Fishery

The recreational scup fishery is managed on a coast-wide basis in federal waters. Current federal regulations include a minimum size of 9 inches total length, a year-round open season, and a possession limit of 50 scup (Table 8). These measures have been unchanged since 2015.

As previously described, MRIP released a revised time series of recreational fishery data in July 2018. The revised catch, harvest, and effort estimates for scup are substantially higher than the previous estimates. Information presented in this section is based on the new estimates.

The Commission applies 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 recreational harvest limit. The minimum fish size, possession limit, and open season for recreational scup fisheries in state waters vary by state. State waters measures remained unchanged from 2015 through 2017. Massachusetts through New Jersey liberalized their minimum size limits and/or seasons in 2018 compared to 2017 and there were very minor changes in the state regulations from 2018 to 2019 (Tables 9 and 10).

From 1981-2018, recreational catch of scup peaked in 2017 at 41.20 million scup and landings peaked in 1986 with an estimated 30.43 million scup landed by recreational fishermen from Maine through North Carolina. Recreational catch was lowest in 1998 when an estimated 6.86 million scup were caught and 2.74 million scup were landed. Recreational anglers from Maine through North Carolina caught an estimated 30.37 million scup and landed 14.55 million scup (about 12.98 million pounds) in 2018 (Table 11).[7]

Vessels carrying passengers for hire in federal waters must obtain a federal party/charter permit. In 2018, 731 vessels held scup federal party/charter permits. Many of these vessels also held party/charter permits for summer flounder and black sea bass.[10]

Most recreational scup catch occurs in state waters during the warmer months when the fish migrate inshore. Between 2016 and 2018, about 96% of recreational scup landings (in numbers of fish) occurred in state waters and about 4% occurred in federal waters (Table 12). New York, Massachusetts, Connecticut, Rhode Island, and New Jersey accounted for over 99.9% of recreational scup harvest in 2018 (Table 13).[7]

About 48% of recreational scup landings (in numbers of fish) in 2018 were from anglers who fished on private or rental boats. About 9% were from anglers fishing on party or charter boats, and about 43% were from anglers fishing from shore (Table 14).[7]

Table 8: Federal recreational measures for scup, 2005-2019.

Regulation	2005-2007	2008-2009	2010-2011	2012	2013	2014	2015-2019
Minimum size (total length)	10 in.	10.5 in.	10.5 in.	10.5 in.	10 in.	9 in.	9 in.
Possession limit	50	15	10	20	30	30	50
Open season	Jan 1–Feb 28 & Sept 18 – Nov 30	Jan 1–Feb 28 & Oct 1–Oct 31	Jun 6 – Sept 26	Jan 1 – Dec 31	Jan 1 – Dec 31	Jan 1 – Dec 31	Jan 1 – Dec 31

Table 9: State recreational fishing measures for scup in 2018.

State	Minimum Size (inches)	Possession Limit	Open Season
MA	9	30 fish; 150 fish/vessel with 5+ anglers on board	May 1-December 31
MA (party/charter)	9	45 fish	May 1-June 30
		30 fish	July 1-December 31
RI (private & shore)	9	30 fish	May 1-December 31
RI shore program (7 designated shore sites)	8		
RI (party/charter)	9	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
CT (private & shore)	9	30 fish	May 1-December 31
CT shore program (46 designated shore sites)	8		
CT (party/charter)	9	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
NY (private & shore)	9	30 fish	May 1-December 31
NY (party/charter)	9	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
NJ	9	50 fish	January 1-December 31
DE	8	50 fish	January 1-December 31
MD	8	50 fish	January 1-December 31
VA	8	30 fish	January 1-December 31
NC, North of Cape Hatteras (N of 35° 15'N)	8	50 fish	January 1-December 31

Table 10: State recreational fishing measures for scup in 2019.

State	Minimum Size (inches)	Possession Limit	Open Season
MA (private & shore)	9	30 fish; 150 fish/vessel with 5+ anglers on board	April 13-December 31
MA (party/charter)	9	30 fish	April 13-April 30; July 1-December 31
		50 fish	May 1-June 30
RI (private & shore)	9	30 fish	January 1-December 31
RI shore program (7 designated shore sites)	8		
RI (party/charter)	9	30 fish	January 1-August 31; November 1-December 31
		50 fish	September 1-October 31
CT (private & shore)	9	30 fish	January 1-December 31
CT shore program (45 designed shore sites)	8		
CT (party/charter)	9	30 fish	January 1-August 31; November 1-December 31
		50 fish	September 1-October 31
NY (private & shore)	9	30 fish	January 1-December 31
NY (party/charter)	9	30 fish	January 1-August 31; November 1-December 31
		50 fish	September 1- October 31
NJ	9	50 fish	January 1- December 31
DE	8	50 fish	January 1-December 31
MD	8	50 fish	January 1-December 31
VA	8	30 fish	January 1-December 31
NC, North of Cape Hatteras (N of 35° 15'N)	8	50 fish	January 1-December 31

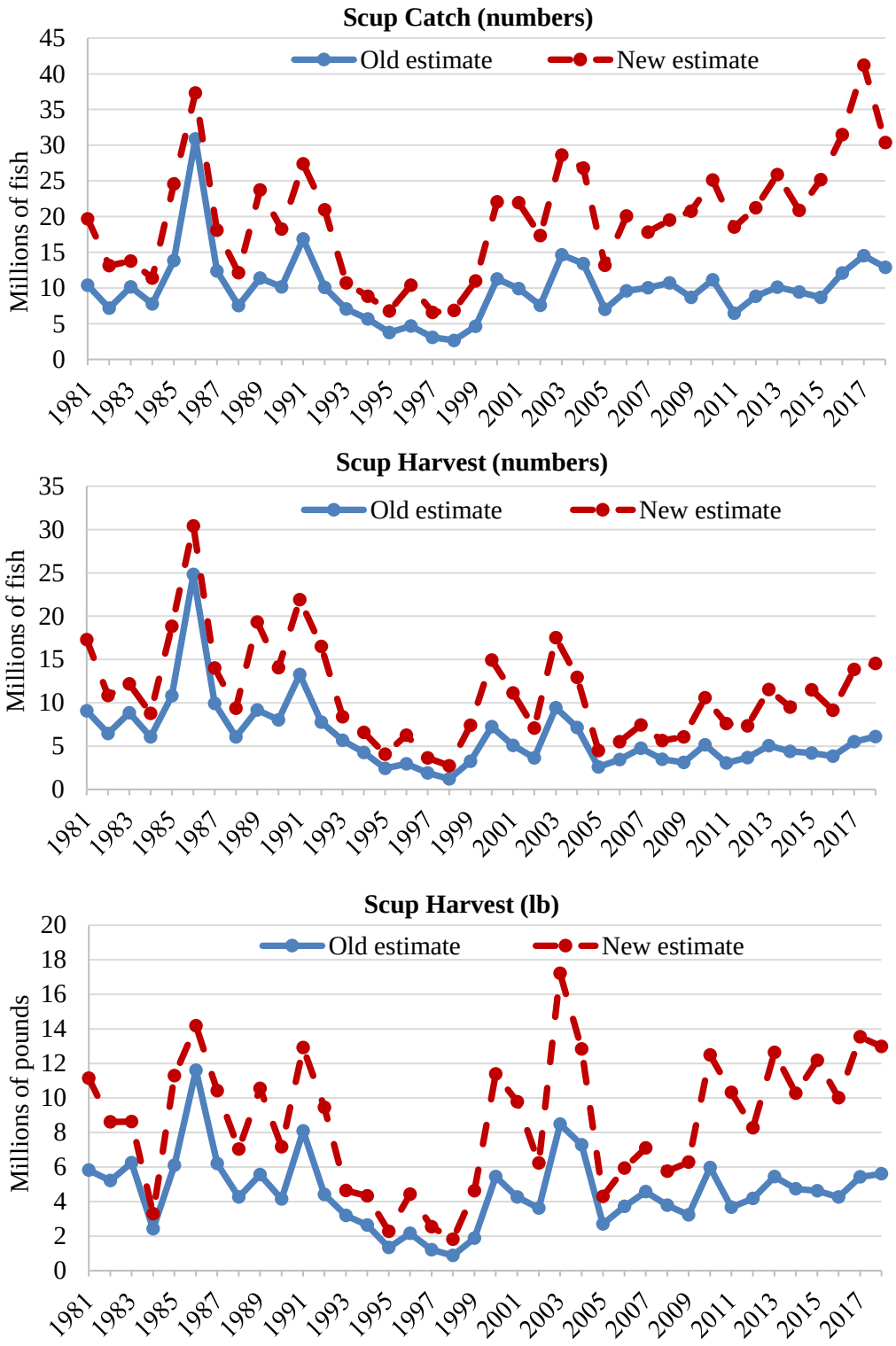

Figure 7: Old and new MRIP estimates of recreational scup catch in numbers of fish and harvest in numbers of fish and pounds, ME - NC, 1981 - 2018. 2018 old MRIP values are back-calibrated, as MRIP stopped producing estimates using the old methodology after 2017.[7]

Table 11: Estimated recreational catch and harvest of scup, Maine - North Carolina, 2009- 2018, based on the revised MRIP estimates.[7]

Year	Recreational catch (millions of fish)	Recreational harvest (millions of fish)	Recreational harvest (millions of pounds)	% of catch retained
2009	20.75	6.06	6.28	29%
2010	25.13	10.60	12.48	42%
2011	18.52	7.60	10.32	41%
2012	21.24	7.33	8.27	35%
2013	25.88	11.55	12.64	45%
2014	20.89	9.49	10.28	45%
2015	25.15	11.50	12.17	46%
2016	31.49	9.14	10.00	29%
2017	41.20	13.85	13.54	34%
2018	30.38	14.55	12.98	48%

Table 12: Estimated percent of scup (in numbers of fish) caught by recreational fishermen in state and federal waters, Maine - North Carolina, 2009 - 2018, based on the revised MRIP estimates.[7]

Year	State waters	Federal waters
2009	95.6%	4.4%
2010	94.4%	5.6%
2011	98.5%	1.5%
2012	99.7%	0.3%
2013	96.3%	3.7%
2014	96.5%	3.5%
2015	98.9%	1.1%
2016	93.5%	6.5%
2017	96.0%	4.0%
2018	96.2%	3.8%
2009-2018 average	**96.6%**	**3.4%**
2016-2018 average	**95.2%**	**4.8%**

Table 13: Recreational scup harvest by state, 2016- 2018. Percentages were calculated based on numbers of fish using the revised MRIP estimates.[7]

State	2016	2017	2018	2016-2018 average
Maine	0%	0%	0%	0%
New Hampshire	0%	0%	0%	0%
Massachusetts	20%	15%	22%	19%
Rhode Island	17%	10%	16%	14%
Connecticut	15%	12%	21%	16%
New York	40%	47%	37%	41%
New Jersey	7%	16%	3%	9%
Delaware	0%	0%	0%	0%
Maryland	0%	0%	0%	0%
Virginia	2%	0%	0%	1%
North Carolina	0%	0%	0%	0%

Table 14: Scup harvest (in numbers of fish) by recreational fishing mode, Maine - North Carolina, 1981 - 2018, based on the revised MRIP estimates. Some percentages do not sum to 100% due to rounding.[7]

Year	Shore	Party/charter	Private/rental	Total number
1981	17%	5%	77%	17,309,466
1982	27%	19%	54%	10,833,209
1983	48%	15%	37%	12,189,399
1984	39%	1%	59%	8,780,949
1985	17%	1%	82%	18,840,079
1986	20%	5%	75%	30,431,320
1987	13%	2%	85%	14,030,573
1988	20%	7%	73%	9,388,288
1989	25%	10%	64%	19,324,847
1990	18%	9%	74%	14,040,609
1991	31%	7%	62%	21,904,578
1992	27%	8%	65%	16,496,804
1993	17%	18%	65%	8,403,033
1994	14%	9%	77%	6,614,976
1995	31%	10%	59%	4,063,825
1996	8%	5%	86%	6,266,685
1997	18%	13%	69%	3,664,972
1998	23%	5%	72%	2,738,577
1999	14%	15%	71%	7,413,091
2000	19%	8%	73%	14,942,137
2001	33%	12%	54%	11,132,587
2002	31%	15%	54%	7,074,231
2003	17%	9%	74%	17,519,824
2004	25%	12%	63%	12,943,178
2005	24%	4%	73%	4,499,104
2006	20%	10%	71%	5,521,170
2007	15%	8%	77%	7,459,506
2008	22%	20%	58%	5,650,033
2009	14%	18%	68%	6,064,112
2010	18%	13%	70%	10,598,648
2011	22%	7%	72%	7,598,242
2012	14%	16%	69%	7,334,845
2013	34%	15%	51%	11,547,027
2014	20%	15%	65%	9,493,673
2015	17%	8%	76%	11,498,783
2016	34%	10%	56%	9,143,579
2017	23%	11%	65%	13,845,319
2018	43%	9%	48%	14,546,549
1981-2018 average	**23%**	**10%**	**67%**	**11,082,838**
2016-2018 average	**34**%	**10**%	**56**%	**12,511,816**

References

[1] Steimle, F.W, C. A. Zetlin, P. L. Berrien, D. L. Johnson, S. Chang. 1999. Essential Fish Habitat source document: Scup, *Stenotomus chrysops*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-149; 39 p.

[2] Northeast Data Poor Stocks Working Group. 2009. The northeast data poor stocks working group report, part A: skate species complex, deep sea red crab, Atlantic wolf fish, scup, and black sea bass. Northeast Fish Science Center Reference Document 09-02; 496 p. Available at: http://www.nefsc.noaa.gov/publications/crd/crd0902/.

[3] Northeast Fisheries Science Center. 2015. 60th Northeast Regional Stock Assessment (60th SAW) assessment report. Northeast Fisheries Science Center Reference Document 15-08. Available at: http://www.nefsc.noaa.gov/publications/.

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

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

[6] Unpublished NMFS dealer data (i.e., "AA tables", which include both state and federal dealer data).

[7] Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed July 2019. Available at: https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index.

[8] Terceiro, M., A. Miller. 2014. Commercial fishery scup discarding and the Gear Restricted Areas (GRAs). White paper for the Mid-Atlantic Fishery Management Council. 30 p.

[9] Unpublished NMFS Vessel Trip Report data.

[10] Unpublished NMFS permit data.