Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
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MEMORANDUM

Date: July 29, 2020

To: Council and Board

From: Karson Coutre, Staff

Subject: Scup Commercial Discards Report

The Council and Board will review commercial scup discards on Tuesday, August 11, 2020. Materials listed below are provided for the Council and Board's consideration of this agenda item.

1) 2020 Commercial Fishery Scup Discard Report

A Monitoring Committee meeting summary from their July 27, 2020 meeting will be added to the supplemental meeting materials on the August meeting page under the Summer Flounder 2021 Specifications agenda item (Tab 5).

Commercial Fishery Scup Discard Report

2020

Background

This document focuses on scup discards in the commercial fishery estimated using the methodology that was peer-reviewed and approved in the 2015 benchmark stock assessment. Scup trawl discards are estimated by calendar quarter, statistical area, and three mesh categories: large (i.e. 5" or greater), small (i.e. smaller than 5" but larger than 2.125"), and squid (i.e. 2.125" or less). Estimated discards are calculated using observer, VTR, and dealer data (NEFSC 2015). Commercial discards for other gear types are not estimated in this manner and are not incorporated into the stock assessment since other gear types account for comparatively small amounts of scup catch.

The scup Gear Restricted Areas (GRAs) became effective November 2000 and have been modified several times. They were designed to reduce bycatch of juvenile scup in small mesh fisheries. Currently, the Southern GRA is in effect from January 1 - March 15. The Northern GRA is in effect from November 1 - December 31. The most recent change in boundary of southern scup GRA became effective January 1, 2017 (Figure 1). Vessels fishing in the GRAs during the affected times of year may not fish for, possess, or land longfin squid, black sea bass, or silver hake/whiting unless they use diamond mesh of at least 5 inches in diameter.

Effective January 1, 2016, the incidental scup possession limit for trawl vessels using mesh smaller than 5 inches in diameter during November-April increased from 500 pounds to 1,000 pounds. This change was intended to reduce scup discards considering the large increase in scup biomass since this regulation was last changed. Effective January 1, 2019, the incidental scup possession limit from April 15-June 15 was further increased to 2,000 pounds to allow the spring small mesh inshore fisheries for longfin squid to retain, rather than discard, more of the scup they catch incidentally.

The 2015 year class was estimated to be 326 million fish, the largest year class in the assessment time series since 1984 (NEFSC 2019). In 2017, these fish were mostly too small (< 8 inches/ <20 cm) to be landed in the commercial fishery (Mark Terceiro, NEFSC, personal communication). However, by 2018, they should have been fully recruited to the fishery (i.e. at least 9 inches in length). Recruitment decreased during 2016-2018. Based on the 2019 operational assessment, spawning stock biomass (SSB) is projected to further decrease toward the target unless more above average year classes recruit to the stock in the short term (Figure 2).

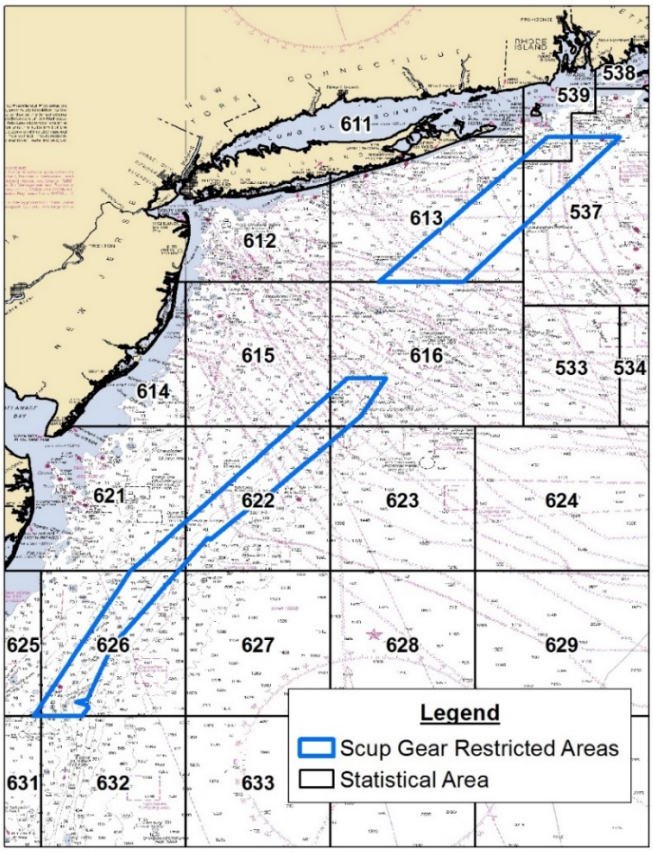

Figure 1: Scup GRAs and NMFS statistical areas.

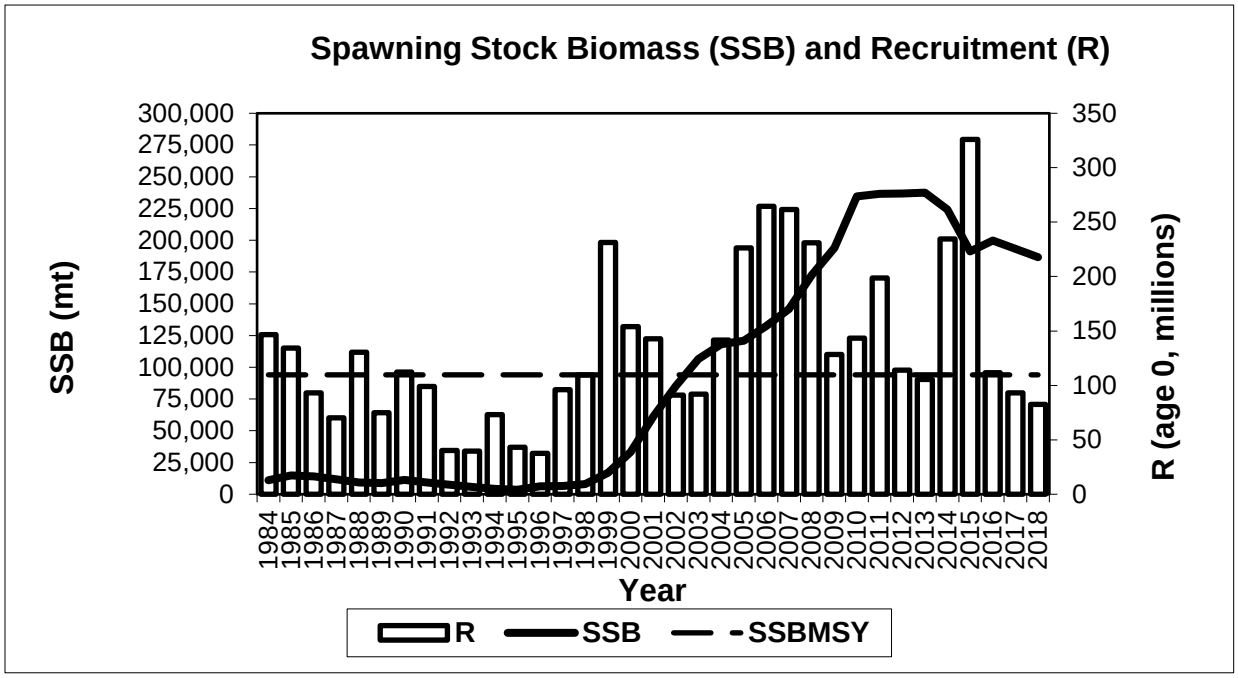

Figure 2: Scup spawning stock biomass and recruitment at age 0, 1984-2018 from the 2019 operational stock assessment (NEFSC 2019).

Discard Evaluation

1. Scup discards are still high but dropped in 2019 compared with 2018 and 2017.

Total estimated scup discards from all mesh sizes and statistical areas were 2,779 mt (6.1 million pounds) in 2019, 16% lower than 2018 discards and 41% lower than 2017 discards which were the highest since 1981 (Figure 3). Discards in 2019 were 64% higher than average discards from 1989-2019.

2. Discards are variable by mesh size, quarter, and statistical area.

In 2019, large mesh accounted for 44% of total estimated scup discards, squid mesh accounted for 30%, and small mesh accounted for 26% (Figure 3). Scup discards from small and large mesh sizes increased by 12% and 19%, respectively, in 2019 compared with 2018, while squid mesh scup discards decreased by 49% (Figure 3). The most recent 10-year average proportions of discards by mesh size are 40% for squid mesh, 29% for small mesh, and 32% for large mesh.

Seasonal patterns in scup discards varied by year. In 2018, 48% of the discards occurred in quarter 2 (April through June) with the majority of the quarter 2 discards occurring in the squid mesh category (72%, Figure 4). In 2019, 28% occurred in quarter 1, 35% in quarter 2, 20% in quarter 3, and 16% in quarter 4 (Figure 4 and Figure 5). The 2019 discard percentages more closely resembled the most recent 10-year averages of 24% in quarter 1, 38% in quarter 2, 18% in quarter 3, and 21% in quarter 4 (Figure 5).

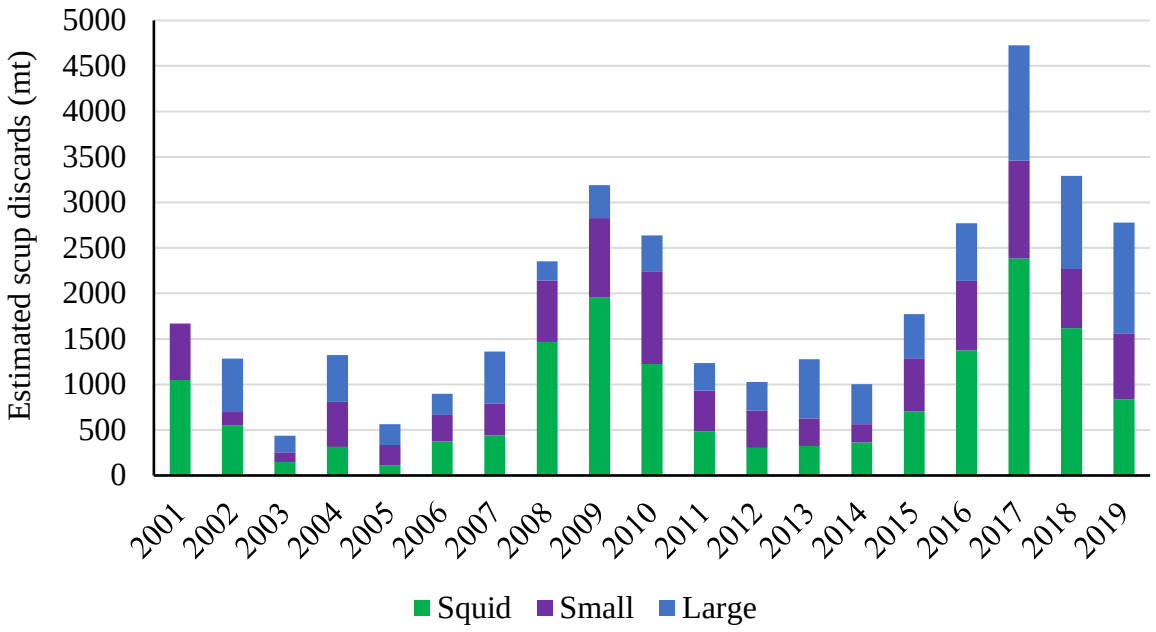

Figure 3: Estimated scup discards by year and mesh size from 2001-2019.

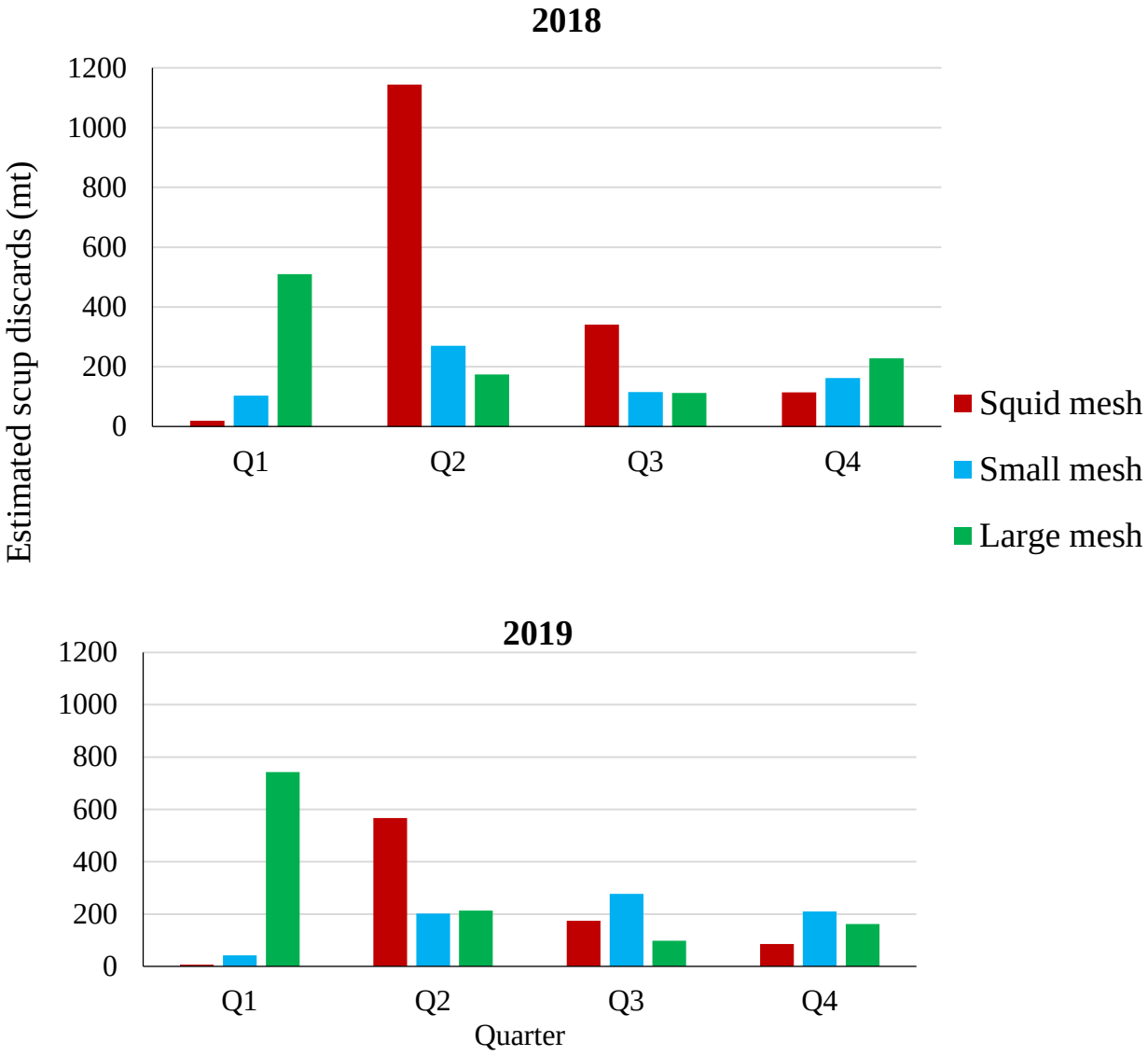

Figure 4: 2018 and 2019 estimated discards by quarter and mesh size.

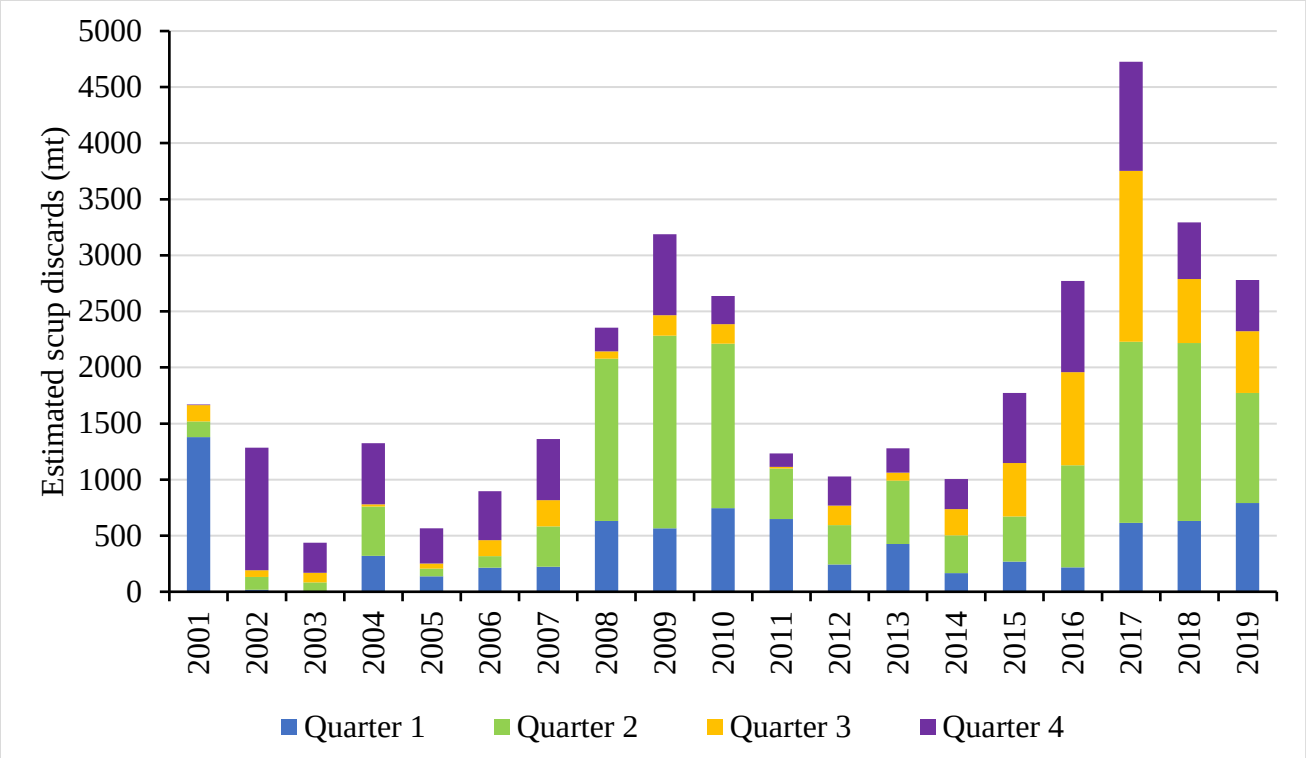

Figure 5: Estimated scup discards for all mesh categories by calendar quarter and year from 2001-2019.

Although overall scup discards decreased from 2018 to 2019, discards in statistical areas which are partially included in the Northern GRA increased by 36% and made up 53% of the total discards in 2019 (Figure 6). Within these statistical areas, scup discards were evenly distributed across mesh sizes with 34% of discards from large mesh, 35% from small mesh, and 31% from squid mesh.

In 2019, the statistical area with the highest discards was 616 with 25% of the total discards (4% higher than the 10-year average for that area). Area 616 contains a part of the southern GRA and was a statistical area with high scup catch in 2019 based on VTR data.

Between 2018 and 2019, scup discards in statistical areas which are partially included in the southern GRA decreased by 42% (Figure 6). Within these statistical areas, 83% of the discards were from large mesh, 10% were from small mesh, and 6% were from squid mesh.

Total scup discards with all mesh sizes steadily increased from 2014 through 2017 and declined in 2018 and 2019. This trend closely mirrors the trend in recruitment during 2012-2016 (Figure 7).

A summary of the discard reasons for scup according to 2019 observer data for trawl gear and all mesh sizes showed about 61% of discarded scup were due to size regulation, 23% were due to no market, 8% were for unknown reasons, 4% were due to quota regulation, and 4% were discarded for other reasons.

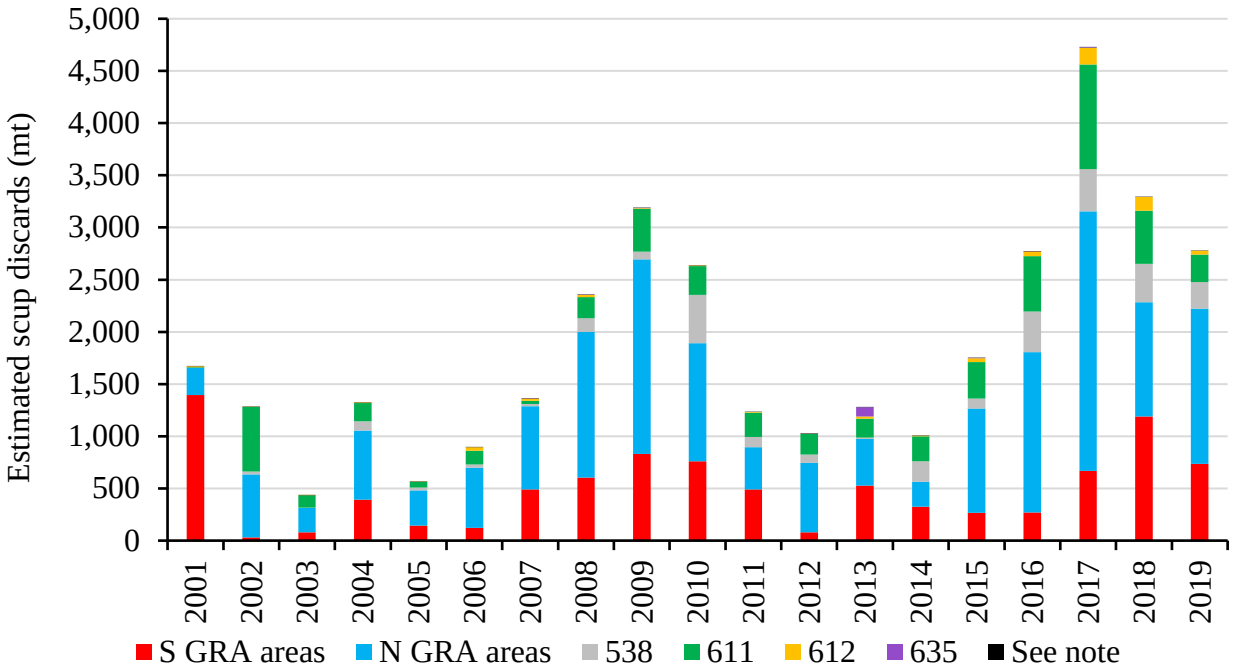

Figure 6: Estimated scup discards by year and statistical area for all mesh sizes. *Note:* statistical areas which are not part of the GRAs and which had less than 100 mt of estimated scup discards during 2001-2019 are grouped together (i.e. areas 513, 514, 515, 521, 522, 525, 526, 561, 562, 614, 627, and 636).

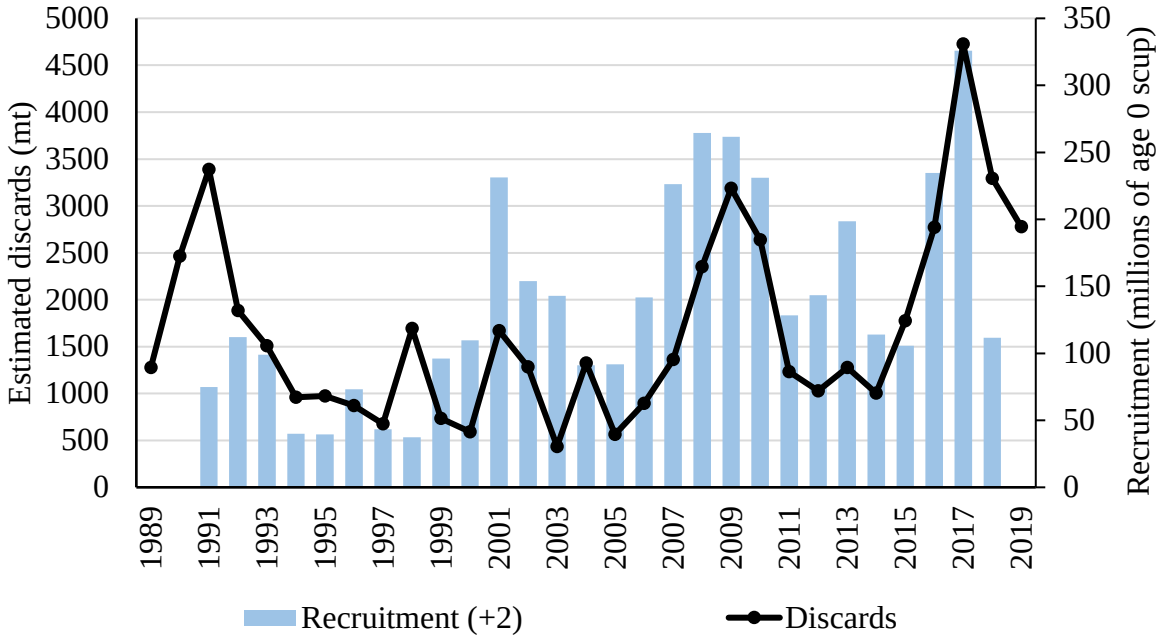

Figure 7: Estimated annual scup discards and recruitment from two years prior (e.g. 2015 recruitment is shown in 2017). Discards are shown for all mesh sizes combined in all statistical areas from 1989-2019.

3. Average scup discards were lower after GRA implementation, while the effects of recent GRA modification are unknown.

Discards from statistical areas that are partially included in the southern GRA during quarter 1 were compared before and after the GRA implementation in 2000. The pre-GRA discard average was 344 mt and the post-GRA average was 224 mt, a 35% decrease in discards (Figure 8). Note that the southern GRA is not in effect for the entirety of quarter 1.

Discards from statistical areas that are partially included in the northern GRA during quarter 4 were compared before and after the GRA implementation. The pre-GRA discard average was 426 mt and the post-GRA average was 172 mt, a 60% decrease in discards (Figure 8). Note that the northern GRA is not in effect for the entirety of quarter 4.

Annual discard estimates (all quarters, mesh sizes, and areas) as a proportion of SSB averaged 20% from 1989-1999 and 1% from 2001-2019 (Figure 9).

The most recent boundary change to the southern GRA became effective in 2017 which coincided with the record-high 2015 year class reaching 2 years of age. This influx of juvenile scup too small to be landed likely contributed to the high discards in 2017 (Figure 7). Based on NEFSC trawl data from 1972-2016, trends in areas of high scup biomass show that scup currently and historically have had high biomass in locations within the GRA boundaries (see appendix).

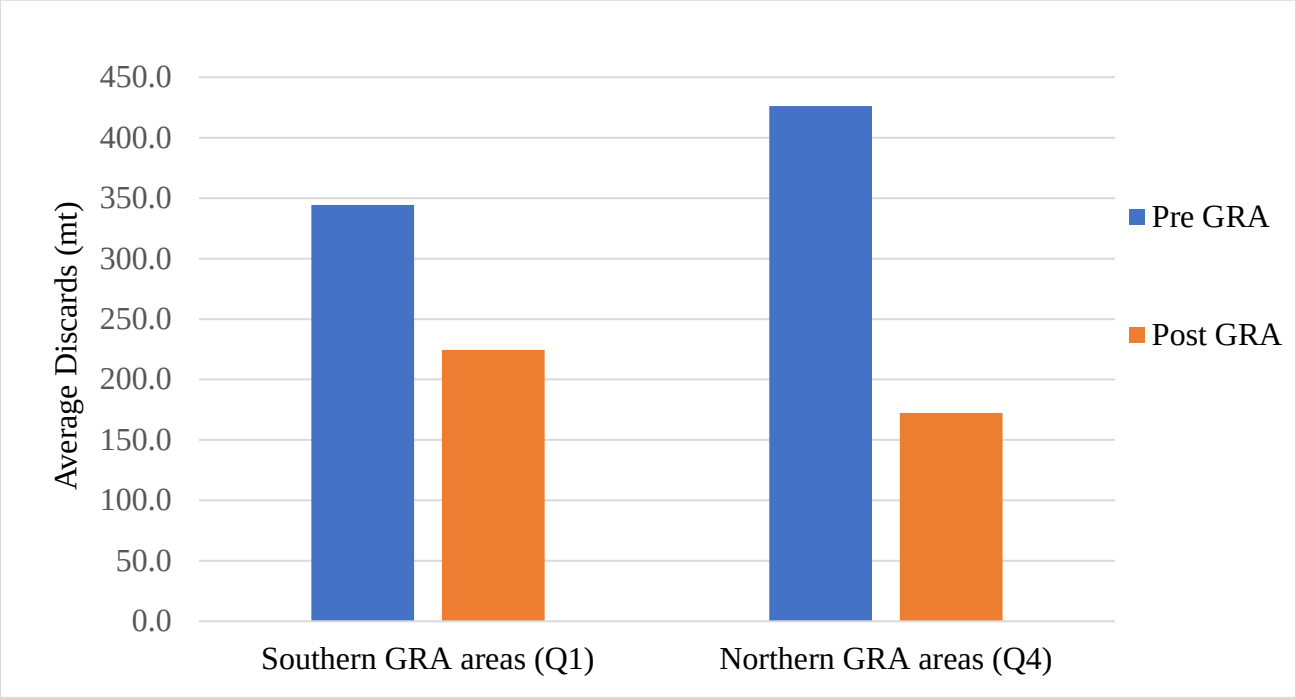

Figure 8: Average estimated scup discards from statistical areas that are partially included in the GRAs during the quarter they are in effect. Discard estimates were averaged across the years before and after the GRAs were in effect.

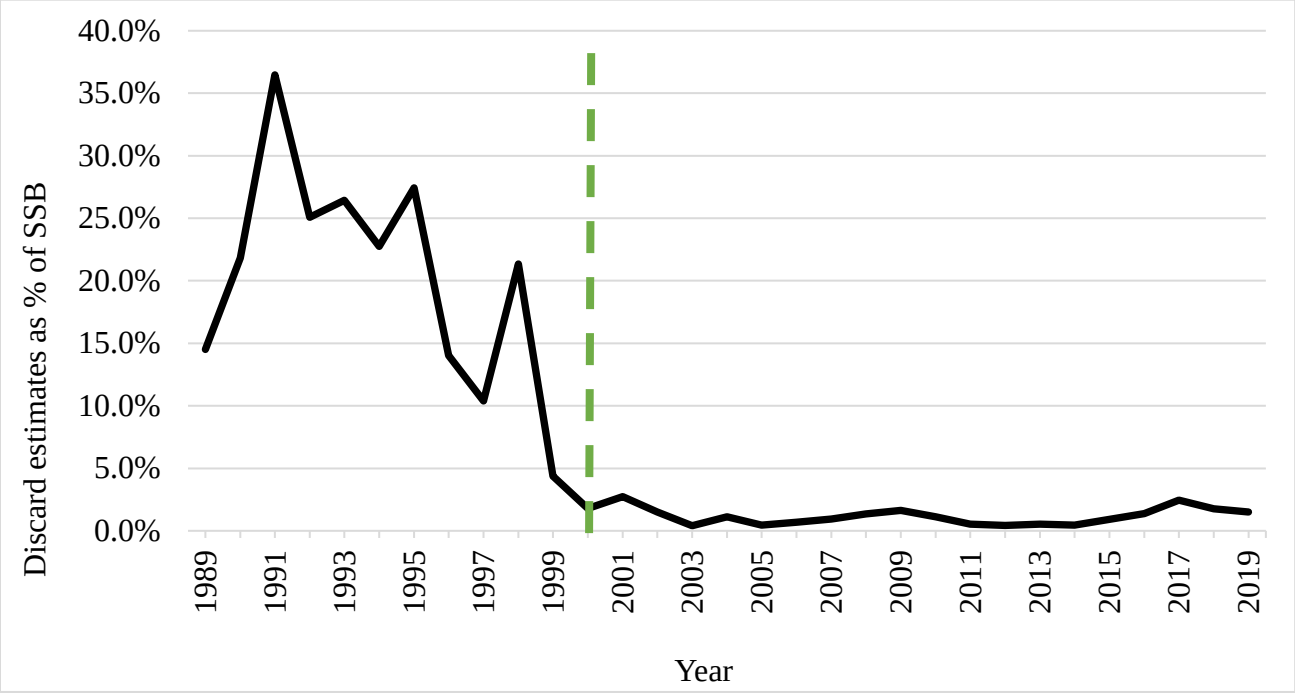

Figure 9: Annual discard estimates as a proportion of spawning stock biomass from 1989-2019 from the 2019 operational stock assessment (NEFSC 2019). The green dashed line represents the implementation of the GRAs in 2000.

Conclusion

Discards are still above average and should continue to be evaluated. The mesh size, quarter, and areas contributing to the highest scup discards are not consistent across years. Discard information in future years may provide insight into the effects of recent regulatory changes such as increases in the incidental possession limit (2016, 2019) and changes to the southern GRA boundary (2017). The declining trend in recruitment and an increase in the 2019 incidental possession limit may have contributed to the decrease in discards in 2019 compared with 2018 and discards may continue to decline due to the low recruitment from 2016-2018 (Figure 2). The lower average discards and lower proportion of discards to spawning stock biomass after GRA implementation suggest that the GRAs have contributed to a reduction in scup discarding.

References

NEFSC (Northeast Fisheries Science Center). 2015. SARC 60 Scup Working Paper - TOR 1: Estimates of Commercial Fishery Scup Discards: 1989-2013.

NEFSC. 2019. Pre-publication copy of the August 2019 operational stock assessment report prepared for the Council and the SSC. Available at: http://www.mafmc.org/ssc-meetings/2019/september-9-11.

Unpublished NMFS observer data as of May 15, 2020.

APPENDIX

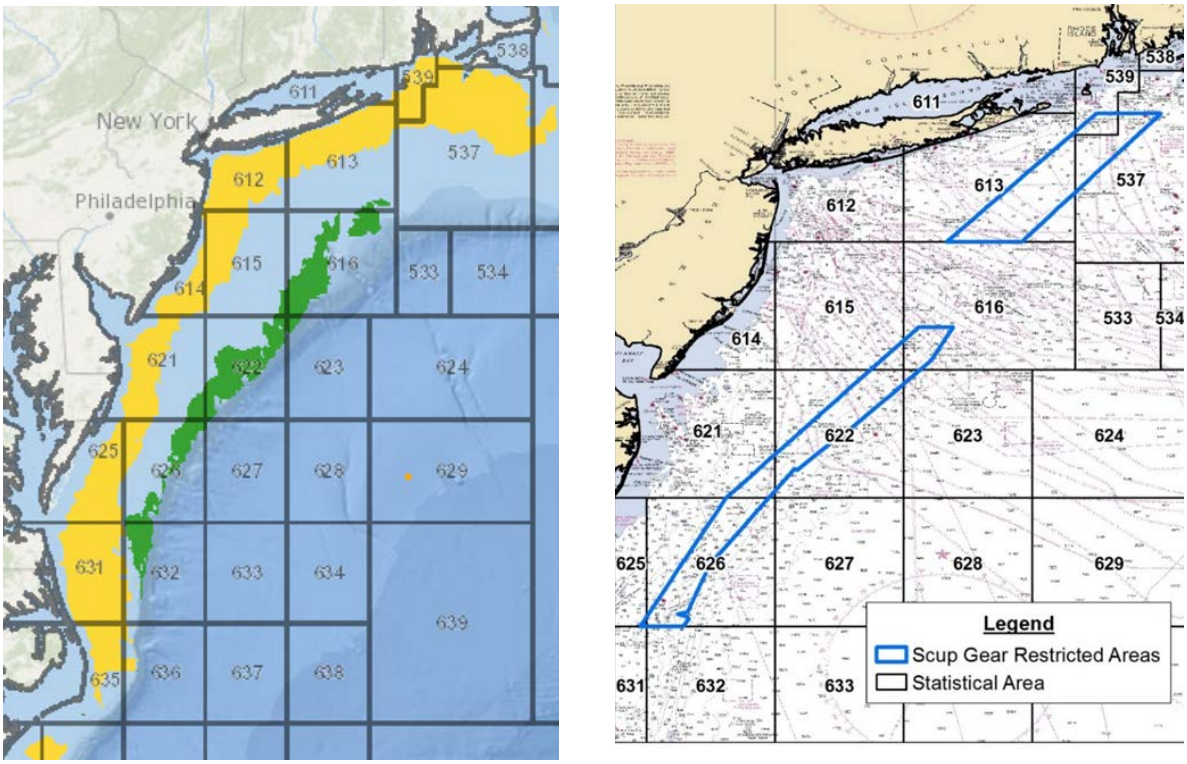

Figure 10: The left map depicts areas with consistently high scup biomass through 1970s-2010s based on NEFSC trawl survey data. Yellow shading represents spatial and temporal overlap based on the Fall trawl survey and green shading represents overlap based on the Spring trawl survey. Black gridded lines represent NMFS statistical areas. Map accessed at http://portal.midatlanticocean.org/, map sources include Esri, NOAA, National Geographic, DeLorme, NAVTEQ, and others. The map on the right is Figure 1 for comparison with GRA locations.