MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901-3910
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: September 24, 2013

TO: Council

FROM: Kiley Dancy, Staff

SUBJECT: Scup Management Measures for 2014 and 2015

The following materials are enclosed for Council consideration of the above subject:

1) Summary of Monitoring Committee Recommendations (*See Summer Flounder Briefing Book Tab*)
2) September 2013 Scientific and Statistical Committee Meeting Report (*See Summer Flounder Briefing Book Tab*)
3) Staff Recommendation Memo
4) Comment letter from Hank Lackner
5) Summer Flounder, Scup, and Black Sea Bass Fishery Performance Reports (*See Summer Flounder Briefing Book Tab*)
6) Scup Advisory Panel Information Document

Links to the following additional reference materials can be found on the October 2013 briefing book page on the Council's website, at http://www.mafmc.org/briefing/october-2013:

1) 2013 Scup Data Update and "Rumble Strips" Analysis

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Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: September 5, 2013

TO: Chris Moore, Executive Director

FROM: Kiley Dancy, Staff

SUBJECT: Scup Management Measures for 2014 and 2015

Executive Summary

Based on the latest stock assessment update in July of 2012, the scup stock is not overfished and overfishing is not occurring. The assessment model estimated spawning stock biomass (SSB) was 419.81 million lb (190,424 mt) in 2011 (207% of the biomass at maximum sustainable yield, SSB_{MSY}). Multi-year specifications are currently in place for scup for 2014 and 2015 (Table 1). Staff recommend no changes to these specifications.

Table 1: Current catch limits for scup in 2014 and 2015.

2014	**ABC**	35.99 mil lb (16,325 mt)
	Commercial ACL = ACT	28.07 mil lb (12,732 mt)
	Recreational ACL = ACT	7.92 mil lb (3,592 mt)
2015	**ABC**	33.76 mil lb (15,320 mt)
	Commercial ACL = ACT	26.34 mil lb (11,950 mt)
	Recreational ACL = ACT	7.43 mil lb (3,370 mt)

Last year, the Council also voted to allow up to 3% of the total allowable landings (TAL) be made available to the Research Set-Aside (RSA) Program in 2014 and 2015. After adjusting for 3% RSA, the resulting commercial quotas are 21.95 million lb (9,955 mt) in 2014 and 20.60 million lb (9,342 mt) in 2015. The resulting recreational harvest limits after adjusting for 3% RSA are 7.03 million lb (3,188 mt) for 2014, and 6.60 million lb (2,992 mt) for 2015. Staff do not recommend any change to the current minimum fish size (9 inch-TL), gear requirements, or possession limits.

Introduction

The Magnuson-Stevens Act (MSA) requires each Council's Scientific and Statistical Committee (SSC) to provide ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catch (ABC), prevention of overfishing, and achieving maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. In addition, the Monitoring Committees established by the Fishery Management Plan (FMP), are responsible for developing recommendations for management measures designed to achieve the recommended catch limits.

The SSC and Monitoring Committee will review the implemented specifications for scup. Based on the SSC and Monitoring Committee recommendations, if changes to the current scup measures are warranted, the Council will make a recommendation to the National Marine Fisheries Service (NMFS) Northeast Regional Administrator. Because these species are cooperatively managed with the Atlantic States Marine Fisheries Commission, the Commission's Summer Flounder, Scup, and Black Sea Bass Board will meet jointly with the Council to recommend scup management measures. In this memorandum, information is presented to assist the SSC and Monitoring Committee in developing recommendations for the Council and Board to consider for the 2014 and 2015 fishing years for scup.

Additional relevant information about the fishery and past management measures is presented in the Fishery Performance Report for scup developed by the Council and Commission Advisory Panels, as well as in the corresponding Scup Information Document prepared by Council staff.

Catch and Landings

Based on dealer data and Marine Recreational Information Program data, 2012 commercial and recreational landings were 15.70 million lb (7,121 mt) and 4.17 million lb (1,891 mt), respectively. Commercial landings as of the week ending April 27, 2013 indicated that 67% of the Winter I (January-April) quota had been landed. As of the week ending August 17, 2013, the coastwide landings report indicated that 57% of the summer period quota has been landed (Table 2).

Table 2: The 2013 scup summer period quota and the amount of scup landed by commercial fishermen in the summer period, in each state as of week ending August 17, 2013.

	Commercial Summer Period			Research
State	**Cumulative Landings (lb)[a]**	**2013 Summer Quota (lb)[b]**	**Percent of Quota (%)**	**Set-Aside Landings (lb)[a]**
ME	0			0
NH	106			0
MA	866,202			0
RI	2,667,925			29,990
CT	212,212			2,507
NY	1,394,190			160,904
NJ	53,406			0
DE	1			0
MD	4,107			0
VA	13,773			0
NC	13			0
Other	0			0
Totals	**5,211,845**	**9,163,877**	**57**	**193,401**

[a] Quotas adjusted for research set-aside and overages. Source: NMFS Weekly Quota Report for week ending August 17, 2013.

Regulatory Review

In July 2012, the SSC met to specify an ABC for scup for fishing year 2013, and to consider specifying multi-year ABCs for up to three years. The SSC recommended three-year ABCs for scup, for 2013, 2014, and 2015 based on a constant fishing mortality rate.

The overfishing limit (OFL) for 2013 was 47.80 million lb (21,680 mt), defined by the fishing mortality threshold of F=0.177 and projected biomass in 2013 (432.63 million lb, 196,236 mt; 212% of SSB_{MSY}). Based on the 2012 projected SSB/SSB_{MSY} = 212%, Council risk policy P* = 0.4, and a lognormal distribution with of CV = 100%, the SSC set an ABC of 38.71 million lb (17,557 mt) for 2013. This ABC is about 81% of the OFL. A constant fishing mortality rate approach was applied to derive the ABCs for 2014 and 2015.

The SSC considered scup to be a level 3 assessment, and considered the following to be the most significant sources of uncertainty: lack of representation of older age scup (age 3+) in the survey data that were used as input to the model, despite representation in the catch used in the assessment model; uncertainty exists with respect to the estimate of natural mortality (M) used in the assessment; uncertainty in the stock status due to uncertainties in the estimates of both the stock's biomass and the

biological reference point proxy used for F_{MSY}; the lack of characterization of uncertainty for the OFL and other biological reference points in the assessment; uncertainty with regard to the appearance of high recruitment in recent years relative to historical levels of recruitment; sensitivity of survey indices to scup availability, resulting in high inter-annual variability; concern about the application of trawl calibration coefficients (ALBATROSS IV vs BIGELOW) and their influence on the selectivity pattern and results of the assessment, and the assumption on which the projections are based that the quota would be landed in 2012, 2013, and 2014.

Management measures in the commercial fishery other than quotas and harvest limits (i.e., minimum fish size, GRAs, etc.) have remained generally constant in recent years with the exception of the increase in the Winter I possession limit increase from 30,000 lb in 2011 to 50,000 lb in 2012.

Stock Status and Biological Reference Points

The most recent benchmark assessment on scup was peer-reviewed and accepted in December 2008 by the DPSWG Peer Review Panel. Documentation associated with this assessment and previous stock assessments, such as reports on stock status, including annual assessment and reference point update reports, Stock Assessment Workshop (SAW) reports, and Stock Assessment Review Committee (SARC) panelist reports, are available online at the NEFSC website: http://www.nefsc.noaa.gov/saw/.

The biological reference points for scup include a fishing mortality threshold of $F_{MSY} = F_{40\%}$ (as F_{MSY} proxy) = 0.177 and $SSB_{MSY} = SSB_{40\%}$ (as SSB_{MSY} proxy) = 202.92 million lb (92,044 mt; 2008 Data Poor Stock Working Group Peer Review Panel). The minimum stock size threshold, one-half SSB_{MSY}, is estimated to be 101.46 million lb (46,022 mt).

The July 2012 assessment update indicates that the scup stock is not overfished and overfishing is not occurring relative to the biological reference points. Fishing mortality in 2011 was estimated to be 0.034, below the fishing mortality threshold reference point (F_{MSY} = 0.177). SSB in 2011 was about 420 million lb (190,424 mt).

Basis for 2014 and 2015 ABC Recommendation

Input from the Council's Visioning and Strategic Planning processes as well as from the Advisory Panel Fishery Performance Reports highlight stakeholder interest in increasing the stability of fishery management measures. This was a significant motivation in moving toward multi-year specifications, which are already in place in 2014 and 2015 for scup.

An interim evaluation method was developed to assess whether or not a revision of currently set catch and landings limits may be warranted for species under multi-year specifications. This method, known as the "rumble strips" approach, was developed by the Scientific Uncertainty Subcommittee of the SSC, and is outlined in the document titled "Rumble Strips for Assessing the Performance of Multi-year Acceptable Biological Catch Limits."[1] Multiple indicators of stock status are evaluated relative to a

[1] Available at http://www.mafmc.org/ssc-meetings/september-2013.

baseline period of stable stock condition, in order to assess whether they are within a range that was expected when the multi-year ABCs were originally set. Based on the rumble strips analysis for scup, almost all of the indicators are at levels near the average for the baseline period, with only the fall survey index of kg/tow outside the confidence interval (Figure 1).

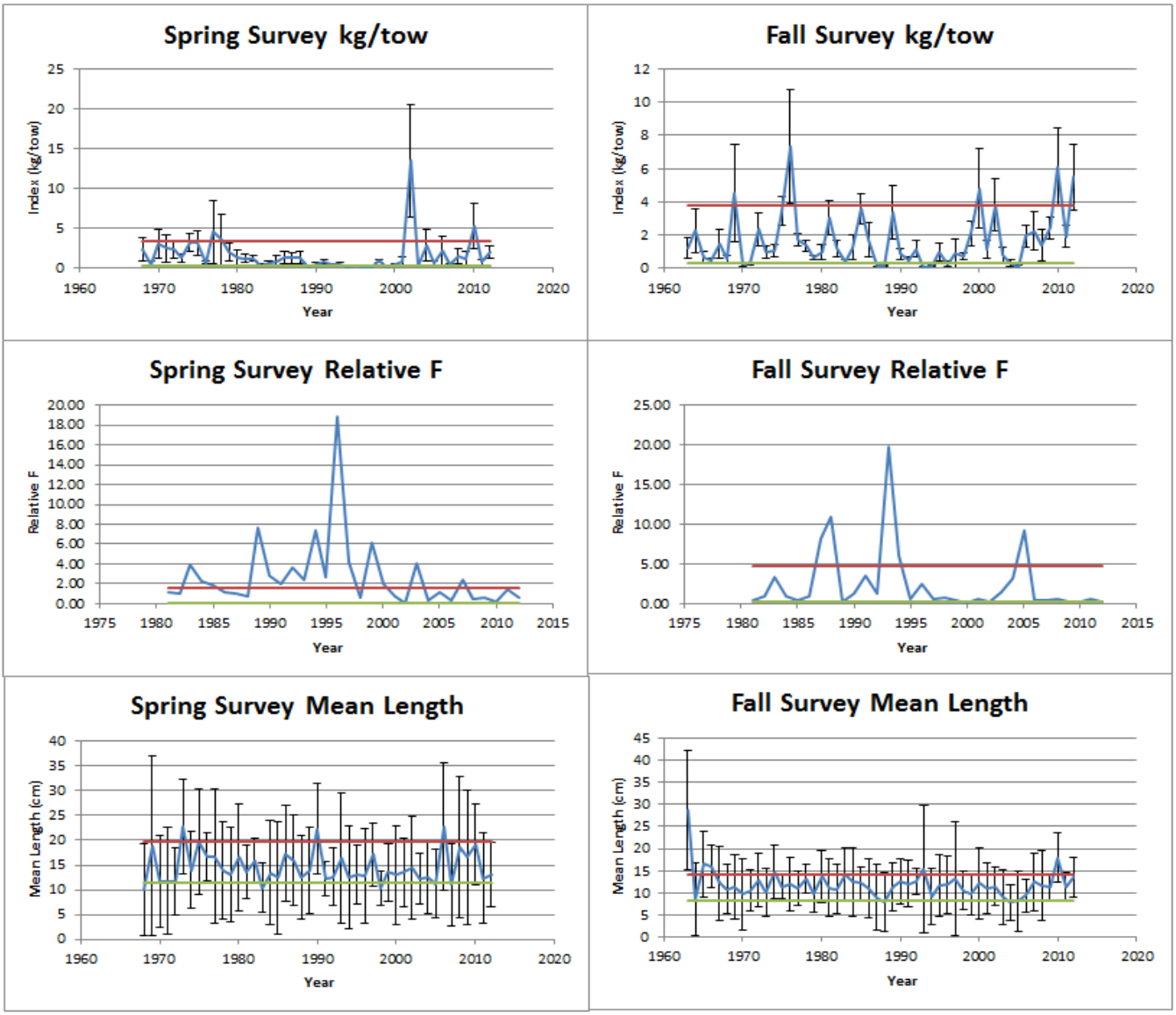

Figure 1: Results of interim "rumble strips" analysis to evaluate performance of multi-year specifications for scup.

Given the lack of a full assessment update, and an interim evaluation that does not appear to reveal any significant cause for concern with the scup stock, staff recommend that scup specifications remain unchanged from those currently set for 2014 and 2015.

Other Management Measures

Recreational and Commercial ACLs

The acceptable biological catch (ABC) ABC is equivalent to the total allowable catch (TAC) and the sum of the commercial and recreational ACL equals the ABC (Figure 2).

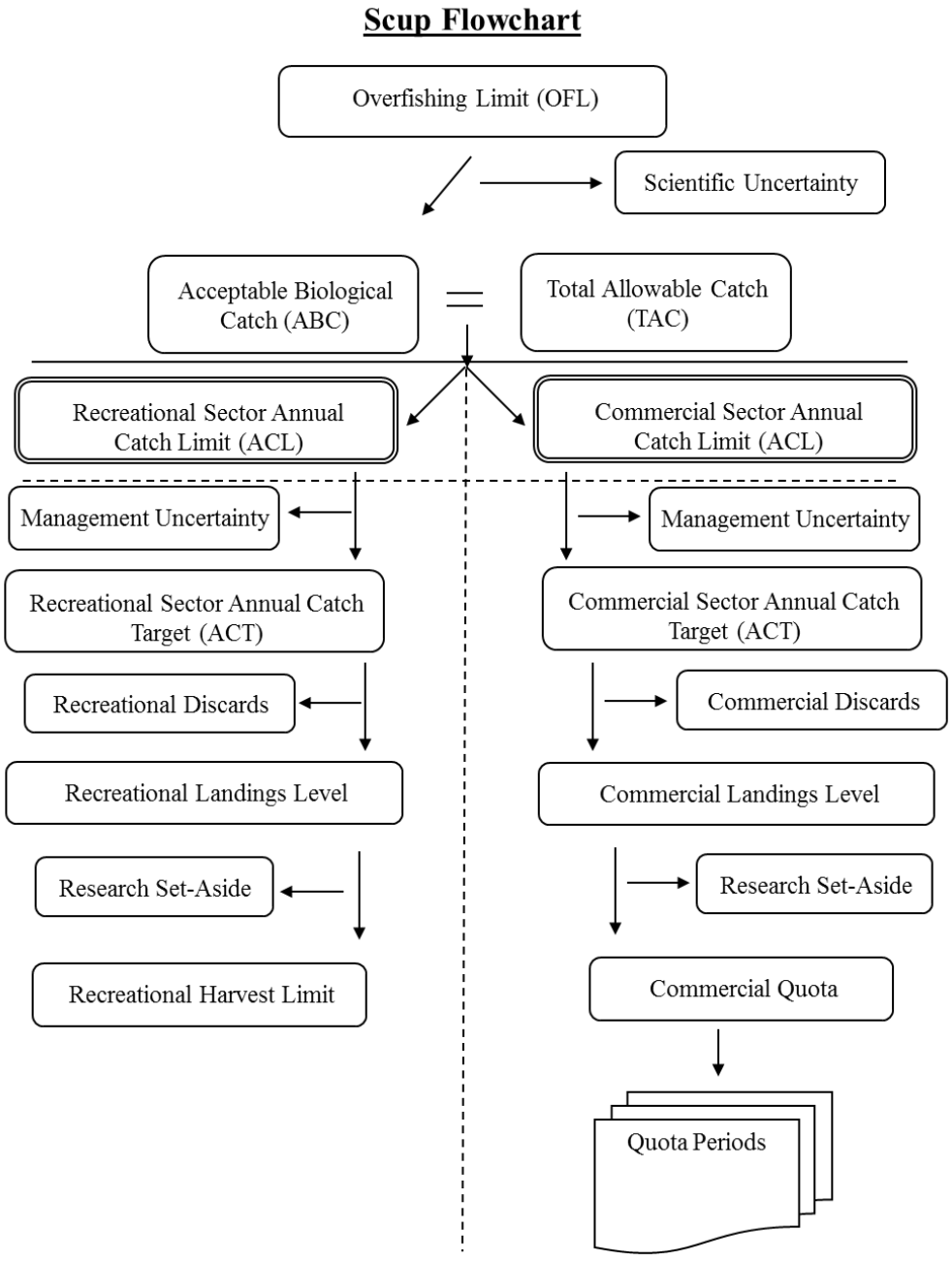

Figure 2: Flowchart for scup catch and landings limits.

The ABCs in place are comprised of both landings and discards. Based on the allocation percentages in the FMP, 78% of the catch is allocated to the commercial fishery, and 22% to the recreational. Discards were apportioned based on the contribution from each fishing sector using the 2009-2011 average ratios; 89% of the dead discards are attributable to the commercial fishery, 11% to the recreational.

Considerations for ACTs

The Scup Monitoring Committee is responsible for recommending ACTs for the Council to consider. The relationship between the recreational and commercial ACTs and other catch components are given in Figure 2. The Monitoring Committee may provide other recommendations relevant to setting catch limits consistent with the MSA. The Monitoring Committee should consider all relevant sources of management uncertainty in the scup fishery and provide the technical basis, including any formulaic control rules, for any reduction in catch when recommending an ACT. The ACTs, technical basis for ACT recommendations, and sources of management uncertainty would be described and provided to the Council.

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

The recent year sector-specific landings performance indicates that although the recreational fishery had previously been exceeding the recreational harvest limits, in the two years following significant quota increases, the recreational fishery has been well under the harvest limits. The commercial fishery similarly has been well under the commercial quotas in recent years (Table 3). Staff recommend no reduction in catch from the recreational or commercial ACL, such that each sector's ACT would be set equal to the sector ACL.

Table 3: Scup commercial and recreational fishery performance relative to quotas and harvest limits, 2008-2012.

Year	Commercial Landings (mil lb)	Commercial Quota (mil lb)	Percent Overage(+)/ Underage(-)	Recreational Landings (mil lb)	Recreational Harvest Limit (mil lb)	Percent Overage(+)/ Underage(-)
2008	5.18	5.24	-1%	3.76	1.83	+105%
2009	8.19	8.37	-2%	3.23	2.59	+14%
2010	10.70	10.68	0%	5.99	3.01	+91%
2011	15.03	20.36	-26%	3.60	5.74	-36%
2012	15.70	27.91	-44%	4.17	8.45	-51%
5-yr Avg.	-	-	-15%	-	-	+25%

Commercial Quotas and Recreational Harvest Limit

The catch-based allocations (i.e., 78% commercial, 22% recreational) were maintained in the calculation of the sector-specific ACLs and ACTs such that the sum of the sector-specific TALs (commercial and recreational landings levels) are equal to overall TAL (Table 1). Current specifications include a commercial quota of 21.95 million lb (9,955 mt) in 2014 and 20.60 million lb (9,342 mt) in 2015. The adjusted recreational harvest limits are 7.03 million lb (3,188 mt) for 2014, and 6.60 million lb (2,992 mt) for 2015.

The commercial quota is divided into three periods. These are Winter I (January-April; 45.11%), Summer (May-October; 38.95%), and Winter II (November-December; 15.94%). Therefore, the current period quotas for 2014 are 9.90 million lb (4,491 mt) for Winter 1, 8.55 million lb (3,877 mt) for Summer, and 3.50 million lb (1,587 mt) for Winter II. For 2015, period quotas would be 9.29 million lb (4,214 mt) for Winter 1, 8.02 million lb (3,638 mt) for Summer, and 3.28 million lb (1,465 mt) for Winter II.

Specific management measures that will be used to achieve the harvest limit for the recreational fishery in 2014 and 2015 will not be determined until after the first four waves of the previous year's recreational landings are reviewed. These data will be available in October of 2013 (for fishing year 2013) and October 2014 (for fishing year 2014). The Monitoring Committee will meet in November of each year to review these landings data and make recommendations regarding changes in the recreational management measures (i.e., possession limit, minimum size, and season). Given the performance of the recreational fishery relative to the recreational harvest limit in recent years, management measures (i.e., minimum size, possession limits, and seasons) should be implemented that are designed to prevent the recreational ACL from being exceeded.

Possession Limits

The Winter I possession limit for 2013 is 50,000 lb, until 80 percent of the landings are reached, at which point the possession limit drops to 1,000 lb. This possession limit was first put in place in 2012, and represented an increase from the 2011 Winter I possession limit of 30,000 lb. A possession limit of 2,000 lb is used in Winter II, unless a transfer of quota occurs between Winter I and Winter II. In that case, the Winter II possession limit increases at 1,500 lb intervals for every 500,000 lb of scup transferred, i.e., if 1.0 million lb is transferred then the limit would be increased by 3,000 lb to result in a 5,000 lb possession limit. The possession limits were chosen as an appropriate balance between the economic concerns of the industry (i.e., landing enough scup to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period. Table 3 in the Advisory Panel Information Document summarizes the results of a threshold analysis giving the total number of vessels, trips, and landings for a given threshold (pounds of scup) in both winter periods of 2011 and 2012, as well as Winter I for 2013. These data indicate that the overall number of trips taken in Winter I of 2012 increased relative to 2011, and then decreased in 2013 relative to 2012. From 2012 to 2013, there was overall increase in the percentage of trips landings more than 5,000 lb of scup, but trips landing scup in excess of 30,000 lb continued to comprise less than 0.3% of Winter I trips in 2013. Based on this analysis, staff recommend no changes in possession limits in Federal waters.

Table 4 in the Scup AP Information Document gives commercial scup landings, ex-vessel value, and average price per pound, by period, for 2006 to 2012. A price-volume relationship for scup was described in Amendment 14 to the FMP. The increase in commercial supply in 2010 in response to less restrictive quotas may have driven the slight decrease in price in 2010. As such, managers should consider the potential impacts of changes in volume on price in the commercial fishery. However, average prices did increase in 2012 relative to 2011, despite similar landings levels.

Gear Regulations and Minimum Fish Size - Commercial Fishery

Amendment 8 to the Summer Flounder, Scup, and Black Sea Bass FMP contains provisions that allow for changes in the minimum fish size and minimum net mesh. Current commercial regulations for scup require a 9 inch-TL minimum fish size in the commercial fishery and the following gear requirements for otter trawls: minimum mesh size of 5 inch for the first 75 meshes from the terminus of the net and for codends constructed with fewer than 75 meshes, a minimum mesh size of 5 inch throughout the net. The threshold level used to trigger the minimum mesh requirements is 500 lbs of scup from November 1 through April 30 and 200 lb or more of scup from May 1 through October 31. In 2005, the Scup Monitoring Committee reviewed information on discards and did not recommend changes to the regulations. Recent discard estimates have remained substantially lower than the large discard event in 2002 which occurred prior to the implementation of the current regulations. Therefore, staff do not recommend a change in the gear requirements for otter trawls.

Last year, industry members proposed a reduction in the minimum fish size to 8 inch-TL. Staff remain concerned that a drop in the minimum fish size would reduce yields and spawning potential if fishermen target smaller fish. In 2005, staff provided a supplemental memo that reviewed the available information on scup maturity, mesh selectivity, and discards. This information was reviewed and at the time, the monitoring committee did not recommend any changes based on this information. In 2012, the Monitoring Committee commented that a reduction to 8 inches would be unlikely to have a considerable impact on the assessment and spawning capacity, however, concerns remained at the Monitoring Committee and Council levels regarding the lack of discard data for the pot/trap and hook and line fisheries, potential for reduced spawning capacity, and possible increased targeting of smaller scup. As such, staff recommend no changes to the minimum fish size and net mesh requirements.

Gear Restricted Areas (GRAs)

Gear restricted areas (GRA) were implemented by NMFS in 2000 to reduce discards of scup in small mesh fisheries. The scup GRAs were originally implemented and previously modified through the specifications process. In 2000, they were modified in size to include areas farther south that were identified as areas of potential scup and *Loligo* interactions, and in 2005, the boundary of the southern GRA was moved 3 longitudinal minutes to the west based on recommendations from the Monitoring Committee. No modifications were made to the GRAs in 2006 through 2013.

As described in Amendment 14 to the Summer Flounder, Scup, and Black Sea Bass FMP, modifications to scup GRAs must be done through a Framework Adjustment.

Pots and Traps Escape Vents

Current regulations require a circular escape vent of 3.10 inch, a square escape vent of 2.25 inch, or a rectangular escape vent of an equivalent size. A Council and Commission sponsored workshop in 2005 reviewed several vent size studies and did not make any recommendations for changes as they relate to scup. Therefore, staff recommend no changes to escape vent size requirements in scup pots.

Dancy, Kiley

From: JDHLCL@aol.com
Sent: Friday, September 06, 2013 12:41 PM
To: Dancy, Kiley
Cc: Moore, Christopher; Robins, Rick; star2017@aol.com; Nolan, Laurie; Kaelin, Jeff; gregdidomenico@gmail.com
Subject: Fwd: commercial scup regulations

Hello Kiley,
I have sent you an email that I spread around in the beginning of the year.Since you now have the lead on scup please consider these thoughts for indepth conversation at the next council meeting.
On another note,I also spoke with Chris about the removal or modifying the scup Gra's.Please include this is any scup discussions. There is room for a lot of regulatory change in the directed scup fishery.It is all for the good of the resource...One last thing to also consider is the raising of pounds allowed while using small mesh.Since we dont catch the quota incidental catches should be turned into landings and not discarded..
If you would like to discuss any of these thoughts I will be available the next few days.Monday will be a little difficult,as I have to be in RI to discuss yellowtail flounder bycatch in the small mesh fisheries that take place on Georges Banks.
Thanks Hank Lackner

From: gregdi@voicenet.com
To: JDHLCL@aol.com, cmoore@mafmc.org
CC: jcoakley@mafmc.org, tilefish1@optonline.net, tony@rocketcharters.com, johnmcmurray@optonline.net, richardbrobins@gmail.co, hjgbking@verizon.net, star2017@aol.com
Sent: 2/11/2013 9:58:34 A.M. Eastern Daylight Time
Subj: RE: commercial scup regulations

Hank….

GSSA is in support of your request.

I will be at the meeting this week to respond to any questions regarding this issue.

Greg DiDomenico

Garden State Seafood Association

From: JDHLCL@aol.com [mailto:JDHLCL@aol.com]
Sent: Tuesday, February 05, 2013 2:02 PM
To: cmoore@mafmc.org
Cc: jcoakley@mafmc.org; tilefish1@optonline.net; tony@rocketcharters.com; johnmcmurray@optonline.net; richardbrobins@gmail.co; hjgbking@verizon.net; gregdi@voicenet.com; star2017@aol.com
Subject: commercial scup regulations

Hello all,

I am sending this email in regards to the winter 2 scup trip limit.In this email,I will propose a potential solution to the underharvesting of allocation(appx 9,000,000lbs or 80% of quota) ,a way to

SIGNIFICANTLY REDUCE regulatory discards and lastly a way to make the resource more accessible to the fleet when they are in federal waters.

As we all know,the rebuilt status of scup, is a great accomplishment for not only the mid atlantic council but the fisherman who endured years of low quotas and poor prices.Up until now,we have always managed in an overprecautionary manner. I believe now is the time to make the immediate changes(Framework ?) necessary for the fleet to take advantage of a resource that is fully rebuilt.

The winter 2 trip limit has not changed as yearly quotas have risen, nor does it adjust as uncaught quota is transferred from prior periods..In fact,I believe the way the resource is currently managed it is impossible,using historical participants and landings data, to even catch the quota.

During the winter 2 period ,the fish are,for the most part close to land and available to most of the fleet .Unfortunately,A very low federal trip limit(8,000 lbs.) and the randomness of catch volume, lead to discards and wasted fuel.

I am proposing to the council as follows:

1.Do away with the 8,000lbs.trip limit and institute a cumulative trip limit.That is, a certain amount per vessel /per week .I was thinking along the lines of 45,000lbs per week.In doing this,if a vessel gets a larger tow(ie. a vessel makes a 10 minute tow and gets 20,000lbs.) they do not throw any marketable fish over,under the old system 12,000lbs would be discarded. They can then go ahead and land these fish or set in and catch the rest of their weekly amount. When they catch their weekly amount, they tie up for the remainder of the week or go do something else.

1a .If needed this can be monitored very easily with VMS.It should also be noted,the fleet operated under a similar system a few winters(winter 1) ago and it was very successful..

2. Another advantage to this approach is fuel savings. A vessel will now be able to catch their weekly amount in less than 7 days ,resulting in less trips!!

3.We should also remember that safety concerns do get addressed here as well. A vessel will not feel obligated to leave the dock every day in order to chase the fish..With this approach,there always is tomorrow.

4. Lastly,I think the council should look at realigning the months that comprise the summer landing period and winter2 landing period.As VTR data can clearly show,a fairly large amount of scup are caught in the EEZ while still being controlled by individual states.My proposal is as follows:

A. Shorten the summer period by 1 month,that is call the summer period the months of ,May,June,July Aug,Sept.

B. Lengthen the winter period to comprise of the months of , Oct,NOV,DEC.

By making these few little adjustments to the current management of scup,the fleet and resource will see considerable benfits.

THANKS for your time and consideration ,

Hank Lackner

Scup Advisory Panel Information Document[1]

August 2013

Management System

The Fishery Management Plan (FMP) for scup has been in place since 1996 when it was incorporated into the Summer Flounder FMP. The FMP established the management unit for scup (*Stenotomus chrysops*) as the U.S. waters in the western Atlantic Ocean from Cape Hatteras, North Carolina northward to the U.S.-Canadian border, and established measures to ensure effective management of the scup resource. There are two management entities that work cooperatively to develop fishery regulations for scup: the Atlantic States Marine Fisheries Commission (ASMFC) and the Mid-Atlantic Fishery Management Council (MAFMC), in conjunction with the National Marine Fisheries Service (NMFS) as the federal implementation and enforcement entity. The cooperative management endeavor was developed because a significant portion of the catch is taken from both state (0-3 miles offshore) and federal waters (3-200 miles offshore). The commercial and recreational fisheries are managed using catch and landings limits, commercial quotas, recreational harvest limits, minimum fish sizes, gear regulations, permit requirements, and other provisions as prescribed by the FMP. The scup stock was previously under a stock rebuilding strategy and was declared rebuilt in 2009. The FMP, including subsequent Amendments and Frameworks, is available on the Council website at: http://www.mafmc.org/sf-s-bsb/.

Basic Biology

Information on scup life history and habitat requirements can be found in the document titled, "Essential Fish Habitat Source Document: Scup, *Stenotomus chrysops*, Life History and Habitat Characteristics" (Steimle et al. 1999), and is summarized here. An electronic version is available at the following website: http://www.nefsc.noaa.gov/nefsc/habitat/efh/.

Scup is a schooling continental shelf species of the Northwest Atlantic which undertakes extensive migrations between coastal waters and offshore waters. Spawning occurs from May through August, peaking in June. Scup spawn once annually over weedy or sand-covered areas. Juvenile and adult scup are demersal, using inshore waters in the spring and moving offshore in the winter. Essential Fish Habitat (EFH) for scup includes demersal waters, sands, mud, mussel beds, and seagrass beds, from the Gulf of Maine through Cape Hatteras, North Carolina. About 50% of age-2 scup are sexually mature (at about 17 cm total length, or 7 inches), while nearly all scup of age 3 and older are mature (DPSWG 2009). Scup reach a maximum age of at least 14

[1] Data employed in the preparation of this document are from unpublished National Marine Fisheries Service (NMFS) Dealer, Vessel Trip Reports (VTRs), Permit, and Marine Recreational Statistics (MRFSS/MRIP) databases, as of August 2013, unless otherwise noted.

years, with a likely maximum of 20 years (DPSWG 2009). Adult scup are benthic feeders and forage on 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 (NEFSC) food habits database lists several shark species, skates, silver hake, bluefish, summer flounder, black sea bass, weakfish, lizardfish, king mackerel, and goosefish as predators of scup.

Status of the Stock

A statistical catch at age model (age-structured assessment program; ASAP) model was used in the most recent peer-reviewed and accepted scup assessment (DPSWG 2009; Data Poor Stock Working Group (DPSWG) Peer Review Panel). Reports on "Stock Status," including annual assessment and reference point update reports, Stock Assessment Workshop (SAW) reports, Stock Assessment Review Committee (SARC) panelist reports, and DPSWG reports and peer-review panelist reports are available online at the NEFSC website: http://www.nefsc.noaa.gov/saw.

Based on the July 2012 assessment update (Terceiro 2012), the scup stock was not overfished and overfishing was not occurring in 2011 relative to the biological reference points. The fishing mortality rate (F) was estimated to be 0.034 in 2011, below the fishing mortality threshold reference point (F_{MSY} = F40% = 0.177) (Figure 1). Spawning Stock Biomass (SSB) was estimated to be 190,424 metric tons (420 million lb) in 2011, above the biomass target reference point (SSB_{MSY} = $SSB_{40\%}$ = 92,044 mt, or 203 million lb). After below average recruitment in 2009 and 2010, the 2011 year class was estimated to be above average at 154 million age 0 fish (Figure 2).

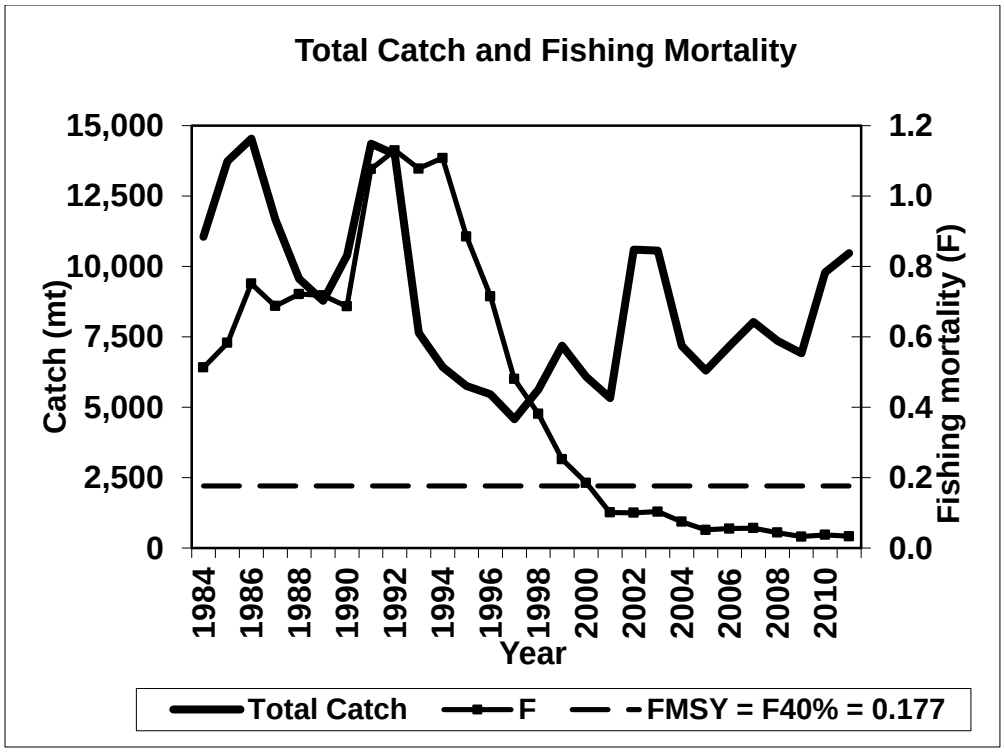

Figure 1: Total fishery catch and fishing mortality rate for scup. $F_{40\%}$ is the proxy for F_{MSY}. Source: Terceiro 2012.

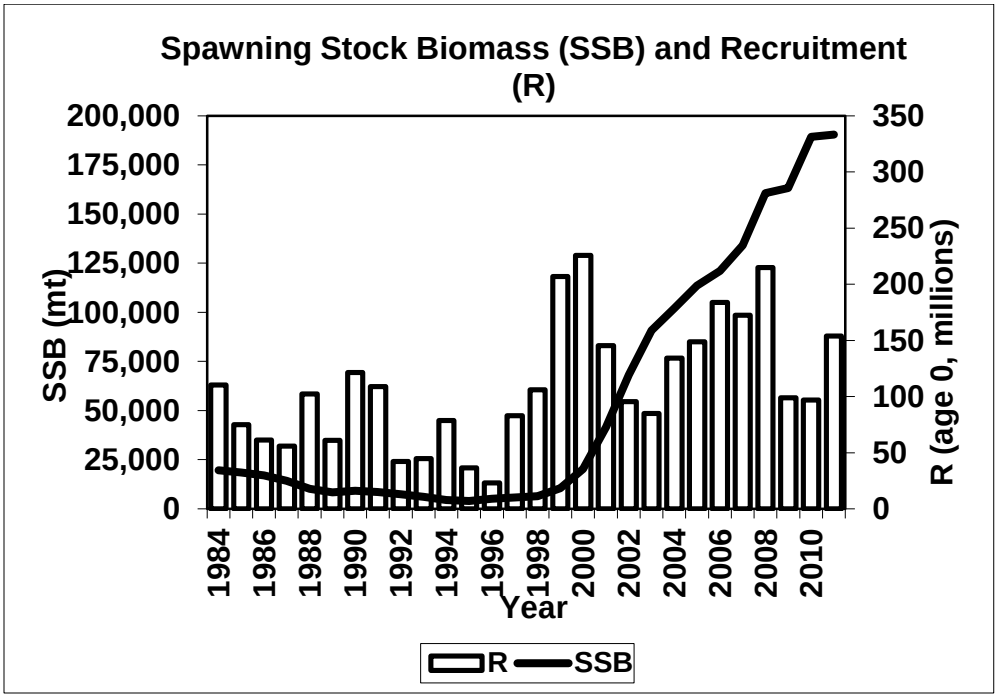

Figure 2: Spawning stock biomass (SSB) and Recruitment (R, age 0) by calendar year. Source: Terceiro 2012.

Fishery Performance

There are significant commercial and recreational fisheries for scup. Scup is managed primarily using output controls (catch and landings limits), with 78 percent of the landings being allocated to the commercial fishery as a commercial quota and 22 percent of landings allocated to the recreational fishery as a recreational harvest limit. The commercial quota is divided into three periods: Winter I (January-April; 45.11 percent), Summer (May-October; 38.95 percent), and Winter II (November-December; 15.94 percent).

Commercial Fishery

In Federal waters, commercial fishermen holding a moratorium permit may fish for scup. Permit data indicate that 725 vessels held commercial permits for scup in 2012. Total (commercial and recreational) landings peaked in 1981 at over 27 million lb, and in 2012 were about 19.9 million lb total (Figure 3).

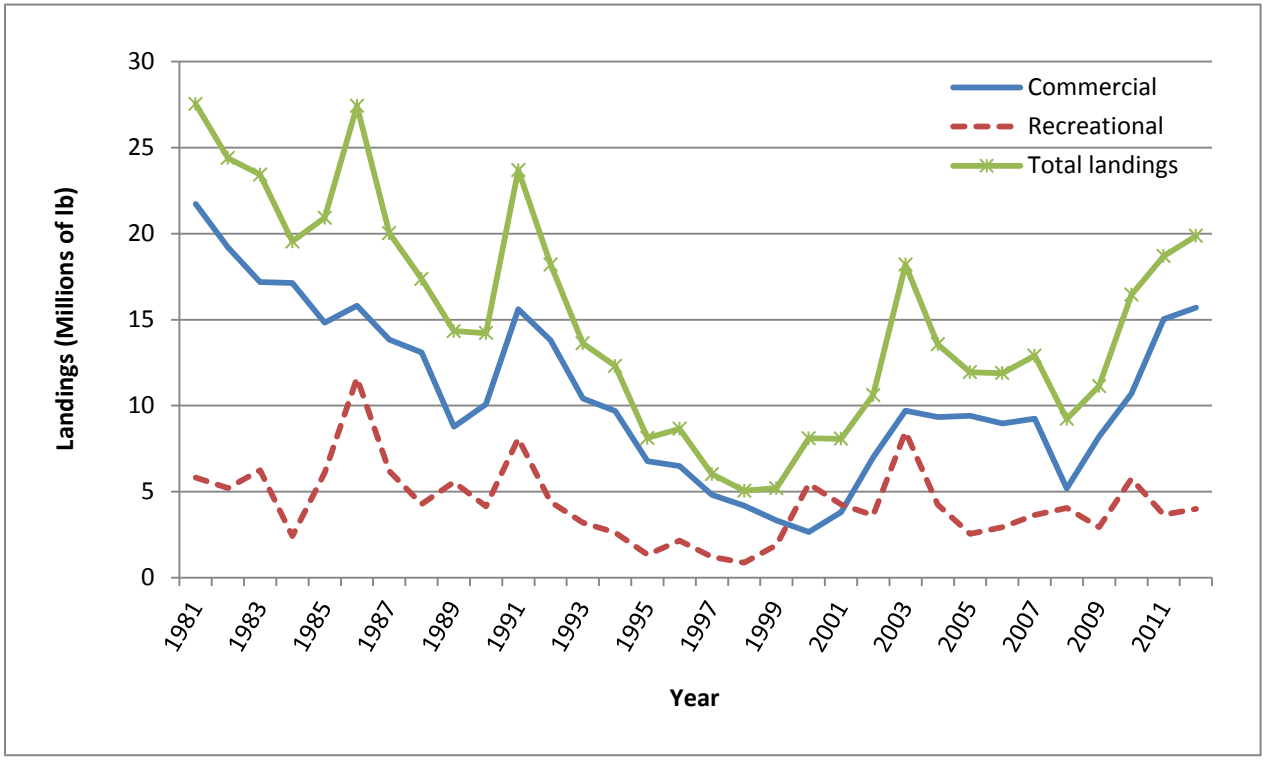

Figure 3: Commercial and Recreational U.S. Scup Landings (millions of pounds) from Maine to North Carolina, 1981-2012.

Table 1 summarizes the scup management measures for the 2004-2015 fishing years. Acceptable biological catch (ABC) levels have been identified for this stock since 2010, and recreational and commercial annual catch limits (ACLs), with a system of overage accountability for each ACL, were first implemented in 2012. It should be noted that catch limits include both projected landings and discards, whereas the commercial quotas and recreational harvest limits are landings based (i.e., harvest).

Table 1: Summary of scup management measures and landings for 2004 through 2015.

Management measures	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014[c]**	**2015[c]**
ABC (m lb)	NA	NA	NA	NA	NA	11.70	17.09	51.70	40.88	38.71	35.99	33.78
TAC (m lb)	18.65	18.65	19.79	13.97	9.90	15.54[b]	17.09	31.92	40.88	38.71	35.99	33.78
Commercial ACL	NA	NA	NA	NA	NA	NA	NA	NA	31.89	30.19	28.07	26.34
Com. quota–adjusted (m lb)[a]	12.34	12.23	11.93	8.90	5.24	8.37	10.68	20.36	27.91	23.53	21.95	20.60
Commercial landings	9.33	9.41	8.96	9.25	5.18	8.20	10.71	15.03	15.70	NA	NA	NA
Recreational ACL	NA	NA	NA	NA	NA	NA	NA	NA	8.99	8.52	7.92	7.43
Rec. harvest limit-adjusted (m lb)[a]	4.01	3.96	4.15	2.74	1.83	2.59	3.01	5.74	8.45	7.55	7.03	6.60
Recreational landings	4.24	2.54	2.93	3.65	4.04	2.94	5.74	3.66	4.17	NA	NA	NA
Com. fish size (in)	9	9	9	9	9	9	9	9	9	9	9	9
Com. min. mesh size (in, diamond)	4.5/5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Threshold (lb)	500/100	500/200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/200	500/200	500/200	500/200	500/200
Recreational measures (minimum fish size (total length), possession limit, and open season)	10-in TL, 50 fish, 1/1-2/28 and 9/7 - 11/30	10-in TL, 50 fish, 1/1-2/28 and 9/18 - 1/30	10-in TL, 50 fish, 1/1-2/28 and 9/18-11/30	10-in TL, 50 fish, 1/1-2/28 and 9/18-11/30	10.5-in TL, 15 fish, 1/1-2/28 and 10/1-10/31	10.5-in TL, 15 fish, 1/1-2/28 and 10/1-10/31	10.5-in TL, 10 fish, 6/6 - 9/26	10.5-in TL, 10 fish, 6/6 - 9/26	10.5-in TL, 15 fish, 5/19-10/14 and 11/1-12/31	10-in TL, 30 fish, 1/1-12/31	NA	NA

[a]Adjusted for RSA and projected discards. [b]In 2009, the SSC recommend an ABC of 11.70 million lb. Based on the Data Poor Stocks Workgroup Panel Report, which was not available to the SSC at the time the recommendation was made, NMFS increased the TAC to 15.54 million lb. NA=Not applicable or not yet available. [c]These reflect the regulations currently set for scup in 2014 and 2015, however, the Council and ASFMC will review these catch limits and management measures in October 2013 and may revise as necessary.

NMFS statistical areas are shown in Figure 4. Vessel trip report (VTR) data suggest that statistical area 537 was responsible for the largest percentage of the catch in 2012, with statistical area 539 having the majority of trips that caught scup (Table 2).

Table 2: Statistical areas that accounted for at least 5 percent of the scup catch in 2012, as well as associated trips. Source: NMFS VTR data.

Statistical Area	Scup Catch (percent)	Scup Trips (N)
537	26.79	809
613	18.73	938
611	14.95	1555
539	13.02	1658
616	9.02	273

Based on VTR data for 2012, the bulk of scup landings were taken by bottom otter trawls (96 percent), followed by pots and traps (~1 percent), and hand lines (~1 percent). Other gear types each accounted for less than 1 percent of landings. Current commercial regulations for scup require a 9 inch-TL minimum fish size in the commercial fishery, and the following gear requirements for otter trawls: minimum mesh size of 5 inch for the first 75 meshes from the terminus of the net, and for codends constructed with fewer than 75 meshes, a minimum mesh size of 5 inch throughout the net. The threshold level used to trigger the minimum mesh requirements is 500 lbs of scup from November 1 through April 30 and 200 lb or more of scup from May 1 through October 31 (Table 1). In addition, the current regulations require a circular escape vent of 3.1 inch, a square escape vent of 2.25 inch, or a rectangular escape vent of an equivalent size.

Gear restricted areas (GRAs) were implemented by NMFS in 2000 to reduce discards of scup in small mesh fisheries, and became effective on November 1, 2000 for the northern area with an exemption for the herring fishery. The GRAs were modified in size in December 2000 to include areas farther south that were identified as areas of potential scup and *Loligo* interactions. Mackerel and herring small mesh fisheries were exempt from the regulations. In 2005, based on recommendations from the Monitoring Committee, the boundary of the southern GRA was moved 3 longitudinal minutes to the west.

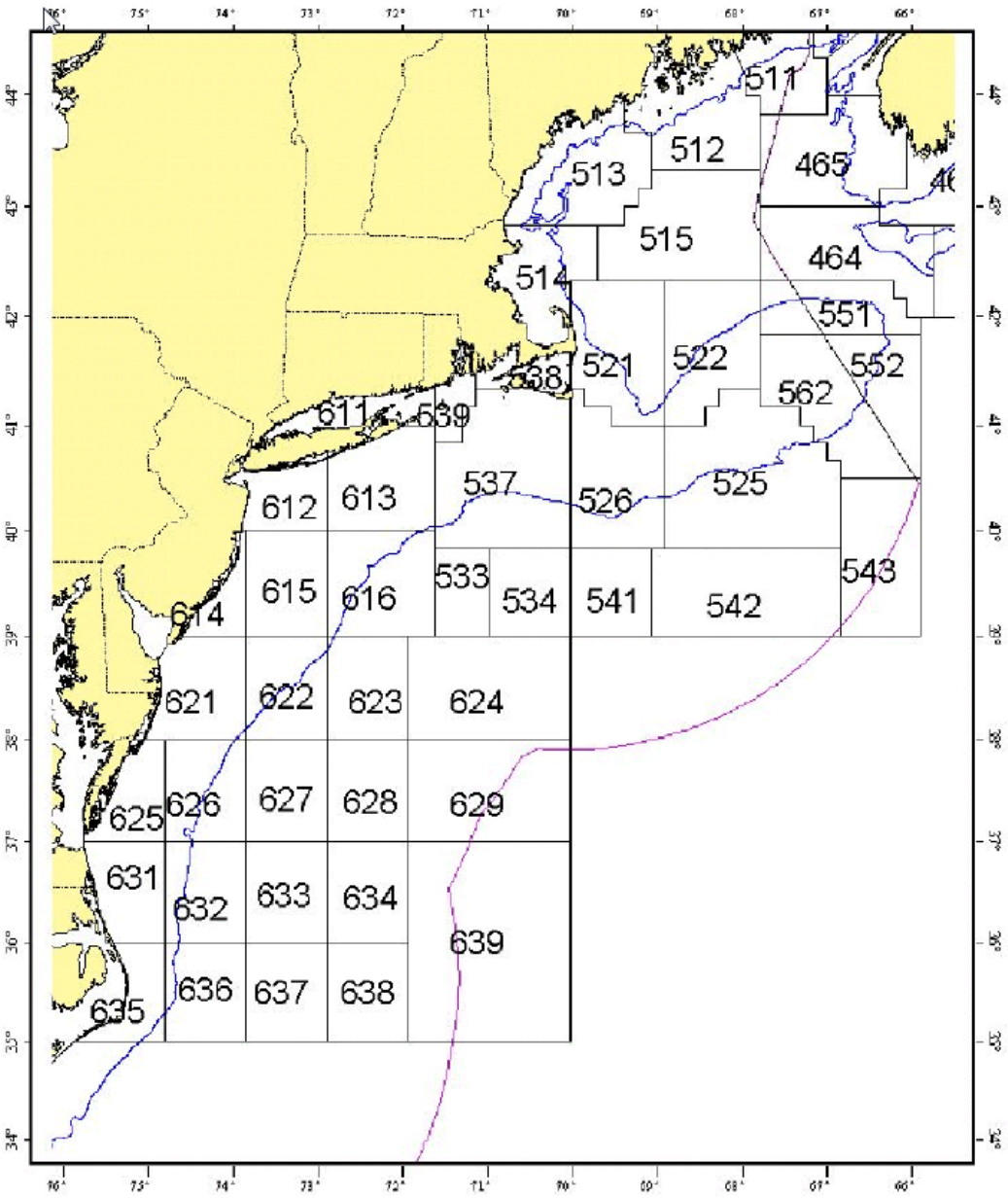

Figure 4: National Marine Fisheries Service Statistical Areas.

The Winter I possession limit for 2013 is 50,000 lb, until 80 percent of the landings are reached, at which point the possession limit drops to 1,000 lb. A possession limit of 2,000 lb is used in Winter II, unless a transfer of quota occurs between Winter I and Winter II. In that case, the Winter II possession limit should increase at 1,500 lb intervals for every 500,000 lb of scup transferred, i.e., if 1.0 million lb is transferred then the limit would be increased by 3,000 lb to result in a 5,000 lb possession limit. The possession limits were chosen as an appropriate balance between the economic concerns of the industry (i.e., landing enough scup to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period.

The 50,000 lb possession limit for Winter I was first put in place in 2012, representing an increase from the 2011 Winter I possession limit of 30,000 lb. A threshold analysis was conducted to examine how the change in possession limit may change the landings patterns for the winter periods (Table 3). These data indicate that the overall number of trips taken in Winter I increased from 2011 to 2012, but decreased from 2012 to 2013. However, from 2012 to 2013, there was an overall increase in the percentage of trips landing more than 5,000 lb of scup.

Table 3: The total number of vessels, trips, and associated pounds for a given threshold (pounds) of scup for 2011-2013. Note: 2013 data are preliminary. C = Confidential.

Time Period	Threshold	Vessels	%	Trips	%	Pounds	%
	>=1	207	100%	3,342	100%	5,807,280	100%
2011	>=500	128	62%	1,573	47%	5,590,146	96%
Winter	>=5000	82	40%	337	10%	3,198,149	55%
I	>=10000	54	26%	115	3%	1,665,417	29%
(Jan-Apr)	>=15000	30	14%	38	1%	750,052	13%
	>=20000	14	7%	17	1%	391,898	7%
	>=25000	4	2%	4	0%	106,350	2%
	>=30000	0	0%	0	0%	0	0%
Time Period	**Threshold**	**Vessels**	**%**	**Trips**	**%**	**Pounds**	**%**
	>=1	215	100%	5,170	100%	5,922,130	100%
2012	>=500	111	52%	2,028	39%	5,556,630	94%
Winter	>=5000	58	27%	256	5%	2,558,588	43%
I	>=10000	35	16%	77	1%	1,342,352	23%
(Jan-Apr)	>=15000	19	9%	41	1%	915,408	15%
	>=20000	11	5%	19	0%	536,305	9%
	>=25000	8	4%	10	0%	331,895	6%
	>=30000	4	2%	5	0%	195,540	3%
	>=50000	0	0%	0	0%	0	0%
Time Period	**Threshold**	**Vessels**	**%**	**Trips**	**%**	**Pounds**	**%**
	>=1	213	100%	3,738	100%	7,427,555	100%
2013	>=500	135	63%	1,924	51%	7,212,590	97%
Winter	>=5000	77	36%	424	11%	4,402,159	59%
I	>=10000	46	22%	151	4%	2,501,705	34%
(Jan-Apr)	>=15000	26	12%	63	2%	1,437,985	19%
	>=20000	19	9%	36	1%	969,098	13%
	>=25000	12	6%	17	0%	548,563	7%
	>=30000	8	4%	11	0%	387,270	5%
	>=50000	0	0%	0	0%	0	0%

Table 3, Continued:

Period	Threshold	Vessels	%	Trips	%	Pounds	%
	>=1	181	100%	3,259	100%	2,638,811	100%
2011	>=500	91	50%	1,183	36%	2,416,371	92%
Winter	>=5000	39	21%	91	3%	614,747	23%
II	>=10000	c	c	c	c	c	c
(Nov-Dec)	>=15000	c	c	c	c	c	c
	>=20000	0	0%	0	0%	0	0%
	>=25000	0	0%	0	0%	0	0%
	>=30000	0	0%	0	0%	0	0%
Period	**Threshold**	**Vessels**	**%**	**Trips**	**%**	**Pounds**	**%**
	>=1	176	100%	3,000	100%	2,810,628	100%
2012	>=500	117	66%	1,239	41%	2,572,357	92%
Winter	>=5000	36	20%	63	2%	467,486	17%
II	>=10000	c	c	c	c	c	c
(Nov-Dec)	>=15000	c	c	c	c	c	c
	>=20000	0	0%	0	0%	0	0%
	>=25000	0	0%	0	0%	0	0%
	>=30000	0	0%	0	0%	0	0%

Scup ex-vessel revenues based on dealer data have ranged from $3.3 to $11.00 million for the 1994 through 2012 period. The mean price for scup (unadjusted) has ranged from a low of $0.55/lb in 2011 to a high of $1.46/lb in 1998 (Figure 5), with a strong price-volume relationship exhibited in the time series. In 2012, 15.70 million pounds of scup were landed generating $11.00 million in revenues.

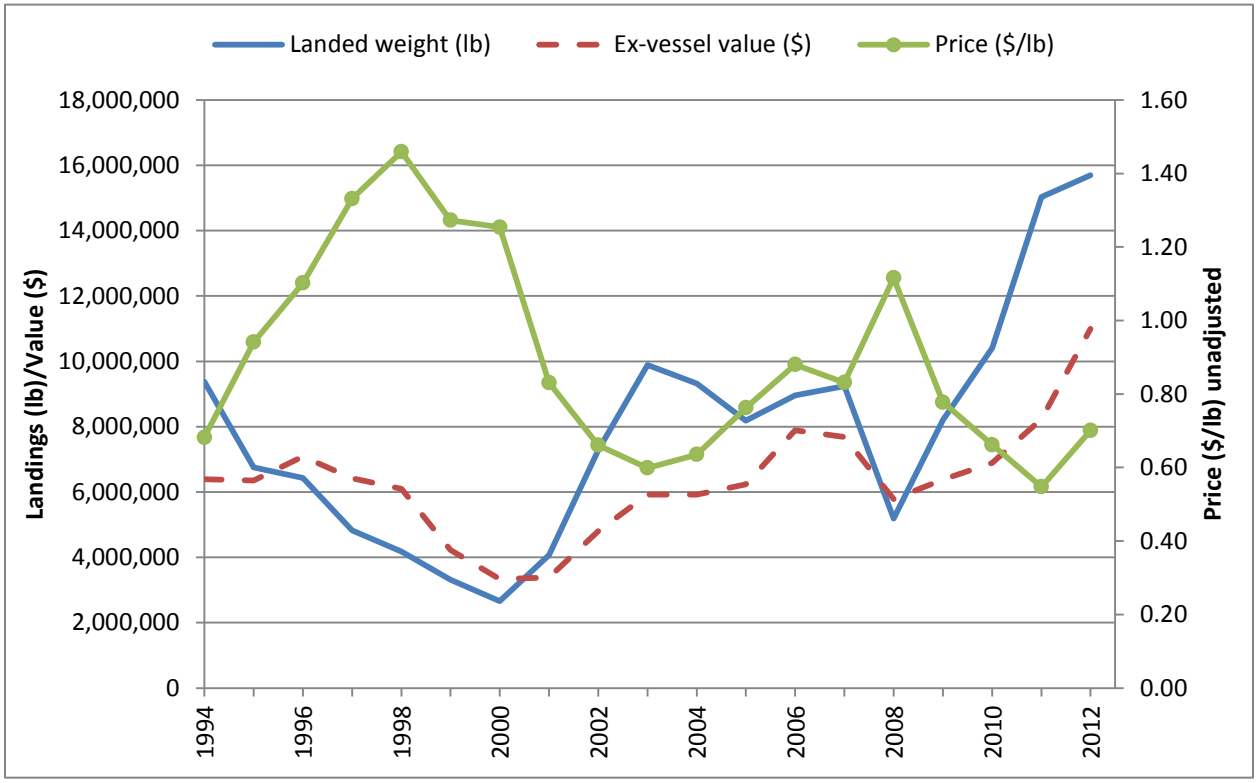

Figure 5: Landings, ex-vessel value, and price (unadjusted) for scup, Maine through North Carolina, 1994-2012.

When examining the landings and prices by period for 2006-2012, summer period prices are generally higher than winter period prices (Table 4). As landings have increased, price has generally decreased.

The ports and communities that are dependent on scup are fully described in Amendment 13 to the FMP. Additional information on "Community Profiles for the Northeast US Fisheries" can be found at: http://www.nefsc.noaa.gov/read/socialsci/community_profiles/.

Table 4: Commercial scup landings, ex-vessel value, and nominal price, by period, 2006-2012.

				Nominal
		Landings	Nominal	Price
Year	Period	(lbs)	Value ($)	Mean ($/lb)
2006	Winter I	3,219,929	2,865,174	0.89
	Summer	3,626,215	3,772,330	1.04
	Winter II	2,115,323	1,250,146	0.59
	Total	8,961,467	7,887,650	0.88
2007	Winter I	4,254,987	3,096,496	0.73
	Summer	3,400,934	3,427,949	1.01
	Winter II	1,590,747	1,164,801	0.73
	Total	9,246,668	7,689,246	0.83
2008	Winter I	1,933,253	2,259,335	1.17
	Summer	2,359,240	2,792,505	1.18
	Winter II	894,139	736,977	0.82
	Total	5,186,632	5,788,817	1.12
2009	Winter I	3,072,652	2,561,821	0.83
	Summer	3,774,583	2,932,300	0.78
	Winter II	1,356,962	887,852	0.65
	Total	8,204,197	6,381,973	0.78
2010	Winter I	4,175,268	2,485,122	0.60
	Summer	4,748,711	3,239,256	0.68
	Winter II	1,482,874	1,166,938	0.79
	Total	10,406,853	6,891,316	0.66
2011	Winter I	5,807,280	2,775,813	0.48
	Summer	6,586,069	3,911,748	0.59
	Winter II	2,638,811	1,543,157	0.58
	Total	15,032,160	8,230,718	0.55
2012	Winter I	5,411,976	4,019,283	0.74
	Summer	6,747,578	4,704,339	0.70
	Winter II	2,557,370	1,220,120	0.48
	Total	15,702,015	11,000,353	0.70

2012 NMFS dealer data were used to examine recent landings patterns among ports. The top commercial landings ports for scup by pounds landed are shown in Table 5. A "top port" is defined as any port that landed at least 100,000 lb of scup. Related data for the recreational fisheries are shown in subsequent sections. However, due to the nature of the recreational database, it is inappropriate to desegregate to less than state levels.

Table 5: Top ports of landing (in lb) for scup (SCP), based on NMFS 2012 dealer data. Since this table includes only the "top ports," it may not include all of the landings for the year. Note: C = Confidential

Port	Landings of Scup (lb)	# of Scup Vessels
PT. JUDITH, RI	5,398,830	118
MONTAUK, NY	2,852,359	94
NEW BEDFORD, MA	1,227,978	57
NEW LONDON, CT	818,946	11
PT. PLEASANT, NJ	614,788	25
STONINGTON, CT	536,666	21
HAMPTON BAY, NY	493,447	31
MATTITUCK, NY	389,878	4
NEWPORT, RI	244,623	18
LITTLE COMPTON, RI	219,032	18
BELFORD, NJ	191,840	18
FALL RIVER, MA	C	C
HAMPTON, VA	181,654	22
PT. LOOKOUT, NY	171,958	8
TIVERTON, RI	168,726	4
CAPE MAY, NJ	146,545	25
AMAGANSETT, NY	142,148	3
EAST LYME, CT	138,092	3
MATTAPOISET, MA	123,226	3
OTHER CONNECTICUT	C	C
NEWPORT NEWS, VA	100,542	18

Among the states from Maine through North Carolina, New York had the highest number of Federally permitted dealers (46) who bought scup in 2012 (Table 6). All dealers bought approximately $11.00 million of scup in 2012.

Table 6: Dealers reporting buying scup, by state in 2012. Note: C = Confidential.

Number of Dealers	MA	RI	CT	NY	NJ	DE	MD	VA	NC
	37	40	10	46	15	C	C	8	7

Recreational Fishery

There is a significant recreational fishery for scup in state waters, which occurs seasonally when the fish migrate inshore during the warm summer months. In Federal waters, the recreational scup fishery is managed on a coastwide basis. However, the ASMFC applies a regional management approach, where the four northern states (New York through Massachusetts) developed regulations intended to land 97 percent of the allocation. The 2013 recreational fishing measures in Federal waters are given in Table 1, and the 2012 state-specific measures are given in Table 7.

Recreational data have been available through the Marine Recreational Information Program (MRIP) since 2004, and prior to 2004 were available through the Marine Recreational Fishery Statistics Survey (MRFSS). Recreational catch and landings of scup peaked in 1986 with landings in numbers and weight at the lowest levels in 1998 (Table 8). When anglers are intercepted through the surveys conducted for the recreational statistics programs, they are asked about where the majority of their fish were caught (i.e., inland, state waters (<=3 miles), exclusive economic zone (EEZ; > 3 miles)). While these data are somewhat imprecise, they do provide a general indication of where the majority of scup are landed recreationally (Table 9).

Table 7: Scup recreational fishing measures in state waters for 2013, by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts For Hire	10	45 fish from May 1- June 30; 30 fish from July 1- Dec 31	July 1- December 31
Private Angler	10	30 fish; private vessels with 6 or more persons aboard are prohibited from possessing more than 150 scup per day	May 1- December 31
Rhode Island For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10"; and 9" or greater for shore mode at 3 designated sites	30 fish	May 1- December 31
Connecticut For Hire	11	20 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10.5; and 9" for shore mode at 46 designated sites	20 fish	May 1- December 31
New York For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10	30 fish	May 1- December 31
New Jersey	9	50 fish	Jan 1-Feb 28 and July 1 – December 31
Delaware	8	50 fish	All Year
Maryland	8	50 fish	All Year
Virginia	8	50 fish	All Year
North Carolina	8	50 fish	All Year

Table 8: Recreational scup landings data from the NMFS recreational statistics databases, 1981-2012.

Year	Catch ('000 of fish)	Landings ('000 of fish)	Landings ('000 lb)
1981	10,376	9,084	5,812
1982	7,181	6,454	5,205
1983	10,155	8,837	6,252
1984	7,775	6,057	2,416
1985	13,861	10,810	6,093
1986	30,872	24,823	11,605
1987	12,377	9,916	6,197
1988	7,539	6,062	4,267
1989	11,394	9,176	5,557
1990	10,172	8,043	4,140
1991	16,852	13,279	8,087
1992	10,077	7,764	4,412
1993	7,076	5,663	3,197
1994	5,650	4,270	2,628
1995	3,767	2,419	1,344
1996	4,676	2,972	2,156
1997	3,070	1,916	1,198
1998	2,670	1,211	875
1999	4,636	3,251	1,886
2000	11,284	7,244	5,443
2001	9,925	5,099	4,262
2002	7,580	3,647	3,624
2003	14,661	9,452	8,484
2004	13,426	7,154	7,227
2005	7,038	2,589	2,678
2006	9,615	3,434	3,696
2007	10,051	4,748	4,593
2008	10,706	3,487	3,763
2009	8,704	3,134	3,221
2010	11,147	5,148	5,980
2011	6,473	3,056	3,663
2012	8,829	3,668	4,166

Table 9: Percentage of scup recreational landings (MRIP Type A+B1 in number of fish) by year and area, Maine through North Carolina, 2003-2012. Area information is self-reported based on the area where the majority of fishing activity occurred per angler trip.

Year	State <= 3 mi	EEZ > 3 mi
2003	95.2	4.8
2004	94.8	5.2
2005	98.2	1.8
2006	93.6	6.4
2007	98.3	1.7
2008	96.2	3.8
2009	98.1	1.9
2010	95.8	4.2
2011	96.4	3.6
2012	99.5	0.5
Avg. 2003-2012	96.6	3.4
Avg. 2010- 2012	97.2	2.8

Table 10: State contribution (as a percentage) to total recreational landings of scup (MRIP Type A+B1 in number of fish) from Maine through North Carolina, 2011 and 2012.

State	2011	2012
Maine	0.0	0.0
New Hampshire	0.0	0.0
Massachusetts	25.7	43.3
Rhode Island	18.6	13.6
Connecticut	30.5	23.7
New York	23.4	16.1
New Jersey	1.5	3.3
Delaware	0.0	0.0
Maryland	0.0	0.0
Virginia	0.3	0.0
North Carolina	0.0	0.0
Total	**100%**	**100%**

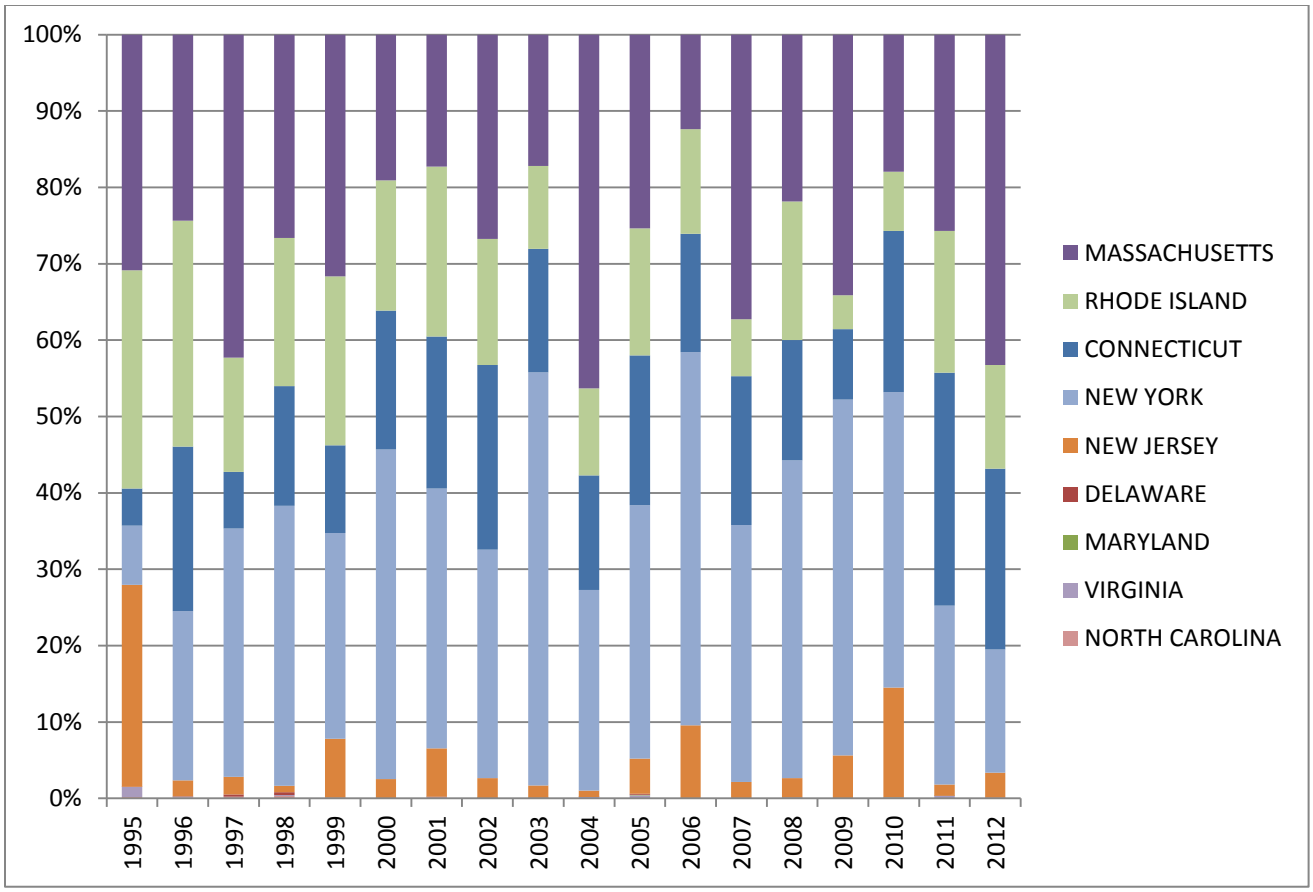

Figure 6: State contribution (as a percentage) of total recreational landings of scup (MRIP Type A + B1 in number of fish), from Massachusetts through North Carolina, 1995-2012.

The states of New York, Connecticut, and Massachusetts land the majority of fish (Table 10; Figure 6). The more southern states of Delaware through North Carolina land very few scup. Since the mid-1990s, the state contributions of landings (in numbers of fish) have fluctuated from year to year but few consistent trends are evident (Figure 6).

In 2012, there were 750 recreational vessels (i.e., party and charter vessels) that held scup Federal recreational permits. Many of these vessels also hold recreational permits for summer flounder and black sea bass. Landings by mode indicate that private/rental fishermen are responsible for the majority of scup landings (Table 11).

Table 11: The number of scup landed from Maine through North Carolina by mode, 1981-2012.

Year	Shore	Party/Charter	Private/Rental
1981	772,162	1,054,555	7,256,991
1982	833,427	1,393,723	4,226,957
1983	2,227,113	2,996,660	3,612,789
1984	1,299,566	227,735	4,530,009
1985	1,121,593	325,846	9,362,607
1986	1,898,860	3,228,151	19,696,033
1987	522,310	583,977	8,809,697
1988	698,339	1,137,625	4,226,347
1989	882,602	1,033,319	7,260,510
1990	434,743	1,302,791	6,305,463
1991	1,625,127	2,250,041	9,403,917
1992	1,003,648	1,017,369	5,743,163
1993	284,525	1,762,459	3,616,035
1994	229,924	918,217	3,122,100
1995	222,397	837,390	1,359,239
1996	120,597	451,615	2,399,995
1997	141,367	453,067	1,322,002
1998	117,056	164,931	929,147
1999	197,876	821,995	2,230,778
2000	550,951	1,140,132	5,552,865
2001	766,084	768,894	3,563,840
2002	505,079	1,309,169	1,832,593
2003	858,699	1,329,585	7,264,027
2004	776,634	1,508,921	4,867,979
2005	394,888	165,760	2,028,784
2006	321,081	605,951	2,507,108
2007	352,618	516,174	3,879,035
2008	385,583	868,771	2,232,589
2009	209,882	1,122,189	1,801,987
2010	383,464	1,280,211	3,484,602
2011	302,056	470,572	2,283,583
2012	266,228	1,146,896	2,255,366
% of Total, 1981-2012	10%	17%	73%
% of Total, 2008-2012	8%	26%	65%

The NMFS angler expenditure survey summarizes a variety of costs associated with recreational fishing in the Northeast (Table 12). In addition, Steinback et al., 2009 summarized the reasons for fishing, with a majority of anglers (about 85 percent) fishing either mostly or fully for recreational purposes (Table 13).

Table 12: Average daily trip expenditures ($ unadjusted) by recreational fishermen in the Northeast region by mode, in 2006. Source: Genter and Steinback (2008)

Expenditures	$		
	Party/Charter	Private/Rental	Shore
Private transportation	13.88	11.03	12.94
Public transportation	0.26	0.07	0.40
Auto rental	0.27	0.02	0.10
Food from grocery stores	7.40	4.92	7.33
Food from restaurants	8.70	3.42	9.28
Lodging	10.0	2.64	14.90
Boat fuel	0	9.54	0
Boat or equipment rental	0.05	0.19	0.03
Charter fees	57.76	0	0
Charter crew tips	3.0	0	0
Catch processing	0.02	0	0
Access and parking	0.44	1.11	1.32
Bait	0.31	3.42	3.25
Ice	0.39	0.59	0.39
Tackle used on trip	1.87	2.04	3.98
Tournament fees	1.10	0.04	0.02
Gifts and souvenirs	1.67	0.10	1.45
Total	107.13	39.14	55.39

Table 13: Purpose of Marine Recreational Fishing in the Northeast. Source: Steinback et al., 2009.

	Percent	Number of anglers in 2005 (thousands)
Purpose of recreational fishing trips		
All for food or income	2.1	92.4
Mostly for food or income	<1.0	34.3
Both for recreation and for food or income	11.7	514.8
Mostly for recreation	13.2	580.8
All for recreation	72.2	3,176.8

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