

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

Richard B. Robins, Jr.
Chairman

Lee G. Anderson
Vice Chairman

800 North State Street, Suite 201
Dover, Delaware 19901-3910
Tel: 302-674-2331
Toll Free: 877-446-2362
FAX: 302-674-5399
www.mafmc.org

Christopher M. Moore, Ph.D.
Executive Director

MEMORANDUM

DATE: November 28, 2011

TO: Chris Moore

FROM: Jessica Coakley *JMC*

SUBJECT: Scup Monitoring Committee Recommendations for Recreational Management Measures in 2012

In August 2011, the Council and Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) recommended commercial quotas and recreational harvest limits for the 2012 fishing year, after considering the recommendations Scientific and Statistical Committee (SSC) and Scup Monitoring Committee. A new scup assessment update was released in October 2011 and the SSC and Scup Monitoring Committee have been asked to revisit their recommendations for 2012. Based on those recommendations, a recreational harvest limit will be derived and the Scup Monitoring Committee must recommend recreational management measures for 2012 that will constrain landings to that revised harvest limit. Preliminary information suggests that the recreational harvest limit for 2012 may be approximately 8.31 million lb, although this is dependent on the specific recommendations of each Committee and may change. For the purposes of analysis, the staff recommendations contained within this document assumes the recreational harvest limit will be 8.31 million lb.

The following is a review of recreational catch and landings data for the scup fishery. Also, detailed analyses of MRFSS intercept and catch data are included to help in the Monitoring Committee's deliberations.

Recreational Catch and Landings

Recreational catch and landings of scup have fluctuated since 1981, from a peak in 1986 of 30.87 million fish to a time series low of 2.67 million fish in 1998, the lowest value in the times series (Table 1). Landings were estimated to be 5.55 million lb in 2010. The 2011 MRFSS data are incomplete and

preliminary. To date, only the first four waves of catch and landings data are available (Table 2). The Monitoring Committee does an early review of the MRFSS data because the Council and Commission agreed that recommendations would have to be made late in the preceding year (i.e., 2010) to give the states enough time to enact changes in their regulations for the upcoming year (i.e., 2011). Catch estimates for 2011 waves 1-4 (January through August) were 3.47 million fish (Table 2). Landings by weight for the first four waves of 2011 are 1.95 million lb and the mean weight of landed fish is approximately 1.2 pound per fish. By state, recreational landings for waves 1-4 decreased in all states from Massachusetts through New Jersey from 2010 to 2011 (Table 3).

Preliminary wave data for 2011 can be used to project catch and landings for the entire year. Assuming the same proportion of catch and landings by wave in 2011 as in 2010, projected catch estimates for 2011 would be 5.21 million fish and projected landings would be 2.81 million lb (Table 1). Because prior year proportions are used in the projections, for states with more restrictive seasons in 2011, landings will likely be overestimated, and for those with less restrictive measures landings will likely be underestimated.

Past Harvest Limits and Management Measures

Recreational harvest limits and management measures have varied since the FMP was first implemented from a low of 1.24 million lb annually in 1999 to a high of 5.74 million lb in 2011 (Table 4). In 2011, the Council adopted Federal management measures that included a 10 fish possession limit, a 10.5 inch TL size limit, and an open season from January 1 through June 5 and September 27 through December 31. In 2010, the Commission adopted a regional approach for regulations in state waters, which results in relatively consistent regulations for the states from Massachusetts to New York (Table 5). Based on projected estimates, the combination of state management measures in place for Massachusetts to New York in 2011 (Table 6) will result in landings that will not exceed the regional target (Table 7).

Accountability Measures

The Omnibus Annual Catch Limit (ACL) and Accountability Measures Amendment has been implemented. Therefore, new measures will apply to the scup recreational fishery in 2012 and beyond. The NMFS Regional Administrator (RA) now has inseason closure authority for the scup recreational fishery. Specifically, the RA will monitor recreational landings for scup and determine if the recreational harvest limit has been met or exceeded based on observed landings (i.e., not projections of future landings). If the harvest limit has been met or exceeded, the scup recreational fishery in the EEZ will be closed for remainder of the calendar year. In addition, there are overage deductions for the recreational fishery that have been linked to the recreational ACL being exceeded. If data indicate that the recreational sector ACL has been exceeded and the landings have exceeded the recreational harvest limit, the exact poundage of the landings overage will be deducted, as soon as possible, from a subsequent single fishing year recreational sector ACT. The recreational harvest limit is derived from the ACT, after discards and RSA have been removed. The recreational sector ACL will be evaluated based on a 3-year moving average comparison of total catch (landings and dead discards). The 3-year moving average will be phased in over the first 3 years, beginning with 2012.

Intercept Data and Regulatory Compliance

Analysis of coastwide intercept data indicates that about 90 percent of the angler trips had 26 or fewer fish per trip with about 50 percent of the trips landing fewer than 2 scup per trip in 2011 based on data through wave 4 (Table 8). Analysis of length frequencies indicate that landings were constrained by the size limits implemented in the states from Massachusetts to New Jersey, although compliance has been less than 100 percent as there were fish measured less than the size limit many of the states. (Table 9).

Methodology

The Monitoring Committee must consider and recommend measures that will ensure the recreational harvest limit of 8.31 million lb will not be exceeded in 2012. Based on the projected landing estimate for 2011 of 2.81 million lb, landings would not have to be reduced to achieve the proposed harvest limit of 8.31 million lb for 2012. The projected landings are 66% lower than the proposed 2012 recreational harvest limit.

Changes in the possession and size limits or season could be modified to achieve the desired harvest level in 2012 (Tables 10 and 11); however, given the complex regulations implemented in state-waters in 2011, the reduction table and seasonal data provided should be interpreted with caution. Table 10 is not useful for evaluating the effects of liberalizing measures for 2012. Information is lacking to evaluate what common set of measures would enable a common minimum size, season, and possession limit for 2012, given the possession/size limit table can only be used to evaluate reductions in landings as it only contains data for measured, landed fish (MRFSS Type A; Table 10).

In addition, the implications of exceeding the recreational harvest limit in 2012 and beyond have changed with the newly implemented system of annual catch limits and accountability measures.

It is apparent the state management measures in place for Massachusetts to North Carolina in 2007-2010 in conjunction with Federal measures did not constrain landings to the harvest limits and the measures in place in 2007-2009 resulted in substantial overages (Table 12). An examination of scup landings (in weight) by area indicates that in 2010, approximately 2 percent of the scup landings occurred in the EEZ (> 3 miles); although the data by area is self-reported from intercepts and has associated caveats. Despite those caveats, this suggests the majority of scup landings are occurring in state-waters, specifically Massachusetts through New York. As such, adjustments to the state waters regulation have much greater effect on landings than adjustments to the Federal measures.

Fishing Trips and Year Class Effects

Predicting the number of trips that might be taken in 2012 is complicated. Recreational fishing demand models are used to forecast the demand for fishing trips as well as to determine the value that anglers place on the various factors that affect their behavior. The models attempt to predict how changes in fishing site characteristics (travel costs, catch rates, available species, water quality, etc.), fishery management policies (possession limits, size restrictions, closed seasons), and angler characteristics (age, gender, race, income, etc.) affect the demand for angler fishing trips. Unfortunately, due to data constraints, the characteristics contained in the models are usually rather narrowly defined which limits the predictive capability of the models. This makes evaluation of changes in angler behavior difficult

and complex. Changes in angler behavior may result in a breakdown in the assumptions associated with specific sets of regulations and their anticipated results. Year-class effects in terms of fish availability can influence the expected impacts of management measures and should be considered.

2012 Staff Recommendation

Until 2002, the scup recreational fishery was managed with coastwide measures as dictated by the FMP, which included a common minimum fish size, possession limit, and an open season that were implemented in both state and Federal waters. In 2003, the Commission developed an addendum which created regional harvest limits for state waters and allocated 97 percent of the coastwide limit to the states of Massachusetts to New York. State water measures have grown increasingly complex, with variable possession limits and minimum sizes by fishing mode (i.e., party/charter versus private angler) and by season.

The complexity of the state regulations, coupled with the lack of information to inform the effects of liberalizing measures, has prevented an analysis of a coastwide measure. I do not have the information necessary to evaluate what common minimum size, possession limit, and open season could be implemented in both state and Federal waters on a coastwide basis and would not exceed the 2012 recreational harvest limit of 8.31 million lb. However, the limited information about past fishery performance does suggest that with high fish availability and the expanded age-structure of a fully rebuilt stock, the recreational harvest limit could be exceeded in 2012 if measures are rapidly liberalized. Spawning stock biomass in 2010 is about twice the size it was in 2003, when 8.5 million lb of scup were landed with a 10 inch minimum fish size, 50 fish possession limit, and open season from January 1 to February 28 and July 1 to November 30 (Table 4).

Without any information to inform the coastwide measure, I recommend status quo (i.e., same as 2011) measures for 2012.

Specifically, status quo in 2012 would include:

- 1) Federal waters measures of a 10.5 inch minimum fish size, 10 fish possession limit, and open season from January 1 to June 6 and September 27 to December 31 in 2012.
- 2) Through the Commission process, states must develop state-specific measures to constrain their landings to the regional recreational harvest limits.

Table 1. Scup recreational catch and landings by year, 1981-2011. The number of fish released is presented as a proportion of the total catch (% Rel).

Year	Catch (‘000 fish)	Landings (‘000 fish)	Landings (‘000 lb)	% Released
1981	10,376	9,084	5,812	12%
1982	7,181	6,454	5,205	10%
1983	10,155	8,837	6,252	13%
1984	7,775	6,057	2,416	22%
1985	13,861	10,810	6,093	22%
1986	30,872	24,823	11,605	20%
1987	12,377	9,916	6,197	20%
1988	7,539	6,062	4,267	20%
1989	11,394	9,176	5,557	19%
1990	10,172	8,043	4,140	21%
1991	16,852	13,279	8,087	21%
1992	10,077	7,764	4,412	23%
1993	7,076	5,663	3,197	20%
1994	5,650	4,270	2,628	24%
1995	3,767	2,419	1,344	36%
1996	4,676	2,972	2,156	36%
1997	3,070	1,916	1,198	38%
1998	2,670	1,211	875	55%
1999	4,636	3,251	1,886	30%
2000	11,284	7,244	5,443	36%
2001	9,925	5,099	4,262	49%
2002	7,580	3,647	3,624	52%
2003	14,661	9,452	8,484	36%
2004	9,315	4,698	4,239	50%
2005	6,133	2,392	2,542	61%
2006	8,501	2,801	2,954	67%
2007	8,436	3,592	3,648	57%
2008	11,140	3,674	4,044	67%
2009	7,817	2,771	2,940	65%
2010	10,456	4,709	5,546	55%
2011 ^a	5,213	2,344	2,811	55%

^a Projected using proportion from 2010 MRFSS data and 2011 MRFSS wave 1-4 data (Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 18, 2011).

Table 2. Scup recreational catch and landings for waves 1-4, 1981-2011.

Year	Catch (‘000 fish)	Landings (‘000 fish)	Landings (‘000 lb)	Mean Weight (lb)
1981	5,710	4,604	2,523	0.55
1982	5,303	4,908	4,166	0.85
1983	5,603	4,754	3,327	0.70
1984	6,726	5,230	1,780	0.34
1985	5,478	4,435	3,092	0.70
1986	16,849	13,941	5,911	0.42
1987	9,192	7,403	4,779	0.65
1988	4,273	3,351	2,246	0.67
1989	6,332	5,214	3,406	0.65
1990	6,312	4,999	2,341	0.47
1991	10,224	8,087	4,768	0.59
1992	5,505	4,286	2,507	0.58
1993	3,979	3,228	1,660	0.51
1994	2,622	2,078	1,186	0.57
1995	1,334	869	500	0.58
1996	2,611	1,560	1,164	0.75
1997	1,704	1,069	773	0.72
1998	1,710	766	588	0.77
1999	2,523	1,750	963	0.55
2000	5,728	3,991	2,991	0.75
2001	6,281	3,118	2,422	0.78
2002	4,024	1,787	1,562	0.87
2003	8,998	5,960	5,667	0.95
2004	5,403	2,840	2,383	0.84
2005	3,083	1,419	1,559	1.10
2006	4,651	1,647	1,650	1.00
2007	4,120	2,046	2,059	1.01
2008	6,670	2,283	2,416	1.06
2009	5,914	2,158	2,353	1.09
2010	6,661	3,136	3,701	1.18
2011	3,466	1,609	1,945	1.21

Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 18, 2011.

Table 3. Scup recreational landings (number '000) by state, waves 1-4, 2002-2011.

State	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
ME	-	-	-	-	-	-	-	-	-	-
NH	-	-	-	-	-	-	-	-	-	-
MA	713	1,379	1,114	362	269	684	467	737	671	656
RI	302	572	619	252	300	255	393	108	259	145
CT	320	572	130	449	306	262	415	194	573	438
NY	429	3,395	915	347	597	824	955	1,055	1,387	332
NJ	21	40	61	7	163	14	30	62	239	2
DE	<1	<1	0	<1	<1	<1	<1	<1	0	<1
MD	<1	0	0	0	0	<1	<1	0	0	0
VA	1	1	0	0	0	<1	3	0	3	7
NC	<1	<1	<1	2	11	5	21	<1	3	29

Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 18, 2011.

Table 4. Summary of Federal management measures for the scup recreational fishery, 1997-2011, and potential 2012 recreational harvest limit.

Measure	1997	1998	1999	2000	2001	2002	2003	2004	2005
Harvest Limit (m lb)	1.95	1.55	1.24	1.24	1.76	2.71	4.01	3.99	3.96
Landings (m lb)	1.20	0.88	1.89	5.44	4.26	3.62	8.48	4.24	2.54
Possession Limit	-	-	-	-	50	20	50	50	50
Size Limit (in TL)^b	7	7	7	-	9	10	10	10	10
Open Season	1/1 - 12/31	1/1 - 12/31	1/1 - 12/31	1/1 - 12/31	8/15 - 10/31	7/1 - 10/2	1/1-2/28 and 7/1-11/30	1/1-2/28 and	1/1-2/28 and

Measure	2006	2007	2008	2009	2010	2011	2012
Harvest Limit (m lb)	3.99	2.74	1.83	2.59	3.01	5.74	8.31
Landings (m lb)	2.95	3.65	4.04	2.94	5.55	2.81	-
Possession Limit	50	50	15	15	10	10	-
Size Limit (in TL)^b	10	10	10.5	10.5	10.5	10.5	-
Open Season	1/1-2/28 and 9/18-11/30	1/1-2/28 and 9/18-11/30	1/1-2/28 and 10/1-10/31	1/1-2/28 and 10/1-10/31	6/6 - 9/26	1/1-6/5 and 9/27-12/31	-

^a Projected using proportion from 2010 MRFSS data and 2011 MRFSS wave 1-4 data (Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 18, 2011).

Table 5. Scup recreational management measures by state, 2010.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts (party/charter)	11	40 fish from May 15 to June 18; 10 fish from June 19 to Sept. 17	May 15- Sept. 17
Massachusetts (private angler)	10.5	10 fish; private vessels with five or more persons aboard are prohibited from possessing more than 50 scup per day	May 24-Sept. 26
Rhode Island (party/charter)	11	10 fish June 8 to Sept. 6; 40 fish Sept. 7 to Oct. 11	June 8-Oct. 11
Rhode Island (private angler)	10.5	10 fish	May 24-Sept. 26
Connecticut (party/charter)	11	10 fish June 8 to Sept. 6; 40 fish Sept. 7 to Oct. 11	June 8-Oct. 11
Connecticut (private angler)	10.5	10 fish	May 24-Sept. 26
New York (party/charter)	11	10 fish June 8 to Sept. 6; 40 fish Sept. 7 to Oct. 11	June 8-Oct. 11
New York (private angler)	10.5	10 fish	May 24-Sept. 26
New Jersey	9	50 fish	Jan. 1-Feb. 28 and July 1 – Dec. 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 6. Scup recreational management measures by state, 2011.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts (party/charter)	11	40 fish from May 15 to June 18; 10 fish from June 19 to September 17	May 15- Sept. 17
Massachusetts (private angler)	10.5	10 fish; private vessels with five or more persons aboard are prohibited from possessing more than 50 scup per day	May 24-Sept.26
Rhode Island (party/charter)	11	10 fish June 8 to September 6; 40 fish September 7 to October 11	June 8-Oct.11
Rhode Island (private angler)	10.5	10 fish	May 24-Sept.26 (extended to Dec. 31)
Connecticut (party/charter)	11	10 fish June 8 to September 6; 40 fish September 7 to October 11	June 8-Oct. 11
Connecticut (private angler)	10.5	10 fish	May 24-Sept. 26 (extended to Dec. 31)
New York (party/charter)	11	10 fish June 8 to September 6; 40 fish September 7 to October 11	June 8-Oct. 11
New York (private angler)	10.5	10 fish	May 24-Sept.26 (extended to Dec. 31)
New Jersey	9	50 fish	Jan 1-Feb 28 and July 1 – Dec. 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 7. Projected recreational scup landings (in number of fish) relative to Commission targets, for 2011, by state.

State	2011 Target	2011 Landings ^a	Percent Overage (%)
MA	4,727,288 ^b	822,372	0%
RI		246,019	
CT		768,840	
NY		445,469	
NJ	^c	3,615 ^d	N/A
DE	^c	21	N/A
MD	^c	0	N/A
VA	^c	10,337	N/A
NC	^c	47,786	N/A
Total		2,344,458	

^a Projected using proportion from 2010 MRFSS data and 2011 MRFSS wave 1-4 data (Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 18, 2011).

^b States of MA, RI, CT, and NY formed a multi-state region and pooled landings, targets, and implemented similar regulations

^c State does not have specific target

^d New Jersey projection should be reevaluated once wave 5 becomes available. Dominant wave shifts between 4 and 5 annually; therefore, projections tend to be extremely unstable. See discussion in staff recommendation text.

Table 8. The percent of successful anglers landing 1 to 50 scup (MRFSS Type A fish) per trip, waves 1-4, 2011.

C per T	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	78	32.77	80	33.61
2	44	18.49	124	52.10
3	15	6.30	139	58.40
4	20	8.40	159	66.81
5	5	2.10	164	68.91
6	10	4.20	174	73.11
7	5	2.10	179	75.21
8	4	1.68	183	76.89
9	6	2.52	189	79.41
10	6	2.52	195	81.93
12	2	0.84	197	82.77
14	3	1.26	200	84.03
16	2	0.84	202	84.87
17	1	0.42	203	85.29
19	3	1.26	206	86.55
21	2	0.84	208	87.39
25	1	0.42	209	87.82
26	4	1.68	213	89.50
27	4	1.68	217	91.18
28	1	0.42	218	91.60
30	1	0.42	219	92.02
31	1	0.42	220	92.44
32	1	0.42	221	92.86
34	2	0.84	223	93.70
35	1	0.42	224	94.12
37	1	0.42	225	94.54
38	1	0.42	226	94.96
40	7	2.94	233	97.90
41	1	0.42	234	98.32
43	1	0.42	235	98.74
45	1	0.42	236	99.16
48	1	0.42	237	99.58
50	1	0.42	238	100.00

Table 9. The percent of measured scup (MRFSS Type A fish) relative to state specific and coastal size limits or 2002, 2010, and 2011. The number in parentheses is sample size.

State	2002			2010 ^a			2011 ^{a, b}		
	% Below Size Limit	Number Measured	Size Limit	% Below Size Limit	Number Measured	Size Limit	% Below Size Limit	Number Measured	Size Limit
ME	-	-	-	-	-	-	-	-	-
NH	-	-	-	-	-	-	-	-	-
MA	0.8	(279)	9.0	11.0	(915)	10.5	10.1	(854)	10.5
RI	9.0	(435)	10.0	7.2	(320)	10.5	6.7	(30)	10.5
CT	1.3	(152)	10.0	14.3	(307)	10.5	6.0	(50)	10.5
NY	7.5	(94)	10.0	10.7	(441)	10.5	7.8	(77)	10.5
NJ	4.6	(44)	10.0	1.4	(219)	9	50.0	(2)	9
DE	0	(1)	8.0	0	(0)	8	0	(0)	8
MD	0	(1)	8.0	0	(1)	8	0	(0)	8
VA	0	(0)	8.0	50.0	(2)	8	100.0	(1)	8
NC	0	(0)	8.0	12.3	(73)	8	1.7	(237)	8
Coast	6.1	(1006)	10.0	7.6	(2278)	10.0	5.3	(1251)	10.0

^a For MA, RI, CT, and NY, minimum size varied from 10.5 – 11.0 inch TL by mode and season.

^b 2011 MRFSS wave 1-4 data (Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 24, 2011).

Table 10. The effect of various size and possession limits on 2011 scup recreational landings. The tables contain the proportional reduction in number of scup landed assuming regulations are 100% effective. Note: Reduction is calculated as the difference between the values associated with the current regulations and those being evaluated.

Bag	10.5	11	11.5	12.0	12.5	13.0	13.5	14	14.5
1	0.8013	0.8293	0.8866	0.9042	0.9337	0.9788	0.9880	0.9951	0.9978
2	0.6683	0.7322	0.8242	0.8594	0.9043	0.9741	0.9865	0.9943	0.9973
3	0.5655	0.6633	0.7864	0.8446	0.8967	0.9705	0.9858	0.9940	0.9971
4	0.5034	0.6295	0.7663	0.8306	0.8922	0.9698	0.9852	0.9939	0.9970
5	0.4610	0.6088	0.7508	0.8172	0.8881	0.9692	0.9847	0.9938	0.9968
6	0.4332	0.5886	0.7360	0.8100	0.8849	0.9689	0.9845	0.9938	0.9968
7	0.4150	0.5754	0.7247	0.8083	0.8845	0.9687	0.9844	0.9938	0.9968
8	0.3975	0.5627	0.7192	0.8069	0.8841	0.9685	0.9843	0.9938	0.9968
9	0.3831	0.5532	0.7168	0.8058	0.8839	0.9682	0.9843	0.9938	0.9968
10	0.3789	0.5493	0.7147	0.8051	0.8838	0.9681	0.9843	0.9938	0.9968
15	0.3602	0.5351	0.7074	0.8031	0.8837	0.9680	0.9843	0.9938	0.9968
20	0.3439	0.5253	0.7046	0.8025	0.8837	0.9680	0.9843	0.9938	0.9968
25	0.3329	0.5199	0.7035	0.8024	0.8837	0.9680	0.9843	0.9938	0.9968
30	0.3266	0.5162	0.7030	0.8024	0.8837	0.9680	0.9843	0.9938	0.9968
35	0.3223	0.5151	0.7030	0.8024	0.8837	0.9680	0.9843	0.9938	0.9968
40	0.3195	0.5149	0.7030	0.8024	0.8837	0.9680	0.9843	0.9938	0.9968

Table 11. a) Average percent of scup landed (in number) by wave, based on 1996-2000 MRFSS landings data and b) projected reduction in scup landings (in number) associated with closing one day per wave, based on 1996-2000 MRFSS landings data.

a.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
MA	0.0	0.0	37.4	31.5	31.1	0.0
RI	0.0	0.0	4.9	48.1	45.7	1.3
CT	0.0	0.0	8.2	49.6	42.2	0.0
NY	0.0	0.0	22.0	27.7	48.8	1.5
NJ	0.0	0.3	0.0	3.0	78.6	18.1
DE	0.0	0.0	0.0	9.0	89.9	1.1
MD	0.0	0.0	0.0	46.2	0.0	53.8
VA	0.0	0.0	0.0	0.0	87.8	12.2
NC	0.0	3.3	40.9	31.3	24.5	0.0
Coast	0.0	0.4	12.6	27.4	49.8	9.8

b.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
MA	0.0	0.0	0.61	0.51	0.51	0.0
RI	0.0	0.0	0.08	0.78	0.75	0.02
CT	0.0	0.0	0.13	0.80	0.69	0.00
NY	0.0	0.0	0.36	0.45	0.80	0.02
NJ	0.0	0.01	0.0	0.05	1.29	0.30
DE	0.0	0.0	0.0	0.15	1.47	0.02
MD	0.0	0.0	0.0	0.74	0.0	0.88
VA	0.0	0.0	0.0	0.0	1.44	0.20
NC	0.0	0.05	0.67	0.50	0.40	0.0
Coast	0.0	0.01	0.21	0.44	0.82	0.16

Table 12. Number of scup recreational fishing trips, harvest limit, landings, and fishery performance from Maine through North Carolina, 1991 to 2012.

Year	Number of Fishing Trips ^a	Percentage of Directed Trips relative to Total Trips ^{a,b}	Recreational Harvest Limit (million lb)	Recreational Landings of Scup (million lb) ^b	Percentage Overage (+)/ Underage (-)
1991	793,593	3.0	None	8.09	NA
1992	499,780	2.2	None	4.41	NA
1993	499,703	1.9	None	3.20	NA
1994	435,625	1.6	None	2.63	NA
1995	242,956	0.9	None	1.34	NA
1996	241,322	0.9	None	2.16	NA
1997	198,754	0.7	1.95	1.20	-38
1998	213,842	0.8	1.55	0.88	-43
1999	231,596	0.9	1.24	1.89	+52
2000	485,039	1.4	1.24	5.44	+339
2001	484,604	1.3	1.77	4.26	+141
2002	481,716	1.6	2.71 ^c	3.62	+34
2003	971,770	2.8	4.01 ^c	8.48	+111
2004	567,518	1.6	4.01 ^c	4.24	+6
2005	478,810	1.3	3.96 ^c	2.54	-36
2006	466,977	1.2	4.15 ^c	2.95	-29
2007	580,753	1.5	2.74 ^c	3.65	+33
2008	648,548	1.8	1.83 ^c	4.04	+121
2009	481,779	1.6	2.59 ^c	2.94	+14
2010	757,462	2.5	3.01 ^c	5.55	+84
2011	NA	NA	5.74	NA	NA
2012	NA	NA	8.31 ^{c,d}	NA	NA

^aEstimated number of recreational fishing trips (expanded) using MRFSS data where the primary target species was scup, Maine through North Carolina. Source: Scott Steinback, NMFS/NER/NEFSC. ^b Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 21, 2011. ^cAdjusted for research set-aside.

^d Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 18, 2011.

^eRecreational harvest limit - assumed for 2012; subject to change. NA = Data not available.