

## MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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### MEMORANDUM

**DATE:** November 28, 2011

**TO:** Chris Moore

**FROM:** Jessica Coakley 

**SUBJECT:** Black Sea Bass 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 Black Sea Bass Monitoring Committee. Specifically, the Council and Board recommended a recreational harvest limit of 1.32 million lb (i.e., 1.36 million lb recommendations less 3% RSA). The proposed rule has not yet filed. I do not expect the NMFS proposed rule will be different than the recommendations of the Council and Board, given that 1.32 million lb is consistent with the recommendations of the SSC and accounts for management uncertainty.

The Black Sea Bass Monitoring Committee must recommend recreational management measures for 2012 that will constrain landings to the recreational harvest limit. The following is a review of recreational catch and landings data for the black sea bass 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 of black sea bass have fluctuated since 1981, from a peak in 1986 at 30.76 million fish to 6.3 million fish in 1998. Landings were estimated at 2.99 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 current year

(i.e., 2011) to give the states enough time to enact changes in their regulations for the upcoming year (i.e., 2012).

Catch estimates for 2011 waves 1-4 (January through August) are 5.88 million fish and the number of landed fish was 0.83 million fish in 2011. Landings by weight for the first four waves of 2010 were 1.17 million lb and the mean weight of landed fish in 2011 was 1.40 lb. The highest black sea bass landings in 2011 waves 1-4 occurred in Massachusetts, New Jersey, and New York (Table 3).

Preliminary wave data for 2011 can be used to project catch and landings for the entire year. By assuming the same proportion of catch and landings by wave in 2010, projected catch estimates for 2011 would be 5.43 million fish and projected landings would be 1.16 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**

The Council and the Commission have recommended various recreational harvest limits from a high of 4.13 million lb in 2005 to a low of 1.14 million lb in 2009 (Table 4). The limit was 1.83 million lbs in 2011. All states, with the exception of Massachusetts, adopted the Federal regulations of 25 fish, 12.5 inches TL minimum fish size, and an open season from May 22 to October 11 and November 1 to December 31 in 2010 (Table 5). In 2011, states implemented state-specific measures ranging from 12.5 to 14 inch minimum fish sizes, and different possession limits and seasons.

### **Accountability Measures**

The Omnibus Annual Catch Limit (ACL) and Accountability Measures Amendment has been implemented. Therefore, new measures will apply to the black sea bass recreational fishery in 2012 and beyond. The NMFS Regional Administrator (RA) now has inseason closure authority for the black sea bass recreational fishery. Specifically, the RA will monitor recreational landings for black sea bass 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 black sea bass 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 indicate that about 90 percent of the trips landed 5 or fewer fish in 2011, with 50 percent of the successful trips landing 1 black sea bass (Table 6). Compliance with the minimum fish size has been less than 100 percent. The coastwide percentage of fish less than the state-specific size limits in 2011 ranges from 2 percent to about 60 percent (Table 7).

## **Methodology**

The Monitoring Committee must consider and recommend measures that will ensure the recreational harvest limit of 1.32 million lb will not be exceeded in 2012. Based on the projected landing estimate for 2011 of 1.16 million lb, landings would not have to be reduced to achieve the proposed harvest limit of 1.32 million lb for 2012. The projected landings are 12% 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 8 and 9). However, given the complex regulations implemented in state-waters in 2011, the reduction table and seasonal data provided should be interpreted with caution. 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.

In 2010, a 12.5 inch minimum fish size, 25 fish possession limit, and open season from May 22 to October 11 and November 1 to December 31, resulted in 3.0 million lb of landings, more than double the proposed recreational harvest limit for 2012. In 2011, state's implemented state-specific measures (Table 5b) and status quo measures were maintained in Federal waters (i.e., same as 2010). 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 9).

## **Fishing Trips and Year Class Effects**

Predicting the number of trips that might be taken in 2012 is complicated (Table 10). 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 2010, the black sea bass 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 2011, the Commission developed an addendum which enabled state-specific measures to be implemented in state waters. These measures varied substantially among the states from the measures implemented in Federal waters.

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 water and would not exceed the 2012 recreational harvest limit of 1.32 million lb.

The 2011 landings are only slightly less than the proposed 2012 recreational harvest limit. Given the implication of exceeding the recreational ACL and potential application of accountability measures, 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 12.5 inch minimum fish size, 25 fish possession limit, and open season from May 22 to October 11 and November 1 to December 31, 2012.
- 2) For state waters, status quo would be maintained as described in Table 5b and would require the Commission to develop an addendum to implement state-specific measures in 2012.

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

<b>Year</b>	<b>Catch (‘000 fish)</b>	<b>Landings (‘000 fish)</b>	<b>Landings (‘000 lb)</b>	<b>% Released</b>
1981	6,133	3,355	1,963	45.3
1982	14,901	12,550	11,760	15.8
1983	9,958	6,517	4,960	34.6
1984	7,095	4,418	3,564	37.7
1985	9,341	5,702	3,412	39.0
1986	30,760	22,754	12,859	26.0
1987	7,682	4,324	2,961	43.7
1988	10,745	4,623	4,327	57.0
1989	8,611	5,484	4,435	36.3
1990	10,402	4,629	3,298	55.5
1991	12,579	6,202	4,986	50.7
1992	9,378	4,421	3,327	52.9
1993	10,384	6,608	5,385	36.4
1994	9,158	4,079	3,550	55.5
1995	15,526	7,336	6,815	52.8
1996	9,438	4,182	4,639	55.7
1997	12,291	5,280	4,779	57.0
1998	6,308	1,484	1,514	76.5
1999	8,782	1,644	1,949	81.3
2000	18,951	3,985	4,302	79.0
2001	16,210	3,380	3,986	79.1
2002	16,261	3,677	4,655	77.4
2003	13,893	3,649	3,691	73.7
2004	11,086	2,638	2,605	76.2
2005	10,110	2,052	2,595	79.7
2006	11,686	2,242	2,690	80.8
2007	14,234	2,343	2,886	83.5
2008	13,986	1,467	2,001	89.5
2009 <sup>a</sup>	9,090	1,614	2,305	82.2
2010 <sup>a</sup>	9,247	1,906	2,987	79.4
2011 <sup>a,b</sup>	5,423	759	1,160	86.0

<sup>a</sup> Includes NC North of Hatteras only.

<sup>b</sup> 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. Black sea bass recreational catch and landings for waves 1-4, 1998-2011.**

<b>Year</b>	<b>Catch (‘000 fish)</b>	<b>Landings (‘000 fish)</b>	<b>Landings (‘000 lb)</b>	<b>Mean Weight</b>
1998	4,049	1,032	1,085	1.05
1999	4,843	924	1,072	1.16
2000	12,400	2,252	2,500	1.11
2001	10,266	2,169	2,513	1.16
2002	9,935	2,661	3,555	1.34
2003	7,482	2,022	2,143	1.06
2004	5,516	1,442	1,504	1.04
2005	6,104	1,515	1,967	1.30
2006	6,616	1,502	1,820	1.21
2007	8,134	1,859	2,318	1.25
2008	8,098	858	1,187	1.38
2009	8,802	1,521	2,174	1.43
2010	7,261	1,522	2,189	1.44
2011	5,884	831	1,167	1.40

Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 18, 2011. Note: All of NC, both North and South of Hatteras.

**Table 3. Black sea bass 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	172	91	61	98	43	70	111	258	422	151
RI	32	34	27	45	18	16	25	19	114	18
CT	2	1	11	<1	4	1	27	0	14	4
NY	153	131	56	129	176	218	138	319	270	100
NJ	1,258	941	439	436	417	898	210	523	255	118
DE	461	230	50	50	89	59	20	47	18	22
MD	234	168	141	52	65	45	29	21	22	8
VA	83	118	34	42	102	34	46	95	12	17
NC	14	24	3	7	13	14	11	18	16	7

Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 18, 2011. Note: NC, North of Hatteras.

**Table 4. Summary of management measures for the black sea bass recreational fishery, 1996-2011, and proposed harvest limit for 2012.**

<u>Measure</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
<b>Harvest Limit (m lb)</b>	-	-	3.15	3.15	3.15	3.15	3.43	3.43
<b>Landings (m lb)</b>	4.0	4.3	1.2	1.7	4.0	3.4	4.3	3.3
<b>Possession Limit</b>	-	-	- <sup>a</sup>	- <sup>a</sup>	- <sup>a</sup>	25	25	25
<b>Size Limit (TL inches)</b>	9	9	10	10	10	11	11.5	12
<b>Open Season</b>	1/1 - 12/31	1/1-12/31	1/1-7/30 and 8/16-12/31	1/1-12/31	1/1-12/31	1/1-2/28 and 5/10-12/31	1/1-12/31	1/1-9/1 and 9/16-11/30

<u>Measure</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
<b>Harvest Limit (m lb)</b>	4.01	4.13	3.99	2.47	2.11	1.14	1.83	1.83	1.32
<b>Landings (m lb)</b>	2.6	2.6	2.7	2.9	2.0	2.3	3.0	1.2 <sup>b</sup>	-
<b>Possession Limit</b>	25	25	25	25	25	25	25	25	-
<b>Size Limit (TL inches)</b>	12	12	12	12	12	12.5	12.5	12.5	-
<b>Open Season</b>	1/1-9/7 and 9/22-11/30	1/1-12/31	1/1-12/31	1/1-12/31	1/1-12/31	1/1-10/5	5/22-10/11 and 11/1-12/31	5/22-10/11 and 11/1-12/31	-

<sup>a</sup> There was no Federal possession limit but some states implemented a 20 fish possession limit in these years <sup>b</sup> 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, October 24 and November 18, 2011).



**Table 5. Black sea bass recreational management measures by state, 2010 and 2011.**

**a) 2010 measures by state**

State	Minimum Size (inches)	Possession Limit	Open Season (closed in October)
Massachusetts	12.5	20	May 22 - Oct. 11 and Nov. 1 - Dec. 31
Rhode Island	12.5	25	May 22 - Oct. 11 and Nov. 1 - Dec. 31
Connecticut	12.5	25	May 22 - Oct. 11 and Nov. 1 - Dec. 31
New York	12.5	25	May 22 - Oct. 11 and Nov. 1 - Dec. 31
New Jersey	12.5	25	May 22 - Oct. 11 and Nov. 1 - Dec. 31
Delaware	12.5	25	May 22 - Oct. 11 and Nov. 1 - Dec. 31
Maryland	12.5	25	May 22 - Oct. 11 and Nov. 1 - Dec. 31
PRFC	12.5	25	May 22 - Oct. 11 and Nov. 1 - Dec. 31
Virginia	12.5	25	May 22 - Oct. 11 and Nov. 1 - Dec. 31
North Carolina (North of Cape Hatteras)	12.5	25	May 22 - Oct. 11 and Nov. 1 - Dec. 31

**b) 2011 measures by state**

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	14	10 fish	May 22 - Oct. 11
Rhode Island	13	12 fish	July 11- Dec. 31
Connecticut	13	25 fish	July 1 - Oct. 11 and Nov. 1 - Dec. 31
New York	13	10 fish	June 13 - Oct. 1 and Nov. 1 - Dec. 31
New Jersey	12.5	25 fish	May 28 - Sept. 11 and Nov. 1 - Dec.31
Delaware	12.5	25 fish	May 22 - Oct. 11 and Nov. 1 - Dec. 31
Maryland	12.5	25 fish	May 22 - Oct. 11 and Nov. 1 - Dec. 31
PRFC	12.5	25 fish	May 22 - Oct. 11 and Nov. 1 - Dec. 31
Virginia	12.5	25 fish	May 22 - Oct. 11 and Nov. 1 - Dec.31
North Carolina (North of Cape Hatteras)	12.5	25 fish	July 1 to September 25 and November 1 to December 31

**Table 6. The percent of successful anglers landing 1 to 31 black sea bass (MRFSS Type A fish) per trip, waves 1-4, 2011.**

c-per-trip	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	254	51.52	263	53.35
2	94	19.07	357	72.41
3	43	8.72	400	81.14
4	34	6.90	434	88.03
5	30	6.09	464	94.12
6	6	1.22	470	95.33
7	7	1.42	477	96.75
8	3	0.61	480	97.36
9	3	0.61	483	97.97
10	2	0.41	485	98.38
11	2	0.41	487	98.78
13	2	0.41	489	99.19
14	1	0.20	490	99.39
15	1	0.20	491	99.59
18	1	0.20	492	99.80
31	1	0.20	493	100.00

Table 7. Percent of measured black sea bass (MRFSS Type A fish) less than 10 inches TL (1998-1999), 11 inches (2000-2001), 11.5 inches (2002), 12 inches (2003-2008), and 12.5 inches (2009-2010), and state-specific limits in 2011, by state and year.

State	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
ME	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH	-	-	0	7.1	-	-	-	-	-	-	-	-	-	-
MA	0	-	44.4	0	0	4.6	1.7	2.5	5.8	10.7	6.1	6.1	4.6	18.3
RI	15.6	2.9	17.4	2.7	9.8	1.8	2.3	1.3	2.9	8.1	1.0	17.7	1.6	6.5
CT	0	0	0	0	9.1	9.1	12.5	0	0	0	100.0	100.0	50.0	100.0
NY	0	37.9	42.2	4.4	4.8	11.3	4.8	9.7	18.4	17.8	9.4	27.8	10.7	12.8
NJ	8.4	3.1	47.0	2.5	2.6	2.7	0.3	0.9	6.8	3.4	13.0	7.2	15.4	9.3
DE	8.5	4.8	26.1	9.8	13.8	9.4	11.2	17.1	8.4	2.1	26.0	22.5	15.5	6.4
MD	10.0	3.0	37.2	6.4	1.8	3.5	2.2	10.1	6.3	6.5	9.5	18.7	9.2	10.6
VA	18.9	15.3	9.3	6.3	8.0	9.8	11.2	33.1	24.2	10.1	30.7	37.3	58.3	13.3
NC <sup>a</sup>	33.5	17.4	31.7	22.5	12.1	46.0	59.0	62.4	56.6	44.4	3.7	25.3	23.3	9.3
Coast	18.4	13.1	25.6	8.2	9.0	8.1	17.5	25.3	19.2	14.4	10.9	17.1	13.8	7.7

<sup>a</sup>All of NC, both North and South of Hatteras.

**Table 8. a) Average percent of black sea bass landed (in number) by wave, 2006 to 2008, based on MRFSS landings data and b) projected reduction in black sea bass landings (in number) associated with closing one day per wave, based on 2006 to 2008 MRFSS landings data.**

a.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
MA	0.0000	0.0000	28.1811	23.0679	48.7510	0.0000
RI	0.0000	0.0089	4.8779	32.6440	56.1700	6.2992
CT	0.0000	0.0000	8.0453	81.4640	1.0744	9.4164
NY	0.0000	0.0000	24.7302	39.0254	29.5265	6.7179
NJ	0.0000	0.3806	55.4295	14.9938	27.1842	2.0119
DE	0.0000	3.3517	47.8969	22.2969	24.2147	2.2398
MD	0.0000	0.6348	56.9196	15.1858	20.7386	6.5212
VA	0.0000	5.9458	51.8987	18.1779	15.3821	8.5955
NC <sup>a</sup>	14.3969	17.8637	29.9371	18.4538	4.4330	14.9156
<b>Coast</b>	0.1541	0.9177	43.7242	22.2506	29.3021	3.6513

<sup>a</sup>North of Hatteras.

b.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
MA	0.0000	0.0000	0.4620	0.3721	0.7992	0.0000
RI	0.0000	0.0001	0.0800	0.5265	0.9208	0.1033
CT	0.0000	0.0000	0.1319	1.3139	0.0176	0.1544
NY	0.0000	0.0000	0.4054	0.6294	0.4840	0.1101
NJ	0.0000	0.0062	0.9087	0.2418	0.4456	0.0330
DE	0.0000	0.0549	0.7852	0.3596	0.3970	0.0367
MD	0.0000	0.0104	0.9331	0.2449	0.3400	0.1069
VA	0.0000	0.0975	0.8508	0.2932	0.2522	0.1409
NC <sup>a</sup>	0.2440	0.2928	0.4908	0.2976	0.0727	0.2445
<b>Coast</b>	0.0026	0.0150	0.7168	0.3589	0.4804	0.0599

<sup>a</sup>North of Hatteras.

**Table 9. The effect of various size and possession limits on 2011 black sea bass recreational landings. The table contains the proportional reduction in number of black sea bass landed assuming the regulations were 100% effective. Note: Reduction is calculated as the difference between the values associated with the current regulations and those being evaluated.**

Bag	Size (TL)			
	12.5	13	13.5	14
1	0.5555	0.6065	0.6828	0.7142
2	0.3864	0.4714	0.5765	0.6292
3	0.3016	0.4127	0.5412	0.6044
4	0.2449	0.3858	0.5214	0.5929
5	0.2156	0.3701	0.5068	0.5851
6	0.2001	0.3556	0.4964	0.5806
7	0.1863	0.3423	0.4879	0.5806
8	0.1736	0.3300	0.4824	0.5805
9	0.1655	0.3249	0.4810	0.5805
10	0.1581	0.3198	0.4796	0.5805
11	0.1564	0.3182	0.4783	0.5804
12	0.1550	0.3168	0.4770	0.5804
13	0.1537	0.3155	0.4757	0.5804
14	0.1523	0.3141	0.4744	0.5804
15	0.1510	0.3128	0.4731	0.5804
20	0.1508	0.3128	0.4731	0.5804
25	0.1507	0.3128	0.4731	0.5804

**Table 10. Number of coastwide black sea bass recreational fishing trips, recreational harvest limit, recreational landings, and fishery performance from 1991 to 2011.**

Year	Number of Fishing Trips <sup>a</sup>	Percentage of Directed Trips relative to Total Trips <sup>b</sup>	Recreational Harvest Limit (million lb)	Recreational Landings of BSB (million lb) <sup>b</sup>	Percentage Overage (+%)/ Underage (-%)
1993	299,404	1.1	None	5.39	None
1994	253,888	0.9	None	3.55	None
1995	313,537	1.2	None	6.82	None
1996	231,090	0.8	None	4.64	None
1997	310,898	1.0	None	4.78	None
1998	137,734	0.5	3.15	1.51	-52
1999	136,452	0.5	3.15	1.95	-38
2000	255,789	0.7	3.15	4.30	+37
2001	293,191	0.8	3.15	3.99	+27
2002	283,537	0.9	3.43 <sup>c</sup>	4.66	+36
2003	285,861	0.8	3.43 <sup>c</sup>	3.69	+8
2004	186,038	0.5	4.01 <sup>c</sup>	2.61	-35
2005	163,418	0.4	4.13 <sup>c</sup>	2.60	-37
2006	251,945	0.7	3.99 <sup>c</sup>	2.69	-33
2007	376,947	1.0	2.47 <sup>c</sup>	2.89	+17
2008	246,151	0.7	2.11 <sup>c</sup>	2.00	-5
2009	312,120	1.0	1.14 <sup>c</sup>	2.31 <sup>e</sup>	+103
2010	415,526	1.4	1.83 <sup>c</sup>	2.99 <sup>e</sup>	+63
2011	NA	NA	1.83 <sup>c</sup>	NA	NA
2012	NA	NA	1.32 <sup>c,d</sup>	NA	NA

<sup>a</sup>Estimated number of recreational fishing trips (expanded) using MRFSS data where the primary target species was black sea bass, Maine through North Carolina. Source: Scott Steinback, NMFS/NER/NEFSC.

<sup>b</sup>Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, November 18, 2011

<sup>c</sup>Adjusted for research set-aside.

<sup>d</sup>Recreational harvest limit - Council-recommended for 2012.

<sup>e</sup>North of Hatteras Only

NA = Data not available