

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

W. Peter Jensen
Chairman

Dr. Gene Kray
Vice Chairman

ROOM 2115 FEDERAL BUILDING
300 South New Street
Dover, Delaware 19904-6790
Tel 302-674-2331
Toll Free 877-446-2362
FAX 302-674-5399

Daniel T. Furlong
Executive Director

MEMORANDUM

Date: July 10, 2007

To: Summer Flounder Monitoring Committee

From: Jessica Coakley

Subject: Summer Flounder Management Measures

Amendment 2 to the Summer Flounder Fishery Management Plan (FMP) requires that the Summer Flounder Monitoring Committee meet annually to review the best available biological and fisheries data and make recommendations regarding the commercial quota and other management measures. This memorandum summarizes fisheries data for summer flounder and details the staff position on the 2008 total allowable landings level (TAL) and management measures for the commercial fishery.

Amendment 2 to the Summer Flounder FMP contained a number of management measures that were first fully implemented in 1993. The TALs, commercial quotas, recreational harvest limits, commercial size limits, mesh regulations, and landings are presented in Table 1 for each year of the management program. The table also contains the proposed measures for 2008.

Landings

In 1993, the first year that a coastwide quota was implemented, commercial landings were 12.6 million pounds, slightly in excess of the quota for that year (Tables 1 and 2). Commercial landings increased to 15.4 million pounds in 1995 and then dropped to 8.8 million pounds in 1997. Commercial landings ranged from 10.7 to 11.3 million pounds from 1998 to 2001 and then increased to over 14.0 million pounds in 2002 and 2003. In 2004, commercial landings were estimated at 18.2 million pounds, exceeding the commercial quota of 16.8 million lbs. In 2005 and 2006, landings decreased to 17.3 million pounds and 14.0 million pounds, respectively and were slightly below the commercial quotas. Recreational landings in 1997 were 11.9 million pounds or more than double the landings for 1995 of 5.4 million pounds. Recreational landings increased to 16.5 million pounds in 2000 (more than twice the harvest limit), dropped to 8.0 million pounds in 2002 (about 1.7 million pounds below the harvest limit) and then increased to 11.6 million pounds in 2003. In 2004, 2005, and 2006, recreational landings were 10.9 million pounds, 10.6 million pounds, and 11.5 million pounds, respectively. Combined commercial and recreational landings were 25.5 million pounds in 2006.

A TAL of 17.11 million pounds was implemented for 2007 due to an emergency rule following the MSFMCA reauthorization in 2006. Based on this emergency rule, an adjusted commercial quota of 9.29 million pounds and a recreational harvest limit of 6.82 million pounds were approved for 2007. The 2007 commercial landings as of the week ending June 30, 2007, indicate that 69% of the coastwide commercial quota has been landed (Table 3)

Table 1. Summary of summer flounder management measures, 1993-2007, and staff proposed measures for 2008.

<u>Management measures</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
TAL (m lbs)	20.73	26.68	19.40	18.52	18.52	18.52	18.52	18.52
Com. quota-initial (m lbs)	12.35	16.01	14.69	11.11	11.11	11.11	11.11	11.11
Com. quota-adjusted (m lbs)	--	15.60	14.61 ^a	10.21	8.38	10.93	10.73	10.88
Com. landings	12.60	14.56	15.42	12.96	8.81	11.22	10.69	11.26
Rec. harvest limit (m lbs)	8.38	10.67	7.76	7.04	7.41	7.41	7.41	7.41
Rec. harvest limit-adjusted (m lbs)	-	-	-	-	-	-	-	-
Rec. landings	8.83	9.33	5.42	9.82	11.87	12.48	8.37	16.47
Com. fish size (in)	13	13	13	13	14	14	14	14
Min. mesh size (in, diamond)	5.5	5.5	5.5	5.5	5.5	5.5	5.5 ^b	5.5 ^b

<u>Management measures</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
TAL (m lbs)	17.91	24.3	23.3	28.2	30.3	23.6	17.11	Less than 15.77; (Range of 11. 64 to 15.77)
Com. quota-initial (m lbs)	10.75	14.58	13.98	16.92	18.18	14.15	10.27	Range of 6.98 to 9.46; (60% of overall TAL)
Com. quota-adjusted (m lbs)	10.06	14.46	13.87	16.76	17.90	13.94	9.79	-
Com. landings	10.93	14.54	14.31	18.15	17.26	13.97	-	-
Rec. harvest limit (m lbs)	7.16	9.72	9.32	11.28	12.12	9.44	6.84	Range of 4.66 to 6.31; (40% of overall TAL)
Rec. harvest limit-adjusted (m lbs)	-	-	9.28	11.21	11.98	9.29	6.68	-
Rec. landings	11.64	8.01	11.64	10.87	10.58	11.51	-	-
Com. fish size (in)	14	14	14	14	14	14	14	14
Min. mesh size (in, diamond)	5.5 ^b	5.5 ^b	5.5 ^b	5.5 ^b	5.5 ^b	5.5 ^b	5.5 ^b	5.5^b

^a Includes 3.05 m lbs added by court order. ^b Whole Net

Table 2. Commercial and recreational landings of summer flounder ('000 lbs), Maine to North Carolina, 1980-2006.

Year	Comm	Rec	Total	% Comm	% Rec
1980	31,215	38,222	69,437	45%	55%
1981	21,056	10,081	31,137	68%	32%
1982	22,928	18,233	41,161	56%	44%
1983	29,549	27,969	57,518	51%	49%
1984	37,765	18,765	56,530	67%	33%
1985	32,353	12,490	44,843	72%	28%
1986	26,866	17,861	44,727	60%	40%
1987	27,053	12,167	39,220	69%	31%
1988	32,377	14,624	47,001	69%	31%
1989	17,913	3,158	21,071	85%	15%
1990	9,257	5,134	14,391	64%	36%
1991	13,722	7,960	21,682	63%	37%
1992	16,599	7,148	23,747	70%	30%
1993	12,599	8,831	21,430	59%	41%
1994	14,558	9,327	23,885	61%	39%
1995	15,419	5,421	20,840	74%	26%
1996	12,955	9,820	22,775	57%	43%
1997	8,807	11,866	20,673	43%	57%
1998	11,219	12,477	23,696	47%	53%
1999	10,691	8,366	19,057	56%	44%
2000	11,262	16,468	27,730	41%	59%
2001	10,934	11,637	22,571	48%	52%
2002	14,542	8,008	22,550	64%	36%
2003	14,308	11,638	25,946	55%	45%
2004	18,151	10,871	29,022	63%	37%
2005	17,258	10,580	27,838	62%	38%
2006	13,966	11,514	25,480	55%	45%
Avg 80-06	18,716	12,616	31,332	60%	40%

Table 3. The 2007 state-by-state quotas and the amount of summer flounder landed by commercial fishermen, in pounds, in each state as of week ending June 30, 2007.

State	Commercial			Research
	Cumulative Landings (Pounds)	Quota (Pounds) ¹	Percent of Quota (%)	Set-Aside Landings (Pounds)
ME	2,789	4,772	58	0
NH	0	46	0	0
MA	294,891	654,285	45	0
RI	1,116,276	1,573,553	71	29,892
CT	153,110	209,994	73	0
NY	387,132	619,123	63	73,240
NJ	865,084	1,682,017	51	0
DE	2,870	0	0	0
MD	51,644	204,593	25	0
VA	1,491,933	2,208,376	68	10,000
NC	2,443,997	2,680,308	91	0
Other	9,280	0	0	0
Totals	6,819,006	9,837,067	69	113,132

¹Note that the total quota column accounts for Delaware as zero.

Source: Cumulative landings as of week ending June 30, 2007. Source: NMFS Weekly Quota Report. Quotas adjusted for research set-aside and overages.

Stock Assessment

The most recent assessment peer review on summer flounder was the NMFS Office of Science and Technology Division (S&T) Peer Review of the 2006 SAW Southern Demersal Working Group (SDWG) assessment (October 2006). The Demersal Working Group met in June, 2007 to do an annual update of the assessment information (see the Summer Flounder Stock Assessment Summary for 2007 for additional details). Relative to the biological reference points, the stock is overfished and overfishing is occurring. The fishing mortality rate estimated for 2006 is 0.35, a significant decline from the 1.32 estimated for 1994 but above the threshold F of 0.28. There is an 80% probability that the fishing mortality rate in 2006 was between 0.29 and 0.49. The estimate of F for 2006 may understate the actual fishing mortality; retrospective analysis shows that the current assessment method tends to underestimate recent fishing mortality rates. Over the last 3 years, the annual retrospective increase in fishing mortality has ranged from +20 to +40%. Total stock biomass increased substantially during the 1990s, and was estimated to be 104 million pounds (47,135 mt) on January 1, 2007. Spawning stock biomass has increased since the early 1990s to 93 million pounds (42,316 mt) on November 1, 2006, which is below the biomass threshold of one-half $SSB_{MSY} = 98.6$ million lbs (44,706 mt). Retrospective analysis shows a tendency to overestimate the SSB in the most recent years. Over the last 3 years, the annual retrospective decrease in SSB has ranged from -8 to -22%.

The average year-class estimate from 1982 to 2006 is 37 million fish at age 0, with a median of 33 million fish. The 2006 year-class is currently estimated to be about 30 million fish. Retrospective analysis shows no trend in estimation of year-class strength in the most recent years.

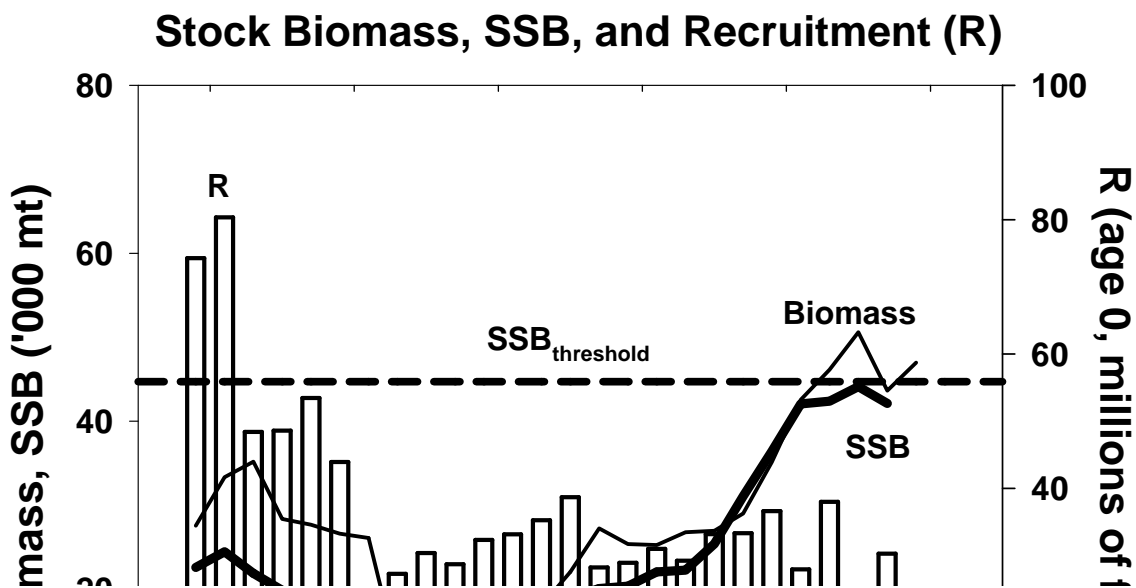


Figure 1. Stock Biomass (Jan. 1; age-1+; '000 mt; thin line), spawning stock biomass (SSB; Nov. 1; '000 mt; thick line; B_{MSY} proxy), and recruitment (millions of fish at age-0; bars).

Biological Reference Points

The reference points recommended by the 2006 NMFS S&T Peer Review were $F_{msy}=F_{max}=0.28$ and $SSB_{msy}=197$ million lbs. The 2007 SDWG did not modify these biological reference points for summer flounder.

Rebuilding Timeline

Under our current rebuilding program, the summer flounder stock is to be fully rebuilt to the levels associated with MSY (currently defined as $SSB_{msy}=197$ million lbs) no later than January 1, 2013.

2008 Total Allowable Landings

Last year, a TAL for 2007 of 17.11 million lbs was implemented, based on an emergency rule. This TAL had a 75% probability of achieving the rebuilding F of 0.203 in 2007. This year, the projected TALs associated with a 50%, 75%, 90%, 95%, and 99% probability of achieving the rebuilding F of 0.199 ($F_{rebuild}$) in 2008 were presented by the SDWG and are below in Table 4. The rebuilding F is the constant fishing mortality rate for 2008-2013 that is forecast to result in median stock levels at the 2006 S&T Peer Review $SSB_{MSY} = 197$ million lbs by Nov 1, 2012 (Figure 2). These forecasts incorporate uncertainty in 2007 stock sizes due to survey variability, assume the 2007 TAL is harvested (but not exceeded), and assume current discard to landings proportions. The forecasts presented by the SDWG do not explicitly account for the recent retrospective pattern in the assessment.

The SDWG stated that, “Given the persistent retrospective underestimation of fishing mortality in the assessment, managers should consider adopting a lower TAL for 2008 than indicated by the median projection results to reduce the risk that overfishing will occur.” To determine how much lower managers should consider setting this TAL to reduce the risk of overfishing, I ran an additional projection.

The average annual retrospective increase in fishing mortality over the last three year was 28%; therefore, I decreased F in 2008 by 28% ($F_{corrected-08}=0.143$).

Because I cannot determine whether the retrospective pattern will increase or diminish with time, I assumed that there was no retrospective pattern in future years (2009-2013). I projected forward with an $F_{corrected-08}=0.143$ in 2008 and a constant F for the years 2009-2013 ($F_{rebuild-corr}=0.205$) such that the median stock levels were at the 2006 S&T Peer Review $SSB_{MSY} = 197$ million lbs by Nov 1, 2012. The projected TALs associated with a 50%, 75%, 90%, 95%, and 99% probability of achieving the retrospective corrected F in 2008 are provided below in Table 4. Given the retrospective correction in F for 2008 only, the 2008 TAL with a 75% probability of achieving that F would be 11.64 million lbs.

Higher probabilities of achieving the uncorrected rebuilding F ($F_{rebuild}=0.199$) in 2008 have lower associated TALs. These TALs do not approach those associated with the corrected F ($F_{corrected-08}=0.143$) until the 99% probability level.

Table 4. Projected TALs and the probabilities of achieving the rebuilding F of 0.199 in 2008.

Probability of Landings	2008 TAL based on $F_{rebuild}=0.199$ 2008-2013 (million lbs)	2008 TAL based on retrospective correction*, $F_{corrected-08}=0.143$ in 2008 and $F_{rebuild-corr}=0.205$ in 2009-2013 (million lbs)
50%	17.50	12.90
75%	15.77	11.64
90%	14.55	10.73
95%	13.79	10.17
99%	12.53	9.24

* 2008 correction based on the average annual retrospective pattern in F over last three years of 28%. It does not assume the retrospective pattern continues in subsequent years.

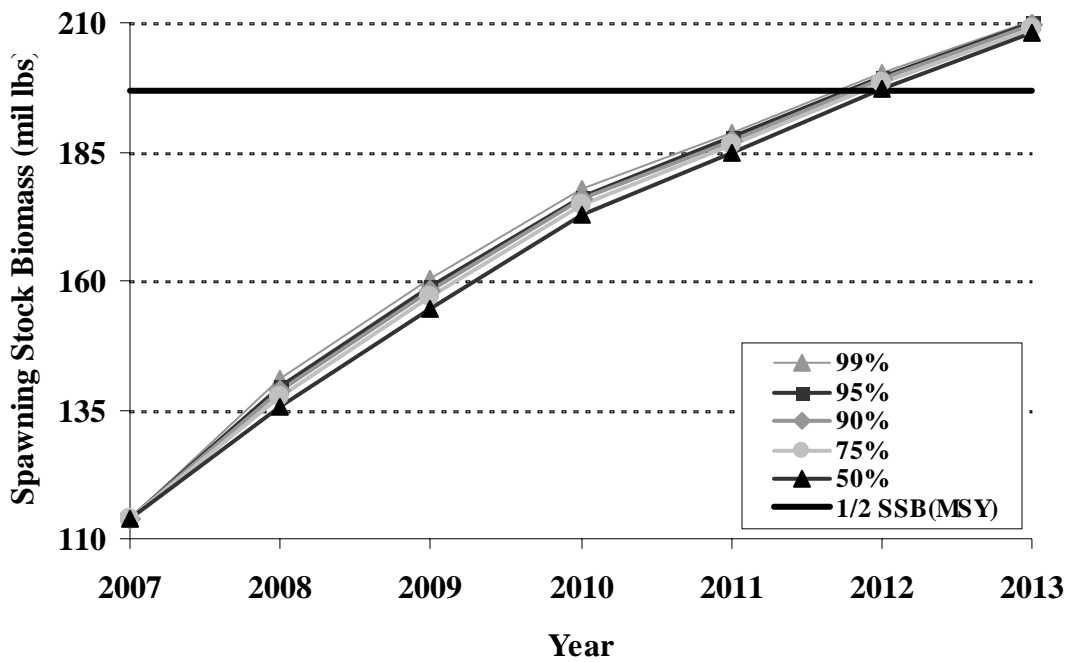


Figure 2. Median projections of SSB on November 1 at the various probabilistic rebuilding TALs based on $F_{rebuild}=0.199$ (2008-2013). Note: These are median projected SSB estimates and the distribution of the bootstrapped SSB values are not shown.

Commercial Quotas

The commercial quotas by state in 2008 that would be associated with the 75% probabilities of achieving those fishing mortality rates (either F_{rebuild} or $F_{\text{corrected-08}}$) are given in Table 5.

Table 5. The amount of summer flounder allocated to commercial fisheries in each state based on coastwide commercial quotas of 9.48 million lbs (overall TAL of 15.77 million lbs) and 6.98 million lbs (overall TAL of 11.64 million lbs) in 2008. Allocations do not account for overages, research set-aside, or any other quota adjustments.

State	Allocation (%)	Quota (lbs)	Quota (lbs)
		$F_{\text{rebuild}}=0.199@75\%$	$F_{\text{corrected-08}}=0.143@75\%$
ME	0.04756	4,499	3,320
NH	0.00046	44	32
MA	6.82046	645,216	476,068
RI	15.68298	1,483,610	1,094,672
CT	2.25708	213,520	157,544
NY	7.64699	723,405	533,760
NJ	16.72499	1,582,184	1,167,404
DE	0.01779	1,683	1,242
MD	2.03910	192,899	142,329
VA	21.31676	2,016,565	1,487,910
NC	27.44584	2,596,376	1,915,720
Total	100	9,460,000	6,980,000

Bycatch Set-Aside

Fishermen from a few states have indicated that the regulatory discards associated with the summer flounder quotas are a problem. As such, the states that allocate 15% of their quota to bycatch fisheries should continue to do so, and all other states should consider this measure.

Minimum Fish and Mesh Size - Commercial Fishery

Amendment 2 of the Summer Flounder FMP contains provisions that allow for changes in the minimum fish size and minimum net mesh provisions. Current regulations require a 14" TL minimum fish size in the commercial fishery and a 5.5" diamond or 6" square minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder, i.e., 200 pounds in the winter and 100 pounds in the summer. The minimum fish size and mesh requirements may be changed annually based on the recommendations of the Monitoring Committee. I do not recommend any changes to these minimum fish or mesh provisions.

Exemption Programs

Vessels landing more than 200 pounds of summer flounder, east of longitude 72° 30.0'W, from November 1 through April 30, and not using a 5.5" minimum mesh (diamond) or 6" minimum mesh (square) net, are required to obtain a small mesh exemption program (SMEP) permit from NMFS. The Summer Flounder, Scup, and Black Sea Bass FMP requires that sea sampling data be reviewed annually to determine if vessels fishing seaward of the line, with less than the required minimum mesh size, and landing more than 200 pounds of summer flounder, are discarding more than 10% of their summer flounder catch. As such, I evaluated NMFS sea sample data from November 1, 2006 to April 30, 2007. These data indicate that a total of 201 trips were observed east 72° 30.0'W; 75 of those trips landed summer flounder (Table 6. Of those 75 trips, 17 reported using small mesh and 7 landed more than 200 pounds of summer flounder. Of those 7 trips, 2 trips discarded more than 10% of their catch. The percentage of trips that met all these criteria relative to the total number of observed trips east of 72° 30.0'W is about 1% (2 trips/201 trips = 0.9%). In 2002 between November 1 and April 30, 2% of the total trips observed east 72° 30.0'W met all the criteria described above (landed more than 200 lbs fluke, used small mesh, discarded more than 17% of their total catch). In 2003, 2004, and 2005 that percentage was 2%, 3%, and 0%, respectively. Based on this information, I recommend no change in the SMEP program for 2008.

Table 6 Numbers of trips that meet specific criteria based on observer trips from November 1, 2006 to April 30, 2007.

Nov 1, 2006 - Apr 30, 2007	Trips
<i>Trips with tows east of 72° 30' W Longitude</i>	201
<i>That landed summer flounder</i>	75
<i>That used small mesh</i>	17
<i>That landed more than 200 lbs of summer flounder</i>	7
<i>Number that discarded >10% of summer flounder catch</i>	2
<i>Total discards (lbs) from those trips</i>	512
<i>Total landings (lbs) from those trips</i>	567
<i>Total catch (lbs) from those trips</i>	1,079

Recreational Management Measures

Specific management measures that will be used to achieve the harvest limit for the recreational fishery in 2008 will not be determined until after the first four waves of 2007 recreational landings are reviewed. These data will be available in early October, 2007. The Monitoring Committee will meet in November 2007 to review these landings data and make recommendations regarding changes in the recreational possession limit, minimum size, and season.

Staff Recommendation

Based on the technical information presented in this memo and supplemental materials available, I provide the following comments and recommendations.

The information on pages 6 and 7 conveys the SDWG concerns about the “persistent retrospective underestimation of fishing mortality” and recommends that the TAL be set at a level less than median projection results to reduce the risk of overfishing. The “Summer Flounder Stock Assessment Summary for 2007” prepared by the SDWG indicates that while fishing mortality rates have decreased from much higher levels, they have never been less than the threshold rate of $F=0.28$ for the 1982-2006 time series. It is clear from the projections I conducted which correct the 2008 fishing mortality rate ($F_{\text{corrected-08}}=0.143$), that setting the TAL at a 75% probability of achieving the rebuilding F may not reduce the risk of overfishing enough given the persistent retrospective pattern. Therefore, I recommend:

1. A TAL which is less than 15.77 million pounds for 2008, and in the range of 11.64 million lbs to 15.77 million pounds. There is obviously less risk of overfishing for TALs on the lower end of the range, and greater risk at the higher end of that range.
2. A commercial quota which is less than 9.46 million pounds for 2008 (based on 60% of the overall TAL), and allocated to the states based on 1980-89 adjusted landings data.
3. A coastwide recreational harvest limit which is less than 6.31 million pounds (based on 40% of the overall TAL) for 2008.
4. No change in mesh requirements (5.5" diamond or 6" square minimum mesh), minimum commercial fish size requirements (14"TL), or other gear requirements.
5. No change in the current small mesh exemption program (SMEP).
6. Those states not already doing so set aside 15% of their quota for bycatch, to minimize regulatory discards associated with the summer flounder quotas.