



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, FL 33149

7 March 2007

Mr. Robin Riechers, Chairman
Gulf of Mexico Fishery Management Council
2203 N. Lois Avenue
Suite 1100
Tampa, Florida 33607

Dear Mr. Riechers:

Prior to the January 2007 Gulf of Mexico Fishery Management Council (Council) meeting, NOAA Fisheries Service provided the Council with updated rebuilding projections for red snapper. These projections ended overfishing of red snapper by 2009/2010 and rebuilt the red snapper stock to the Council's rebuilding goal by 2032. During the January Council meeting, the Council requested the Southeast Fisheries Science Center (SEFSC) conduct additional projections runs assuming small reductions (5 or 10 percent) in recreational red snapper release mortality due to the use of circle hooks, venting tools, and dehooking devices. The enclosed document summarizes the requested red snapper rebuilding projections, as well as those previously provided in January. I recommend you add these updated projections to the March 2007 Council meeting agenda for discussion.

Sincerely,

Alex Chester
Acting Director, SEFSC

Enclosure

cc: F/SEC - Porch
F/SER - Crabtree
F/SER2 - Steele
F/SER24 - Hood, Strelcheck



Updated Rebuilding Projections for Red Snapper
National Marine Fisheries Service
Southeast Fisheries Science Center
March 7, 2007

Background

On December 14, 2006, the Gulf of Mexico Fishery Management Council (Council) was provided updated red snapper rebuilding projections (Tab E-3 in the January 2007 Council briefing book) for joint Amendment 14/27 to the Shrimp and Reef Fish Fishery Management Plans (FMP). These projections included updated directed fishery landings and shrimp effort through 2005. However, none of the projections provided ended overfishing between 2009 and 2010 in accordance with the Council's rebuilding plan adopted in Reef Fish Amendment 22. Therefore, the Southeast Fisheries Science Center (SEFSC) conducted additional projections in January 2007. These projection runs: 1) ended overfishing of red snapper by 2009/10 and 2) rebuilt the red snapper stock to the Council's rebuilding goal (26% spawning potential ratio) by 2032. At the January 2007 Council meeting, the Council requested additional projection runs that assumed either a 5 or 10 percent reduction in recreational release mortality from circle hooks, dehooking devices, and venting tools. The following summarizes the requested red snapper rebuilding projections, as well as those previously provided in January.

Projections

A total of seven projection runs were completed. All projection runs end overfishing by 2009 or 2010, depending on the level total allowable catch (TAC) is set at over the next two to three years (2008-2009 or 2008-2010). The projections also rebuild red snapper to a 26 percent spawning potential ratio (proxy for maximum sustainable yield (MSY)) by 2032. All projections include updated directed fishery landings data and shrimp effort data through 2005, and incorporate the following inputs and assumptions:

1. Directed fishery landings in 2006 were set equal to directed fishery landings in 2005;
2. Shrimp fishing mortality in 2006 was set at 60 percent less than the 2001-2003 baseline shrimp fishing mortality rate;
3. After 2006, the shrimp fishing mortality rate was either capped at 50 or 74 percent of the 2001-03 baseline shrimp fishing mortality rate;
4. TAC for the directed fishery was set at 6.5 million pounds (mp) in 2007;
5. Commercial directed fishery discards correspond to those estimated under a 13-inch minimum size limit;
6. Recreational directed fishery discards correspond to those estimated under either a 14-inch or 16-inch minimum size limit;
7. The fishing mortality rate associated with closed season discards was set 10 percent less than the 2001-2003 baseline fishing mortality rate owing to implementation of the IFQ program;
8. The release mortality rate for recreational discards during both the open and closed season was reduced by 0, 5, or 10 percent owing to circle hooks, venting tools, and dehooking devices; and,

9. TAC in 2008-2009 or 2008-2010 corresponds to the level of catch necessary to end overfishing and was contingent on the level at which shrimp effort was capped (see #3 above). After 2009 or 2010, TAC was increased at a constant rate to rebuild the stock to 26 percent SPR by 2032.

The requested projection runs were then used to estimate TAC and MSY for rebuilding scenarios using different assumptions about fishing mortality and bycatch reduction (e.g., 62 percent shrimp fishing mortality reduction).

Projection Results

Projection results are summarized in Table 1. There is an inverse relationship between shrimp fishing mortality and directed fishery TAC. As shrimp fishing mortality is reduced, directed TAC increases. Assuming a 50 percent reduction in shrimp fishing mortality would allow TACs ranging from 2.8 to 3.3 mp over the next few years. If shrimp fishing mortality is reduced by 74 percent, TAC could be increased to 4.5 to 5.6 mp, depending on the minimum size limit selected and assumed reductions associated with bycatch. Shrimp fishing mortality rates between 50 and 74 percent would allow TACs intermediate to those described above.

If circle hooks, venting tools, and dehooking devices reduce recreational release mortality, then TACs could be increased by approximately 100,000 to 150,000 pounds, regardless of the minimum size limit selected or any additional reductions in bycatch associated with circle hooks and other gears. Reducing the recreational minimum size limit from 16 to 14 inches total length would allow TAC to increase by 100,000 to 160,000 pounds. Maximum sustainable yield ranges from 10.2 to 17.8 mp for the projection runs considered, and is largely contingent on the amount shrimp fishing mortality is reduced (i.e., greater reductions in shrimp fishing mortality result in greater MSY). Similarly, the more closed season bycatch and directed fishery bycatch can be reduced, the greater MSY.

Table 1. Summary of total allowable catches (TAC) ending overfishing and the estimate of maximum sustainable yield for various red snapper rebuilding projections. Projection runs 8-18 (highlighted in gray) were interpolated from projection runs 1-7.

Projection Run	Assumptions				TACs (mp) ending overfishing		Yield at 26% SPR
	Minimum Size Limits	Reduction in Closed Season F	Circle Hook Release Mortality Reduction	Shrimp F reduction	2008-09	2008-10	
1	13, 16	-10%	0%	74%	4.57	5.30	17.2
2	13, 16	-10%	-5%	74%	4.66	5.40	17.6
3	13, 16	-10%	-10%	74%	4.72	5.47	17.8
4	13, 14	-10%	0%	74%	4.73	5.45	17.2
5	13, 14	-10%	-5%	74%	4.83	5.56	17.5
6	13, 14	-10%	-10%	74%	4.88	5.63	17.7
7	13, 16	-10%	0%	50%	2.80	3.27	10.2
8*	13, 16	-10%	-5%	50%	2.86	3.31	10.3
9*	13, 16	-10%	-10%	50%	2.89	3.35	10.5
10*	13, 14	-10%	0%	50%	2.90	3.36	10.1
11*	13, 14	-10%	-5%	50%	2.96	3.43	10.3
12*	13, 14	-10%	-10%	50%	2.99	3.47	10.4
13*	13, 16	-10%	0%	62%	3.69	4.29	13.7
14*	13, 16	-10%	-5%	62%	3.76	4.35	13.9
15*	13, 16	-10%	-10%	62%	3.81	4.41	14.1
16*	13, 14	-10%	0%	62%	3.81	4.41	13.6
17*	13, 14	-10%	-5%	62%	3.89	4.50	13.9
18*	13, 14	-10%	-10%	62%	3.93	4.55	14.1