

2010 Recreational Red Snapper Quota Closure Analysis
NOAA Fisheries Service
Southeast Regional Office
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Introduction

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) requires NOAA Fisheries Service to close recreational red snapper in the Gulf of Mexico when the quota is reached. The quota in 2009 was set at 2.45 million pounds whole weight (mp ww). Projections prior to the fishing season indicated the quota would be met on August 15, 2009, allowing for a 75-day fishing season. However, due to higher than expected catches and an increase in the average size of red snapper caught, landings exceeded the quota by more than 2.1 mp ww.

A recent stock assessment indicated the Gulf of Mexico red snapper stock was rebuilding and biomass was increasing (SEDAR Update Assessment 2009). The assessment also indicated overfishing was projected to end in 2009. As a result, the Gulf of Mexico Fishery Management Council voted to increase the recreational quota in 2010 from 2.45 to 3.40 mp ww. The intent of this analysis is to predict when the 2010 quota will be met, given a season starting on June 1, 2010. Given the short-length of the red snapper fishing season and lags in the timeliness of landings data, in-season quota monitoring of red snapper is not possible. Therefore, 2009 landings are being used as a proxy for predicting 2010 landings.

2009 Recreational Red Snapper Landings

Recreational red snapper landings were obtained from three data sources:

1. Marine Recreational Fisheries Statistics Survey (MRFSS), including the For-hire charter survey;
2. Southeast Fisheries Science Center Headboat survey; and,
3. Texas Parks and Wildlife Department (TPWD) charter and private/rental creel survey.

MRFSS and For-hire red snapper landings are estimated using a combination of dockside intercepts (landings data) and phone surveys (effort data). Landings are estimated in both numbers and whole weight (lbs) by two-month wave (e.g., Wave 1 = Jan/Feb, ... Wave 6 = Nov/Dec), area fished (inland, state, and federal waters), mode of fishing (charter, private/rental, shore), and state (west Florida, Alabama, Mississippi, and Louisiana). In waves 3 and 4, sufficient samples sizes were available to estimate red snapper landings in both numbers and lbs ww. However, in wave 5 when the fishing season was closed no weight samples were available to convert landings in numbers to landings in weight. Therefore, to convert wave 5 landings from numbers to weight, the average weight of fish landed during the prior wave was used for each mode.

Headboat landings are collected through logbooks completed by headboat operators. Landings (lbs ww) are reported by vessel, day/month, and statistical reporting area (i.e., area 18 = Dry Tortugas off west coast of Florida, ..., area 27 = Southeast Texas). The TPWD creel survey generates estimates of landings in numbers for private/rental boats and charter vessels fishing off Texas. Landings are reported in numbers by high (May 15-November 20) and low-use time periods (November 21-May 14), area fished (state vs. federal waters), and mode of fishing (private vs. charter). To convert TPWD landings in numbers to landings in pounds, red snapper average lengths by mode, wave, and area fished were converted to weights using a standard length-weight conversion formula from SEDAR 7 (2005).

Gulf of Mexico recreational red snapper landings for 2009 totaled 4.59 mp ww, resulting in a 2.13 mp ww recreational quota overage. MRFSS accounted for 3.62 mp, or 78.9 percent of the overall landings (Table 1). Texas Parks and Wildlife landings accounted for 0.16 mp or 3.5 percent of the overall landings (Table 2). Headboat landings accounted for 0.81 mp or 17.6 percent of the overall landings (Table 3). Charter landings accounted for 26.1 percent of the total recreational red snapper landings in 2009, private/rental landings accounted for 56.3 percent of total landings in 2009, and headboat landings accounted for 17.6 percent of total landings.

Table 1. 2009 MRFSS red snapper landings by mode, two-month wave, and state.

Mode	Wave	Landings (lbs ww) by State				Grand Total
		Alabama	Louisiana	Mississippi	West Florida	
Charter	Jan-Feb	0	0	0	0	0
	Mar-Apr	0	0	0	0	0
	May-Jun	75,611	70,089	0	278,117	423,817
	Jul-Aug	222,226	109,730	0	405,318	737,274
	Sep-Oct	5,384	0	0	1,502	6,886
	Nov-Dec	0	0	0	0	0
Private	Jan-Feb	0	0	0	0	0
	Mar-Apr	0	0	0	0	0
	May-Jun	627,824	152,984	81,048	397,780	1,259,636
	Jul-Aug	243,242	365,267	0	584,036	1,192,545
	Sep-Oct	0	0	0	1,336	1,336
	Nov-Dec	0	0	0	0	0
Grand Total		1,174,287	698,070	81,048	1,668,089	3,621,494

Table 2. 2009 TPWD red snapper landings by season and mode.

Area	Season	Landings (lbs ww) by Mode		
		Charter	Private	Grand Total
Federal	Nov 21-May 14	0	0	0
	May 15-Nov 20	23,876	74,228	98,104
State	Nov 21-May 14	0	11,287	11,287
	May 15-Nov 20	4,907	46,099	51,006
Grand Total		28,783	131,614	160,397

Table 3. 2009 headboat red snapper landings by month, and state.

Wave	Landings (lbs ww) by State				
	Alabama/W. Florida	Louisiana	Mississippi	Texas	Grand Total
Jan	0	0	0	14,386	14,386
Feb	0	60	0	20,139	20,199
Mar	0	0	0	42,851	42,851
Apr	2,930	24	0	19,222	22,176
May	2,884	685	0	18,752	22,321
Jun	126,494	14,511	0	122,693	263,698
Jul	113,072	9,534	0	142,529	265,135
Aug	66,515	3,867	0	68,549	138,931
Sep	298	0	0	1,599	1,897
Oct	1,042	0	0	3,361	4,403
Nov	0	0	0	2,863	2,863
Dec	1,329	0	0	5,716	7,045
Grand Total	314,564	28,681	0	462,660	805,905

Quota Closure Methods

The following describes the methods used to estimate when the recreational red snapper quota will be met in 2010. Recreational landings for 2009 were used to project 2010 landings and the quota closure date.

The start date for the federal recreational red snapper fishing season begins June 1, 2010. The federal season was estimated to be closed when projected landings reached the 3.40 mp quota. Analyses described herein assume all Gulf states, except Texas, will adopt compatible fishing seasons for recreational red snapper. All Gulf states, except Texas, implemented federally consistent fishing seasons for red snapper in 2009.

Adjustments to MRFSS landings

For the states of Louisiana, Mississippi, Florida, and Alabama, all MRFSS state and federal water landings in wave 3 (May-June) during 2009 were assumed to occur in June, since neither state nor federal waters were open prior to June 1, 2009, off these Gulf states. In wave 4, landings

off Louisiana, Mississippi, west Florida, and Alabama were assumed to occur between July 1 and August 14 because the fishery was closed off of these states beginning August 15, 2009. Landings during wave 4 were divided by the total number of days open in 2009 during wave 4 (n=45) to derive a daily landings rate. This average per day landings rate was then multiplied by the number of days the season was projected to be open during wave 4 in 2010 off each of these Gulf states. Wave 5 landings were maintained for 2010, as these occurred when the fishing season was closed and would not be effected by changes to the open fishing season.

Adjustments to Headboat Landings

Headboat landings were summarized by month. In 2009, new regulations were implemented for federally permitted for-hire vessel operators requiring them to abide by the more restrictive of federal or state regulations when fishing for reef fish. Despite this new regulatory requirement, headboat landings were reported in all months (Figure 1), with higher rates of out-of-season landings occurring off Texas. Therefore, for purposes of this analysis, all projected headboat landings in 2010 in state and federal waters were either: 1) unadjusted when the federal fishing season was closed or 2) were set to zero when the federal fishing season was closed. When the fishing season was estimated to be open for an entire month, no adjustments to headboat landings were made. If the season was projected to close during a month, landings were adjusted by multiplying total monthly landings by the ratio of days open in the month to the total number of days in the month.

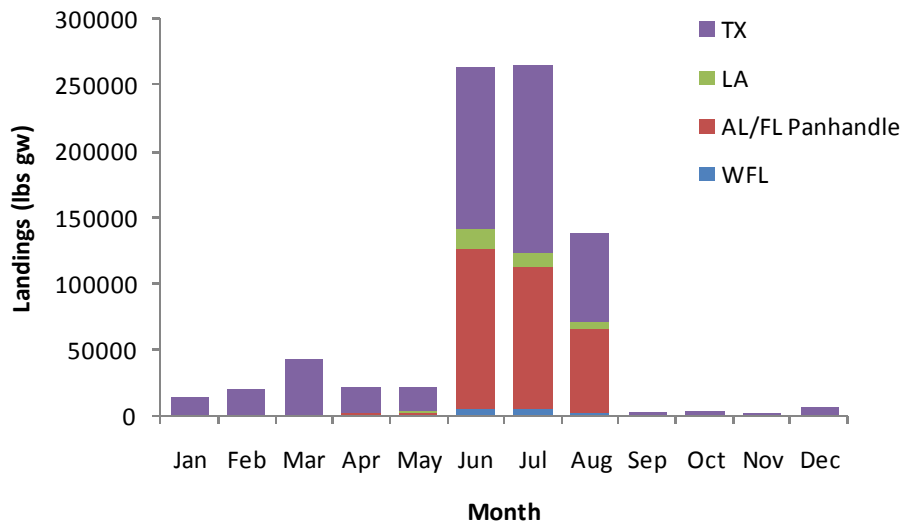


Figure 1. Distribution of 2009 headboat red snapper landings by month and area.

Adjustments to Texas Landings

TPWD landings were provided by high (May 15-Nov 20) and low use (Nov 21-May 14) waves. Charter landings in federal and state waters and private landings in federal waters during the high-use period were all assumed to occur during the June 1-August 14 open season in 2009. There were no charter boat red snapper landings in federal waters during the low-use period. Private landings in state waters were not adjusted, since the state of Texas maintains a year-round fishing season.

Average weight adjustment

Analyses also evaluated changes in the projected quota closure date taking into account increases in the average weight (lbs ww) of red snapper caught. Between 2007 and 2009, the average weight of a red snapper landed in the Gulf of Mexico increased from 3.32 to 5.04 lbs ww per fish. By contrast, there was a noticeable decline in the average weight of red snapper landed from 2005 through 2007 (Figure 2), potentially due to recreational anglers shifting effort to state waters where average lengths and weights of red snapper may be smaller. Between 2007 and 2008, there was a 29 percent increase in the average weight of red snapper landed. Between 2008 and 2009 there was a 17 percent increase in the average weight of red snapper landed. Increases in average weight are expected as the stock rebuilds and the number of older, larger fish in the population increases. To assess the sensitivity of the quota closure date, average size increases ranging from 0 to 20 percent were applied to landings when the fishing season was projected to be open.

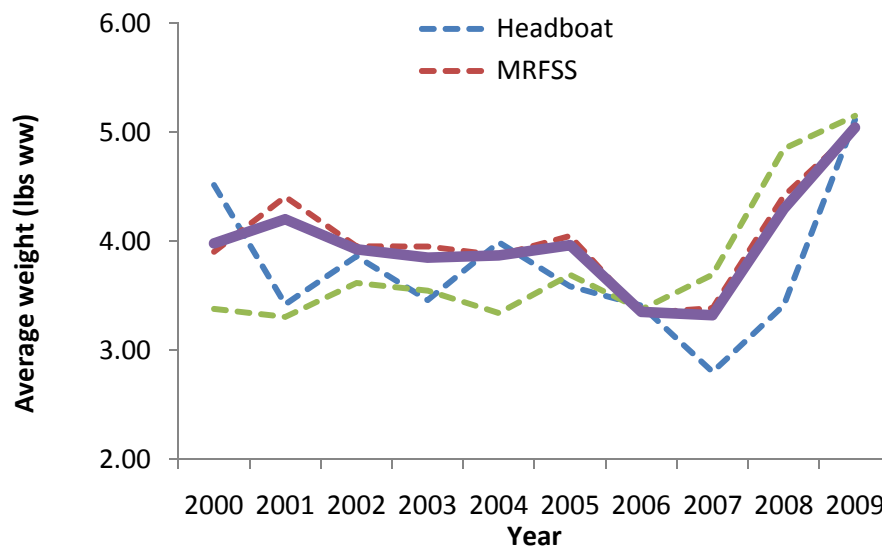


Figure 2. Gulf of Mexico red snapper average weights for 2000-2009.

Results

Based on the methods described in this document, the recreational Gulf of Mexico red snapper quota is projected to be met on or before July 26, 2010, if all Gulf States except Texas adopt fishing seasons consistent with the federal fishing season (Table 4). If Gulf States do not adopt consistent fishing seasons, then the federal fishing season is expected to be substantially shorter than predicted herein. Increases in the average weight of fish landed ranging from 5 to 20 percent would shorten the fishing season by 3-11 days, depending on the percent increase in average weight assumed. Additionally, if headboat landings are adjusted to zero when the federal season is closed, the recreational red snapper season could remain open three days longer.

Results summarized herein are based on mean landing estimates and do not account for uncertainty in landings estimates. In 2009, the percent standard error for MRFSS red snapper landings was 7.7 percent. Calculation of 95% confidence limits would result in annual MRFSS landings ranging from 3.07-4.16 mp ww, with a mean of 3.62 mp ww. Headboat landings are based on a logbook census and therefore are considered more accurate than MRFSS or TPWD landings. No estimates of uncertainty are generated for TPWD landings estimates. Given the range of uncertainty surrounding MRFSS landings estimates, as well as the uncertainty of TPWD landings estimates, the 2010 quota could be met faster or slower than predicted herein.

Table 4. Projected 2010 recreational red snapper federal season lengths.

Scenario	Increase in Avg. Weight	Out of Season Headboat Landings Adjusted?	Federal Season	Projected Landings (mp)	Days Open
1	none	yes	Jun 1-Jul 23	3.35	53
2	5%	yes	Jun 1-Jul 20	3.36	50
3	10%	yes	Jun 1-Jul 17	3.35	47
4	15%	yes	Jun 1-Jul 15	3.38	45
5	20%	yes	Jun 1-Jul 12	3.34	42
6	none	no	Jun 1-Jul 26	3.37	56
7	5%	no	Jun 1-Jul 23	3.38	53
8	10%	no	Jun 1-Jul 20	3.37	50
9	15%	no	Jun 1-Jul 18	3.40	48
10	20%	no	Jun 1-Jul 15	3.36	45

It should also be noted that prior analyses attempting to predict when the quota will be met have shown to be imprecise, as evidenced by considerable quota overages during 2007-2009 (Figure 3). Historical landings trends appear to be a poor predictor of the next year’s landings, especially given increases in catch and the average weight of landed fish. Additionally, prior year’s landings and effort do not account for changes in angler behavior in response to new regulations, and therefore make it difficult to accurately predict when the quota will be met. Incompatible state versus federal regulations have also contributed to uncertainty in prior quota closure analyses.

In summary, landings during 2009 were 1.14 mp ww greater than the quota for 2010. This large quota overage results in a shorter fishing season for 2010 than 2009, despite a 0.95 mp ww increase in the recreational quota. Estimated season lengths range from 42-53 days depending on adjustments to headboat landings and assumptions about the average increase in red snapper weight. Seasons longer or equal to the 2009 season length are not possible for 2010 given the current MSFMCA mandate to close the recreational red snapper sector when the quota is reached. Additionally, prior year’s landings have shown that recreational anglers are capable of harvesting the 3.40 mp quota in less than 75 days. Without the increase in the quota in 2010, the recreational red snapper season would have been approximately 27-34 days in length.

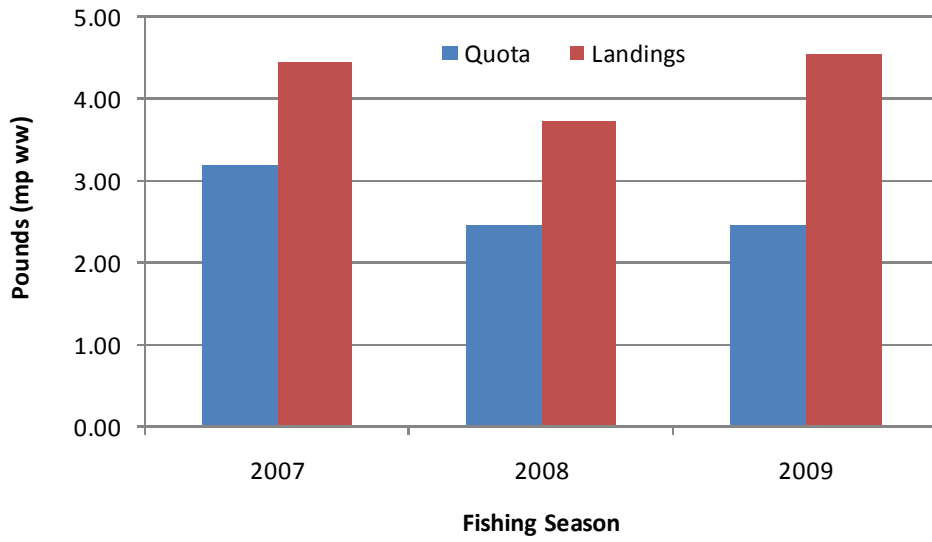


Figure 3. Comparison of recreational red snapper quotas and estimated landings, 2007-2009.

References

SEDAR 7. 2005. Stock assessment report of SEDAR 7 Gulf of Mexico red snapper. SEDAR (<http://www.sefsc.noaa.gov/sedar/>), Charleston, South Carolina. 480 p.

SEDAR Red Snapper Update. 2009. Stock assessment of red snapper in the Gulf of Mexico: Report of the update assessment workshop, Miami, Florida. 224 p.