

2010 Recreational Red Snapper Quota Closure Analysis – Fall Reopening
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 the recreational red snapper sector in the Gulf of Mexico when the quota is reached. NOAA Fisheries Service may reopen the fishery if data indicate the quota has not been reached (50 CFR 622.43(c)). In 2010, the recreational quota for red snapper was increased from 2.45 million pounds whole weight (mp ww) to 3.40 mp ww. Projections completed prior to the fishing season (SERO 2010) indicated the quota would be met on or before July 23, 2010, allowing for a 53-day fishing season. However, due to the Deepwater Horizon oil spill, a large area of the central Gulf of Mexico had to be closed (Figure 1) and many areas continue to remain closed to fishing, resulting in lower than expected landings for red snapper. NOAA Fisheries Service currently has authority to reopen the recreational red snapper sector until September 30, 2010. However, at the June 2010 Gulf of Mexico Fishery Management Council (Council) meeting, the Council requested NOAA Fisheries Service conduct emergency rulemaking to allow reopening of the recreational red snapper sector after September 30, 2010. The following analysis evaluates the potential length of a fall recreational red snapper season.

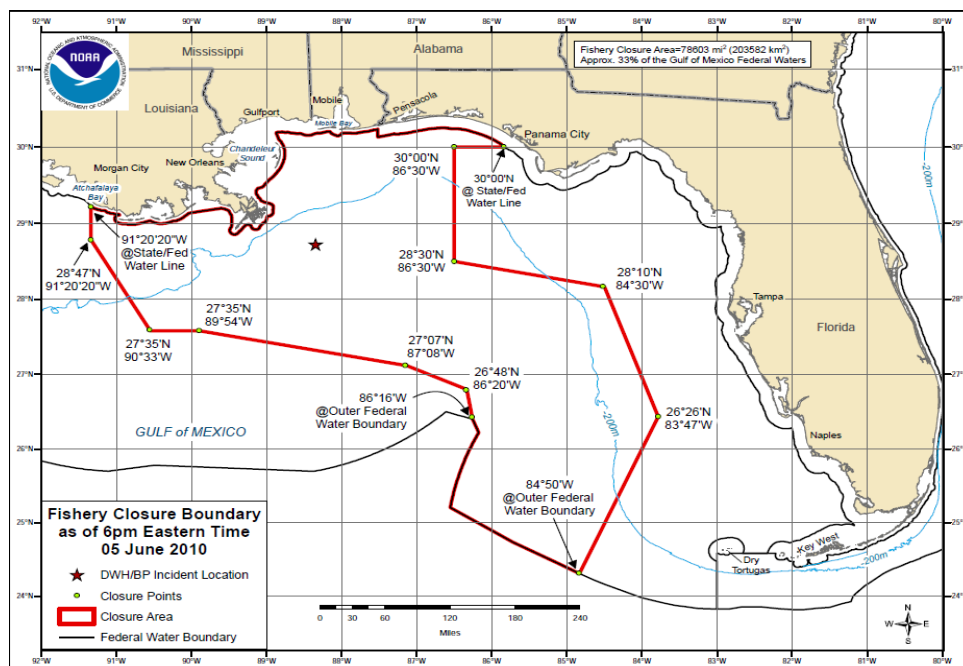


Figure 1. Map showing the area of the Gulf of Mexico closed to fishing as of June 5, 2010.

Recreational Data Collection Programs

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). Texas landings are not included in the MRFSS survey.

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). Approximately 74 headboats currently participate in the SEFSC headboat survey.

The Texas Parks and Wildlife Department (TPWD) creel survey generates estimates of landings in numbers of fish for private/rental boats and charter vessels fishing off Texas. Landings are reported in numbers by high (May 15-November 20) and low-use waves (November 21-May 14), area fished (state vs. federal waters), and mode of fishing (private vs. charter).

2010 Preliminary Recreational Red Snapper Landings

Preliminary recreational red snapper landings for 2010 were obtained from the Marine Recreational Fisheries Statistics Survey, including the For-hire charter survey, and the Southeast Fisheries Science Center’s headboat logbook program. Landings were available from MRFSS through June 30, 2010, and through July 23, 2010, for headboats. Reporting compliance for headboats during this time period was estimated to be greater than 98 percent (pers. comm., Ken Brennan). Landings from the state of Texas were unavailable at the time of this report.

Tables 1 and 2 summarize preliminary 2010 landings available from MRFSS and the SEFSC’s headboat survey. No landings were reported by MRFSS during waves 1 and 2 (January-April). In wave 3, 396,817 lbs ww of red snapper was reported. Most MRFSS landings occurred off West Florida as federal and state waters were closed off Alabama, Mississippi, and eastern Louisiana. Landings were reported in all months from the SEFSC headboat survey. During January-May, 23,380 lbs ww of red snapper were reported by Texas headboat vessels. From June 1-July 23, a total of 224,046 lbs ww of red snapper were caught. Total headboat landings from January 1 through July 23 were 247,426 lbs ww.

Table 1. 2010 MRFSS red snapper landings for wave 3 (May-June) by state and mode

Mode	Landings by State					TOTAL
	WFL	AL	MS	LA	TX	
Charter	152816	0	0	0	na	152816
Private	237270	0	0	6731	na	244001
TOTAL	390086	0	0	6731	na	396817

Table 2. SEFSC 2010 headboat landings by area and month.

Month	Landings (lbs ww) by State				
	FL Peninsula	FL Panhandle/AL	Louisiana	Texas	TOTAL
Jan	0	0	0	7,607	7,607
Feb	0	0	0	4,792	4,792
Mar	0	0	0	8,206	8,206
Apr	0	0	0	2,367	2,367
May	0	0	0	407	407
Jun	2,020	48,706	0	90,983	141,710
Jul 1-23	851	16,337	0	65,148	82,335
TOTAL	2,871	65,043	0	179,512	247,426

Estimated Landings Prior to the Emergency Reopening

A total of 644,046 lbs ww of red snapper has been estimated or reported to date. This estimate does not include landings by MRFSS for the month of July. Landings estimates from MRFSS for wave 4 (July-August) will not be available until mid-October. Additionally, the recreational red snapper season is not likely to open until September 1 or later and Texas state waters are open year round for harvesting red snapper resulting in small amounts of landings reported throughout the year. In order to calculate the total amount of red snapper landed prior to the reopening of the red snapper recreational sector, landings were estimated using 2010 catch rates for headboats and MRFSS, and 2009 catch rates for Texas charter and private boats. Appendix A provides a summary of 2009 red snapper landings by data source.

MRFSS landings during July 1-23 for 2010 were estimated for each mode and state using June 2010 landings rates. Total MRFSS landings during June were divided by 30 (number of days in June) to calculate an average daily landing rate for each state and mode. This average daily landing rate was then multiplied by 23 (the number of days open in July) to calculate landings for July 1-23. The average daily catch rate was 5,094 lbs for charter vessels and 8,133 pounds for private boats. Landings from July 24 through the end of August/September were assumed to be zero since both state and federal waters off west Florida through Louisiana were closed during this time period.

Headboat landings from July 24 through the end of August/September were assumed to be zero for all areas except Texas. Off Texas, the average daily catch rates during January-May 2010 were used as a proxy for landings between July 24 and the end of August/September. The average daily catch rate during January-May was 154 lbs per day (range 13-264 lbs per day).

Texas charter and private landings are not available for 2010. Landing rates during the low use wave (Nov 21-May 15) were assumed to be the same as 2009 landing rates. Landings between June 1 and July 23 were estimated using 2009 TPWD federal water landings rates by mode as proxies. During 2009, 23,876 lbs of red snapper were landed by charter vessels in federal waters and 74,228 lbs of red snapper were landed by private vessels in federal waters during

the 75-day fishing season. The average daily catch rates for each mode were estimated to be 318 lbs per day for charter vessels and 990 lbs per day for private vessels. These average catch rates were then multiplied by 53 days (June 1-July 23) to estimate 2010 TPWD charter and private landings during the federal fishing season. Between May 21 and June 1, as well as between July 24 and the end of August/September, landings were estimated by mode using 2009 landing rates from state waters during the high-use wave (May 16-Nov 20). Only 4,907 pounds of red snapper were landed from state waters during the high-use wave by Texas charter vessels during 2009. The average daily landing rate for charter vessels was estimated to be 26 lbs per day. For private vessels, 46,099 lbs of red snapper were reported during the high-use wave from state waters. The average daily landing rate for private vessels was estimated to be 244 lbs per day.

Table 3 provides a summary of landings estimates for January through September 30, 2010. Landings are estimated to be approximately 1.07-1.08 million pounds by the end of August/September.

Table 3. Reported and estimated 2010 red snapper landings, January 1-September 30.

Year	Period	DataBase	Mode	Landings (lbs ww)	Source
2010	Jan-Jun	MRFSS	Charter	152816	Reported preliminary landings
2010	Jul	MRFSS	Charter	117159	Estimated using June 2010 MRFSS catch rates
2010	Aug	MRFSS	Charter	0	Fishery closed; assume equal to zero
2010	Sept 1-Sept 15	MRFSS	Charter	0	Fishery closed; assume equal to zero
2010	Sept 16-Sept 30	MRFSS	Charter	0	Fishery closed; assume equal to zero
2010	Jan-Jun	MRFSS	Private	244001	Reported preliminary landings
2010	Jul	MRFSS	Private	187067	Estimated using June 2010 MRFSS catch rates
2010	Aug	MRFSS	Private	0	Fishery closed; assume equal to zero
2010	Sept 1-Sept 15	MRFSS	Private	0	Fishery closed; assume equal to zero
2010	Sept 16-Sept 30	MRFSS	Private	0	Fishery closed; assume equal to zero
2010	Jan-Jul 23	HBS	Headboat	247230	Reported preliminary landings
2010	Jul 24-Aug 31	HBS	Headboat	6039	Estimated using Jan-May 2010 Texas headboat catch rates
2010	Sept 1-Sept 15	HBS	Headboat	2323	Estimated using Sep-Nov 2009 Texas headboat catch rates
2010	Sept 16-Sept 30	HBS	Headboat	2323	Estimated using Sep-Nov 2009 Texas headboat catch rates
2010	Jan 1- May 14	TPWD	Charter	0	2009 low-use wave landings used as a proxy
2010	May 15-Aug 31	TPWD	Charter	30516	2009 catch rate in federal waters used as a proxy
2010	Sept 1-Sept 15	TPWD	Charter	389	2009 catch rate in state waters used as proxy
2010	Sept 16-Sept 30	TPWD	Charter	389	2009 catch rate in state waters used as proxy
2010	Jan 1 - May 14	TPWD	Private	8643	2009 low-use wave landings used as a proxy
2010	May 15-Aug 31	TPWD	Private	78797	2009 catch rate in federal waters used as a proxy
2010	Sept 1-Sept 15	TPWD	Private	3659	2009 catch rate in state waters used as proxy
2010	Sept 16-Sept 30	TPWD	Private	3659	2009 catch rate in state waters used as proxy

Emergency Rule Quota Projections

Approximately 2.3 million pounds of the 3.4 million pound quota is estimated to remain for 2010. For purposes of this analysis it was assumed that federal waters would be open off Alabama, Mississippi, and Louisiana when the red snapper fishing season starts, although any reopening of these areas is contingent on NOAA Fisheries Service and the Food and Drug

Administration’s sampling protocol and procedures. Different start dates for the fishing season were not evaluated as landings rates were assumed to be constant throughout the fall fishing season.

A major challenge in projecting the length of a fall red snapper fishing season is predicting fishing effort. The red snapper recreational season has not been open after August 15 since 2007, and has not been open after October 31 since the late 1990s. Historical landings data from 2005-2007, when the fishery was open through October 31, indicated wave 5 (September/October) landings were less than 50% of peak landings during the summer (May-June).

Table 4. Relative landings by wave scaled to May-June 2005-07 landings.

Wave	Avg Landings	% Landings	Rel Landings (Range)
Jan-Feb	15889	0%	0.01 (0.01-0.01)
Mar-Apr	468700	11%	0.29 (0.23-0.36)
May-Jun	1595788	38%	1.00
Jul-Aug	1400667	33%	0.88 (0.63-1.08)
Sep-Oct	665674	16%	0.42 (0.39-0.45)
Nov-Dec	38477	1%	0.02 (0.01-0.04)
All waves	4185195	100%	n/a

Although effort may be lower in the fall than during the summer, previous quota closure analyses have historically overestimated when the quota would be met. During both 2007 and 2008, the quota was exceeded by 1.26 mp ww and during 2009 the quota was exceeded by 2.09 mp ww (Figure 2). To avoid exceeding the quota again, effort and landings rates for fall 2010 were assumed to equal summer 2009 effort and landing rates.

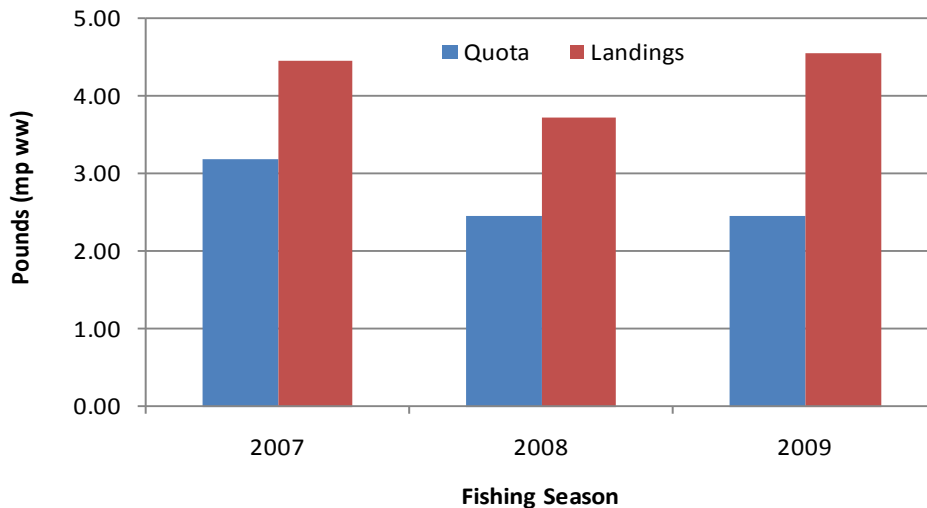


Figure 2. Comparison of recreational red snapper quotas and estimated landings, 2007-2009.

Landings rates for summer 2009 were calculated for each state, mode, and data source. MRFSS daily landings rates were based on total landings during waves 3-4, 2009 (see Appendix A, Table A1), divided by 75 days (the length of the 2009 federal red snapper season). Headboat daily landings rates were based on June-August 2009 landings divided by 75 days. TPWD daily landings rates were calculated separately for federal and state waters. Daily landings rates for charter and private vessels in Texas state waters were based on total state water landings by mode divided by the number of days open during the high-use wave (n= 189 days). For federal waters off Texas, landings rates were based on federal water landings divided by 75 days. After the quota was projected to be met, federal water landings were set to zero for all areas. State water landings were estimated to occur after the federal season closed off Texas. Landings off Texas after the federal season closed, but prior to November 20, were calculated using TPWD state water landing rates during the high-use wave. After November 21, until the end of the year, landings off Texas were calculated by mode using state water landing rates from the low-use wave. Headboat landings off Texas were calculated using the average of September-December 2009 headboat landings divided by 122 days.

To calculate when the quota would be met, landings rates were multiplied by the number of days the season would be open until the quota was projected to be met. **It was estimated that the quota would be met in 39 days at summer effort levels.**

Discussion

There is considerable uncertainty in the results of this analysis. Results are highly contingent on the level of fishing effort assumed, estimates of landings from prior fishing years, and whether or not existing closed areas will open by the start date of the federal red snapper season. The lack of fishing effort information pertaining to the fall red snapper season makes it difficult to predict how much may be landed. If a derby fishery develops then landings could be even higher than those observed during summer months resulting in the quota being met faster. Similarly, if effort is lower during the fall due to reduced tourism and weather, then the quota may take longer to be met.

It should also be noted that this analysis does not account for environmental factors, such as sea temperature or sea state, which may affect the catchability of red snapper. The analysis also assumes no increase in the size of red snapper caught. A previous quota closure analysis concluded the quota could be met 11% faster if the average weight of red snapper increases by just 10% (SERO 2010). Lastly, it is unknown at this time what effect the Deepwater Horizon oil spill will have or has had on red snapper stock abundance and productivity.

This analysis did not attempt to analyze other proposed fishing seasons suggested by fishermen. Some fishermen have suggested opening only weekends (Friday-Sunday) during the fall or opening Labor Day weekend, then closing the season after Labor Day weekend until the start of October. Although landings rates were assumed to be constant over time for purposes of this analysis it is well recognized that effort and landings would be considerably higher on weekends versus weekdays. Any consideration of weekend only fishing seasons would need to account for differences in landings rates between weekdays and weekends. An analysis

conducted for Amendment 27/14 to the Reef Fish Fishery Management Plan indicated weekend landings represented 60-70% of the total red snapper landings (SERO 2006).

In summary, the fall red snapper fishing season could be as long as 39 days. However, results should be viewed with caution based on the assumptions discussed herein and prior year's overages. Prior year's landings and effort have shown to be a poor predictor of future effort and landings (Table 2). Any overage in quota would not allow an increase in the quota for the 2011 fishing season as future quotas are predicated on staying within prior year's quotas.

References

Southeast Regional Office. 2006. Estimated Reductions in Harvest for Various Core Recreational Fishing Seasons with Weekend Openings Before or After the Core Season. NOAA Fisheries Service, Southeast Regional Office, St. Petersburg, FL 15 pp.

Southeast Regional Office. 2010. 2010 Red Snapper Quota Closure Analysis. NOAA Fisheries Service, Southeast Regional Office, St. Petersburg, FL 8 pp.

Appendix 1.

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

Mode	Wave	Landings (lbs ww) by State				
		Alabama	Louisiana	Mississippi	West Florida	Grand Total
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 A-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 A-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

**Addendum
August 23, 2010**

Background

During the August 16-20, 2010, Gulf of Mexico Fishery Management Council (Council) meeting, the Council discussed reopening the fall 2010 red snapper season on weekends only. Based on prior analyses conducted by the NOAA Fisheries Service Southeast Regional Office (SERO) it was determined that catch rates were considerably higher on weekends versus weekdays (SERO 2006). To project how many days it would take to harvest the remaining 2.3 million pounds of quota in 2010, analyses were conducted to evaluate a variety of weekend versus weekday scenarios under a variety of fishing effort and landing rates.

SERO (2006) reported that 60-70% of red snapper landings historically occurred on weekends when the season was open for 194-days (April 21-October 31). Landings on weekends versus weekdays varied by mode of fishing and region (east vs. west Gulf), with the highest proportion of landings occurring by private anglers on weekends in the eastern Gulf of Mexico (Table 1A).

Table 1A. Percentage of red snapper landings occurring on weekends versus weekdays by mode and region, 2001-2003 (SERO 2006)

Mode and Region	% Weekend (Sat-Sun) Landings	% Weekday (Mon-Fri) Landings
Charter/HB – East	53%	47%
Charter /HB – West	61%	39%
Private – East	80%	20%
Private – West	62%	38%
All Modes and Areas (weighted)	65%	35%

More recent data were also evaluated to determine the proportion of landings occurring on weekends versus weekdays. Logbook headboat landings for 2010 were summed for weekends (Fri-Sun) versus weekdays (Mon-Thurs) during the 53-day federal red snapper fishing season. Table 2A summarizes the proportion of red snapper headboat landings occurring on weekends versus weekdays by Gulf region.

Table 2A. Percentage of red snapper headboat landings on weekends versus weekdays, 2010.

Day of Week	% Landings by Region		
	Eastern Gulf	Western Gulf	Gulfwide
Mon-Thurs	55%	48%	50%
Fri-Sun	45%	52%	50%

Historic data from SERO (2006) may not be suitable for determining the proportion of landings occurring on weekends versus weekdays given fishing conditions have changed considerably since 2006. Additionally, there is considerable uncertainty in the amount of effort that may occur during a fall fishing season. To evaluate the sensitivity of season lengths to different effort and landing rates, a range of plausible effort/landing rates was explored ranging from 50% to 120% of summer 2009 effort/landing rates. Historic red snapper landings (2005-2007) during September-October were less than 50% of peak summer landings (see Table 4 on page 5), representing the lower end of the range examined. The upper end of the range assumes derby fishing conditions will occur, resulting in higher landing rates than observed during peak summer. Many factors may affect the amount of red snapper landed during fall including, but not limited to: differences in summer versus fall catchability, reduced tourism, closed areas resulting from the Deepwater Horizon oil spill, increases in red snapper size, and weather conditions.

Sensitivity analyses were conducted to evaluate the effect of weekend versus weekday landing rates on season length. If landings rates are assumed to be constant throughout a week then 29% (2 days divided by 7 days) of red snapper landings would be expected to occur on Saturday and Sunday and 71% (5 days divided by 7 days) would be expected to occur on Monday-Friday. Similarly, if landings rates are constant, 43% of red snapper landings (3 days divided by 7 days) would be expected to occur on Friday-Sunday and 57% (4 days divided by 7 days) would be expected to occur on Monday-Thursday. If the percentage of landings on two-day weekends (Sat-Sun) is greater than 29% or the percentage of landings is greater than 43% on three-day weekends, then the average landing rates on a weekend would be higher than the average landing rates on a weekday. For example, if 400,000 pounds is landed in an average week and landings rates are constant throughout the week, then 114,286 pounds would be landed on Saturday-Sunday (2 days) and 285,714 pounds would be landed on Monday-Friday (5 days). Both weekend days and weekdays would have an average catch rate of 57,142 pounds per day (114,286/2 and 285,714/5). However, if 40% of the landings occur on Saturday and Sunday, then the landings rate would increase to 80,000 pounds (160,000/2) on Saturday-Sunday and 48,000 pounds (240,000/5) on Monday-Friday.

To estimate the length of the fishing season if only weekends were open, summer 2009 landings by mode and state for the 75-day 2009 federal red snapper fishing season were calculated. Landings were then multiplied by a scaler ranging from 0.5 to 1.2 to account for different levels of effort occurring during the fall relative to the peak summer fishing season. Landings were then multiplied by the proportion of landings assumed to occur on weekends and then divided by the number of weekend days open during the summer fishing season to estimate a daily average landing rates.

Table 3A summarizes the length of the fall red snapper season if only Saturdays and Sundays are open for harvest and Table 4A summarizes the length of the fall red snapper season if Friday, Saturday, and Sunday are open for harvest. Season lengths ranged from 12-78 days, depending on effort levels assumed and the proportion of weekend vs. weekday landings. Based on Tables 1A and 2A, it is most likely that weekend landings will account for 50-65% of

landings. Based on effort levels ranging from 80-100%, and weekend landings of 50-65% (versus weekday landings of 35-50%), the season length would be 17-42 days.

Table 3A. Estimated days red snapper recreational fishing season could be open before the 3.4 million pound 2010 quota is met. Season lengths are based on different proportions of weekend versus weekday landings and effort/landing rates relative to peak summer levels. Season lengths are based on weekend only (Saturday-Sunday) openings.

%Weekend Landings (Sat-Sun)	%Weekday Landings (Mon-Fri)	Days Open based on Effort/Landing Rates Relative to Summer				
		120%	100%	80%	60%	50%
80%	20%	12	14	17	23	28
70%	30%	13	16	20	26	32
65%	35%	14	17	21	28	34
60%	40%	15	18	23	31	37
50%	50%	18	22	28	37	44
40%	60%	23	28	35	46	55
29%	71%	32	39	48	65	78

Table 4A. Estimated days red snapper recreational fishing season could be open before 3.4 million pound 2010 quota is met. Season lengths are based on different proportions of weekend versus weekday landings and effort/landing rates relative to peak summer levels. Season lengths are based on weekend only (Friday-Sunday) openings.

%Weekend Landings (Fri-Sun)	%Weekday Landings (Mon-Thurs)	Days Open based on Effort/Landing Rates Relative to Summer				
		120%	100%	80%	60%	50%
80%	20%	18	21	26	35	42
70%	30%	20	24	30	40	48
65%	35%	22	26	32	43	52
60%	40%	23	28	35	47	56
50%	50%	28	34	42	56	68
43%	57%	32	39	48	65	78

Discussion

There is considerable uncertainty in projecting when the quota will be met in fall 2010 based on weekend only red snapper openings. Results are highly contingent on landings rates assumed for weekends and relative effort levels in fall versus summer. The higher the proportion of landings on weekends, the sooner the quota will be met. Similarly, the higher effort/landings rates are relative to summer the sooner the quota will be met. At the August 2010 Council meeting, the Council recommended reopening Fridays-Sundays between October 1 and November 22. This would result in a 24-day fall fishing season, which is within the range of season lengths considered herein that would constrain harvest to at or below the quota.