

Red Snapper Management for Federally Permitted Charter Vessels



White Paper

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CHAPTER 1. INTRODUCTION

1.1 Background

This companion document to Reef Fish Amendment 41 provides a basis for discussion of three *input controls* currently used to manage the recreational red snapper harvest: bag limit, fishing season, and minimum size limit. Input controls are management measures intended to control the rate at which fish are caught. In contrast, Amendment 41 evaluates *output controls*, where the total allowable output (i.e., the quota) would be distributed before fishing begins. Output controls are most effective in ensuring that harvest does not exceed a pre-determined amount of allowable catch (e.g., the recreational sector annual catch limit; ACL). These tools are effective in many situations but may not address management objectives for highly desirable species where potential effort greatly exceeds allowable harvest. However, these input controls could be used in concert to extend charter fishing opportunities while avoiding the challenges of designing and implementing an allocation-based management program. The management measures described here could be modified through the Gulf of Mexico Fishery Management Council's (Council) framework action procedure.

The Gulf red snapper stock is overfished and currently under a rebuilding plan. In 2014, the Council reorganized the recreational sector by defining private angling and federal for-hire components for the harvest of red snapper in the Gulf of Mexico (Gulf) and allocating the recreational sector ACL between the recreational components (GMFMC 2014) for the years 2015 – 2017. The federal for-hire component includes all for-hire vessels with a valid or renewable Gulf Charter/Headboat permit for Reef Fish (for-hire permit), including Historical Captain Charter/Headboat permits.¹ The private angling component includes anglers fishing from private vessels and for-hire operators without a federal for-hire permit (i.e., state-licensed).

The establishment of separate components within the recreational sector provides a basis for development of management approaches tailored to each component. Currently, both the private angling and federal for-hire components are managed under the same bag limit, fishing season start date, and minimum size limit. The red snapper fishing season for each component begins on June 1. The length of the fishing season for each component is projected based on the annual catch target (ACT), which is reduced 20% from each component's portion of the ACL. The fishing season closes with the corresponding component's ACT is projected to be met. The resulting for-hire component season was 44 days in 2015, and 46 days in 2016.

The for-hire permit does not make a distinction between charter vessels and headboats. Some federally permitted for-hire vessels have historically been selected to participate in the Southeast Region Headboat Survey (SRHS) and were selected based on factors including size, passenger capacity, and business operation. The SRHS generally encompasses large capacity vessels that

¹ To qualify for a Historical Captain Gulf Charter/Headboat (HRCG) permit for Reef Fish, a captain must be U.S. Coast Guard licensed and operating as a captain of a for-hire vessel prior to March 29, 2001, and have at least 25% of their earned income from recreational for-hire fishing in one of the last four years ending March 29, 2001. These permits are renewable but not transferable to another individual, and require the permitted vessel be operated by the historical captain.

fish primarily as headboats (i.e., charges by the “head”). Amendment 41 considers allocation-based management programs for *charter vessels* defined as vessels with a for-hire permit that do not participate in the SRHS. These vessels have their landings estimated through the Marine Recreational Information Program (MRIP) For-Hire Survey. The MRIP For-Hire Survey includes a voluntary dockside intercept survey and a weekly phone survey sampling approximately 10% of federally permitted charter vessels. Amendment 42 considers allocation-based management programs for *headboats* defined as vessels with a for-hire permit that do participate in the SRHS. The management measures discussed in this white paper could be applied to the charter vessels for which allocation-based management is being considered under Amendment 41, or to the entire federal for-hire component of the recreational sector, including headboats.

1.2 Bag Limits

Recreational red snapper harvest in the Gulf has been managed using bag limits since 1990. The initial bag limit was 7 red snapper per person per day. The bag limit was reduced to 5 fish in 1995, 4 fish in 1998, and 2 fish in 2007. The bag limit reductions allowed for a longer fishing season to remain in place.

Representatives of the charter vessel and headboat industry asked the Council at the October 2014 meeting to consider a reduction in the bag limit from 2 red snapper to 1 red snapper for the for-hire component. This change would increase the length of the for-hire component’s fishing season while allowing their customers to retain 1 red snapper along with other species. During the meeting of the Council’s Ad Hoc Red Snapper Charter For-hire Advisory Panel (AP) held December 2-3, 2014, the AP recommended a 1-fish bag limit for the for-hire component.

The Council reviewed a bag limit analysis of red snapper in January 2015 that considered both 1 and 2-fish bag limits, and a fractional bag limit. Trip level catch information were reviewed to calculate the proportion of anglers that harvested 1 or 2 fish (Table 1.2.1). In 2014, 57% of headboat anglers², 65% of west Florida through Mississippi charter anglers, and 95% of Louisiana charter anglers landed the 2-fish bag limit. In Texas, 74% of charter anglers landed the 2-fish bag limit in 2013. Maintaining the 2-fish bag limit would not allow for an increase to the length of the fishing season, but would allow anglers on charter vessels to catch the same bag limit as anglers fishing from private recreational vessels.

It can be assumed that a 1-fish bag limit would reduce the number of fish harvested from 2 to 1 on all the trips where the bag limit was caught. On trips that caught at least 1 fish, the analysis identified that 80% of headboat anglers, 83% of west Florida through Mississippi charter anglers, and 100% of Louisiana charter anglers landed at least one red snapper in 2014. In 2013, 100% of Texas charter anglers who targeted red snapper landed at least one red snapper (Table 1.2.1).

² Does not include anglers fishing from headboats participating in the 2-year Headboat Collaborative.

Table 1.2.1. Number and proportion of for-hire anglers landing at least one or more red snapper.

Survey	# of Anglers			% of Anglers	
	2 fish or more	1 fish or more	Total anglers intercepted	2 fish or more	1 fish or more
LA Creel	120	126	126	95%	100%
TPWD	49	66	66	74%	100%
MRIP	640	819	986	65%	83%
SRHS	8,485	11,816	14,806	57%	80%

Source: NMFS Southeast Regional Office, December 15, 2014. Analytical methods are described in SERO-LAPP-2012-11³. Data inputs include preliminary SRHS (excluding vessels in the Headboat Collaborative), MRIP (west Florida to Mississippi), and LA Creel data (Louisiana) for 2014, and TPWD catch-effort data for 2013.

A fractional bag limit refers to allowing fewer fish to be landed than the number of anglers on a vessel. For example, setting the bag limit at one fish for every two anglers would be a fractional bag limit. Although this approach would result in the longest fishing season compared to a one or two fish bag limit, this approach has been considered but rejected by the Council (GMFMC 2008). This is primarily due to public hearing and Reef Fish AP comments which have indicated that fractional bag limits are not an acceptable way to manage the recreational fishery, and are impossible to enforce.

A bag limit reduction is estimated to increase the season length for the for-hire component of the recreational sector by as much as 63% assuming no high-grading occurs (Table 1.2.2), or by 42% if the average weight of a retained red snapper increases by an average of 1 pound due to high-grading (Table 1.2.3). High-grading refers to discarding a smaller fish in order to retain a larger fish. Anglers on for-hire vessels typically catch a variety of species in addition to red snapper, including other snapper species, groupers, and triggerfish. Thus, under a 1-fish bag limit, vessel operators could still provide a multi-species fishing trip that includes red snapper. However, with only a 1-fish red snapper bag limit, there could be an increased incentive to high-grade.

Table 1.2.2. Estimated percent change in for-hire red snapper landings and the corresponding estimated percent change in season length. Assumes no high-grading occurs.

Bag Limit	% Change in Landings	% Change in Season Length
2	0%	0%
1	-39%	63%

Source: NMFS Southeast Regional Office, December 15, 2014. Analytical methods are described in SERO-LAPP-2012-11. Data inputs include preliminary SRHS (excluding vessels in the Headboat Collaborative), MRIP, and LA Creel data for 2014, and 2013 TPWD catch-effort data.

³http://sero.nmfs.noaa.gov/sustainable_fisheries/gulf_fisheries/red_snapper/documents/pdfs/gulf_red_snapper_bag_limits.pdf

Table 1.2.3. Estimated percent change in for-hire red snapper landings and the corresponding estimated percent change in season length. Assumes average weight of red snapper would be 1 lb greater than the 2014 average weight of 6.9 lbs due to high-grading.

Bag Limit	% Change in Landings	% Change in Season Length
2	0%	0%
1	-30%	42%

Source: NMFS Southeast Regional Office, December 15, 2014. Analytical methods are described in SERO-LAPP-2012-11. Data inputs included preliminary SRHS (excluding vessels in the Headboat Collaborative), MRIP, and LA Creel data for 2014, and 2013 TPWD catch-effort data.

1.3 Fishing Seasons

Modifying the fishing season, or structure of the fishing season, is another management option for charter vessels. The lengths of the recreational red snapper season for each component is projected by NMFS in advance of the season based on past fishing patterns and projected changes in the abundance and average size of red snapper caught by recreational anglers. Currently, the red snapper fishing season for each component begins on June 1 and closes when the corresponding component’s ACT is projected to be met.

The Council could consider alternate start dates for the red snapper fishing season. For example, opening the season on April 1 could allow charter vessels to provide red snapper fishing trips to spring break visitors. Alternately, the Council could establish a split season in which an initial season is projected based on some proportion of the quota (e.g., options could be 50%, 60%, etc., and would be reduced by the established ACT), and a supplemental season would be established based on remaining quota (to which the ACT would be applied) following the initial season. Because charter vessel landings are estimated through MRIP, a split season could improve accountability and reduce the likelihood of a quota overage, as the second season would be contingent on having landings calculated from the first season.

A split season was recommended by the AP at its December 2-3, 2014 meeting. The AP requested a split season based on projecting when two-thirds of the quota would be caught for the June 1 opening, and any remaining quota would be used to open a fall season once the initial season catches were reported. This would help to assure that the for-hire component does not exceed their quota in June, and would possibly allow a supplemental for-hire season in the fall.

Potential benefits would include establishing the season during the most desirable time for tourists and Gulf Coast visitors, as well as weather considerations. However, a fishing season established to coincide with times of peak effort would be shorter than a fishing season that is open during times of less effort.

The drawbacks to modifying the fishing season include regional differences in the optimal start of the season; tourist seasons and times of inclement weather do not occur at the same time around the Gulf. Also, shifting the fishing season to time periods when effort is lower would

increase the season length; conversely shifting the fishing season to when effort is greater (optimal conditions) would shorten the length of the season.

1.4 Size limits

The current minimum size limit for red snapper is 16 inches total length (TL) in the Gulf for recreational anglers and for all Gulf States except Texas. In state waters off Texas, the recreational red snapper minimum size limit is 15 inches TL. During early deliberations on regional management, the Council expressed their intent to establish limitations on the minimum size limits which may be adopted by the regions due to biological concerns associated with high-grading and discard mortality. Additionally, the Council felt varying the minimum size limit among regions may pose issues with the stock assessment. The red snapper stock is still under a rebuilding plan and stock assessments must take into account minimum size limits for each sector and gear type. All red snapper are estimated to be reproductively mature at age-2 (SEDAR 31 2013) at approximately 358 mm or 14 inches TL, using the age-length equation in Szedlmayer and Shipp (1994). Due to age truncation in the red snapper stock, smaller, younger fish are caught more quickly due to their disproportionately larger abundance when compared with older, larger fish. The smallest minimum size that has been considered is 14 inches TL.

Analyses of yield-per-recruit (YPR) and spawning potential ratio (SPR) can inform management decisions about appropriate size limits. Spawning potential ratio (SPR) is the spawning potential of the stock relative to the stock with no fishing mortality. Yield-per-recruit (YPR) addresses the fishing mortality rate that produces the maximum yield of the fishery. In 2013, the Southeast Fisheries Science Center (SEFSC) conducted YPR and SPR analyses of the recreational sector to consider size limits between 14 and 18 inches TL. The YPR for red snapper was maximized at 15 inches TL while the spawning potential for the stock was maximized at 18 inches TL. Due to the status of the red snapper stock and selectivity patterns, minimum size limits from 13-18 inches TL are considered effective for managing red snapper because the YPR varies little between that size range. It should be noted that SPR increases for red snapper as the minimum size limit increases.⁴ If the management goal is to achieve a higher SPR, then increasing the minimum size would be beneficial. For example, it has been well documented that larger, older females produce more eggs and spawn more frequently throughout the season than younger, smaller red snapper (Collins et al. 2001; Porch et al. 2013: SEDAR 31-AW03). However, larger red snapper are targeted by recreational anglers, making release mortality a more important consideration than it might be for other snapper species. Thus, the SPR and YPR analyses reveal a trade-off between the two metrics (Figure 1.4.1). If the management goal is to maximize YPR, then a 15-inch TL size limit is desirable, whereas if the management goal is to maximize SPR, then a larger size limit is desirable.

⁴ <http://gulfcouncil.org/docs/Presentations/Gulf%20Red%20Snapper%20Size%20Limit%20Analysis%20-%20Presentation.pdf>

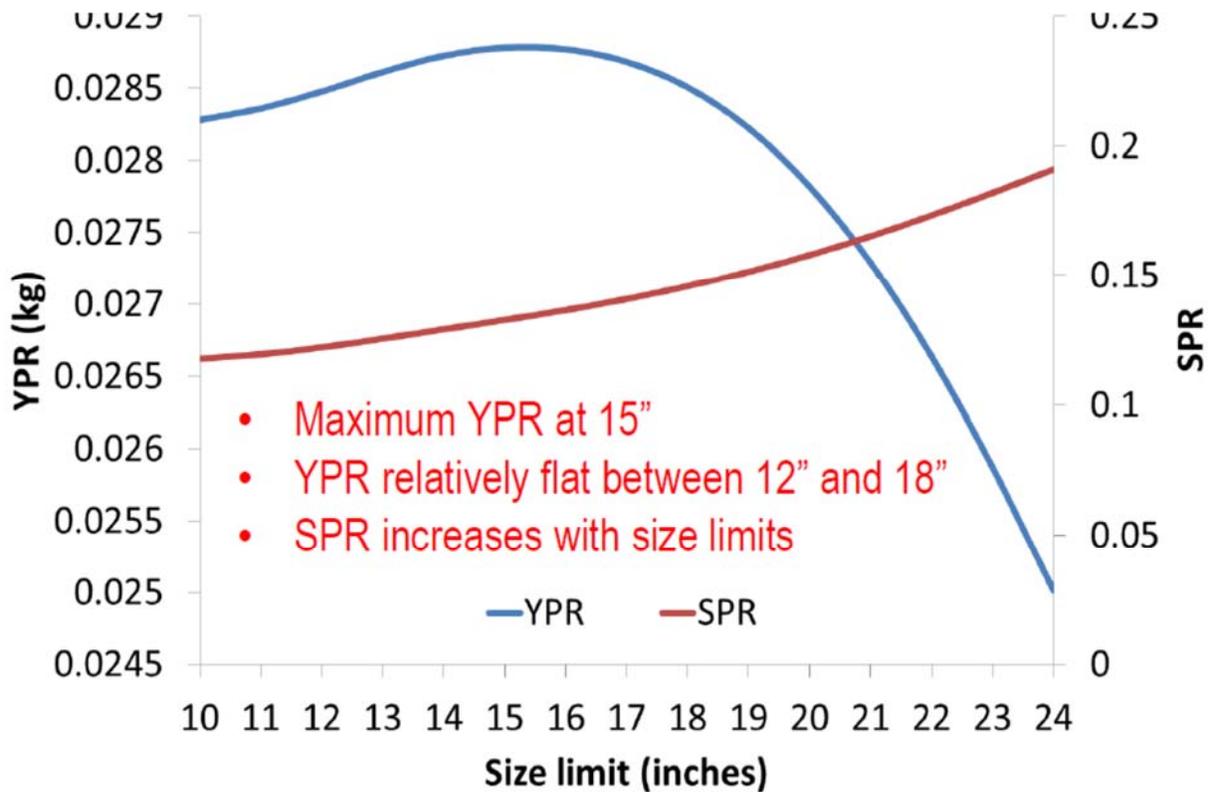


Figure 1.4.1. Yield-per-recruit and spawning potential ratio of the red snapper stock at varying minimum size limits.

Discard mortality also plays an important role in considering minimum size limits in the Gulf. Recreational discard mortality of red snapper was estimated by eastern and western sub-region in SEDAR 7 (2005) and SEDAR 31 (2013). The assessments found a consistent, Gulf-wide trend among discard mortality data, where depth of capture and release mortality were positively correlated. The release mortality for recreationally caught red snapper was averaged by eastern and western Gulf and estimated at 21% (Table 6.5 in SEDAR 7 2005). The most recent stock assessment estimated discard mortality for the recreational sector at 10% for the eastern and western Gulf (SEDAR 31 2013), when circle hooks and venting tools were used. However, the data workshop report noted that release mortality was related less to region and more on a combination of factors including, but not limited to, depth, thermal stress, venting versus non-venting, and handling time.

Based on length-weight relationship of red snapper used during SEDAR 31 (2013), a 16-inch TL red snapper is estimated to weigh 1.8 lbs ww and an 18-inch TL red snapper is estimated to weigh 2.6 lbs ww (Figure 1.4.2). The average size of recreational red snapper landed in 2012 was 8 lbs ww and approximately 24 inches TL (SERO 2012b). The differences in the minimum size limits and corresponding estimated landed weights range from 1.2 lbs ww at 14 inches TL and 2.6 lbs ww at 18 inches TL and are expected to result in minimal differences in the rate at which fish are landed, as most recreational anglers are targeting larger “trophy” fish. Generally, lower minimum size limits result in the rapid harvest of higher numbers of smaller fish, thereby filling the quota more quickly. Higher minimum size limits typically result in the decelerated

harvest of larger fish, thereby filling the quota more slowly and concurrently increasing the season length. Recently, the average landed weight of recreational red snapper has been estimated separately for the eastern and western Gulf due to differences in the data collection programs and by separate modes (i.e., headboats, charter vessels, and private anglers). In 2014, the average weight of landed red snapper in the eastern Gulf for private, charter vessel, and headboats were 7.5, 8.5, and 4.9 lbs ww, respectively. The average weight of landed red snapper in the western Gulf for private, charter vessels, and headboats were 6.98, 10.0, and 5.4 lbs ww, respectively (SERO-LAPP-2015-04).

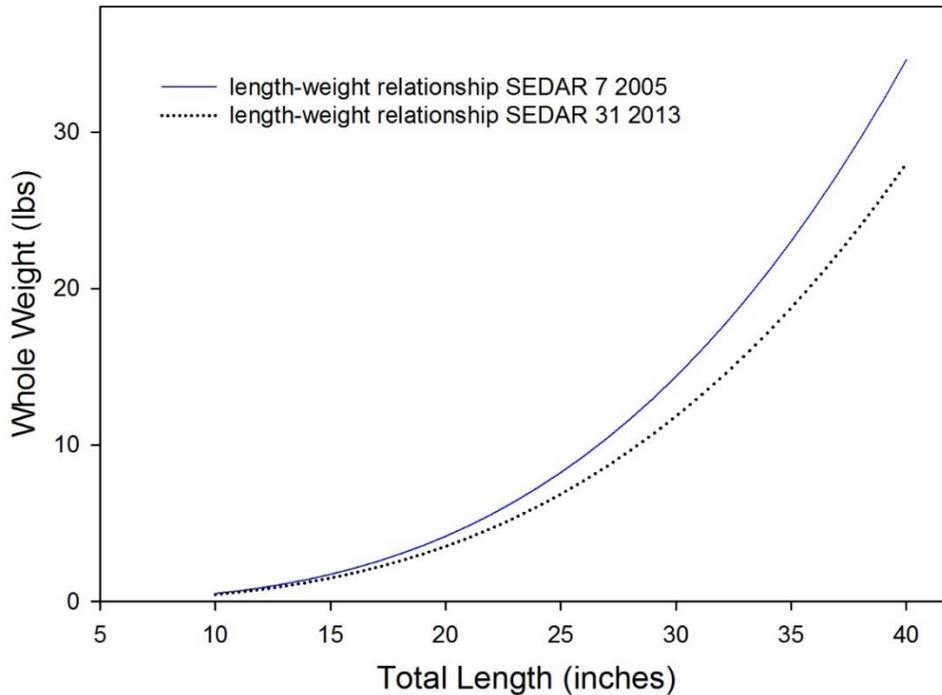


Figure 1.4.2. Red snapper length-weight relationship.
 Source: Conversion factors from SEDAR 7 (2005) and SEDAR 31 (2013).

1.5 Discussion

This white paper serves as a companion document to provide a basis for comparison to the allocation-based management programs for charter vessels under consideration in Amendment 41. The Council has previously considered modifications to the bag limit and season structure for for-hire vessels, and the Council considered modifying the minimum size limit for the entire recreational sector in Amendment 39. Should the Council decide to continue managing charter vessels with bag limits, fishing seasons, and minimum size limits, modifications to these management measures may be made through the Council’s framework action procedure.

In comparison to allocation-based controls, input controls allow for a more adaptive approach to management, as season length and bag limits can be reduced or expanded based on changes in

fishing pressure and activity and indicators of stock health. However, input controls may not be effective in fisheries that are experiencing high fishing pressure and for which the demand far exceeds allowable harvest. Without a valid and reliable system for monitoring landings, management based on input controls alone may be insufficient to constrain landings to within a fixed catch limit.

The Council has reviewed an analysis on modifications to the red snapper bag limit in which bag limits of 1 fish, 2 fish, and a fractional bag limit were considered. The drawbacks to reducing the bag limit include increased discards and a corresponding reduced harvest yield if discard mortality is high. Also, high-grading of larger fish would be expected under a smaller bag limit and will contribute to discards, thereby reducing the benefits of a smaller bag limit. Finally, anglers may want to keep more fish and object to a smaller bag limit.

For the fishing season, the Council evaluated alternate start dates including April 1 and May 1, and split seasons. For the split seasons, various proportions of the quota were proposed for the initial season, with the remainder reserved for a potential supplemental season. Generally, there is a trade-off between these effort controls such that a decrease in the bag limit would allow for a longer fishing season, while reducing the fishing season length could allow a larger bag limit.

The Council has also considered modifying the minimum size limit for red snapper in Amendment 39. The Council evaluated minimum size limits from 14 inches TL through 18 inches TL, and selected 15 inches TL as its preferred alternative. However, no further action was taken on this amendment. In recognition of the issues that would arise from regions (i.e., Gulf States) establishing different minimum size limits in waters adjacent to their region, the Council intended to modify the minimum size limit for the entire recreational sector, Gulf-wide. Such issues would also arise for stock assessments if the Council modified the minimum size limit for one component of the recreational sector (i.e., charter vessels), but not the other.

CHAPTER 2. REFERENCES

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