

Regulatory Amendment 14 Recreational Vermilion Snapper Analysis

Introduction

On June 29, 2009 Amendment 16 to the Snapper-Grouper Fishery Management Plan reduced the South Atlantic vermilion snapper bag limit from 10 fish per person to 5 fish per person. A recent stock assessment of vermilion snapper now indicates recreational and commercial annual catch limits (ACL) may be increased, and Regulatory Amendment 18 presents an action to increase the ACLs. In recent years, the recreational ACL has not been met. The South Atlantic Fishery Management Council is developing Regulatory Amendment 14, which considers changes to the recreational bag limit. The following analysis evaluates increases and decreases in the recreational bag limit.

Bag limit analysis for South Atlantic vermilion snapper

Landings and catch-effort data from the Marine Recreational Fisheries Statistics Survey (MRFSS) and Southeast Headboat Survey (HBS) were used to evaluate reduction and increases in vermilion snapper harvest associated with various recreational bag limits. Only data for 2010 and 2011 were used. The bag limit was reduced in mid-2009 and data for 2012 are incomplete.

Figure 1 displays the distribution of South Atlantic vermilion snapper landed per angler by mode. A majority of fishing trips landed on average one or less vermilion snapper per angler, but there were numerous trips that also landed on average 2-5 vermilion snapper per angler.

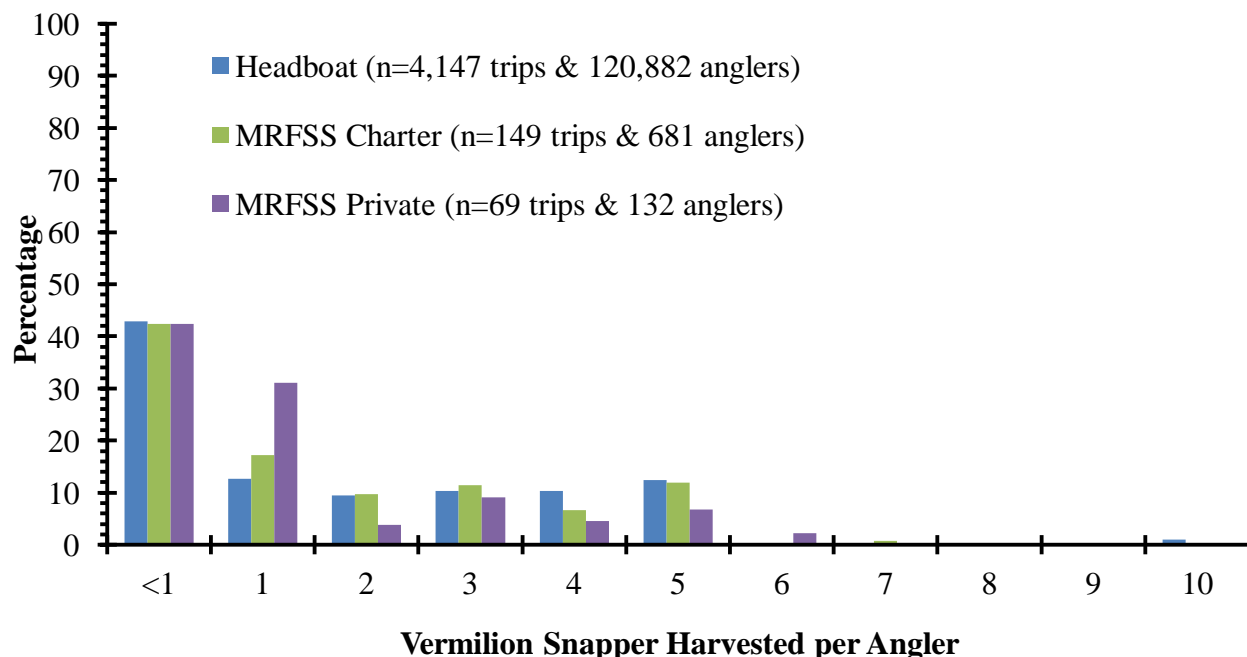


Figure 1.- Distribution of South Atlantic vermilion snapper harvested per angler by mode and data source for 2010 and 2011.

The percent decrease and percent increase in landings was calculated for various vermilion snapper bag limits. Percent increases were calculated for bag limits of 6 through 10 vermilion snapper. Calculations assumed anglers landing the current 5 fish bag limit would also land bag limits of 6 through 10 fish (Table 1). Calculations likely overestimate increases associated with larger bag limits since it's unlikely all anglers previously landing the 5 fish bag limit would also land larger bag limits. Reductions in the bag limit were calculated by reducing the catch per angler on trips exceeding the proposed bag limit (Table 1). Reported landings were then re-estimated. Trips exceeding the current 5-fish bag limit were excluded from estimated reductions since these trips were already out of compliance with current regulations.

Table 1.- Percent increases and percent reductions in landings for various recreational vermilion snapper bag limits. Estimated reductions were calculated in numbers of fish by mode and data source and then weighted by each dataset's contribution to the total landings. The green cells represent percent increases in landings and the red cells represent percent reductions in landings.

| Bag Limit | Year | | |
|----------------|------|------|-----------|
| | 2010 | 2011 | 2010-2011 |
| 10 | 29.6 | 25.6 | 27.9 |
| 9 | 23.3 | 20.4 | 22.0 |
| 8 | 17.1 | 15.2 | 16.2 |
| 7 | 11.0 | 10.0 | 10.5 |
| 6 | 5.3 | 4.9 | 5.1 |
| 5 (status quo) | 0.0 | 0.0 | 0.0 |
| 4 | 8.3 | 7.3 | 7.9 |
| 3 | 20.8 | 19.0 | 20.0 |
| 2 | 38.0 | 35.8 | 37.0 |
| 1 | 60.2 | 58.3 | 59.4 |

Predicting Future Landings

Estimates of recreational landings during closed months were necessary to make predictions of closure dates. Data from the most recent year of complete landings (2011) were used as a proxy for future recreational landings for waves 2 through 5 (March through October). Wave 2 is not open the entire wave because the recreational season is closed for the month of March but open in April. Total wave 2 landings were calculated as the sum of April 2011 landings plus predicted March landings. Predicted March landings were calculated using the daily landings per day from April 2011 and multiplying it by the number of days in March. Two different scenarios were conducted to predict landings in waves 1 and 6. The first scenario assumed landings in wave 1 were the same as 2011 wave 2 landings, and landings in wave 6 were the same as 2011 wave 5 landings. The second scenario determined wave 1 landings from the historical proportional relationship with wave 2, and wave 6 landings from the historical proportional relationship with wave 5. The proportional relationships were determined from headboat landings from the most recent year that did not have the closure. The closure was implemented in June of 2009 which makes the most recent landings without the closed season as 2009 for waves 1 and 2 and 2008 for waves 5 and 6. Headboat landings were used, instead of MRFSS landings, since headboat landings are estimated by a logbook program and less subject to sampling variability during low-

effort fishing months. The 2011 headboat landings determined the proportional relationship between waves 1 and 2 was 0.335, and the proportion relationship for waves 5 and 6 was 0.388. Once the landings for each wave were established for each scenario then it was assumed that each month had uniform distributions of landings by day. Figure 1 provides a visual representation of the landings for the two scenarios.

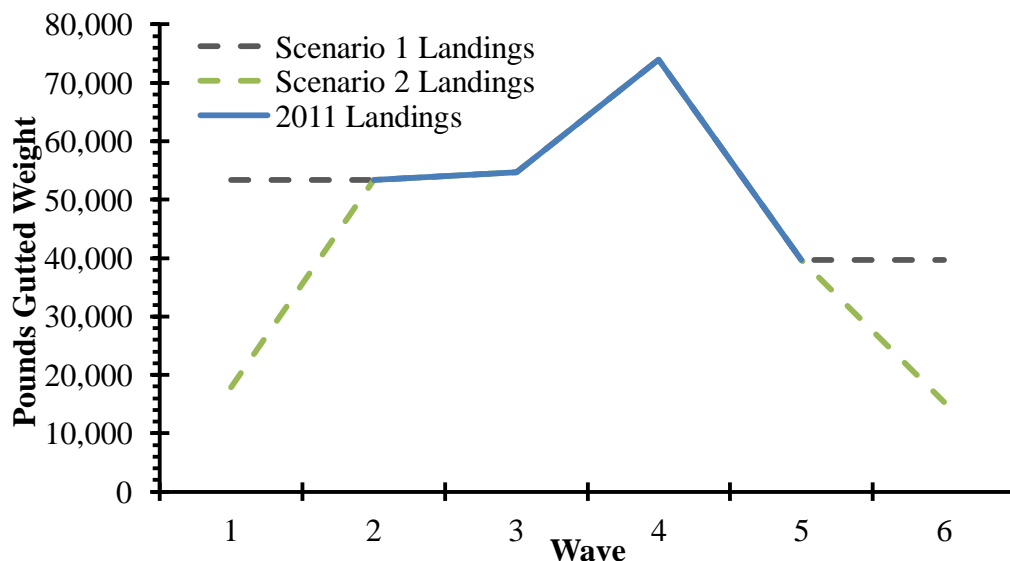


Figure 1. South Atlantic vermilion snapper recreational landings by wave. Landings for waves 2 through 5 came from 2011 landings data. Two Scenarios were used to predict landings in waves 1 and 6. Scenario 1 assumed wave 1 landings were the same as wave 2, and wave 6 landings were the same as wave 5. Scenario 2 used historical proportional relationships of headboat landings for wave 1 to wave 2, and wave 6 to wave 5 to estimate wave 1 and wave 6 landings.

Predicting Closure Dates with Closure and Bag Limit Increase

The percent increases from modifying the bag limit from 5 to 6, 7, 8, 9, and 10 fish were multiplied against the landings by day to simulate changes in the catch from imposing a new bag limit. The November to March closure was simulated by assuming zero recreational vermilion snapper landings occurred during those months. The landings by day were cumulatively summed and compared to ACLs to predict closure dates. Regulatory Amendment 18 is considering two potential ACLs. The status quo recreational ACL is 307,315 lbs gw. The other ACL is based on the results of a recent vermilion snapper stock assessment and increases the recreational ACL to 395,532 lbs gw (439,040 lbs ww). The cumulative landings by day were compared to both ACLs to predict closure dates with and without the November to March closure and for the two landings scenarios. Table 2 provides the predicted closure dates.

Table 2. Predicted recreational closure dates from increasing the bag limit for two vermilion snapper ACLs with and without the November to March closure and under two different landings scenarios. The status quo is the ACL of 307,315 lbs gw. Scenario 1 assumed wave 1 landings were the same as wave 2, and wave 6 landings were the same as wave 5. Scenario 2 used the historical proportional relationship of wave 1 to wave 2, and wave 6 to wave 5 headboat landings to estimate wave 1 and wave 6 landings.

| ACL | Nov-Mar Closure | Scenario | Bag Limit | | | | |
|----------------|-----------------|----------|-----------|-------|--------|--------|--------|
| | | | 6 | 7 | 8 | 9 | 10 |
| 307,315 lbs gw | Yes | 1 | None | None | None | None | None |
| | Yes | 2 | None | None | None | None | None |
| | No | 1 | 26-Nov | 4-Nov | 14-Oct | 25-Sep | 7-Sep |
| | No | 2 | None | None | None | 18-Dec | 2-Nov |
| 395,532 lbs gw | Yes | 1 | None | None | None | None | None |
| | Yes | 2 | None | None | None | None | None |
| | No | 1 | None | None | None | None | 22-Dec |
| | No | 2 | None | None | None | None | None |