

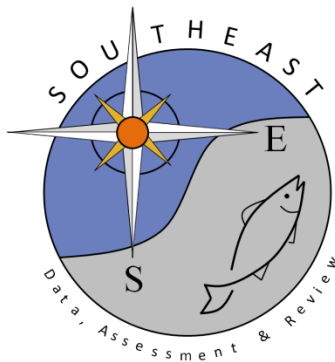
Discards of red grouper (*Epinephelus morio*) for the headboat fishery in the US Gulf of Mexico

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Discards of red grouper (*Epinephelus morio*) for the headboat fishery in the US Gulf of Mexico

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Abstract

The Southeast Region Headboat Survey (SRHS) was modified in 2004 to collect self-reported discards for each reported trip. These self-reported data are currently not validated within the SRHS. The SRHS discard rates were compared to the MRFSS/MRIP At-Sea Observer program discard rates for validation purposes and to determine whether the SRHS discard estimates should be used for a full or partial time series (2004-2013). Discard estimates prior to 2004 are calculated using a proxy method. For red grouper the MRFSS/MRIP CH, MRFSS/MRIP PR, and MRFSS/MRIP CH:SRHS discard ratio methods were evaluated as proxy methods for calculating discards from the headboat fishery.

Introduction

The Southeast Region Headboat Survey (SRHS) logbook form was modified in 2004 to collect self-reported discards for each reported trip. From 2004-2012 this was described on the form as the number of fish by species released alive and number released dead. Port agents instructed each captain on criteria for determining the condition of discarded fish. A fish is considered “released alive” if it is able to swim away on its own. If the fish floats off or is obviously dead or unable to swim, it is considered “released dead”. As of Jan 1, 2013 the SRHS began collecting logbook data electronically. Changes to the trip report were also made at this time, one of which removed the condition category for discards i.e., released alive vs. released dead. The new form now collects only the total number of fish released regardless of condition. These self-reported data are currently not validated within the SRHS.

The MRFSS/MRIP At-Sea Observer program was launched in FL in 2005 to collect more detailed information on recreational headboat catch, particularly for discarded fish. No trips were sampled in FL in 2008. Headboat vessels are randomly selected throughout the year in each state, and the east coast of Florida is further stratified into northern and southern sample regions. Biologists board selected vessels with permission from the captain and observe a subset of anglers as they fish on the recreational trip. Data collected include number and species of fish

landed and discarded. The At-Sea Observer program does not operate in the rest of the US Gulf of Mexico.

The discard rates from the SRHS were compared with the MRFSS/MFIP At-Sea Observer program discards rates in order to assess the validity of these discard estimates. Because discards were not added to the SRHS until 2004, a proxy is used to estimate headboat mode discards for previous years and any years in which At-sea validation does not support the SRHS discard estimates. The MRFSS /MRIP charter mode, MRFSS/MRIP private boat mode, and the mean MRFSS/MRIP CH:SRHS discard ratio method used in SEDAR 28 (SEDAR 28-Assessment Workshop Report, 2012) were all considered as sources for proxy discard estimates.

Due to the fact that the At-Sea Observer program operates only in the west coast of FL the analyses conducted and discussed pertain only to the west coast of FL.

Methods

SRHS vs MRFSS/MRIP At-Sea Observer comparison

The purpose of this analysis was to validate the SRHS discard estimates and determine if these data should be used for the entire time-series (2004-2013) or for a partial time-series. Red grouper positive At-Sea Observer trips were compared to SRHS logbook trips to determine the adequacy of coverage by the At-Sea Observer program. The mean discard rate per trip by year for matched trips only was compared between the SRHS and At-Sea Observer program in the state of FL. The mean discard rate per trip by year was compared between the SRHS and At-Sea Observer program in the state of FL.

Discard proxy

Several sources for proxy discard estimates were considered. The MRFSS/MRIP charter boat and private boat modes (b2/ab1) were considered. In SEDAR 12 the MRFSS/MRIP PR discard ratios were applied to the SRHS landings to estimate discards (SEDAR 12-Stock Assessment Report, 2006). This was the recommended method for calculating headboat discards prior to 2004. In SEDAR 28 the mean MRFSS/MRIP CH:SRHS discard ratio method was used to mitigate the differences in magnitude between the MRFSS/MRIP CH discard ratios and the SRHS discard ratios. Discard ratios for all three sources were compared to the SRHS discard ratios.

Results

SRHS vs MRFSS/MRIP At-Sea Observer comparison

The discard rates between the SRHS and At-Sea survey followed the same pattern but with differences in magnitude from 2005-2007 and 2009 (Figure 1, note that the matched only At-Sea trips and overall At-Sea trips are identical in 2005-2007). In 2010 the two programs show the opposite trend before normalizing in 2013. Low sample sizes in the MRFSS/MRIP At-Sea Observer program could explain the differences in magnitude between the SRHS and the At-Sea program (Tables 1 and 2). When comparing the overall and matched trips, the mean (per trip) discard rates the rate are nearly identical in the matched trips and the overall trips from the At-Sea Observer program.

Discard Proxy

The RWG compared the red grouper discard ratios from the SRHS to the three proxy sources. The MRFSS/MRIP CH discard ratio follows the same pattern as the SRHS from 2004-2013. However, there are large differences in magnitude between the SRHS and MRFSS/MRIP CH in certain years (Figure 2). The MRFSS/MRIP PR discard ratio follows the same pattern as the SRHS from 2004-2013 and is closer in magnitude from 2007-2013. The MRFSS/MRIP CH:SRHS discard ratio method follows the same pattern as the MRFSS/MRIP CH discard ratio, but with reductions in magnitude. The calculated discards using all three methods are presented in Figure 3.

Discussion*SRHS vs MRFSS/MRIP At-Sea Observer comparison*

The SRHS and MRFSS/MRIP At-Sea Observer discard ratios in FL exhibit the same pattern from 2005-2007, 2009 and 2011-2013 in the matched trips. This validates the SRHS discard estimates in those years. The At-Sea Observer program only operates in the state of FL in the Gulf of Mexico. Therefore it is not possible to validate the SRHS discard estimates in the rest of the Gulf of Mexico using this method. However, the SRHS discard estimates in all other areas are negligible.

The following options are for consideration by the RWG.

Option 1: Use the SRHS discard estimates in all areas 2007-2013 and the preferred proxy method (to be determined by the RWG) 1986-2006.

Option 2: Use the preferred proxy method (to be determined by the RWG) in all areas in all years (2004-2013).

Discard Proxy

The MRFSS/MRIP CH discard ratio is much lower than that of the SRHS in 2007-2013 and therefore is not recommended for consideration. The MRFSS/MRIP PR discard ratio proxy agrees well with the SRHS discard ratio in 2007-2013. The MRFSS/MRIP CH:SRHS discard ratio method is closer to the SRHS discard rate in terms of magnitude.

The following options are for consideration by the RWG.

Option 1: Use the MRFSS/MRIP PR discard ratio proxy method 1986- end year (determined by RWG).

Option 2: Use the MRFSS/MRIP CH:SRHS discard ratio proxy method 1986-end year (determined by RWG).

The three proxy method discard estimates are negligible in all other states, as are the SRHS landings estimates. Therefore it is recommended to assume that the SRHS discards in those areas are negligible in the rest of the Gulf of Mexico in 1986-end year (determined by RWG).

Literature Cited

SEDAR. 2006. SEDAR 12 – Gulf of Mexico Red Grouper Stock Assessment Report. SEDAR, North Charleston SC. 358 pp. Available online at:
http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=12

SEDAR. 2013. SEDAR 28 – Gulf of Mexico Cobia Stock Assessment Report. SEDAR, North Charleston SC. 616 pp. Available online at:
http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=28

Tables

Table 1. Number of red grouper positive trips reported in the SRHS and number of At-Sea Observer trips positive for red grouper by year and state, 2004-2013. No red grouper positive trips were sampled in the At-Sea Observer program in 2004 or 2008.

Year	SRHS reported trips (n)	At-Sea Observer trips sampled (n)
2004	2556	
2005	2157	28
2006	1410	21
2007	1570	23
2008	3360	
2009	3967	40
2010	3501	45
2011	4321	60
2012	4441	57
2013	4029	47

Table 2. Proportion of red grouper positive At-Sea Observer trips matched to SRHS reported trips, 2005-2013. No red grouper positive trips were sampled in the At-Sea Observer program in 2004 or 2008.

Year	Proportion matched
2004	
2005	0.0130
2006	0.0149
2007	0.0146
2008	
2009	0.009
2010	0.013
2011	0.014
2012	0.013
2013	0.012

Figures

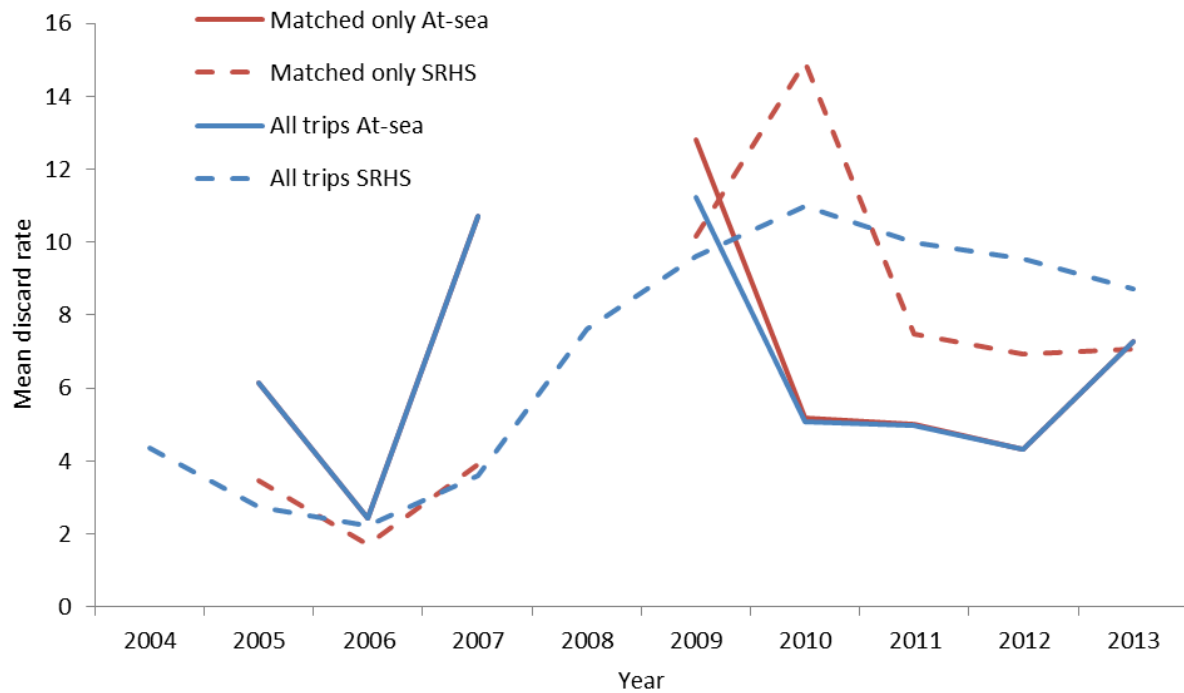


Figure 1. Mean discard rate per trip by year in the SRHS and At-sea Observer program in FL, 2004-2013. There were no red grouper positive trips sampled in the At-sea Observer program in 2004 or 2008. Note that the matched only At-Sea trips and overall At-Sea trips are identical in 2005-2007.

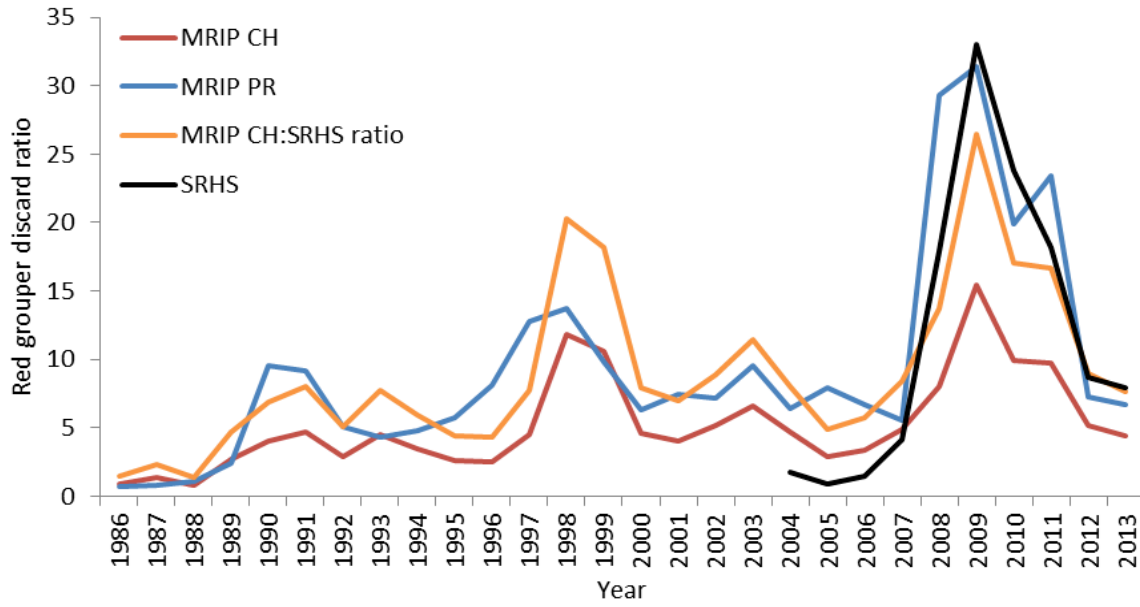


Figure 2. MRFSS/MRIP CH (1986-2013), MRFSS/MRIP PR (1986-2013), MRFSS/MRIP CH:SRHS discard ratio methods (1986-2013), and SRHS discard ratios (2004-2013).

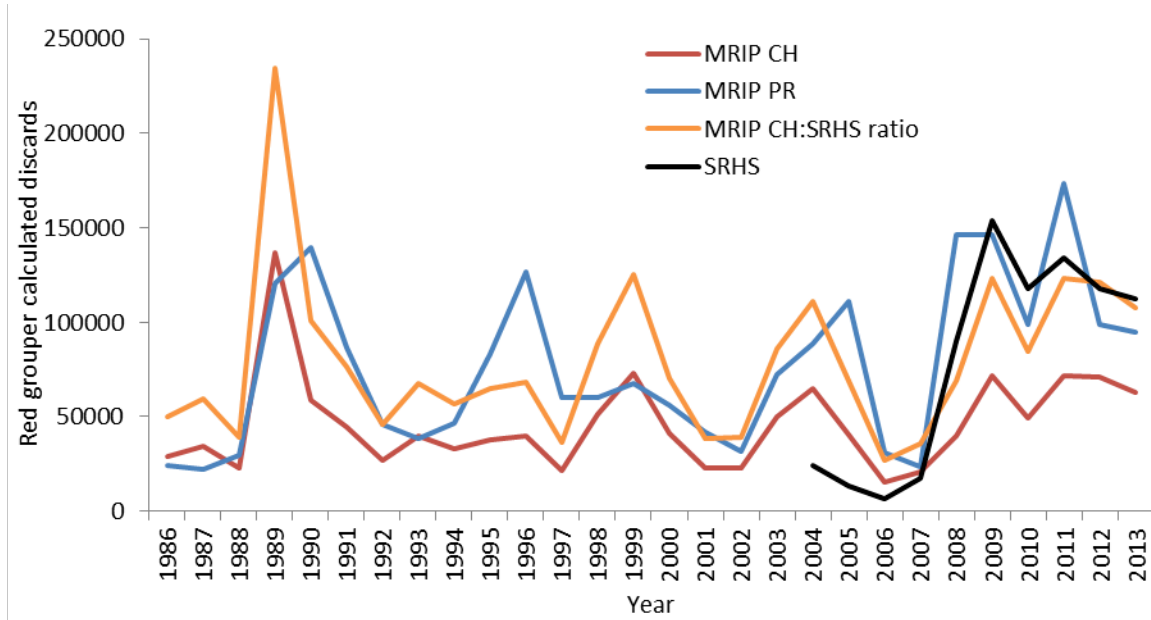


Figure 3. SRHS discards (2004-2013) with calculated discards using the MRFSS/MRIP CH proxy (1986-2013), MRFSS/MRIP PR proxy (1986-2013), and MRFSS/MRIP CH:SRHS discard ratio proxy methods (1986-2013).