Tails n' Scales: Use of an Innovative Reporting System for Red Snapper (*Lutjanus campechanus)* Management in Mississippi

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Tails n' Scales : Utilisation d'un Système de Reporting Innovant pour Red Snapper (*Lutjanus campechanus)* Management dans le Mississippi

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EXTENDED ABSTRACT

Red Snapper are one of the most targeted recreational fish in the Gulf of Mexico (GOM) with over 5 million pounds of fish harvested each year. It is also one of the most controversially managed fishes, as both recreational and commercial sectors target this species for its excellent table fare and catchability. Currently, recreational harvest data are collected through the federally-implemented Marine Recreational Information Survey (MRIP), which uses dockside intercepts to survey anglers at public ramps and harbors as soon as their trips are complete to gather information on targeted and harvested species along with number of anglers, fishing time and some economic data. Each month survey sites are assigned by a random draw system, which is informed by pressure values indicating the amount of fishing pressure each site receives. With recent shifts in federal Red Snapper season length, recreational catch data have become more difficult to collect, leading many state agencies to experiment with alternative data collection techniques specifically targeting Red Snapper.

One of the techniques adopted by the Mississippi Department of Marine Resources (MDMR) was to implement a mandatory electronic reporting system for all recreational anglers targeting Red Snapper. This was done by modifying language in Mississippi regulation: Title 22 Part 9, which encompasses statistical reporting and confidentiality of statistical data for marine fisheries. Starting in 2015, MDMR teamed up with a software developer to create a phone app and web based application called Tails n' Scales. A call-in based option was also included so that individuals without smartphones or internet access could create and report Red Snapper trips. One angler per vessel per trip was required to report their trip information after completion of the trip. A goal of the application was to create an efficient and easy to use system for all recreational anglers to increase compliance.

To create a trip in the Tails n' Scales system, anglers are required to register first by providing their name, email, phone number, and a boat registration number to create a profile. Once the profile has been validated and activated, the user can create a Red Snapper trip given that the user completes the following criteria:

i) The user does not have a currently expired or active trip,
ii) Distinguishes the trip as either for-hire or private,
iii) Selects the county and ramp being used for departure, and
iv) Designates a time of departure.

Completing these criteria yields the angler a trip authorization number; the trip number can only be used for that day of fishing and expires 24 hours after the authorization number has been granted. Upon finishing the trip, the angler is prompted to close the trip and enter in the following information:

i) Hours fished for Red Snapper,
ii) Number of anglers,
iii) Total Red Snapper harvested,
iv) Total Red Snapper released, and
v) The habitat fished.

Additionally, if the trip was not taken, the user can abandon the trip and select a reason code as to why the trip was not taken.

Validations of the data are collected using random-draw access point intercept surveys similar to MRIP. Ramps are assigned pressure values based on the number of trips taken from them in years past. MDMR staff are assigned six-hour shifts and interview all anglers potentially fishing for Red Snapper. Surveys consisted of SIX questions, including how many Red Snapper were harvested and released, total number of anglers, hours fished, vessel number and authorization number. After the survey is completed, staff then gather biological data including lengths, weights, and otoliths from the harvested Red Snapper. Data gathered during these validation surveys are then used to estimate harvest, effort, and discard estimates from the reported data.

Data analysis is split into two-month waves similar to MRIP, with validation surveys compiled for each wave. Additionally, the data are split into private-recreational and for-hire as these two show differing compliance rates. Finally, the data are split by ramp to provide ramp- and sector-specific harvest estimates. Harvest was estimated using a capture-recapture ratio estimator. This estimator uses incorrect and total validations to apply a correction factor to the number of fish harvested, anglers and trip compliance to estimate the totals of fish, anglers and trips along with a standard error. To calculate total biomass harvested, sector- and wave-specific mean weights are calculated from the data collected during validations and applied to the total number of estimated fish for that wave.

Totals were calculated for both 2016 and 2017 using the techniques described above. For 2016, Red Snapper harvest was estimated at 97,727 (± 10,975) pounds. For 2017, Red Snapper harvest was estimated at 154,100 (± 12,972) pounds. This increase in harvest was likely due to an extended Red Snapper weekend-only season, which allowed anglers to target these species for 39 days in federal waters. Additionally, when comparing 2016 and 2017, we observed an increase in compliance for both sectors with the private-recreational sector increasing from 67% to 86% and the for-hire sector increasing from 95% to 100% (Figure 1). These observed increases in compliance indicate an increase in participation and awareness for the mandatory reporting system. When comparing these numbers to the federally-implemented MRIP survey, we observed that MRIP estimated harvest up to 140,000 pounds more than what the Tails n' Scales estimates showed (Figure 2). Currently, MRIP uses angler surveys to gather information used to estimate overall harvest during the year, however due to shortened seasons fewer surveys are gathered to be used for estimation.

In summary, the Tails n' Scales mandatory reporting system represents a successfully implemented Red Snapper reporting system for the recreational sector of the fishery. The data collected are vital to the management of Red Snapper and are used for timely estimation of in-season harvest. Future additions to the survey include text-based expired trip reminders and text-based communications for individuals or groups within the program. Additionally, increasing years of data will allow for additional estimation procedures to be tested, ensuring that the data are being estimated correctly and accurately. Fleet behavior can also be monitored by including depth and distance-based metrics during the dockside intercept validations.

KEYWORDS: Red Snapper, recreational fishery, Marine Recreational Information Survey, Mississippi

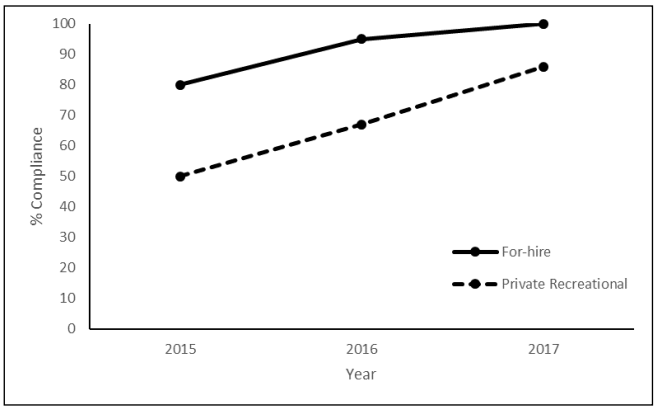

Figure 1. Trip compliance estimates for the recreational sector using Tails n' Scales

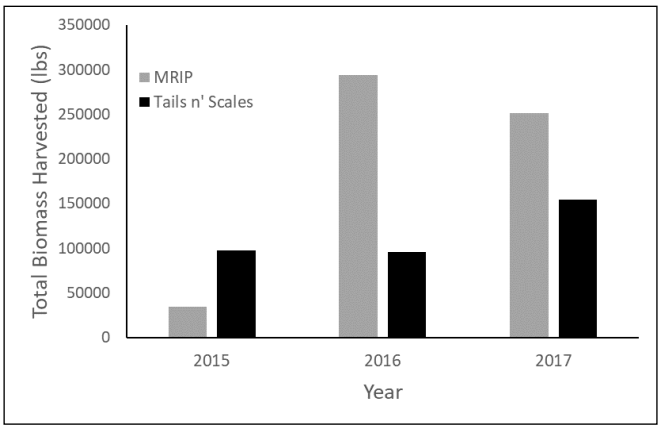

Figure 2. Comparison of harvest estimates between Tails n' Scales and the Marine Recreational Information Program survey.