

Mississippi Proposed Calibration

Introduction

At the June 2022 Council meeting a motion was passed that stated the following:

“to have the [Scientific and Statistical Committee] review state private recreational red snapper calibration ratios using more recent state survey data and provide a recommendation to the Council on change(s) to ratios, if necessary, prior to the January 2023 Council meeting.”

A letter was sent to MDMR’s Executive Director following the motion requesting a report on the proposed updated calibration between Mississippi’s Red Snapper estimates and the corresponding Federal estimates.

Previously, Mississippi used 2018 and 2019 as the years for calibration.

- Consistent season structure observed during both years
- Concerns about large Wave 1 estimates that exist in previous years

The following proposal explains the need for adjusting timeframes of calibration inputs.

Justification

Mississippi’s MRIP estimates of harvest for Red Snapper show exceptional volatility from 2016 through 2021. Many of these instances of volatility are linked to waves in which there is low sample size of overall surveys and an angler intercept with Red Snapper occurs. Others are occurrences with exceptionally high volume of surveys on a single holiday weekend survey, and despite the few days open for harvest in the given wave, landings are extrapolated across the entirety of the wave. These instances of point estimate volatility are not observed when comparing the Tails n’ Scales (TnS) Red Snapper estimates to the angler intercepts with Red Snapper. When directly comparing MRIP and TnS estimates, it becomes apparent that the largest volatility comes during periods in which harvest is the lowest during a given wave (Figures 1 and 2). It is also of note that this occurrence of large-scale volatility in multiple waves seem to have occurred with increased frequency in the most recent years. This can be attributed to increases in access to federal waters, potential increases in effort, or shifts in overall pressure within the region.

In an effort to produce a more balanced calibration factor, Mississippi proposes the following: to use high-use waves (3 and 4) and landings from 2018 – 2020.

Constraining the comparison to waves 3 and 4 will decrease the low sample size effect that is apparent in wave 5. The estimates produced during wave 5 only represent a small amount of open season days, but estimates produced are comparable to waves in which the season was open for 45+ days. This is largely due to the decreased effort in this region during wave 5, as there aren’t enough completed surveys throughout the rest of the wave to decrease the area-specific ratios of harvest in the offshore area, coupled with elevated effort estimates from FES.

The proposed year range of 2018 – 2020 is to decrease the effect of large wave 3 estimates that have fluctuated from 150 to 500 thousand pounds within the three-year period. It is likely that the opening weekends of Red Snapper seasons coupled with increases in effort from FES contribute to these large fluctuations. Since these large wave 3 estimates are not observed within the timeframe until the recent years, it is important for us to examine these occurrences and determine if they are truly reflective of fluctuations or if there might be ways to optimize site selection to increase the accuracy of estimates for wave 3.

Finally, Mississippi has multiple dedicated research projects underway and proposed to aid in the research portion of the transition process. These projects are focused on Tails n' Scales and MRIP in an effort to draw the estimates from the two surveys closer together. MDMR has also provided the willingness to fund directed research for the federal survey, including conducting a more refined effort survey, in order to aid in the understanding of causes of the volatility observed in Mississippi's harvest estimates of all species.

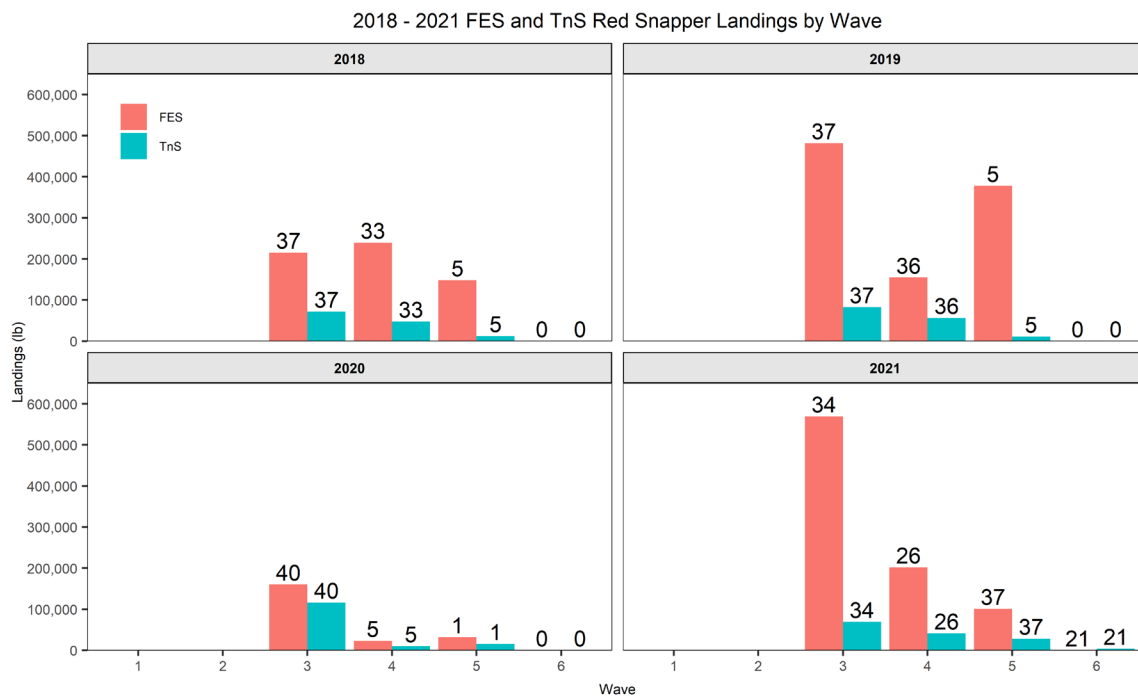


Figure 1. MRIP and TnS landings estimates of Red Snapper by wave and faceted by year from 2018 – 2021. Data labels are the number of days the Recreational Red Snapper season was open during the corresponding wave.

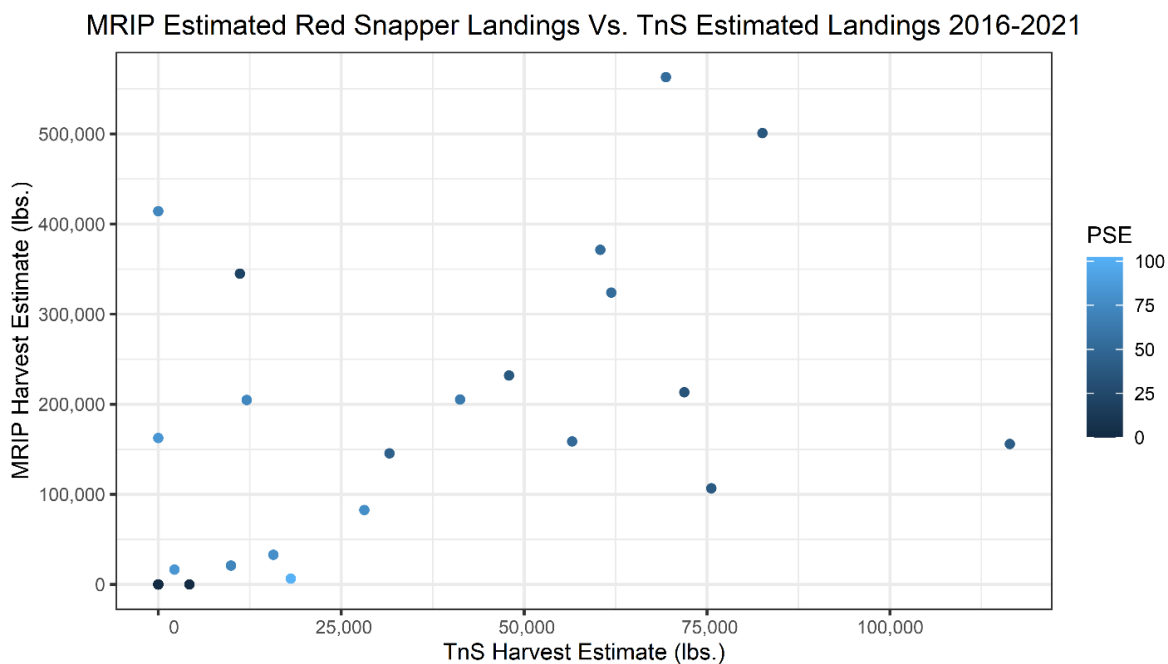


Figure 2. MRIP and TnS landings estimates of Red Snapper with each datapoint representing a given wave from 2016 – 2021 with MRIP PSE represented by color.

Calibration Result

Waves 3 and 4 only (High Use)

| Year Scenario | MRIP Cumulative | TNS Cumulative | Calibration Factor | FES-CHTS Ratio | State - CHTS | Resulting ACL | %Decrease |
|---------------|--------------------|-------------------|-----------------------|-------------------|-----------------|------------------|-----------|
| 18-20 | 1,275,127 | 391,055 | 3.26 | 2.18 | 0.67 | 109,445 | -27.3 |

The proposed calibration for Mississippi would yield a resulting ACL of 109,445 lbs. and would be a ~27% decrease from current harvest levels. In addition to this decrease, Mississippi has proposed the following management measures for the Red Snapper fishery.

- Fixed season dates regardless of harvest levels below ACL. The season would run for a set number of days across a fixed seasonal distribution. Harvest will not occur after the conclusion of the season (likely Labor Day Weekend).
 - Intends to decrease the reliance of harvest to set season length
 - Provides the most optimal season distribution for angler access to the resource
 - Reduction of summertime harvest during the hottest parts of the year (July/August), to mitigate release mortality and harvest during times of peak spawning
- Introduction of harvest control rules (HCRs) to the fishery in order to maintain productivity and promote sustainability of the fishery.
 - Since Tails n' Scales is able to gather harvest metrics from the fleet in near real-time, it is pertinent for Mississippi to begin establishing HCRs and evaluate their effectiveness in a real-world setting for the recreational fleet.
 - Observable metrics include harvest/angler, average weight, and discard/harvest ratios.
 - A combination of these could easily be used to develop predetermined thresholds of values that are acceptable for the fishery and use them to guide harvest levels within a season or to shut the season down upon the breach of the predetermined values.