

Calibration update report feedback from Gulf Council, SEFSC, SERO and OST staff

FWC's responses are provided in red font below (after individual review comments).

Text of request from SERO described in letter from SERO Regional Administrator Andy Strelcheck to State Directors on October 4th, 2022.

“At the June 2022 Gulf of Mexico Fishery Management Council (Council) meeting, the Council passed a motion “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.” NOAA Fisheries has coordinated with the Council to ensure this topic is included on the agenda for the January 2023 Scientific and Statistical Committee meeting (SSC) in Tampa, FL.

In preparation for that SSC meeting, we are requesting each state prepare a short report proposing updates to your state survey calibration ratios. To assist you with updating your calibrations, we are providing the attached Excel data file which includes Marine Recreational Information Program private recreational red snapper landings (inclusive of state charter landings) by wave and state from 2015-2021, in both numbers and pounds of fish.

Calibrations previously approved by the SSC and Council are currently undergoing rulemaking. Methods and rationale for developing those calibrations can be found on the Council's website under the SSC's archived August 2020 meeting materials. Two general methods were used to previously calculate simple calibration ratios:

- 1. Ratio of state survey landings to MRIP Coastal Household Telephone Survey (CHTS) landings; or*
- 2. Ratio of MRIP Fishing Effort Survey (FES) landings to CHTS landings divided by the ratio of MRIP FES landings to state survey landings.*

The years chosen for calculating calibration ratios varied by state and ranged from 2015-2017 to 2018-2019. In updating your state calibration ratios with additional years of data, methods should be consistent with or similar to those above. This will avoid triggering an additional independent peer-review if the proposed methods have not already undergone peer-review.

Additionally, we recommend presenting multiple calibration scenarios in your report and explaining how they were derived. This will allow the SSC to determine how calibrations are affected by different methods or time series. If there are potential reasons for not using certain years or waves of data, those reasons should be clearly documented and justified in your report.

To facilitate comparison of calibration methods across all three states, we also request that you provide calibrations for the following scenarios:

- 1. Multi-year average ratio of state survey landings to MRIP-CHTS landings (2018-2021); and*
- 2. Multi-year average ratio of state survey landings to MRIP-CHTS landings using the longest time series available for your respective state survey.*

We request that you complete and submit a draft report to Richard Cody and Ryan Rindone by November 30, 2022. This will allow for review and changes or additions to your report in advance of the January 2023 SSC meeting briefing book deadline, which is December 27, 2022. It will also help Council staff develop the Scope of Work for the SSC meeting to be sure we have a productive and efficient meeting

If you have any questions, please contact Richard Cody or Clay Porch.”

Federal Survey considerations

- COVID related disruptions to APAIS sampling were largely restricted to wave 2 of 2020. Sampling had more or less resumed by mid wave 3 (May-June).
- OST developed a simple imputation method to fill data gaps (intercept, lengths, weights) using weighted 2018 and 2019 data.
- The MRIP query tool provides a metric for contribution of imputed data to estimation:
 - “the weighted percentage of catch rate information that can be attributed to imputed catch data”
 - Contributions to catch rate information is limited to B2 estimates and amounts to 17%, 15% and 9% for AL, FL and MS, respectively. Imputed data do not contribute to harvested catch (A, B1) estimates. Overall, the contribution of imputed data to estimates in the Gulf of Mexico is low relative to other regions.
- 2021 APAIS sampling estimates are consistent with estimates from 2019 and back. Variance estimates are also within range for recent years. There was no large scale disruption to APAIS sampling or change to sampling methodology in 2021.
- The Coastal Household Telephone Survey (CHTS) was conducted through 2017, with a side by side benchmarking period from 2015-2017. From 2018 onward, CHTS estimates are derived from the calibration model used to convert between CHTS and FES survey standards. More information on the CHTS-FES Calibration model can be found at: <https://www.fisheries.noaa.gov/event/fishing-effort-survey-calibration-model-peer-review>.
- In the NMFS/GSMFC 2020 workshop on calibrations, consultants recommended consistency in calibration time series for the states to the extent practicable.
- Consultants also indicated that a simple ratio-based approach was reasonable for the intended purpose.

Florida Proposed Calibration Review R.R. Rindone and J.T. Froeschke

The Florida Fish and Wildlife Conservation Commission’s (FWC) Fish and Wildlife Research Institute (FWRI) prepared a proposed calibration to update the calibration factor to convert private recreational red snapper landings from the MRIP-CHTS system to Florida’s State Reef Fish Survey (SRFS; formerly Gulf Reef Fish Survey) program. Previously, Florida used a ratio-based calibration method developed for converting MRIP-CHTS estimates to SRFS. The method included overlapping estimates available from May 2015 (i.e., waves 3 – 6 in 2015) through December 2017. In the current proposal, Florida proposes to use waves 3 – 6 from 2015, all waves from 2016 – 2019 and 2021, and to exclude all waves from 2020. FWC proposes excluding 2020 due to suspended and reduced APAIS and SRFS dockside survey sampling in Florida from March – August 2020, due to the COVID-19 pandemic. FWC also presents their original proposal from 2020, which used overlapping estimates available from May 2015 (i.e., waves 3 – 6 in 2015) through December 2019.

Methods:

The report states, "The estimates provided by SERO incorporate modifications that are used to track ACL's in the region, which differ slightly from the data files publicly available through NOAA Office of Science and Technology (OST) originally used by Cross et al. 2020." SERO has noted that the data have not changed; rather, the nature of the data request from FWC resulted in a different representation of the landings data. FWC's recent data request specified that state charter for-hire red snapper landings should not be provided along with private angling red snapper landings. This clarification should be noted in the report.

Florida's SRFS provides monthly, year-round estimates of *private boat fishing effort and catch* (including landings and discards) for important reef fish species. Therefore, *state charter for-hire* red snapper landings should not be included in the calibration estimates. The report has been revised to provide this clarification.

Findings and Conclusions:

The report states, "In general, the MRIP-FCAL estimates are consistently two to three times greater than the SRFS estimates for Red Snapper." In evaluating the relationship between the FES/CHTS ratio with time, we observed an increasing trend, with the ratio increasing from approximately 2.69 in 2015 to 4.27 in 2021. Given the current calibration ratio for SRFS/CHTS is approximately 1.06, which makes SRFS not so dissimilar from CHTS, it would stand to reason that this assumption of "two to three times" difference between MRIP-FES and SRFS may actually be greater.

Furthermore, and likely more importantly, this report offers calibrations for SRFS to FES; whereas, Alabama and Mississippi's reports calibrate their states' data to CHTS. The relationship between the state surveys and CHTS has previously been explained by a simple ratio; however, the relationship between CHTS and FES is dynamic with time², which is not accounted for in the FWC report. This dynamic relationship could create instability in the perceived relationship between SRFS and FES landings estimates, regardless of whether those estimates are in numbers or pounds. Also, calibrating SRFS directly to FES constitutes a substantial change in calibration methodology compared that which was codified recently in the

¹ <https://media.fisheries.noaa.gov/2022-06/MRIP-Survey-Design-and-Statistical-Methods-2022-06-17.pdf> (See Chapter 8) Framework Action to the Reef Fish FMP.

Because the relationship between SRFS and FES is dynamic, there would be substantial uncertainty about the ability of the state to precisely achieve their ACT/ACL in a given year without exceeding it. The ratio between these surveys would not be known until after the fishing year had concluded and the landings were reported by both surveys. The dynamic relationship between CHTS and FES makes the accuracy of season duration projections, regardless of data currency, extremely uncertain.

There seems to be a misunderstanding here. The calibration methodology originally submitted by FWC was for SRFS (originally known as GRFS) and MRIP-FCAL (i.e., MRIP-FES) estimates. Therefore, in accordance with direction provided in the letter from SERO Regional Administrator Andy Strelcheck to State Directors on October 4th, 2022: "In updating your state calibration ratios with additional years of data, methods should be consistent with or similar to those above. This will avoid triggering an additional independent peer-review if the proposed methods have not already undergone peer-review." FWC provided updated

calibration ratios using updated data series scenarios but maintained the same basic methodology already reviewed and approved.

Further, regarding the reviewers' comment above: "...however, the relationship between CHTS and FES is dynamic with time, which is not accounted for in the FWC report."

This is one of the reasons why FWC decided to develop a calibration between SRFS and MRIP-FCAL (i.e., MRIP-FES calibrated estimates). Unlike MRIP-CHTS estimates, MRIP-FCAL estimates have been calibrated using a calibration model that already accounts for the non-linearity between the two surveys over time (i.e., the relationship between CHTS and FES is dynamic with time).

In order to generate a simple ratio that is comparable in methodology to that which was previously approved, FWC should consider generating a calibration ratio using the three sets of years described in the report for SRFS to CHTS, as was done in the Alabama and Mississippi reports.

Again, we believe this was just a misunderstanding. FWC's updated report provides calibrated estimates for both MRIP-FES to SRFS and MRIP-CHTS to SRFS (*see tables and figures in the report*).

The updated report contains calibration ratios for four sets of time series:

- 1) 2015-2019: originally included in Cross et al. (2020)
- 2) 2015-2017: years for Florida that were recommended and approved by the Gulf SSC at its August 2020 meeting
- 3) 2018, 2019, 2021: as requested by Rindone and Froeschke
- 4) 2015-2019, 2021: full time series of overlapping MRIP and SRFS estimates.

General Comments:

We think summing the variances in Table 1 is an inappropriate way to represent the variance by survey and year, especially when observed by the public. Consider alternatives for describing variance.

We strive to publish fully reproducible methods and therefore included raw data inputs for calculating the calibration ratios in our report. We have edited Table 2 to include CV values instead of variances; however, calculating variance from CVs can result in significant rounding errors that would be propagated throughout the variance calculations for the ratios. We will provide an Excel file of raw data inputs upon request to prevent rounding errors.

Table 2 should be updated to reflect calibration ratio options between SRFS and CHTS, and labeled as such (i.e., don't use "MRIP-ACAL" and "MRIP-FCAL"). This is to have commensurate terminology used between the states' reports.

Update figures as appropriate.

Not a problem, we changed the terms used in the report's tables and figures to MRIP-CHTS and MRIP-FES (instead of using the terms MRIP-ACAL and MRIP-FCAL).

Appendix A:

The report contains an additional report titled, "Results from the first year of an exempted fishing permit (18-SERO-01) for state management of Red Snapper recreational harvest in Florida." This report should be provided as supplementary background information, and not appended to FWC's recalibration report for brevity.

Not a problem, we removed the appended report from the updated calibration report and will provided it to the SSC as supplementary background information.

SEFSC

The general comment below pertains to each of the surveys and is included under feedback to each state Inclusion of 2020 estimates (?)

- FWC is excluding 2020 from the calculation of their calibration ratios due to reduced sampling under COVID protocols, whereas MDMR and ADCNR retained 2020 in their calculations. It may be worth reaching out to MS and AL to ask if similar COVID data gaps are in their surveys, and if a similar exclusion of 2020 may be warranted (e.g., if 2018-2019 data were used to impute 2020 data gaps, 2020 may no longer be an "independent" estimate). If nothing else, we could also suggest 2020 be dropped simply for the sake of consistency (of calibrations) across the Gulf region.

Florida

- FWC describes three options for MRIP:SRFS calibration factors: (1) 2015-2021 (excluding 2020), (2) 2015-2019, and (3) 2015-2017. However, it is unclear which option is being recommended by FWC, or if FWC is waiting for feedback from the Jan (Gulf) council meeting before making a decision. The first option appears to be the most defensible (e.g., uses all available data), but we did want clarification on whether FWC was proposing one of these three options.

OST (incorporates input from SERO)

Florida

- Provided alternative and requested scenarios omitting 2020 from all scenarios. Justification for omitting 2020 referenced disruptions to APAIS and SRFS field sampling due to COVID-19. This omission seems reasonable given the disruptions occurred during parts of the 2020 red snapper season.
- Document describes various scenarios but does not appear to identify a preferred scenario.

FWC did not realize we were supposed to identify a preferred calibration scenario. Therefore, following direction provided in the letter from SERO Regional Administrator Andy Strelcheck to State Directors on October 4th, 2022: "Additionally, we recommend presenting multiple calibration scenarios in your report and explaining how they were derived. This will allow the SSC to determine how calibrations are affected by different methods or time series." FWC simply provided updated calibration ratios under different scenarios.