



**NOAA
FISHERIES**

**Southeast
Regional
Office**

Estimating a Ratio Between the MRIP CHTS and FES Surveys for Calibration

Jeff Pulver
LAPP/DM Branch
August 11, 2020

Background

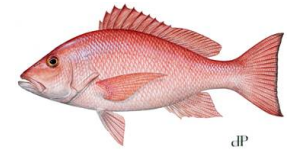


- The current Gulf recreational red snapper private component ACL for Alabama, Florida, Louisiana, and Mississippi is in MRIP CHTS units.
- Calibrations between the state surveys and MRIP CHTS need to be developed.

State Survey ^{Calibration}  *MRIP CHTS*



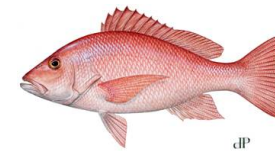
Background



- For Alabama and Louisiana, a single ratio between the state and MRIP CHTS survey is being estimated.
- For Florida and Mississippi a ratio between FES to state survey and the FES to the CHTS are being estimated.

State	% ACL	MRIP CHTS Quota (lb ww)	Calibration Ratio	State Quota
AL	26.298%	1,122,662	?	?
FL	44.822%	1,913,451	?	?
LA	19.120%	816,233	?	?
MS	3.550%	151,550	?	?

AL Snapper Check Estimate



Landings and discards from Snapper Check (SC) and MRIP CHTS in pounds whole weight

Year	SC Landed	SC Dead Discards	Snapper Check Total	MRIP CHTS Landings (AB1)	SC:CHTS Ratio
2018	949,151	69,198	1,018,348	1,947,713	0.52
2019	966,748	65,812	1,032,560	2,259,154	0.46
Mean 18-19	957,949	67,505	1,025,454	2,103,434	0.49

Source: Snapper Check data provided by Kevin Anson on July 30, 2020 and the SEFSC MRIP CHTS ACL data provided July, 2020.

Adjusting the State Quotas



Need to be able to convert into the same units.

Using a single ratio,

$$MRIP\ CHTS\ Quota * \frac{State\ Survey}{MRIP\ CHTS} = State\ Survey\ Quota$$

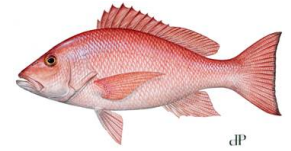
Louisiana

$$816,223\ lb\ ww * 1.06 = 865,207\ lb\ ww$$

Alabama

$$1,122,662\ lb\ ww * 0.49 = 550,104\ lb\ ww$$

Adjusting the State Quotas



Using two ratios,

$$CHTS\ Quota * \frac{MRIP\ FES}{MRIP\ CHTS} \div \frac{MRIP\ FES}{State\ Survey} = State\ Quota$$

Reciprocal & Multiply

$$CHTS\ Quota * \frac{MRIP\ FES}{MRIP\ CHTS} * \frac{State\ Survey}{MRIP\ FES} = State\ Quota$$

$$CHTS\ Quota * \frac{\cancel{MRIP\ FES}}{MRIP\ CHTS} * \frac{State\ Survey}{\cancel{MRIP\ FES}} = State\ Quota$$

Cancels Out

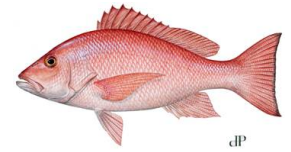
$$CHTS\ Quota * \frac{State\ Survey}{MRIP\ CHTS} = State\ Quota$$

MRIP FES to CHTS Calibration



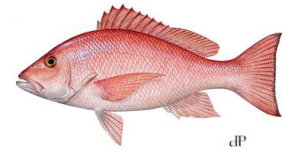
- From 2015 through 2017, the MRIP CHTS and MRIP FES surveys were conducted side-by-side, providing direct estimates from each survey.
- From 2018 through 2019, the MRIP CHTS landings were estimated from MRIP FES landings using previously certified calibration methods.
- Average annual landings from two time periods were used to develop preliminary FES:CHTS ratio options.
 - Three-year (2015–17)
 - Five-year (2015–19)
- Red snapper landings are estimated for the private mode and state charter.
- Only needed for FL and MS.

MRIP FES to CHTS Calibration



	2015 – 2017	2015 – 2019
PROs	<ul style="list-style-type: none">Benchmarking period for FES, uses actual CHTS rather than calibrated from FES	<ul style="list-style-type: none">Includes benchmarking years and adds more years for comparisonTakes advantage of sample size increases for the FES in 2018-2019
CONS	<ul style="list-style-type: none">FES sample sizes were less in 2015-2017 than in 2018-2019	<ul style="list-style-type: none">Relies on calibration model to project CHTS based catch in 2018-2019. The model is expected to become less reliable moving forward

FES Completed Surveys



Year	AL	FL	LA	MS
2015	2,306	1,477	1,183	1,377
2016	2,586	1,437	1,577	2,892
2017	3,360	1,914	2,332	1,718
2018	5,294	2,567	—	4,398
2019	6,315	4,422	—	6,247

Source: Data provided by Dr. R. Cody on August 10, 2020.

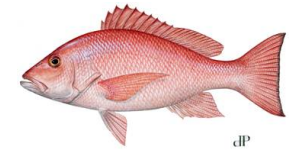
FES Response Rate (%)



Year	AL	FL	LA	MS
2015	35.21	34.19	32.46	34.76
2016	34.13	34.19	33.04	32.69
2017	32.49	32.72	32.16	31.87
2018	30.62	33.35	—	29.4
2019	31.24	31.78	—	31.09

Source: Data provided by Dr. R. Cody on August 10, 2020.

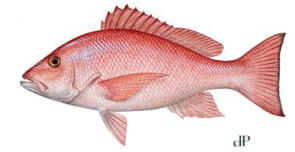
CHTS Completed Surveys (N) and Response Rate (%)



State		AL	FL	MS	LA
2015	N	3,587	72,245	3,062	11,430
	%	11	7.5	9.1	8
2016	N	3,538	71,861	2,989	11,299
	%	9.8	6.6	10.1	8.1
2017	N	3,639	74,760	3,083	11,512
	%	6.7	6	6.9	5.2

Source: Data provided by Dr. R. Cody on August 10, 2020.

AP AIS



The number of private mode intercepts with a red snapper harvested (AB1) by year and state

Year	AL	FL	MS
2015	127	124	13
2016	180	189	49
2017	231	238	50
2018	166	98	49
2019	274	115	56
Average 2015-2019	196	153	43

Source: MRIP survey data available at <https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-downloads>.

Red Snapper Private Angling Seasons



- 2015 – 2017, federal seasons
- 2018 – 2019, Exempted Fishing Permits (EFPs), individual state seasons

	Florida	Mississippi
2015	10 Days: June 1–10	
2016	11 Days: June 1–11	
2017	42 Days: June 1–3, Fri/Sat/Sun June 16–Sept 3	
2018	40 Days: June 11–July 20	76 Days: May 25–July 8, July 23–Aug 17, Sep 1–2, Sep 14–16
2019	40 Days: June 11–July 12, Sat/Sun Oct 12–Nov 3	79 Days: May 24–July 7, July 29–Aug 25, Aug 31–Sep 2, Sep 6–8

Florida



Red snapper private component landings and FES:CHTS ratio by year and survey in numbers of fish and percent standard error (PSE)

Year	CHTS	FES	Ratio	PSE
2015	174,342	454,637	2.61	23.2
2016	297,191	675,013	2.27	19.1
2017	427,410	1,374,587	3.22	21.6
2018	334,198	1,008,548	3.02	20.1
2019	280,284	1,012,983	3.61	22.5
Average 2015-2017	299,648	834,746	2.79	—
Average 2015-2019	302,685	905,154	2.99	—

Source: SEFSC MRIP CHTS and FES ACL data sets provided July, 2020. PSE is for MRIP FES private mode red snapper landings in numbers of fish.

Mississippi



Red snapper private component landings and FES:CHTS ratio by year and survey in numbers of fish and percent standard error (PSE)

Year	CHTS	FES	Ratio	PSE
2015	6,107	19,430	3.18	51.5
2016	60,590	88,175	1.46	32.2
2017	32,896	116,426	3.54	39.0
2018	57,738	100,416	1.74	26.4
2019	86,792	170,807	1.97	21.7
Average 2015-2017	33,198	74,677	2.25	—
Average 2015-2019	48,825	99,051	2.03	—

Source: SEFSC MRIP CHTS and FES ACL data sets provided July, 2020. PSE is for MRIP FES private mode red snapper landings in numbers of fish.

Florida State Quota



$$CHTS\ Quota * \frac{MRIP\ FES}{MRIP\ CHTS} * \frac{GRFS}{MRIP\ FES} = State\ Quota$$

Using a preliminary Gulf Reef Fish Survey (GRFS) to FES estimate of 0.38.

Using the three-year FES to CHTS ratio of 2.79,

$$1,913,451\ lb\ ww * 2.79 * 0.38 = 2,028,641\ lb\ ww$$

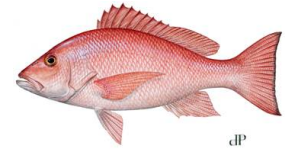
$$1,913,451\ lb\ ww * \mathbf{1.0602} = 2,028,641\ lb\ ww$$

Using the five-year FES to CHTS ratio of 2.99,

$$1,913,451\ lb\ ww * 2.99 * 0.38 = 2,174,063\ lb\ ww$$

$$1,913,451\ lb\ ww * \mathbf{1.1362} = 2,174,063\ lb\ ww$$

Mississippi State Quota



$$CHTS\ Quota * \frac{MRIP\ FES}{MRIP\ CHTS} \div \frac{MRIP\ FES}{Tails\ n'\ Scales} = State\ Quota$$

Using a preliminary MRIP FES to Tails n' Scales estimate of 5.86.

Using the three-year FES to CHTS ratio of 2.25,

$$151,550\ lb\ ww * 2.25 \div 5.86 = 58,189\ lb\ ww$$

$$151,550\ lb\ ww * \mathbf{0.3840} = 58,189\ lb\ ww$$

Using the five-year FES to CHTS ratio of 2.03,

$$151,550\ lb\ ww * 2.03 \div 5.86 = 52,499\ lb\ ww$$

$$151,550\ lb\ ww * \mathbf{0.3464} = 52,499\ lb\ ww$$



Questions?

