



A Brief Overview of Alabama's Recreational Red Snapper Survey and Calibration of State Private Recreational Harvest Estimates to Federal Estimates

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BACKGROUND

In 2014, Alabama implemented Snapper Check, a data collection program to provide timely, accurate estimates of Red Snapper landings for in-season monitoring and species management.

The Snapper Check program includes mandatory vessel level reporting of all Red Snapper recreationally landed in Alabama (effort) and dockside sampling of vessels with Red Snapper (catch).

Reporting

One landing report per vessel with Red Snapper is required to be submitted prior to fish being landed at a fixed shore location or brought ashore on a trailered vessel.

Landing reports can be submitted online, a smartphone app, or paper tickets available at seven coastal public access locations and require the following information:

- Date and time of landing (automatically collected if report is submitted online)
- Vessel registration number (state or US Coast Guard documentation #)
- Mode fished (charter or private)
- Length of trip-single or multi-day (charter only)
- County of landing
- Access type (private or public)
- Number of anglers
- Number of Red Snapper landed
- Number of Red Snapper dead discards (including fish eaten by another fish, bird or dolphin)



BACKGROUND

Dockside Survey

A survey of public access sites is conducted to collect length and weight information.

- MRIP staff develop a monthly random draw of sampling assignments for Snapper Check using the same site selection process used for NOAA Fisheries' Access Point Angler Intercept Survey (APAIS) sampling assignment selection.
 - Sample weighting - Probability Proportional to Size (PPS)
 - Surveys utilize the same set of 'offshore' sites and fishing pressures (activity) within the same 6-hr sampling time blocks
 - Selecting assignments for both surveys avoids selecting the same site on the same day/time block

Alabama Marine Resources Division staff conduct dockside assignments.

- Samplers note date, time, vessel registration number, number of anglers, fishing mode and site and ask anglers to confirm Red Snapper catch for each vessel encountered.
- Anglers on vessels with Red Snapper are asked the remaining questions listed on landing reports; number of fish landed and dead discards.
- Samplers collect length and weight information as time and angler cooperation allows.



BACKGROUND

Estimates calculation

An undetermined level of non-response was anticipated and needed to be quantified prior to calculating estimates.

A capture-recapture survey design was utilized to estimate rates of non-response.

- Dockside survey = capture
- Landing report = recapture
- Data elements used for matching vessels on a dockside survey to a landing report:

DATE
VESSEL REGISTRATION #
OF ANGLERS
OF FISH HARVESTED
TIME OF SURVEY AND LANDING REPORT WITHIN +/- 3.5 HOURS

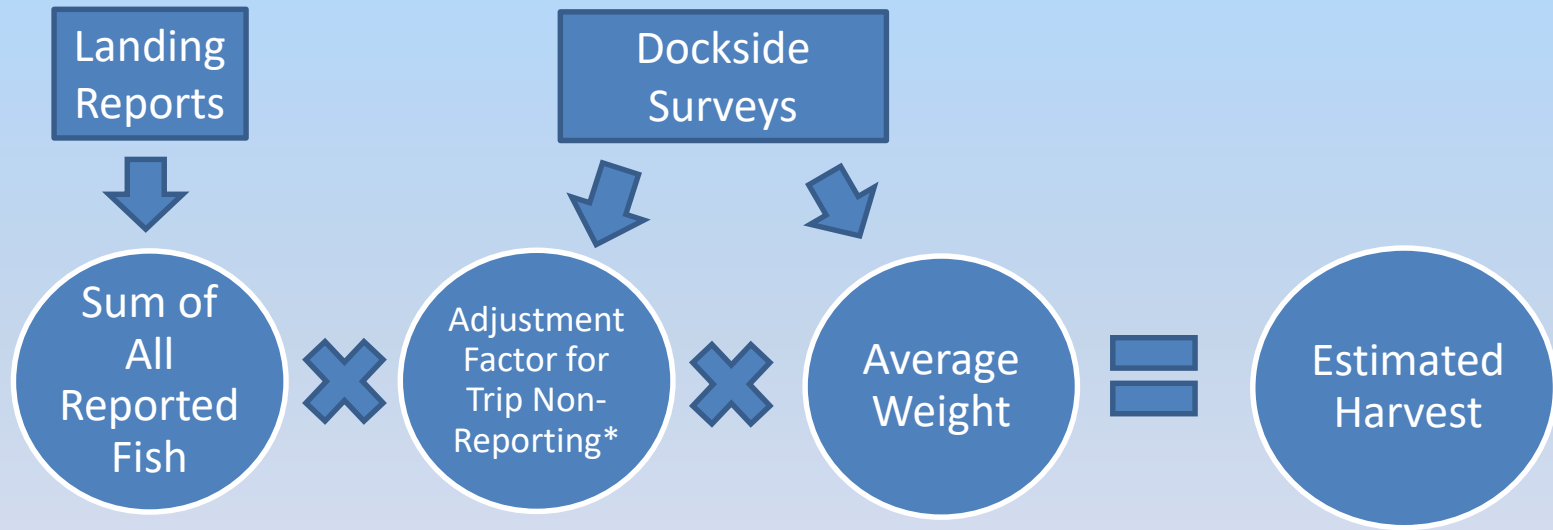
All data elements must match to be considered a matched trip.

Ratio estimators (SAS[®] v. 9.4 *Proc Survey Means*) are created for each mode of fishing and time period based on proportion of dockside surveys and dockside surveys matched to a landing report.



ESTIMATES CALCULATION

Snapper Check landings estimation



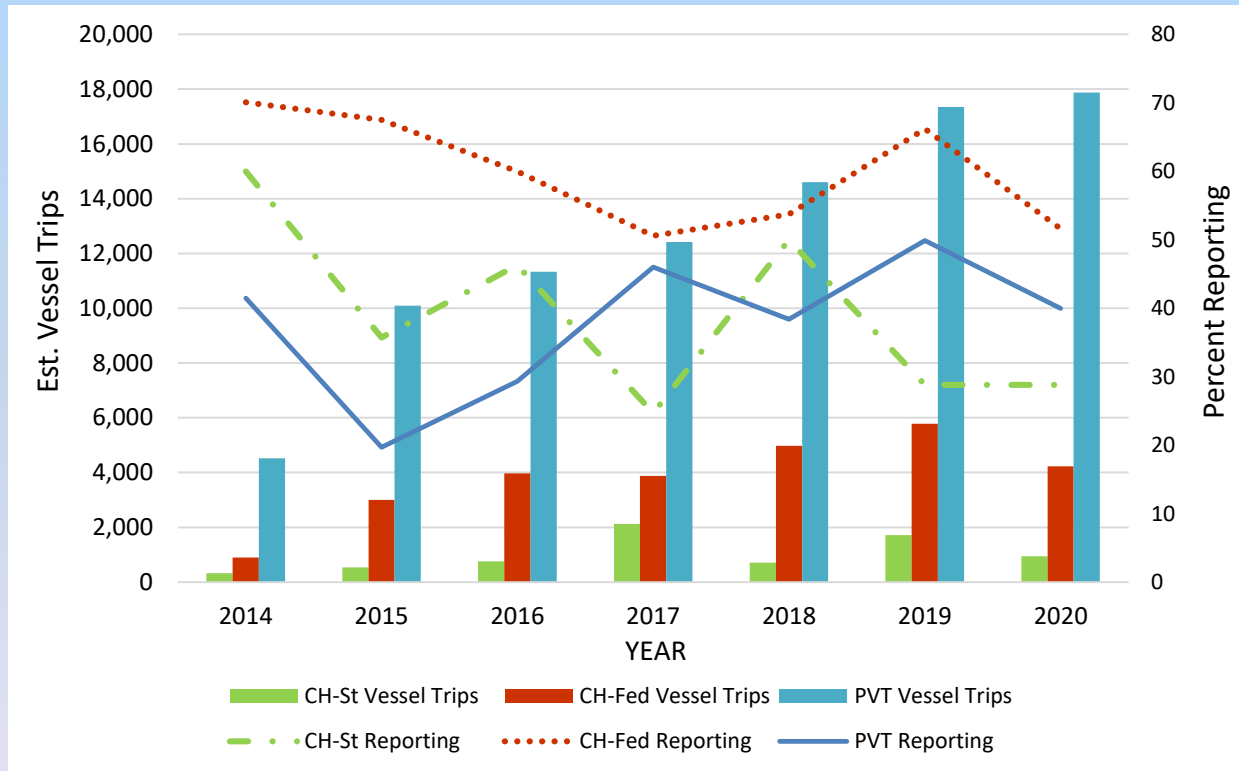
$$\text{*Adjust. Factor} = \frac{1}{\left(\frac{\text{No. Fish from Matched Dockside Surveys \& Landing Reports}}{\text{No. Fish from All Dockside Surveys}} \right)}$$

Snapper Check methodology was MRIP-certified in 2018 (includes data collected from 2017-2019). Survey data collected from 2014-2016 did not have appropriate sample weighting.



SNAPPER CHECK DATA

Estimated Alabama Red Snapper Vessel Trips and Reporting Rates, 2014-2020



Announced and actual days Red Snapper season open for private and state charter anglers

Year	Announced Days (Fed + St)	Actual Days (Fed + St)
2014	(9 + 12)	(9 + 12)
2015	(10 + 31)	(10 + 31)
2016	(9 + 66)	(9 + 66)
2017	(42 + 18)	(42 + 18)
2018	(0 + 47)	(0 + 28)
2019	(0 + 26)	(0 + 36)
2020	(0 + 35)	(0 + 25)

Notes:

2018-2019 were under NOAA EFP.

2020 season is preliminary.

Notes:

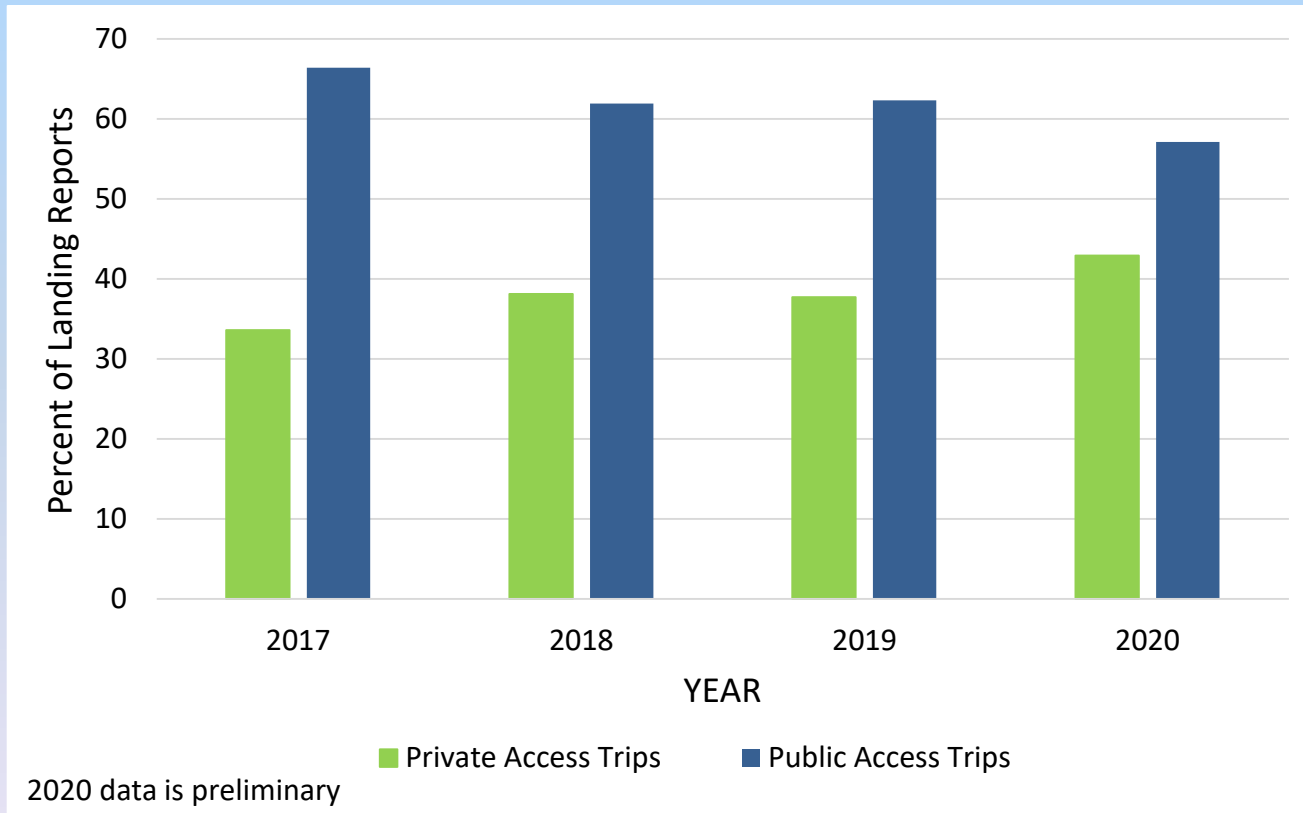
2014-2016 data are not MRIP-certified.

2020 data are through July 3 and preliminary.



SNAPPER CHECK DATA

Percent of Private Vessel Landing Reports by Access Type



CALIBRATIONS

Calibration ratios were calculated for Snapper Check and CHTS data and Snapper Check and FES data.

- Only private recreational data was used in analysis as MRIP and Snapper Check data assigned state and federal charter data differently
- Ratios were developed for harvested fish
- Ratios were developed for harvested pounds of fish
- AL DCNR/MRD recommends using pounds of harvest for ratio calibrations
 - Overfishing Limit, Allowable Biological Catch and Annual Catch Limits are in pounds.
 - State quotas are distributed and monitored in pounds

The years 2014-2019 were included in analysis.

- Results for 2014 – 2017 were somewhat variable possibly due to state water seasons
- Snapper Check data was MRIP-certified beginning in 2017
- The 2017 season included a second federal season
- AL DCNR/MRD recommends using the years of 2018 and 2019 for ratio calibrations
 - Most stable of series as they comprised the two years of the private recreational Red Snapper Exempted Fishing Permits (EFP)



CALIBRATIONS

Number of private recreational harvested fish from state Snapper Check and federal CHTS data and corresponding ratios

Year	Snapper Check Harvested Fish	CHTS Harvested Fish	Snapper Check:CHTS Ratio	CHTS:Snapper Check Ratio
2014	39,325	118,496	0.3319	3.0132
2015	79,648	226,531	0.3516	2.8442
2016	94,072	231,220	0.4068	2.4579
2017	95,099	409,131	0.2324	4.3022
2018	126,774	253,346	0.5004	1.9984
2019	139,783	372,749	0.3750	2.6666
Mean Ratio 2014-2019 ¹			0.3664	2.8804
Mean Ratio 2017-2019 ²			0.3693	2.9891
Mean Ratio 2018-2019³			0.4377	2.3325

¹ – Snapper Check data from 2014-2016 was not MRIP-certified.

² – 2017 comprised of state and two federal seasons.

³ – Years of Gulf states private recreational EFPs.



CALIBRATIONS

Number of private recreational harvested fish from state Snapper Check and federal FES data and corresponding ratios

Year	Snapper Check Harvested Fish	FES Harvested Fish	Snapper Check:CHTS Ratio	FES:Snapper Check Ratio
2014	39,325	352,838	0.1115	8.9724
2015	79,648	566,152	0.1407	7.1082
2016	94,072	522,012	0.1802	5.5491
2017	95,099	1,163,889	0.0817	12.2387
2018	126,774	743,393	0.1705	5.8639
2019	139,783	872,449	0.1602	6.2415
Mean Ratio 2014-2019 ¹			0.1408	7.6623
Mean Ratio 2017-2019 ²			0.1375	8.1147
Mean Ratio 2018-2019³			0.1654	6.0527

¹ – Snapper Check data from 2014-2016 was not MRIP-certified.

² – 2017 comprised of state and two federal seasons.

³ – Years of Gulf states private recreational EFPs.



CALIBRATIONS

CHTS data for pounds of Red Snapper harvested in 2019 was unavailable.

Missing 2019 CHTS data was estimated using 2014-2018 FES:CHTS pounds of harvest

Year	CHTS Pounds ¹	FES Pounds Harvested ²	CHTS:FES Ratio
2014	951,421	3,416,970	0.2784
2015	1,703,498	4,382,423	0.3887
2016	2,037,045	4,265,531	0.4776
2017	2,787,355	8,920,790	0.3125
2018	1,946,439	5,704,958	0.3412
2019	?	5,430,876	-
Mean CHTS:FES Ratio 2014-2018			0.3597
Missing 2019 CHTS Pounds			1,953,324

¹ – Science Center adjusted CHTS data .

² – NOAA Fisheries MRIP estimates not adjusted by Science Center.



CALIBRATIONS

Pounds of private recreational fish harvested from state Snapper Check and federal CHTS data and corresponding ratios

Year	Snapper Check Pounds Harvested	CHTS Pounds Harvested	Snapper Check:CHTS Ratio	CHTS:Snapper Check Ratio
2014	320,064	951,421	0.3364	2.9726
2015	657,272	1,703,498	0.3858	2.5918
2016	763,239	2,037,045	0.3747	2.6689
2017	626,212	2,787,355	0.2247	4.4511
2018	1,018,348	1,946,439	0.5232	1.9114
2019	1,032,560	1,953,324	0.5286	1.8917
Mean Ratio 2014-2019 ¹			0.3690	2.9192
Mean Ratio 2017-2019 ²			0.4255	2.7514
Mean Ratio 2018-2019³			0.5259	1.9015

¹ – Snapper Check data from 2014-2016 was not MRIP-certified.

² – 2017 comprised of state and two federal seasons.

³ – Years of Gulf states private recreational EFPs.



CALIBRATIONS

Pounds of private recreational fish harvested from state Snapper Check and federal FES data and corresponding ratios

Year	Snapper Check Pounds Harvested	FES Pounds Harvested	Snapper Check:FES Ratio	FES:Snapper Check Ratio
2014	320,064	3,416,970	0.0937	10.6759
2015	657,272	4,382,423	0.1500	6.6676
2016	763,239	4,265,531	0.1789	5.5887
2017	626,212	8,920,790	0.0702	14.2456
2018	1,018,348	5,704,958	0.1785	5.6022
2019	1,032,560	5,430,876	0.1901	5.2596
Mean Ratio 2014-2019 ¹			0.1343	8.5560
Mean Ratio 2017-2019 ²			0.1463	8.3691
Mean Ratio 2018-2019³			0.1843	5.4309

¹ – Snapper Check data from 2014-2016 was not MRIP-certified.

² – 2017 comprised of state and two federal seasons.

³ – Years of Gulf states private recreational EFPs.



CALIBRATION SUMMARY

AL DCNR/MRD recommends using ratios between SE Fisheries Science Center adjusted CHTS and FES data to Snapper Check data to resolve the issue of “common currency” between the disparate data sets used to manage the Gulf of Mexico Red Snapper fishery.

AL DCNR/MRD recommends a simple ratio for ratio calculations method using pounds of fish harvested (landed and discarded dead) commonly used in management of the fishery.

Current AL ACL	Snapper Check:CHTS Ratio	Revised Quota
1,122,662	0.5259	590,408

AL DCNR/MRD suggests the issue of counting recreational dead discards in-season and attributing to the quota be evaluated to ensure state quotas in short Red Snapper harvest seasons are monitored effectively.

- Out of season dead discards can affect final federal landings and could cause the quotas monitored with state surveys to be exceeded.

The above recommendations are made under the assumption that the FES survey is deemed best scientific information available. Federal survey data should be compared against the Great Red Snapper Count and other fishery-independent data prior to the next assessment.



Questions?

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Photo Credit: Billy Pope

