Summary of the SAFMC Release Project for SEDAR 90

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SEDAR90-DW-17

April 2025

Please cite this document as:

Byrd, Julia, Withers, Meg, Curtis, Judd and Chip Collier. 2025. Summary of the SAFMC Release Project for SEDAR 90. SEDAR90-DW-17. SEDAR, North Charleston, SC. 20 pp.

S90-DW17: Summary of the SAFMC Release Project for SEDAR 90

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South Atlantic Fishery Management Council

Acknowledgements

The SAFMC Release project would not be possible without the contributions of many partners, collaborators, and volunteers who have helped with project design, outreach and volunteer engagement strategies, and data management and app support. Special thanks go to the fishermen participating in SAFMC Release, without whom this project would not be possible. Additional thanks to Drew Cathey (SEFSC) for sharing MRIP for-hire at sea observer data and FWC staff for sharing their For-hire At-sea Observer, East Coast Red Snapper Mini Season (ECRS), and State Reef Fish Survey (SRFS) data for comparison with the SAFMC Release data.

Introduction / Background

SAFMC Citizen Science Program

The South Atlantic Fishery Management Council (SAFMC) developed its Citizen Science Program based on guidance from a wide array of stakeholders and partners. The aim was to build a program that would engage fishermen, scientists, and managers in co-creating citizen science projects that would align with the Council's research needs. The Program's overall approach is to support or pursue projects that fill data gaps; address South Atlantic research priorities; complement existing programs and partnerships; use intentional project design that considers application to management and assessments during project development; and encourage fishermen and scientist collaboration. Projects developed under the SAFMC Citizen Science Program use a design team of diverse stakeholders (fishermen, scientists, managers, outreach specialists, etc.) with varying expertise who provide guidance throughout the design and development of a project. More information on the Program is available on the SAFMC's Citizen Science Program webpage.

SAFMC Release Project Overview

Improving information on released fish is a prioritized research need in the South Atlantic region, as information to characterize discards for many species managed by the SAFMC is limited. Collecting information to better characterize released fish and inform release mortality estimates is a priority to both fishermen and the SAFMC due to the difficulty in efficiently sampling such fish by many traditional methods that collect data back at the dock. The private recreational and charter sectors are important components of the snapper grouper fishery in the South Atlantic region. Despite their importance, data on trips targeting snapper grouper species can be limited, especially for the private recreational sector. Past studies have found that citizen science programs can provide timely and non-biased information on fisheries (Jiorle et al. 2016, Gundelund et al. 2021, Johnston et al. 2021, Bellquist et al. 2022). Lengths of fish have been similar in other studies that compared fish length in self-reported apps to design-based estimates (Jiorle et al. 2016, Errigo and Collier 2020). Citizen science data, such as those collected through SAFMC Release, can supplement existing data streams to help fill needed data gaps for assessment and management (Gundelund et al. 2021, Bellquist et al. 2022).

The SAFMC Release project was developed through the SAFMC's Citizen Science Program. It provides a streamlined approach for fishermen to provide a photograph of released fish along with details such as length, depth caught, release condition, and use of barotrauma mitigation techniques. The project focuses on collecting data on the size of released fish and data that can help inform how many released fish survive. SAFMC Release

began as a pilot project in June 2019 partnering with recreational, for-hire, and commercial fishermen to gather information on released Scamp Grouper via the SAFMC Release mobile application. In August 2021, SAFMC Release transitioned to the Atlantic Coastal Cooperative Statistics Program's (ACCSP) SciFish mobile application/platform and expanded to collect information on all shallow-water grouper species. In April 2022, Red Snapper was added to the project.

SciFish is a free mobile app available in iOS and Android platforms and is administered through the ACCSP. Participant user accounts are set up by SAFMC staff through ACCSP's Standard Atlantic Fisheries Information System (SAFIS). Fishermen who already have SAFIS accounts can use their current information to log into SAFMC Release. Otherwise, staff provide fishermen with login details. Red Snapper is one of eleven species included in SAFMC Release (see Figure 1 for all species), and data fields collected through the SciFish app are summarized in Appendix A. Staff review and QA/QC data on a weekly basis, following up with participants to address any unusual entries. Additional details on the project, including training materials, are available on the SAFMC Release webpage. SAFMC Release demonstration videos are also available on the Council's YouTube channel.

The SAFMC Release project is open access, meaning that any interested fishermen that encounter shallow water grouper or Red Snapper can participate in data collection efforts. Recruitment for SAFMC Release has largely been through opportunistic outreach strategies (e.g., tackle shop visits, fishing seminars and expos, SAFMC related meetings, online and media, etc.). Through collaborations with SAFMC's Best Fishing Practices initiative, Sea Grant, state agencies, and other partners, the project has reached broader audiences than Citizen Science Program staff could have done alone. When new participants sign up for SAFMC Release, they are asked to share where they heard about the project via an open-ended question. Based on these data, in-person outreach has been the most important recruitment strategy for the project to date. Participant retention strategies include one-on-one communication, monthly newsletters, annual data summaries, and a participant recognition program that launched in spring 2023.

The collection of SAFMC Release information is authorized under the Generic Clearance for Citizen Science and Crowdsourcing Projects under OMB Control Number 0648-0828.

Summary of SAFMC Release Data

SAFMC Release data summarized in this paper are from private recreational and charter trips submitting released Red Snapper from April 2022 (when Red Snapper was added to project) through December 2024.

SAFMC Release sample sizes by year and state are summarized in Tables 1-2. The largest proportion of Red Snapper release submissions through SAFMC Release came from FL (50%), followed by SC (30%), NC (15%), and GA (5%). The majority of submissions were from the private recreational sector (86%) followed by the charter sector (14%). Red Snapper releases were submitted during all months of the year (Figure 2) and approximately 33% of submissions included photos.

Released Red Snapper Lengths

Length compositions were developed for SAFMC Release data using the bin sizes recommended for use in the SEDAR 90 Pre-DW webinar (30mm bins). SAFMC Release data were converted from natural total length (in) to maximum total length (mm) using the conversion equations provided for SEDAR 90. SAFMC Release length

frequency data (TLmax; 30mm bins) are available in Table 3 and Figures 3-4. SAFMC Release length frequency data by one inch length bins (TL_nat) are available in Appendix B.

Analyses were done to compare SAFMC Release length data to other datasets that collect similar information in the South Atlantic for overlapping years (2022-2024). When making these comparisons, it is important to note that the datasets use different methodologies and sample different areas and/or sectors covered. Released Red Snapper length data for 2022-2024 from the MRIP Headboat At-sea Observer data for NC-SC (no GA data were available for 2022-2024) and FWC For-Hire At-sea Observer Program were compared with the SAFMC Release length data. For the comparison, MRIP HB at-sea and FWC For-Hire at-sea length data were converted from fork length (mm) to maximum total length (mm) using the conversion equations provided for SEDAR 90. Length compositions for comparison were developed using the bin sizes recommended for use in the SEDAR 90 Pre-DW webinar (30mm bins). Figures 5-8 compare the Red Snapper release length frequencies between the three data sets.

Length frequencies for SAFMC Release and the MRIP HB At-Sea Observer Program were similar (Figures 5-8). Median values between the two datasets were similar (Figure 6 and 8). Some differences were seen with the MRIP HB At-Sea data having a larger proportion of the smallest fish and SAFMC Release having a larger proportion of fish in some of the larger size bins. These differences could be influenced by differences in where headboats operate versus where the private recreational / charter fishery operates.

Differences in length frequencies were seen between the FWC For-Hire Observer Program and the MRIP HB At-Sea and SAFMC Release data. The SAFMC Release and MRIP HB At-Sea Observer length frequencies were most similar to each other. Both had higher median values and larger proportions of fish in the mid-to large size bins than the FWC For-Hire At-Sea Observer data (Figures 5 and 6). Differences between the FWC For-Hire At-Sea Observer data and the other two datasets (SAFMC Release and MRIP HB At-Sea) could potentially be influenced by regional differences.

Depth

The percentage of Red Snapper caught/released by depth bin from SAFMC Release is summarized in Table 4 and Figures 9 (meters) and in Appendix B (feet). The percentage of Red Snapper caught/released by depth bin from SAFMC Release and the FWC For-Hire at-sea observer data are compared in Figure 10. The majority of Red Snapper were caught/released in 20-29m in both datasets. Depths where Red Snapper were caught/released in SAFMC Release were more similar to depths for the charter sector in the FWC at-sea observer dataset.

Hook type, hook location & release treatment

Hook type and hook location data submitted through SAFMC Release are summarized in Tables 5 and 6. These data suggest the majority of released Red Snapper are caught/released on non-offset circle hooks, and almost all the released Red Snapper were hooked in the jaw. Release treatment data are summarized in Table 7. Release treatment data by depth bin are summarized in Table 8 and Figure 11. These data show that although people were releasing more fish at shallower depths, they were treating fish for signs of barotrauma at a higher percentage at deeper depths. It should be noted that SAFMC Release partners with the SAFMC's Best Fishing Practices initiative on many outreach events and information on barotrauma/best fishing practices is provided to SAFMC Release users through a variety of methods which may impact the usage rates of non-offset circle hooks and barotrauma mitigation tools.

Additional Comparisons

MyFishCount is another app that collected self-reported Red Snapper lengths from volunteers in the South Atlantic region starting in 2017. Promotion of the app continued through 2019. Since, reports in the app have decreased. Details on MyFishCount can be found in SEDAR90-RD32. Density plots comparing MRIP Headboat At-sea Observer and FWC For-Hire at-sea length data had similar distributions (Figure 12). In these plots, peaks were similar among the three datasets for years 2017 to 2019. The MyFishCount Reports had a second peak in the bin 645-674 mm (25 inches). Most of the reports (20 out of 29) came from a single trip.

The length distribution of Red Snapper reported in MyFishCount and SAFMC Release were similar (Figure 13). MyFishCount had a peak in the length bin 315-344 while Release length distributions peaked at 405-434. Differences are expected as Red Snapper continued to recover during the rebuilding plan (MyFishCount data include 2017-2019; SAFMC Release data include 2022-2024). The size distribution for fish greater than 500 mm were similar among the two programs.

Conclusion

Limited data are available on lengths of released Red Snapper from the charter (outside of Florida) and private recreational sectors. Length frequency data from two voluntary citizen science projects, SAFMC Release and MyFishCount, were compared with length frequency data from the MRIP HB At-Sea Observer (NC-GA) and FWC For-Hire At-Sea Observer data for overlapping years. SAFMC Release length data (2022-2024) were most similar to the MRIP HB At-sea Observer data. Both had higher median values and larger proportions of fish in the mid-to large size bins than the FWC For-Hire At-Sea Observer data. MyFishCount length frequencies (2017-2019) were similar to both observer datasets for overlapping years but had a higher proportion of fish in some of the mid-large size bins. The SAFMC Release and MyFishCount length data for released Red Snapper can potentially be used to help fill data gaps in the lengths of released fish in the recreational sector. Additionally, SAFMC Release data on depth, hook type, hook location and usage of barotrauma mitigation tools may be helpful during discussions of discard mortality.

Literature Cited

Bellquist, L, WJ Harford, F Hurd, A Jackson, JD Prince, J Freiwald, A Neumann, J Likins, JR Wilson. 2022. Use of management strategy evaluation to understand the value of citizen science in managing an iconic California recreational fishery. Estuarine, Coastal and Shelf Science. 278: Article 108112 https://doi.org/10.1016/j.ecss.2022.108112

Errigo, M. and C. Collier. 2020. My Fish Count Data for Red Snapper. SEDAR 73-WP19. SEDAR, North Charleston, SC 14 pp.

Gundelund, C., P. Venturelli, BW Hartill, K Hyder, HJ Olesen, C Skov. 2021 Evaluation of a citizen science program for collecting fisheries data from coastal sea trout anglers. Canadian Journal of Fisheries and Aquatic Sciences. 78: 1576-1585. https://cdnsciencepub.com/doi/10.1139/cjfas-2020-0364

Jiorle, RP, RNM Ahrens, and MS Allen. 2016. Assessing the Utility of a Smartphone App for Recreational Fishery Catch Data. Fisheries, 41: 758-766.

Johnston, F.D, S. Simmons, B. van Poorten, and P. Venturelli. 2021. Comparative analyses with conventional surveys reveal the potential for an angler app to contribute to recreational fisheries monitoring. Canadian Journal of Fisheries and Aquatic Sciences.79: 31-46.

Tables

Table 1. SAFMC Release sample size by year.

Year	All Submissions	All Trips	Submissions with Length	Trips with Length
2022	41	10	36	10
2023	155	36	119	36
2024	100	25	96	23
Total	296	71	251	69

Table 2. SAFMC Release sample size by state, 2022-2024.

State	All Submissions	All Trips	Submissions with Length	Trips with Length
NC	44	18	39	18
SC	89	22	79	20
GA	14	4	14	4
FL	149	27	119	27
Total	296	71	251	69

Table 3. Length frequency of released Red Snapper from SAFMC Release Data, 2022-2024.

Total Length_ max Length Bin (mm)	Count	Percent
225-254	0	0
255-284	0	0
285-314	2	0.80
315-344	8	3.19
345-374	11	4.38
375-404	10	3.98
405-434	28	11.16
435-464	9	3.59
465-494	23	9.16
495-524	38	15.14
525-554	12	4.78
555-584	25	9.96
585-614	7	2.79
615-644	13	5.18
645-674	15	5.98
675-704	15	5.98
705-734	13	5.18
735-764	4	1.59
765-794	5	1.99
795-824	4	1.59
825-854	1	0.40
855-884	3	1.20
885-914	3	1.20

915-944	1	0.40
945-974	0	0.00
975-1041	1	0.40

Table 4. Percent of released Red Snapper by depth bin from SAFMC Release, 2022-2024.

Depth Bin (m)	SAFMC Release All	SAFMC Release NC-GA	SAFMC Release FL
0-9	0.00	0.00	0.00
10-19	9.46	18.37	0.67
20-29	58.11	53.06	63.09
30-39	18.58	21.09	16.11
40-49	8.11	2.04	14.09
50-59	2.70	2.04	3.36
60-69	1.69	2.72	0.67
70-79	1.35	0.68	2.01
80-89	0.00	0.00	0.00
90+	0.00	0.00	0.00

Table 5. Percent of released Red Snapper by hook type from SAFMC Release, 2022-2024.

Hook Type	SAFMC Release All	SAFMC Release NC-GA	SAFMC Release FL
Circle_Non-Offset	80.4	68.7	91.9
Circle_Offset	11.1	20.4	2.0
J-Hook	0.7	0.0	1.3
Other	5.1	10.2	0.0
Blank	2.7	0.7	4.7

Table 6. Percent of released Red Snapper by hook location from SAFMC Release, 2022-2024.

Hook Location	SAFMC Release All	SAFMC Release NC-GA	SAFMC Release FL
Body	1.0	0.7	1.3
Gill	0.3	0.7	0.0
Jaw	88.5	85.0	91.9
Throat	4.7	8.8	0.7
Blank	5.4	4.8	6.0

Table 7. Percent of released Red Snapper by release treatment from SAFMC Release, 2022-2024.

Release Treatment	SAFMC Release All	SAFMC Release NC_GA	SAFMC Release FL
Venting	13.5	4.8	22.1
Descending Device	49.3	55.8	43.0
Both Treatments	3.7	7.5	0.0
No Treatment	33.4	32.0	34.9

Table 8. Percent of released Red Snapper submissions by release treatment and depth from SAFMC Release (all), 2022-2024.

Depth Bin (m)	Vent	Descend	Both Treatment	No Treatment
0-9	0.0	0.0	0.0	0.0
10-19	14.3	0.0	7.1	78.6
20-29	12.8	45.9	1.7	39.5
30-39	12.7	78.2	0.0	9.1
40-49	0.0	91.7	0.0	8.3
50-59	25.0	25.0	37.5	12.5
60-69	40.0	0.0	40.0	20.0
70-79	75.0	0.0	25.0	0.0
80+	0.0	0.0	0.0	0.0

Table 9. Length frequency of released Red Snapper reported in MyFishCount, 2017-2019.

Total Length_ max Length Bin (mm)	Count	Percent
255-284	20	7.19
285-314	0	0.00
315-344	34	12.23
345-374	26	9.35
375-404	18	6.47
405-434	28	10.07
435-464	12	4.32
465-494	17	6.12
495-524	28	10.07
525-554	8	2.88
555-584	11	3.96
585-614	3	1.08
615-644	11	3.96
645-674	28	10.07
675-704	9	3.24
705-734	7	2.52
735-764	3	1.08
765-794	6	2.16
795-824	0	0.00
825-844	0	0.00
855-884	2	0.72
885-914	3	1.08
915-944	3	1.08
945-974	1	0.36

Figures

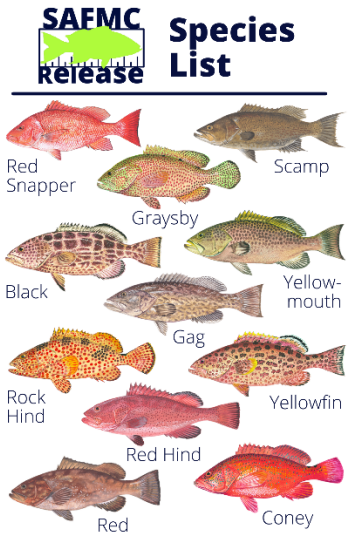

Figure 1. SAFMC Release species list (as of April 2022).

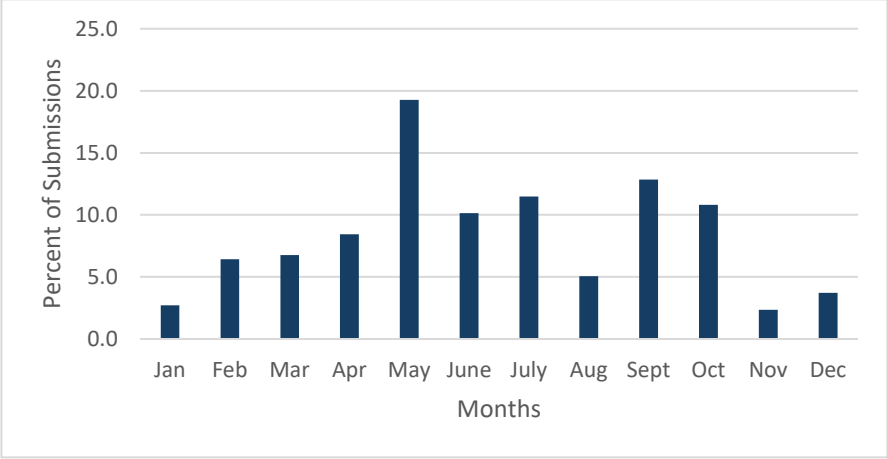

Figure 2. Percent of SAFMC Release submissions by month, 2022-2024.

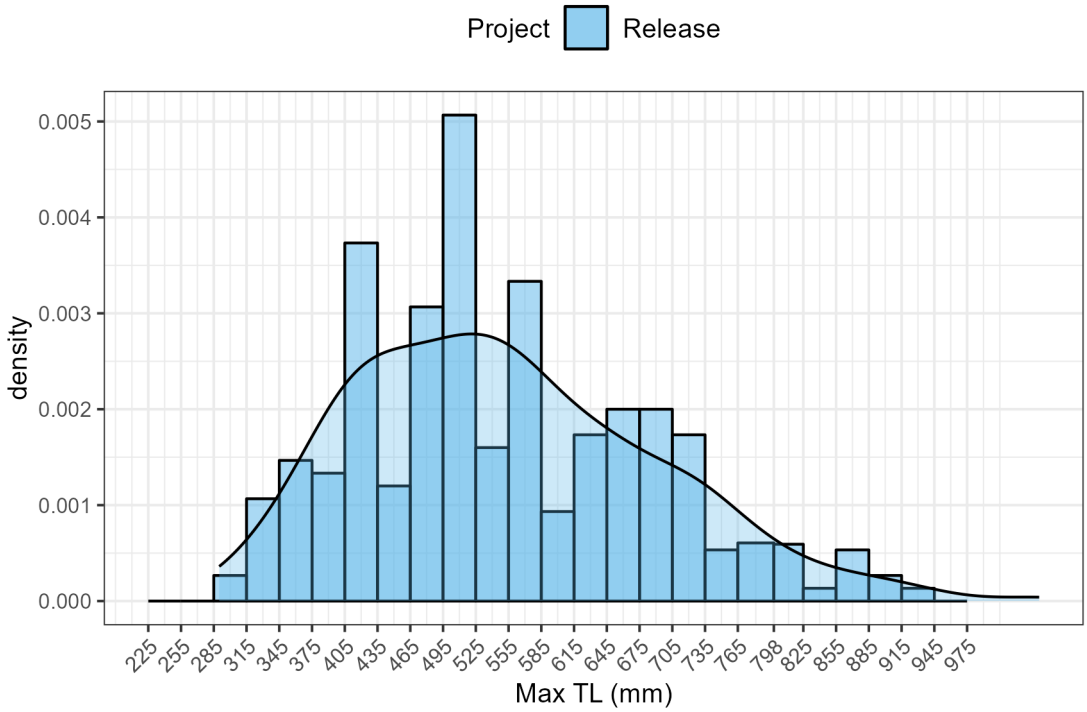

Figure 3. Released Red Snapper length frequency from SAFMC Release, 2022-2024.

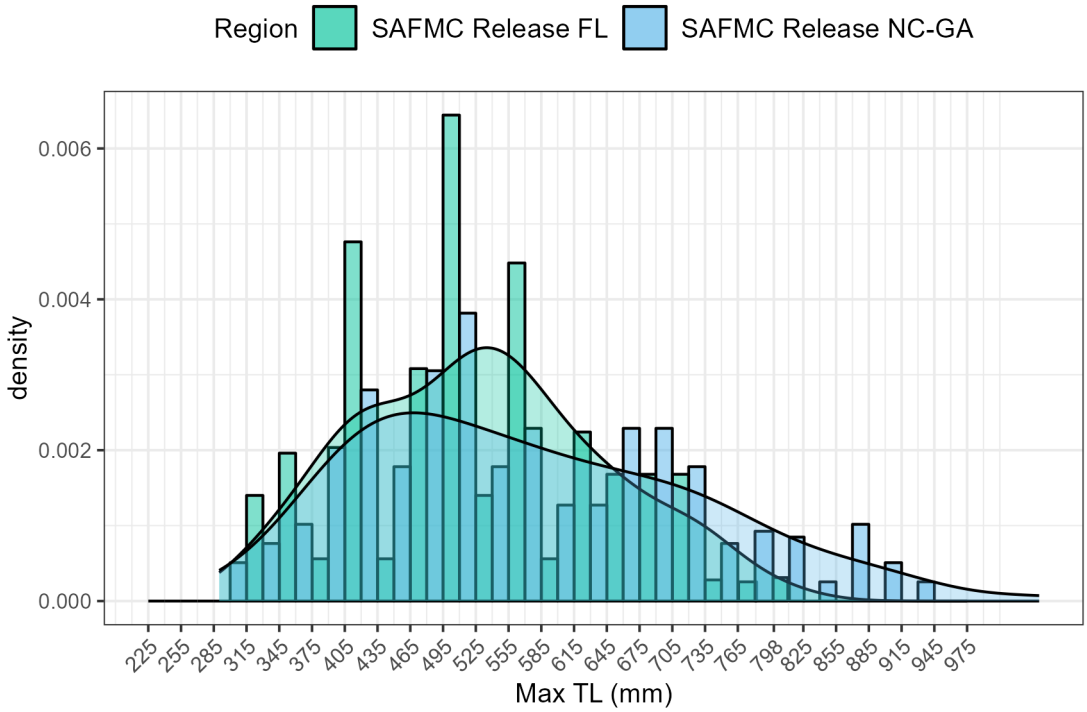

Figure 4. Released Red Snapper length frequency from SAFMC Release by region (FL vs NC-GA), 2022-2024.

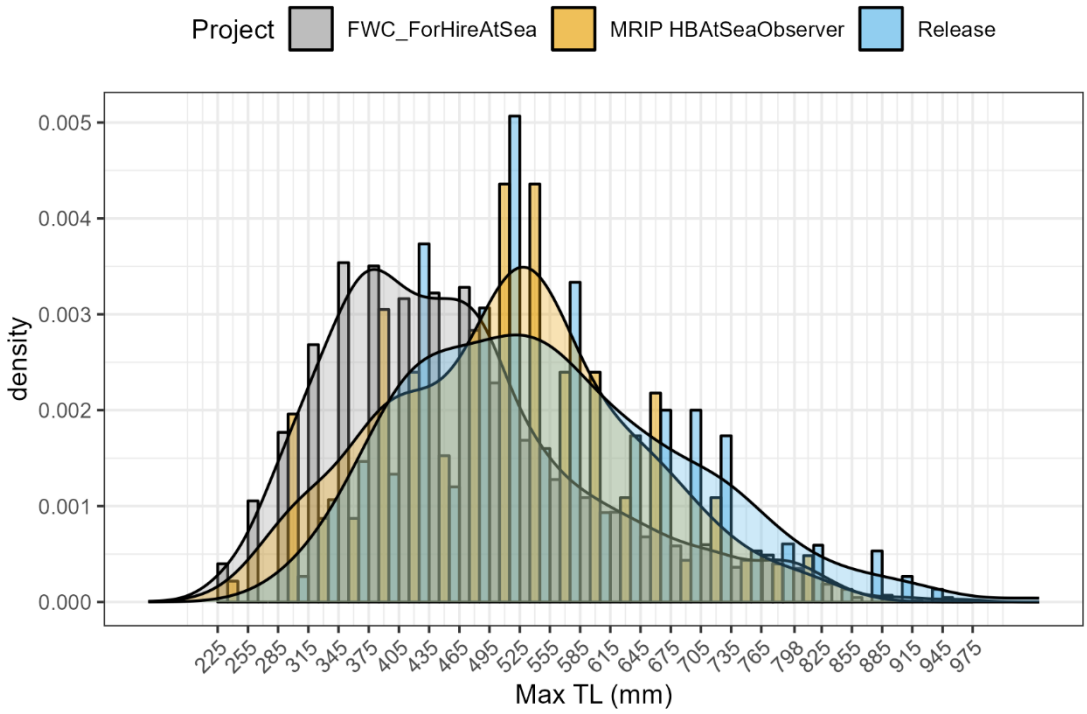

Figure 5a. Comparison of Red Snapper release lengths from the FWC For-Hire Observer Program (n=2855), MRIP Headboat At-sea Observer Program (n=153) and SAFMC Release (all, n=251), 2022-2024.

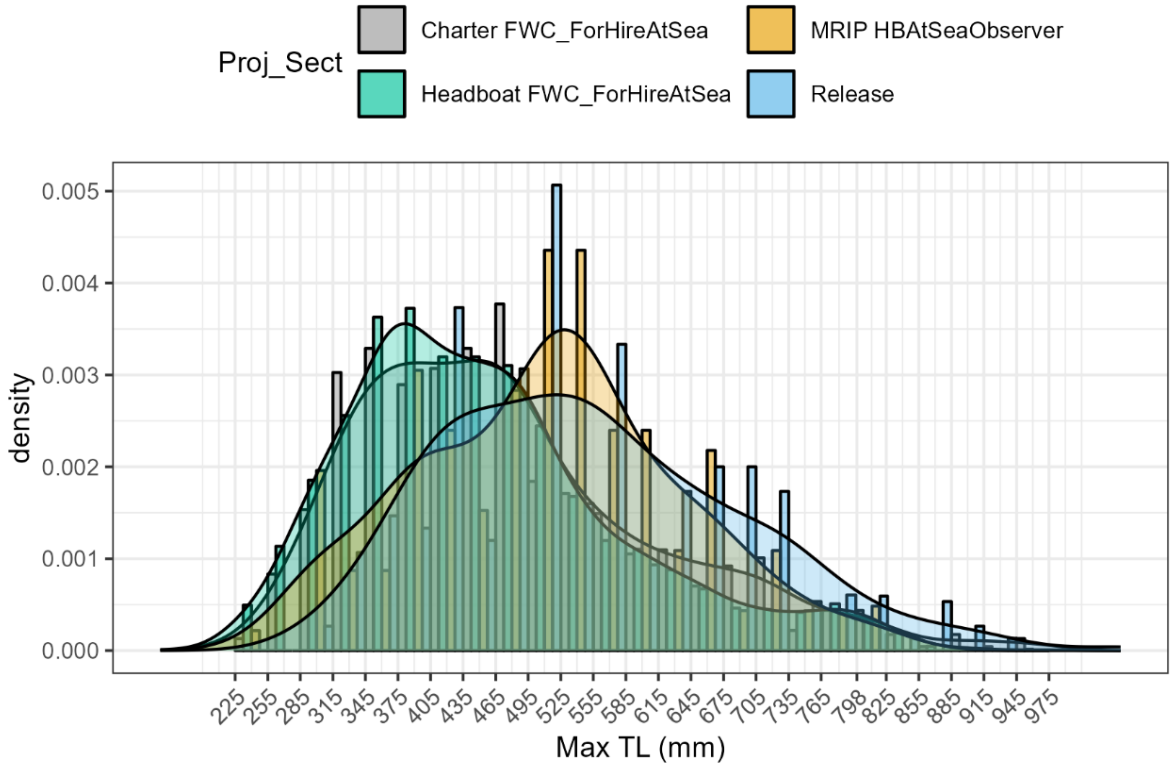

Figure 5b. Comparison of Red Snapper release lengths from the FWC For-Hire Observer Program (HB: n=2094, CH: n=761), MRIP Headboat At-sea Observer Program (n=153) and SAFMC Release (all, n=251), 2022-2024.

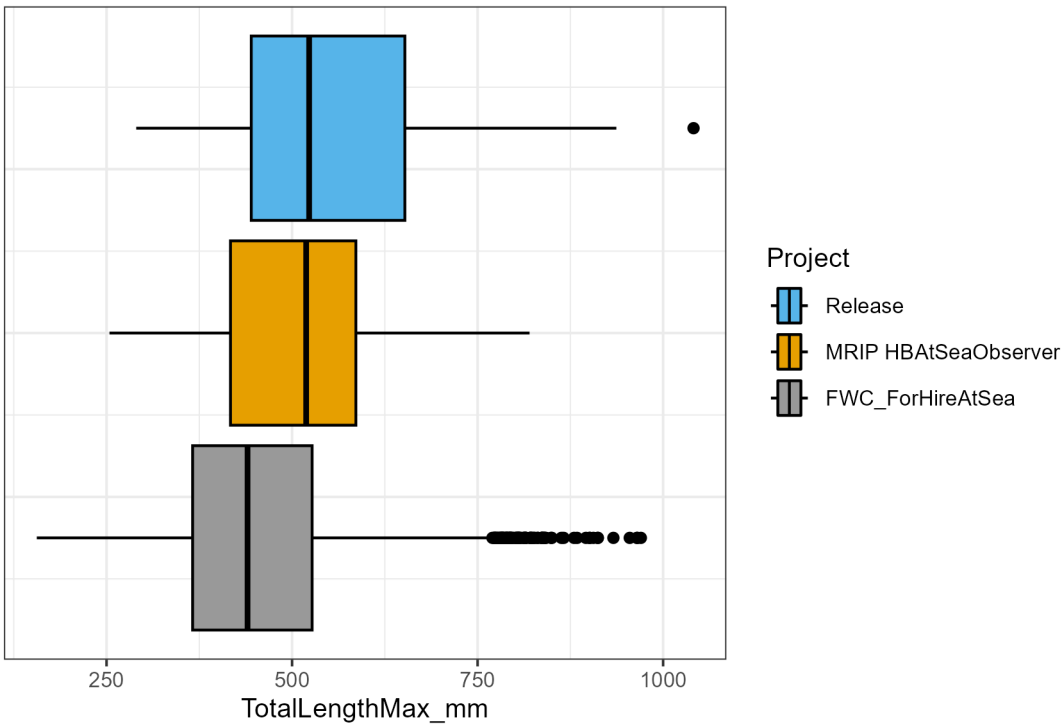

Figure 6a. Box and whisker plot illustrating the Red Snapper release length distribution from the FWC For-Hire Observer Program (n=2855), MRIP Headboat At-sea Observer Program (n=153) and SAFMC Release (all, n=251), 2022-2024.

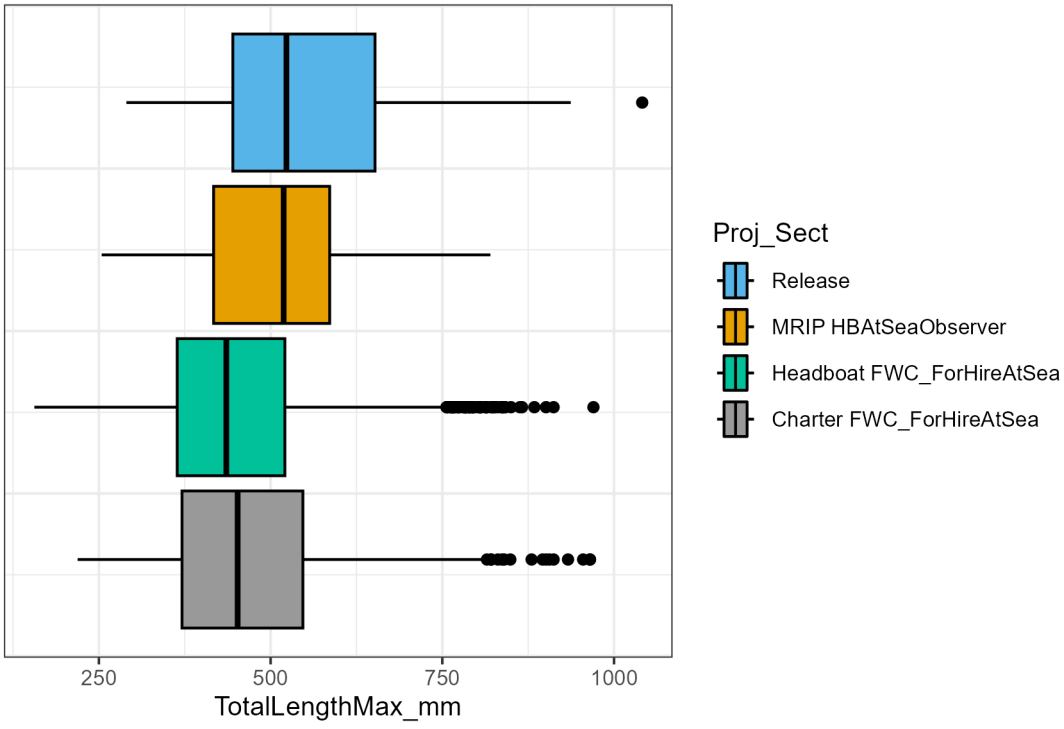

Figure 6b. Box and whisker plot illustrating the Red Snapper release length distribution from the FWC For-Hire Observer Program (HB: n=2094, CH: n=761), MRIP Headboat At-sea Observer Program (n=153) and SAFMC Release (all, n=251), 2022-2024.

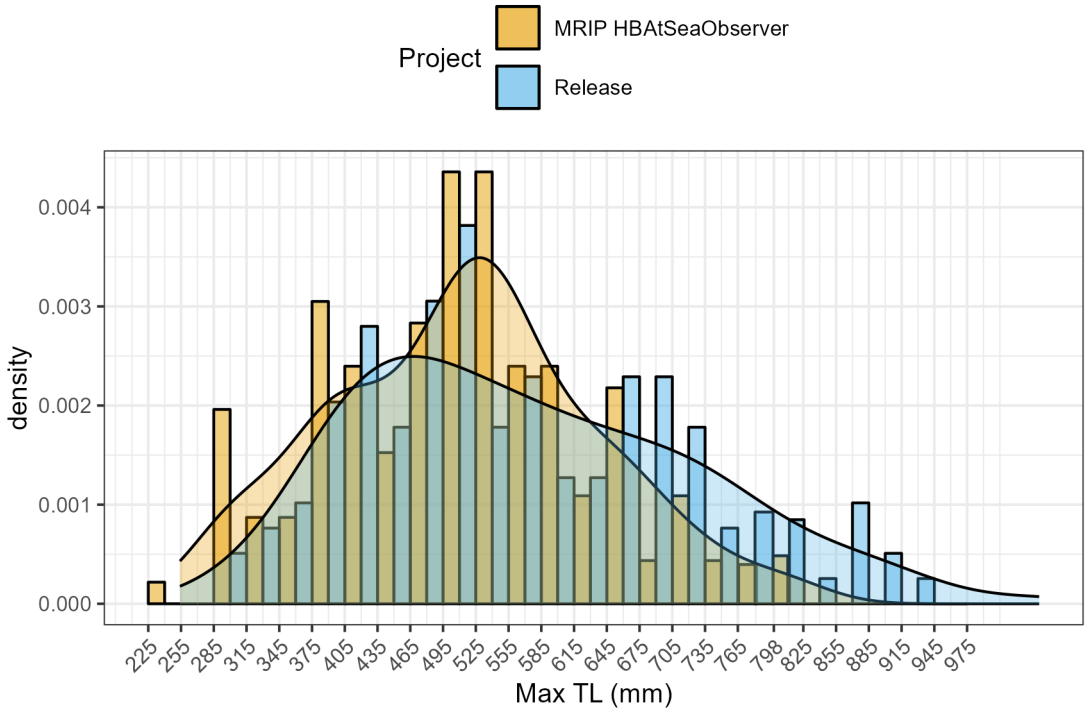

Figure 7. Comparison of Red Snapper release lengths from the MRIP Headboat At-sea Observer Program (n=153) and SAFMC Release **NC-GA data** (NC-GA, n=132), 2022-2024.

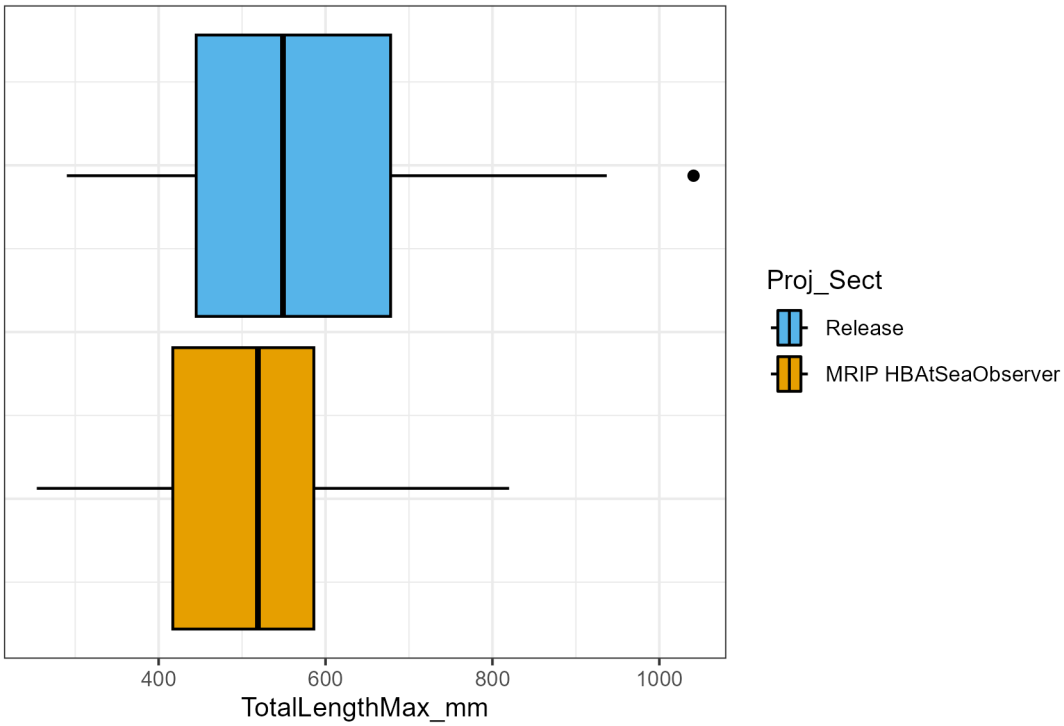

Figure 8. Box and whisker plot illustrating the Red Snapper release length distribution from MRIP Headboat At-sea Observer Program (n=153) and SAFMC Release NC-GA (NC-GA, n=132), 2022-2024.

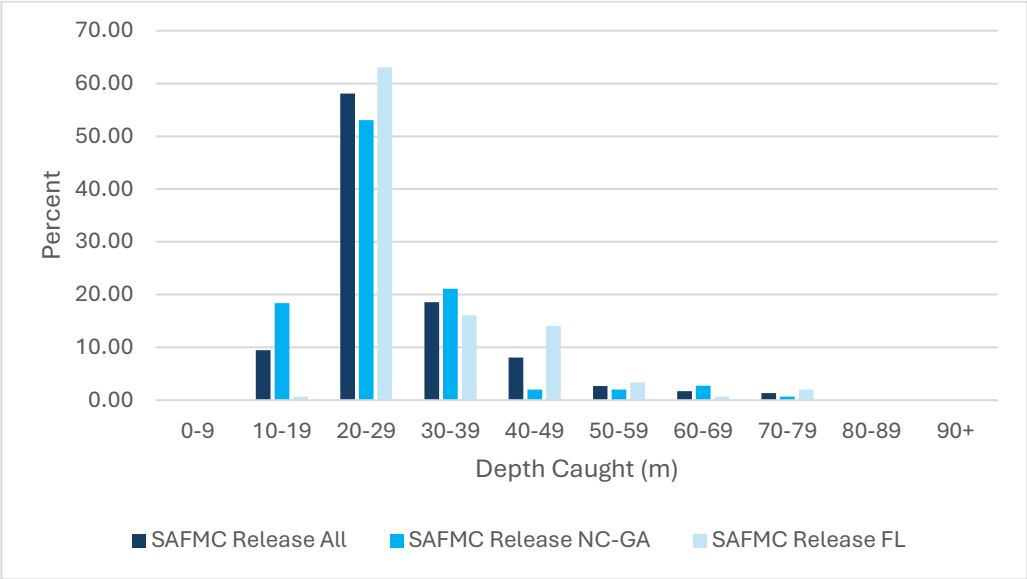

Figure 9. Percent of released Red Snapper from SAFMC Release by depth bin, 2022-2024.

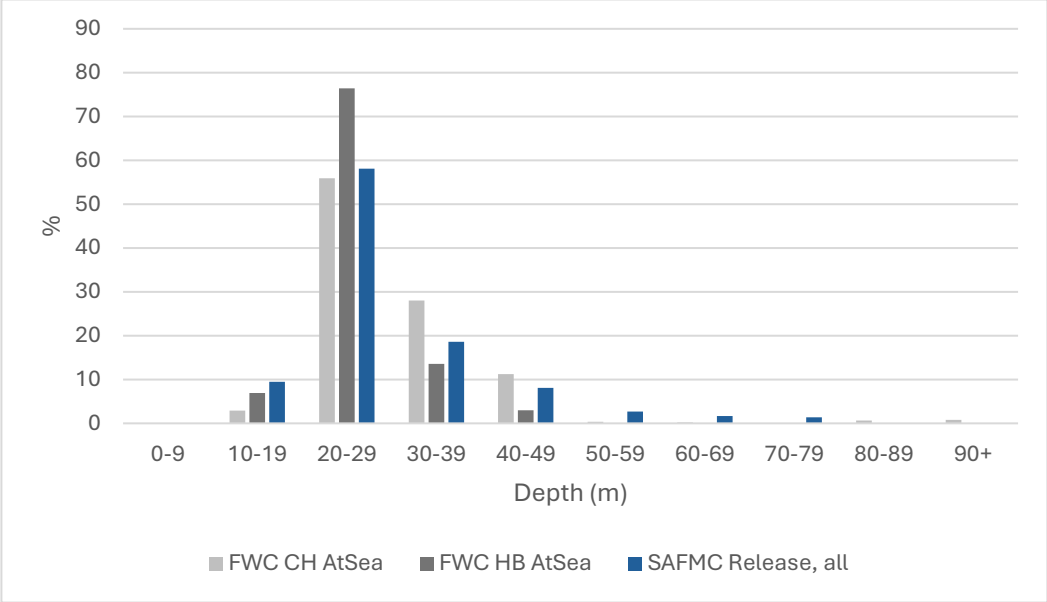

Figure 10. Comparison of depths from the FWC For-Hire At-sea Observer Program (HB: n=2473, CH: n=918) and SAFMC Release data (all, n=296).

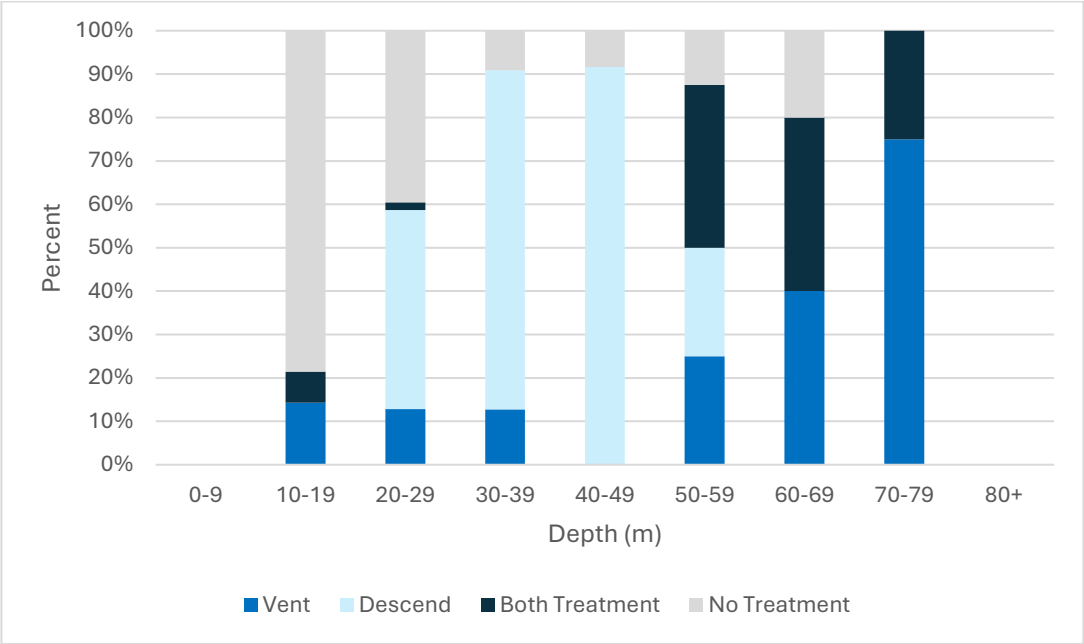

Figure 11. Percent of released Red Snapper by release treatment and depth bin from SAFMC Release, 2022-2024. Sample size by depth bin: 10-19m = 28, 20-29m = 172, 30-39m = 55, 40-49m = 24, 50-59m = 8, 60-69m = 5, 70-79m = 4.

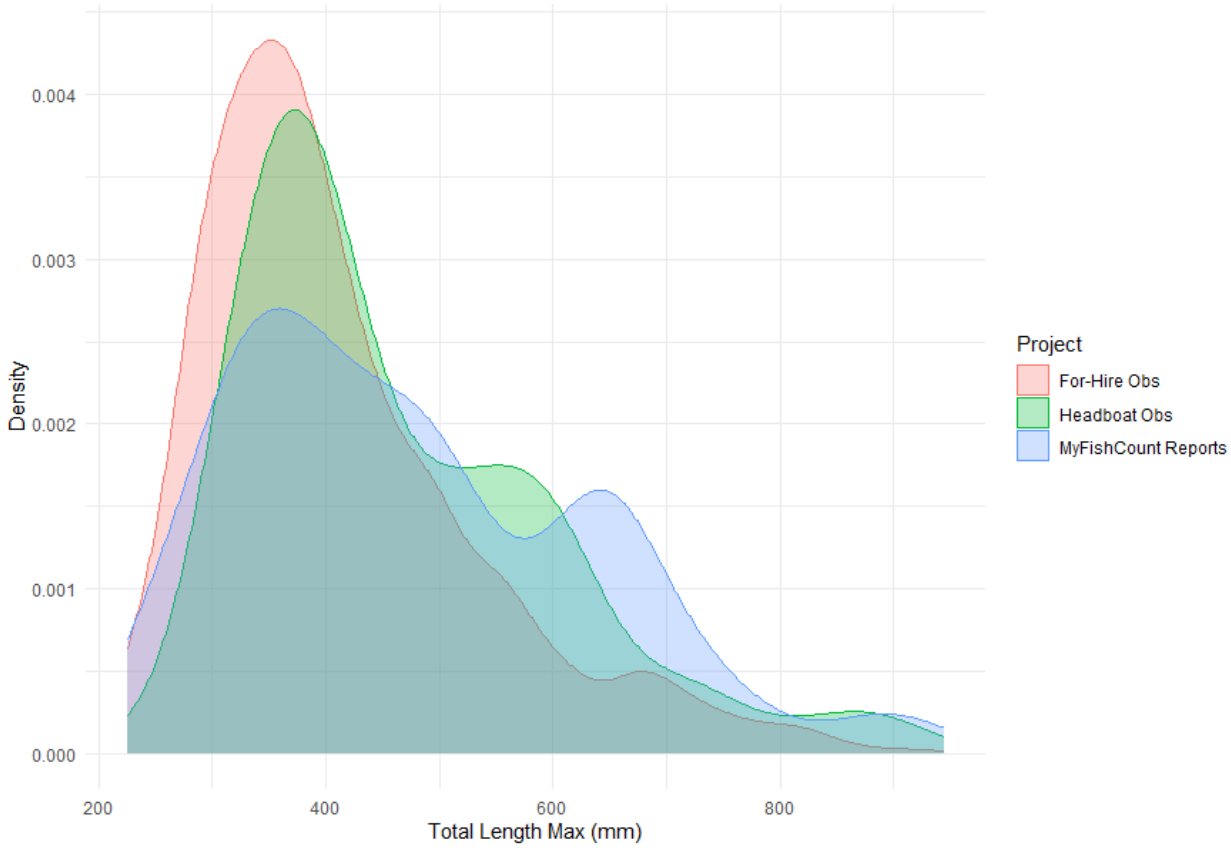

Figure 12. Comparison of Red Snapper release lengths from the FWC For-Hire At-sea Observer Program (n= 2,061), MRIP Headboat Observer Program (n=307), and MyFishCount (all, n=278), 2017-2019.

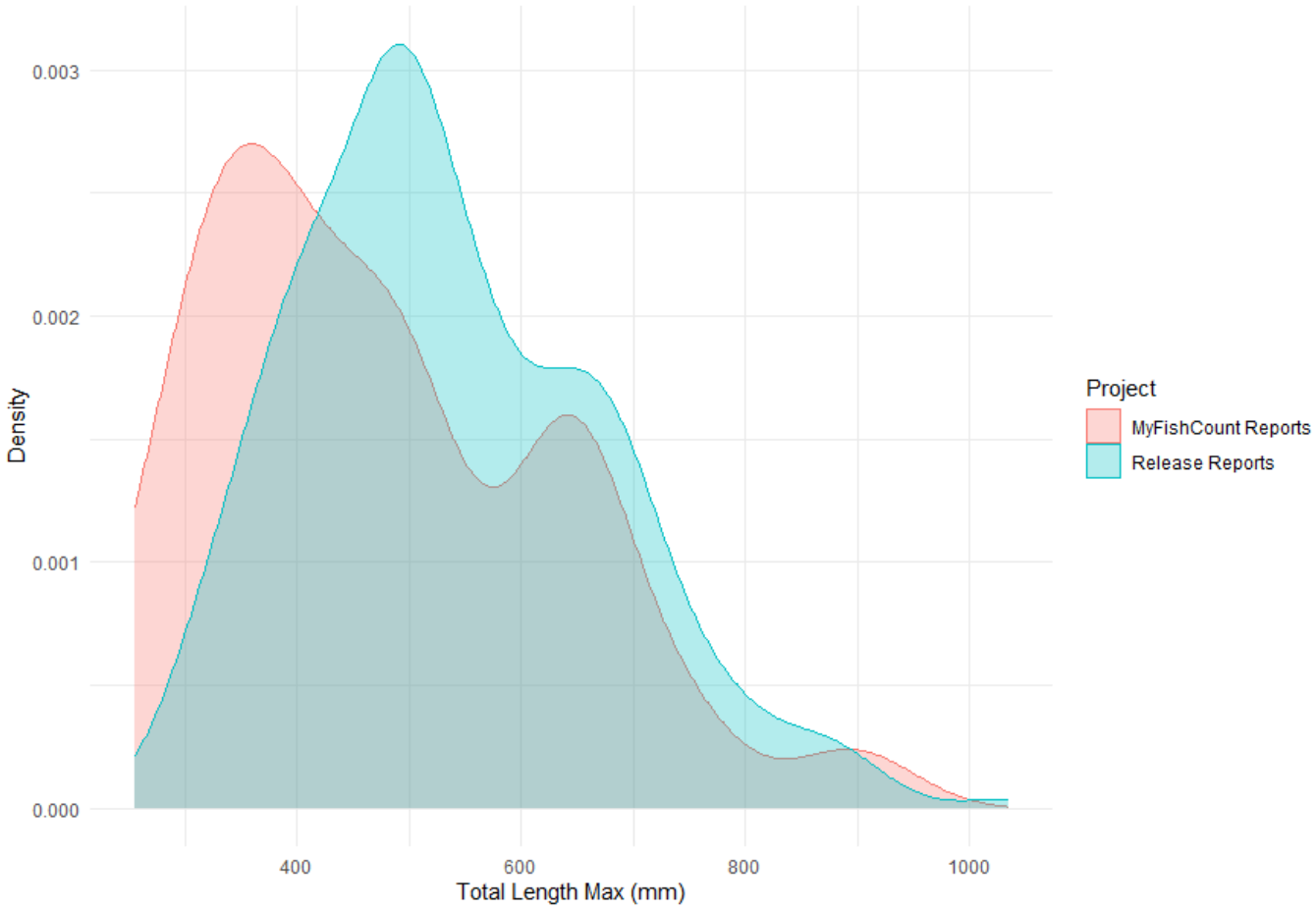

Figure 13. Comparison of Red Snapper release lengths from MyFishCount (all, n=278), 2017-2019, and SAFMC Release (all, n=251), 2022-2024.

Appendices

Appendix A. Required and optional data fields for the Release form in the SciFish app for the SAFMC Release project. Required fields are bolded. Each released fish is stored as a separate record.

Data Field	Description
User (Ue)	Auto-generated when signed into app
Trip Type	Commercial, Charter, Headboat, or Private; defaults to most recent record; user can edit as needed
State	VA, NC, SC, GA, FL (east coast)
Trip Start Date	Date the fishing trip started; auto-populates with today's date; user can edit as needed
Catch Time	Time fish is released; auto-populates with current time; user can edit as needed
Depth	Depth fish was caught in feet; manually entered by user
Species ITIS Code & Common Name	Species ITIS code and common name; only species included in project are available to select
Length	Total length of fish entered to the nearest inch; if not able to get length must check box indicating could not get length
Photo	Photo submission of released fish
Latitude/Longitude	Location where fish caught/discarded; can drop pin using a map or can manually enter
Hook Type	Drop down menu to select between circle (offset), circle (non-offset), j-hook, and other
Hook Location	Drop down menu to select between jaw, gill, throat, eyes, body
Release Condition	Drop down menu to select released alive or released dead
Release Treatment	Checkboxes to select if line was cut, if the fish was vented, or if a descending device was used during release
Shark Depredation	Checkbox to select if shark depredation was observed

Appendix B. SAFMC Release data summarized using inches (length) and feet (depth) as units.

Table B1. Length frequency of released Red Snapper from SAFMC Release Data, 2022-2024.

Total Length_nat Length Bin (inch)	Count	Percent
11	2	0.80
12	3	1.20
13	5	1.99
14	11	4.38
15	10	3.98
16	28	11.16
17	9	3.59
18	23	9.16
19	11	4.38
20	27	10.76
21	12	4.78
22	25	9.96
23	7	2.79
24	13	5.18
25	15	5.98
26	6	2.39
27	9	3.59
28	13	5.18
29	4	1.59
30	5	1.99
31	4	1.59
32	1	0.40
33	3	1.20
34	1	0.40
35	2	0.80
36	1	0.40
37	0	0.00
38	0	0.00
39	0	0.00
40	1	0.40

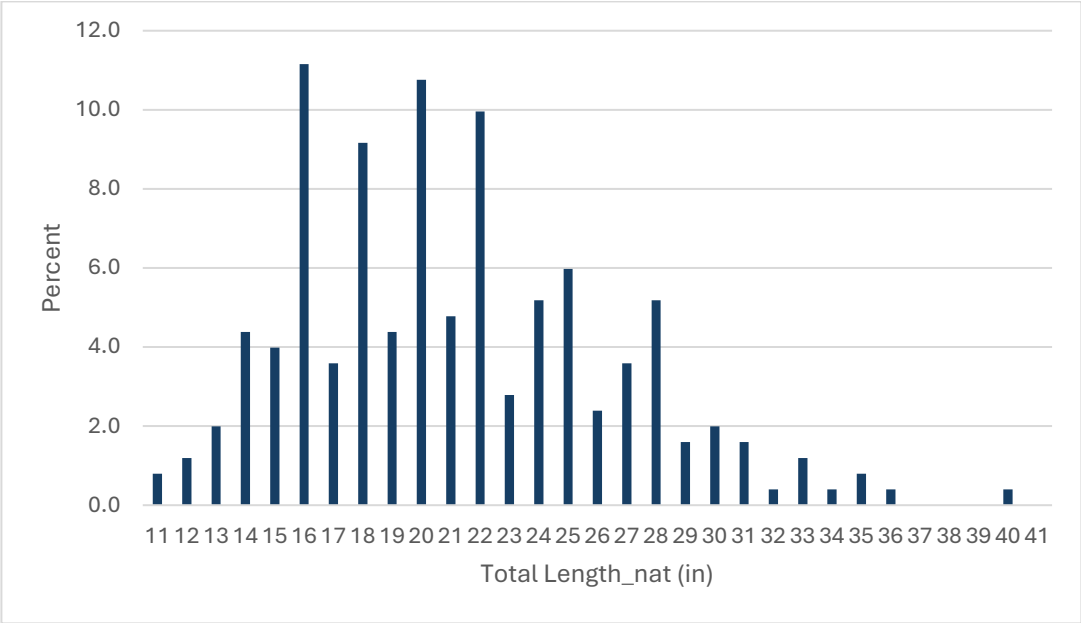

Figure B1. Released Red Snapper length frequency from SAFMC Release data using one inch length bins, 2022-2024.

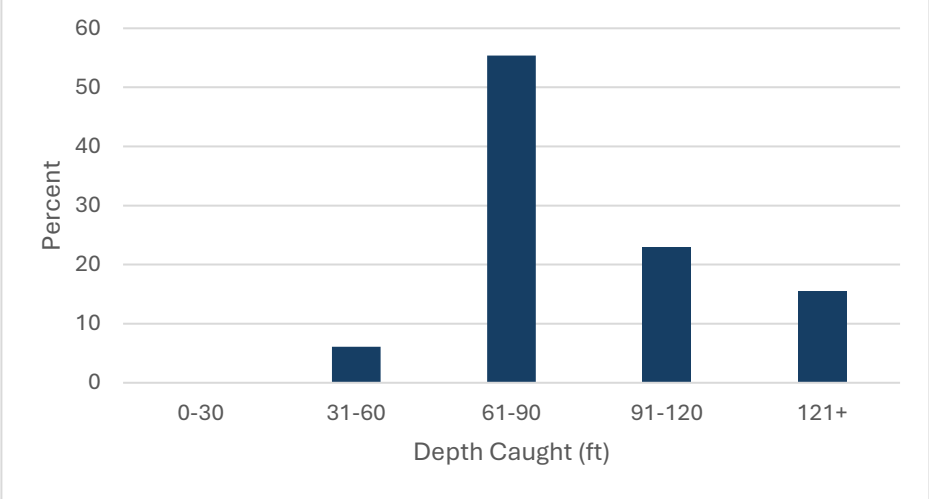

Figure B2. Percent of released Red Snapper from SAFMC Release by depth bin, 2022-2024.

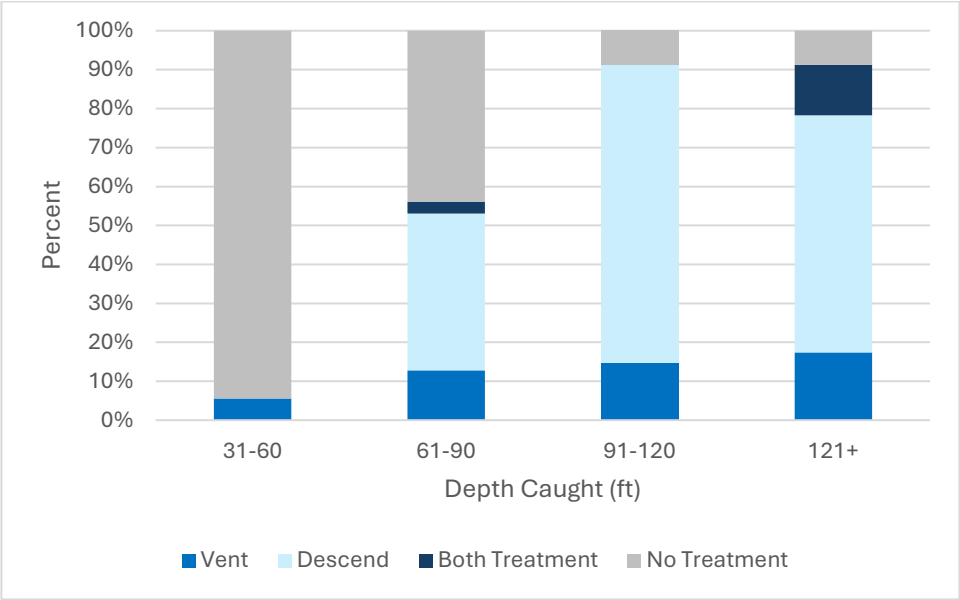

Figure B3. Percent of released Red Snapper by release treatment and depth bin, 2022-2024.