

# REEL INSIGHTS

[EXTERNAL]



19 March 2026

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# 1. Executive Summary

At the South Atlantic Fishery Management Council's (Council) Snapper Grouper Advisory Panel (AP) October 2024 meeting, the AP reviewed fishery information for red snapper and updated a fishery performance report (FPR), which was originally developed in 2020. The purpose of the FPR is to assemble information from AP members' experience and observations on the water and in the marketplace to complement scientific and landings data. FPRs are provided to the Scientific and Statistical Committee (SSC) and the Council to be used as a tool in fishery stock assessments and to inform future management.

The red snapper FPR was analyzed using a range of text analysis methods including text frequency, sentiment analysis, thematic analysis and correlation matrix to produce this summary report. The purpose of applying these text analyses to the FPR was to enhance the SSC's ability to efficiently interpret and use the information contained in the FPR.

## 2. Methods

Sentiment analysis was used to characterize each response using the 'tidytext' package in R. For this analysis, the words in each comment were compared to a revised version of the 'Bing' lexicon library which has been amended with words from the "word frequency" analysis. Words in the library were categorized into positive, negative, or neutral sentiment based on staff's interpretation of the words sentiment within the fishery context. Sentiment was first plotted as negative versus positive, then plotted by sector and finally plotted by sector and location.

Thematic analysis was produced using artificial intelligence (AI) topic modeling (latent Dirichlet allocation). These AI capabilities were used to automate standardized thematic analyses across fishery performance reports. This analysis identified themes, subthemes and root words within the fishery performance report.

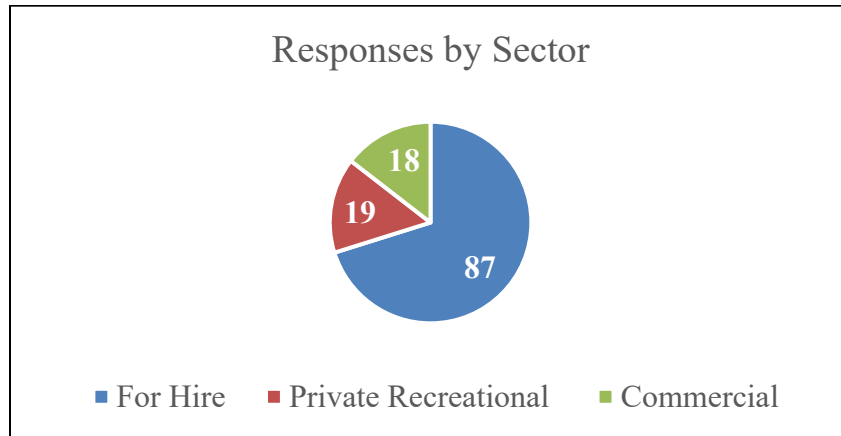
Correlation matrix of word co-occurrences characterized each response using the 'tidyverse' and 'stringr' packages. This was used to identify pairwise associations between words based on how often they appear together in the same comment.

## 3. Results

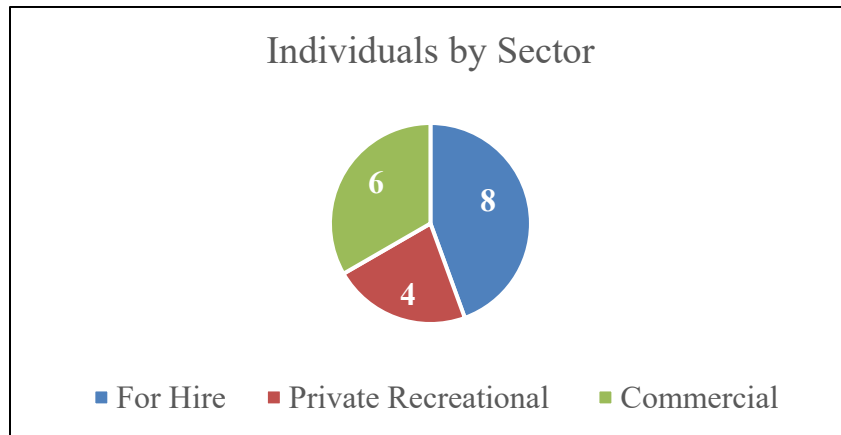
### *Responses*

Respondents self-elected their association with the fishery when applying to be a member of the AP (Figure 1). Respondents were not limited to a singular category, and some identified with more than one sector. A majority of responses were received from anglers who identified with the for-hire angling component of the recreational fishing sector.

**Figure 1a**



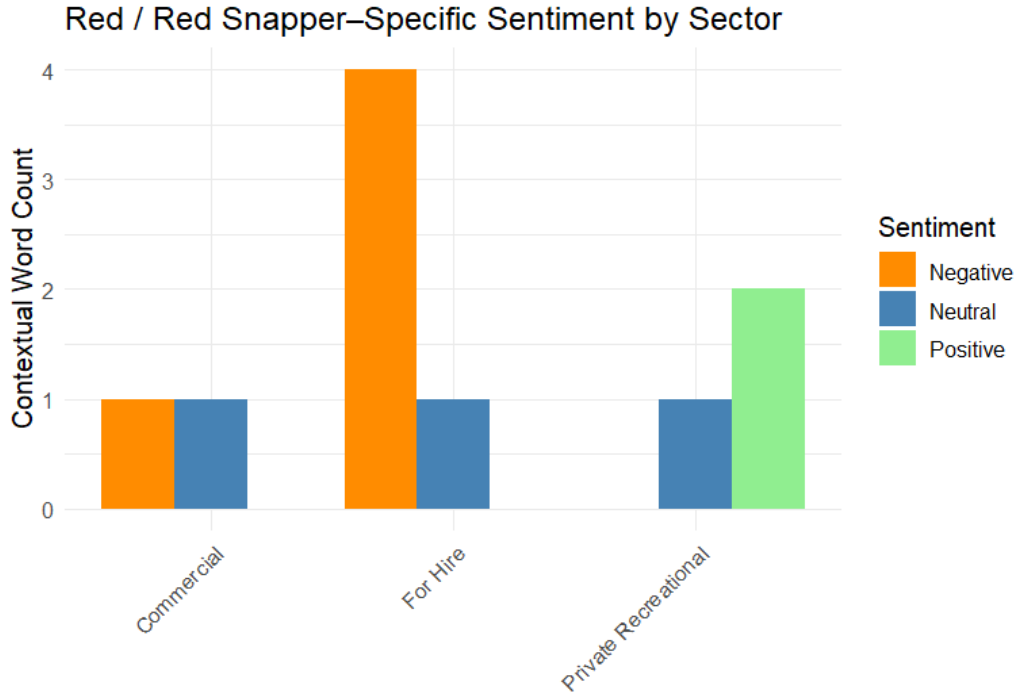
**Figure 1b**



**Figure 1a and 1b.:** Advisory panel members self-identified their fishing sector association. There were 18 AP members and individuals were not limited to a singular response and some identified with more than one sector of the fishery, resulting in a total of 124 responses.

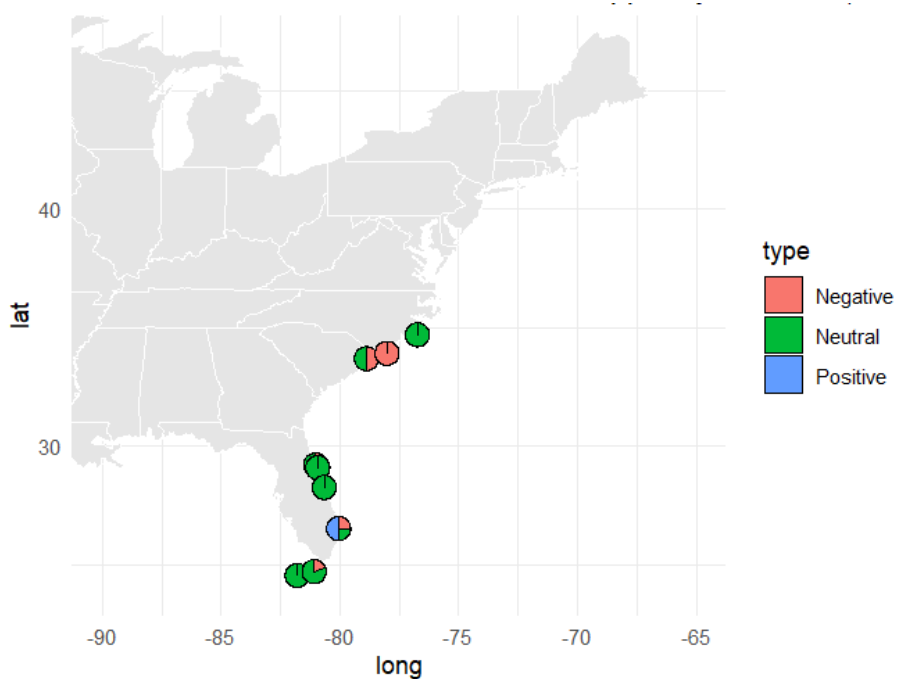
### *Sentiment around Red Snapper*

Sentiment was plotted by overall sentiment, sentiment separated by sector, and sentiment separated by sector and location (Figures 1, 2 and 3). All sentiment analyses were contextualized by Red Snapper. The for-hire sector had the most negative sentiment around Red Snapper (Figure 2). Alternatively, the private recreational sector had a more positive sentiment around Red Snapper (Figure 2). The commercial sector had relatively neutral sentiment around Red Snapper (Figure 2).



**Figure 2:** Number of responses indicating positive, negative, or neutral sentiment sorted by commercial, private recreational, and federal for-hire fishing sector. Sentiment was classified by manual analysis and sector was self-selected by each respondent. Respondents were not limited to a singular sector declaration in their response (n=124).

The highest proportion of negative comments were seen in areas off the North Carolina and South Carolina coast border. There were a limited number of negative comments collected off the Atlantic Florida coast (Figure 3).



**Figure 3:** Abundance sentiment analysis for each area. Each response (n=124) was characterized as positive, negative, or neutral based on the sentiment applied to the words in the library. Each response was then linked to the location the respondent fishes.

Comments were analyzed for the words most frequently used to contribute to either positive or negative sentiment (Figure 4). The words that occurred most frequently in comments with a positive sentiment were catching, substantial, and plenty. This seems to indicate that most of the positive sentiment expressed was based on a positive perception of the abundance or condition of Red Snapper. The words that occurred most frequently in comments with a negative sentiment were hard, discards, and small. This seems to indicate that most of the negative sentiment expressed was based on the discards of Red Snapper.

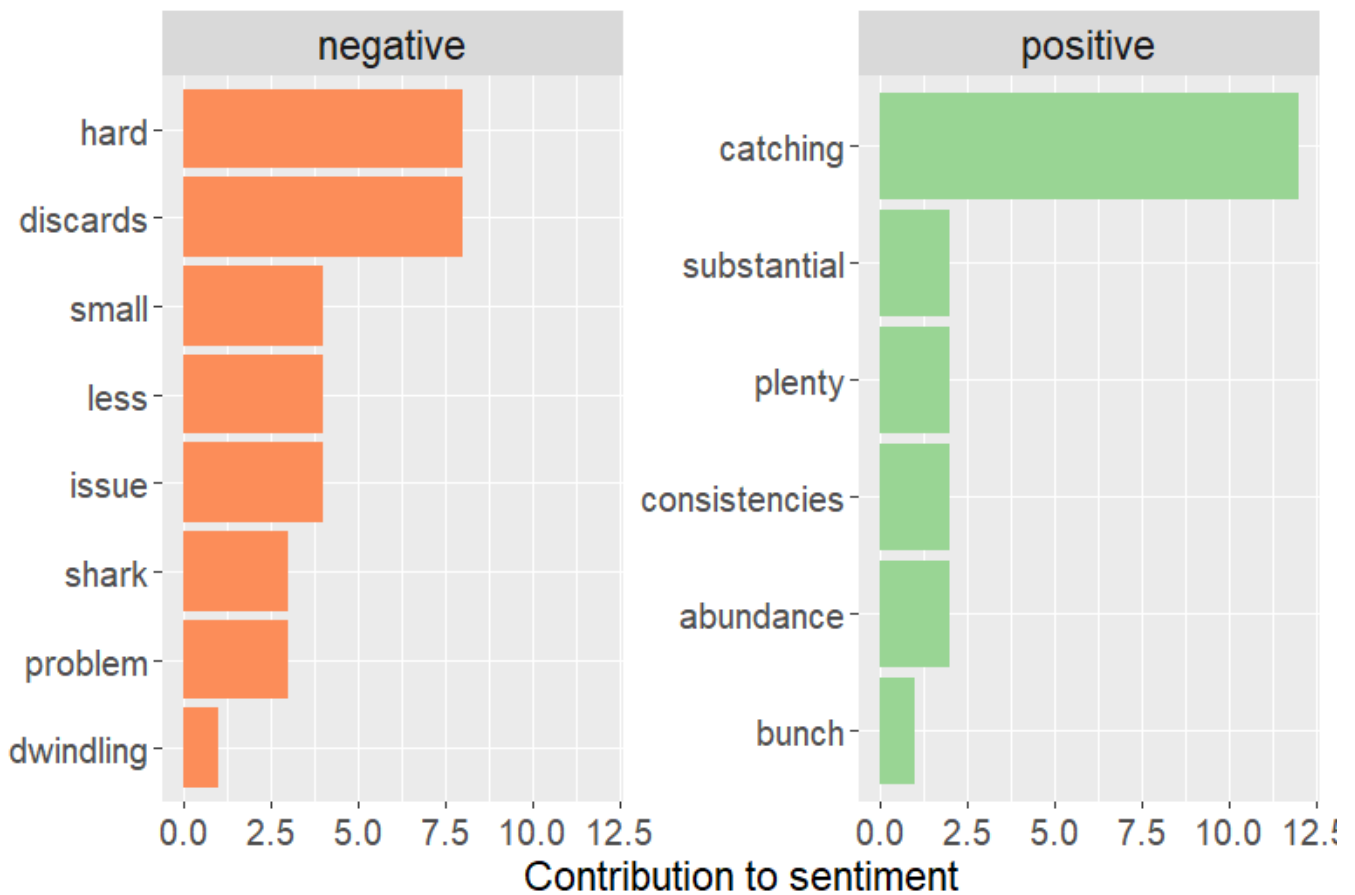


Figure 4: Most frequently used words contributing to positive and negative sentiment.

Comments were analyzed for themes using AI topic modeling (LDA) capabilities (Figure 5). Topic modeling was also used to generate subthemes and root words that commonly occurred within the top six themes. Because the AP is asked a standardized set of questions for the FPR, the resulting themes will be based on those questions (Appendix). Additionally, as AI algorithms learn from user input, this may introduce user bias to the AI generated themes.

## Themes

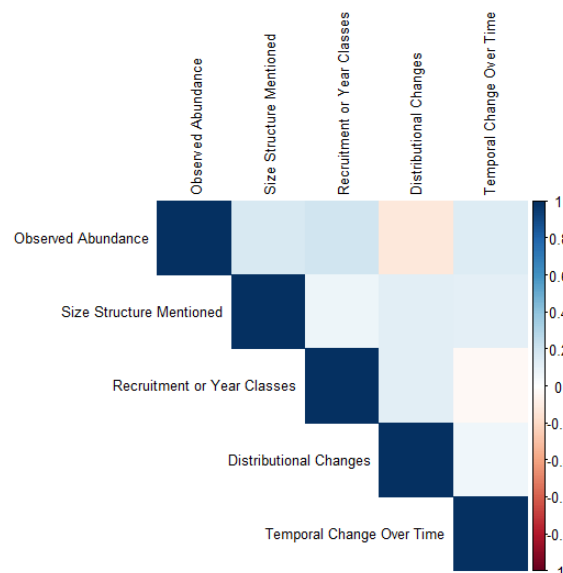
Interpreted Theme	Subtheme / Description	Top Keywords (4–6)
Red Snapper Catch Abundance	Frequent encounters and high catch rates of red snapper	snapper, red, lot, catch, day, know
Long-Term Fishery Change	Perceptions of change over time in the fishery	years, point, cut, know, like, just
General Fishing Experience	Descriptions of routine fishing activity and expectations	fishing, going, mean, just, know, like
Trip Characteristics & Effort	Fishing trip details such as duration, numbers, and effort	trip, fishing, foot, numbers, mean, just
Fish Availability & Use	Observations about fish presence and use (e.g., food)	fish, seen, food, think, right, just
Size & Visibility of Fish	Noticing smaller or visible fish during trips	fish, seeing, little, like, know, just

Figure 5: Fishery Performance Report themes.

## Correlated Words

Comments were analyzed for word co-occurrences (Figure 6a and 6b). Correlated themes from the fishery performance report comments were generated using AI capabilities. The themes were analyzed using correlation matrices to identify correlated themes and keywords.

### Biological / Stock Theme Correlations (6a)



### Fishery / Habitat / Ecosystem Theme Correlations (6b)

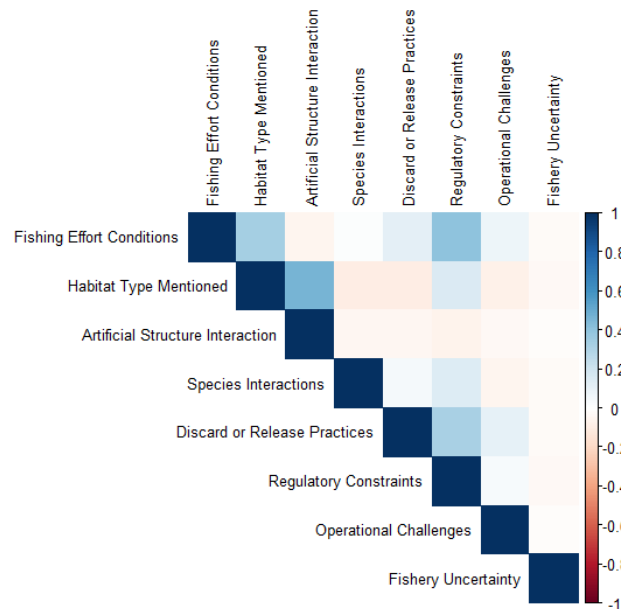


Figure 6a and 6b: Correlation matrix of word co-occurrences.

## 4. Discussion

The results of Fishery Performance Report for Red Snapper will be shared with the Council and its Scientific and Statistical Committee (SSC) as SEDAR 90: South Atlantic Red Snapper Stock Assessment is completed and reviewed. The information collected through the tool is not intended to be considered as an index of abundance for direct incorporation into the stock assessment model. Instead, results of this effort are meant to supplement the role played by fisheries observers in the stock assessment process. The on-the-water perspective offered by AP members should be used to ground-truth science and enhance understanding of the stock.

## 5. Additional Resources

For fishermen interested in getting involved with fishery management, there are multiple avenues including:

1. Participating in a SouthEast Data Assessment and Review (SEDAR) stock assessment

SEDAR is a public process for conducting stock assessments. All webinars and in-person meetings are open to the public. In addition to observing the process as members of the public, fishermen may also be appointed to participate in stock assessments through designated roles such as a Data Panelist or Appointed Observer. These roles provide fishermen with the opportunity to contribute to discussions and decisions that inform fishery stock assessments. Fishermen insights are valued in stock assessments, and these roles are intended to strengthen the bridge of communication between fishermen and stock assessment scientists, and provide an avenue for incorporating fishermen’s knowledge into stock assessments. For more information on upcoming fishery stock assessments or how to get involved, please contact Emily Ott at [Emily.Ott@safmc.net](mailto:Emily.Ott@safmc.net).

## 2. South Atlantic Fishery Management Council Advisory Panels

Advisory panel (AP) members are comprised of recreational fishermen, commercial fishermen, state and federal industry representatives, seafood dealers, representatives from non-governmental organizations (NGOs), and other interested members of the public. APs provide information and recommendations at the grassroots level to inform the federal fishery management process. Members advise the Council about trends in fisheries, environmental concerns, enforcement issues, and management effects on fishermen and fishing communities. For more information on advisory panels or how to apply, visit the Council website at: <https://safmc.net/about/advisory-panels/> or contact John Hadley at [John.Hadley@safmc.net](mailto:John.Hadley@safmc.net).

## 3. Marine Resources Education Program

By fishermen, for fishermen, the Marine Resources Education Program (MREP) is a neutral platform outside of the regulatory process for fishermen to learn the nuts and bolts of the marine fisheries science and management process. Fishermen and others interested in federal fisheries issues from North Carolina to Texas come together for a one week workshop that empowers participants to engage effectively in science and management. Learn more and apply at: <https://mrep.gmri.org> or contact Christina Curtis at [Christina.Curtis@safmc.net](mailto:Christina.Curtis@safmc.net).

# Appendix

## Fishery Performance Report Questions for Advisory Panel:

The AP is asked to provide the following information about [species] based on their expertise, as appropriate:

1) Have there been substantial changes in the [species] fishery since [the terminal year of the last assessment]?

- If so, when and what do you think caused the change?

2) Fishing Behavior/Catch Levels:

- Have there been effort shifts to/from [species]? If so, please describe, including the time frame for when these shifts occurred.
- Where does [species] rank in terms of preferred species to target?
- Have there been considerable changes in fishing techniques and/or gears used to target [species]? If so, please describe, including the time frame for when these changes occurred.
- How much fishing for [species] typically occurs during the day versus at night? Has this changed?
- Do you actively avoid fishing for [species] in certain areas to avoid catching undersized fish or highly regulated fish (e.g., [species]) to lessen bait loss?
- What do you see in terms of discards in the commercial sector? In the recreational sector?
  - o How often are [species] discarded? What are the reasons they are discarded?
  - o With regards to discarding, what proportion of discards do you release with descender devices?
  - o Do you encounter [species] as bycatch when fishing for other species? If so, what species are being targeted on these trips?
  - o Do you think discard mortality is a significant factor for this species? Has this changed?
    - If so, please describe, including the time frame when the change occurred.
  - o Have there been any recent changes to the level of discards for [species] (each sector/component)?
  - o How attentive are each sector's participants to accurate discard reporting for [species]? Do you think discard records are accurate for [species] (for each sector)?
- How well is each sector adhering to size/bag/trip limits?

### 3) Social and economic influences:

- For the commercial sector, how has price and demand for [species] changed?
  - Is there increased demand for a specific size of [species] (e.g. plate sized)?
- How has demand for charter/headboat trips targeting [species] changed?
- Among the species you target, how important are [species] to your overall business (charter or commercial)?
- What communities are dependent on the [species] fishery?
- Have changes in infrastructure (docks, marinas, fish houses) affected fishing opportunities for [species]?
- How have fishermen and communities adapted to changes in the [species] fishery?

### 4) Management measures:

- Are there new management measures that the Council should consider or are there existing management measures (such as size limit, trip limit, bag limit, season, etc.) that should be changed?
- Are the current ACL and allocations appropriate for each sector?

### 5) Environmental/ecological/habitat:

- Do you perceive that the abundance of [species] has changed over the past ten years? If so, how has it changed?
  - Are more recent trends over the past 3 years different from over the past 10 years?
- When/where are the fish available, and has this changed? For instance, has there been any shift in catch (annually/seasonally) inshore/offshore or north/south? If so, please describe.
- Has the size of the fish that you typically encounter changed? If so, could you briefly describe the trend?
- Have you noticed any unique effects of environmental conditions on [species]? If so, please describe.
- What are your observations on the timing and length of the [species] spawning season in your area (time periods when fish are observed with large ovaries or eggs spilling out externally or while venting)?
- What do you see now in terms of recruitment? Where are the small fish? Are large and small fish found in the same locations?
- Have you observed changes in catch depth or apparent bottom type fished on?

- How have sea conditions (monthly/seasonally) affected fishable days?
- Have you noticed any change in the species caught with [species] over the years or seasonally?

6) Other:

- What else is important for the Council to know about [species]?