

Fisherman Feedback: Red Grouper Response Summary September 2024

The Gulf of Mexico Fishery Management Council (Council) asked fishermen, divers, and other federal fishery stakeholders what they've noticed about red grouper and red grouper fishing in recent years. Active fishermen are a rich source of information and may notice trends or phenomena that scientists and managers may not observe. This initiative expands the types of information gathered by fisheries scientists and managers to gain a better, more contemporary understanding of what is happening on-the-water.

Comments were collected using the Fisherman Feedback web-based tool that was advertised via [press release](#), social media, and on the [Council's website](#). As a result, 344 unique responses were received between April 24 – May 24, 2024. Six responses were dropped from analysis because they were not relevant to red grouper resulting in a sample size of 338.

Respondents self-selected their association with the fishery (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 private angling component of the recreational fishing sector.

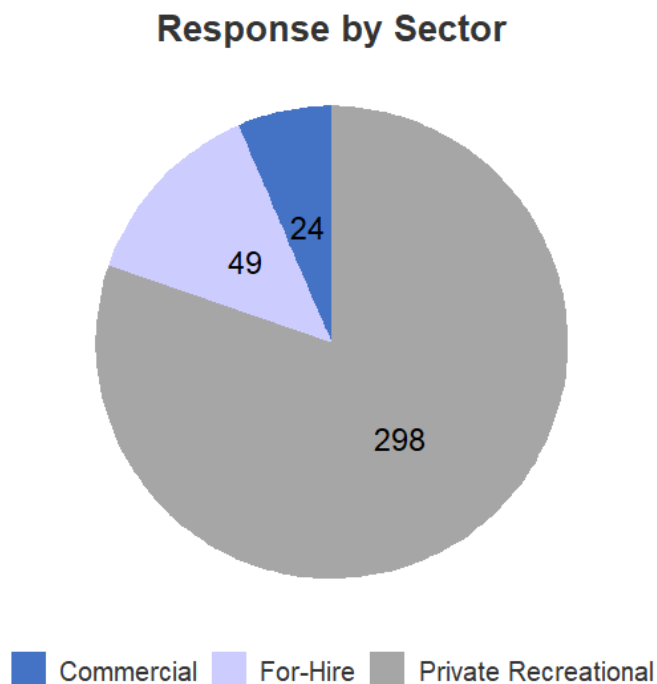


Figure 1: Results collected from the tool asking individuals to self-identify their fishing sector association. While 338 individuals answered the survey question, they were not limited to a singular response and some identified with more than one sector of the fishery, resulting in a total of 371 responses.

Respondents were provided a grid of 21 areas in the Gulf of Mexico (Gulf) where they were able to self-identify the general location(s) of their observation (Figure 2). Respondents were not limited to a single area, and many identified multiple areas. The majority of respondents fish off the central Florida peninsula, specifically Tampa Bay.

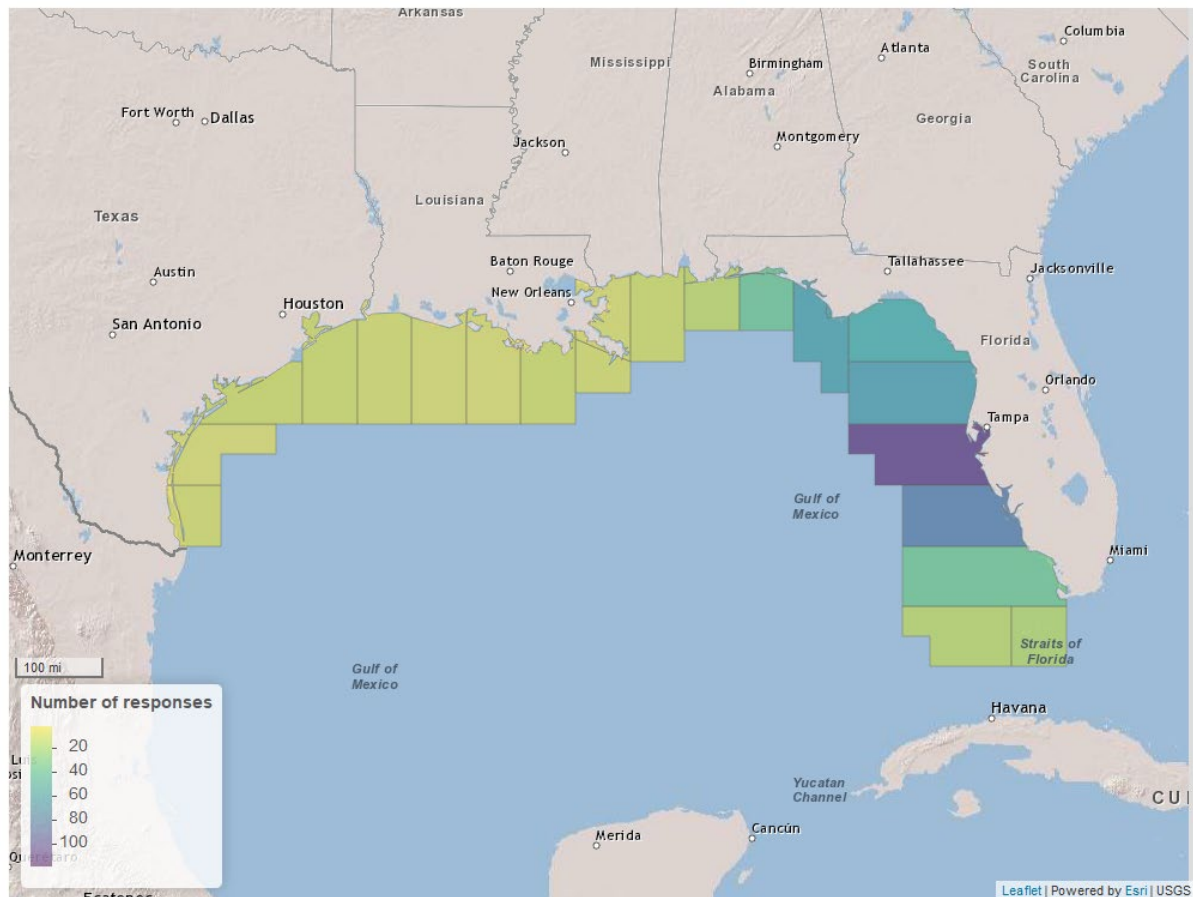


Figure 2: Number of responses received in each of 21 areas in the Gulf. Respondents could select more than one area so, the total number illustrated in the map ($n=526$) exceeds the number of individual responses.

The overall sentiment of each response was classified as positive, negative, or neutral through manual analysis. The analysis showed that most comments were neutral (Figure 3). These neutral comments were often observational, with sentiment either absent or hard to discern. Additionally, any comments that included an equal mix of positive and negative sentiments were also considered to have an overall neutral sentiment.

Many of the neutral comments mentioned that there were plenty of undersized fish. This was considered neutral because, while having an abundance of fish is positive, their small size is a negative. Similarly, a few comments noted that there were lots of fish out deep but very few close to shore, which was also classified as neutral. Finally, many of the comments observed that while the stock is in good condition, the management of red grouper is poor, contributing to a neutral classification.

Comments reflecting negative sentiment often pointed to factors such as poor water quality, habitat destruction, red tide, competition from snapper species, increased fishing pressure, and advanced fishing technologies as contributing to a decline in the stock. Many respondents also placed blame on specific sectors for overharvesting. There was additional frustration expressed toward the federal recreational data collection program. Some negative comments about fishing conditions mentioned the need to travel further and deeper to find keepers and unfavorable weather conditions.

On the other hand, comments with positive sentiment frequently highlighted that red grouper remain plentiful, with no recent changes in size or abundance. Many also noted that short seasons and hurricanes have reduced fishing efforts in recent years, allowing the stock to recover.

Final Overall Sentiment

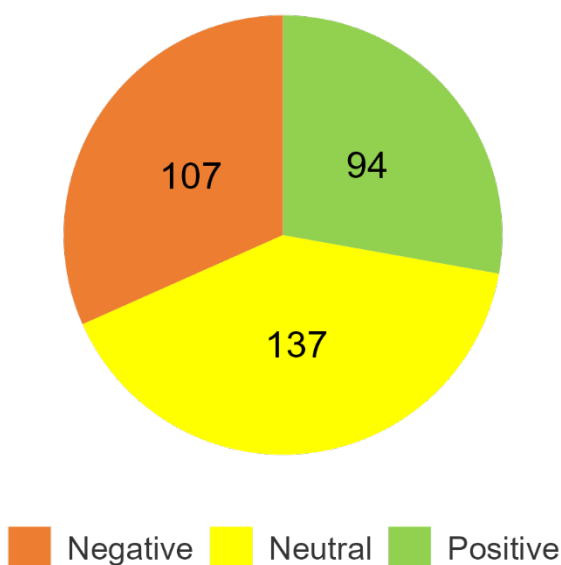


Figure 3: Number of responses indicating positive, negative, or neutral sentiment (n=338) classified by manual analysis.

Overall sentiment was also categorized by fishing sector (Figure 4). Respondents self-selected their fishing sector and were not limited to a singular response. Across all sectors, neutral comments were the most common. However, the recreational sector expressed a slightly higher proportion of negative comments compared to the commercial and for-hire sector.



Figure 4: 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 ($n=371$). Comments that were not associated with the three primary fishing sectors were not analyzed.

Overall comment sentiment was also sorted by location (Figure 5). The highest proportion of negative comments were seen in areas off the western Florida panhandle, Alabama, western Louisiana, and both eastern and southern Texas. The most positive comments were collected off the Florida coast just south of the Tampa Bay region and in the eastern region of the Florida panhandle.

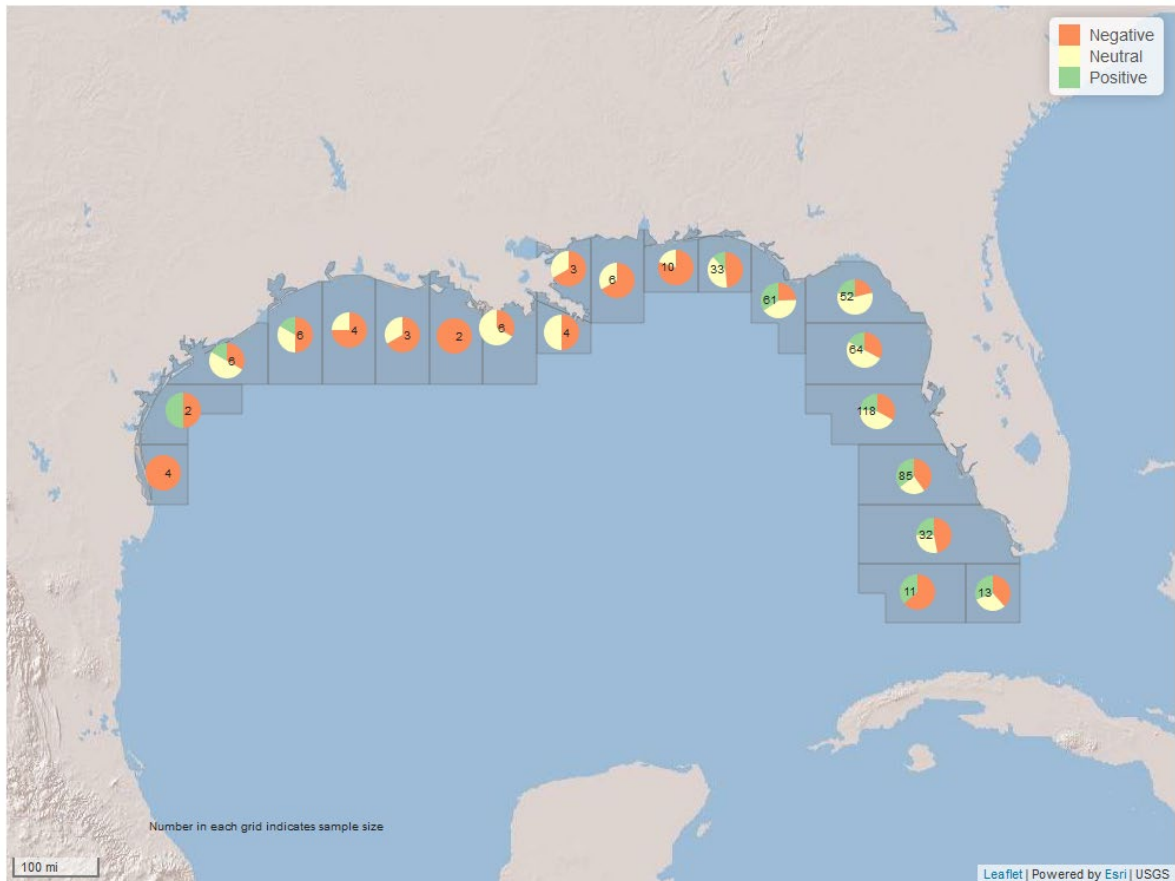


Figure 5: Sentiment analysis for each area. Each comment ($n=339$) was characterized as positive, negative, or neutral based on independent review of each comment by two reviewers. Each comment was then linked to one or more areas based on the self-reported locations. Respondents could select more than one area, so the total number illustrated in the map ($n=525$) exceeds the number of individual responses.

Next, comments from the 338 respondents were analyzed for sentiment focusing on the condition of the stock. Out of these, 50 did not provide comments that were determined to be related to the condition, health, or abundance of the stock, leaving 288 unique comments on stock condition. These comments were then classified based on whether they indicated that the stock was in good, negative, or neutral health (Figure 6). Most comments indicated that the stock was in good condition.

Final Stock Condition Sentiment

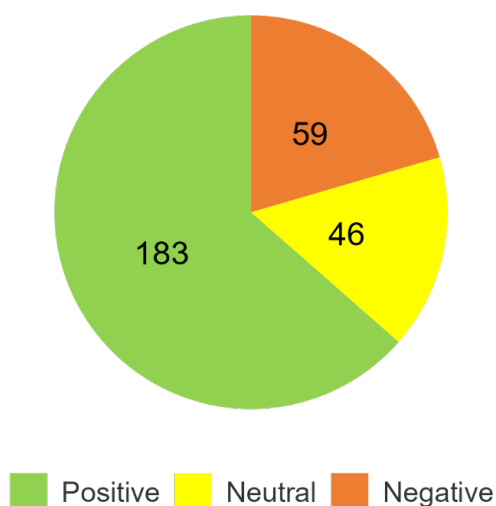


Figure 6: Number of comments indicating positive, negative, or neutral sentiment regarding stock condition (n=288)

Results were also analyzed by sector (Figure 7). Respondents from all sectors expressed positive perceptions of the stock condition and many respondents selected more than one sector type when commenting.

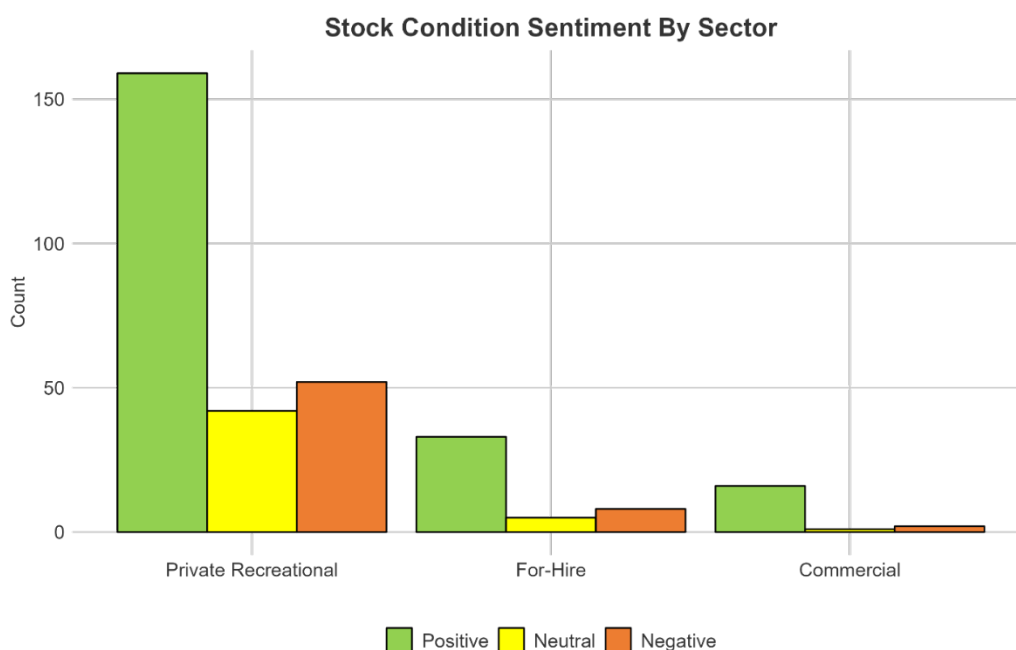


Figure 7: Number of responses related to stock condition (n=318) that indicate positive, negative, or neutral sentiment and sorted by commercial, private recreational, and federal for-hire fishing sector. Sector was self-selected by each respondent. Respondents were not limited to a single sector, so the total number of responses depicted in this figure exceeds the number of

responses related to stock condition that were received (n=288). Comments that were not associated with the three primary fishing sectors were not analyzed.

The sentiment of comments related to the condition, health, or abundance of the stock were also sorted by location (Figure 8). The area of the coast between the western Florida panhandle and central Texas had few respondents, and while the indications of stock abundance were negative, the sample size was very small. Positive indications of stock abundance were most concentrated off peninsular Florida around through the big-bend region.

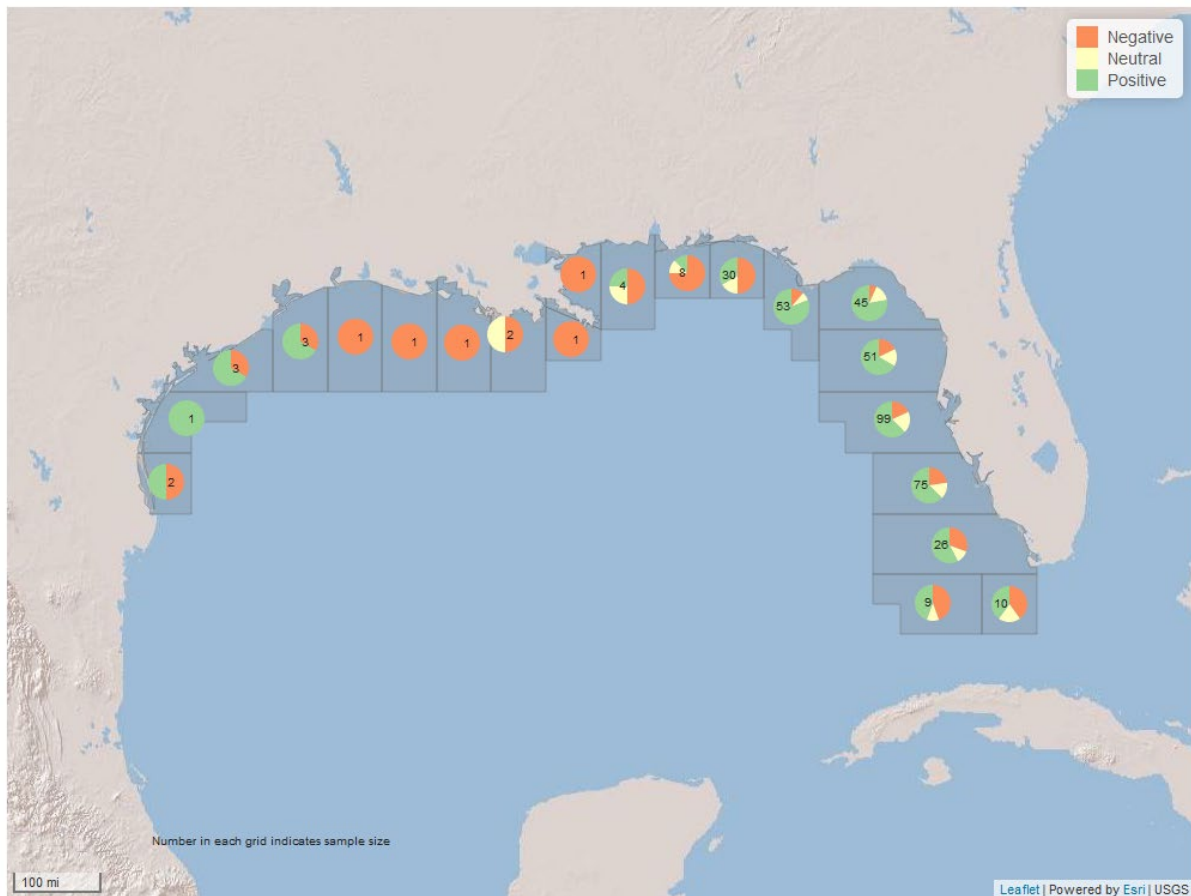


Figure 8: Sentiment analysis of the perception of stock condition by location. Each comment related to the health, condition, and/or abundance of the stock was characterized based on whether it indicated something positive, negative, or neutral about the stock (n =288). Each comment was then linked to one or more areas based on the self-reported locations. Respondents could select more than one area, so the total number illustrated in the map (n=426) exceeds the number of individual responses related to stock condition.

Comments were analyzed for the words most frequently used to contribute to either positive or negative sentiment through automated analysis (Figures 9 and 10). The words that occurred most frequently in comments with a positive sentiment were: plenty, healthy, good, abundant, and well. This seems to indicate that most of the positive sentiment expressed was based on a

positive perception of the abundance or condition of red grouper. The words that occurred most frequently in comments with a negative sentiment were: small, less, undersized, sharks, problem. This seems to indicate that most of the negative sentiment expressed was based on the small size of available red grouper and the presence of predators.

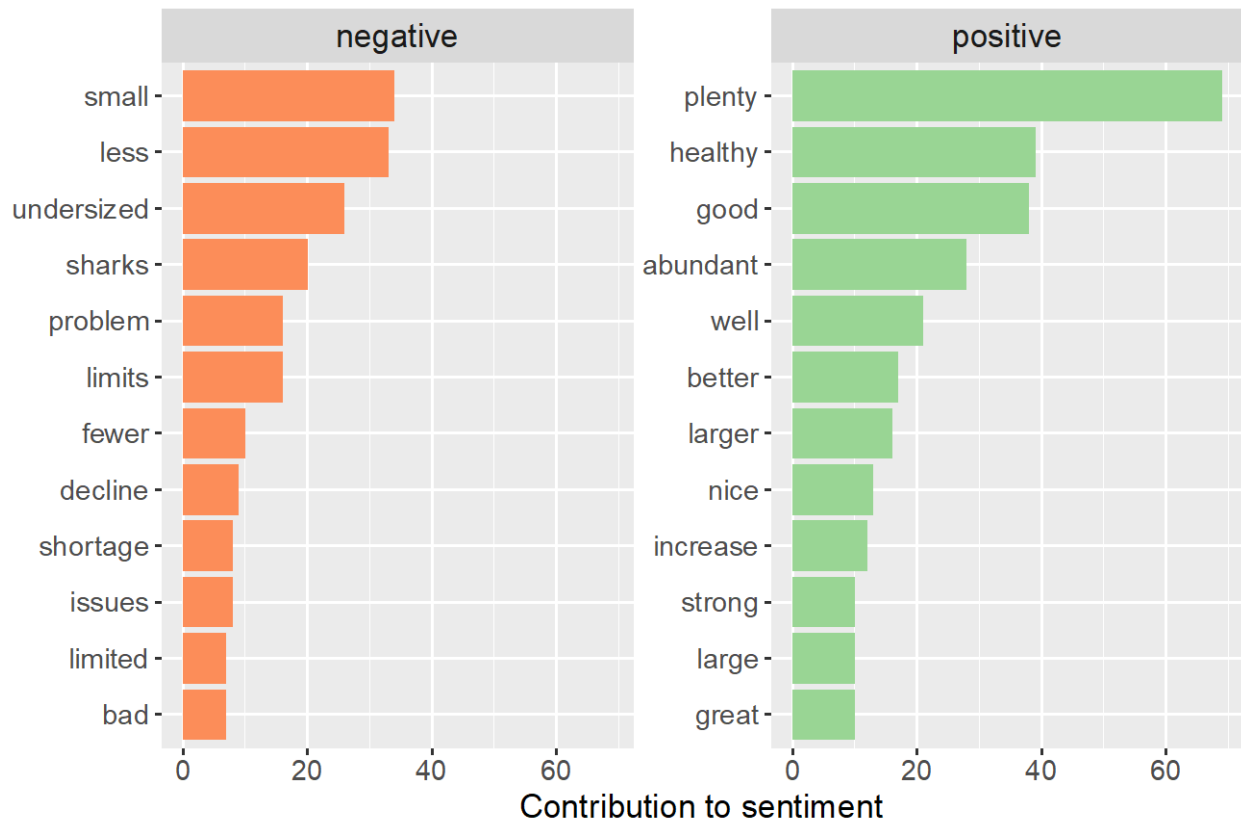


Figure 9: Most frequently used words contributing to comment sentiment identified using automated sentiment analysis.

negative



positive

Figure 10: Most frequently used words contributing to comment sentiment identified using automated sentiment analysis.

The comments that indicated something about the condition of the red grouper stock were mostly positive in nature. Those comments mostly indicated that the stock has improved and some postulated that the increase in abundance was associated with shorter seasons and frequency of hurricanes, both of which have eased fishing pressure in recent years. The comments that indicated something negative about the stock condition suggested that there were mostly small fish available. Negative comments blamed recent declines in the stock on high fishing pressure and high fishing efficacy, due to improved technology. It was also noted that environmental factors and allowing harvest during spawning contributed to poor stock condition.

The results of Fisherman Feedback for red grouper will be submitted to the NOAA Southeast Fisheries Science Center and shared with the Council and its Scientific and Statistical Committee as SEDAR 88: Gulf of Mexico Red Grouper Operational 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 to the stock

assessment process. The on-the-water perspective offered by respondents to this tool should be used to ground-truth the science and enhance our understanding of the stock.

Methods

Manual sentiment analysis was conducted by two independent readers and overall comment sentiment was broadly characterized as positive, neutral, or negative. Readers also determined whether comments were related to the condition, health, or abundance of the stock. Those comments were analyzed again and classified based on whether they indicated that the stock was in good, negative, or neutral health. Readers then compared characterizations and resolved any disagreements in interpretation so that both readers agreed.

Automated sentiment analysis characterized 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 characterizations for words commonly used in reporting fishery information. The library categorizes words into positive, negative, or neutral sentiment and scores every word in each comment accordingly. This was used to identify the most common words associated with a positive and negative sentiment.