Something's Fishy with Greater Amberjack
Response Summary
June 2020

The Gulf of Mexico Fishery Management Council (Council) asked fishermen, divers, and other stakeholders if they have noticed anything "fishy" about greater amberjack fishing in the Gulf of Mexico in recent years. Recognizing that active fishermen may notice trends or unusual occurrences that scientists and managers may not have observed, this initiative expands the type of information gathered by the Council to gain a better understanding of what is happening on the water. Comments were collected using a web-based tool that was advertised via press release, social media, and on the Council's website. Sixty-four unique responses were received between April 26th and May 26th, 2020.

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 in the fishery. Most respondents identified as private anglers. Two respondents that chose more than one sector identified as both commercial and federally permitted for-hire. One respondent identified as all three. Two responses were categorized as 'other' and one of those also identified as a private recreational angler.

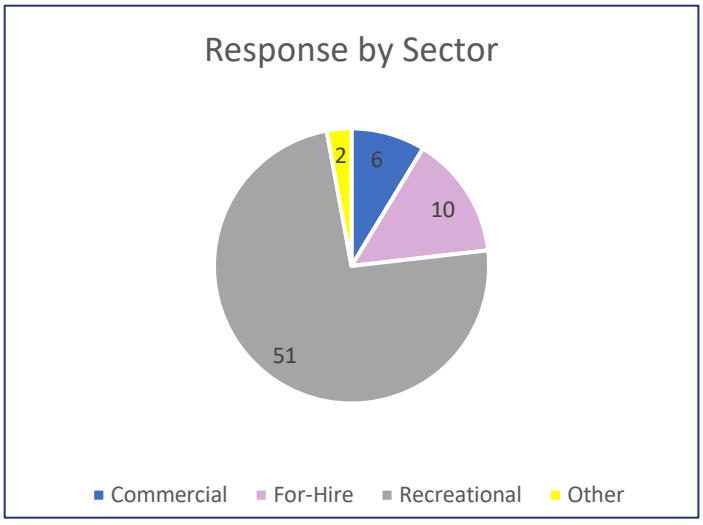

Figure 1: Self-identified number of responses to the survey tool from each sector (n=69). Respondents (n=64) were not limited to a singular response and some identified with more than one sector of the fishery.

Respondents also self-selected the general location where their observation was made. Respondents were not limited to a single area and many identified multiple locations. Responses were gathered for each location. A majority of responses originated from the areas off the central coast of Florida and the greatest number of responses within one location was gathered in the area immediately adjacent to Tampa Bay, Florida. There was also a high concentration of comments in areas off the Panhandle of Florida and off the coasts of Alabama, Mississippi, and eastern Louisiana. Few responses were gathered from the far western Gulf and southern tip of Florida (Figure 2).

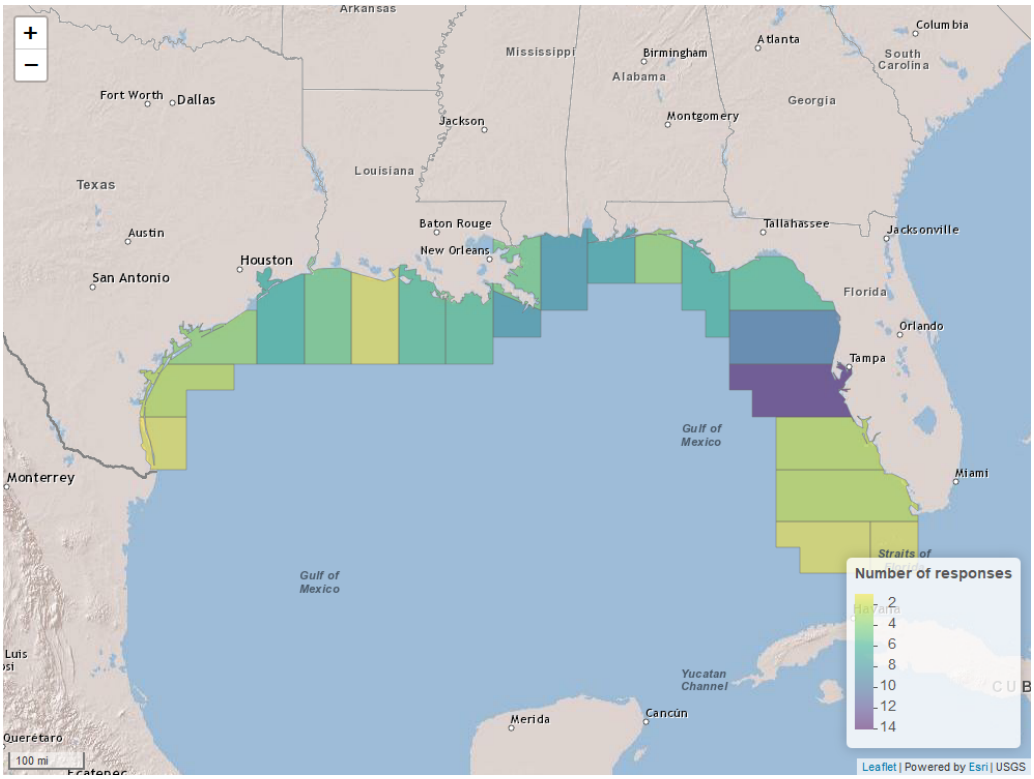

Figure 2: Self-Identified number of responses to the tool identifying location where observations were made (n=94). Respondents (n=64) were able to report observations for one or more grids, thus the number of responses is greater than the number of respondents.

Responses were analyzed in two ways: manually and by an automated analysis. Responses were classified into three categories: positive, negative, or neutral. Manual sentiment analysis showed that a majority of respondents reported a positive or neutral sentiment (Figures 3). Automated analysis showed a majority of respondents reported a positive or negative sentiment (Figure 4). The manual analysis showed a greater proportion of neutral comments than the automated analysis.

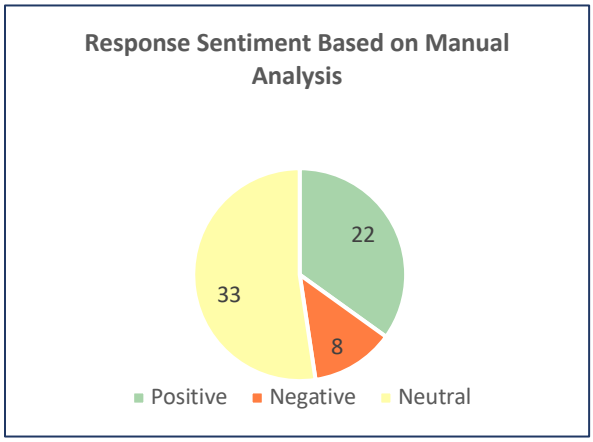

Figure 3: Number of responses indicating positive, negative, or neutral sentiment classified using manual analysis (n=64)

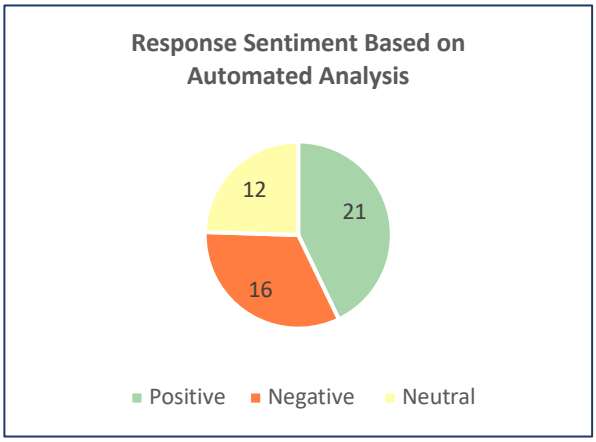

Figure 4: Number of responses indicating positive, negative, or neutral sentiment classified using manual analysis (n=49)

Results from both automated and manual analysis were sorted by location (Figures 5 and 6). With the exception of central Florida, few responses were received for other locations. A few areas in the western Gulf and in areas off the Florida Keys (Figure 2) only received one response, thus the sentiment analysis results should be interpreted with caution in those areas.

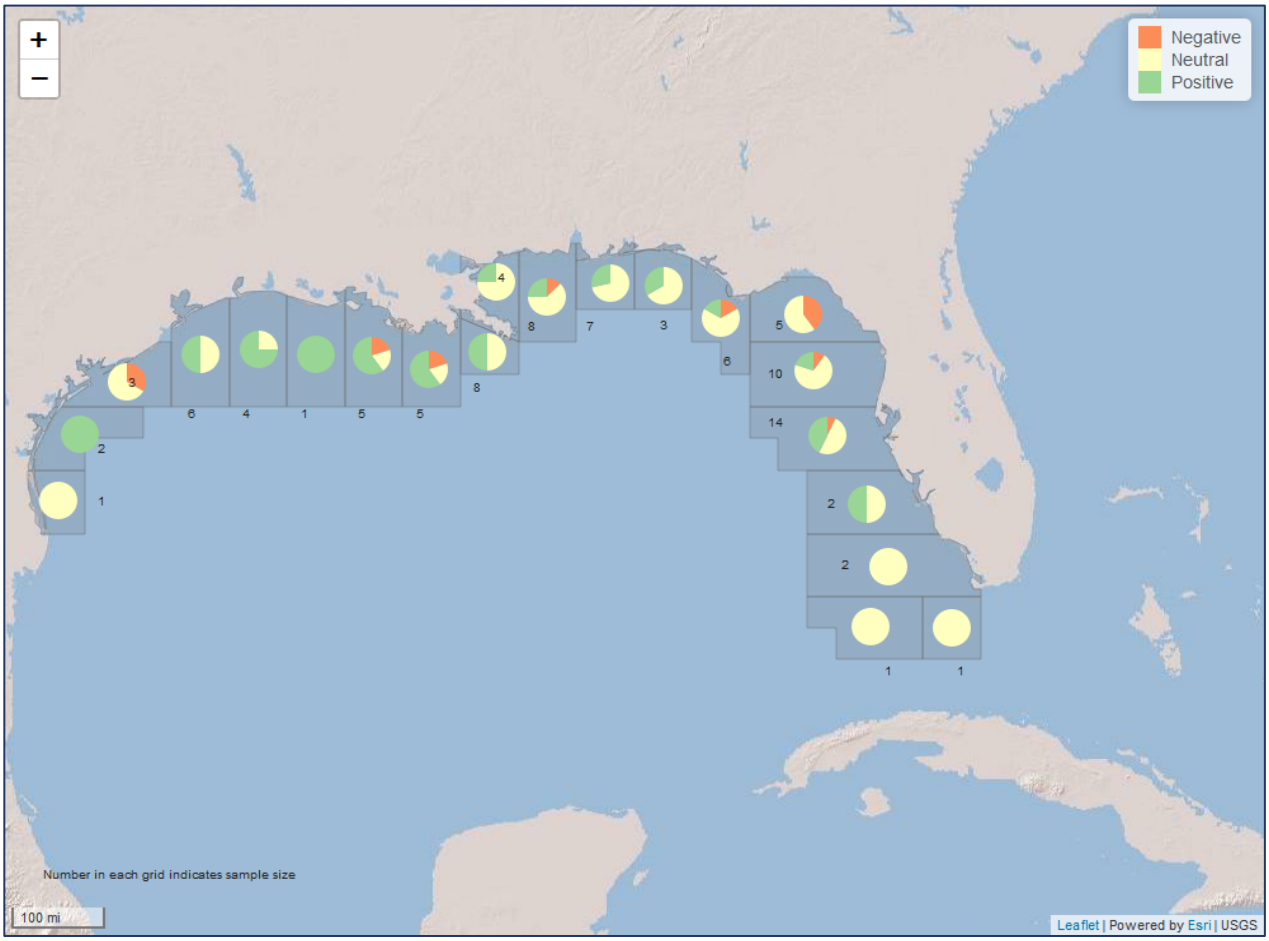

Figure 5: Manual analysis of response sentiment by location. Each comment (n=64) from respondents was characterized into one of three categories based on independent review of each comment by two reviewers. Each comment was linked to one or more grids based on the self-reported locations (n=94) from the respondent that was part of the survey.

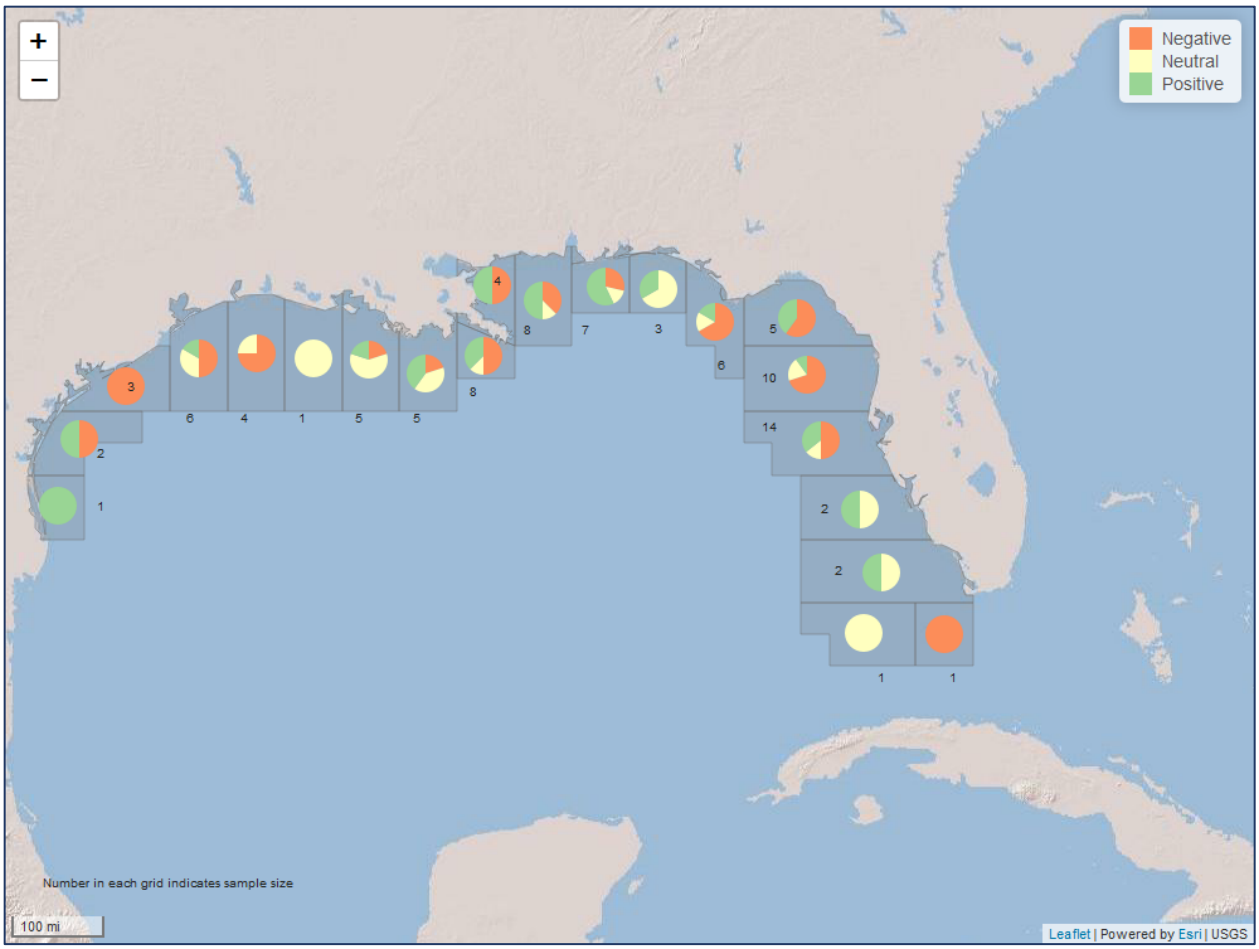

Figure 6: Automated analysis of response sentiment by location. Each comment (n=XX) from respondents was characterized into one of three categories based on an automated sentiment analysis of the text in each comment. Each comment was linked to one or more grids based on the self-reported locations (n=94) from the respondent that was part of the survey.

Manual analysis was conducted by two independent readers and sentiment was broadly characterized as positive, neutral, or negative. Readers then compared characterizations and resolved any disagreements in interpretation so that both readers were in agreement as to comment sentiment. Manual analysis found that a large majority of comments were positive or neutral in nature. A majority of neutral comments indicated that greater amberjack are prolific but were critical of management. In this case, the comments were considered neutral because they indicated a positive trend in abundance but a negative impression of greater amberjack regulations. Some of the comments classified as neutral indicated that amberjack was so abundant that it was an ecological problem or nuisance to fishermen. Most of the responses from the western Gulf were classified as positive while responses from the eastern Gulf were more likely to be neutral. This could indicate that the greater amberjack stock is perceived to be in good health Gulf-wide and anglers in the western Gulf are satisfied with the regulations while anglers in the eastern Gulf are dissatisfied.

The automated sentiment analysis characterized responses using the 'tidytext' package in R. Words in each comment were compared to a revised version of the 'Bing' lexicon library. This library categorizes words into positive, negative, or neutral sentiment. Positive words get a

score of +1, negative words get a score of -1, and neutral words get a score of zero. The analysis scores every word in each comment and then averages those word scores for the individual comment to standardize the score by comment length. This revised library amends characterizations for words commonly used in reporting fishery information. Comments that have an average sentiment above 0.33 were considered a positive comment, neutral comments were between -0.33 and 0.33, and negative comments had sentiment score less than -0.33. If a comment did not include any words contained in the lexicon library the comment was not assigned a sentiment characterization and dropped. Fifteen of the 64 responses analyzed using automated analysis were not included in the automated sentiment analysis, therefore the sample size of comments differs between analysis methods (Figures 3-6). The negative words that occurred most frequently were smaller, limits, issue, unusual, and problem. The positive words that occurred most frequently were large, plenty, like, increase, abundant (Figures 7 and 8). This could indicate that anglers with negative perceptions of the greater amberjack stock were seeing smaller fish and that they were dissatisfied with the size limit.

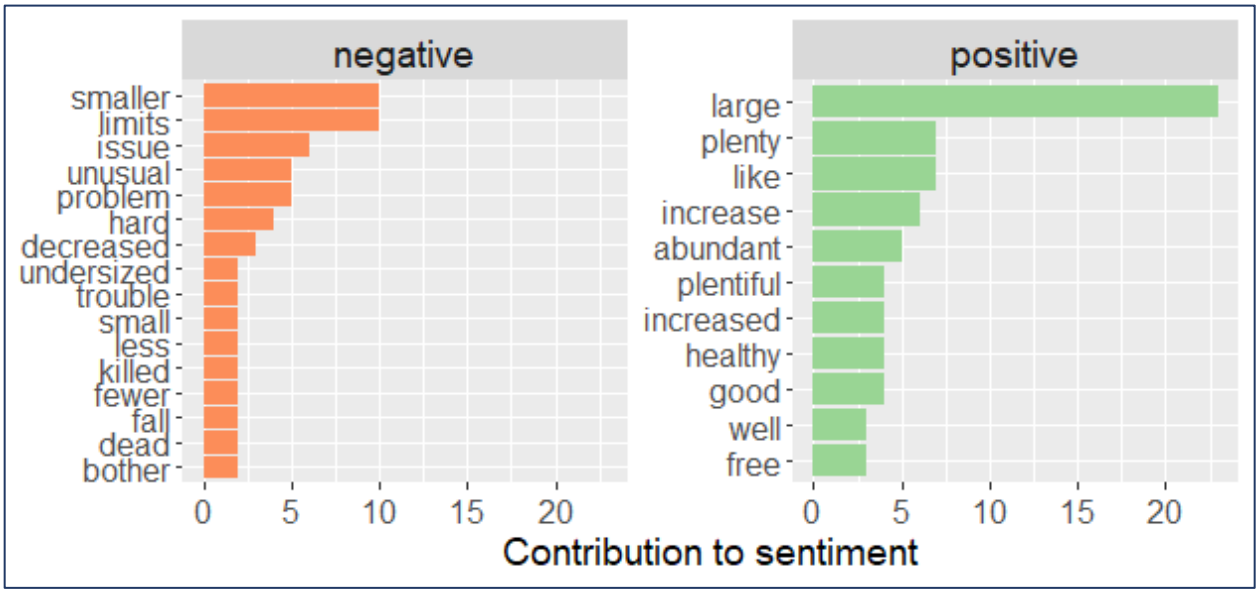

Figure 7: Most frequent words contributing to comment sentiment identified by automated sentiment analysis.

Figure 8: Most frequent words contributing to comment sentiment identified by automated sentiment analysis.

These results of Something's Fishy with Greater Amberjack will be submitted to the NOAA Southeastern Fishery Science Center as it develops SEDAR 70: Gulf of Mexico Greater Amberjack Stock Assessment. The information collected through the tool is not intended to be considered as an index of abundance for direct incorporation into a 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.