Something's Fishy with King Mackerel
Response Summary
November 2019

The Gulf of Mexico Fishery Management Council (Council) asked fishermen, divers, and other stakeholders if they have noticed anything "fishy" about Gulf migratory group king mackerel fishing in recent years. Recognizing that active fishermen may notice trends or unusual occurrences happening 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. Forty-seven responses were received between September 6 and October 6, 2019.

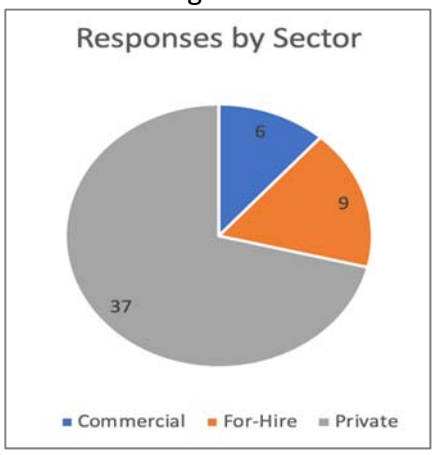

Figure 1: Number of responses by sector

Respondents self-selected their association with the fishery (Figure 1). Respondents were not limited to a singular response and many identified more than one association with the fishery. A majority of respondents identified as private anglers. Respondents who identified as state guides/charters were counted as private anglers.

Respondents also self-selected the general location where their observation was made. Respondents were not limited to a singular response and many identified multiple locations. Responses were gathered for each location and a majority of responses originated from the areas off the Alabama and Mississippi coasts. (Figure 2).

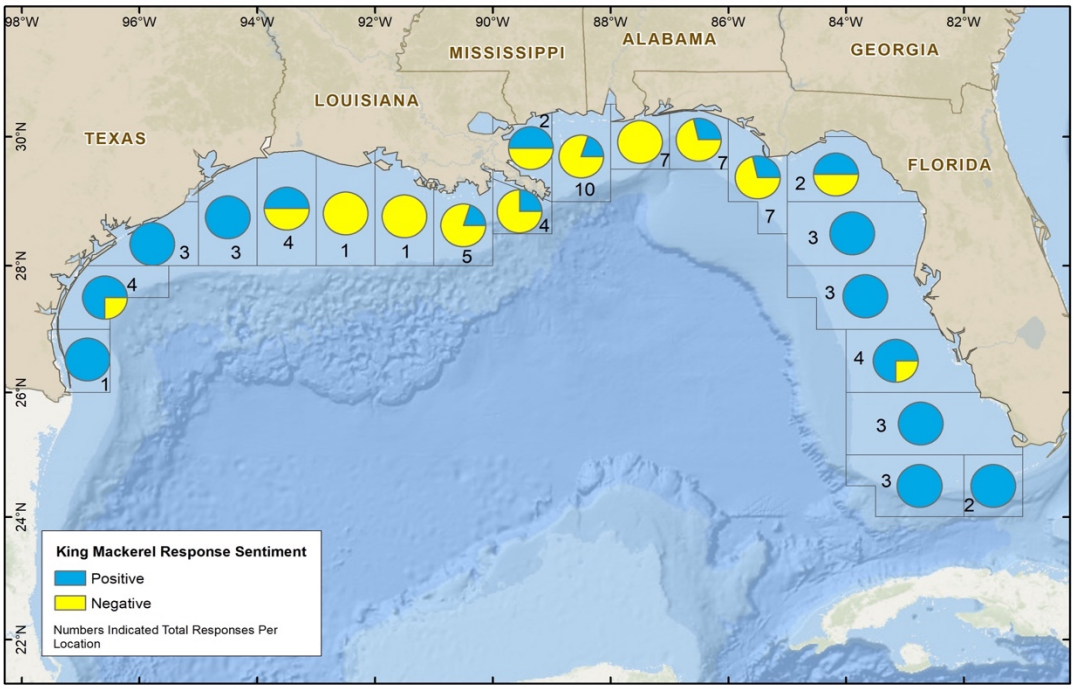

Figure 2: Responses by sentiment and area

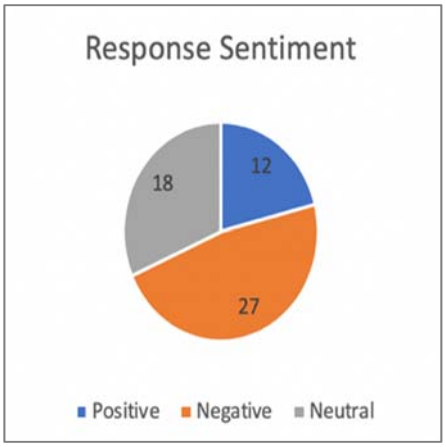

Figure 3: Number of responses by sentiment resulting from the manual analysis.

Responses were analyzed in two ways. First, responses were manually classified as indicating positive, negative or neutral trends in the Gulf king mackerel stock in their region (Figure 3). Overall, manual classification found that most comments indicated a negative trend in stock health or abundance. Respondents in the central, northern Gulf indicated that the king mackerel stock was in decline while anglers indicated that positive trends in stock abundance were occurring off Texas and the peninsular region of Florida. Many of the negative comments specified that a lack of bait was driving the observed decline. Positive comments seemed to indicate that fish were larger than normal.

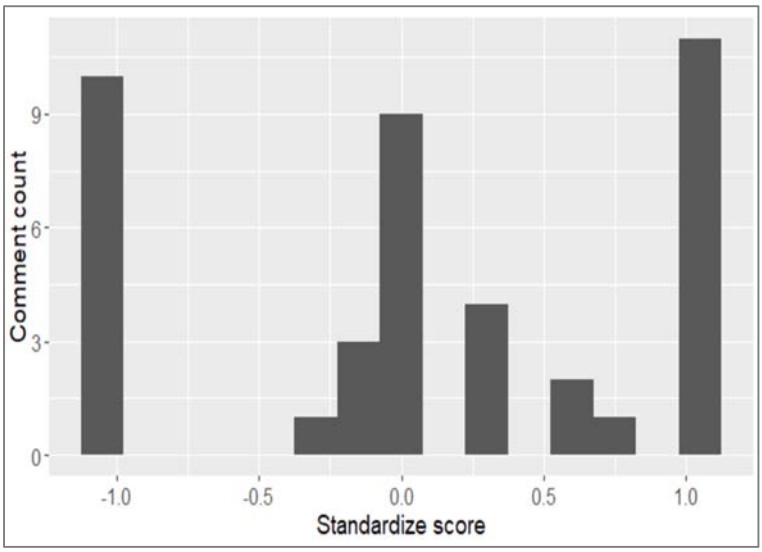

Figure 4: Comments scored by automated sentiment analysis

Next, responses were analyzed using automated sentiment analysis run with R statistical software. Words in each comment were compared to an existing sentiment library. These libraries categorize 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 progam scores every word in each comment and then averages those word scores to for the individual comment. Comments have that an average sentiment above 0 will be considered a positive comment, a negative comment will have an average sentiment score less than 0, and a neutral comment will have an average sentiment score of 0. To present this information, a histogram shows how many comments got a particular sentiment value. Comments that are scored to be negative would appear as bars on the left of zero on the graph, comments that are scored to be positive would appear as bars on the right of the graph, and comments that are scored to be neutral would appear in the direct center of the graph. For kingfish, the automated analysis showed a minor trend towards positive comments (Figure 5). The positive words that occurred most frequently were large, good, catching, and abundance. The negative words that occurred most frequently were fewer, less, small, and lack. (Figure 6).

This could indicate that while some anglers are seeing more large fish, overall there may be a decline or negative perception of abundance.

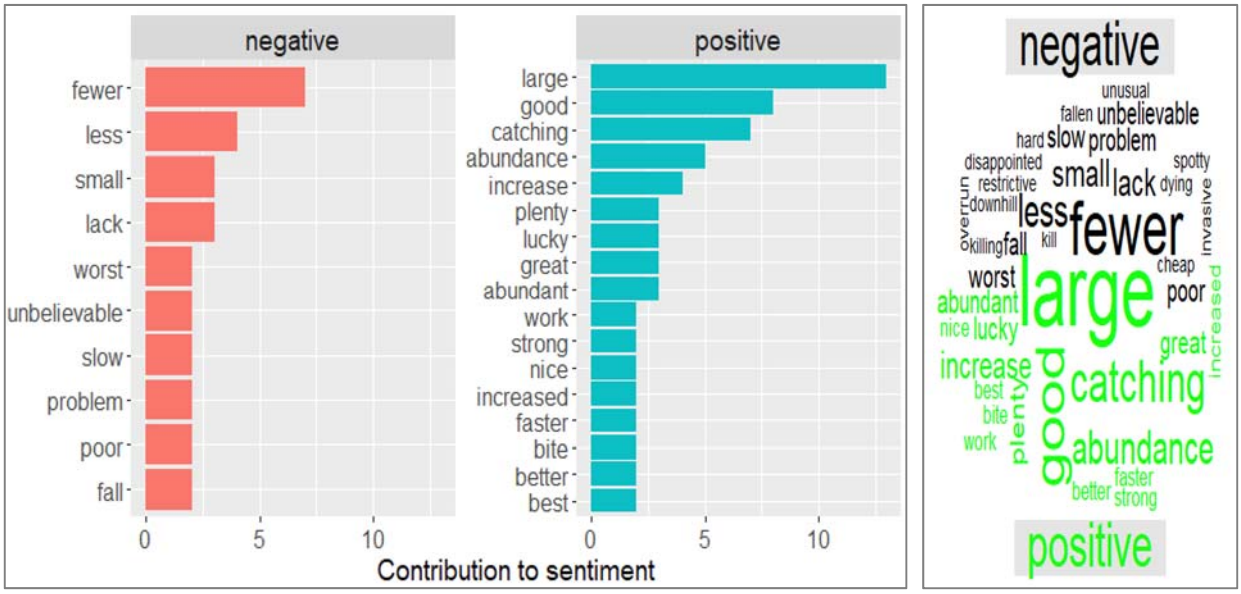

Figure 5: Most frequent words contributing to comment sentiment identified by automated sentiment analysis

Manual and automated sentiment analysis did not produce the same results. Manual analysis clearly showed a negative perception of stock abundance. It also showed that the negative perception was concentrated off the panhandle of Florida, Mississippi, and Louisiana. Automated analysis indicated a minor trend towards positive comments overall. Location specific analysis was not performed with automated analysis.

These results of Something's Fishy with King Mackerel was submitted to the NOAA Southeastern Fishery Science Center as it updated the most recent Gulf king mackerel stock assessment (SEDAR 38). The information collected through the tool are not intended to be considered as an index for direct incorporation into the 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.