

Sustainable Fisheries in South Eleuthera

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Introduction

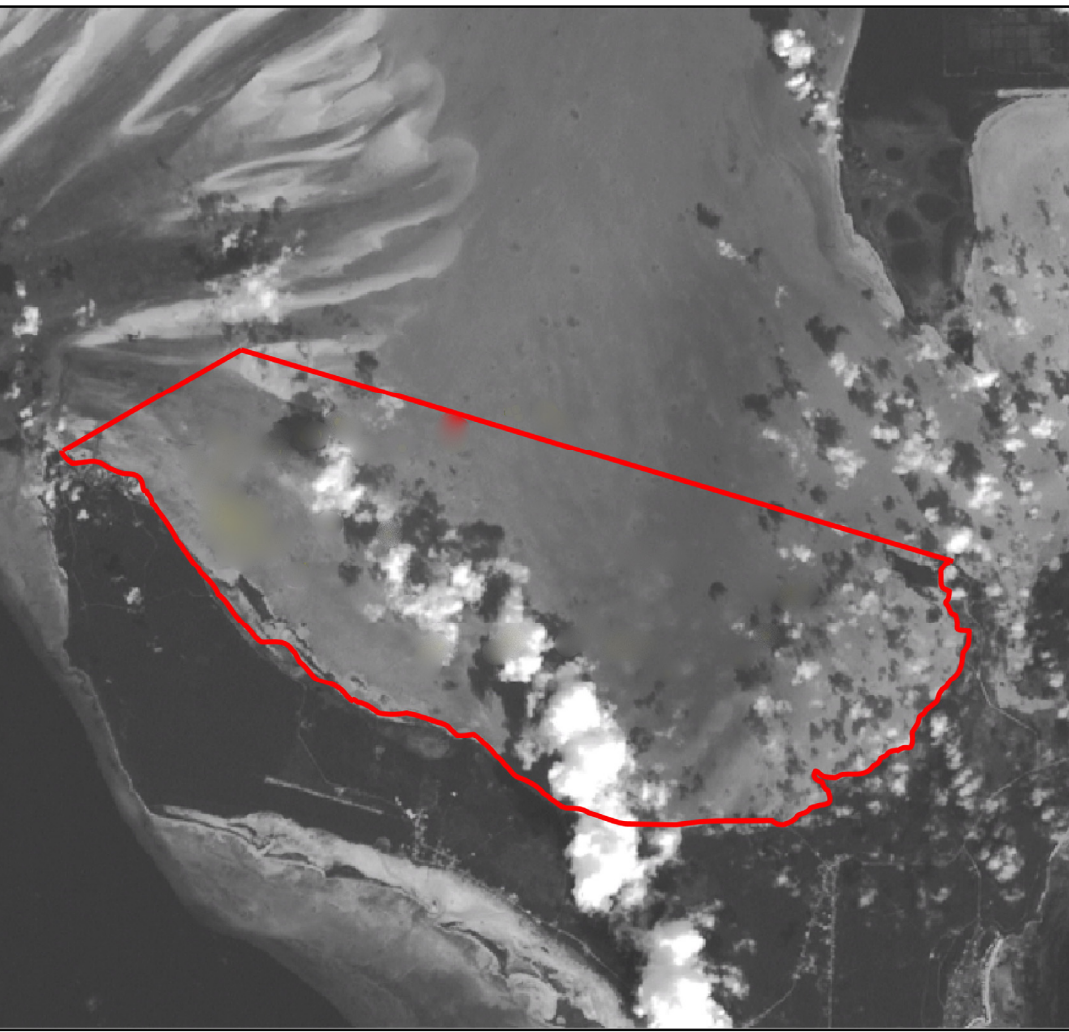


FIGURE 1. The red area shows the proposed marine protected area in South Eleuthera.

Methodology

Surveys: We orally administered the surveys to the people of South Eleuthera by going door to door in the settlements. We strived for valid information and data by repeating Kenny Broad's methods. (Broad 2008).

Semi-Structured Interviews and Participant Observations: Semi-structured interviews we conducted were with the local people, Kenny Broad, and a fishermen in Baja California Sur, Mexico. It was important for us as ethnographers to be able to know the culture well that we are studying through interaction, participation, and observation (Spradley 1980). Our goal was to observe interactions with the sea and its resources. We socialized with the locals of South Eleuthera, conducted unstructured interviews, ate at local restaurants and went spear fishing with a local fisherman from Deep Creek.

Participant Mapping: We also used participant mapping. We asked participants where they were using the sea.

Bias: Our work was biased in some ways. Due to our affiliations with the island school many locals assumed that this research was pro-MPA, but it is neutral. Another area, in which our research could have been biased, was the locals' perceptions of surveys. The final area biased our information was the fact that the SFISE research was conducted by whites from the United States, in primarily black communities of the Bahamas. Whatever the relations of blacks and whites, Americans and Bahamians, these relations, or lack there of, could have influenced our data.

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In Eleuthera today, there is an imbalance of ecological and economic needs. Marine animal biomass of species such as conch, grouper, and spiny lobster, continue to decrease, while fishermen in this area continue to fish. There is a large economic dependence on conch, grouper, and spiny lobster in the Bahamas. Queen Conch species continue to be the second most important fishery in The Bahamas. In addition, grouper is the third most important species for commercial fishing in the Bahamas (Chiappone and Sullivan Sealy 2000). Furthermore, regulations for these fisheries are being ignored. The large amounts of juvenile conch found, as well as the number of grouper caught during spawning season, are evidence of this (Danylchuk 2003). In addition, there is currently a scarcity of available up-to-date information on the species in that area and the human interaction with these species (Sovacool 2009). South Eleuthera needs a solution that has a balance between human and ecological needs.

A marine protected area (MPA) might be a solution to the problem. A marine protected area is any area in the ocean that protects the environment and species within that area by law or other agreements (Department of Marine Resources 2005). There is currently a proposed MPA located outside South Eleuthera in its planning stage (Danylchuk 2003).

The purpose of this project was to analyze South Eleuthera's interactions with and opinions of the sea. We wanted to find out how an MPA could potentially affect the people of South Eleuthera. We investigated the frequency and location of use of the sea by the people of South Eleuthera, as well as their knowledge, understanding, and opinions of the sea. This information could help those planning the MPA in South Eleuthera make responsible decisions that will create a positive and effective solution.

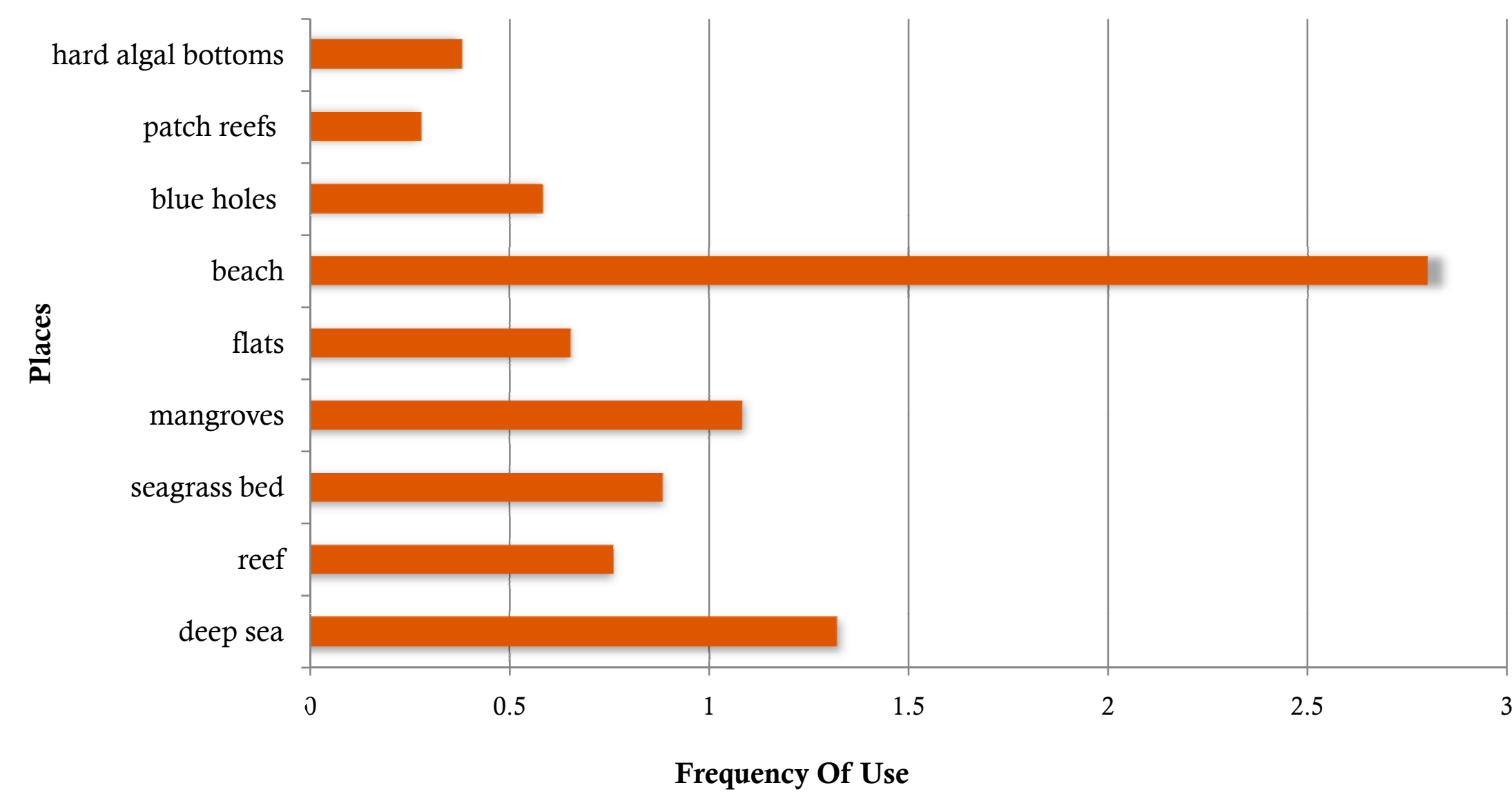


FIGURE 2. This graph illustrates the frequency of which people visit different places in the marine environment on a scale of 1 to 5. Rate frequency: 0 – never, 1 – once or twice a year, 2 – few times a year, 3 – once or twice a month, 4 – once or twice a week, 5 – more than twice a week.



FIGURE 5. Will Overman and Chamon McIntosh interview a fisherman.



FIGURE 6. Margaux Burnham and Allegra Rumbough interview two locals in Deep Creek.



FIGURE 7. This map of South Eleuthera shows the settlements we administered surveys in: Deep Creek, Wemyss Bight, Waterford, Greencastle, and Rock Sound.

Results

Frequency of Use: Based on our data collected we have formed a series of results. We looked at the average time that participants visited each of the different marine environments. The environment most frequently visited is the beach (FIGURE 2).

Consumption: While looking at our consumption data we concluded that conch and spiny lobster are being consumed on the largest scale. A large majority, 37% for local and 29% for national, did not know what the general condition of the marine environment was.

Perception: We asked the survey-takers what they believed the biggest marine environment problem was, 28%, believed that chemical use and pollution were the most pertinent problems. We also found that there was a trend between what the opinions of the general conditions of the local marine environment and the opinions of the fishing level in local areas (FIGURE 3).

Opinions: The majority, 40%, of those who didn't know what the marine environment conditions said they believed the fishing level was high in their area. 56% of those who said that the condition of the marine environment was fair said they believed that fishing was the correct level. The majority of those who said that the condition of the marine environment was very good, 50%, believed that the current fishing level in their local area was high. A large majority of the fishermen that we interviewed believed that there is not enough enforcement of the sea in their area. In contrast, the remaining people we surveyed did not know what they believed about the enforcement of the sea. Of the fishermen that we interviewed, their responses were divided about whether or not there should be a marine reserve in South Eleuthera, while 45% said that there should not be a marine reserve in the area (FIGURE 4).

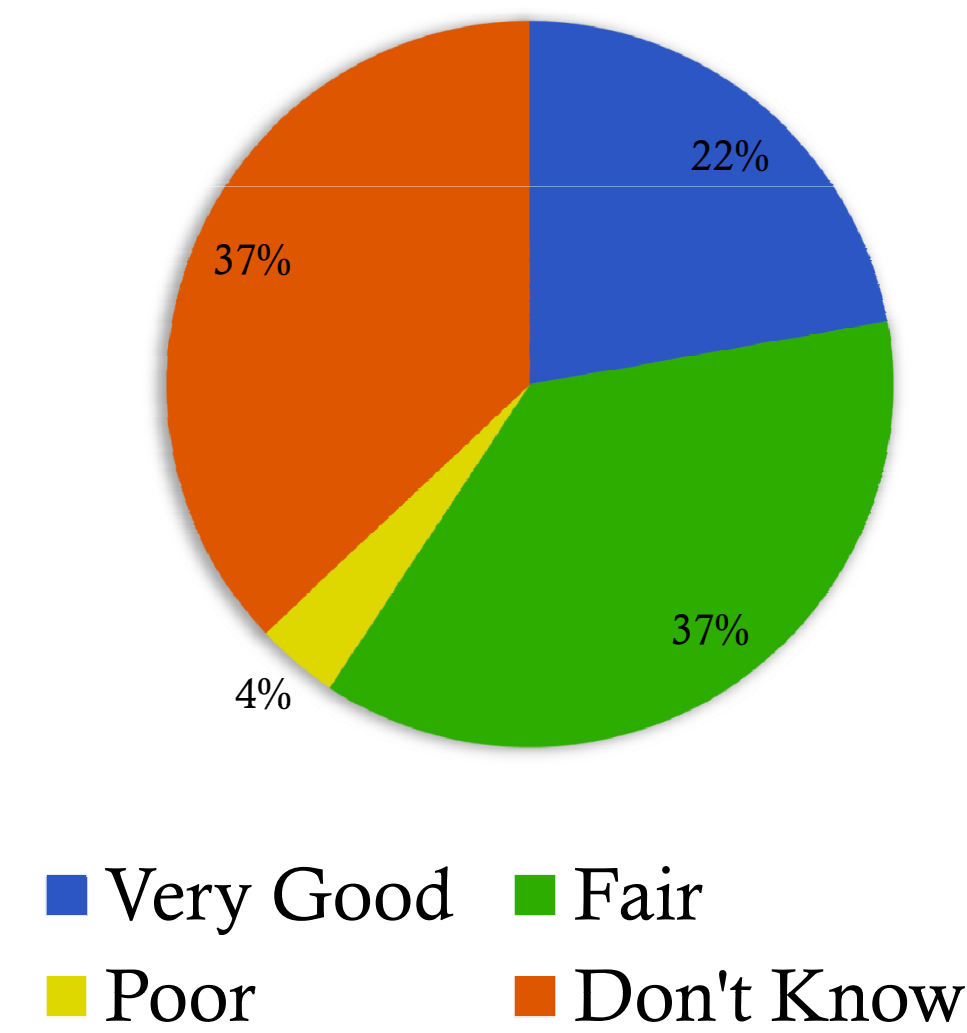


FIGURE 3. This pie chart illustrates the opinions of the conditions of the local marine environment.

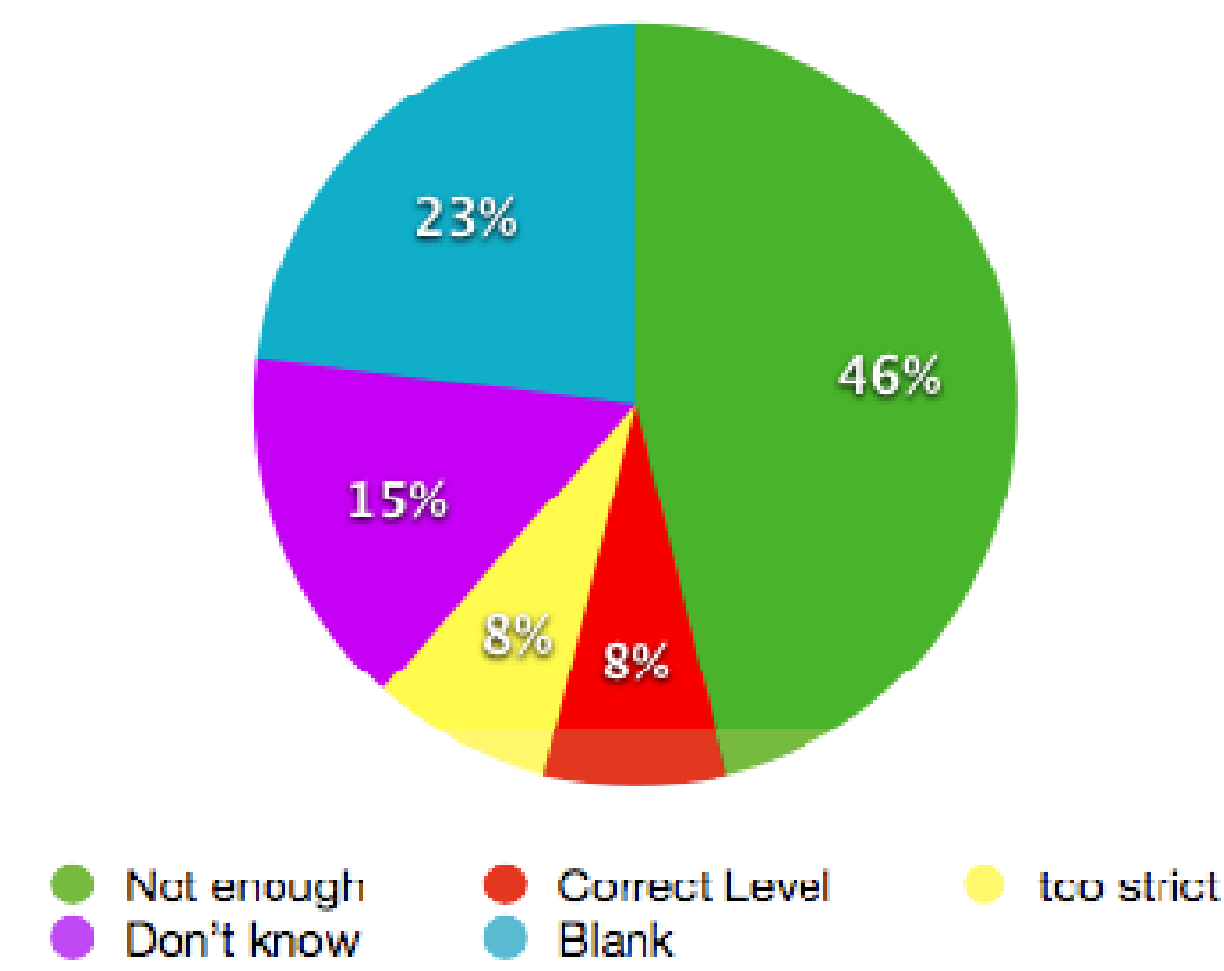


FIGURE 4. This pie chart shows fishermen's opinions towards the implementation of a restricted area in their local marine environment.

Discussion

The results show a lack of information among the local people concerning the marine environment. While we have evidence to suggest a decrease in many fish populations (Danlychuk, 2003), our data (Figures 3) shows that a large percentage of people surveyed, do not know what the condition of their local marine environment is. This lack of knowledge may be a reason why the proposed MPA in 2000 was stalled.

Using Systat, we compared education, age and occupation as category variables versus whether or not each respondent was in favor of an MPA and their opinion of local enforcement as string variables. Unfortunately, with our small sample size of just over thirty surveys, the P value under 1.0 in every test, which is too low to add significance. However, there are important trends visible through graphing that give insight into what data points may be significant for future semesters, once more surveys are obtained.

Our findings help understand the problem of overfishing and the destruction of the ocean in South Eleuthera, as well as the Bahamas as a whole. We could use our results to inform the government of the local's opinions and perspectives about their marine habitat and no take zones. This could result in improved marine management and sustainable fishing in the local area. One way to improve our project would be to make information available for locals on MPAs so that they can understand the problems they face in the community.

Acknowledgements

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