Understanding shifts in subsistence fishing behavior and seafood consumption during the COVID-19 pandemic in The Bahamas

Comprensión de los cambios en el comportamiento de la pesca de subsistencia y el consumo de marisco durante la pandemia de COVID-19 en las Bahamas

Comprendre les changements dans le comportement de pêche de subsistance et la consommation de fruits de mer pendant la pandémie de COVID-19 aux Bahamas

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EXTENDED ABSTRACT

Subsistence fishing has played an integral role in sustaining island communities for thousands of years, especially small islands with limited terrestrial resources (Keegan et al. 2008). While island communities have historically relied on subsistence fishing to meet their food needs, this has declined with the growth of modern agriculture and increased food imports. The coronavirus (COVID-19) pandemic produced abrupt changes in socio-ecological systems on islands, especially the associated shocks to food supply chains, causing many to turn to the sea.

During the pandemic, subsistence fishing was one of the few activities allowed during the lockdown restrictions in small-island countries like The Bahamas, leading to a surge in the number of fishers engaging in small-scale fishing. One well-monitored fishery saw catches of queen conch increase three-fold above background catch levels, along with an increase in illegal fishing activity (Higgs 2021), suggesting a reliance on marine resources as a safety net during times of crisis (Bene 2020). This preliminary evidence not only demonstrated rapid increases in subsistence fishing activity coincidental with the pandemic, but also indicates that subsistence fisheries may have played an important role in mitigating the worst of the social impacts of the pandemic. Despite this, social research had not been conducted to elucidate the actors, drivers, and motivators of these changes.

This project focused on gathering information on subsistence fishing from residents in settlements across New Providence and Eleuthera. Using surveys and semi-structured interviews, data was gathered on 3 key aspects: (1) challenges of the COVID-19 pandemic to food-security, (2) fisher behaviors and motivations, and (3) community perceptions of subsistence fishing. By connecting the social dimensions of the pandemic with traditional fisheries data information, we hope to gain a better understanding of how humans interact with their natural environment during social disturbances.

In May 2023, an online survey was created to aid in understanding food security challenges during the pandemic, as well as to understand changes in fishing behavior and seafood consumption. The survey collected information on socioeconomic info and livelihood characteristics; fishing effort and estimated catch; and harvesting practices and seafood consumption using a Likert scale or as single-answer multiple-choice. A link to the survey was shared via email, whatsapp, and social media, with respondents identified via snowball methodology (Singleton and Straits 2010). The survey was open from May 13th – June 30th, 2023. A total of 29 surveys were collected.

Semi-structured interviews were conducted with community members in settlements across both Eleuthera (May 8th – 15th, 2023) and New Providence (May 29th – June 5th, 2023). These interviews were utilized to gain additional insights into the livelihood challenges of COVID-19, changes in fishing behaviors, motivations for making changes, and perceptions on regulations, benefits of ocean resources, and impacts to the fishery. Respondents were identified by traveling to busy areas in different settlements such as fish markets, local restaurants and bars, boating docks and launching areas, beaches, etc. Additionally, interviewees would also suggest other potential respondents to connect with. Interview responses were transcribed and coded using an inductive qualitative data analysis methodology to identify general themes and patterns within the responses. A total of 71 interviews were conducted.

The interviews helped to highlight the difficulties in sustaining a livelihood brought on by the variety of social protection measures that were put in place to help stop/slow the spread of COVID-19. Family Islands, like Eleuthera, were hit the hardest, as they are highly dependent on weekly food shipments from New Providence, and the country, as a whole, imports over 90% of its food. Issues in the supply chain trickled down to the more rural islands and created a greater crisis related to how they would continue to feed their families. Many of the respondents on Eleuthera shared that they turned to the strategies used by their parents and grandparents by fishing and crabbing regularly, as well as backyard farming, to supplement their food needs. However, this was made more challenging by a larger police and military presence on the island, with increased patrols to ensure people were staying at home. Yet, respondents mentioned finding ways around that enforcement to ensure they were getting the fisheries resources they needed to survive.

While respondents on New Providence similarly dealt with challenges arising from the supply chain issues, closure of businesses, and a pause in tourism, they also dealt with shutdowns of their major fish markets and a rise in seafood prices. Despite this, respondents were able to find other ways to attain their seafood. Although not as many were directly fishing, as was seen in Eleuthera, they did work with commercial fishers who were still in operation to create new ways to sell and deliver fish that weren't tied to the physical fish market locations.

Overall, respondents from both islands indicated that their default reaction when struggling to provide for their households was to turn to the ocean and its resources. They view these fisheries resources as plentiful, low cost to obtain, and available to them by right as Bahamian citizens. They also shared that while they believe these resources can be used to supplement food issues during times of crisis, there is more the government could be doing to not only protect the fisheries from harmful practices, but also to create long-term sustainability.

Survey respondents were primarily residents of Nassau (62%), women (76%) and between the ages of 26 to 35 years old (55%). Additionally, 83% of respondents were Bahamian citizens with 79% having attended college and our grad school and 35% working in Tourism and Hospitality. Respondents also lived in households with 2-4 people. Regardless of the size of the household, typically 2 of the people in the household contributed to the household income.

The survey results indicated that the largest impacts of the COVID-19 pandemic to livelihood were related to work. This included most respondents become remote workers or seeing a decrease in their work hours. Additionally, for many of the respondents, fewer family members were able to work and contribute to the household income. Although most respondents reported that the social protection measures did not affect their ability to obtain enough food, some felt that their ability to obtain preferred foods or brands was affected. In order to obtain enough food during the pandemic, respondents reported that their main strategies were reducing purchases of non-essential or luxury items, using their savings, and fishing to supplement their food needs.

The survey results also demonstrated that there were changes in seafood consumption during the pandemic. Whether respondents increased or decreased their consumption depended primarily on the source of their seafood. Those respondents who decreased their seafood consumption typically relied on grocery stores as their source. However, during the pandemic, grocery stores were limited in their availability of canned and fresh seafood, and any fresh local seafood they had available were more expensive. Other reasons for a decrease in consumption included the inability to visit local fishers, takeaways, and restaurants due to COVID protection measures; the price of available seafood; and the inability of the Family Islands to import fish from New Providence. On the other hand, those respondents who ate more seafood shared that it was because they found it easier to eat fresh, local fish due to easier access to it and its availability. Additional reasons for an increase in consumption include discovering alternative methods for getting seafood in places where the fish markets were closed and closures allowing some people more free time to go fishing.

Findings from this research highlight the importance of incorporating detailed social information with fisheries data to help plan for future shocks associated with social or natural disasters. It also provides evidence to support conservation and restoration of natural resources in support of human well-being and establishes the degree to which small island communities will be able to rely on their fisheries as a safety net in the future. Community members identified several factors they considered when making their prioritizations of the sites. The first was low-hanging fruit, i.e. areas that were easy to access and easy to restore in a short amount of time with little investment. They also mentioned that it was important to focus on areas where re-opening the creeks would help to mitigate the impacts of climate change, restore the levels of connectivity to other habitats and resources, and provide access to underused areas that can be utilized when their regular areas became inaccessible due to poor weather or other conditions. Lastly, the wanted to prioritize areas that were highly visible to other members of the community, indicating that this would help with increasing community involvement, engagement, and awareness related to mangrove importance and restoration.

Participants were also invited to share any other factors that should be considered as the project progresses. There were several emerging themes that came from this discussion. Many attendees shared that there have been notable changes in the creek ecosystems in a relatively short time period. They also spoke about wanting to return these areas to their previous states so that their children can have the same experiences they did. Attendees also believed education and engagement on the importance of these local natural resources would be key for Androsians and that transparency, both in terms of providing awareness to the community and in gaining and maintaining support from the government and donors, would be critical for the project's success. The community members also recognized that fundraising would be necessary to complete this work. Several mentioned that although the scale of the project is large, raising funds for it seemed feasible as there was already potential donor interest, particularly from bonefish tourists who regularly vacationed in Andros. Additionally, attendees also discussed that everyone in the community can and should contribute to this effort in some way. The last major theme that was woven throughout all of the discussions was on of connectivity. Attendees viewed restoration of the creek areas as critical for maintaining connectivity. They spoke about several aspects of connectivity, including biological, ecological, and social. They noted that ecosystems on Andros provide nurseries

that support many of the important fisheries throughout The Bahamas and those same ecosystems are linked to resources in other countries throughout the Caribbean. To paraphrase one attendee: Andros is the "heart" of The Bahamas ecologically and the blocked creeks are liked blocked arteries. Stakeholders also spoke about connectivity in the sense that visibility and success of this project will encourage other Bahamians throughout the country to care for the natural resources.

KEYWORDS: Subsistence Fishing; Interdisciplinary; COVID-19; Resilience; The Bahamas

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