

Exploring the effects of a warming ocean on mid-coast Maine lobstermen **Meghan Gonzalez, Class of 2023**

A lobsterman's day starts promptly before the sun has even kissed the horizon. My Wednesdays this summer fell into this rhythm while working on *Family Condition*, a lobster boat out of Cundy's Harbor. The state of Maine is unique for many reasons: it sees the first rays of sun in the US, its coastline is over thirty-five hundred miles, and has world-renowned lobsters. Part of the success of the lobster fishery is the management and conservation initiatives of the Department of Marine Resources. These regulations are in place to protect endangered species and stabilize lobster populations. Yet, the rise in sea temperature in the Gulf of Maine at record rates has altered lobster populations and migration patterns. This abrupt change may threaten the ecosystem that sustains the lobster industry.

I became intrigued by the gulf's warming and the potential impact on lobsters while I was completing a GIS research project last fall. The project helped me understand the quantitative side of the environmental changes and conceptualize the recent lobster "boom" associated with the warmer waters. The warmer waters are beneficial for juvenile lobsters and have altered migration patterns and shedding seasons. The increase in water temperature is just one of the many pressures the industry is currently facing along with federal right whale regulations and offshore wind projects.

The Pejepscot Historical Center in Brunswick was a valuable resource for archival research. I explored the online archives for all things local lobstering. I found hundreds of pictures and artifacts dating back to the early twentieth century such as 1990s Cook's Lobster House menus and 1974 film of trap hauling. This research helped me understand how lobstering continues to evolve over time. I collected several photographs of locations around the Harpswell area from the mid 1900s and visited and documented how they appear today. I then conducted several semi-structured interviews with local lobstermen (Cundy's Harbor and Kennebunk), researchers (Maine Center for Coastal Fisheries), and Holbrook Community Foundation board members. The interviews averaged 20 minutes in length and covered topics such as family ties to lobstering, community engagement, and recent ecological and environmental changes. In addition to the interviews, I conducted participant observation on Gary Hawkes' lobster boat, *Family Condition*. I observed how Gary Hawkes and his sternmen, also known as deckhands or aftsmen, Sean and Gavin haul, bait and set traps. I spent long days on the water with the men and banded each legal lobster after measurement. I documented, through note-taking and video, the process of lobstering from start to finish. I learned about the breakaway links that are in place to limit whale entanglements and the various kinds of bait used in the traps.

The conversations and time I spent with the coastal Mainers made me aware of the more pressing threats to the industry besides the warming ocean. The lobstermen are aware of the changing environment and have witnessed it altering the ecology of the gulf but have only experienced benefits so far. The warm water has increased the grounds for juveniles thus causing a boom in population sizes. However, right whale regulations are closing valuable offshore fishing grounds and proposing rope-less trap initiatives. Gary Hawkes is a second-generation lobsterman with four children who are all engaged in lobstering in some way. He believes that his children will pursue this work even with these encroaching regulations. While Chris Welch, a lobsterman out of Kennebunk, is more hesitant about what the future holds for his two young children lobstering. For he is concerned the fishery will become dominated by large commercial vessels because of changes to trawling regulations.

By examining how local lobstermen approached their work, I sought to understand how lobstermen's past experiences shape their view of the future for lobstering. Everyone had varying scales of how climate uncertainty paints a picture for the future. For Gary, generational success in the industry perpetuates future desires. Even with the best knowledge and with generations of experience, a lobsterman cannot be successful if the grounds he fishes on become restricted. The fishery's future is no longer in the hands of the lobstermen but with uncertain external forces. I plan to continue this research into my senior year as an honors project.

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