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# Fishermen's Views of a Changing Ocean

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# Introduction and summary

When we think about climate change, we tend to think of it in terms of future impact. The commonly accepted target among scientists and climate activists is that society must keep global temperatures from rising more than 2 degrees Celsius by 2100. The U.S.-China Joint Announcement on Climate Change and Clean Energy Cooperation issued in November 2014 hinges on our reducing emissions 26 percent to 28 percent below 2005 levels by 2025, while China will level off its greenhouse gas emissions by 2030.<sup>1</sup> Projections of sea-level rise as a result of climate change vary widely but are typically discussed in terms of 50- to 100-year outcomes.

As a result, the narrative of what to do about these changes is driven not by current observations but by future projections—an inconvenient truth for climate hawks but an entirely convenient one for those with an interest in maintaining our current reliance on fossil fuels. The resulting political conversation is shaped by entities, primarily those—such as the coal and oil lobbies—with a vested financial interest in the status quo, which are allowed to establish a strong case for doing nothing based on a few uncertainties and doom-and-gloom economic projections. They claim that limiting carbon pollution will put miners out of business from West Virginia to Wyoming. They claim that electricity costs will skyrocket and that service will be spottier to boot.

But for commercial fishermen,\* climate change is not a future economic problem: It is a problem right now, and it is costing fisherman both income and jobs. While the fossil-fuel lobbies and their political allies craft predictions of certain economic doom if meaningful limitations on carbon pollution should someday find a firm foothold in public policy, those who make their living from the ocean are already bearing the cost of delaying such action.

\* It is the author's experience that, regardless of gender, individuals who catch fish for a living prefer to be called "fishermen" or "lobstermen" rather than "fishers" or other gender-neutral terms. As such, these terms will be used throughout this report to refer to both women and men.

The profession of fishing is often multigenerational, with knowledge typically passed down from parent to child to grandchild. The combination of constant exposure to all kinds of weather; the consistent logging of data in the form of catch totals and locations; and a seemingly imperceptible understanding of life over, on, and beneath the waves puts fishermen collectively in a unique position to assess the ecosystems that sustain their livelihoods and that, in turn, nourish the rest of us.

Spend time on the bridge of a boat from which people still hunt giant tuna with harpoons, and you'll observe a captain who can sense a ripple on the surface of the ocean almost before he sees it, practically intuiting the telltale sign of a bluefin. Watch a lobsterman turn off her GPS and navigate to her buoys by memory of wind, waves, and currents alone. Sit in a waterfront diner and listen to the fish stories. They're not all about the ones that got away; these days, they're all too frequently about the ones that disappeared and never came back. These stories can help illuminate the challenges we all face as a result of runaway carbon pollution and global climate change.

Ocean warming and acidification—arguably the two most dramatic effects of climate change on oceanographic conditions—are already wreaking havoc on those who make their living from the sea. Oyster aquaculture operations in the Pacific Northwest are struggling to maintain productivity in waters that operators have farmed for decades but that are now too acidic for oyster spat to form their shells.<sup>2</sup> Blue crabs, the iconic species of the Mid-Atlantic's Chesapeake Bay, are facing a dramatic decline in population, even as they are beginning to show up in greater abundance in northern waters such as the Gulf of Maine.<sup>3</sup>

More directly relevant to this report is the fact that in the Northeast, lobster populations have been devastated in recent years in the waters of Long Island Sound and off the southern coasts of Rhode Island and Massachusetts. According to the Connecticut Department of Energy and Environmental Protection, from 1998 to 2011, the amount of lobster caught annually in Long Island Sound fell from 3.7 million pounds to just 142,000 pounds, a decline of more than 95 percent.<sup>4</sup> While scientists have not yet been able to confirm the cause of this decline, it is becoming increasingly clear that warming water temperatures are a major factor. The Atlantic States Marine Fisheries Commission, which coordinates management of the lobster fishery, has found that lobsters are “moving to deeper, cooler waters, thereby concentrating their populations in much smaller areas” in southern New England.<sup>5</sup>

To determine fishermen's perspectives on these changes, the Center for American Progress contracted with Edge Research to conduct a survey of New England commercial fishermen in summer 2014.<sup>6</sup> Edge Research completed telephone surveys

of nearly 600 permit holders in the northeast multispecies fishery—better known as the groundfishery because it targets bottom-dwelling fish such as cod, haddock, and flounders—as well as the lobster fisheries in Maine and Massachusetts. The results clearly show that although fishermen generally tend to be politically conservative, they believe climate forces such as ocean warming and acidification are not only happening but also rank among the gravest environmental threats to their employment and the future of their industry and their communities. Here are a few key results from the fishermen surveyed:

- Although roughly two-thirds of them identify politically as either “conservative” or “moderate,” fishermen who say climate change is happening outnumber deniers by four-to-one.
- 65 percent of fishermen surveyed believe climate change could leave them “unable to profit” and ultimately “forced out” of their fishery.
- A plurality—roughly 40 percent—of them believe observed ocean changes are a “bad thing” for their business, while about 20 percent say it’s a mixed bag and just 10 percent think it’s a “good thing,” with the remaining 30 percent unsure.
- 40 percent of groundfishermen, 44 percent of Massachusetts lobstermen, and 63 percent of Maine lobstermen say they have noticed “warmer water temperatures.”
- More than 80 percent of those who have noticed a warming trend attribute it to climate change.
- In ranking the environmental challenges their industry faces, 36 percent of fishermen listed “ocean warming” as a major problem—roughly equivalent to the 37 percent who listed “declining fish stocks,” the 35 percent who listed “bycatch” of nontargeted species, and the 33 percent who listed “overfishing.” “Water quality” came in at 31 percent, and “ocean acidification” came in at 29 percent.
- In each fishery, at least 40 percent say they are catching new fish species in areas where those species have not traditionally been found.
- Fishermen who have been on the water for more than 20 years are somewhat more likely than their less experienced colleagues to perceive climate-related changes as a “serious problem.”

In short, despite a political predisposition that might indicate an unwillingness to acknowledge the science and reality of global climate change, fishermen know that something is happening on the water, and they know it's affecting both of their bottom lines—the one at the end of their bank statement and the one they lower to the ocean floor.

In addition to the results of the polling work, this report also includes the following recommendations for improvements to fishery management and practices in response to a changing climate:

- The Obama administration should request and Congress should appropriate additional funding for ocean observation and baseline scientific research to give scientists, regulators, and industry members a clearer picture of how climate change is affecting fish populations. The National Oceanic and Atmospheric Administration, or NOAA, should also address the issue, prioritizing funding from sources such as the Saltonstall-Kennedy Grant Program and industry funding sources from profitable fisheries, as permitted under the Magnuson-Stevens Fishery Conservation and Management Act.
- Congress should include language in legislation reauthorizing the Magnuson-Stevens Act that directs regulators, including the regional fishery management councils, to work with scientists and industry members to develop a greater understanding of species that have begun to shift their population range beyond traditional areas, including by prioritizing ecosystem-based management methods.
- Regional and interstate fishery managers should establish an annual review of the latest scientific data, including fishery-dependent data such as the amount of fish landed and brought to market, to determine how climate change is affecting the species distribution within and among their areas of responsibility.
- To increase price stability, fishing industry groups—with assistance from the U.S. Department of Commerce—should coordinate efforts to ensure that seafood buyers are confident that as species shift locations, the industry will still be able to provide a consistent supply of product.

The remainder of this report details what is known about oceans and climate change, what is happening in the Gulf of Maine, and how fishermen perceive these challenges. It also provides additional details on the recommendations listed above.

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