Maine isn't doing enough to protect Gulf from effects of climate change

AUGUSTA

Story by **Colin Woodard**/ Staff Writer
Photos by **Gregory Rec**/ Staff Photographer

A lobster boat heads out to sea at Pine Point in Scarborough. Warming temperatures and increased acidity in the Gulf of Maine could have an impact on Maine's $457 million lobster fishery. **Photo by Gregory Rec/Staff Photographer**

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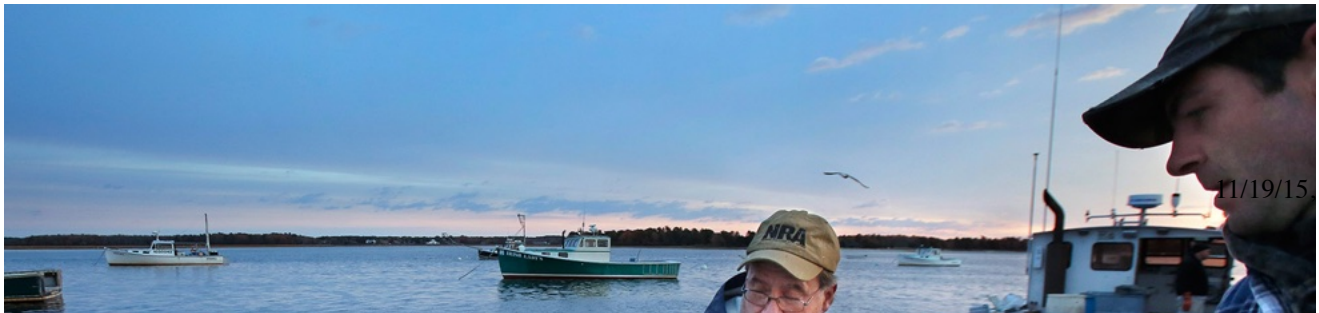
When the Maine Legislature's commission on ocean acidification reported its findings – that the state's fisheries and aquaculture industries were threatened by this baleful byproduct of global warming – officials here were not exactly spurred to action.

Acidification, driven by increased carbon dioxide from the atmosphere and freshwater runoff from extreme rainfall in river basins, has been implicated in failures at oyster hatcheries and mussel farms, and has been shown to weaken clams and other shell-building animals vital to Maine's fishing and aquaculture industries. But bills introduced in the last session – one each by a Democratic marine scientist and a Republican lobsterman – to implement many of the panel's findings were withdrawn, one for lack of resources, the other for lack of support from Gov. Paul LePage's administration.

"I could see the bill wasn't going to go anywhere and that the governor was going to veto it," Rep. Mick Devin, a Democrat from Newcastle, says of legislation he sponsored to allow the commission to continue its work for another three years.

Patricia Aho, who was the commissioner of environmental protection until she resigned in August, opposed Devin's bill, saying the status quo was sufficient. "Since the issues of climate change and ocean acidification are inextricably linked, we think it will be more efficient to consider this issue in the broader context of climate change and adaptation programs," she said in written testimony to legislators.

Devin's bill and another one sponsored by Rep. Wayne Parry, a Republican from Arundel, were carried over to the next legislative session. Parry's bill would have put a bond issue on the ballot that would borrow $3 million to fund several of the expert committee's recommendations: collecting data, monitoring waterways, and performing tests in coastal waters to better assess the impact of acidification on wildlife and commercial fish species. It was withdrawn after failing to make it to the top of an informal list of bonding priorities drawn up by legislative leaders.



Lobsterman Wayne Parry loads bait with his sternman Matt Perry at Pine Point in Scarborough. Wayne Parry, a Republican state representative from Arundel who served on a commission to study ocean acidification, says the commission agreed that there are gaps in the data regarding acidification. He introduced a bill to put a bond issue on the ballot that would borrow $3 million to fund the collection of data, monitoring waterways and testing coastal waters. **Photo by Gregory Rec/Staff Photographer**

The Gulf of Maine has been warming at a rate faster than nearly anywhere else on the planet, and water temperatures in 2012 were the highest in the century and a half that readings have been collected. The impacts, including the retreat of native species, the spread of invaders from more southern climes, and the acidification of seawater, have been substantial and are expected to be more so in the future, as long-term warming trends make 2012-like temperatures the "new normal" by mid-century.

Experts say there's little that Maine or New England can do by itself to address the underlying issue: the continued warming of the Earth because of greenhouse gas emissions from factories, cars, power plants, livestock feedlots and other human activities. Maine produces just 0.32 percent of the nation's greenhouse gas emissions, according to the U.S. Environmental Protection Agency, which works out to about .05 percent of those in the world.

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"We have to pay attention to the factors we can exert some control over and try to identify ones that would produce the best possible return, the best bang for your buck," says Katherine Mills, a fisheries ecologist at the Gulf of Maine Research Institute in Portland, who has studied the effect of warming sea temperatures on salmon and other species.

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"If we limit pollution, if we reduce excess nutrients in our rivers, if we ensure the coastal habitats to be as robust as they can be, that's going to help the system to be resilient," says Matt Abbott, the Fundy Baykeeper at the Conservation Council of New Brunswick, an environmental group. "Even if we don't know exactly what is going to happen, we know changes are occurring and that the system needs to be as robust as it can."

At a local level, scientists believe there are ways to mitigate the effects of one aspect of a warming gulf, ocean acidification.

Eelgrasses and kelps take up dissolved carbon dioxide at a remarkable rate – with almost triple the effectiveness of a similar acreage of forest – and consumes excess nutrients, the two primary drivers of acidification. In doing so, they reduce the acidity of the surrounding seawater, to the benefit of clams, mussels and other creatures living nearby.

The Rockland-based Island Institute, a nonprofit that supports coastal communities, is partnering with a commercial kelp farm off Chebeague Island and scientists at the Bigelow Laboratory for Ocean Sciences in East Boothbay to find out how effective and widespread these benefits can be. This winter – the growing season for kelp – they'll deploy monitoring equipment around one of Ocean Approved Inc.'s first-in-the-nation open-ocean commercial kelp farms. (Disclosure: this reporter is a Bigelow trustee.)

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"You may very well be able to improve the growing conditions for shellfish on a very local level by locating a kelp farm with shellfish," says Suzie Arnold, the marine scientist at the Island Institute who is collaborating on the effort. Kelp, she says, could become "the new kale," a nutritious food source, while improving the environment, the survival of shellfish, and the winter employment opportunities in fishing communities.

Eighty-seven percent of the value of Maine's $585 million commercial fish catch comes from shell-building creatures, including lobsters, clams, scallops and oysters. The federal government estimates the industry supports 33,000 jobs in Maine, roughly half of them ashore.

A line of kelp rises from Casco Bay off the coast of Chebeague Island as part of a kelp farm operated by Ocean Approved. In 2014, researchers placed monitoring equipment around the kelp farm to see if the kelp's ability to absorb carbon dioxide and consume excess nutrients would reduce the acidity of the surrounding sea water, which would benefit shellfish living nearby. **Photo by Gregory Rec/Staff Photographer**

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Those on the front lines of acidification are frustrated that the state government isn't doing more.

"Maine's resource industries are what defines the state, and it totals up to a lot of money," says Bill Mook, founder of Mook Sea Farms, who watched acidic water devastate crops of newly hatched oysters. "It boggles my mind that as a state we wouldn't act on bills that would give us some idea of what businesspeople like me will be facing."

The ocean acidification commission, a panel of scientists, fishermen, aquaculturists and legislators that studied the problem, issued a range of recommendations, many of them focused on the collection of data that will help assess more precisely what the impacts are and will be on key species. The "most alarming" finding, their 122-report stated, was "how much we do not know about ocean acidification and how it will affect Maine's commercially important species."

"We're far more dependent than at any other time on lobsters, for instance, but we don't know what the pH is in the important coastal regions where the juvenile stages of development and settlement of lobsters occur and how it affects their survival," says state Sen. Chris Johnson, D-Somerville, who co-chaired the commission with Rep. Devin. "We can't wait until we have a collapse of an economically important species for our industry. We need to be working now on how to test mitigation strategies and build our monitoring."

Parry, the lobsterman legislator who sponsored the acidification monitoring bond, agrees. "The biggest thing we learned on the commission was that we don't have enough data," he says. "I'm normally not a bond person, but we need to be able to get the equipment so that we can have continuous, real time monitoring so we can determine what is what. It's very important for the survival of all Maine fisheries."

The DEP, asked to substantiate why it believes existing programs are sufficient to deal with the problem, sent the Press Herald a five-page summary of its programs that touch on climate change, including providing technical assistance for eelgrass restoration in Casco Bay, the routine collection of discharge data from polluters, participation in the acidification commission's meetings and the Regional Greenhouse Gas Initiative, a multi-state effort to reduce carbon dioxide emissions.

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Asked to comment on the DEP summary, Sen. Johnson said "it's suggesting that what we're doing already is good enough. That is not the case."

The administration, he said, left a number of key goals unaddressed, including identifying and reducing acidification-causing nutrient pollution from unpermitted sources, stepping up ocean chemistry monitoring, or creating a body that can coordinate the necessary work.

"None of the departments have stepped up to embrace the need for an entity that will move things forward so we don't just wait for something to happen," he says.

Mick Devin, a marine lab manager and Democratic legislator from Newcastle, says such an entity is vital. "Without a formal committee, none of this is going to be a priority," he says. "Our state government needs to take the lead on this, because we're not going to have a federal response on this at this time."

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Nick Ports of Basket Island Oyster Co. scoops up oyster seeds aboard a raft off the coast of Yarmouth. Increased acidification in the Gulf of Maine has made it necessary to raise oysters from larvae to seeds in hatcheries because the acidity dissolves the shells the larvae develop. **Photo by Gregory Rec/Staff Photographer**

The state of Washington has taken the lead in confronting ocean acidification, which threatens its $270 million shellfish industry. Its blue-ribbon panel released findings in November 2012, which helped inform the Maine commission's study. The day it released the report, Gov. Chris Gregoire ordered state agencies to take steps to implement it and called for increased investments in scientific research and efforts to curb nutrient runoff from land.

California convened its own ocean acidification panel in 2012, which has since been joined by the governments of Oregon, Washington and the Canadian province of British Columbia and is now a vehicle to study the issue and build political momentum up and down the West Coast to address the issue.

Maine DEP spokesman David Madore said the administration has also made steps to address other aspects of climate change, highlighting the work of the Environmental and Energy Resources Working Group, an interagency panel convened by LePage and chaired by Aho. That group issued a report in September 2014 recommending its work should be continued to coordinate action and the implementation of 31 other specific recommendations, four of which appear to bear directly on climate change effects on the gulf.

More than a year later, however, the group has not reconvened. Madore said Aho "had a timetable to restart and expand the Working Group" beginning this fall or winter, but that those plans had been put on hold after her departure last month. Acting commissioner Avery Day is "aware of the importance of this work going forward" but "has not formalized any schedule for implementation."

Two of the four actions directly related to the gulf – the development of a $26.9 million bond issue to repair, replace and upgrade failed septic systems and commercial discharge practices and the creation of new water runoff models for the state – will be acted on once the group reconvenes, Madore said. A third – increasing stormwater assumptions in culvert replacement rules – was implemented this August, he said, backed by $800,000 in grants to help pay for new projects.

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The other directly relevant recommendation – to assist fishermen in adapting to climate-induced changes in fish stocks – falls under the Department of Marine Resources' jurisdiction. In a written response for information on how this was being implemented, a department spokesman cited the department's efforts to develop regulations for the fishing of black sea bass, its support for confronting the green crab explosion (including the fencing of clam flats and the convening of a summit on the issue), and the ongoing development of a long-term lobster fishery management plan.

The spokesman also said the department "remains committed to participating in ongoing discussions and supporting efforts by organizations that are targeting" ocean acidification.

U.S. Rep. Chellie Pingree, a Democrat representing Maine's 1st District, has introduced federal legislation directing the National Oceanic and Atmospheric Administration to assess the likely impacts of acidification on individual coastal communities and identify gaps in knowledge. Her staff said the bill's short-term prospects were dim because the Republican leadership of the U.S. House had little enthusiasm for funding climate-related research.

"I'm really quite concerned about ocean acidification and its impact on the Gulf of Maine," Pingree said in a statement. "We need more information, more research and we need to be much better prepared."

Parry, the Republican state representative from Arundel, put it this way in his testimony: "We can say it's mostly from airborne CO2, but we here in Maine are not going to stop China and India from polluting."

"If there are things we can do here in Maine," he told legislators, "we should try."

Colin Woodard can be contacted at 791-6317 or at: cwoodard@pressherald.com
Twitter: WoodardColin

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