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Atlantic
Arc project](#)

UNH Professors Study Arctic Fishing Communities on Ice

NSF Grant Boosts Total Funding to \$1 Million

By *Tracy Manforte*
UNH News Bureau

DURHAM, N.H. -- Dwindling fish stocks and catch limits have threatened the livelihoods of Northeast fishermen for the last decade. From Point Judith, R.I., to Rockland, Maine, the industry is an integral part of the local economy. But what happens to communities much farther north? What happens when fishing fails them?

With the help of a \$640,000 grant from the National Science Foundation, University of New Hampshire sociologists Lawrence Hamilton and Cynthia Duncan are studying those and other related questions in the North Atlantic Arc. Communities in Greenland, Iceland, Newfoundland and Norway have depended on fishing for centuries, Hamilton explains, but a combination of over-fishing and environmental change has led to crisis times. Now governments, families and individuals struggle to adapt.

Coastal New England towns have diverse economies with many alternatives to fishing. But farther north in the Atlantic, economies are less diverse, Hamilton explains. Hundreds of places in Newfoundland, Iceland, Greenland and Norway were settled primarily for cod fishing, and fisheries still provide their main livelihoods. In Iceland, for example, an estimated 45 percent of the Gross Domestic Product comes from fishing.

Hamilton and Duncan have joined marine biologist Richard Haedrich, of Memorial University in Newfoundland, to study what happens when such contemporary societies experience, and must adapt to, large-scale environmental change and new global markets.

"In these remote communities, people have always pieced together livelihoods -- fishing, farming, or work in the woods," says Duncan. "They have been extremely isolated and, at times, literally cut off from the rest of the world by ice in the winter."

Their research includes documenting life histories of individuals and fishing families, compiling

socioeconomic data on hundreds of fishing-dependent communities, and documenting biological processes and shifts in ocean climate. "We're linking social changes with marine biology to learn about the interactions between human and natural systems," says Hamilton. "In a sense, we're shining a light under the water."

The North Atlantic Arc project began in 1996 with a \$370,000 NSF grant. This most recent award brings total funding to more than \$1 million, and allows research to continue another four years.

As the underlying environment changes, we are interested in what adaptation efforts succeed and under what conditions," he says. "Environmental changes, particularly with respect to climate and resource decline, will be felt by a growing number of societies, including our own, in the decades ahead."

So far, researchers have found a series of changes, both demographic and economic. For example, populations in small villages are shrinking, while regional hubs are expanding. The catch-of-the-day in many places has shifted down the food chain from cod to invertebrates such as shrimp, whose harvesting sometimes requires bigger boats, more technology and fewer people, Hamilton explains.

The researchers have also identified sociological changes, especially among generations of fishing families. Today's fisherman are more politically sophisticated, better educated on fishing technology, the environment and conservation of resources, says Hamilton.

Forced adaptation may include incorporating more business-like practices for those who stay and outmigration for many others, adds Duncan.

The goal this year is to gather marine biological data and begin to link changes under the water with human changes already documented on land.

For more information about the North Atlantic Arc project, visit the website at <http://pubpages.unh.edu/~lch/naarchom.htm>.

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