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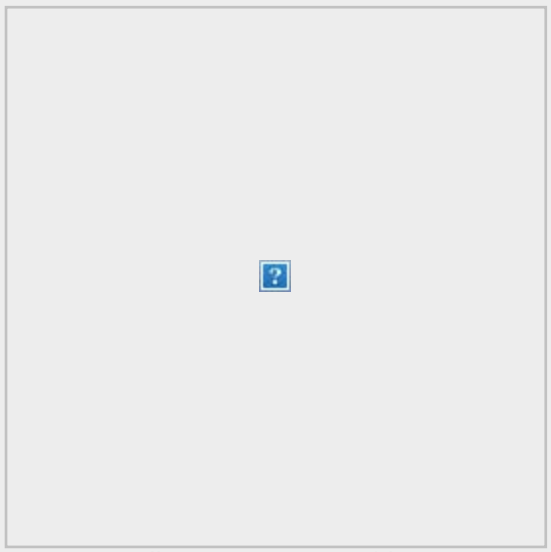

Water sampling at New Hampshire's Lonesome Lake, with the frosted eastern ridgeline of Franconia Notch in the background.
Credit: Kelly Anderson.

DURHAM, N.H. – Researchers at the University of New Hampshire have received $400,000 from the U.S. Environmental Protection Agency to continue monitoring lake acidity in the Northeast. The funding is the final installment of a five-year, $1.1 million grant to assess the effectiveness of the Clean Air Act Amendments of 1990.

These 1990 amendments aimed to reduce acidic deposition to lakes and streams by regulating sulfur and nitrogen emissions, largely from coal-burning power plants. Called acid rain, these acidic inputs have been blamed for fish kills and fishless lakes. This grant funds the scientific assessment of the legislation's effectiveness.

"We're helping determine whether the billions of dollars industry spent to comply with the Clean Air Act have produced the desired results," says UNH affiliate professor Steve Kahl, who is working with professor Bill McDowell and senior laboratory technician Adam Baumann, all of the department of natural resources and the environment.

The answer, says Kahl, is a qualified "yes." Monitoring more than 100 lakes from the Adirondacks to Maine, researchers have found that there are now fewer than half the number of acidic lakes compared to 20 years ago. "We have seen some recovery, but we are not back to what anyone would call a full recovery," says Kahl, who cautions that a return to more coal-fired power would result in a return of acid rain.

Particularly compelling is the recovery of high-elevation lakes in Maine and New Hampshire, which the researchers call "canary lakes" for their capacity to serve as early warning indicators to stressors like acidic deposition and climate change. Their remote location, generally far from development, and their often steep rocky watersheds give these lakes a "cleaner" signal, absent of human impacts other than acid rain.

Baumann, who is collecting data from these high-elevation and remote lakes in partnership with the New Hampshire Department of Environmental Services, says some have shown a dramatic response to reduction in acidic deposition. "The acid rain was what caused some of these lakes to be acidic. The Clean Air Act Amendment helped reduce acidity in precipitation, and the pH went right back up in the lakes," he says. "We have shown a direct response to a

federal regulation that improves water quality."

"We want to have the chemistry of lakes recover to the point that any lake that should be supporting fish can," adds Kahl.

Kahl also notes that the depth and breadth of this lake monitoring data – much of it spans 20 or even 30 years from the Adirondack Mountains to eastern Maine – is especially important because it may shed light on new challenges, like climate change. "Lake chemistry is an indicator of changes in ecosystems," he says. "By choosing the right variables to measure, we can document changes in watersheds or threats to ecosystems caused by a wide variety of changes."

The University of New Hampshire, founded in 1866, is a world-class public research university with the feel of a New England liberal arts college. A land, sea, and space-grant university, UNH is the state's flagship public institution, enrolling 12,200 undergraduate and 2,200 graduate students.

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Photographs available to download:
http://www.unh.edu/news/cj_nr/2009/oct/22epa_01.jpg
Caption: Water sampling at New Hampshire's Upper Carter Pond, with Wildcat Mountain rising dramatically from the western shore.
Credit: Kelly Anderson.

http://www.unh.edu/news/cj_nr/2009/oct/22epa_02.jpg
Caption: Water sampling at New Hampshire's Lonesome Lake, with the frosted eastern ridgeline of Franconia Notch in the background.
Credit: Kelly Anderson.