SCIENCE IN THE REGION

Science TO RESULTS
Using science to create a healthier environment

NEW ENGLAND Lakes & Ponds Project

U.S. EPA | SCIENCE AT THE EPA NEW ENGLAND REGIONAL OFFICE

SCIENCE *lies at the heart of the mission of the U.S. Environmental Protection Agency (EPA). The Agency must rely on cutting edge research, accurate measurements and effective technology to implement its programs to protect the environment and human health. Without sound science and credible data, EPA can not wisely set environmental and health standards, clean up contaminated sites, measure ambient air and water quality conditions, or identify the new technologies or practices that will reduce releases to the environment. These fact sheets share with you some of our EPA New England's laboratory capabilities and exemplify some of the very best science we do to meet our agency mission.*

KEY CONTACTS:

HILARY SNOOK
Environmental Scientist
(617) 918-8670
snook.hilary@epa.gov

KATRINA KIPP
Chief, Ecosystem Assessment
(617) 918-8309
kipp.katrina@epa.gov

ROBERT HILLGER
Senior Science Advisor
(617) 918-8660
hillger.robert@epa.gov

GENERAL INFO:

EPA NEW ENGLAND REGIONAL LABORATORY
11 Technology Dr.
North Chelmsford, MA 01863
(617) 918-8300
www.epa.gov/ne/lab

TOLL-FREE CUSTOMER SERVICE
1-800-EPA-7341

GOAL:

The New England Lakes and Ponds project has sampled hundreds of lakes and ponds throughout the six New England states, with the goal of evaluating and assessing their water quality and ecological health. Specific indicators were used to characterize these water bodies and identify stresses that have induced ecological impairment. The indicator data provides information to environmental resource managers that will help guide implementation of best management practices for protecting and restoring water quality and ecological integrity in New England lake and pond ecosystems.

EPA intern measuring water quality

PROGRESS:

Starting in 2005, EPA New England, in partnership with the New England state environmental agencies, EPA Office of Research and Development's Atlantic Ecology Division in Narragansett, RI, the New England Interstate Water Pollution Control Commission (NEIWPCC), and the Universities of New Hampshire and Rhode Island, embarked on the New England Lakes and Ponds (NELP) project, a six-year regional study to assess the current water quality and ecological condition of New England's lakes and ponds. Lakes were chosen utilizing a random probability selection process, which ensured that each water body had an equal chance of being selected. Scientists collected chemical, physical, and biological data that are indicators of resource condition from over three hundred lakes and ponds. The data is being used to evaluate the overall ecological health of lakes region wide, identify common stresses to lake ecosystems, and determine trends in lake condition for guiding future management strategies for protection and restoration.

Building on the collaborative working relationships of its partners, the NELP project is very technologically progressive. The project is utilizing new technologies for more efficient data collection and recording. Project participants are developing, among other new tools, (1) sediment diatom models, for inferring historical and present day nutrient conditions, (2) land use nutrient models, (3) new methods for assessing cyanobacteria and chlorophyll levels through the use of in-situ remote sensing technologies, and (4) genetic barcoding of zooplankton and web-hosted, image-based taxonomic keys. In order to encourage broad use of the study's results, data will be stored on-line with associated tools for analysis of the data. A final report is anticipated in 2010 that will report on the condition of New England lakes and ponds and showcase the additional tools developed as part of the project.

BENEFITS:

The New England Lakes and Ponds study will provide EPA and its partners with statistically valid assessments of water quality and ecological health across the region. The dynamic nature of the data-sharing and collaborative effort will provide long-term benefits in the sharing of technology, models, data, and ideas, all of which will be readily available to the public. The outcome of the NELP project will be more informed and effective management strategies for protecting our valuable lake and pond ecosystems throughout New England.

EPA United States Environmental Protection Agency

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