



NEW ENGLAND Wadeable Streams Study

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.

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GOAL:

The New England Wadeable Streams study collected chemical, biological and physical data from over 300 streams across the region with the primary goal of assessing their ecological condition. Specific chemical and biological indicators were selected for identifying current stresses on stream systems with the intent of guiding future management strategies for preserving high quality streams and restoring those flowing waters that are impaired. The study provided an opportunity for EPA and the New England states to compare their monitoring and assessment methods and subsequently better characterize the ecological health of these water bodies.

PROGRESS:

Starting in 2003, 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, and the New England Interstate Water Pollution Control Commission (NEI-WPCC), initiated the New England Wadeable Streams (NEWS) study, a multi-year regional study to assess the current water quality and ecological condition of New England's wadeable streams. Although most state water quality monitoring programs have been centered specifically on targeted monitoring locations, the NEWS project selected streams utilizing a random probability-based method. This statistically robust approach allows statements of water body health to be applied to the entire population of the region's wadeable streams, and not just to sites selected for sampling. The study has provided scientists and the public useful information for managing the overall health of all streams within New England watersheds.

EPA and state scientists collected 4,290 water quality samples which were analyzed for pH, temperature, dissolved oxygen, total suspended sediment, turbidity, nutrients, alkalinity, hardness, organic carbon, color, total phosphorus, total mercury, lead and cadmium. They surveyed fish and invertebrate communities in 49,500 meters of streams, and at each monitoring site, scientists

evaluated the adjacent stream and riparian habitats and characterized surrounding land uses within the watershed. The data provided EPA and the states with information on the diversity and range of species in the region, the current ecological health of fish communities, and insight about pervasive stresses impacting the region's wadeable streams. As part of NEWS, EPA and state scientists developed and then used specific descriptive ecological criteria for characterizing the biological condition within the stream sampling segments. Study results found that most streams were moderately impaired, with streams showing some replacement of sensitive aquatic species by more pollution tolerant ones. The primary stressors impacting New England stream systems are nutrients, fine sediments from runoff, alterations of natural streamflow conditions, and alteration of stream and riparian habitat.

BENEFITS:

The NEWS study provided EPA and its partners with a statistically valid assessment of water quality and ecological health across the region. By sharing this critical data, stream management decisions are better informed and more effective, and the states and EPA have formed stronger and more collaborative working partnerships. Completed in 2007, the results of the study are available at www.epa.gov/NE/lab/news.html.