www.epa.gov/research

science in ACTION
INNOVATIVE RESEARCH FOR A SUSTAINABLE FUTURE

REGIONAL METHODS PROGRAM

The Regional Methods (RM) Program is an Office of Research and Development (ORD) program administered by the Office of Science Policy that responds to high-priority, near-term methods development needs of EPA Regions. RM projects focus on developing methods necessary for the Regions to meet monitoring and enforcement objectives. Past RM research projects have developed assessment protocols, biological and diagnostic indicators, toxicity evaluation methods and improved sampling methodologies.

Goals of the RM Program

- Provide near-term research (1-2 years) on high-priority, region-specific science needs
- Provide opportunities for ORD scientists to apply their expertise to regional issues and explore new research challenges
- Foster collaboration between EPA regions and ORD laboratories
- Build a regional/ORD network for future scientific interaction

The Regional Science Liaisons (RSLs) manage the RM program within the Regions. They engage ORD scientists early in project development to secure regional and ORD management support and ensure that projects are within the scope of ORD's mission. RSLs also play a role in preparation and delivery of RM project results to regional scientists and managers.

Sample RM Projects

Developing Monitoring Tools for Headwater Intermittent Streams – Regions 1, 2, 3, 4, 5, 8, 9 & 10

Headwater streams lie at the aquatic-terrestrial interface and represent much of the stream miles in the United States. Little is understood about the consequences that alteration and loss of headwater streams impose on larger downstream water bodies. Because headwater streams drain smaller areas with less variable types of land use than larger water bodies, they provide a better assessment of land use effects. However, headwater streams are subject to drying, which may complicate the use of traditional assessment methods. Understanding associations between stream permanence and organisms living in the streams is the first step in developing biocriteria for the most abundant running waters in the nation.

A headwater stream drains an agricultural small area watershed. Photo by Eric Vance, USEPA.

Regional Science Liaison Contact Information

Acting Regional Science Program Chief – Washington, DC
Maggie LaVay
202-564-5264
lavay.maggie@epa.gov

Program Coordinator, Washington, DC
Valerie Blank
202-564-1720
blank.valerie@epa.gov

Region 1 – Boston, MA
Robert Hillger
617-918-8660
hillger.robert@epa.gov

Region 2 – New York, NY
Marie O'Shea
212-637-3585
oshea.marie@epa.gov

Region 3 – Philadelphia, PA
Ronald Landy
410-305-2757
landy.ronald@epa.gov

Region 4 – Atlanta, GA
Tom Baugh
404-562-8275
baugh.thomasl@epa.gov

Region 5 – Chicago, IL
Carole Braverman
312-353-7359
braverman.carole@epa.gov

Region 6 – Dallas, TX
Michael Morton
214-665-8329
morton.michael@epa.gov

Region 7 – Kansas City, KS
Brenda Groskinsky
913-551-7188
groskinsky.brenda@epa.gov

Region 8 – Denver, CO
Patti Tyler
303-312-6081
tyler.patti@epa.gov

Region 9 – San Francisco, CA
Matthew Small
415-972-3366
small.matthew@epa.gov

Region 10 – Seattle, WA
Bruce Duncan
206-553-0218
duncan.bruce@epa.gov

Through this RM project, scientists at ORD/National Exposure Research Laboratory (NERL) collaborated with scientists from several Regions to develop field protocols for assessing the hydrological permanence of headwater streams. Several biological and physical indicators were identified to distinguish ephemeral, intermittent, and perennial stream reaches. The results of this RM project have gained interest from many states as they work to understand the small area watershed drained by headwater streams. The EPA Science Advisory Board has recognized the collaborators with EPA's Scientific and Technology Achievement Award for notably excellent research, "Providing Science to Address the Jurisdictional Determination of Headwater Streams under the Clean Water Act" (http://www.epa.gov/ncer/staa/annual/2010/2010level2.html).

Collection of Pyrethroids in Water and Sediment Matrices: Development and Validation of a Standard Operating Procedure- Region 9

Pyrethroid insecticides, which are highly toxic to aquatic organisms, have become the most commonly used class of insecticides in agricultural and urban marketplaces. They are often detected in surface waters and sediments and concentrations must be accurately measured.

Pyrethroids tend to collect on the walls of sampling vessels during sample collection and storage. Loss of pyrethroids from the sample onto these surfaces can invalidate analytical and toxicity test results. The tendency of pyrethroids to associate to container walls depends upon the type of sample collection device, container material and other chemicals and organic matter in the water. In addition, collection and transfer of samples through multiple containers or pieces of equipment can also increase the potential for pyrethroid loss.

Scientists from ORD/NERL, Region 9, and US Geological Survey (USGS) collaborated to evaluate pyrethroid sample containers and sampling methods and to develop sampling procedures that minimize pyrethroid loss to walls and tubing in sampling apparatus.

The results of this project were used to create standard operating procedures (SOPs) for collecting water and sediment samples that may contain pyrethroids. These protocols are critical for accurate and consistent measurement of pyrethroid concentrations, and for assessment of potential effects on the environment. Results were also used to prepare a USGS Scientific Investigations Report that included new SOPs for pyrethroid sampling (http://pubs.usgs.gov/sir/2009/5012/). The SOPs have been used by wastewater treatment systems in Region 9 and nationwide to study the fate of pyrethroids and by the State of California for its general pesticide permit monitoring program.

For more information about the Regional Methods Program, please visit: http://intranet.ord.epa.gov/science/regional-science/rm