NWQMC
NATIONAL WATER QUALITY MONITORING COUNCIL
Working Together for Clean Water

Methods and Data Comparability Board

# Across the Board

A Newsletter of the Methods and Data Comparability Board

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**The Methods and Data Comparability Board** is a partnership of water quality experts from federal agencies, tribes, states, municipalities, industry, and private organizations. The Board, and its parent organization, the National Water Quality Monitoring Council (NWQMC) are sub-groups of the President's Advisory Committee on Water Information (ACWI). ACWI was chartered in 1997 under the Federal Advisory Committee Act (FACA). The National Council and the Methods Board are multi-agency groups charged with developing a voluntary, integrated, and nationwide water quality monitoring strategy. The Board's goal is to identify, examine, and recommend water quality monitoring approaches that facilitate collaboration among all data-gathering organizations and yield comparable data and assessment results.

## The National Monitoring Network

On September 20, 2004, the U.S. Commission on Ocean Policy (http://www.oceancommission.gov/) fulfilled its mandate to submit recommendations for a coordinated and comprehensive national policy for the nation's oceans and coasts. In response to recommendations in Chapter 15 of their final report, "An Ocean Blueprint for the 21st Century," (http://www.oceancommission.gov/documents/full_color_rpt/welcome.html), the President's Council of Environmental Quality (CEQ) and National Science and Technology Council (NSTC) have tasked the NWQMC to design a National Monitoring Network (NMN) by January, 2006.

In order to accomplish this task a Steering Committee created four workgroups: (1) Design, (2) Inventory, (3) Methods and Data Comparability, and (4) Data Management. The Steering Committee envisions that the NMN will make use of, and build upon, existing Federal, Tribal, State, and local monitoring programs. These entities will contribute to a network database and will use the database to address important scientific and management questions. The NMN will not replace existing efforts; rather, it will supplement these efforts and help make resulting products more definitive and useful.

The Steering Committee has developed the following objectives for the NMN:

- Define status and trends of key water-quality parameters and conditions on a nationwide basis;
- Provide data relevant to determining whether goals, standards, and resource management objectives are being met,

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## NEMI-CBR to be released soon ...

The National Environmental Methods Index (NEMI) is a Web-based compendium of methods—at this point, methods primarily for the analysis of water samples—that is free and accessible via any Web browser through a standard Internet connection. Its development has principally been jointly funded since 2000 by the USGS's Water Resources Discipline and EPA's Office of Water. As of July 2005, more than 150,000 users have visited NEMI at http://www.nemi.gov/ and used it as a tool to help compare and contrast the performance and relative cost of methods for environmental monitoring. A feature article in the April 15, 2005 edition of the journal Environmental Science and Technology titled "An Introduction to the National Environmental Methods Index" describes the evolution of NEMI and how it can be used. An example of how NEMI is used comes from Donna Ringel, of USEPA in Region 2, who says she uses NEMI to review methods identified in Quality Assurance Project Plans (QAPPs) submitted by grantees to determine if the proposed methods will meet the project's data quality objectives (DQOs).

An extension of NEMI, called NEMI-CBR (National Environmental Methods Index for Chemical, Biological, and Radiological Methods) will soon be available for use to assess water-quality issues related to Homeland Security. Like NEMI, NEMI-CBR is Web-based and consists of two parts: (1) a searchable database of analytical methods for use when intentional or accidental contamination of water supplies are known or

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## Water Quality Data Elements Established for Various Media

"How can we tell if water-quality data sets are comparable and can therefore be combined for a given use?" Water Quality Data Elements (WQDEs) were developed by the Methods Board and the NWQMC to help answer that question. WQDEs are designed to help consistently document the who, what, when, where, why and how of monitoring data.

The WQDEs for reporting chemistry and microbiology data were approved in 2001 by the Advisory Committee on Water Information (ACWI). The WQDEs for Population and Community Biological Assessments and for toxicological data (e.g., whole effluent toxicity data) went through an extensive review this past year and are near adoption by ACWI. More information on the WQDEs can be found at http://wi.water.usgs.gov/methods/tools/wqde/.

WQDEs are in development for other types of monitoring data, including physical habitat, tissue chemicals, sediment, and biomarkers. If you would like to get involved in the development of WQDEs, please contact LeAnne Astin (lastin@icprb.org).

## New Field Accreditation Standard Being Developed!

On August 11, 2005, in Raleigh, NC, the Institute for National Environmental Laboratory Accreditation (INELA) will hold an open forum to review and critique an accreditation standard for organizations that conduct environmental field sampling and on-site measurements. The Field Activities Committee (FAC), an expert committee of INELA, will begin a 2-year standards development cycle by introducing an initial draft version of this field accreditation standard at INELA's semiannual meeting. As stakeholders, you are also invited to join INELA and pursue formal member status in the FAC. Membership in the FAC provides the opportunity to be at the forefront of constructing this new standard.

The FAC workshop is part of the week-long "Forum of Laboratory Accreditation" conference. A special 1-day registration fee has been established for those individuals wishing to attend the 1-day workshop of the FAC on August 11th. The workshop will be held at the Sheraton Capital Center Hotel — conference details, on-line registration, and other important information can be found on the INELA web site at http://www.inela.org/Conferences/conferences.html.

*See you in Raleigh!*

**Contact Jerry L. Parr, Executive Director, INELA, at 817-598-0458 or email jparr@inela.org**

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thus contributing to sustainable and beneficial use of coastal and inland water resources

- Provide data to identify and rank existing and emerging problems to help target more intensive monitoring, preventive actions, or remediation.
- Provide data to support and define coastal oceanographic and hydrologic research, including influences of freshwater inflows.
- Provide quality-assured data for use in the preparation of interpretive reports and educational materials.

Members of the Methods Board are involved in key roles in the development of the NMN. Members of the Board sit on each of the workgroups, and the Methods and Data Comparability Workgroup is led by Board member Ed Johnson of NOAA (Ed.Johnson@noaa.gov). The Methods and Data Comparability Workgroup will be responsible for providing recommendations to the Network design for Data and Method Quality Objectives (DQOs/MQOs), data and metadata issues (Water Quality Data Elements), and comparability of methods.

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suspected; and (2) an expert system called the CBR Advisor that is an interactive tutorial on how to plan or respond for sampling and analysis for an intentional or accidental water-quality incident. The CBR Advisor includes the first four modules of EPA's Response Protocol Toolbox for Planning and Responding to Contamination Threats to Drinking Water Systems. Additional fields of information included in the methods database of NEMI-CBR include (1) whether the method is suitable for confirmatory and/or screening purposes and (2) rapidity of obtaining an analytical result, useful information during an emergency when time is of the essence in assessing a contamination threat.

NEMI-CBR has undergone an extensive peer review by scientists and managers from governmental agencies and water utilities to test for its utility and effectiveness in communicating information and is being revised prior to public release. NEMI-CBR will be accessible via a link from the NEMI Web site or directly at http://www.nemi.gov/cbr/. The CBR Advisor will be available online via a link from the NEMI-CBR Web site or, in the future, as a stand-alone program on CD.

## Make plans to attend the

## Fifth National Monitoring Conference

### Monitoring Networks: Connecting for Clean Water

**May 7-11, 2006 – San Jose, California**

The Fourth National Monitoring Conference in May 2004 in Chattanooga, TN was a huge success, bringing together water-quality professionals from Federal, State, local, and private entities to learn and explore new ways to collaborate, coordinate, and communicate. The 2006 conference will build on this success, with key themes that will focus on:

- Assessing methods and data comparability
- Applying new methods and innovative techniques
- Addressing different scales and multiple objectives
- Synthesizing and sharing data
- Improving communication among all stakeholders
- Integrating monitoring and prediction
- Large-scale programs: results, lessons learned, and future directions

In addition, vendors will be on hand to present their latest monitoring equipment and software. For more information about the conference visit http://www.nwqmc.org

## Methods and data comparability a goal of EPA's Wadeable Streams Assessment program

The U.S. Environmental Protection Agency and State water quality agencies are together conducting an ecological assessment of wadeable streams throughout the U.S. The Wadeable Streams Assessment (WSA) uses a stratified, statistically-valid sample survey design that will allow extrapolation of stream condition throughout each ecological region of the U.S. State participants are using a common biologically-based protocol and are following a comprehensive quality assurance program and standardized data management system.

The goals of the WSA are to: provide a status report on the condition and health of the wadeable streams of the U.S.; help build State capacity for monitoring and assessment; and improve the comparability and integration of State monitoring and assessment methods.

The Methods Board is providing input to the EPA and WSA Cooperators on the analysis of the methods comparability data. In addition, the Board formed an advisory group on bioassessment comparability that will be providing advice to the EPA on developing bioassessment comparability guidance.

For more information on the WSA visit the website at http://www.epa.gov/owow/monitoring/wsa/index.html or contact Laura Gabanski at gabanski.laura@epa.gov.

## Why is a National Monitoring Network necessary?

Every year in the United States, Federal and State government agencies, industrial entities, academic researchers, and private organizations expend enormous amounts of time and money for monitoring, protecting, and restoring water resources and watersheds. Often, methods used to collect and analyze the water-quality samples are poorly documented and the metadata needed to determine if the results are comparable are unavailable and are not stored in an easily retrievable geographically referenced database.

Many monitoring networks are coordinated by a host of Federal (USEPA, USGS, NOAA), tribal, and State agencies for evaluation of the water quality and contamination of various parts of the water cycle—rivers, streams, ground water, atmosphere, estuaries, and the ocean. In the past, efforts to coordinate the water-quality monitoring among agencies were limited. Considerable redundancy and gaps in monitoring exist in many parts of the water cycle. A coordinated effort is needed so that there is a strong "National backbone" of monitoring in all parts of the water cycle to answer specific questions regarding the status and trends in water quality from the uplands to the estuaries to the ocean. From this "National backbone", States, tribes, and local agencies can decide where additional monitoring is needed to answer specific questions "in their backyards". With the design and implementation of a well-coordinated National Monitoring Network with input from Federal, State, local, tribal, and private entities, the National Water Quality Monitoring Council has the potential to hit a "grand slam" that will make water-quality monitoring more efficient and effective.

# Meet the Board

## LeAnne Astin

LeAnne Astin is the Chair of the Water Quality Data Elements Workgroup (WQDE). Leanne has dedicated her time as a member of the MDCB to identify WQDEs that characterize the who, what, why, when, and how of sampling and documenting these pieces of information (METADATA) so that water-quality data collected by various groups may be compared more efficiently and objectively.

Knowledge of these WQDEs will allow data users to determine if data collected by different groups are actually measuring the same water-quality constituent using similar methods. If they are comparable, data users may combine data sets to fill gaps for analysis of water-quality status and trends.

LeAnne has worked for the Interstate Commission on the Potomac River Basin (ICPRB) in Rockville, MD since 2000 as an aquatic ecologist. She graduated from Baton Rouge Magnet High School in 1980 and received her B.S. in Biology from Mars Hill College in Mars Hill, NC, in 1984. She matriculated at Southeastern Louisiana University and Virginia Tech before receiving a Master of Science in Environmental Science and Public Policy from George Mason University in Fairfax, VA in May 2000.

Born in Patchogue, NY, LeAnne is a music buff who actually was a disc jockey for radio stations in Louisiana and North Carolina for several years before her current work with the ICPRB. She appreciates many musical genres, but rock remains her first love. She also worked in the broadcasting industry at NBC, Radio/Mutual Broadcasting Networks in Washington, DC. She also enjoys hiking, camping, birding, and reading science fiction.

**The Methods Board is comprised of members from 7 Workgroups led by co-chairs from USGS (Eric Vowinkel, vowinkel@usgs.gov) and EPA (Herb Brass, brass.herb@epa.gov). Visit our Web site to learn more: http://wi.water.usgs.gov/methods/**

The **Performance Based Systems & Nutrients (PBS/Nutrients) Workgroup** was established to promote the design and implementation of a system for selecting methods of analysis according to their performance and the specified data-quality needs.

Co-chairs Cliff Annis (cliff.annis@parexel.com) and Ed Santoro (Edward.Santoro@drbc.state.nj.us)

The **National Environmental Methods Index (NEMI) Workgroup** has created a free, web-based, searchable clearinghouse of methods and procedures, designed to assist method comparisons for regulatory and non-regulatory analyses.

Co-chairs Dan Sullivan (djsulliv@usgs.gov) and Cary Jackson (cjackson@hach.com)

The **Water Quality Data Elements Workgroup** has been charged to develop and recommend a "core" set of data elements for voluntarily reporting water quality monitoring results, to facilitate sharing of comparable data, while recognizing the objectives of individual programs.

Chair LeAnne Astin (lastin@icprb.org)

The **Laboratory and Field Accreditation Workgroup** was formed to identify gaps in monitoring programs that may limit acceptance of their data, and to make recommendations to workgroups in the National Environmental Laboratory Accreditation Conference (NELAC) and the Environmental Laboratory Advisory Board (ELAB).

Chair Merle Shockey (mshockey@usgs.gov)

The **Biology and Microbiology Workgroup** was created to recognize the diversity of biological and microbiological methods being widely applied, and to promote the use of procedures in the field and laboratory that are adequately documented and validated.

Co-chairs Katherine Alben (alben@wadsworth.org) and Mike Miller (Millema@dnr.state.wi.us)

The **New Technologies Workgroup** was established to give recognition to methods of analysis that show promise in increasing the quantity and quality of data, and for expanding the range of problems that can be addressed in current monitoring programs.

Chair Katherine Alben (alben@wadsworth.org)

The **Outreach and Publicity Workgroup** was formed to interact with all sectors of the monitoring community, to ensure that their needs are represented in achieving comparable methods and data.

Contact Eric Vowinkel (vowinkel@usgs.gov)