



# 5<sup>th</sup> National Monitoring Conference

## Monitoring Networks: Connecting for Clean Water

San José, California • May 7–11, 2006



### Conference Themes

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

# Conference Program and Presenter Information

May 7, 2006

Dear Friends,

Welcome to the Fifth National Monitoring Conference in San José. This event is an excellent opportunity for exchanging information, developing skills and building effective networks to better understand, protect and restore our natural waters.

The City of San José is proud to host and co-chair this conference with the National Water Quality Monitoring Council. The theme “Monitoring Networks: Connecting for Clean Water” encourages broad and thoughtful discussion during keynote presentations and workshops that can open up new opportunities for advances that will benefit us all.

The San José region has earned a well-deserved reputation for environmental leadership and innovation with its award winning recycling, water conservation, water recycling and wastewater treatment programs. We also have a long history of tracking environmental progress and accumulating data that are the cornerstone of several major regional and innovative initiatives, including most recently, the State and Federal Salt Marsh Restoration Project in South San Francisco Bay.

I encourage you to make the most of your stay in San José by exploring all that our city has to offer visitors. Our wonderful and walkable downtown, our historical sites and landmarks, our beautiful parks, trails and open spaces, our museums and cultural events – and most important, our warm and hospitable community – welcome you to enjoy your time in San José.

Please accept my best wishes for a wonderful event and continued success in the future.

Best Wishes,



Ron Gonzales  
Mayor





NATIONAL WATER QUALITY MONITORING COUNCIL

*Working Together for Clean Water*

**Welcome to the Fifth National Monitoring Conference  
in San José, California!**

Dear Colleagues:

**WELCOME TO THE CONFERENCE!** We are delighted you could join us as we highlight the human, technological, and programmatic networks that connect all of us working for clean water. For this conference, we received over 500 abstracts from our colleagues in all sectors of the monitoring community in the United States as well as abroad. This year's program is rich in scope and content, including an unprecedented 335 platform presentations, over 130 technical posters, sixteen workshops and short courses, and 45 exhibits. Of special note, this year's agenda also features:

- Discussion sessions and presentations focused on large-scale collaborative monitoring networks, such as the proposed National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries,
- Presentations by our colleagues in California describing how they have implemented innovative monitoring networks across the state,
- Informal meetings and workshops encouraging volunteer monitoring program coordinators to exchange information, develop new skills, and build better networks, and
- Platform sessions showcasing the USGS National Water-Quality Assessment Program's new findings on the quality of the Nation's streams and ground water.

This Conference Program will provide you with a general overview of conference activities and contains:

- ✓ **Collaborative Partnership for Water Quality Monitoring** providing an introduction to the National Water Quality Monitoring Council, its mission, and membership
- ✓ A thank you to our **Conference Sponsors**
- ✓ **Elizabeth J. Fellows Award Announcement** honoring this year's recipient of the EJF Award
- ✓ **Acknowledgments** recognizing the individuals, organizations, agencies, and businesses that planned this year's conference
- ✓ A list of **Conference Exhibitors**
- ✓ A full **Conference Agenda** listing times and locations for all conference activities
- ✓ A list of **Poster Presentations** grouped by topic

Each attendee will also receive a CD that contains all of the information above plus the abstracts for all oral and poster presentations, workshops, and short courses.

**We invite you to join us in making this conference an opportunity to share our experiences and explore the critical elements of building effective networks.**

Sincerely yours,

Charles S. Spooner  
Co-Chair, U.S. Environmental Protection Agency

Gail E. Mallard  
Co-Chair, U.S. Geological Survey

*"It is in the marriage of credible data use and increased stewardship behavior that the true potential and vitality of citizen monitoring begins to emerge." – Steven Hubbell*  
~~~~~

**Welcome friends, colleagues, and conference participants,**

On behalf of the extensive volunteer monitoring community, we welcome you to this conference and invite you to experience presentations highlighting the broad spectrum of volunteer monitoring activities.

Across the country, and indeed throughout the world, volunteer monitors watch over watersheds, often where no one else is looking. They monitor the condition of streams, rivers, lakes, reservoirs, estuaries, coastal waters, wetlands, and wells. They do this because they want to help protect or restore a favorite water body near where they live, work, or play. They do this to ensure safe drinking water. They educate themselves, their community, and decision-makers. They recognize the importance of their role as watershed stewards. They make a difference.

Volunteers do physical, chemical and biological monitoring. They measure Secchi depth in lakes, identify stream benthic macroinvertebrates, and monitor bacteria levels. They make visual observations of habitat, land uses, and storm impacts, and assess the abundance and diversity of plants, fish, birds, and other wildlife. Some have undertaken more exotic activities, examining water samples for toxic phytoplankton or monitoring the health of coral reefs. Volunteers count and catalog beach debris, participate in restoring degraded habitats, and help monitor the success of restoration efforts.

When you talk to state agency staff about uses of volunteer monitoring data, they tend to focus on state-level uses like EPA's 305(b) report and 303(d) listing. And indeed volunteer data are increasingly finding their way into state reports and TMDL plans. But volunteer organizations are quick to point out that state-level uses are not the holy grail of volunteer data use. Volunteer monitoring is for the most part a local activity with local impacts. Watershed associations, lakefront homeowner associations, and other community groups use their monitoring data to guide their own restoration projects and management activities. They present their data to local planning committees or town councils to support proposals for protective ordinances and policies.

Volunteer monitoring of lakes and streams began in the 1970s and grew rapidly. Many volunteer monitoring programs have been going strong for more than 20 years, providing an unparalleled long-term record of water quality and the ability to assess whether water quality improvement and restoration projects are truly working. As volunteer monitoring has grown and matured, programs increasingly emphasize assuring data quality and documenting metadata so that the comparability of their data to that of others can be recognized. Credibility is key.

We invite all conference participants to take advantage of workshops, presentations, and informal exchanges, indeed to Connect for Clean Water with all members our vibrant monitoring community, especially those at this conference!

For our waters,

*The Volunteer Monitoring Conference Planning Sub-Committee*



# United States Department of the Interior

**U. S. GEOLOGICAL SURVEY**  
**Reston, VA 20192**  
Mail Stop 413

May 7, 2006

Colleagues and Conference Participants,

On behalf of the U.S. Geological Survey (USGS) and the National Water-Quality Assessment (NAWQA) Program, I am pleased to welcome you to the 5<sup>th</sup> National Monitoring Conference in San José, California. I am honored that the National Water Quality Monitoring Council offered the NAWQA Program an opportunity to play a major role in the conference.

In particular, we in NAWQA are excited to share with you our recent national-scale findings on pesticides and volatile organic contaminants from data collected in the first decade of the Program, 1992-2001. In addition, we bring to the conference our latest approaches and methods, for example, models that make the important step of moving us forward from monitoring to prediction of water quality conditions. Prediction of water quality conditions in unsampled waters is an important next step because water quality-assessment is something we need for all waters, not just those we can afford to monitor. We also bring to the conference early results on approaches to assessing and understanding the sources, fate, transport, and effects of contaminants in ground water and streams, and the effects of mercury and urbanization on aquatic ecosystems.

The quality of this conference is the reason we return each biennium. The quality is the result of the activities and contributions of a large number of individuals that make up the membership of the National Water Quality Monitoring Council. I want to thank all those who made this week possible and wish you a beneficial and productive time in San José.

Sincerely,

Donna N. Myers, Chief  
National Water-Quality Assessment Program

# 2006 National Monitoring Conference Program

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Welcome to the City of San José  
Welcome from the National Water Quality Monitoring Council  
Welcome from the Volunteer Monitoring Conference Planning Sub-Committee  
Welcome from the U.S. Geological Survey (USGS) and the National Water-Quality Assessment (NAWQA) Program

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**NWQMC**  
NATIONAL WATER QUALITY  
MONITORING COUNCIL

*Working Together for Clean Water*

# National Water Quality Monitoring Council

## ***Collaborative Partnership for Water Quality Monitoring***

### **Introduction**

The National Water Quality Monitoring Council (Council) provides an opportunity for the monitoring community to develop consensus-based approaches and tools for monitoring and reporting on water quality. The Council promotes partnerships that foster collaboration, advance the science, and improve management of our water resources. The Council strives to represent the full range of the monitoring community.

### **Council Mission**

*Provide a national forum to coordinate consistent and scientifically defensible methods and strategies for improving water quality monitoring, assessment, and reporting.*

### **The Challenge of Multi-Agency Monitoring**

Each year government agencies, industry, academia and private organizations devote enormous amounts of time, energy, and money to monitor, protect, manage, and restore water resources and watersheds. Differences in project design, methods, data analysis, and data management have often made it difficult for monitoring information and results to be shared and used by all. The restoration and protection of water quality is dependent upon detailed, understandable, and easily accessible data and information.

### **Responding to the Challenge: The National Water Quality Monitoring Council**

The Council provides guidance and technical support for voluntary implementation of actions that advance the science of monitoring. This is best accomplished in an arena of collaborative and coordinated efforts communicated to all interested parties. In sum these actions will ultimately improve water quality monitoring. The Council encourages use of metadata, lab accreditation, methods documentation, and other procedures that contribute to the broadest possible acceptance, sharing, and use of water quality data. The Council promotes effective communication of monitoring results and findings to decision-makers and the general public. In some cases, Council work groups develop tools and techniques. Examples of these are the National Environmental Methods Index and Water Quality Data Elements. In other cases, the Council provides a venue for wide-ranging discussion and dissemination of new methods and technologies developed by others through its Web site and at its National Monitoring Conferences.





## Membership and Organization

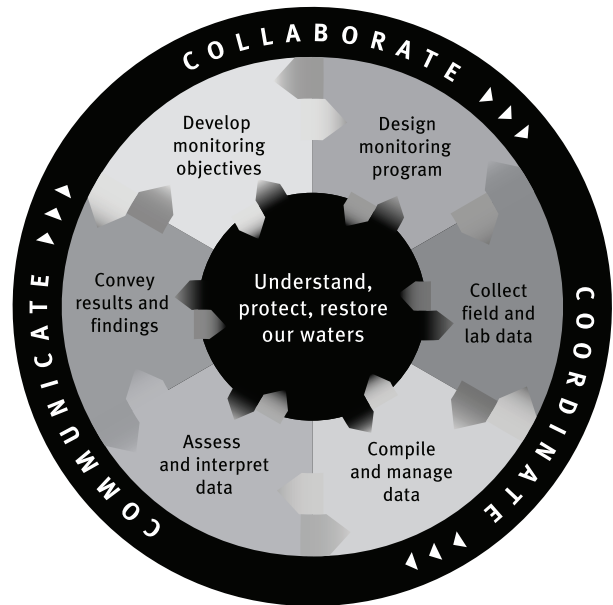
The Council was created in 1997 as a vehicle for bringing together the diverse expertise, skills, and talents needed to develop collaborative, comparable, and cost-effective approaches to water quality monitoring. The Council's 35 members represent the monitoring community: federal, tribal, state, interstate, local, and municipal governments; watershed and environmental groups; the volunteer monitoring community; academia; and the private sector including the regulated community. These are organizations that collect, analyze, interpret, disseminate, or use water quality monitoring information as well as those that develop monitoring technology, guidelines, and/or standards. The Council is co-chaired by the U.S. Geological Survey and the U.S. Environmental Protection Agency. The Council reports to the Advisory Committee on Water Information that operates under the Federal Advisory Committee Act.

### Council Work Groups

- **Water Information Strategies** defines and promotes goal-oriented monitoring by proposing strategies for network design, data analysis and interpretation, and reporting results in support of the information needs of water quality management.
- **Methods and Data Comparability Board** provides a forum for exploring, evaluating, and promoting methods that facilitate collaboration and further comparability among water quality monitoring programs.
- **Watershed Components Interactions** provides an improved understanding of the factors affecting water quality within watersheds. The group assesses how these factors interact to develop effective monitoring strategies.
- **Collaboration and Outreach** works to build partnerships that foster collaboration among the many elements of the water monitoring community, particularly by supporting the development of state and regional monitoring councils, and promoting the importance of monitoring for decision-making.

## A Framework for Monitoring

The Council, with broad and significant input from the monitoring community, has developed a pictorial framework for monitoring that shows the components of the monitoring process (as a series of interlinked cogs) needed to understand, protect, and restore our water resources. Incorporating the components of this framework into monitoring projects will improve monitoring efforts, results, and communication of information.



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See Council Fact Sheet "A Framework for Water Quality Monitoring" and the American Water Resources Association (AWRA) *IMPACT*, September 2003 issue, Vol. 5, No. 5.

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## Council Activities and Products

The Council has taken a number of steps to encourage the water quality monitoring community to integrate the components of the monitoring framework into their efforts. The following examples of Council activities and products showcase efforts to improve data comparability and reliability as well as to foster institutional collaboration:

- Organizing and sponsoring biennial **National Monitoring Conferences** since 1998; each conference attended by more than 400 active participants representing a wide spectrum of the monitoring community. These conferences provide a national forum to present and explore methods and strategies for improving water quality monitoring, assessment, and reporting as well as presenting specific ways to foster collaboration and coordination.

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To participate in the National Monitoring Conference, visit:  
<http://www.nwqmc.org>

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- Providing guidance and support for **State and Regional Water Quality Monitoring Councils** (see *Council Fact Sheet "Accomplishing More Together"*). These councils bring members of the monitoring community together to share their expertise and knowledge and to promote strategic monitoring efforts at an appropriate scale.
- Sponsoring development and adoption of the **National Environmental Methods Index (NEMI)** that provides assistance in choosing appropriate field and laboratory methods to meet specified monitoring objectives. See [www.nemi.gov](http://www.nemi.gov) for additional information.
- Sponsoring development and adoption of the **Water Quality Data Elements** — metadata that should be included with water quality results so that data comparability can be assessed.
- Publishing position papers on **Laboratory Accreditation** that describe a process that will give regulators and others in the monitoring community confidence that water quality data have been produced by qualified personnel using appropriate quality control and quality assurance procedures.



## Member organizations of the Council

### Federal:

U.S. Geological Survey  
U.S. Environmental Protection Agency  
Natural Resources Conservation Service  
Tennessee Valley Authority  
National Oceanic and Atmospheric Administration  
National Park Service  
U.S. Army Corps of Engineers

### Tribal:

Inter Tribal Council of Arizona, Inc.

### States representing Federal regions:

New Hampshire Department Environmental Services  
New Jersey Department of Environmental Protection  
Virginia Department of Environmental Quality  
Alabama Department of Environmental Management  
Indiana Department of Environmental Management  
Texas Commission on Environmental Quality  
California State Water Resources Control Board  
Washington Department of Ecology  
South Florida Water Management District  
Oregon Department of Environmental Quality  
West Virginia Department of Environmental Protection  
Iowa Department of Natural Resources

### Other:

Water Environment Federation  
North American Lake Management Society  
National Association of State Conservation Agencies  
National Association of Conservation Districts  
Association of Metropolitan Water Agencies  
Association of American State Geologists  
Ohio River Valley Water Sanitation Commission  
American Society of Limnology and Oceanography  
American Chemistry Council  
University of Rhode Island, Watershed Watch  
Colorado State University, Water Resources Research Institute  
National Association of Clean Water Agencies  
National Institutes of Water Resources

Additional information can be obtained through the  
National Water Quality Monitoring Council's Web site at:

<http://acwi.gov/monitoring/>



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## **A National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries**

The annual cost of water resource monitoring is hundreds of millions of dollars. Yet, numerous reports in recent years indicate that monitoring remains insufficient and lacks coordination to provide comprehensive information about U.S. water resources. The final report of the U.S. Commission on Ocean Policy recommended a National Monitoring Network (Network) to assure effective stewardship of ocean resources. The National Water Quality Monitoring Council of the Advisory Committee on Water Information was asked to design such a Network, in part because of its broad membership, including federal, tribal, state and local agencies, water associations, universities and the private sector. The proposed Network shares many attributes with ongoing monitoring efforts but is unique in that it uses an integrated, multi-disciplinary approach to address a broad range of resource components, from upland watersheds to offshore waters. Key design features include:

- Clear objectives linked to management questions
- Linkage to the Integrated Ocean Observing System (IOOS)
- Flexibility in design over time
- Importance of metadata, quality assurance, comparable methods and ready access

The Network provides critical information about the quality of coastal waters and their tributaries at regional and national scales, but does not incorporate or replace all ongoing water quality monitoring. State and local agencies must continue to meet many regulatory and local needs, (e.g., monitoring for drinking water) that will be outside the scope of the Network. However, many existing state and regional monitoring programs may well become “network compliant” and both contribute to and benefit from the National Network.

Table 3-2 in the Executive Summary (available at the NWQMC exhibit booth) provides an at-a-glance overview of the Network design by resource component, including estuaries, nearshore, offshore, Great Lakes, rivers, ground water, atmospheric deposition, beaches and wetlands. Constituents to be monitored include physical characteristics, inorganic and organic chemical concentrations, and biological conditions. Continuity of measurements among all resource components will provide a better understanding of the linkages among resources.

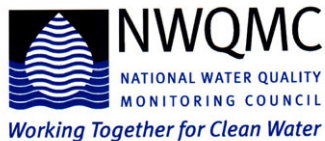
Full implementation of the Network will require the use of data collected by a number of federal, tribal, state, local, academic, and private sources. Data must be comparable to allow integration into a coherent assessment of the condition of and trends in the quality of the Nation’s coastal waters and their tributaries. The use of models to interpret environmental data will facilitate understanding of complex environmental issues.

Plenary talks, special sessions and exhibits throughout the conference will provide opportunities for you to learn more about the Network design, and to provide important feedback to the National Water Quality Monitoring Council.

# THANK YOU

To our generous Conference Sponsors who have made the  
2006 National Monitoring Conference a success!

## Conference Co-Sponsors



National Water Quality  
Monitoring Council



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\*CSREES New England Regional Water Program

\* This denotes those organizations that generously provided travel support for volunteer monitoring and watershed program coordinators.



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\*Southwest States and Pacific Islands Regional Water Program



\*Tribal Colleges and Universities National Facilitation Project

**\* This denotes those organizations that generously provided travel support for volunteer monitoring and watershed program coordinators.**



## ELIZABETH JESTER FELLOWS AWARD ANNOUNCEMENT

Elizabeth J. Fellows headed the Assessment and Watershed Protection Division in USEPA's Office of Water. She dedicated her career to natural resources management and environmental protection including envisioning the creation of the National Council. She was an effective advocate for developing a nationwide framework for coordinating, collecting, assessing, and communicating water quality monitoring information and results. In her memory, the National Water Quality Monitoring Council has established the Elizabeth Jester Fellows Award to recognize individuals for outstanding achievement, exemplary service, and distinguished leadership in the field of water quality monitoring.

*In recognition of her contributions to water quality monitoring, the NWQMC is pleased to present the 2006 Elizabeth Jester Fellows Award to*



**Eleanor Ely**  
Editor  
*The Volunteer Monitor*

In recognition of her contributions to water quality monitoring, the National Water Quality Monitoring Council is pleased to present the 2006 Elizabeth Jester Fellows Award to Eleanor Ely, editor of *The Volunteer Monitor* newsletter.

For sixteen years, Ellie has been the editor and driving force behind *The Volunteer Monitor*, the national newsletter for those who train and oversee the huge population of citizen volunteers across the country. Volunteer program coordinators all over the U.S. – and in many other countries – rely on the newsletter for technical advice on monitoring, sustaining programs,

training volunteers, and many, many other topics. This newsletter is, in fact, *the* critical link connecting the thousands of diverse members of the volunteer monitoring community. Ellie's persistence, patience, and unique editorial insight ensure that her publication is timely *and* timeless, an invaluable resource for the entire monitoring community, from volunteer to professional.

Ellie devotes a tremendous amount of time, effort, and energy into writing, editing, and producing each issue of *The Volunteer Monitor* newsletter. She has a critical eye for details, and researches and thoroughly masters each newsletter topic – from data management to bacteria monitoring. Most remarkably, Ellie can translate the most arcane bureaucratic doublespeak or scientific technospeak into plain, clearly understandable English. She cares very much about the newsletter's technical and editorial quality, and is just as wholly dedicated to the volunteer monitoring movement itself; she knows more about individual volunteer monitoring programs and their leaders than any other person in the U.S. She is always eager to share her knowledge, experience, and connections with others, and to help forward the cause of volunteer environmental monitoring.

*Ellie is a gifted writer, editor, and advocate of community-based environmental monitoring. Her selfless effort to enhance and advance the efforts of citizen volunteers has given them a greater voice in protecting and restoring the nation's water resources. Her colleagues in the volunteer monitoring community nominated her for this award as an expression of their admiration and gratitude.*

***Congratulations, Ellie!***



## ACKNOWLEDGMENTS

The Council offers its gratitude to those who served on the 2006 Conference Planning Committee. The Council also acknowledges the commitment and hard work of all those who served as abstract review team leaders and members, session moderators, workshop/short course facilitators and trainers, and speakers. Many thanks go to all of the environmental monitoring professionals who prepared presentations, posters, and exhibits for this conference. The numerous individuals who participated in organizing the 2006 conference are listed below:

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**Jeff Schloss**, University of NH  
**Chuck Spooner**, USEPA (M)  
**David Tucker**, City of San José

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**Erik Leppo**, Tetra Tech, Inc.  
**Jennifer Pitt**, Tetra Tech, Inc.  
**Brian Winge**, NALMS

**(M)** Indicates Moderators and Workshop/Short Course Facilitators & Trainers  
**(V)** Indicates Special Volunteer Monitoring Sub-committee  
**(S)** Indicates Conference Staff

## **ADDITIONAL MODERATORS & WORKSHOP/SHORT COURSE FACILITATORS & TRAINERS**

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**Chipotle Business Group, Inc.**  
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 Arlington, TX 76010  
 sevans@chipotlegroup.com

**City of San Jose**  
<http://www.ci.san-jose.ca.us/>

**Cooperative Institute for Coastal and Estuarine Environmental Technology**  
 University of New Hampshire  
 Environmental Technology Building  
 35 Colovos Road  
 Durham, NH 03824  
<http://ciceet.unh.edu/>

**\*Eureka Environmental**  
 2113 Wells Branch Pkwy, Suite 4400  
 Austin, Texas 78728  
 512.302.4333  
 sales@eurekaenvironmental.com  
<http://www.eurekaenvironmental.com/>

**FTS Forest Technology Systems Ltd.**  
 1065 Henry Eng Place  
 Victoria, BC  
 Canada V9B 6B2  
 800.548.4264 or 250.478.5561  
 info@FTSInc.com  
<http://www.ftsinc.com/>

**GFS Chemicals, Inc.**  
 P.O. Box 245  
 Powell, OH 43065  
 877.534.0795 (U.S. and Canada)  
 740.881.5501 (International)  
 sales@gfschemicals.com  
<http://www.gfschemicals.com/>

**Gold Systems, Inc.**  
 3330 South 700 East  
 Salt Lake City, Utah 84106  
 801.485.7445  
<http://www.goldsystems.com/>

**\*Greenspan Analytical**  
 1195 Airport Rd  
 Lakewood, New Jersey 08701  
 732.364.7800  
<http://www.greenspan.com.au/>

**\*Ground Water Protection Council**  
 13308 N. MacArthur Blvd.  
 Oklahoma City, OK 73142  
 405.516.4972  
<http://www.gwpc.org/>

**Hach Company**  
 P.O. Box 389  
 Loveland, Colorado 80539-0389  
 800-227-4224  
<http://www.hach.com/>

**Hydro Scientific West, Inc.**  
 13135 Danielson Street, Suite #207  
 Poway, CA 92064  
 858.486.8825  
 info@hydroscientificwest.com  
<http://www.hydroscientificwest.com/>

**IDEXX Laboratories, Inc.**  
 One Idexx Drive  
 Westbrook, ME 04092  
 207.856.0300 or 800.548.6733  
<http://www.idexx.com/index.jsp>

**In-Situ, Inc.**  
 221 East Lincoln Ave.  
 Fort Collins, CO 80524  
 800.446.7488 or 970.498.1500  
 sales@in-situ.com  
<http://www.in-situ.com/>

**JBS Energy, Inc.**  
 311 D Street  
 West Sacramento, CA 95605  
 916.372.0534  
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<http://www.jbsenergy.com/>

**\* This denotes those organizations that generously provided travel support for volunteer monitoring and watershed program coordinators.**

|                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Lakes Consulting</b><br/>42 Seabreeze Rd.<br/>Devonport, Auckland<br/>New Zealand 1309<br/>Ph/Fax (Int.) ++649-445-7561<br/>lakescon@xtra.co.nz<br/><a href="http://www.lakewatch.net/">http://www.lakewatch.net/</a></p>                    | <p><b>*LaMotte Company</b><br/>P.O. Box 329<br/>802 Washington Avenue<br/>Chestertown, MD 21620<br/>410.778.3100 or 800.344.3100<br/>mkt@lamotte.com<br/><a href="http://www.lamotte.com/">http://www.lamotte.com/</a></p> | <p><b>Methods &amp; Data Comparability Board</b><br/><a href="http://wi.water.usgs.gov/methods/">http://wi.water.usgs.gov/methods/</a></p>                                                                                                                                            |
| <p><b>National Ground Water Association</b><br/>601 Dempsey Road<br/>Westerville, OH 43081-8978<br/>800.551.7379 or 614.898.7791<br/>ngwa@ngwa.org<br/><a href="http://www.ngwa.org/">http://www.ngwa.org/</a></p>                                 | <p><b>National Water Quality Monitoring Council</b><br/><a href="http://water.usgs.gov/wicp/acwi/monitoring/">http://water.usgs.gov/wicp/acwi/monitoring/</a></p>                                                          | <p><b>NOAA National Centers for Coastal Ocean Science</b><br/>1305 East West Highway, Rm 8110<br/>Silver Spring, MD 20910<br/>301.713.3020<br/>nccos.webmaster@noaa.gov<br/><a href="http://www.nccos.noaa.gov/welcome.html">http://www.nccos.noaa.gov/welcome.html</a></p>           |
| <p><b>ROM Communications, Inc.</b><br/>12705 65th Street NW<br/>Edmonton, A.B.<br/>CANADA, T5A 0Z4<br/>877.860.3762 or 250.860.3762<br/>info@romcomm.com<br/><a href="http://www.romcomm.com/">http://www.romcomm.com/</a></p>                     | <p><b>RTI International</b><br/>701 13th Street NW, Ste 750<br/>Washington, DC 20005<br/>202.728.2080<br/><a href="http://www.rti.org/">http://www.rti.org/</a></p>                                                        | <p><b>Schlumberger Water Services</b><br/>460 Phillip Street, Suite 101<br/>Waterloo, Ontario<br/>Canada N2L 5J2<br/>519.746.1798<br/><a href="http://www.slb.com/content/services/additional/water/index.asp">http://www.slb.com/content/services/additional/water/index.asp</a></p> |
| <p><b>Solinst Canada, Ltd.</b><br/>35 Todd Rd.<br/>Georgetown, Ontario<br/>Canada L7G 4R8<br/>800.661.2023 or 905.873.2255<br/>instruments@solinst.com<br/><a href="http://www.solinst.com/index2.html">http://www.solinst.com/index2.html</a></p> | <p><b>Teledyne ISCO</b><br/>4700 Superior Street<br/>Lincoln, NE 68504<br/>404.464.0231 or 800.228.4373<br/>iscinfo@teledyne.com<br/><a href="http://www.isco.com/">http://www.isco.com/</a></p>                           | <p><b>Teledyne RD Instruments</b><br/>9855 Businesspark Avenue<br/>San Diego, CA 92131-1101<br/>858.693.1178<br/>rdi@teledyne.com<br/><a href="http://www.rdinstruments.com/">http://www.rdinstruments.com/</a></p>                                                                   |
| <p><b>Tennessee Valley Authority</b><br/>1101 Market St.<br/>Chattanooga, TN 37402-2801<br/>423.751.0011<br/><a href="http://www.tva.gov/">http://www.tva.gov/</a></p>                                                                             | <p><b>Tetra Tech, Inc</b><br/><a href="http://www.tetrattech.com/">http://www.tetrattech.com/</a></p>                                                                                                                      | <p><b>US Environmental Protection Agency Environmental Technology Verification Program</b><br/><a href="http://www.epa.gov/etv/index.html">http://www.epa.gov/etv/index.html</a></p>                                                                                                  |
| <p><b>US Environmental Protection Agency Office of Environmental Information</b><br/><a href="http://www.epa.gov/oei/">http://www.epa.gov/oei/</a></p>                                                                                             | <p><b>US Environmental Protection Agency Office of Water</b><br/><a href="http://www.epa.gov/OW/index.html">http://www.epa.gov/OW/index.html</a></p>                                                                       | <p><b>US Geological Survey</b><br/><a href="http://www.usgs.gov/">http://www.usgs.gov/</a></p>                                                                                                                                                                                        |
| <p><b>US Geological Survey National Water-Quality Assessment Program</b><br/><a href="http://water.usgs.gov/nawqa/">http://water.usgs.gov/nawqa/</a></p>                                                                                           | <p><b>US Geological Survey NWISWeb</b><br/><a href="http://waterdata.usgs.gov/nwis">http://waterdata.usgs.gov/nwis</a></p>                                                                                                 | <p><b>*USDA-CSREES Volunteer Water Quality Monitoring National Facilitation Project</b><br/><a href="http://www.usawaterquality.org/volunteer/">http://www.usawaterquality.org/volunteer/</a></p>                                                                                     |
| <p><b>Utility Systems Science &amp; Software</b><br/>2101 E. 4th Street, Suite 130A<br/>Santa Ana, CA 92705<br/>714.542.1004<br/>mark.serres@uscubed.com<br/><a href="http://www.uscubed.com/usss/">http://www.uscubed.com/usss/</a></p>           | <p><b>Water Environment Federation</b><br/><a href="http://www.wef.org/Home">http://www.wef.org/Home</a></p>                                                                                                               | <p><b>WET Labs</b><br/>P.O. Box 518<br/>Philomath, OR 97370<br/>541.929.5650<br/>sales@wetlabs.com<br/><a href="http://www.wetlabs.com/index.html">http://www.wetlabs.com/index.html</a></p>                                                                                          |
| <p><b>YSI, Inc.</b><br/>1725 Brannum Lane<br/>Yellow Springs, OH 45387<br/>937.767.7241<br/>environmental@ysi.com<br/><a href="http://www.yei.com/index.html">http://www.yei.com/index.html</a></p>                                                |                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                       |

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## 2006 NATIONAL MONITORING CONFERENCE AGENDA

### Sunday, May 7

|                              |                                                                                                                                                          |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8:00 - 1:00;<br>12:00 - 5:00 | Field Trip: USGS Polaris Research Vessel Cruises - morning and afternoon trips (Meet at main entrance to Convention Center on 1st floor)                 |
| 9:00 - 4:00                  | Field Trip: Monterey Aquarium & "Walk 'n Talk" with the Monterey Bay National Marine Sanctuary (Meet at main entrance to Convention Center on 1st floor) |
| 10:00 - 3:00                 | Field Trip: Roaring Camp Railroad (Meet at main entrance to Convention Center on 1st floor)                                                              |
| 12:00 - 5:00                 | Registration in Ballroom Concourse                                                                                                                       |
| 12:00 - 7:00                 | Exhibitor Set-Up (Exhibit Hall 1)                                                                                                                        |

### Monday, May 8

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                   |                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                |                                                                                                                                                   |  |  |
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| 7:00 - 8:00                                     | Breakfast in Exhibit Hall 1, Registration in Ballroom Concourse                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                   |                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                |                                                                                                                                                   |  |  |
|                                                 | <b>Meeting Room C2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Meeting Room A4</b>                                                                                                                                                                                            | <b>Meeting Room C1</b>                                                                                                                                                                                                              | <b>Meeting Room A3</b>                                                                                                                                                                                                                                                           | <b>Meeting Room C3</b>                                                                                                                                                         | <b>Meeting Room C4</b>                                                                                                                            |  |  |
| <b>Concurrent Session A</b><br><br>8:00 - 10:30 | <p><b>WORKSHOP: <i>Words and Water Quality: Effective Communication Through Better Publications</i></b></p> <p>Facilitators: Eleanor Ely, <i>The Volunteer Monitor</i>; Abby Markowitz, Tetra Tech, Inc.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p><b>WORKSHOP: <i>Critical Elements of a Bioassessment Program for State &amp; Tribal Monitoring</i></b></p> <p>Facilitators: Michael Barbour, Tetra Tech, Inc.; Chris Yoder, Midwest Biodiversity Institute</p> | <p><b>WORKSHOP: <i>Data to Action: Empowering Citizens through the Acquisition and Understanding of Monitoring Data</i></b></p> <p>Facilitators: Candie Wilderman and Lauren Imgrund, ALLARM; Faith Zerbe, Delaware Riverkeeper</p> | <p><b>SHORT COURSE: <i>Assessing Ground Water Vulnerability through Statistical and Mechanistic Methods</i></b></p> <p>Trainers: Sandy Eberts, Leon Kauffman, Bernard Nolan, Matthew Landon, and Jeffrey Starn, USGS; Stephen Kraemer and Mike Muse, USEPA; Rob Malone, USDA</p> | <p><b>WORKSHOP: <i>Using U.S. Geological Survey Spatial Data to Analyze Water Quality</i></b></p> <p>Facilitators: Curtis Price, Joseph Kerski, and Sandy Williamson, USGS</p> | <p><b>WORKSHOP: <i>Probability Survey Design for Aquatic Resources using R Statistical Software</i></b></p> <p>Facilitator: Tony Olsen, USEPA</p> |  |  |
| 10:30 - 11:00                                   | Break - Refreshments in Exhibit Hall 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                   |                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                |                                                                                                                                                   |  |  |
| 11:00 - 12:30                                   | <p><b>Opening Plenary and EJF Award Presentation (Ballrooms A1, 2, 7, 8)</b></p> <p>Welcome to the 2006 National Monitoring Conference, David Tucker, Conference Chair<br/>         Welcome to San José: Capital of Silicon Valley, John Stufflebean, Director, Environmental Services, City of San Jose<br/>         Introduction to the 2006 Conference, Linda Green, Conference Chair<br/>         The National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries, Charles Spooner &amp; Gail Mallard, NWQMC Co-Chairs<br/> <b>Keynote Speaker - Monitoring Networks: Connecting for Clean Water, Mr. Terry Tamminen, Special Assistant to the Governor of California</b><br/>         Presentation of the Elizabeth J. Fellows Award, Linda Green, Conference Chair<br/>         Charge to Conference Participants, Jeffrey Schloss, Conference Chair</p> |                                                                                                                                                                                                                   |                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                |                                                                                                                                                   |  |  |
| 12:30 - 1:30                                    | Lunch in Exhibit Hall 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                   |                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                |                                                                                                                                                   |  |  |

**Monday, May 8**

|                                                              | Meeting Room A5                                                                                                                                                                                                              | Meeting Room A6                                                                                                                                         | Meeting Room A3                                                                                                                                     | Meeting Room A4                                                                                                                                                                                                                                                                          | Meeting Room C2                                                                                                                                                                      | Meeting Room C4                                                                                                                                      | Meeting Room C3                                                                                                                                                                                                             | Meeting Room C1                                                                                                                                                         |
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| <p><b>Concurrent Session B</b></p> <p><b>1:30 - 3:00</b></p> | <p><b>Measurement Performance I: Program-wide Considerations</b></p> <p>Moderator: Karen Blocksom</p>                                                                                                                        | <p><b>Perspectives on the Nation's Water Quality: Findings, Implications, &amp; Future Directions I</b></p> <p>Moderator: Robin O'Malley</p>            | <p><b>Monitoring &amp; Managing Ground Water Resources at Multiple Scales</b></p> <p>Moderator: David Wunsch</p>                                    | <p><b>Use of Ancillary Data and GIS Tools to Interpret Water Quality</b></p> <p>Moderator: Curtis Price</p>                                                                                                                                                                              | <p><b>Monitoring in the Shadow of the Golden Gate</b></p> <p>Moderator: Jessie Denver</p>                                                                                            | <p><b>Pesticides in Midwestern Streams: Monitoring Strategies &amp; Recent Results</b></p> <p>Moderator: Lyle Cowles</p>                             | <p><b>Using &amp; Developing WQ Indices</b></p> <p>Moderator: Curtis Cude</p>                                                                                                                                               | <p><b>WORKSHOP: Getting Started in Volunteer Monitoring</b></p> <p>Facilitators: Linda Green, URI Watershed Watch; Danielle Donkersloot, NJ Watershed Watch Network</p> |
| <p>1:35 - 1:55</p>                                           | <p><b>Elements for a Successful Low-Level National Scale VOC Assessment</b>, David Bender, USGS</p>                                                                                                                          | <p><b>Pesticides in the Nation's Streams and Ground Water, 1992-2001</b>, Robert Gilliom, USGS</p>                                                      | <p><b>The Fall and Rise of an Aquifer—Stakeholders Unite to Conserve and Monitor the Sparta Aquifer in South Arkansas</b>, David Freiwald, USGS</p> | <p><b>Characterizing the Landscape for Water-Quality Data Analysis: Methods and Implementation</b>, Curtis Price, USGS</p>                                                                                                                                                               | <p><b>Sustaining a Regional Water Quality Monitoring Program: The Lessons from San Francisco Bay</b>, Michael Connor, San Francisco Estuary Institute</p>                            | <p><b>Glyphosate concentrations in various hydrological compartments of a small watershed in east-central Indiana</b>, Nancy Baker, USGS</p>         | <p><b>Creative Outreach: Solving the Conundrum of Using Volunteer Water Quality Data as a Meaningful Source of Information</b>, Amanda Ross, Lower Colorado River Authority, Colorado River Watch Network</p>               |                                                                                                                                                                         |
| <p>1:55 - 2:15</p>                                           | <p><b>Lessons Learned in National Park Service Vital Signs Long Term Monitoring Program</b>, Roy Irwin, National Park Service</p>                                                                                            | <p><b>Nutrients in the Nation's Streams and Groundwater, 1992-2001</b>, Neil Dubrovsky, USGS</p>                                                        | <p><b>Proposed National Ground Water Monitoring Program</b>, Beverly Herzog, Illinois State Geological Survey</p>                                   | <p><b>Characterizing the Landscape for Water-Quality Assessment: Linking tabular county data on agricultural nutrient and pesticide applications to spatial land cover data to estimate nutrient and pesticide use in watersheds and ground water study areas</b>, Gail Thelin, USGS</p> | <p><b>Monitoring metals in San Francisco Bay: Quantification of temporal variations from hours to decades</b>, Arthur Flegal, University of CA, Santa Cruz</p>                       | <p><b>Monitoring Pesticides in Iowa's Waters</b>, Mary Skopec, IA Dept. of Natural Resources</p>                                                     | <p><b>Anthropogenic Impacts to Fish Assemblages in Northern New Jersey Streams</b>, Leslie McGeorge, NJ Dept. of Environmental Protection</p>                                                                               |                                                                                                                                                                         |
| <p>2:15 - 2:35</p>                                           | <p><b>Meeting Programmatic Data Quality Objectives through a Standardized Verification and Validation System and Data Management</b>, Beverly van Buuren, San Jose State University Foundation, Moss Landing Marine Labs</p> | <p><b>The National Coastal Assessment: Results, Lessons Learned and Future Directions</b>, Kevin Summers, USEPA</p>                                     | <p><b>The Need for Renewed Emphasis on State, Tribal and Federal Ground-Water Protection Programs</b>, Mike Wireman, USEPA Region 8</p>             | <p><b>The use of remotely-sensed and GIS-derived variables to characterize urbanization in the National Water-Quality Assessment program</b>, James Falcone, USGS</p>                                                                                                                    | <p><b>Science, consensus and monitoring strategies: the art of revising a long-term benthic monitoring program</b>, Heather Peterson, CA Dept. of Water Resources</p>                | <p><b>Assessment of Nutrients and Selected Organic contaminants in Small Streams in the Midwestern United States, 2004</b>, James Stark, USGS</p>    | <p><b>Effects of hydrologic factors on ecological conditions of streams in the northeastern United States</b>, Jonathan Kennen, USGS</p>                                                                                    |                                                                                                                                                                         |
| <p>2:35 - 2:55</p>                                           | <p><b>Challenges of Conducting Analytical Chemistry in Environmental Matrices or Why is my Blank not Blank?</b>, Meg Sedlak, San Francisco Estuary Institute</p>                                                             | <p><b>Perspectives on the State of the Nation's Waters</b>, Robin O'Malley, The H. John Heinz III Center for Science, Economics and the Environment</p> | <p><b>Developing a Ground Water Monitoring Strategy for Half the Cost - Literally</b>, David Wunsch, New Hampshire Geological Survey</p>            | <p><b>StreamStats: A Web-based application for estimating basin characteristics and streamflows</b>, Alan Rea, USGS</p>                                                                                                                                                                  | <p><b>Adapting an Ambient Monitoring Program to the Challenge of Managing Emerging Pollutants in the San Francisco Estuary</b>, Rainer Hoenicke, San Francisco Estuary Institute</p> | <p><b>Trends in diazinon and other urban pesticides in stream samples from the northeastern United States, 1993-2004</b>, Patrick Phillips, USGS</p> | <p><b>Assessment of Aquatic Biological Communities along a Gradient of Urbanization in the Willamette Valley Ecoregion and a Predictive Application to Unsampled Sites</b>, Ian Waite, USGS Oregon Water Science Center</p> |                                                                                                                                                                         |
| <p>3:00 - 3:30</p>                                           | <p>Break - Refreshments in Exhibit Hall 1</p>                                                                                                                                                                                |                                                                                                                                                         |                                                                                                                                                     |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                      |                                                                                                                                                      |                                                                                                                                                                                                                             |                                                                                                                                                                         |

**Monday, May 8**

|                                                   | Meeting Room A5                                                                                                                                                                                                               | Meeting Room A6                                                                                                                                                   | Meeting Room A3                                                                                                                                                             | Meeting Room A4                                                                                                                                                                 | Meeting Room C2                                                                                                                                                              | Meeting Room C4                                                                                                                                                                                                                   | Meeting Room C3                                                                                                                                        | Meeting Room C1                                                                                                                                                            |
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| <b>Concurrent Session C</b><br><b>3:30 - 5:00</b> | <b>Measurement Performance II: Field &amp; Analytical Assessment</b><br>Moderator: Tamim Younos                                                                                                                               | <b>Perspectives on the Nation's Water Quality: Findings, Implications, &amp; Future Directions II</b><br>Moderator: Donna Myers                                   | <b>Monitoring Drinking Water &amp; Sources of Supply</b><br>Moderator: Gil Dichter                                                                                          | <b>Designing Watershed Assessments</b><br>Moderator: LeAnne Astin                                                                                                               | <b>Innovative Approaches for Developing Nutrient TMDLs</b><br>Moderator: Jim Laine                                                                                           | <b>Making it Work: Designing Your Volunteer Monitoring Strategy</b><br>Moderator: Bridget Hoover                                                                                                                                  | <b>Seeing Your Way Through Turbidity Monitoring</b><br>Moderator: Faith Zerbe                                                                          | SHORT COURSE: <b>Statistical Tools for Supporting the Development of a Multi Metric Index (MMI) for Macroinvertebrate Communities</b><br><br>Trainer: John Stoddard, USEPA |
| 3:35 - 3:55                                       | <b>Uncertainty in Measured Streamflow and Water Quality Data for Small Watersheds</b> , Daren Harmel, USDA ARS                                                                                                                | <b>A National Surveillance Study on Priority Pesticides in Canadian Aquatic Ecosystems</b> , Janine Murray, Environment Canada, National Water Research Institute | <b>Water quality monitoring of the Cambrian-Ordovician aquifer system in Iowa and Illinois</b> , Kimberlee Barnes, USGS                                                     | <b>Critical Evaluation of Waterbody Assessment Processes</b> , Lindsay Griffith, Brown and Caldwell                                                                             | <b>The Northeast AVGWLF: A Watershed Scale Model to predict Sediment and Nutrient Transport</b> , Rebecca Weidman, New England Interstate Water Pollution Control Commission | <b>Designing Your Monitoring Plan: Linking Citizen Monitoring and Data Use</b> , Angie Becker Kudelka, Minnesota Waters                                                                                                           | <b>Water Quality Impairment from Roadway Run-off: Characterizing Fine Particles</b> , Peter Green, University of California, Davis                     |                                                                                                                                                                            |
| 3:55 - 4:15                                       | <b>Automated Validation and Grading of Aquatic Time Series Using a Probabilistic Parity Space Method</b> , Touraj Faramand, Aquatic Informatics Inc.                                                                          | <b>Trends in Metals and Hydrophobic Organic Contaminants in Urban and Reference Lake Sediments Across the United States, 1970 to 2001</b> , Peter Van Metre, USGS | <b>Assessment of Shallow Ground-Water Quality in Agricultural and Urban Areas Within the Arid and Semiarid Western United States</b> , Angela Paul, NV Water Science Center | <b>Whatever Happened to Pollution Surveys? The Case for Intensive River Segment Survey Designs</b> , Chris Yoder, Midwest Biodiversity Institute                                | <b>Modeling to Support the Development of Nutrient TMDLs in Baltimore Harbor</b> , Miao-Li Chang, MD Dept. of the Environment                                                | <b>The Nuts and Bolts of a Volunteer Monitoring Day</b> , Diane Cross, South Yuba River Citizens League                                                                                                                           | <b>A Comparison of Ocular Turbidity Instruments for Shallow Waters</b> , Robert Carlson, Kent State University                                         |                                                                                                                                                                            |
| 4:15 - 4:35                                       | <b>Pre-mobilization Error Checks of Multi-parameter Field Instruments: One Way of Promoting Service-wide Consistency in a Water Quality Monitoring Program</b> , Peter Penoyer, National Park Service                         | <b>Volatile Organic Compounds in Ground Water and Drinking-Water Supply Wells</b> , John Zogorski, USGS                                                           | <b>Development of a Source Water Quality Monitoring Protocol for First Nations in Canada</b> , Rob Phillips, Environment Canada                                             | <b>Combining Dynamic Assessments with Traditional Monitoring Approaches to Improve Understanding of NPS Pollution Impacts</b> , William Stringfellow, University of the Pacific | <b>Nutrient TMDLs for the Cahaba River Watershed</b> , Chris Johnson, AL Dept. of Environmental Management                                                                   | <b>The Study Design - The Game Plan Behind Successful Monitoring Strategies and Effective Data Use</b> , Cheryl Snyder, PA Dept. of Environmental Protection                                                                      | <b>Transparency tube as a surrogate for turbidity and suspended solids in rivers and reservoirs</b> , Nicole Reid, Michigan State University Extension |                                                                                                                                                                            |
| 4:35 - 4:55                                       | <b>RPD Between Successive Measurement: A Simple But Neglected Tool for Assessing Monitoring Well Data Quality</b> , Bruce Castle, Erler & Kalinowski, Inc.                                                                    | <b>Assessing the Ecological Conditions of the Great Rivers of the Central United States</b> , Brian Hill, USEPA                                                   | <b>Application of filtration-based luminescence method for rapid monitoring of microbial contamination in water</b> , Carmen Dumas, Ann Arbor Water Treatment Service Unit  | <b>Introducing NHDPlus! – A Tool for Watershed Planning</b> , Richard Moore, USGS                                                                                               | <b>Supporting nutrient criteria development nationwide: Web application &amp; Technical REQuest System (T-REQS)</b> , Jeroen Geritsen, Tetra Tech, Inc.                      | <b>Monitoring - Just Do IT, Baywatchers: 14 years, QA data, Improved understanding, Being creative. The Coalition for Buzzards Bay Citizen's Water Quality Monitoring Program</b> , Tony Williams, The Coalition for Buzzards Bay | <b>Gaining Clarity on Transparency Measurements, Jeffrey Schloss</b> , University of New Hampshire Cooperative Extension                               |                                                                                                                                                                            |
| 5:00 - 7:00                                       | Exhibit and Poster Reception (Exhibit Hall 1)<br>This reception will kick off the networking with our long list of outstanding Exhibitors and Sponsors. This is also a prime opportunity to visit with our Poster Presenters. |                                                                                                                                                                   |                                                                                                                                                                             |                                                                                                                                                                                 |                                                                                                                                                                              |                                                                                                                                                                                                                                   |                                                                                                                                                        |                                                                                                                                                                            |



**Tuesday, May 9**

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| 7:00 - 8:00                                | Breakfast in Exhibit Hall 1, Registration in Ballroom Concourse                                                                                             |                                                                                                                                                                                                                        |                                                                                                                                                                            |                                                                                                                                                                                                     |                                                                                                                                      |                                                                                                                                                 |                                                                                                                                                           |                                                                                                                                                                                      |
|                                            | <b>Meeting Room A1</b>                                                                                                                                      | <b>Meeting Room A2</b>                                                                                                                                                                                                 | <b>Meeting Room A3</b>                                                                                                                                                     | <b>Meeting Room A4</b>                                                                                                                                                                              | <b>Meeting Room A5</b>                                                                                                               | <b>Meeting Room A6</b>                                                                                                                          | <b>Meeting Room A7</b>                                                                                                                                    | <b>Meeting Room C3</b>                                                                                                                                                               |
| <b>Concurrent Session D</b><br>8:00 - 9:30 | <b>The National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries</b><br><br>Session Topic: Integrating Atmospheric Deposition | <b>Tiered Aquatic Life Uses: Conceptual Models &amp; Development Strategies</b><br><br>Moderator: Susan Jackson                                                                                                        | <b>Making the Connections Between Surface and Ground Water</b><br><br>Moderator: Gil Dichter                                                                               | <b>Monitoring to Meet Many Objectives</b><br><br>Moderator: Joan Warren                                                                                                                             | <b>Evaluating the Effects of Agriculture on Water Quality I</b><br><br>Moderator: Paul Capel                                         | <b>Making it Work: Starting &amp; Sustaining Volunteer Monitoring Programs</b><br><br>Moderator: Erick Burren                                   | <b>Monitoring BMPs: Baselines &amp; Strategies to Assess Restoration Efforts</b><br><br>Moderator: Lester McKee                                           | <b>SHORT COURSE: Uses of Real-Time Data: Capabilities, Limitations, Applications, Costs, &amp; Benefits</b><br><br>Trainers: Andy Ziegler, Trudy Bennett, and Teresa Rasmussen, USGS |
| 8:05 - 8:25                                | <b>Connecting atmospheric deposition to coastal water quality</b> , Hans Paerl, UNC Chapel Hill                                                             | <b>The Biological Condition Gradient and Tiered Aquatic Life Uses</b> , Susan Davies, State of Maine                                                                                                                   | <b>Making the Connections Between Surface Water and Ground Water</b> , Pixie Hamilton, USGS                                                                                | <b>South Carolina Surface Water Monitoring: Different Designs for Different Objectives</b> , David Chestnut, SC Dept. of Health and Environmental Control                                           | <b>Transport of Agricultural Chemicals: Mass Budget Approach</b> , Kathleen McCarthy, USGS                                           | <b>What the Heron Sees</b> , Jean-Ann Moon, Marshall County Retired and Senior Volunteer Program                                                | <b>Effects of Multi-scale Environmental Characteristics on Agricultural Stream Biota in the Midwestern USA</b> , Julie Berkman, USGS                      |                                                                                                                                                                                      |
| 8:25 - 8:45                                | <b>Strategy for linking the atmospheric deposition network to the proposed national water quality monitoring network</b> , Mark Nilles, USGS                | <b>Rule-based models for uniform assessments on the Biological Condition Gradient</b> , Jeroen Gerritsen, Tetra Tech, Inc.                                                                                             | <b>Importance of ground-water flow and travel time on nitrogen loading from an agricultural basin in Connecticut</b> , John Mullaney, USGS                                 | <b>Key Considerations in Monitoring Design</b> , Lyle Cowles, USEPA Region 7                                                                                                                        | <b>Transport of Agricultural Chemicals: Atmosphere to Land Surface</b> , Michael Majewski, USGS                                      | <b>Communication is Key to Sustaining Long-Term Volunteer Water Quality Monitoring Programs</b> , Jacob Apodaca, Lower Colorado River Authority | <b>Protocols for the Evaluating the Effects of Land-use Patterns and Runoff Management on Urban Streams</b> , Christine Rohrer, Colorado State University |                                                                                                                                                                                      |
| 8:45 - 9:05                                | <b>Atmospheric mercury monitoring: existing framework and technical challenges</b> , TBN                                                                    | <b>ADEM's Monitoring Strategy for Streams and Rivers: Development and Testing of a Human Disturbance Gradient in the Alabama, Coosa, and Tallapoosa River Basins</b> , Lisa Huff, AL Dept. of Environmental Management | <b>Predicting the Occurrence of Nutrients and Pesticides during Base Flow in Nontidal Headwater Streams of the Mid-Atlantic Coastal Plain</b> , Anne Neale, USEPA ORD NERL | <b>Water quality monitoring designs for multiple objectives and spatial scales: an evaluation based on detection of expected and actual impairment</b> , John Hunt, University of California, Davis | <b>Transport of Agricultural Chemicals: Tile drains to surface water</b> , Wesley Stone, USGS Water Resources Division               | <b>Involving Volunteers Beyond Water Monitoring</b> , Gayla Stock, Houston-Galveston Area Council                                               | <b>Assessing Rain Garden Effectiveness</b> , Brooke Asleson, University of Minnesota                                                                      |                                                                                                                                                                                      |
| 9:05 - 9:25                                | <b>Open discussion</b> facilitated by David Whittall, NOAA                                                                                                  | <b>Key Issues and Underlying Concepts in Use Attainability Analyses for Aquatic Life Designated Uses</b> , Chris Yoder, Midwest Biodiversity Institute                                                                 | <b>Hydrologic controls on nutrient and pesticide transport through a small agricultural watershed, Morgan Creek, Maryland, USA</b> , Michael Brayton, USGS                 | <b>Essentials of specification of information needs</b> , Jos G. Timmerman, Institute for Inland Water Management and Waste Water Treatment (RIZA)                                                  | <b>Pesticide and nutrient behavior in a karst watershed located in southeastern Minnesota</b> , Paul Wotzka, MN Dept. of Agriculture | <b>Capture, care and feeding of volunteers</b> , Dwight Holford, Upper Putah Creek Stewardship                                                  | <b>Open discussion and Q&amp;A</b>                                                                                                                        |                                                                                                                                                                                      |
| 9:30 - 10:30                               | Quick Break (refreshments in Exhibit Hall 1) followed by Poster & Exhibit viewing                                                                           |                                                                                                                                                                                                                        |                                                                                                                                                                            |                                                                                                                                                                                                     |                                                                                                                                      |                                                                                                                                                 |                                                                                                                                                           |                                                                                                                                                                                      |

**Tuesday, May 9**

|                                                              | Meeting Room A1                                                                                                                       | Meeting Room A2                                                                                                                               | Meeting Room A3                                                                                                                                                       | Meeting Room A4                                                                                                                                                                                                | Meeting Room A5                                                                                                                                                                      | Meeting Room A6                                                                                                                                                                                                          | Meeting Room A7                                                                                                                                                                                | Meeting Room C3                                                                                                                                                                                                       |
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| <p><b>Concurrent Session E</b></p> <p><b>10:30–12:00</b></p> | <p><b>Strength in Numbers: Monitoring Councils at Work</b></p> <p>Moderator: Charlie Peters</p>                                       | <p><b>An Overview of the National Wadeable Streams Assessment</b></p> <p>Moderator: Susan Holdsworth</p>                                      | <p><b>Assessing Ground Water Vulnerability Through Mechanistic Methods I</b></p> <p>Moderator: Wayne Lapham</p>                                                       | <p><b>Remote Sensing &amp; GIS-Enhanced Monitoring &amp; Analysis</b></p> <p>Moderator: Jim Harrison</p>                                                                                                       | <p><b>Evaluating the Effects of Agriculture on Water Quality II</b></p> <p>Moderator: Paul Capel</p>                                                                                 | <p><b>Assessing Coastal Watersheds</b></p> <p>Moderator: Mike McDonald</p>                                                                                                                                               | <p><b>E. coli: Comparability of Methods &amp; Rapid Detection</b></p> <p>Moderator: Eleanor Ely</p>                                                                                            | <p><b>WORKSHOP: Building Credibility: Quality Assurance &amp; Quality Control for Volunteer Monitoring Programs</b></p> <p>Facilitators: Elizabeth Herron, URI Watershed Watch; Ingrid Harrald, Cook Inlet Keeper</p> |
| 10:35 - 10:55                                                | <p><b>The Pacific Northwest Aquatic Monitoring Partnership: A Forum For Regional Coordination</b>, Jennifer Bayer, USGS</p>           | <p><b>National Stream and River Assessment Monitoring Design</b>, Anthony Olsen, USEPA NHEERL</p>                                             | <p><b>Proposed Tools and Approach for Ground-Water Vulnerability Assessment Using a Geographic Information System and Simulation Modeling</b>, Jack Barbash, USGS</p> | <p><b>Using the National Hydrography Dataset Plus for drainage area delineation and site matching</b>, Kirsten Cassingham, USGS NC Water Science Center</p>                                                    | <p><b>Transport of Agricultural Chemicals: Unsaturated Zone to Ground Water to Surface Water, San Joaquin Valley, California</b>, Joseph Domagalski, USGS</p>                        | <p><b>Nitrogen and Phosphorus Loadings to the Neuse and Pamlico River Estuaries, North Carolina</b>, Jerad Bales, USGS</p>                                                                                               | <p><b>Comparing E. coli Results Analyzed by Colilert® and Membrane Filtration Techniques</b>, Samuel Dinkins, Ohio River Valley Water Sanitation Commission</p>                                |                                                                                                                                                                                                                       |
| 10:55 - 11:15                                                | <p><b>Interagency Monitoring Coordination: The Oregon Plan Monitoring Team</b>, Gregory Pettit, OR Dept. of Environmental Quality</p> | <p><b>Defining Least-Impacted Reference Condition for the National Wadeable Streams Assessment</b>, Alan Herlihy, Oregon State University</p> | <p><b>Basin-scale assessment of transport of water and agricultural chemicals through the unsaturated zone</b>, Richard Webb, USGS</p>                                | <p><b>New NHD Tools for the Evaluation of Watershed Condition and Management Performance</b>, William Cooter, RTI International</p>                                                                            | <p><b>Linking Ground Water Age and Chemistry Data Along Flow Paths: Implications for Trends and Transformations of Nutrients and Pesticides</b>, Anthony Tesoriero, USGS</p>         | <p><b>Monitoring Wetlands in California</b>, Joshua Collins, San Francisco Estuary Institute</p>                                                                                                                         | <p><b>Volunteer Monitoring of E. coli in Upper Midwest Streams: A Comparison of Methods and Preferences</b>, Kristine Stepenuck, University of WI-Extension, WI Dept. of Natural Resources</p> |                                                                                                                                                                                                                       |
| 11:15 - 11:35                                                | <p><b>Development of the Florida Water Resource Monitoring Atlas</b>, Joe King, FL Dept. of Environmental Protection</p>              | <p><b>Process for developing a Macroinvertebrate Index of Biotic Integrity for the Wadeable Streams Assessment</b>, John Stoddard, USEPA</p>  | <p><b>Conceptual Framework for evaluating the impact of inactive wells on community water supplies</b>, Rick Johnson, Oregon Health &amp; Science University</p>      | <p><b>GIS and Remote Sensing Applications In The Hydropolitics of Sub-Saharan Africa: The Case of Multinational Management of River Niger Basin of West Africa</b>, Edmund Merem, Jackson State University</p> | <p><b>Transport of Agricultural Chemicals: Estimating Lag Times in Different Hydrologic Environments</b>, David Wolock, USGS</p>                                                     | <p><b>Assessing the Health of National Park Service Southeast Coastal Waters Using the United States Environmental Protection Agency's National Coastal Assessment Protocols</b>, Joe DeVivo, National Park Service</p>  | <p><b>Development of Rapid QPCR Approaches for Measurement of E. coli and Enterococcus in Environmental Waters: The Future for Routine Monitoring?</b>, Rachel Noble, UNC Chapel Hill</p>      |                                                                                                                                                                                                                       |
| 11:35 - 11:55                                                | <p><b>Sustaining Long Term Regional Coordinated Monitoring Programs</b>, Todd Running, Houston-Galveston Area Council</p>             | <p><b>National Assessment of the Condition of Wadeable Streams in the Conterminous U.S.</b>, Steven Paulsen, USEPA</p>                        | <p><b>Comparison of intrinsic susceptibility of public-supply wells to contamination among selected regional aquifer systems</b>, Leon Kauffman, USGS</p>             | <p><b>Incorporating remote sensing into an ambient monitoring strategy</b>, Mary Anne Nelson, ID Dept. of Environmental Quality</p>                                                                            | <p><b>Effective Policy Based on Sparse Data: TMDLs in the San Joaquin River Basin, California</b>, Leslie Grober, CA Regional Water Quality Control Board, Central Valley Region</p> | <p><b>NOAA's National Estuarine Research Reserve's System Wide-Monitoring Program: Over 10 years of developing capabilities, applications, and expansions</b>, Susan White, NOAA National Estuarine Research Reserve</p> | <p><b>IMS/ATP rapid method for the determination of E. coli concentrations in recreational waters</b>, Rebecca Bushon, USGS</p>                                                                |                                                                                                                                                                                                                       |
| 12:00 - 1:30                                                 | Lunch in Exhibit Hall 1                                                                                                               |                                                                                                                                               |                                                                                                                                                                       |                                                                                                                                                                                                                |                                                                                                                                                                                      |                                                                                                                                                                                                                          |                                                                                                                                                                                                |                                                                                                                                                                                                                       |

**Tuesday, May 9**

|                                                 | Meeting Room A1                                                                                                                                                                         | Meeting Room A2                                                                                                                                                                          | Meeting Room A3                                                                                                                                                                                  | Meeting Room A4                                                                                                                                                             | Meeting Room A5                                                                                                                                               | Meeting Room A6                                                                                                                                                                                    | Meeting Room A7                                                                                                                         | Meeting Room C3                                                                                                                                         |
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| <b>Concurrent Session F</b><br><b>1:30–3:00</b> | <b>The National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries</b><br><br>Session Topic: <b>Estuaries—Water Quality Monitoring in San Francisco Bay</b> | <b>Evaluating the Effects of Urbanization on Water Quality I</b><br><br>Moderator: Ian Waite                                                                                             | <b>Assessing Ground Water Vulnerability Through Mechanistic Methods II</b><br><br>Moderator: Wayne Lapham                                                                                        | <b>Real-Time Monitoring I: Applications &amp; Program Case Studies</b><br><br>Moderator: Tamim Younos                                                                       | <b>State Experiences in Probabilistic Monitoring</b><br><br>Moderator: Art Garceau                                                                            | <b>Assuring Credible Volunteer Data</b><br><br>Moderator: Jim Harrington                                                                                                                           | <b>Stormwater Monitoring: When It Rains It Pours</b><br><br>Moderator: Dan Radulescu                                                    | <b>WORKSHOP: Bioassessment Method Performance and Comparability, Part 1</b><br><br>Facilitators: Laura Gabanski, USEPA; Jerry Diamond, Tetra Tech, Inc. |
| 1:35 - 1:55                                     | <b>Estuaries component of the Network,</b><br>Jawed Hameedi, NOAA                                                                                                                       | <b>Effects of Urbanization on Stream Ecosystems: Overview and Study Design of the U.S. Geological Survey's Urban Stream Studies,</b><br>Cathy Tate, USGS                                 | <b>Application of Ground Water Dating Techniques for Evaluating the Susceptibility of Aquifers and Public-Supply Wells to Contamination,</b><br>Sandra Eberts, USGS                              | <b>Integrating a Continuous Water Quality Monitoring Network into Texas' Surface Water Quality Monitoring Program,</b> Jill Csekitz, TX Commission on Environmental Quality | <b>Pennsylvania's Application of Probability-Based Sampling,</b><br>Tony Shaw, PA Dept. of Environmental Protection                                           | <b>QA/QC and QAPP: How to get professional quality data from a volunteer program,</b><br>Ingrid Harrauld, Cook Inlet Keeper                                                                        | <b>First Flush Volunteers Do it in the Dark,</b> Bridget Hoover, Monterey Bay National Marine Sanctuary                                 |                                                                                                                                                         |
| 1:55 - 2:15                                     | <b>Lessons from three decades of monitoring in San Francisco Bay,</b><br>James Cloern, USGS                                                                                             | <b>Ecological responses of streams to urbanization: A review of results from the U.S. Geological Survey's urban streams studies,</b> Thomas Cuffney, USGS                                | <b>Evaluating uncertainty in areas contributing recharge to wells for water-quality network design,</b> Jeffrey Starn, USGS                                                                      | <b>Continuous in-stream monitoring to measure and estimate water-quality concentrations, densities, and loads,</b><br>Andrew Ziegler, USGS                                  | <b>Probabilistic Monitoring in Virginia: Experiences from the First Five Years,</b><br>Lawrence Willis, VA Dept. of Environmental Quality                     | <b>What is Representativeness, and Why are We Confused?,</b><br>Revital Katznelson, CA State Water Resources Control Board                                                                         | <b>Monitoring of priority toxic pollutants in Highway Stormwater Runoff,</b> Peter Green, University of California, Davis               |                                                                                                                                                         |
| 2:15 - 2:35                                     | <b>San Francisco Bay Regional Monitoring Program,</b> Jay Davis, San Francisco Estuary Institute                                                                                        | <b>Identifying the changes to stream condition caused by urbanization, and how modeling the responses can be used to improve ecological risk characterizations,</b><br>James Coles, USGS | <b>Use of Multiple Tracers and Geochemical Modeling to Assess Vulnerability of a Public Supply Well in the Karstic Upper Floridan Aquifer,</b> Brian Katz, USGS                                  | <b>A Real-Time Water Quality Monitoring Network for Investigating the Strengths and Weaknesses of Existing Monitoring Techniques,</b> David Stevens, Utah State University  | <b>Idaho's experience with random design using NHD: intermittent streams and other considerations,</b><br>Mary Anne Nelson, ID Dept. of Environmental Quality | <b>Evaluation of the New York City Watershed Hudson Basin River Watch Volunteer Monitoring Pilot Project,</b><br>Heather Clark Dantzker, The Community Science Institute, Inc., Cornell University | <b>Monitoring and Analytical Issues For BMP Performance Evaluation,</b> Hong Lin, CDS Technologies                                      |                                                                                                                                                         |
| 2:35 - 2:55                                     | <b>Open discussion</b><br>facilitated by TBN                                                                                                                                            | <b>Modeling Urban Landscape Patterns and their Effects on Aquatic Ecosystems,</b><br>Marina Alberti, University of Washington                                                            | <b>Depth-Dependent Sampling to Determine Source Areas and Short-Circuit Pathways for Contaminants to Reach Public Supply Wells, High Plains Aquifer, York, Nebraska,</b><br>Matthew Landon, USGS | <b>Monitoring Surface-Water-Quality in the Tongue River Watershed of Montana and Wyoming,</b> Stacy Kinsey, USGS                                                            | <b>Utility Of Probability-Based Survey Design for Tracking Fish Species of Interest,</b><br>Matt Combes, MO Dept. of Conservation                             | <b>Experiences in monitoring,</b> Eric Russell, Surfrider Foundation                                                                                                                               | <b>Evaluation of water quality monitoring data at the local level, a reality check,</b> Jeff Hieronymus, Charlotte Storm Water Services |                                                                                                                                                         |
| 3:00 - 3:30                                     | Break - Refreshments in Exhibit Hall 1                                                                                                                                                  |                                                                                                                                                                                          |                                                                                                                                                                                                  |                                                                                                                                                                             |                                                                                                                                                               |                                                                                                                                                                                                    |                                                                                                                                         |                                                                                                                                                         |

**Tuesday, May 9**

|                                                  | Meeting Room A1                                                                                                                                                                | Meeting Room A2                                                                                                                                                                                                      | Meeting Room A3                                                                                                                                                                                                 | Meeting Room A4                                                                                                                                                                            | Meeting Room A5                                                                                                                                                                                                                                | Meeting Room A6                                                                                                                                                                | Meeting Room A7                                                                                                                                                  | Meeting Room C3                                                                                                                                                  |
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| <p><b>Concurrent Session G</b><br/>3:30–5:00</p> | <p><b>Monitoring for the Prevention &amp; Cleanup of Toxics</b><br/>Moderator: Ed Santoro</p>                                                                                  | <p><b>Evaluating the Effects of Urbanization on Water Quality II</b><br/>Moderator: Cathy Tate</p>                                                                                                                   | <p><b>Assessing Ground Water Vulnerability through Mechanistic Methods III</b><br/>Moderator: Ryan Dupont</p>                                                                                                   | <p><b>Harnessing the Beast: Managing Complex Data Sets</b><br/>Moderator: Ellen McCarron</p>                                                                                               | <p><b>Monitoring for Trends</b><br/>Moderator: Tony Olsen</p>                                                                                                                                                                                  | <p><b>States &amp; Volunteers: Partnerships that Work</b><br/>Moderator: Alice Mayio</p>                                                                                       | <p><b>Monitoring Algae: Tracking Trends, Toxins, &amp; Food Web Dynamics</b><br/>Moderator: Fred Leslie</p>                                                      | <p>WORKSHOP: <b>Bioassessment Method Performance and Comparability, Part 2</b><br/><br/>Facilitators: Laura Gabanski, USEPA; Jerry Diamond, Tetra Tech, Inc.</p> |
| 3:35 - 3:55                                      | <p><b>Monitoring mercury in biosentinel fish in San Francisco Bay</b>, Ben Greenfield, San Francisco Estuary Institute</p>                                                     | <p><b>You're standing on it! Parking lot sealcoat and urban PAHs</b>, Barbara Mahler, USGS</p>                                                                                                                       | <p><b>Groundwater Age as a Predictive Tool for Water Quality Monitoring</b>, Jean Moran, Lawrence Livermore National Laboratory</p>                                                                             | <p><b>Arkansas Monitoring Data Assessment Program (AMDAP) Using the Segment Evaluation Spreadsheet (SEGEVAL.XLS)</b>, Jessica Franks, USEPA Region 6</p>                                   | <p><b>The Regional Kendall Test for Trend</b>, Dennis Helsel, USGS</p>                                                                                                                                                                         | <p><b>The Vermont Lay Monitoring Program: Afloat For 26 Years!</b>, Amy Picotte, VT Agency of Natural Resources</p>                                                            | <p><b>Spatial and temporal trends of algal biomass in small and large streams in Indiana, 2001-04</b>, Jeffrey Frey, USGS</p>                                    |                                                                                                                                                                  |
| 3:55 - 4:15                                      | <p><b>Recovery and Monitoring Challenges with Water Quality Issues in New Orleans during Hurricane Katrina Recovery Operations</b>, William Roper, George Mason University</p> | <p><b>City of Austin biological studies on the toxicity and effects of coal tar sealants on stream communities</b>, Mateo Scoggins, City of Austin</p>                                                               | <p><b>Simulation of Short Circuit Flow Paths and Transient Conditions to Understand Vulnerability of Public Supply Wells to Contamination in the High Plains Aquifer, York, Nebraska</b>, Brian Clark, USGS</p> | <p><b>Managing Monitoring Data from Many Sources: A New Hampshire Experience</b>, Deb Soule, NH Dept. of Environmental Services</p>                                                        | <p><b>Water Quality Trends Along the Central Coast of California</b>, Marc Los Huertos, University of CA, Santa Cruz</p>                                                                                                                       | <p><b>Using Citizen Monitoring Bioassessment and Water Quality Data to Obtain Impaired Watershed Status</b>, Joanne Hild, Friends of Deer Creek</p>                            | <p><b>Influences of Stream Size in Determining Nutrient Criteria for Streams in the Eastern Corn Belt Plains Ecoregion</b>, Brian Caskey, USGS</p>               |                                                                                                                                                                  |
| 4:15 - 4:35                                      | <p><b>The Regional Bypass WorkGroup—A Successful Application of Water Quality Prediction and Interagency Communication</b>, Charles Dujardin, HydroQual, Inc.</p>              | <p><b>Assessing the Effects of Urban Land Use on Stream Ecosystems: Integrating Chemistry, Toxicity Test, and CYP1A1 Gene Activation Data from Extracts of Semipermeable Membrane Devices</b>, Wade Bryant, USGS</p> | <p><b>GAMA Special Studies on Nitrate in California Groundwater</b>, Bradley Esser, Lawrence Livermore National Laboratory</p>                                                                                  | <p><b>Expanding Water Quality Assessments beyond the Realm of 'Impairments' and into a Tool Useful to Watershed Managers at the Local Level</b>, Ken Edwardson, State of New Hampshire</p> | <p><b>Lessons Learned from Monitoring Compliance with a Phosphorus Standard in the Florida Everglades and Assessing the Linkage between Phosphorus Control and Marsh Water Quality</b>, Garth Redfield, South FL Water Management District</p> | <p><b>The Oregon DEQ Volunteer Monitoring Program: Managing and Applying Data Generated Within a Grassroots Framework</b>, Steve Hanson, OR Dept. of Environmental Quality</p> | <p><b>Algal pigments in benthic organisms and fish: development of biomarkers to trace food-web relationships</b>, Katherine Alben, NY State Dept. of Health</p> |                                                                                                                                                                  |
| 4:35 - 4:55                                      | <p><b>Combining prediction and monitoring for reduction of toxics: the Lake Michigan Mass Balance Study</b>, Glenn Warren, USEPA</p>                                           | <p><b>Pesticides in urban settings—Use of a Pesticide Toxicity Index to evaluate potential toxicity of stream water samples to macroinvertebrates</b>, Karen Riva-Murray, USGS</p>                                   | <p><b>Understanding agriculture-related trends in ground-water quality in the Western Lake Michigan Drainages, Wisconsin</b>, David Saad, USGS</p>                                                              | <p><b>Vital Signs Water Quality Data Management in the National Park Service</b>, Dean Tucker, National Park Service</p>                                                                   | <p><b>Wisconsin's Surface Water Quality Monitoring Program</b>, Kenneth Schreiber, WI Dept. of Natural Resources</p>                                                                                                                           | <p><b>New Jersey's Answer to Multiple Volunteer Data Sources</b>, Danielle Donkersloot, NJ Dept. of Environmental Protection</p>                                               | <p><b>Screening for Algal Toxins in Volunteer-Monitored Lakes</b>, Gene Williams, Snohomish County Public Works Dept.</p>                                        |                                                                                                                                                                  |

**Tuesday, May 9**

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| 5:15 - ?    | <p><b>Special Session on National Ground Water Monitoring (Meeting Room A1)</b><br/>The purpose of this brainstorming session is to discuss the formation of a work group to help develop a consistent, nationwide monitoring and assessment program leading to an accurate estimation of ground water stored volume, availability, and sustainability. We will focus on defining the need for coordinated national ground water monitoring and developing recommendations for the planning and initial implementation of such monitoring. See strawman document at <a href="http://water.usgs.gov/wicp/acwi/monitoring/workgroups/wci/">http://water.usgs.gov/wicp/acwi/monitoring/workgroups/wci/</a></p>                                                                                                                                                                                                                                                                       |
| 5:15 - 6:30 | <p><b>Volunteer Monitoring Coordinators Meeting (Meeting Room C1)</b><br/>Discussion leaders: Linda Green, USDA-CSREES National Facilitation of Volunteer Monitoring and Alice Mayo, U.S. EPA</p> <p>This informal meeting is to encourage discussion and networking among volunteer monitoring coordinators. What's working in the world of volunteer monitoring, what needs more work, and where are we headed? Share some examples of your program successes, challenges, needs and desires!</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 6:30 - ?    | <p><b>Gathering of Volunteer Monitoring Coordinators -- location TBA</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 7:00 - 9:00 | <p><b>Panel Discussion: Effects of Urbanization on Streams (Meeting Room A8)</b><br/>Facilitator: Cathy Tate, USGS National Water-Quality Assessment Program</p> <p>This panel discussion will build upon earlier technical sessions on "Evaluating the Effects of Urbanization on Water Quality I &amp; II" and will include 5 to 6 panelists who will provide perspectives on urban water-quality studies that represent the diverse interests of conference attendees. A brief introductory discussion by panel members will be followed by a general Q&amp;A period. We will focus on the following questions: 1) Urban designs...what's worked, what hasn't?; 2) What types of data are being collected, what data are most useful in assessing the effects of urbanization on stream quality?; 3) Which data or information are most useful to planners, regulators, and watershed groups, and how is data from urban water quality studies being used by stakeholders?</p> |

## Wednesday, May 10

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| 7:00 - 8:00                              | Breakfast in Exhibit Hall 1, Registration in Ballroom Concourse                                                                                          |                                                                                                                                                                               |                                                                                                                                                                                           |                                                                                                                                                                                |                                                                                                                                                                                                                                             |                                                                                                                                                                                                          |                                                                                                                                                                     |                                                                                                                                             |
|                                          | <b>Meeting Room A1</b>                                                                                                                                   | <b>Meeting Room A2</b>                                                                                                                                                        | <b>Meeting Room A3</b>                                                                                                                                                                    | <b>Meeting Room A4</b>                                                                                                                                                         | <b>Meeting Room A5</b>                                                                                                                                                                                                                      | <b>Meeting Room A6</b>                                                                                                                                                                                   | <b>Meeting Room A7</b>                                                                                                                                              | <b>Meeting Room C3</b>                                                                                                                      |
| <b>Concurrent Session H</b><br>8:00-9:30 | <b>The National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries</b><br><br>Session Topic: Large Rivers Monitoring Network | <b>Improving Data Management and Exchange</b><br><br>Moderator: Rob Kent                                                                                                      | <b>Cooperative Regional Monitoring in California</b><br><br>Moderator: Ken Schiff                                                                                                         | <b>Perspectives on the Nation's Water Quality: Findings, Implications, &amp; Future Directions III</b><br><br>Moderator: Ellen Tarquinio                                       | <b>Effects of Urbanization on Water Quality: Case Studies</b><br><br>Moderator: James Moring                                                                                                                                                | <b>Making it Work: Effectively Training Volunteer Monitors</b><br><br>Moderator: Paula Zevin                                                                                                             | <b>Bioassessment Method Comparability &amp; Performance</b><br><br>Moderators: Jerry Diamond, Laura Gabanski                                                        | <b>WORKSHOP: Statistical Analysis of Probability Survey Data Using R Statistical Software, Part 1</b><br><br>Facilitator: Tony Olsen, USEPA |
| 8:05 - 8:25                              | <b>Rivers Component of the Monitoring Network</b> , Jared Bales, USGS                                                                                    | <b>Water Quality Data Elements (WQDE): Enhancing comparability of monitoring information</b> , LeAnne Astin, Interstate Commission on the Potomac River Basin                 | <b>Inventory of Ocean Monitoring in the Southern California Bight</b> , Stephen Weisburg, Southern California Coastal Water Research Project                                              | <b>Water quality monitoring and assessment of global change</b> , Richard Roberts, UNEP GEMS/Water Programme                                                                   | <b>Comparing flow variability in urban streams across environmental settings</b> , Elise Giddings, USGS NC Water Science Center                                                                                                             | <b>Georgia Adopt A Stream Coastal Region Training Center at Savannah State University</b> , Joseph Richardson, Savannah State University                                                                 | <b>Comparable Biological Assessments From Different Methods and Analyses</b> , David Herbst, University of CA                                                       |                                                                                                                                             |
| 8:25 - 8:45                              | <b>Upper Mississippi River monitoring</b> , Mary Skopec, IA Dept. of Natural Resources                                                                   | <b>Water Quality Exchange WQX: EPA's new look at Water Quality Data Management</b> , Kristen Gunthardt, USEPA Office of Water                                                 | <b>Southern California Bight Regional Marine Monitoring Program</b> , Kenneth Schiff, Southern California Coastal Water Research Project                                                  | <b>Evaluating the Potential Human-Health Relevance of Volatile Organic Compounds in Samples from Domestic and Public Wells in the United States</b> , Patricia Toccalino, USGS | <b>A tale of two streams: Chemical and physical characteristics of secondary tributaries in an arid urban watershed and potential impacts on a main stem river</b> , Philip Russell, Littleton Englewood Wastewater Treatment Plant         | <b>The Importance of Professionally Training Citizen Monitors in Building, Promoting and Implementing a State-Wide Bioassessment Program in California</b> , James Harrington, CA Dept. of Fish and Game | <b>Pacific Northwest side-by-side protocol comparison test</b> , Steve Lanigan, USFS/BLM                                                                            |                                                                                                                                             |
| 8:45 - 9:05                              | <b>Monitoring networks in Alabama</b> , Fred Leslie, AL Dept. of Environmental Management                                                                | <b>Compiling a baseline water quality database from heterogeneous data sources: lessons learned</b> , Nenad Iricanin, South FL Water Management District                      | <b>MARINe: A Long-term Monitoring Program for Detecting Change in Rocky Intertidal Environments</b> , Steve Murray, California State University, Fullerton                                | <b>Preliminary Findings of Anthropogenic Organic Compounds in Source and Finished Waters of Community Water Systems</b> , Gregory Delzer, USGS                                 | <b>An evaluation of aquatic communities in urbanized Mediterranean climate streams: a guide to more effective stream restoration techniques in the Santa Clara Basin</b> , San Jose, California, Alison Purcell, University of CA, Berkeley | <b>Evaluation of Volunteer-based Water Quality Monitoring Training for SCORE (South Carolina Oyster Restoration and Enhancement)</b> , Steven O'Shields, I.M. Systems Group, Inc.                        | <b>National Wadeable Stream Survey Comparability Study</b> , Mark Southerland, Versar, Inc.                                                                         |                                                                                                                                             |
| 9:05 - 9:25                              | <b>Open discussion</b> facilitated by Gail Mallard, USGS                                                                                                 | <b>Data Comparability and Modernization of Environment Canada's Water Quality Information Holdings</b> , Chris Lochner, Environment Canada, National Water Research Institute | <b>The Value of Communication and Coordination for Statewide Decision Making: The Example of the Beach Water Quality Workgroup</b> , Robin McGraw, CA State Water Resources Control Board | <b>Are environmental contaminant concentrations in U.S. waters harmful to fish-eating wildlife?</b> , Jo Ellen Hinck, USGS Columbia Environmental Research Center              | <b>Physical, chemical, and biological characteristics of streams in urbanizing areas near Denver, Colorado</b> , Lori Sprague, USGS                                                                                                         | <b>A Participatory, Multi-Stakeholder Approach to Curbing Urban Sprawl</b> , Andrew Kett, Citizens' Environment Watch                                                                                    | <b>Determining the Comparability of Six Bioassessment Methodologies in New England</b> , Rebecca Weidman, New England Interstate Water Pollution Control Commission |                                                                                                                                             |
| 9:30 - 10:00                             | Break - Refreshments in Exhibit Hall 1                                                                                                                   |                                                                                                                                                                               |                                                                                                                                                                                           |                                                                                                                                                                                |                                                                                                                                                                                                                                             |                                                                                                                                                                                                          |                                                                                                                                                                     |                                                                                                                                             |



**Wednesday, May 10**

|                                            | Meeting Room A1                                                                                                                                                                                                                       | Meeting Room A2                                                                                                                                                                                | Meeting Room A3                                                                                                                                                                                                | Meeting Room A4                                                                                                                                                 | Meeting Room A5                                                                                                                                                            | Meeting Room A6                                                                                                                                                        | Meeting Room A7                                                                                                                                                                          | Meeting Room C3                                                                                                                             |
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| <b>Concurrent Session I</b><br>10:00–11:30 | <b>Real-Time Monitoring II: Safeguarding Drinking Water &amp; Public Health</b><br>Moderator: Peter Tennant                                                                                                                           | <b>Collaborating for Improved Monitoring I</b><br>Moderator: Toni Johnson                                                                                                                      | <b>Cooperative Regional Monitoring in California—Lessons Learned</b><br>Moderator: Val Connor                                                                                                                  | <b>Evaluating Key Stressors to the Nation’s Aquatic Resources</b><br>Moderator: Katherine Alben                                                                 | <b>Approaches to National Water Quality Monitoring &amp; Assessment in Other Countries</b><br>Moderator: Chuck Spooner                                                     | <b>Volunteer Monitoring: Raising the Bar</b><br>Moderator: Jacob Apodaca                                                                                               | <b>Characterizing &amp; Interpreting Habitat Data</b><br>Moderator: Dan Sullivan                                                                                                         | WORKSHOP: <b>Statistical Analysis of Probability Survey Data Using R Statistical Software, Part 2</b><br><br>Facilitator: Tony Olsen, USEPA |
| 10:05 - 10:25                              | <b>BacteriALERT: A Cooperative Program for Water-quality Monitoring and Prediction of Escherichia coli Bacteria in the Chattahoochee River, Georgia.</b> Stephen Lawrence, USGS                                                       | <b>Monitoring Environmental Stressors and Evaluating the Existing and Potential Designated Uses of Hardies Creek, Galesville, Wisconsin.</b> Daniel Helsel, WI Dept. of Natural Resources      | <b>Cooperative Agricultural Monitoring on California’s Central Coast: An Integrated, Innovative Approach.</b> Karen Worcester, Central Coast Water Board                                                       | <b>Monitoring Implications of the Updated Ambient Water Quality Criteria for Copper and the Copper Biotic Ligand Model (BLM).</b> Lauren Wisniewski, USEPA      | <b>Europe-wide monitoring obligations under the EU Water Framework Directive.</b> Jos G. Timmerman, Institute for Inland Water Management and Waste Water Treatment (RIZA) | <b>Stream Waders and the Maryland Biological Stream Survey: Comparing Volunteer and Professional Stream Quality Data.</b> Chris Millard, MD Dept. of Natural Resources | <b>Watershed Stewardship Utilizing GPS Habitat and Bioassessment Surveys.</b> Aspen Madrone, Contra Costa County                                                                         |                                                                                                                                             |
| 10:25 - 10:45                              | <b>AquaSentinel: An Advanced Real-Time Biosensor System for Source Water Protection.</b> Elias Greenbaum, Oak Ridge National Laboratory                                                                                               | <b>Water Quality Indicators and Monitoring Design to Support the Albemarle-Pamlico National Estuary Program: A Progress Report.</b> Dean Carpenter, Albemarle-Pamlico National Estuary Program | <b>A Regional Approach to Research/Monitoring in Southern California.</b> Chris Crompton, Orange County, California                                                                                            | <b>Characterizing and Interpreting Physical Habitat in the National Wadeable Stream Assessment.</b> Philip Kaufmann, USEPA                                      | <b>Designing a National Water Quality Monitoring Network to support the Canadian Freshwater Quality Indicator.</b> Rob Kent, Environment Canada                            | <b>Evaluation of Volunteer Data—The Lakes of Missouri Volunteer Program Review.</b> Daniel Obrecht, University of Missouri, Lakes of Missouri Volunteer Program        | <b>Great Lakes Aquatic Gap: A Regional Approach to Identifying Gaps in Species and Habitat Conservation for Great Lake Streams.</b> Jana Stewart, USGS                                   |                                                                                                                                             |
| 10:45 - 11:05                              | <b>Variability in Responses of Multi-Parameter Sensors in a Prototype Real-Time Early Warning System to Monitor Water Quality.</b> Eric Vowinkel, USGS                                                                                | <b>Development of a Collaborative Multi-Jurisdictional Stream-Monitoring Network to Support Restoration of the Chesapeake Bay.</b> Stephen Preston, USGS Chesapeake Bay Program Office         | <b>Southern California Laboratory Inter-calibration Exercises: A Demonstration Regarding the Comparability of Monitoring Programs Using Multiple Laboratories.</b> Rich Gossett, CRG Marine Laboratories, Inc. | <b>Nutrient and Acidity Status of Wadeable Streams in the Contiguous United States - Results from EPA’s Wadeable Streams Assessment.</b> Ellen Tarquinio, USEPA | <b>Biological Assessment of Water Quality: Delivery of a National System in Australia.</b> Richard Norris, University of Canberra                                          | <b>Volunteer Water Quality Monitoring Data Enhancing Lake Chatuge Watershed Study.</b> Callie Dobson, Hiwassee River Watershed Coalition, Inc.                         | <b>An Overview of the National Park Service’s Vital Signs Water Quality Monitoring Program: A National Framework for Land Management Agencies.</b> Gary Rosenlieb, National Park Service |                                                                                                                                             |
| 11:05 - 11:25                              | <b>Real Time Monitoring—The Installation and Continuous Operation of Organic Carbon and Liquid Chromatography Analyzers at Remote Field Stations in the Sacramento-San Joaquin Delta.</b> David Gonzalez, CA Dept. of Water Resources | <b>Water Quality Monitoring Among Local Agencies in the Red River of the North Basin.</b> Robert Hearne, North Dakota State University                                                         | <b>Information management in a multi-agency cooperative monitoring program.</b> Larry Cooper, Southern California Coastal Water Research Project                                                               | <b>Evaluating the extent and relative risk of aquatic stressors in wadeable streams throughout the U.S.A..</b> John Van Sickle, USEPA NHEERL                    | <b>Water monitoring and utilization: surveillance, struggle or symbol?.</b> Dennis Kool, Erasmus University Rotterdam (Centre for Public Governance)                       | <b>QA/QC Assessment of Volunteer Monitoring in Rhode Island.</b> Elizabeth Herron, URI Cooperative Extension                                                           | <b>Moving the National Water-Quality Assessment habitat data through time.</b> Jeffrey Steuer, USGS                                                                                      |                                                                                                                                             |
| 11:30 - 1:00                               | Lunch in Exhibit Hall 1                                                                                                                                                                                                               |                                                                                                                                                                                                |                                                                                                                                                                                                                |                                                                                                                                                                 |                                                                                                                                                                            |                                                                                                                                                                        |                                                                                                                                                                                          |                                                                                                                                             |

**Wednesday, May 10**

|                                                  | Meeting Room A1                                                                                                                                                 | Meeting Room A2                                                                                                                                                                                           | Meeting Room A3                                                                                                                                              | Meeting Room A4                                                                                                                                                                              | Meeting Room A5                                                                                                                      | Meeting Room A6                                                                                                                                                                                       | Meeting Room A7                                                                                                                                                                                                     | Meeting Room C3                                                                                                                                                                                                                                                                                                                                                            |
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| <p><b>Concurrent Session J</b><br/>1:00–2:30</p> | <p><b>The National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries</b></p> <p>Session Topic: Great Lakes Monitoring Networks</p> | <p><b>Collaborating for Improved Monitoring II</b></p> <p>Moderator: Gayle Rominger</p>                                                                                                                   | <p><b>Assessing Ground Water Vulnerability Through Statistical Methods I</b></p> <p>Moderator: Tom Nolan</p>                                                 | <p><b>Challenges in the Development of Nutrient Criteria for Streams &amp; Rivers I</b></p> <p>Moderator: Jeff Frey</p>                                                                      | <p><b>Mercury Contamination: Sources, Transport, &amp; Fate I</b></p> <p>Moderator: Mark Brigham</p>                                 | <p><b>National Wadeable Streams Assessment: State Experiences</b></p> <p>Moderator: Leslie McGeorge</p>                                                                                               | <p><b>New Technologies &amp; Approaches</b></p> <p>Moderator: Bob Carlson</p>                                                                                                                                       | <p>SHORT COURSE: <b>Data Management and Databases: Capturing, Storing, and Managing Data for Success in Monitoring</b></p> <p>Trainers: Kristine Stepenuck, University of Wisconsin Extension and Wisconsin Department of Natural Resources; Lynette Seigley, Iowa Department of Natural Resources; Revital Katznelson, California State Water Resources Control Board</p> |
| 1:05 - 1:25                                      | <p><b>The Great Lakes National Program's Multi-Media Monitoring Program</b>, Paul Horvatin, Great Lakes National Program Office</p>                             | <p><b>Collaborative Monitoring in the Great Lakes: Revisiting the Lake Michigan Mass Balance Project</b>, John Hummer, Great Lakes Commission</p>                                                         | <p><b>Regression model for national assessment of nitrate in ground water</b>, Bernard Nolan, USGS</p>                                                       | <p><b>Overview of the National Nutrient Criteria Program</b>, Amy Parker, USEPA</p>                                                                                                          | <p><b>Statewide Monitoring of Mercury in Surface Water, Precipitation, and Fish in Indiana</b>, Martin Risch, USGS</p>               | <p><b>Texas' Contributions to the National Wadeable Streams Assessment and Future Direction of the State's Biological Monitoring Program</b>, Anne Rogers, TX Commission on Environmental Quality</p> | <p><b>The SWAMP Advisor—a New Tool for Producing Consistent and Comprehensive Quality Assurance Project Plans (QAPPs)</b>, Lawrence Keith, Instant Reference Sources, Inc.</p>                                      |                                                                                                                                                                                                                                                                                                                                                                            |
| 1:25 - 1:45                                      | <p><b>National Monitoring Network Design for the Great Lakes</b>, Jack Kelly, USEPA National Health and Environmental Effects Research Laboratory</p>           | <p><b>Collaboration on EMAP Stream Condition Assessments in EPA Region 8</b>, Thomas Johnson, USEPA Region 8</p>                                                                                          | <p><b>Using Logistic Regression to Assess Regional Ground-Water Vulnerability: High Plains Aquifer</b>, Jason Gurdak, USGS Colorado Water Science Center</p> | <p><b>Nutrient-Biota Interactions in Agriculturally Dominated Landscapes: Lessons from the U.S. Geological Survey National Water-Quality Assessment (NAWQA) Program</b>, Mark Munn, USGS</p> | <p><b>Mercury monitoring in California sport fish: Past, present, and future</b>, Jay Davis, San Francisco Estuary Institute</p>     | <p><b>Validation of a Multimetric Index Using Probabilistic Monitoring Data</b>, Jason Hill, VA Dept. of Environmental Quality</p>                                                                    | <p><b>Continuous nitrate concentration data from a small agricultural ditch in Indiana: Relationship to streamflow and inferences to biological processes affecting nitrogen cycling</b>, Timothy Lathrop, USGS</p> |                                                                                                                                                                                                                                                                                                                                                                            |
| 1:45 - 2:05                                      | Presenter TBD                                                                                                                                                   | <p><b>A Collaborative Approach to Assessing Watershed Conditions in Coastal National Parks</b>, Kristen Keteles, National Park Service</p>                                                                | <p><b>Empirical modeling of nitrate loading and crop yield for corn-soybean rotations in Iowa</b>, Robert Malone, USDA ARS</p>                               | <p><b>Response of benthic algal and invertebrate communities to nutrient enrichment in agricultural streams: Implications for establishing nutrient criteria</b>, Robert Black, USGS</p>     | <p><b>Mercury in northeastern North America: A synthesis of existing databases</b>, David Evers, BioDiversity Research Institute</p> | <p><b>A comparison of biological methods for macroinvertebrate collection in Missouri streams</b>, Shane Dunnaway, MO Dept. of Conservation</p>                                                       | <p><b>Use of Trace-Level Cyanide Method to Determine Attenuation of Discharged Cyanide in Lower South San Francisco Bay</b>, Peter Schafer, City of San Jose, CA</p>                                                |                                                                                                                                                                                                                                                                                                                                                                            |
| 2:05 - 2:25                                      | <p><b>Open discussion</b> facilitated by Chuck Spooner, USEPA</p>                                                                                               | <p><b>A Multi-scale Collaborative Approach For Linking Terrestrial and Aquatic Long-Term Monitoring: Lessons Learned in the Delaware River Basin and Proposed New Directions</b>, Peter Murdoch, USGS</p> | <p><b>Using logistic regression to predict the probability of occurrence of volatile organic compounds in ground water</b>, Michael Moran, USGS</p>          | <p><b>The Use of Calculated Stream Metabolism in Understanding Nutrients in Agricultural Streams</b>, Jill Frankforter, USGS</p>                                                             | <p><b>A Framework for Monitoring the Response to Changing Mercury Releases</b>, Michael Murray, National Wildlife Federation</p>     | <p><b>Comparability of Habitat and Macroinvertebrate Collection Methods in Oklahoma's Low Gradient Streams</b>, Monty Porter, OK Water Resources Board</p>                                            | <p><b>Identifying Greener Analytical Methods in NEMI for More Environmentally Friendly Monitoring</b>, Jennifer Young, ACS Green Chemistry Institute</p>                                                            |                                                                                                                                                                                                                                                                                                                                                                            |
| 2:30 - 3:30                                      | Quick Break (refreshments in Exhibit Hall 1) followed by Poster & Exhibit viewing                                                                               |                                                                                                                                                                                                           |                                                                                                                                                              |                                                                                                                                                                                              |                                                                                                                                      |                                                                                                                                                                                                       |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                            |

**Wednesday, May 10**

|                                                 | Meeting Room A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Meeting Room A2                                                                                                                                                               | Meeting Room A3                                                                                                                                                                                     | Meeting Room A4                                                                                                                            | Meeting Room A5                                                                                                  | Meeting Room A6                                                                                                                       | Meeting Room A7                                                                                                                                                         | Meeting Room C3                                                                               |
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| <b>Concurrent Session K</b><br><b>3:30–5:00</b> | <b>Bits &amp; Bytes in Cyberspace: Sharing Data Via the Internet</b><br>Moderator: Linda Green                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>State &amp; Tribal Monitoring Approaches</b><br>Moderator: Paul Currier                                                                                                    | <b>Assessing Ground Water Vulnerability Through Statistical Methods II</b><br>Moderator: Tom Nolan                                                                                                  | <b>Challenges in the Development of Nutrient Criteria for Streams &amp; Rivers II</b><br>Moderator: Mark Munn                              | <b>Mercury Contamination: Sources, Transport, &amp; Fate II</b><br>Moderator: Jay Davis                          | <b>Volunteer Monitoring Databases</b><br>Moderator: Kristine Stepenuck                                                                | <b>Predictive Bioassessment Models</b><br>Moderator: Gretchen Hayslip                                                                                                   | SHORT COURSE:<br><b>Developing Habitat Condition Metrics</b><br>Trainer: Phil Kaufmann, USEPA |
| 3:35 - 3:55                                     | <b>ACWA (Alaska Clean Water Action) Program and Web-based Tool for Managing Alaska's Waters</b> , Dianne Denson, State of Alaska                                                                                                                                                                                                                                                                                                                                                                                      | <b>Oklahoma's Beneficial Use Monitoring Program (BUMP) , Results, Lessons Learned, and Future Directions</b> , Julie Chambers, OK Water Resources Board                       | <b>Screening-Level Assessments of Public Water Supply Well Vulnerability to Natural Contaminants</b> , Stephen Hinkle, USGS                                                                         | <b>Addressing California's Nutrient Issues</b> , Dena McCann, CA State Water Resources Control Board                                       | <b>Mercury cycling and bioaccumulation in streams in Oregon, Wisconsin, and Florida</b> , Mark Brigham, USGS     | <b>Development of an Internet Database for WV Save Our Streams Volunteer Monitors</b> , Timothy Craddock, WV Save Our Streams Program | <b>Assessing the biological quality of the Nation's streams with an indicator of taxonomic completeness</b> , Charles Hawkins, Utah State University                    |                                                                                               |
| 3:55 - 4:15                                     | <b>Integrating Historical and Real-Time Monitoring Data into an Internet-Based Watershed Information System for the Bear River Basin</b> , David Stevens, Utah State University                                                                                                                                                                                                                                                                                                                                       | <b>Lock 'um in a Room, Hawaii's attempt to achieve comparability</b> , Linda Koch, Hawaii State Department of Health                                                          | <b>Probability of Detecting Atrazine/Desethyl-atrazine and Elevated Concentrations of Nitrate in Ground Water in Colorado</b> , Michael Rupert, USGS                                                | <b>Algal Metric Approaches for Assessing Trophic Condition and Organic Enrichment in U.S. Streams and Rivers</b> , Stephen Porter, USGS    | <b>EMMMA: A Web-based System for Environmental Mercury Mapping, Modeling, and Analysis</b> , Stephen Wentz, USGS | <b>Westchester County Citizens' Volunteer Monitoring Program</b> , Susan Darling, Westchester County Department of Planning           | <b>Comparability of Biological Assessments Derived from National-, Regional-, State-, and Provincial-Scale Predictive Models</b> , Peter Ode, CA Dept. of Fish and Game |                                                                                               |
| 4:15 - 4:35                                     | <b>Web-based Data Sharing for Small Watersheds</b> , Lisa Walling, Palo Alto Regional Water Quality Control Plant                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Data-Driven Decision-making: Enhanced use of Data Quality Objectives in New Hampshire's Comprehensive Water Monitoring Strategy</b> , Paul Currier, State of New Hampshire | <b>Development and Application of a regression model for estimating the occurrence of Atrazine in shallow ground water beneath agricultural areas of the United States</b> , Paul Stackelberg, USGS | <b>Impacts of Nutrients on the Biological Integrity of Wadeable Streams in Wisconsin</b> , Dale Robertson, USGS                            | <b>Reconnaissance survey of mercury in water, sediment, and fish from U.S. streams</b> , Barbara Scudder, USGS   | <b>Open Source Citizen Volunteer Water Monitoring Database</b> , Andrew Alm, Environmental Alliance for Senior Involvement            | <b>Using biomonitoring data to assess possible causes of biological impairment: Combining predictive models and taxon tolerance values</b> , Daren Carlisle, USGS       |                                                                                               |
| 4:35 - 4:55                                     | <b>Displaying Water Quality Data on Internet Maps</b> , Sandy Williamson, USGS                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Navajo Nation EPA Water Quality Sampling Activities</b> , Eric Rich, Navajo Nation EPA                                                                                     | <b>Development of Spatial Probability Models to Estimate Ground-Water Vulnerability to Nitrate Contamination in the Mid-Atlantic Region</b> , Earl Greene, USGS                                     | <b>Control of nitrogen cycling processes in the Upper Mississippi River (UMR)</b> , William Richardson, USGS Biological Resources Division | <b>Modeling Mercury in Stream Ecosystems</b> , Robert Ambrose, USEPA                                             | <b>In-stream Monitoring Database</b> , Gretchen Peterson, PetersonGIS                                                                 | <b>Biological Assessment of Water Quality: Delivery of a National System in Australia</b> , Richard Norris, University of Canberra                                      |                                                                                               |
| 6:00 - 9:00                                     | <b>Evening Reception at The Tech Museum of Innovation (<a href="http://www.thetech.org/">http://www.thetech.org/</a>)</b><br>The Tech Museum of Innovation is located across the street from the Convention Center at 201 South Market Street. The Tech is a hands-on technology and science museum for people of all ages and backgrounds. Gallery themes include innovation, the internet, the human body, and exploration. Tickets for this reception must have been purchased during pre-conference registration. |                                                                                                                                                                               |                                                                                                                                                                                                     |                                                                                                                                            |                                                                                                                  |                                                                                                                                       |                                                                                                                                                                         |                                                                                               |

**Thursday, May 11**

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| 7:00 - 8:00                                     | Breakfast in Ballrooms A1, 2, 7, 8                                                                                                                                       |                                                                                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                              |                                                                                                                                                              |                                                                                                         |                                                                                                                                                                                                                                          |                                                                                                                                                           |
| 7:30 - 12:00                                    | Exhibitor Break-Down (Exhibit Hall 1)                                                                                                                                    |                                                                                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                              |                                                                                                                                                              |                                                                                                         |                                                                                                                                                                                                                                          |                                                                                                                                                           |
|                                                 | <b>Meeting Room A3</b>                                                                                                                                                   | <b>Meeting Room A4</b>                                                                                                                                                                                   | <b>Meeting Room A5</b>                                                                                                                         | <b>Meeting Room A6</b>                                                                                                                                                       | <b>Meeting Room C2</b>                                                                                                                                       | <b>Meeting Room C4</b>                                                                                  | <b>Meeting Room C3</b>                                                                                                                                                                                                                   | <b>Meeting Room C1</b>                                                                                                                                    |
| <b>Concurrent Session L</b><br><b>8:00–9:30</b> | <b>Monitoring Across National Borders</b><br>Moderator: James Stribling                                                                                                  | <b>Monitoring for Compounds of Emerging Concern I</b><br>Moderator: Akin Babatola                                                                                                                        | <b>Integrating Monitoring &amp; Prediction: The Quality of the Nation's Streams I</b><br>Moderator: Dave Wolock                                | <b>Evaluation of Trends in Ground Water Quality: Lessons Learned from Local to National-Scale Studies</b><br>Moderator: Mary Ambrose                                         | <b>Mercury Contamination: Sources, Transport, &amp; Fate III</b><br>Moderator: Don Dycus                                                                     | <b>Volunteer Monitoring Gets Results</b><br>Moderator: Danielle Donkersloot                             | <b>Determinants &amp; Indicators of Stress in Aquatic Systems</b><br>Moderator: Jerry Diamond                                                                                                                                            | <b>SHORT COURSE: Developing O/E (Observed-to-Expected) Models for Assessing Biological Condition</b><br><br>Trainer: Chuck Hawkins, Utah State University |
| 8:05 - 8:25                                     | <b>Monitoring of trans-boundary waters in Europe: lessons learnt from the UNECE pilot projects.</b> John Chilton, British Geological Survey                              | <b>Occurrence of Anthropogenic Organic Compounds in Ground Water and Finished Water of Community Water Systems.</b> Jessica Hopple, USGS                                                                 | <b>SPARROW: A Hybrid Statistical-Deterministic Approach to Modeling Surface-Water Quality.</b> Richard Smith, USGS                             | <b>Evaluation of Ground-Water-Quality Trends Design as Part of the USGS National Water Quality Assessment Program.</b> Michael Rosen, USGS                                   | <b>Wet Deposition of Mercury In The U.S. and Canada, 1996-2004: Results from the NADP Mercury Deposition Network.</b> David Gay, Illinois State Water Survey | <b>Connection before Protection.</b> Cheryl Cheadle, OK Conservation Commission                         | <b>Integrated indicators of contaminant response in resident species: making a new generation of indicators feasible for management.</b> Susan Anderson, University of California, Davis                                                 |                                                                                                                                                           |
| 8:25 - 8:45                                     | <b>Global Water Watch, a Worldwide Network of Community-Based Water Monitoring Groups.</b> William Deutsch, Auburn University                                            | <b>Monitoring Synthetic Musk compounds in Municipal Wastewater and Estimating Biota Exposure in the Receiving Waters.</b> Lantis Osemwengie, USEPA                                                       | <b>New England Sparrow Model and Example Applications of Model Results.</b> Richard Moore, USGS                                                | <b>Trends in Pesticide Detections and Concentrations in Ground Water of the United States, 1993-2003.</b> Laura Bexfield, USGS                                               | <b>Mercury concentrations in stream fish throughout 12 western states in the USA.</b> Alan Herlihy, Oregon State University                                  | <b>How to get the Public Active in Water Quality Issues.</b> Ginger North, DE Nature Society            | <b>Using simulation to evaluate the comparability of different bio-assessment methods.</b> Yong Cao, Utah State University                                                                                                               |                                                                                                                                                           |
| 8:45 - 9:05                                     | <b>Improving Binational Coordination of Monitoring in the Great Lakes.</b> Melanie Neilson, Environment Canada                                                           | <b>Chemical markers of human waste contamination in source waters: A simplified analytical approach.</b> Tammy Jones-Lepp, USEPA                                                                         | <b>Regional scale point-source nutrient load estimation in support of SPARROW nutrient modeling.</b> Gerard McMahon, USGS                      | <b>Trends in shallow ground-water quality of the Delmarva Peninsula, Delaware, Maryland, and Virginia: Results from local-scale and regional study.</b> Linda Debrewer, USGS | <b>The roles of biogeochemistry and aquatic biota in mercury cycling in stream ecosystems.</b> Lia Chasar, USGS, Florida A&M University                      | <b>Breaking the Code: Training Volunteers to Convert Data to Information.</b> Candie Wilderman, ALLARM  | <b>Quantifying tolerance indicator values for common stream fish species of the United States.</b> Michael Meador, USGS                                                                                                                  |                                                                                                                                                           |
| 9:05 - 9:25                                     | <b>The JA JAN Coalition a Binational Collaborative Network for Water Quality Monitoring in the U.S.-Mexico Border Region.</b> Hiram Sarabia-Ramirez, San Diego Baykeeper | <b>Occurrence of Radium-224, Radium-226, and Radium-228 in Aquifers Used Primarily for Drinking Water in the United States: Retrospective Survey of Results from 1987 to 2004.</b> Jeffrey Fischer, USGS | <b>Effect of Stream-Network Resolution on the Calibration of a Nutrient SPARROW Model for the South-eastern United States.</b> Anne Hoos, USGS | <b>Ground-water quality trends of the South Platte River alluvial aquifer, Colorado.</b> Suzanne Paschke, USGS                                                               | <b>Mercury in ground water, soils, and septage.</b> New Jersey Coastal Plain, Julia Barringer, USGS                                                          | <b>Data Tell Part of the Story, Actions Write the Rest.</b> Brian Soenen, IA Dept. of Natural Resources | <b>Relation between urbanization and relative toxicity of semipermeable membrane device extracts from the Lake Tahoe Basin and Truckee River watershed, Nevada and California, 2002-2004.</b> Timothy Rowe, USGS NV Water Science Center |                                                                                                                                                           |
| 9:30 - 10:00                                    | Break in Ballrooms A1, 2, 7, 8                                                                                                                                           |                                                                                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                              |                                                                                                                                                              |                                                                                                         |                                                                                                                                                                                                                                          |                                                                                                                                                           |

**Thursday, May 11**

|                                                   | Meeting Room A3                                                                                                                                                                                                                  | Meeting Room A4                                                                                                                             | Meeting Room A5                                                                                                                                        | Meeting Room A6                                                                                                                                | Meeting Room C2                                                                                                                                                                      | Meeting Room C4                                                                                                                                                            | Meeting Room C3                                                                                                                                                      | Meeting Room C1                                                                                         |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Concurrent Session M</b><br><b>10:00-11:30</b> | <b>Conveying Results: Translating Data into Understanding</b><br>Moderator: Jessica Franks                                                                                                                                       | <b>Monitoring for Compounds of Emerging Concern II</b><br>Moderator: Akin Babatola                                                          | <b>Integrating Monitoring &amp; Prediction: The Quality of the Nation's Streams II</b><br>Moderator: Dave Wolock                                       | <b>Bacteria Monitoring: From Source to Sea</b><br>Moderator: Chris Coburn                                                                      | <b>Mercury TMDLs: Lessons Learned from Local &amp; Regional Studies</b><br>Moderator: Ruth Chemerys                                                                                  | <b>Program Evaluation &amp; Evolution</b><br>Moderator: Ross Clark                                                                                                         | <b>Taxonomic Data Quality, Comparability, &amp; Performance</b><br>Moderator: Andy Rehn                                                                              | <b>WORKSHOP: Wetlands Bioassessment</b><br><br>Facilitators: Chris Faulkner, USEPA; John Mack, Ohio EPA |
| 10:05 - 10:25                                     | <b>A graphical presentation of water quality data in time and space</b> , Peter Stoks, Association of Rhine Water Works RIWA                                                                                                     | <b>Monitoring perchlorate in shallow ground water in the Central United States</b> , Stephen Kalkhoff, USGS                                 | <b>Biologically based urban response models for the South Atlantic gulf and Tennessee River basins</b> , Thomas Cuffney, USGS                          | <b>Skokomish River Fecal Coliform TMDL Attainment Monitoring in Washington State</b> , George Onwumere, Washington State Department of Ecology | <b>The Sacramento San Joaquin River Delta Mercury TMDL: Reducing Methylmercury in Fish and Water</b> , Michelle Wood, CA Regional Water Quality Control Board, Central Valley Region | <b>Water Quality Monitoring in Michigan, 1996-2006: A Decade of Program Evolution</b> , Gary Kohlhepp, MI Dept. of Environmental Quality                                   | <b>Effect of taxonomic resolution on the performance characteristics of a new macroinvertebrate field sampling protocol for large rivers</b> , Karen Blocksom, USEPA |                                                                                                         |
| 10:25 - 10:45                                     | <b>Designing a National Water Quality Monitoring Network to support the Canadian Freshwater Quality Indicator</b> , Rob Kent, Environment Canada, National Water Research Institute                                              | <b>Perchlorate Monitoring in Llagas Groundwater Sub-basin</b> , Michael Taraszki, MACTEC Engineering and Consulting, Inc.                   | <b>Estimating pesticide concentrations in U.S. streams from watershed characteristics and pesticide properties</b> , Charles Crawford, USGS            | <b>Volunteer/State Partnerships Inspire Grassroots Action</b> , Cheryl Snyder, PA Dept. of Environmental Protection                            | <b>Guadalupe River Watershed Mercury TMDL</b> , Carrie Austin, SFBay Water Board                                                                                                     | <b>A cooperative State and USGS statewide water quality monitoring network: accomplishments and lessons learned after 15 years</b> , Christopher Mebane, USGS              | <b>A national autecology list for benthic macroinvertebrates</b> , Erik Leppo, Tetra Tech, Inc.                                                                      |                                                                                                         |
| 10:45 - 11:05                                     | <b>Watershed Assessment: A Template for Assessing Water Quality Conditions at Watershed Level</b> , Anitra Pawley, University of California, Davis                                                                               | <b>Occurrence of Anthropogenic Organic Compounds in Surface Water and Finished Water of Community Water Systems</b> , James Kingsbury, USGS | <b>Regression models for explaining and predicting concentrations of organochlorine pesticides in whole fish from U.S. streams</b> , Lisa Nowell, USGS | <b>Volunteer Monitoring for Bacteria in San Francisco Bay Area Creeks</b> , Amy Wagner, USEPA                                                  | <b>Use of multi-media monitoring to develop a statewide mercury TMDL</b> , Bruce Monson, MN Pollution Control Agency                                                                 | <b>Can you teach a long-term benthic monitoring program new tricks? Assessment and redesign to address different scales</b> , Marc Vayssières, CA Dept. of Water Resources | <b>Enhancing the Credibility of Taxonomic Data: the National Wadeable Streams Assessment</b> , James Stribling, Tetra Tech, Inc.                                     |                                                                                                         |
| 11:05 - 11:25                                     | <b>LakeSuperiorStreams.org: Making storm-water and stream data come alive for citizens, students, teachers, contractors, resource agencies, decision-makers and scientists</b> , Richard Axler, University of Minnesota - Duluth | <b>Concentrations of organic compounds in wastewater at five sites in New York State, 2003-04</b> , Patrick Phillips, USGS                  | <b>Use of WARP to Design a Monitoring Program to Identify Waters Potentially at Risk from Pesticides</b> , Nelson Thurman, USEPA                       | <b>Surfrider Foundation's Blue Water Task Force Program - Volunteer Monitoring that Leads to Change</b> , Rick Wilson, Surfrider Foundation    | <b>Mercury Emission Trends and Biota Response in Florida: Case Study</b> , Thomas Atkeson, FL Dept. of Environmental Protection                                                      | <b>Optimization of a Large-scale Water Quality Monitoring Network in South Florida</b> , Patricia Burke, South FL Water Management District                                | <b>How often are we wrong? A Bayesian assessment of taxonomic identifications for the National Wadeable Streams Assessment</b> , Lester Yuan, USEPA                  |                                                                                                         |

## Thursday, May 11

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|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:30 - 1:15 | <b>Closing Plenary Luncheon (Ballrooms A1, 2, 7, 8)</b><br>Introduction to Closing Plenary, Charles Spooner, NWQMC Co-Chair<br><b>Keynote Speaker - The National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries, Dr. Robert Hirsch, Chair, Subcommittee on Water Quality and Availability</b><br><b>Keynote Speaker - The Importance of a National Framework, Ms. Julie Packard, Executive Director, Monterey Bay Aquarium</b><br>Conference Closing, David Tucker, Conference Chair |
| 1:30 - 3:30  | Exhibitor Demonstrations at Guadalupe River Park & Gardens (Meet in Ballroom Concourse; participants will walk to demo site)                                                                                                                                                                                                                                                                                                                                                                                         |
| 1:30 - 4:30  | <b>From Paper to Action: Implementing State Water Monitoring Strategies -- State/EPA Meeting (Meeting Room A3)</b><br>In this interactive forum, State water quality managers and staff are invited to identify common challenges and share practical solutions to implementing their water quality monitoring strategies.                                                                                                                                                                                           |
| 1:30 - 5:00  | <b>USGS NAWQA Program Meetings (Meeting Rooms TBA)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1:30 - 5:00  | Field Trip: Wetlands Bioassessment (Part 2 of Workshop) (Meet at main entrance to Convention Center on 1st floor)                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1:30 - 5:00  | Field Trip: Salt Pond Restoration Tour (Meet at main entrance to Convention Center on 1st floor)                                                                                                                                                                                                                                                                                                                                                                                                                     |



## POSTER PRESENTATIONS

*Poster presentations are listed below in thematic groups. All posters within the same thematic group will appear together in the Exhibit Hall.*

**Abstract#      Poster title, Author, Affiliation**

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### ASSESSING AND EVALUATING GROUND WATER AND DRINKING WATER RESOURCES

- 001      *Effects of Organic Carbon Distribution on Redox Chemistry in a Glacial Aquifer, Woodbury, Connecticut, **Craig Brown**, U.S. Geological Survey*
- 002      *Optimizing a Monitoring Network Using Water Quality and Environmental Factors in the Glacial Aquifer System, United States, **Terri Arnold**, U.S. Geological Survey*
- 003      *Estimation of Stream-Valley Aquifer Withdrawals, 2000, **Pierre Sargent**, USGS*
- 004      *Comparison of the Vulnerability of Domestic Wells and Public Wells to Volatile Organic Compounds, **Barbara Rowe**, U.S. Geological Survey*
- 005      *Nutrients in ground water from private, public-supply, and monitoring wells open to the glacial aquifer system, United States, **Kelly Warner**, U.S. Geological Survey*
- 006      *Can we distinguish regional from local variations in trace-element concentration in the glacial aquifer system of the northern United States?, **George Groschen**, U.S. Geological Survey*
- 007      *Natural and human factors affecting shallow ground-water quality at local and regional scales in the North Atlantic Coastal Plain, New York through North Carolina, **Scott Ator**, US Geological Survey*
- 008      *Trends in ground-water withdrawals for irrigation and public-supply uses across the United States, **Richard Marella**, U.S. Geological Survey*
- 009      *Using a modified probability approach for determining the contributing area to a public supply well in karst terrain, **Christy Crandall**, U.S. Geological Survey*
- 010      *Spatial distribution of dissolved solids in major aquifers and rivers in the Southwestern United States, **Nancy Bauch**, U.S. Geological Survey Colorado Water Science Center*
- 011      *Reactive Transport of Nitrate in a Heterogeneous Alluvial Fan Aquifer, San Joaquin Valley, California, **Christopher Green**, U.S. Geological Survey*
- 012      *Framework of Possible Factors that Affect Water Quality in Basin-fill Aquifers of the Southwestern United States, **Susan Thiros**, U.S. Geological Survey*
- 013      *New Jersey's Ambient Ground-Water-Quality Monitoring Network: An Update, **Michael Serfes**, New Jersey Geological Survey (NJGS)*
- 014      *Design Considerations for Assessing Ground-Water Quality in Regional Aquifer Systems: The High Plains Aquifer, **Bret Bruce**, U.S. Geological Survey*

## EVALUATING THE EFFECTS OF KEY STRESSORS AND EMERGING CONTAMINANTS

- 015 *Salt Marsh Ecosystem Health at Ft. Pulaski National Monument near Savannah, Georgia*, **Joseph Richardson**, Savannah State University
- 016 *Relationships between species traits and trace element bioaccumulation in riverine fishes*, **Terry Short**, U.S. Geological Survey
- 017 *Uranium and 222radon in ground water from glacial and bedrock aquifers in the northern United States*, **Joseph Ayotte**, U.S. Geological Survey
- 018 *Agricultural Pesticides in Shallow Ground-water Flow Systems: A Contrast between Systems*, **Gregory Steele**, U.S. Geological Survey
- 019 *The Occurrence of Volatile Organic Compounds in Aquifers of the United States*, **Wayne Lapham**, U.S. Geological Survey
- 020 *Real-Time Monitoring and Regression Analysis for Specific Conductance and Sodium-Adsorption Ratios in an Area of Coalbed Natural Gas Development in the Powder River Basin, Montana and Wyoming*, **Melanie Clark**, U.S. Geological Survey
- 021 *Small Scale Water Monitoring Networks for USACE Construction Projects*, **John Baum**, U.S. Army Corps of Engineers Sacramento District
- 022 *Using Long-Term Monitoring and Special Studies To Evaluate Trends and Address Problems at Twelve USACE Managed Reservoirs in California*, **John Baum**, U.S. Army Corps of Engineers Sacramento District
- 023 *Using a Spatially Balanced, Random Sampling Design to Assist Informed Management Decisions*, **Sarah Lowe**, San Francisco Estuary Institute
- 024 *Analysis of Pesticides, Antibiotics, and their Degradation Products Using State-of-the-Art Mass Spectrometry*, **Elisabeth Scribner**, U.S. Geological Survey, Kansas Water Science Center
- 025 *Herbicide transport and transformations in the unsaturated zone of two small agricultural basins with corn and soybean row crops*, **Tracy Hancock**, U.S. Geological Survey
- 026 *Dissolved Copper Trends in Lower South San Francisco Bay*, **Eric Dunlavey**, City of San José
- 027 *Legacy and Emerging Contaminants in San Francisco Bay Sport Fish, 2003*, **Ben Greenfield**, San Francisco Estuary Institute (SFEI)
- 028 *Comparison of Anthropogenic Organic Compounds in the Source Water and Finished Water for the City of Atlanta, October 2002 - May 2005*, **Melinda Dalton**, U.S. Geological Survey, Georgia Water Science Center
- 029 *A National Assessment of PBDEs in Lake Fish Tissue*, **Leanne Stahl**, U.S. Environmental Protection Agency
- 030 *Establishment of Baseline Water-Quality and Sediment-Chemistry Data at Sentinel Sampling Sites on Lake Powell for Future Monitoring of Organic and Inorganic Contaminants*, **Robert Hart**, U.S. Geological Survey
- 031 *The National Stream Quality Accounting Network (NASQAN II) Program: A Case Study of Water Quality in the Lower Rio Grande Basin*, **Rebecca Lambert**, U.S. Geological Survey

## MERCURY

- 032 *Mercury Biomagnification from the Base of the Food Chain in Guadalupe River Watershed, San Jose, CA*, **Brent Topping**, U.S. Geological Survey
- 033 *Monitoring Mercury Contamination in the Carson River System, Nevada*, **Karen Thomas**, Nevada Water Science Center
- 034 *Mercury transport to San Francisco Bay through the Sacramento-San Joaquin River Delta*, **Nicole David**, San Francisco Estuary Institute
- 035 *Water and Air – Mercury in Idaho*, **Marti Bridges**, Idaho Department of Environmental Quality
- 036 *Monitoring Mercury Bioaccumulation in Fish during Everglades Restoration*, **David Evans**, NOAA Center for Coastal Fisheries and Habitat Research
- 037 *The Fish Mercury Project: Involving Stakeholders in Monitoring and Risk Communication in the Sacramento-San Joaquin Delta Watershed*, **Alyce Ujihara**, California Department of Health Services, Environmental Health Investigations Branch
- 038 *Caspian and Forster's Terns as Indicators of Mercury and Other Priority Pollutant Exposure in San Francisco Bay*, **Terrence Adelsbach**, U.S. Fish and Wildlife Service
- 039 *Time Series Study of Mercury in San Francisco Bay*, Christopher Conaway, UC-Santa Cruz
- 040 *Use of a National Descriptive Model of Mercury in Fish in Site-specific Applications*, Stephen Wentz, U.S. Geological Survey
- 041 *Mercury in Stream Water, Streambed Sediment, and Fish of the Willamette Basin, Oregon, in Relation to Mercury Sources*, **Dennis Wentz**, U.S. Geological Survey
- 042 *Characterization of mercury concentrations in suspended sediment loads in Guadalupe River and Coyote Creek, San Jose, California: Can TMDL targets be met?*, **Lester McKee**, San Francisco Estuary Institute
- 043 *Mercury Monitoring in the San Jose/Santa Clara Water Pollution Control Plant*, **James Downing**, City of San José

## NUTRIENTS

- 044 *Trends in Water Quality and Nutrient Sources and In-stream Nutrient Loads in the Southeastern United States*, **Douglas Harned**, U.S. Geological Survey
- 045 *Fate and transport of nutrients in the unsaturated zone in five agricultural areas of the United States*, **Lawrence Fisher**, U.S. Geological Survey
- 046 *Whole stream response to nitrate loading in three streams draining agricultural landscapes in Washington, Maryland, and Nebraska*, **John Duff**, U.S. Geological Survey
- 047 *Random nutrient concentration v. targeted nutrient concentration...is there a difference?*, **Mary Anne Nelson**, Idaho Department of Environmental Quality
- 048 *Supporting nutrient criteria development nationwide: Web application & Technical REQuest System (T-REQS)*, **Jeroen Gerritsen**, Tetra Tech, Inc.

049 *Determination of Trends in Nutrient and Sediment Concentrations and Loads in Major River Basins, South-Central United States*, **Richard Rebich**, U.S. Geological Survey, Mississippi Water Science Center

## **EVALUATING THE EFFECTS OF LAND USE ON WATER QUALITY: URBANIZATION AND AGRICULTURE**

050 *Causes of Increased Total Dissolved Solids and Conductivity Levels in Urban Streams in Georgia*, **Ted Mikalsen**, Georgia Environmental Protection Division

051 *Effects of Altered Storm Water Discharge on Water Quality in the Vernon River Estuary, Georgia*, **Joseph Richardson**, Coastal Environmental Analysis

052 *NAWQA Addresses Urban Water-Quality Issues through Multiple Studies*, **Cathy Tate**, U.S. Geological Survey

053 *Effects of Urbanization on Stream Stage and Temperature during Winter and Summer Storms within the Piedmont of North Carolina, 2002-2003*, **Robin Brightbill**, U.S. Geological Survey

054 *Nutrients and Biological Communities of Ozark Streams, 1993-2005*, **James Petersen**, U.S. Geological Survey

055 *Environmental Monitoring Network in the Cedar Creek Experimental Watershed*, **Gary Heathman**, USDA-ARS

056 *Occurrence of Volatile Organic Compounds in Selected Urban Streams in the United States, 1995-2003*, **David Bender**, U.S. Geological Survey

057 *Analysis of the effects of road salt on water quality in the northern United States*, **John Mullaney**, U.S. Geological Survey

058 *Estimating and Projecting Impervious Cover in the Southeastern United States*, **James Harrison**, U.S. Environmental Protection Agency, Region 4

059 *Response of fish communities to gradients of urbanization in southeastern streams near Atlanta, Georgia*, **M. Brian Gregory**, U.S. Geological Survey

060 *Urban Hydrology Monitoring Programs in the Atlanta Metropolitan Area, Georgia*, **William Hughes**, U.S. Geological Survey

061 *Development of an urban hydrological model linking denitrification potential to urban wetland restoration*, **Michael Mak**, Rutgers University

062 *National Water Quality Surveillance for Waterborne Pathogens and Related Indicators in Canadian Agricultural Waters*, **Rob Kent**, Environment Canada

063 *Anthropogenic Impacts to Fish Assemblages in Northern New Jersey Streams*, **Leslie McGeorge**, New Jersey Department of Environmental Protection

064 *Controlling Cumulative Impacts from Impervious Surfaces: Relationship between California State Law and NPDES Requirements*, **Brian Schmidt**, Committee for Green Foothills

## MONITORING APPROACHES FOR WATERSHED ASSESSMENT AND IMPROVEMENT

- 065 *Diurnal Nutrient Fluctuations in the Lake Okeechobee Watershed, Florida*, **Robert Sheridan**, ETI Professionals, Inc. c/o U.S. Geological Survey
- 066 *Assessment of native stream biodiversity and the influence of invasive species in Tierra del Fuego, Chile*, **Michelle Moorman**, U.S. Geological Survey
- 067 *Using Environmental Monitoring and Assessment Program Data for Describing Condition of Inner Columbia River Basin Streams*, **Lillian Herger**, U.S. Environmental Protection Agency, Region 10
- 068 *The Water Quality Monitoring Programs of the Oklahoma Water Resources Board (OWRB)*, **Bill Cauthron**, Oklahoma Water Resources Board
- 069 *Coastal Watershed Assessment - Point Reyes National Seashore and Golden Gate National Recreation Area*, **Brannon Ketcham**, Point Reyes National Seashore
- 070 *San Francisco Area Network Water Quality Monitoring Protocol*, **Mary Coopridier**, National Park Service
- 071 *Water Quality Status and Issues in Nepal*, **Ms. Keshari Bajracharya**, His Majesty's Government, Ministry of Environment, Science and Technology
- 072 *New York City's Harbor Survey Program Water Quality Monitoring in an Urban Watershed*, **Beau Ranheim**, City of New York Dept. of Environmental Protection
- 073 *An Overview of the California Monitoring and Assessment Program (CMAP) for Perennial Streams*, **Melenee Emanuel**, California State Water Resources Control Board
- 074 *Sediment Quality Indicators for the Delaware Estuary*, **Edward Santoro**, Delaware River Basin Commission
- 075 *EPA's National Study of Chemical Residues in Lake Fish Tissue*, **Leanne Stahl**, U.S. Environmental Protection Agency

## VOLUNTEER MONITORING AND STAKEHOLDER PARTNERSHIPS AND COLLABORATIONS

- 076 *Working together to determine the status of Maryland's Coastal Bays*, **Carol Cain**, Maryland Coastal Bays Program
- 077 *BioSITE: Students Investigating Their Environment*, **Sandra Derby**, Children's Discovery Museum
- 078 *Resources Available for Volunteer Monitoring Programs*, **Elizabeth Herron**, Cooperative Extension
- 079 *The Nuts and Bolts of a Volunteer Monitoring Day*, **Janet Cohen**, Community Action Partners

## DATA MANAGEMENT, ANALYSIS, SHARING, AND INTERPRETATION

- 080 *Introducing NHDPlus!*, **Kristen Gunthardt**, U.S. Environmental Protection Agency, Office of Water
- 081 *Geographic Targeting for Watershed Restoration*, **Donald Malone**, Tennessee Valley Authority
- 082 *New NHD Tools for the Evaluation of Watershed Condition and Management Performance*, **William Cooter**, RTI International
- 083 *Evaluating Watershed Condition and Management Performance with the NHDPlus Toolkit*, **Mellony Hoskinson**, RTI International
- 084 *Arkansas Monitoring Data Assessment Program (AMDAP) Using the Segment Evaluation Spreadsheet (SEGEVAL.XLS)*, **Jessica Franks**, U.S. Environmental Protection Agency, Region 6
- 085 *Spatial Scale and the Proximity Factor for Water Quality-Landscape Correlations*, **Ronald Zelt**, U.S. Geological Survey
- 086 *An American/Canadian Partnership - Sharing Data for the Gulf of Maine*, **Deb Soule**, New Hampshire Department of Environmental Services
- 087 *RésEau: Building Canadian Water Connections*, **Chris Lochner**, National Water Research Institute, National Water Quality Monitoring Office
- 088 *Facilitating the Exchange and Reporting of Monitoring Data*, **Cristina Grosso**, San Francisco Estuary Institute
- 089 *New Tools for Importing, Sharing, and Visualizing Biological Monitoring Data Using the Ecological Data Analysis System (EDAS)*, **Jeffrey White**, Tetra Tech, Inc.
- 090 *Flood-Tracking Chart for the Chattahoochee River near Metropolitan Atlanta, Georgia*, **Jacob LaFontaine**, U.S. Geological Survey
- 091 *Proactive Water Quality Monitoring with Actionable Data in Drinking Water Distribution Systems*, **Uwe Michalak**, Senticore, Inc.

## DATA QUALITY, COMPARABILITY, AND MEASUREMENT PERFORMANCE

- 092 *Use of Colilert, Colilert-18 and Enterolert for the Determination of E.coli, fecal coliforms and enterococci in Waste Waters*, Gil Dichter, IDEXX laboratories
- 093 *A Case Study for Comparison of NAWQA and EMAP Protocols for Benthic Macroinvertebrates and Habitat*, **David Peterson**, U.S. Geological Survey
- 094 *A Comparison of Stream Biological Assessment Results Obtained Using Different Sampling Protocols in Midwestern Agricultural Streams*, **Thomas Wilton**, Iowa Department of Natural Resources
- 095 *A Comparison of Benthic Macroinvertebrate Assemblages Collected in New Mexico and Texas Reference Streams Using Selected Methods from State and Federal Agencies*, **James Moring**, U.S. Geological Survey
- 096 *Components of Variability in Long Term Regional Monitoring Program Data*, **Donald Yee**, San Francisco Estuary Institute



- 097 *Discrete versus continuous: A comparison of water quality monitoring frequencies*, **Nelia White**, San Francisco State University and San Francisco Bay Regional Water Quality Control Board
- 098 *Improving Quality Assurance Project Plans with an Expert System*, **Beverly van Buuren**, San Jose State University Foundation, Moss Landing Marine Laboratories
- 099 *The Analysis of Turbidity Data: Establishing the Link between Sample Characteristics and Measurement Technologies*, **Michael Sadar**, Hach Company
- 100 *Interstate assessment: Cross-calibration of the Biological Condition Gradient among state monitoring programs in New England*, **Jeroen Gerritsen**, Tetra Tech, Inc.
- 101 *Four Ways to Get Biased Estimates of Pollutant Loads*, **R Peter Richards**, National Center for Water Quality Research, Heidelberg College
- 102 *Site Evaluation and Field Sampling Coordination for National Scale Surveys: Supporting the Probability Design Network*, **Jennifer Pitt**, Tetra Tech, Inc.
- 103 *Optical Dissolved Oxygen Sensors Maximize Accuracy, Minimize Downtime*, **Robert Mooney**, In-Situ Inc.
- 104 *Achieving Comparability for a Statewide Program through Careful Selection of Quality Assurance and Quality Control Systems*, **Beverly van Buuren**, San Jose State University Foundation, Moss Landing Marine Labs
- 105 *Importance of field QC Samples in Designing Monitoring Programs and Interpreting Data for Trace Elements in Aquatic Organisms*, **Lawrence DeWeese**, U.S. Geological Survey

## **BIOASSESSMENT ISSUES, APPROACHES, AND EXPERIENCES**

- 106 *Watershed Stewardship Utilizing GPS Habitat and Bioassessment Surveys*, **Abby Fateman**, Contra Costa County
- 107 *Environmental Monitoring Program benthic Special Studies*, **Karen Gehrts**, Division of Environmental Services
- 108 *Relations of hydrologic and physical characteristics to aquatic assemblages in low-gradient streams in agricultural settings in North-Central and Northeastern U.S.*, **Jennifer Hogan**, U.S. Geological Survey, Illinois Water Science Center
- 109 *Validation of a Multimetric Index Using Probabilistic Monitoring Data*, **Jason Hill**, Virginia Department of Environmental Quality
- 110 *The effects of fine sediment accumulation on macroinvertebrate distributions below urban dams*, **Steven Fend**, U.S. Geological Survey
- 111 *The effects of intra-annual variability on interpreting long-term trends in macroinvertebrate-based bioassessments*, **James Carter**, U.S. Geological Survey
- 112 *Probabilistic Monitoring in Oklahoma*, **Monty Porter**, Oklahoma Water Resources Board
- 113 *Application of the Reference Condition Approach to Assessing Aquatic Ecosystem Health in Canada's National Parks*, **Rob Kent**, Environment Canada

- 114 *Assessing the importance of restoration in improving water quality within the Tomales Bay watershed*, **Lorraine Parsons**, Point Reyes National Seashore
- 115 *An Assessment of the Chemical, Habitat and Biological Condition of Wadeable Streams in the Lower Columbia Region of Oregon*, **Michael Mulvey**, Oregon Department of Environmental Quality
- 116 *An Assessment of the Chemical, Habitat and Biological Condition of Wadeable Stream Habitat of Threatened Oregon Coastal Coho Salmon*, **Michael Mulvey**, Oregon Department of Environmental Quality
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