



National Council
Highlights

Collaboration through
Partnerships

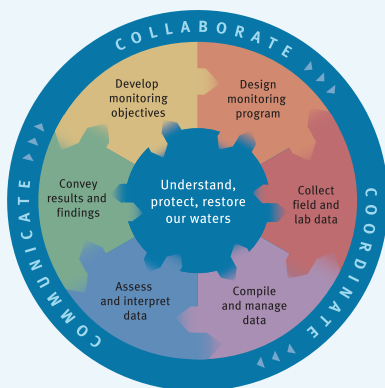
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The National Water Quality Monitoring Council provides a voice for monitoring practitioners across the Nation and fosters increased understanding and stewardship of our water resources.



A satellite photo taken as Hurricane Irene makes landfall on the east coast of the U.S. in late August 2011. Irene dumped heavy rains on the eastern shore of the Chesapeake Bay and pounded the larger Bay region with high winds. Just days later, Tropical Depression Lee dropped record amounts of rain on the western shore of the Bay. The long history of water quality monitoring by the Chesapeake Bay Program Partnership provides an excellent foundation to evaluate the effects of these storms. (Photo courtesy of NASA/NOAA GOES Project)

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



National Water Monitoring News - Words from Council co-chairs

Welcome to the fourth edition of the National Water Quality Monitoring Council ("Council") newsletter!

As Co-Chairs of the Council, we are pleased to provide this newsletter as a forum for communication among water monitoring practitioners across the Nation. In support of the Council's mission (<http://acwi.gov/monitoring/>), this newsletter is geared to foster partnerships and collaboration; advance water science; improve monitoring strategies; and advance data integration, comparability, and reporting. We hope the information in this fourth edition is useful for your water needs. Among the topics you will read about in this issue are:

- ✓ The Council's upcoming 8th National Monitoring Conference (April 30 - May 4, 2012, Portland, OR)
- ✓ Chesapeake Bay Partners monitor the effects of Hurricane Irene and Tropical Depression Lee
- ✓ New tools:
 - An online decision support system for assessment of nutrients in streams and rivers
 - "BioData" - the USGS web-based bioassessment database
- ✓ Updates on monitoring including:
 - U.S. Forest Service's Inventory, Monitoring, and Assessment Program
 - U.S. EPA's National Wetlands Condition Assessment and National Lakes Assessment
 - Bivalve monitoring in the Great Lakes
 - New national network of reference watersheds and monitoring sites for freshwater streams
 - San Diego Coastkeeper toxicity testing and volunteer monitors
- ✓ Updates from the Indiana, North Dakota, and Colorado councils
- ✓ Increased data sharing in New Jersey through state-nonprofit volunteer monitoring partnerships
- ✓ Urban Water Federal Partnership

We encourage everyone to be an active part of the Council through this newsletter. Please share your successes and challenges in monitoring, announce upcoming meetings and conferences, and share related Internet links and other water-related information. If you have an article idea or would like to write something yourself, don't hesitate to contact our editor, Cathy Tate, cmtate@usgs.gov, (303) 236-6927. New articles and ideas are always welcome!

On behalf of the entire Council and all those who contributed to this issue of our newsletter, thanks for reading and for helping to protect our Nation's waters. We hope you enjoy this newsletter and we encourage your input and future communication!

Sincerely yours,

Michael Yurewicz, USGS Co-Chair
mcyurewi@usgs.gov

Susan Holdsworth, EPA Co-Chair
holdsworth.susan@epa.gov

National Council Highlights

Planning for the Eighth National Monitoring Conference is Underway!



Please join us at the Oregon Convention Center in Portland, Oregon for the Eighth National Monitoring Conference. (Photo courtesy of Travel Portland/Bruce Forster)

The *Eighth National Monitoring Conference – Water: One Resource – Shared Effort – Common Future*, will be held in Portland, Oregon, from April 30th – May 4th, 2012. The Council's biennial forum provides a unique opportunity for water practitioners from all backgrounds—including governmental and tribal organizations, academia, watershed and environmental groups, and the private sector—to exchange information, develop new skills, showcase new findings, and highlight recent innovations and cutting-edge tools in water-quality monitoring, assessment, and reporting. Abstracts for oral and poster presentations as well as proposals for workshops, short courses, and panels have been received, and the agenda planning process has begun.

In addition, the Council's conference is being coordinated with the River Network's National River Rally on its first ever overlap day (May 4th) with mutually developed themes and presentations geared toward fostering improved collaboration among government and nonprofit groups working together for clean water.

To learn more about the Eighth National Monitoring Conference, visit: <http://acwi.gov/monitoring/conference/2012/index.html> or contact: Cathy Tate, cmtate@usgs.gov, (303) 236-6927 or Jeff Schloss, jeff.schloss@unh.edu, (603) 862-3848.

Web Seminar Series

The Council's web seminars continue to be extremely popular, attracting hundreds of attendees from state, regional, and tribal councils, as well as watershed groups and alliances and the volunteer community from across the nation. The topics are timely and informative, and the format allows for discussion and follow-up communications with the presenters.

Presentations from past web seminars are available on the Council's website at <http://acwi.gov/monitoring/workgroups/co/webinars.html>

We encourage you to be an active part of these webinars and to share your successes and challenges in monitoring. If you have a webinar idea or would like to present something yourself, don't hesitate to contact the organizers of the webinar series, Cathy Tate and Barb Horn. Suggestions and participation are always welcome!

For more information, contact: Cathy Tate, cmtate@usgs.gov, (303) 236-6927 or Barb Horn, Barb.Horn@state.co.us, (970) 382-6667 or go to: <http://acwi.gov/monitoring/workgroups/co/webinars.html>

Join us for a webinar and be part of the discussion!

Coming up soon, join John Hummer of the Great Lakes Commission as he discusses the successes of the Lake Michigan Monitoring Coordination Council. Be sure to get on our mailing list for information on what promises to be a very informative presentation.

Recent webinars have covered the topics of invasive species and data management. On October 13, 2011, Jim Duncker of the USGS Illinois Water Science Center discussed the science behind the controversial attempts to keep the Asian carp out of the Great Lakes. Jim shared his extensive knowledge of the history of flood and pollution control in the Chicago area, and issues surrounding electronic barriers to fish migration as well as proposals to sever the man-made connection between the Mississippi River Basin and the Great Lakes. On November 7, 2011, Revital Katznelson, PhD, presented "A multidisciplinary list of data elements for environmental monitoring: can we all speak the same language?" This presentation focused on the importance of integrating the various schemes for water quality data elements, to ensure clear communication among disciplines and optimal data sharing. Both of these presentations are available on the Council website and include the authors' contact information. You're encouraged to contact them for further dialogue.

Council Member Highlights

Tributes

In Honor of Former Council Co-Chair Pixie Hamilton



Pixie Hamilton has left her position as the Council's USGS Co-Chair in order to take a position as coordinator of the USGS Cooperative Water Program. During Pixie's tenure, the Council's outreach activities grew significantly with the initiation of this newsletter and the establishment of periodic webinars aimed at increasing communication between the National Council and the many State, regional, and tribal monitoring councils. Pixie also presided, along with former EPA Co-Chair Chuck Spooner, over the Council's 7th National Monitoring Conference in Denver, Colorado – the most widely attended Conference ever sponsored by the Council. All members of the Council, past and present, wish their good friend Pixie all the best in the next chapter of her career.

Welcome Mike Yurewicz as New USGS Council Co-Chair

Michael Yurewicz has held diverse assignments with the U.S. Geological Survey since 1972 after receiving a B.S. in Environmental Science from the Rutgers College of Agriculture and Environmental Science. Mike conducted surface water and groundwater studies in the USGS New Jersey District from 1972 to 1978. He served as the USGS Florida Subdistrict Water-Quality Specialist in Tallahassee Florida from 1978–1981, and conducted both groundwater and surface-water quality studies throughout the Florida panhandle. He worked on national water-quality programs in the USGS Office of Water Quality in Reston, Virginia, from 1981–1985, and was the Assistant Regional Program Officer from 1985–1987 in the Southeastern Region of the USGS Water Resources Division in Atlanta, Georgia. Mike was the Assistant District Chief for Hydrologic Studies in the USGS Tennessee District from 1987–1991, and was the District Chief of the USGS Massachusetts – Rhode Island District from 1991–1994. Since 1994, Mike has been a member of the National Water-Quality Assessment (NAWQA) Program Leadership Team in Reston, Virginia, where he has coordinated NAWQA activities in the Northeast United States, and has provided guidance to the many NAWQA activities at the national scale. Mike was involved in the formation of both the Tennessee and the New England sections of the American Water Resources Association (AWRA), and served as President of both sections. He was a member of the Board of Directors of AWRA in 1998.



Welcome New Council Members!

Michael Eberle - U.S. Forest Service, National Surface Water Program Leader, Washington, D.C.



Mike began working for the U.S. Forest Service (FS) in January 2011 in the Watershed, Fish, Wildlife, Air and Rare Plants Directorate and the FS's Watershed Condition Framework has been a primary focus of his since then. Other areas he has been involved with include the review of the FS's draft National Core BMP

Technical Guide and working through the question of what the *NEDC v Brown* ruling means to FS operations. Before coming to the Forest Service, he had been the Bureau of Land Management's (BLM) Washington Office Water Program Lead since 2005. He has experience working on water rights and water quality issues at the Field, State, and National office levels. As an important component to the BLM's Assessment, Inventory, and Monitoring Strategy, Michael led the development of the Air/Water Resources Process Model to formalize the systematic collection, processing, and storage of resource data. He was integral to BLM's adoption of the National Hydrologic Dataset/Watershed Boundary Dataset and served as BLM's authoritative data source for high resolution GIS hydrography data. Before working for the BLM, Michael was Chief of the U.S. Fish and Wildlife Service Pacific Region's Water Resources Branch, where he led a team in the protection, adjudication, and acquisition of water rights on National wildlife refuges and National fish hatcheries. Mike can be contacted via email at: mbeberle@fs.fed.us or by phone at: (202) 205-1093.

Jim Dorsch - NACWA Representative, Metro Wastewater Reclamation District, Denver, Colorado



Jim Dorsch is the Water Quality Officer for the Denver Metro Wastewater Reclamation District, the largest wastewater facility west of the Mississippi River. He has worked for the District for 13 years and is the District's expert on water quality and aquatic ecosystems. Jim's educational background is in applied natural sciences and he has 15 years of on-the-ground experience in monitoring and studying aquatic systems. Jim's experience has provided him with significant knowledge in all aspects of water quality, habitat, and biological monitoring programs.

Through his service to the Council he hopes to enhance the technical and scientific aspects of environmental studies, and to improve collaboration among Federal, State, and environmental organizations as well as the regulated community.

Thanks to Outgoing Members



The Council bids farewell to Dave Tucker and Paul Bishop, who have provided exceptional representation on behalf of the National Association of Clean Water Agencies (NACWA) and the National Science Foundation, respectively.

During his decade-long tenure with the Council as NACWA's representative, Dave brought to the table the considerable experience in municipal government issues that he obtained while working as program manager of the Environmental Regulatory and Research Section within the City of San Jose's Environmental Services Department. His enthusiasm and innovative ideas provided impetus for numerous Council activities, and his participation was vital in organizing the highly successful 5th National Monitoring Conference in San Jose, California. Dave participated on the Water Information Strategies Workgroup, the Collaboration and Outreach Workgroup, and the Conference Planning Committee, and he brought to each of these groups a unique balance of technical expertise and an infectious sense of humor. He will be sorely missed.

As program director of the National Science Foundation's Environmental Implications of Emerging Technologies, Paul provided an important link to the National Science Foundation's activities related to new monitoring technologies. His background in civil and environmental engineering allowed him to provide a unique perspective in Council discussions. We will miss Paul, and we wish him well as he departs NSF to take a new position as Associate Dean of Engineering at the University of Rhode Island.

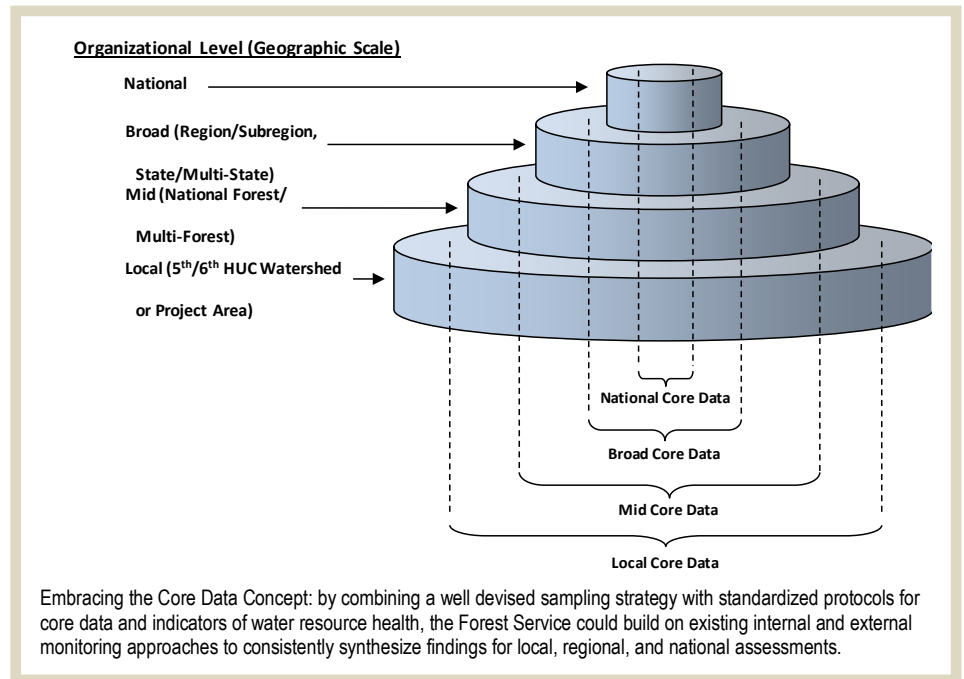
Collaboration Through Partnerships

Federal Partnerships

Forest Service Seeks to Improve Water Inventories, Monitoring, and Assessments

The USDA Forest Service is developing a National Inventory, Monitoring, and Assessment (IM&A) Improvement Strategy and Implementation Plan so that managers, planners, and policy makers will have access to all relevant information easily and in a timely, cost-efficient manner. Conservation leadership and the ability to deliver on Forest Service mission responsibilities require an integrated IM&A system that can efficiently and effectively meet priority information needs.

A Steering Committee representing all operating divisions and the field have chartered a team that includes Forest Service personnel from each division and regional and national offices to develop the Strategy and Implementation Plan. The U.S. Geological Survey, U.S. Fish and Wildlife Service, and Bureau of Land Management have joined the Steering Committee. The Forest Service is engaging Federal and State agencies, NGOs, and Tribes on work groups. The team is developing a phased Implementation Plan in which there could be five case studies to test initial improvements to the IM&A system. The Implementation Plan will also address actions for at least the next 3-5 years. The proposed case studies include water, air, vegetation, carbon stocks, and land management planning. The case studies may explore improvements of broad scale assessments in the newly proposed Land Management Planning Rule, elements of the Climate Change Score Card, and the Watershed and Terrestrial Condition Frameworks.



A case study on water will be the starting point for achieving a consistent IM&A program to assess water conditions on and potentially adjacent to lands managed by the Forest Service. This program could 1) provide consistent data for assessments, synthesis/analyses, and decisions of broad-scale and national significance; 2) establish a sampling framework to coordinate inventory and monitoring efforts across Federal, State, tribal, and private partner lands; 3) provide data for monitoring the effects of changing land management practices and climate change on water quantity and quality, stream habitat, and biota; and 4) provide a consistent set of data and metadata to populate standardized databases.

For additional information, contact: Tracy Hancock, tchancock@fs.fed.us, (202) 205-1724; Brett Roper, broper@fs.fed.us, (435) 755-3566; or Katherine Smith, klsmith@fs.fed.us, (703) 605-4184.

Update on the National Wetland Condition Assessment – Sampling Despite Nature’s Extremes

The U.S. Environmental Protection Agency (EPA), in collaboration with States, Tribes, the U.S. Fish and Wildlife Service (FWS), and other Federal partners, successfully conducted field sampling for the National Wetland Condition Assessment (NWCA) during the summer of 2011. This survey is the fifth in a series of National Aquatic Resources Surveys carried out by EPA and State partners to improve understanding of the quality of the Nation’s waters.

As of September 27, 2011, 1,242 of the 1,258 sites were sampled by 56 NWCA field crews across 49 States. The 16 remaining sites will be complete by the middle of October. Thirty-nine States and Tribes actively participated in field sampling, many by leveraging partnerships with sister State agencies, Natural Heritage programs, and universities. Many of these dedicated field crews endured brutal conditions while collecting robust wetland data in uncomfortable field situations. The 2011 field season saw extreme flooding across the Mississippi River basin, devastating tornadoes across the Southeast and Midwest, enormous forest fires in the Southwest, a record-setting “heat dome” that crippled the eastern seaboard, an unexpected earthquake, and a large tropical storm that caused devastating flooding across the Northeast. Despite these unpredictable setbacks, the NWCA field crews adapted their schedules, worked with EPA to implement sampling efficiencies, and ultimately delivered high quality wetland data on time.

As the field season comes to a close, the NWCA will swiftly transition to the data management, analysis, and reporting phase

of this effort. EPA will again rely on State, tribal, academic, and Federal partners to help produce meaningful assessment results that will inform how wetlands are managed at multiple spatial scales. When complete, the NWCA will provide the baseline for wetland quality in the conterminous United States. It will be an integrated gauge of wetland condition nationwide, summarizing the cumulative effects of Federal, State, tribal, local government, and private-party actions that protect and restore ecological conditions to degraded wetlands.

The NWCA represents a significant advancement in the science of wetland monitoring and assessment. The planning process has already succeeded in forging strong partnerships among Federal agencies, State agencies, Tribes, and nongovernmental organizations around the shared goal of improved national data describing wetland quality to support policy and management

decisions. In many ways, the NWCA is pushing the limits of our conceptual and technical knowledge by producing a condition assessment at the national scale in one field season. While subsequent national wetland condition surveys will no doubt benefit from the lessons learned during this precedent-setting effort, the 2011 survey will mark a significant leap in our understanding of wetlands science and assessment at the national scale.

For more information, go to:

<http://water.epa.gov/type/wetlands/assessment/survey/index.cfm>, or contact: Michael Scozzafava. scozzafava.michaelE@epa.gov, (202) 566-1376.



Field crew collects algal specimens as a part of the National Wetlands Condition Assessment. (Photo by Dana Mock)

The National Lakes Assessment: Collecting National Data to Assess the Condition of the Nation’s Lakes



The U.S. EPA, in collaboration with States, Tribes, Federal and other partners, will conduct the second National Lakes Assessment (NLA) in 2012. This survey is one in a series of National Aquatic Resources Surveys (NARS) carried out by EPA and state partners to improve understanding of the quality of the Nation’s waters. The results of the NLA 2012, including analyses of changes from 2007, will be published in December 2014, with repeat surveys every five years. Preparations and final planning is currently underway for the NLA 2012 survey.

For the NLA 2012, approximately 900 lake sites were randomly selected using a survey design that ensures the assessment will provide representative information on the condition of lakes at national and regional scales.

Approximately one half of these sites were sampled in 2007 and the others are newly selected lakes. Some States are investing additional resources to supplement the survey design to provide State-scale reporting. As with the NLA 2007 and other NARS surveys, the NLA 2012 will use a reference based approach to assess lake quality, comparing survey data to assessments of high quality lakes within similar ecoregions. The selection of NLA 2012 indicators and field methods started with an evaluation of those used in NLA 2007. Several additions and changes were recommended by the Steering Committee including the addition of a pesticide screen and other modifications.

For more information, go to: http://water.epa.gov/type/lakes/lakessurvey_index.cfm, or contact: Amina Pollard, pollard.amina@epa.gov.

Federal Agencies Partner to Revitalize Urban Waterways in Communities Across the U.S.

On June 24, 2011, U.S. EPA Administrator Lisa P. Jackson, U.S. Secretary of the Interior Ken Salazar, White House Domestic Policy Council Director Melody Barnes, Council for Environmental Quality Chair Nancy Sutley and representatives from the U.S. Department of Agriculture and the Department of Housing and Urban Development announced the Urban Waters Federal Partnership (UWFP) along the Patapsco River in Baltimore, Maryland. This new Federal partnership aims to stimulate regional and local economies, create local jobs, improve quality of life, and protect Americans' health by revitalizing urban waterways in under-served communities across the country. The UWFP comprises 11 agencies and will focus initial efforts on seven pilot locations: the Patapsco Watershed (Maryland), the Anacostia Watershed (Washington DC/Maryland), the Bronx and Harlem River Watersheds (New York), the South Platte River in Denver (Colorado), the Los Angeles River Watershed (California), the Lake Pontchartrain Area (New Orleans, Louisiana), and the Northwest Indiana area. Each of the pilot locations already has a strong restoration effort underway, spearheaded by local governments and community organizations. Lessons learned from these pilot locations will be transferred to other cities across the country.

This partnership will reconnect urban communities with their waterways by improving coordination among Federal agencies and collaborating with community-led revitalization efforts to improve our Nation's water systems and promote their economic, environmental and social benefits. Specifically, the UWFP will:

- Break down federal program silos to promote more efficient and effective use of Federal resources through better coordination and targeting of Federal investments;
- Recognize and build on local efforts and leadership by engaging and serving community partners;
- Work with local officials and effective community-based organizations to leverage area resources and stimulate local economies to create local jobs; and
- Learn from early and visible victories to fuel long-term action.

This partnership aligns with President Obama's America's Great Outdoors initiative, which calls on agencies to support innovative community efforts to provide safe, healthy, and accessible outdoor spaces.

For more information, visit: www.urbanwaters.gov



Three Pilot Locations of the Urban Water Federal Partnership Participate in World Water Monitoring Day 2011

The Bronx and Harlem Watershed (New York), Anacostia Watershed (Washington DC/Maryland) and the South Platte River in Denver (Colorado) are pilot locations for the Urban Waters Federal Partnership and are aligned with President Obama's America's Great Outdoors initiative, which enhances community-level efforts to conserve outdoor spaces and to reconnect Americans to the outdoors.

Harlem River Festival, Bronx, New York, September 24, 2011

Despite the wet forecast that kept a fleet of kayaks resting comfortably on racks downtown, crowds of New York City residents turned out to participate in World Water Monitoring Day (WWMD) activities as part of the Harlem River Festival on Saturday, September 24, 2011, at Mill Pond Park in The Bronx ([http://www.nysenate.gov/files/hrwg_festival_final2011-1\(1\)-1.pdf](http://www.nysenate.gov/files/hrwg_festival_final2011-1(1)-1.pdf))



Working in cooperation with the Harlem River Working Group and National Park Service (NPS), the U.S. Geological Survey (USGS) helped celebrate the Harlem River with educational activities. With the help of NYC Police Enforcer and Build On youth groups, the USGS assembled displays and collected water from the Harlem River for field water-quality analysis by festival attendees. These youth groups empower students to improve themselves and their communities.

The hands-on testing enabled participants to learn about water quality in the Harlem River. Kits available from www.wwmd.org were used to measure turbidity, pH, dissolved oxygen, and temperature. A few of the measured and recorded results are expected to be posted on-line as part of WWMD 2011.

Hains Point, Washington, D.C., September 19, 2011



The Water Environment Federation (WEF), in partnership with the International Water Association, observed its fifth annual Washington, D.C. celebration of WWMD at Hains Point in East Potomac Park on September 19. Approximately 200 students and 20 local environmental organizations joined in the festivities including the U.S. Environmental Protection Agency (EPA), USGS, NPS and 16 other organizations.

Students from Imagine Hope Community Charter School (Washington, DC), St. Michael the Archangel Catholic School (Silver Spring, Maryland), and J.C. Parks Elementary School (Indian Head, Maryland) interacted with representatives from area environmental organizations, including the Anacostia Watershed

Society, Alexandria Environmental Policy Commission, and American Chemical Society; as well as the USGS and U.S. Coast Guard. These organizations led students in exploring the subject of water quality through interactive displays.

Students handled live macroinvertebrates, tested Potomac River water, learned how forests are related to water quality, played "Water Jeopardy!", and took part in surface tension experiments.

Confluence Park, South Platte River, Denver, Colorado, September 21, 2011

Engineers and scientists from CH2M HILL, EPA, U.S. Forest Service, Colorado State Forest Service, and USGS hosted the fourth annual World Water Monitoring Day event at Confluence Park along the South Platte River. Over 100 students participated including fifth grade students from Trevista Elementary and Fletcher Intermediate; students from the Denver School of Science and Technology served as mentors for the younger students.



Participants learned firsthand about water quality by testing the South Platte River using WWMD kits. In addition, EPA and USGS provided the students with hands-on opportunities to learn about macroinvertebrates, river monitoring, and measuring flow. The nonprofit organization Water For People hosted a water relay to help the students understand the responsibilities and hardships of children in developing countries who must work to provide water for their families. The Forest Service (Colorado State FS and USFS) provided a demonstration on watersheds, impacts of fire, and Forest to Faucet concepts.

Regional and State Partnerships

Bivalve monitoring as part of Great Lakes Restoration Initiative

Molluscs with 2 hinged shells, otherwise known as bivalves, are widely used as sentinel organisms to monitor and assess the effect of pollution on aquatic environments. These organisms are used as bioindicators due to a combination of favorable characteristics for environmental monitoring,

including their sessile nature, ubiquitous distribution and abundance, and their ability to both tolerate and bioaccumulate contaminants in their tissues. The National Oceanic and Atmospheric Administration (NOAA) National Status & Trends Mussel Watch Program (MWP) has used bivalves

as bioindicators to monitor spatial and temporal trends of chemical contamination in coastal waters of the United States since 1986. The MWP has recently expanded through coordination with the President's Great Lakes Restoration Initiative (GLRI), a program designed to address the most significant environmental problems in the region, including nonpoint source pollution and contaminated sediment.

The Great Lakes basin is the largest freshwater system in the world with more than 20% of the world's freshwater supply. The basin is also home to roughly 35 million people and as such is faced with multiple environmental challenges including habitat destruction, pollution, and invasive species. Since 1992, following the invasion of dreissenid (commonly called zebra and quagga) mussels in the Great Lakes, NOAA's MWP has routinely monitored a suite of more than 150 contaminants including trace elements, legacy contaminants, and contaminants of emerging concern in Great Lakes. The histopathology component of the MWP quantifies stage of gamete development, and the prevalence of parasites, diseases, and tissue pathologies. Additionally, the Program participates in specimen banking, which allows for retrospective analyses of contaminants. The MWP thus provides a wealth of environmental monitoring data that can

aid in tracking the status and trends of a wide array of contaminants, evaluating the effectiveness of pollution prevention legislation and remediation programs and assessing the environmental impacts in the event of catastrophic environmental disasters.



Figure 1. Long-term Mussel watch sites in Great Lakes.

Today there are 25 long-term Mussel Watch sites in the Great Lakes from Duluth, MN on Lake Superior to Cape Vincent, NY at the St. Lawrence River that are sampled on a biennial basis (Figure 1). Based on Mussel Watch data spanning almost two decades, MWP has documented the continued presence of heavy metals and legacy contaminants in the Great Lakes, many of which were either byproducts of mining in the basin or were produced by industries along the

shores and tributaries of the Great Lakes. Aligning with the focus of GLRI to clean up areas of concern (AOCs), MWP has established about 30 sites in AOCs in recent years with the purpose of providing biologically relevant data to aid in the assessment and delisting of beneficial use impairment targets and AOCs in the Great Lakes. Specifically, MWP intends to provide data on tissue and sediment contamination, tissue histopathology, cellular biomarkers of exposure and effects, and sediment toxicity on benthic infauna in AOCs. Along with long-term monitoring data from historical Mussel Watch sites, MWP data can provide perspective on the extent and magnitude of pollution, effects of remediation, and subsequent delisting efforts in AOCs. Enhanced MWP efforts in the Great Lakes can thus aid resource managers and policy makers in making informed management decisions and legislative actions and can contribute to the overall restoration and protection of the Great Lakes.

For more information, go to: <http://NSandT.noaa.gov>, or contact: Gunnar Lauenstein, Gunnar.Lauenstein@noaa.gov, (301) 713-3028.

Contributed by: Annie Jacob (Consolidated Safety Services), Kimani Kimbrough, and Edward Johnson (NOAA).

Spotlight on State Councils

Collaboration to Reduce Nutrients in the Mississippi River Basin

Collaboration is central to the mission of the Indiana Water Monitoring Council (InWMC), which was created in 2008 and has been working to develop its presence within the State. Most recently, the InWMC helped the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) in Indiana develop water quality monitoring protocols for the Mississippi River Basin Initiative (MRBI). MRBI is a major program focus of the NRCS and is designed to reduce the transport of nutrients to the Gulf of Mexico through the implementation of conservation practices on working agricultural lands in the Mississippi River Basin.

One of the components of the MRBI is edge of field sampling to document the water quality benefits of conservation practices. With limited funds available for this component of the program, NRCS was interested in creative, low-cost ways to evaluate these benefits using methods that farmers and others could use. After an initial meeting to determine NRCS' needs and discuss an approach for collaboration, InWMC coordinated a meeting with several water monitoring experts in Indiana to provide advice on the development of the NRCS monitoring protocols. By consulting with InWMC first to get the

right people around the table, the NRCS was able to develop its monitoring protocols in a very short timeframe. Much of the work was accomplished in a single meeting. The guidance provided to NRCS was incorporated into their Edge of Field Water Quality Monitoring job sheet.

InWMC also provided NRCS the opportunity to "roll out" and get additional input on its new protocols during the Fall InWMC Symposium. This meeting was attended by staff from State and Federal agencies, environmental organizations and watershed groups, and a number of Soil and Water Conservation Districts that work closely with the agricultural producers who would be implementing the new protocols. InWMC's approach to facilitating the collaboration proved to be highly efficient as well as successful; InWMC will likely duplicate it in the future.

For more information visit <http://www.inwmc.org/> or contact: Jeff Frey, jwfrey@usgs.gov, 317-290-3333 x151.



North Dakota Water Quality Monitoring Council Moving Forward with its First State Conference in 2012



Discussion topics and concerns generated by the 2009 workgroups led to the formation of the North Dakota Water Quality Monitoring Council which has created its own web site and will hold its first statewide conference in 2012.

Representatives from local, State, Federal and non-governmental organizations came together in late 2009 to share their vision for the improvement of water quality in North Dakota. From this meeting, the North Dakota Water Quality Monitoring Council (NDWQMC) was formed with a mission: to promote and facilitate collaboration for effective collection, analysis, and sharing of water quality data.



The North Dakota Water Quality Monitoring Council logo was designed by Ms. Mickenzie Welder, a junior at Bismarck High School.

Work began in 2010 on two projects that will assist in the group's vision to "provide the information necessary for the effective management, protection, and improvement of water quality in North Dakota." The first was a website where professionals and the public may go to find water quality information and additional web links (<http://www.ndwatermonit.org>). Second was the development of a conference where people from across the State could come together and share their insights and experiences concerning water quality monitoring. The culmination of this effort will be a conference entitled "North Dakota Water Quality Monitoring Conference: The State of Our Research, Information and Knowledge" to be held February 27-29, 2012, in Bismarck, ND.

For more information, go to: <http://www.ndwatermonit.org>, or contact: Mike Ell, mell@nd.gov, (701) 328-5210.

Colorado Water Quality Monitoring Council Hosts Data SWAP to Kick Off Writing of Watershed Plan

At the request of the City of Longmont, the Saint Vrain and Left Hand Water Conservancy District, and the Left Hand Watershed Oversight Group, the Colorado Water Quality Monitoring Council's Colorado Data Sharing Network held a SWAP on March 2, 2011, in Longmont, Colorado. SWAPs, or information exchanges, are one of three primary products the Council provides. The goal for this SWAP was to exchange information on monitoring and assessment activities, locations and purposes; to discuss needs, priorities, and concerns; and to characterize how data -- chemical, physical, and biological data for streams, lakes, reservoirs, groundwater, and wetlands -- are being managed and shared. This then served to kick off an initial meeting to develop a basin watershed plan that will direct scarce resources toward protection and restoration priorities. Attendees represented cities, a county, State and Federal agencies, water conservancy districts, and nonprofits. The information was documented, summarized in a fact sheet, distributed to all participants, and posted on the Council's website.



Sean Cronin, Executive Director of the Saint Vrain and Left Hand Water Conservancy District (SVLHWCD), describes the data needs of the SVLHWCD from a watershed and district planning perspective as a part of the SWAP. (Photo by Cathy Tate, U.S. Geological Survey)

For a copy of the Saint Vrain and Left Hand Creek fact sheet go to:

http://www.coloradowaterdata.org/swapfacts/CDSN_StVrain_March2_2011_SWAPSummar_V3.pdf

For more information on the Colorado Data Sharing Network —Data SWAPs visit:

<http://www.coloradowaterdata.org/cdsnswaps.html> or contact: Barb Horn, Barb.Horn@state.co.us, (970) 382-6667.

Contributed by: Cathy Tate, cmtate@usgs.gov, (303) 236-6927.

Volunteer Monitoring

San Diego Coastkeeper Successfully Incorporates Toxicity Testing into Volunteer Water Quality Monitoring Program



Coastkeeper was able to incorporate toxicity testing thanks to a new test method using a bioluminescent dinoflagellate, *Pyrocystis lunula*.

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Coastkeeper was able to incorporate toxicity testing thanks to a new test method using a bioluminescent dinoflagellate, *Pyrocystis lunula*. This sensitive, single-celled organism emits light when physically agitated. The amount of light produced is reduced when exposed to biologically harmful levels of contaminants. San Diego Coastkeeper used a small benchtop instrument designed to quantify light output after exposure to waters collected throughout the county of San Diego. The availability of this test has made toxicity detection an affordable and achievable technique for the volunteers of Coastkeeper, providing the capability to confirm or update existing information and perform critical contaminant screening of water bodies.

For more information, contact: Travis Pritchard, San Diego Coastkeeper, travis@sdcoastkeeper.org, (619) 758-7743 X 115 or Shane Mudd, Assure Controls, smudd@assurecontrols.com, (703) 477-5069.

San Diego Coastkeeper, the region's largest environmental organization protecting San Diego's inland and coastal waters, has completed a year of monthly water quality testing with a new toxicity test method that significantly expands the scope of data available to volunteer monitoring groups. Toxicity testing involves

exposing a live organism to a water sample and measuring the impact on the organism's life processes, giving key insight into the health of the overall ecosystem. Toxicity testing has long been an integral part of National Pollution Discharge Elimination System (NPDES) permit testing, but due to cost and complexity has been mostly out of reach for volunteer-based water monitoring.

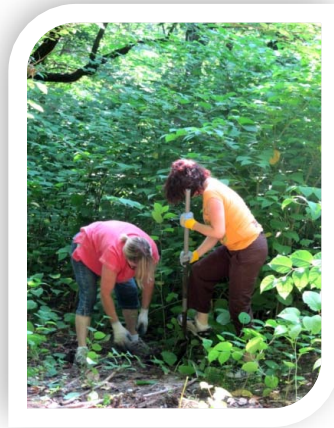
State-Nonprofit Volunteer Monitoring Partnership Increases Data Sharing in New Jersey

Volunteer and agency water monitoring programs are always looking for cost effective ways to meet their water monitoring goals. Collaborating as partners is a way to do this. One successful partnership in New Jersey is between the nonprofit Stony Brook-Millstone Watershed Association's Watershed Institute Program and the New Jersey Department of Environmental Protection's (NJDEP) Volunteer Monitoring Program, the Watershed Watch Network (WWN).

The Watershed Institute provides support to New Jersey's watershed groups through training, information sharing, and an annual grant program. The grant program, formed in 2003, supports both organizational health and watershed management work. Since 2007, WWN has been providing \$27,000 a year to the grant program to support growing volunteer monitoring programs and help sustain existing programs throughout NJ. For example, in 2010, three watershed associations added to their routine sampling programs and updated their quality assurance project plans (QAPPs); three other environmental organizations wrote quality assurance project plans for the first time. Projects included adding new sample locations, adding new monitoring methods, monitoring the removal of invasive species, or evaluating the effectiveness of restoring stream buffers.

The Watershed Watch Network serves as a resource for the NJ volunteer monitoring community and provides a significant amount of expertise to monitoring projects that come through the grant program. Partnering with the Watershed Institute has proven to be the most effective way for the Department to assist local monitoring efforts. Since grantees are required to develop or update their QAPPs and submit their data to the NJDEP, this partnership has led to an increase in quality-assured data and in data sharing for more informed water quality decision making throughout New Jersey.

Contributed by: Alyse Greenberg, Stony Brook Millstone Watershed Association, agreenberg@thewatershed.org, and Danielle Donkersloot, New Jersey Department of Environmental Protection, Danielle.donkersloot@dep.state.nj.us.



Volunteers from the Pequannock River Coalition remove the invasive plant, Japanese Knot Weed.

Irene and Lee Deliver 1-2 Punch to Chesapeake Bay

Chesapeake Bay Partnership to monitor the effects of Hurricane Irene and Tropical Depression Lee

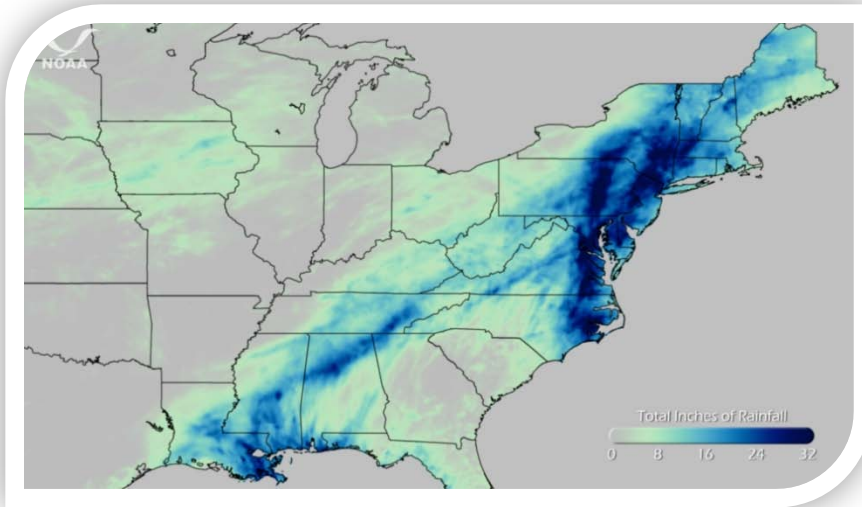


Figure 1. Two Weeks of Rain Swamps Eastern U.S.

Hurricane Irene and Tropical Storm Lee delivered massive amounts of rainfall to the Eastern U.S. from August 26 – September 9, 2011. (Image provided by the National Weather Service's (NWS) River Forecast Centers). The NWS analyzed a combination of radar, rain gauges, and satellite rainfall data to estimate total rainfall for the period.

Flooding throughout the Susquehanna River and watershed prompted the President to declare a state of emergency in Pennsylvania. The Susquehanna crested at around 39 feet. At least 5 deaths have been attributed to the flooding.

Source: <http://www.nnvl.noaa.gov/MediaDetail.php?MediaID=835&MediaTypeID=1>

Partnership. Routine and storm event monitoring will provide a well-documented picture of the near-term effects and will help track longer-term impacts on the basin and bay from this pair of storms.

Though the information from these storms will be compiled, analyzed, scrutinized, and analyzed again for many months, researchers have already compiled some astounding findings. Future updates will cover more in-depth analyses; for now here are some facts and figures about the storms and their immediate after-effects:

Across the Chesapeake Bay watershed, the NOAA's National Weather Service reported storm track rainfall conditions:

- In the local Baltimore-Annapolis-Washington area, the rainfall measured at some locations rated as once-in-500 year to once-in-1,000 year events.
- From August 26 - September 9 the largest rainfall totals, almost 3 feet, were measured from Northern Virginia through New York (Figure 1).

Streamflows reported across the region by U.S. Geological Survey (USGS) Water Science Centers (WSC) were some of the highest on record:

- The USGS Virginia WSC indicated that the northern Virginia region, primarily Fairfax County, was the hardest hit area with regard to rainfall and flood magnitude. Overall, flooding in many parts of Fairfax County was the greatest observed since flooding associated with Hurricane Agnes in 1972.

A pair of intense storms walloped the Chesapeake Bay region in late summer 2011 and caused widespread flooding and power outages. Hurricane Irene and Tropical Depression Lee left the area soaked from heavy rains and shaken by high winds.

It started in late August 2011, when Hurricane Irene dropped heavy rain, especially along the Eastern Shore, while the larger Bay region got less precipitation but strong winds. Just days later, in early September, Tropical Depression Lee took dead aim at the watershed. Moving up the western shore of Chesapeake Bay, Lee drenched the region, especially the Susquehanna River basin, with upwards of three feet of rain in places.

The effects of these two major storms are being monitored by the Federal, State, and academic partners of the Chesapeake Bay Program

- USGS Maryland-Deleware-DC scientists reported that peak flows coming over the Susquehanna River's final dam, the Conowingo Dam, reached 778,000 cubic feet per second. This was the third highest flow on record behind winter 1996 and Hurricane Agnes in 1972.
 - An estimated 2.5 to 7 million tons of sediment was scoured from the lower Susquehanna River reservoir system and delivered to the Bay. The scouring is estimated to have restored about two years of sediment retention capacity to the reservoir system.

The Conowingo Dam location is an excellent example of the cooperative nature of the Partnership. It is one of nearly 100 sampling sites in the watershed monitoring network. Staff from the Virginia Department of Environmental Quality (DEQ), Maryland Department of Natural Resources (DNR), Susquehanna River Basin Commission, Pennsylvania Department of Environmental Protection, and USGS WSC in Maryland-Delaware-DC and Virginia worked tirelessly to collect storm samples for nutrients and sediments.

The wealth of information that has emerged from these partnerships extends well beyond dry numbers and statistics. In Chesapeake Bay tidal waters, Maryland DNR has a long standing relationship with NASA to post daily satellite imagery. These images clearly show the sediment plume associated with the storm runoff moving down the Bay in the days immediately after the skies cleared following Tropical Depression Lee (Figure 2). In addition, NOAA has developed an algorithm to interpret NASA imagery to estimate Total Suspended Matter per liter that provides yet another measure and illustration of the storm plume distribution and its continuing progression down the bay (Figure 3).



Figure 2. Sediment plume associated with storm runoff moving down the Chesapeake Bay days after Tropical Depression Lee passed through (Chesapeake MODIS Satellite Imagery and Data). Source: http://mddnr.chesapeakebay.net/eyesonthebay/satellite_result.cfm#picview

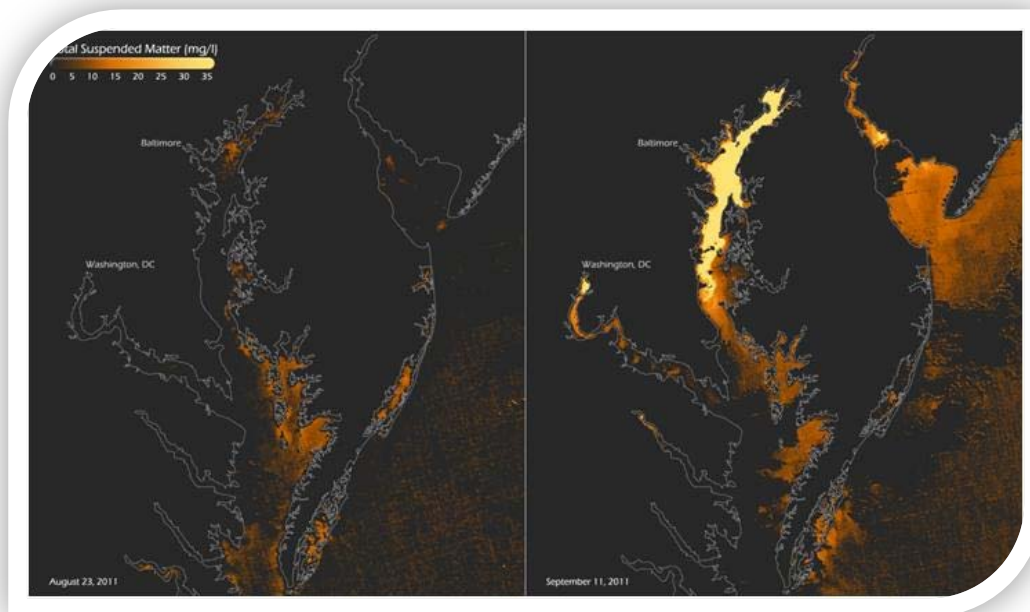


Figure 3. NOAA's interpretation of NASA imagery to estimate Total Suspended Matter in milligrams per liter provides another measure of the sediment plume distribution and progression down the bay. Image on left is August 23, 2011, and on right September 11, 2011. Source: <http://www.nvli.noaa.gov/MediaDetail.php?MediaID=836&MediaTypeID=1>

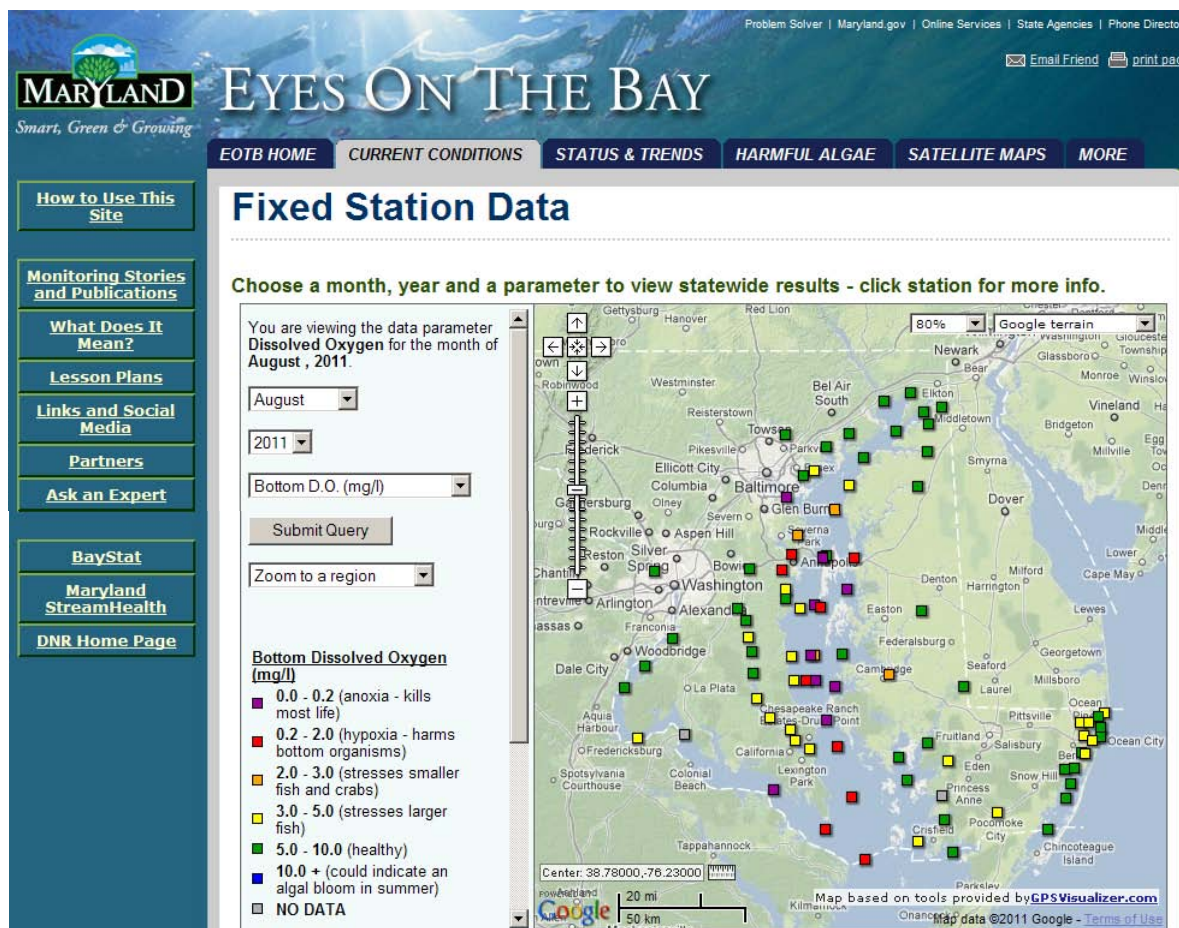


Figure 4. August average dissolved oxygen for deep water midbay stations showed new record high levels as a result of storm impacts. (Image from Maryland's DNR Eyes on the Bay web site: <http://mddnr.chesapeakebay.net/eyesonthebay/currentconditions.cfm>)

A post-hurricane water-quality monitoring cruise by the Maryland DNR provided a first look at storm impacts on the Bay conditions. Wind effects associated with the hurricane were sufficient to destratify the Bay and provide some atypical late summer reoxygenation to the Bay's deepest waters. Dissolved oxygen levels in the deep waters of the midbay are at new record high levels for August as a result (Figure 4). An additional coordinated Baywide mainstem water-quality cruise was scheduled for early October thanks to emergency funding provided to the Maryland DNR and Virginia DEQ from the EPA Chesapeake Bay Program Office. The additional cruise will add three cruises over a 6-week period to complement the long-term monitoring.

The 26-year history of water quality monitoring by the Chesapeake Bay Program Partnership provides an excellent foundation to evaluate the effects of these storms. The intensive storm-related monitoring will further be valued as a key watershed and Bay modeling calibration and validation data set. In response to the storms, weekly conference calls are held to coordinate and synthesize summaries of monitoring efforts, assess resource needs, and accumulate findings to be shared with the community on the full array of monitoring underway across the Partnership.

Contributed by: Peter Tango, PhD, Chesapeake Bay Monitoring Coordinator, USGS Chesapeake Bay Program Office, Annapolis, MD, ptango@chesapeakebay.net, (410) 267-9875, <http://www.chesapeakebay.net>.

News from the Water Information Strategies Workgroup

A series of informational webinars and conference calls were held by the Water Information Strategies (WIS) Workgroup during the summer of 2011. Topics of the calls have included [communicating the value of monitoring to decision-makers by Greg Pettit to ASWIPCA](#), monitoring for spills and other catastrophic events (July), implications for monitoring programs relative to the proposed new EPA criteria on pathogen indicators for recreational waters (August), and doing more with less in your monitoring program (September).

Agenda topics for future calls include:

- Monitoring to determine the effectiveness of best management practices, and
- State tools on reporting water quality, and monitoring to determine flooding impacts.

WIS workgroup calls are generally held the second Wednesday of the month at 11:00 ET. The schedule and topics for the calls can be found on the Council's Calendar at: <http://acwi.gov/monitoring/members/calendar.html>

In other activities, the WIS workgroup focused on reviewing and commenting on a draft "Charter for an Ad Hoc Committee to establish a National Network of Reference Watersheds and Monitoring Sites for Freshwater Streams in the United States." The purpose of the charter was to develop a national framework for reference watersheds and monitoring sites based on a collaborative effort to assist in assessments that would provide quality-assured data and information for use in understanding the effects of land-use change, water use, atmospheric deposition, and climate change on freshwater ecosystems. The WIS group approved the language of the charter and submitted it to the Council, which approved the charter in May 2011. In July 2011, the charter was submitted to the Advisory Committee on Water Information and approved. Several WIS workgroup members are participating in the Steering Committee for the reference network. For more information, see the article on page 20 in this newsletter titled "Council to Establish a Collaborative and Multipurpose National Network of Reference Watersheds and Monitoring Sites for Freshwater Streams."

Finally, the Water Quality Statistics and Assessment (WQSA) subgroup continues to work with the Methods Board to develop a database of statistical and assessment tools for the water quality community. The WQSA subgroup encourages anyone interested in this topic (membership in the Council or WIS is not required) to become involved with developing a product useful to a range of users (volunteers, state and local agencies, etc.).

For more information, or if you wish to participate in WIS Workgroup calls, contact: Peter Tennant, ptennant@orsanco.org, (513) 231-7719 or Mary Skopec, Mary.Skopec@dnr.iowa.gov, (319) 335-1579.

BioData – The USGS Web-based Bioassessment Database Now Available

Access to aquatic bioassessment data (biological community and physical habitat data) collected by U.S. Geological Survey (USGS) scientists from stream ecosystems across the nation is now available through the USGS BioData Retrieval system (BioData). Fish, aquatic macroinvertebrate, and algal community samples are collected and stream physical habitat surveys are conducted as part of the USGS mission to describe and understand the Earth. Data from over 15,000 fish, aquatic macroinvertebrate, and algae community samples are available to the public, as are over 5,000 physical habitat data sets (samples) that were collected to support the community sample analyses. BioData is structured to support data collected by USGS scientists using protocols from both the National Water-Quality Assessment Program and the U.S. Environmental Protection Agency National Rivers and Streams Assessment Program.

Scientists, resource managers, teachers, and the general public can retrieve data using an online query. BioData Retrieval allows one to find the data of interest based on criteria (filters) such as data type, location, date, or taxonomy. Selected retrieval criteria can be saved to a computer desktop for future queries. Data retrievals are organized in data set tables with defined column headings. Data can be downloaded in several formats.

To access BioData go to: <http://aquatic.biodata.usgs.gov>

For more information, contact: Pete Ruhl, pmruhl@usgs.gov, (703) 648-6841 or Mitch Harris, maharris@usgs.gov, (217) 328-9716 or you can use USGS' convenient online form.

The screenshot shows the USGS BioData Retrieval website. At the top left is the USGS logo with the tagline "science for a changing world". At the top right are links for "USGS Home", "Contact USGS", and "Search USGS". The main header reads "BioData - Aquatic Bioassessment Data for the Nation". Below this is a "BioData Retrieval" section with a "Retrieval" button and a welcome message: "Welcome to the U.S. Geological Survey (USGS) BioData Retrieval system which provides access to aquatic bioassessment data (biological community and physical habitat data) collected by USGS scientists from stream ecosystems across the nation. [more...](#)". A "BioData Retrieval System Features" section lists several capabilities, such as selecting data by criteria, previewing data tables, and downloading in various formats. To the right, there are three main sections: "BioData Public Data Retrieval" with a "Retrieval" button and links for "Retrieve Data", "About BioData Public Data Retrieval", and "Contact the BioData Team"; "BioData Input System" with an "Input" button and links for "Login to BioData Input" and "Training Information"; and "BioData Labs" with a "Labs" button and a link for "Information For Labs". Below these sections is an "Other Resources" section listing various USGS data programs and systems. At the bottom of the page is a horizontal strip of five images: two people wading in a stream, a fish being held, a close-up of a fish's eye, a group of people in a stream, and a close-up of a macroinvertebrate.

The USGS BioData Retrieval system provides access to aquatic bioassessment data collected by USGS scientists from stream ecosystems across the Nation since 1991.

USGS Releases an Online, Interactive Decision Support System for Assessment of Nutrients in Streams and Rivers

The U.S. Geological Survey (USGS) released an online, interactive decision support system that provides access to six newly developed regional models that describe how rivers receive and transport nutrients from natural and human sources to sensitive waters downstream. SPARROW (Spatially Referenced Regressions On Watershed attributes) models have been developed by the USGS National Water-Quality Assessment Program for six large regions of the conterminous United States. Results from the models can be used to compare nutrient sources and watersheds that contribute elevated nutrient loads to downstream receiving waters, such as the South Atlantic and Gulf of Mexico, inland and coastal waters of the Northeast, the Upper Mississippi and Great Lakes, and Puget Sound.

Each region and locality has a unique set of nutrient sources and characteristics that determine how those nutrients are transported to streams. Users of the decision support system can evaluate combinations of source reduction scenarios that target one or multiple sources of nutrients and see the change in the amount of nutrients transported to downstream waters – a capability that has not been widely available in the past. These tools may help States, water managers, and Federal agencies target sources and areas to design effective nutrient reduction strategies to improve water quality.

For more information, go to: <http://water.usgs.gov/nawqa/sparrow/mrb/> or contact: Steve Preston, spreston@usgs.gov, (302) 734-2506 x230.

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SPARROW Decision Support System

Find a Model by Geographic Location:
Select a region or state. When a state is selected, all models containing that state are listed.

Colorado

Find a Model by Modeled Constituent:
Any

Models matching your criteria (Click a model to show details)

- Total Nitrogen Model for the Lower Mississippi, Arkansas-White-Red, and Texas-Gulf Region - 2002
- Total Nitrogen Model for the Missouri River Basin - 2002
- Total Phosphorus Model for the Lower Mississippi, Arkansas-White-Red, and Texas Gulf Region - 2002
- Total Phosphorus Model for the Missouri River Basin - 2002

Documentation and Further Reading

- What is SPARROW?
- What is SPARROW Decision Support?
- SPARROW Applications & Documentation
- SPARROW FAQs

Tutorial Videos
Select a video... Watch now >>

Found a bug or have a comment?
Please send bugs, suggestions and questions to the SPARROW DSS Administrator.

Selected Model

2002 Total Nitrogen SPARROW Model for the Missouri River Basin

Explore this model in the Decision Support System >>

Modeled Constituent: Nitrogen
Base Year: 2002
Stream Network: Enhanced River Reach File 2.0
Reference: Nutrient Sources and Transport in the Missouri River Basin, With Emphasis on the Effects of Irrigation and Reservoirs

Watershed Based Sessions
To start the DSS with the outlet river reach of a major watershed selected for downstream tracking, select a watershed and click Go.

Missouri River Watershed Go >>

Scenario Based Sessions
To start the DSS with a predefined scenario, click on the link for one of the scenarios below.

Source Changes in South Platte River Basin
Example scenario showing changes in the total yield of nitrogen due to a 50 percent reduction in point sources and 25 percent increase in developed land in the South Platte River Basin (HUC 101900).

The online SPARROW Decision Support System can be used to evaluate combinations of source reduction scenarios that target one or multiple sources of nutrients and see the change in the amount of nutrients transported to downstream waters for six major regions of the United States.

National Monitoring Network

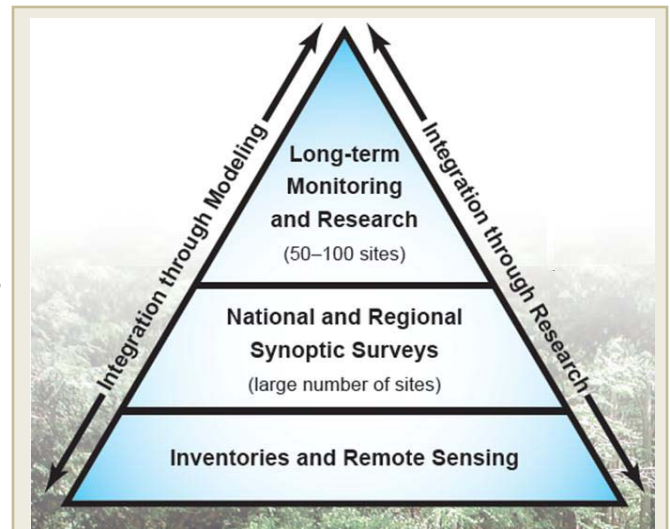
Council to Establish a Collaborative and Multipurpose National Network of Reference Watersheds and Monitoring Sites for Freshwater Streams

The Council will begin the development of a collaborative and multipurpose national network of reference watersheds and monitoring sites to provide quality-assured data and information for use in understanding the effects of land use change, water use, atmospheric deposition, and climate change. A significant challenge faced by the water monitoring community is the need for reliable long-term data and information from watersheds that are minimally disturbed by human activities. Monitoring in areas with minimal human disturbance helps to provide (1) an understanding of natural patterns of variability necessary to differentiate changes from those due to land and water use from those changes associated with natural climatic cycles, and (2) reference information that can inform water management decisions such as those guiding the establishment of water-quality criteria and establishing appropriate expectations for watershed restoration.

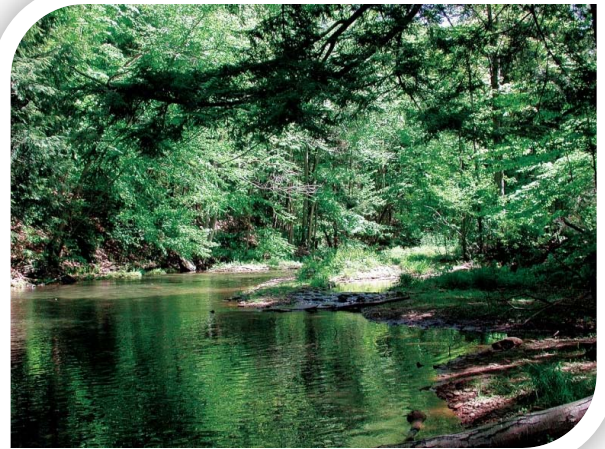
The reference network design will emphasize the chemical, physical, and biological aspects of water quality and will integrate, to the extent possible, with existing networks. Membership in the network would be voluntary and open to individuals and institutions interested in participating in monitoring and (or) research in minimally disturbed and pristine watersheds. Outcomes and benefits would include the following: a unique national database of high-quality observations from pristine and minimally disturbed watersheds that can be used to establish background conditions for select hydrologic variables and water-quality measures; establishment of a benchmark for understanding environmental stressors on aquatic communities; Internet access to real-time data and annual data summaries and syntheses that are responsive to current environmental issues; and increased efficiency of monitoring with improved coordination and collaboration. Increased collaboration among Federal, State, and non-governmental agencies is a key for the success and support of a national network of reference watersheds and monitoring sites that ultimately serves multiple agency objectives and program goals.

For more information go to:

http://acwi.gov/monitoring/workgroups/wis/National_Reference_Network_for_Streams.pdf or contact: Bill Wilber, wgwilber@usgs.gov, (703) 648-6878 or Jeff Deacon, jrdeacon@usgs.gov, (603) 226-7812.



The tiered monitoring framework shows the structure of the proposed Collaborative and Multipurpose National Network of Reference Watersheds and Monitoring Sites that was modeled after the National Science and Technology Council's Committee on Environment and Natural Resources (CENR). From top to bottom, the tiers reflect long-term monitoring and research intensive sites, spatially extensive regional and national synoptic surveys, and inventories and remote sensing. Modeling and research help to link and integrate the tiers.



The Council embarks to develop a National Network of Reference Watersheds and Monitoring sites for freshwater streams. Reference sites, such as Young Woman Creek, PA, provide valuable information on background conditions that help in understanding the effects of land use change, water use, atmospheric deposition, and climate change. (Photo by Mike McHale, U.S. Geological Survey)

Announcements

New Release: EPA's Healthy Watersheds Initiative National Framework and Action Plan, 2011 – The U.S. EPA recently announced the release of the Healthy Watersheds Initiative (HWI) National Framework and Action Plan. HWI is intended to protect the Nation's remaining healthy watersheds, prevent them from becoming impaired, and accelerate restoration successes. The HWI National Framework and Action Plan aims to provide a clear consistent framework for action, both internally among EPA's own programs and externally in working with partners. EPA will work with States and other partners to identify healthy watersheds at the State scale and develop and implement comprehensive state healthy watersheds strategies that set priorities for protection and inform priorities for restoration.

Healthy watersheds provide many ecological services as well as economic benefits. If successfully implemented, HWI promises to greatly enhance our Nation's ability to meet the Clean Water Act Section 101(a) objective of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The HWI National Framework and Action Plan is available at www.epa.gov/healthywatersheds.

Maryland Water Monitoring Council's 2011 Annual Conference – December 1, 2011 – The Maryland Water Monitoring Council will hold its 17th Annual Conference at the Maritime Institute, North Linthicum, on Thursday, December 1, 2011. The theme of the one-day conference is Think Baywide, Act Streamside: Implementing the Chesapeake Bay TMDL. A morning plenary session will include a keynote address by Jeff Corbin, EPA's Senior Advisor for the Chesapeake Bay, and five concurrent sessions with up to three talks each. Session topics currently include; The Federal Urban Waters Initiative, Environmental Justice in Water Issues, The Baltimore Reservoir Technical Workgroup, Volunteer Monitoring, The Chesapeake Bay Watershed Implementation Plan, Innovative Monitoring Methods, Maryland's NPDES Stormwater Program, Effective Communication of Scientific Information, and a special "How to" session on water monitoring techniques. Details are available at: www.marylandwatermonitoring.org, or contact: Dan Boward, dboward@dnr.state.md.us, (410) 260-8605.



The Eleventh Wild Trout Symposium is Being Planned for September-October, 2013 – As the world flattens, education, and the preservation of all wild salmonids becomes more critical. We'd like to ask you and your colleagues to look us over and consider future attendance and participation in the eleventh wild trout symposium. The wild trout symposium is now being planned for September-October 2013, an ideal time to be in USA's Yellowstone National Park. Please log on to our web site to find out more about past symposiums or join our mailing list: <http://www.wildtroutsymposium.com/contact.php>.

For more information, go to: <http://www.wildtroutsymposium.com/> or contact: Marty Seldon, mmseldon@sbcglobal.net.



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