



National Water Quality Monitoring Council

Working together for clean water

Working Together For Clean Water: 2017-2019 Council Highlights

Each day, water-quality issues become more complex and the need to address them more urgent. The demand for clean, pure water continues to grow. At the same time, budgets to monitor, assess, protect and restore our waters are tighter, forcing scientists and managers to attempt to do more with less. The National Water Quality Monitoring Council (Council) exists to bring together the diverse

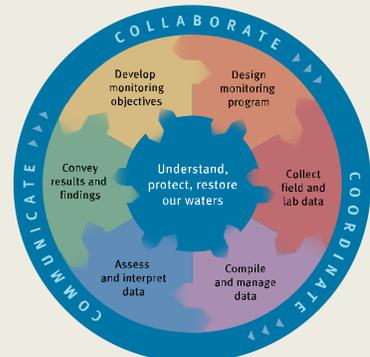
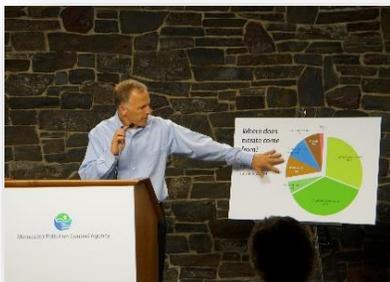
expertise needed to develop collaborative, comparable, and cost-effective approaches to monitor and assess our Nation's water quality (<http://acwi.gov/monitoring/>). These approaches are fundamental to the successful management and sustainability of our water resources.



assessment and statistical tools; sensors and real-time monitoring; and various tools for sharing and communicating developments and innovations in the monitoring community. Many Council products and services are now available to help meet water needs across the Nation.

The Council and its partners have made significant advances in setting priorities, including data management and information dissemination; compatible web services; State and regional councils; volunteer monitoring;

Created in 1997, the National Water Quality Monitoring Council (Council) is a national forum for coordination of comparable and scientifically defensible methods and strategies to improve water quality monitoring, assessment and reporting. The Council brings together scientists, managers, and citizens to ensure that information about the quality of our water resources is accurate, reliable, and comparable. The Council fosters collaborative and cost-effective approaches to improve and advance the science of water-resources monitoring. The Council is chartered as a subgroup of the Advisory Committee on Water Information (ACWI) under the Federal Advisory Committee Act.



The Monitoring Framework

Council Workgroups

Methods and Data Comparability Board (Methods Board) – Provides a forum for evaluating and promoting methods that facilitate comparability among water-quality monitoring and analytical methods. (**Contact:** Dan Sullivan, djsulliv@usgs.gov, (608) 821-3869)

The **Aquatic Sensor Workgroup** is a subcommittee of the Methods Board that has focused on quality control and management of water-quality sensor data. (**Contact:** Dan Sullivan, djsulliv@usgs.gov, (608) 821-3869)

Water Information Strategies Workgroup – Defines and promotes strategies for monitoring designs; data management, access, and exchange; data integration and analysis; and information reporting to address water needs. (**Contacts:** Mary Skopec, mary.skopec@dnr.iowa.gov, (319) 335-1579, Aaron Borisenko, borisenko.aaron@deq.state.or.us, (503-693-5723))

Collaboration and Outreach Workgroup – Works to build partnerships that foster collaboration and communication within the water-quality monitoring community. (**Contacts:** Candice Hopkins, chopkins@usgs.gov, (208) 387-1331, and Danielle Donkersloot, ddonkersloot@gmail.com)

National Network of Reference Watersheds – Defines and promotes strategies for improved coordination and collaboration for sharing and accessing reference watershed information and water-quality data for freshwater streams (**Contact:** Mike McHale, mmchale@usgs.gov)

Volunteer Monitoring (VM) Working Group – Engages key members of the Council in volunteer monitoring-related discussions to better encourage integration of volunteer monitoring activities with ongoing water-quality monitoring conducted by local, state, and federal agencies. (**Contacts:** Danielle Donkersloot, ddonkersloot@gmail.com and Julie Vastine, vastine@dickinson.edu, (717) 245-

The National Network of Reference Watersheds



The National Network of Reference Watersheds (NNRW) is a web-based resource with a collaborative, multipurpose design that delivers physical and chemical data for

minimally disturbed watersheds. The NNRW is made up of about 2,500 watersheds from across the United States. The network quantifies the level of disturbance for each watershed based on hydrologic and land-use disturbance metrics. To date the NNRW has focused on stream watersheds, but in 2019 the network will begin to incorporate lake watersheds. The NNRW allows users to search for watersheds based on land use characteristics, disturbance levels, and water quality data availability. The NNRW delivers water quality data for network watersheds through Council's Water Quality Portal. The NNRW also associates each watershed with the closest National Atmospheric Deposition Program station so users can easily access atmospheric deposition data associated with each watershed. Membership in the network is voluntary and open to interested individuals and institutions. More information and access to the NNRW at: <https://my.usgs.gov/nnrw/main/home> (**Contact:** Mike McHale, mmchale@usgs.gov, (518) 285-5675).

Volunteer Monitoring and Citizen Science

The Council's VM Work Group was established in 2016 with the goal to foster community and connect people to new and existing resources. The 2016 Tampa NMC conference served as a wonderful opportunity to connect with monitoring coordinators from across the country to assess the pulse of the community and identify key projects to focus on. Since the 2016 conference, the VM work group has focused on communication and outreach. Check out the Council's newsletter for articles from the VM community doing engaging work. The work group also hosted eight webinars in 2017 and 2018 for the VM community on topics ranging from "Building Credibility" to "Bacteria Monitoring." Additionally, work group members participated in Water Quality Portal discussions to help explore strategies for increasing data submissions from the volunteer monitoring community. For more information check out: <https://acwi.gov/monitoring/vm/> (**Contacts:** Danielle Donkersloot, ddonkersloot@gmail.com and Julie Vastine, vastine@dickinson.edu, (717) 245-1135).



National Environmental Methods Index

The National Environmental Methods Index (NEMI; <https://www.nemi.gov/>) is an online resource of laboratory methods and field protocols. Introduced in 2002, NEMI includes methods for chemical, biological, and physical monitoring. NEMI methods are linked to sample results in the Water Quality Portal, allowing water managers quick access to method metadata needed to assure comparability of water-quality data. Current efforts to expand biological method data in NEMI include adding critical metadata fields.



NEMI (Contact: Dan Sullivan, djsulliv@usgs.gov, (608) 821-3869 or Jim Kreft, jkreft@usgs.gov, (608) 821-3919).

Methods and Data Comparability Board

A **biosessment comparability subcommittee** was launched in 2018. Current efforts are focused on critical metadata fields



for biological data in the Water Quality Portal and the underlying Water Quality Exchange (WQX) schema, with plans for a breakout session at the 2019 NMC in Denver.

The **Aquatic Sensor Workgroup** contributed to the 2017 USGS continuous monitoring workshop, helped to build stronger collaboration on the collection, interpretation, and application of continuous monitoring data; shared technical approaches for the collection and management of continuous data that improves consistency and efficiency across the USGS; and explored techniques and tools for the interpretation of continuous monitoring data, which increases the value to cooperators and the public (see full report



at <https://doi.org/10.3133/ofr20181059>). Additional efforts by the workgroup included discussions of how to deal with uncertainty in sensor-derived data. (Contact: Dan Sullivan, djsulliv@usgs.gov, (608) 821-3869).

Water Information Strategies Workgroup

The Water Information Strategies (WIS) Workgroup prioritized three activities in 2017-18 and created three subcommittees to focus attention on developing products from these groups. The subcommittees included Improving Data Management, Evaluating NWQMC Progress, and Water Quality Standards.

Improving Data Management

The Data Management subcommittee was formed in response to the continued growth and utility of the Water Quality Portal. The WIS workgroup recognized the need to assist data owners in getting their information uploaded to the portal. One barrier for groups new to the Portal is understanding what information needs to be included with their data. In response to this issue, the Data Management subcommittee developed a document on the Best Practices for Metadata. The best practices guide will help new users navigate the how to gather the appropriate metadata to ensure that uploaded data are of known quality. This guide will be located on the Council website (Contact: Jane Caffrey, jcaffrey@uwf.edu, 850-857-6089).

The Water Information Strategies Workgroup is also coordinating with the Water Quality Portal team to provide review and input on future enhancements to the Water Quality Portal. Members of the WIS Workgroup represent diverse perspectives (state, local, community or volunteer monitoring groups) that help guide the Portal to meet the needs of the



user community. Similarly, WIS is collaborating with the USGS efforts to achieve: consistency in data collection, consistency in data reporting and discoverability and consistency in data

reporting quality. (Contact WQP: Jim Kreft, jkreft@usgs.gov, 608-821-3919 and Laura Shumway, Shumway.Laura@epa.gov; USGS Data Team: Lori Sprague lsprague@usgs.gov, 303-236-6921).

Evaluating Progress for the NWQMC

The 1998 Terms of Reference for the National Water Quality Monitoring Council states that progress towards achieving Council goals should be evaluated periodically, including evaluating Council accomplishments, plans, information products and collaborative efforts with participating organizations. While evaluation of various subprograms has occurred on a regular basis (e.g. Water Quality Portal), it was clear that a more systematic evaluation of the Council was necessary. The first step in this process was developing a Progress Matrix of Council Functions together with Council Activities and Products. The goal of the matrix is to determine

how the NWQMC supported and promoted water-quality monitoring, and how Council work has improved water monitoring coordination, collaboration and communication. The matrix can also be used to identify functions the Council has not addressed or addressed inadequately. (Contact: Leslie McGeorge, leslie.mcgeorge@dep.nj.gov and Mike Higgins, mike_j_higgins@fws.gov, 970-266-2924)

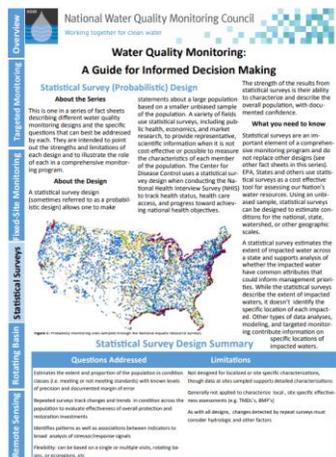
Water Quality Standards

The connection between water quality monitoring and water quality standards is important, but often confusing for groups or individuals that are not tasked with developing or interpreting water quality standards. The goal of this subcommittee is to explain the connection between monitoring and standards through the use of fact sheets, FAQs, and story maps. Topics that will be addressed by this committee include monitoring for standards development and monitoring to determine achievement of standards. (Contact: Chris Greene, christopher.greene@state.mn.us and Monty Porter, Monty.Porter@owrb.ok.gov).

Water Quality Monitoring: A Guide to Informed Decision Making

The Water Information Strategies (WIS) group continues to develop fact sheets designed to help managers, non-technical audiences, policy makers, and the public understand the differences in various monitoring programs. Available Fact Sheets Include:

- [Overview: A Guide for Informed Decision Making](#)
- [Targeted Water Quality Monitoring](#)
- [Fixed Site Monitoring](#)
- [Statistical Surveys](#)
- [Remote Sensing](#)
- [Rotating Basin](#)
- [Integrating Water Monitoring Data: Water Quality Indices, Report Cards and Multi-metric Web Portals](#)



The Council Continues to Reach Out to the Water Monitoring Community by:

- Sponsoring this biennial **National Monitoring Conference** to help water stakeholders exchange information and technology related to water

monitoring, assessment, research, protection, restoration, and management, as well as to develop new skills and professional networks.

- Publishing the bi-annual online issues of **National Water Monitoring News**, highlighting recent activities of the national, State, regional, and tribal councils, watershed partnerships, and volunteer monitoring groups; projects, publications, tools, findings or announcements of interest to the water monitoring community (<http://acwi.gov/monitoring/newsletter/>).
- Hosting **webinars** representing a wide range of topics, speakers, and audiences such as:
 - Harmful Algal Blooms (HABs) Detection in the Gulf of Mexico
 - Volunteer Monitoring: Lake Monitoring
 - The Role of Environmental Monitoring and Data Management in Supporting Science
 - State Uses of Volunteer Monitoring Data
 - Coastal Acidification: moving from a global problem to a coastal water-quality issue
 - Standardized Electrofishing Sampling or “Where do I set the dials?”
 - Multivariate Statistical Analysis in Water Quality

Webinars are recorded, transcribed, and posted to our **YouTube channel**

(youtube.com/nwqmc)

for convenient viewing.



Sign up for our

webinar listserv to stay

informed of our

upcoming webinars (<http://acwi.gov/monitoring/webinars>).

- Announcing products and information relevant to the monitoring community through our [LinkedIn Group](#) and **Twitter Account** (@NWQMC).



The Council is dedicated to supporting and sustaining partnerships within the water monitoring community, including State, regional and tribal councils, as well as watershed groups and alliances, through these and many other outreach activities. (**Contacts:** Candice Hopkins, chopkins@usgs.gov, (208) 387-1331, and Danielle Donkersloot, ddonkersloot@gmail.com)

Additional information on Council activities can be found at the Council website, <http://acwi.gov/monitoring/>.