



NWQMC
NATIONAL WATER QUALITY
MONITORING COUNCIL

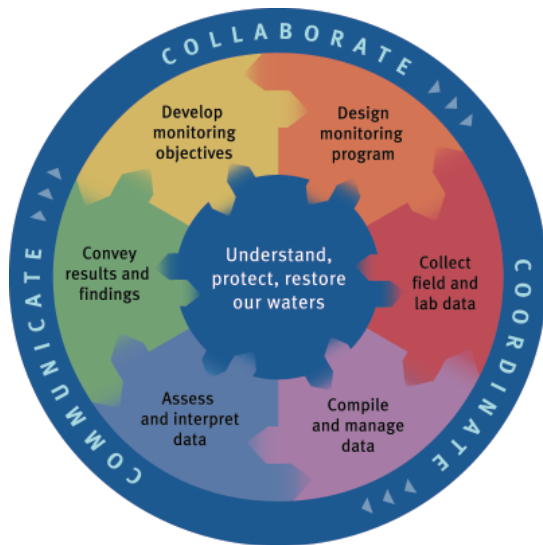
Working Together for Clean Water

National Water Quality Monitoring Council

A Framework for Water Quality Monitoring

Each year, government agencies, industry, academic researchers, and a wide variety of private organizations in the United States dedicate significant resources to monitoring, protecting, and restoring our water resources and their watersheds.

Assessing our waters and watersheds accurately, effectively, and efficiently requires that we work collaboratively and strive for methods and data comparability. Factors that can impede collaboration and comparability include critical differences in monitoring design, sampling protocols and analytical methods, data management, and data accessibility. To address these obstacles, the National Water Quality Monitoring Council, with input from the monitoring community, has developed the *Framework for Water Quality Monitoring*:



The Council’s Framework illustrates a systematic process that, when followed, will help monitoring entities produce and convey the information needed to understand, protect, and restore our waters. The arrows within the framework wheel visually remind us of the interconnectedness of the six steps and emphasize the need for feedback and evaluation. A unique and deliberate feature of the framework is the inclusion of the outer ring containing the “3 Cs” — stressing the need for communication, coordination, and collaboration within and among monitoring entities at every step of the process.

About the NWQMC

The National Water Quality Monitoring Council (Council) provides a national forum to coordinate consistent and scientifically defensible methods and strategies for improving water quality monitoring, assessment, and reporting. The Council promotes partnerships that foster collaboration, advance the science, and improve management within all elements of the water quality monitoring community. A vital aspect of this role is fostering increased understanding and stewardship of our water resources.

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 federal, tribal, state, interstate, local, and municipal governments; watershed and environmental groups; the volunteer monitoring community; universities; and the private sector, including the regulated community. These members meet several times a year in locations throughout the country. The Council is organized into work groups whose activities and products advance its goals. Current work groups are *Water Information Strategies*, *Methods and Data Comparability Board*, *Watershed Components Interactions*, and *Collaboration and Outreach*.

The Council is co-chaired by the U.S. Geological Survey and the U.S. Environmental Protection Agency. It is a subgroup of the Advisory Committee on Water Information that is chartered under the Federal Advisory Committee Act.

Communicate, Coordinate, Collaborate:

The “3 Cs” indicate the importance of inclusiveness in the monitoring process. This can be enhanced by including State and Regional Monitoring Councils as partners in monitoring efforts as well as encouraging appropriate public participation throughout the monitoring process.

Develop Monitoring Objectives:

The monitoring process begins when information goals are defined to respond to specific water resource management needs. Questions that need to be answered at this stage include: What is the purpose of the monitoring effort, who will use the data, and how will the data be used?

Design Monitoring Program:

The monitoring design must be developed to meet the monitoring objectives. Factors that must be considered at this stage of the process include the environmental setting, location of sampling sites, frequency of sample collection, the constituents to be measured, and the methods to be used in the field and the laboratory.

Collect Field and Laboratory Data:

Measurements taken in the field and laboratory translate the water’s properties into quantitative data that provide information about the status of water quality. Accurate and complete documentation of procedures is essential at this stage of the process.

Compile and Manage Data:

Data need to be usable and accessible. It is essential that the data in a management system include sufficient descriptive information about the data (i.e., “metadata”) so that it can be shared and compared among managers and the public.

The Framework will be used to:

- Guide the activities of the National Water Quality Monitoring Council by identifying, connecting, and prioritizing specific aspects of the various framework elements;
- Facilitate communication among professionals and volunteers working on different elements of monitoring programs (e.g. laboratory analysis and data analysis/interpretation);
- Guide the design of water quality monitoring programs to ensure that all components are included, balanced, connected, and collectively focused on producing quality information; and
- Underscore the need for a warehouse of consistent information on water monitoring design methodologies.

Assess and Interpret Data:

At this point, data starts to become information that will address the monitoring objectives. Ideally, the data interpretation methods have been identified prior to sampling so that the data are collected in direct support of the analysis methodology.

Convey Findings and Evaluate Program:

The information resulting from data interpretation is disseminated, by various means, for use by all stakeholders, including water quality managers, policy makers and the public. Information may be conveyed in various forms depending on the needs and preferences of the audience.

One of the strengths of the monitoring framework is the emphasis on feedback at every step. The successful application of the monitoring framework will help to assure that the results of water quality monitoring can be used to understand, protect, and restore our waters.

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

<http://water.usgs.gov/wicp/acwi/monitoring/>



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