



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

MEMORANDUM

OFFICE OF  
WATER

**SUBJECT: Guidance on Monitoring in NWQI watersheds - EPA Expectations and Program Support in FY14**

**FROM: Lynda Hall, Chief, Nonpoint Source Control Branch, EPA Office of Water**

*Lynda Hall*  
10-23-13

**TO: Regional NPS Coordinators; State Nonpoint Source Coordinators**

**Introduction-** This guidance memorandum summarizes information and expectations for monitoring activity conducted by states in support of the National Water Quality Initiative (NWQI), a partnership with USDA's Natural Resources Conservation Service (NRCS). EPA provided general guidance to the states on NWQI monitoring in the Section 319 *Nonpoint Source Program and Grant Guidelines* issued April 12, 2013 (see pages 10 and 38 at <http://water.epa.gov/polwaste/nps/upload/319-guidelines-fy14.pdf>). This memo provides additional information on monitoring objectives, expectations, and considerations for NWQI monitoring. Much of this information has been previously shared with states via a series of webinars.

This guidance is for FY14. As the inaugural year for NWQI monitoring, EPA and its state partners will likely learn important lessons as the effort proceeds. Based on this experience subsequent guidance memoranda may be developed for NWQI monitoring in FY15 and future years.

In the past, NRCS, states and EPA have worked in partnership to varying degrees to restore water quality affected by agricultural nonpoint sources. The NWQI formalizes this collaboration nationally. In FY12 and FY13 about 5% of NRCS's Environmental Quality Incentives Program financial assistance funding was dedicated to conservation practices for excess nutrients, sediments, and livestock-related pathogens on agricultural lands in HUC-12 watersheds. Funding is expected to continue in FY14 and subsequent years. A key element of the NWQI is measuring water quality changes resulting from focused conservation actions. EPA's Nonpoint Source Program will work with states as they continue to help implement NWQI and monitor water quality to assess potential improvements in the selected watersheds.

Many states have strong collaborative relationships with their NRCS counterparts and have processes in place to utilize Farm Bill funding for water quality restoration on an ongoing basis. For other states, the NWQI is a particular opportunity to initiate or enhance collaboration with NRCS. EPA

strongly encourages states to use the opportunity presented by NWQI to build or expand lasting partnerships with NRCS for water quality restoration efforts.

**Selecting watersheds for focused monitoring-** Between FY12 and FY13 the number of NWQI watersheds increased from 154 to 165 with some watersheds removed and some new watersheds designated. State Section 319/water quality agencies collaborated with NRCS on watershed selection and a number of watersheds contain Section 319-funded projects. Because restoring water quality generally requires a sustained investment, EPA and USDA expect the set of NWQI watersheds to remain relatively stable going forward.

For FY14 states will select at least one watershed for focused monitoring under the NWQI. We appreciate that nearly all states have already identified this focus watershed to their EPA region. States are welcome and encouraged to monitor in other NWQI watersheds as it aligns with their ongoing monitoring program and as available information and resources allow. In the remaining NWQI watersheds, EPA expects that there will be more general tracking and description of implementation progress, perhaps in narrative form or using modeled results. This responsibility will be shared by EPA, states, and NRCS; further details will be provided later in FY14.

**NWQI Monitoring Objective and Approaches-** *The objective of NWQI instream monitoring is to assess whether water quality and/or biological condition related to nutrients, sediments, or (livestock-related) pathogens has changed in the watershed, and if so whether this can be associated with agricultural conservation practices.* Monitoring efforts should be designed and undertaken in such a way that this question can be addressed.

While aiming to address the above objective, states have considerable discretion in the overall monitoring design including how, when, where, and how frequently monitoring is conducted (and for which parameters related to the NWQI pollutants). These decisions will vary based on state monitoring schedules, existing baseline data, state water quality standards and associated monitoring parameters, existing pollutants levels and expected reductions, watershed size, information available to assess the nature and extent of adopted conservation practices, and other variables. Monitoring may be designed to assess cause-and-effect or, more likely, to demonstrate associations between adopted conservation practices and changes in water quality or biological condition. Monitoring to demonstrate an association between the level of practice implementation and water quality change typically utilizes data on land use characteristics, land treatment practices, and water quality variables that can be used to develop statistical relationships comparing agricultural practices and water quality.

A number of potential monitoring designs were reviewed in the EPA-sponsored NWQI monitoring webinars. EPA is making available limited contractor assistance for states that would like technical design or statistical support for NWQI monitoring. Requests for such assistance were due to the EPA

regional office by September 30, 2013. If a state has not yet submitted an application but would like to request assistance, please send the application to the EPA regional office as soon as possible.

By definition, NWQI watersheds will have a concentration of conservation practices targeting excess nutrients, sediments and/or livestock-related pathogens. However, most of the monitored watersheds will have a variety of conservation practices in place so it may not be possible to distinguish among the effects of NWQI practices, other USDA conservation actions, and projects funded with Section 319 or other sources of funding. Except in unusual circumstances, where NWQI practices are the primary conservation practices in a watershed, monitoring will generally assess the cumulative effect of all conservation practices. To understand water quality response it will be important to identify, to the greatest degree practicable, all ongoing practices in NWQI watersheds and any historical practices that still influence water quality. (See below, Monitoring Partnerships and Data Sharing Agreements).

**Quality Assurance/Quality Control-** Each NWQI monitoring project will have a Quality Assurance Program Plan consistent with the state's existing Quality Assurance/Quality Control practices for water quality and/or biological monitoring, sample collection and handling, laboratory analyses, and data assessment and characterization. Using these approaches states will assess water quality for the NWQI objective above and for any other state assessment purposes as appropriate. Likewise, interpretation of monitoring data will follow state assessment methods and protocols for similar water quality assessment activities, using existing thresholds and decision rules. In some cases, monitoring data management and reporting may be handled in unique ways related to provisions in agreements with NRCS on conservation practice data sharing.

**Reporting and How EPA Will Use NWQI Monitoring Results-** As states proceed with NWQI water quality monitoring and assessment, the national Nonpoint Source Program will request progress updates at least annually on monitoring activity and assessment results. These will be requests for summary level information; a reporting template will be provided later in FY14. For the ultimate purpose of documenting positive water quality change or achievement of water quality standards, EPA will require a level of documentation similar to that currently used for Measure WQ-10 Nonpoint Source Success Stories. EPA will compile information from the annual state reports to create a national summary of monitoring progress and reported water quality outcomes in NWQI watersheds. These results may be communicated to numerous audiences including NRCS partners, the Office of Management and Budget, and the public.

**Monitoring Partnerships and Data Sharing Agreements-** A central feature of NWQI is that state agencies will monitor to assess the water quality effects of NRCS (and other) conservation practices in the watershed. For a number of reasons explored in the webinars, there are well-documented technical difficulties in discerning a water quality change at the watershed scale even after extensive conservation practices are in place. In order to have a reasonable chance of assessing water quality

changes in a watershed associated with conservation practices, state agencies will need an understanding of the extent, type, timing and general location of practices put in place. A joint EPA-NRCS webinar on September 11, 2013, reviewed the opportunities for conservation collaborators under Section 1619 of the Farm Bill to receive information for the purpose of supporting NRCS programs and provided examples of this collaboration.

<http://www.conservationswebinars.net/webinars/nrcs-epa-water-quality-initiative>

States are strongly encouraged to begin discussions with their NRCS counterparts on how sub-watershed level data on conservation practices can be shared, including through the development of formal data sharing agreements as appropriate. Several examples of existing agreements are being provided with this memorandum. These examples can serve as an excellent starting point for state agency discussions with NRCS, as they include specific provisions for protecting confidentiality and limiting uses of the information while providing the data necessary for assessment activities.

As noted above, in order to assess the impact of all conservation practices in the watershed, information will also be needed on conservation activity supported by non-NRCS programs.

**Monitoring Scale-** Ultimately the NWQI envisions assessing water quality impacts at the HUC-12 level. However, depending on the type and density of conservation practices and other watershed factors, states may monitor portions of HUC-12 watersheds as appropriate in order to assess measurable changes in water quality at a smaller scale. Focusing the monitoring and bracketing areas with higher proportions of conservation treatment will be more likely to detect results in a shorter timeframe than watershed scale monitoring. We also recognize that in some cases (limited demand by landowners, expense of practices, type and location of practices) NWQI funds may not provide the extent of treatment necessary to produce a discernible water quality response. Having the information referenced above on conservation practices will assist states to make this assessment and to properly locate and execute monitoring activities accordingly.

**Relationship to watershed-based plans and TMDLs-** NWQI monitoring should be linked to an existing watershed-based plan or TMDL where possible. EPA recognizes that the selection process in some cases resulted in watersheds without such a plan, and encourages states to work with NRCS and other partners to plan and coordinate project efforts as appropriate. Although not a prerequisite, TMDLs and watershed plans have already been vetted to some extent with the state, EPA, and the public and should form a good technical basis for assessing NWQI implementation progress. These plans provide foundational information with which states can assess the extent of implementation relative to the pollutant load reductions needed to meet water quality standards, and thus can inform decisions on monitoring scale, location, and frequency.

**NRCS Edge-of-Field (EOF) Monitoring-** In FY13 NRCS selected six projects in four NWQI watersheds (in Arkansas, Mississippi, and Indiana) for EOF monitoring. The primary purposes of this monitoring

are to assess the impact of conservation practices, calibrate USDA water quality models (APEX) at the field scale, and inform adaptive management. There may be additional benefits where it is feasible to align EOF and instream monitoring. More EOF projects may be selected in FY14 and subsequent years.

**Monitoring Resources-** States may use any available resources to conduct monitoring in NWQI watersheds including funds from federal, state, or local nonpoint source program partners. If Section 319 funds are used, either NPS program funds or watershed project funds may be used to support NWQI monitoring. As noted in the Section 319 grant guidelines, NWQI activity overall should be reflected in state FY14 grant workplans.

**Timeline-** Monitoring timelines could vary greatly depending on the approach and watershed circumstances. For typical before/after or upstream/downstream projects, monitoring designs may take 5-7 years or more after practice implementation to assess change. Ample time is needed to establish baseline conditions, identify variations due to weather patterns, implement practices, and deal with lag times in water quality response. It is also possible that where good baseline exists, monitoring may not have to be carried out for this amount of time or may not need to be conducted in all years. Alternatively, if a state wishes to conduct long-term trend monitoring at one or more NWQI stations, a project could last for up to 10 years or more.

**Summary-** EPA will look to FY14 as the initial year in establishing NWQI monitoring efforts and will work closely with states as this effort proceeds. EPA believes that the NWQI projects will create useful data and processes that can facilitate improved coordination and utilization of Farm Bill resources for agricultural nonpoint source pollution control. The effort may also produce useful insights for EPA and states on how federal agency programs can be better coordinated to enhance water quality restoration. We welcome input and feedback on state agency experiences implementing the NWQI, and will use this information to inform our ongoing dialogue and collaboration with NRCS at the national level.

Thank you for your efforts to implement this important initiative. Please do not hesitate to contact me if you have any questions or issues you would like to discuss, (202) 566-1210 or [hall.lynda@epa.gov](mailto:hall.lynda@epa.gov).

CC: Benita Best-Wong, Acting Director, Office of Wetlands, Oceans and Watersheds  
Tom Wall, Director, Assessment and Watershed Protection Division  
Tom Christensen, USDA Natural Resources Conservation Service  
Martin Lowenfish, USDA Natural Resources Conservation Service  
EPA Regional Nonpoint Source Branch Chiefs