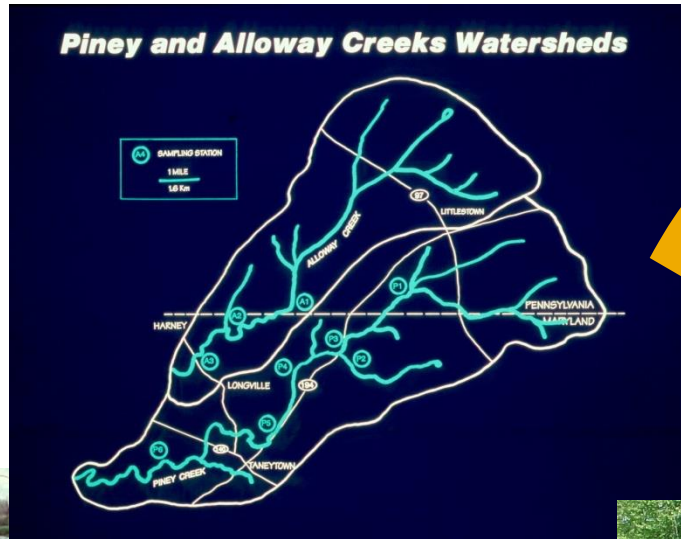




EPA-State Approach to Instream Monitoring for NWQI – Webinar 1



April 30, 2013

Overview

- Primary goals and objectives
- Summary of challenges
- Proposed approach to NWQI monitoring
 - ◆ 2014 NPS Grant Guidelines called for future guidance
 - ◆ Refined in response to input from USDA, OMB, EPA Monitoring Branch, and states (via comments on 319 guidelines)
- Schedule for implementing NWQI monitoring, with adaptive management
- State feedback, Q&A



NWQI Monitoring

Expectations in 319 Guidelines

- States will monitor in NWQI watersheds
 - Where watershed recommended (or OK'd) by state water quality agency
 - Where circumstances “aligned to assess the effects of conservation practices”
 - Refers to watershed characteristics, baseline data, and availability of information on conservation practices
 - Using state’s existing monitoring and QA/QC approaches
 - Considering extent of practices and lag time

NWQI Monitoring

Expectations in 319 Guidelines

- Guidelines: EPA will elaborate on these expectations, propose watershed selection criteria and further guidance
 - Starting with this webinar
- After opportunity for dialogue and state input, a guidance memorandum will be issued in advance of FY14

Additional Information on NWQI

- Final FY13 watershed count = 165
- Many changes to reflect interest of state WQ agencies, address rushed FY12 selections
- NRCS anticipates a multiyear investment in these watersheds, at 5% of EQIP funds
 - Does not anticipate significant change-over in watersheds in FY14

NWQI Water Quality Monitoring

Goals & Objectives

- **Goal: Assess the water quality impacts of agricultural conservation practices for nutrients, sediment, and/or pathogens in NWQI watersheds: (NWQI & other practices)**
 - **Objective 1 - Have water quality-related conservation practices resulted in the change?** (causal relationship) This usually requires:
 - local knowledge of what practices are placed in the landscape, when they started and stopped (this goes for pre-existing practices as well). How they are sequenced and maintained.
 - Having a project with an adequate baseline database or good controls – subwatersheds or paired watersheds where additional conservation is not implemented during the project.
 - **Objective 2 – Have water quality conditions significantly improved over time** in NWQI watersheds?
 - These studies usually show an association between the level of implementation and change in water quality. The strength of the association can be measured by regression or explained using a preponderance of evidence approach.
 - Multiple lines of evidence can be provided by biological, chemical, and physical (flow, scouring, etc., and habitat parameters) and other indicators. BMP information is still needed, but possibly at a lower level of detail.

Monitoring Effects of Ag BMPs Poses Scientific Challenges



- Practices vary considerably in ability to control target pollutants
- Conservation practices scattered broadly (untargeted) are less likely to impact WQ
- Must know the types, location, and timing of BMPs to show cause and effect results
- Robust baseline data is needed to report progress
 - Numerous sources of NPS variability require good baseline data to discern WQ signal change

Invest Monitoring Resources Strategically

- USDA CEAP, EPA NPS Monitoring program, etc. confirm it is difficult to discern WQ changes from NPS management practices at watershed scale
 - Practices/targeted pollutants/location inapplicable or insufficient
 - Insufficient monitoring design and/or information on watershed practices
 - Lag time 5-10 years+
 - Growth, new sources in watershed
 - Precipitation-driven variability year-to-year
- Monitoring is costly. Challenges above mean it must be done judiciously to document results



Overall Approach: NWQI Water Quality Monitoring

- **Approach can succeed best where monitoring MOUs are secured at the state/watershed level**
- **States conduct instream monitoring in subset of watersheds is more likely to yield WQ results**
 - Use criteria to select one watershed per state - where conditions favorable to detect WQ changes
 - Align with USDA EOF monitoring and other state or federal monitoring where feasible
 - Reevaluate whether to add more monitoring watersheds after an initial period of implementation (e.g., Q1, FY14)



Proposed Approach: NWQI Monitoring & Tracking (cont.)

- **States encouraged to leverage existing/planned monitoring** where it coincides with other NWQI watersheds and monitoring MOUs in place
- **Track progress at ALL** NWQI watersheds through a set of indicators (USDA & EPA) e.g. modeled load reductions, WQI_{lag} index - *TBD*
- EPA **offers limited technical support** for state monitoring efforts – EPA Regions help select

Proposed NWQI Watershed Monitoring Selection Criteria

- 1) 12 digit HUC watersheds (smaller the better)
- 2) Agriculture is dominant land use
- 3) Ideally a TMDL or watershed plan in place
- 4) Sufficient monitoring baseline data for relevant parameters
- 5) Significant conservation practice implementation expected, so WQ change is more likely measurable in 5-7 years
- 6) Water quality monitoring activity and support (e.g., stations) expected to continue 5-7 years
- 7) Where feasible, build on existing monitoring partnerships with USDA, such as in MRBI, GLRI

Features of Proposed Approach

- Targeted investment of 319 or other funds
- Consistent with USDA and EPA science on where conservation monitoring more likely to succeed
- Depending on monitoring designs, data can also be used to calibrate or validate WQ models and provide indicators
- Monitoring MOUs re: location of practices and Edge of Field studies funded by NRCS will be important for better understanding of causality
- NWQI provides an opportunity to increase the collective understanding of agricultural water quality monitoring issues and technical support may be of broader utility to State NPS programs

NWQI Monitoring – Potential Roles

Scenario	NRCS Role	State Role	EPA Role
<p>Focused monitoring For watersheds with good WQ baseline, monitoring MOUs, and WS or TMDL plans. One per state</p>	<ul style="list-style-type: none"> - Targeted EQIP funded practices - Edge of Field Monitoring aligned where possible - Monitoring MOU with state partner 	<ul style="list-style-type: none"> - Instream at long term stations, up/downstream sites or paired sites 	<ul style="list-style-type: none"> - Overall guidance on NWQI monitoring - Limited contractor assistance - Support direct use of 319 funds
<p>Optional monitoring of additional NWQI watersheds – beyond the 1 per state.</p>	<ul style="list-style-type: none"> - Targeted EQIP funded practices - Models or indices (e.g. WQlag index assessment) - Monitoring MOU with state partner, if possible 	<ul style="list-style-type: none"> Optional leveraging of existing monitoring at other NWQI sites (e.g. rapid bioassessment, rotating basin assessments) 	<ul style="list-style-type: none"> - Overall guidance on NWQI monitoring - Use National Aquatic Resource Surveys to extent possible to assess ag practices
<p>Tracking for remaining NWQI watersheds – state ideas?</p>	<ul style="list-style-type: none"> - WQlag index, leverage APEX model 	<ul style="list-style-type: none"> - State modeling/ other state monitoring efforts 	<ul style="list-style-type: none"> - Regional or HQ assistance if needed (e.g. STEPL model assessment)

Technical Support for All States

- **EPA-sponsored webinars**
 - Introduction to NWQI monitoring approach and obtain state feedback
 - Acquiring sufficient baseline data and data management frameworks for nutrients, other parameters
 - Summarize various monitoring designs
 - Case studies of state NPS watershed monitoring
- **States can request follow-up information and limited technical support**
 - Possible additional webinars
 - EPA and its contractor may be able to provide useful links to reports and tools to assist states.
- **Engage USGS** where possible
- Explore feasibility of using data from **National Surveys** (e.g., NRSA) to describe trends in NWQI watersheds

Technical Support for Individual States

- **Technical design support available for one state per region** (will seek more funding in FY14)
- **Technical contractor may help with:**
 - Project and monitoring proposals
 - Annual review of monitoring progress, and interim data analysis
 - Final data analysis and reporting
- **Or provide consulting services** on reviewing baseline data, recommending designs, or helping with minimum data requirements, etc.
- **Provide regions with one page summaries** of proposed monitoring approach for focused monitoring

One-page Monitoring Summaries

- **States summarize the monitoring approach for each NWQI watershed selected for causal or associative monitoring (at least one per state)**
- **Indicates whether or not the State would like 1-on-1 technical assistance from EPA contractors**
- **Summarizes the problems, existing baseline data, anticipated level of implementation (may be part of TMDL or WS plan)**

Monitoring MOUs

- **Monitoring MOUs** with NRCS will be necessary to ensure adequate data is obtained for demonstration of “cause-and-effect”(Obj. 1) and “associative” (Obj. 2) effects of BMPs
- **EPA will work at national level with USDA NRCS** on appropriate MOU elements
- **Where States and NRCS** are ready or are developing a MOU are encouraged to continue to move forward

Focused Monitoring Needs for NWQI/Potential Issues for Technical Assistance

- Establish clear objectives
- Follow recommended protocols
- Understanding of WQ problems, pollutants, and sources
- Screen watersheds for good monitoring candidates
- Consider ongoing and planned BMP implementation
- Monitor covariates including land treatment
- Specific experimental design that controls for weather, land use, and other external factors
- Pick needed design, then figure out how to support (rather than design based on funding)
- Strive for 5-7 year minimum monitoring period
- Decide how the resulting data will be stored, retrieved, analyzed, and interpreted; and
- Decide how the results will be communicated

Proposed Schedule NWQI Activities

Date	Description / Action	Responsible Party (ies)	Comments
April 30, 2013	First Webinar - Context for NWQI monitoring, state feedback	EPA	Setting, objectives, approaches, selecting watersheds, state needs
May 24, 2013	States send input and tech questions to EPA regions	State 319/ monitoring programs	Will inform the content of future webinars
May - June 2013	Second Webinar on monitoring issues	EPA and Contractor	Acquiring sufficient baseline data, data mgmt. frameworks for nutrients/State issues
July 2013	Third Webinar on monitoring Issues	EPA and Contractor	State issues, Case studies(?)
August 2013	Fourth Webinar on monitoring issues	EPA and Contractor	State issues, Monitoring designs(?)

Proposed Schedule – cont'd

Date	Description / Action	Responsible Party (ies)	Comments
July 1, 2013	States select NWQI watersheds for monitoring and provide EPA with <u>One-page summaries</u>	States with NRCS consultation	One-pagers help with technical assistance prioritization.
July '13 - Jan '14	Complete needed Monitoring MOUs	States/NRCS	
August 30, 2013	EPA selects states for technical assistance	EPA Regions in consultation with HQ	
August 13 - March '14	One-on-one State technical assistance	EPA/Contractor	One State per Region with existing funds
October 2013	National NPS Monitoring Workshop	EPA	NWQI session
Winter 2014	FY14 NPS workplans include NWQI activities	States in coordination with Regions	

Proposed Schedule – Cont'd

Date	Description / Action	Responsible Party (ies)	Comments
February 2014	If no MOU is forthcoming, states select alternative watersheds if desired to monitor Ag BMPs	States in consultation with Regions	Were BMP systems are likely to be effective and meet State NPS priorities
Spring 2014	Monitoring begins in most states	States and partners	Depending on the projects: Monitoring may have begun in 2013 or earlier. This could also be pre-implementation monitoring for a few years to establish a baseline
Fall 2014	First annual NWQI monitoring reports	States – EPA propose elements	Ideally will be part of GRTS reporting

Tuckasegee Mud Meter

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Posted by [Krissy](#) at 2:34 PM

Questions / State Feedback

