

National Network of Reference Watersheds

Endorsed by:

National Water Quality
Monitoring Council
(NWQMC)

Advisory Committee for
Water Information (ACWI)



NATIONAL WATER QUALITY MONITORING COUNCIL

Working Together for Clean Water

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

Establishing a Collaborative and Multipurpose National Network of Reference Watersheds and Monitoring Sites for Freshwater Streams in the United States

A significant challenge faced by water-resource scientists in the public and private sectors is the need for reliable long-term data and information from watersheds minimally disturbed by human activities. Monitoring in areas with minimal human disturbance helps to provide (1) an understanding of natural patterns of variability that can be used to differentiate changes due to land and water use from changes associated with natural climatic cycles and (2) reference information that can be used to establish water-quality criteria or appropriate expectations for watershed restoration. Many agencies and organizations monitor streams in pristine and minimally disturbed watersheds or conduct research and other activities that would be useful to a reference watershed network (fig. 1). Much of the monitoring consists of one to several measurements at many sites, typically representing a particular hydrologic condition and a relatively short period of time. These synoptic measurements provide important information for understanding natural spatial patterns and variability. Unfortunately, there are relatively few sites among networks with long-term records for streamflow, water chemistry, and stream ecology necessary to distinguish changes associated with natural climatic cycles.

The National Water Quality Monitoring Council (NWQMC) is proposing the development of a collaborative and multipurpose national network of reference watersheds and monitoring sites 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 scope of the collaborative effort will initially be limited to freshwater streams. Future collaborations would expand to freshwater lakes and wetlands. 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. Funding support for the network would come from the participating agencies. The Council would provide the organizational structure and leadership to develop, enhance, and maintain collaborative, comparable, and cost-effective monitoring, research, and reporting among the Federal, State, tribal, interstate, academia, local and private sector organizations that choose to participate.

The collaborative effort would consist of three different types of activities in a tiered framework that are linked together by research and modeling. The three types of activities

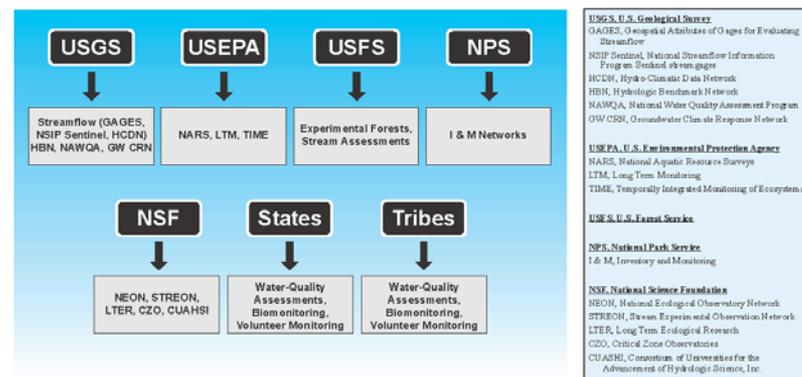


Figure 1. Monitoring networks and programs of Federal and State agencies and non-Governmental organizations that are candidates for inclusion in the design and operation of a collaborative reference watershed network.



Workgroup Members

Executive Committee - Rick Haeuber, Neil Kamman, Doug McLaughlin, Bill Wilber

Ex-officio members – Denise Argue, Jeff Deacon, Clara Funk, Jason Lynch, Mike McHale, Mark Nilles



Outline

- Background
- Objectives and approach
- Workplan tasks
- Preliminary timeline
- November workgroup meeting

Background

- Present proposal to NWQMC - approved May 2011
- Present proposal to ACWI - approved July 2011
- Committee charter developed – August 2011
- ‘Governance Handbook’ recommendations – Oct 2011
- Executive committee formed – November 2011
- Conference presentation – Portland, OR – April 2012
- Workplan reviewed and approved – July 2012

Objectives and Approach

- Frame of reference for stream assessments
- Collaborative effort across multiple agencies
- Determine current picture of monitoring
- Inventory and catalog of sites and data
- Systematic review of existing sites and data
- Tiered framework – long term and synoptic

2012-2013 Workplan Tasks

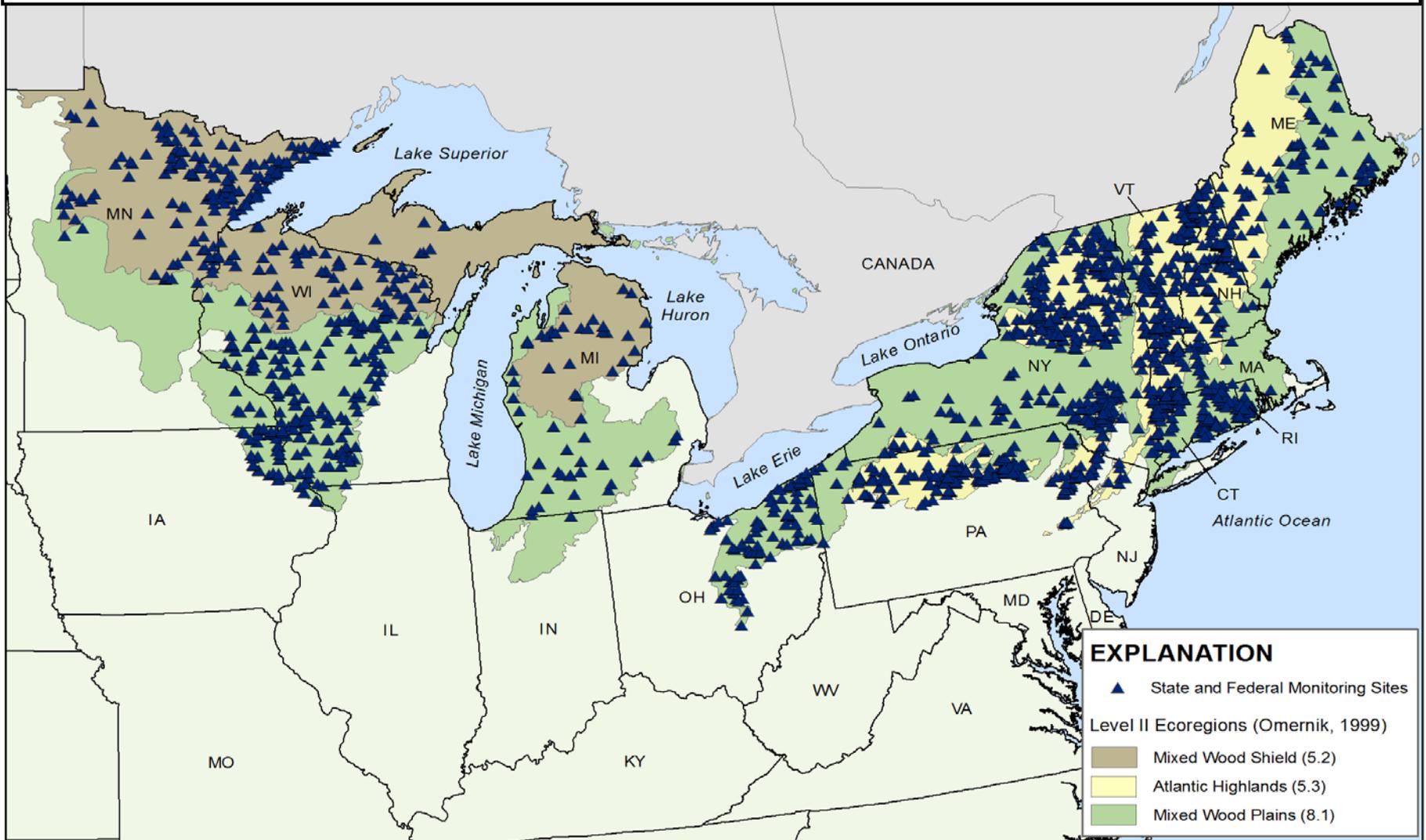
Task 1: Inventory of historic and current reference site monitoring

Task 2: Develop criteria and an approach for evaluating existing reference sites

Task 3: Design of a resource for data access

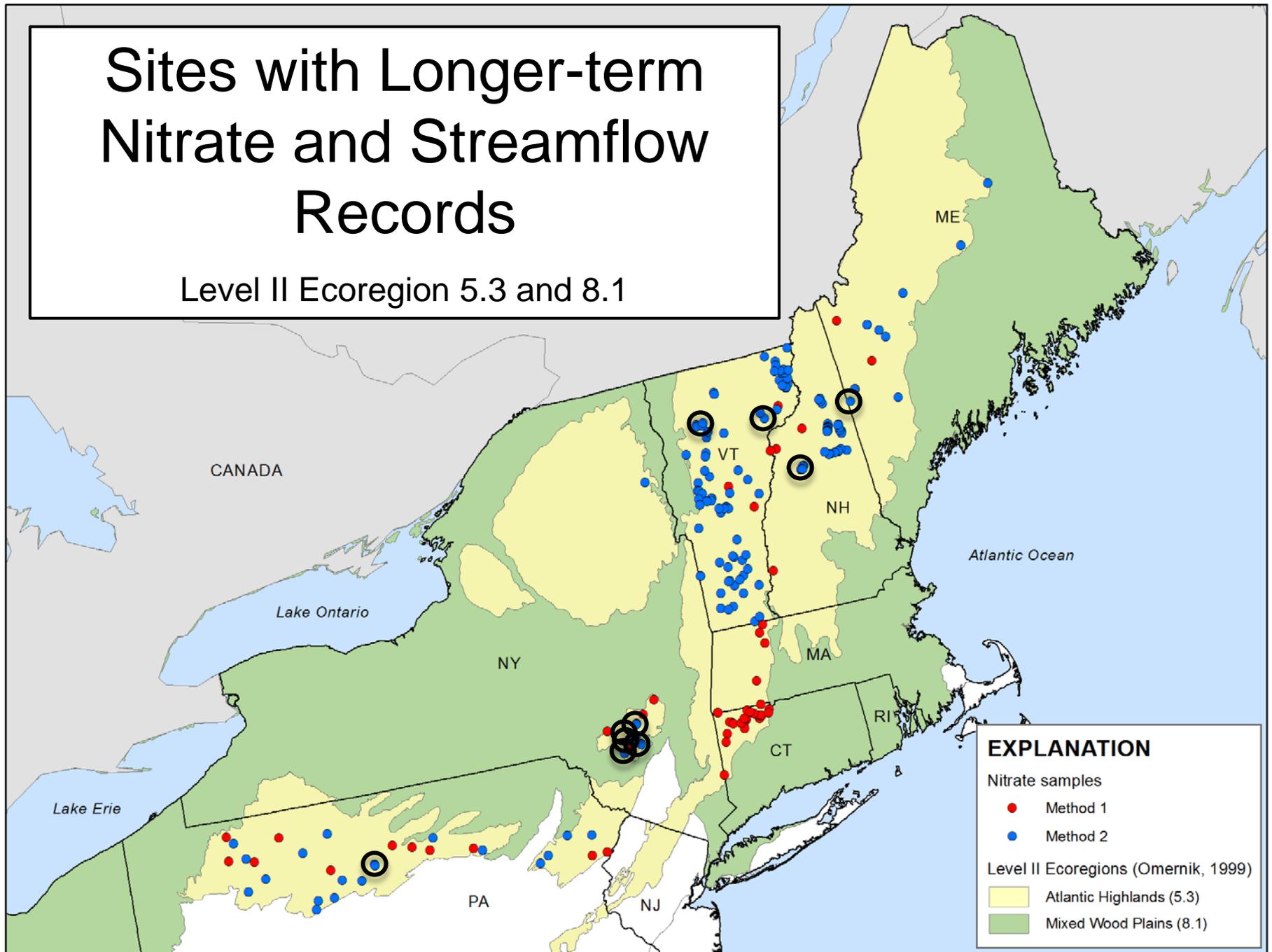
State and Federal Agency Predefined Reference Sites and/or Sites with Long-term Records

Data Source: States, EPA, NPS, USFS, and USGS



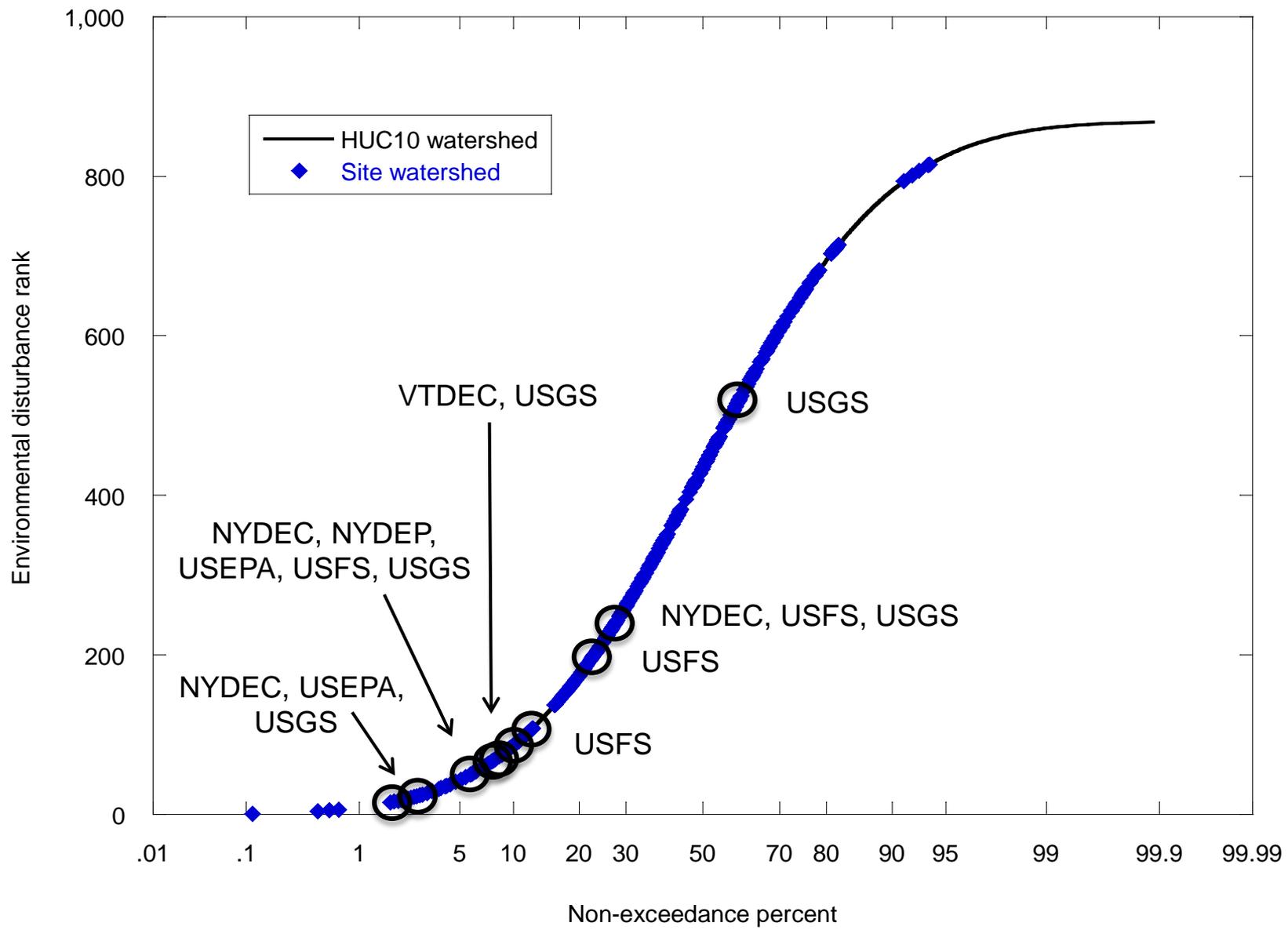
Sites with Longer-term Nitrate and Streamflow Records

Level II Ecoregion 5.3 and 8.1





Eco-region 5.3



Preliminary Timeline

Workplan Element	FY12		FY13			
	Apr- June	July- Sept	Oct- Dec	Jan- Mar	Apr- June	July- Sept
Develop workplan	x					
Inventory monitoring - ecoregions 5.2, 5.3, 8.1	x	x				
Develop a model for evaluating sites		x	x	x		
Initiate portal design					x	x

November Workgroup Meeting

Topics for Discussion

- Develop a process for categorizing existing sites in the NEMW
 - Develop a criteria document for submitting a site to the 'network'
 - Develop a process for reviewing, documenting and making data available
 - Select 2-3 constituents for framing the design
 - Extrapolate to other regions
- 

Interest in Participation



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The collaborative effort would consist of three different types of activities in a tiered framework that are linked together by research and modeling. The three types of activities

- State agencies
- Federal agencies – USFS, EPA, NPS, USGS
- Darrin Fresh Water Institute, RPI – Adirondacks, NY
- Redwood National and State Parks – Redwood Park, CA
- Gila Cliff Dwellings National Monument – New Mexico
- Sonoran Desert I & M Network

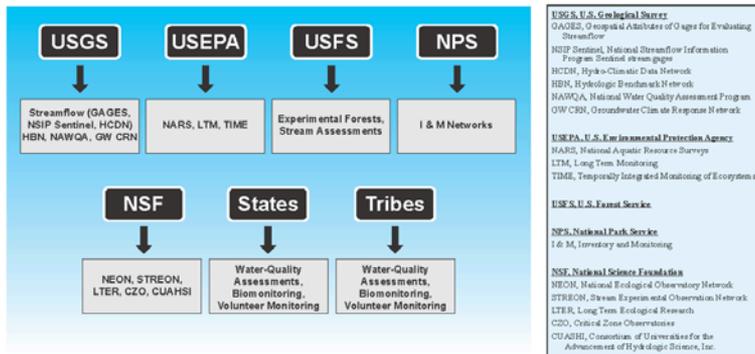


Figure 1. Monitoring networks and programs of Federal and State agencies and non-Governmental organizations that are candidates for inclusion in the design and operation of a collaborative reference watershed network.

April 2012

Questions?

