

Introduction to the Water Quality Framework

2014 Exchange Network National Meeting
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What is the Water Quality Framework

- ▶ The Water Quality Framework is a new way of thinking about how EPA's data and information systems can be better integrated to more effectively support water quality managers.
- ▶ **Goal:** to streamline water quality assessment and reporting while providing a more complete picture of the nation's water quality.

Framework Building Blocks

- ▶ Framework is built upon the existing OWOW data systems:
 - Water Quality Monitoring: STORET/WQX
 - Assessment/Restoration: ATTAINS
 - Actions: 319 Non-Point Source Grants Tracking System (GRTS)
 - Geospatial Fabric: NHDPlus



The Framework will evaluate how these systems can support one another, while providing users access to information in a seamless way that doesn't require them to know which system contains which data.

What the Framework Isn't

- ▶ It is not a new SYSTEM
 - We're not talking about merging all these systems together into one
 - The Framework will use a services-based approach to provide the mechanisms for linking these systems together
- ▶ Integrating data systems is the easy part, integrating the underlying programs is much harder

Framework Activities Over the Next Few Years (Phase 1)

- ▶ **Assessment/Restoration Plans**
 - Redesign of the way states provide assessment information and how the public accesses that data
- ▶ **Water Quality Measures**
 - Evaluate new approaches for measuring progress
- ▶ **Monitoring**
 - Support an improved assessment process
 - Provide means to support the sharing of continuous monitoring data
- ▶ **Public web presence**
 - Redesign public web interfaces to provide a complete picture on water quality

ATTAINS Redesign (Including OWIR-ATTR)

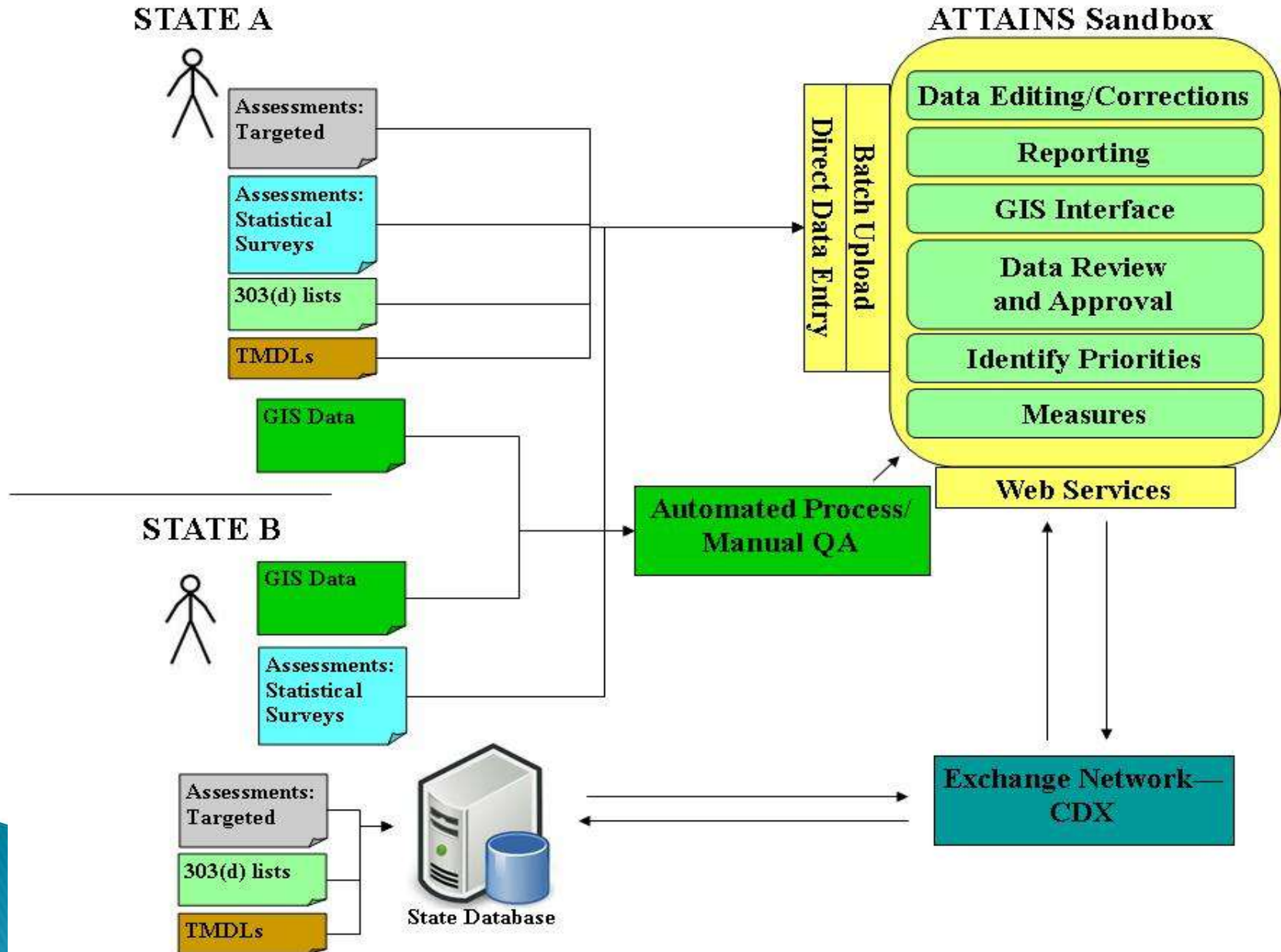
- ▶ Recommendations from a recent Retrospective Review of the 305(b)/303(d) Program:
 - Identify tools to automate the processing and interpreting of ambient water quality data;
 - Transition to a complete electronic 305(b) and 303(d) reporting and electronic signatures for 303(d) approvals; and
 - Align the data systems with programmatic processes to track water quality improvement.
- ▶ ATTAINS will be the first system to undergo modifications as part of the Water Quality Framework
 - ▶ OWIR-ATTR v2 will be replaced
 - ▶ EPA is redesigning the system and the data flow



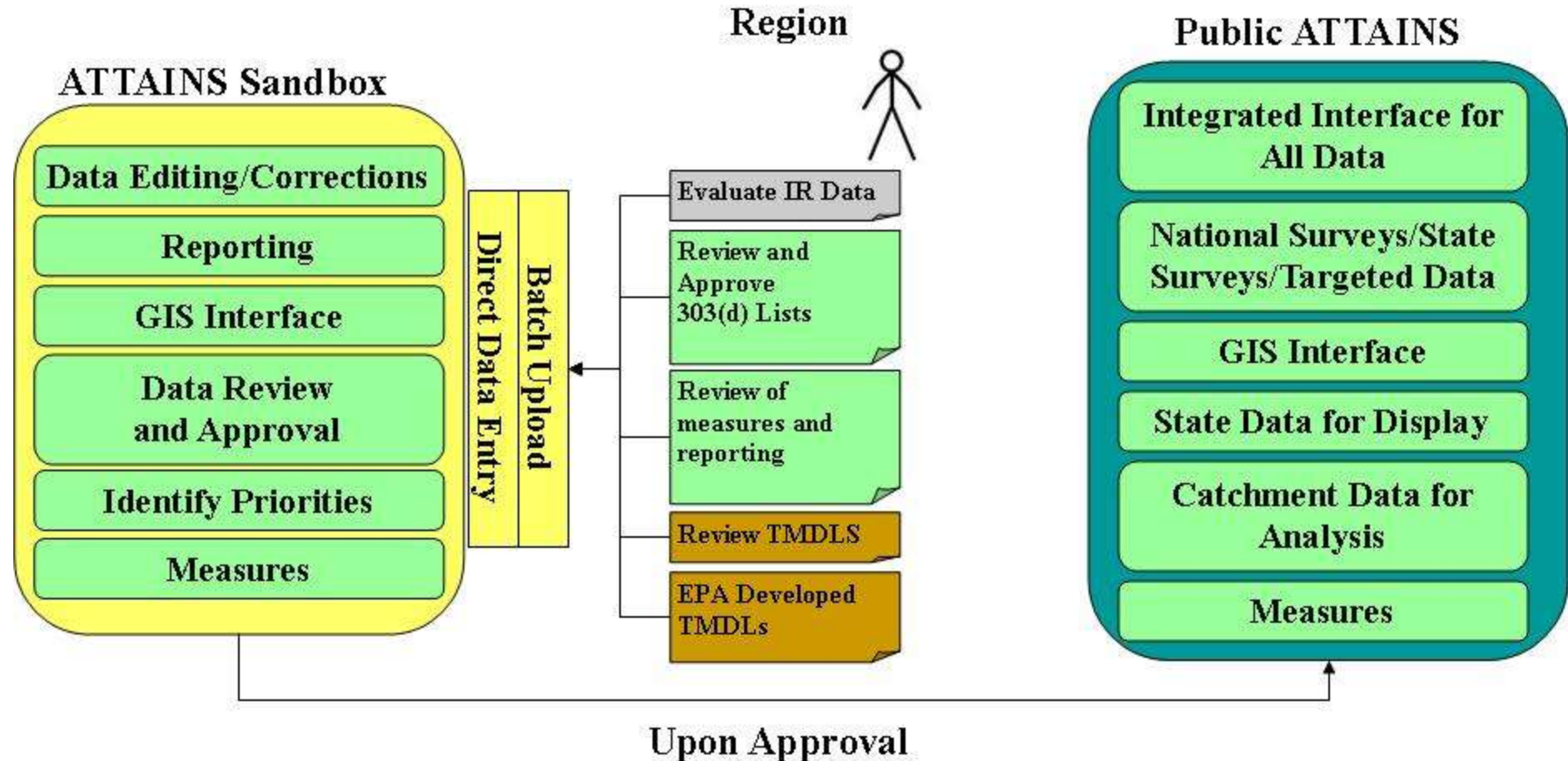
ATTAINS Planning

- ▶ EPA has created 4 state/EPA workgroups to evaluate various aspects of the system:
 - Data Elements and Schema
 - Will define the core data elements and XML schema for exchanging IR Data (defines ‘What’ data will be exchanged)
 - Data Exchange Methodology
 - Defines ‘how’ the data will be exchanged as well as the design of the system
 - Performance Measures Evaluation
 - Evaluate current performance measures and make recommendations for adjustments
 - Improved Assessment Methods
 - Evaluate methods for developing automated screening tools for water quality assessments.
- ▶ EPA will establish a governance structure in coordination with ACWA and the states.

ATTAINS Redesign Proposed Approach



ATTAINS Redesign Proposed Approach



STORET and the Water Quality Exchange

- ▶ EPA will work with partners to update the WQX schema (update to version 2.2)
 - A goal of WQX is to continue to be backward compatible
- ▶ Support an improved assessment process
 - Looking for ways to make the monitoring data more discoverable
 - EPA will work with the States to evaluate methods that can be used to automate the screening of water quality monitoring data against water quality
- ▶ Provide means to support the sharing of continuous monitoring data



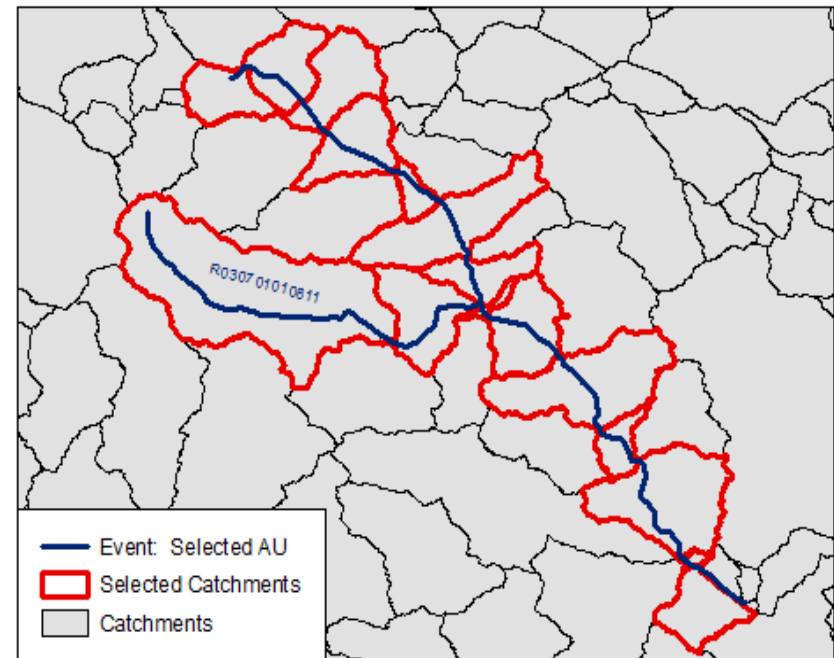
NHD Events

- ▶ The NHD Event flow would not change as part of the Water Quality Framework
- ▶ However, EPA has evaluated a number of new approaches for managing geographic data to enable more automated data processing, and better integration with the various scales of data being provided by the states
- ▶ EPA plans to use a ‘simplified catchment approach’ for managing state geographic data

Simplified Catchment* Approach

- ▶ EPA will use automated procedures to develop a correspondence between state assessment units and NHDPlus catchments
- ▶ State geo data would be used for display purposes and the catchment correspondence data would be used for national analyses

* A catchment is the land surface that drains to each stream segment in the 1:100,000 scale NHDPlus.

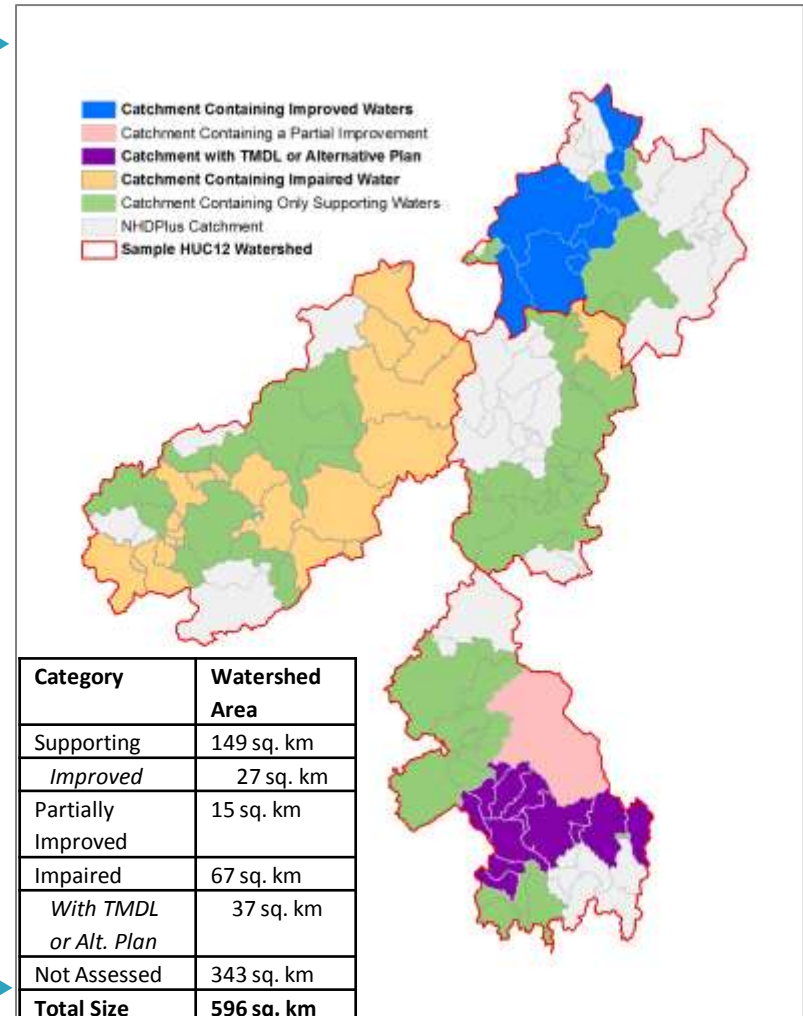
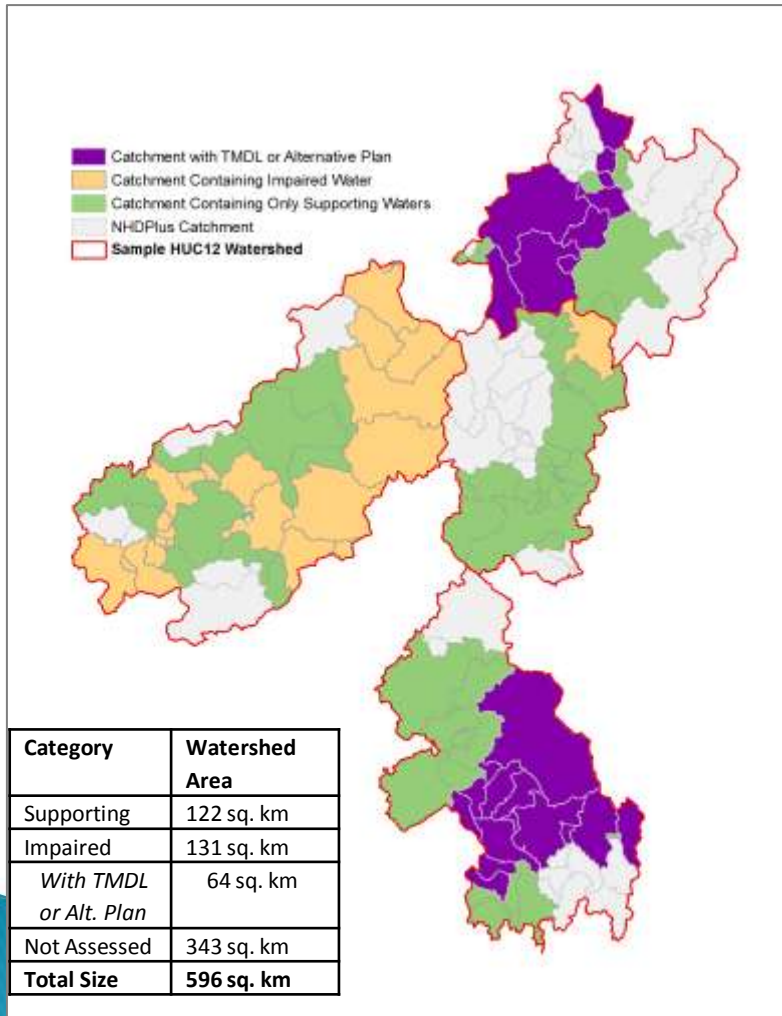


Step K.6. Final Catchments associated with the selected Event (AssessmentUnit).

Using the Catchments to Track Progress

2010 303(d)/305(b) Integrated Report

2012 303(d)/305(b) Integrated Report



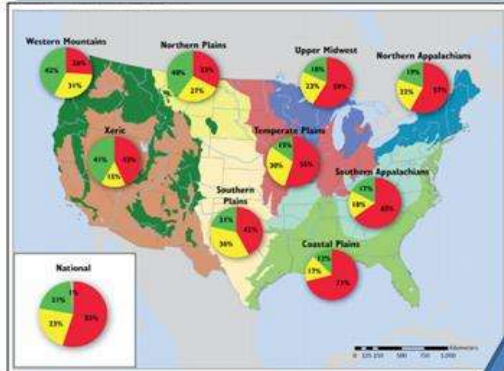
Improving the Public Web Interface

- ▶ Redesign the ATTAINS public web site to present a more complete picture on water quality:
 - Integrate National and State-scale probability surveys with local priority area assessments
 - Provide access to the underlying monitoring data used to perform the assessments
 - Build upon the success of ‘How’s My Waterway’
- ▶ Phase 2 of the Framework will provide access to the ‘Actions’



New Public Interface Concepts

National Surveys

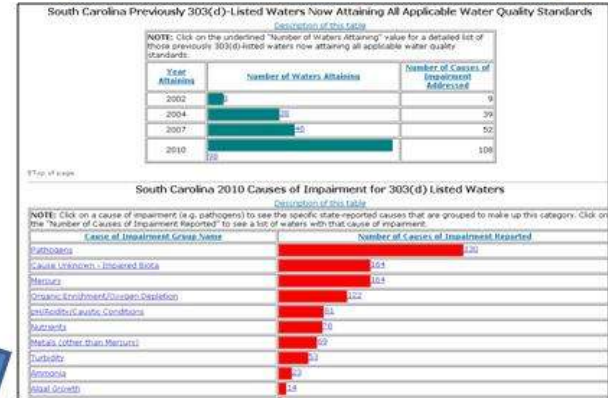


Interactive Viewer

Summaries by Region

Access to Underlying Data

Site Specific Assessments



zoom in



Individual TMDL



Designated Use	Stressors			
	Fully Supporting	Not Supporting	Unassessed	Not Applicable
Overall Use Support	Ammonia	100% ± 0%		
	Cadmium	98.4% ± 2.5%		1.6% ± 2.5%
	Chromium	98.4% ± 2.5%		1.6% ± 2.5%
	Copper	98.4% ± 2.5%		1.6% ± 2.5%
	Dissolved Oxygen	90.9% ± 4.5%	9.1% ± 4.2%	
	Fecal Coliform	44.2% ± 7.7%	55.8% ± 8.2%	
	Lead	98.4% ± 2.5%		1.6% ± 2.5%
	Macrobenthic	0.1% ± 4.7%	7% ± 2.4%	89% ± 5.4%
	Mercury	98.4% ± 2.5%		1.6% ± 2.5%
	Nickel	98.4% ± 2.5%		1.6% ± 2.5%
	Turbidity	100% ± 0%		
	Zinc	96.9% ± 3.5%	1.6% ± 2.5%	1.6% ± 2.5%
	pH	97.9% ± 2.8%	2.1% ± 2.7%	

Overall Use Support: Fully Supporting is 7.6%, Not Supporting is 61.1%, Supporting is 8.9%

State-Scale Surveys

Data viewer for 305(b), 303(d), TMDL, NHD etc

Access to Underlying Data

Show Priority Areas

Watershed Area Summary

Access Monitoring Data

Tracking of Progress

Framework Schedule (2014–2016)

2014

- Engage State Partners in Workgroups
- Evaluate New Performance Measures Options
- Make improvements to the methods used to process GIS data

2015

- Develop revised ATTAINS system
- Engage States to participate in ATTAINS redesign as a pilot effort
- Evaluate options for sharing continuous monitoring data

2016

- Release of the new ATTAINS System (Release 1)
- Work with State partners to submit data via ATTAINS for 2016 reporting cycle
- Use new approaches for measuring progress
- Revise ATTAINS public web site

Questions?



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Have ideas or comments? Come to the Water Quality Framework Listening Session:

Thursday 2/27, 8:30 AM – Claypoole Room