Non-Traditional Data Integration Framework

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Joint Data Integrity & Integrated Networks Workgroups

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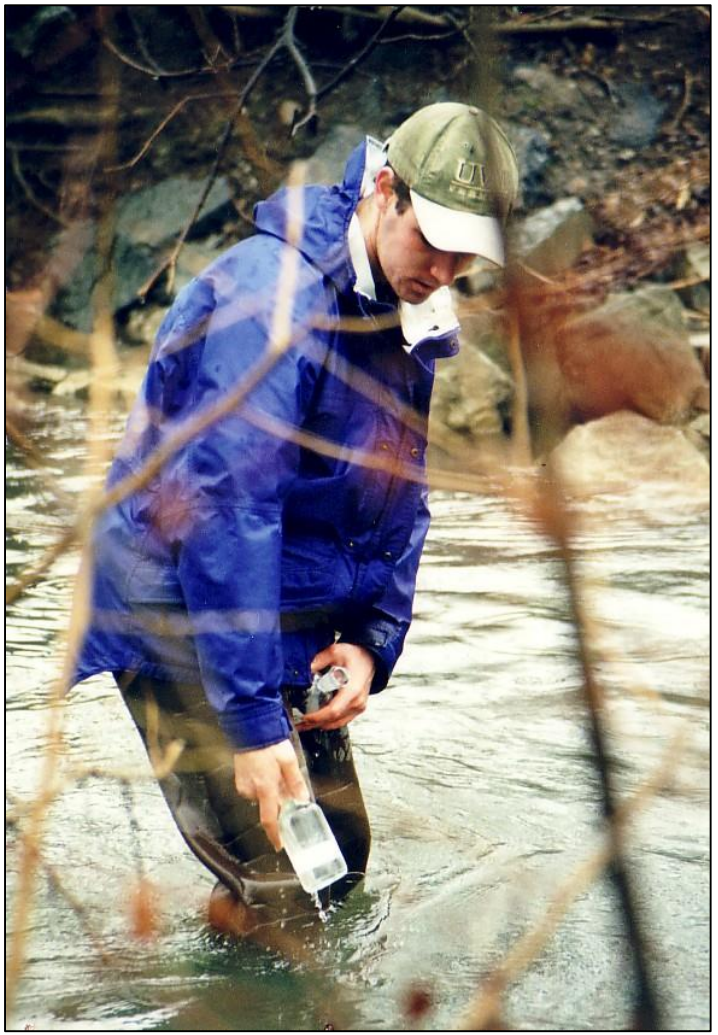
Dickinson

Agenda

- Introduction to project
- Goal behind data framework
- PA Case Studies
- State tiers
- Thoughts on data use from the group



Project Partners

2015-2020 Timeline

2015

- Inventory monitoring groups and identify data gaps and needs
- Develop tiered framework for data integrations into CBP network

2016

- Develop protocols for monitoring methods and data reporting
- Develop user-friendly database and data entry tools
- Research and develop data-based indictors and metrics
- Develop training materials and conduct training targeted at priority areas

2017

- Develop online toolkit for monitoring groups
- Conduct training targeted to priority areas
- Provide training on data analysis, synthesis, and communication

2018 – 2020

- Conduct training targeted to priority areas
- Provide training on data analysis, synthesis, and communication

Goal behind framework

- Provide metadata requirements for intended data uses.
- Provide a decision making process to inform data integration and protocol QAPP development.

Watershed Group Case Studies

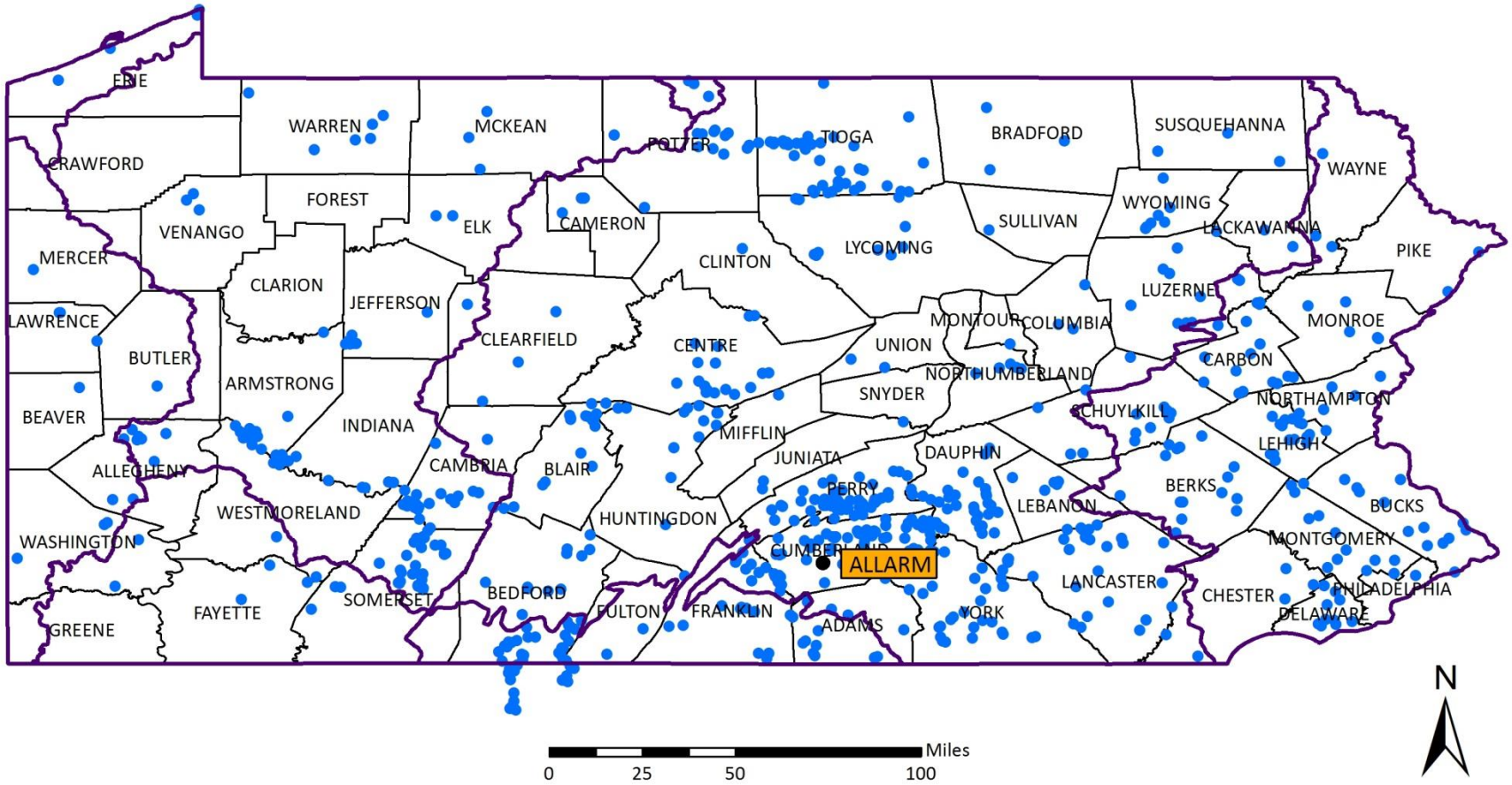
PA: Acid Rain Monitoring Program 1986-2003

Goal – document effects of acid rain 700+ sites across the states.

Data Use: PA Clean Air Act Amendments; screening for 303(d) listing.

Methodology: Alkalinity field kit & tri-colored pH strips.

ALLARM Acid Rain Project



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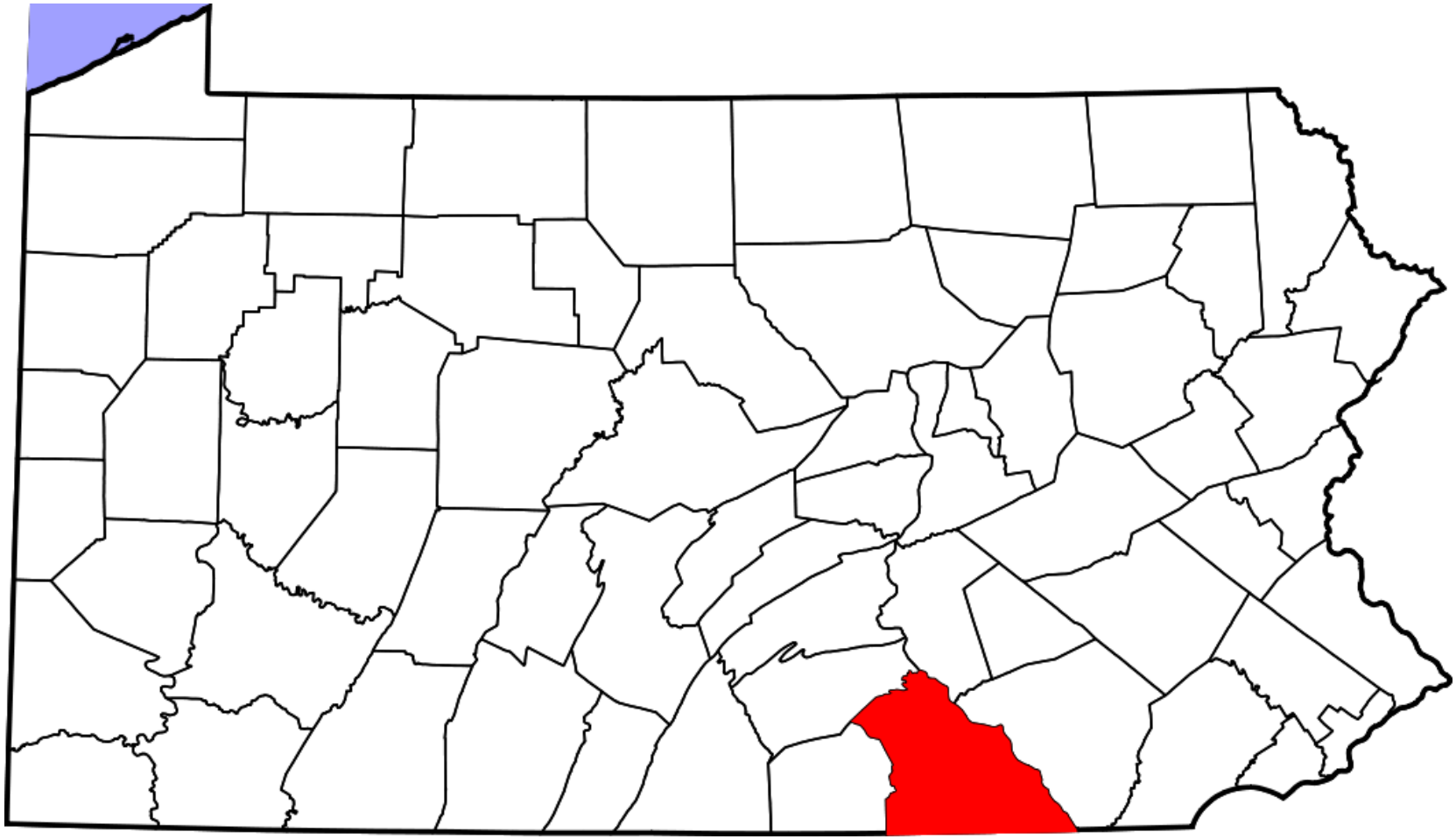
November 2015

Acid Rain Sites (734)

8 Major PA Watersheds

Data Sources: ALLARM, PA DOT, PSU,

Codorus Creek – York County



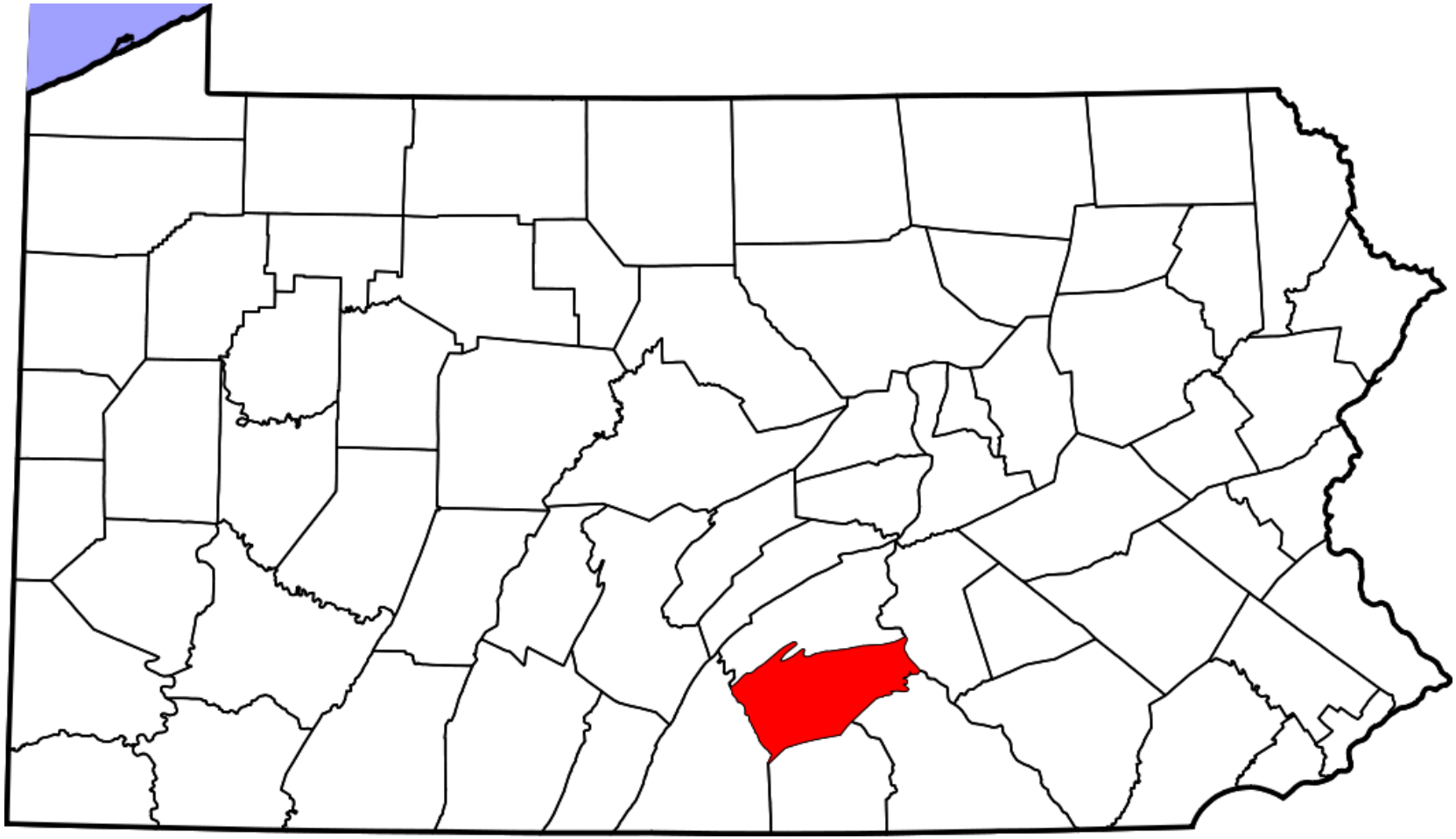
Codorus Creek Watershed Association

- Formed in 1998
- Glatfelter Paper Plant—discharges around 14 million gallons of wastewater daily into Codorous Creek
- “The Inky Stinky” (hydrogen sulfide & tannins)

CCWA Data Uses

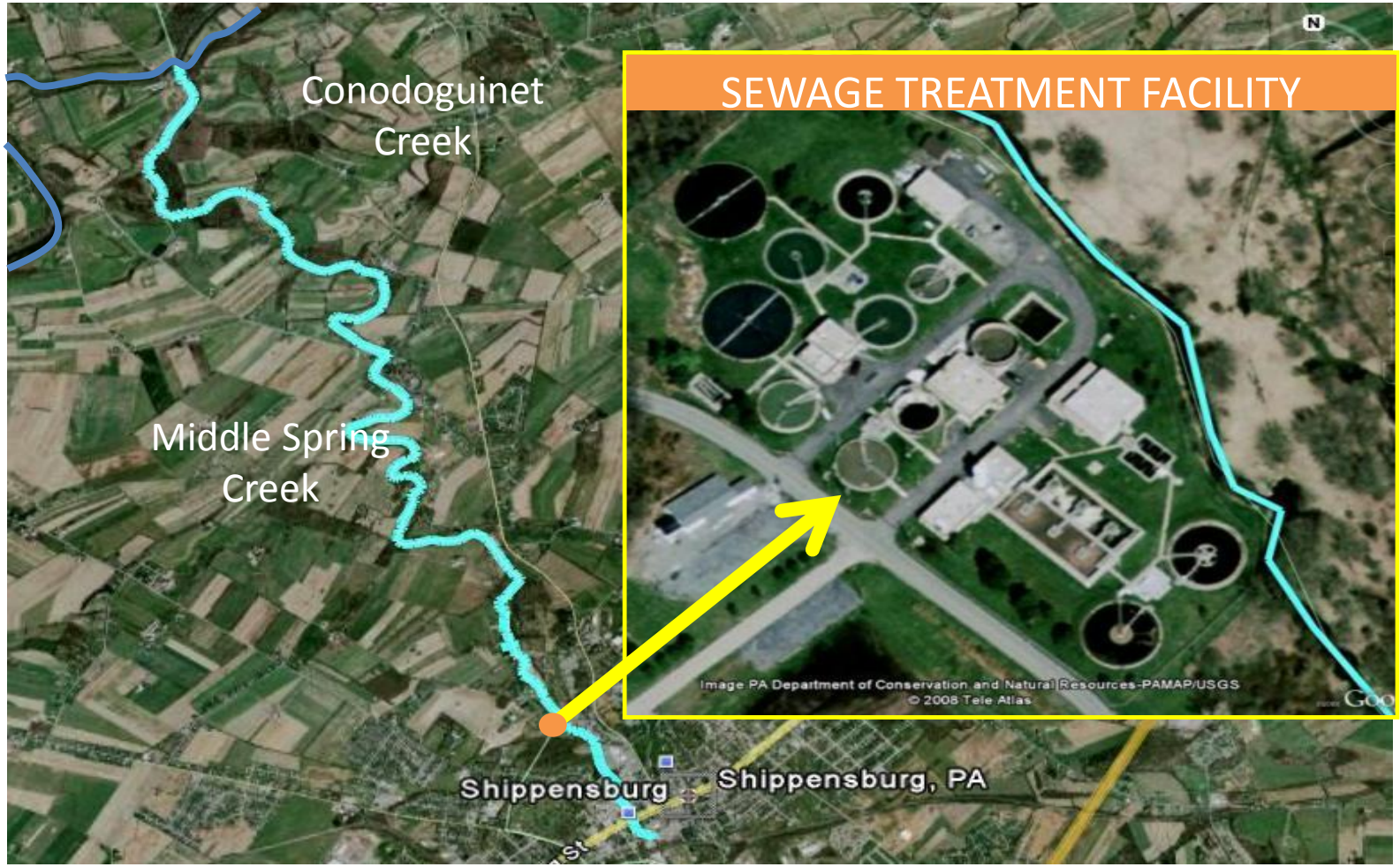
- CCWA filed a lawsuit with PADEP in 1999 against Glatfelter for violating CWA and their NPDES permit
- Settlement in 2001:
  - $2 million endowment fund for environmental improvement projects
  - $2.5 million in penalties
  - installed $32 million worth of new equipment to improve clarity of discharge

Middle Spring – Cumberland County

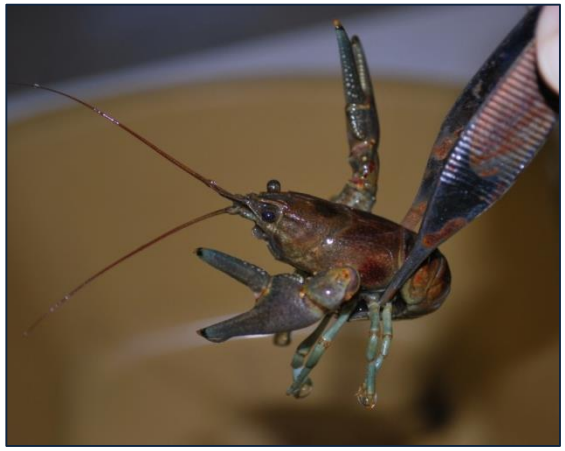


Middle Spring Watershed Association

Watershed Issue → **Using Data in the Community**



MSWA – 3 Types of Monitoring



Monitoring Metadata

Parameter	Equipment	Holding Container	Storage	Maximum Holding Time	Method
Temperature	Lamotte Hg-Free Thermometer	Measured at stream	N/A	Immediate	Field Thermometer
Conductivity	Hach	500 ml Nalgene	N/A	Immediate	Field meter
pH	Strips by EM Science	Measured at stream	Refrigerate	2 hours	pH strips
Dissolved Oxygen	Lamotte Kit #5860	60 ml glass container	N/A	Fixed at streamside, titrate within 8 hours	Winkler Titration
Water Clarity	Lamotte Transparency Tube			Immediate	Visual
Ortho-Phosphates	Hach Kit #PO-19	500 ml Nalgene	Refrigerate	Within 48 hours	Ascorbic Acid
Nitrate- Nitrogen	Hach Kit #NI-14	500 ml Nalgene	Refrigerate	Within 48 hours	Cadmium Reduction

Quality Assurance Practices

- Documented study design
- Equipment maintenance protocol
- Monitoring procedures (methodology, holding times, etc)
- Internal measures – replicates
- External – split sample analysis with ALLARM lab

MSWA Data Use Examples

- STP proposal was dropped in 2009
- Group removed a dam in 2010
- Did riparian plantings 2011-2013

State Approaches to Data Uses

Of the states that have documented data integration practices (12) most take a 3 or 4 tiered approach:

LEVEL or TIER	APPROPRIATE DATA USES	QUALITY ASSURANCE/ QUALITY CONTROL MEASURES
TIER 3	303(d) listing, 305(b) report, TMDL work, attainment	State Approved QAPP & field and lab SOPs, lab audits, etc
TIER 2	Screening, site targeting, long term trend analysis, TMDL restoration performance, etc.	State approved QAPP or SOP; clearly documented methodology
TIER 1	Education, baseline monitoring, pollution hotspots, advocacy	Clearly documented methods, use of recommended practices

Questions?
Topics for consideration

- In what ways do you want to use non-traditional data?
- What metadata do you need to inform whether or not you use non-traditional data?

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