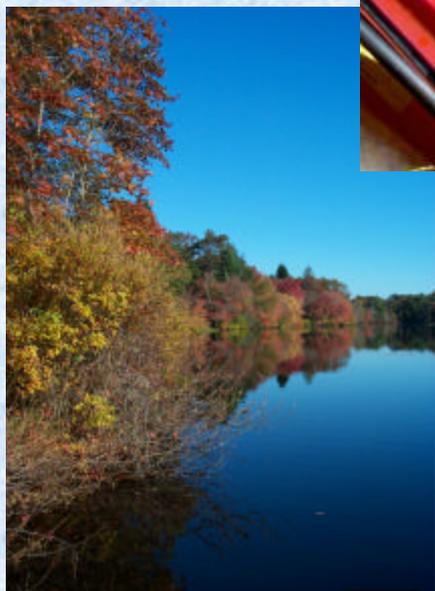
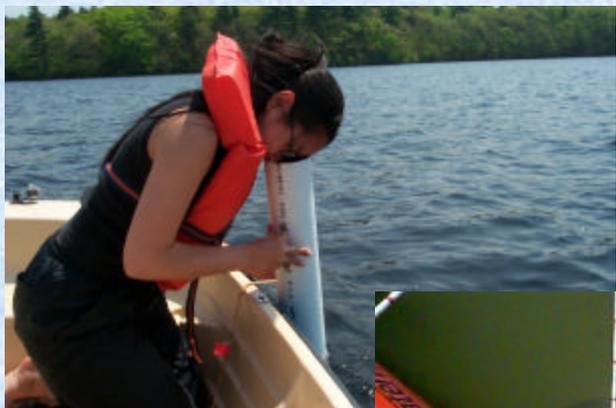


Enhancing the Use and Availability of Volunteer Water Quality Monitoring Data in New England



Elizabeth Herron
NE Cooperative Extension Water Program
Linda Green (University of Rhode Island),
Jeff Schloss (University of New Hampshire),
Jerry Schoen & MF Walk
(University of Massachusetts),
Geoff Dates (River Network)

The New England Regional Monitoring Collaborative (NERMC)

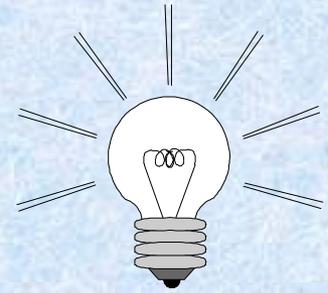
Coordinates the delivery of training and related services to volunteer watershed monitoring groups in New England. NERMC members are:

- Massachusetts Water Watch Partnership
- River Network
- University of Maine Cooperative Extension and Department of Public Affairs
- University of New Hampshire Cooperative Extension Lakes Lay Monitoring Program
- University of Rhode Island Watershed Watch Program

**Now administered by the Volunteer Monitoring Focus
Area of the New England Region Water Program**



NERMC Purpose



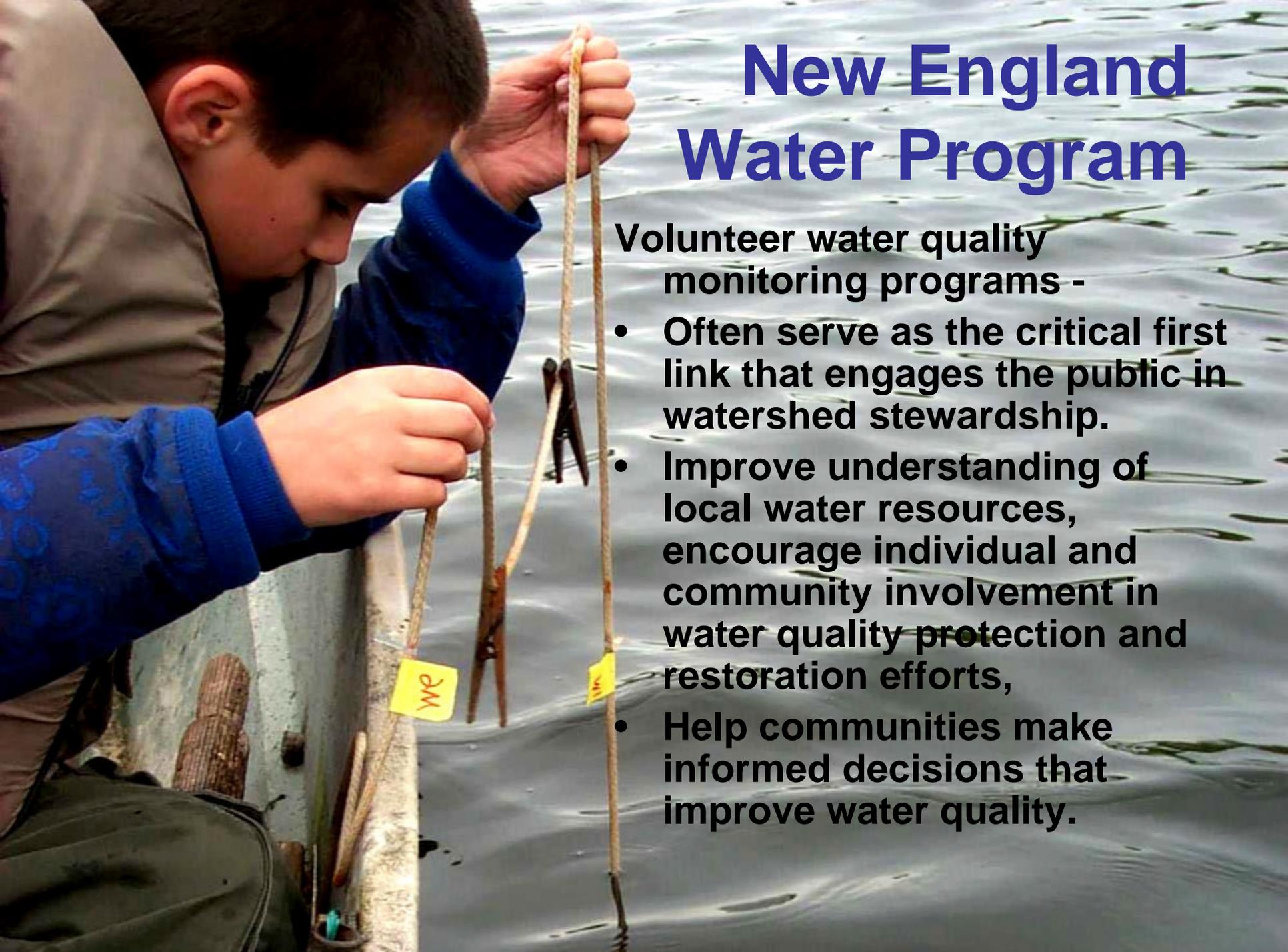
- Coordinate delivery of training and related services to volunteer watershed monitoring groups in New England
- Increase the level of expertise of volunteers and program coordinators
- Enhance sharing of data within watersheds and the region



NERMC

- Improves our ability to be proactive in developing sampling and action strategies,
- Prevent redundancies of effort,
- Increase the level of expertise of volunteers and improve program quality and effectiveness.
- Strives to increase the use of low cost and user-friendly watershed monitoring tools by making training and related services more accessible.





New England Water Program

Volunteer water quality monitoring programs -

- **Often serve as the critical first link that engages the public in watershed stewardship.**
- **Improve understanding of local water resources, encourage individual and community involvement in water quality protection and restoration efforts,**
- **Help communities make informed decisions that improve water quality.**

New England Monitoring Summit – Shared Waters (April 2005)

- Partnership with US EPA Region 1 – New England and the New England Interstate Pollution Control Commission (NEWIPCC),
- Collaborative meeting of federal, state, and volunteer water quality monitoring partners,
- To help identify potential approaches within the Northeast that lend themselves to developing a sustainable support system for volunteer monitoring.



Summit Goals

- Identify successful elements of different approaches to monitoring,
- Reach consensus on information and resource needs of all monitoring partners,
- Learn about obstacles that are preventing development of a successful network now,
- Discuss partnership opportunities and how to best plan for the future.



Summit Successes

- Attracted a broad geographic range of participants with representatives from all six New England states.
- Participants embodied a range of monitoring partners:
 - Academic-based programs
 - Agency-based programs
 - Environmental organization-based programs
 - Regulators,
 - Community decision-makers



Program Successes

- *Technical:* Strong emphasis on QA/QC
 - Approved QAPPs
 - QA officers / training
- *Funding:* Diversified sources sustaining programs long-term
- *Data management and use:*
 - Support legislation / impairment listing
 - Community education
- *People/program objectives:* Many successes and continued support from the public and decision-makers



Central Ingredients for Effective Program Management

- Dedicated volunteer management,
- Turning data into useful information,
- Supporting volunteer objectives,
- Coordinating multiple groups – shared resources,
- Developing program objectives – good study design, and assistance with getting a program started, and
- QA/QC assistance to volunteers.

Program Challenges

- *Technical:*
 - Generating reliable data cost-effectively
 - Inexpensive labs
 - Consistent QAPP review,
 - Help with design monitoring designs
 - Interpreting and presenting data
 - Developing good assessments of the data
 - Incorporating land use assessments
 - Presenting the information in an understandable format
- *Funding:* Never enough . . .



More Challenges...



- *Data management and use:*
 - Effectively managing the every increasing amount of data generated
 - How to best share data among organizations
 - How to integrate other information (i.e. land use)
- *People/program objectives:*
 - Keeping volunteers motivated and focused
 - Dealing with large watersheds that crossed multiple political boundaries
 - Getting the data used effectively

Intermediate Outcomes Needed

- Volunteer activities directly related to community water resource protection goals and values,
 - Increased ability of volunteer groups and communities to apply their findings and data to improve community water management strategies,
 - Improved coordination of regional volunteer efforts between states and cooperators,
 - Increased types and use of volunteer data at the local, state and regional levels,
- Leading to volunteers assessing and protecting valuable water resources regionwide.



Revised Focus Area Goals:

- Strengthen connection between research, Extension, regulatory and technical assistance areas to ensure that quality data are available and used by communities,
- Facilitate integration of technology to help disseminate more accessible and understandable volunteer water quality data
 - Interaction with Geospatial Extension Specialists
 - Train volunteers to interpret and present their findings
- Strengthen the understanding and use of monitoring data through the development of more 'people-friendly' indicators of water quality,
- Strengthen the NE Region Water Quality Program by extending materials, training, and lessons learned to our colleagues throughout the region and the Nation.



Water Quality Indicators

- Typically measurements of chemical, physical or biological features that identify the condition of the waterbody usually in comparison to a reference condition or a designated use.
- Indicators seldom mean much to the volunteer, public and even local decision-makers



Practical Water Quality Indicators

- Should be useful for the Consolidated Assessment Listing Methodology (CALM),
- Need to be easily understandable by the public without the need for a great deal of education (i.e. public-friendly).
- Should be used effectively by state and local agencies, and also by volunteer monitoring programs.



StreamWatch Home

About StreamWatch

Assabet Tributaries

Fish

Water

How to Protect a Fish

Streams

River Meadow Brook

Nashoba Brook

Elizabeth Brook

Danforth Brook

Fort Meadow Brook

North Brook

Cold Harbor Brook

Hop Brook

Assabet Headwaters

Assabet River Main

Concord River Main

How the Index is Calculated

Site Map

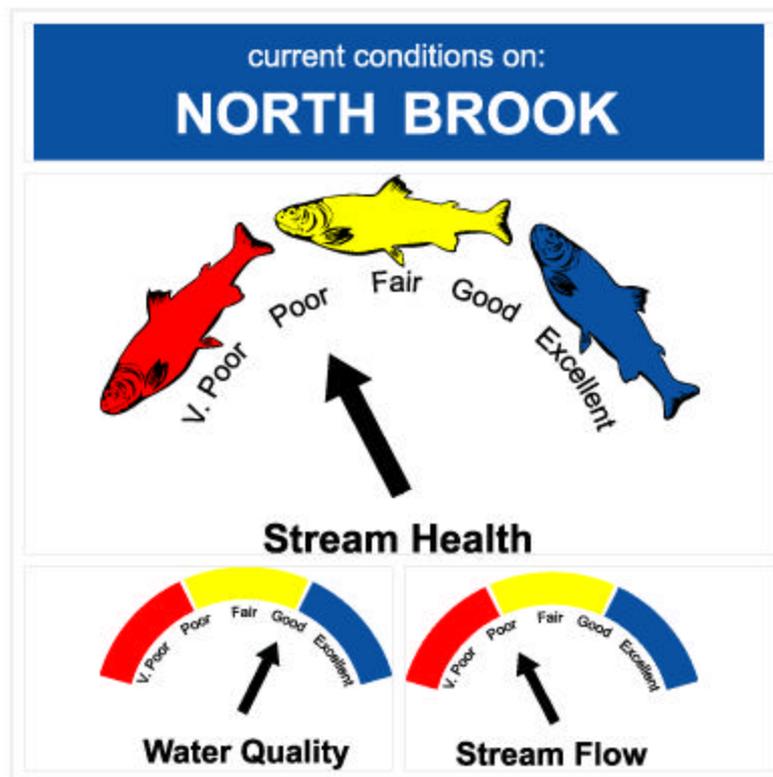
Links

Glossary of Terms

Organization for
the Assabet River
9 Damonmill Sq., Suite 1E
Concord, MA 01742
Tel. (978-369-3956)

[Join OAR](#)

[[Map of North Brook](#) | [Pictorial Tour of North Brook](#) | [Historical Information](#) | [Data](#)]



Index readings for the week ending 10.1.05.
Link to the North Brook datasheet for complete data for [2005](#)



North Brook below Wheeler Pond, November 2002
Streamflow = 18.5 cfs



North Brook looking downstream from Wheeler Pond dam, April 2003

Stream Health Index:
Calculation based on:
Flow (stream flow and groundwater levels),
Stream habitat availability,
Water quality (Diurnal min. DO, temperature, pH, TP, TN, TSS)

Bay Health Index

(Coalition for Buzzards Bay – Baywatchers)

- Measures the nutrient-related health of each of the Bay's major harbors and coves.
- Calculated from the scores of mean summertime water clarity, phytoplankton pigments, organic nitrogen, inorganic nitrogen and the lowest 20% of dissolved oxygen concentrations.
- Does not include bacteria monitoring so is not an index of swimmability or shellfish bed status.

	Good to Excellent (65 - 100)
	Fair (35 - 65)
	Poor/Eutrophic Conditions (< 35)

<u>Measured Values</u>	<u>Values for Health Scores</u>	
	<u>0 points</u>	<u>100 points</u>
Oxygen saturation (lowest 20% of observations)	40% sat.	90% sat.
Transparency (Secchi Disk depth)	0.6 m	3 m
Phytoplankton pigments (chlorophyll+pheophytin)	10 ug/L	3 ug/L
Dissolved Inorganic Nitrogen (DIN)	10 micromolar (=0.14 ppm)	1 micromolar (=0.014 ppm)
Total Organic Nitrogen (dissolved+particulate)	0.60 ppm	0.28 ppm

We Are Looking For

- Suggestions for what should be included in and how to develop public-friendly water quality indicators,
- Technical support for the development of training modules designed to help groups interpret their data,
- Opportunities to share our resources with other groups,
- Other suggestions??

