

# The Value of Volunteer Collaborations

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# EPA New England Volunteer Monitoring Program Timeline

1989 – Is EPA interested in data collection by volunteers?

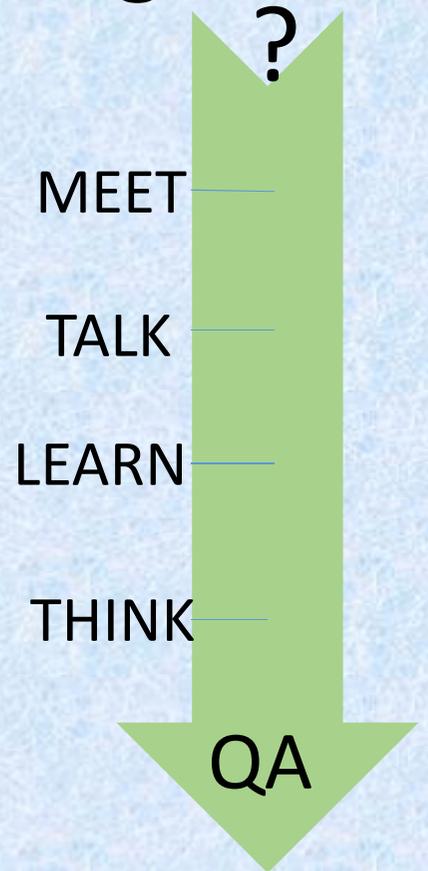
1990 – Second National VM Conference

1990 – Getting Up to Speed Phase

- Watersheds, Universities, States, Schools, EPA

1992 – Funding From EPA Office of Water

- Supporting Small Scale VM Conferences in Region
- Regional Quality Assurance Approach
- Partnering with Regional QA Office for QAPP Workshops, Reviews/Approvals



# Timeline (Cont.)

- **Mid 1990's –**
  - Supported New England Regional Monitoring Collaborative (NERMC) Development of Guidance for Volunteer Organizations
  - EPA Microbiology Lab Began Bacteria Analyses for Watershed Organizations
  - LIS – QA Clinic, Equipment & Method Checkups
  - First VM Equipment Loan
  - Monitoring Collaborations
- **2005 – Volunteer Monitoring Equipment Loan Program** 
  - World Monitoring Day Event – and an idea!
  - Initial Round in 2006 - 22 organizations across 5 states
  - Now over 70 organizations
- **2007 – Began Support/Training for Data Uploads to STORET/WQX**
  - STORET Workshops
  - Individual group training/guidance
- **2014 – Citizen Science**



CITIZEN  
SCIENCE

# EPA Region 1 Interests

- Reporting of ambient waters conditions primarily are requirements for States/Tribes under CWA.
- EPA interest – expand amount of waters for which states/tribes can increase number of assessments based on applicable water quality standards.
- Data goal - meet data quality requirements for screening or WQ standard attainment assessments.
- Networking - Understand what agencies and citizens may be able to accomplish together.
- Building & supporting partnerships towards goals of identifying emerging issues, restoring/protecting and articulating conditions of water bodies.

# Volunteer Organization Collaborations

- **Regional Collaborations**

- Neponset, Charles, Mystic, Merrimack rivers

- **Filling gaps in data for state/local agencies**

- All NE states coordinate or use VM data
- Chatham High School – first high school QAPP approved

- **Method development**

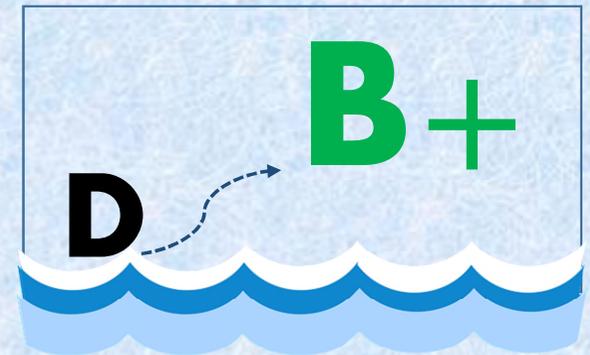
- Cyanobacteria Monitoring Method Development
- Bloomwatch Program

- **Equipment Loans –**

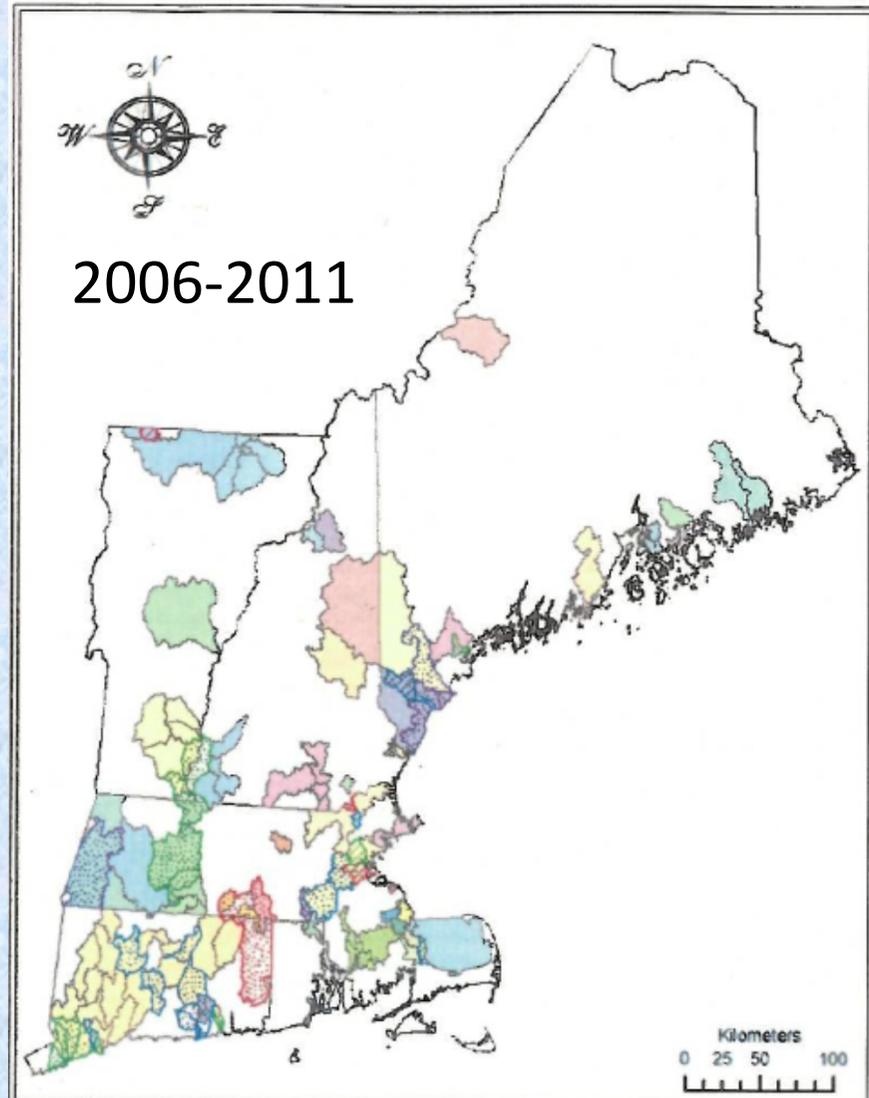
- Equipment Loans for VM Organizations for ambient waters
- Hot Spots - Stormwater Toolkit



REPORT CARD



# EQUIPMENT LOAN PROGRAM RECIPIENTS



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## Massachusetts

-  Charles River Watershed Association
-  Cohasset Center for Student Coastal Research
-  Connecticut River Watershed Council
-  Duxbury Bay Management Commission
-  Emmanuel College Chemistry Club
-  Friends of Jamaica Pond
-  Groundwork Lawrence
-  Herring Ponds Watershed Association
-  Housatonic Valley Association
-  Jones River Watershed Association
-  Lakes & Ponds Association
-  Lake George Lake Study Committee
-  Lawrence High School
-  Massachusetts Watershed Coalition
-  Merrimack River Watershed Council
-  Muddy River Water Quality Monitoring Program
-  Mystic River Watershed Association
-  Pembroke Watershed Association
-  Pioneer Valley Planning Commission
-  Plymouth DPW
-  Provincetown Center for Coastal Studies
-  Roger Frymire
-  Salem Sound Coastwatch
-  Taunton River Watershed Alliance
-  Upper Quinebaug River Water Quality Project
-  Webster Lake Association
-  Westfield River Environmental Center

## Connecticut

-  CT Dept. of Environmental Protection
-  Connecticut River Watch Program
-  Earthplace Harbor Watch
-  Earthplace Harbor Watch
-  East Lyme Harbor Management
-  Niantic River Watershed Committee
-  The Last Green Valley
-  Three Rivers Community College

## Vermont

-  Friends of Missisquoi Bay
-  Missisquoi River Basin Association
-  Northwoods Stewardship Center
-  White River Partnership
-  West River Watershed Alliance

## New Hampshire

-  Ashuelot River Local Advisory Committee
-  Big Island Pond Corporation
-  Green Mountain Conservation Group
-  Hodgson Brook Watershed Restoration Project
-  Israel River Volunteer Advisory Group
-  Lakes Lay Monitoring Program
-  Martin Meadow Pond Association
-  Souhegan Watershed Association

## Rhode Island

-  Blackstone Academy Charter School
-  Narrow River Preservation Association

## Maine

-  Bega duce Watershed Association
-  Georges River Tidewater Association
-  Highland Lake Association
-  Jackman Utility District
-  Mousam & Kennebunk Rivers Alliance
-  Pleasant River Watershed Councils
-  Presumpscot River Watch
-  Saco River Corridor Commission
-  Spruce Creek Association
-  Union River Watershed Coalition
-  Wells National Estuarine Research Reserve



# Equipment Loaned, 2006 - 2015

- Loan Agreement/Memo of Agreement
  - Renewable up to 5 years
  - New agreements in progress
  - Criteria – QAPP, State agency concurrence, etc.
- Types of Equipment
  - Meters – DO, pH, Temp, Cond., Salinity
  - Loggers – Continuous Temp, Water Level, Cond.
  - Macroinvertebrate Collection/Sorting Equip
  - Water Samplers – Nutrients
  - Secchi Disks
  - Incubator
  - Fluorometers
  - Etc.



- **Loaned Equipment**

- Most loans are beneficial for groups
- Some hitches
  - Better discussion on appropriate meter to meet objectives
    - A multiparameter meter may be too complex
  - Training needed at times (not provided unless requested)



- **Most recipients provide annual report**

- Many with annual data summary



# VM Organizations Feedback - Value

- Establishing baseline & ongoing records on waters not often monitored by state or other agencies
- Identifying sites with WQ problems; “hotspots”
- Fostering networks of non-profits; providing education & outreach
- With QAPP, QC documentation & data reviews, states are using VM data for 305(b) assessments, 303(d), TMDLs, etc.
- Collaborations with state agencies, EPA, municipalities, etc.
- Loaned Equipment – obtaining what isn’t affordable
  - Better data quality & recognition of organizations
  - Helping to leverage for funding/equipment from other sources
  - Allows WQ profiles & deep water samples
  - Allows participation in Regional cyanobacteria monitoring project

# VM Organizations Feedback – Challenges

- Funding for staff, equipment, expendables
- Need help with STORET/WQX, some data analysis
- Providing field QC checks at sites to ensure procedures & equipment use is correct/consistent
- How to do some wet weather sampling with volunteers?
- Growing the program while still maintaining high quality monitoring
- Engaging next generation of environmental stewards
- Monitoring in 2 states – working out methods, parameters, media



# State Volunteer Monitoring Coordination

- 4 of 6 states have state agency VM program coordinators
- VT Monitoring Council
- All 6 states review and use VM data to some extent
- Agencies need at least 1 – 2 staff for each program, plus seasonal help

# State VM Coordination - Value

- Integral to establishing WQ trends, assessments
- Routine VM results in early detection of areas of pollution for follow up by states
- With oversight & QA/QC details, 95-100% data are useable for 305(b) assessments, possibly 303(d), TMDLs, etc.
- Allows sampling of multiple sites throughout index period, not just 1 or 2 visits per site.
- Data invaluable in serving community planning & state's mission to protect waters.
- Many volunteers purchasing their own equipment

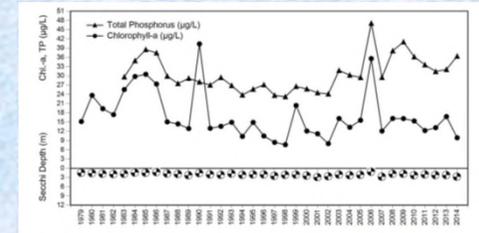
# State VM Coordination (cont.)

- Equipment Loans
  - Consistency
  - With similar equipment, a QAPP, & same protocols, state can know data quality
  - Enhances potential for useable data
  - State/volunteers have equipment they aren't able to purchase



# State VM Coordination - Challenges

- Not enough staff & other funds for equipment, expendables
- Not having enough reliable equipment for volunteers to share/use through season
- Highest confidence with data is when VM coordinators can provide field oversight of volunteers at least once/season, in addition to initial training at central location.
- Limited time it takes for data review
- Inability to expand program for other waters
- Need assistance for groups in data analysis & presentation
- The distance to lab to for meeting holding times



# CT River Bioassessment by Volunteers (RBV)

- 267 River Bioassessment by Volunteers (RBV) samples were collected between 2006 and 2010
- 83 locations samples had 4 or more “most wanted” organism types present in the sample
- DEEP able to provide an assessment for aquatic life as “Full Support” for the IWQR



DEEP STAFF USE ONLY - PLEASE DO NOT PRINT IN PINK OR GRAY SCHEMES

PLANT SPECIES INFORMATION SHEET

Revised Date: \_\_\_\_\_ AND Site P. \_\_\_\_\_  
 Revised By: \_\_\_\_\_ Old Site P. \_\_\_\_\_  
 Field Methods: \_\_\_\_\_ Volunteering Group P. \_\_\_\_\_

CT DEEP RBV Program -- Field Data Sheet

Stream Name: \_\_\_\_\_ Site Latitude/Longitude: \_\_\_\_\_ Take Photos of the Stream Facing: \_\_\_\_\_  
 Upstream of Site  Downstream of Site

RBV Site Location (i.e., 100m downstream of Route 44 crossing): \_\_\_\_\_ Collection Date & Time: \_\_\_\_\_

Site Town: \_\_\_\_\_ Volunteer Names (First & Last): \_\_\_\_\_ Organization Responsible to Volunteers: \_\_\_\_\_

**DEEP-GIVE TRAINING IN THIS UNIT AHEAD! PLEASE MAKE SURE THAT ALL BLUE CELLS ABOVE ARE COMPLETE!**

**DEEP-GIVE TIP:** Using RBV Field Identification Cards, identify the macroinvertebrate types in your sample. Check off each macroinvertebrate type found in your sample (with sample #1 below or the 3 days from one site combined). Place one or each type into the voucher container. Place a voucher label with the 2 stream name, 2 site location or GPS coordinates, 3 town, 4 collection date, and 3 collector names into the voucher. (NAPR (N) - Make sure your final voucher 4) contains one of each type checked off below, 2) is filled with alcohol, 3) contains a complete label and 4) is tightly sealed.

MOST WANTED (Most Sensitive to Pollution)	1 Body Snail Mollusca	2 Amphipod Amphipoda	3 24-Hour Flathead Mayfly Baetidae	4 Heath-Like Stenonema Psephenidae	5A Common Stenonema Psephenidae	5B Great Stenonema Psephenidae	5C Misc. Stenonema
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MOST WANTED (Most Sensitive to Pollution)	6A Saddle-Cased Caddisfly Glossosomatidae	6B Common Case Caddisfly Agnetidae	7 Fishtail Flat-Head Caddisfly Rhyacophila	8A Flat-Head Flat-Head Caddisfly Rhyacophila	8B Water Penny Psephenidae	9 Other Voucher Types: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	Water Quality: EXCELLENT, Fully Supporting Aquatic Life Use Goals GOOD, Slightly Supporting Aquatic Life Use Goals NOT DETERMINED, More Info Needed
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MODERATELY SENSITIVE (Less Sensitive to Pollution)	10 Common Mayfly Baetidae	11 Pheasant Caddisfly Glossosomatidae	12 Flat-Head Mayfly Baetidae	13 Water Penny Psephenidae	14 Unidentifiable Caddisfly	15 Pheasant Agnetidae	16 Dragonfly/Libellulid Zygoptera
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEAST WANTED (Less Sensitive to Pollution)	17A Amphipod Amphipoda	17B Tubed Amphipoda	17C Leech	17D Ridge	17E Black Fly Simuliidae	17F Snail	17G Worm
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHERS	Other Commonly Collected From Drift Net Macroinvertebrates						
	18 Crayfish Decapoda	19 Great Fly Larvae Glyptotendipes, Heterotendipes	20 10-16 Beadfly Limnephilidae	21 Small Amphipod Amphipoda	22 Water Ship Psephenidae	23 Planarian Planaria	24 Frequent Clam/Shell Gastropoda
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# EPA Regional Evaluation

- Volunteer Monitoring is extremely beneficial
- EPA would need at least 1 – 1.5 staff full time for appropriate regional volunteer monitoring program
- Need to improve level of useable data uploads to national systems
- Should hold at least one regional VM meeting biennially
  - Clinics on QA, Equipment care/maintenance, data mgmt/sharing
  - Recommendations, opportunities, possible collaborations
  - Data used, assessment needs, etc.
- Important not to overextend staff
  - So volunteers are supported consistently & over long term



# POSSIBILITIES FOR THE FUTURE

- Regular regional volunteer monitoring meetings with Fed/States, etc.
- Increasing collaborations - improving sharing of documented data
- Consider how to help field oversight & data review procedures
- Regional Monitoring Networks of high quality waters – for climate change & impacts of other stressors
- BMP observations & Effectiveness monitoring
- With higher interest in citizen science at national levels, is added support more likely?



# THANK YOU!

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