

Cape Cod Ponds Network Meeting

P R E S E N T E R S

Kathleen Mason, Water Resources Analyst, Cape Cod Commission

Tim Pasakarnis, Water Resources Analyst, Cape Cod Commission

Elizabeth Herron, University of Rhode Island Watershed Watch

Judith Bruce, Board of Directors, Orleans Pond Coalition

Andrew Gottlieb, Association to Preserve Cape Cod

FACILITATOR

Tim Pasakarnis, Water Resources Analyst, Cape Cod Commission

Network Structure and Objectives



Provide a single forum and meeting place for pond groups throughout the Cape Cod region to share and receive resources



Provide a venue for ongoing updates on pond topics of regional interest



Help inform stakeholder engagement process of Freshwater Initiative



Help advance pond improvement strategies and solutions identified through the Freshwater Initiative at the local level



CAPE COD
COMMISSION



Identified Needs

1.

Engagement, marketing, communications,
educational resources

2.

Central location for ponds
resources

3.

Guidance on
leadership and
organization

4.

Funding
resources

5.

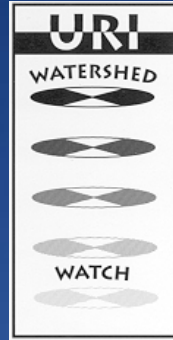
Updated information on pond
remediation approaches

Cape Cod Ponds Network Meeting

Lessons Learned from Monitoring Rhode Island's Waters

ELIZABETH HERRON

PROGRAM DIRECTOR,
UNIVERSITY OF RHODE ISLAND WATERSHED WATCH



Lesson's Learned from Monitoring Rhode Island's Waters

Elizabeth Herron

OneCape 2022

Harwich, Massachusetts

URI Watershed Watch

Long-term volunteer water quality monitoring

- Began in 1988 with 14 lakes
- Now has ~400 volunteer monitors on 250+ sites on 180+ waterbodies
 - Lakes, ponds & reservoirs
 - Rivers, streams & tributaries
 - Salt ponds, surfing sites, etc.
- Provides ~90% of RI's lake baseline data



Long-term ecological monitoring

<https://web.uri.edu/watershedwatch/>

Ecological Monitoring Program

Ecological Monitoring =
Repeated measurements over time to
note a condition or track a trend

Scientist-led Statewide (+) Volunteer Monitoring Program

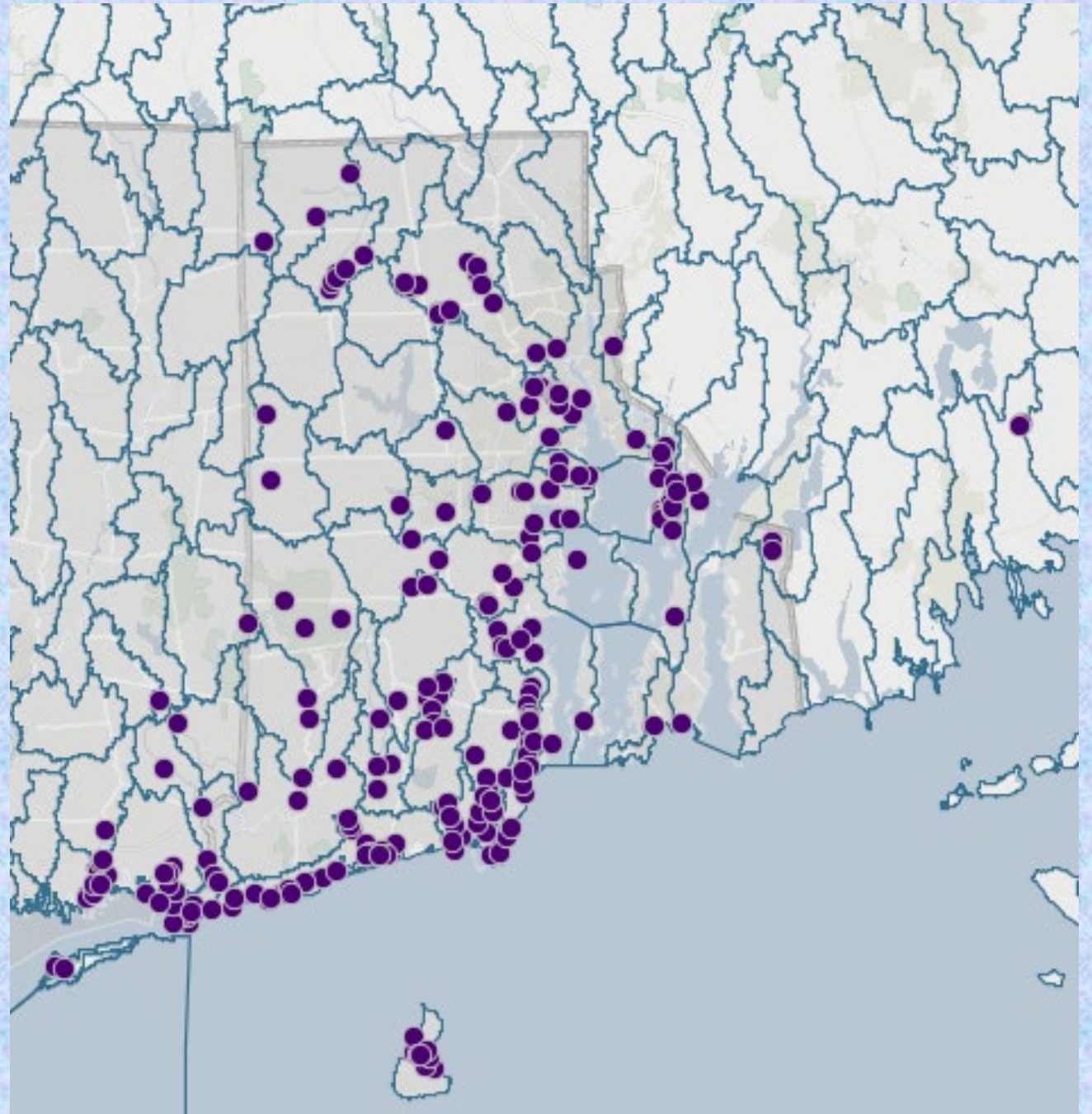
Sites throughout RI

Southeastern, CT

Fisher Island, NY (2)

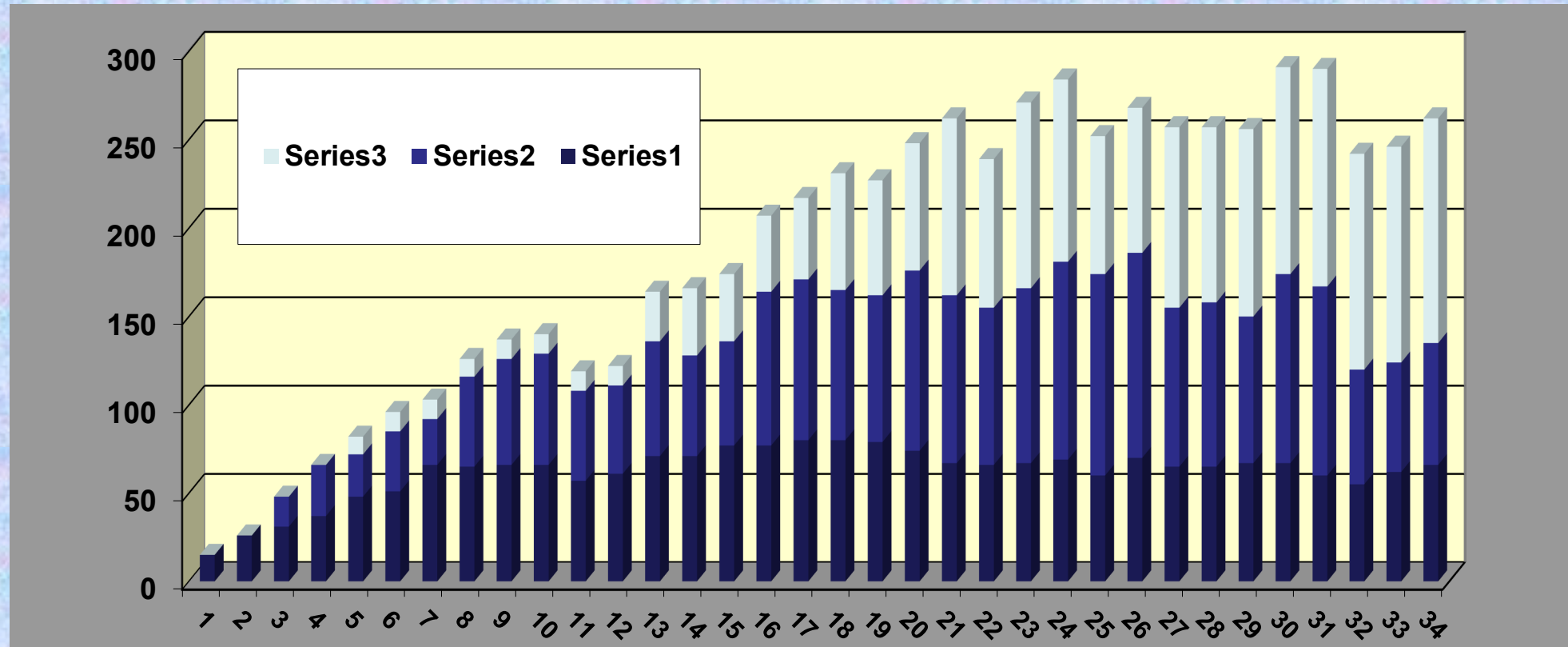
Rochester, MA (1)

- Lakes, ponds, reservoirs
- Rivers, streams
- Salt ponds
- Bays
- Swimming & surfing beaches



More than 700 sites have been monitored since 1988


191 lakes, 315 streams, 209 salt



2022: 63 lakes, 66 streams, 112 salt

URI Watershed Watch: Essential Ingredients

- 💧 Science-based
- 💧 Bottom-up approach
- 💧 Involve the public
- 💧 Educational, not regulatory
- 💧 Provide good, useful information
- 💧 Stable, diverse funding

A photograph of a calm lake on a foggy day. Two tall, bare trees stand in the foreground on a grassy bank. The water reflects the trees and the misty sky. In the background, a dense forest is visible through the haze. The overall mood is quiet and somewhat somber.

**A research project
can begin anytime,
but a year lost
monitoring is a year
lost forever**

**-Sam Droege, Patuxent
Wildlife Research Center**

Many Program Sponsors (45+)

Base Funding:

URI Cooperative Extension

Program Specific Annual Grant:

RI Dept. of Environmental Management

Local Sponsorship (per site per year)

Watershed and Environmental Organizations

Municipal Conservation Commissions

Lake associations

Businesses/Industry

Endowments

Fee for service

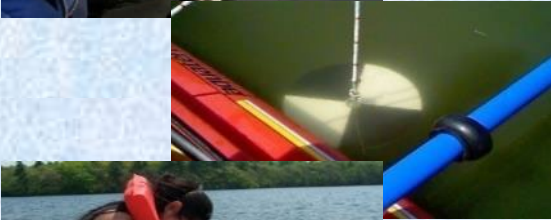
Beach bacteria samples


Nutrient analyses

Chlorophyll

URIWW volunteer water quality monitoring helps to determine:

- 💧 Current conditions
- 💧 Changing conditions (trends)
- 💧 Clues to the causes of changes
- 💧 Document impacts from management efforts





Credibility doesn't mean
having the most exacting
techniques. It means
delivering on your promises,
no matter how small or large
they are.

-
Meg Kerr
RI River Rescue

Continuum of Volunteer Monitoring Programs



**Education/
Awareness**



**Watershed
assess,
ID problems,
Local decisions**



**Research,
Regulatory,
Legal**

Increasing Time - Rigor - QA - Expense \$\$



URI Watershed Watch

- Institutional support (URI housed/supported)
- Relies on established, approved methods
- Often adapted to be easier for use by volunteers
 - Kits
 - Field processing only
- Extensive tools to train/support volunteers
- Responsive to local needs





Routine Monitoring Parameters

Field

- Secchi Depth
- Water Temperature
- Dissolved Oxygen
- Chl - a Processing

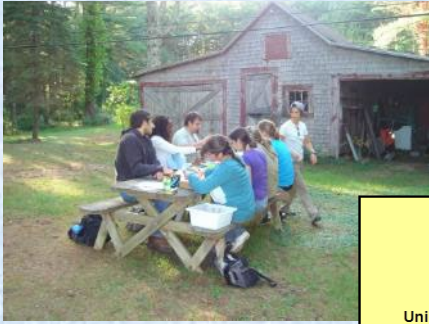


**State Certified Laboratory,
operating with USEPA & RIDEM
approved QAPPs for both field and lab parameters !**

Laboratory

- pH
- Alkalinity
- Total & Dissolved Phosphorus
- Total, nitrate and ammonium nitrogen
- Chlorophyll - a
- Chlorides
- Bacteria



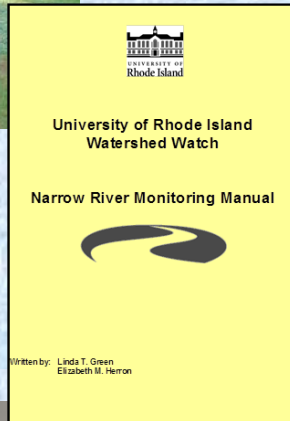


URIWW Provides Volunteers:

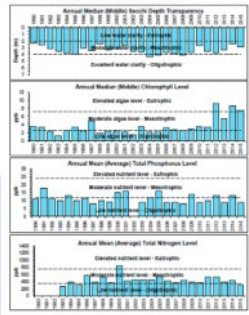
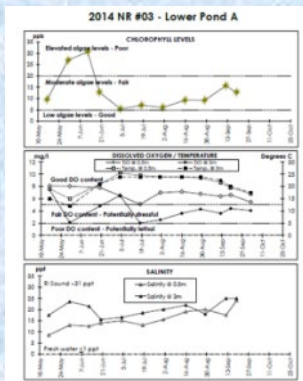
- Classroom & field training
 - Online since 2020 due to Covid-19
- Monitoring manuals
- Monitoring equipment & supplies
- Detailed schedules
- Analytical services (sample testing)
- Sharing and interpreting monitoring results
- Opportunities to work with other researchers

URI WATERSHED WATCH
2013 WATER QUALITY MONITORING SCHEDULE
RIVERS & STREAMS, including NARROW RIVER

Month	Monitoring Location	Monitoring Schedule
May 4	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
May 10	X - plus water collection	Water collection, 10:00 AM - 12:00 PM
June 1	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
June 15	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
June 25	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
July 1	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
July 15	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
July 27	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
August 1	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
August 15	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
August 27	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
September 1	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
September 15	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
September 27	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
October 1	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
October 15	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM
October 27	Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond, 1000 ft. upstream of Longmeadow Pond	Water collection, 10:00 AM - 12:00 PM



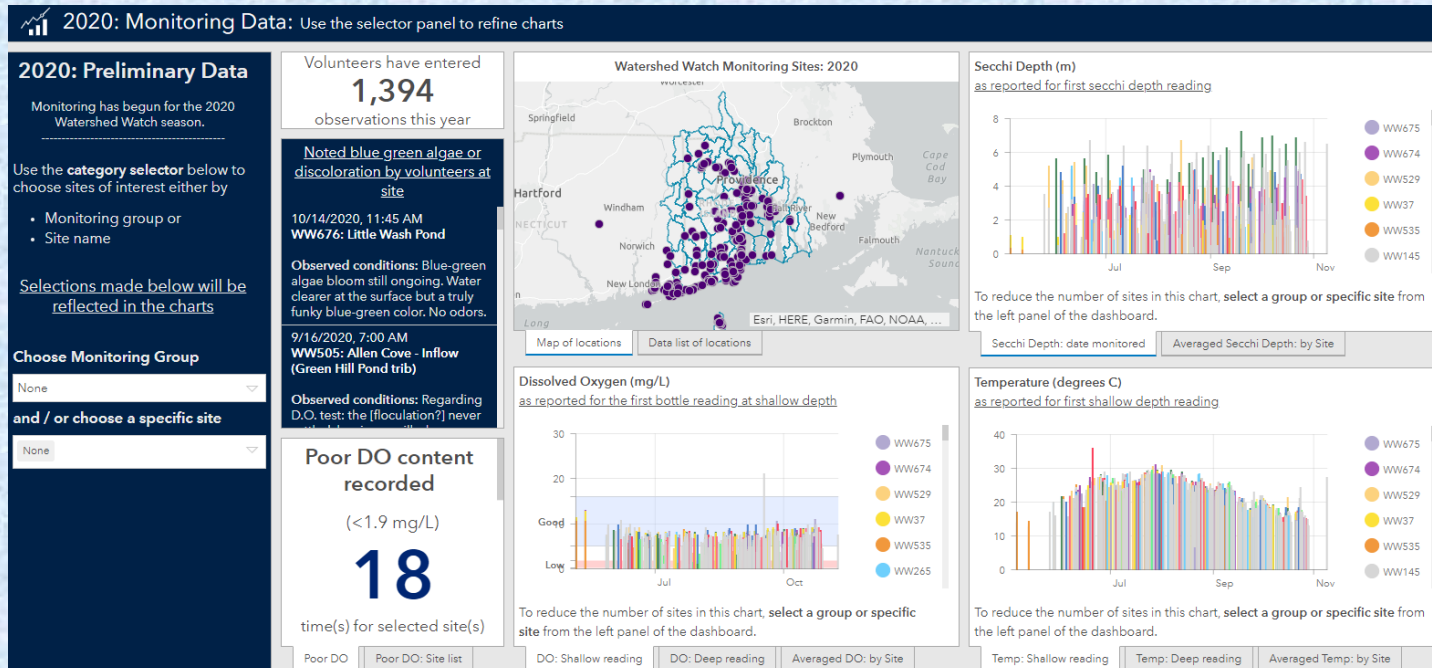
Georgiaville Pond Multi-year Summary



Monitoring Equipment




<https://web.uri.edu/watershedwatch/>



Additional Resources

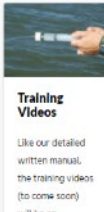
Observe and learn more

URI Watershed Watch strives to document what it is we do and how we do it. And we support you with additional resources to understand more about water quality and watersheds.



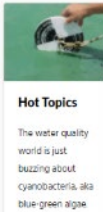
Training Manuals

A written manual




Training Videos

Like our detailed written manual, the training videos (to come soon) will be an



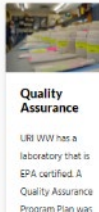
Hot Topics

The water quality world is just buzzing about cyanobacteria, aka blue-green algae



Water Quality Factsheets

Over the years, we pulled together some factsheets on water quality



Quality Assurance

URI WW has a laboratory that is EPA certified. A Quality Assurance Program Plan was

THE UNIVERSITY OF RHODE ISLAND

URI Watershed Watch

Volunteer Water Monitoring

URI > CELS > URI Watershed Watch > Data > Historic Data > [csv data files](#)

Home + About + Getting Involved + Monitoring + Data + Resources +

You can download historic data in .csv files:

All Data:

[1988](#) – [1989](#) – [1990](#) – [1991](#) – [1992](#) – [1993](#) – [1994](#) – [1995](#) – [1996](#) – [1997](#) – [1998](#) – [1999](#) – [2000](#) – [2001](#) – [2002](#) – [2003](#) – [2004](#) – [2005](#) – [2006](#) – [2007](#) – [2008](#) – [2009](#) – [2010](#) – [2011](#) – [2012](#) – [2013](#) – [2014](#) – [2015](#) – [2016](#) – [2017](#) – [2018](#) – [2019](#)

*****Please acknowledge the use of Watershed Watch data in all reports, assessments or others uses.** Our volunteers and staff work hard to produce credible water quality monitoring information and deserve recognition. We'd also appreciate [hearing from you](#) about how you are using the data. It helps us to better understand data needs and gaps, as well as for assessing the impact of this extensive

CSV files allow data to be downloaded and used by a variety of data users

Challenges

- 💧 Recruiting volunteers in changing times
- 💧 State agency support tenuous
- 💧 Staff inability to say “no”
- 💧 Getting local organizations to use their data

Success: URIWW Lab is State-Certified

- 💧 Started with EPA QAPP
 - Meeting with RI DOH
 - 1 of 2 state certified labs at URI
 - Increased credibility
 - Added expense
 - Well worth the cost
 - Enabled WW to meet regulations for state agency use of data
 - Encourages additional data use by various users

Don't reinvert the wheel!

[ABOUT](#) [COVID-19](#) [GUIDE FOR GROWING PROGRAMS](#) [JOBS BOARD](#) [PROGRAMS](#) [RESOURCES](#) [CONTACTS](#)

USA VOLUNTEER WATER MONITORING NETWORK



<http://www.volunteermonitoring.org/>

Volunteer Water Monitoring Network

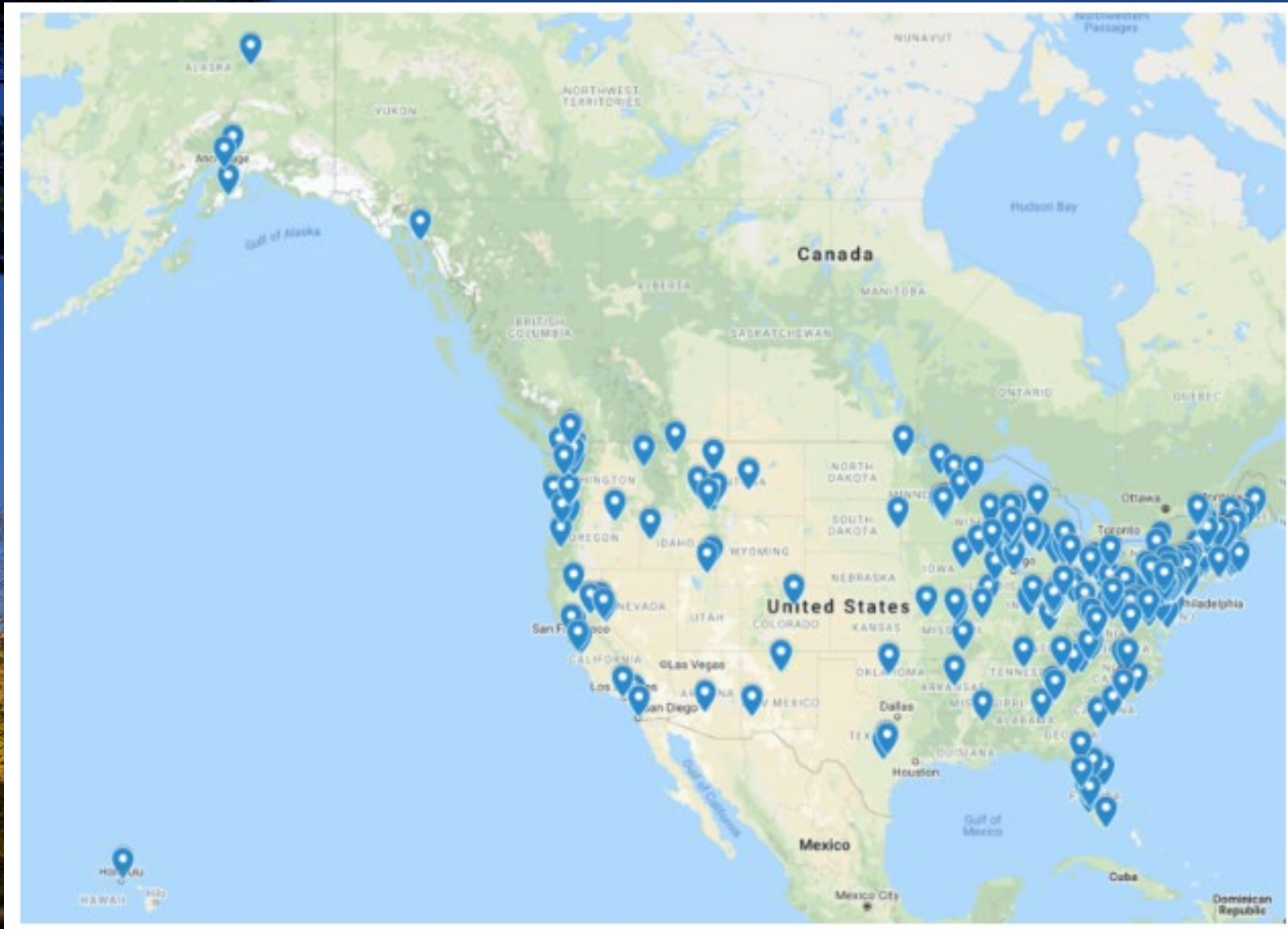
Our mission is to expand and strengthen the capacity of volunteer monitoring programs and support development of new groups.

Currently, there are about 1700 volunteer water monitoring programs operating in the

SEARCH

Upcoming Events

Volunteer monitoring across the US



285 stand-alone or parent programs supporting over 1400 affiliated programs

<https://blog.uvm.edu/kstepenu/programs/>

Guide for Growing Programs

This factsheet module-based guide includes reviewed resources to help program coordinators identify reliable sources of information to help them develop their own programs.

A “Guide for Growing Volunteer Monitoring Programs” was developed to help direct program coordinators to many of these useful resources. The Guide is set up as a series of modules (that are chock full of external links) that can be used alone or in conjunction with other sections depending upon the needs of individual programs. Use the links below to access the various modules:

- [Getting Started](#) (235 KB pdf file) – updated 2020
- [Why Volunteer Monitoring Makes Sense](#) (582 KB pdf file)
- [Designing Your Monitoring Strategy](#) (1.6 MB pdf file)
- [Monitoring Matrix](#) (80 KB pdf file)
- [Effective Training](#) (856 KB pdf file)
- [Monitoring Equipment Suppliers](#) (63 KB pdf file)
- [Building Credibility: Quality Assurance and Quality Control for Volunteer Monitoring Programs](#) (942 KB pdf file)
- [Volunteer Management](#) (1 MB pdf file) – updated 2020
- [Planning Your Program’s Data Management System](#) (560 KB pdf file)
- [Tips and Tools for Effective Presentations](#) (541 KB pdf file)
- [Outreach Tools](#) (464 KB pdf file)
- [Locating Support and Funding](#) (1.6 MB pdf file) – updated 2019
- [Introduction to Bacteria Monitoring](#) (518 KB pdf file)
- [Methods for Monitoring Bacteria in Surface Waters](#) (1 MB pdf file)
- [Presenting Bacteria Monitoring Data Effectively](#) (522 KB pdf file)

<https://blog.uvm.edu/kstepenu/guide-for-growing-programs/>



Volunteer Lake Monitoring Program Secchi Disk Recertification

[Maine VLMP Home](#)

Welcome to the virtual Secchi disk re-certification workshop for Maine VLMP water quality monitors. The test is **now active for Secchi re-certification credit**. Please review the instructions on [how to take a Secchi disk transparency reading](#). For additional help or to provide feedback please contact the VLMP office at 207-783-7733 or vlmp@mainevlmp.org.

Certified Monitor Login

Username

Password:

Login

Password/Email Help

Try it out!

Everyone is welcome to try the Secchi Disk Simulation by clicking the button below. See our website to learn about:

- [How to take a Secchi reading](#)
- [Becoming a volunteer monitor](#)
- [Interpreting Secchi Readings](#)
- [Who is monitoring your lake](#)

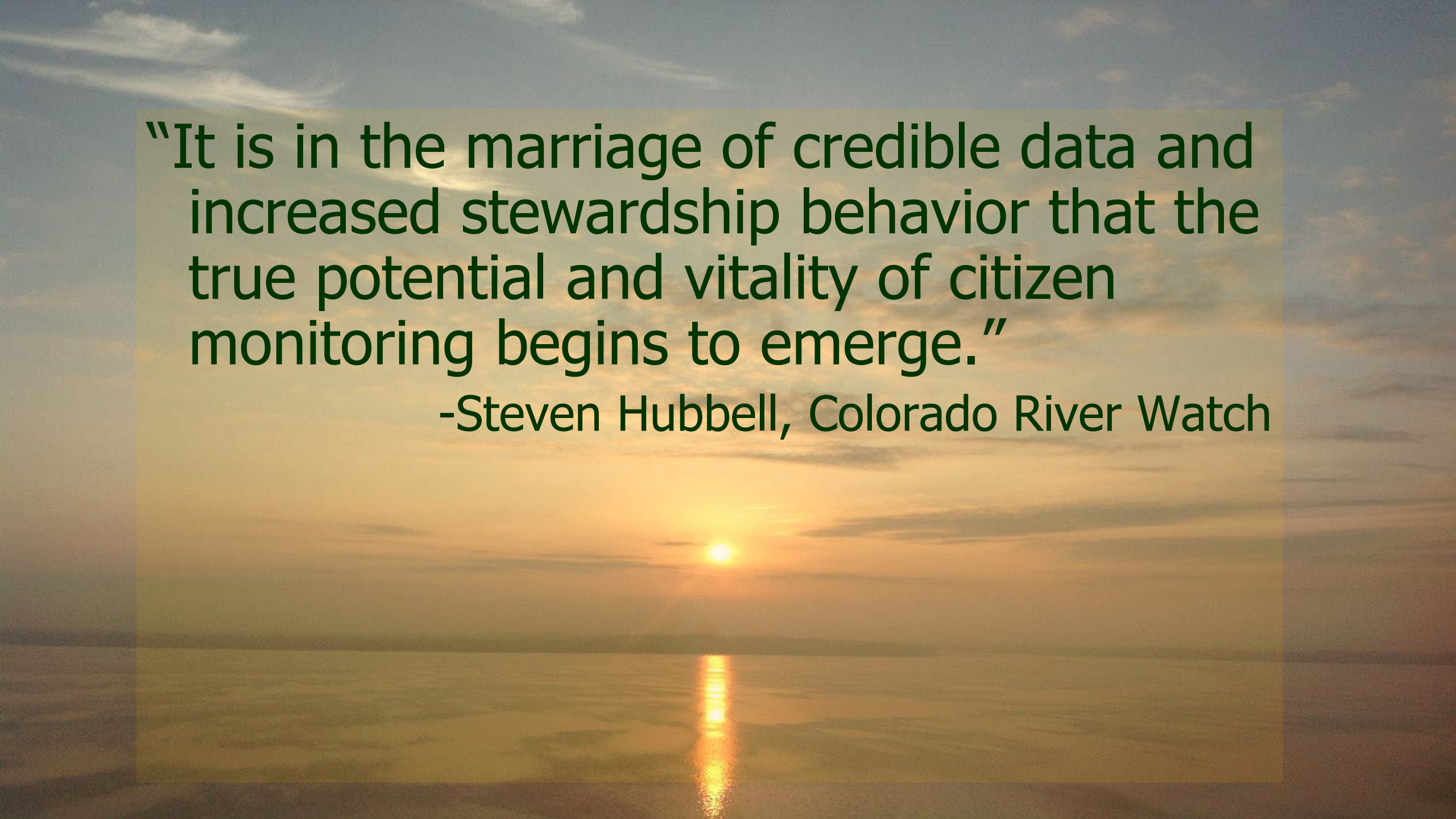
Secchi Disk Simulator

Try It Out!

<http://www.mainevlmp.org/secchi-simulator/>

Volunteer Monitoring Makes A Difference

- 💧 Gets us outside & on the water
- 💧 Involves us in real science
- 💧 Creates informed citizens
- 💧 Provides info on places where no one else is looking
- 💧 Identifies & solves problems locally
- 💧 Leads to protection & restoration

A photograph of a sunset over a body of water. The sun is a bright yellow-orange orb on the horizon, with its light reflecting as a shimmering path on the water's surface. The sky is filled with soft, wispy clouds in shades of blue, orange, and yellow. A semi-transparent rectangular box is overlaid on the upper half of the image, containing the text.

“It is in the marriage of credible data and increased stewardship behavior that the true potential and vitality of citizen monitoring begins to emerge.”

-Steven Hubbell, Colorado River Watch

To learn more:

- Elizabeth Herron
- eherron@uri.edu
- 401-874-4552
- Room 001A, Coastal Institute in Kingston, 1 Greenhouse Rd

<https://web.uri.edu/watershedwatch/>



Cape Cod Ponds Network Meeting

The History of the Orleans Blue Pages

JUDITH BRUCE

BOARD OF DIRECTORS, ORLEANS POND COALITION

The background of the slide is a photograph of a calm body of water, likely a lake or a wide river. The water is still, reflecting the sky and the surrounding landscape. In the distance, there is a dense line of green trees, possibly a forest, that stretches across the horizon. The sky is a pale, hazy blue with some light, wispy clouds. The overall tone of the image is serene and natural. A dark teal rectangular box is overlaid on the left side of the image, containing the title and speaker information in white text.

The Freshwater Initiative

Tim Pasakarnis
Water Resources Analyst
Cape Cod Commission



THE FRESHWATER INITIATIVE

A science-based, information-driven planning process that will engage stakeholders and enable action to protect and restore Cape Cod's freshwater ponds.

Freshwater Initiative



REMOTE SENSING

Investigating the use of satellite-derived imagery and existing pond water quality data to quantify changes in pond characteristics



DATA MANAGEMENT AND ANALYSIS

Developing freshwater monitoring database, processing scripts for trend analyses, and accessible user interface



PHYSICAL CHARACTERISTICS

Assessing, through the use of GIS and other data sources, characteristics that may contribute to changes in water quality, and determining potential internal and external drivers of water quality degradation



PONDS AND LAKES ATLAS UPDATE

An update to the Cape Cod Ponds and Lakes Atlas has been completed to serve as a resource for updated pond information and provide the basis for the Freshwater Initiative



STRATEGIES DATABASE

Developing a pond-specific strategies database that includes a range of technologies, regulatory and voluntary options, and management approaches for protecting and restoring pond water quality



ENGAGEMENT AND OUTREACH

Engaging stakeholders to develop a framework for identifying and implementing pond management strategies



ECONOMIC ANALYSIS

Quantifying the costs and benefits of pond management strategies, including the cost of no action and the impacts of degraded freshwater quality on the regional economy



LEGAL AND JURISDICTIONAL ANALYSIS

Reviewing federal and state laws relative to public and private interests in and around freshwater ponds, and identifying opportunities for local and regional action



MONITORING PROGRAM

Expanding pond monitoring to collect data necessary to support management decisions and track performance



ONGOING DATA MANAGEMENT AND ANALYSIS

Managing and maintaining accessible pond monitoring datasets and providing on-demand trend analyses through a web-based interface

Freshwater Initiative (for pond groups)



REMOTE SENSING

Coordination of secchi disk measurements with dates when relevant satellites pass over Cape Cod (ongoing).



DATA MANAGEMENT AND ANALYSIS

Continued need for data sharing. Input and feedback will be needed on the user interface, data analysis, and outputs.



PHYSICAL CHARACTERISTICS

Local knowledge will be valuable for determining characteristics to examine, such as stormwater problems, pond use, and land activities.



PONDS AND LAKES ATLAS UPDATE

Updated Cape Cod Ponds and Lakes Atlas and Ponds Viewer are available for outreach and planning.



STRATEGIES DATABASE

Information on local implementation, costs, obstacles, and level of effectiveness will enhance utility of database.



ENGAGEMENT AND OUTREACH

Some representatives from the pond network will participate in the engagement and outreach processes. Network meetings will provide opportunity to share updates.



ECONOMIC ANALYSIS

Stakeholder groups will be engaged in several elements of the economic analysis.



LEGAL AND JURISDICTIONAL ANALYSIS

Pond network representatives can help identify areas where there may be confusion regarding legal or jurisdictional questions.



MONITORING PROGRAM

All pond groups are encouraged to participate in the expanded regional monitoring program.



ONGOING DATA MANAGEMENT AND ANALYSIS

Take advantage of accessible pond monitoring datasets and on-demand trend analyses.

Cape Cod Ponds Network Meeting

ANDREW GOTTLIEB

EXECUTIVE DIRECTOR
ASSOCIATION TO PRESERVE CAPE COD

oneCAPE

AUGUST 1-2, 2022

