



Locustville Pond

URI Watershed Watch Perspective



Topics to be covered

- URIWW - Briefly
- Locustville Pond WQ
- Accessing data
- Next steps / future opportunities





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

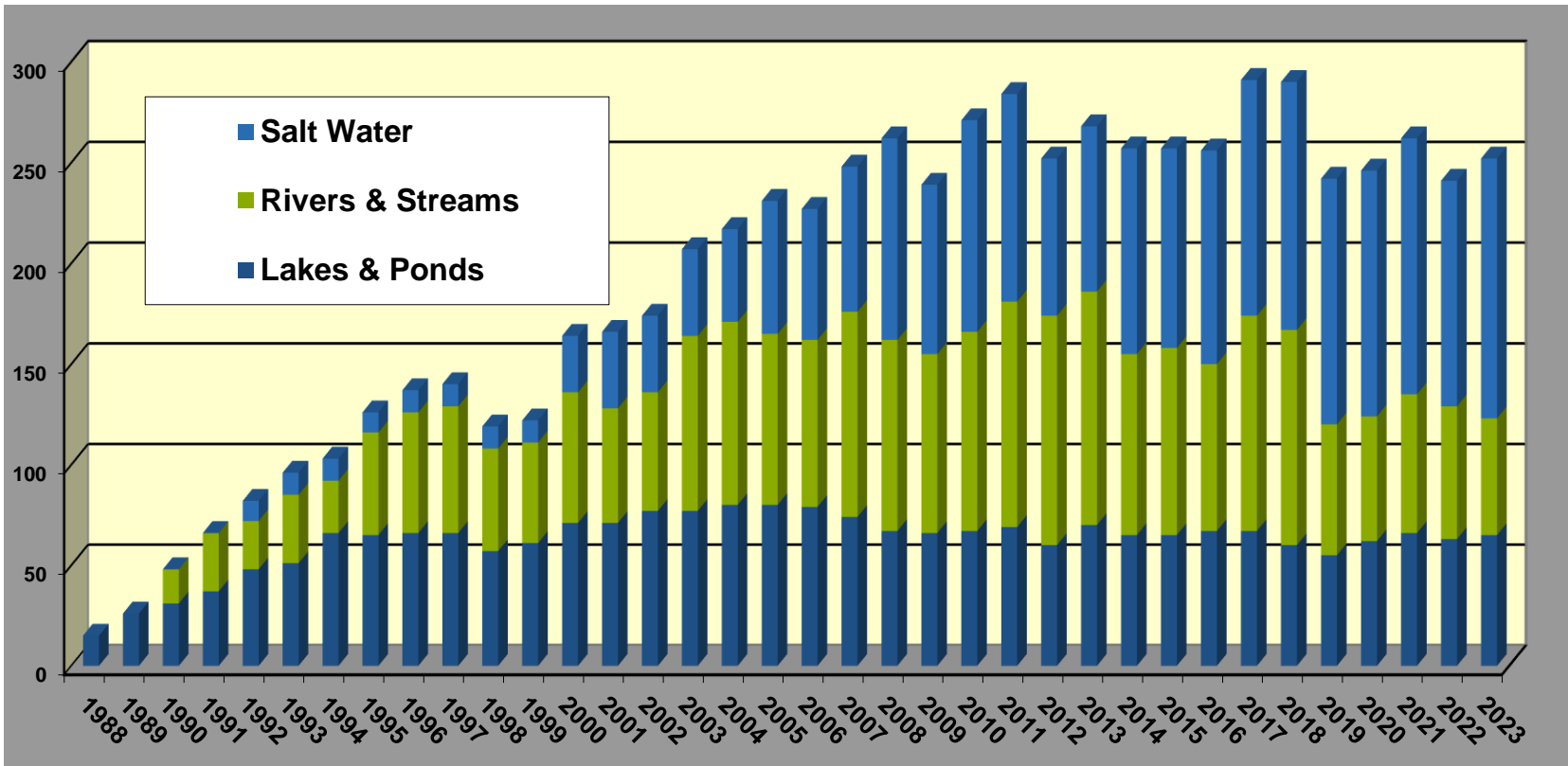


<https://web.uri.edu/watershedwatch/>

More than 725 sites have been monitored since 1988



194 lakes, 315 streams, 219 salt

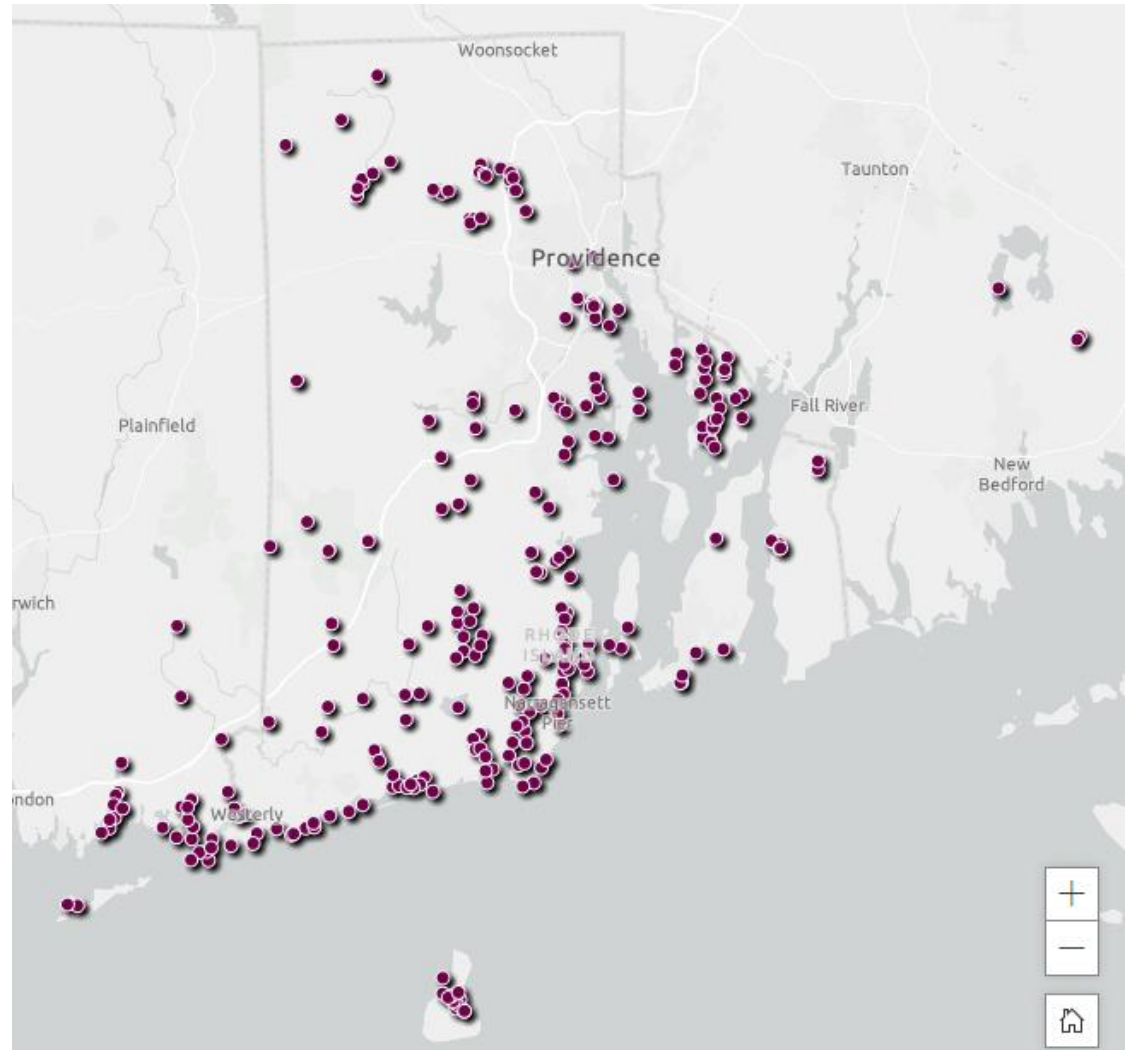
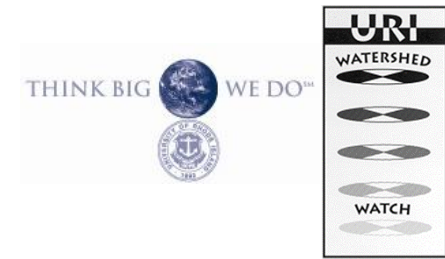


2023: 65 lakes, 58 streams, 129 salt

Scientist-led Statewide (+) Volunteer Monitoring Program

Sites throughout RI
Southeastern, CT
Fisher Island, NY (2)
Rochester, MA (2)

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



What We Monitor



Field

- Water Clarity (Secchi Depth)
- Water Temperature
- Dissolved Oxygen
- Algae (Chl-a)

Laboratory

- Nutrients
- Bacteria
- Chl-a
- pH & alkalinity
- Chlorides

STATE CERTIFIED LAB



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

2020: Monitoring Data: Use the selector panel to refine charts

2020: Preliminary Data

Monitoring has begun for the 2020 Watershed Watch season.

Use the **category selector** below to choose sites of interest either by

- Monitoring group or
- Site name

Selections made below will be reflected in the charts

Choose Monitoring Group

None

and / or choose a specific site

None

Volunteers have entered **1,394** observations this year

Noted blue green algae or discoloration by volunteers at site

10/14/2020, 11:45 AM
WW676: Little Wash Pond

Observed conditions: Blue-green algae bloom still ongoing. Water clearer at the surface but a truly funky blue-green color. No odors.

9/16/2020, 7:00 AM
WW505: Allen Cove - Inflow (Green Hill Pond trib)

Observed conditions: Regarding D.O. test: the [flocculation?] never

Poor DO content recorded (<1.9 mg/L)

18 time(s) for selected site(s)

Poor DO | Poor DO: Site list

Watershed Watch Monitoring Sites: 2020

Map of locations | Data list of locations

Secchi Depth (m) as reported for first secchi depth reading

To reduce the number of sites in this chart, select a group or specific site from the left panel of the dashboard.

Secchi Depth: date monitored | Averaged Secchi Depth: by Site

Dissolved Oxygen (mg/L) as reported for the first bottle reading at shallow depth

To reduce the number of sites in this chart, select a group or specific site from the left panel of the dashboard.

DO: Shallow reading | DO: Deep reading | Averaged DO: by Site

Temperature (degrees C) as reported for first shallow depth reading

To reduce the number of sites in this chart, select a group or specific site from the left panel of the dashboard.

Temp: Shallow reading | Temp: Deep reading | Averaged Temp: by Site



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



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

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

Training Videos

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

Hot Topics

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

Water Quality Factsheets

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

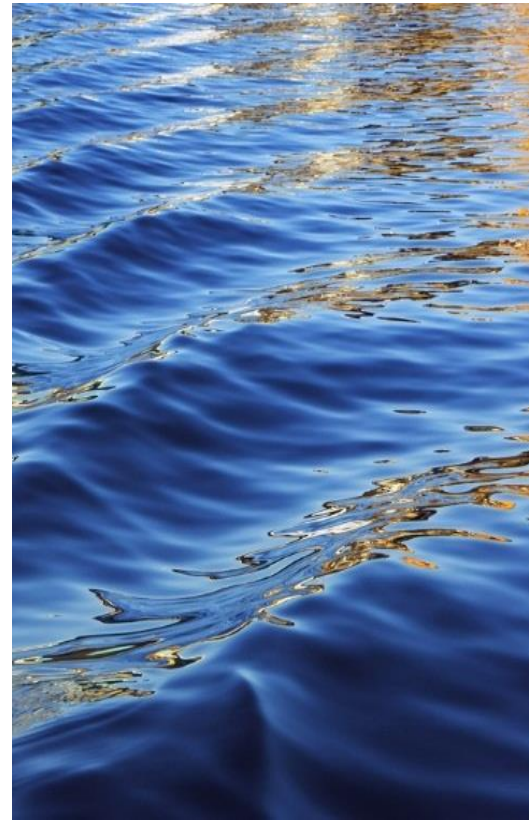
Quality Assurance

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

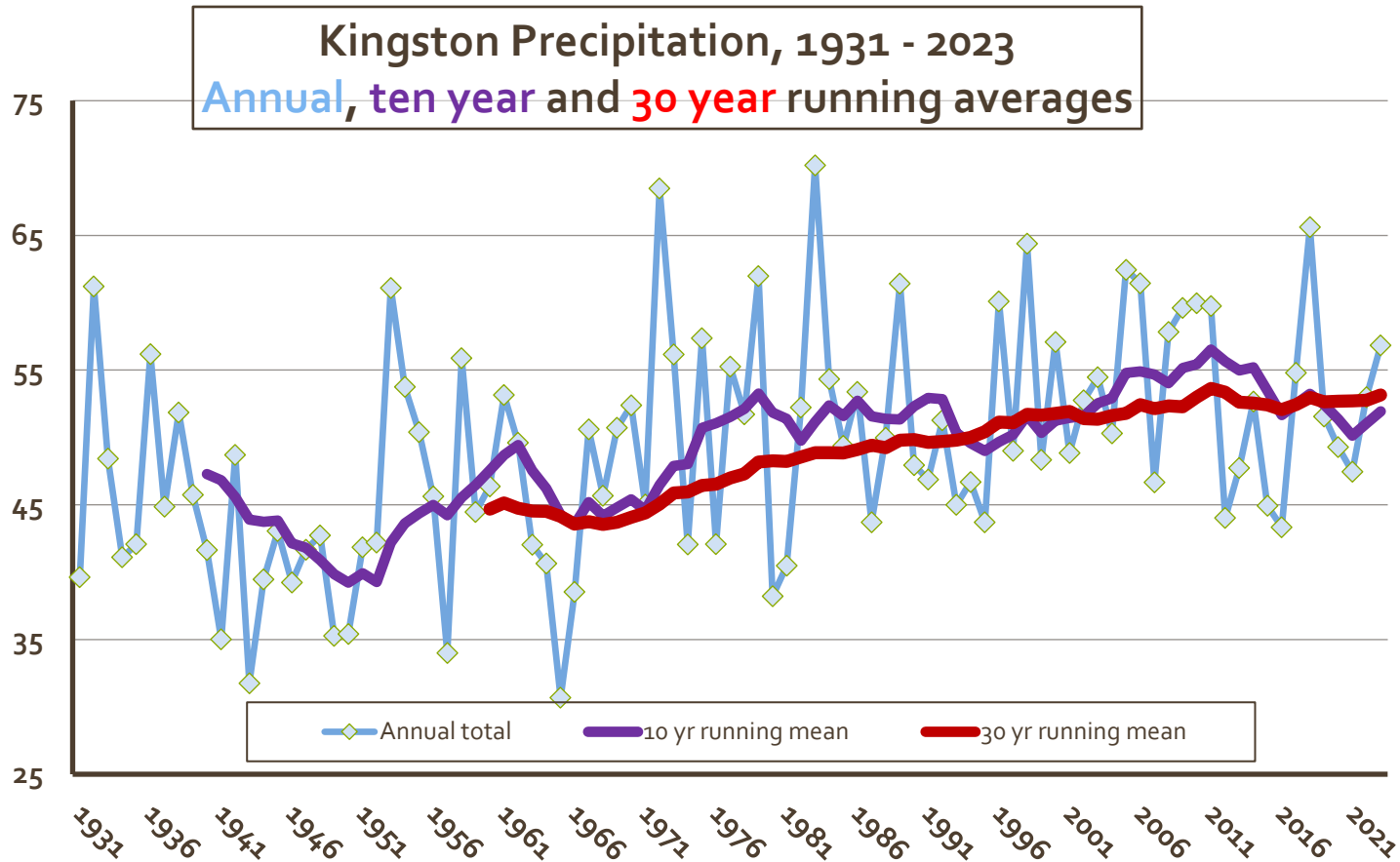


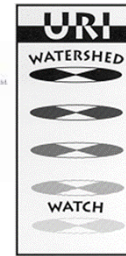
Locustville Pond Monitoring

Results URI Watershed Watch

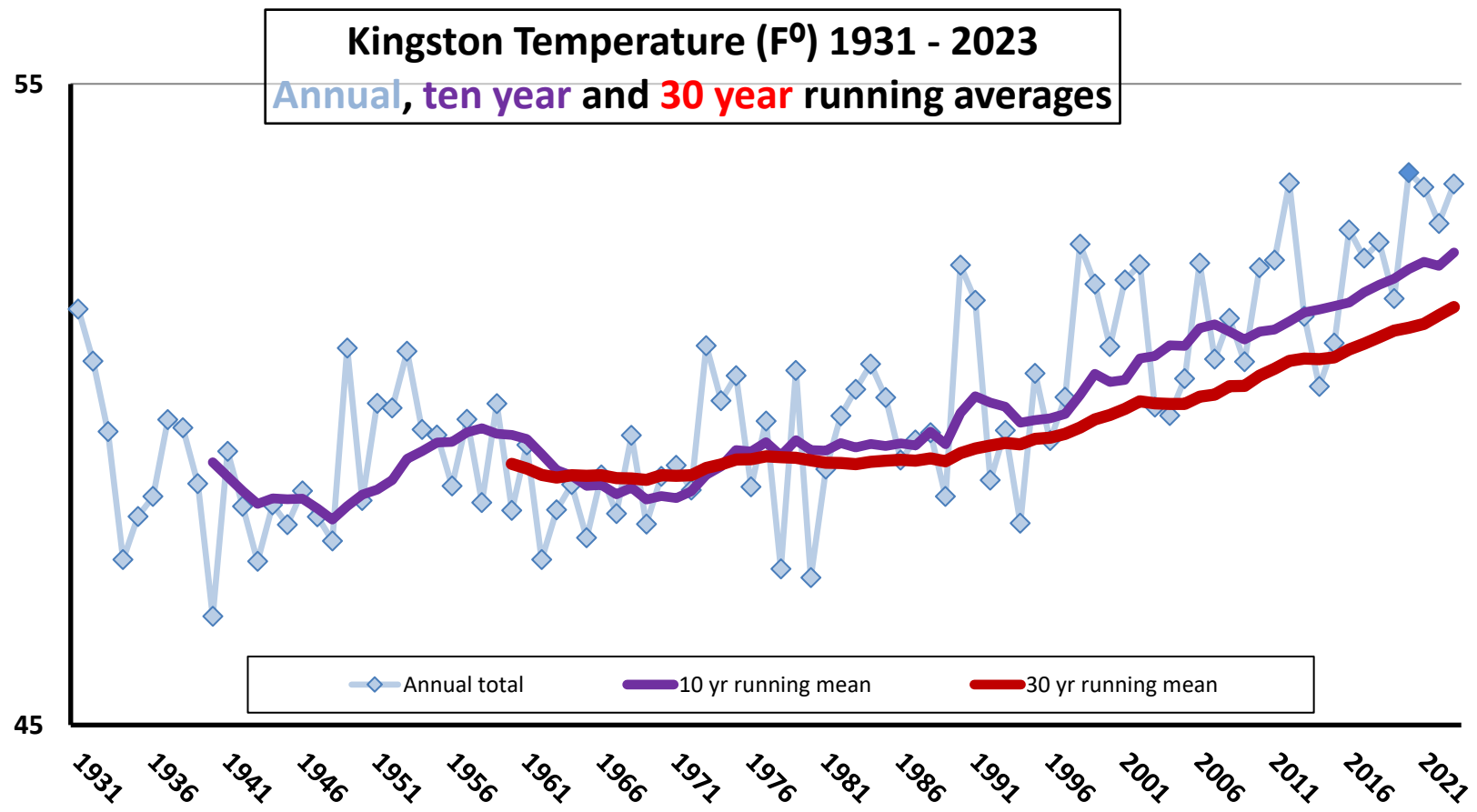


Climate and Weather Plays an Important Role in WQ





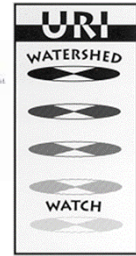
We're getting Warmer too



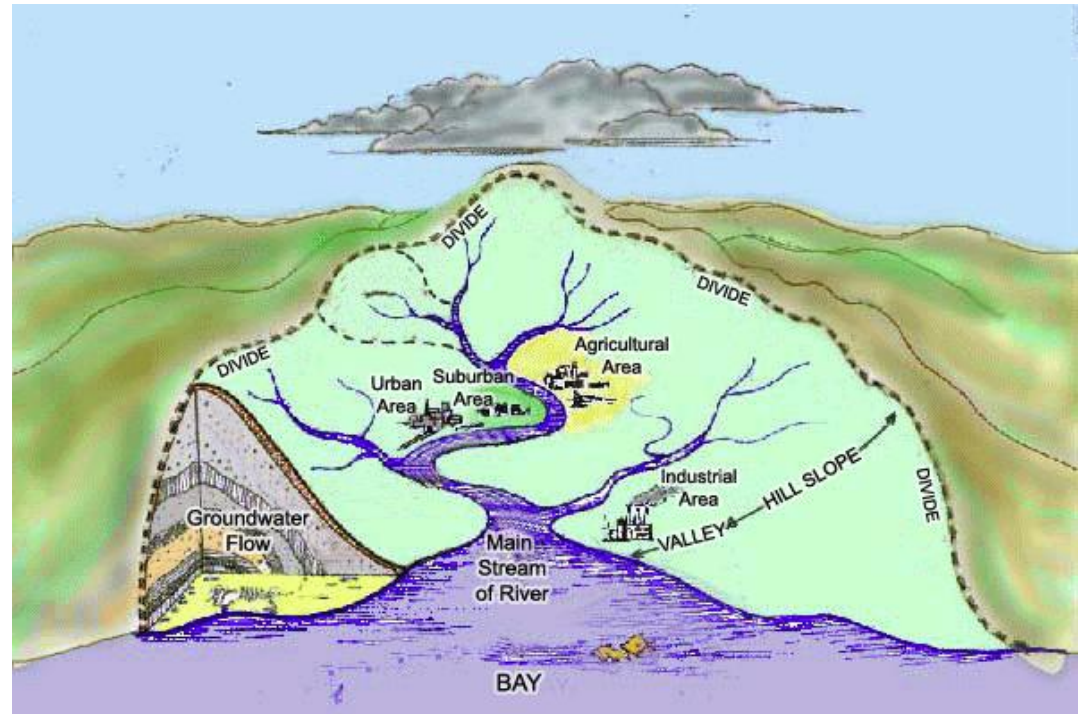
Watershed
contains all of the
land that drains to
the pond

Often includes
upstream ponds

Usually includes
areas that you
would never have
thought would
impact your pond



Watersheds Matter Too



Locustville Pond Watershed

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Watershed Landuse

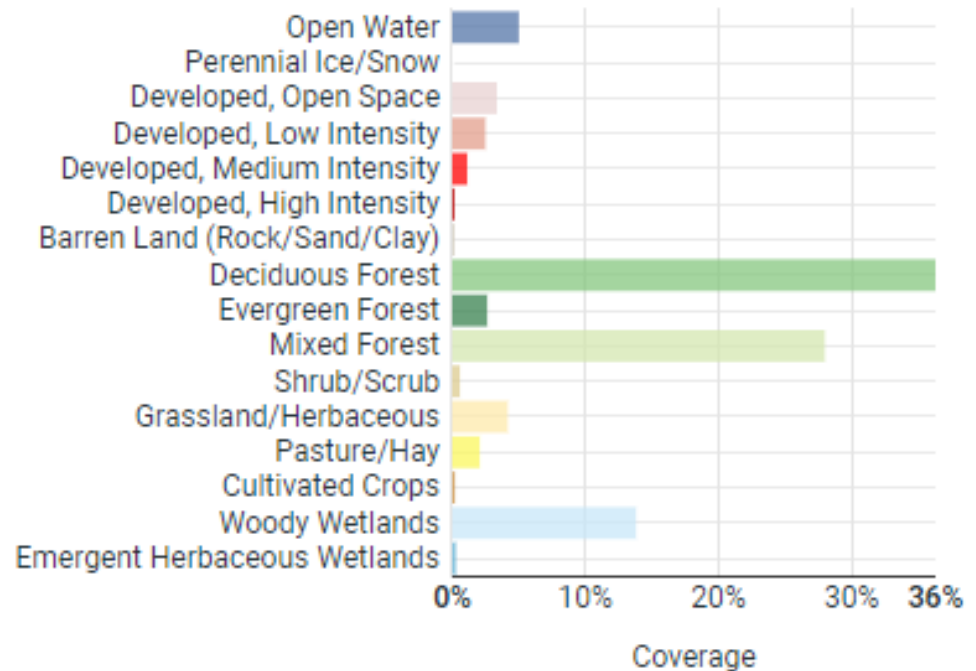
- 10% or greater impervious surface = water quality problems

Land Use/Cover 2019 (NLCD19)

Related Layer: Land Use/Cover 2019 (NLCD19) Turn on

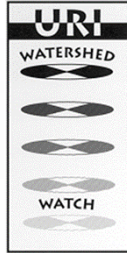
Source: National Land Cover Database (NLCD 2019) ⓘ

- Locustville
 - < 10%
- But where the developed land occurs is important



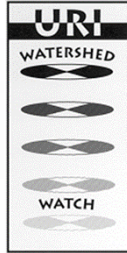
Landuse Map

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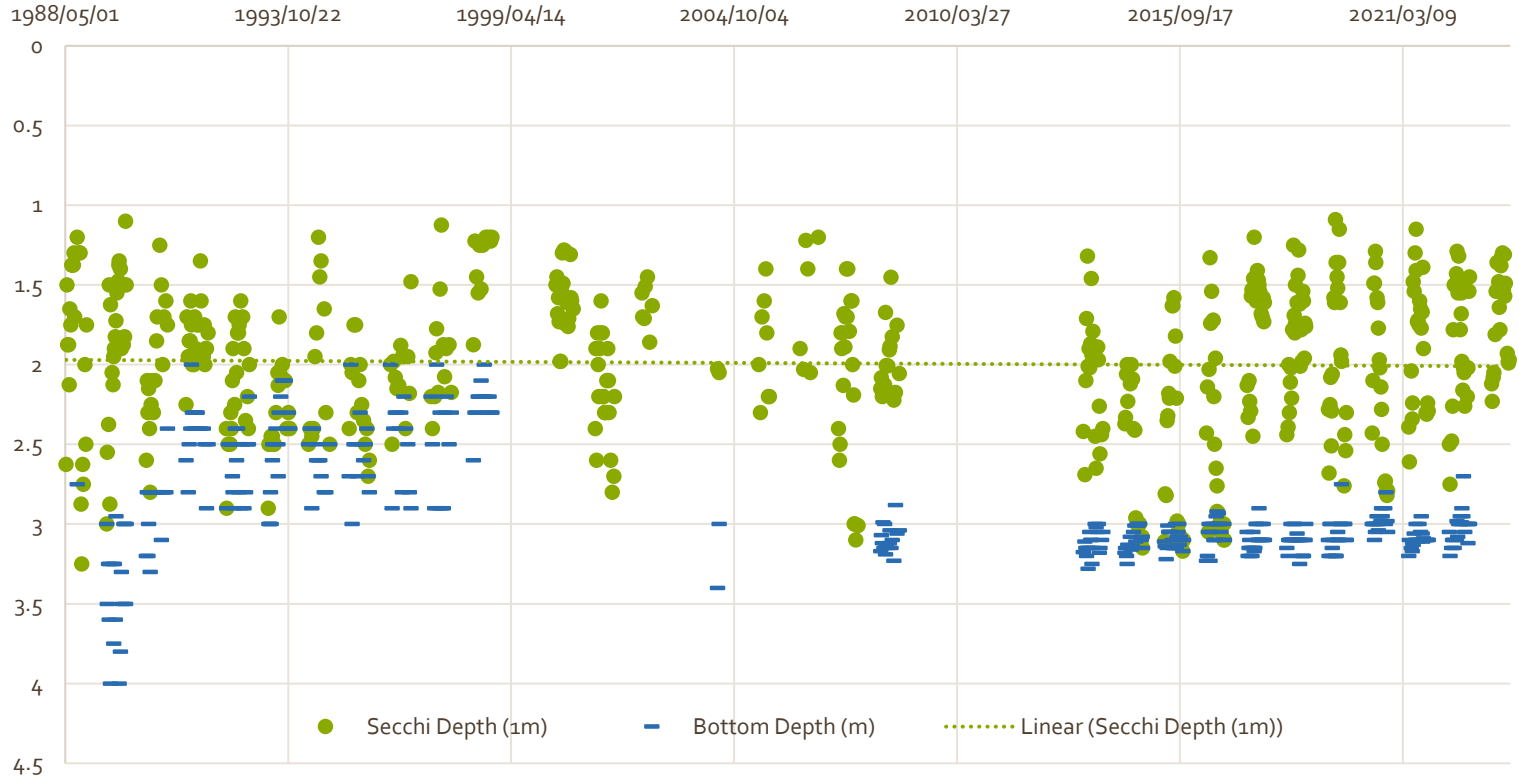


What does that mean for Locustville Pond?

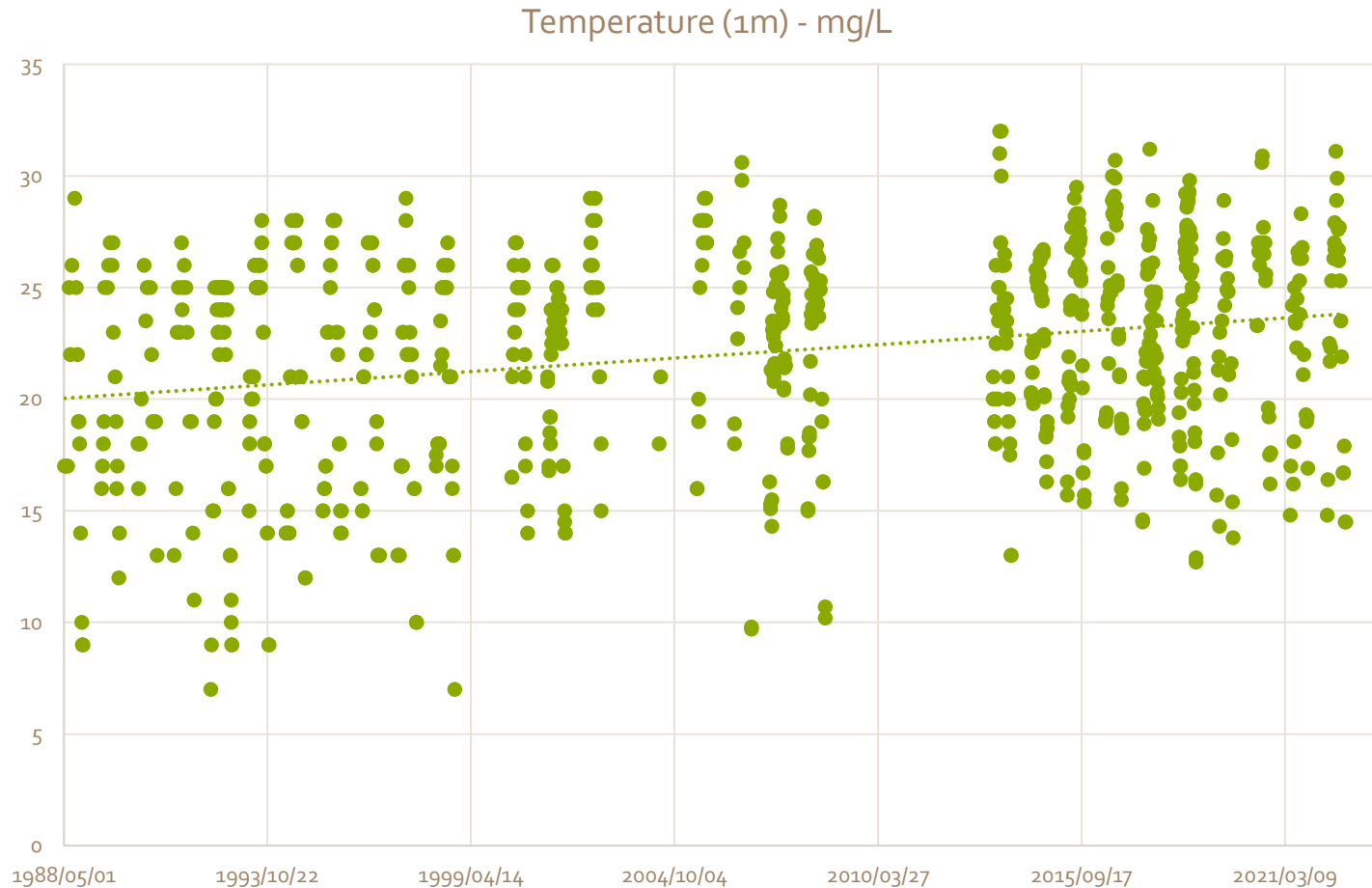
Water Clarity (1988 – 2023)



Water Clarity



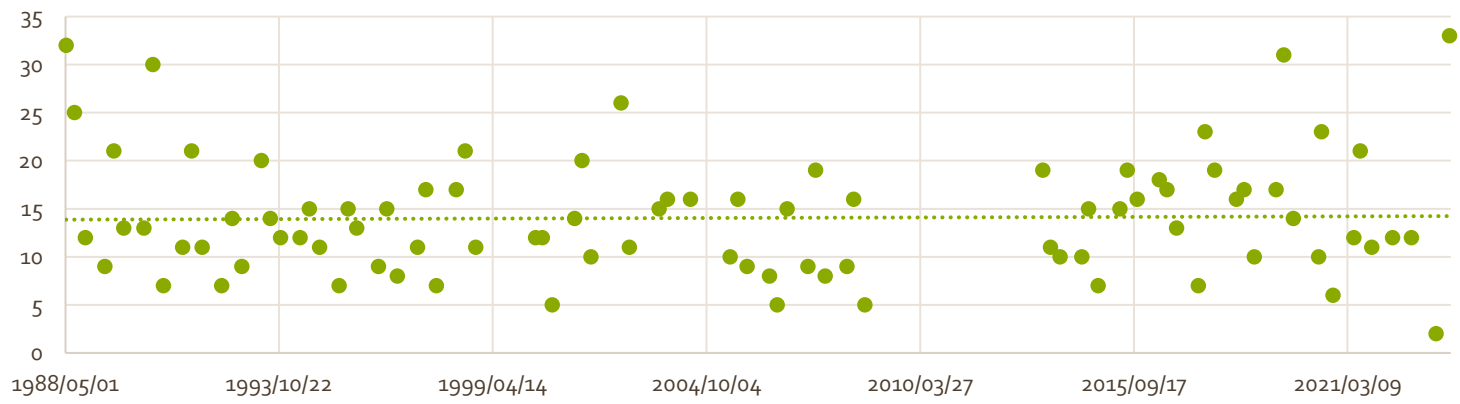
Temperature – Heating Up



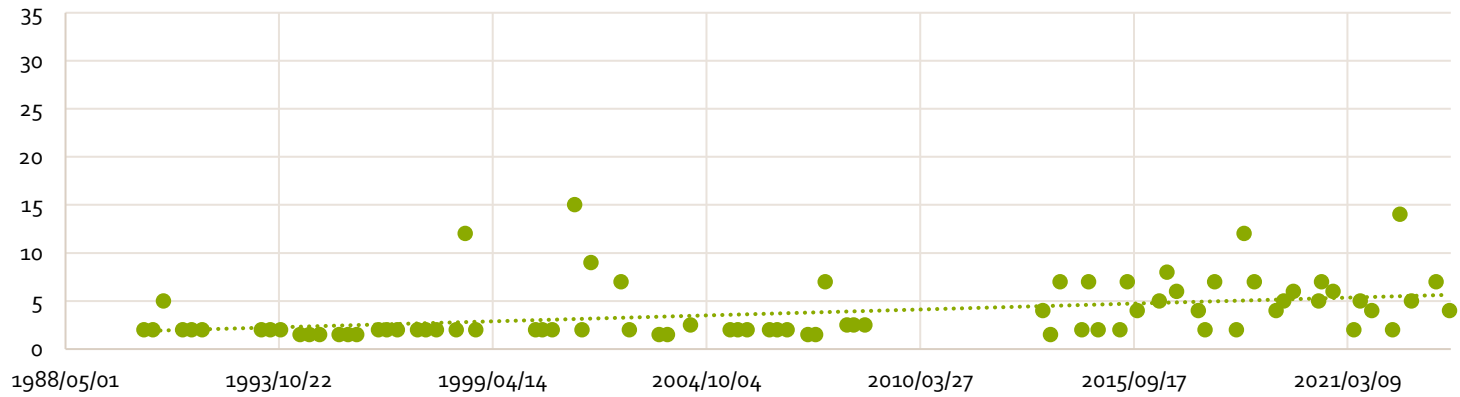


Phosphorus (Limiting Nutrient)

Total Phosphorus (1m) - ug/L



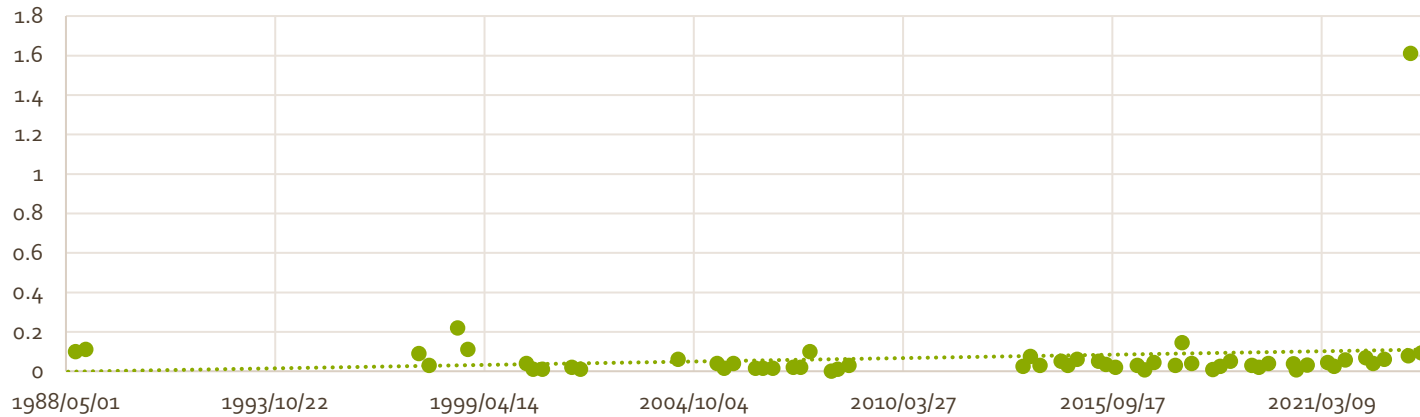
Dissolved P (1m) - ug/L



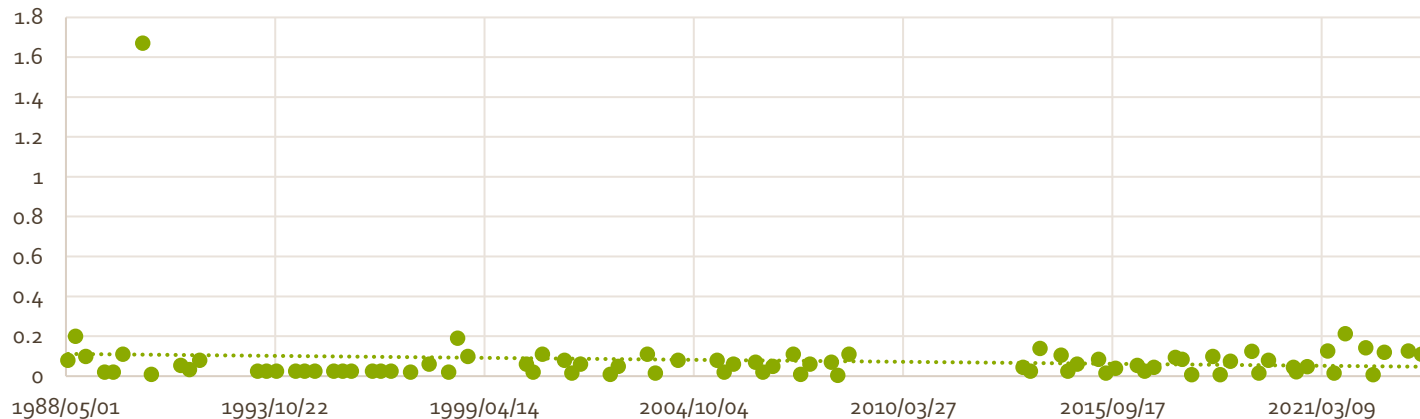


Dissolved Nitrogen

Ammonium-N (1m) - mg/L

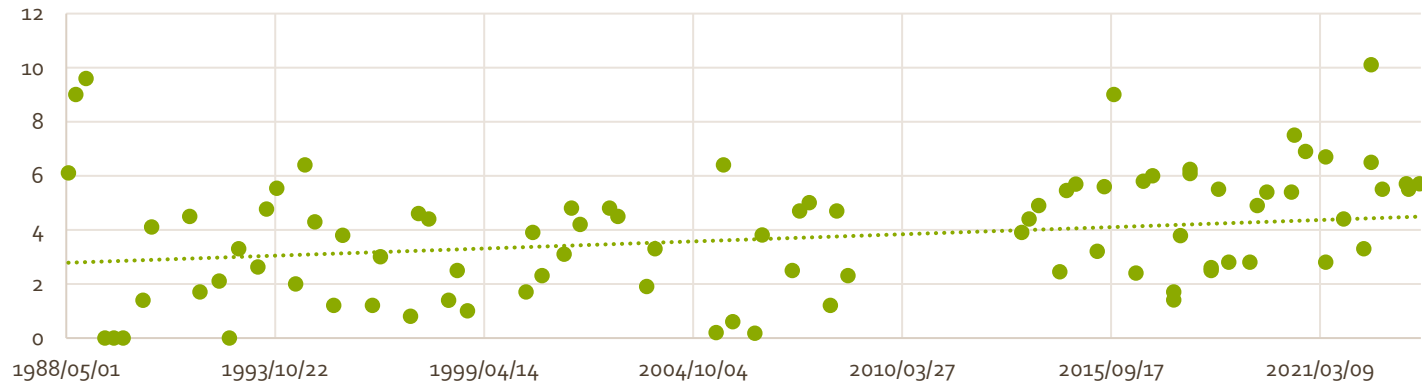


Nitrate+nitrite-N (1m) - mg/L

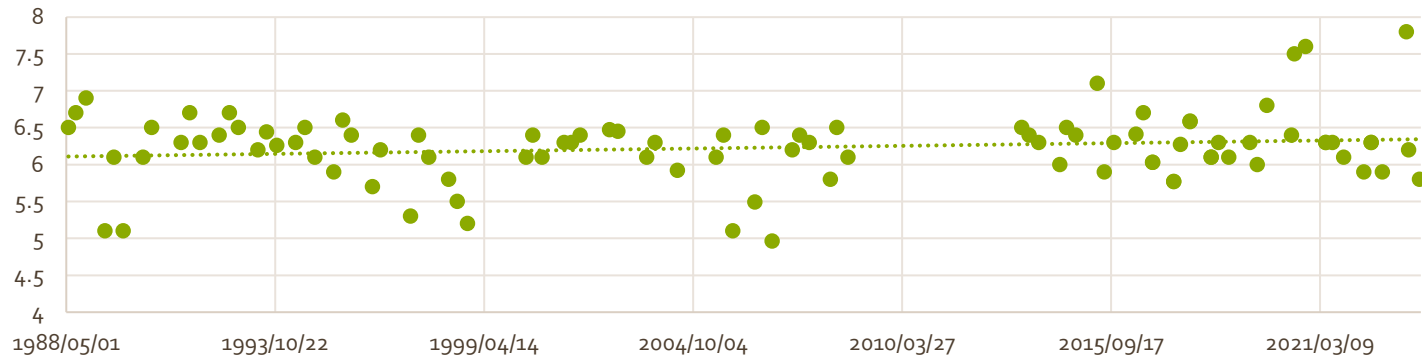


Acidity and Buffering

Alkalinity (1m) - mg/L CaCO₃

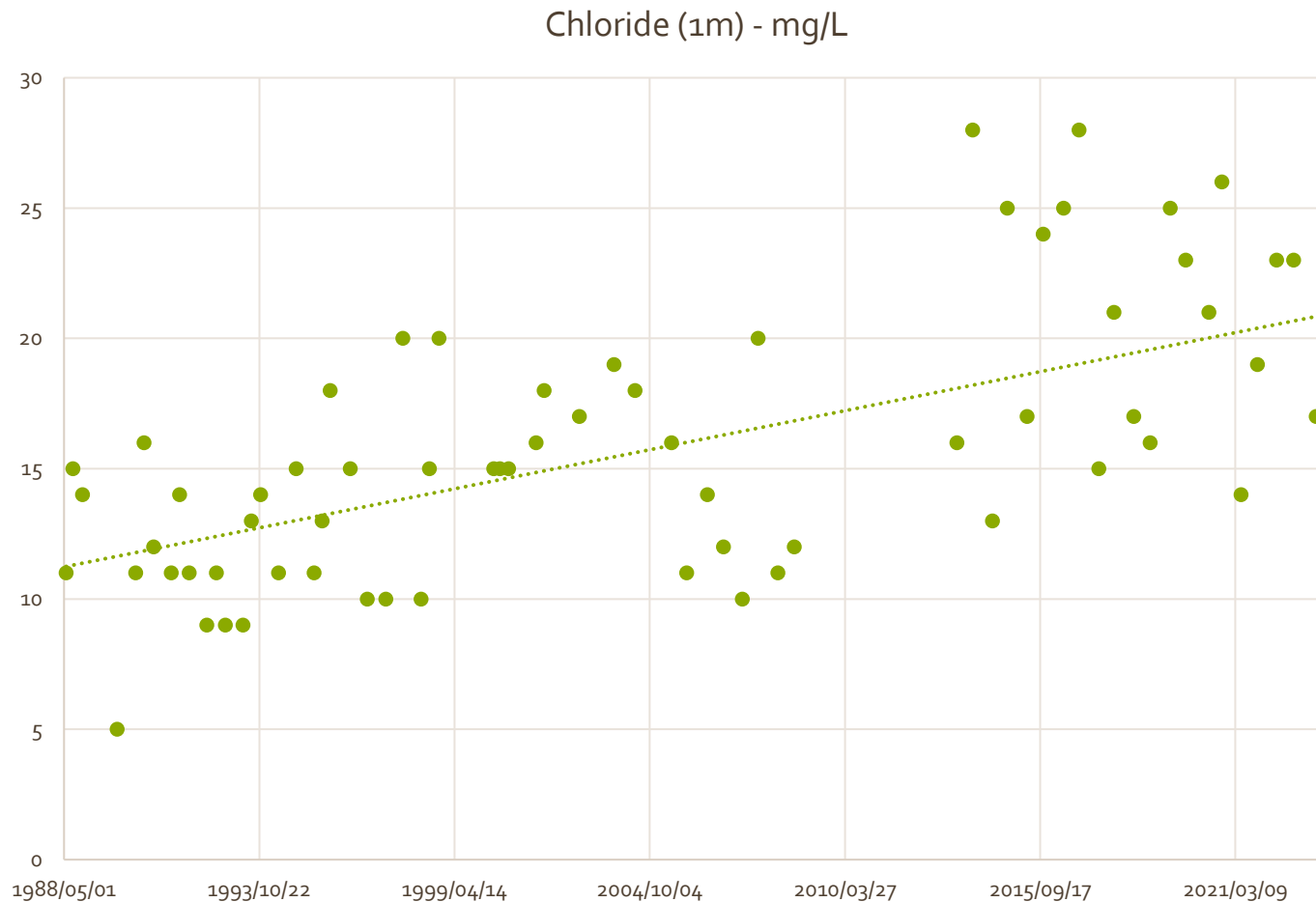


pH (1m) - SU

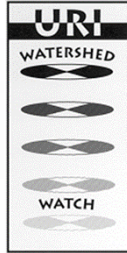




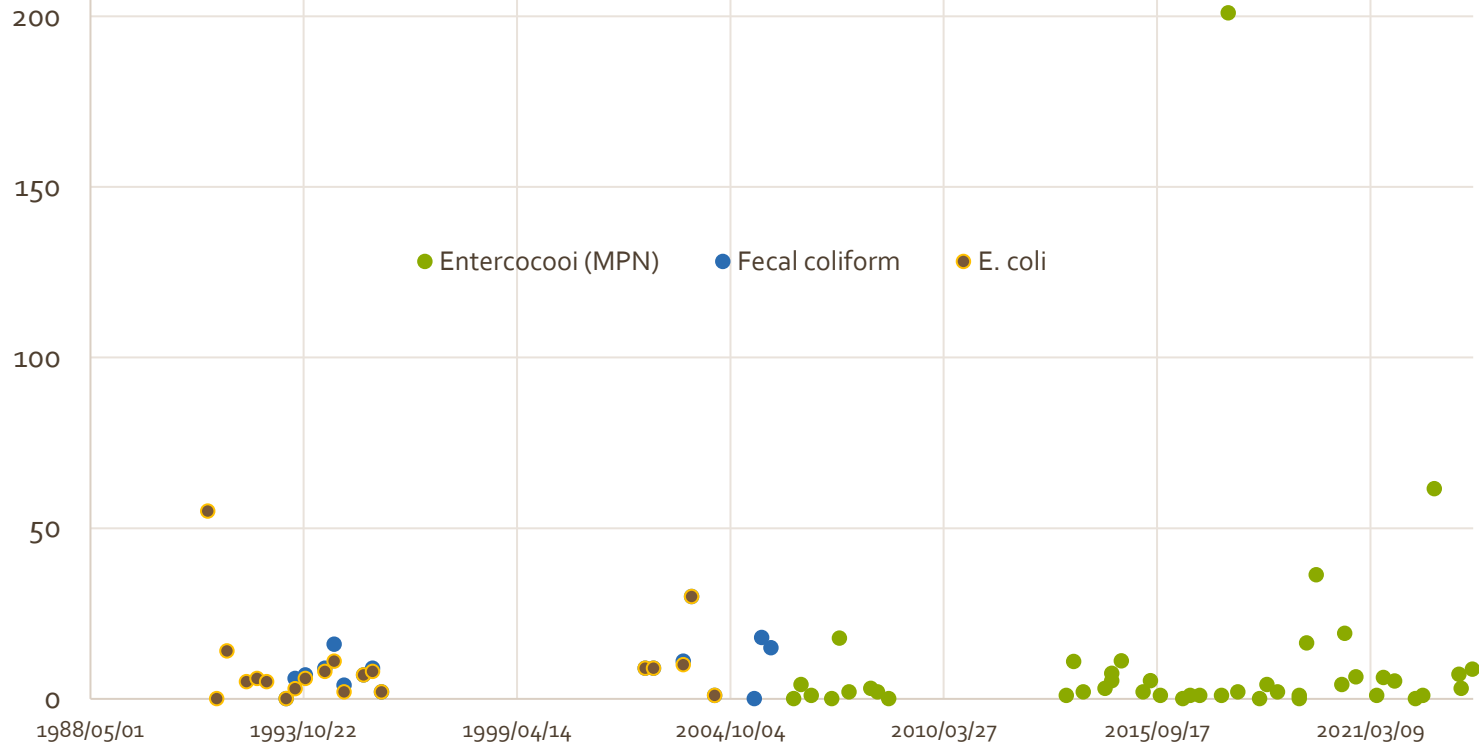
Chloride – Road salt and septics



Bacteria - Swimming



Bacteria (Number per 100 mL)





Overall Conditions and Trends

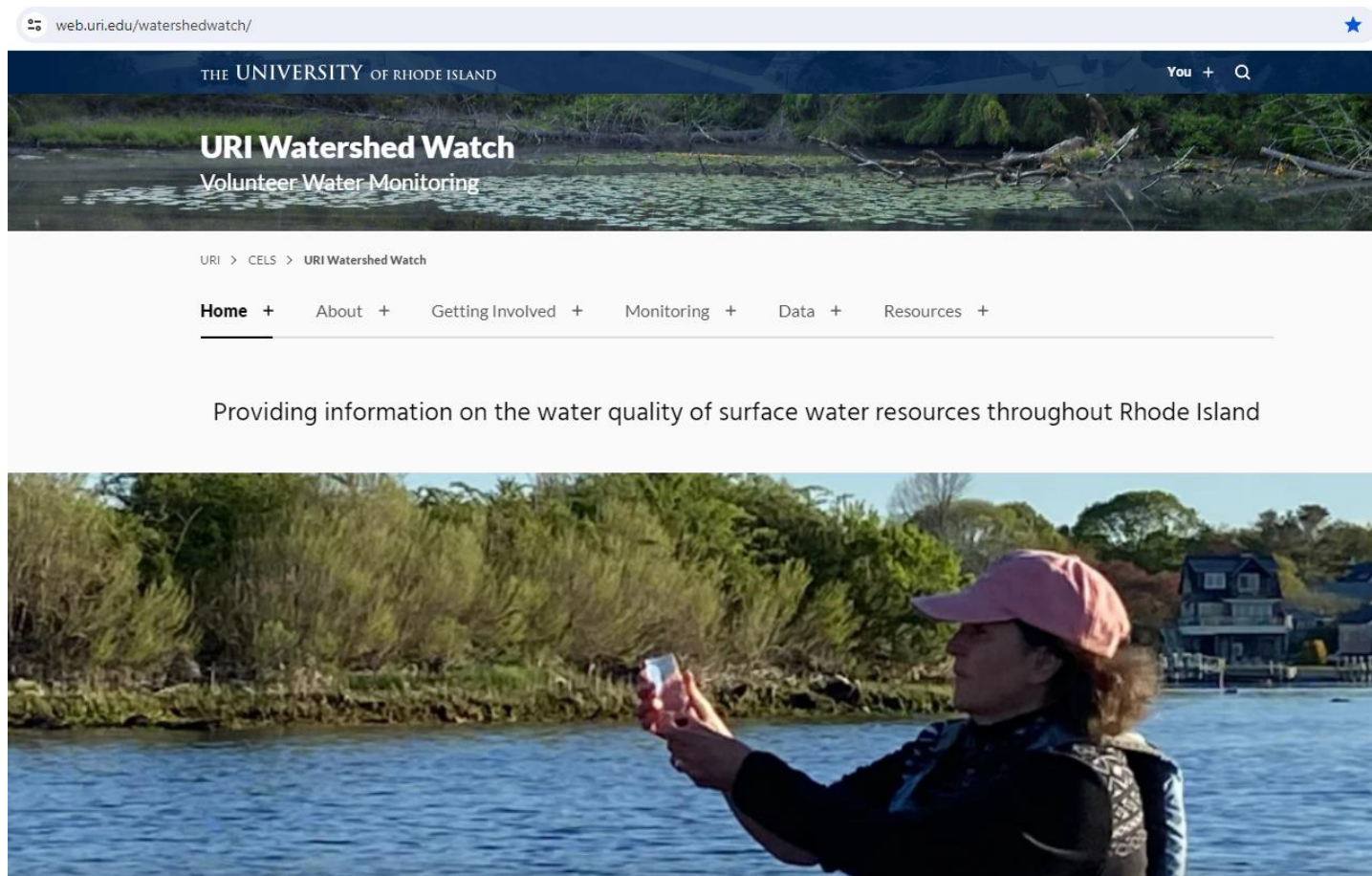
- Generally good water quality
- Increasing algae
- Driven by increases water temperatures and nutrients (N especially)
- Acidity (pH) decreasing, buffering increasing
- Chloride increasing, despite generally less winter snow/ice
- Bacteria consistently safe for swimming



URI WW Data Access

Data Access Online

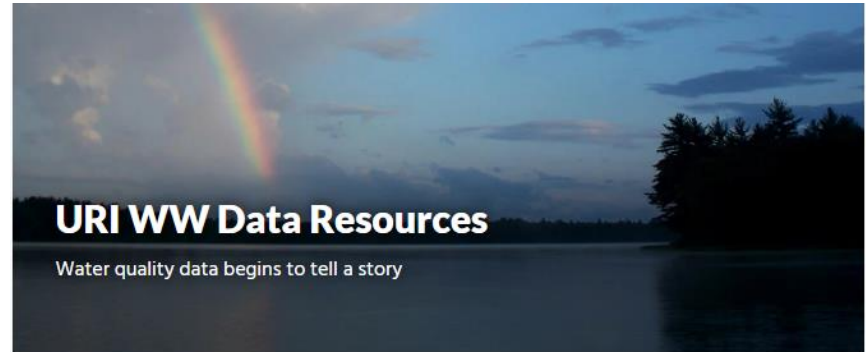
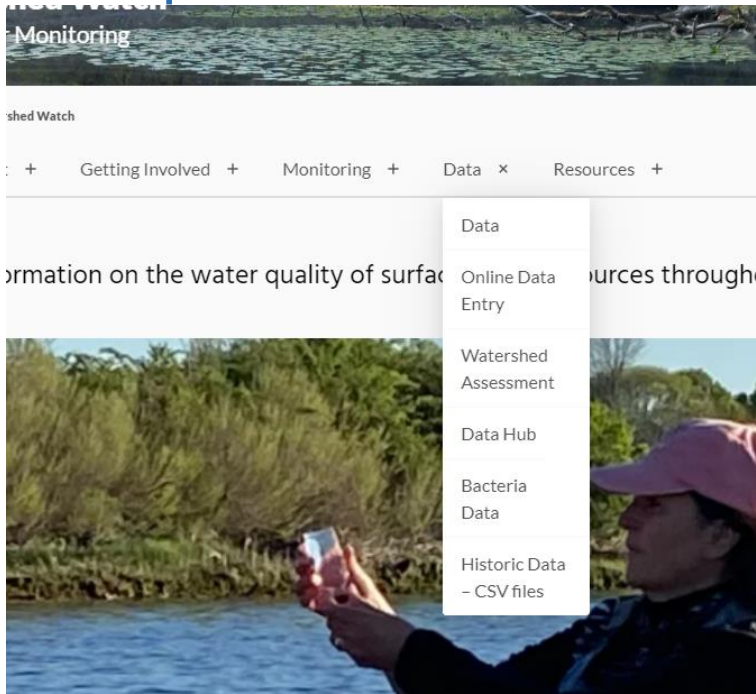
- <https://web.uri.edu/watershedwatch/>



Data Page



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



Online Data Entry

Our volunteers can enter their data online! That data will be available in our data dashboards almost immediately!

ENTER YOUR DATA →

Watershed Assessment

We have completed watershed assessment maps for 49 lakes in the URI WW program

BROWSE STORY MAPS AND SPECIFIC MAPS →

Current Data

We have been updating our systems and data organization. We provide provisional 2023 data links to select data shortly after analysis and reporting.

BROWSE DATA →

Historic Data

We are proud of our long history of water quality data in Rhode Island. This data helps us to detect trends in water quality over time.

BROWSE DATA →

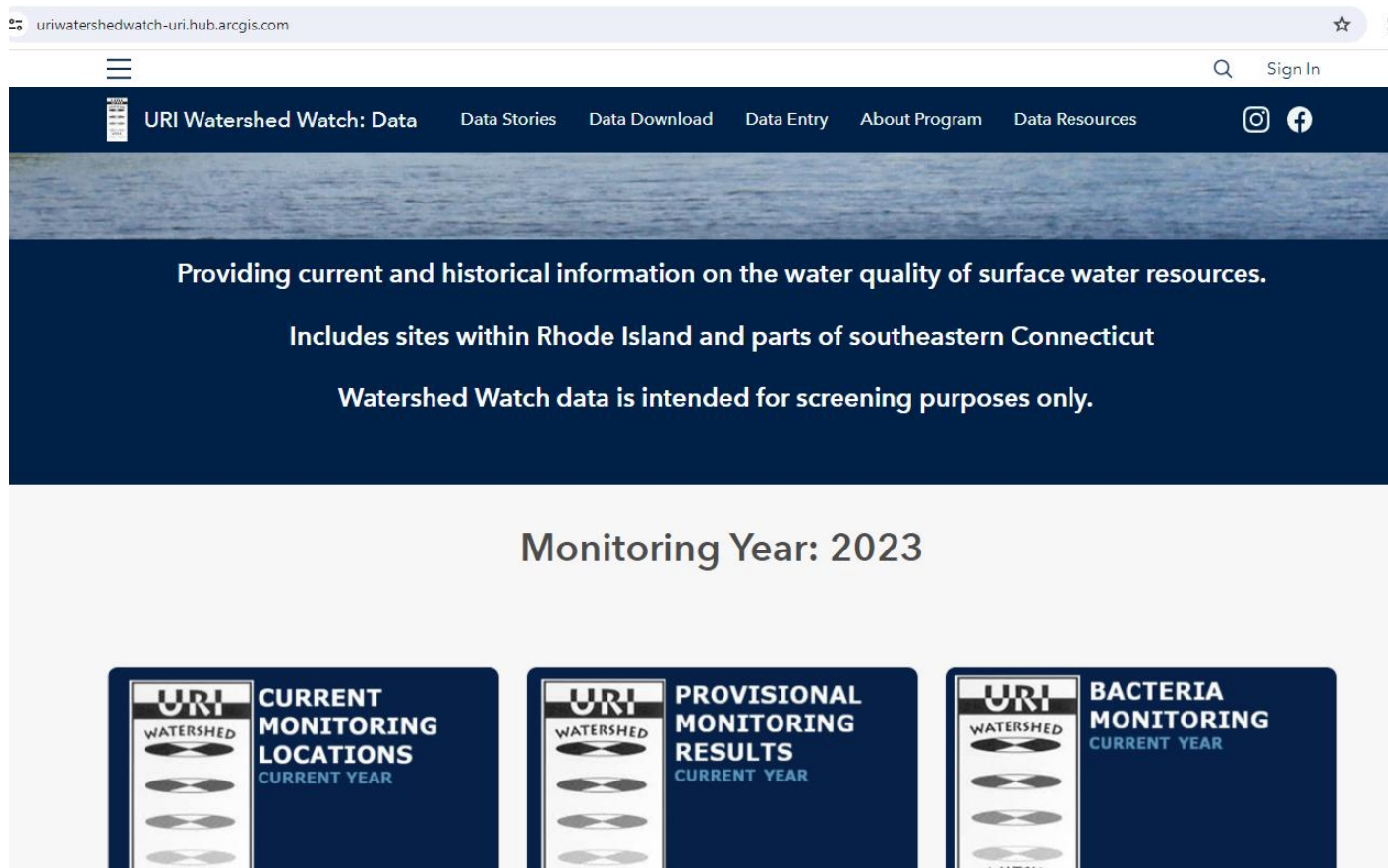
Bacteria Data

We strive to provide bacteria data within a week of analysis. Our data are very valuable for targeting areas of concerns and for tracking potential sources of bacterial contamination.

Data Hub



- <https://uriwatershedwatch-uri.hub.arcgis.com/>



Provisional Data

<https://www.arcgis.com/apps/dashboards/23e1c97295614c13b17cf1979e2e08ec>

← → ↻ 📄 arcgis.com/apps/dashboards/23e1c97295614c13b17cf1979e2e08ec ☆ 📄 📄 📄 📄 📄

2023 Monitoring Data (Provisional) Use the selectors below to refine charts

2023: Preliminary Data

Monitoring has begun for the 2023 Watershed Watch season.

Please be patient as monitoring data loads into the app.

Use the **category selector** below to choose sites of interest either by

- Monitoring group or
- Site name

Selections made below will be reflected in the charts

Filter by date
1/1/2023 - 12/31/2023

Choose Monitoring Group
Click to Select Group

and / or choose a specific site
Click to select from list

2,196

Observations entered

Noted blue green algae or other concerns by volunteers at site

10/20/2023, 10:00 AM
WW025: Mashapaug Pond

Observed conditions: light algae on surface at edges of pond -- not the cottage-cheesy clumps of some past years.

10/19/2023, 11:03 AM
WW065: Woonasquatucket Reservoir (Stump Pond)

Observed conditions: Less algae than lat week

10/6/2023, 9:30 AM
WW037: Roger Williams Park

52

time(s) for selected site(s)

Poor DO is <1.9 mg/L

Map: 2023 | Data: most recent obs

Dissolved Oxygen (mg/L)

as reported for the first bottle reading at shallow depth

Good
Low

Dates Sampled

To reduce the number of sites in this chart, **select a group or specific site** from the left panel of the dashboard.

Secchi Depth (m)

as reported for first secchi depth reading

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Secchi Depth: date monitored | Averaged Secchi Depth: by Site

Temperature (degrees C)

as reported for first shallow depth reading

Date Sampled

To reduce the number of sites in this chart, **select a group or specific site** from the left panel of the dashboard.



Data Download

- <https://web.uri.edu/watershedwatch/data/historic-data/csv-data-files/>

The screenshot shows the website page for downloading historic data. The header includes the URI logo and the text 'URI Watershed Watch Volunteer Water Monitoring'. The breadcrumb trail is 'URI > CELS > URI Watershed Watch > Data > Historic Data > csv data files'. A navigation menu contains 'Home + About + Getting Involved + Monitoring + Data + Resources +'. The main content area explains that annual data are provided in CSV files and provides a link for site information. It also lists the years for which data is available: 1988-Lakes, 1988-Rivers, 1988-All, 1989-Lakes, 1989-Rivers, 1989-All, 1990-Lakes, 1990-Rivers, 1990-All, 1991, 1992, 1993, 1994, 1995, and 1996.

Data Visualization

- Always trying to find better ways of sharing information
- Working with local organizations to develop shared tools
 - Save The Bay
 - Salt Pond Coalition
 - Coastal Institute
 - Narragansett Bay Estuary Program
- What questions do YOU want answered?
- How can we usefully show you the data?
- Are we missing anything?

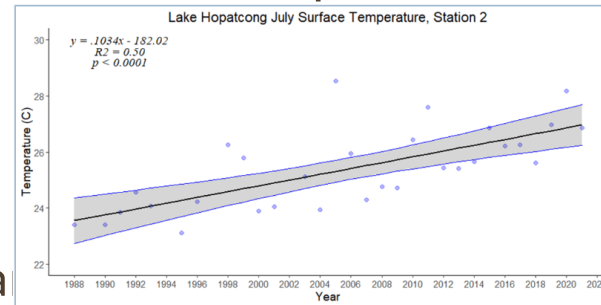
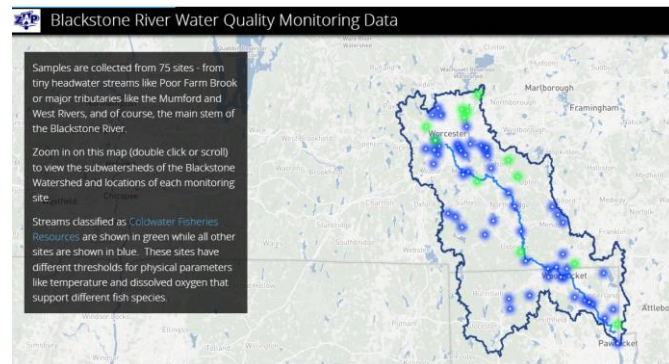


Figure 1: Long-term, July surface water temperatures at the mid-lake sampling station at Lake Hopatcong, New Jersey. The shaded area between the blue lines represents the upper and lower 95% confidence intervals.



Questions/discussion

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