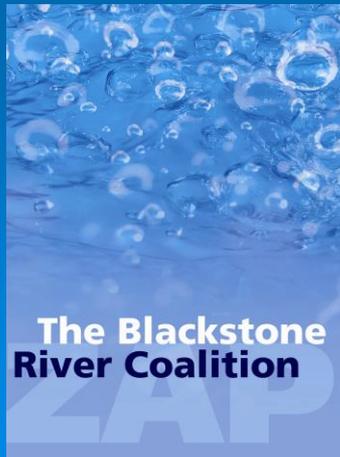


Blackstone River Coalition Watershed-wide Volunteer Water Quality Monitoring Program

WQM Summit and Volunteer Appreciation Breakfast

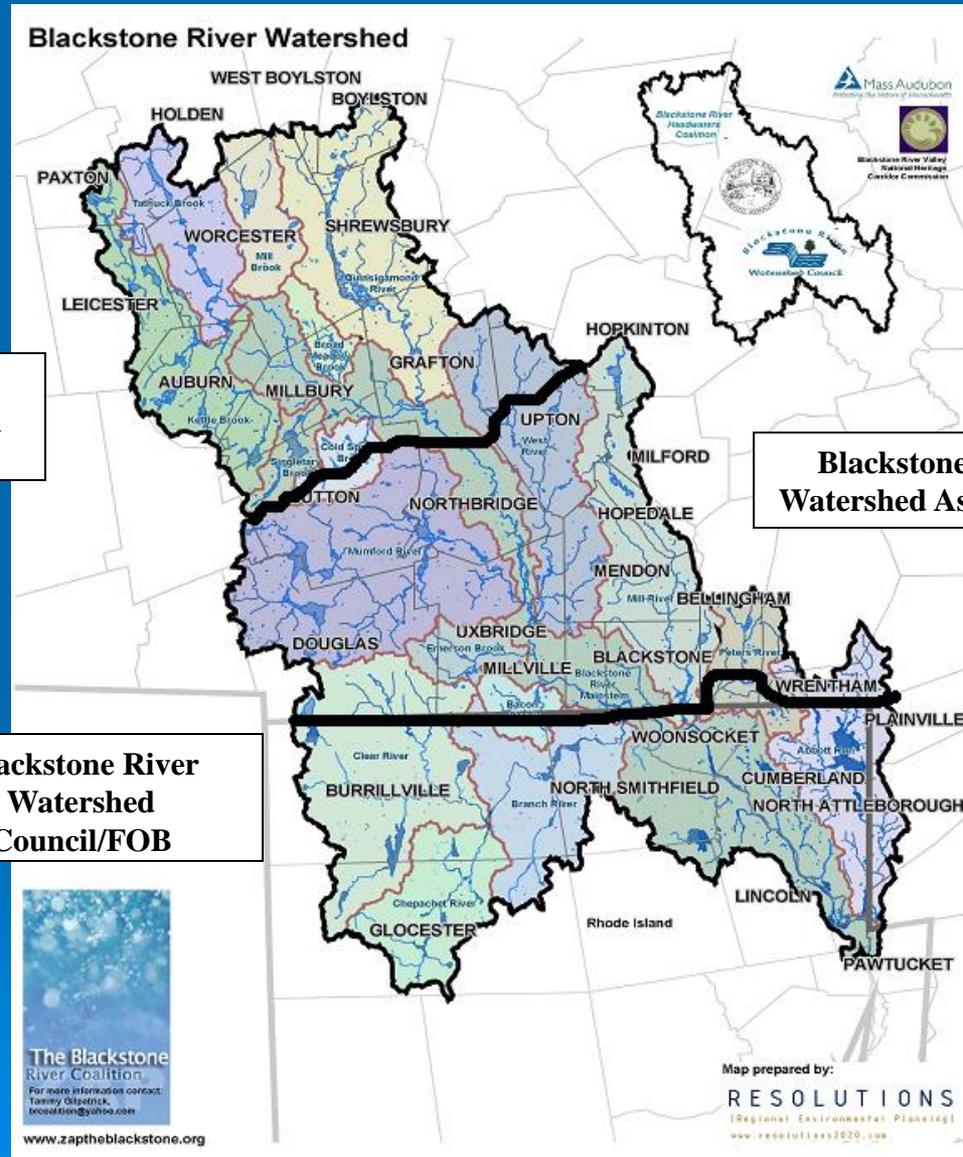
March 21, 2015



AGENDA

- 9:15 am Sign-in – coffee and pastry
- 9:30 am Welcome and Introductions by Rachel Calabro, President, BRC
- 9:45 – 10:30 am Overview of 2014 Report Card by Susan Thomas; Volunteer Thank You
- 10:30 – 11:30 am Fisheries of the Blackstone River Watershed: Status and Research by Richard Hartley, Fisheries Biologist, Mass DEP
- 11:30 – 12:00 pm BRC's Campaign for a Fishable Swimmable Blackstone: Next Steps by Peter Coffin, BRC Coordinator

Watershed-wide



**Blackstone River
Headwaters Coalition**

**Blackstone River
Watershed Association**

**Blackstone River
Watershed
Council/FOB**

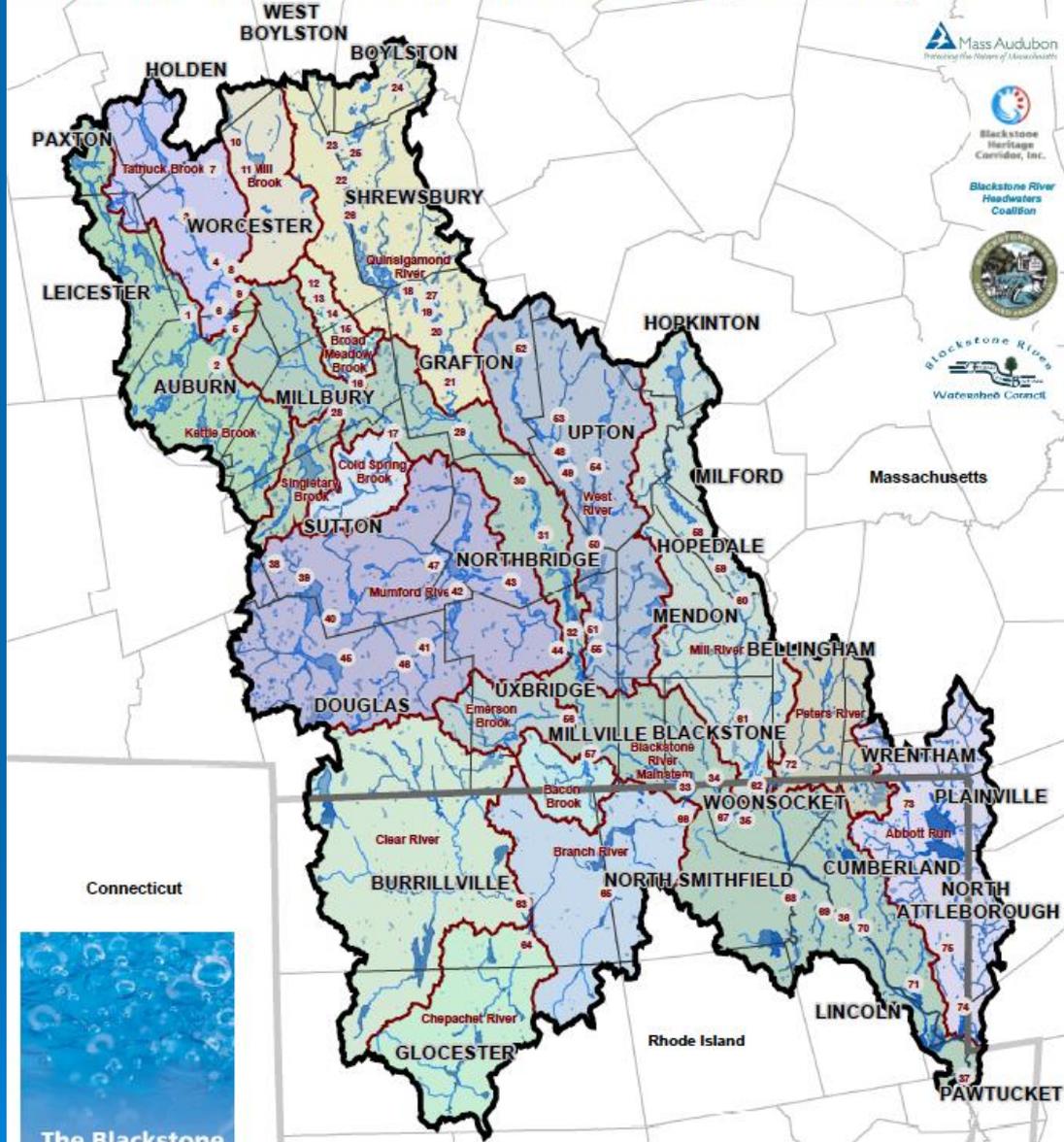
**The Blackstone
River Coalition**
For more information contact:
Tammy O'Spatic,
tcoalition@zaphob.com
www.zaphob.com



Volunteers & Sites

- **75 Sites/ 85 Volunteers**
- Blackstone Headwaters Coalition
 - 30 Sites
 - 38 Field and Lab Volunteers
- Blackstone River Watershed Association
 - 28 Sites
 - 28 Field and Lab Volunteers
- Blackstone River Watershed Council
 - 17 Sites
 - 19 Field and Lab Volunteers

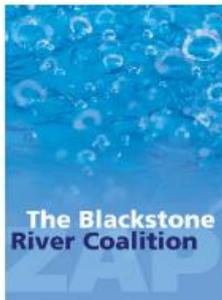
Blackstone River Watershed 2014 Water Quality Monitoring Sites



Blackstone River
Headwaters
Coalition



Blackstone River
Watershed Council



For more information email
info@zaptheblackstone.org

www.zaptheblackstone.org

This program is funded in part by Mass Audubon.

LandVest®

This map was produced by
James DeNormandie, LandVest.

Parameters

- Water temperature
- Air temperature
- Dissolved oxygen
- Turbidity
- Orthophosphate
- Nitrate
- Conductivity



Report Card Development

- Raw data color coded by parameter according to water quality index
- Six categories established
 - Aesthetics – turbidity, water appearance, water odor and visual assessment of turbidity
 - Water Temperature
 - Dissolved Oxygen
 - DO % Saturation
 - Nutrients – nitrate and orthophosphate

Report Card Notations

- *cwf = designated a cold water fishery
- ** = no-flow conditions during one or more sampling events
- June was considered a wet weather event for sites in Massachusetts and Rhode Island

HW Cold Water Fisheries

- June – August were temp-stressed for most sites especially Tatnuck at Park Ave. and Sewell at Holden St.
- These sites showed a concern in shoulder months as well.
- Sewell at Holden was **poor** for DO and % saturation; Tatnuck at Park Ave. also had low levels.

Nutrients in Headwaters

- Most sites were **good** for total phosphorous levels. A handful were **fair**.
- **Poor** Sites:
 - Beaver Brook at Park Ave.
 - Broad Meadow Brook at Dunkirk
 - Coal Mine Brook
 - Poor Farm Brook

Blackstone River Coalition
Watershed-wide Volunteer Water Quality Monitoring Program
Report Card for 2014 Monitoring Season

| map # | WaterBody | Site Location | Town | Aesthetics | Temp. | DO | % Sat. | Nutrients | |
|-------------------------|----------------------------------|------------------------------|-------------|------------|-------|----|--------|-----------|--|
| BLACKSTONE RIVER | | | | | | | | | KEY TO COLOR CODES <div style="text-align: center;"> Excellent Good Fair Poor Not Enough Data </div> |
| 29 | Blackstone River | Fisherville Pond Outlet/122A | Grafton | | | | | | |
| 30 | Blackstone River | Sutton St. USGS flow station | Northbridge | | | | | | |
| 31 | Blackstone River | Plummer's Landing | Northbridge | | | | | | |
| 32 | Blackstone River | Tow path / Stanley Woolen | Uxbridge | | | | | | |
| 33 | Blackstone River | Upstream @Gorge/ Staples | Blackstone | | | | | | |
| 34 | Blackstone River | Main St. Blackstone/TKO | Blackstone | | | | | | |
| 35 | Blackstone River | River Island Park | Woonsocket | | | | | | |
| 36 | Blackstone River | Below Albion Dam | Lincoln | | | | | | |
| 37 | Blackstone River | Slater Mill | Pawtucket | | | | | | |
| TRIBUTARIES | | | | | | | | | Categories <i>(Each category is derived from the combination of the following factors)</i> Aesthetics - turbidity, water appearance, water odor & visual assesments Temp. - temperature DO - dissolved oxygen % Sat. - dissolved oxygen % saturation Nutrients - nitrate & orthophospate |
| 38 | Mumford River | Hotel Pond Outlet | Sutton | | | | | | |
| 39 | Mumford River | L. Manchaug Inlet | Sutton | | | | | | |
| 40 | Mumford River | L. Manchaug Out./Parker Rd | Sutton | | | | | | |
| 41 | Mumford River | Gilboa Street/above WWTP | Douglas | | | | | | |
| 42 | Mumford River | Lackey Dam | Uxbridge | | | | | | |
| 43 | Mumford River | Northbridge Middle School | Uxbridge | | | | | | |
| 44 | Mumford River | Downstream @Depot Street | Uxbridge | | | | | | |
| 45 | unnamed tributary | Whitin Reservoir Outlet | Douglas | | | | | | |
| 46 | Centerville Brook ^{CWT} | West Street | Douglas | | | | | | |
| 47 | Cook Allen Brook ^{CWT} | Upstream of bridge/Johnson | Sutton | | | | | | |
| 48 | West River ^{CWT} | Hartford Avenue | Upton | | | | | | |
| 49 | West River ^{CWT} | Pleasant and Glen | Upton | | | | | | |
| 50 | West River ^{CWT} | Mendon Road | Northbridge | | | | | | |
| 51 | West River ^{CWT} | Under Rte. 16 bridge | Uxbridge | | | | | | |
| 52 | Miscoe Brook ^{CWT} | Merriam Road | Grafton | | | | | | |
| 53 | Warren Brook ^{CWT} | Fowler Road Bridge | Upton | | | | | | |
| 54 | Center Brook ^{CWT} | Mendon Road | Upton | | | | | | |
| 55 | Meadow Brook ^{CWT} | Upstream@Blackstone St. B | Uxbridge | | | | | | |
| 56 | Emerson Brook ^{CWT} | Above Quaker Highway | Uxbridge | | | | | | |
| 57 | Bacon Brook ^{CWT} | Balm of Life Springs Road | Uxbridge | | | | | | |

Main Stem Nutrient Levels

- All sites received a **poor** grade for season.
- Worst sites with high phosphate and nitrate for the second half of the season:
 - Fisherville
 - Sutton
 - Plummers Landing
 - Stanley Woolen
 - Below Albion Dam

Mid Reach Cold Water Fisheries

- **West River at Pleasant/Glenn**
 - poor DO and % Sat. for July, September.
- **Miscoe Brook:**
 - poor DO and % Sat. for July, October
- **Meadow Brook:**
 - poor % Sat. for October

Nutrients in Tributaries of Mass/R.I. with a **Poor** Grade

- **Mill River at Mill St:** phosphate (Nov.) and nitrate (July-Sep.)
- **Mill River at Pivilege St:** phosphate (April, Oct.) and nitrate (Aug.)
- **Clear River:** phosphate and nitrate (April, Aug.-Nov.)
- **Cherry Brook:** phosphate (July, Sep) and nitrate (Aug. – Oct.)
- **Crookfall Brook:** phosphate (April)
- **Mussey Brook:** nitrates (Aug. – Oct.)
- **Sneech Brook:** phosphate (July, Aug., Oct.) and nitrate (all but June)
- **Peters River:** phosphate (Sep., Nov.) and nitrate (Aug., Sep.)
- **Robin Hollow Outlet:** phosphate (April, Oct.)
- **Millers River:** phosphate (April, May, Nov.) and nitrate (all months)

2014 vs. 2013

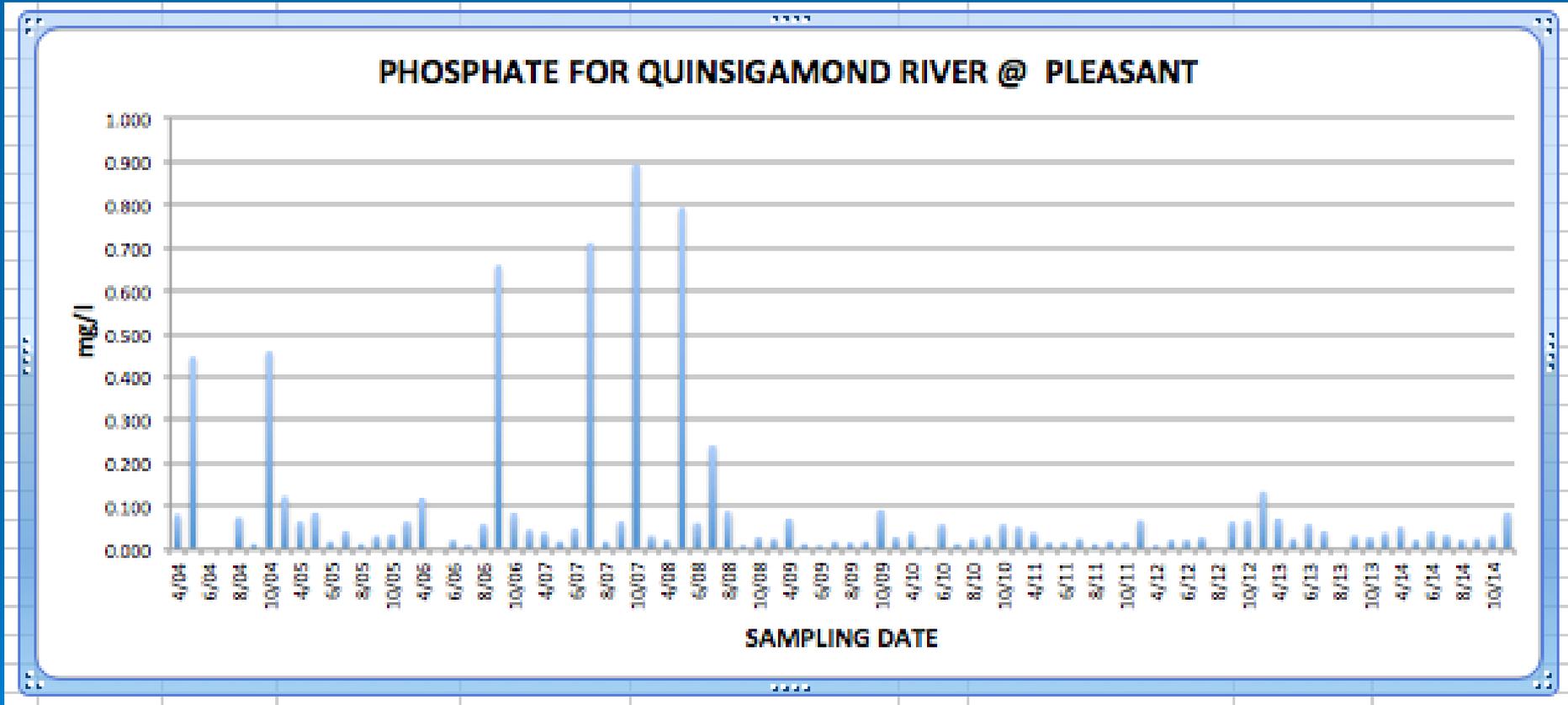
| PARAMETER | # SITES BETTER | # SITES WORSE |
|--------------|----------------|---------------|
| Aesthetics | 6 | 3 |
| Temperature | 10 | 3 |
| DO | 7 | 13 |
| % Saturation | 11 | 18 |
| Nutrients | 8 | 33 |

Long-Term Trends Analysis

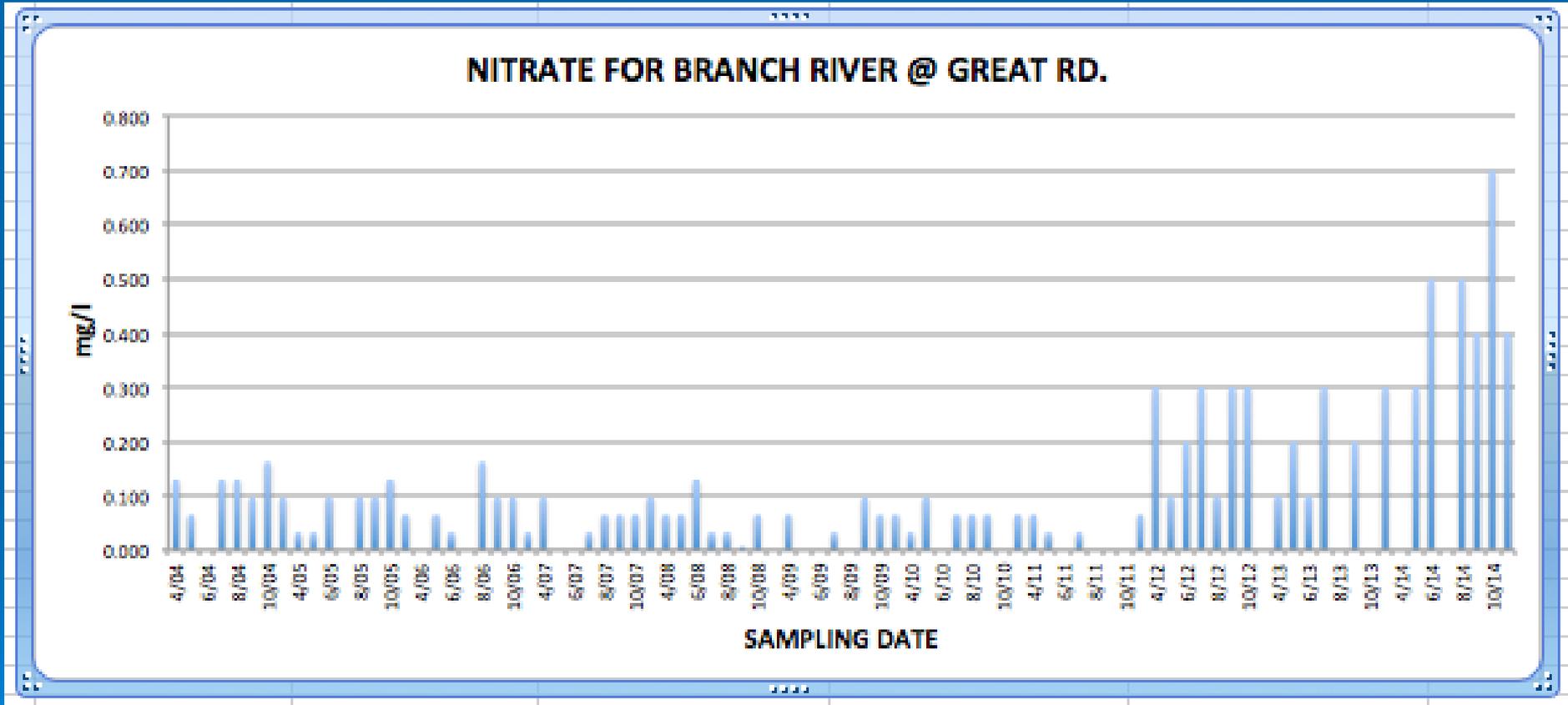
- 11 years of Data
- Phases of Statistical Review
- Tributaries vs Main Stem
- Wet Weather (Stormwater)
- Ranking sites to ID hot spots



Complete Data Set for Phosphate by Site



Complete Data Set for Nitrate by Site



Sites Needing Coverage

Headwater sites

- Ford Brook
- Delaney Brook
(Indian Lake)

R.I. Sites

- Clear River
(Burrillville)

Midreach Sites

- West River at Rt. 16

A Million Thanks To

All the volunteers who contributed over 1,000
volunteer hours to the program

MA DEP for technical support and advice

Mass Riverways for technical support and
continued QA/QC assistance

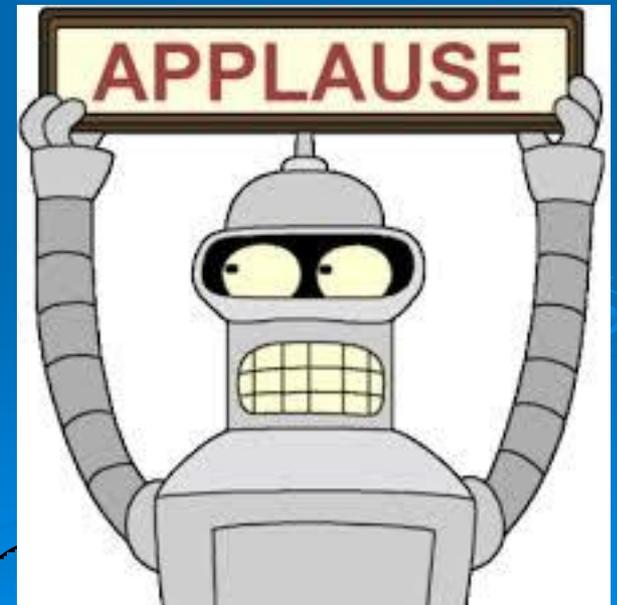


Special Recognition to long-serving volunteers (field and lab)

➤ 5 or more years

➤ Michelle Reed-Walsh

➤ Gary Pothier



Mass Audubon Broad Meadow Brook



Tri-River Health Center



Cumberland Hills Fire Station



Kit Pick-up

Saturday March 28

- BHC – Broad Meadow Brook
9:00 to 11:30 am
- BRWA – Red House
9:30 to 11:00 am
- BRWC – Cumberland Hills Fire Station
10:00 am to noon

First Sampling Date is Saturday, April 11, 2015

