

# Stormwatersheds

July 26, 2023

**Alison Field-Juma**

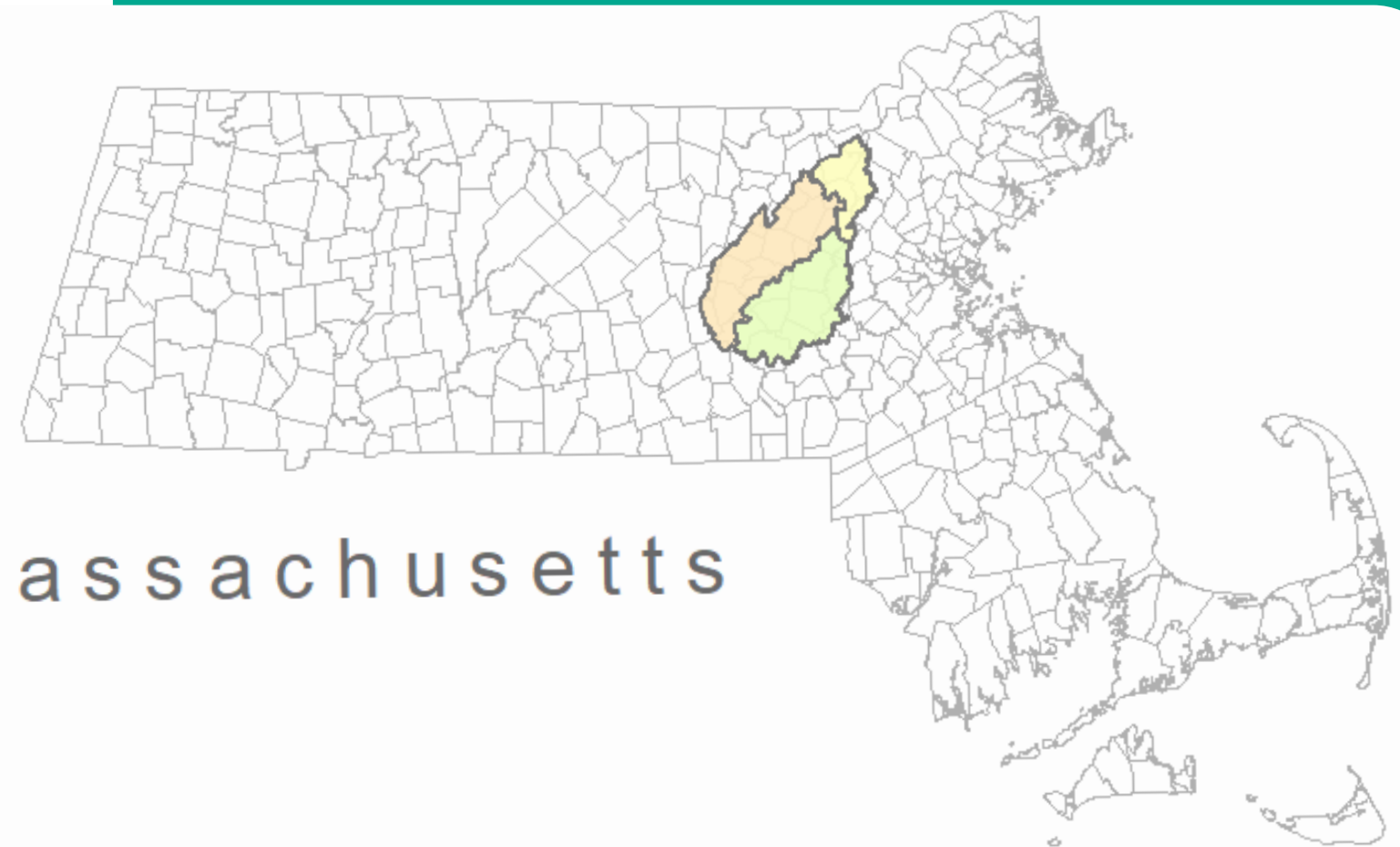
Executive Director, OARS

The logo for OARS (Office of Assabet and Concord River Stormwater) features the word "OARS" in a large, bold, blue sans-serif font. Below the text are several horizontal lines of varying lengths and colors, including blue and green, that create a stylized representation of water or a river.

**FOR THE SUDBURY  
ASSABET & CONCORD  
RIVERS**



400 square miles,  
35 communities,  
29 miles of Wild &  
Scenic River





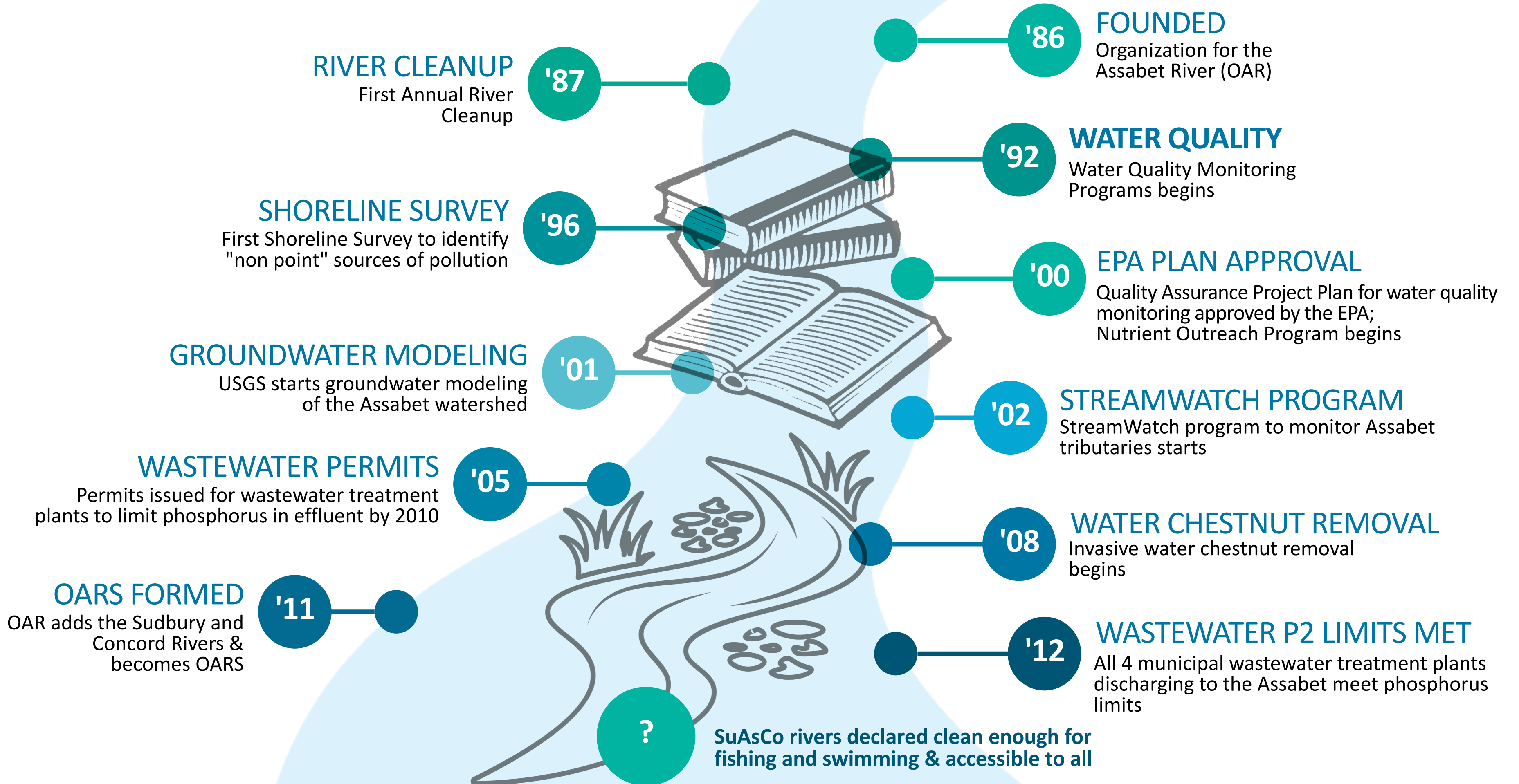
Working together to  
protect, improve and preserve the Sudbury, Assabet & Concord  
river watersheds for all people & wildlife



OARS TEAM



# RIVERS TRAVELLED





# Water Quality Monitoring Program

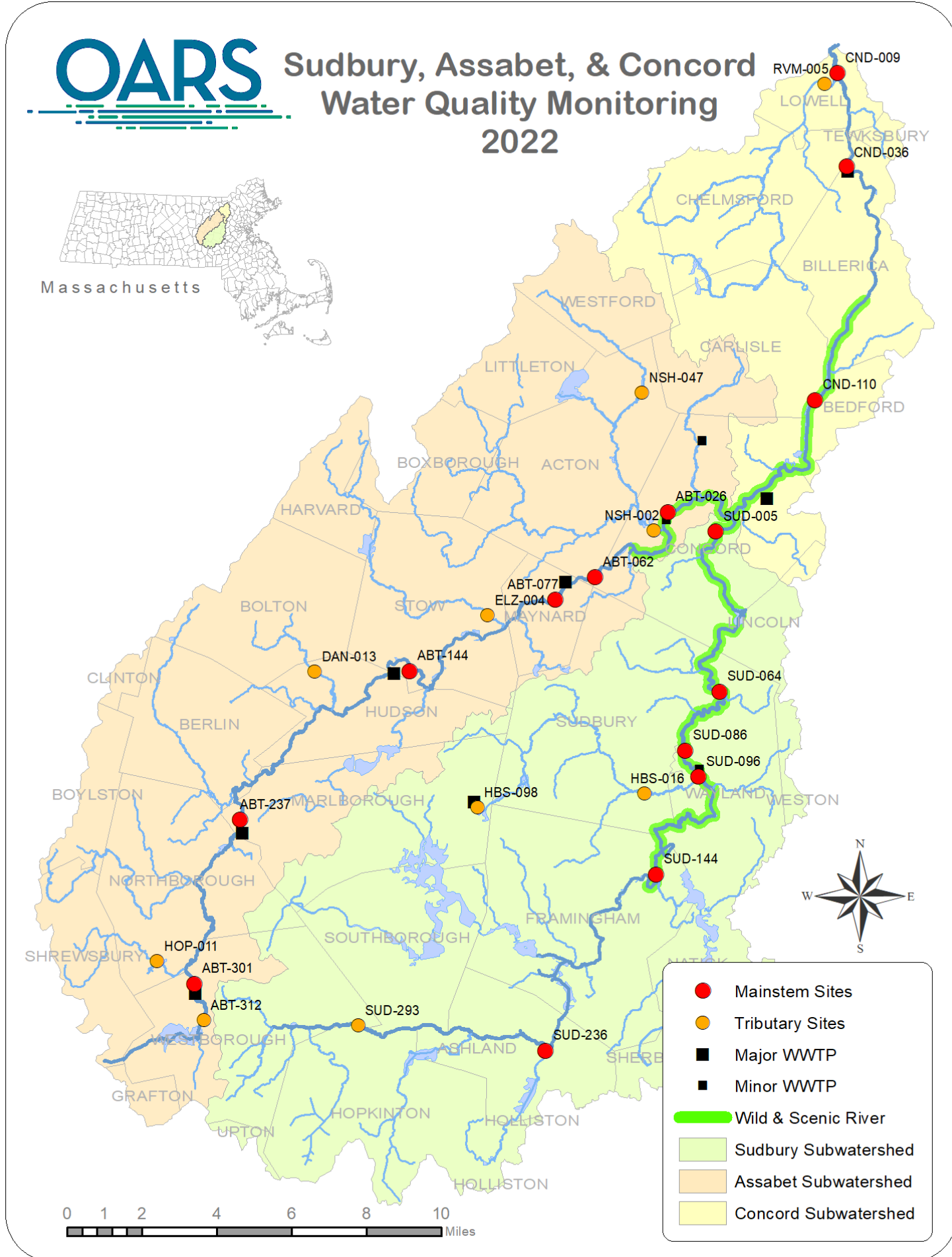
# Annual Water Quality Report

Local Bacteria Sources

Saltier Streams

Elevated Water Temperatures

Non-Point-Source Phosphorus



222  
SAMPLES  
TAKEN

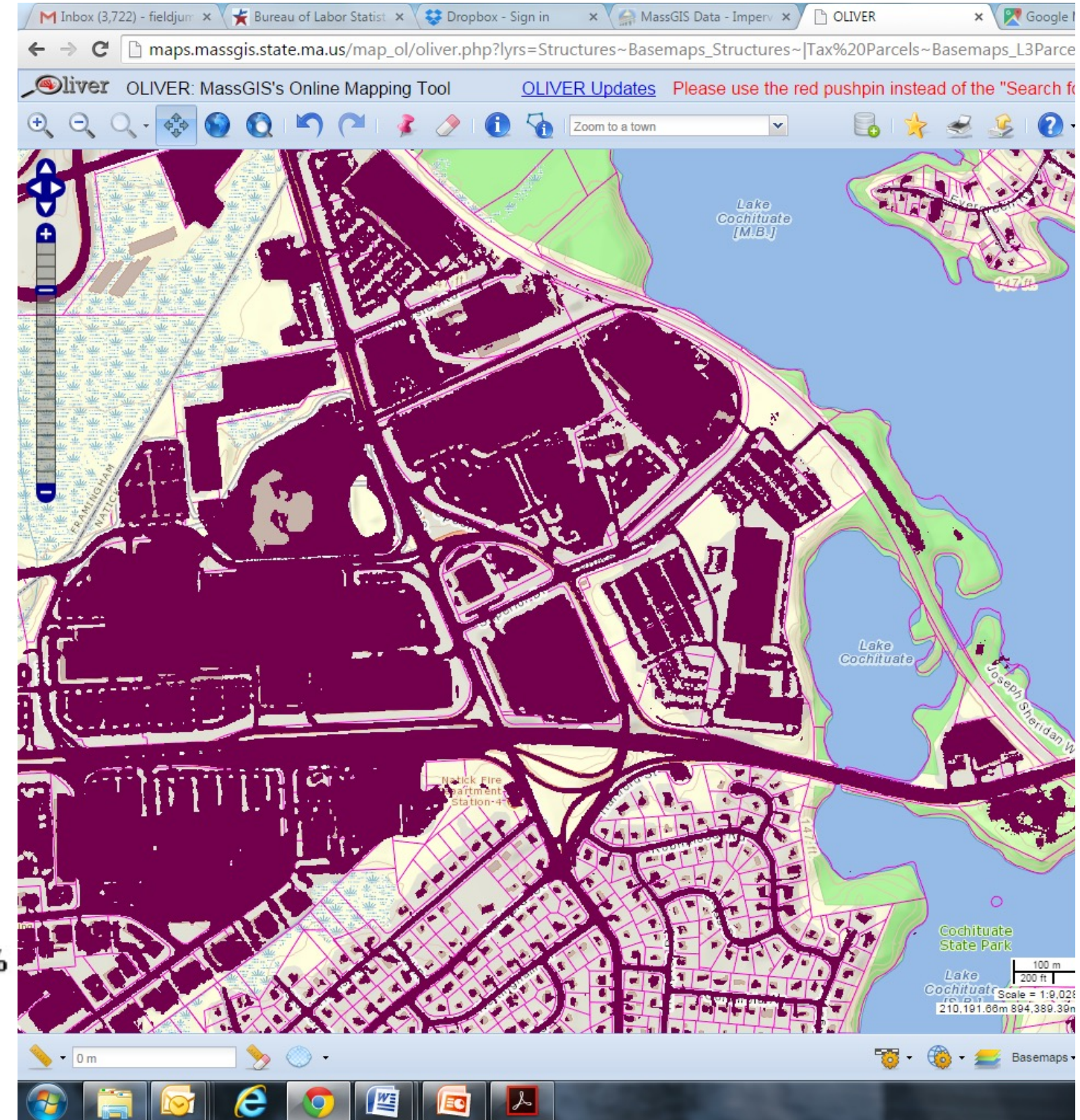
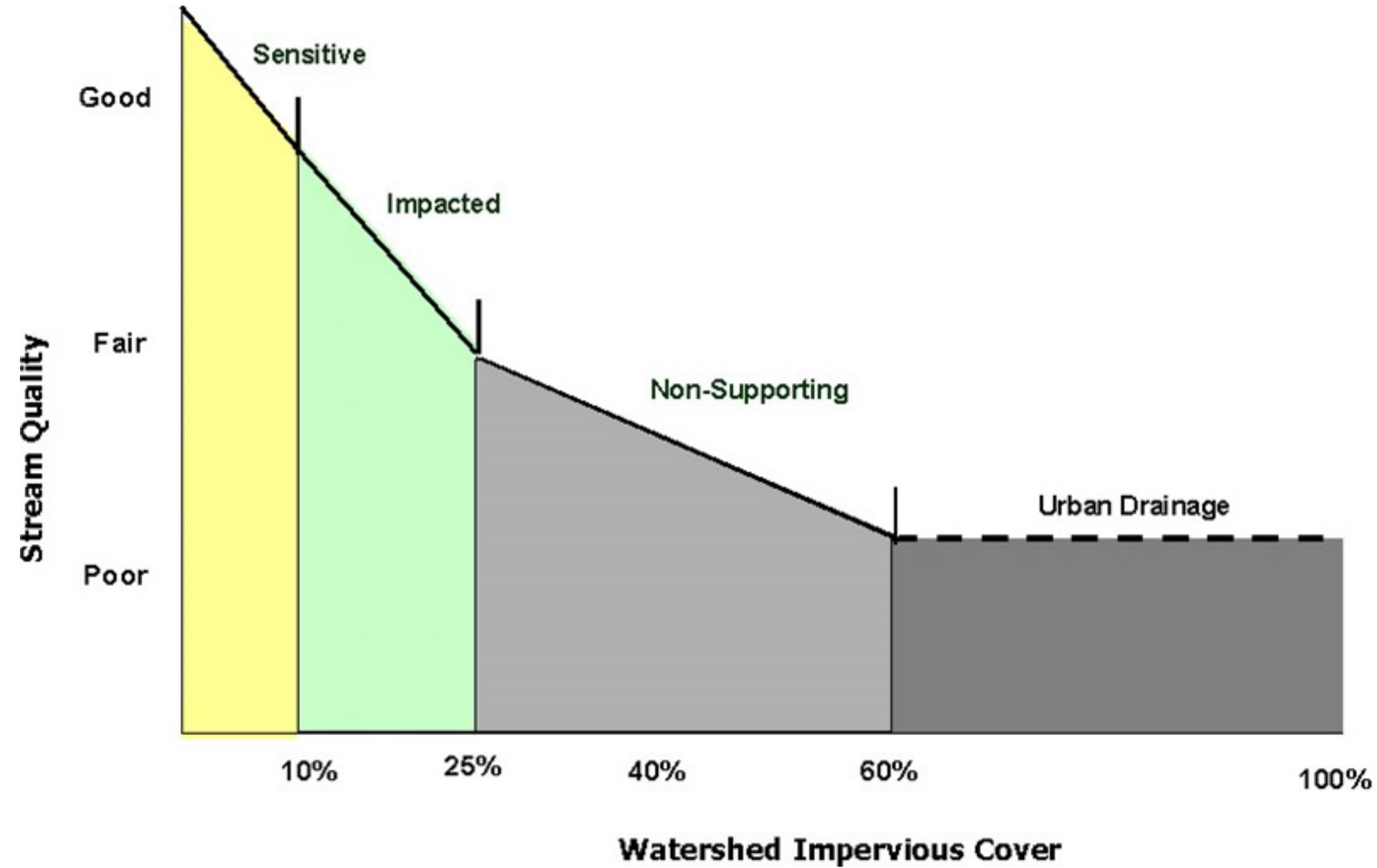
24  
WATER QUALITY  
VOLUNTEERS

359  
VOLUNTEER  
HOURS





# Water Quality Impacts



Natick Mall

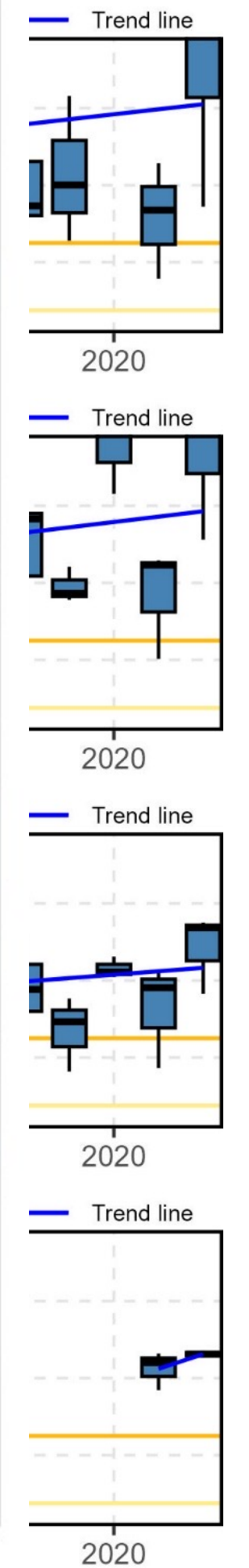
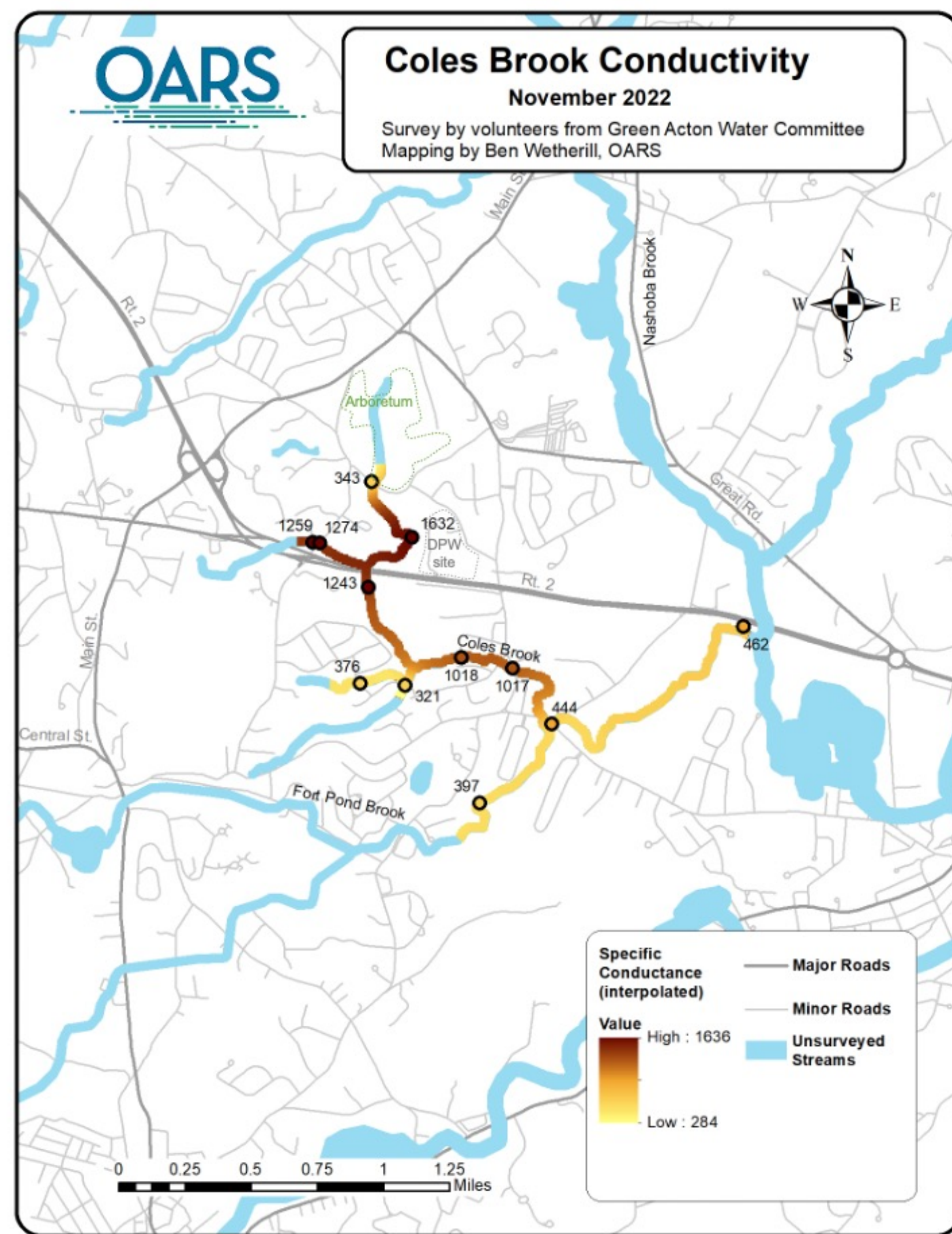


# Water Quality Impacts

Top stormwater-related water quality impacts:

- **Chloride/conductivity**
- Nutrients, TSS
- Bacteria
- Temperature
- Flow

- Runoff from roads & parking lots
- Salt storage
- Can be in surface runoff or enter the groundwater and summertime baseflow



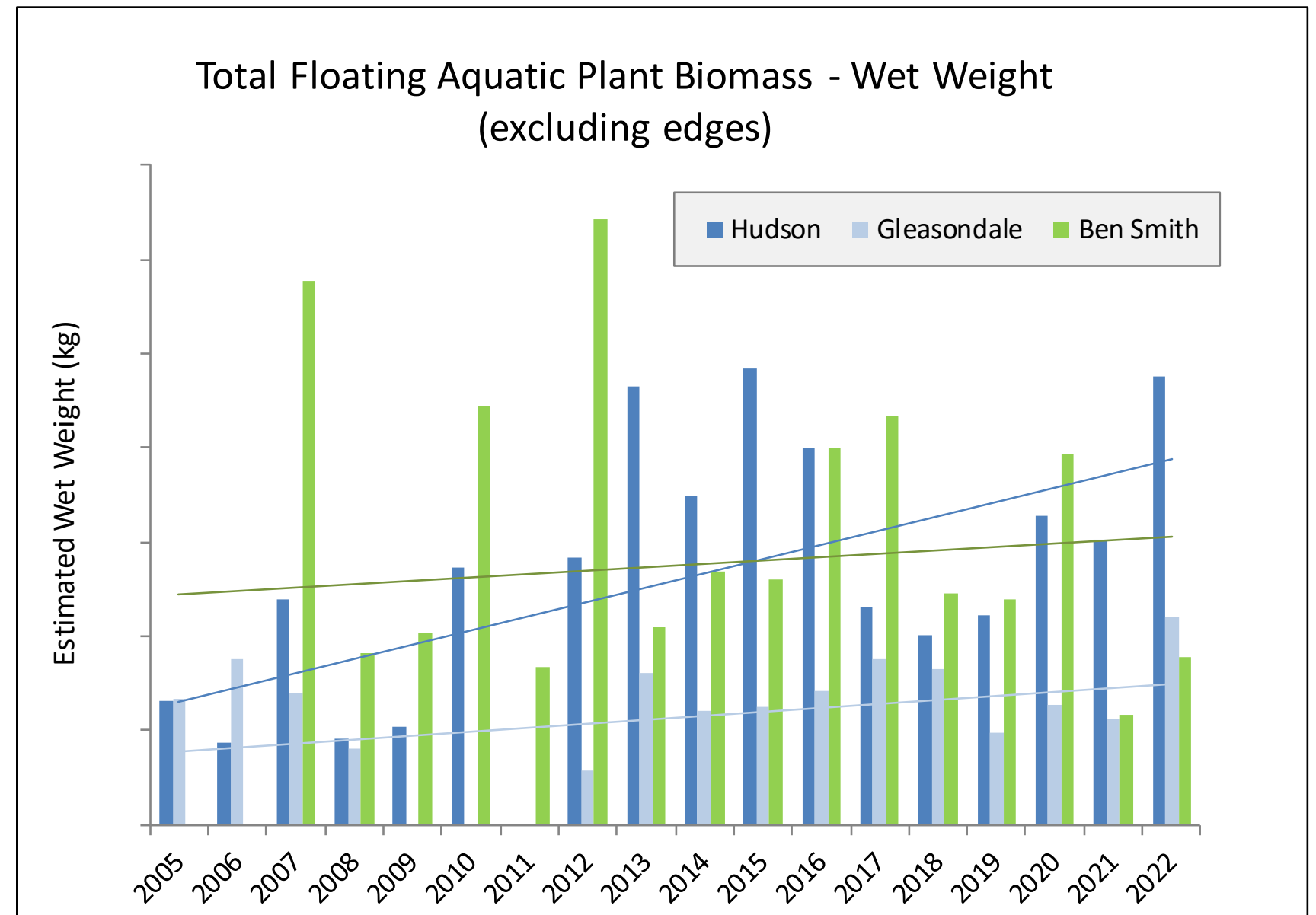
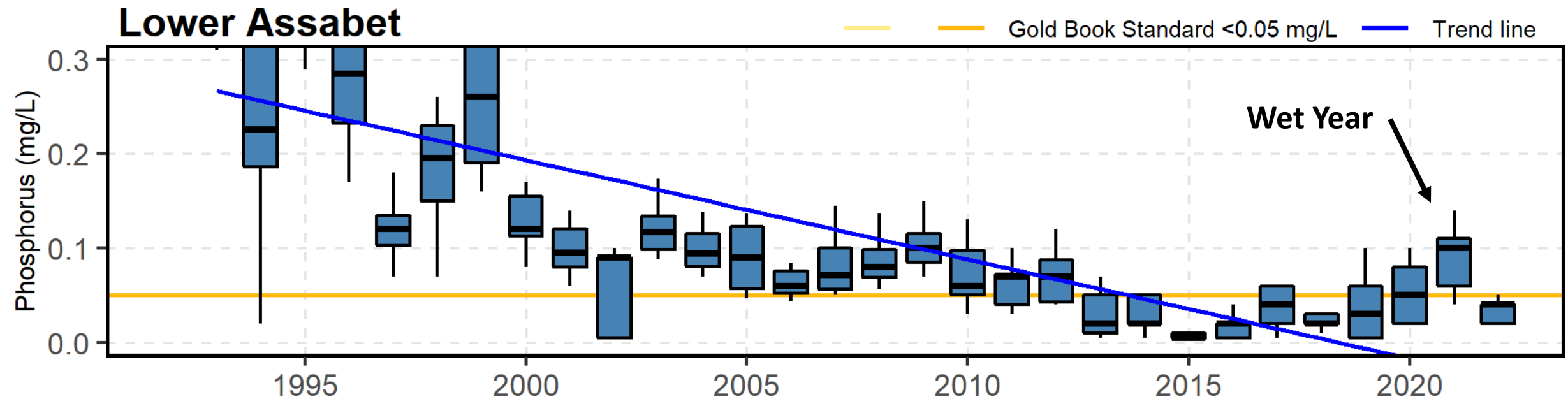


# Water Quality Impacts

Top stormwater-related water quality impacts:

- Chloride/conductivity
- **Nutrients, TSS**
- Bacteria
- Temperature
- Flow

- Road & parking lot runoff
- Leaf litter
- Lawn fertilizer
- Septic systems
- Pet waste
- Legacy in sediment
- Wastewater treatment plants





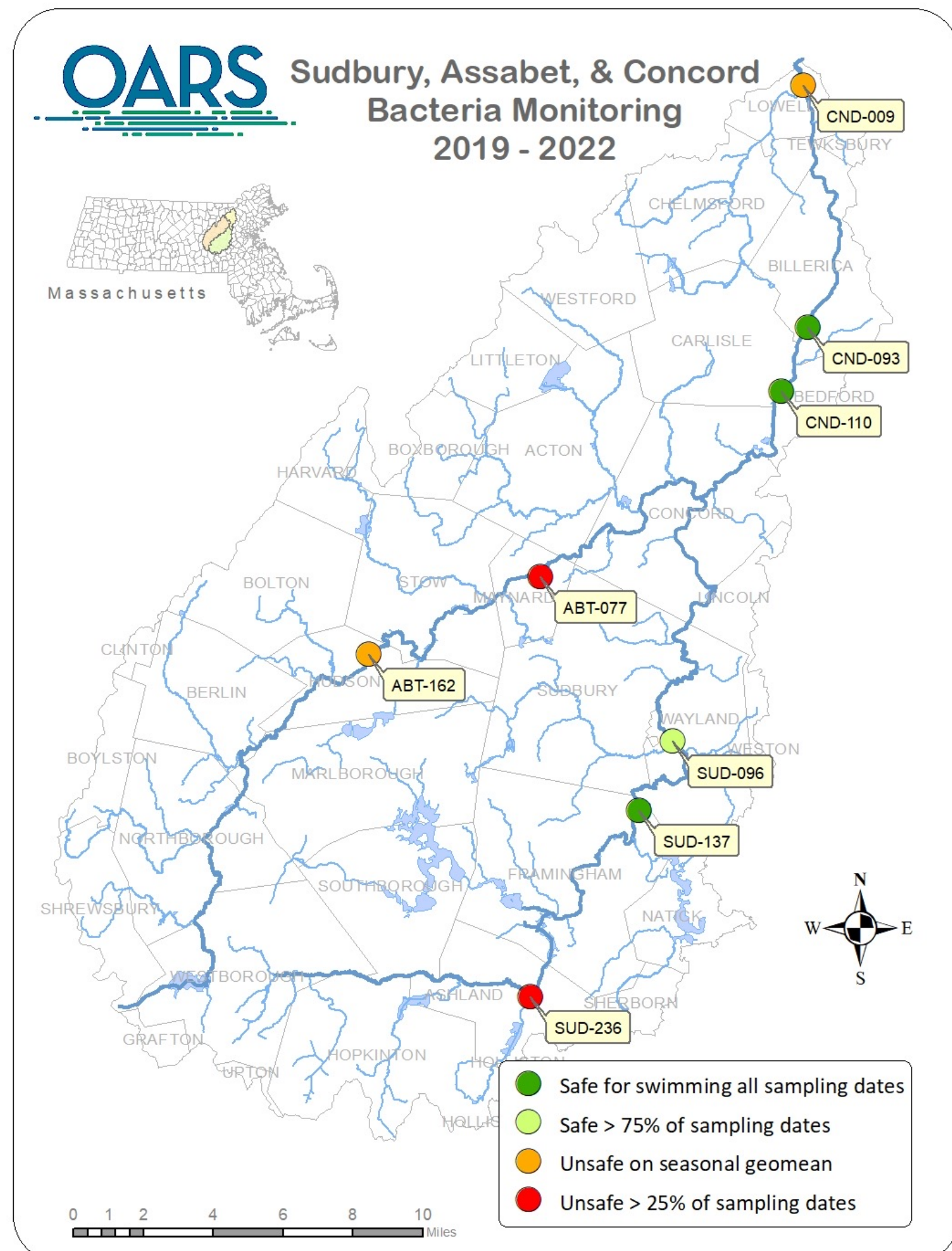
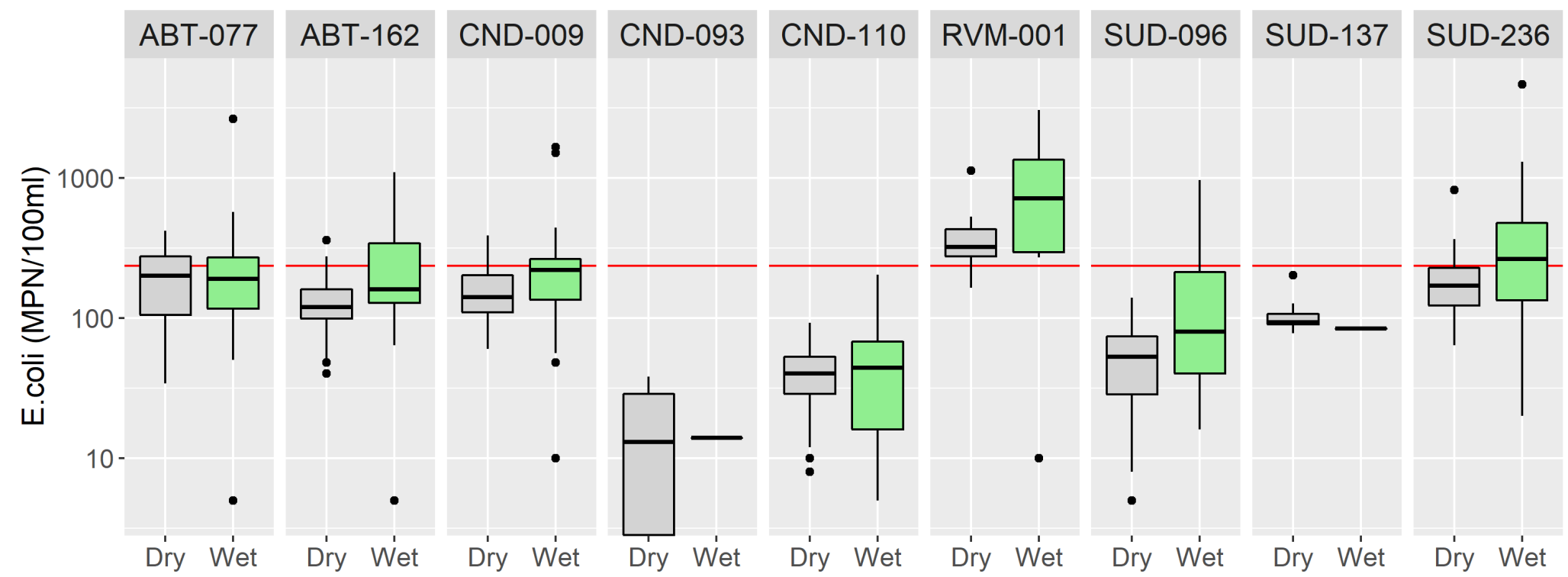
# Water Quality Impacts

## Top stormwater-related water quality impacts:

- Chloride/conductivity
- Nutrients, TSS
- **Bacteria**
- Temperature
- Flow

- Road & parking lot runoff
- Dogs, geese, wildlife
- Storm sewer cross-contamination/illicit discharges
- Septic systems

E.coli (2019-2022) - Dry vs. Wet





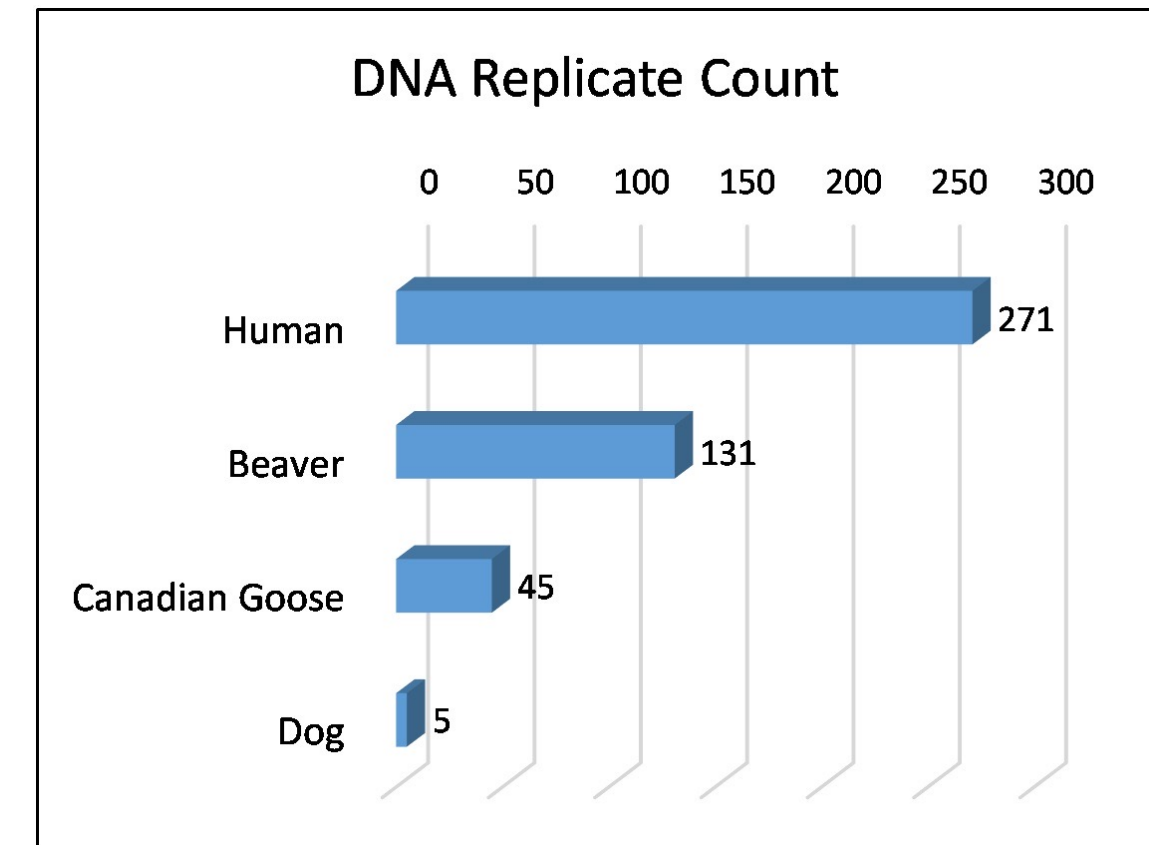
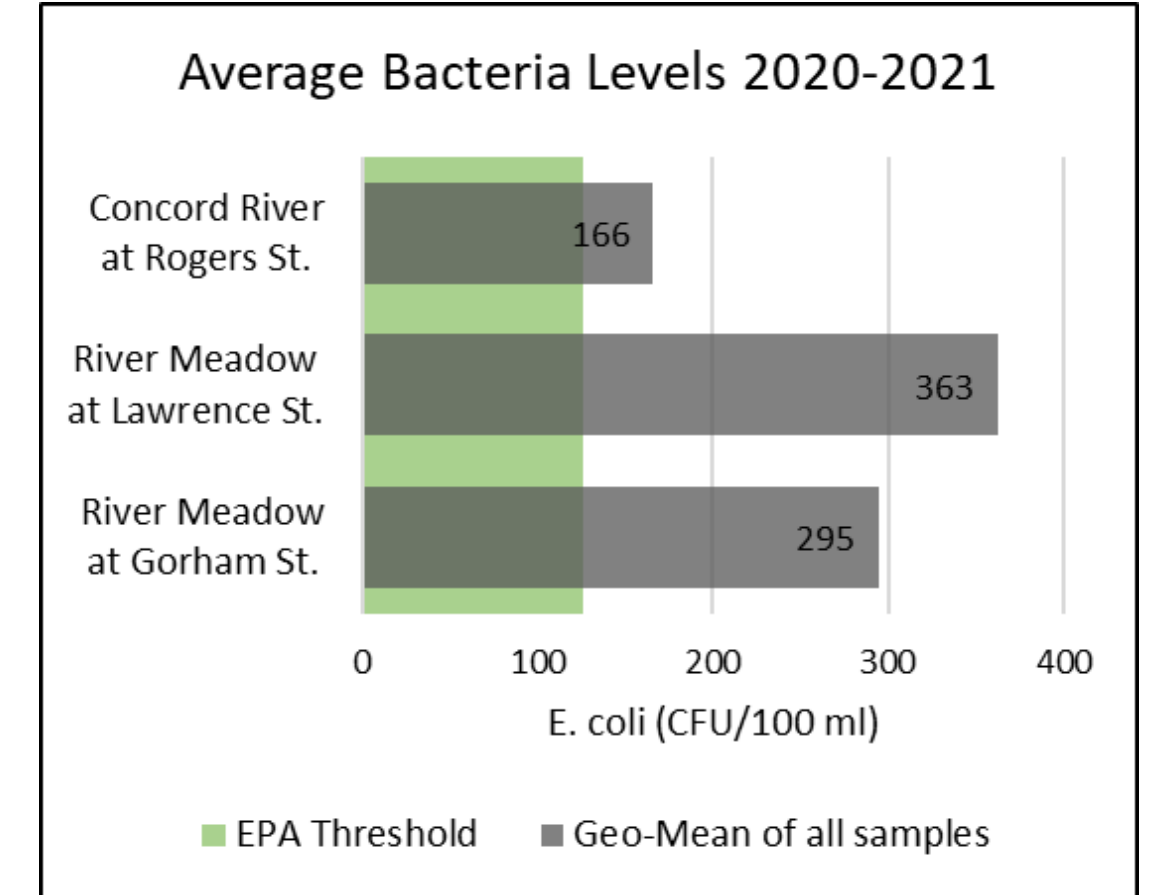
# Water Quality Impacts

Top stormwater-related water quality impacts:

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- **Bacteria**
- Temperature
- Flow

## Tracking Bacteria Pollution in the Lower Concord River: Chelmsford and Lowell

Identifying the culprits





# Water Quality Impacts

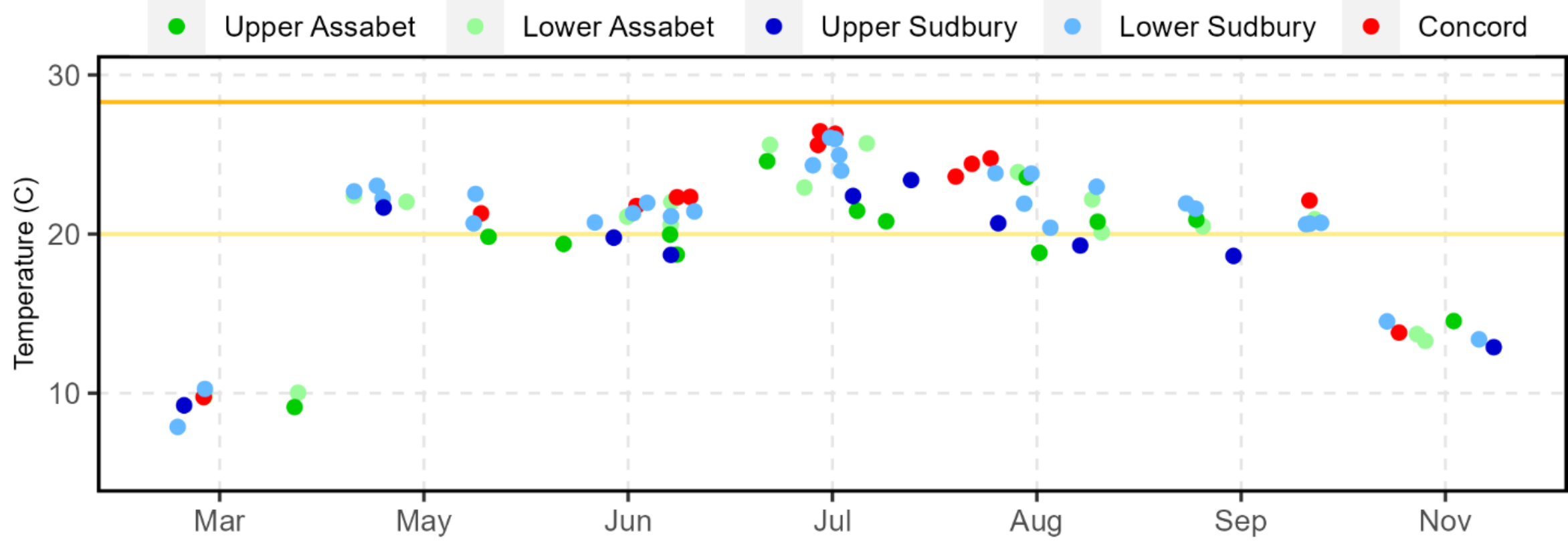
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- **Temperature**
- Flow

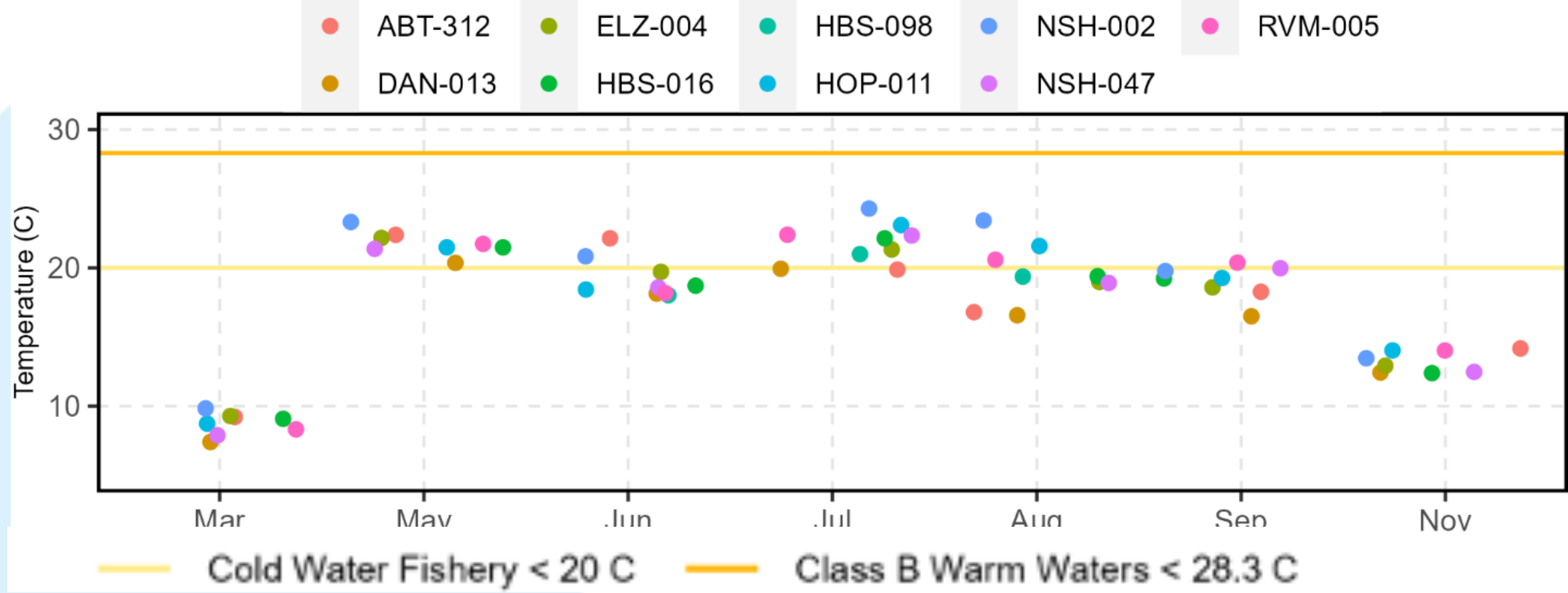
Hot water is a pollutant

- Road, roof & parking lot runoff during the summer
- Loss of riverine trees and bank vegetation

### Water Temperature - 2022 : Mainstems



### Water Temperature - 2022 : Headwater & Tributaries



— Cold Water Fishery < 20 C      — Class B Warm Waters < 28.3 C



# FLOW

Top stormwater-related water quality impacts:

- Chloride/conductivity
- Phosphorus
- Bacteria
- Temperature



Sudbury River, Hopkinton



Wayland town center/Rte. 20



Framingham/Rte. 9



# SuAsCo Climate Resiliency Coalition

MVP and other projects in Hudson, Framingham, Natick, Marlborough, etc., MS4 work by municipalities

*How should we prepare for a changing climate?*

## LOCAL PLANNING FOR CLIMATE RESILIENCE

**Acton • Bedford • Bolton • Boxborough • Carlisle • Concord • Hudson  
Maynard • Lexington • Lincoln • Littleton • Stow • Sudbury**

The Metropolitan Area Planning Council (MAPC) is working with these 13 towns to create an actionable Climate Resilience Plan for our region. We will be assessing vulnerabilities from climate impacts (e.g. increased precipitation, inland flooding, increased heat and drought).


**COME TO A PUBLIC FORUM**  
 Thursday November 19, 2015  
 6:30 PM - 8:45 PM EST  
**Acton Town Hall, Faulkner Room (204)**  
 472 Main Street  
 Acton, MA 01720





This event is free of charge.  
Refreshments and networking time will be provided.

*2015*


Your input is essential! This event is an opportunity to:

- Let us know about your concerns
- Learn about potential climate impacts threatening this area
- Discuss ways to ensure resilience in your town and surrounding towns



Town of Concord  
Municipal Vulnerability Preparedness Program



*2018*

**Community Resilience Building Workshop Summary of Findings**  
December 2018

### Nature-Based Solutions: Bolton



*2021*

- Roadside Hedgerow & Trees
- Stormwater Bio-Swales
- Habitat Enhancement
- Enhanced Meadow
- Pollinator Species
- Permeable Walking Trail





# Nature-based Solutions

Bioretention system at  
Bridgewater State University



Living solutions inspired and supported by nature that provide environmental, social, and economic benefits while providing resilience to climate change.

- Infiltrate water on site
  - Reduce flashiness and flooding
  - Recharge groundwater
- Remove pollutants and reduce summer water temperature
- Beautify neighborhoods
- Support wildlife, including pollinators
- Create shade and reduce heat islands
- Cost-effective
- Use in combination with grey infrastructure





THANK YOU

to the Foundation for MetroWest for supporting the SuAsCo

Climate Resiliency Coalition



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