

# 2023 Monitoring Results

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Carver County Water Management Organization  
January 30, 2024 Citizen Advisory Committee Meeting

# Presentation Overview

- Lake Monitoring
  - Program overview
  - Summary of monitoring results
  - Lake Chloride Results
- Stream Monitoring
  - Program overview
  - Summary of monitoring results
  - Bevens Nitrate
- Lake Biomonitoring Results
- Stream Biomonitoring Results
- Discussion Points
  - Questions about monitoring methodology, results, and trends



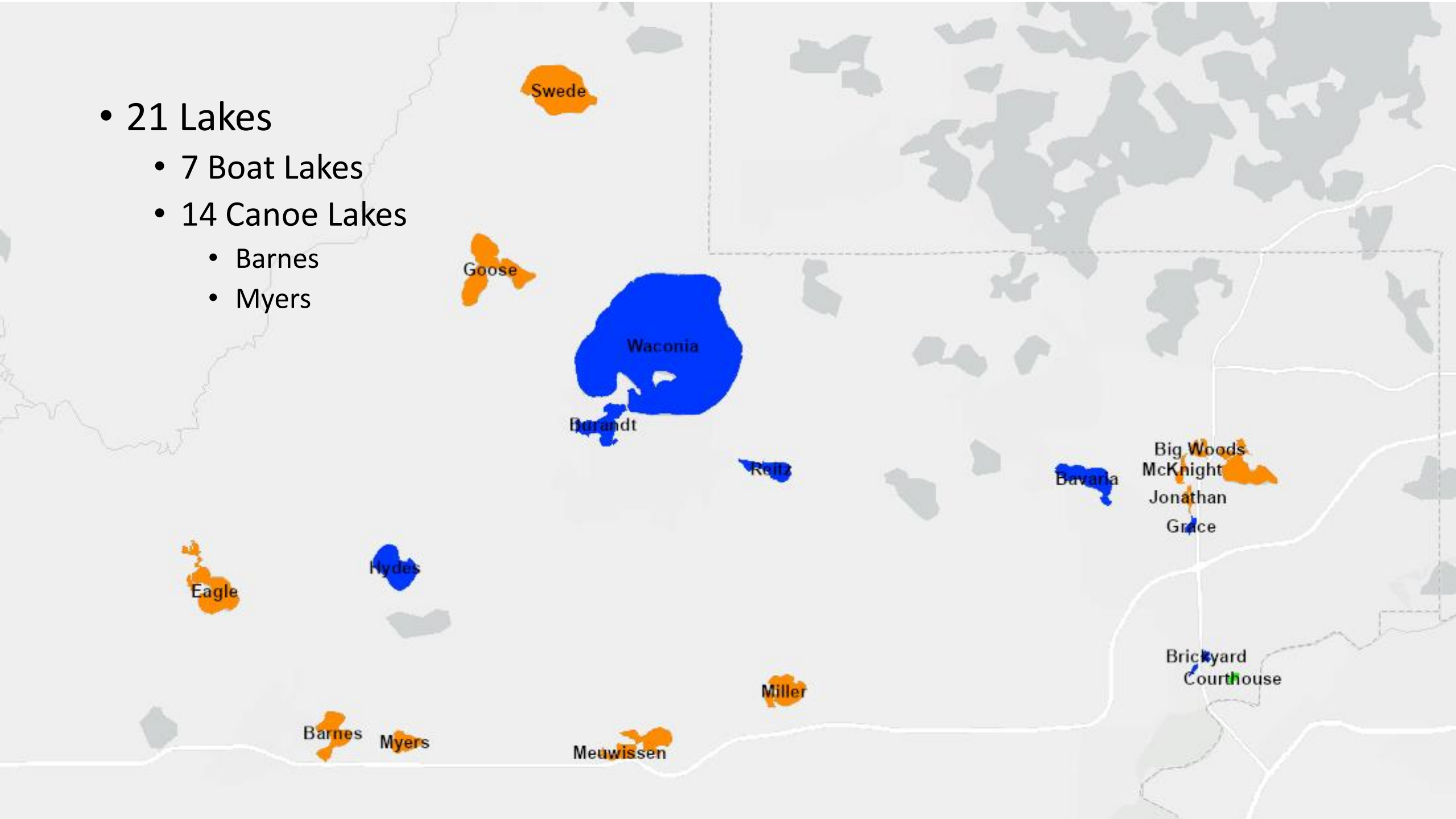
Lakes

- 21 Lakes

- 7 Boat Lakes

- 14 Canoe Lakes

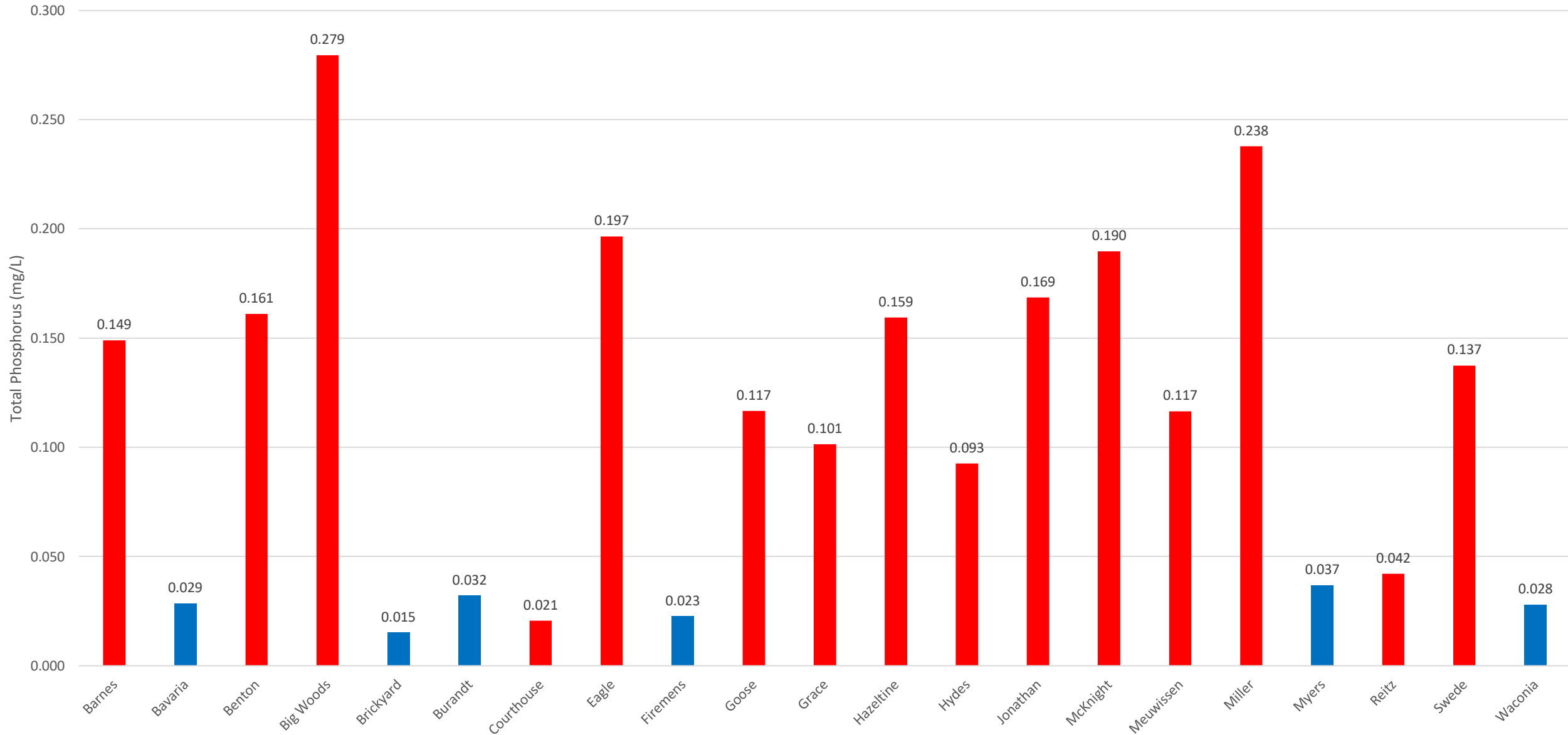
- Barnes
- Myers



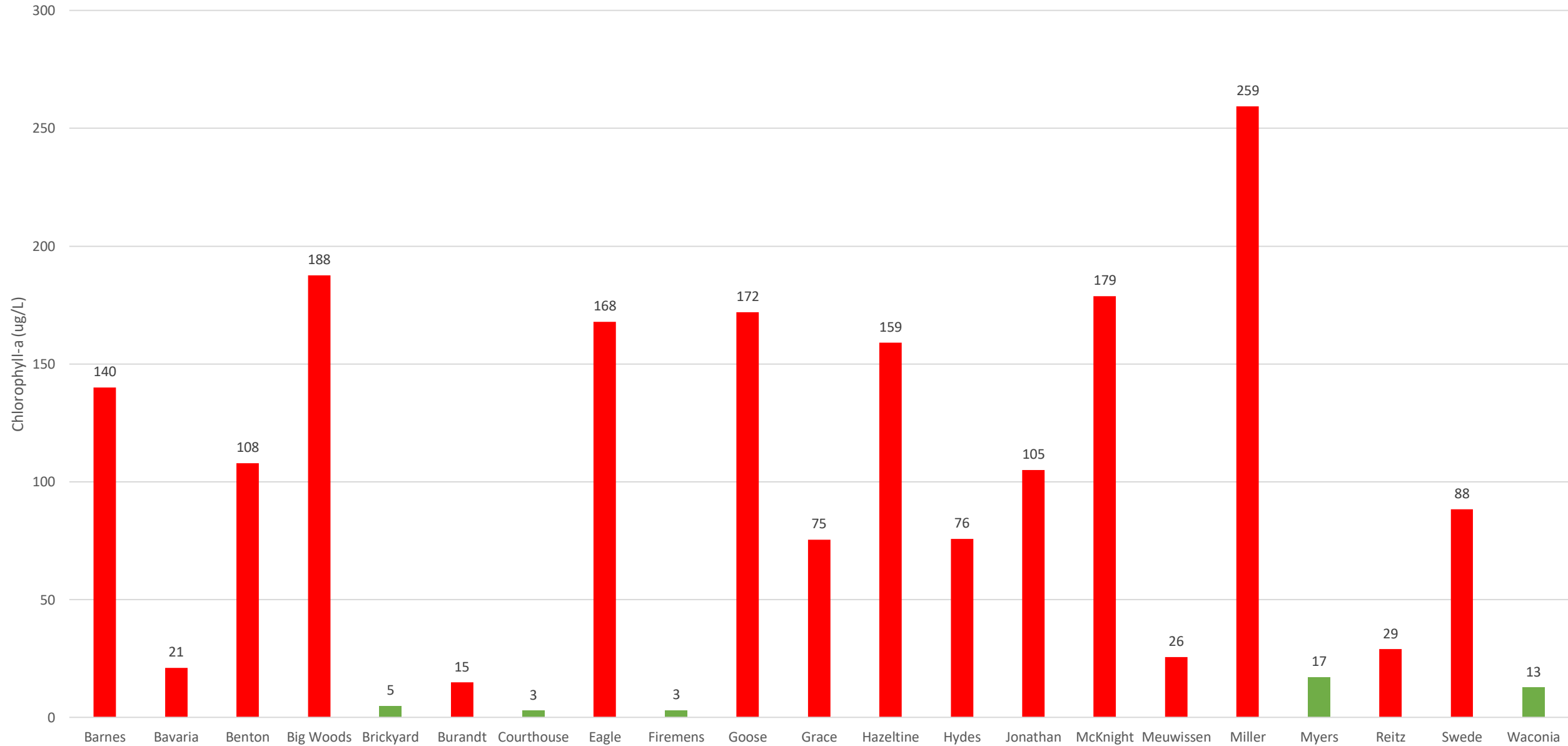
# What We Monitor At Each Lake

- Parameters Monitored
  - **Total phosphorus** and Total Kjeldahl nitrogen (nutrients)
  - **Chlorophyll-a** (algae)
  - Chloride (pollutant)
  - **Water transparency** (Secchi depth)
  - Temperature, dissolved oxygen, pH, and specific conductance
  - Water level
- **Parameters used to determine nutrient impaired lakes**

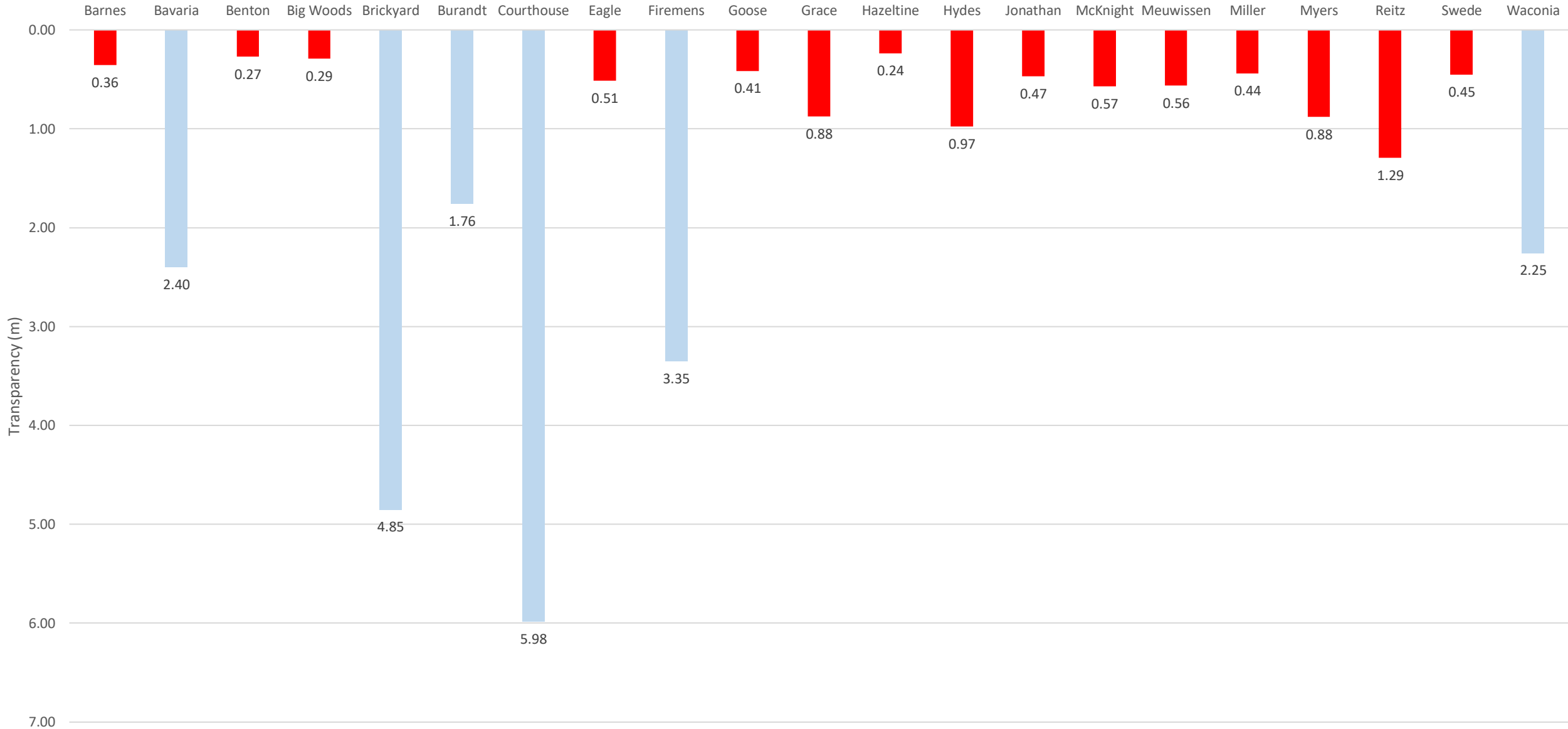
# Avg. Total Phosphorus Concentration



# Avg. Chlorophyll-a Concentration

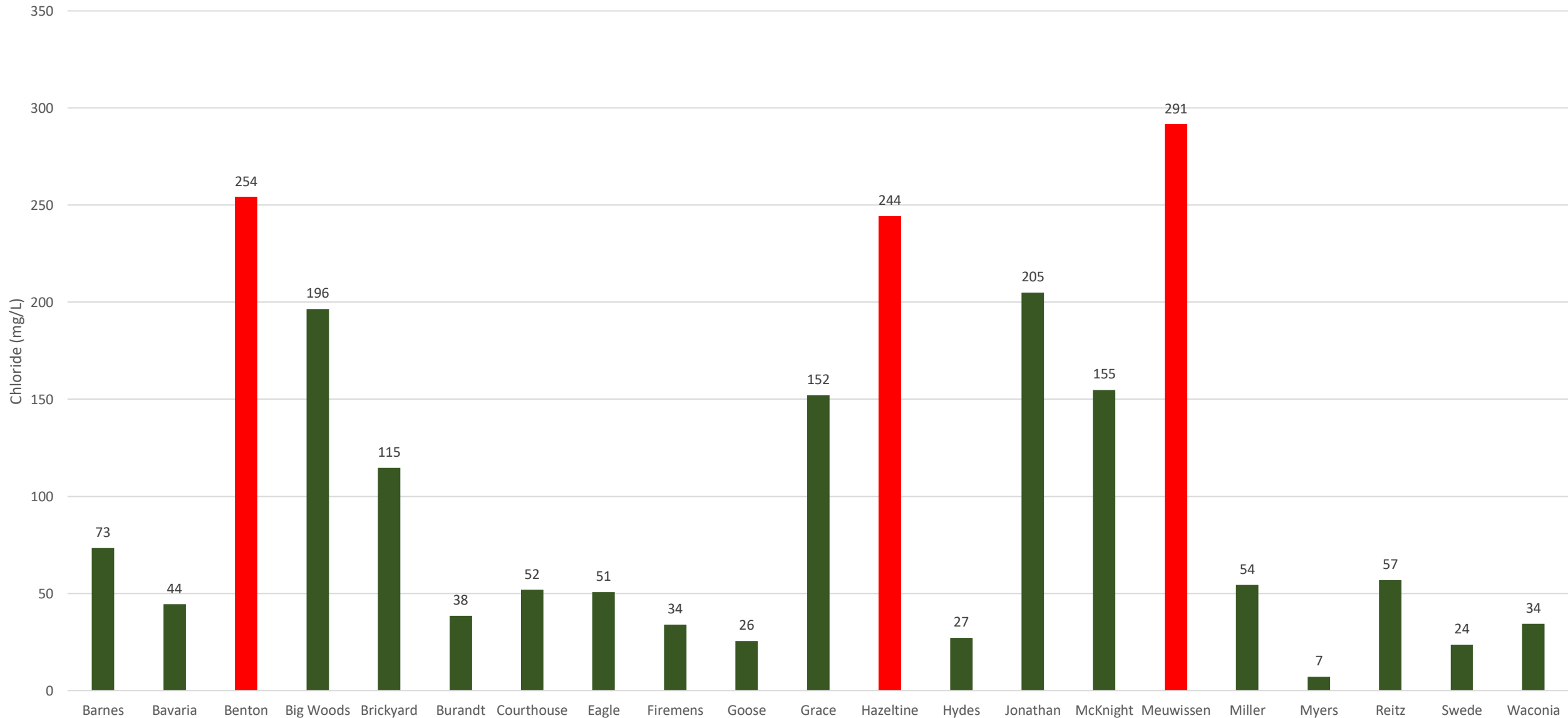


# Average Water Transparency



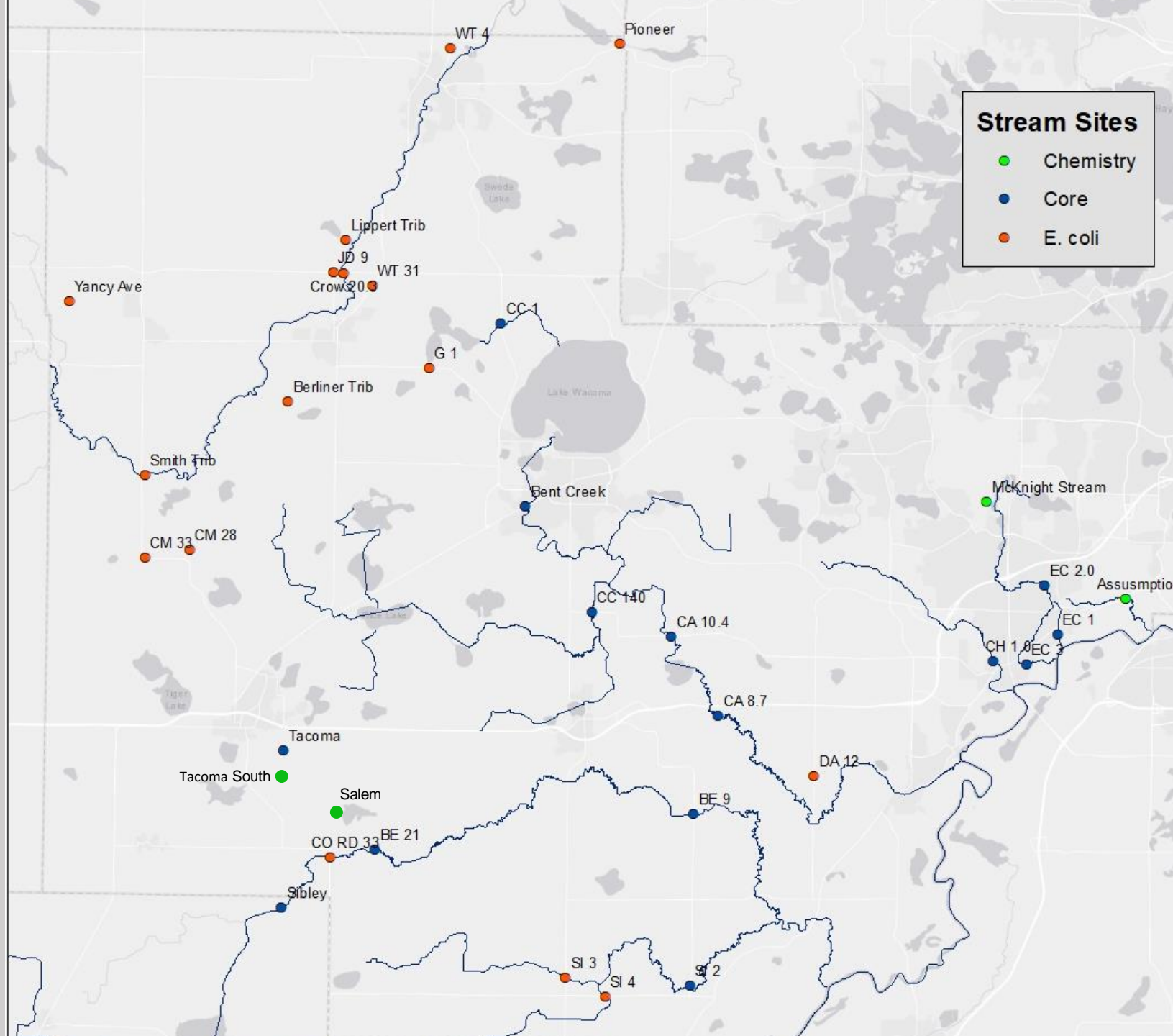


# Avg. Surface Chloride Concentration



# Streams

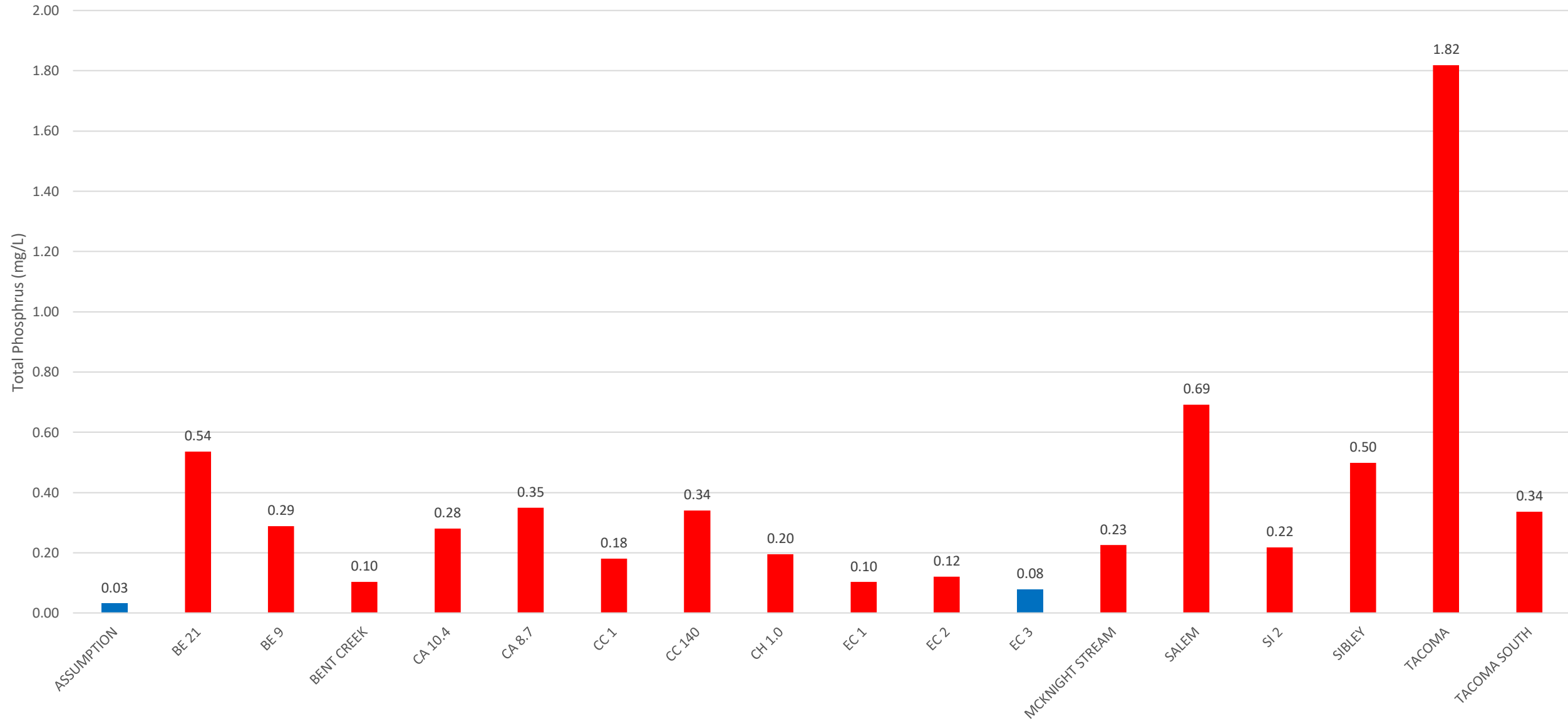




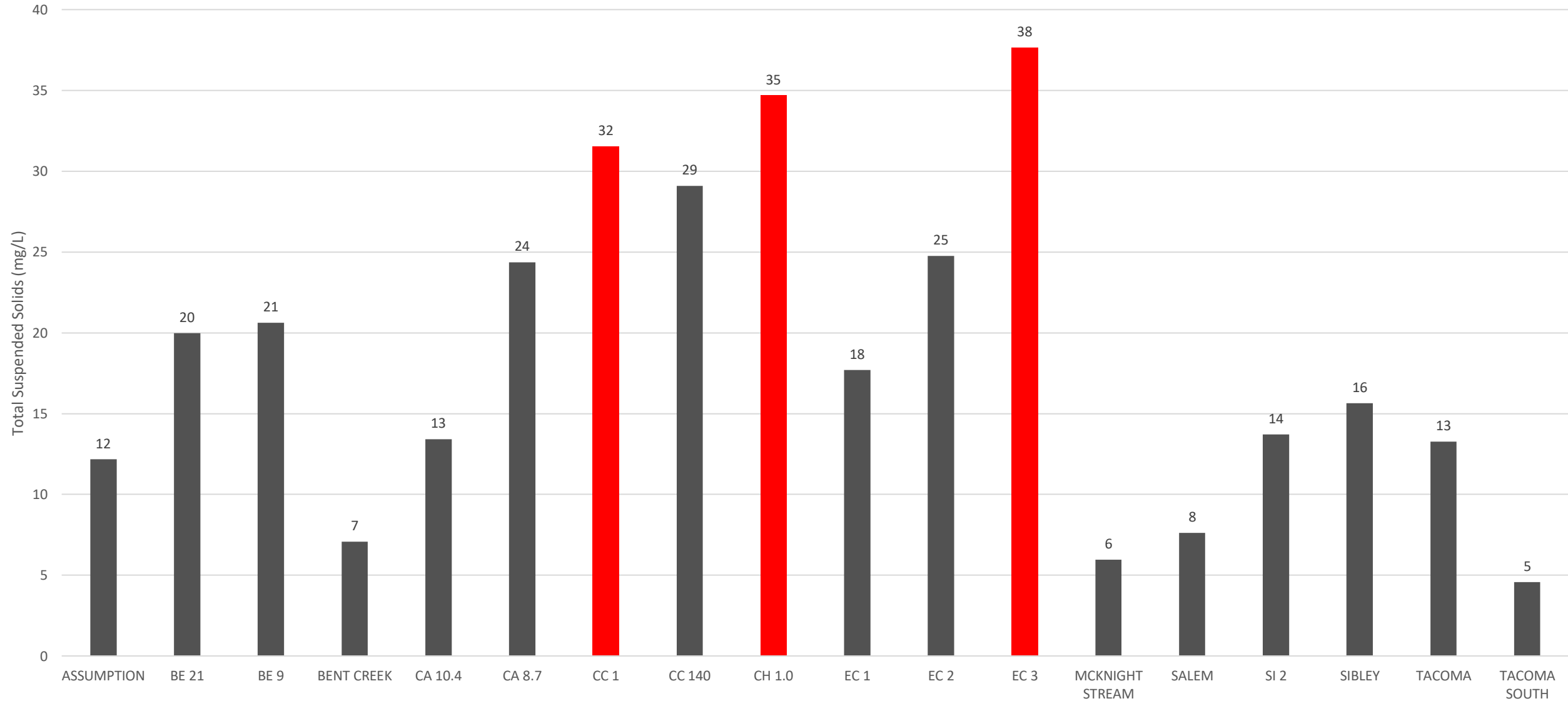
# What We Monitor at Each Stream Site

- **Total phosphorus**, orthophosphate (nutrients)
- **Nitrate**, nitrite, ammonia, total Kjeldahl nitrogen, and total nitrogen (nutrients)
- **Total suspended solids** (pollutant)
- **Chloride** (pollutant)
- Alkalinity (ability of water maintain a stable pH)
- Chemical oxygen demand (oxygen depletion)
- Temperature, dissolved oxygen, pH, and specific conductance
- **E. coli**
- Water level

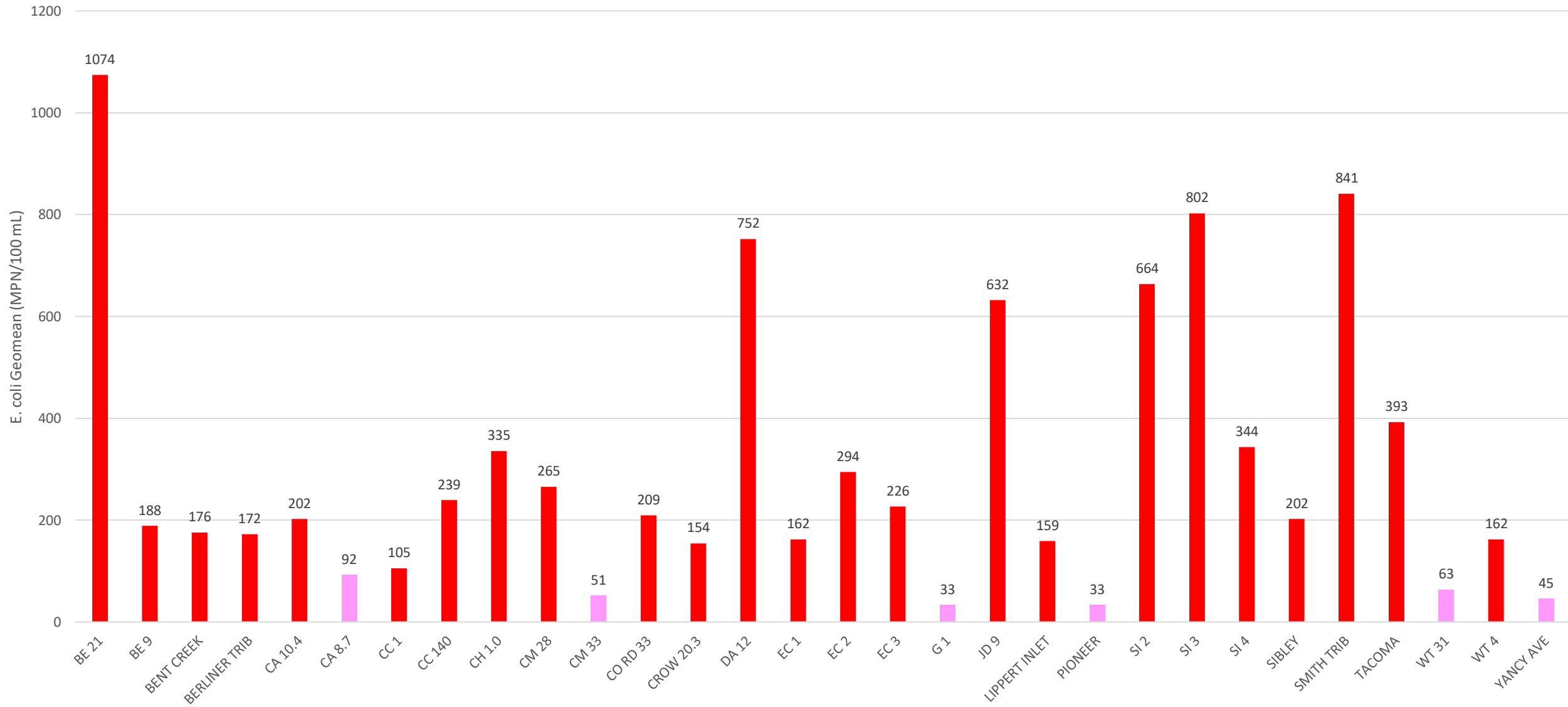
# Avg. Total Phosphorus Concentration



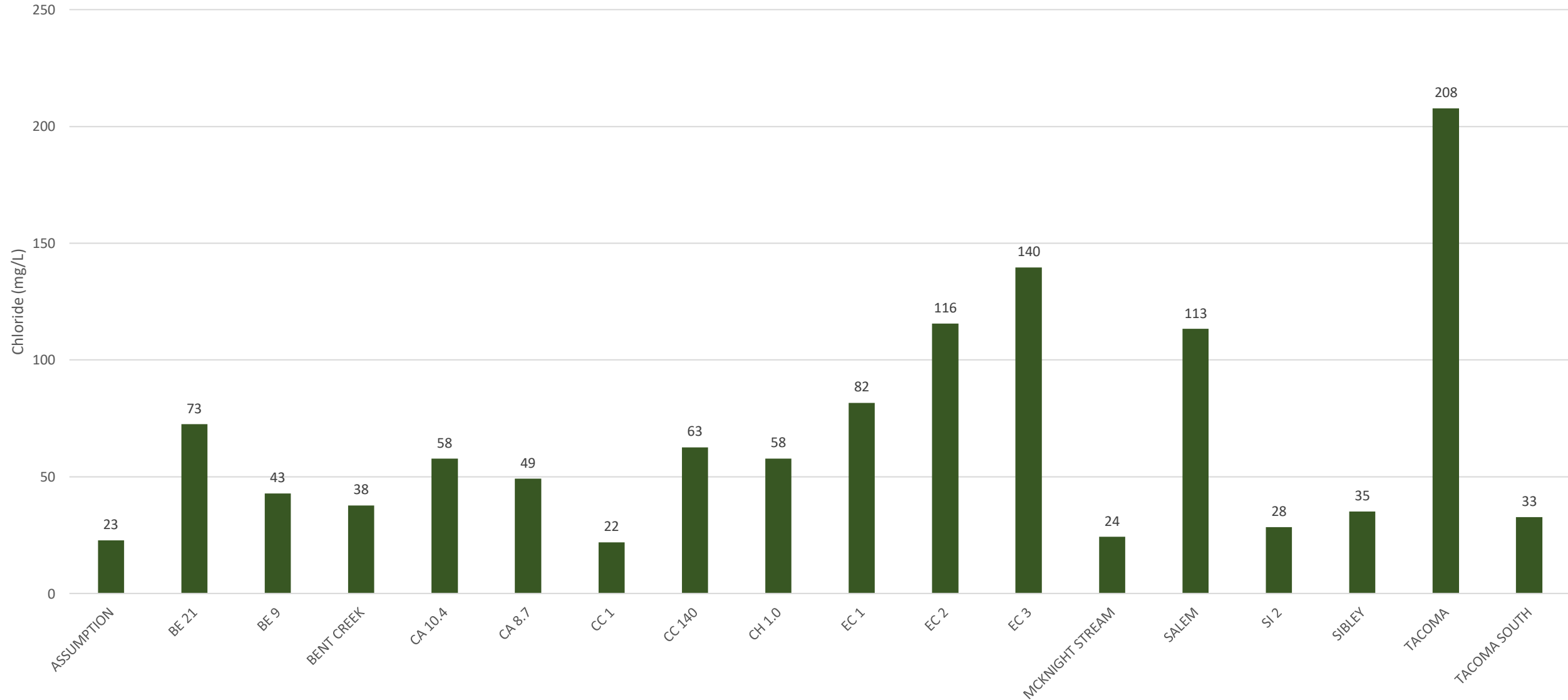
# Avg. Total Suspended Solids Concentration



# E. coli Geomean

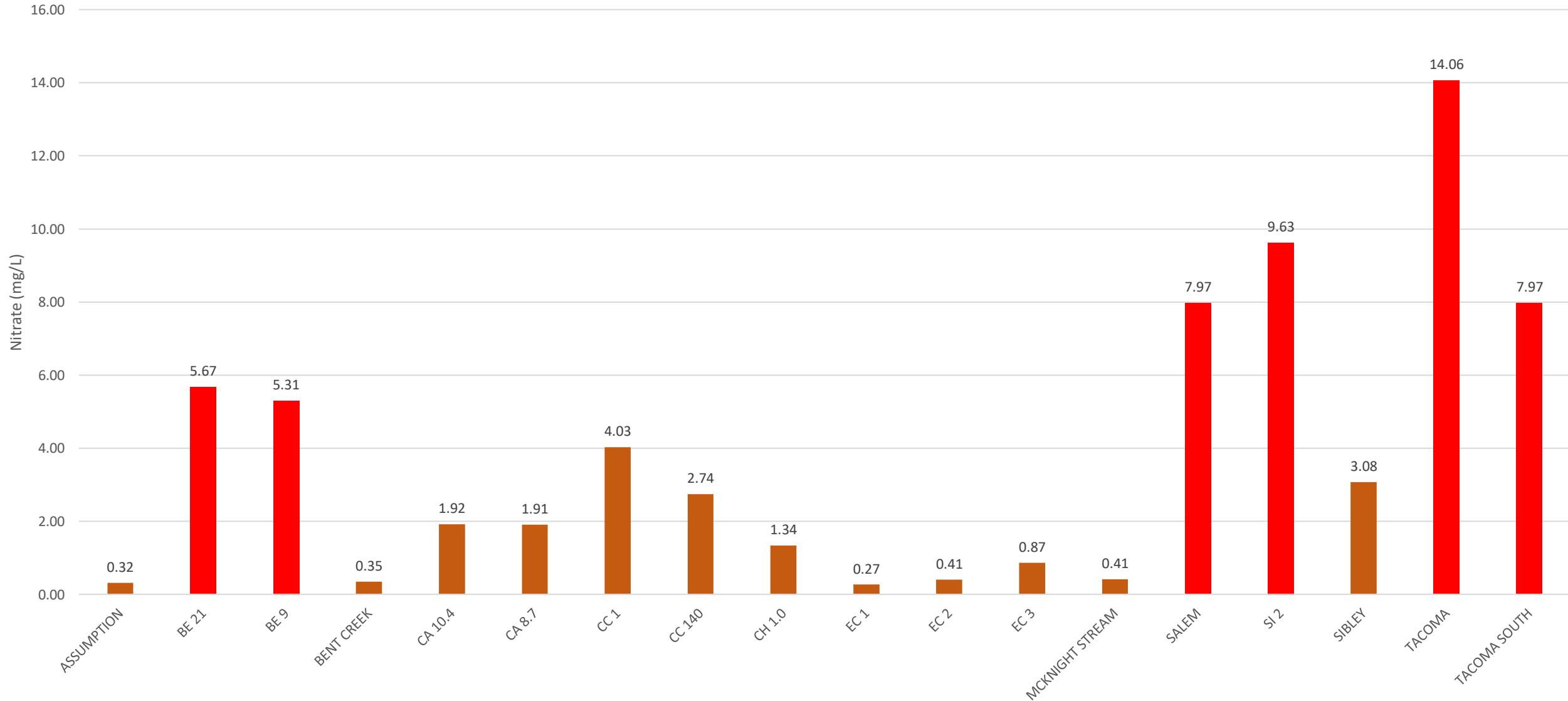


# Avg. Chloride Concentration

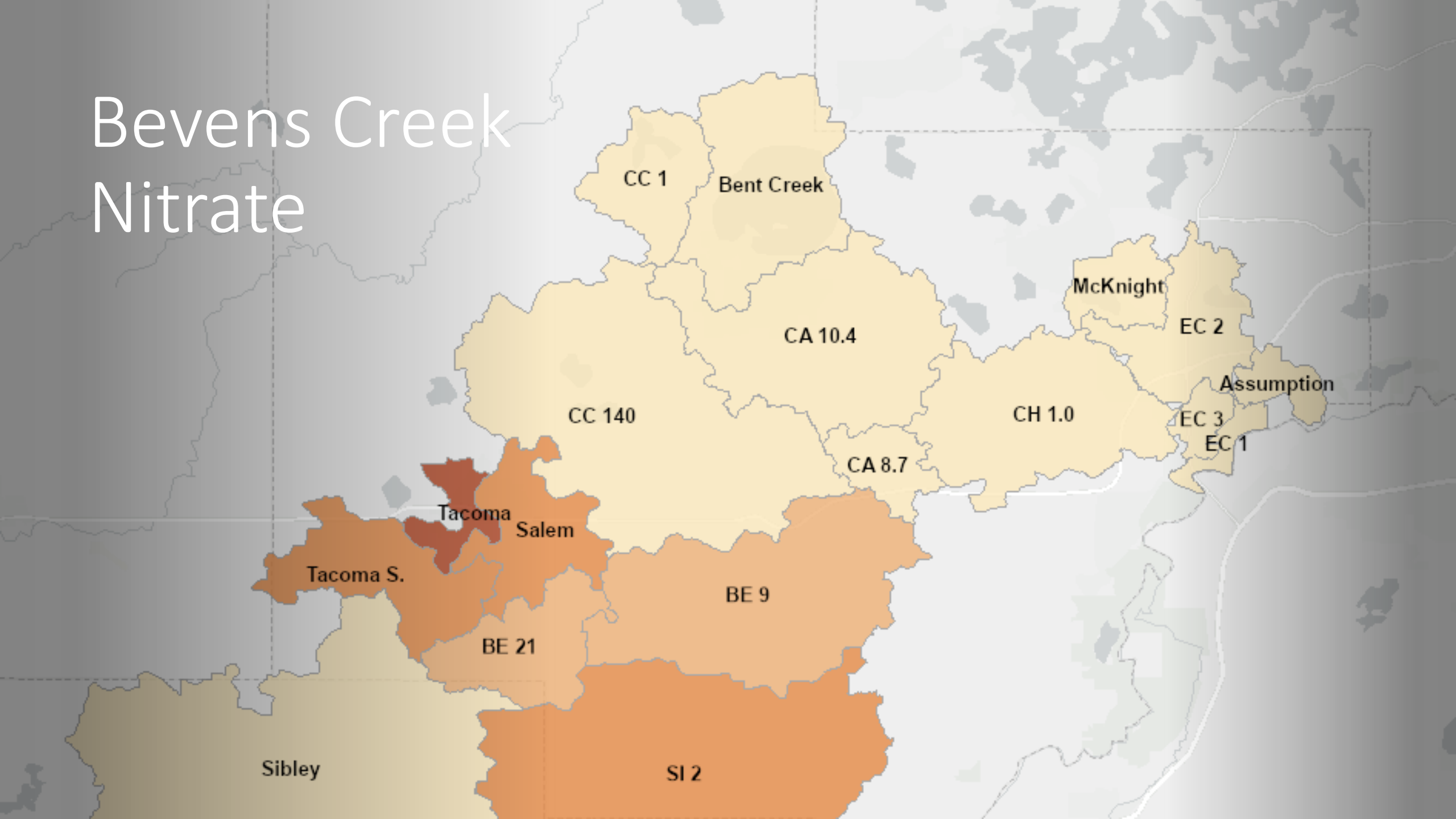




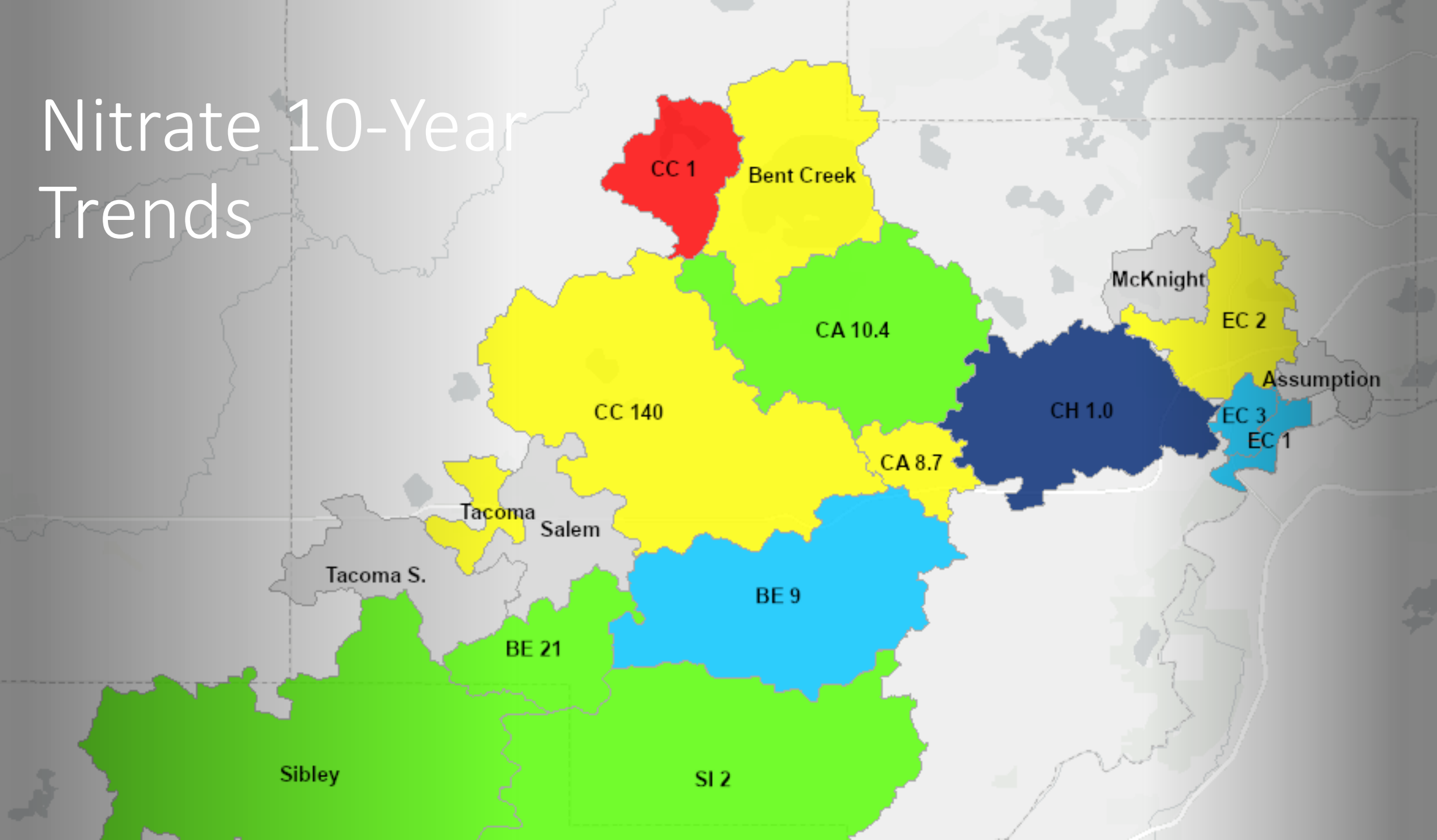
# Avg. Nitrate Concentration



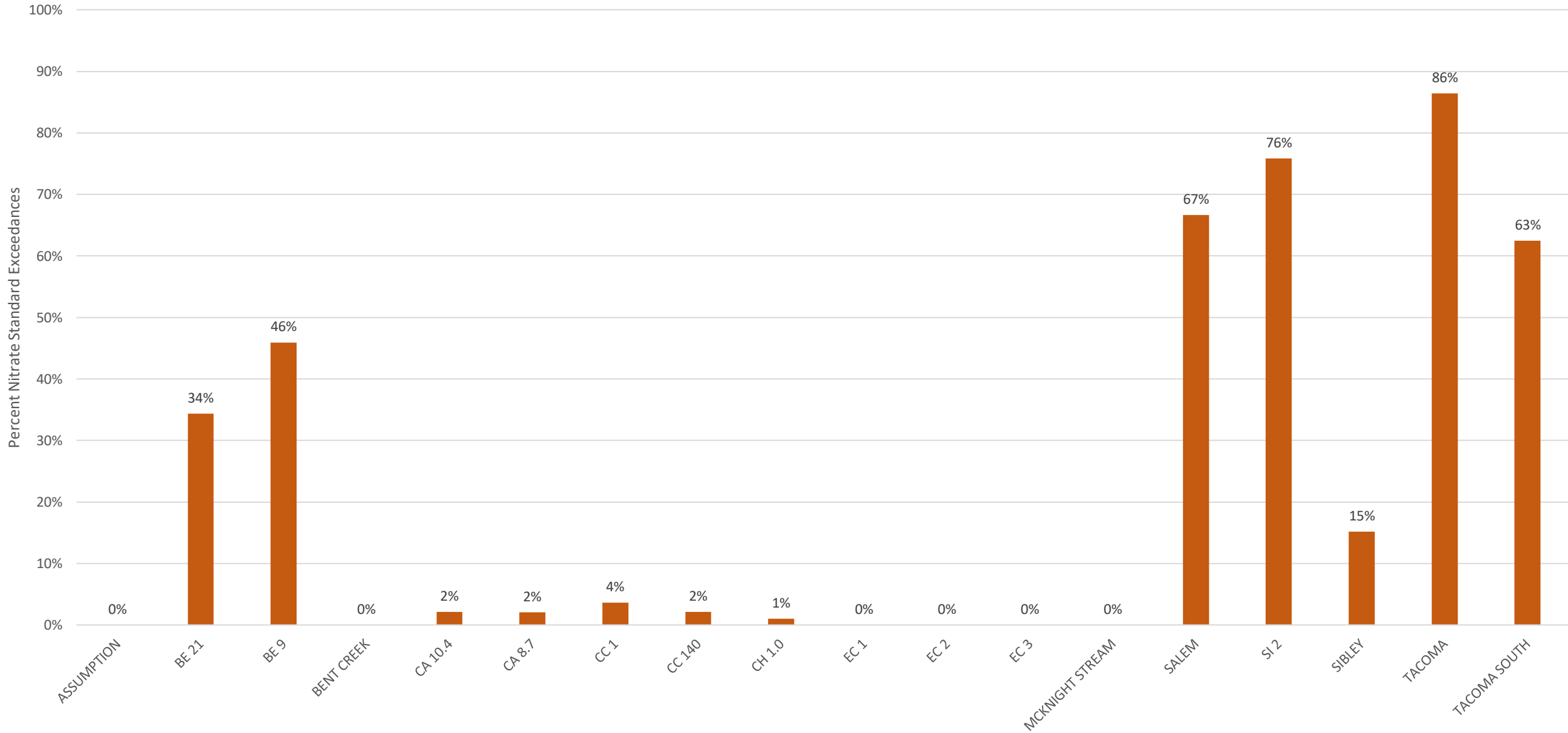
# Bevens Creek Nitrate



# Nitrate 10-Year Trends



# Percent Nitrate Standard Exceedances - 10 Years



# 2023 Lake Biomonitoring Summary

- Aquatic vegetation surveys - 4 surveys
- Fish surveys - 6 lakes, 7 surveys
- Zooplankton monitoring - 4 lakes monitored monthly
- Native mussel monitoring - 1 lake, 4 surveys



# Aquatic Vegetation Surveys

Community Richness

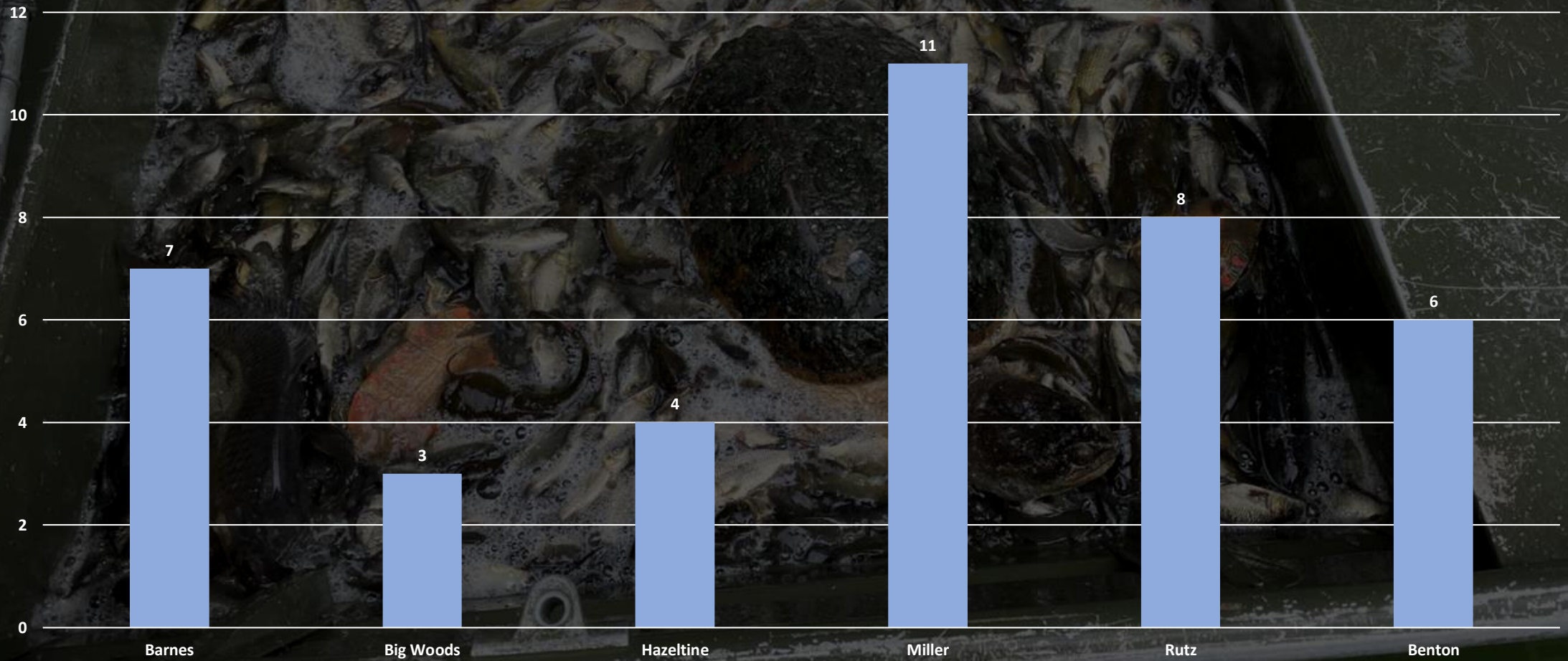


Floristic Quality Index

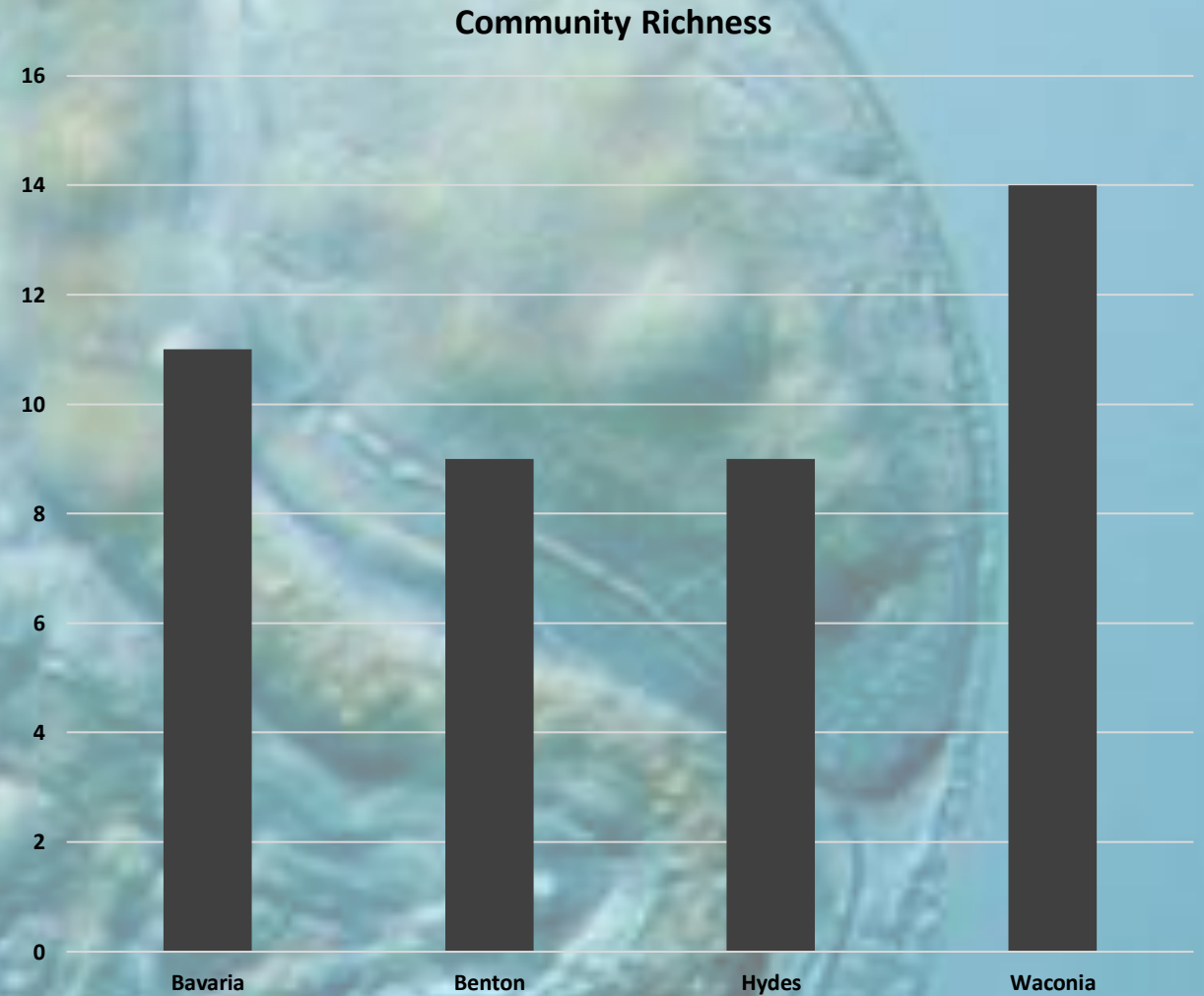
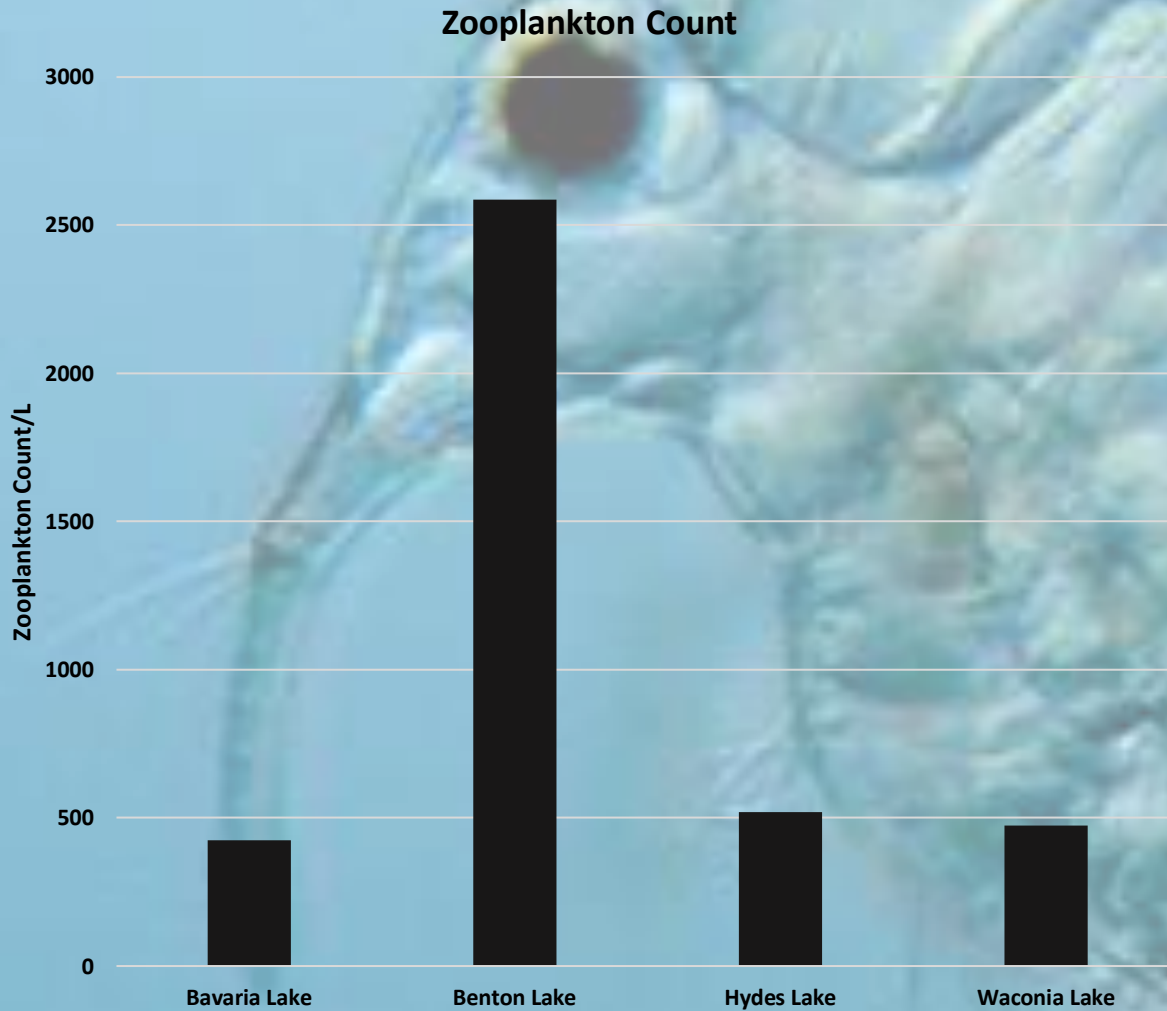


# Fish Surveys

## Community Richness



# Zooplankton Monitoring





# Lake Native Mussel Monitoring

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- Piersons Lake
- 667 mussels sampled
  - 2 Species
    - Giant floater-508
    - Fatmucket-159





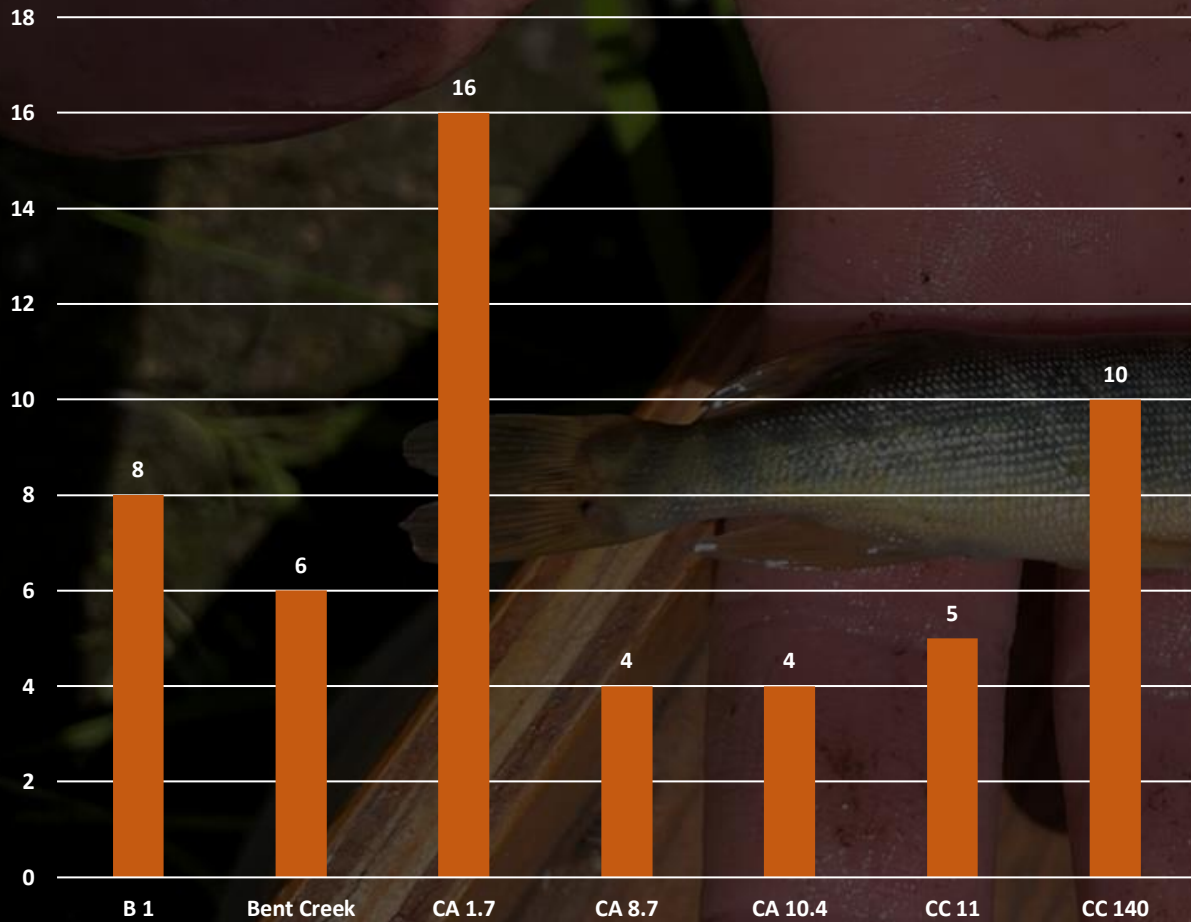
# 2023 Stream Biomonitoring Summary

- Fish surveys - 7 surveys completed on Carver Creek
- Native mussel surveys - 12 surveys
- Macroinvertebrate surveys - 4 surveys

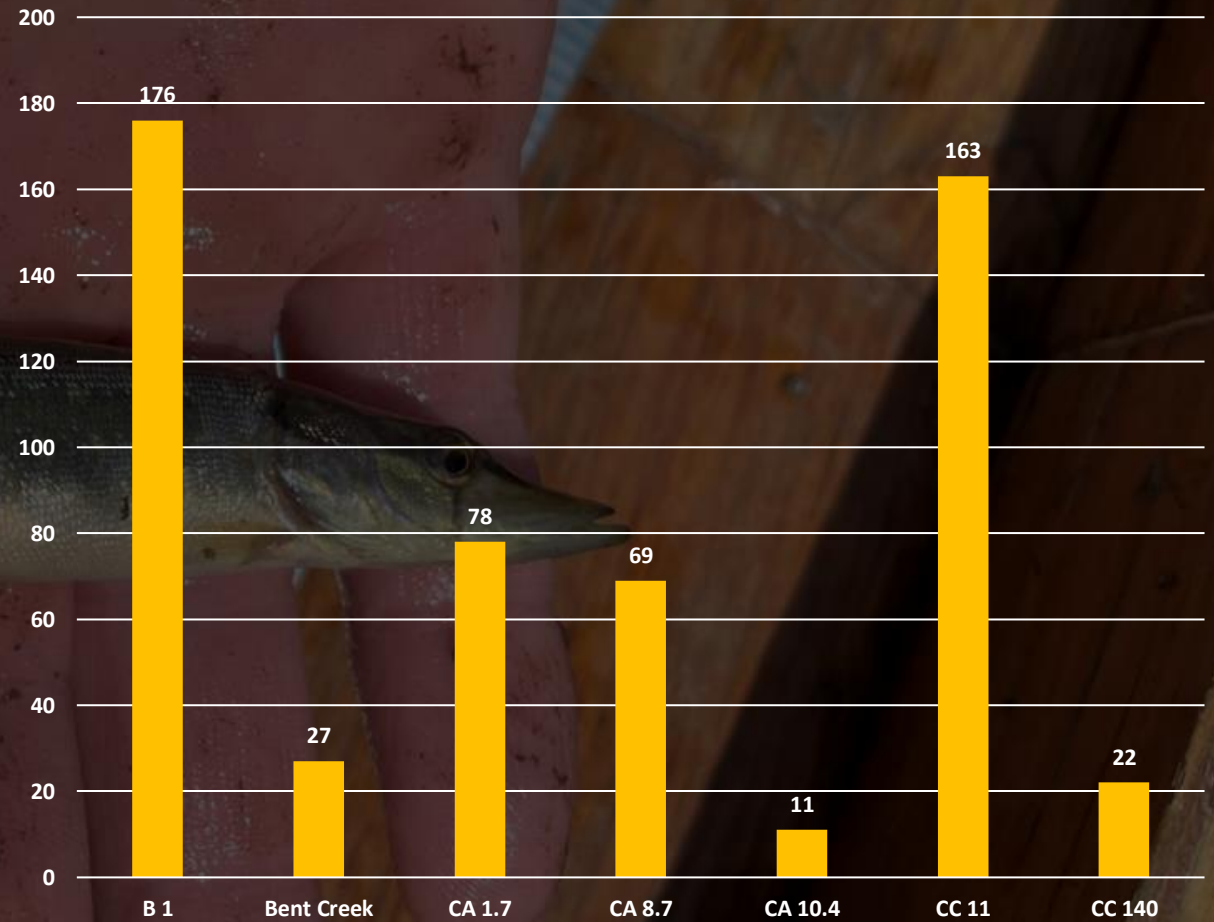


# Stream Fish Surveys

## Community Richness



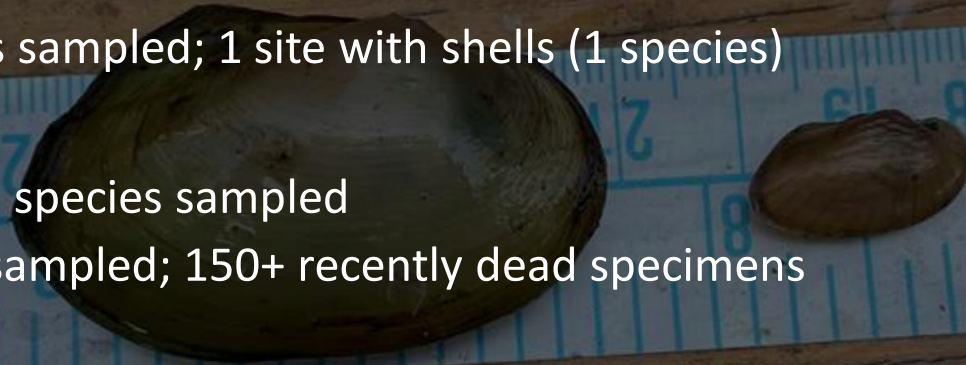
## Fish Count



# Stream Native Mussel Surveys

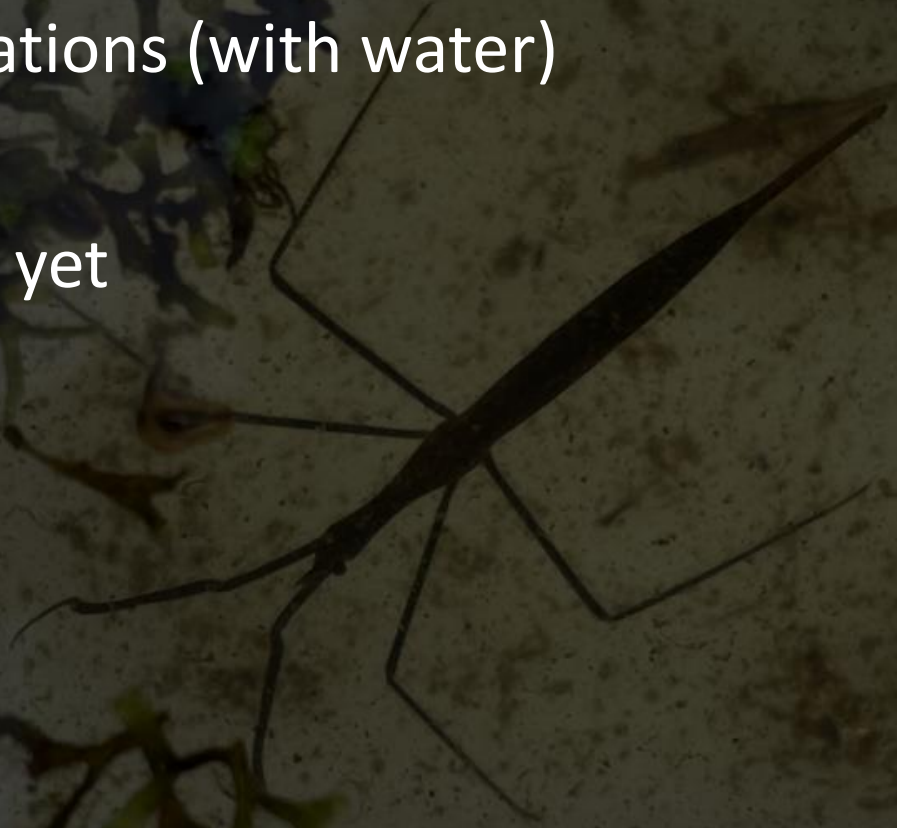
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- Chaska Creeks
  - 7 sites sampled
  - No live specimens sampled; 1 site with shells (1 species)
- Buffalo Creek
  - 2 sites sampled; 5 species sampled
  - 4 live specimens sampled; 150+ recently dead specimens
- South Fork Crow River
  - 1 site sampled; 5 species sampled
  - 43 live specimens sampled
- Bevens Creek
  - 1 site sampled; 1 species sampled
  - 26 live specimens sampled

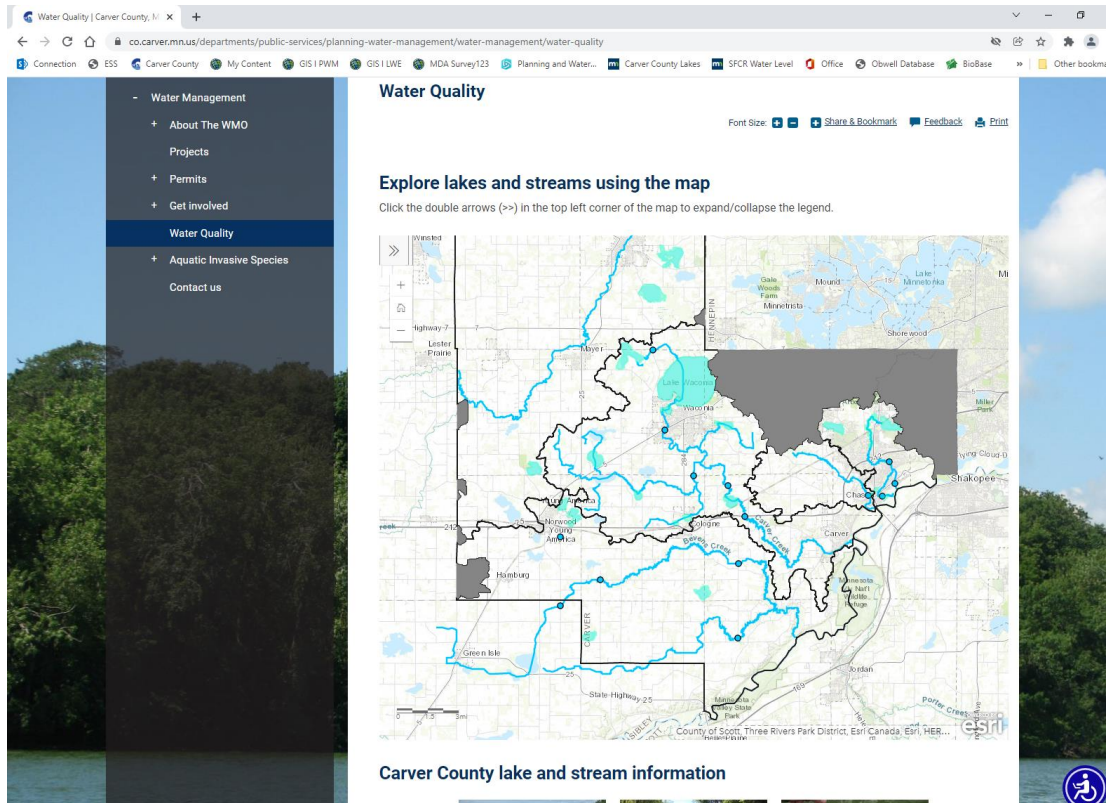


# Stream Macroinvertebrate Monitoring

- 4 random stream locations (with water)
- Samples not counted yet



# Full Reports Can Be found on Our Website



- [Water quality website](#)
- [Lakes Report](#)
- [Streams Report](#)
- [Fish Surveys](#)
- [Aquatic Vegetation Surveys](#)
- [Native Mussel Surveys](#)
- [Macroinvertebrates](#)

A winter landscape featuring a snow-covered field with a narrow, partially frozen stream or ditch winding through it. Bare trees and shrubs are scattered throughout the scene, and the sky is a uniform, overcast grey. The overall tone is muted and cold.

Questions?