



Stantec

Grant-funded lake projects update

SCWM monthly
meeting October 12,
2023





Agenda

1. Crystal Lake Management Plan (319 grant)
2. Meadow Lake Drawdown and Management Plan (CWF grant)
3. Bass Lake Vegetation Improvements (DNR CPL grant)

Crystal Lake – 2023 Activities

Monitoring

- Water quality monitoring – City of Robbinsdale
- Curly-leaf pondweed visual inspection
- Sediment cores (Oct 4, 2023)

Management

- Carp removals

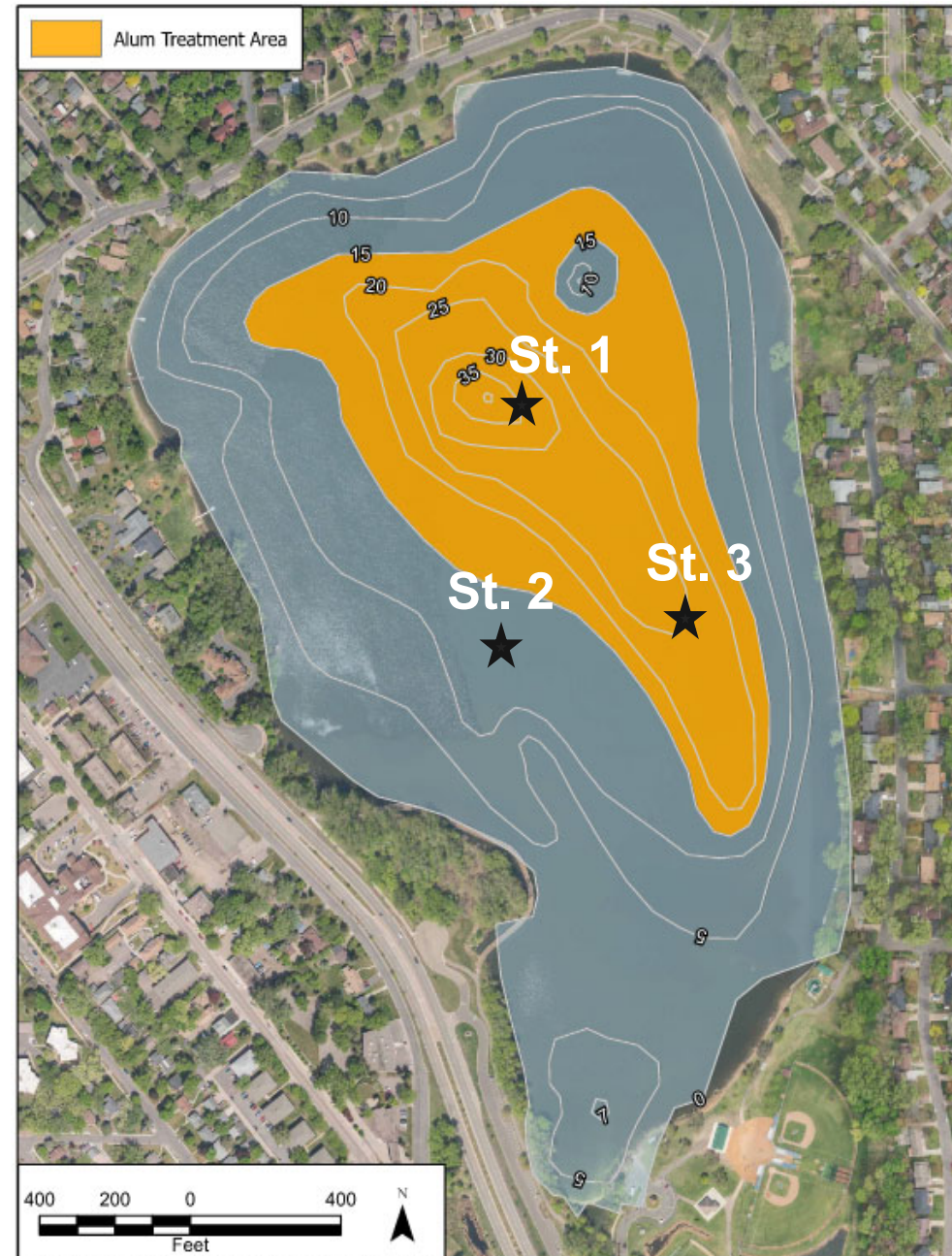
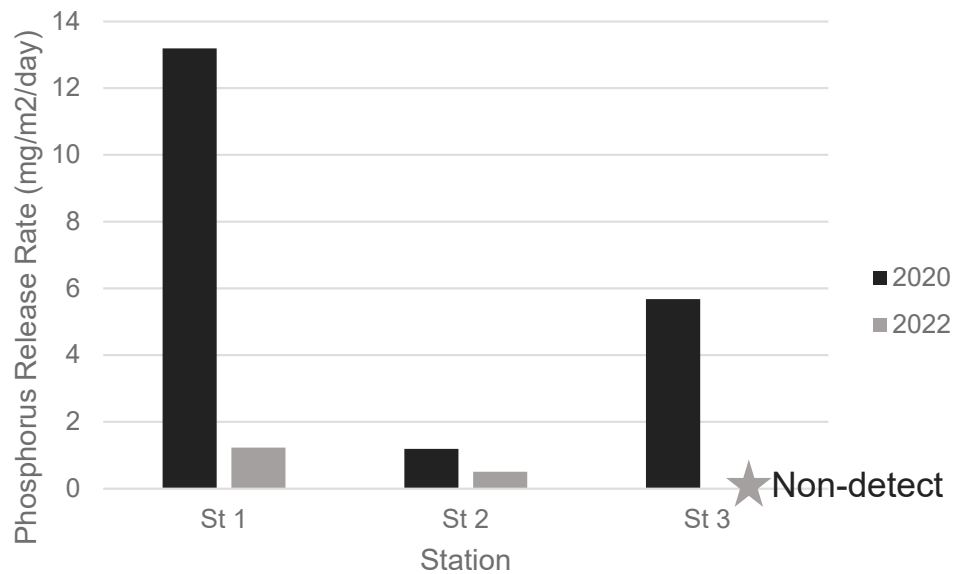
Crystal Lake Alum Treatment



Alum treatments in September 2021 & 2022

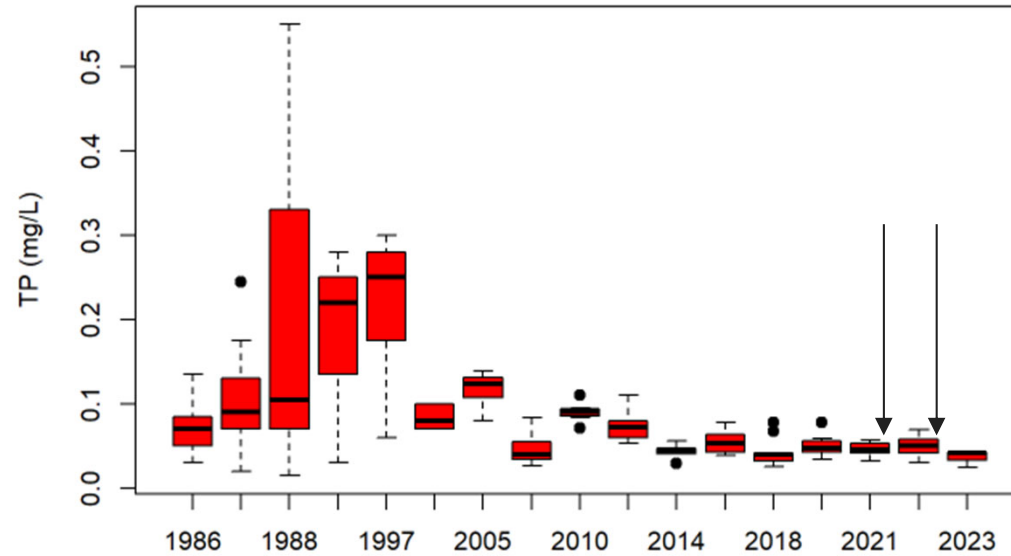
Crystal Lake Alum Treatment

Sediment Core Release Rates

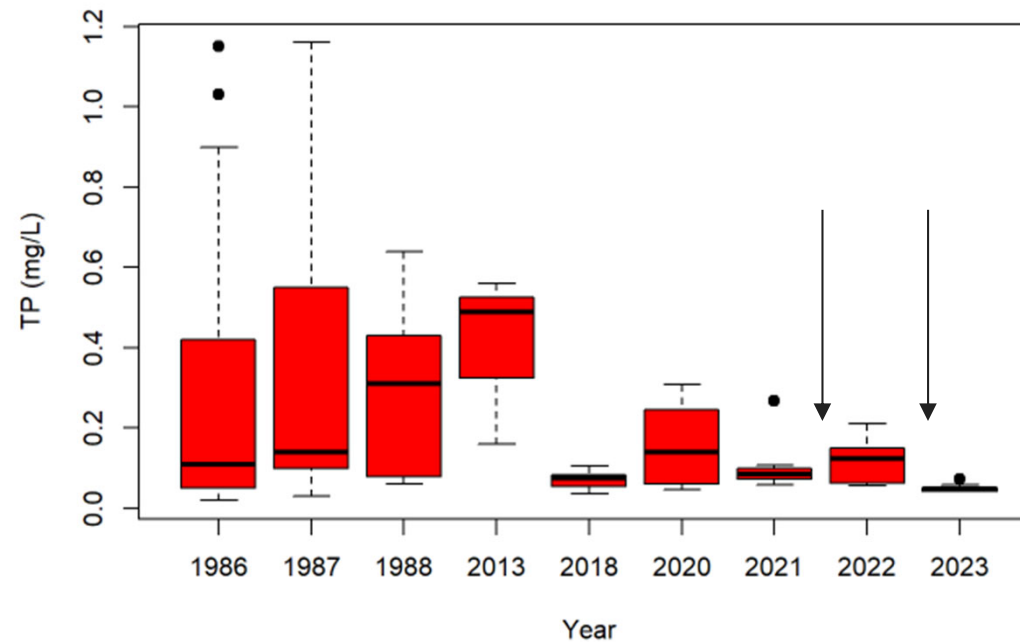


Crystal Lake Water Quality

Crystal Lake Surface Total Phosphorus



Crystal Lake Depth Total Phosphorus



surface

depth

Crystal Lake Carp Removals 2023



- 9 removal events
- 1,394 captured & removed

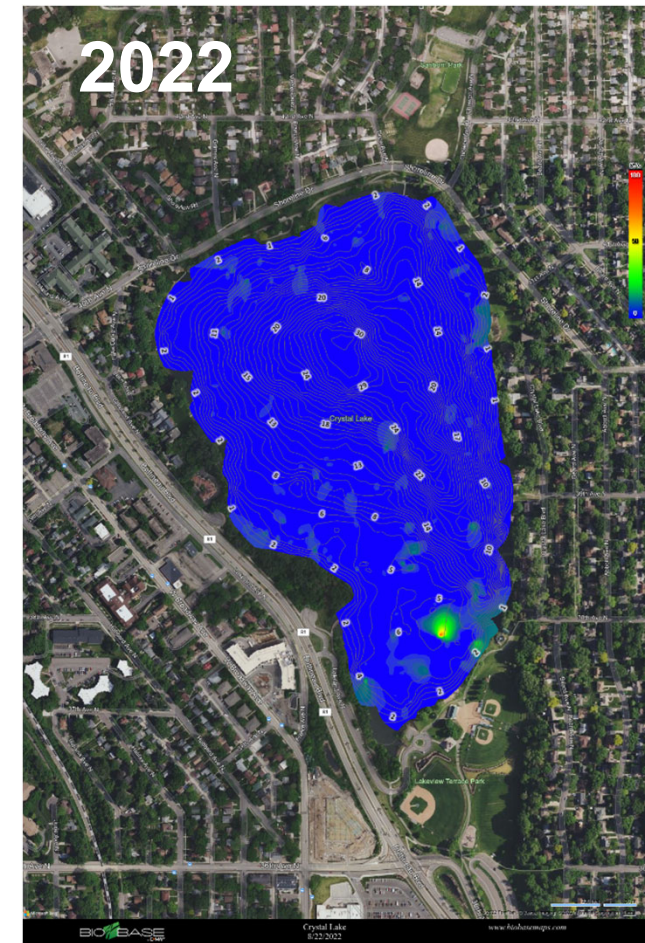
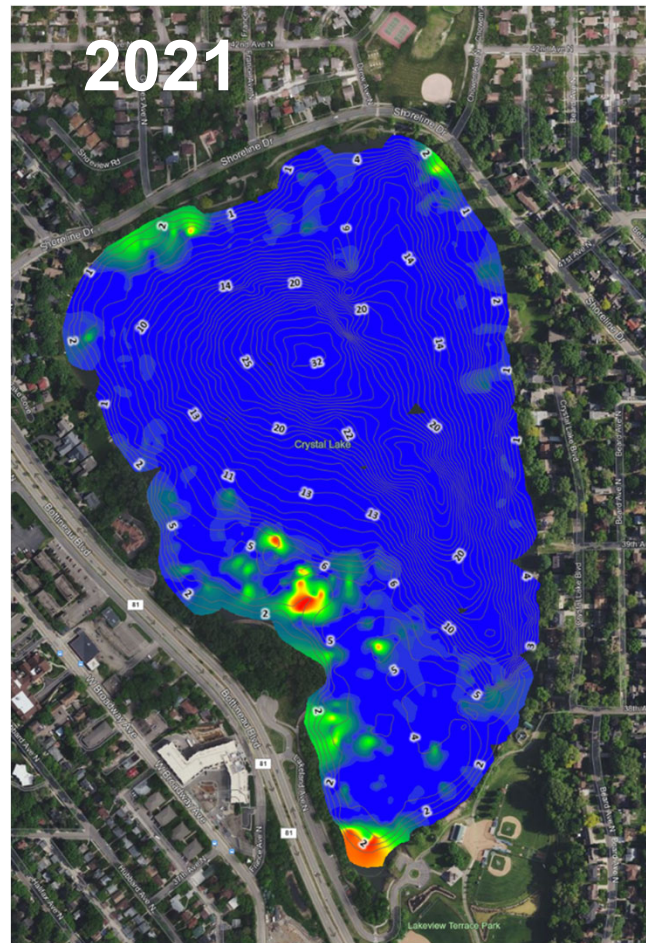
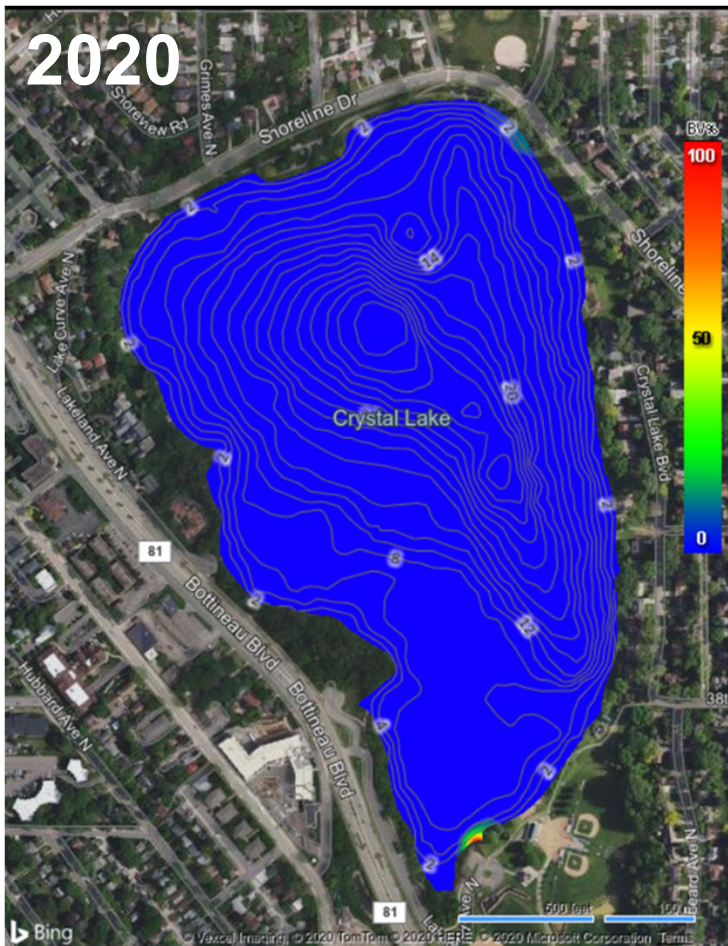


Crystal Lake Carp Removals Summary

Initial carp population was estimated in 2020: 12,011 carp

	2020	2021	2022	2023
Carp Removed	0	3,923	3,626	1,394
Biomass Remaining (lbs/acre)	436	293	165	117
Goal Biomass (lbs/acre)	89			

Crystal Lake Aquatic Plants



Two species in the lake in low abundance

- White waterlily
- Curly-leaf pondweed

Crystal Lake Remaining Tasks

- Assess sediment core results
- Close out grant in December
- Routinely monitor for future management

Grant Project:
Meadow Lake

Meadow Lake Drawdown



Drawdown Winter 2021-2022

Lake filled back up with stormwater in April 2022

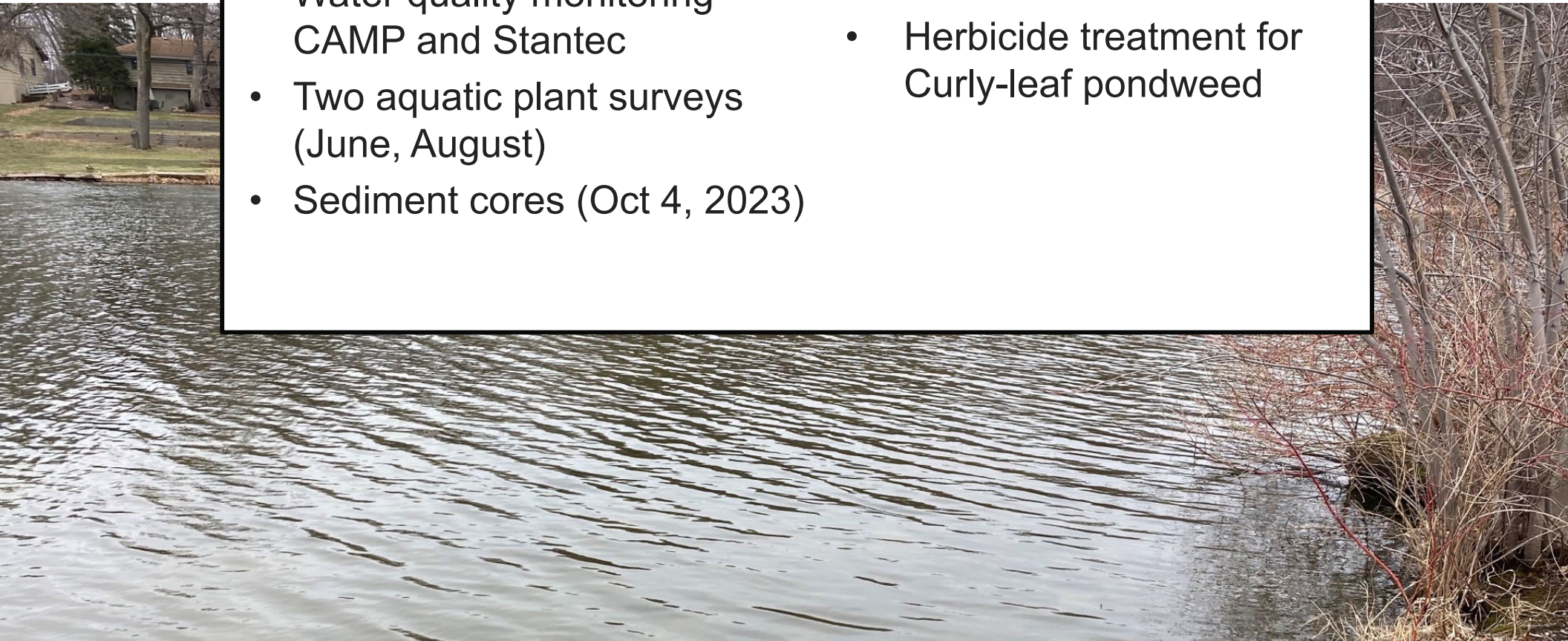
Meadow Lake – 2023 Activities

Monitoring

- Water quality monitoring – CAMP and Stantec
- Two aquatic plant surveys (June, August)
- Sediment cores (Oct 4, 2023)

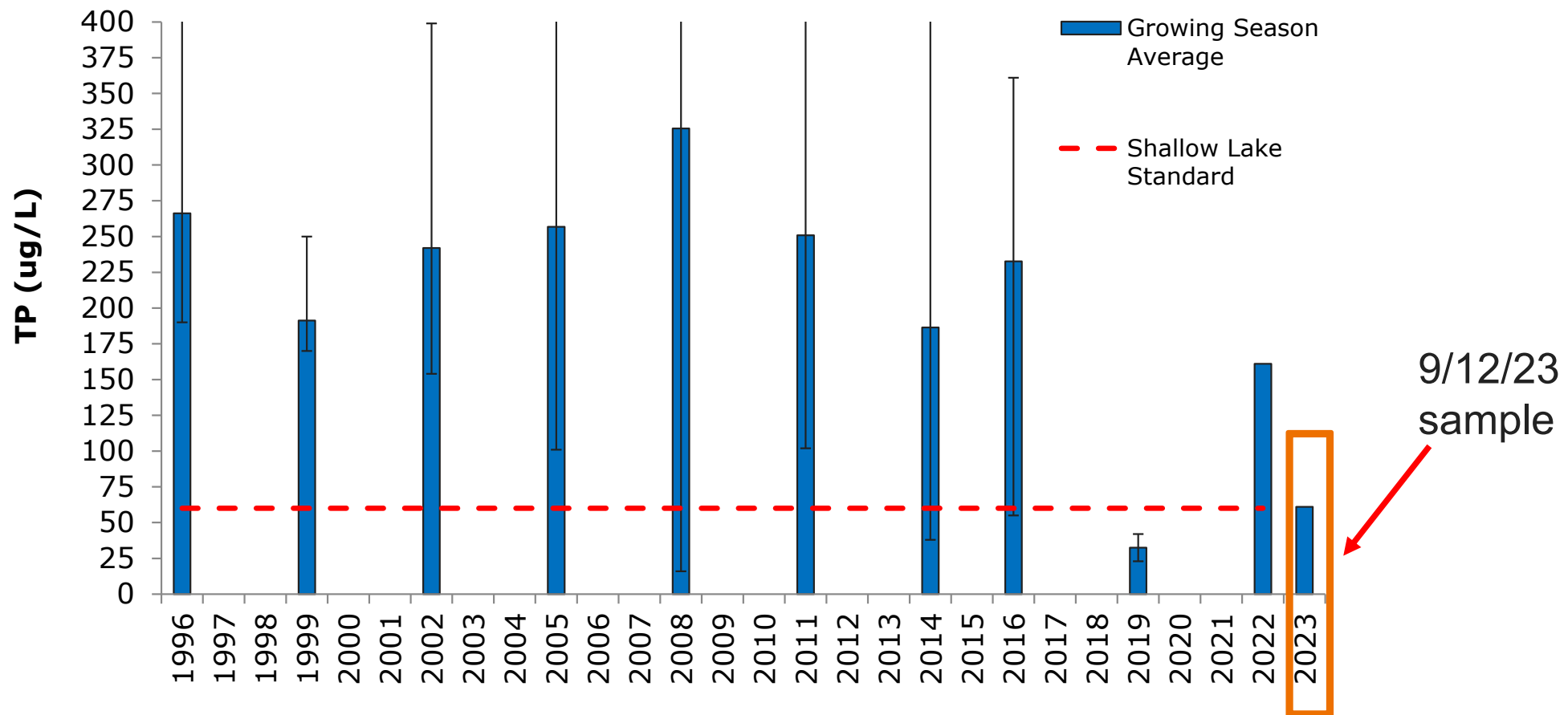
Management

- Alum treatment
- Herbicide treatment for Curly-leaf pondweed



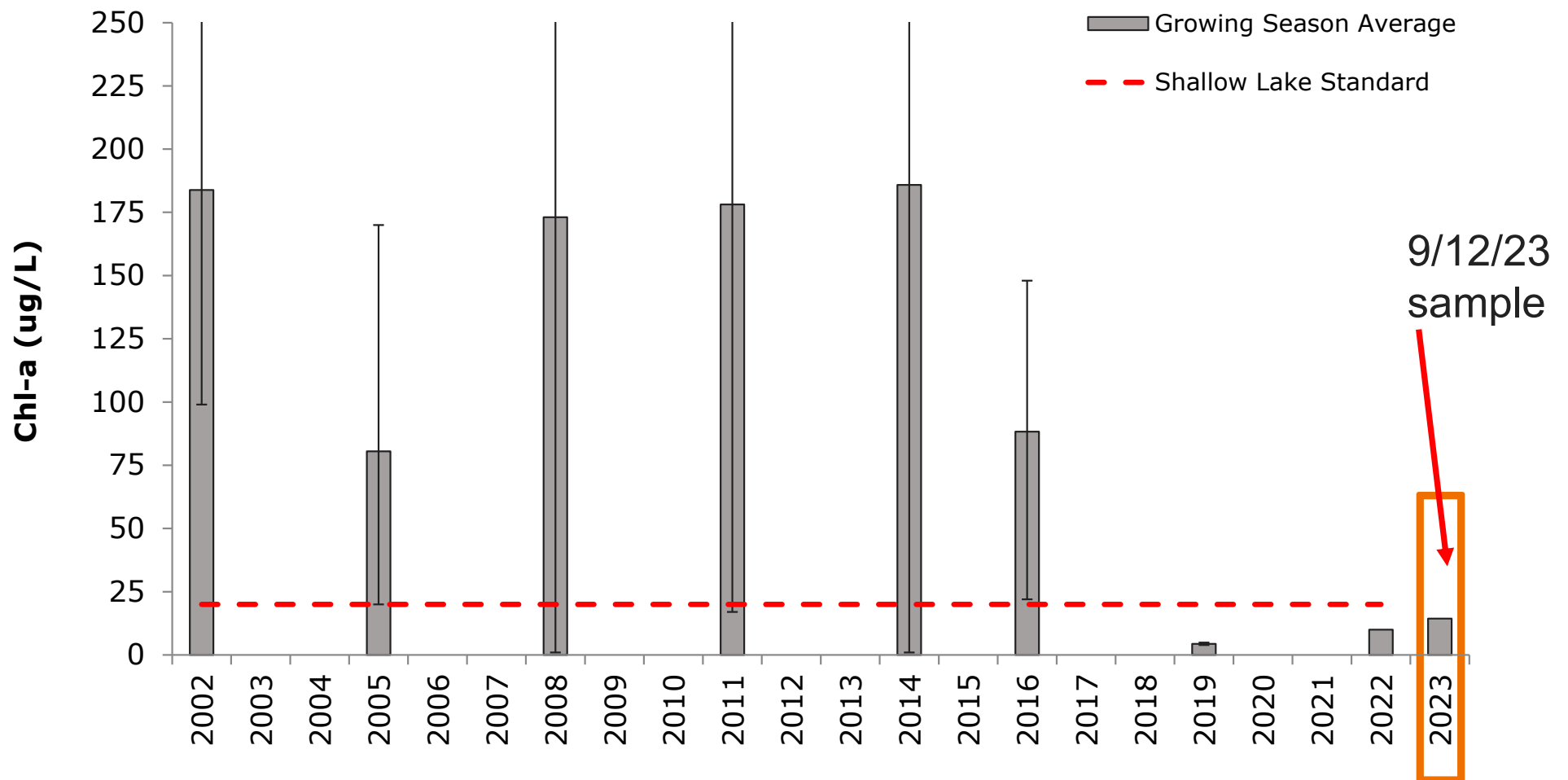
Meadow Lake Water Quality

Meadow Lake Total Phosphorus



Meadow Lake Water Quality

Meadow Lake Chlorophyll-a



Meadow Lake Aquatic Plants - 2022

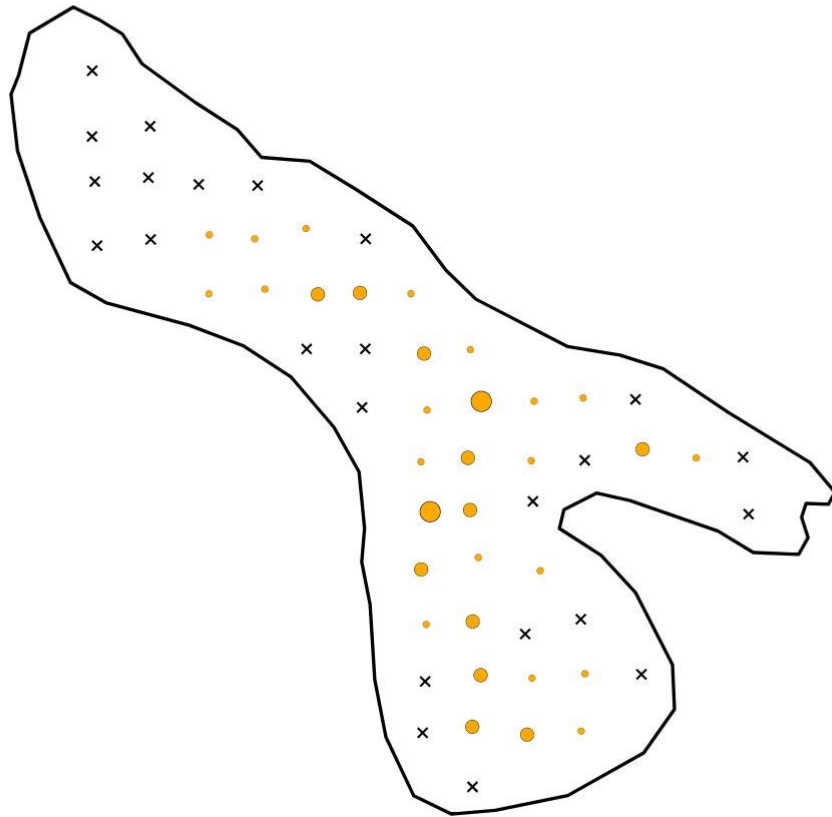
Curly-leaf Pondweed
Density (1-3)

- x 0
- 1
- 2
- 3

Meadow Lake

Curly-leaf Pondweed

07/26/2022



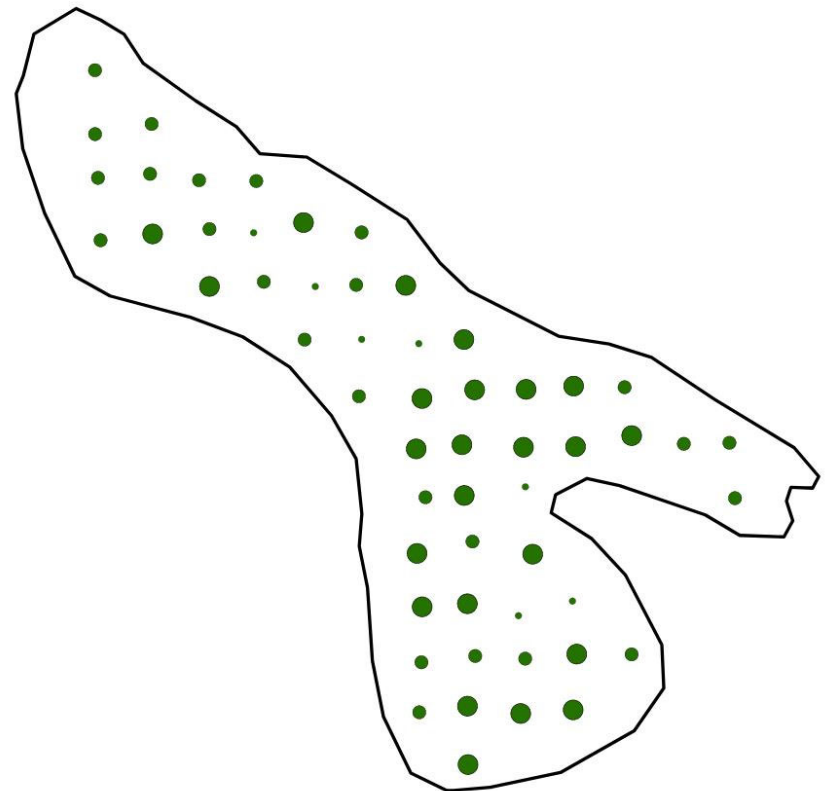
of Taxa

- x 0
- 1-2
- 3-4
- 5-6

Meadow Lake

Number of Taxa

07/26/2022



Meadow Lake Aquatic Plants - 2023

of Taxa

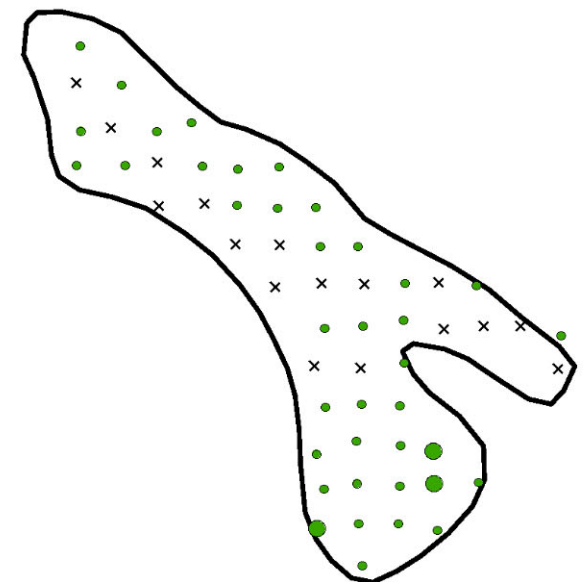
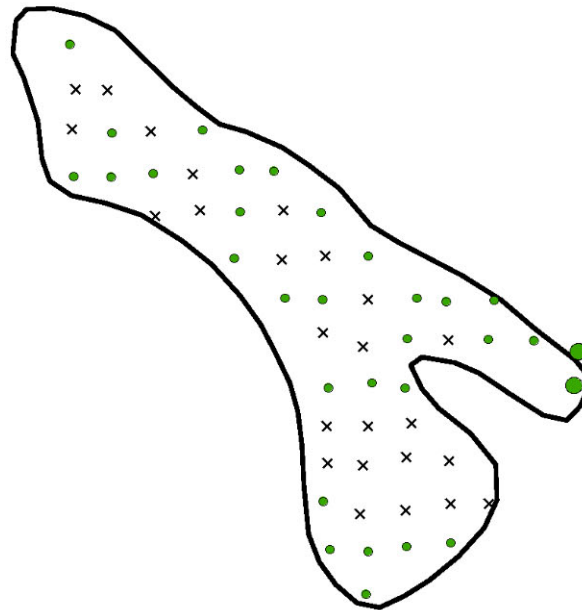
- × 0
- 1 - 3
- 4 - 5

Meadow
Number of Taxa



6/19/2023

8/14/2023



No curly-leaf pondweed
observed following
herbicide treatment

Meadow Lake 2023-2024

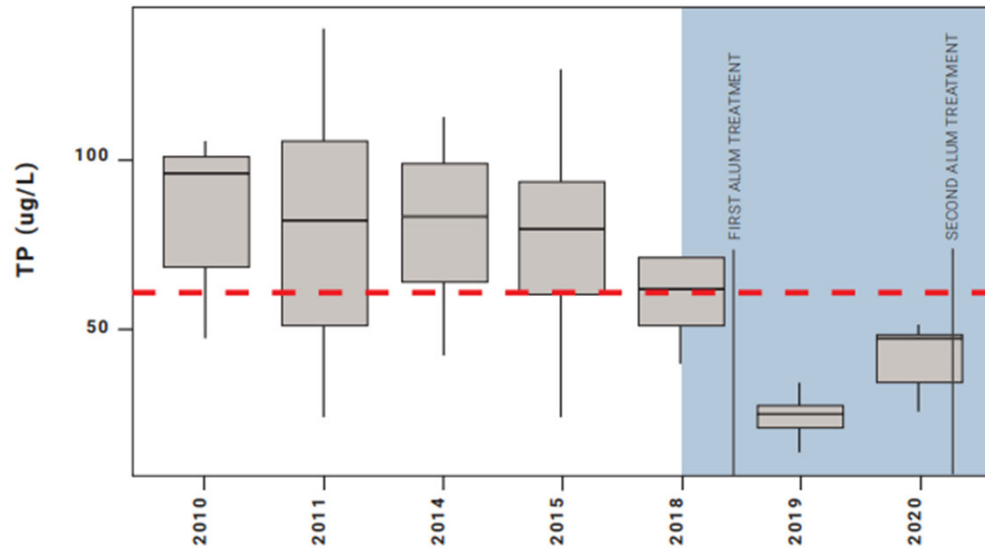
- Cores collected on October 4, 2023
- Two more water quality samples in September/October
- Potential monitoring and management in 2024
 - Aquatic vegetation treatment
 - Water quality monitoring
 - Fish survey



Bass Lake Vegetation Improvements

Grant Project:
Bass Lake
Vegetation
Improvements

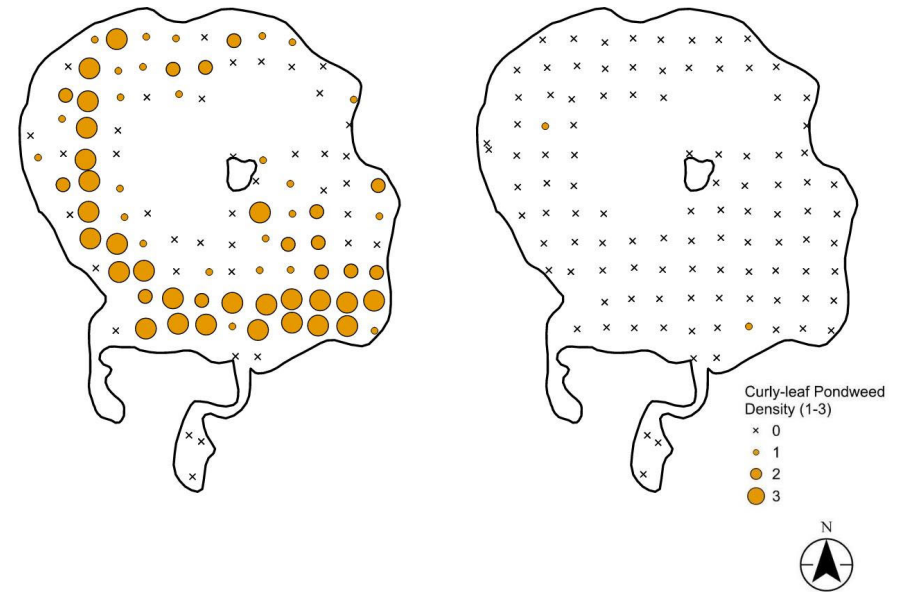
BASS LAKE SUMMER TOTAL PHOSPHORUS



Bass Lake
Curly-leaf Pondweed

5/26/2021

8/17/2021



Bass Lake
Number of Taxa

5/26/2021

8/17/2021

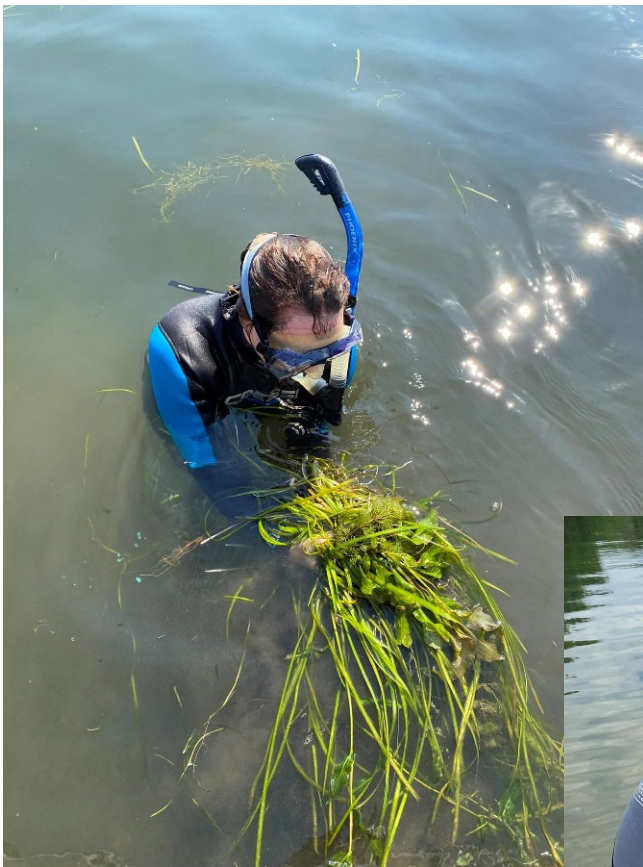


Bass Lake Vegetation Improvements

Plant harvesting
on Big
Carnelian Lake
on July 27th and
September 14th,
2022



- 12 native species collected and placed into coolers, transported to Bass Lake



Bass Lake Vegetation Improvements

Species transplanted Not previously found in lake

- Water marigold
- Robbins pondweed
- Northern milfoil
- White stem pondweed
- White water crowfoot
- Small pondweed
(various species)
- Clasp leaf
pondweed
- Elodea
- Water stargrass
- Naiad
- Large leaf pondweed
- Flat stem pondweed



Bass Lake Vegetation Improvements

Monitoring

- Biweekly monitoring into September 2022 to count plants that survive in each plot
- Difficult to see, high plant mortality
- Largeleaf, water marigold, and flat stem pondweed appeared to have good success

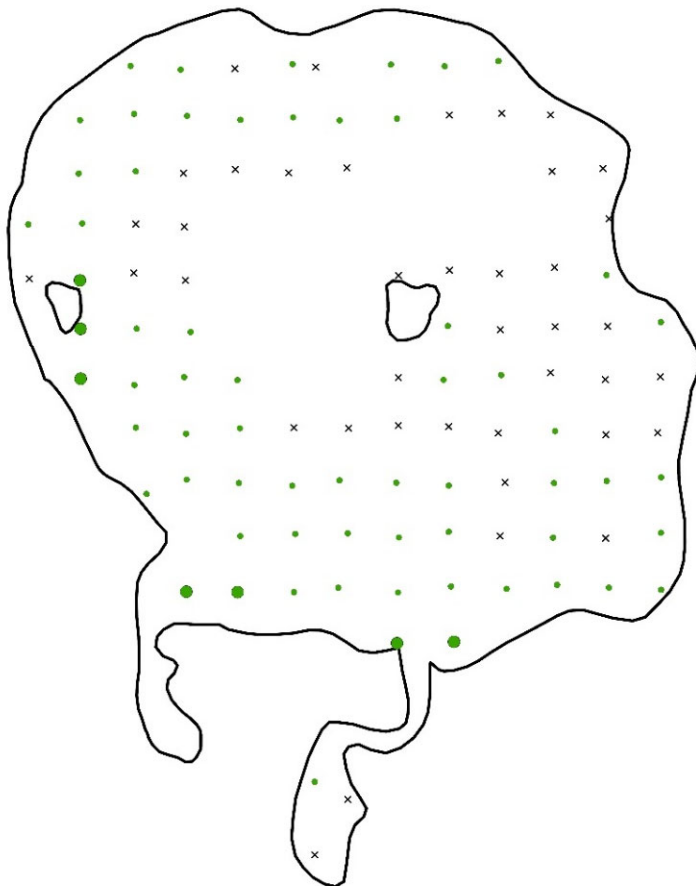


Bass Lake Vegetation Improvements – 2023 Survey

of Taxa

- × 0
- 1 - 3
- 4 - 5

Bass
Number of Taxa
8/21/2023



2023 survey

- 19 species found

Bass Lake Remaining Tasks

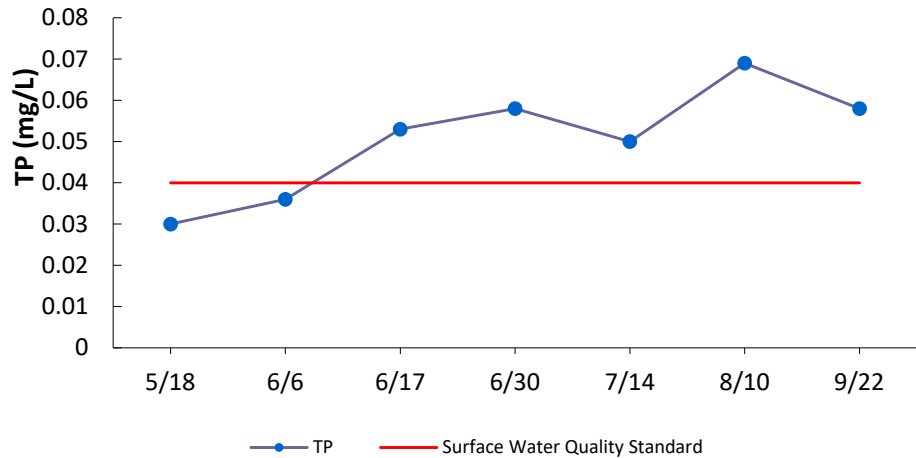
- Close out grant in December
- Curly-leaf pondweed treatment in Spring 2024

Thanks!

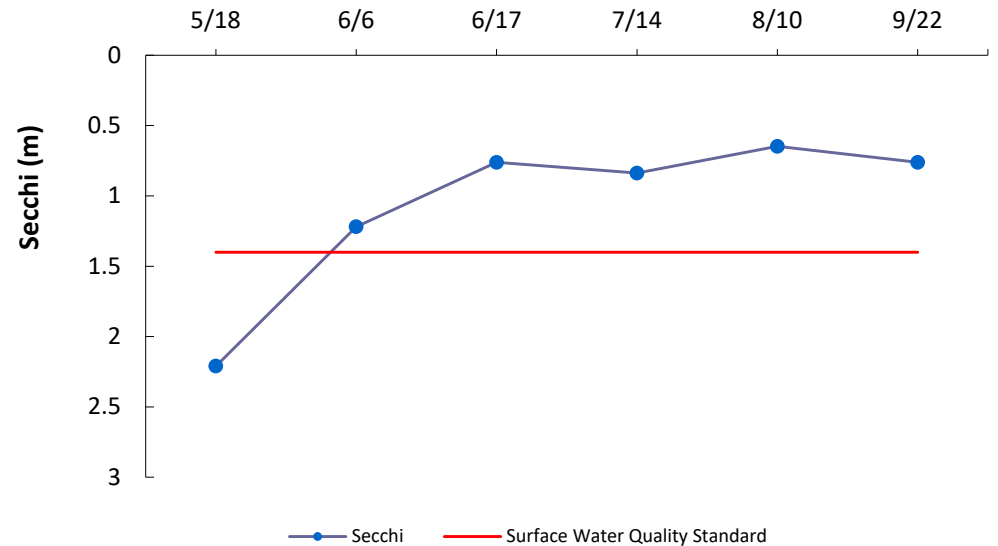


Crystal Lake Water Quality

Crystal Lake Total Phosphorus (Surface)



Crystal Lake Secchi Depth



Crystal Lake Total Chlorophyll-a

