

Yahara River Watershed
USGS Water-Quality Monitoring Update
Dec 17, 2024

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U.S. Geological Survey

Some of the information is preliminary or provisional and is subject to revision. It is being provided to meet the need for timely best science. The information has not received final approval by the U.S. Geological Survey (USGS) and is provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the information.

USGS collaborators over the 30+ years

- CARPC
- Dane County
- DNR
- Madison, Middleton, Westport, Fitchburg
- MMSD, Yahara WINS
- Nature Conservancy
- NRCS
- Sand County Foundation
- Yahara Pride Farms
- Friends of Waubesa Wetlands
- Lake Waubesa Conservation Association



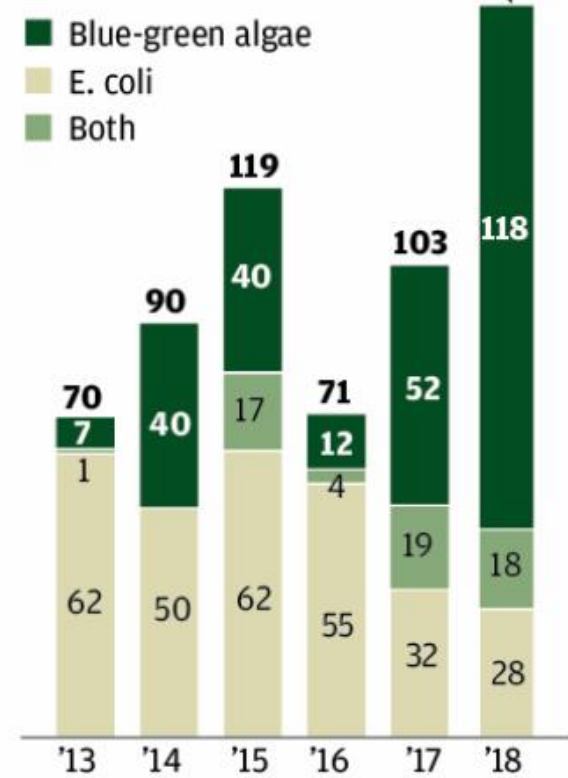
What is the driving force behind

Most beach closings in years

Nutrient runoff helps fuel bacterial growths that forced a record number of Dane County beach closings this year.

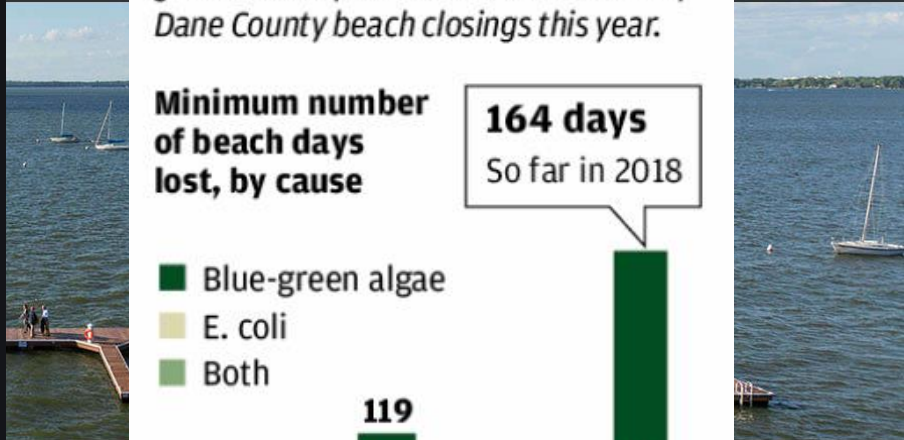
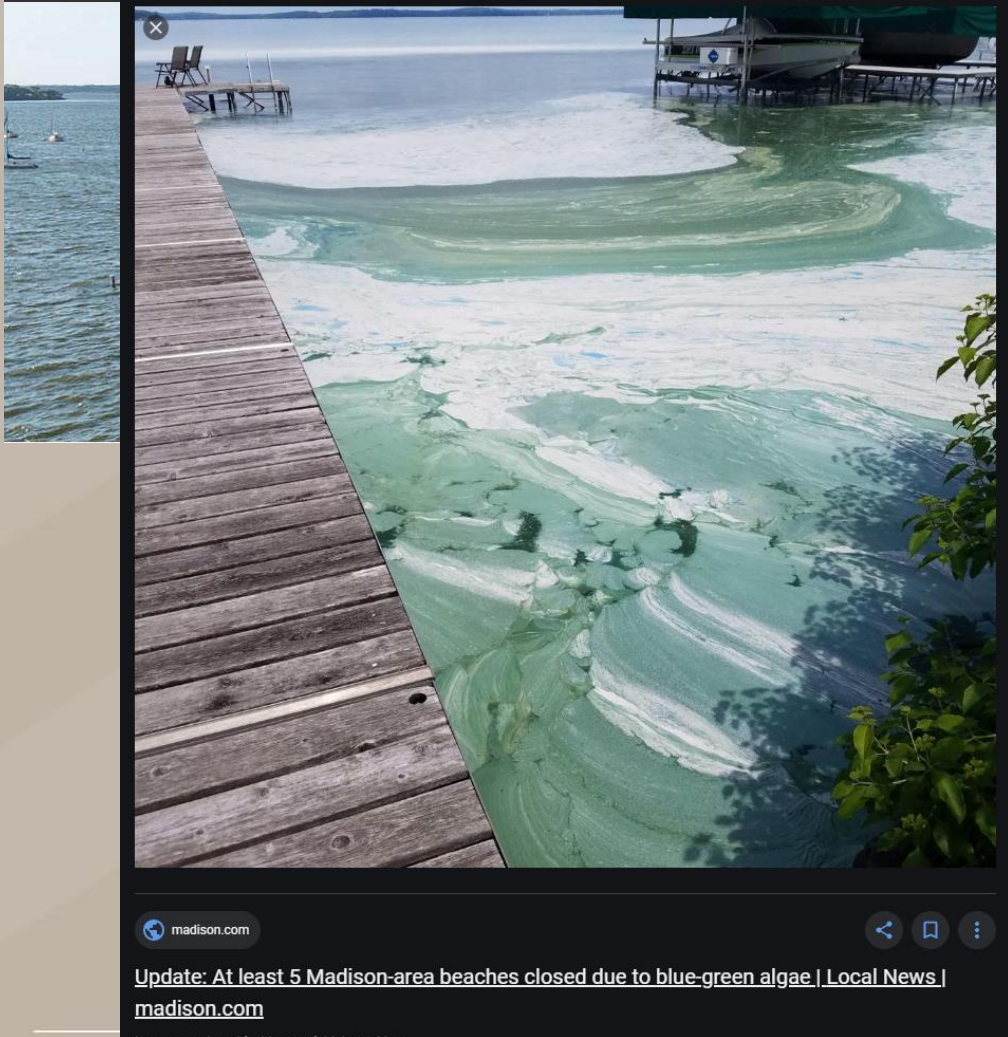
Minimum number of beach days lost, by cause

164 days
So far in 2018



SOURCE: Public Health Madison & Dane County

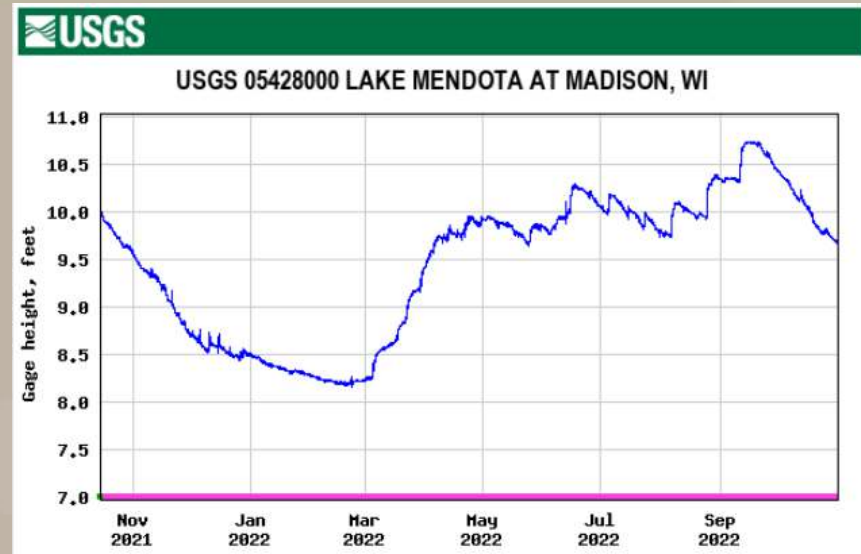
State Journal



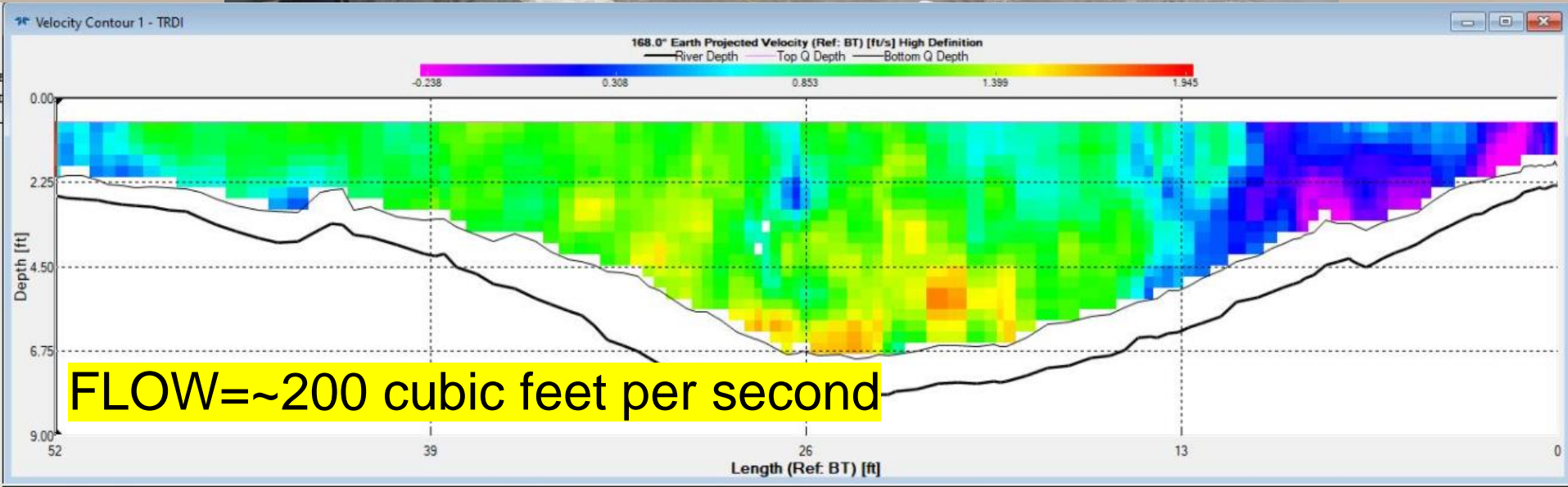
Update: At least 5 Madison-area beaches closed due to blue-green algae | Local News | madison.com

What is being measured?

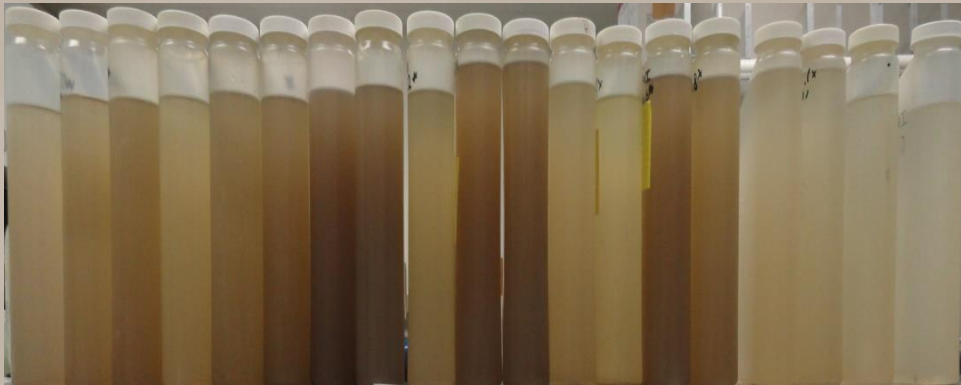
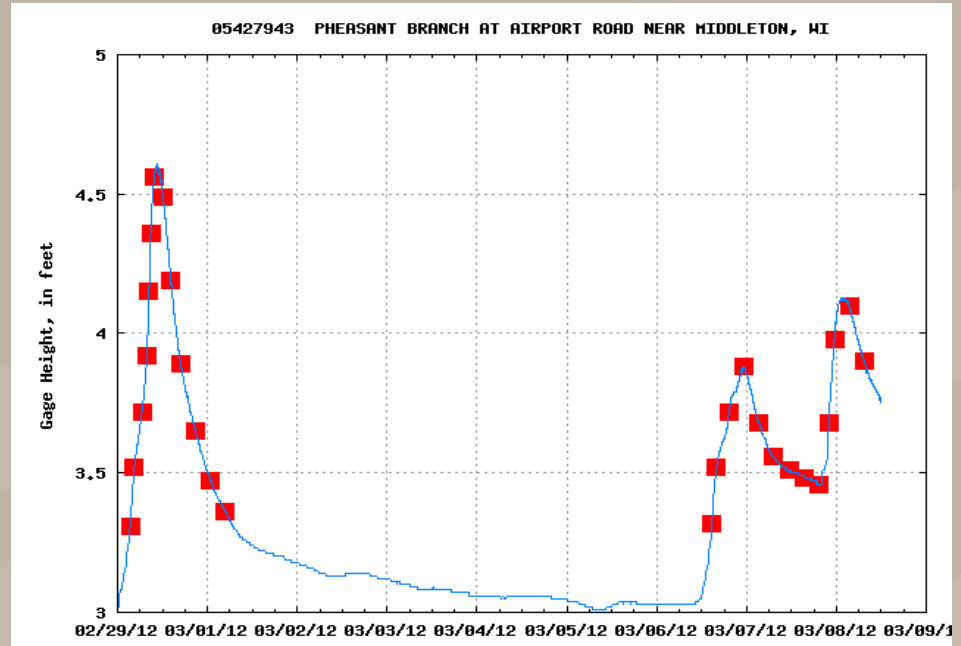
- Water level and/or streamflow
- Periodic water sample concentrations
 - Total Phosphorus
 - Dissolved Phosphorus
 - Suspended Sediment or Suspended Solids
 - Nitrogen (Ammonia, Nitrate, TKN)
 - Chloride



Streamflow



Water-quality sampling



Selected samples sent to lab(s) for analysis

Precipitation characteristics – Water Year 2024



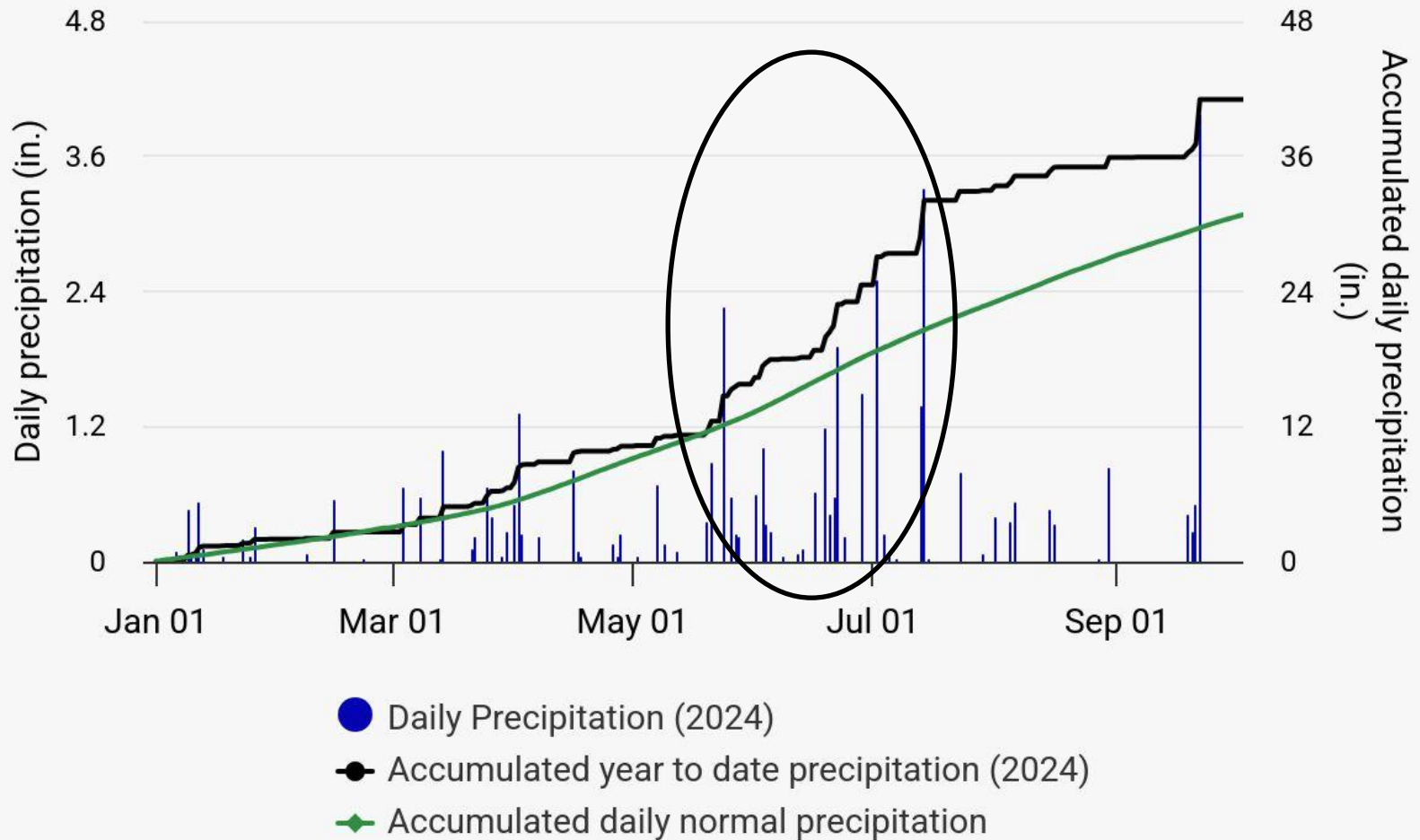
- Rainfall was about 46 in., average is 37
- Drought conditions in the fall/winter/spring, then much rain mid-May – mid-July (~20")

- “Lost Winter” warmest on record (Dec – Feb) on record.
- WI winter record 77 degrees on Feb 27 in Kenosha. 2 tornadoes in February.
- Ice cover on lakes – 2nd shortest (44 days)
- Snowfall was ~43 in., average is 52 in.



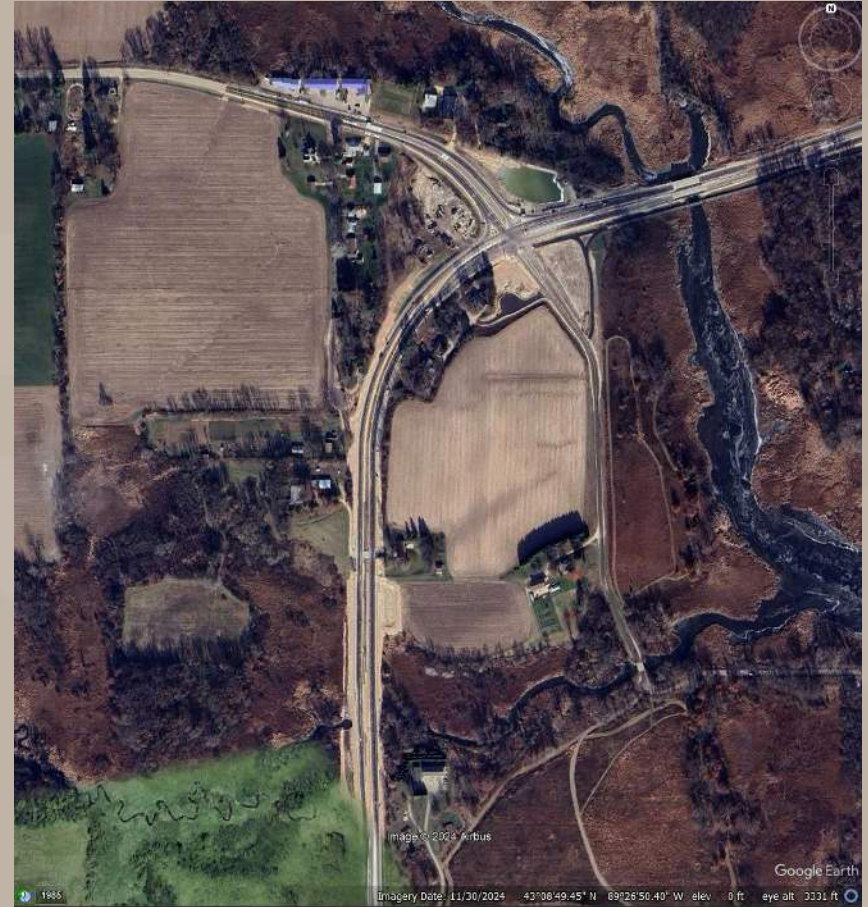
WY2024 Precipitation

Madison, Wisconsin, Precipitation (2024)



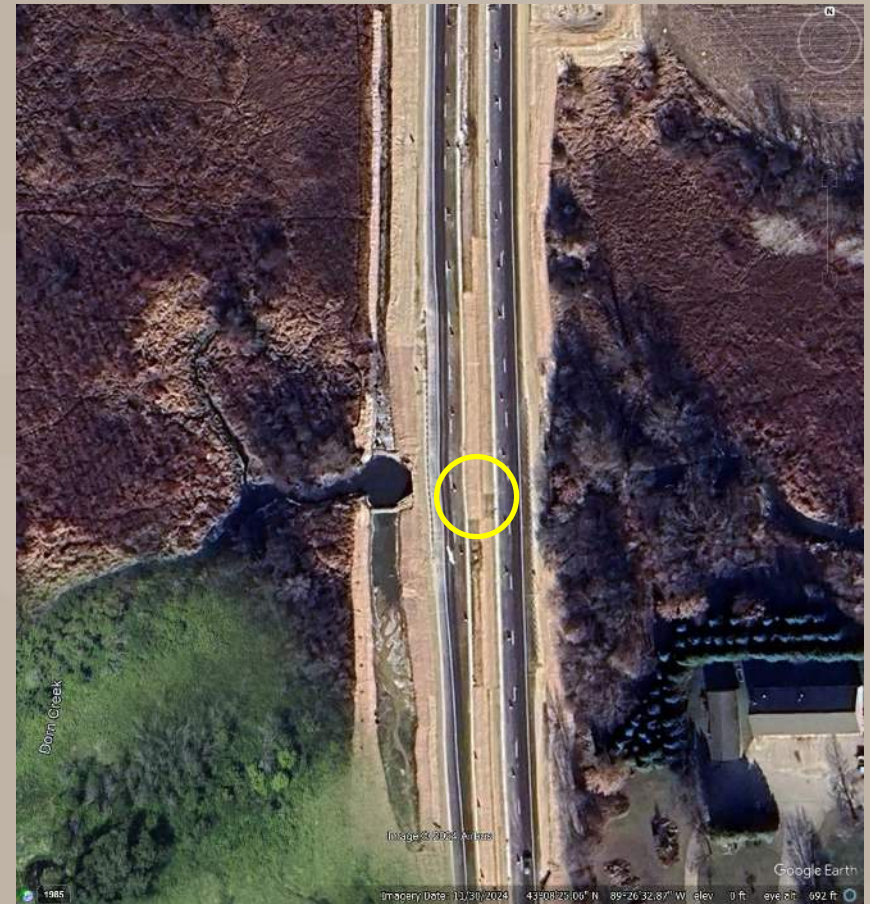
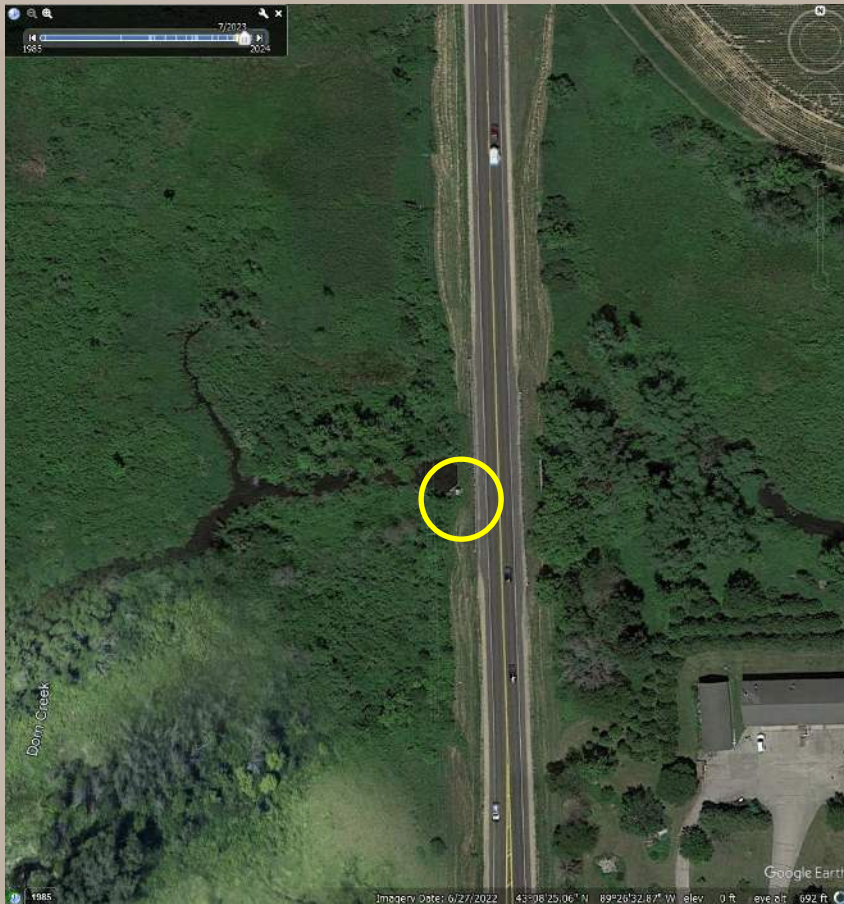
Highcharts.com

Challenges – Hwy M Road Construction



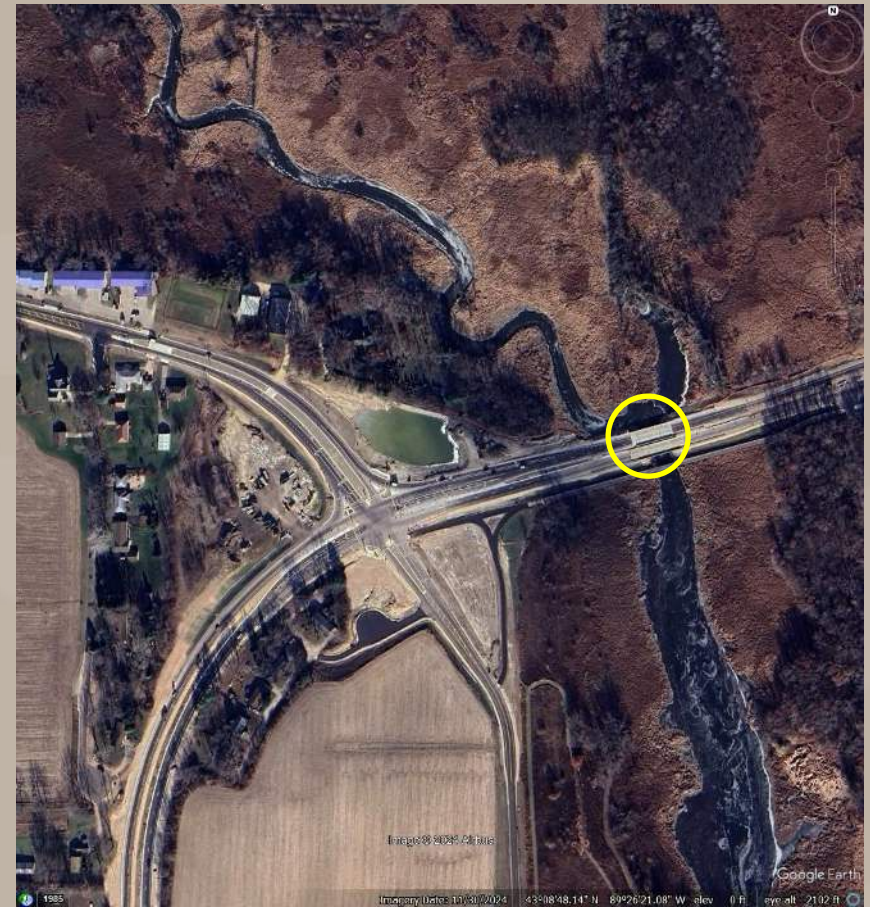
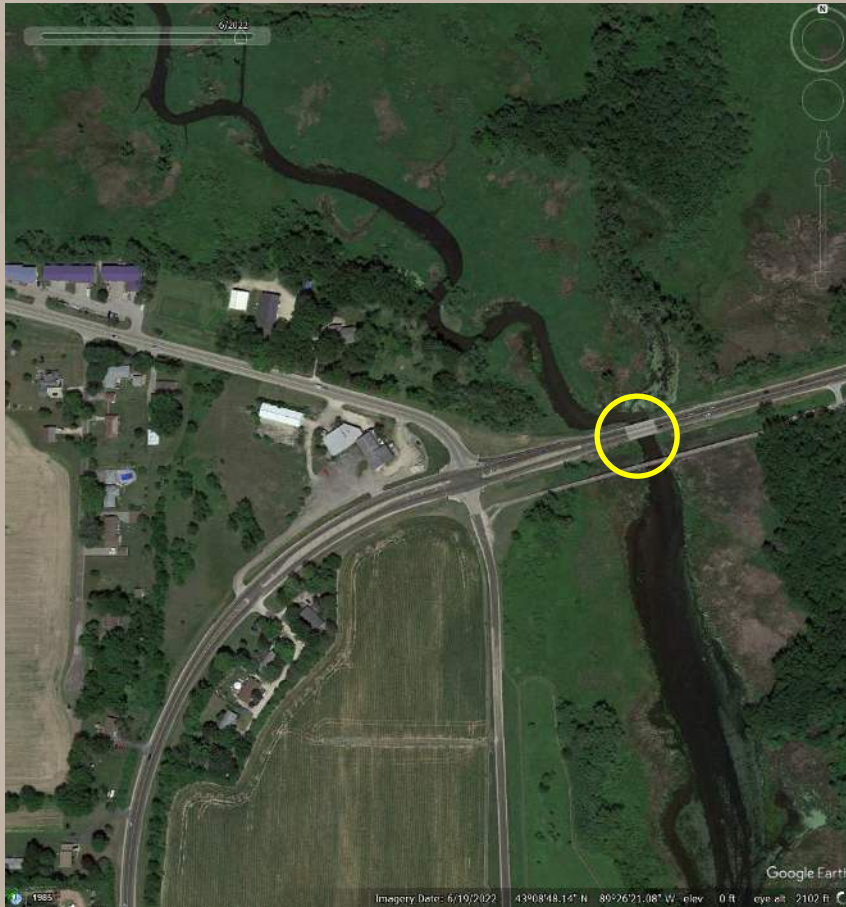
Dorn Creek at Hwy Q – extended culvert West

Moved monitoring station from W to E side of the road June 2023



Sixmile Creek at Hwy M – new bridge deck, additional lane on the south side

- Installed monitoring station upstream at Woodland drive June 2023
- Temporarily discontinued monitoring at Hwy M location May 2024

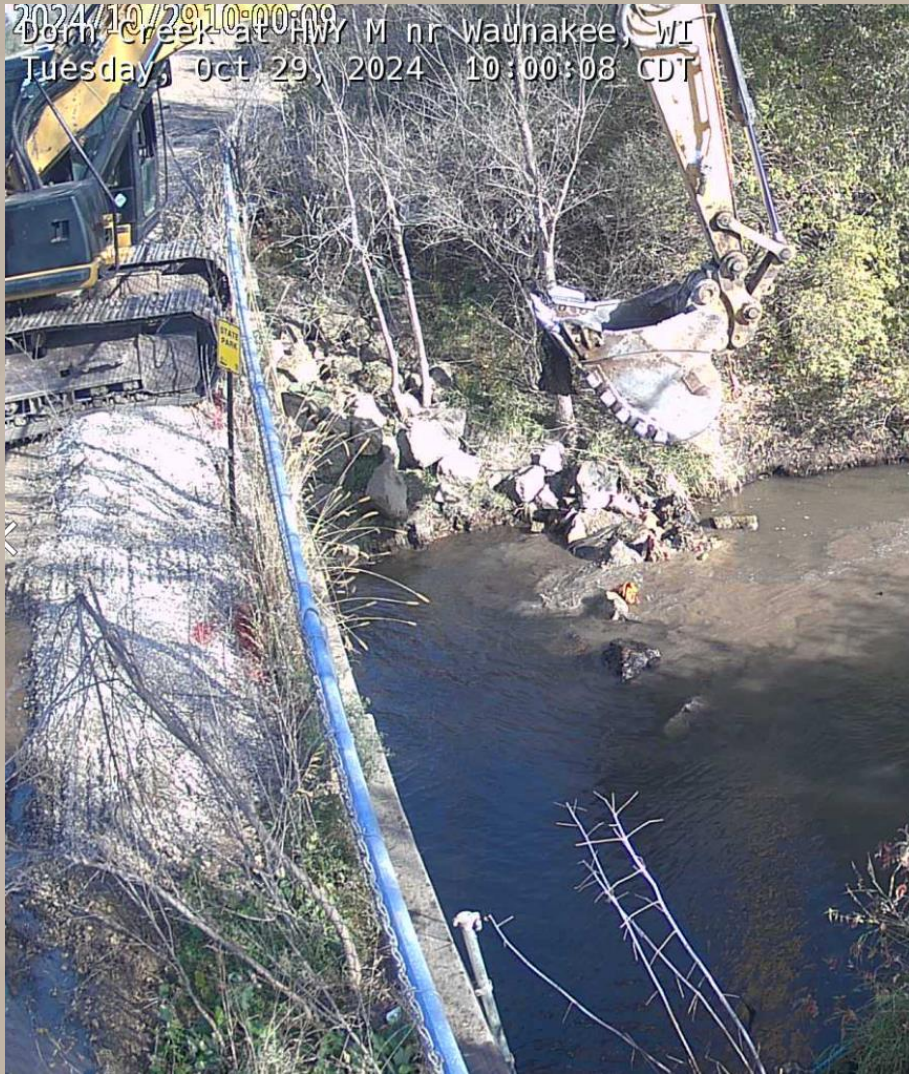


Construction – Sixmile Creek Bridge Hwy M

USGS Station No: 05427910
Sixmile Creek at HWY M near Waunakee, WI
Tuesday, Oct 8, 2024 17:01:44 CDT

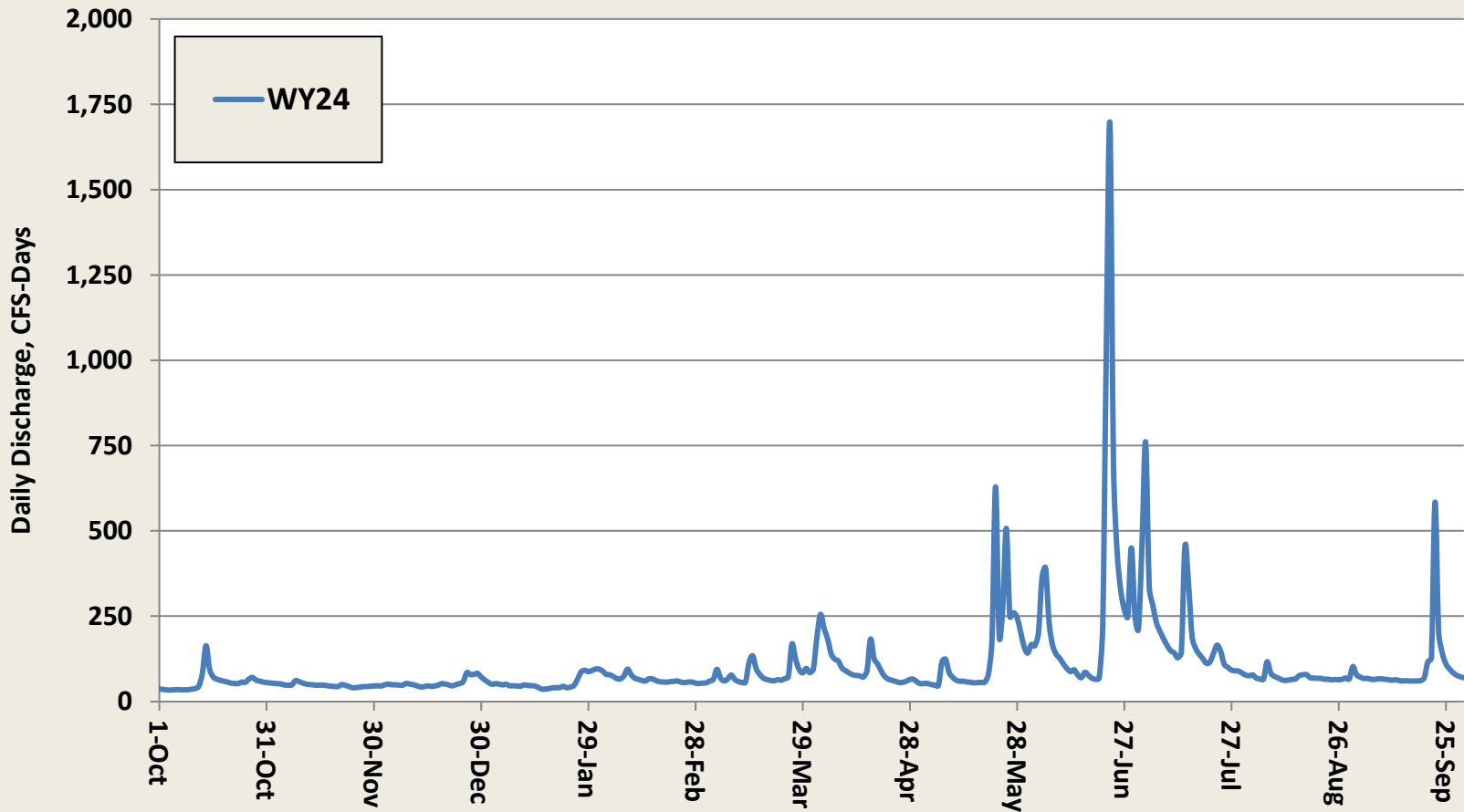


Construction – Dorn Creek Bridge Hwy M



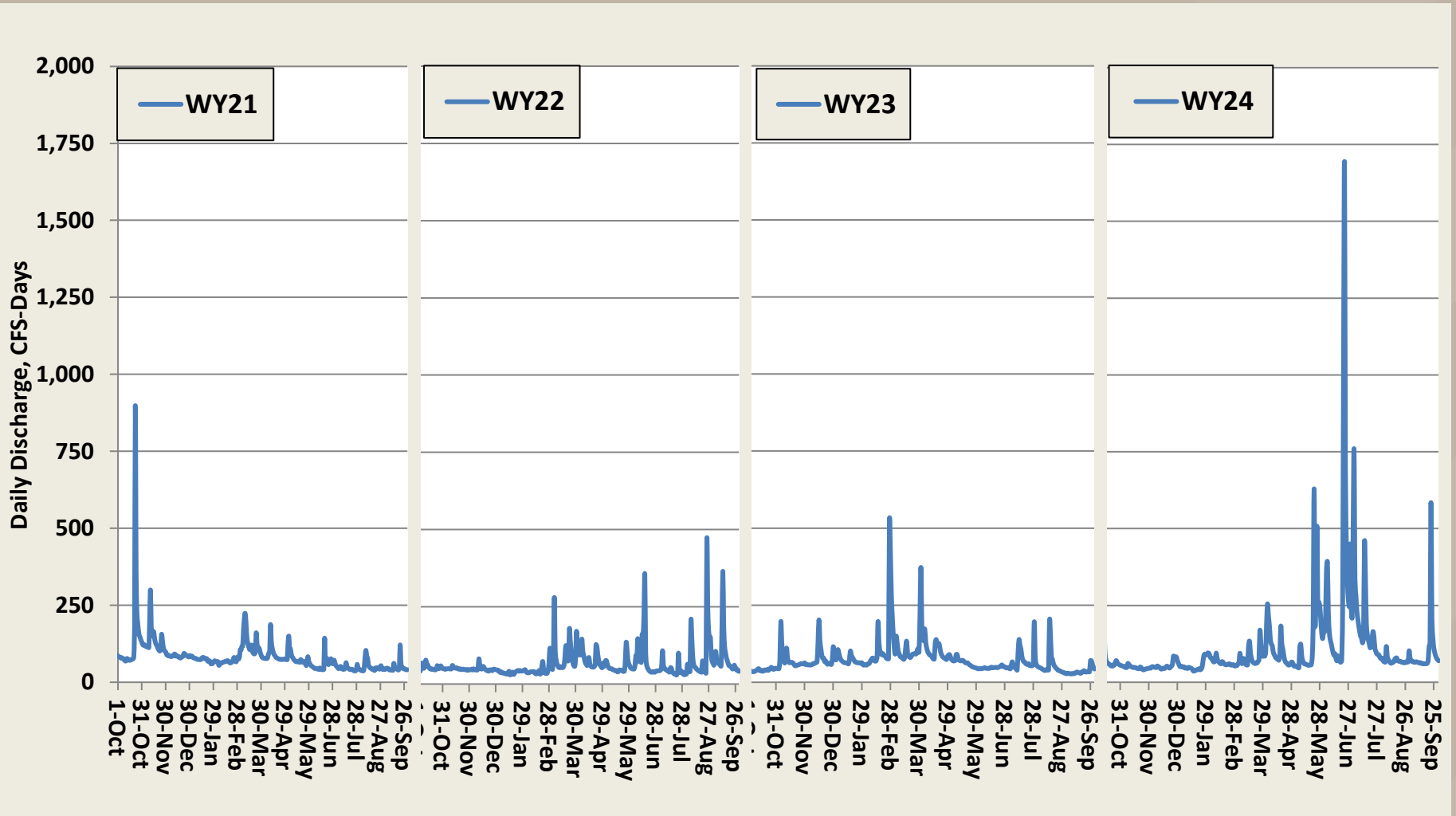
Streamflow Water Year 2024

Lake Mendota Tributary Discharge
Dorn, Sixmile*, P. Branch, Yahara @ Windsor



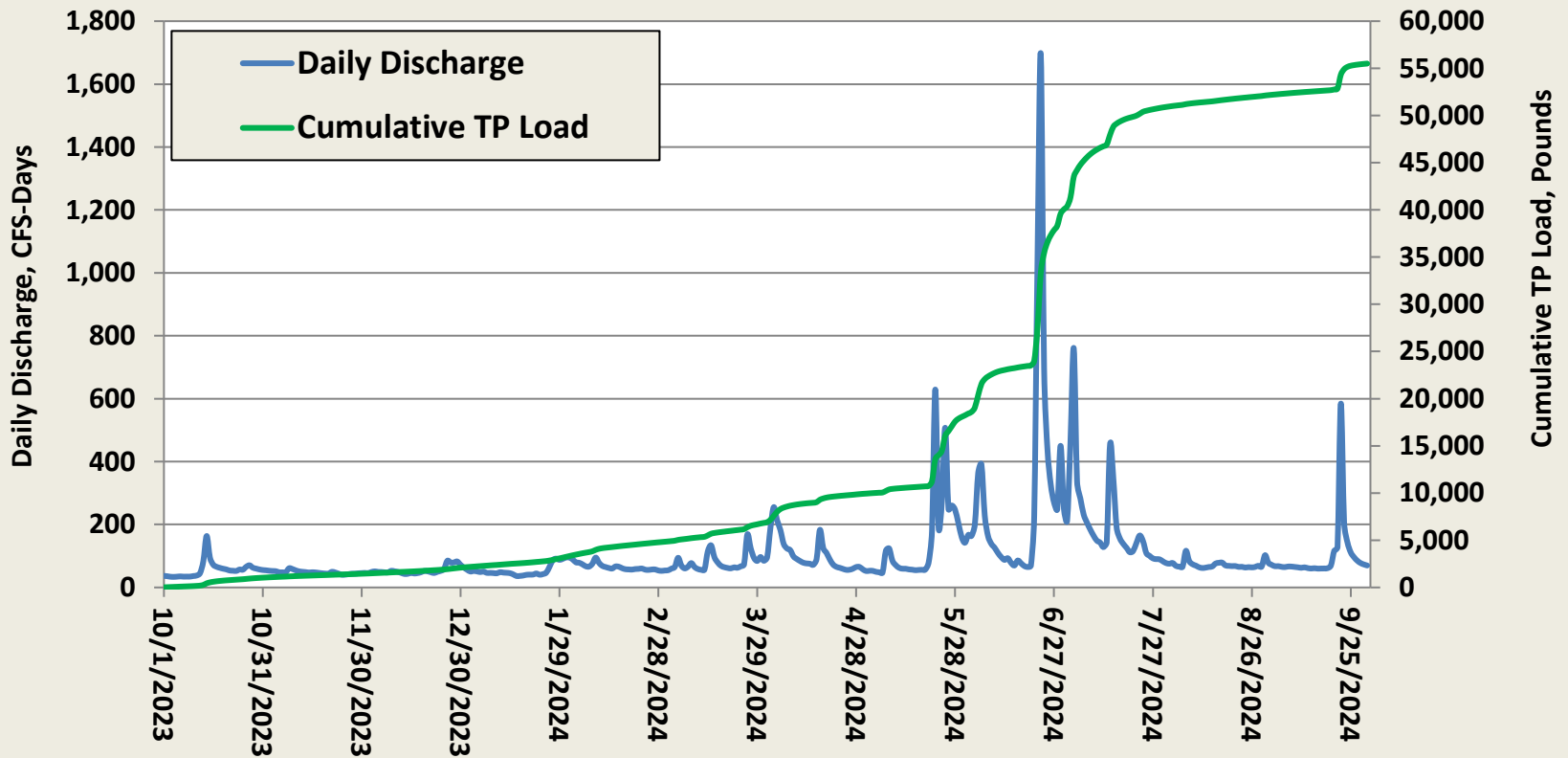
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Last 4 Years



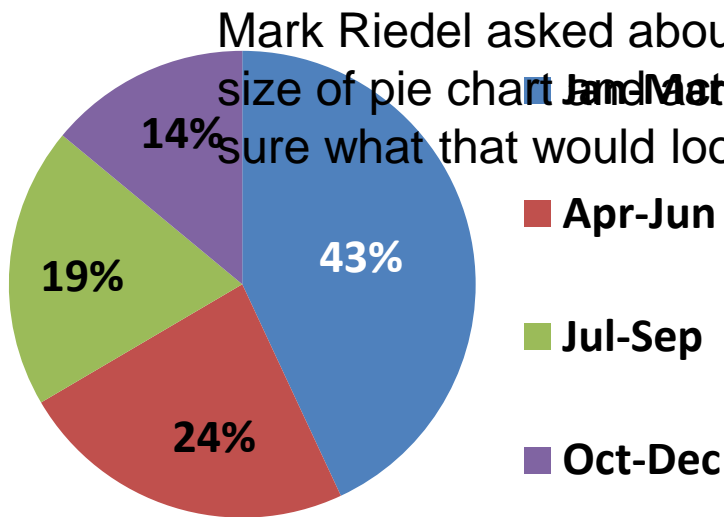
2024 P loads to Lake Mendota

Lake Mendota Tributary Discharge and TP Load
Dorn, Sixmile*, P. Branch, Yahara @ Windsor
WY2024 PRELIMINARY

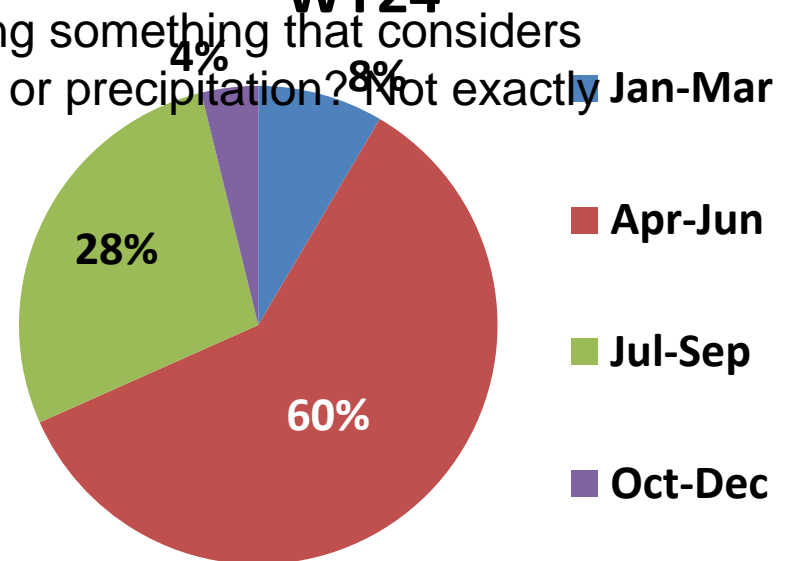


Timing of phosphorus delivery

Tributary P Load to Lake Mendota Seasonal Distribution, WY13-24

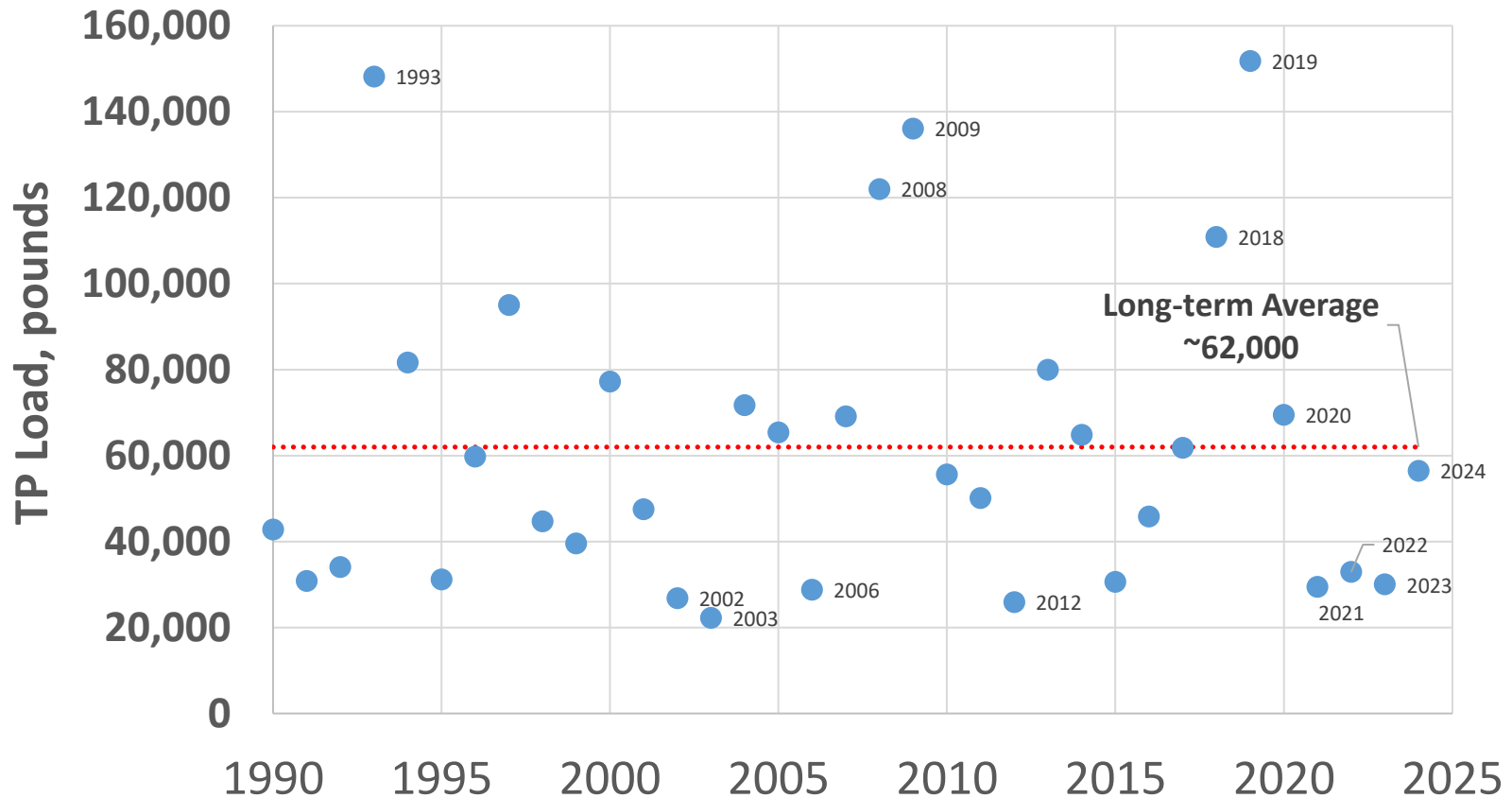


Tributary P Load to Lake Mendota Seasonal Distribution, WY24



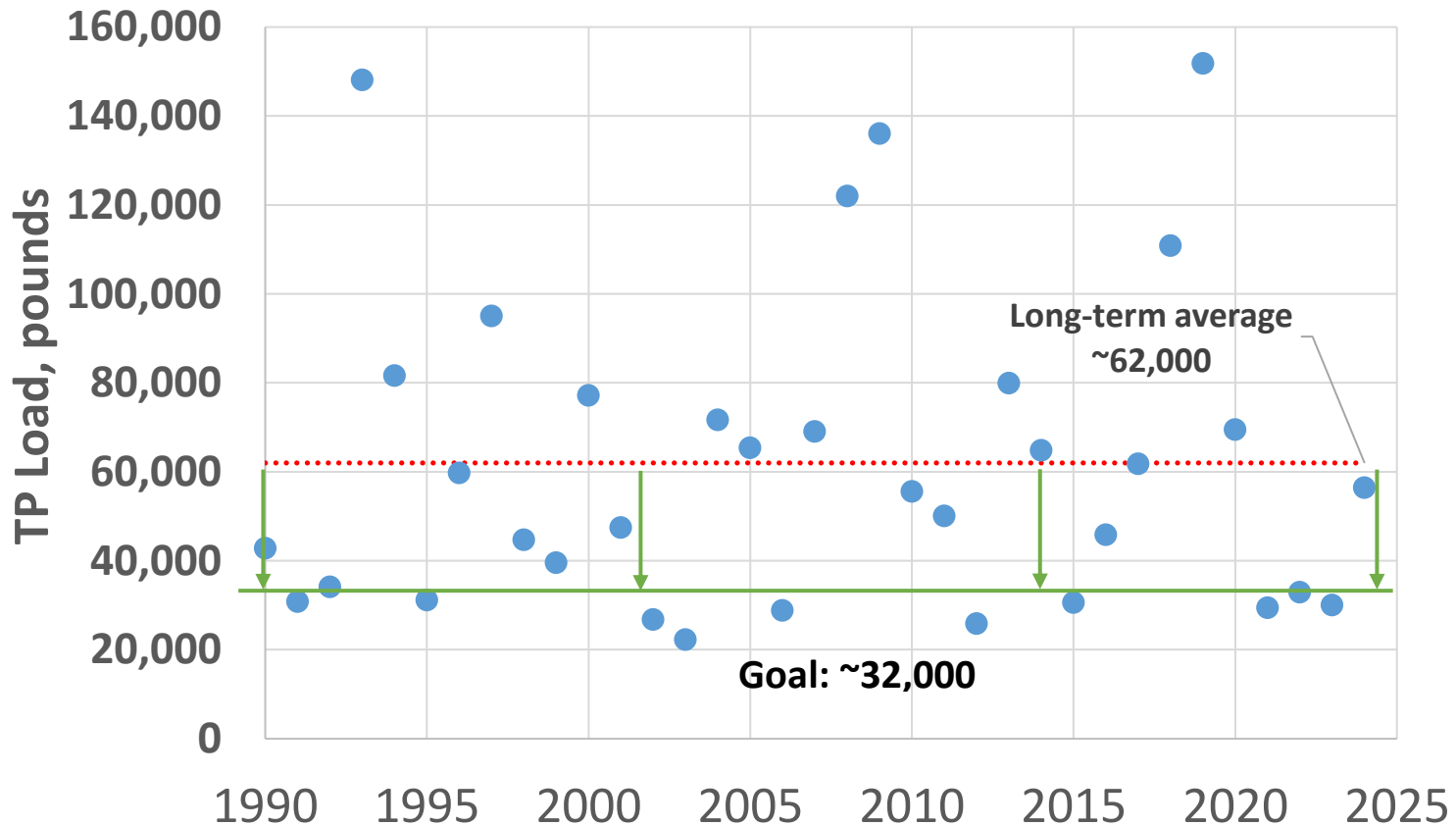
Historical perspective

Estimated Tributary TP Loading to Lake Mendota 1990-2024

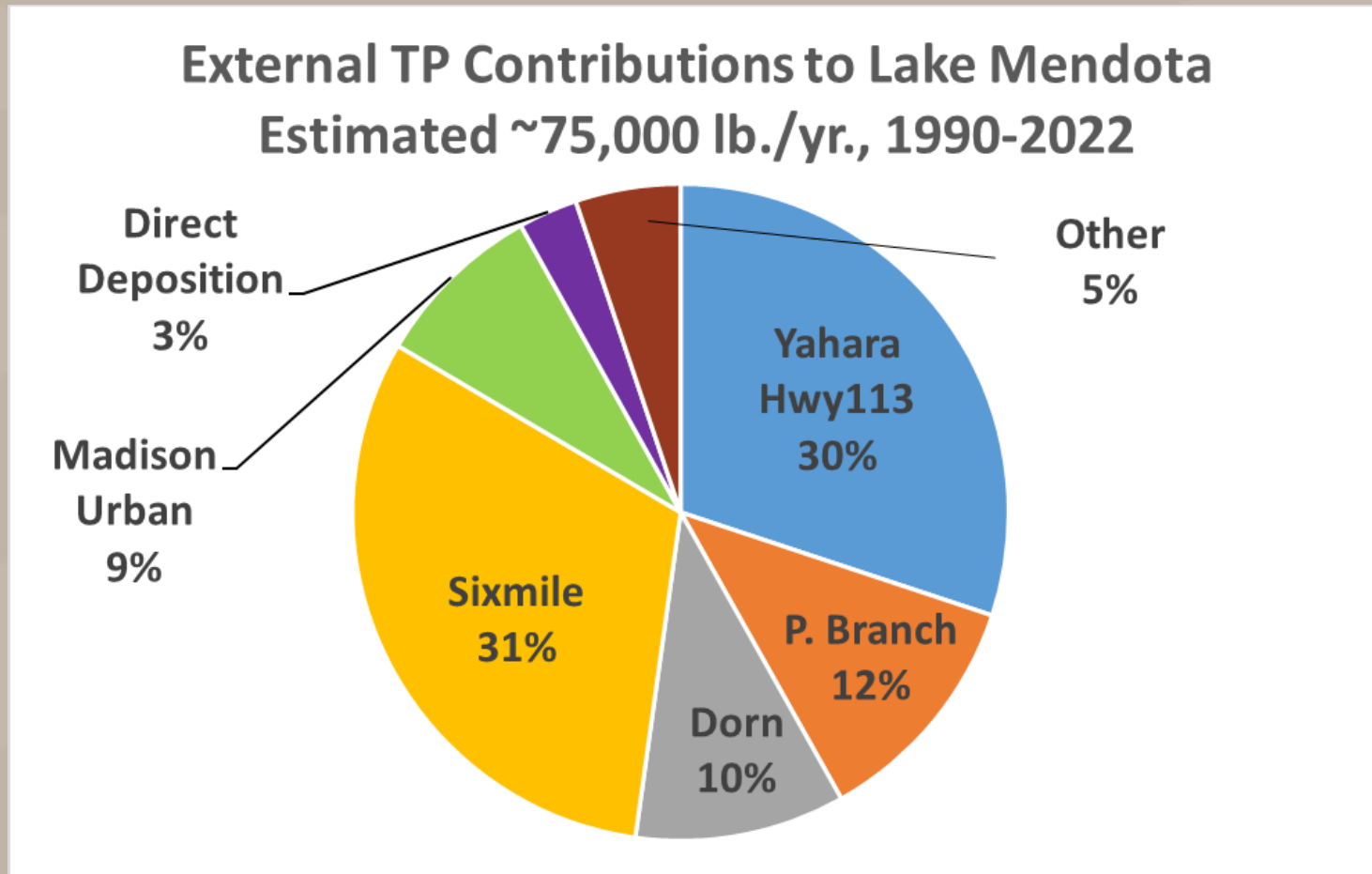


What amount of TP loading is desirable?

Estimated Tributary TP Loading to Lake Mendota
1990-2024

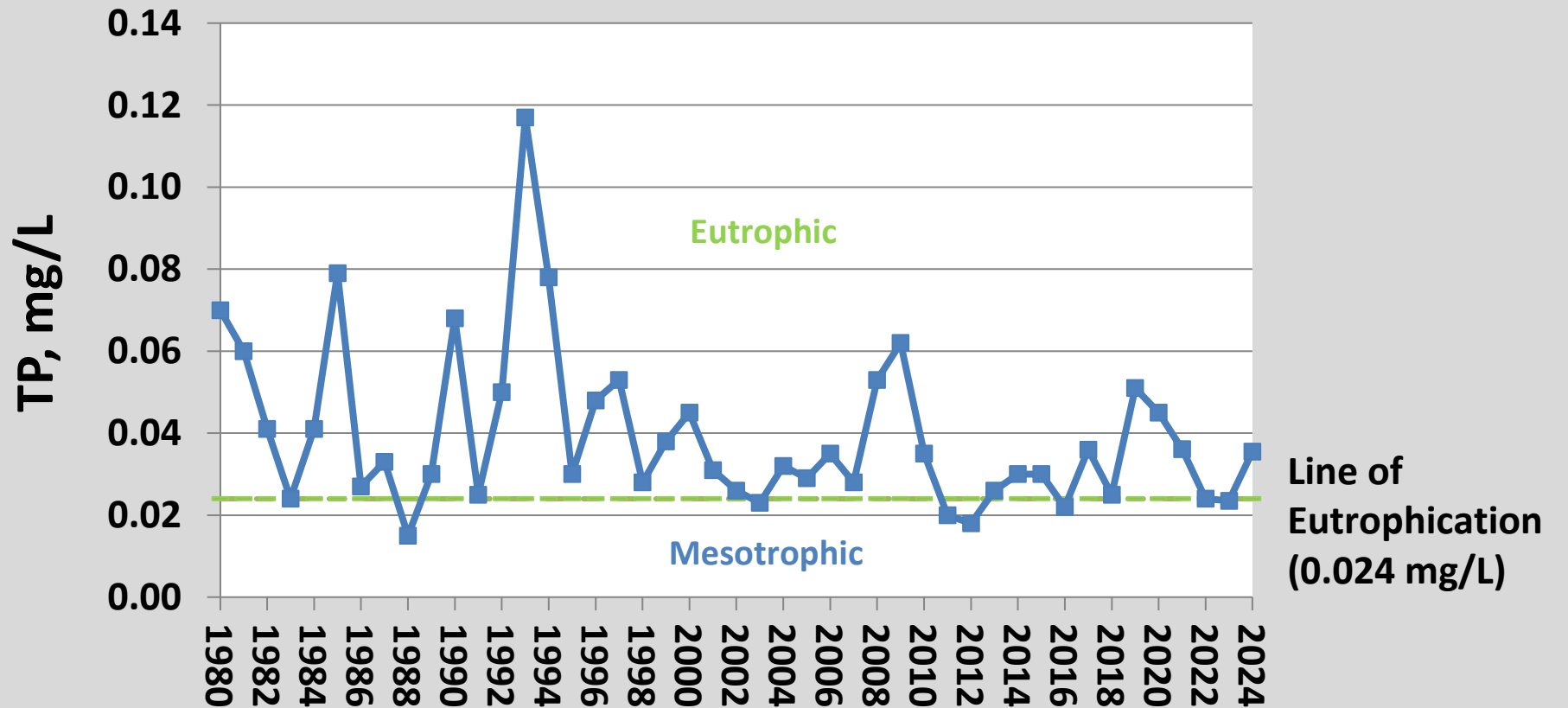


Phosphorus sources



Phosphorus and lake effects

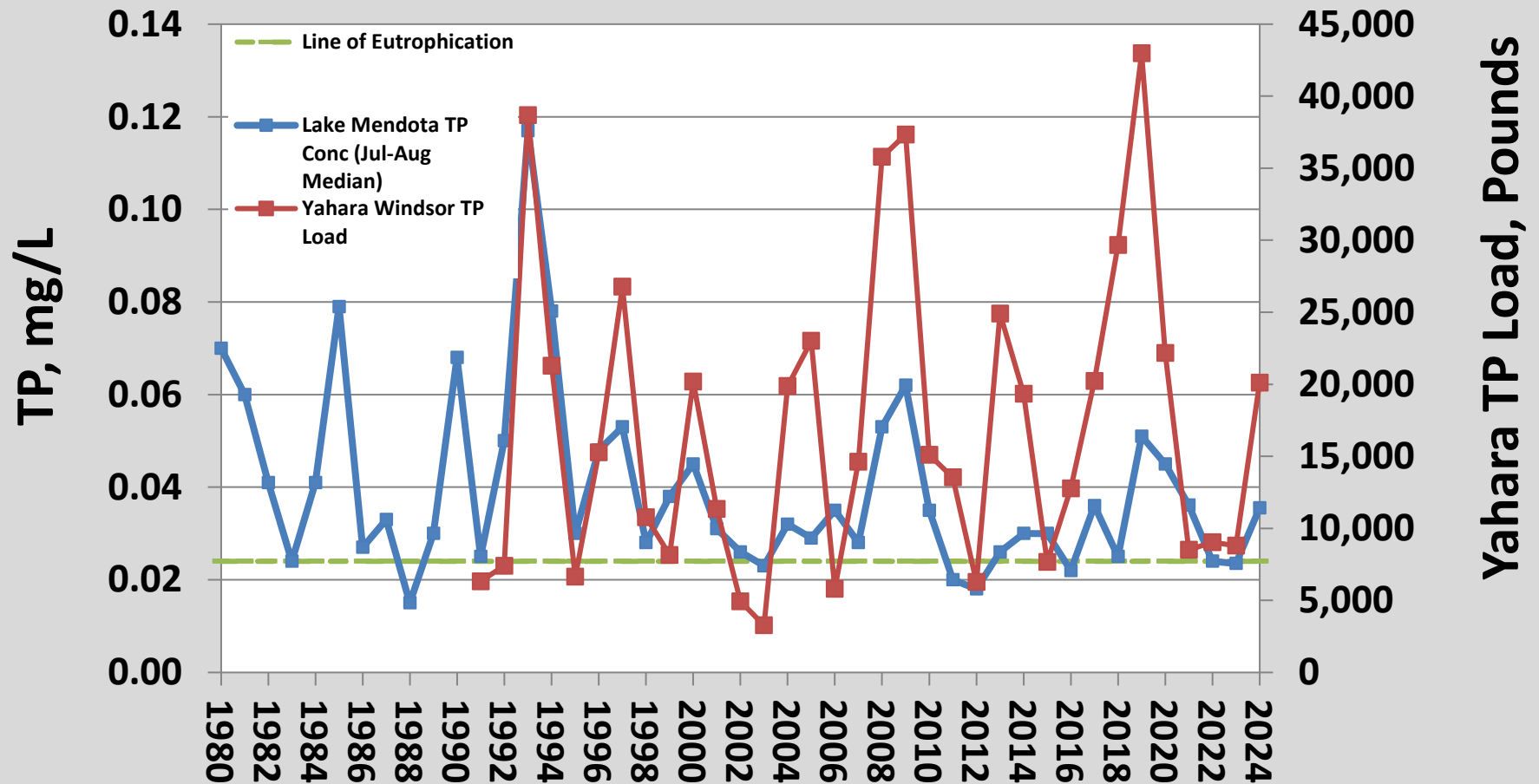
Lake Mendota Phosphorus



Lathrop, written communication

Linkage between P inputs and lake water quality

Lake Mendota Phosphorus



Lake Mendota phosphorus data was collected by UW-Madison Limnology Department and summarized for this graph by Dick Lathrop.

15th of the Month Growing Season TP Concentrations

Median TP Concentrations
May - Oct on or near 15th of each month

