

Lake Okahumpka Historic water and rainfall levels

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Feb 29, 2024

Ingredients

Lake Okahumpka water level history

Gauge at Park “monthly” since 10/1977

Gauge at Structure Hourly since 11/2021

Precipitation

Hidden Lake Rain Gauge Daily since 2/2000

Sumter co Rain totals monthly since 1915

Lake Okahumpka Park Ground water gages since 11/2011

Surface water

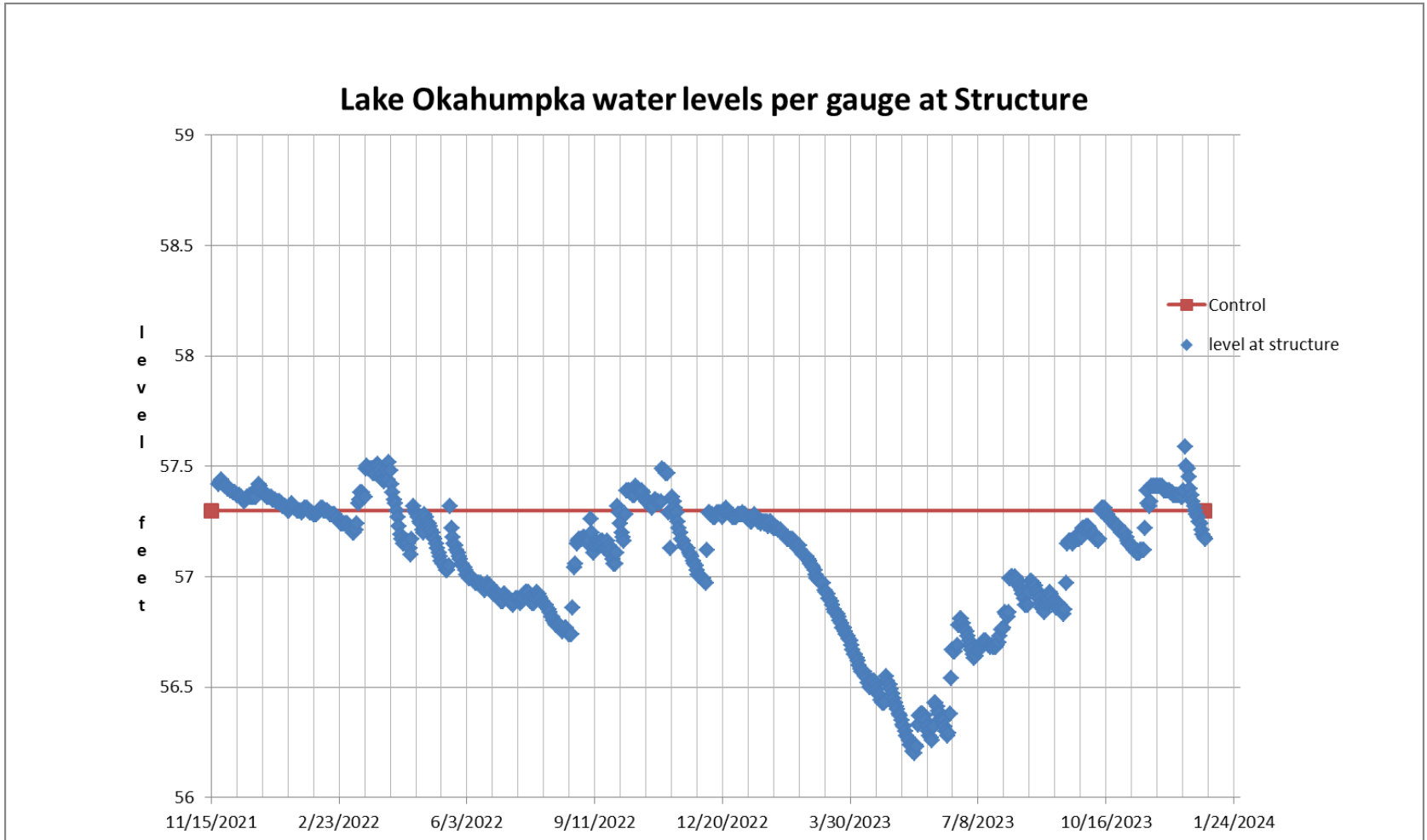
Upper Florida Aquifer

Lower Florida Aquifer

Note: all elevation are with respect to NAVD88

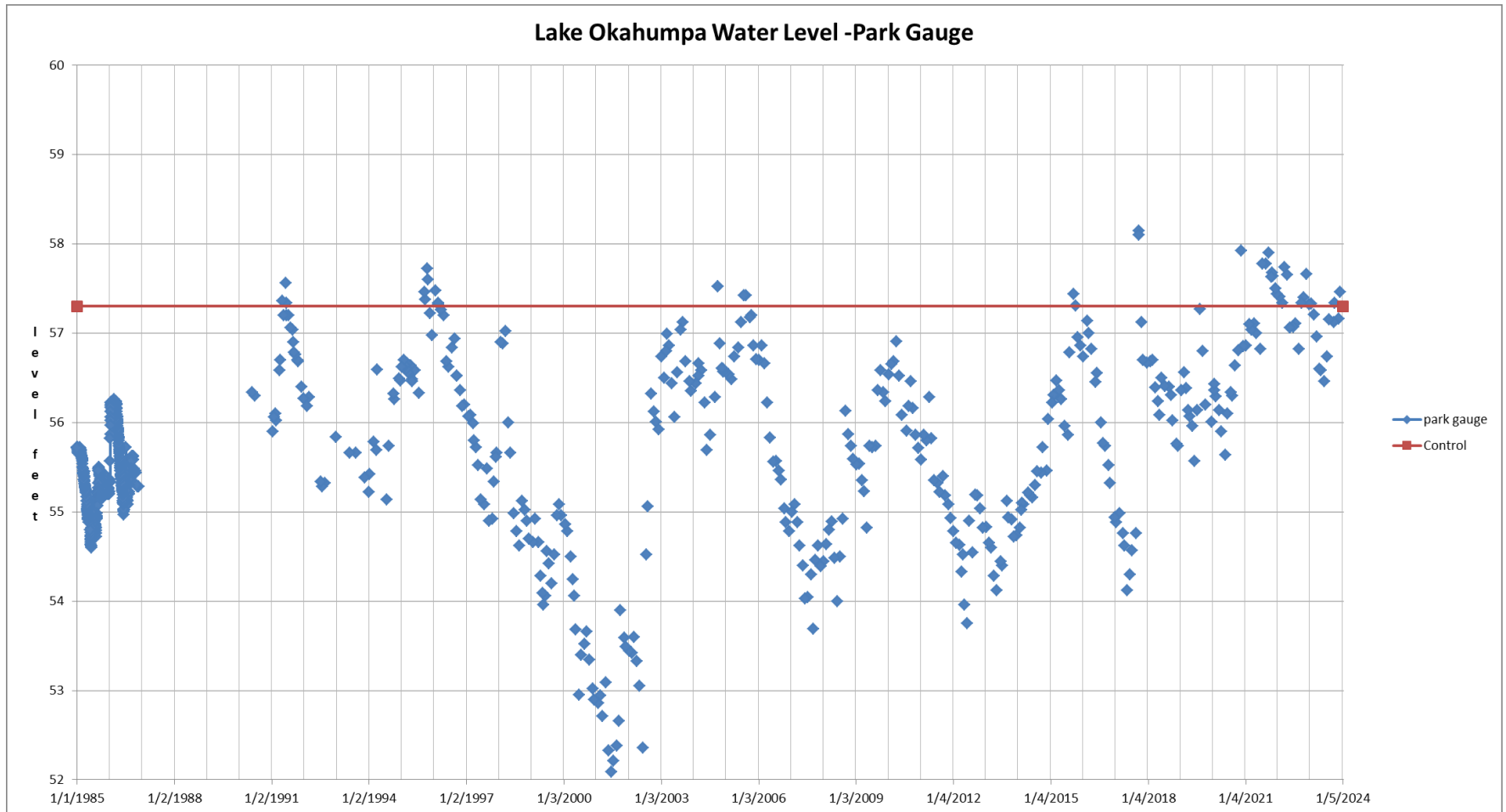
Lake Okahumpka gauge at Weir Structure indicates that levels have exceed control level.

- Happened in numerous years
- happened more often and higher in 2023



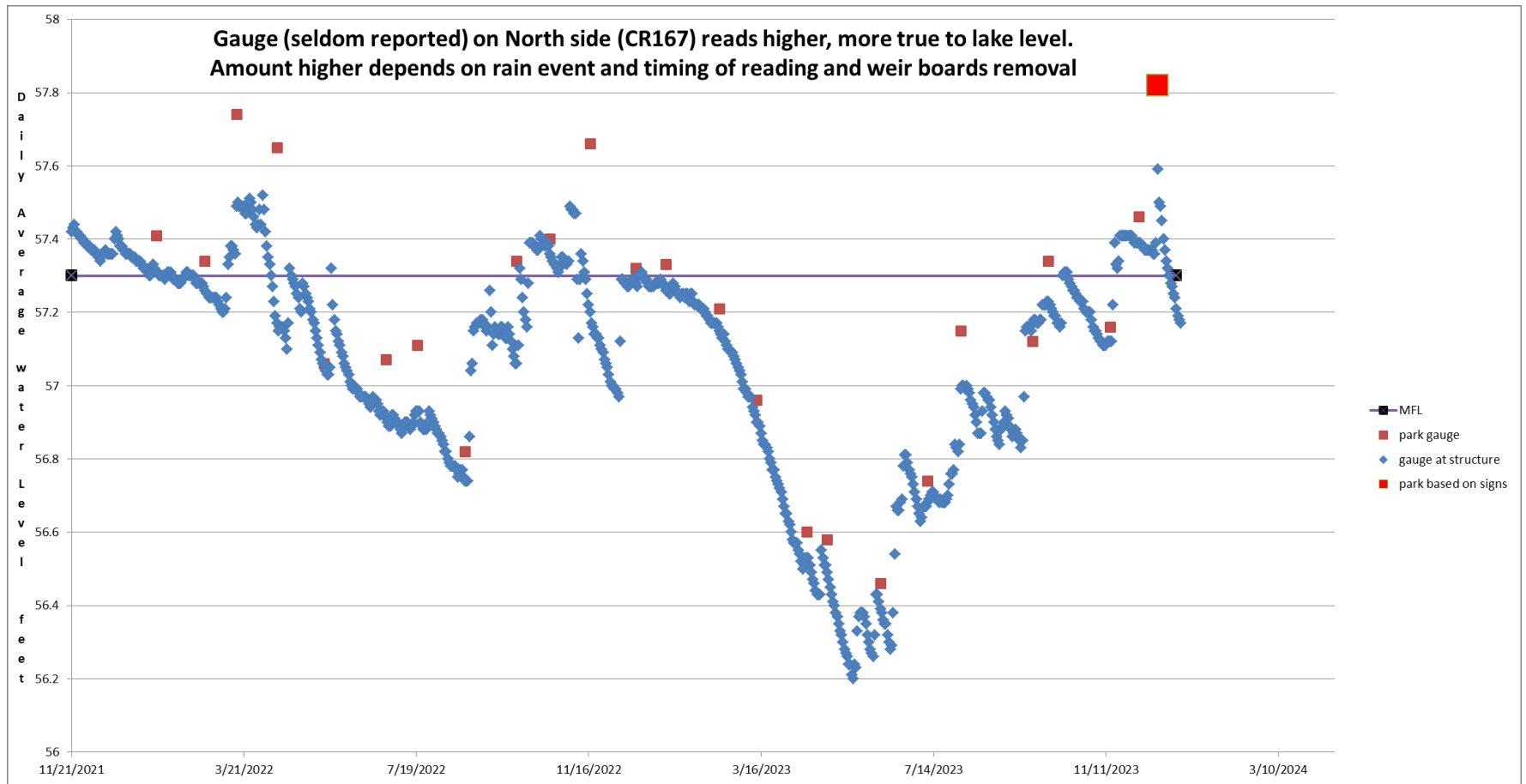
Lake Okahumpka gauge at Park indicates that levels have exceed control level.

- Happened in numerous years
- happened more often and higher since around 2021

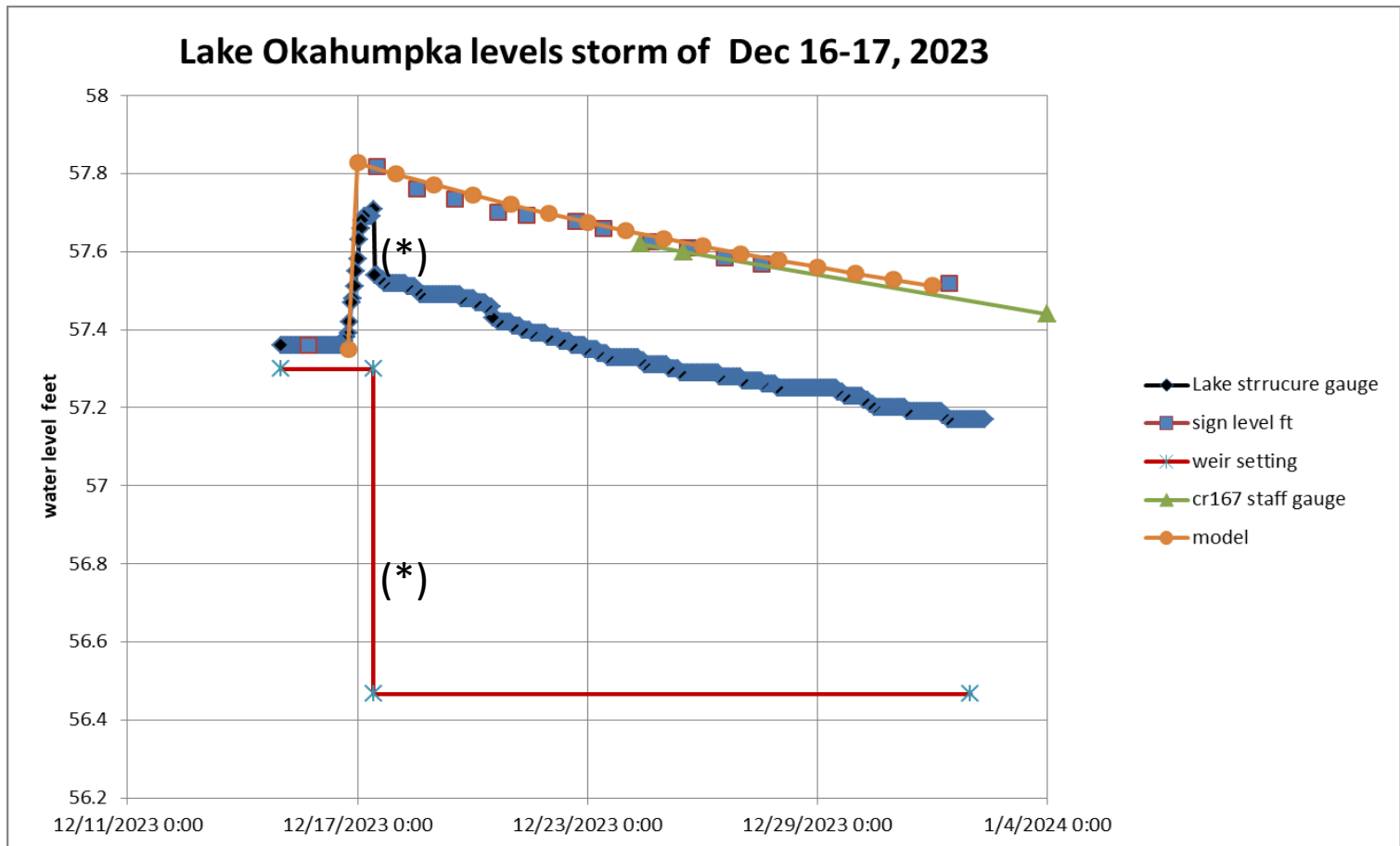


It would be helpful for understanding and to disclose a more accurate actual level if the gauge at the Park (CR167) were read more often.

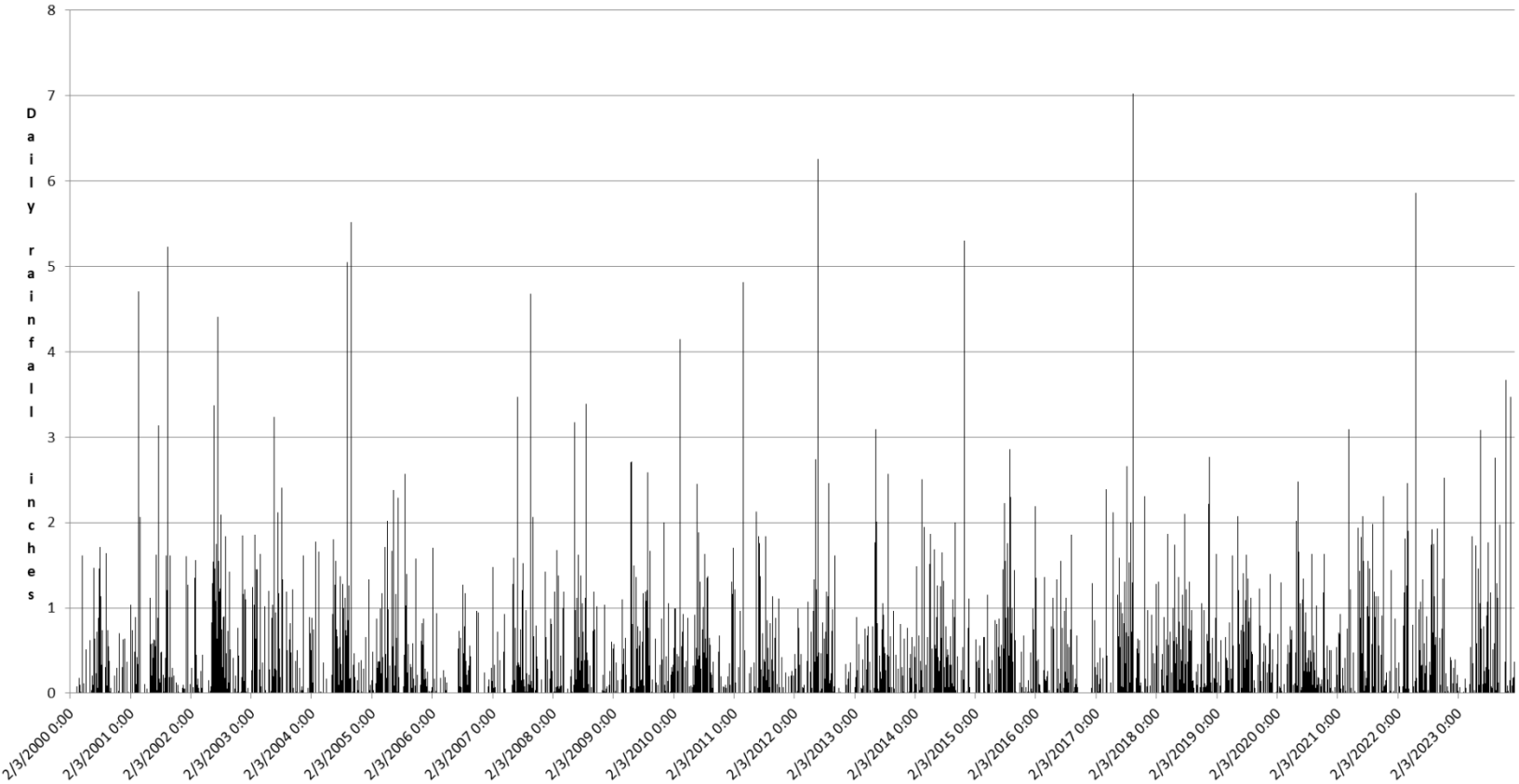
- A staff gauge placed at CCC would get far more attention



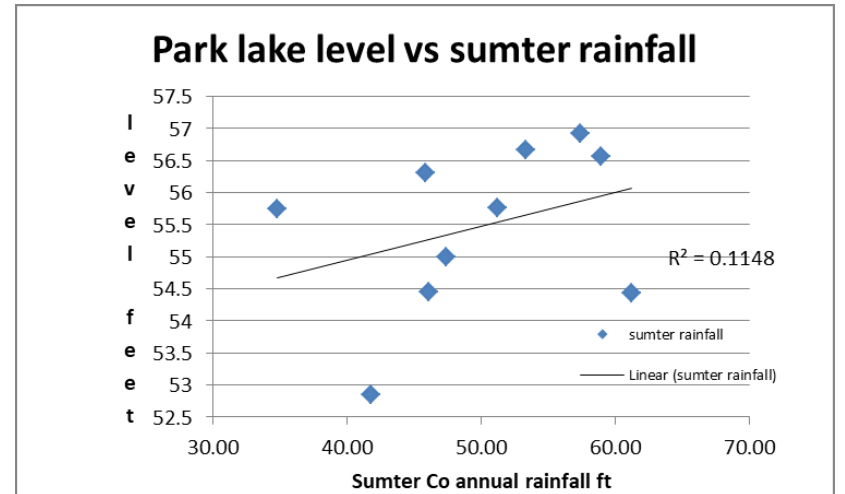
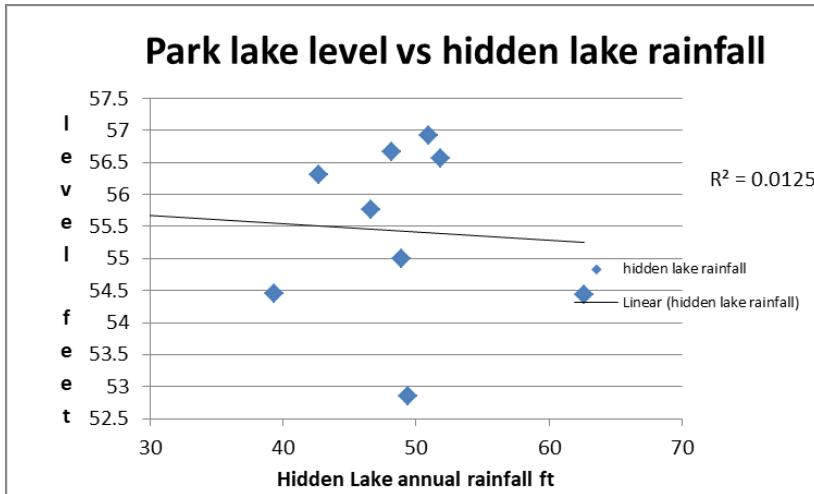
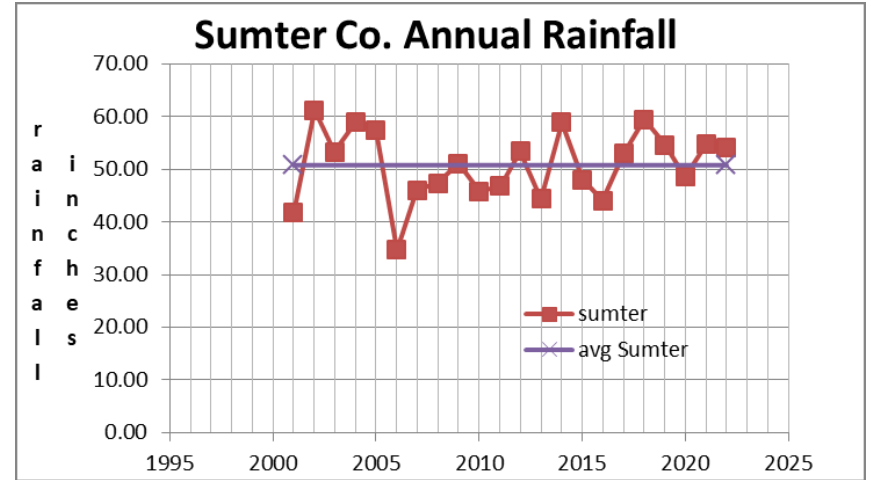
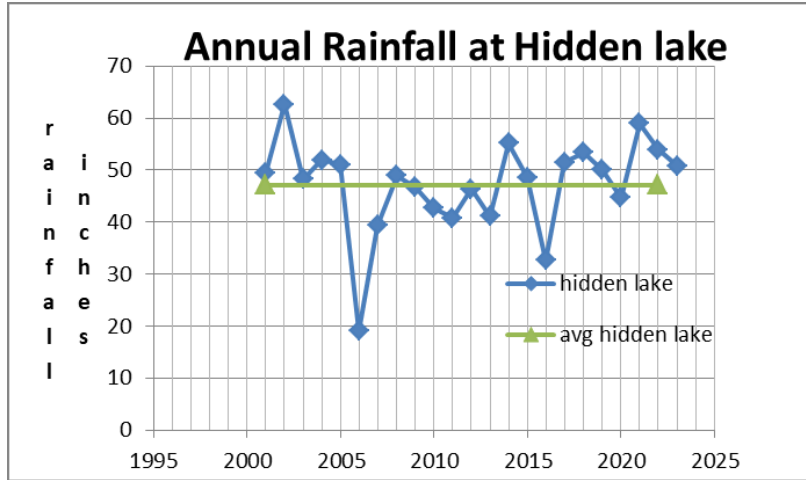
Data/measurements show how the gauge at the weir structure does not show true lake level.
Region very near the weir drains quickly- difference in gauge transient readings
note quick drop when level control boards were removed(*)
Subsequent timely close following storms would build on this difference



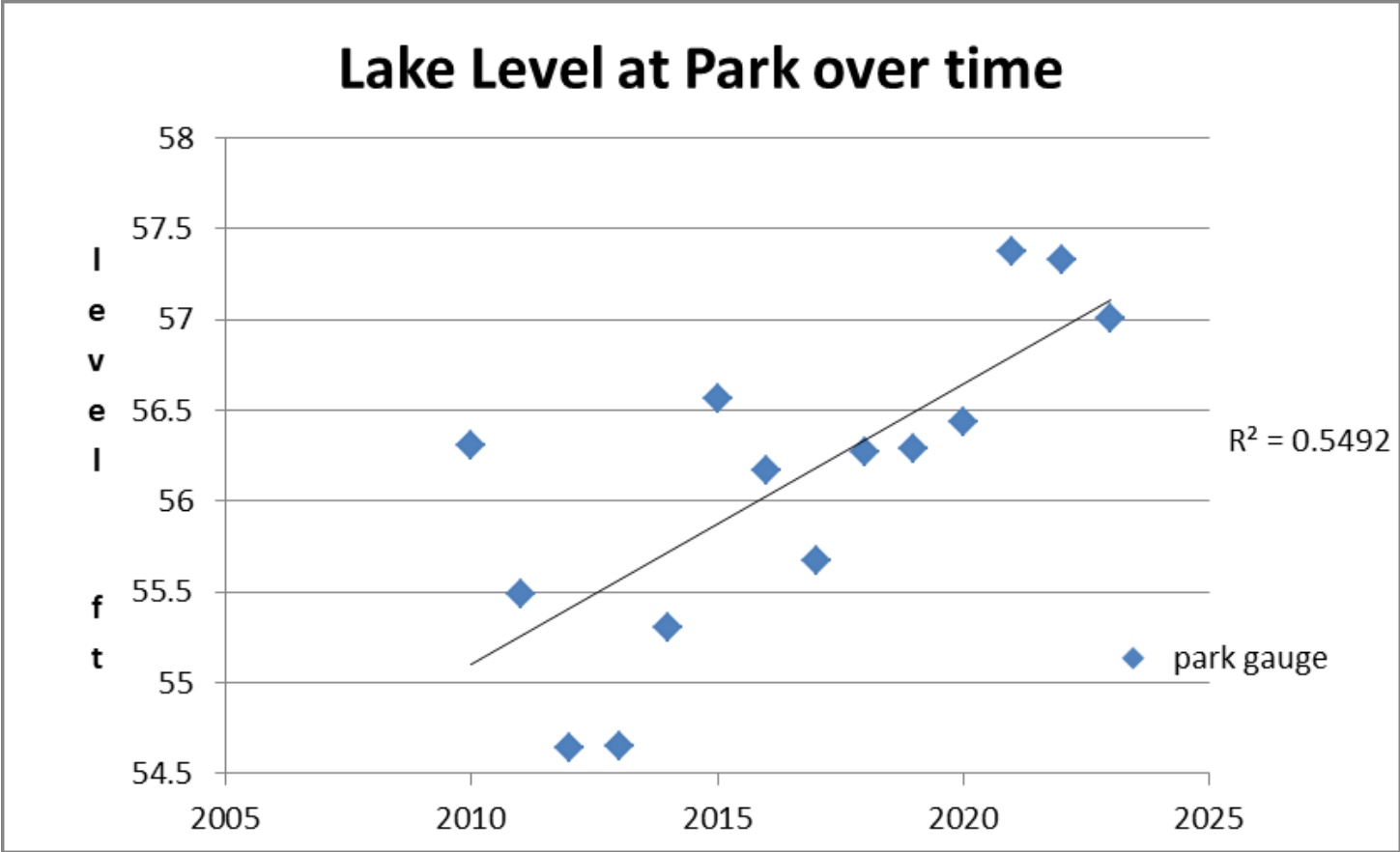
Daily Rainfall totals measured near hidden Lake



We have had high Rainfall throughout the years
 Lake level correlate poorly to annual rainfall (see r-values)
 Rainfall alone may not explain our recent high lake levels



A moderate associative correlation exists between lake level and time-years
If it is not rainfall, then what has been changing over time?



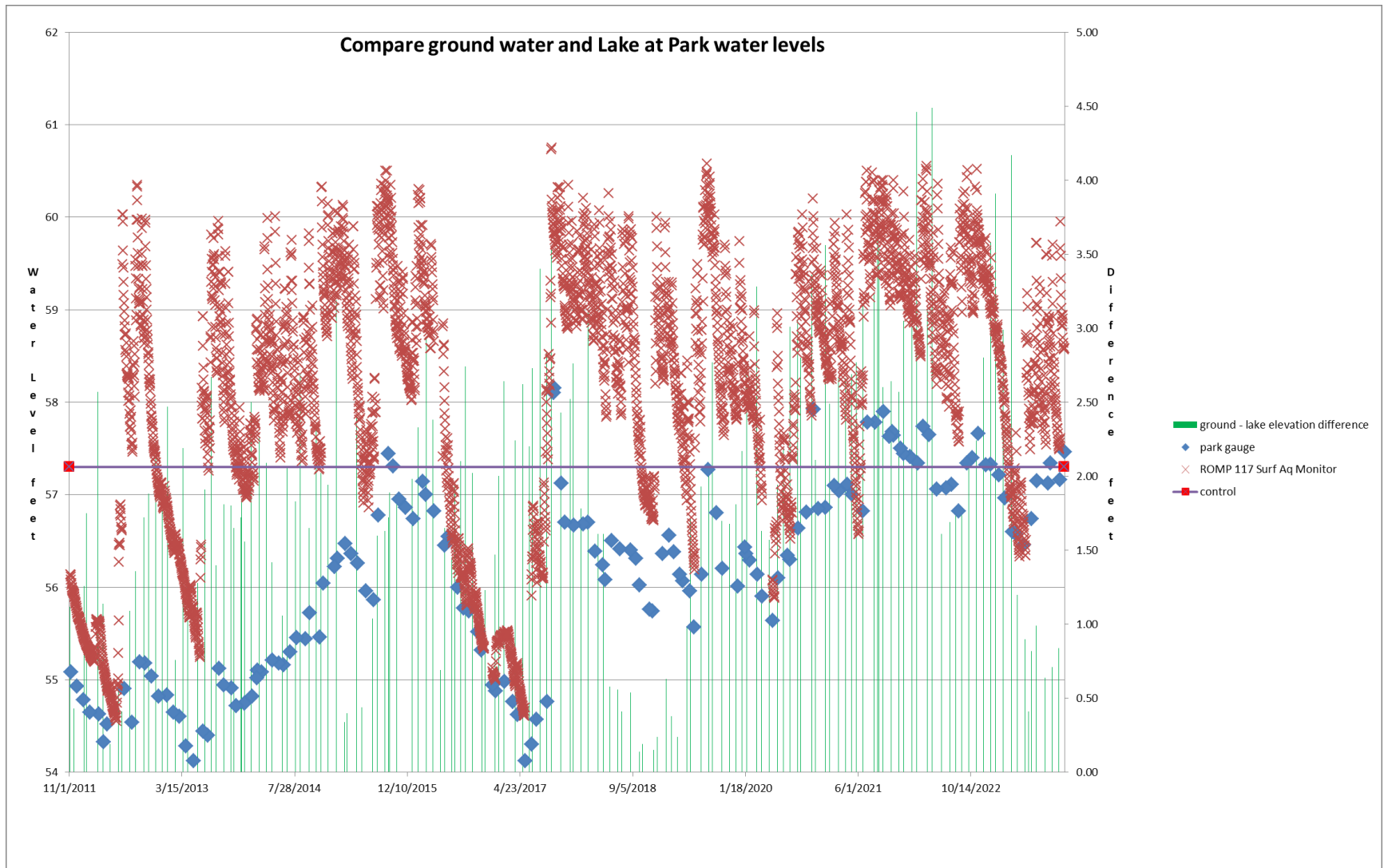
SWFWMD Scientist provided a better relationship comparing rain vs lake level

“After looking at the relationship between rainfall and water levels on the lake, there is a strong correlation (Pearson correlation coefficient 0.78) with the previous 34-month average rainfall which you can see in the graph below. This is close to the 3-year (36 month) average which is also strongly correlated (0.77), so taking a look at the 3-year average rainfall totals does reveal that the last 3-year average (21-23) has been the highest 3-year average rainfall dating back at least since the current structure has been in place. Going back even just slightly further, the 3-year average from 2020-2022 is the 4th highest 3-year average. Just a quick look into some of the surrounding lake levels reveals a similar pattern on these lakes as well. I haven’t yet taken a deep dive into that, but I will update when I do. “ T.J. Venning SWFWMD



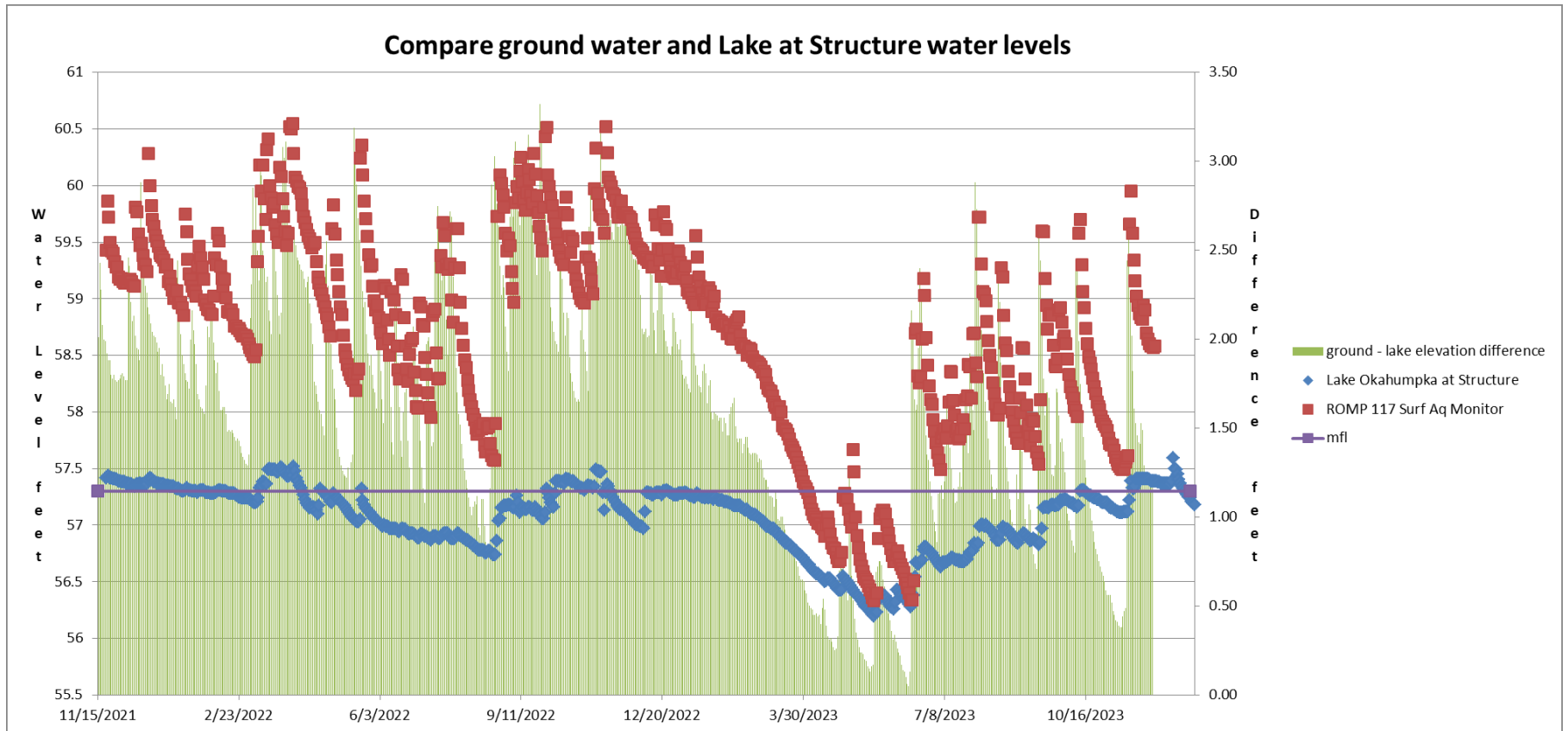
Both Lake and water table rise and fall with rainfall

- water table rises many feet above lake level with precipitation
- this helps explain flooding in low areas near the lake
- This may explain the dying of trees in these low areas



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The Boards controlling the Lake level are removed/replaced when deemed necessary

