

SWFWMD EXPLAINS HIGH LEVELS AFTER HURRICANE DEBBY

Good Morning Everyone!

As TJ noted, we were in the area yesterday collecting water elevations and observing flow directions to get a full picture of the current conditions at Lake Okahumpka.

I've attached a PDF that summarizes the results of this effort. The second graphic in the PDF shows relative land elevations on the south side of Lake Okahumpka.

Here are a few highlights from our effort:

Lake Okahumpka and the surrounding water bodies are high from above average rainfall in the region. Levels are higher now than last December because of antecedent conditions (how wet things were prior to the rainfall from Debby).

Water was likely flowing into Lake Okahumpka after Debby because the swamps south and east of the lake rose higher than the lake from heavy rainfall.

The good news is water is now moving very slowly from Lake Okahumpka south through the weir structure.

High flows are still coming from the swamps farther east and that flow is moving west towards Lake Okahumpka and Hogeye Sink. These flows are likely to continue for some time and may increase if the region receives high rainfall in the coming weeks.

Water is flowing strongly towards Hogeye Sink as observed by the dropping water elevations closer to the sink.

The entire area is a closed basin, meaning there are no other means to move water out except how fast Hogeye Sink can take the water.

Hope this information helps. If you have any questions, please let us know.

Mark

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Southwest Florida Water Management District 8/15/2024

Dan,

In response to your questions:

1. What we provided yesterday is the final analysis of our field investigation from Wednesday 8/14.
2. I've searched our technical library and didn't find any studies related to Hogeye Sink. The only other report I found that references it is attached.
3. Sinkholes like Hogeye can certainly provide flow (like a spring) if groundwater levels are high enough. We don't have a gauge at Hogeye Sink, so the surface water and aquifer levels there are unknown. But as you noted, ROMP117 shows that aquifer levels are very high. In fact, the Upper Floridan Aquifer at ROMP117 was 62.7 feet NAVD88 on Tuesday and continues to rise from the recent rainfall. Groundwater flows from east to west across Sumter County, so aquifer levels at Hogeye Sink are likely lower than ROMP117. It is unclear whether Hogeye Sink provided upward flow following Debby, but a more likely conclusion is that increased GW levels all around provided additional flow into this area as rainfall filled the aquifer and the aquifer flowed laterally into the lower areas like the swamps around Okahumpka.
4. As aquifer levels rise, sinkholes lose their ability to drain surface waters downward. Many areas in Central Florida are dependent upon sinkholes to drain. I have seen these areas flood, because the aquifer is elevated and the sinkhole is unable to take the water very fast. This is certainly a dynamic that could occur at Hogeye Sink although it was very encouraging to see how fast Hogeye is taking the water now. Sinks are like bathtubs and the drains can only allow a certain amount of flow. How much they can drain depends on both surface and groundwater levels and many times the input of water will simply exceed the output capacity at least initially.
5. Our water surface elevations were collected using Real-Time-Kinematic (RTK) GPS survey equipment that relies on satellites and base stations that are part of the Florida Permanent Reference Network (FPRN).
6. Hogeye Sink is the only outlet for Lake Okahumpka, besides evaporation and downward leakage. If Lake Okahumpka rises above 61 feet, it could overtop lands to the NW and flow through swamps near Wildwood and eventually into Lake Panasoffkee, but I don't think any of us ever want to see the lake 3 feet higher than it is now.

Hope this answers your questions, 8/16/2024

Mark

Data Collected: 08/14/24

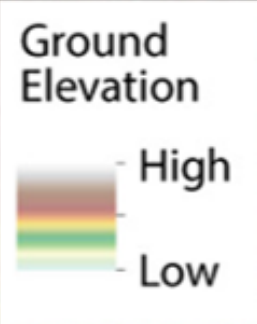


Field Notes:

- Water levels in Lake Okahumpka, Lake Deaton, and the surrounding swamps are very high from above average rainfall.
- Very slight flow south at riser pipe weir structure. Structure is fully open.
- Strong flow from the swamps to the east towards Lake Okahumpka and Hogeye Sink.
- Strong flow under Turnpike and towards Hogeye Sink.
- Slight flow from NW into Lake Okahumpka.
- Berm to structure is under water in spots but overall good condition.



Lake
Okahumpka



Hogeye
Sink

CR-503E