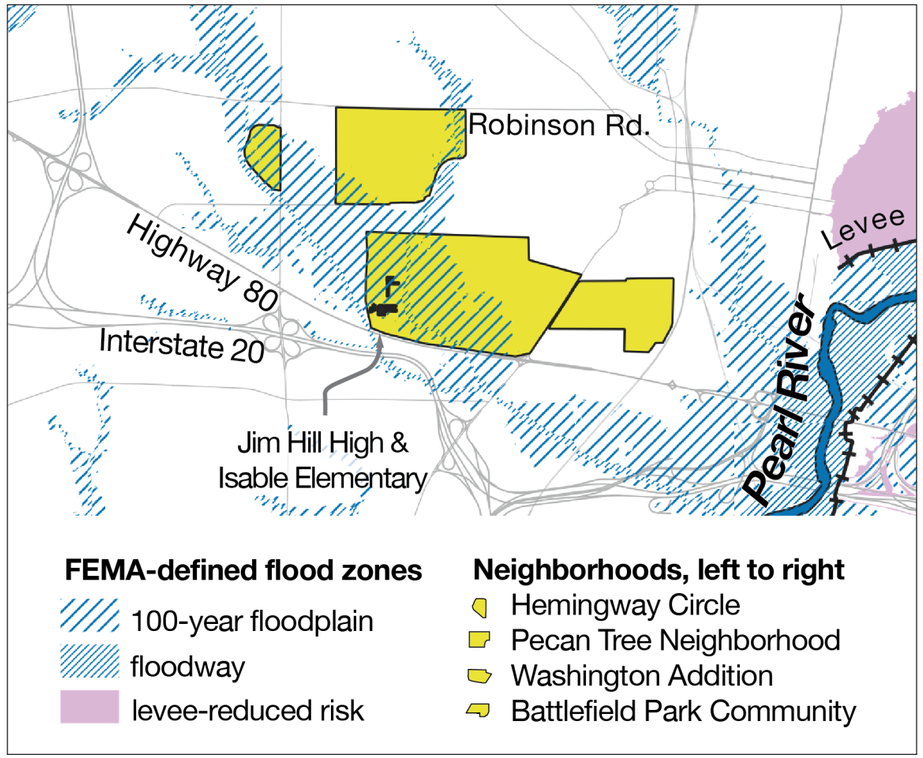
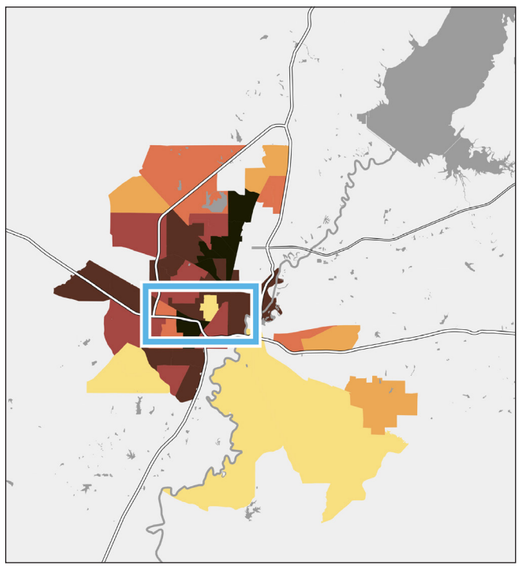


Above: Four West Jackson neighborhoods referenced in public engagement meeting, and FEMA hazard zones. Jim Hill and Isable are discussed later in this comment. • **Right:** Location of above map on the cumulative disadvantages map.



The One Lake and flooding in West Jackson

Summary

West Jackson floods along its creeks. Some elected officials support the One Lake because it might reduce backwater-induced flash flooding. The U.S. Army Corps of Engineers must assess this presumed flood risk reduction benefit and explicitly communicate the results to decision-makers and the public.

Furthermore, this comment uses USGS data to show that a backwater effect could worsen flood risks in West Jackson. This analysis reinforces the need for a more thorough analysis of backwater impacts on the tributaries.

The One Lake as a solution to West Jackson flooding

West Jackson floods. A State Representative spoke at Jackson's second U.S. Army Corps of Engineers public engagement meeting on May 24, 2023. They said the flood-prone communities in West Jackson face a "glaring environmental justice issue." Residents were harmed by flooding on January 2020, and the existing levee system on the Pearl River may have exacerbated the problem. The representative concluded their statement by endorsing the One Lake as a solution.

West Jackson is affected by creek flooding. The map on the opposite page shows four of the neighborhoods mentioned by the State Representative and the FEMA 100-year floodplain. Lynch Creek's floodplain dominates this area.

The One Lake as a solution to West Jackson flooding (Cont'd)

The basis of the Representative's conclusion is presumably the One Lake's potential to reduce backwater impacts on the tributaries during "extreme" events, as suggested in the 2020 USACE Agency Technical Review (ATR), comment 7059420, exchanges 1-0 and 2-0. However, the 2018 Draft Environmental Impact Statement (DEIS) did not examine the creekside flood reduction benefits provided by the One Lake project. Exchanges 2-1 and 3-0 also show that the project delivery team (e.g., the One Lake planners) dismissed the opportunity to study tandem storm systems akin to those that caused the West Jackson floods.

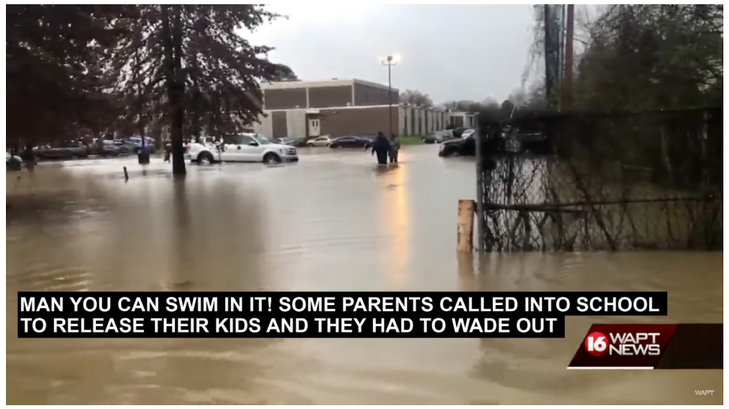
Despite the lack of validation, other elected officials have "pitched" the One Lake project in response to the January 2020 flooding in West Jackson [1]. **It may be the case that the project is the "Locally Preferred Plan" due to unverified claims. Potential creekside flood reduction benefits, or lack of them, should be explicitly stated in the 2023 DEIS to inform decision-makers and the public.**

Gage analysis of Lynch Creek flooding

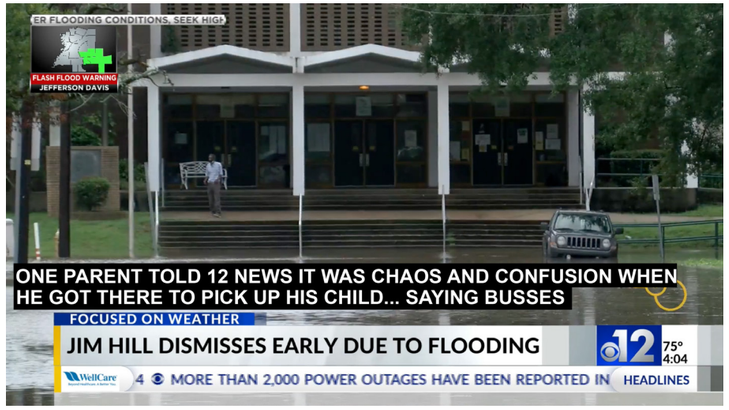
The remainder of this comment considers the assumption that the One Lake's backwater can affect the communities referenced by Ms. Summers. Three documented floods at Jim Hill High and Isable Elementary Schools provide reference points. The schools are in the Washington Addition neighborhood, approximately 2 miles upstream from the mouth of Lynch Creek. **Data from these events suggest backwater effects, if present, could have exacerbated the floods.**

Local news networks televised the floods. The three images on the opposite screen are screenshots from the coverage.

May 9, 2019

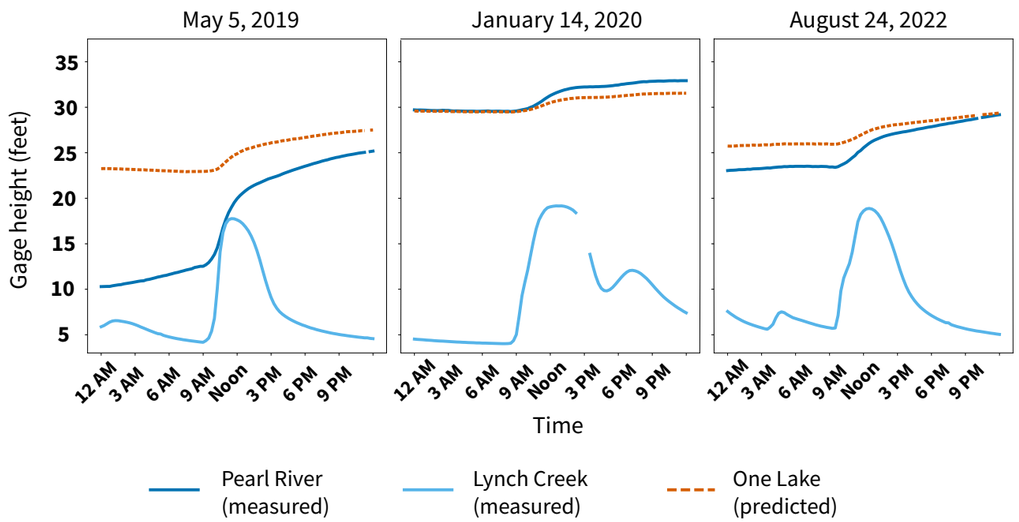


January 14, 2020



August 24, 2022

USGS gage data and predicted One Lake water surface elevation during
The 3 Floods at Jim Hill High and Isable Elementary Schools



The graphs above plot creek and river data measured during the school flooding events. The graphs also show predicted river surface elevation levels if the One Lake had been in place during the events.

The light blue line shows creek levels on Lynch Creek during these floods, as measured about a quarter mile downstream of the schools (USGS gage #02486100). The creek data shows why these floods caught the media's attention. The creek rose and peaked during school hours, damaging vehicles [2], causing "chaos and con fusion" during early dismissals [3], and forcing students and parents to wade in "dirty" water [4].

The darker blue line shows the river level as measured from Highway 80 (USGS gage #02486000). Appendix C suggests that this gage reading is within 1.5 feet of the river's water surface elevation at the mouth of Lynch Creek. The 2019 data proves that the schools can flood, even when the river is between 10 to 20 feet.

The dashed orange line shows the predicted river surface elevation with the One Lake in place. This data was generated using discharge data from the Pearl River and the stage-curve graph from River Mile 287.14. The latter was found in Appendix K of the 2018 DEIS, PDF page 67. A summary of how the data generation process is available at the end of this comment.

In two of these floods, 2019 and 2022, the river's surface level at the mouth of Lynch Creek would have been higher with the One Lake in place. On the third event, 2020, the flood reduction benefits of the project would not be registerable until the creek was already reaching its peak. ***If* backwater effects impact the school, then the lake could exacerbate the "damage," "chaos", and "confusion."**

Date	Time	Month	Day of the week	Creek stage (feet)	WSE Difference (feet)	School hours
2019-05-09	11:30	May	Thursday	17.76	5.52	TRUE
2020-01-02	19:30	January	Thursday	18.6	2.32	FALSE
2020-01-11	10:00	January	Saturday	17.56	-0.79	FALSE
2020-01-14	12:30	January	Tuesday	19.16	-0.91	TRUE
2020-04-23	3:45	April	Thursday	18.6	0.66	FALSE
2021-04-09	23:45	April	Friday	18.56	5.22	FALSE
2022-04-17	19:45	April	Sunday	17.29	1.01	FALSE
2022-08-24	12:30	August	Wednesday	18.88	1.36	TRUE
2023-03-26	19:15	March	Sunday	17.24	8.72	FALSE

The creek has peaked nine times at similar gage heights in the past four years. Potential backwater impacts could increase them. Three of these peaks occured during the three school floods. The six other peaks may have corresponded with under-documented bank overtopping. Unlike the three televised floods, the other six peaks occurred outside school hours.

The above table shows measured peaks greater than 17 feet since March 2019. It also shows the expected water surface elevation (WSE) difference at the mouth of Lynch Creek due to the construction of the One Lake. It indicates that the WSE difference would have been higher during 7 of the 9 peaks, with ranges from half a foot to nearly nine feet. It shows that the WSE difference would have been lower during two peaks, and the decrease would be no more than a foot.

Appendix C in the 2018 DEIS assessed the potential for bank overtopping along this creek, but only for a 10-year storm at normal lake elevations. The floods at Jim Hill and Isable along with the peak study demonstrate the damaging flood risks along Lynch Creek with existing conditions. They also demonstrate the need for a more thorough assessment including a wider range of storms (e.g, 50-yr, 100-yr, etc.)

Conclusion (Same as summary on page 25)

West Jackson floods due to creek flooding. Some elected officials support the One Lake because it might reduce backwater-induced flash flooding. The U.S. Army Corps of Engineers must assess this presumed flood risk and explicitly communicate the results to decision-makers and the public.

Furthermore, this comment uses USGS data to show that a backwater effect could worsen flood risks in West Jackson. This analysis reinforces the need for a more thorough analysis of backwater impacts on the tributaries.

Quoted news articles

[1] *Jackson Free Press, 19 February 2020*. “West Jackson Creek Woes Become ‘One Lake’ Pitch,” by Nick Judin. Available online at https://www.jacksonfreepress.com/news/2020/feb/19/west-jackson-creek-woes-become-one-lake-pitch/

[2] *16 WAPT News*, 9 May 2019. “Jim Hill parkinglot flooded. Cars towed away.” Available online at https://www.wapt.com/article/jim-hill-parking-lot-flooded-cars-damaged/27422329

[3] *12 WJTV News*, 24 August 2022. “Parents describe Jim Hill’s early dismissal as ‘chaos’.” Available online at https://www.wjtv.com/mississippi-flooding/parents-describe-jim-hills-early-dismissal-as-chaos/

[4] 16 WAPT News, 14 January 2020. “Flooding approaches Jim Hill High School.” Available online at https://www.youtube.com/watch?v=97ESN9k51sg