

Palm Beach County Update on Water Issues



WATER RESOURCES TASK FORCE MEETING
FEBRUARY 15, 2024

Paul Linton, PE, PBC Water Resources Manager

NFIP

PANEL 0189F

FIRM

**FLOOD INSURANCE RATE MAP
PALM BEACH COUNTY,
FLORIDA
AND INCORPORATED AREAS**

PANEL 189 OF 1200

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|--------------------------------|--------|-------|--------|
| JUNO BEACH, TOWN OF | 120208 | 0189 | F |
| JUPITER, TOWN OF | 120119 | 0189 | F |
| PALM BEACH COUNTY | 120182 | 0189 | F |
| PALM BEACH GARDENS, CITY OF | 120221 | 0189 | F |

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



**MAP NUMBER
12099C0189F**

**EFFECTIVE DATE
OCTOBER 5, 2017**

Federal Emergency Management Agency

In December 2019, FEMA published preliminary FIRMs for eastern Palm Beach County (PBC).

PBC reviewed the preliminary FIRMs and found anomalous increases and trends in the BFE. 540 parcels had a lower BFE (with 147 two feet lower) and 16,269 parcels had higher BFEs (10,645 with BFE increases greater than two feet and 4,136 with BFE increases greater than three feet).

Based on technical issues, concerns and deficiencies identified PBC hired a consultant (February 2021) and issued an appeal of the proposed FIRMs.

On January 3, 2023 FEMA responded and rejected PBC modeling issues and communicated that FEMA will proceed with the preliminary FIRMs if PBC did not request a Scientific Resolution Panel (SRP). PBC has requested a SRP.

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On January 11, 2024 PBC received notification from the SRP panel that the information submitted in the appeal was insufficient to mandate correction by FEMA. The rules and regulations promulgated by FEMA require that the applicant:

- 1) Identify what caused the elevations proposed by FEMA to be scientifically or technically incorrect,
- 2) what is required to correct the proposed elevation, and
- 3) the generation of corrected Flood Insurance Rate Maps (FIRMs) for all parcels where there is a meaningful difference in the BFE.

FEMA is currently estimating that PBC will receive its Letter of Final Determination in June of this year and the maps will become effective in December of this year

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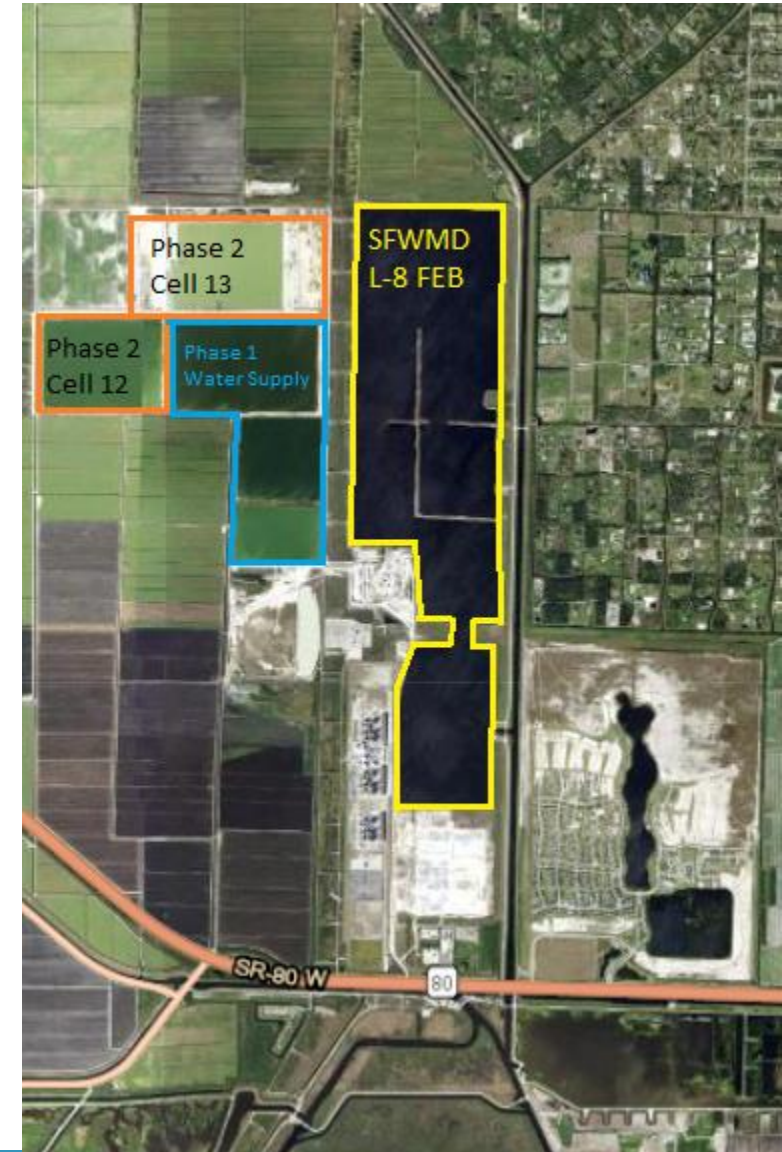
With the completion of the Herbert Hoover Dike work and the USACE issuance of a Joint Approval of the Post Implementation Evaluation for Herbert Hoover the HHD's DSAC was increased to a value of 4.

USACE issued letter to FEMA recommending accreditation for HHD under the NFIP.

Palm Beach County has contacted FEMA and requested information on the process required to update the affect FIRM and FEMA staff is preparing a response.

State Funded C-51 Reservoir Phase 2

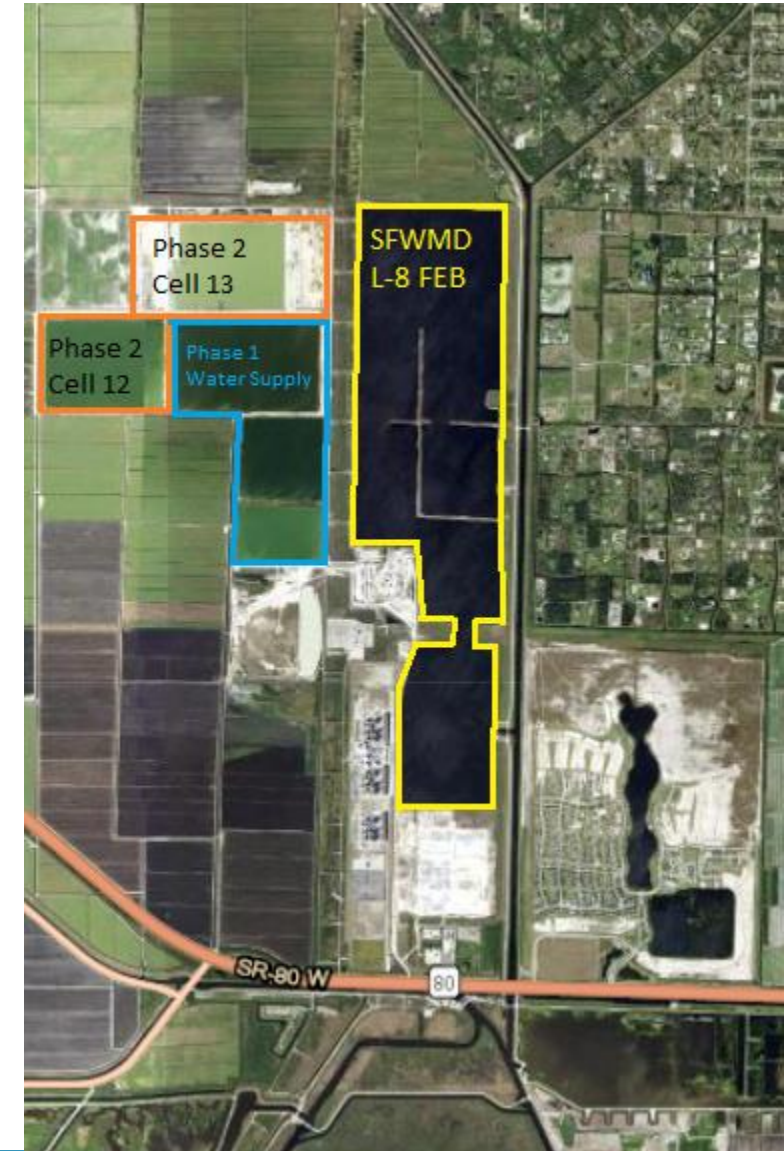
- The C-51 Phase 2 Reservoir is a below ground reservoirs which leverage the low permeability of a localized geological formation to effectively store water.
- The construction of the C-51 Reservoir Phase 2 Cell 12 and Cell 13 have been fully funded by the State of Florida (\$183 million).
- Palm Beach County (PBC) was selected to administer the grant for the construction of Cell 12 and Cell 13.
- Cost in terms of \$ per acre-feet of storage capacity is less than other reservoirs in Florida with comparable storage depths.



State Funded C-51 Reservoir Phase 2

The C-51 Reservoir Phase 2 currently consists of Cell 12 and Cell 13.

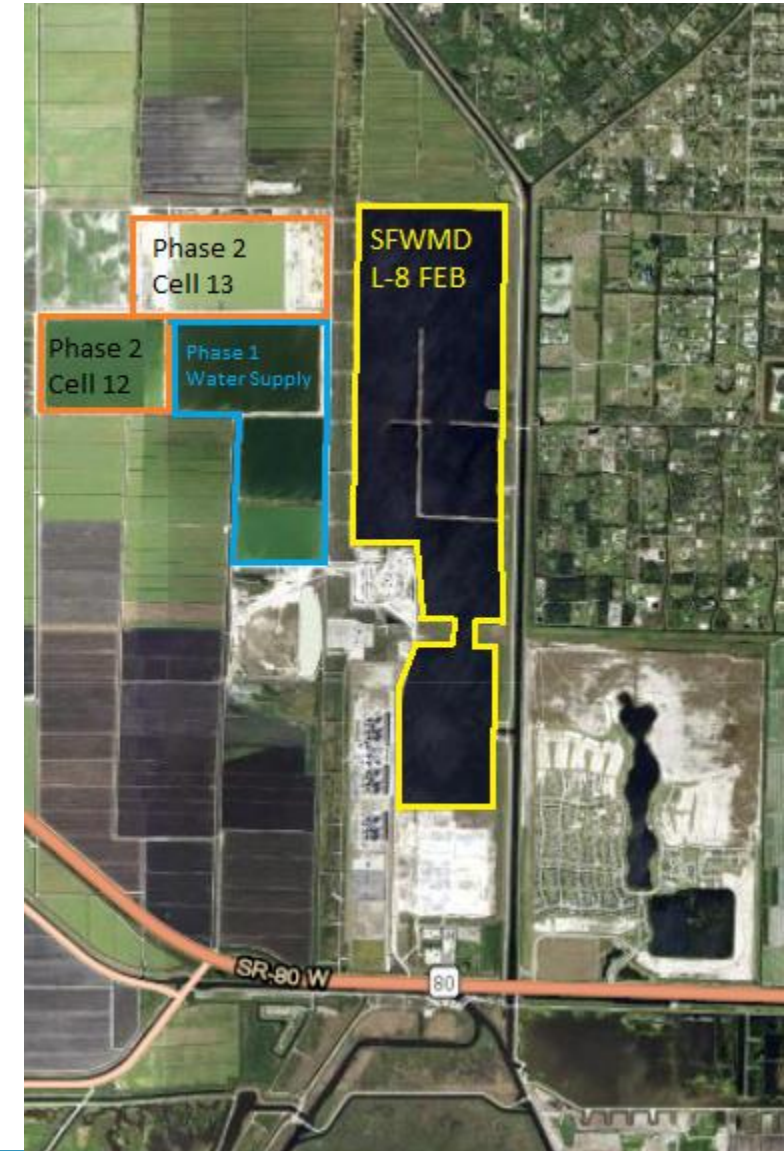
- These cells are 36.5 feet deep below ground reservoirs.
- Cell 12 will provide 6,000 acre-feet of long term storage (available in early 2025)
- Cell 13 will provide 8,800 acre-feet of long term storage (available in early 2026)
- Total of 14,800 acre-feet (4.8 billion gallons).
- Connection to the L-8 Basin requires canal and pump station construction by future project (available late 2026 or early 2027).



State Funded C-51 Reservoir Phase 2

What is 14,800 acre-feet and what can it do:

- 4.8 billion gallons of water
- A foot ball field area of water two miles tall.
- Water sufficient to provide the entire Minimum Flow and Level (35 cfs) for the Northwest Fork of the Loxahatchee River (NWFLR) for 211 days.
- Meet the permitted annual water supply withdrawals rate (104.4 mgd) of Palm Beach County's Eastern Water Utility Department (WUD) for 45 days.
- Volume equal to one month of Lake Okeechobee discharge to the L-8 Canal.



Corbett WMA Levee

The levee along the north side of ITID separates the J.W. Corbett Wildlife Management Area (WMA) from ITID. As can be seen from the following figure the land in the WMA slopes to the south and southeast.

The levee is essential as it prevents J.W. Corbett WMA runoff from flooding ITID and holds this water for hydroperiod maintenance in the WMA.



Corbett WMA Levee

The levee was not constructed to the current standards in terms of 1) protection against erosion by wave action, 2) internal seepage (prevention of piping failure), and free board requirements based on the land slope runoff from Tropical Storm Events.

PBC's has committed to providing 2 million dollars of the local match

The State of Florida initially award a grant for all 3.6 miles of levee improvement but subsequently removed the 0.6 mile segment. The SFWMD hopes to receive the final grant documents from FDEP this month. SFWMD has the 3 mile section out for bid.

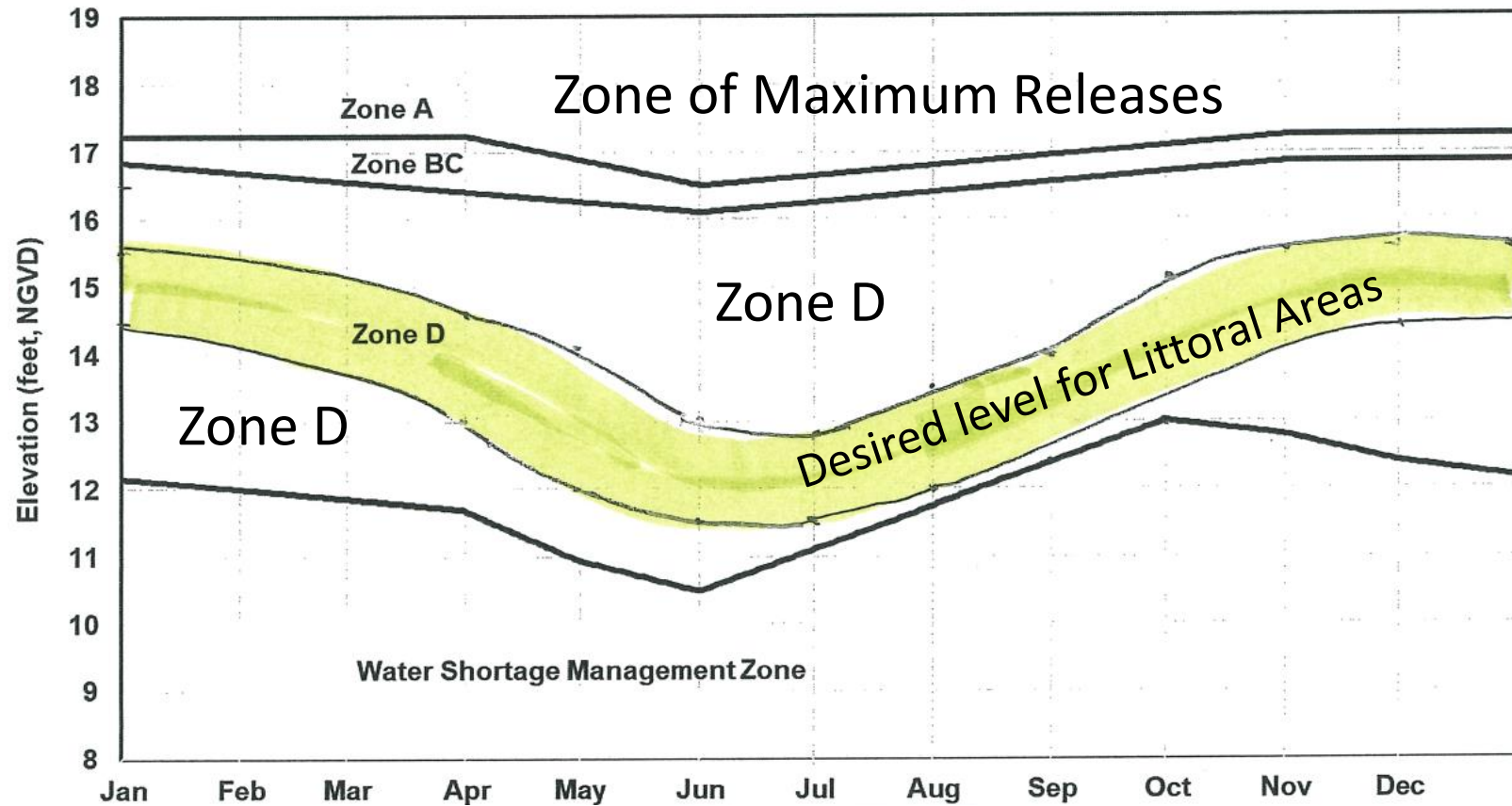
Lake Okeechobee Background

Lake Okeechobee is the primary storage reservoir for the Everglades Agriculture Area and the Everglades.

Area within levees is about 450,000 acres.

Due to impact of the levees there is a relatively narrow band of water level that is advantageous for the Lake's Littoral Areas (green band)

2 inches on the lake equates one year of maximum water supply to the City of West Palm Beach.



Post Tropical Inflow Rates of 50,000 cfs (>0.2 feet per day)
Maximum historical outflow rate of 17,000 cfs (8,000 to St Lucie via S-308 and 9,000 to Caloosahatchee via S-77)

Lake Okeechobee Background

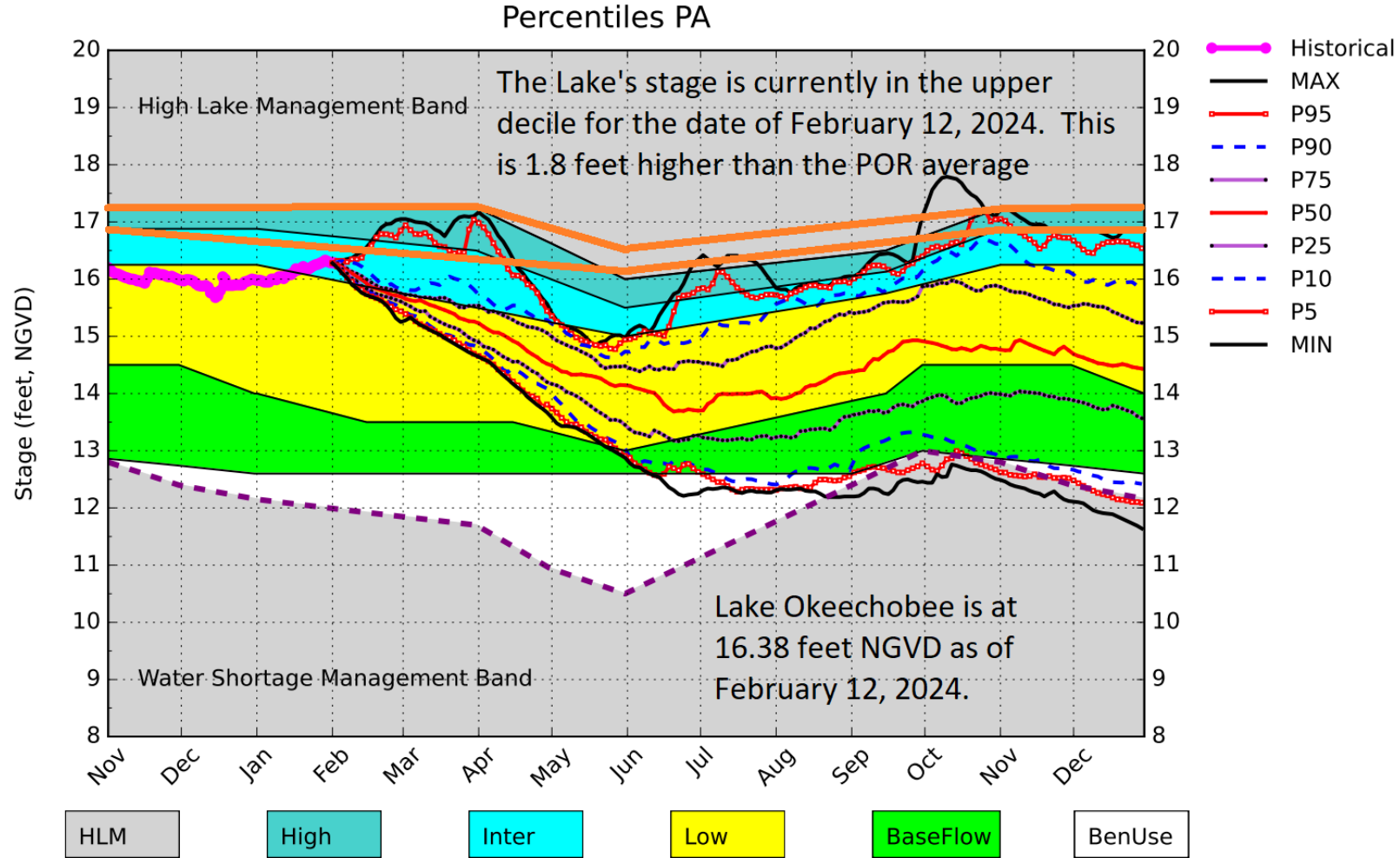
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Lake Okeechobee SFWMM February 2024 Position Analysis



(See assumptions on the Position Analysis Results website)

02/04/24 11:11:56

Lake Okeechobee System Operating Manual (LOSOM)

Lake Okeechobee provides critical water supply to agriculture, the environment, and municipalities.

The USACE developed and implement an emergency schedule (LOSR8) which lowered the Lake to facilitate safe work on the Herbert Hoover Dike (HHD).

The lowered schedule reduced water supply.

- Palm Beach County has both short-term and long-term water supply concerns and concerns with the Lake Okeechobee discharges to the Lake Worth Lagoon (LWL) Estuary.
- The long-term water supply concern is the USACE's lack of commitment to restore the water supply that was available before the lowering of Lake Okeechobee Regulation Schedule for repair of the Herbert Hoover Dike.
- The short-term water supply concern is whether the unconstrained operational flexibility will diminish partially or completely the water supply improvement demonstrated in the modeling.
- The concern for the LWL Estuary is that LOSOM allows release at a rate of up to 300 cfs to the LWL Estuary in Zone D while it prohibits releases to the St. Lucie Estuary in Zone D.
- Also of concern is that hesitance to discharge to the St. Lucie Estuary at all and to the Caloosahatchee Estuary at high rates will result in longer duration of high lake stages (>16 feet NGVD) which harms the Lake's littoral zone and reduces the L-8 Canal drainage rate into the Lake [which Indian Trail Improvement District (ITID) and Cypress Grove Community Development District (CGCDD)] rely on.

Thank You

Questions/Discussion

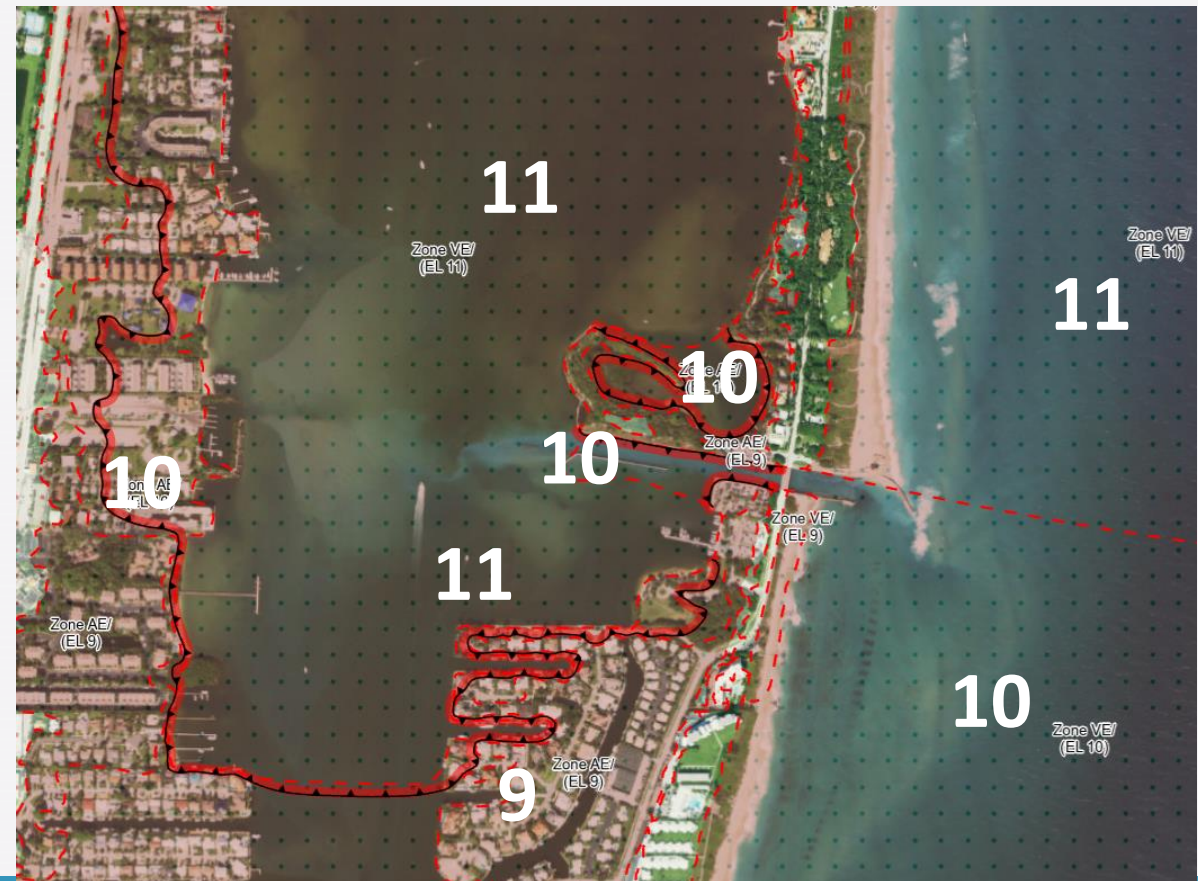
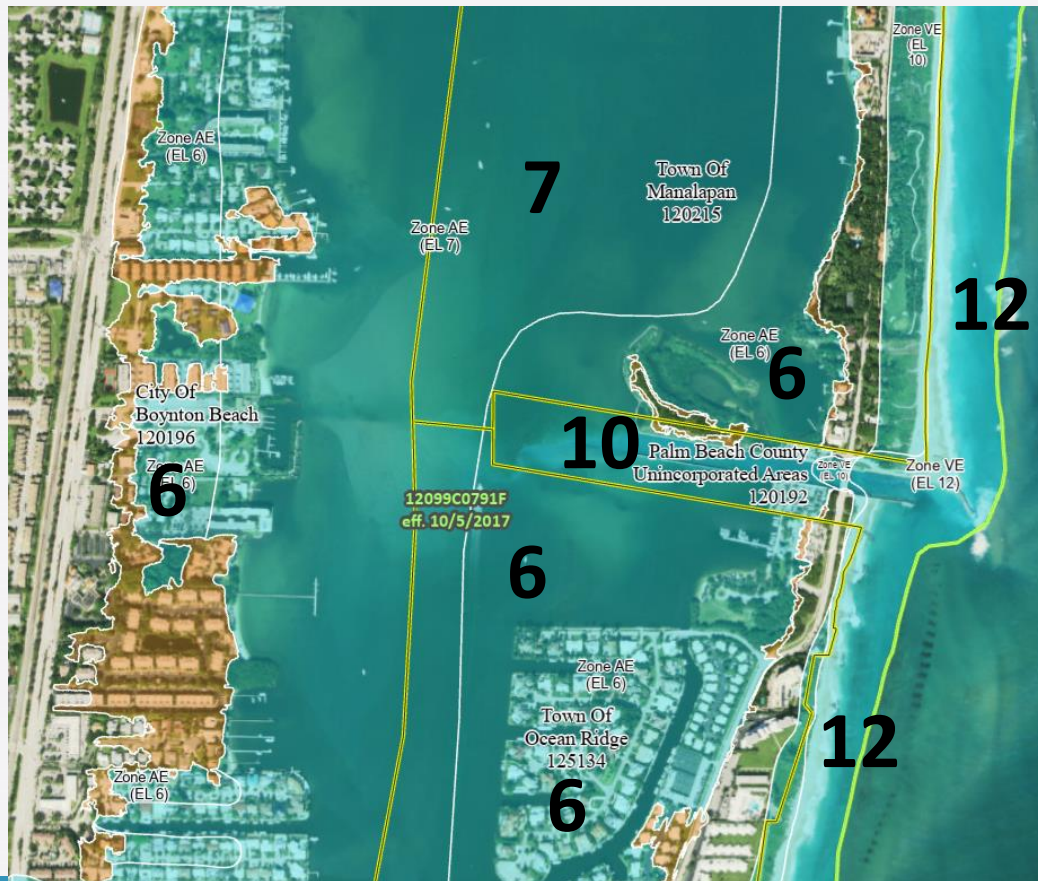


Photo: Katelyn Cucinotta

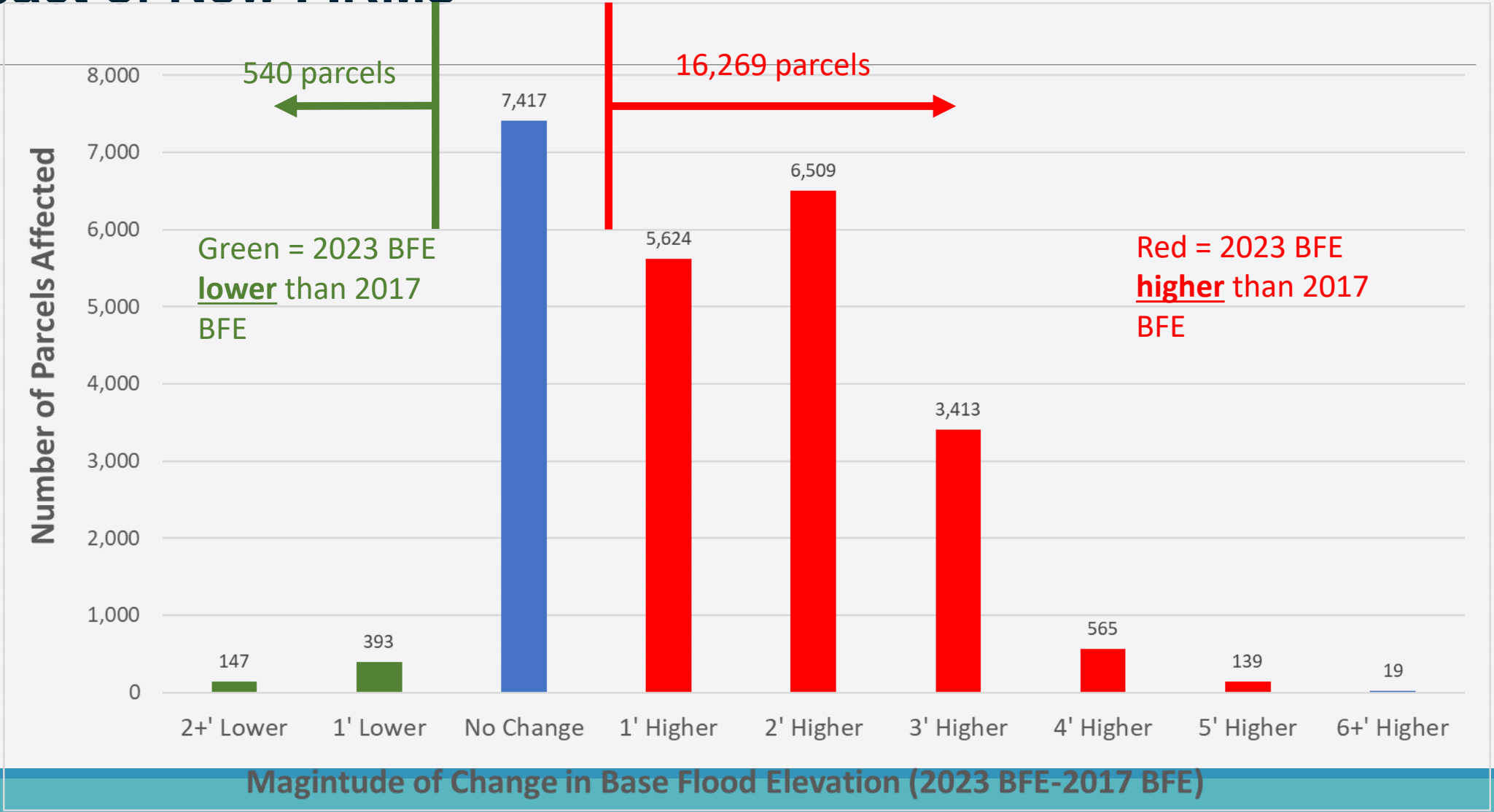
Example of Impact of New FIRMs

Existing BFE

Proposed BFE



Impact of New FIRMs



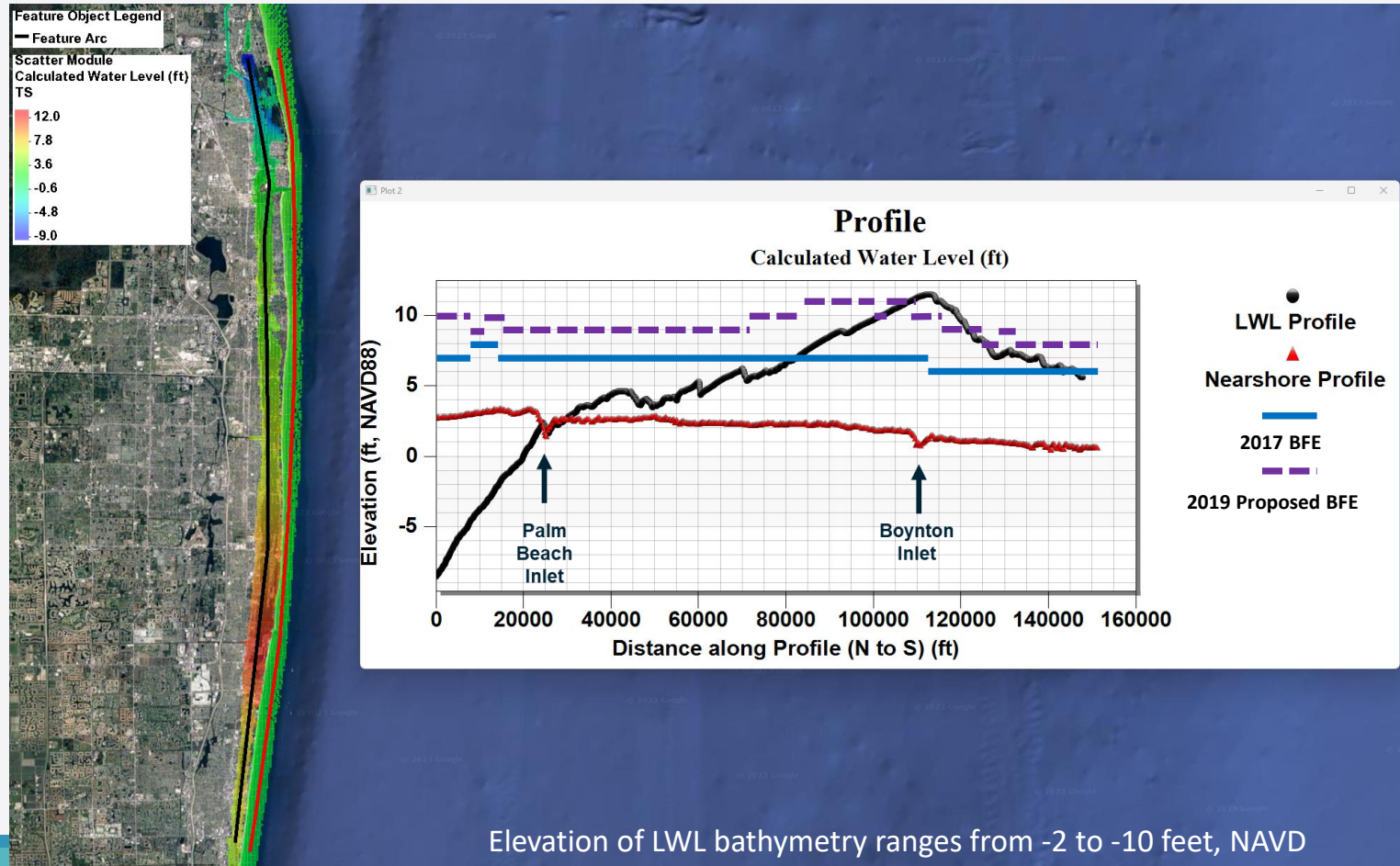
Modeled WSE

WSE along Lake Worth Lagoon (LWL) compared to offshore for Storm 21

- Max sustained wind speed = 139mph

Implies that storm stage is due to wind setup along LWL

Unrealistic and “technically” incorrect.



Elevation of LWL bathymetry ranges from -2 to -10 feet, NAVD

Grid Development

