



Southeastern Palm Beach County Water Resource Issues

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Proposed Impacts to Future Water Supply

- USACE is proposing a **Temporary Deviation** to the current Lake Okeechobee Regulation Schedule (LORS 2008) to address potential Harmful Algae Blooms (HABs) in the coastal estuaries
- LOSOM has stated that the CERP '**Savings Clause**', which protects existing legal water users does NOT apply to the new Regulation Schedule
- **Water Supply Preserves** (CERP water storage features) in PBC have been **de-authorized** by USACE & State
- **Climate Change...**

Water Supply Solutions

- Additional storage must be contemplated to address the potential shortfall
- In the absence of State and Federal participation, the only recourse is for local interests to develop Alternative Water Supply Projects

Water Supply Solutions Continued

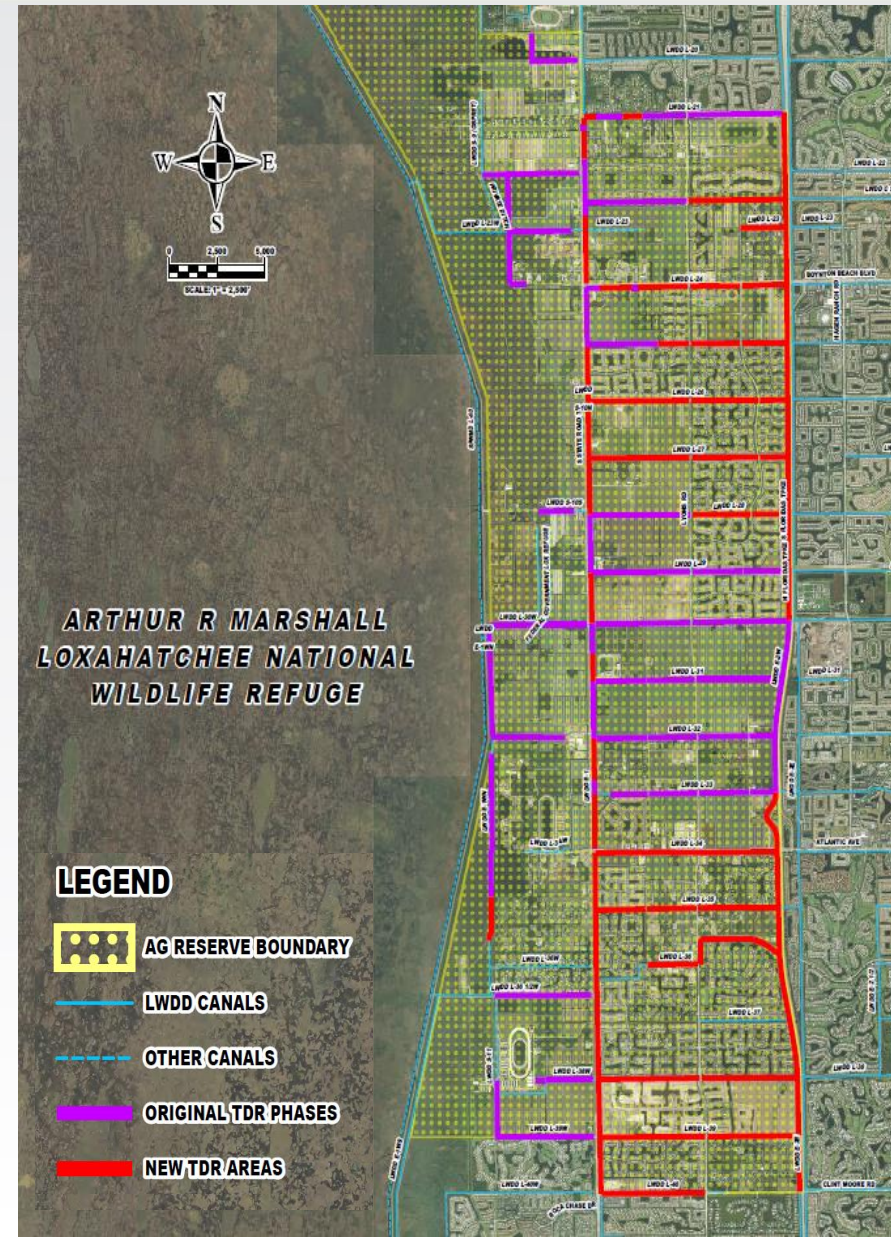
- Sub-Regional Water Supply Storage
 - Site 1 Reservoir
 - Site 1 Aquifer Storage & Recovery
 - C-51 Reservoir
- Each option is an expensive endeavor for a sub-regional governmental entity
 - Costs range in the tens to hundreds of millions of dollars

Potential Funding Solutions

- Increasing current land assessments
 - Increasing the current LWDD budget to accommodate a \$20 million project would require **doubling** the current assessment
- Sell Transfer Development Rights (TDRs)
 - Could generate between \$10 and \$20 million
- Bonding
 - Sub-regional partners could participate
 - Palm Beach County
 - Broward County
 - State Water Supply Grants
 - LWDD Bonding potential is very limited and would severely impact future financial flexibility

LWDD Property in Ag Reserve

- LWDD owns in fee approximately 600 acres (units) of right-of-way within the Ag Reserve
- Approximately 300 acres (units) are adjacent to preserve parcels
 - Staff currently updating inventory



Considerations for Sale of LWDD Development Units within the Ag Reserve

- LWDD owns right-of-way (property) in fee simple
- LWDD has not given up its development rights on properties that it owns in the Ag Reserve; no action by LWDD to relinquish or extinguish its development rights
- No distinction was made that LWDD property does not qualify for preservation area
- District could sell property to adjacent owners making those lands eligible to qualify for preserve area

Considerations for Sale of LWDD Development Units within the Ag Reserve

- LWDD is “life support” for farming in the Agricultural Reserve- w/o adequate water, ag is NOT sustainable
- Land remains in public ownership, preserved for drainage purposes
- Does not alter canals or compromise flood control; canals support flood control and irrigation for agricultural operations
- LWDD sale of development units permanently removes development rights from canal right-of-way; cannot be developed or sold for future development purposes
- Sale of LWDD development units does not change land use designation for adjacent agricultural property
- LWDD recognizes the growth impacts associated with the sell of TDRs – Proposal would remove approximately 100 ac of Ag lands from the Ag Reserve

LORS08 Deviation

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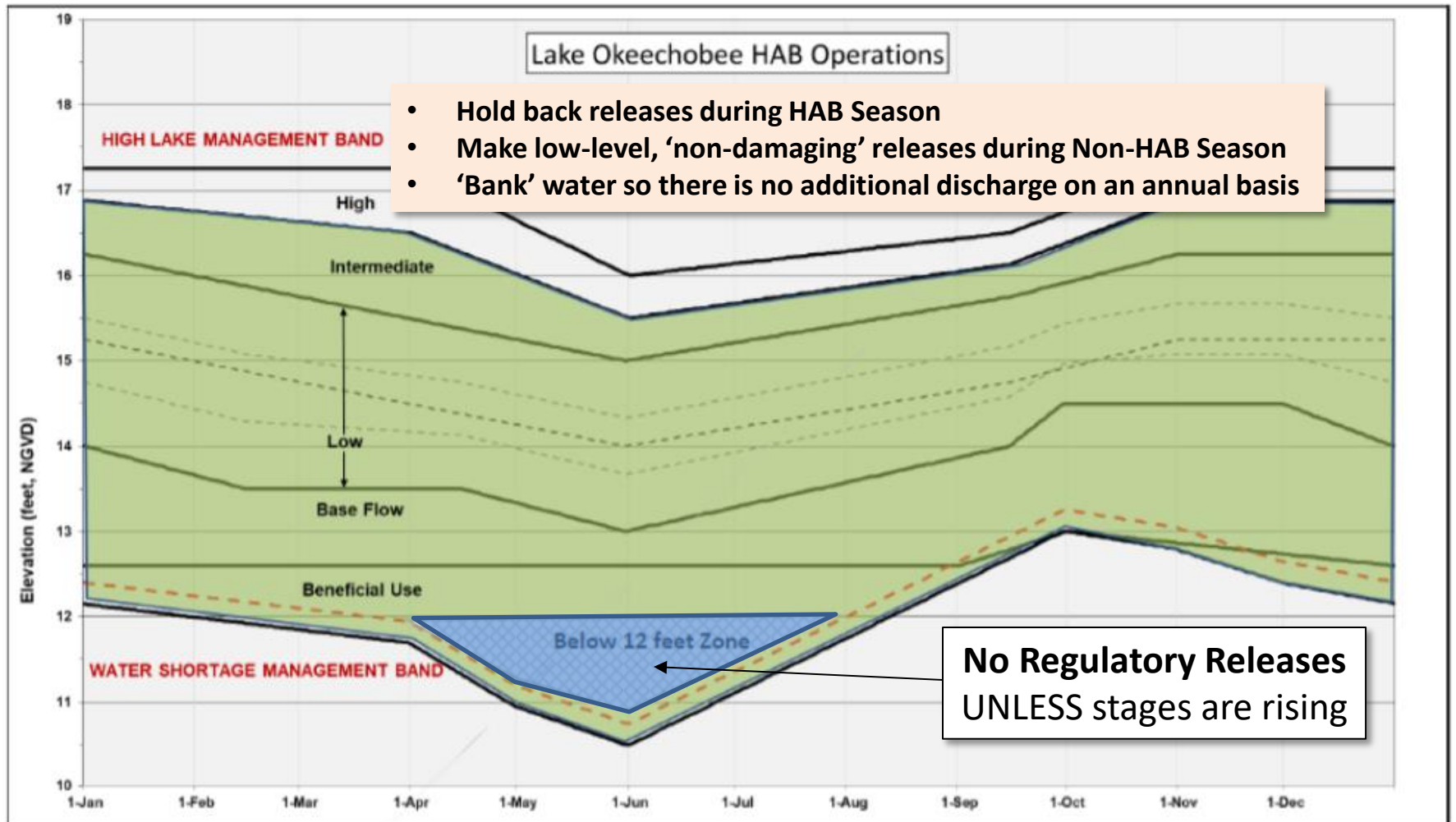
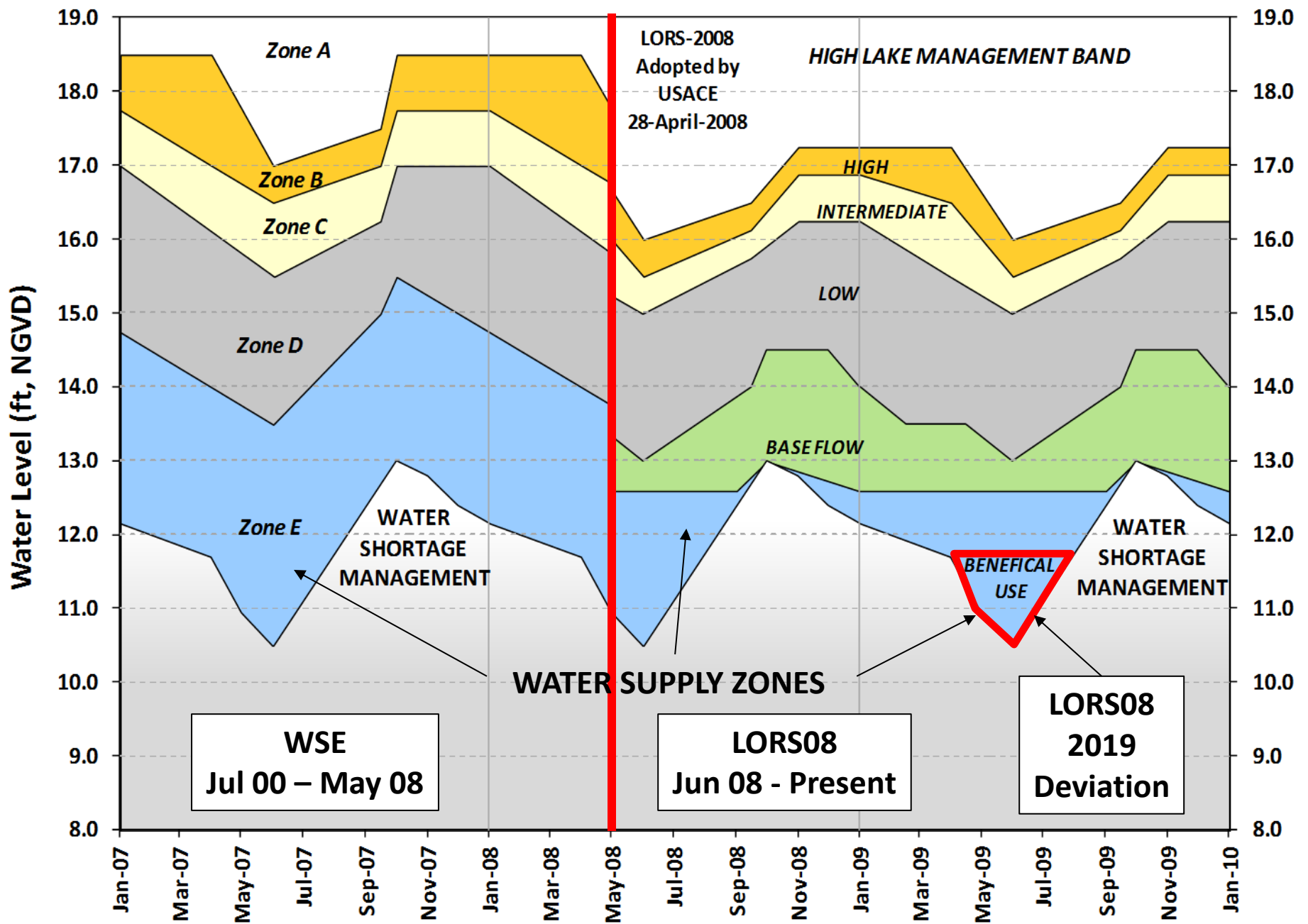


Figure 2-1. Range of lake stages where east/west HAB operations could occur (shaded green area) with cutbacks in deviation releases implemented 0.25 feet above Water Shortage Management Band (red dashed line). Below 12 feet zone is shown (hatched area) to show where releases would not be made except if the lake was rising.

Lake Okeechobee Regulation Schedule Lowered in 2008



Responders to Deviation

- Lake Worth Drainage District
- Palm Beach County
- Okeechobee County
- Martin County
- City of West Palm Beach
- City of Okeechobee
- City of Clewiston
- Southeast Florida Utilities Council (SEFLUC)
- Florida Inland Navigation District (FIND)
- U.S. Sugar Corporation
- Florida Land Council
- Associated Industries of Florida
- Okeechobee Economic Council
- Florida Farm Bureau
- Florida Fruit and Vegetable Association
- Florida Nursery, Growers and Landscape Association
- Chamber of Commerce of the Palm Beaches
- H2O Coalition
- Business Development of Palm Beach County
- Central Palm Beach County Chamber of Commerce
- Palm Beach Soil and Water Conservation District
- Economic Council of Okeechobee
- Mary Ann & Roland Martin Marina
- Florida Citrus Mutual
- Southeast Milk, Inc.
- Florida Fertilizer and Agrichemical Association
- A. Duda & Sons
- Dade County Farm Bureau
- Broward County Farm Bureau
- Hendry/Glades Farm Bureau
- Okeechobee County Farm Bureau
- Orange County Farm Bureau
- Polk County Farm Bureau
- Martin County Farm Bureau
- Lee County Farm Bureau
- Collier County Farm Bureau
- Indian River County Farm Bureau
- The Nature Conservancy

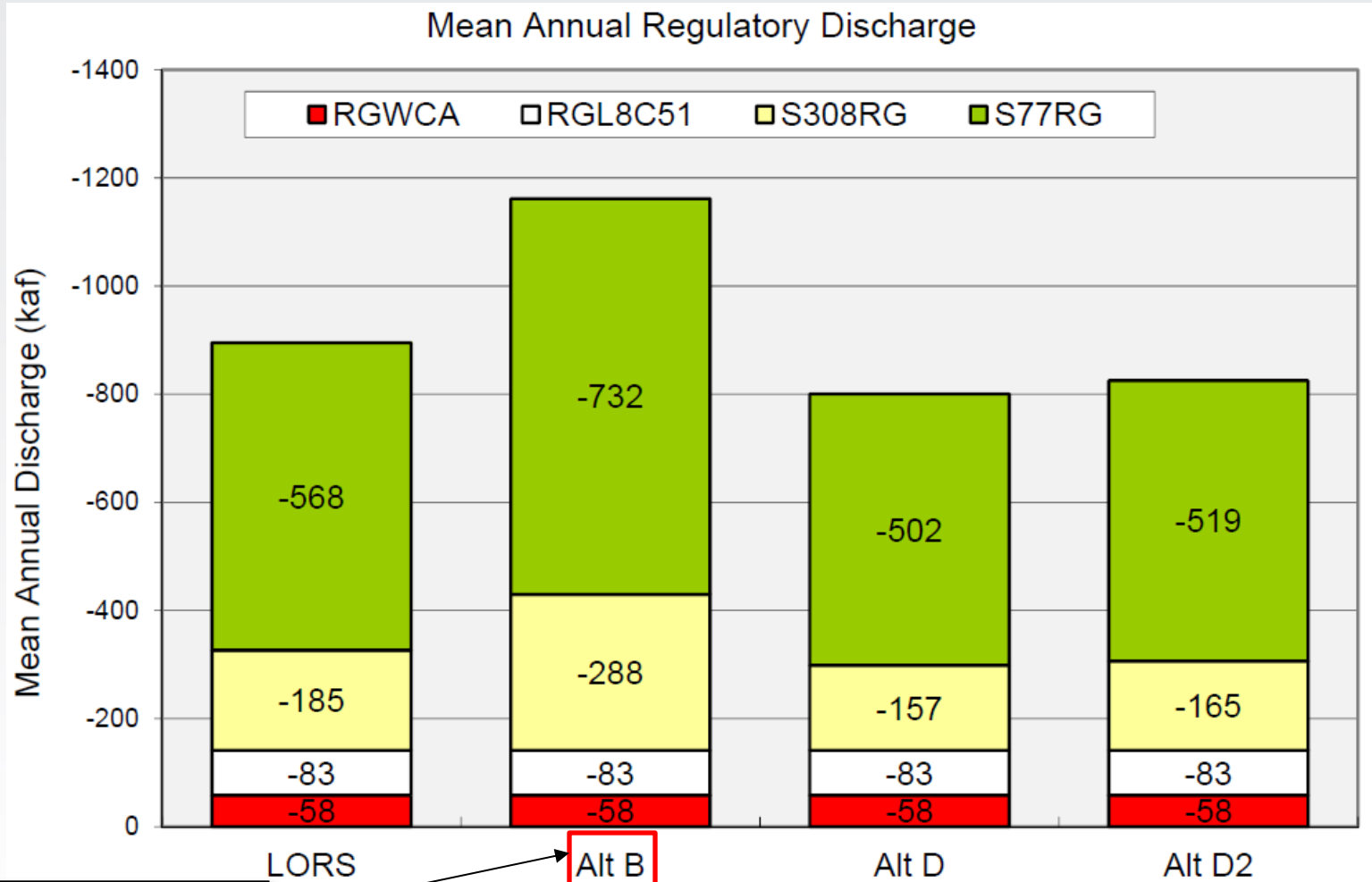
Response Comments

- Lack of public process
- No technical analysis
 - No hydrologic simulations
 - Evaluation of alternatives
 - Performance measures
- Potential impacts to regional water supply
 - Water availability
 - Saltwater intrusion
- Potential environmental impacts to;
 - Lake Okeechobee
 - Stormwater Treatment Areas
 - Everglades
 - Caloosahatchee Estuary
- Potential impacts to navigation
- No cause and effect relationship between operations and HABs
- No HAB thresholds or criteria developed
- Operations plan will not likely improve water quality
 - Questionable that the timing shift of flows will change the pollutant loading dynamic

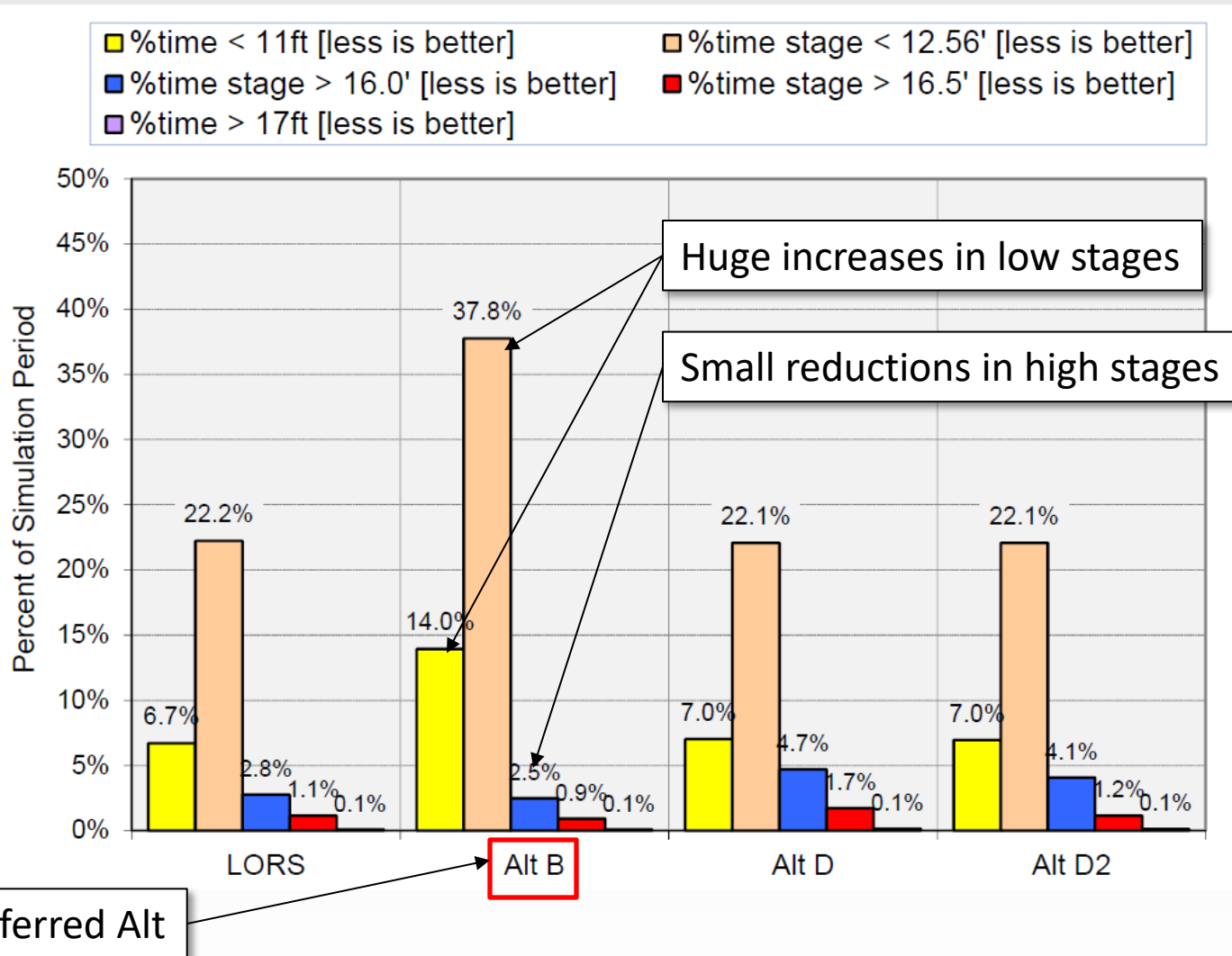
MacVicar & Associates Modeling

- MacVicar & Assoc. simulated the deviation using the SFWMD's Lake Okeechobee Operations Simulation (LOOPs) model
- The USACE's 'preferred' alternative was NOT the best performing alternative developed
 - Significantly increased annual flow to the estuaries (almost doubled)
 - Reduced high flows during 'algal months'
 - Did NOT reduce peak stages that could impact dike safety
 - Only slightly reduced % of time stages exceeded 15 ft. NGVD.
 - Doubled the amount of time stages fell below 11 ft. NGVD
 - Doubled the number of times the stage was less than 11 ft. NGVD for more than 80 days
 - Doubled the number of days of LOSA water shortage
 - Doubled the number of years with a water shortage
 - Almost quadrupled the number of days below 10 ft NGVD
 - Increased the number of days below 9 ft NGVD from **0 to 21**
 - Almost doubled the % of time below the Navigation Limit
 - Water 'Banking' will not work

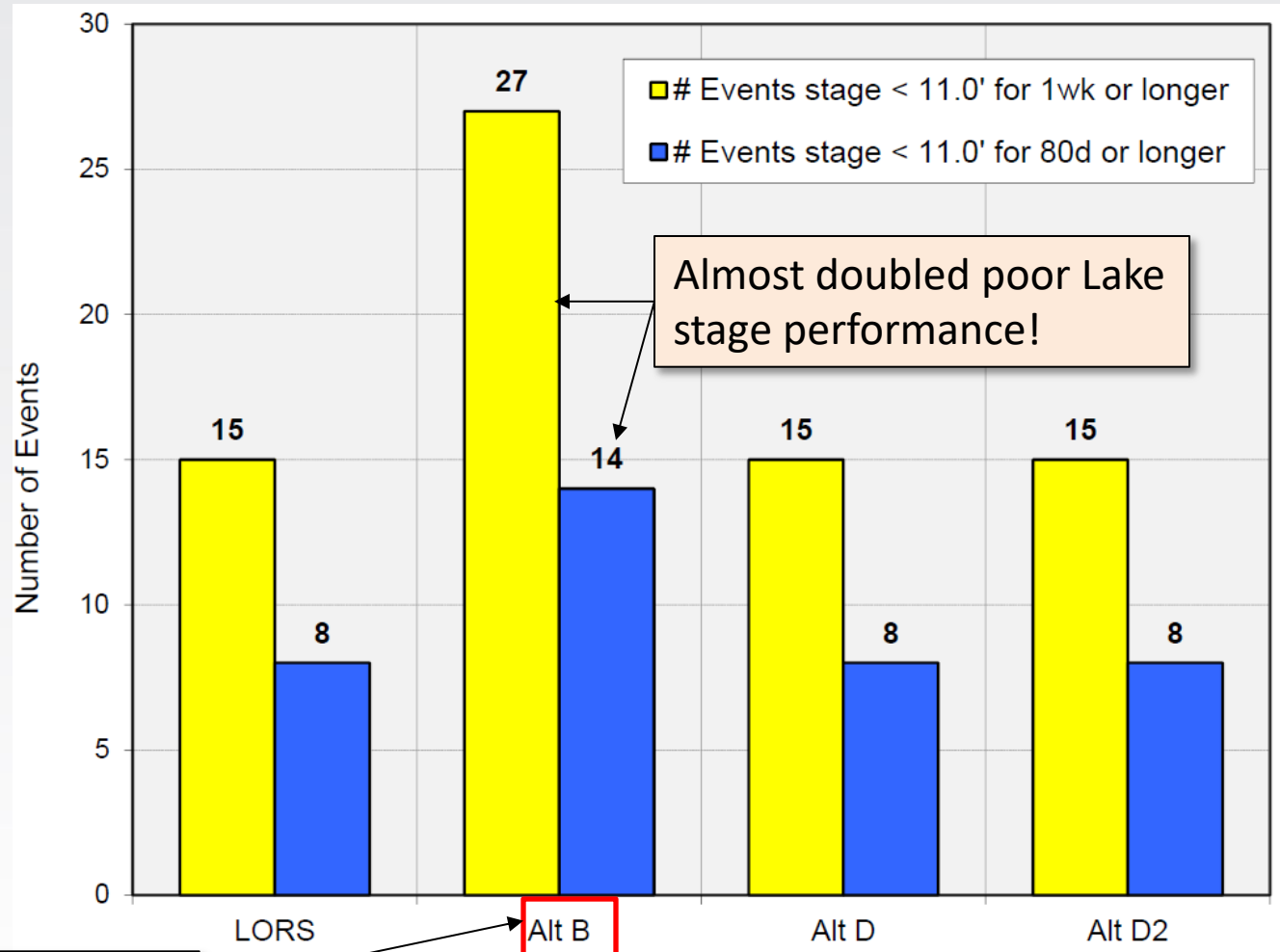
LOOPs Results



LOOPs Results - % of Time Stages Exceed High and Low Elevations

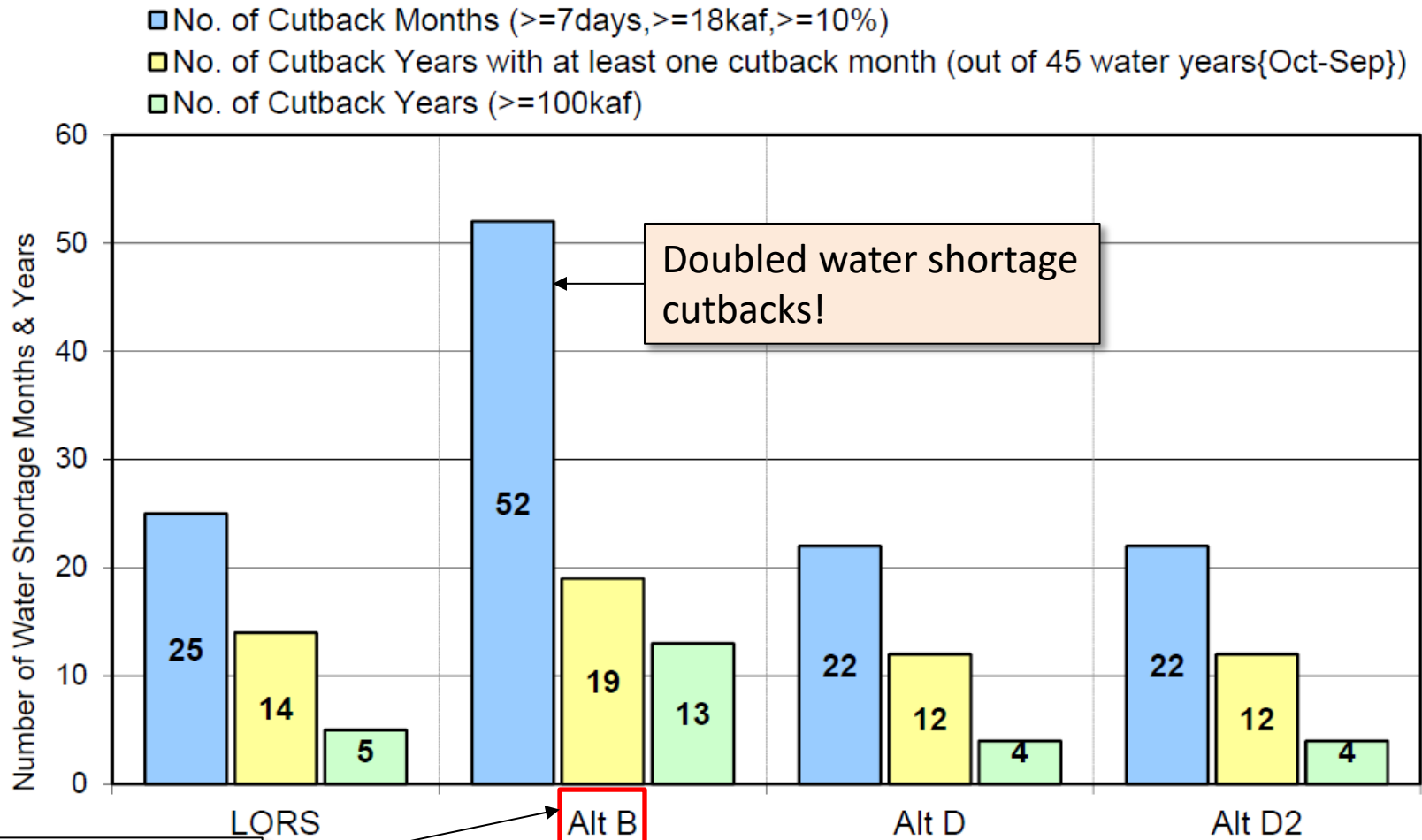


LOOPs Results – Low Stage Summary



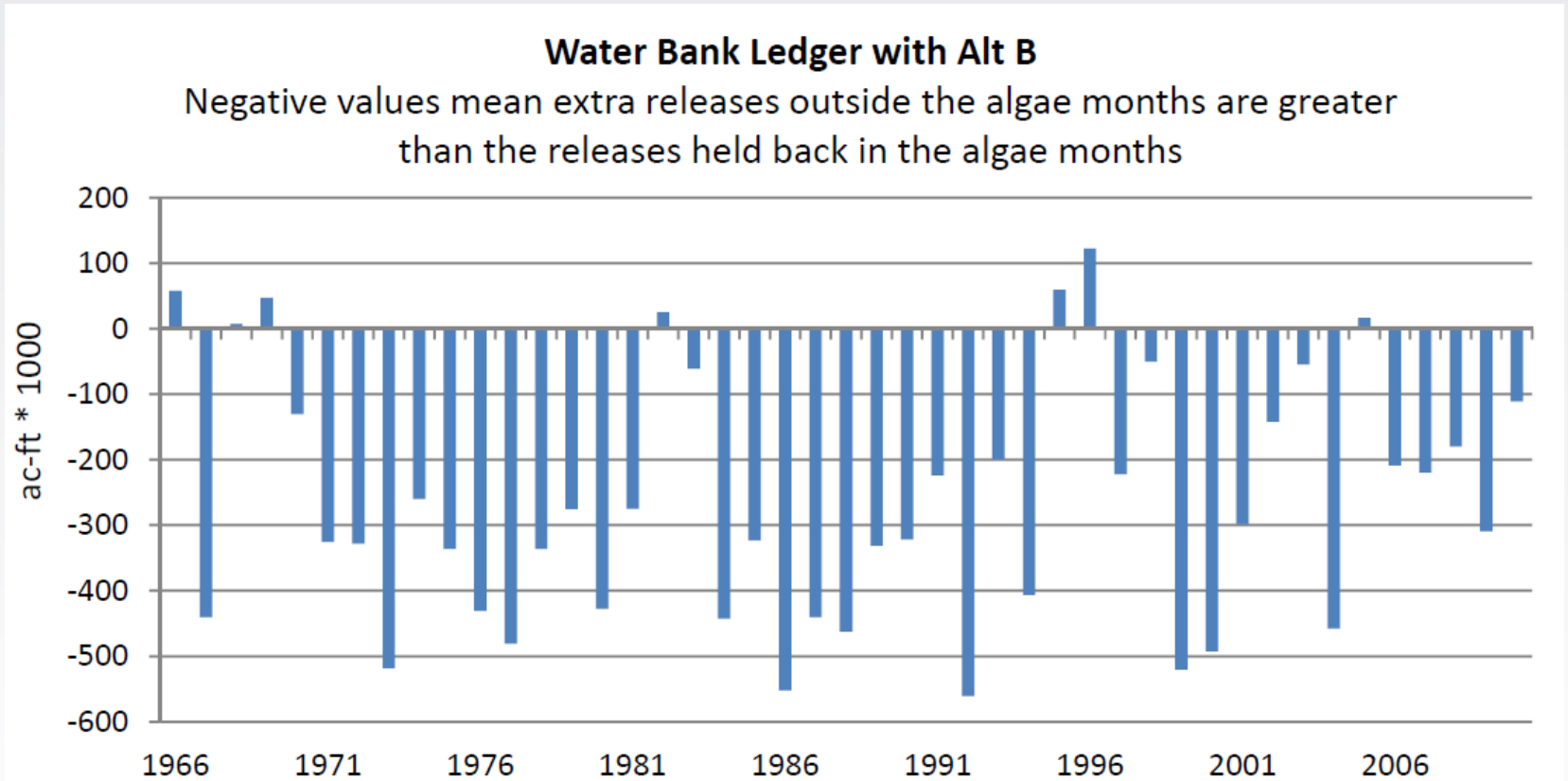
USACE Preferred Alt

LOOPs Results – Water Shortage Cutbacks



USACE Preferred Alt

LOOPs Results – Water Banking



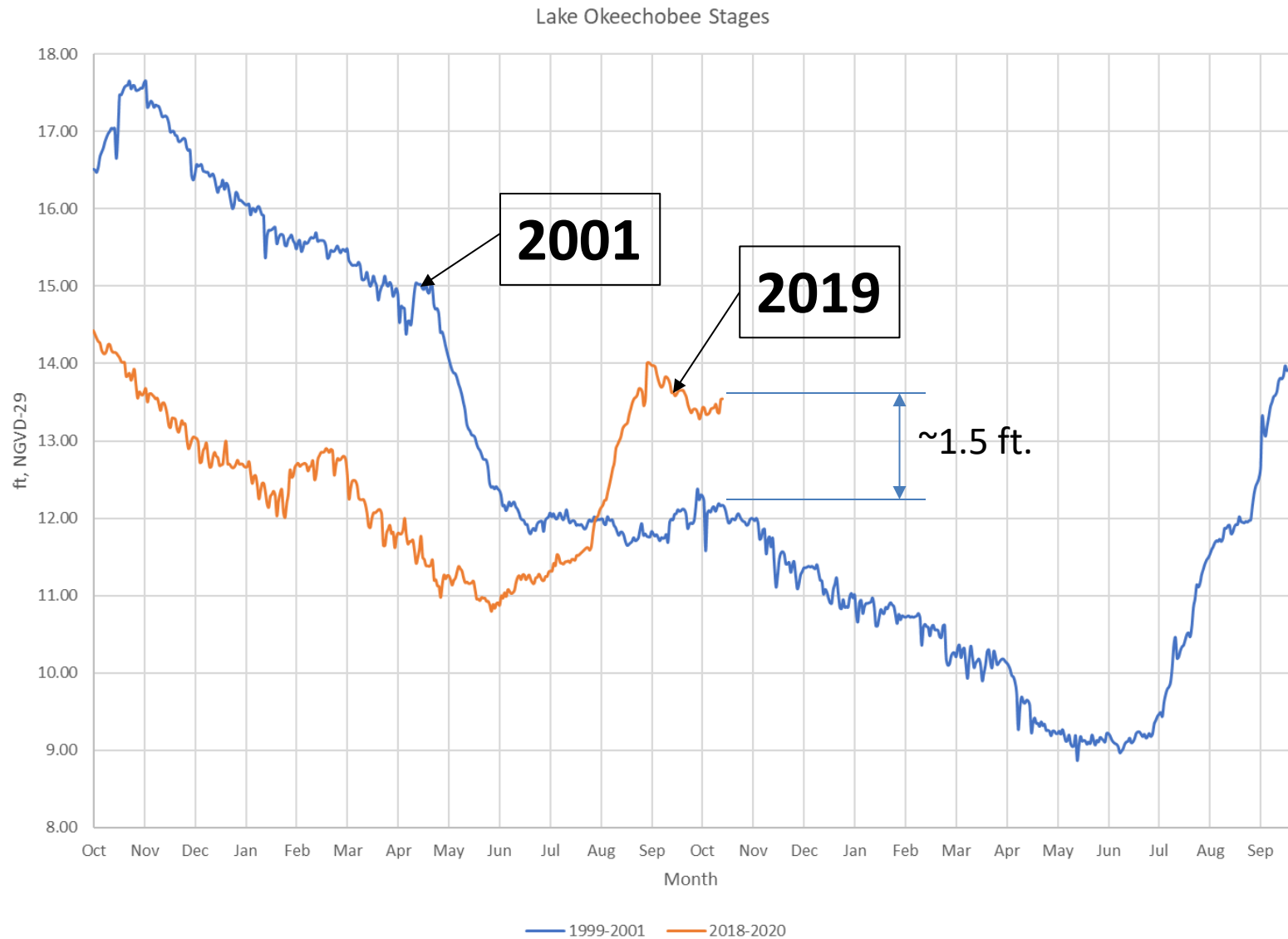
Next Steps...

- USACE is currently preparing a hydrologic simulation of the deviation
- This will be followed by another public comment period
- USACE will decide to sign the FONSI, or not...
- If signed, it goes to the U.S. Fish & Wildlife Service and/or U.S. Environmental Protection Agency (USFWS/USEPA) for approval
 - Requires another public comment period

Next Steps...

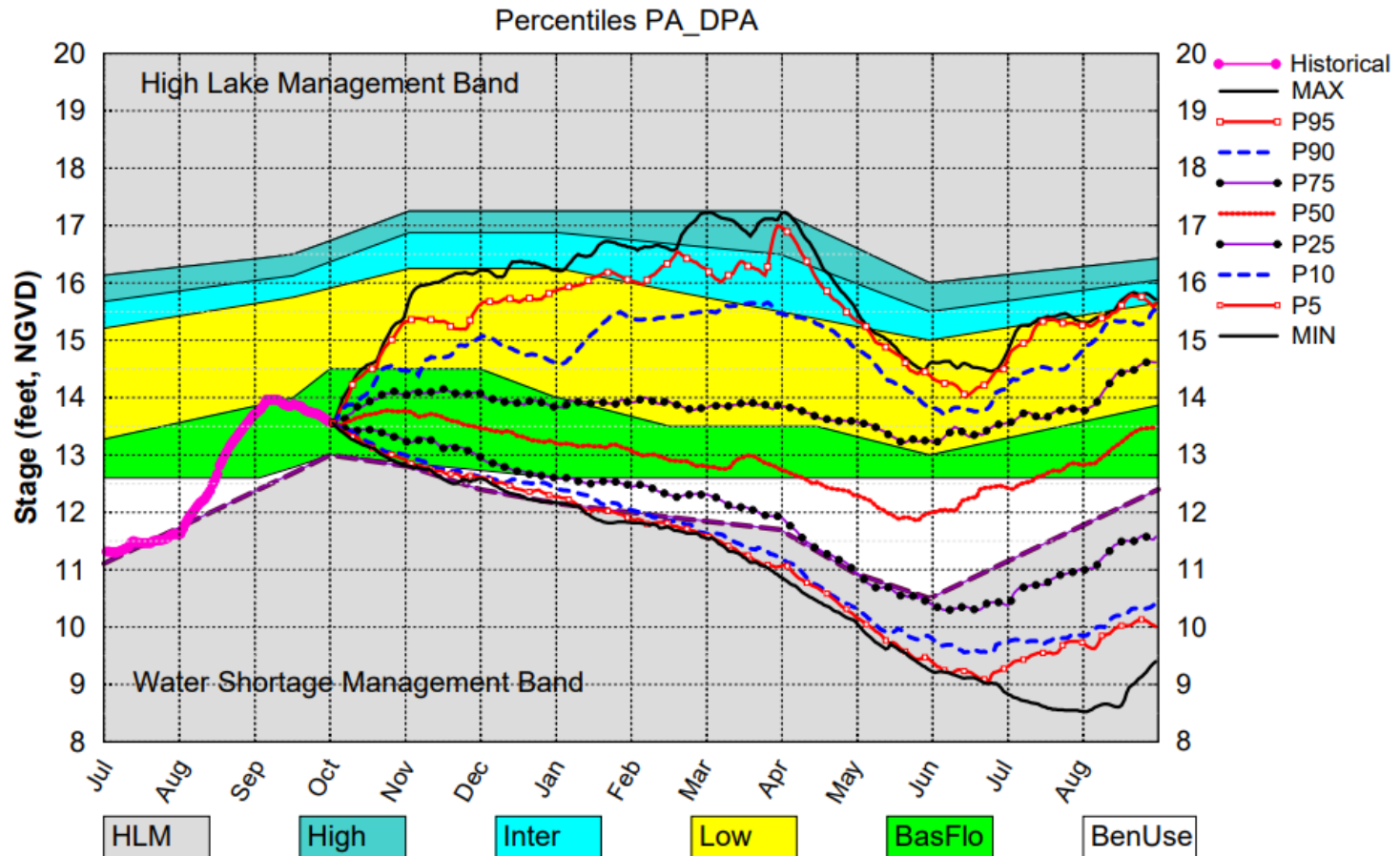
- USFWS/USEPA approves, or requires an extensive Environmental Impact Statement (EIS) analysis – with further public comment.
 - Important to recognize that the **White House Council on Environmental Quality (CEQ)** oversees this process.

Lake Okeechobee Stage Hydrograph



Lake Okeechobee Stage Projections

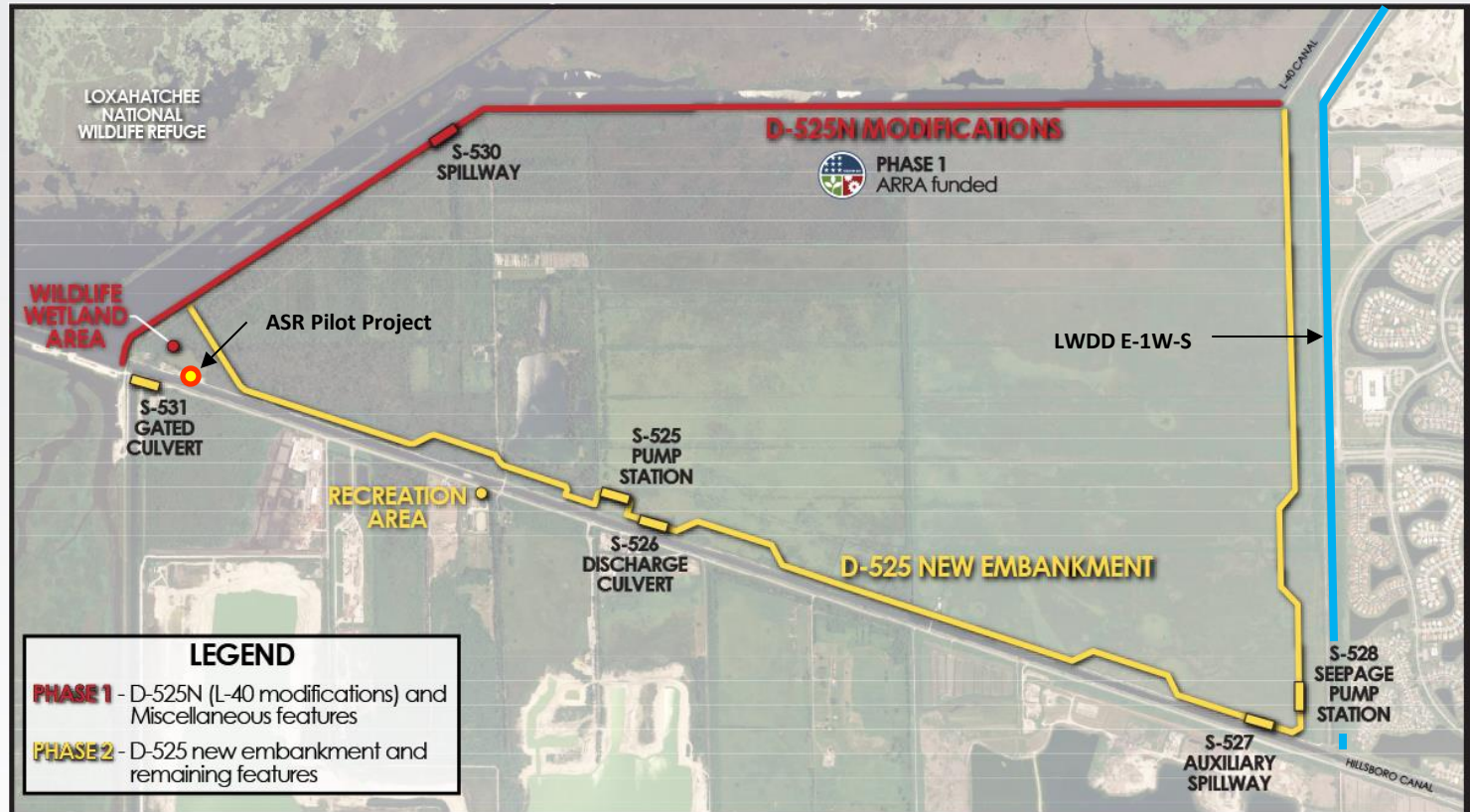
Lake Okeechobee SFWMM Oct 2019 Position Analysis



(See assumptions on the Position Analysis Results website)

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Site 1 Impoundment / ASR

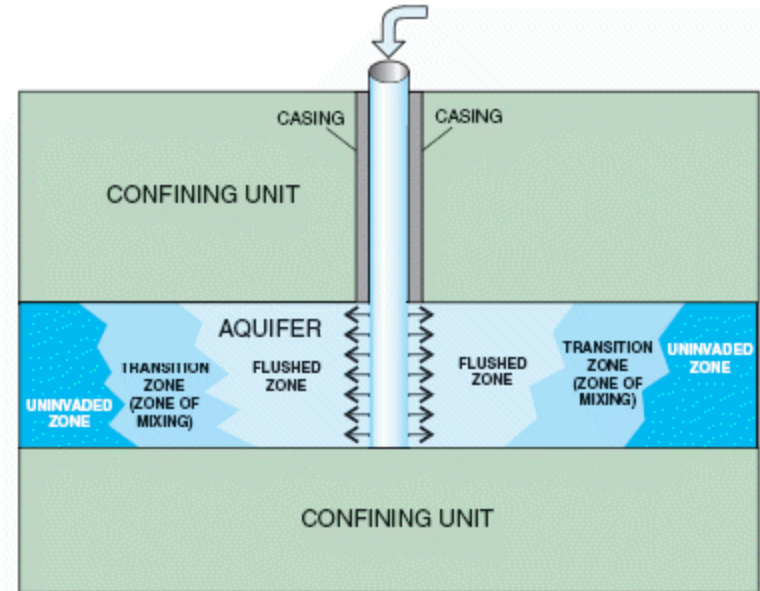


Site 1 Impoundment Project

- 1,660 Reservoir @ 8 ft. depth
 - 13,300 Ac-Ft of water storage
 - 1 pump station for ~ 130 days (~4 months)
 - Not accounting for seepage loss and evaporation
- Seepage Collection System
- Internal Levee
- Hillsboro Canal Improvement
- Recreation Features

Site 1 Aquifer Storage & Recovery

- ASR Pilot Test Facility
 - 1 well at 5,000,000 gallons per day
 - About 4 hours pumping at CS#17W
 - Currently only a 40% recovery rate
 - 6 months of pumping would yield about 2 months of withdrawal
 - Projections indicate that up to 70% is possible
- Site Refurbishment Costs: ???
- O&M Costs:
 - Estimated at ~\$100,000/year
 - ~ \$8,300 / month



Site 1 Impoundment Project

- 'Site 1' was the name given to the 1,660 ac. site in the PBC Solid Waste Authority landfill master plan in the early 1990's
- The site was purchased by SFWMD with funding from the District and the U.S. Department of Agriculture and Department of Interior
- The project was first identified by the Audubon Society in the early-1990's as part of their Water Preserve Areas concept
- Incorporated into the 1st Lower East Coast Water Supply Plan (1994)

Site 1 Impoundment Project

- Incorporated into the USACE's 'Restudy of the C&SF Project' in 1994
- Incorporated into the Comprehensive Everglades Restoration Plan (CERP) in 1999.
- Authorized by U.S. Congress as a CERP project in 2000 (including ASR).
- Congress authorized the Project, in the Water Resource Development Act of 2007

Site 1 Impoundment Project

- USACE split the project into two phases (2009);
 - Phase I: Reinforcement of the L-40 Levee
 - Phase II: Impoundment Features
- Phase I Construction:
 - Started; 2010
 - Finished; 2016
- Phase II currently 'on-hold'
- ASR facilities at the site were constructed by SFWMD to conduct a regional ASR test (1 well, 5 million gallons per day)

Site I Impoundment Project

- In May 2018, SFWMD requested USACE to De-Authorize the Project
 - Considering surplus land
- USACE has no identified schedule out to 2030, and no current plans to schedule the project

Project Costs

- Total Estimated Cost: \$355,000,000
- Phase I Cost: \$44,100,000
 - Actual Cost: ~ \$75,000,000
- ASR Cost: ~ \$ 2,000,000

Status

- Continuing Phase II will likely require congressional authorization for a new total project cost due to exceedance of the 902 limit (Congressionally authorized budget)
- LWDD should perform a due-diligence assessment to;
 - Determine the viability of the project
 - Identify possible alternatives

Introduction

- USACE is proposing a Temporary Deviation to the current Lake Okeechobee Regulation Schedule (LORS 2008) to address potential Harmful Algae Blooms (HABs) in the coastal estuaries
- USACE South Atlantic Division (Atlanta, GA) is proposing to approve an 'Environmental Assessment/Finding of No Significant Impact (EA / FONSI) - National Environmental Policy Act – 1969)' to implement the deviation
- Based on criticism from stakeholders, the USACE provided a public comment period & additional analysis is being performed
- Public comment has been submitted from a broad range of south Florida stakeholders

DISCUSSION