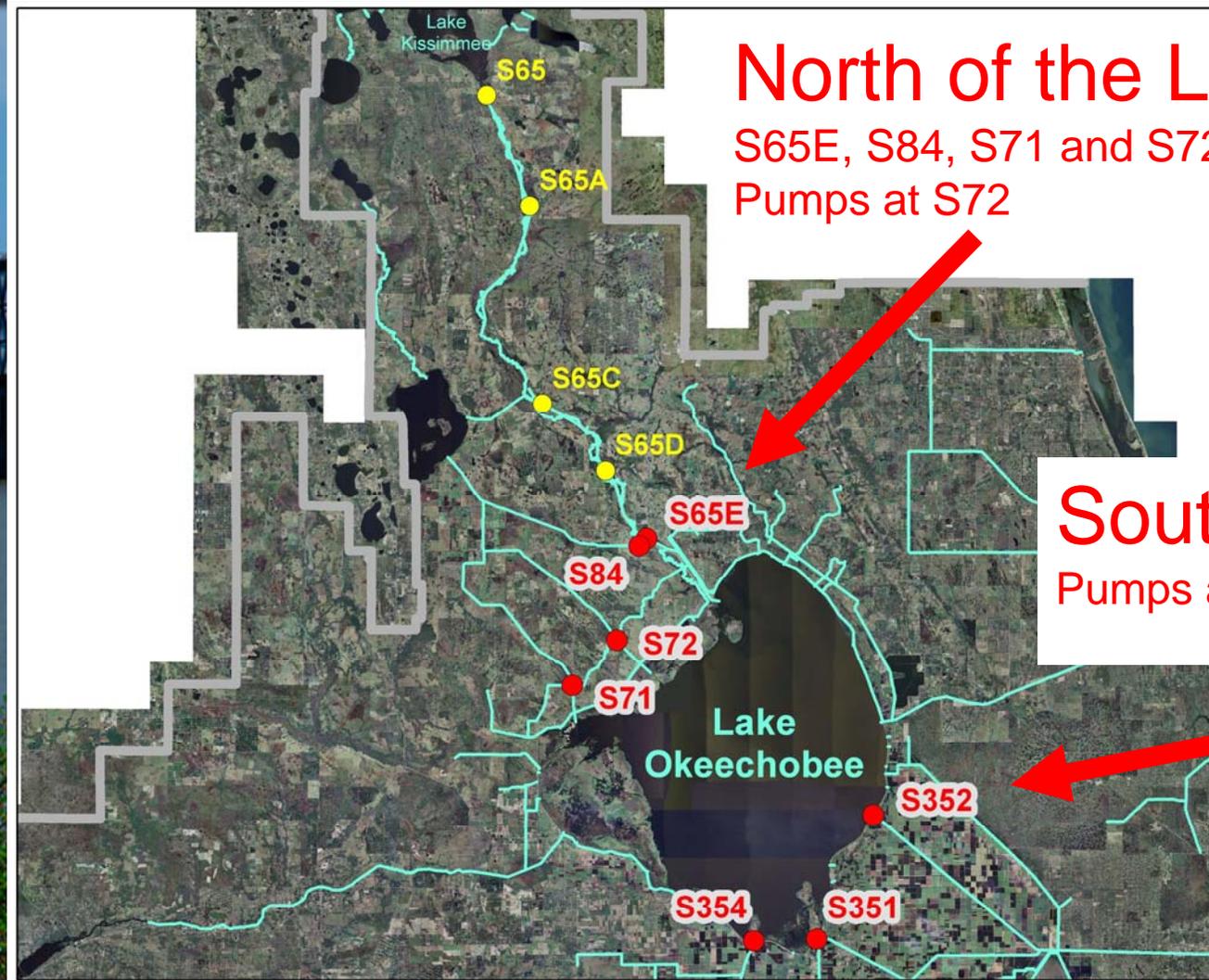




Emergency Conditions Historic Low Water Levels on Lake Okeechobee Structure Stability & Pumps

Cledwyn R. Weldon, P.E.
Director, Engineering Dept
Operations & Maintenance
March 12, 2008

Structure Stability Concerns & Water Shortage Pumps



North of the Lake

S65E, S84, S71 and S72 Stability Pumps at S72

South of the Lake

Pumps at S351, S352, S354

North of the Lake :

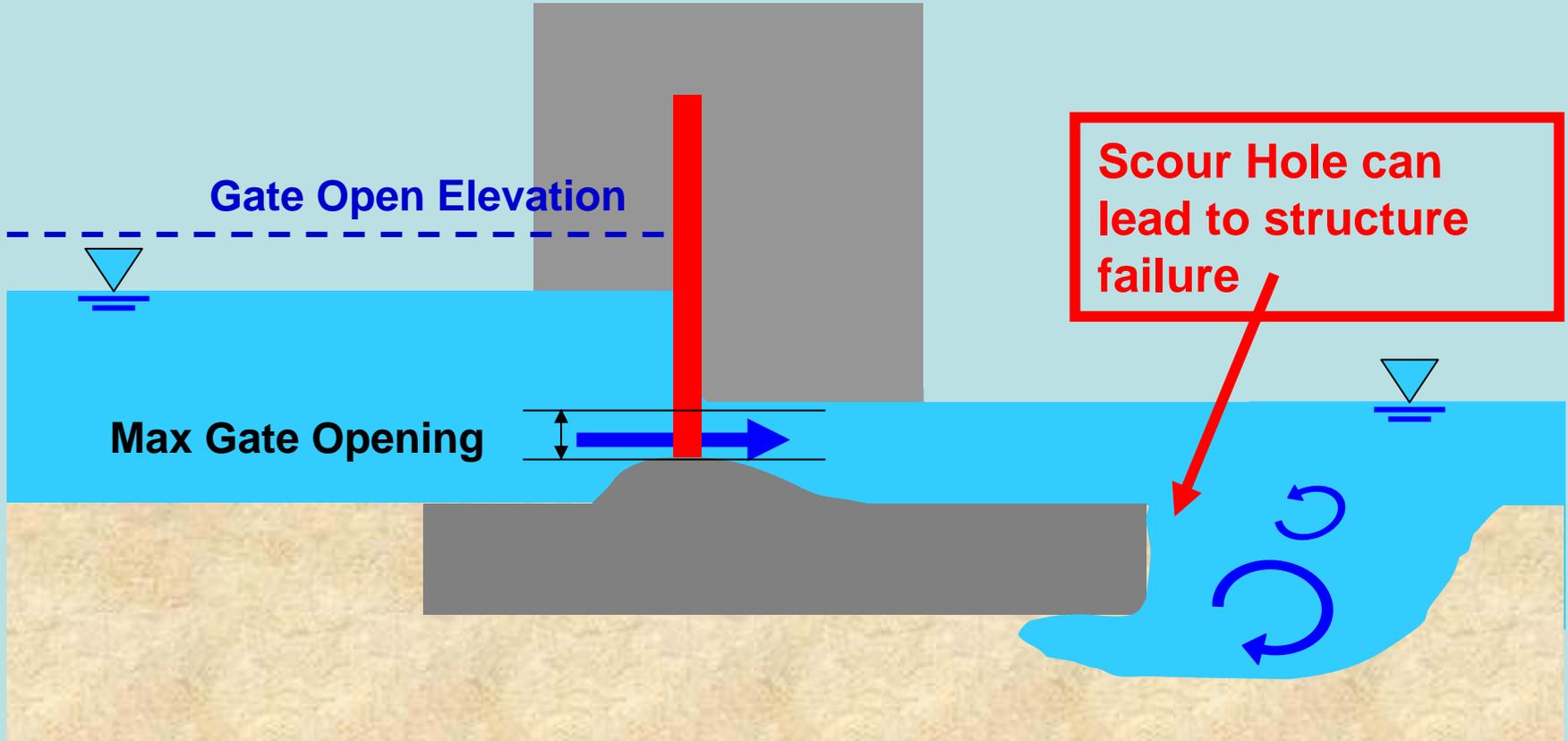
Structure Stability Concerns at S65E, S71, S72, and S84



- Potential for unprecedented head differentials
- Hydrostatic pressure cause flotation & sliding
- High velocity flows
- Severe scouring undermines the structure

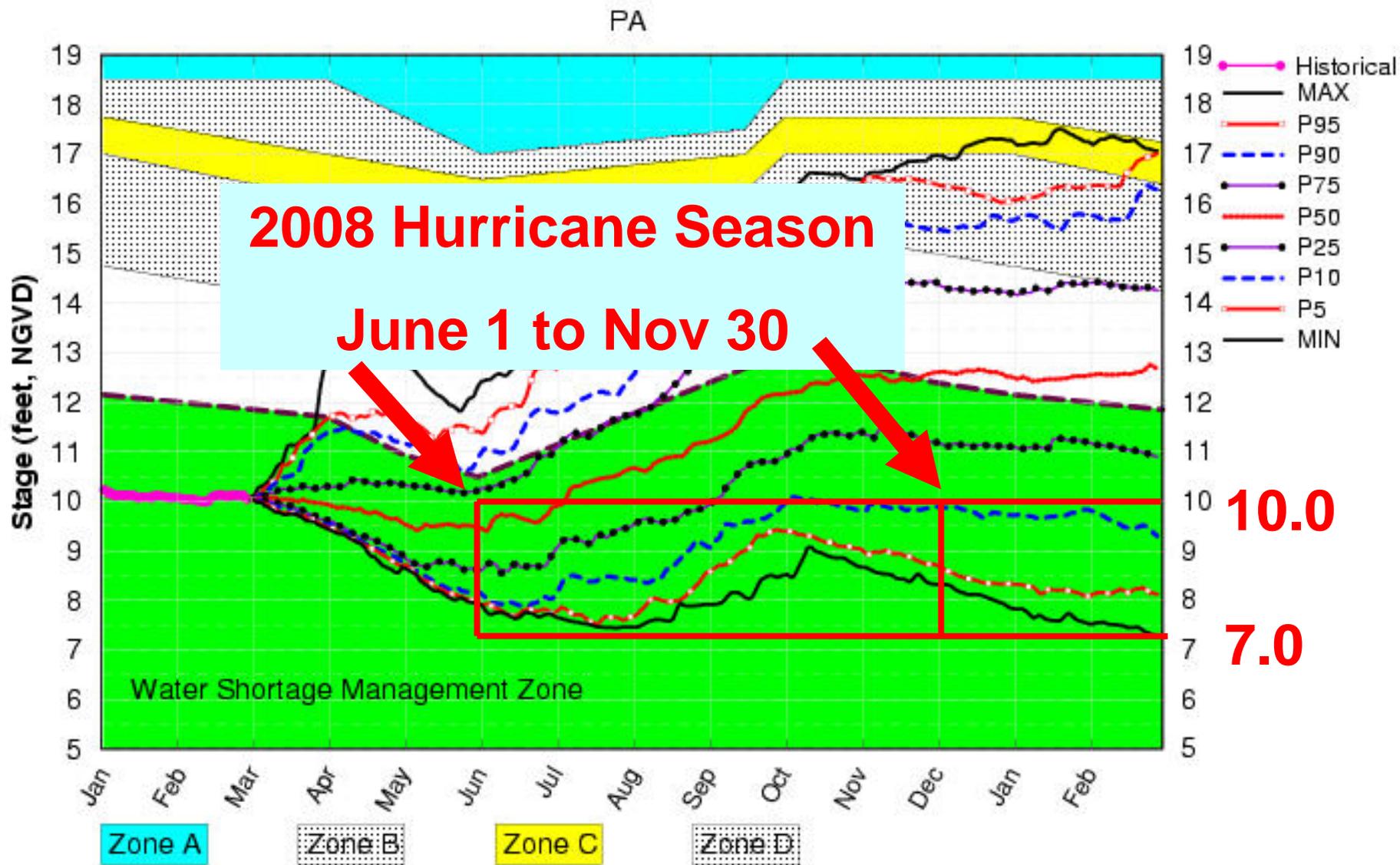
Upstream
Head Waters

Downstream
Tail Waters



Scour Hole can lead to structure failure

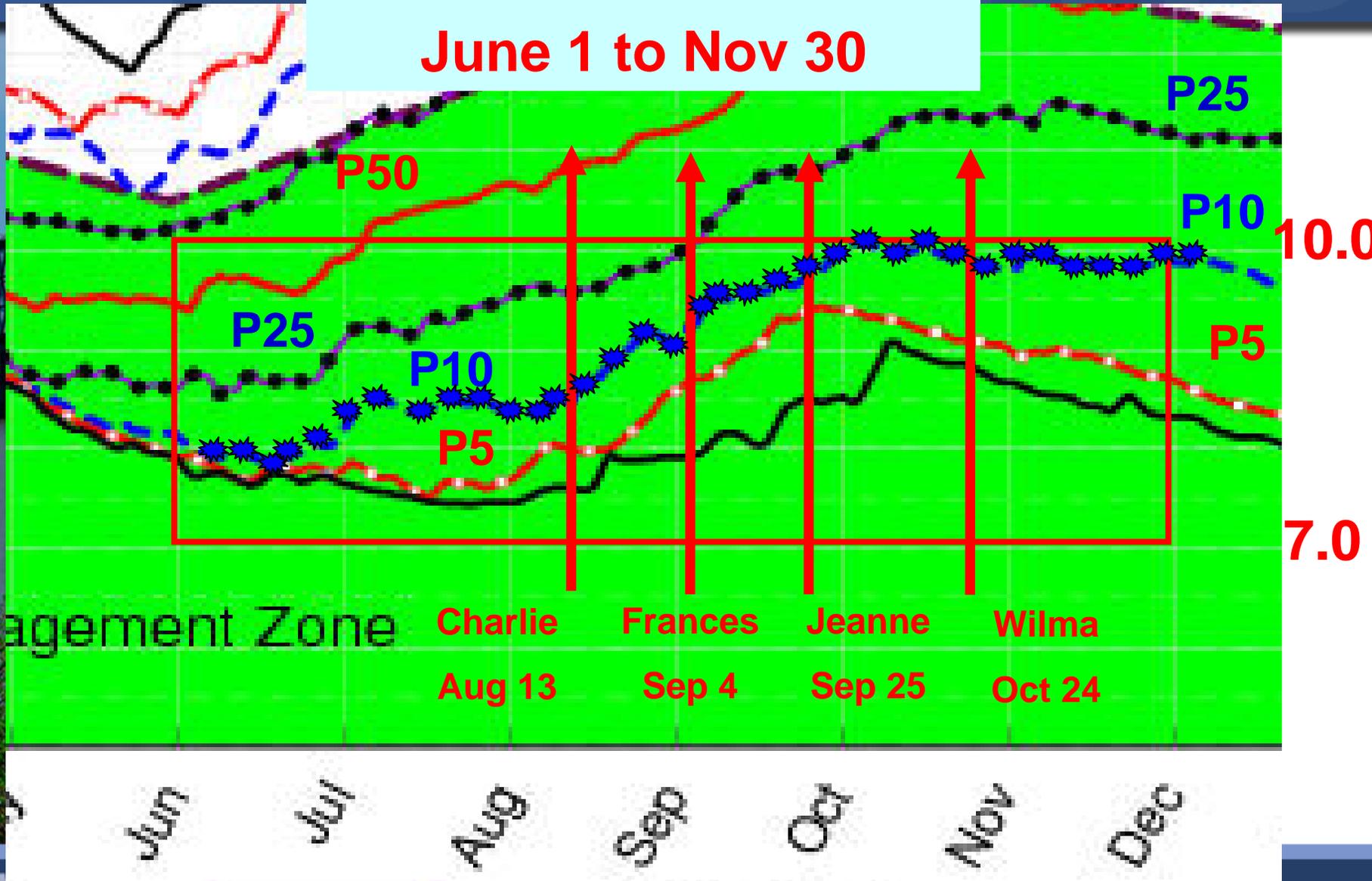
Lake Okeechobee SFWMM March 2008 Position Analysis



(See assumptions on the Position Analysis Results website)

2008 Hurricane Season

June 1 to Nov 30



Management Zone

Charlie
Aug 13

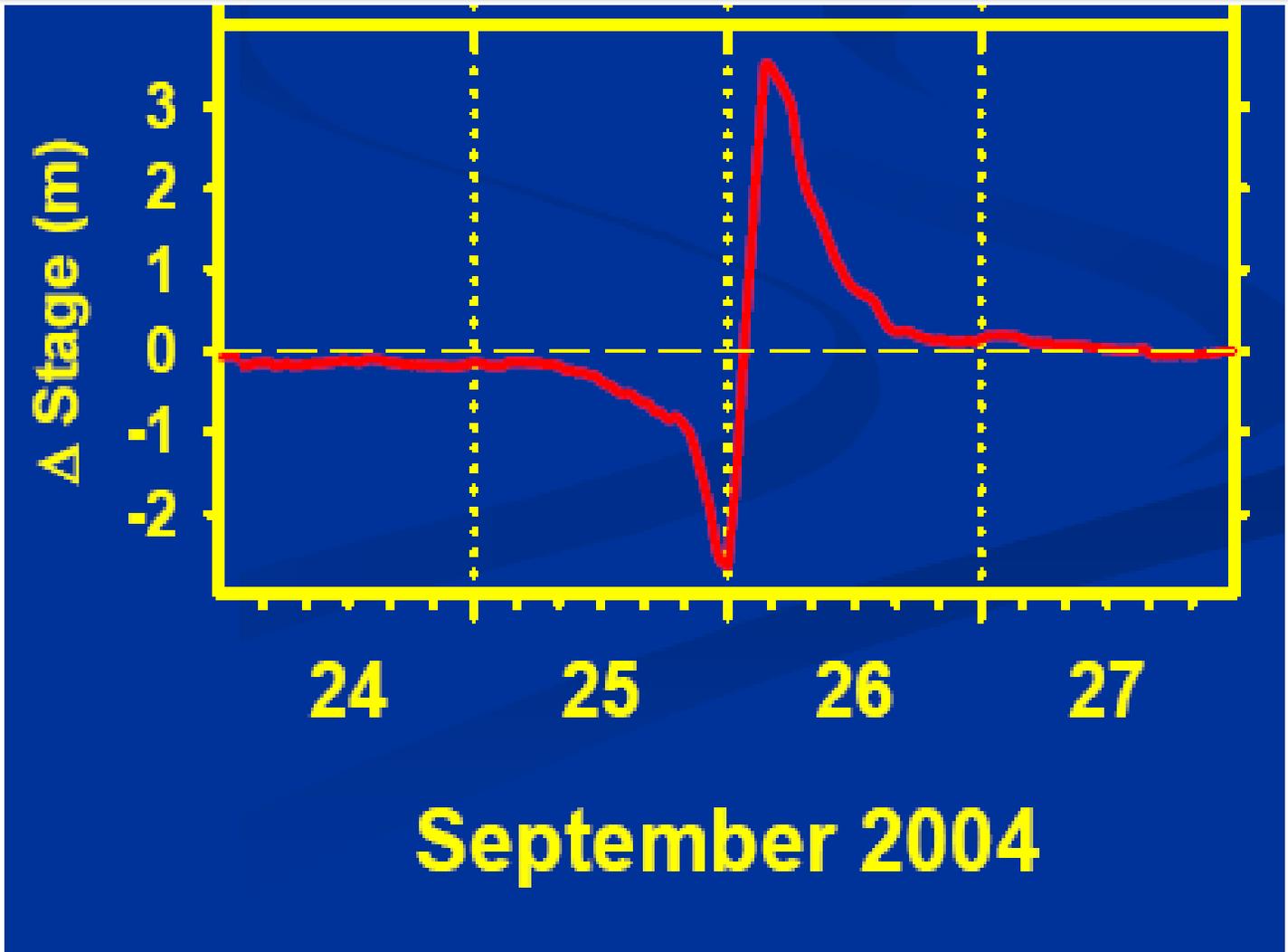
Frances
Sep 4

Jeanne
Sep 25

Wilma
Oct 24

Jun Jul Aug Sep Oct Nov Dec

Hurricane Jeanne Lake Seiche



Hurricane Wilma

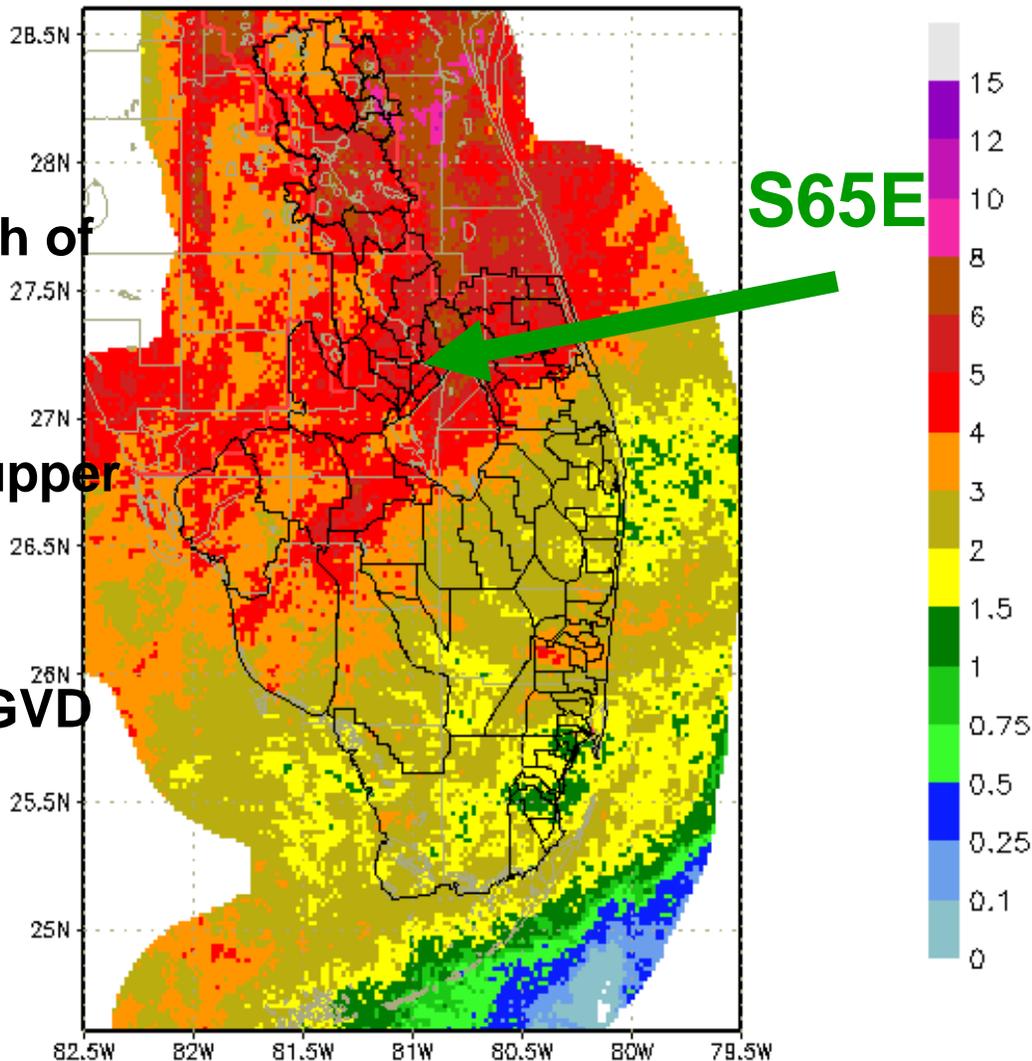
23 - 25 Oct 2005

Heaviest rainfall North of
Lake Okeechobee

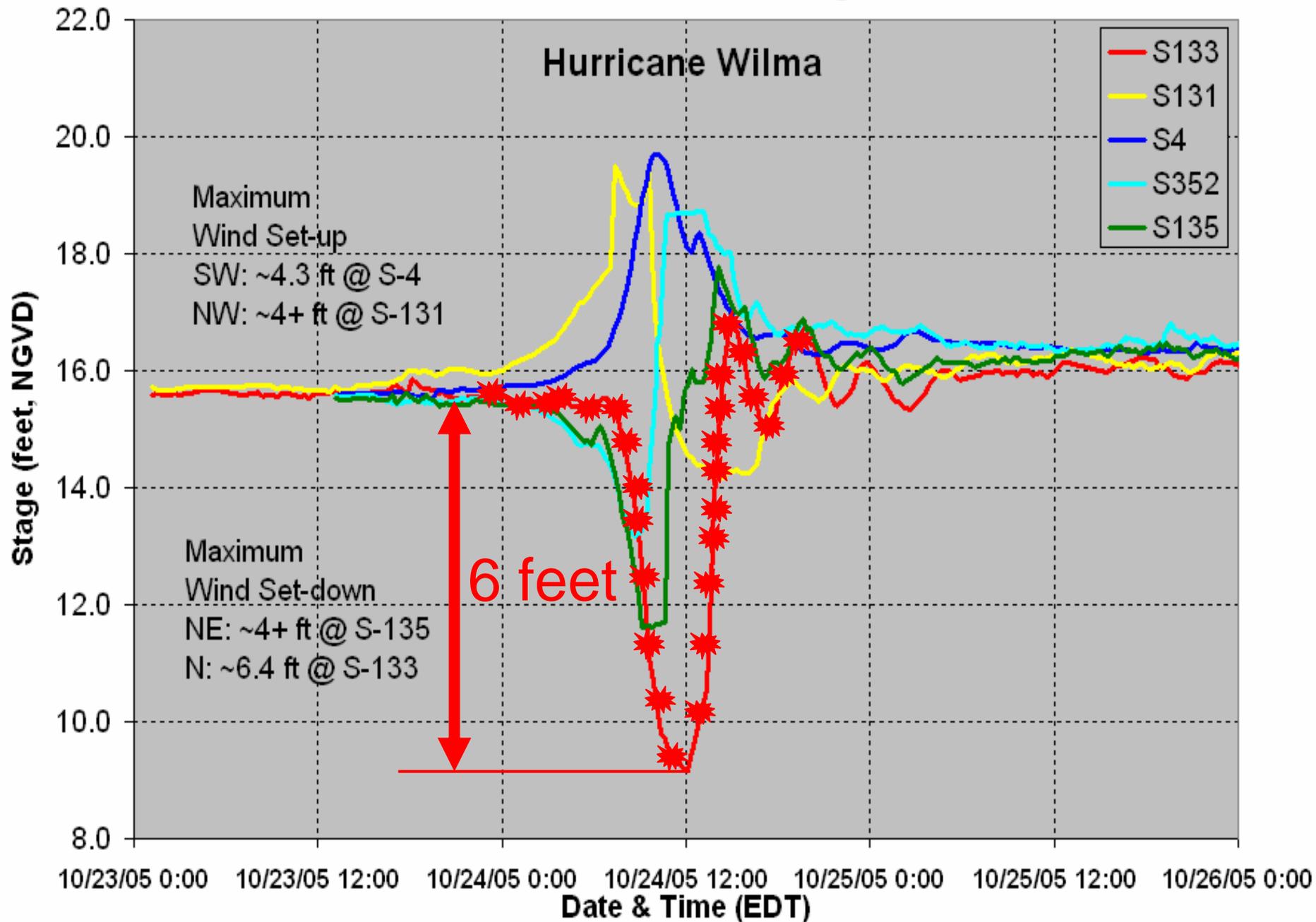
10 inches rainfall in upper
Kissimmee Basin

LO stage at 16.5 ft NGVD

DISTRICT-WIDE RAINFALL ESTIMATE: 3.654"



Lake Okeechobee Stages



Existing S-68 Tail Water Weir



S-72 Tail Water Weir



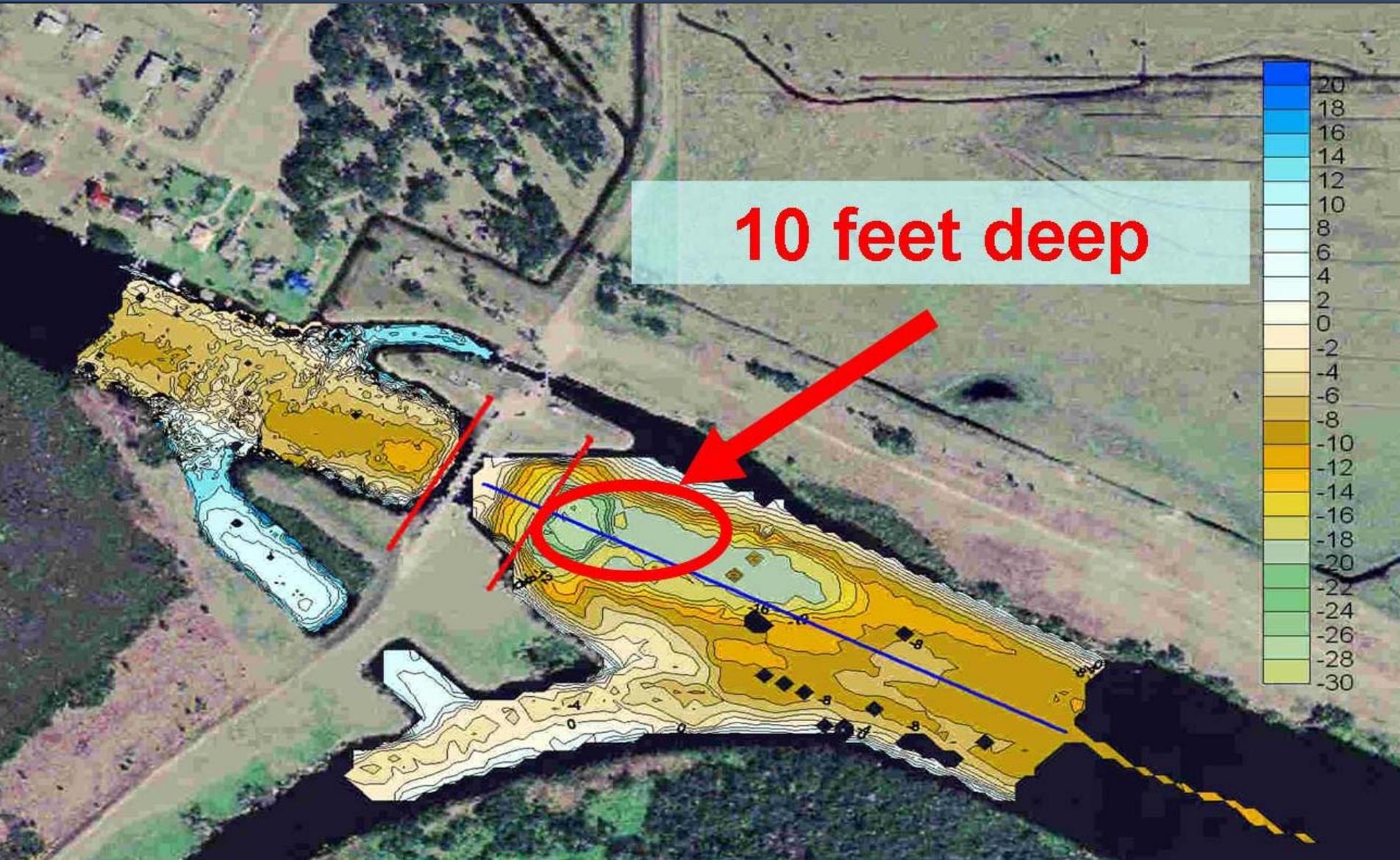
S-71 Tail Water Weir



S-65E 22,000 cfs discharge



S-65E Large Scour Hole Found



10 feet deep

S-65E Scour Hole Repair



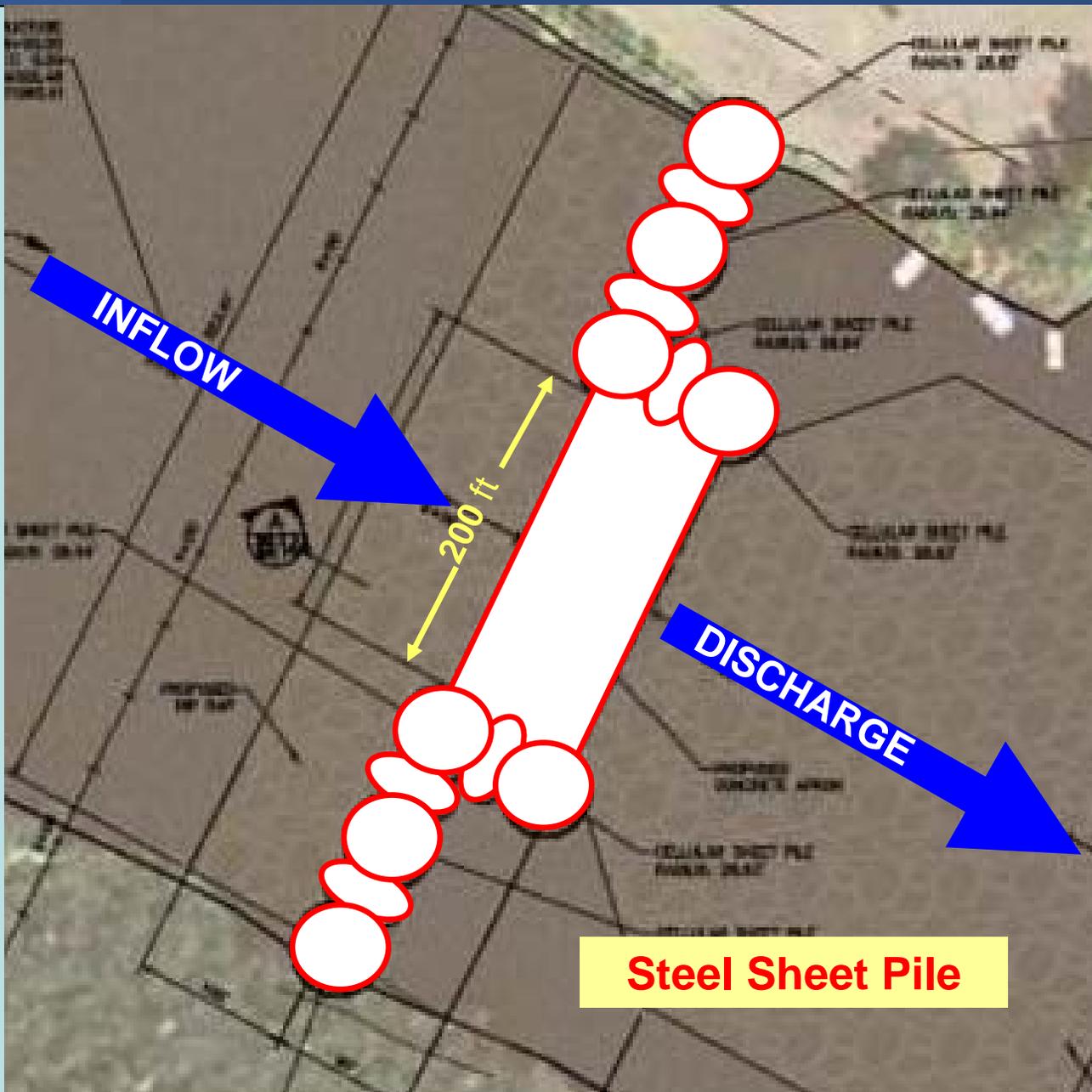
Site of Planned Weir

S65E

Southwest 16th Drive
Southwest 144th Parkway

S84





Steel Sheet Pile

S-65E Tail Water Weir Site



S-65E Tail Water Weir Construction Schedule

- **March 13** **Receive, Evaluate & Confirm Bids**
- **March 14** **Award Contract & Issue Notice to Proceed on 150 day project**
- **March 17** **Contractor Begins Mobilization**
- **March 24** **Work Underway, C-38 Boat Barricades Installed**
- **August 11** **Work Substantially Complete**



S-65E Tail Water Weir Environmental Permit Status

- FDEP, USACE & USFWS Reviewing Permit Applications
- FDEP plans to issue permit on March 13
- USACE permit process normally 120 days, USACE will expedite



Tail Water Weir / Scour Repair Costs & Schedule

Item	Cost *	Schedule	Notes
S72 Tail Water Weir with Rental Pumps	\$2.4 M	100% June 1	Got Permits Work in Progress
S71 Tail Water Weir	\$2.0 M	100% June 13	Got Permits Work in Progress
S65E Scour Repair	\$2.0 M	100% June 13	Got Permits Work in Progress
S65E Tail Water Weir	\$27.2 M	Goal August 15	Permit Pending Award Pending

\$33.6 M

* Costs include: surveys, soil borings, permit fees, enviro surveys, engineering / construction services, construction costs, changes and incentives

South of Lake Pump Costs & Schedule

Item	Cost	Schedule	Notes
Bonnets S352	\$0.05 M	Install by April 30	Permits Pending
Manatee Screen Modifications	\$0.05 M	Install by April 14	Permits Pending
Rental Pumps S351 & S354	\$0.55 M	Install by April 14	Pending Pending
Purchase Pumps	\$1.75 M	Available by August 30	Custom specs Long Lead

\$2.40 M

Recommendations

- **Approve revised Emergency Resolution to increase total cost to \$36 million**
- **Award S-65E Tail Water Weir contract**
- **Rent Lake Side Pumps & plan to purchase pumps to replace rentals**
- **Continue with construction of S-72 and S-71 Tail Water Weirs**
- **Continue with S-65E Scour Repairs**





Questions ?

RESOLUTION NO. 2008 _____

DRAFT

A RESOLUTION OF THE GOVERNING BOARD OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT TO AUTHORIZE AN AMENDMENT TO INCREASE THE NOT TO EXCEED FUNDING RELATING TO PROCUREMENT RESULTING FROM EMERGENCY CONDITIONS ESTABLISHED IN RESOLUTION NO. 2008-218 AND AMEND THE DISTRICT'S FISCAL YEAR 2007-2008 BUDGET FOR THE PURPOSE OF PROCEEDING WITH PROCUREMENT OF THE EQUIPMENT, SERVICES, AND COMMODITIES NECESSITATED BY EMERGENCY CONDITIONS CREATED BY UNPRECEDENTED LOW WATER LEVELS FOR LAKE OKEECHOBEE RESULTING IN WATER SUPPLY DISRUPTIONS AT S-351, S-352, AND S-354 AS WELL AS UNACCEPTABLE HEAD WATER DIFFERENTIALS AT DISTRICT STRUCTURES S-65E, S-71, S-72 AND S-84 AND AUTHORIZE BUDGET TRANSFERS IN AN AMOUNT NOT TO EXCEED \$36,000,000 FROM RESERVES, VARIOUS PROGRAMS AND RESOURCE AREAS AS NEEDED TO THE OPERATIONS AND MAINTENANCE PROGRAM; AMENDING THE DISTRICT'S 2007-2008 FISCAL YEAR BUDGET TO ACCOMMODATE PROCUREMENTS AUTHORIZED IN THIS RESOLUTION; PROVIDING AN EFFECTIVE DATE.