



# BCB Real-time Hydrologic Monitoring & Modeling System Upgrade Update

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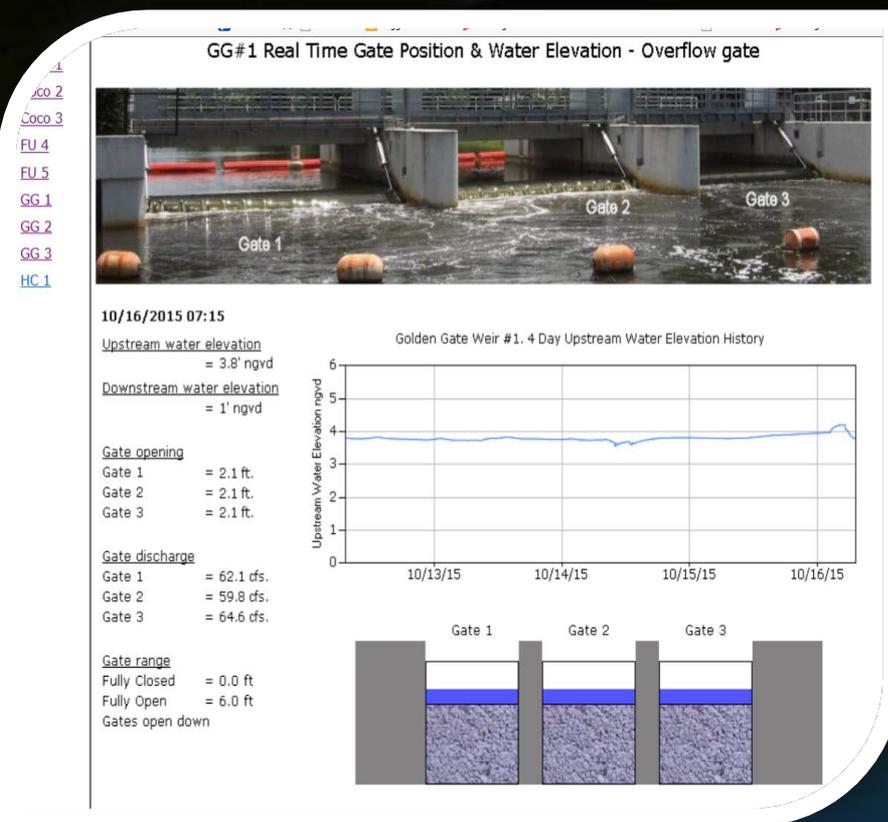
Hydrology & Hydraulics Bureau

10/20/2015

# BCBRTHMS: Big Cypress Basin Real Time Hydrologic Monitoring & Modeling System

## Purpose:

- provides decision-making support to BCB staff in operating water control structures,
- offers a public outreach
- used as a flood recognition alert system by Collier County Emergency Management Department.



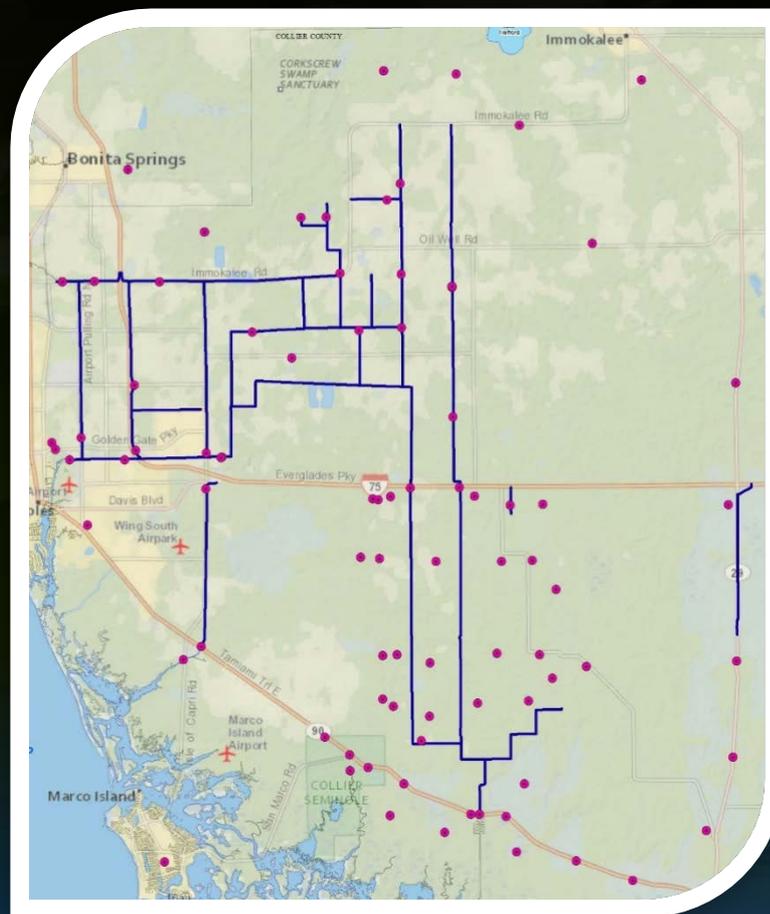
# BCB Canal System & Telemetry Network

## BCB Canal System

- 153 miles canals
- 43 control structure

## Telemetry Network

- Rainfall
- Structure operations
- Surface water stages
- Groundwater stages



# BCBRTHMS Project History

- **System Development and Testing Phase: 2008 – 2010**
  - SFWMD hired DHI to build a real-time decision support system for BCB
  - The BCBRTHMS initially included the following system components:
    - Microsoft Windows 2003 Server
    - DHI MIKESHE / MIKE11 2009 & DHI Floodwatch
    - ESRI ArcGIS 9
- **System Application Phase: 2010 – 2014**
  - System has been fully deployed for 5+ years
  - Identified challenges in running the system, e.g.,
    - cross-dependence between software providers: DHI and ESRI
    - system components approaching their end-of-lifecycle

# BCBRTHMS Project History (con't)

## System Upgrade Phase: 2015

- The current system is approaching its' end-of-lifecycle, e.g.,
  - SFWMD IT Bureau will replace existing Windows 2003 Server with a Windows 2008 Server
- DHI developed new software which:
  - Does not require ESRI ArcGIS
  - Includes new/advanced features
  - Is focused on improving operational sustainability

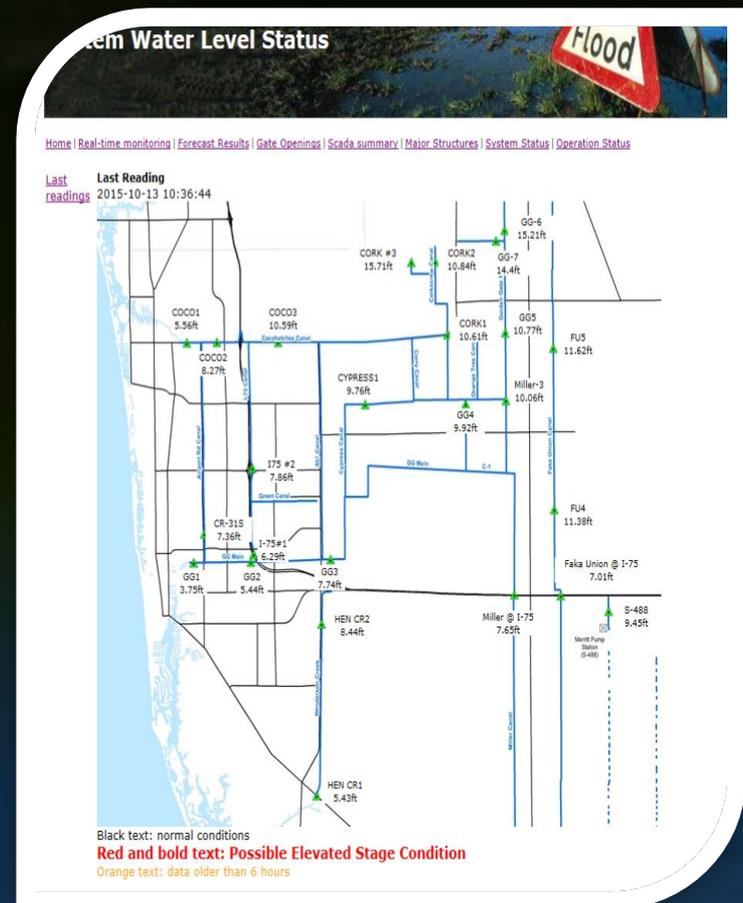
# Major Tasks in the BCBRTHMS Upgrade

- Upgrade simulation software package MIKESHE/MIKE11 to latest 2014 version
- Upgrade the operating system to Windows 2008 Server
- Upgrade SCADA database to SQL Server 2008 R2
- Replace the original user-interface software with new one
  - Eliminate ESRI ArcGIS license requirement
  - Maintainability and Extensibility
  - Plug-in new features
- Retain all functionalities developed in the current system
- Add new functionalities to further improve the system performance

# BCBRTHMS Upgrade Project Status

## Hardware & System Environment Setup (complete)

- Completed new system hardware configuration with SFWMD IT Bureau
- Installed all required software
- Connected to SFWMD real-time database
- Developed an intranet site for acceptance testing

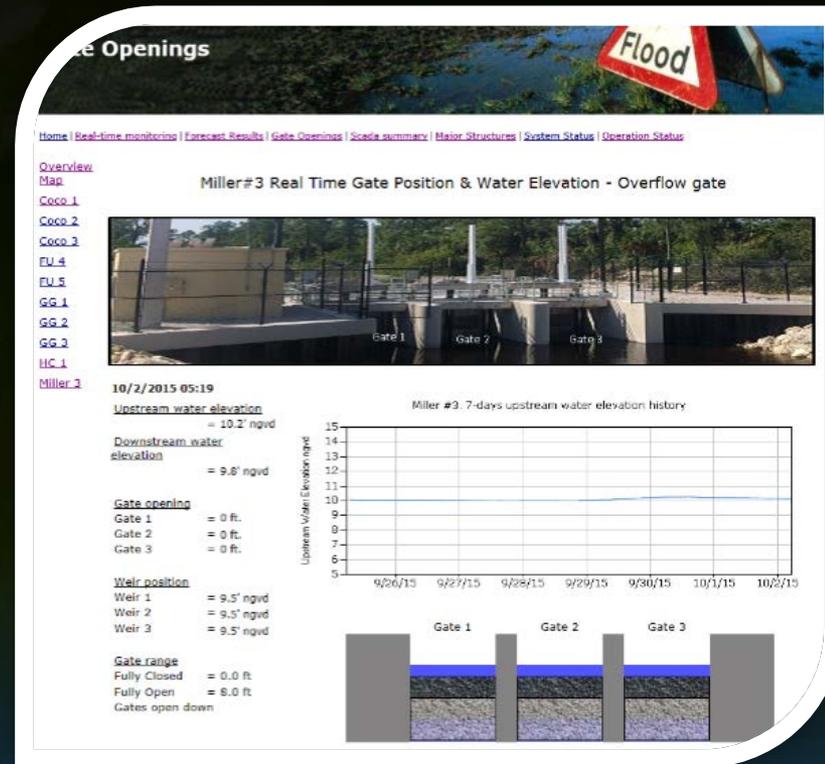


# BCBRTHMS Upgrade Project Status

## Real-Time Monitoring Functionalities

### Retain current functionalities (complete)

- Completed linkage to on-line real time data source
- Retained all monitoring functionalities in the new system
- Retained flood alert email notification



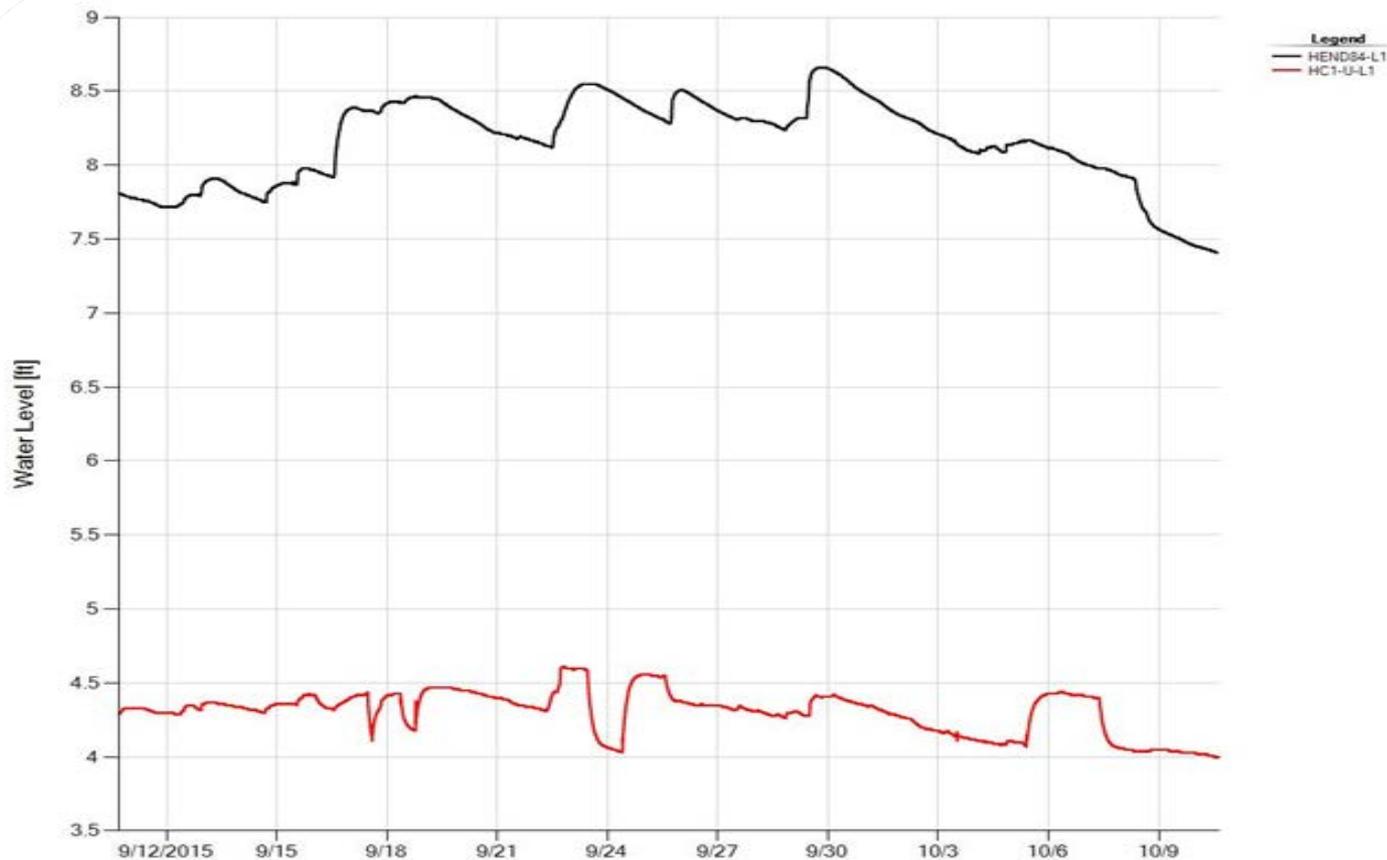
# BCBRTHMS Upgrade Project Status

## Real-Time Monitoring Functionalities Development

Add the following new functionalities (acceptance testing phase)

- SCADA data alert function
- System situation self monitoring/diagnostics alert function
- User defined system output for display
  - Grouping of canal stage hydrographs
  - Color-coded water level traces
  - Others

# Examples of New Functionalities





# BCBRTHMS Upgrade Project Remaining Tasks

- On-site technical assistance & training: 10/16/ - 10/22/2015
- Acceptance testing completion date: 12/01/2015
- Deployment date for upgraded system: 12/15/2015
- Contract period: 12/29/2014 - 12/30/2015
- Total project cost: \$ 96,000



# Questions and Discussion