SOUTH FLORIDA WATER MANAGEMENT DISTRICT

# Public Meeting

## Seasonal Agricultural Drawdown Study

## May 4, 2010

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*Scott Thorp, Director, Homestead Field Station*

# Presentation Overview

- Background
- October 2009 – April 2010 Field Conditions Report
- Land use update
- Drawdown Event Operations Report
- Drawdown Event Groundwater Monitoring Update
- Data Analyses Update
- Plan Forward

# Agricultural Drawdown Area in South Miami-Dade County

# Agriculture and Water Management History

- Extensive farming began in 1900s
- Local growers dug and maintained local drainage canals
- Historically common practice has been to lower water levels at beginning of dry season in two canal systems in South Miami-Dade County for planting of seasonal crops
- Canals expanded and upgraded by Central and South Florida (C&SF) project in 1960s to aid economic output of agriculture and commerce

# SFWMD Seasonal Drawdown

**Where:**

Canal C102, C-103, Florida City Canal & North Canal drainage basins

**What:**

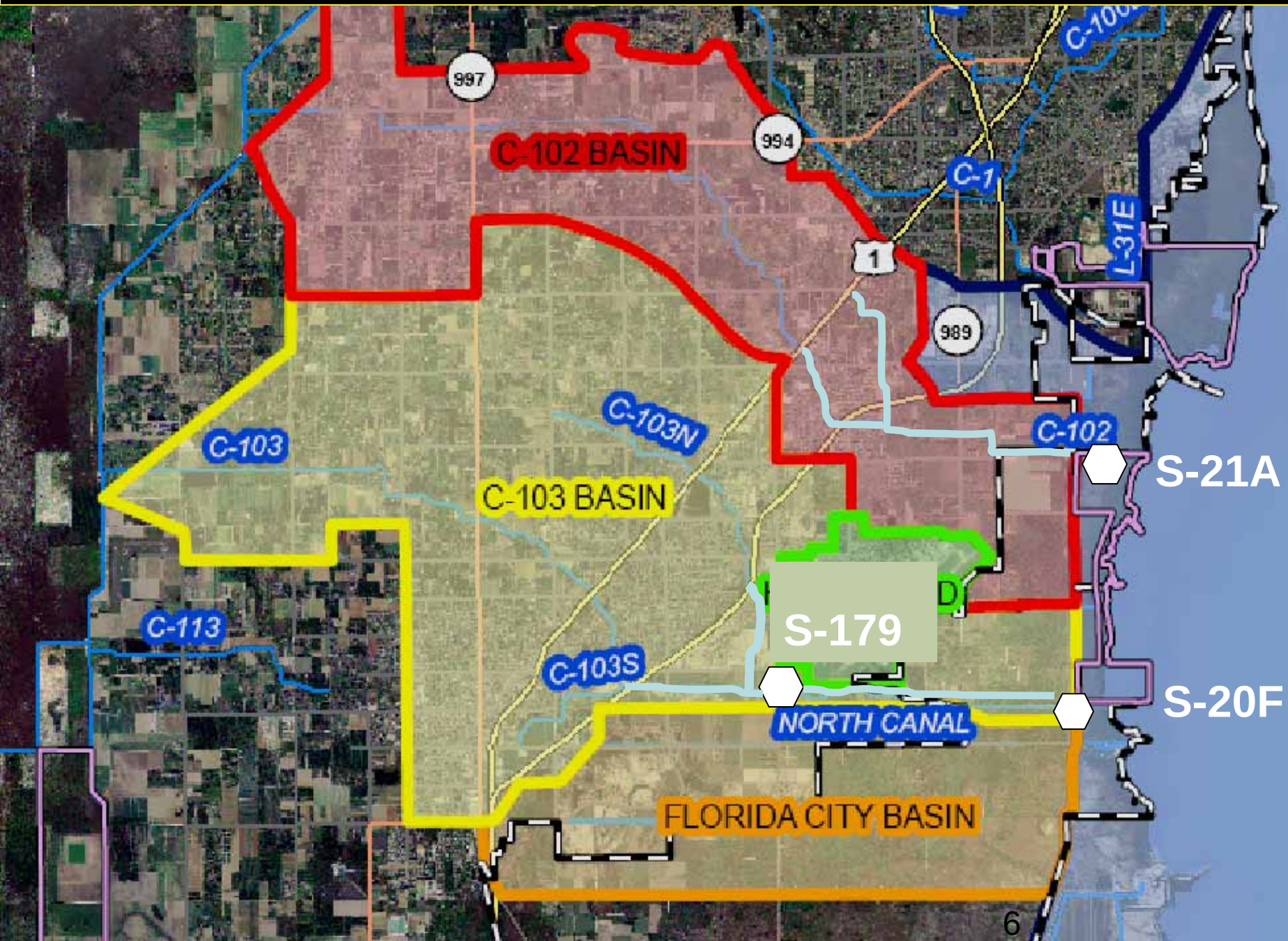
Setting water control structures S-21A, S-20F and

S-179 up to 0.8 foot lower range, if needed, based on field conditions for planting and harvesting

**When:**

Starting October 15 each year until fields are planted and, if needed, again for harvest

# SFWMD Structures & Basins with Seasonal Drawdown Operations



# SFWMD Seasonal Drawdown

S-21A (Canal 102)
Water level ranges and approximate periods:

| | | |
|---|---|---|
| High: | 2.2 - 1.8 | Apr 30 to Oct 15 |
| Intermediate: | 1.8 - 1.4 | Dec 30 to Apr 30 |
| Low: | 1.4 - 1.0 | Oct 15 to Dec 30 |

# SFWMD Seasonal Drawdown

S-20F (Canal 103)
Water level ranges and approximate periods:

| | | |
|---|---|---|
| High: | 2.2 - 1.8 | Apr 30 to Oct 15 |
| Intermediate: | 1.7 - 1.3 | Dec 30 to Apr 30 |
| Low: | 1.4 - 1.0 | Oct 15 to Dec 30 |

# SFWMD Seasonal Drawdown

S-179 (Canal 103)
Water level ranges and approximate periods:

| | | |
|---|---|---|
| High: | 3.9 – 3.1 | All year – except: |
| Low: | 3.1 - 2.7 | Oct 15 to Nov 15 (and wet conditions if needed to end of April) |

# Issues/Concerns

- Lowering canal levels at the start of the dry season releases water to Biscayne Bay at the wrong time and is out of sync with natural system needs
- Biscayne Bay often experiences high salinities later in the dry season which this water could help mitigate
- Higher water tables at the beginning of the dry season are beneficial to groundwater flows to Biscayne Bay
- Lower water tables may increase risk of saltwater intrusion

# Ag Drawdown Study Scope

- Evaluate impacts of the drawdown practice on surface and ground water conditions in southeast Miami-Dade County
  - Document  2009/2010 operations
  - Conduct additional monitoring and collect data
  - Conduct analyses of surface and ground water reactions to 2009/2010 operations
- Identify recommended management measures to minimize effect on Biscayne Bay and local groundwater by lowering of water levels at beginning of dry season for agricultural needs

# Ag Drawdown Study Strategy

- Conduct public planning process
- Identify land uses
- Evaluate hydrologic information and perform operational assessments
- Identify potential effects from lowering water levels
- Evaluate management measures
- Identify Recommended Plan(s)

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

# 2009 – 2010 Field Conditions Report

*Scott Thorp, Director, Homestead Field Station*

# 2009/2010 Seasonal Agriculture Pre-Drawdown Recommendation

Proceed with drawdown in South Dade County on October 15 per following schedule:

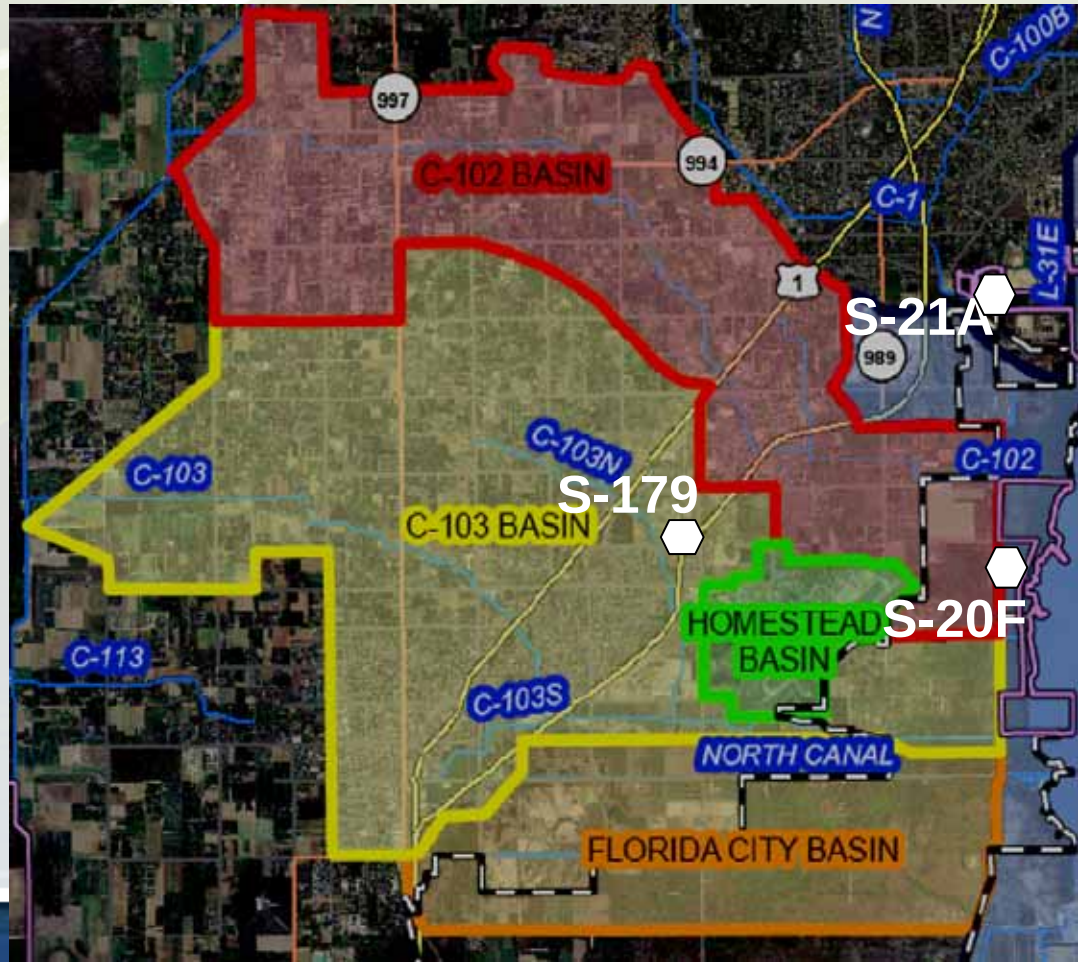
**C-102 Basin:**

October 15th - change structure S-21A setting to **Interim range**; open at 2.0 ft., close at 1.6 ft.

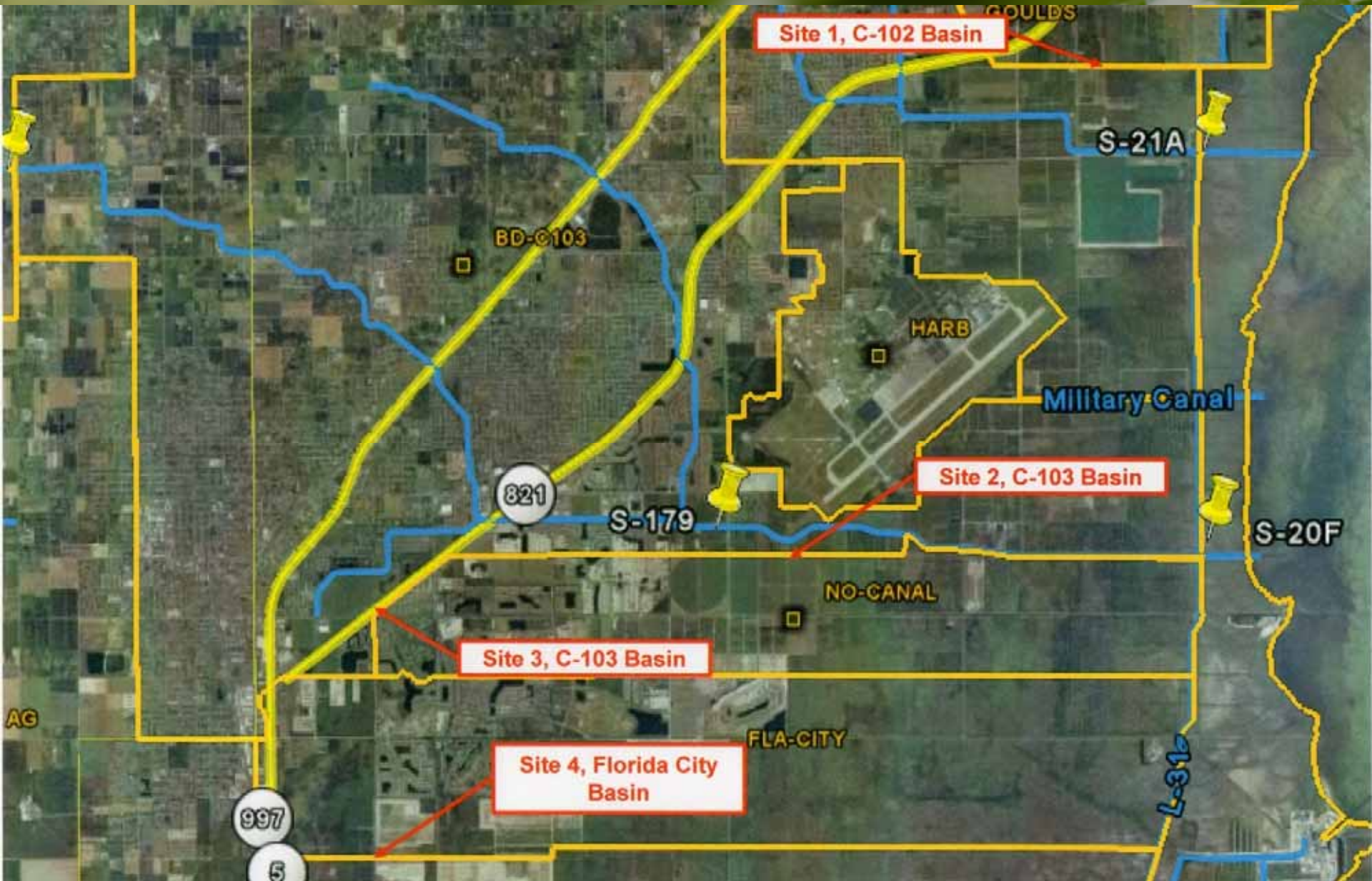
**C-103 Basin**:

October 15th - set structure S-20F to **Low Range**; open at 1.4 ft., close at 1.0 ft.

Change S-179 to **Low range**; open at 3.1 and close at 2.7

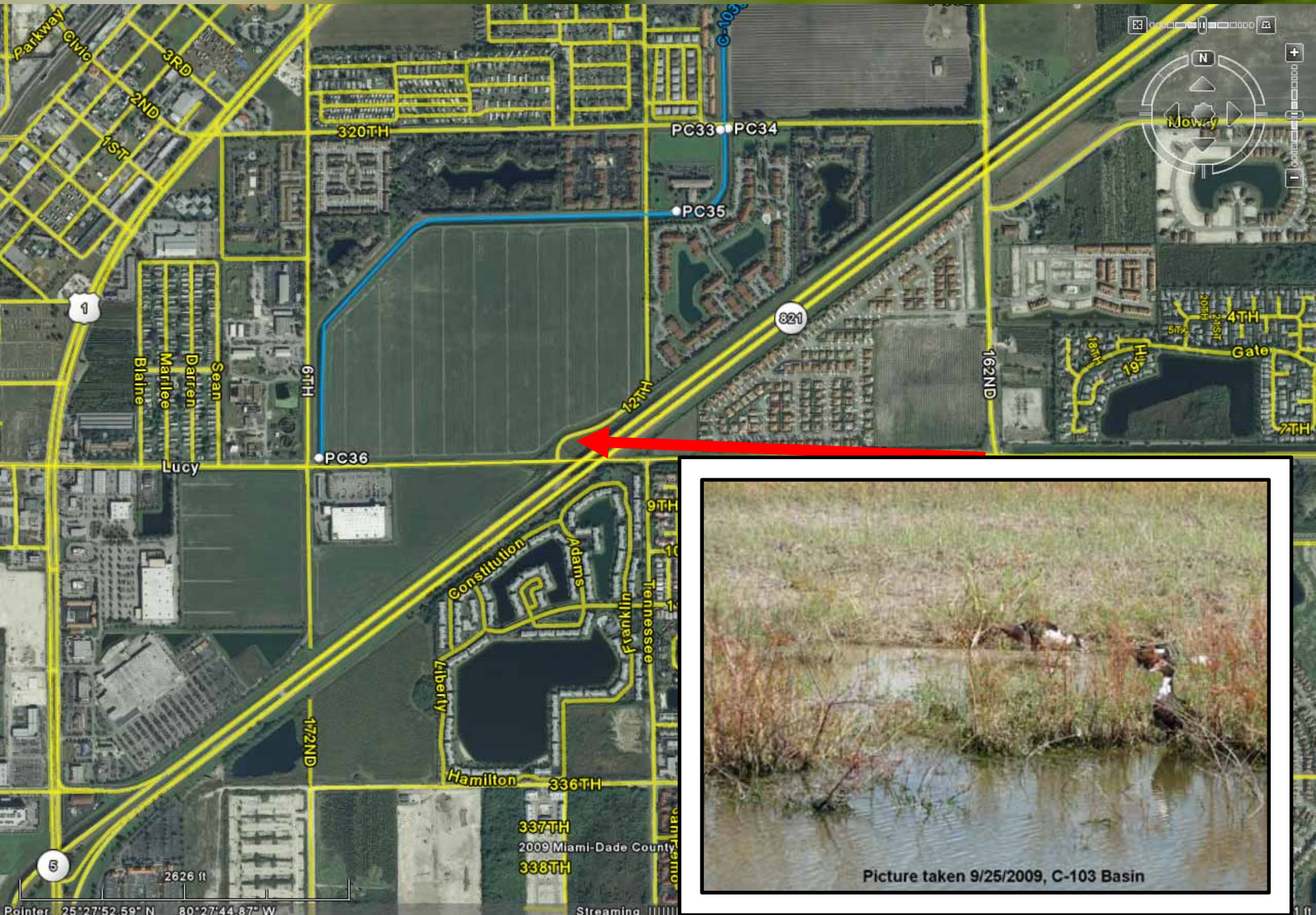


# Indicator Regions




Fairways
Dunwoodie
Augusta
Farm Life School
157TH
Luc360TH
1
Old Card Sound
364TH
Tennessee
164TH
162ND
Newton
5
2991 ft
368TH
Old Dixie
2009 Miami-Dade County Aerial Photography
Google
Pointer 25°25'29.37" N 80°27'42.14" W
Streaming 100%
Eye alt 10353 ft

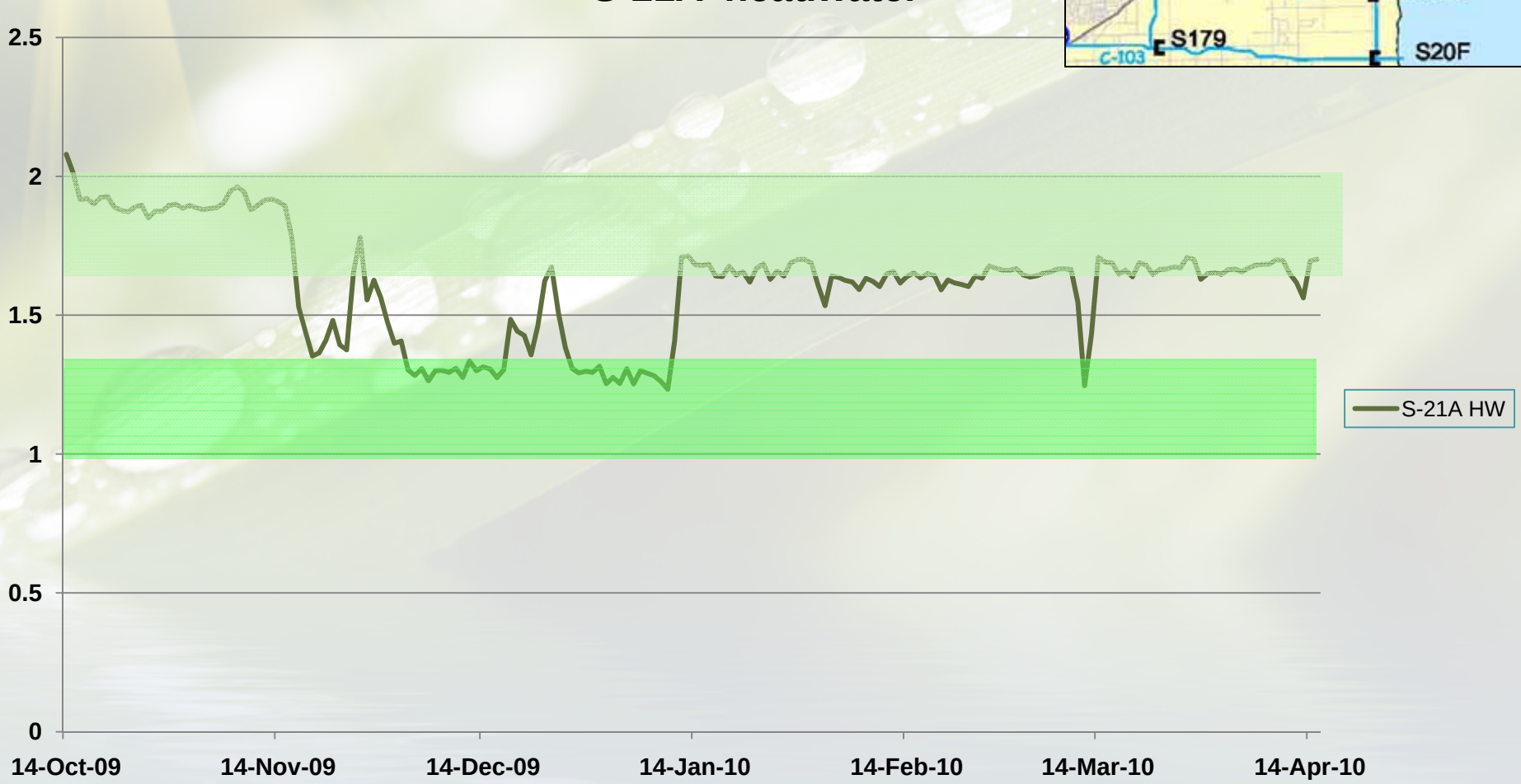

238TH
Hennessy
Henderson
121ST
102ND
246TH
247TH
252ND
254TH
108TH
256TH
Tuesberg
C-102n
107TH
261ST
Allapattah
C-102
264TH
PC03
112TH
122ND
2009 Miami-Dade County Aerial Photography
©2007 Google
3366 ft
Pointer 25°31'40.82" N 80°22'01.01" W
Streaming 100%
Eye alt 11652 ft


Parkway
Civic
3RD
2ND
1ST
320TH
PC33
PC34
PC35
C-103
1
821
Blaine
Marilee
Darren
Sean
6TH
PC36
Lucy
12TH
162ND
Nowry
4TH
Gate
7TH
9TH
Constitution
Adams
Franklin
Tennessee
Liberty
172ND
Hamilton
336TH
337TH
2009 Miami-Dade County
338TH
5
2626 ft
Picture taken 9/25/2009, C-103 Basin


Campbell
312TH
736TH
733RD
314TH
315TH
Tall137THee
Pinelslands
C-103n
C-103
S179
316TH
Mowry
320TH
134TH
130TH
127TH
122ND
328TH
Canal
132ND
336TH
Picture taken 10/7/2009, C-103 Basin
©2007 Google
Pointer 25°28'08.38" N 80°24'22.81" W
Streaming 100%
Eye alt 11907 ft

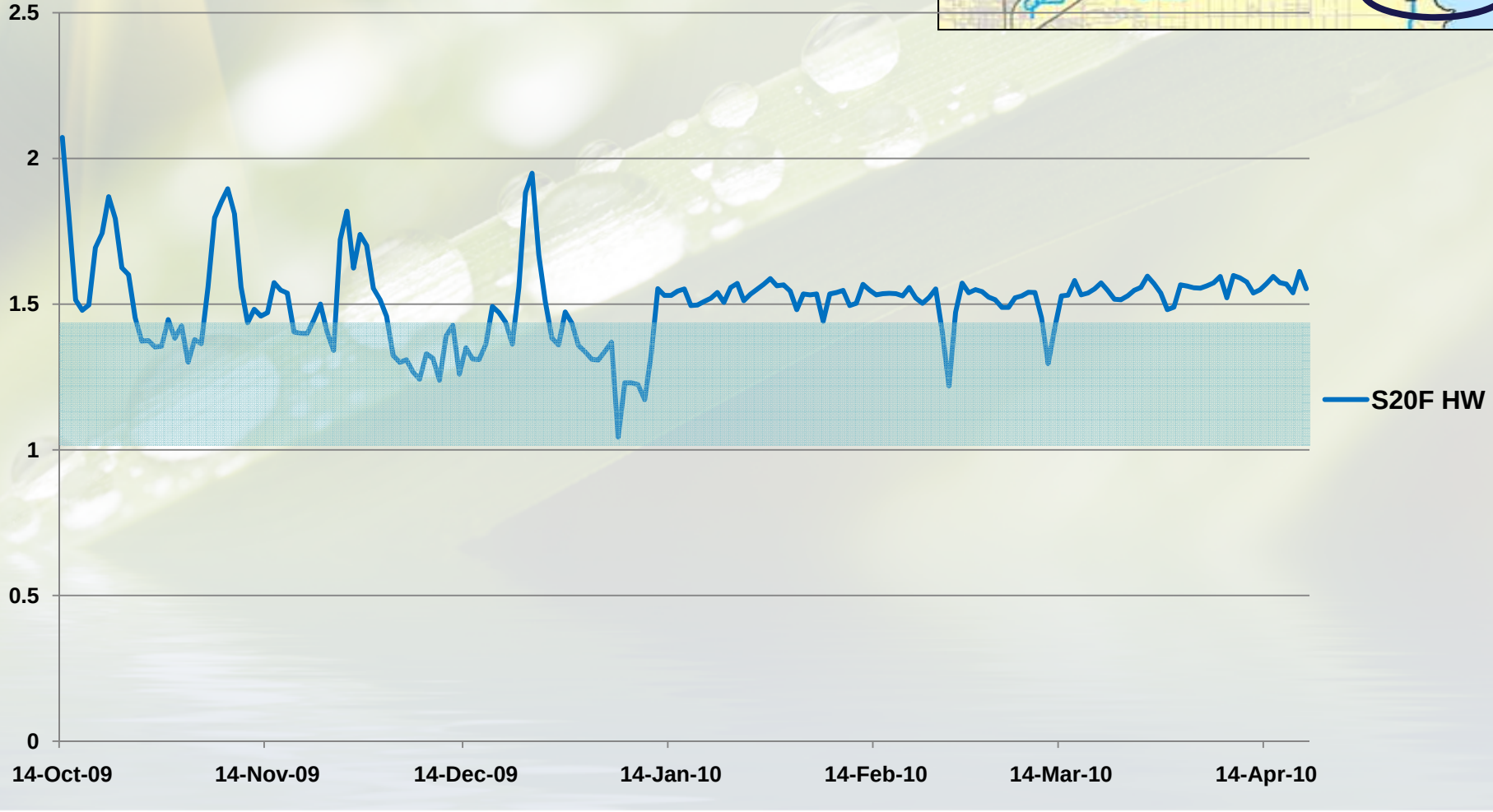
C-102 (S-21A) Interim Range = Open at 2.0 Close at 1.6’

C-102 (S-21A) Low Range = Open at 1.4’ Close at 1.0’

## C-103 Low Range (S-20F) = Open at 1.4’ Close at 1.0’


### S20F headwater



# Seasonal Agricultural Land Use Changes

| Basin | Total Acres | 1988 Acres | 2005 Acres | 2009* Acres |
|---|---|---|---|---|
| **C-102** | 21,140 | 7,363 (34%) | 3,401 (16%) | 2,386 (11%) |
| **C-103** | 30,237 | 2,312 (7%) | 3,540 (11%) | 2,222 (7%) |
| **Florida City** | 11,639 | 3,765 (32%) | 1,466 (12%) | 887 (7%) |
| **Total** | 63,016 | 13,411 (21%) | 8,407 (13%) | 5,495 (8%) |

**2009 Miami-Dade Property Appraiser's Data*

# Drawdown Operations Report

- Document procedures and observations of the drawdown for the 2009/2010 Dry Season
- Describe Operational Intent of Drawdown
- Identify Antecedent Conditions
- Document Rainfall for Drawdown Period
- Present water level data
- Present relevant maps and charts
- Summarize observations
- Report complete July 1, 2010

# Field Conditions – Example Site 1

October 7, 2009

# Field Conditions – Site 1

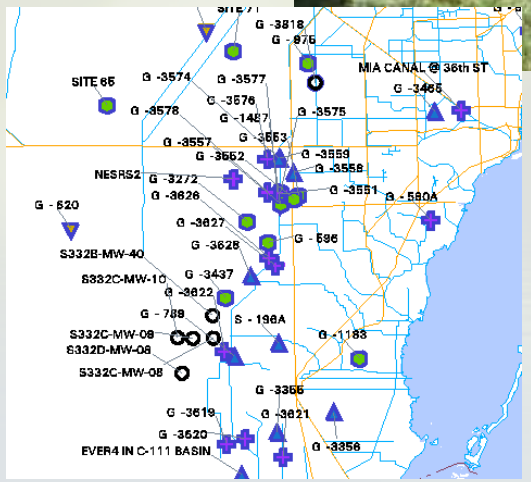

November 9, 2009

# Field Conditions – Site 1

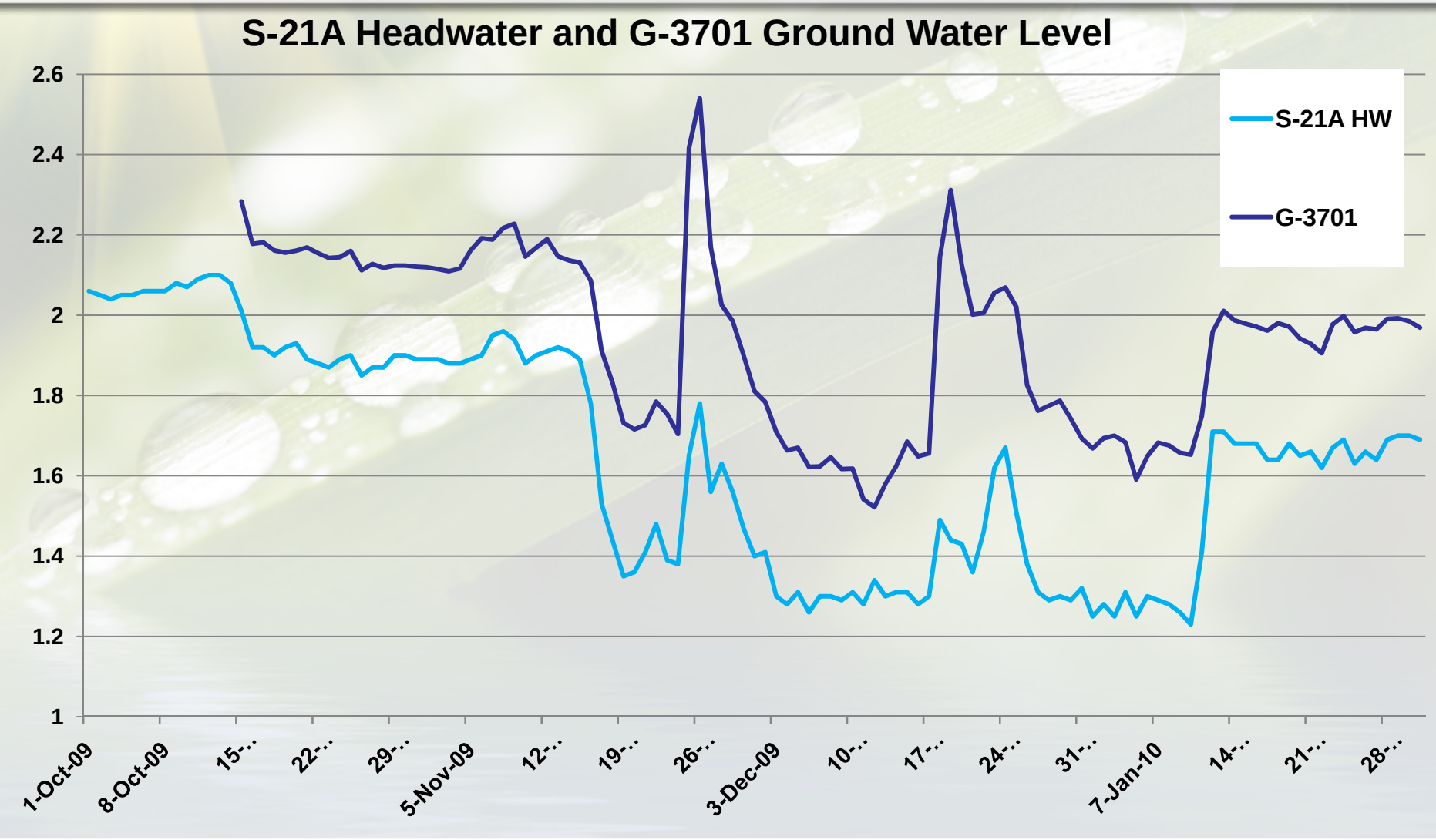

November 25, 2009

# Data analyses update

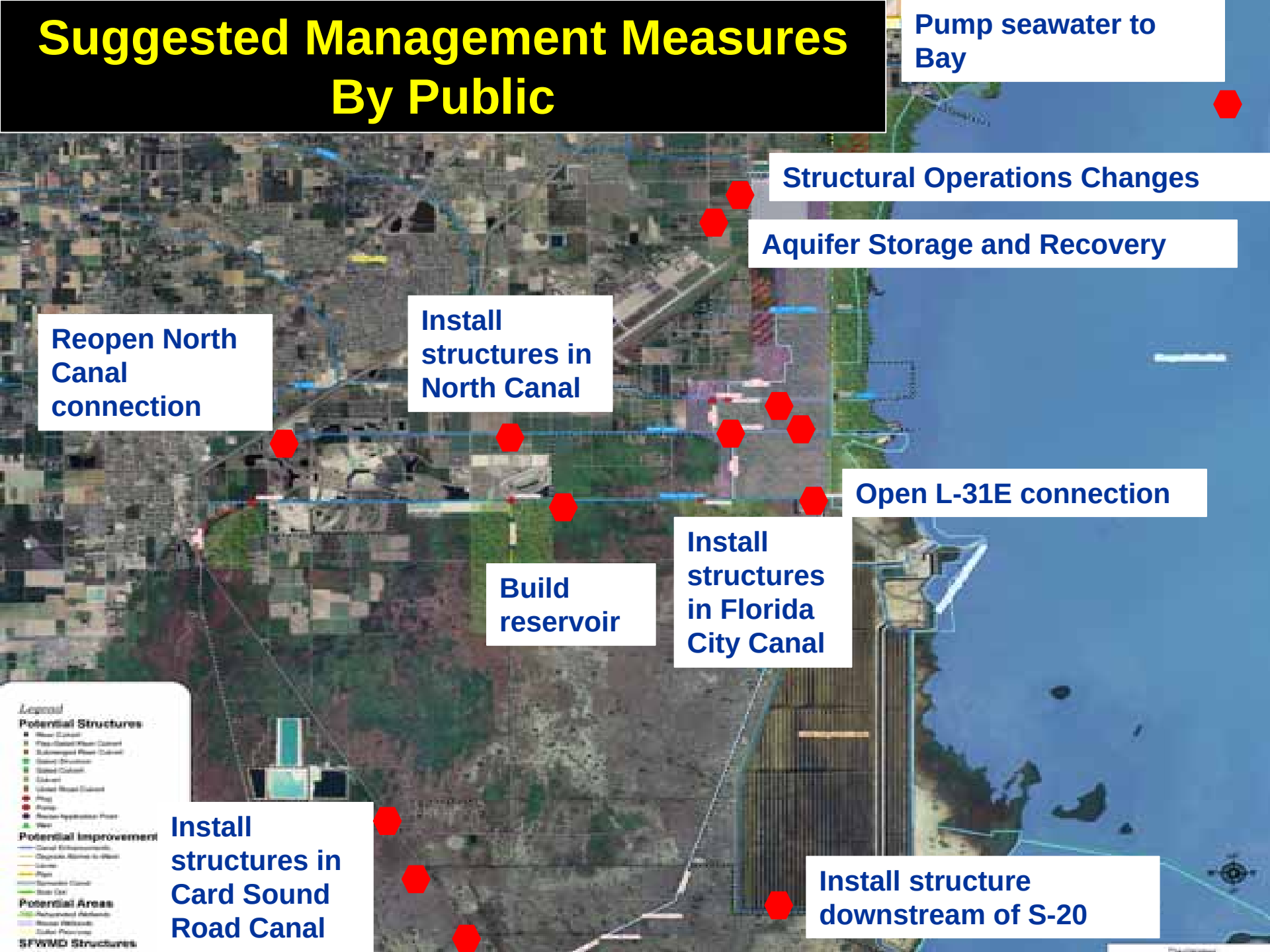
- Continue accumulating data from the expanded monitoring through the remainder of this year
- Compile and scrub the available data from multiple sources, combining groundwater, canal, flow measurements and salinity



# Ground and Surface Water Relationships



# Suggested Management Measures By Public



# Plan Forward

- Complete the data scrub - July 2010
- Complete the 2009-2010 operations report - July 2010
- Continue collection of additional regional groundwater data
- Initiate statistical and mass balance evaluations
- Identify potential drawdown effects
- Screen management measures
- Identify recommended plan(s)
- Next public meeting to be scheduled

# Questions?

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