

Technical Oversight Committee Meeting
September 14, 2011



Monitoring Issues

An Update for the TOC

Pete Rawlik

Sr. Environmental Scientist

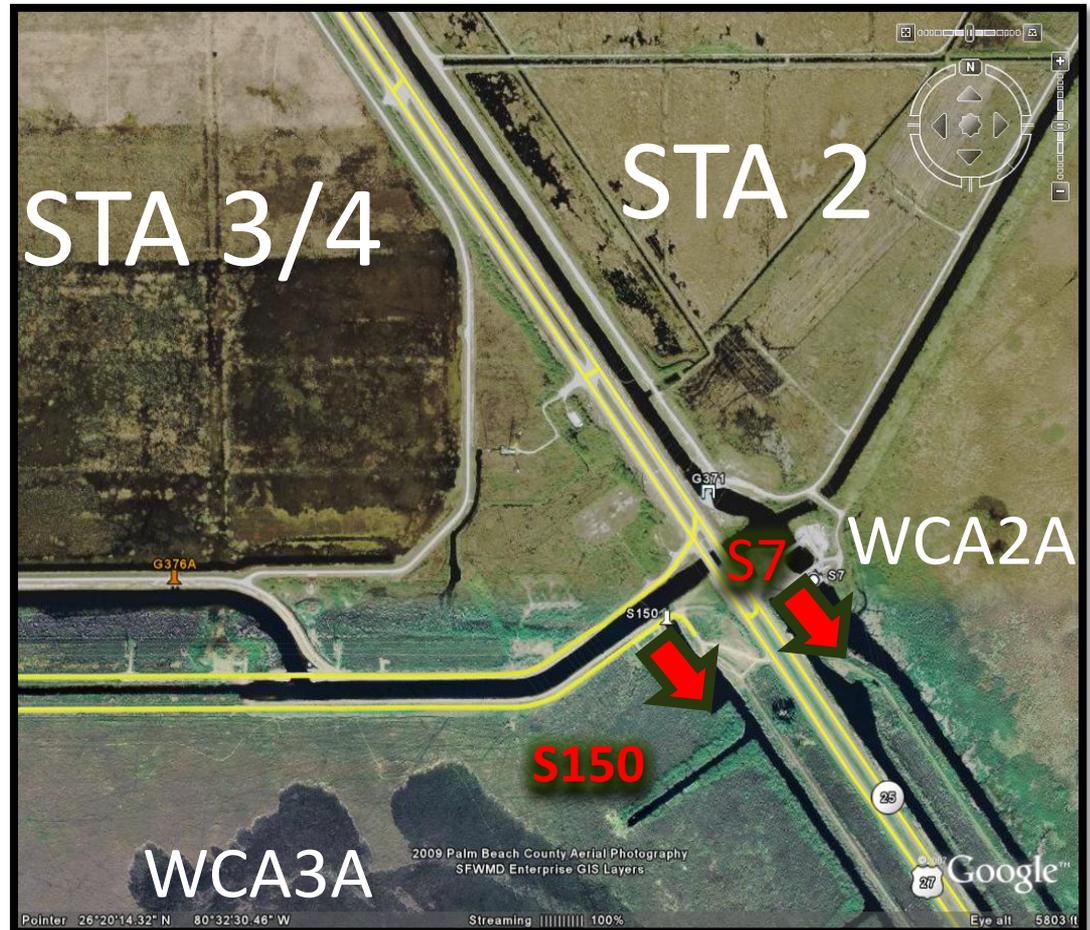
Water Quality Monitoring Bureau

Multiple Subjects

- ☀ Construction impacts on monitoring
- ☀ Low water monitoring guidance
- ☀ Visual assessment of vegetation

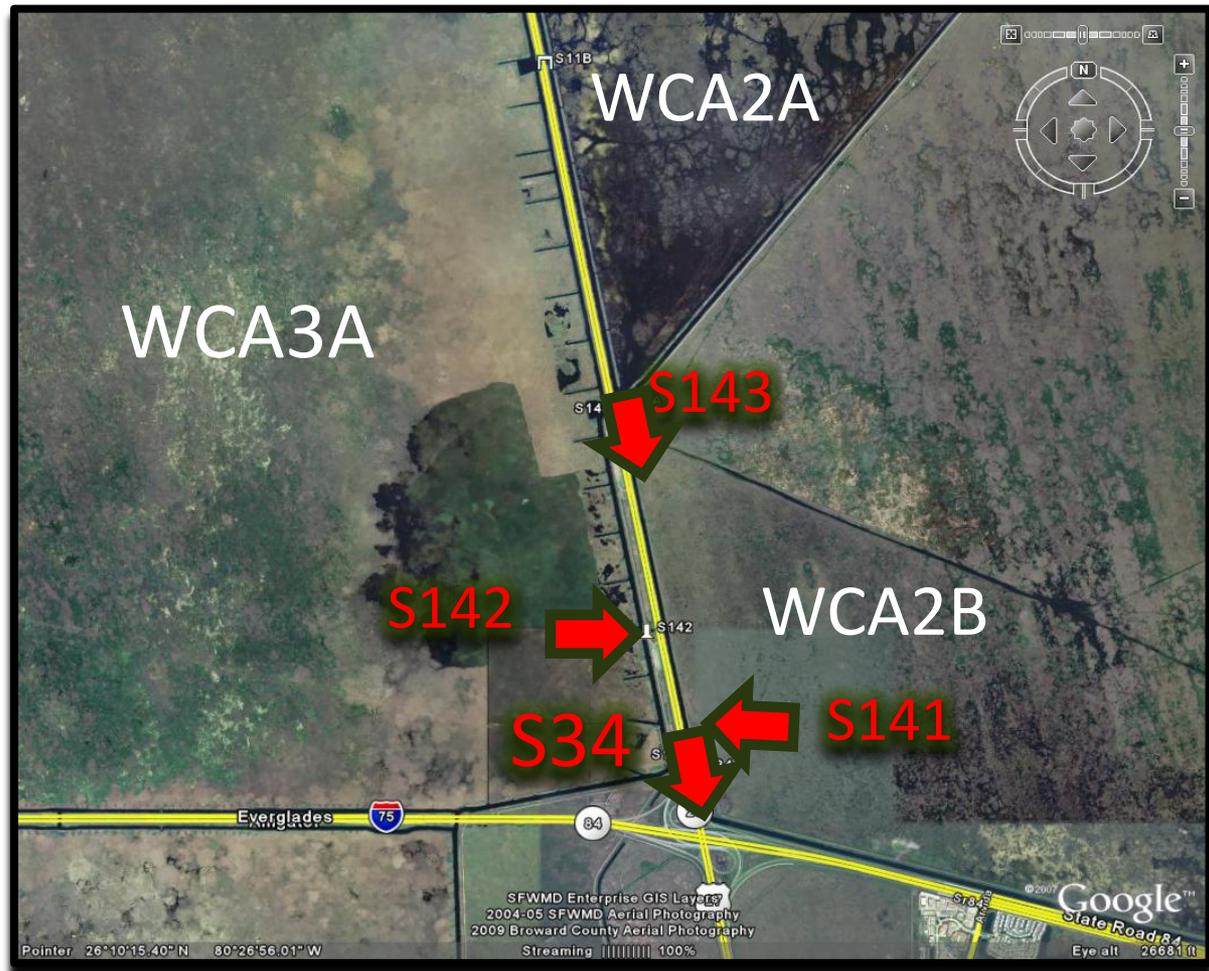
Construction at S150 (2/12-2013)

- ⚙ Construction of new gates at S150 will force the District to suspend sampling
- ⚙ If discharge through S150 does occur, sufficient data at S7 or the STA3/4 discharges exist to act as a backup



Construction at S142 (Now-2013)

- ⚙ Construction of new gates at S142 will force the District to suspend sampling
- ⚙ Discharges from the EPA are calculated at S34 so critical data will not be lost if staff are unable to sample discharges



Guidance for Suspending Marsh Sampling During Low Water Events

- ☼ **Drought is generally considered a natural disaster but there has been no guidance on when or how to suspend marsh monitoring**
- ☼ **Inherent in this concept, is that at some point low water levels will preclude the need/ability for sampling and create unsafe conditions**
- ☼ **District staff are allowed to suspend or delay monitoring in response to various events, including**
 - ☼ *Natural disasters (Fire, flood, hurricane, windstorm, etc.)*
 - ☼ *Crime, war, emergency*

Guidance for Suspending Marsh Sampling During Low Water Events

- ☼ **Review established zone criteria for WCA marsh stage gauges**
- ☼ **Two zones in WCA1**
- ☼ **Five zones in WCA2A**
- ☼ **Seven zones in WCA3A**
- ☼ **One zone in WCA3B**
- ☼ **If criteria for a zone are met**
 - ☼ ***Confirm dry conditions with station visit on existing flight***
 - If confirmed, suspend sampling at specified stations
 - If a station remains deep enough to sample, keep routine sampling until no longer possible
 - ☼ ***Revisit every fourth month to validate and assess (Months 1, 4, 8, 12)***

WCA1

For compliance Criteria to be calculated WCA1 3 gauge (1-7, 1-8c,1-9) average must be > 15.42 ft

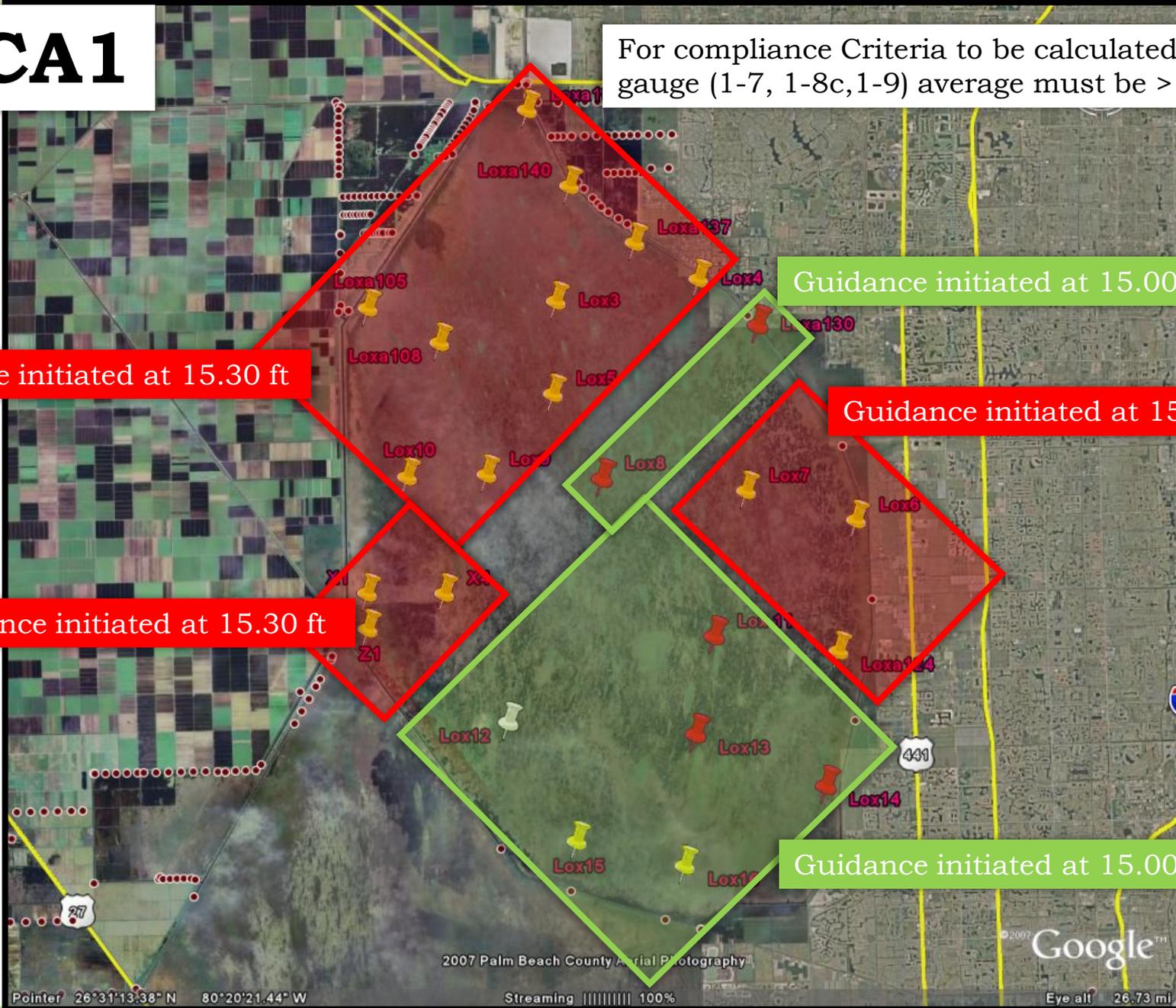
Guidance initiated at 15.00 ft

Guidance initiated at 15.30 ft

Guidance initiated at 15.30 ft

Guidance initiated at 15.30 ft

Guidance initiated at 15.00 ft



WCA2A

Eden 11 Ground elevation = 11.1 ft
Historic lowest sampling stage = 11.05 ft
Guidance initiated at 10.75 ft

WCA2RT Ground elevation = 10.1 ft
Historic lowest sampling stage = 10.73 ft
Guidance initiated at 10.50 ft

F4 Ground elevation = 10.1 ft
Historic lowest sampling stage = 9.77 ft
Guidance initiated at 9.50 ft

U3 Ground elevation = 9.8 ft
Historic lowest sampling stage = 9.6 ft
Guidance initiated at 9.50 ft

U1 Ground elevation = 8.7 ft
Historic lowest sampling stage = 9.28ft
Guidance initiated at 9.00 ft

2009 Palm Beach County Aerial Photography
2004-05 SFWMD Aerial Photography
2009 Broward County Aerial Photography

WCA3

3ANW Ground elevation = 9.80 ft
Historic lowest sampling stage = 9.2 ft
Guidance initiated at 9.00 ft

3AN1W1 Ground elevation = 8.75 ft
Historic lowest sampling stage = 9.23 ft
Guidance initiated at 9.00 ft

3ANE Ground elevation = 8.8 ft
Historic lowest sampling stage = 9.1 ft
Guidance initiated at 8.75 ft

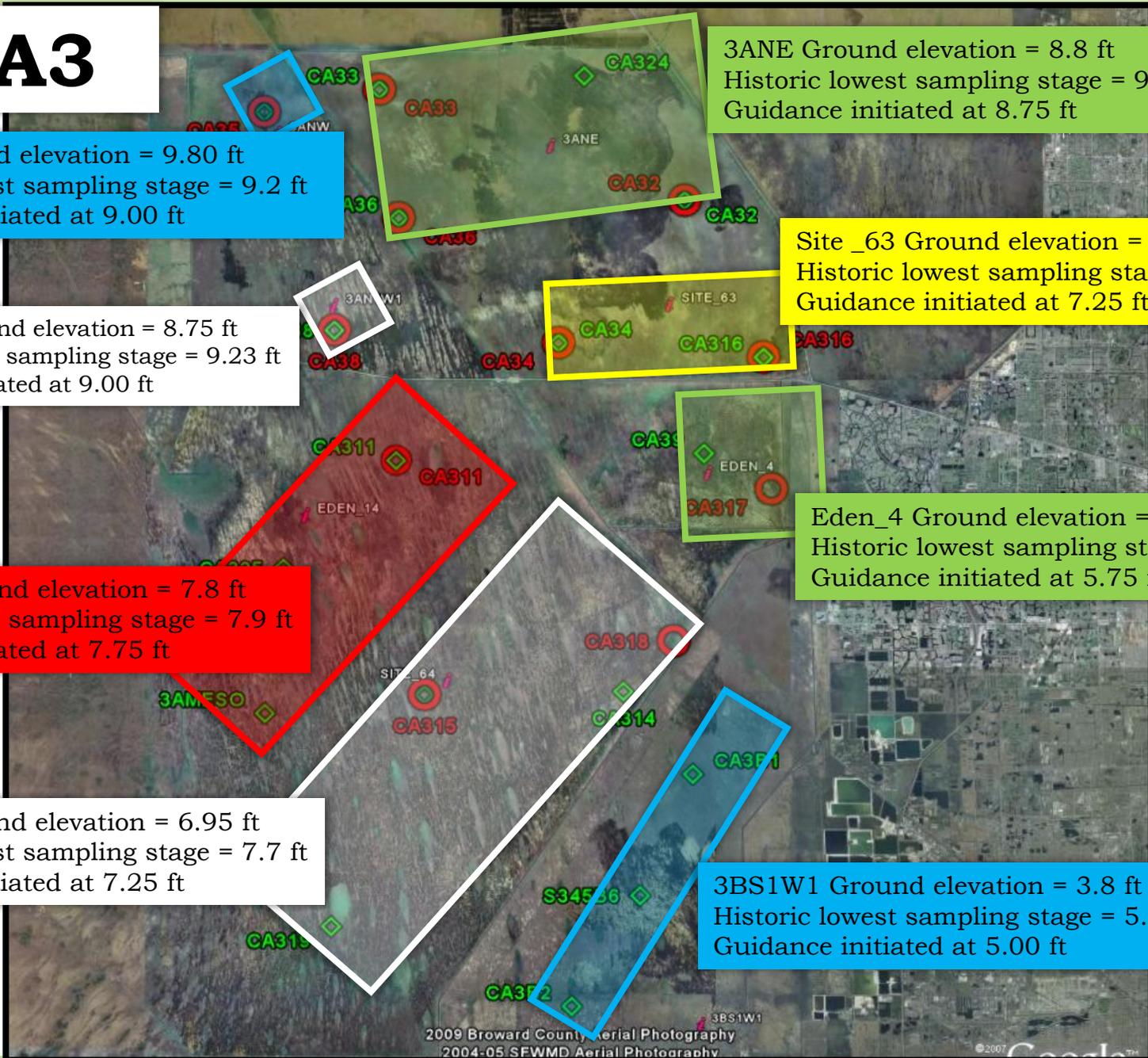
Site_63 Ground elevation = 7.3 ft
Historic lowest sampling stage = 7.6 ft
Guidance initiated at 7.25 ft

Eden_14 Ground elevation = 7.8 ft
Historic lowest sampling stage = 7.9 ft
Guidance initiated at 7.75 ft

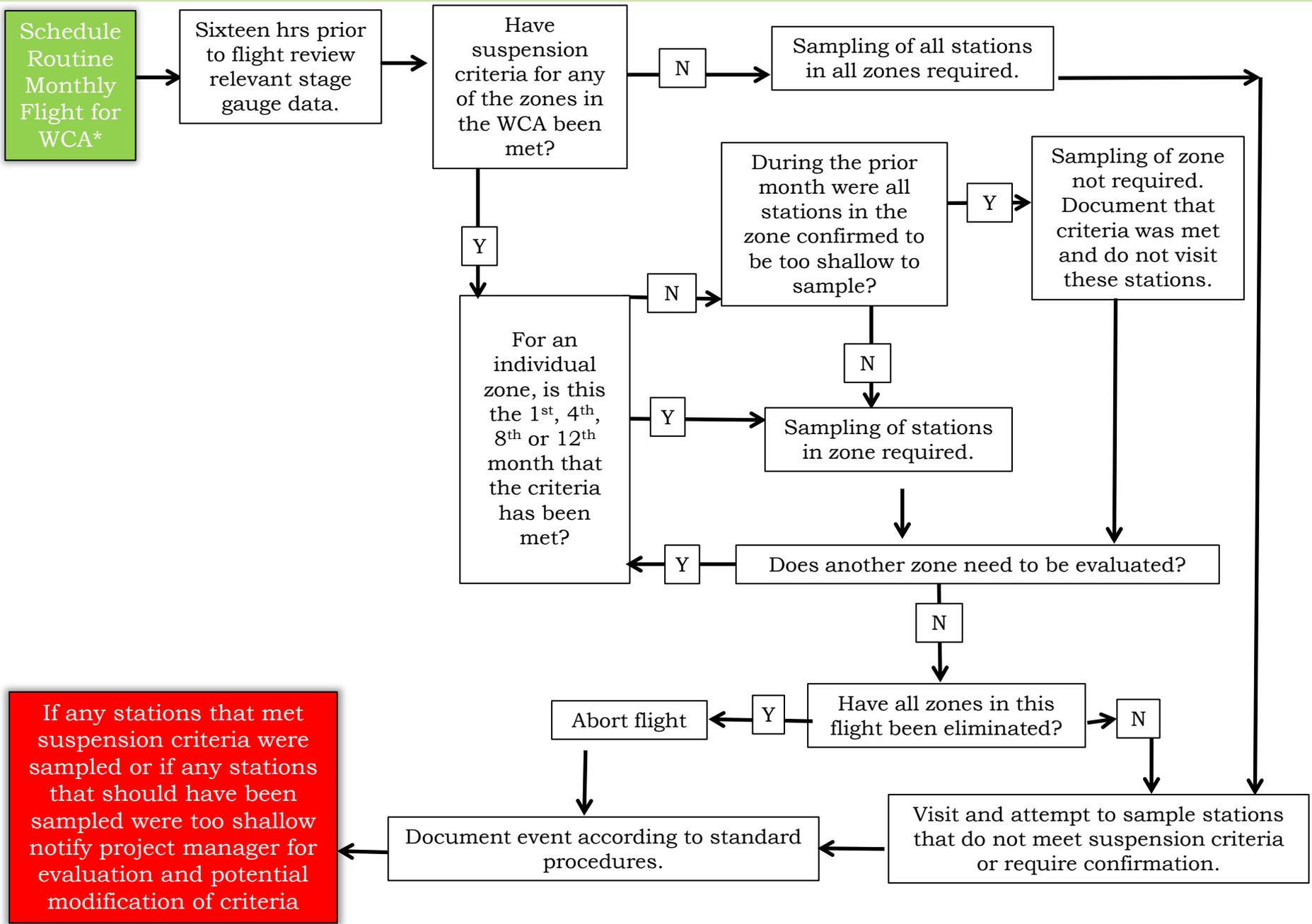
Eden_4 Ground elevation = 5.75 ft
Historic lowest sampling stage = 5.9 ft
Guidance initiated at 5.75 ft

Site_64 Ground elevation = 6.95 ft
Historic lowest sampling stage = 7.7 ft
Guidance initiated at 7.25 ft

3BS1W1 Ground elevation = 3.8 ft
Historic lowest sampling stage = 5.1 ft
Guidance initiated at 5.00 ft



SOUTH FLORIDA WATER MANAGEMENT DISTRICT



If any stations that met suspension criteria were sampled or if any stations that should have been sampled were too shallow notify project manager for evaluation and potential modification of criteria

Application in 2011

- ☀ **At the May 2011 meeting the TOC approved a request to implement the strategy during the severe drought**
- ☀ **Of nine flights in June, six were able to be cancelled and the remaining stations visited and collected on just three trips**
- ☀ **This saved in excess of 18 hours of helicopter time and more than 100 hours of staff time**

Benefits of Low Water Guidance

- ☼ **Budgetary climate requires constant review of helicopter usage throughout the District**
- ☼ **Leverages remote network and allows staff to prioritize stations for flights**
- ☼ **Low water events present certain challenges and risks, including fire, that are lessened using this strategy**
- ☼ **Will reduce costs associated with helicopters, particularly during droughts**
 - ☼ *In 2007, 27 of 168 (16%) zone-events could have been avoided*
 - ☼ *In May 2007 only 4 of 14 zones would have been visited saving approximately \$10,000 in helicopter costs*

Issues Implementing Guidance

- ☀ **This design will require staff to visit “dry” areas at least on a quarterly basis**
- ☀ **This design depends heavily on stage gauge data being available through Everglades Depth Estimation Network (EDEN) and other sources**
 - ☀ *Many gauges cease to report at a specific depth and thus provide no data to the database; interpreting this is difficult and we are working to rectify*

Request

- ☀ **The District requests that the TOC approve this guidance, with the understanding that periodic updates and modifications may be needed**

Visual Assessment of Vegetation During Monitoring

- ☼ **Currently District staff on EVPA flights collect meta-data concerning the vegetation at each site**
- ☼ **This qualitative meta-data has little quantitative value**
 - ☼ *Ill defined sampling methodology (No SOP or QA)*
 - ☼ *Inconsistent assessment criteria*
 - ☼ *No defined objective*
 - ☼ *No defined end user or purpose*

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Project: <u>EVPA</u> Date: <u>8-9-11</u> #: <u>52533</u> Monthly Surface Water Grabs - Marsh Pilot: <u>Alex (SFWD)</u> Weather: <u>pt cloudy 12-14 High 80's Wind SE 5-10 kt</u>	Collectors and Tasks <u>BCW on 1564 Notes / Sample</u> <u>1423 GMB / DeptL med sre mk / Processing</u>
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Collection Equipment: Bottle Bottle (60 mL)

General Information: DCS = depth to consolidated substrate. Corrected DCS = measured value + .03 m to account for length of tip of PVC pole.

Equipment		Acid	H2SO4		HNO3				
Bucket #s:	DI- <u>3157</u> <u>3158</u>	Lot #	<u>504020</u>	<u>635020</u>	<u>639049</u>				
Tray #s:	<u>STA 7</u> <u>STA 4</u>	Bt. Size	Sample	Blank	Sample	Blank			
Other: Graduated PVC pole, syringes		60 ml	<u>2</u>	<u>4</u>	<u>5</u>	<u>5</u>			
.45um filters <input type="checkbox"/> Mfg. <u>Whatman</u>		120 ml	<u>8</u> <u>BCW</u>	<u>4</u> <u>BCW</u>					
Filter Lot#- <u>D124851</u>		250 ml	<u>16</u> <u>8-9-11</u>	<u>16</u> <u>8-9-11</u>					
Sample #	Collection time/Collector	Processing time/processor	Site name	Sample type (SP, EB, FCEB, RS)	Corrected DCS (m)	Tdepth (depth of water column) (m)	Amount of suspended solids (NV, L, M, H)	pH<27 (Y/N)	Approx. dis. from collection site to helicopter (m)
<u>1</u>	<u>0950/1564</u>	<u>1157</u>	<u>CA 316</u>	<u>SP</u>	<u>0.34</u>	<u>0.29</u>	<u>NV</u>	<u>Y</u>	<u>25</u>

Description of Site: 1423 Full set collected

Canal Slough Marsh Other

Vegetation Below, enter amount of Veg. as - D- Dense, M- Moderate, S- Sparse

Sawgrass Cattail Lily Periphyton Bladderwort Pickerel Weed Rush Other

Sample desc./comments: Dk. Yellow color Mod. Yellow Lt. Yellow Colorless

Other BCW 8-9-11

<u>2</u>	<u>0905/1564</u>	<u>1211</u>	<u>1423</u>	<u>CA 317</u>	<u>SP</u>	<u>0.67</u>	<u>0.62</u>	<u>NV</u>	<u>Y</u>	<u>25</u>
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Sawgrass Cattail Lily Periphyton Bladderwort Pickerel Weed Rush Other

Sample desc./comments: Dk. Yellow color Mod. Yellow Lt. Yellow Colorless

Other BCW 8-9-11

<u>3</u>	<u>0918/1564</u>	<u>1227</u>	<u>1423</u>	<u>CA 318</u>	<u>SP</u>	<u>0.53</u>	<u>0.48</u>	<u>L</u>	<u>Y</u>	<u>30</u>
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Description of Site: 1423 Full set collected

Canal Slough Marsh Other

Vegetation Below, enter amount of Veg. as - D- Dense, M- Moderate, S- Sparse

Sawgrass Cattail Lily Periphyton Bladderwort Pickerel Weed Rush Other

Sample desc./comments: Dk. Yellow color Mod. Yellow Lt. Yellow Colorless

Other

Signature BCW
 Date 8-9-11

Reviewed by ELM
 Date 8/9/11

Actions

- ⊗ **As meta-data this change should not require TOC approval**
- ⊗ **The collection of this meta-data by SFWMD staff during water quality monitoring will end September 30, 2011**
- ⊗ **The District is willing to meet with interested agency scientists to develop goals and methods that will specify**
 - ⊗ *Objectives*
 - ⊗ *Work Products*
 - ⊗ *Standardized Method(s)*
 - ⊗ *End User(s)*
 - ⊗ *Start and End Dates*