

# *Technical Workshop:*

# Suspending Marsh Monitoring Based on Stage Data

A Reengineering Monitoring Initiative

Pete Rawlik  
Restoration Sciences Department  
SFWMD

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# INTRODUCTIONS



# Impact of Low Water Events on Monitoring

- Sampling records reveal that EPA marsh stations routinely drop below 10 cm and are not sampled
  - From 1/1/2007 to 5/1/2009 there were 2,233 station visits
  - 683 (30%) were No Bottle samples
  - Assuming \$600/hr, and 30 minutes per station = \$6,800/month to collect no samples

# Sampling Program Responsibilities

- Collect samples in a manner that is
  - consistent with mandates
  - consistent with standard operating procedures
  - protective of the resource
  - safe for staff
  - fiscally responsible

# Extreme Weather Conditions

- Standard permit language allows for the emergency suspension of sampling under “extreme weather conditions”
- Just as floods, fires, and windstorms all pose significant risks to sampling, low water events create their own risks, including fire, disturbed wildlife, debris, and habitat changes.
- It is the opinion of WQMD staff that during low water events and droughts, the continual visitation of marsh stations that are known to be dry poses unnecessary risks to staff and the habitat.
- Additionally, attempting to sample during such conditions may not be fiscally responsible.

**How do we balance the needs of  
the monitoring programs with  
safety and fiscal responsibility?**

*or*

**When is the chance of collecting  
a potentially viable sample so  
low that it no longer makes  
sense to fly?**

# Won't This Bias Results?

- Not if we develop a protocol that takes into consideration legal requirements of various mandates and the legitimate concerns of our stakeholders.
- Be conservative, err on the side of caution during development and application.
- Issues with the location and number of stations for various mandates may be legitimate but should not be part of this technical discussion.

# Sampling Requirements to Consider

- TOC guidance has defined the lower limits of representative sampling to be a minimum clear water depth of 10 cm
- The Settlement Agreement Compliance Calculation for WCA1 requires that the average stage at gages 1-7, 1-8C, and 1-9 be at or above 15.42 feet
- The TP Rule requires that for a station to be included in the calculation it must have a minimum of 6 samples per year with at least 1 of those samples in a different season than the others( 5 wet season samples and 1 dry season sample, or vice versa)



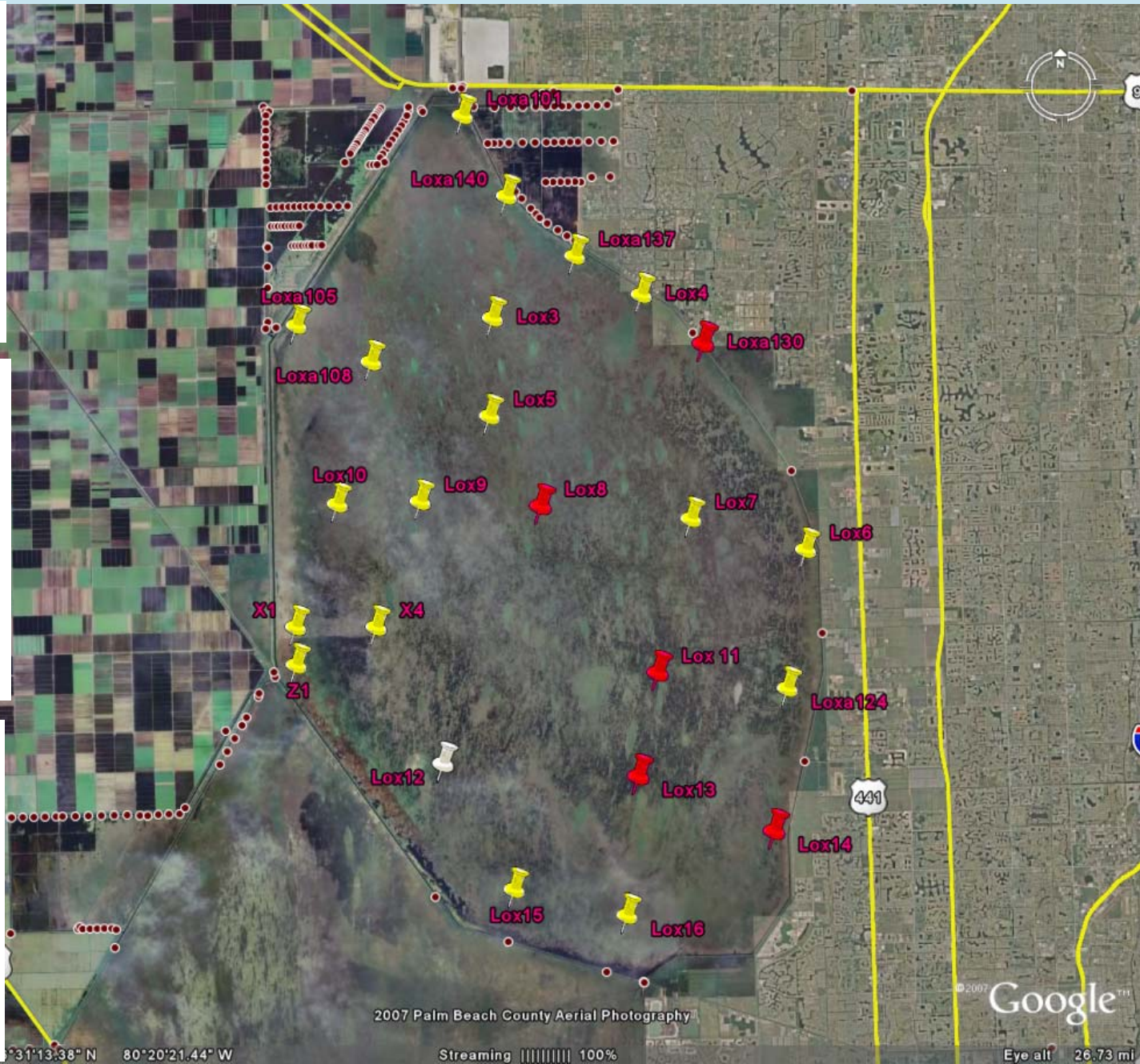
# History

**WCA-2A F1 6/28/07**

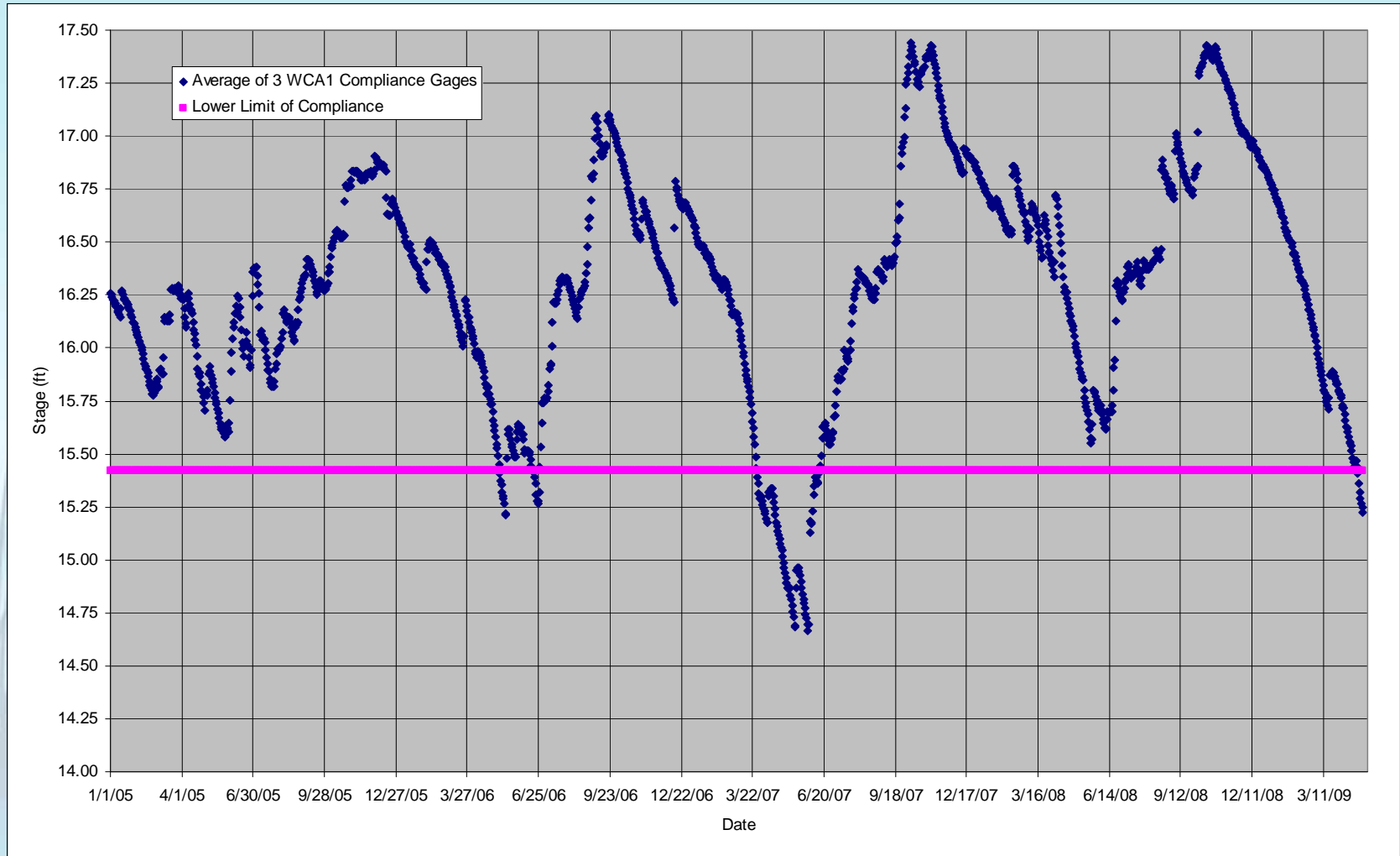
● Indicates a station that was no longer collected below an average stage of 15.42 feet

○ Indicates a station that was no longer collected below an average stage of 15.27 feet

● Indicates a station that was no longer collected below an average stage of 15.18 feet



# Average stage (1-7, 1-8c, 1-9) in WCA-1 since January 2005





Indicates a station that was no longer collected below 11.50 ft Gauge 217



below 11.25 ft Gauge 217



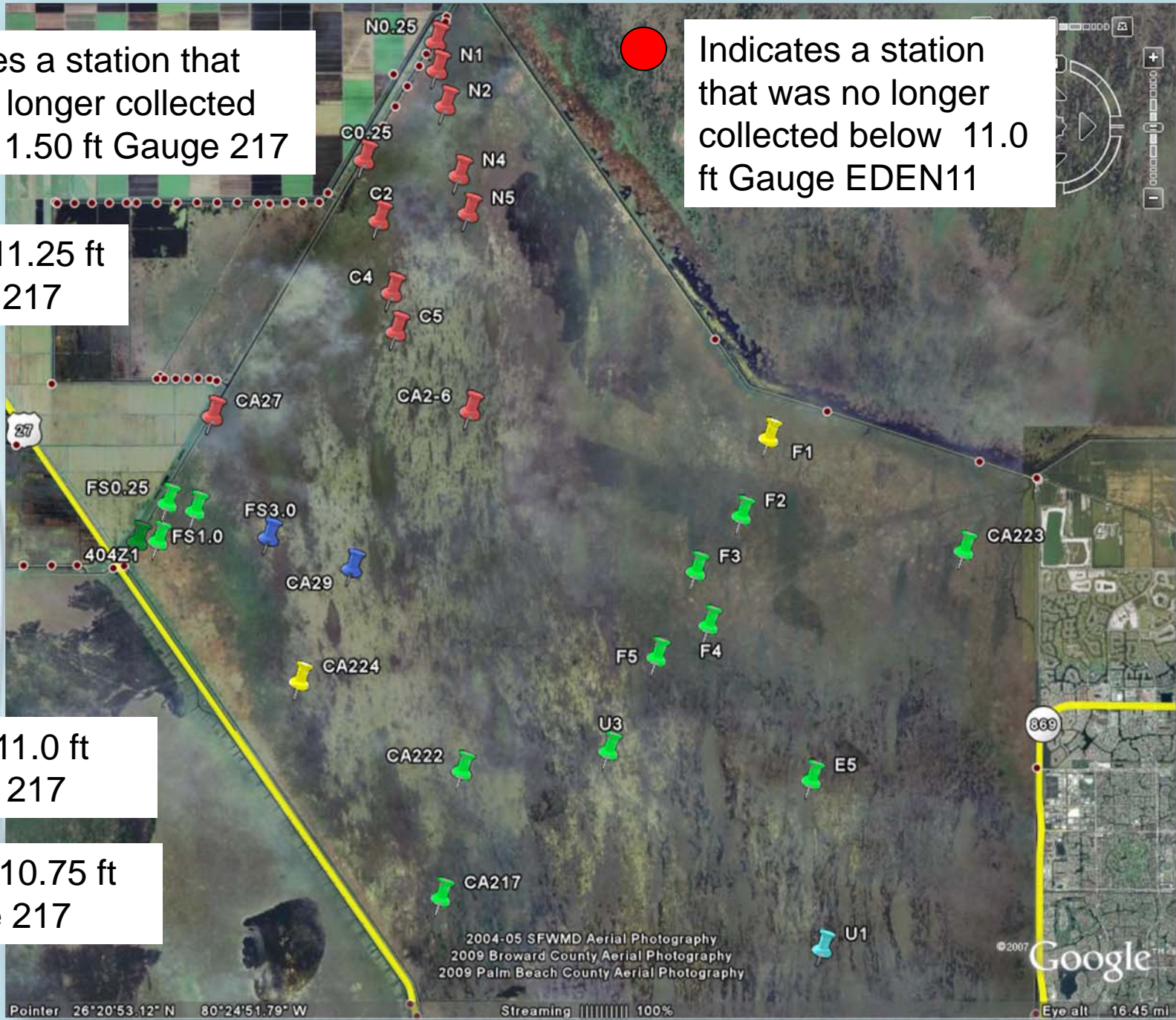
below 11.0 ft Gauge 217



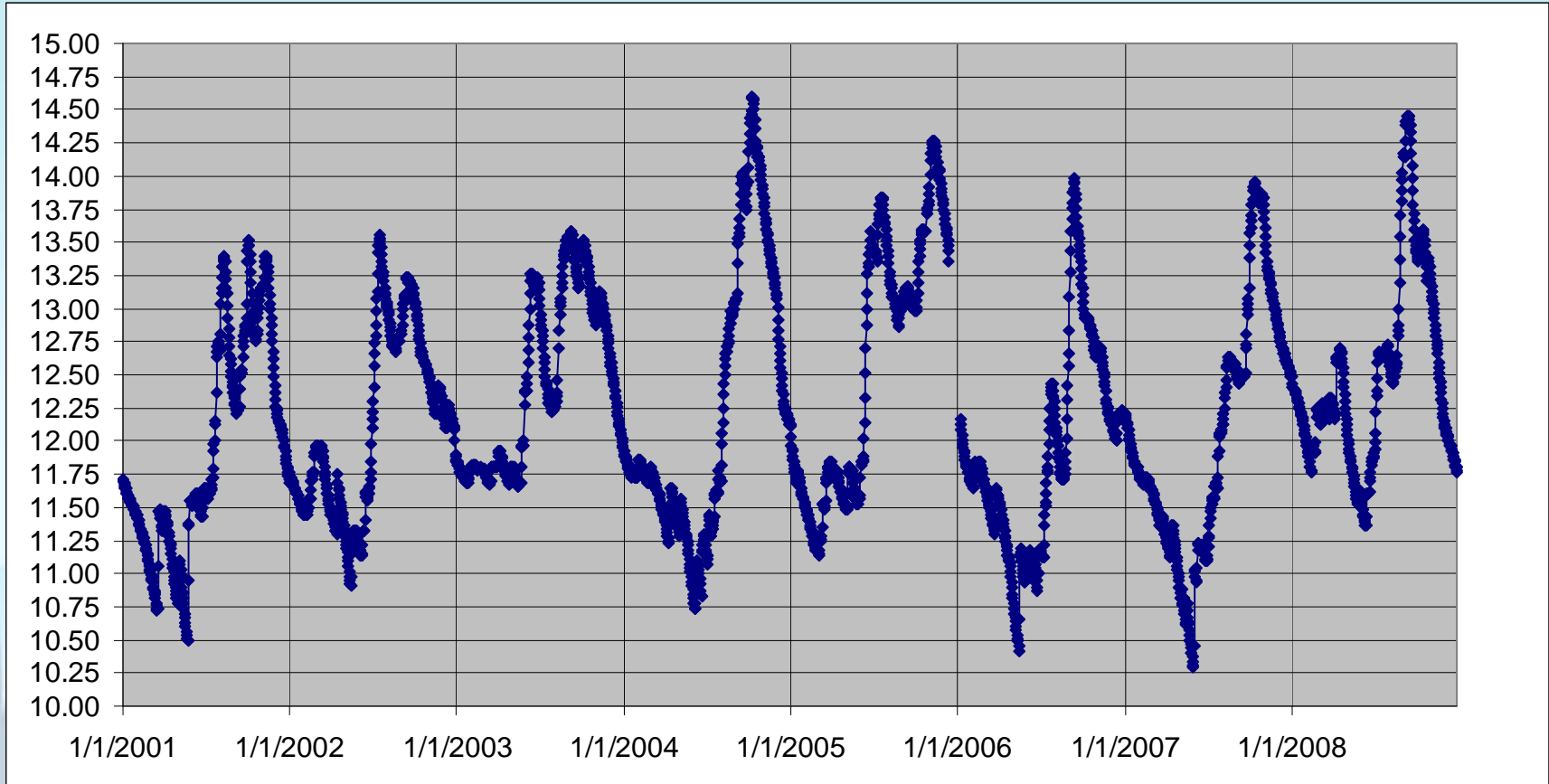
below 10.75 ft Gauge 217



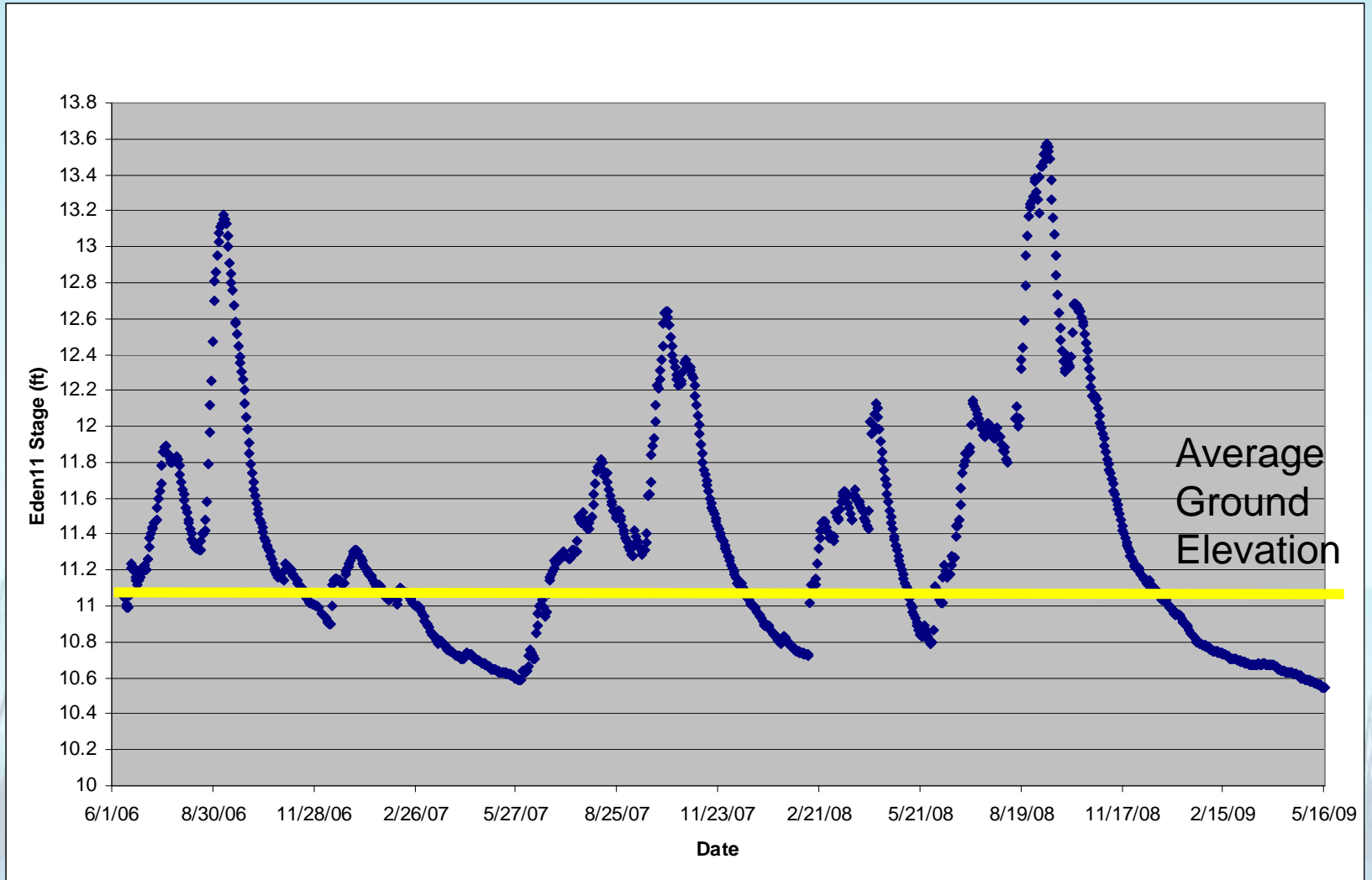
Indicates a station that was no longer collected below 11.0 ft Gauge EDEN11

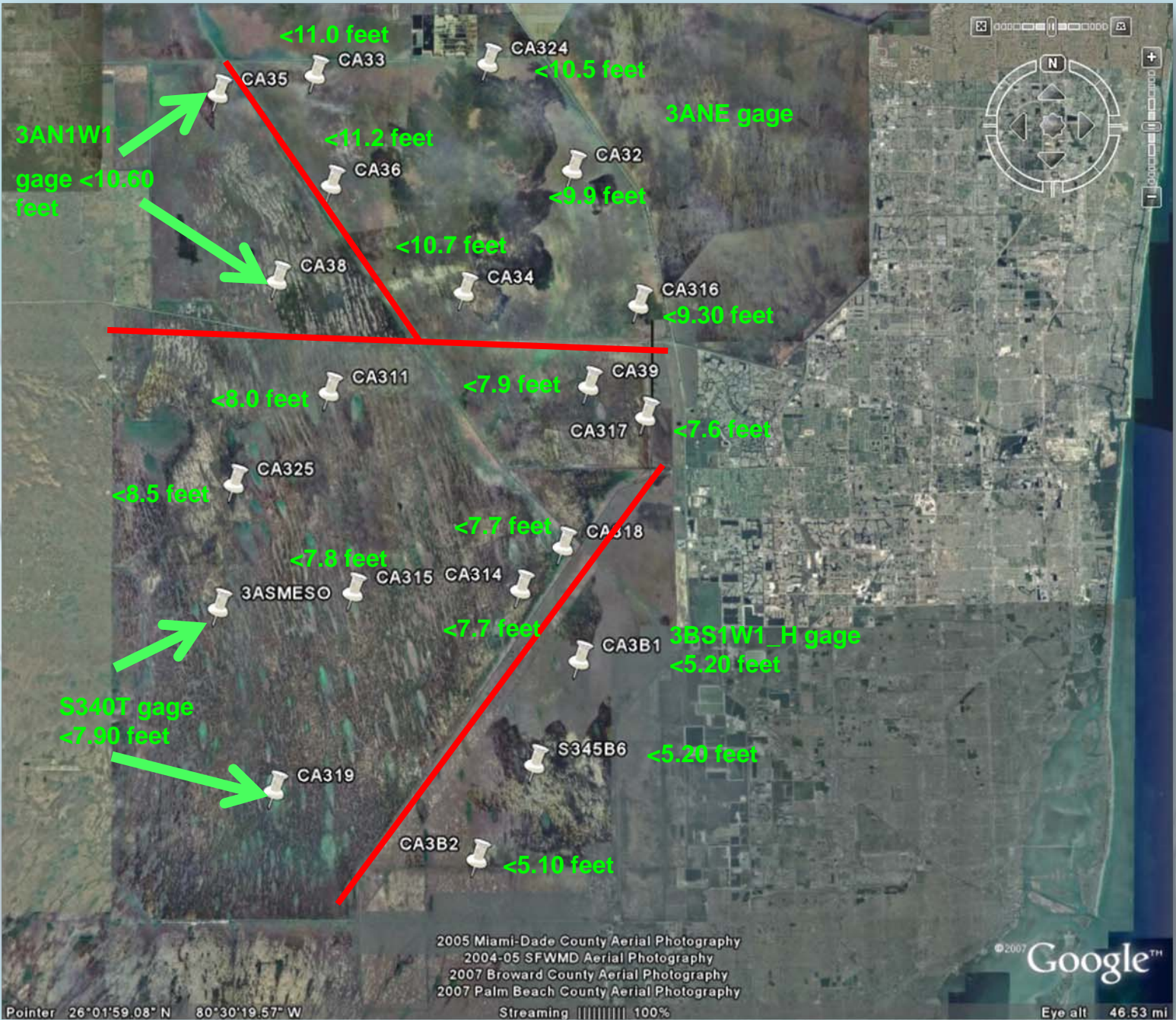


# Historical 2-17 Stage



# Historic EDEN 11 Stage





2005 Miami-Dade County Aerial Photography  
 2004-05 SFWMD Aerial Photography  
 2007 Broward County Aerial Photography  
 2007 Palm Beach County Aerial Photography

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Pointer 26°01'59.08" N 80°30'19.57" W

Streaming ||||| 100%

Eye all 46.53 mi

# BREAK





# Standard Operating Procedure for Suspending Marsh Sampling

- Establish regional criteria (whole WCA or Zones)
  - Be conservative
- If criteria are met
  - Confirm dry conditions with flyover
    - If confirmed suspend sampling at specified stations
    - If a station remains wet enough to sample, keep routine sampling until no longer possible
  - Revisit every fourth month to validate and assess (Months 1, 4, 8, 12)

# Recommendation for WCA1

- Two point successive criteria based on average of 3 stage gages
- If average stage <15.3 feet
  - Initiate Suspension SOP for 18 stations
  - Keep sampling at 6 stations (Loxa130, Lox8, Lox11-14)
- If average stage < 15.0 feet
  - Initiate Suspension SOP for all remaining stations

# Recommendation for WCA2

- Three point criteria based on zones
- If Eden11 Stage <10.90 feet
  - Initiate Suspension SOP for 11 stations in the northwest zone
- If the 2-17 stage gage <11.0 feet
  - Initiate Suspension SOP for 11 stations in the central zone
- If the 2-17 stage gage <10.6 feet
  - Initiate Suspension SOP for 7 stations in the western and southern zones



Indicates a station that was no longer collected below 11.50 ft Gauge 217



below 11.25 ft Gauge 217



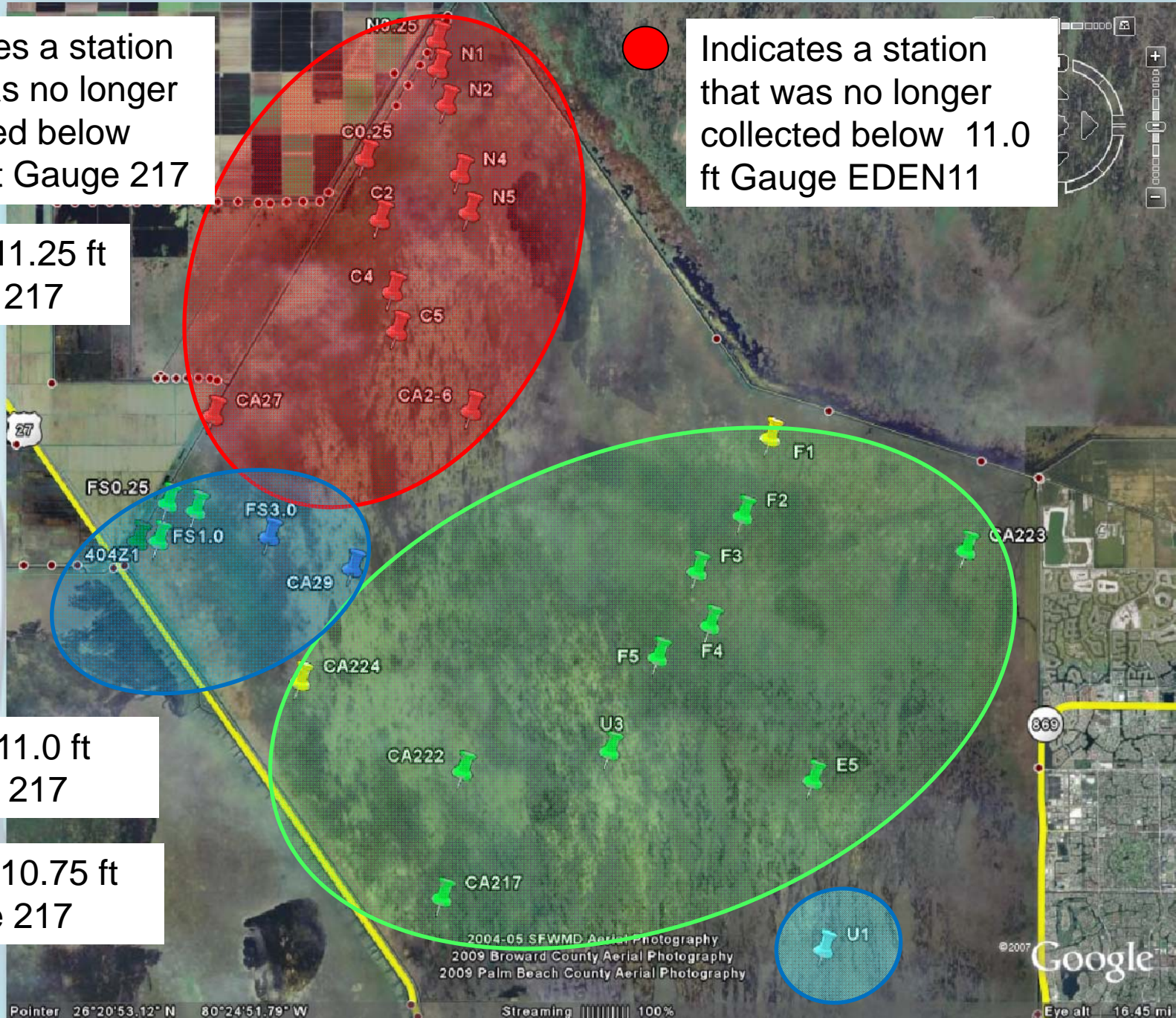
below 11.0 ft Gauge 217



below 10.75 ft Gauge 217



Indicates a station that was no longer collected below 11.0 ft Gauge EDEN11



# Recommendation for WCA3AN

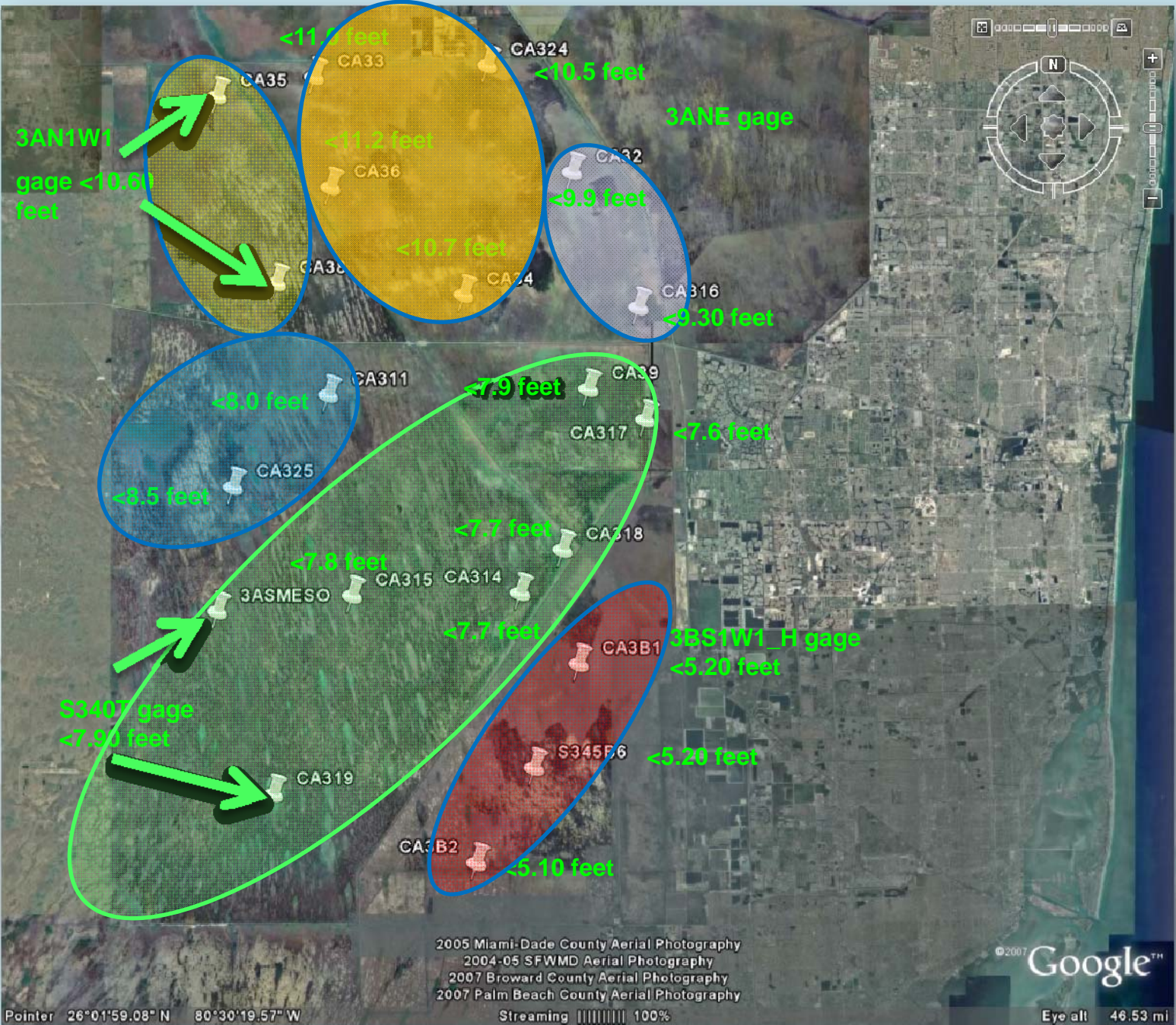
- Three point criteria based on zones
- If 3AN1W1 Stage <10.50 feet
  - Initiate Suspension SOP for 2 stations in the west zone
- If the 3ANE stage gage <10.40 feet
  - Initiate Suspension SOP for 4 stations in the central zone
- If the 3ANE stage gage <9.2 feet
  - Initiate Suspension SOP for 2 stations in the eastern zone

# Recommendation for WCA3AS

- Two point criteria based on zones
- If S340T Stage <7.80 feet
  - Initiate Suspension SOP for 2 stations in the west zone
- If the S340T stage gage <7.30 feet
  - Initiate Suspension SOP for 7 stations in the eastern zone

# Recommendation for WCA3B

- One point criteria based on the entire area
- If 3BS1W1\_H Stage <5.0 feet
  - Initiate Suspension SOP for all 3 stations



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 2004-05 SFWMD Aerial Photography  
 2007 Broward County Aerial Photography  
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# Stakeholder Comment

