

# Sediment Deposition in Restored South Bay Salt Marshes: Initial Results from the Island Ponds

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# Importance of Sedimentation?

- Critical for marsh development
- Especially for subsided sites
- Uncertainties about:
  - temporal and spatial variation in rates of accumulation
  - sediment availability
  - impacts on adjacent, existing habitats

Island Ponds: Pond A19, A20, A21 (pictured)  
Breached in March 2006



# Island Pond Research Approach

- Vertical accretion/erosion rates
  - sediment pins (37 pins across Pond A21)
- Short-term (2 week) mass-based accretion rates
  - modified filter paper method at a subset of stations
- Vertical accretion/erosion in existing marsh and mudflat along Coyote Creek and Mud Slough
  - pins and marker horizons



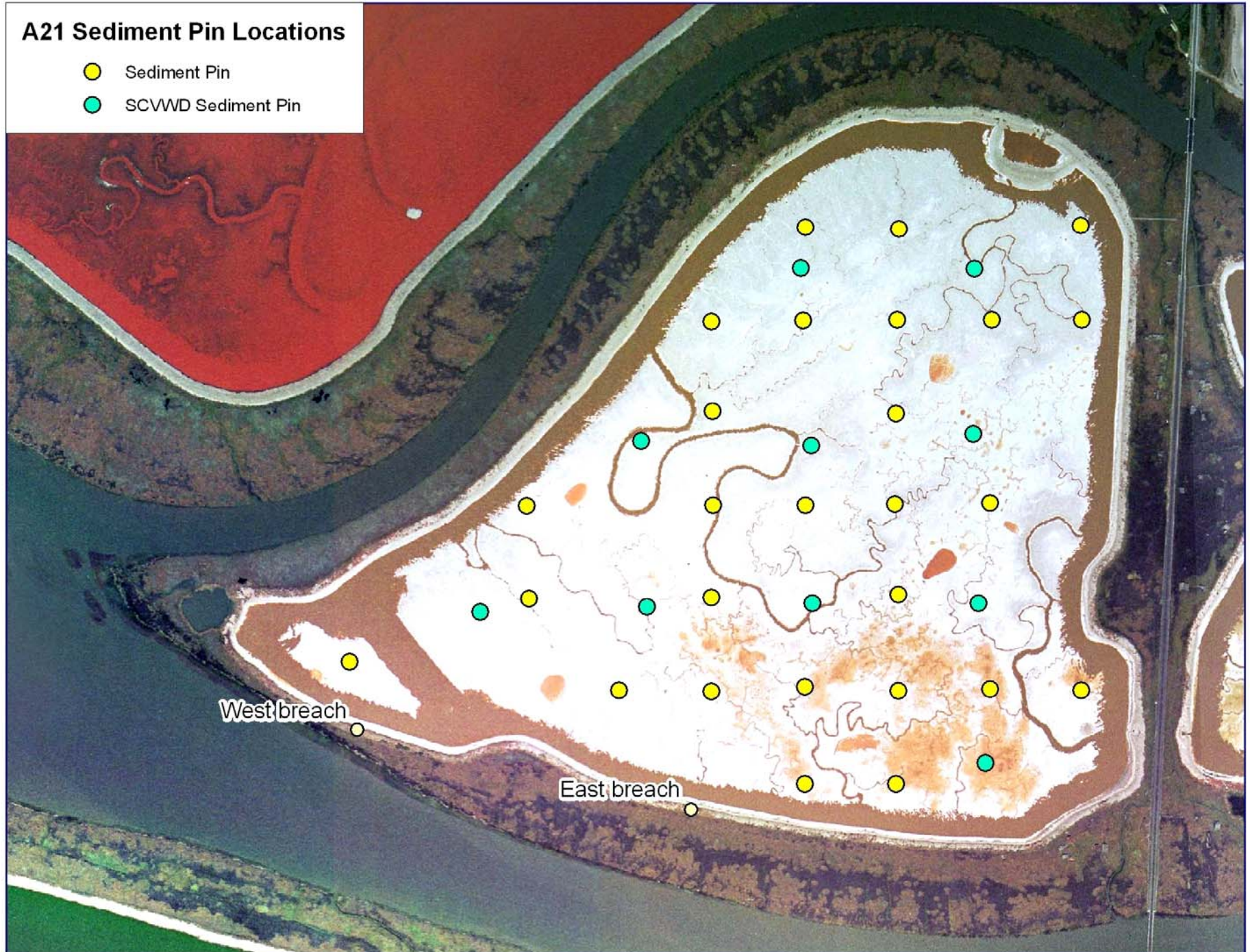






# A21 Sediment Pin Locations

- Sediment Pin
- SCVWD Sediment Pin













# A21 Short-Term Sediment Monitoring Locations

● Rubber Plate





















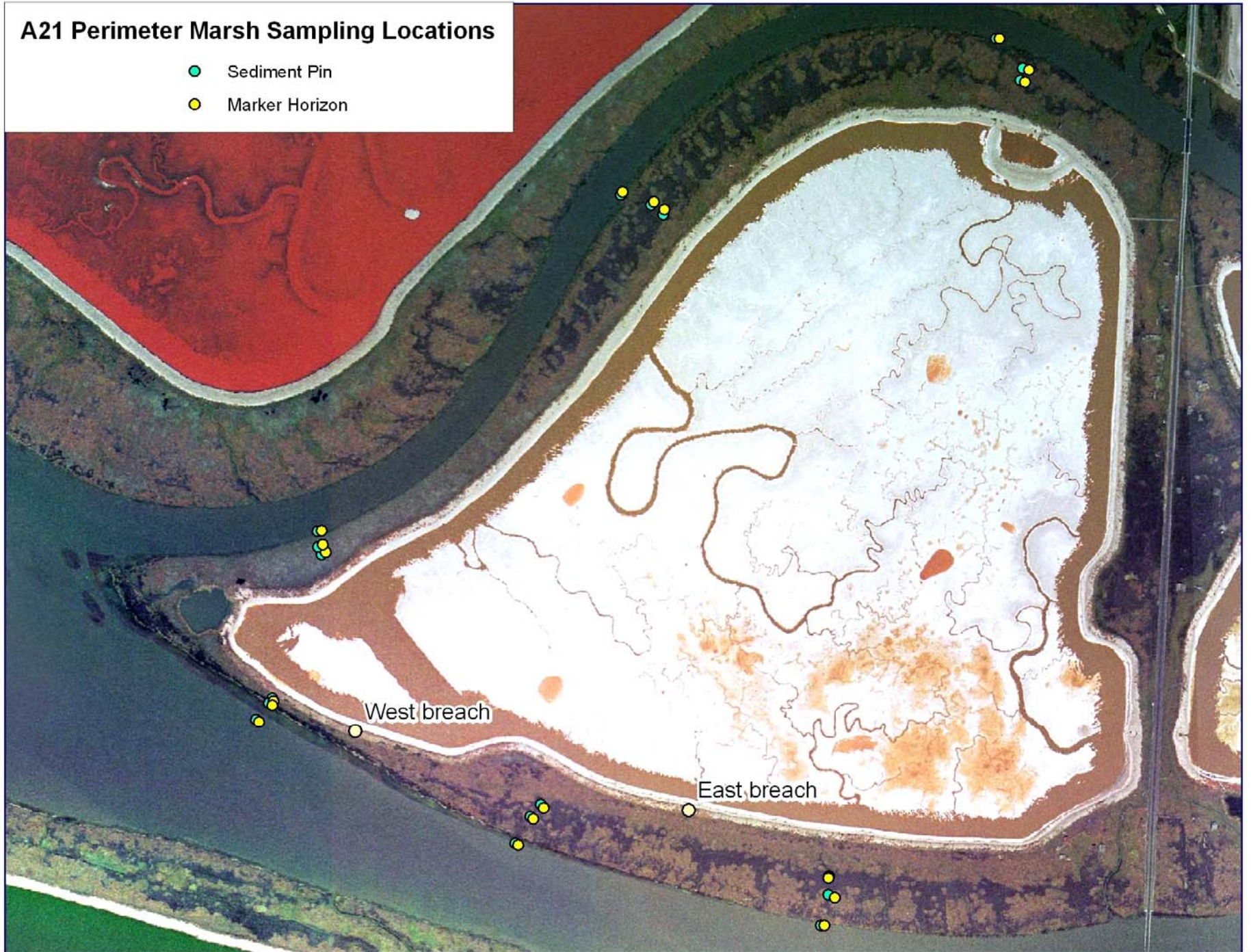






# A21 Perimeter Marsh Sampling Locations

- Sediment Pin
- Marker Horizon





# Preliminary Results

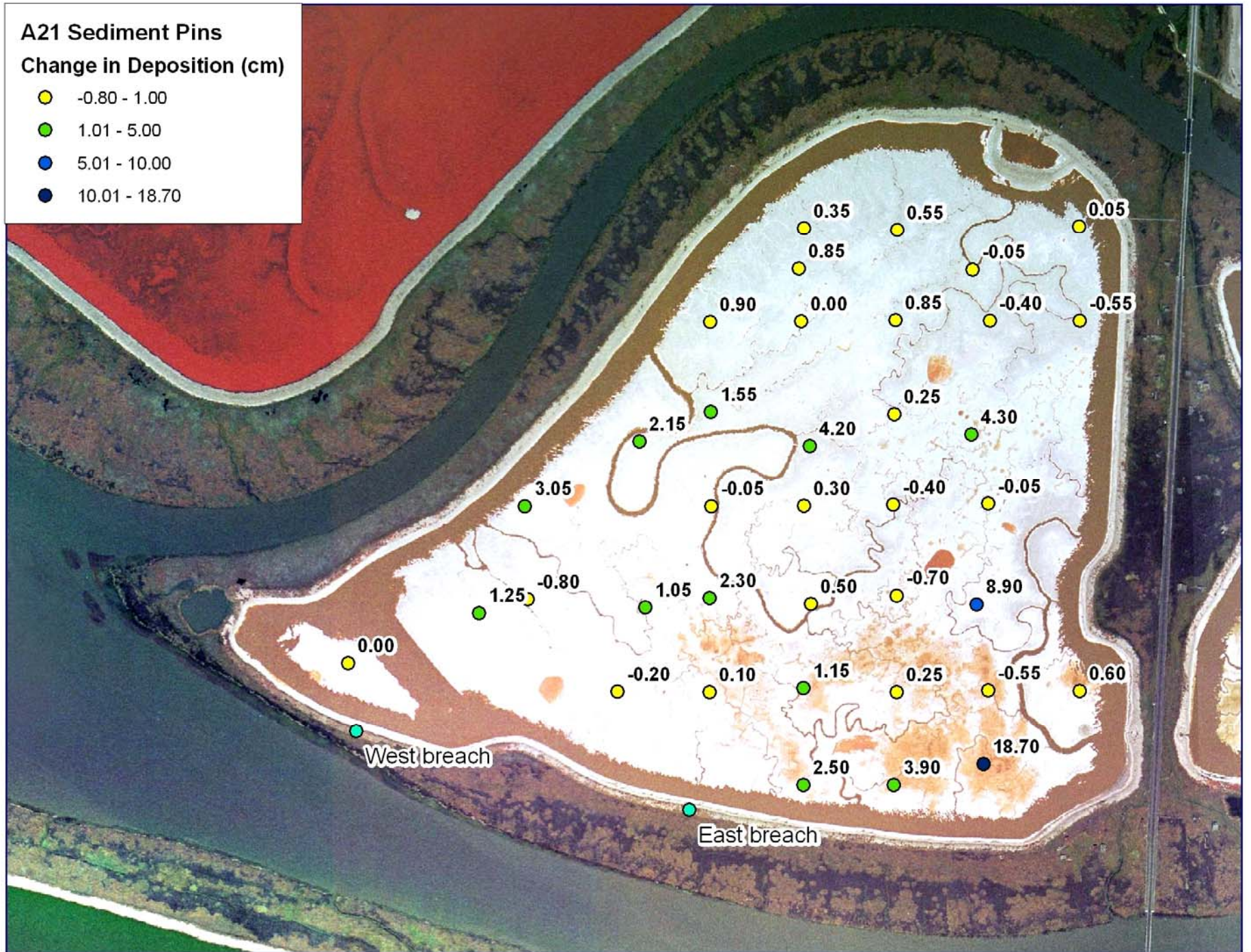




# A21 Sediment Pins

## Change in Deposition (cm)

- -0.80 - 1.00
- 1.01 - 5.00
- 5.01 - 10.00
- 10.01 - 18.70











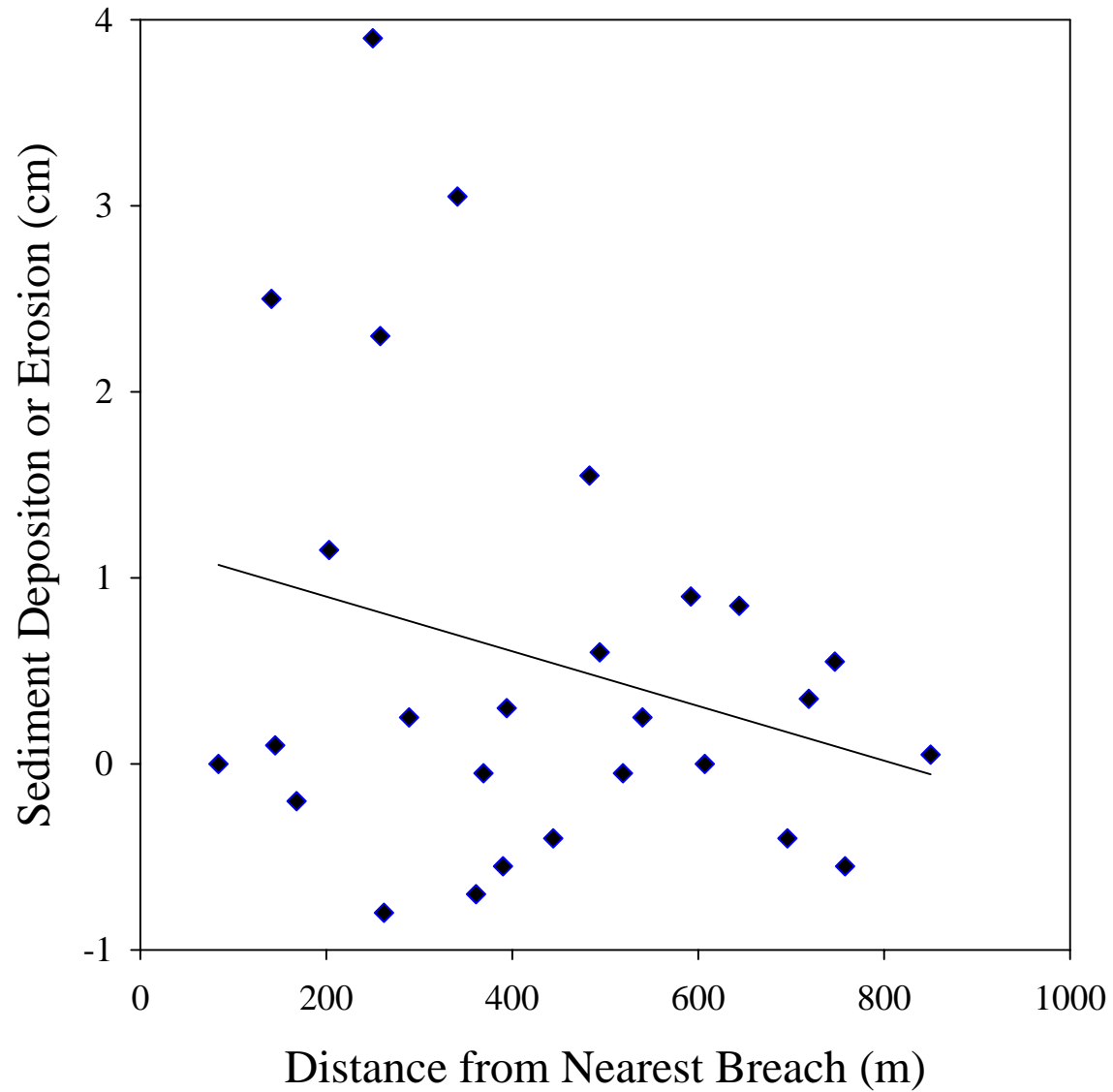








# Sedimentation Patterns with Distance from Breach

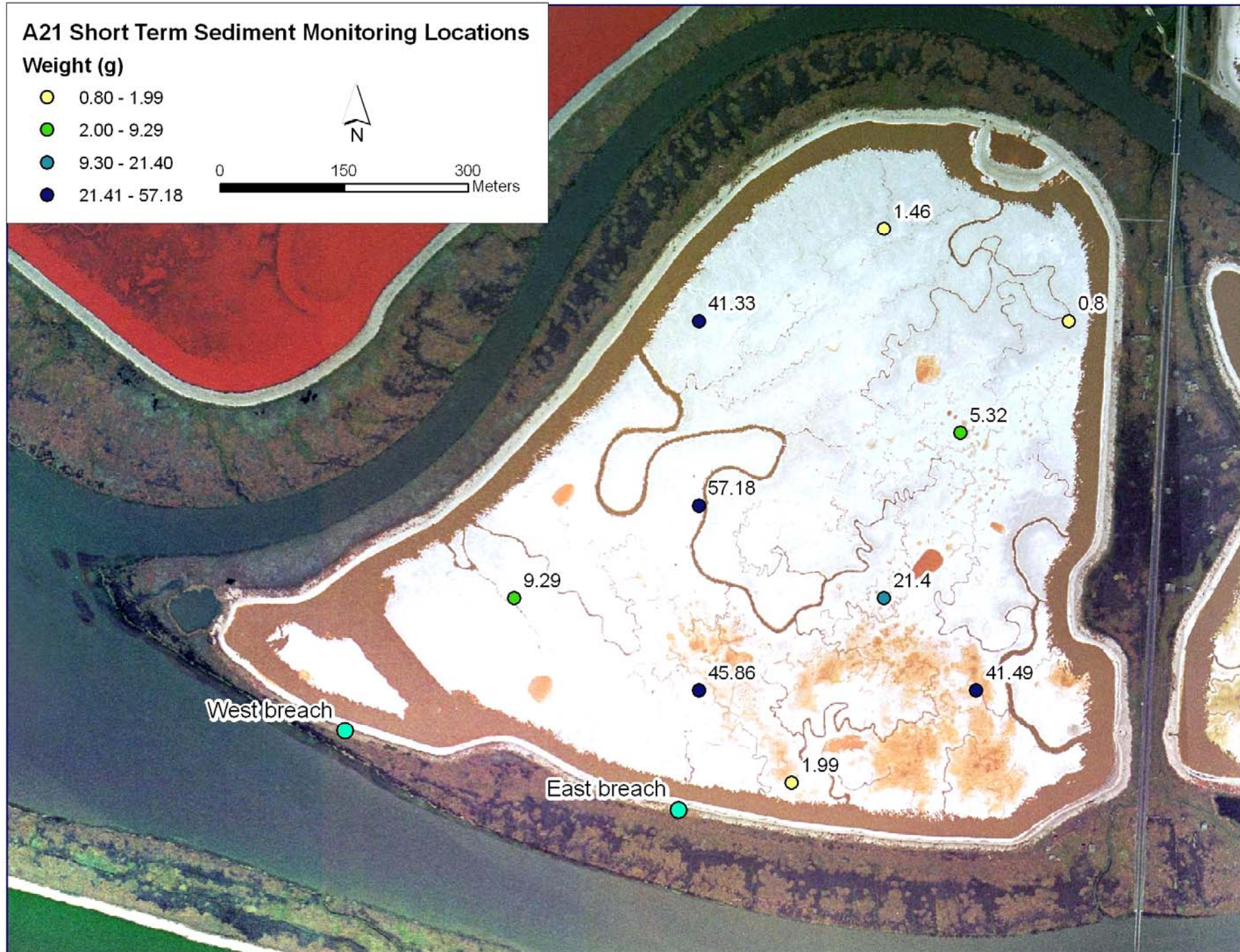
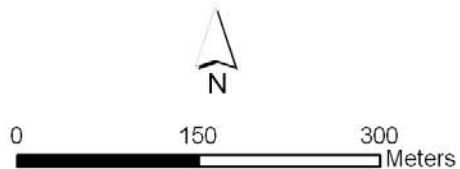




# A21 Short Term Sediment Monitoring Locations

## Weight (g)

- 0.80 - 1.99
- 2.00 - 9.29
- 9.30 - 21.40
- 21.41 - 57.18





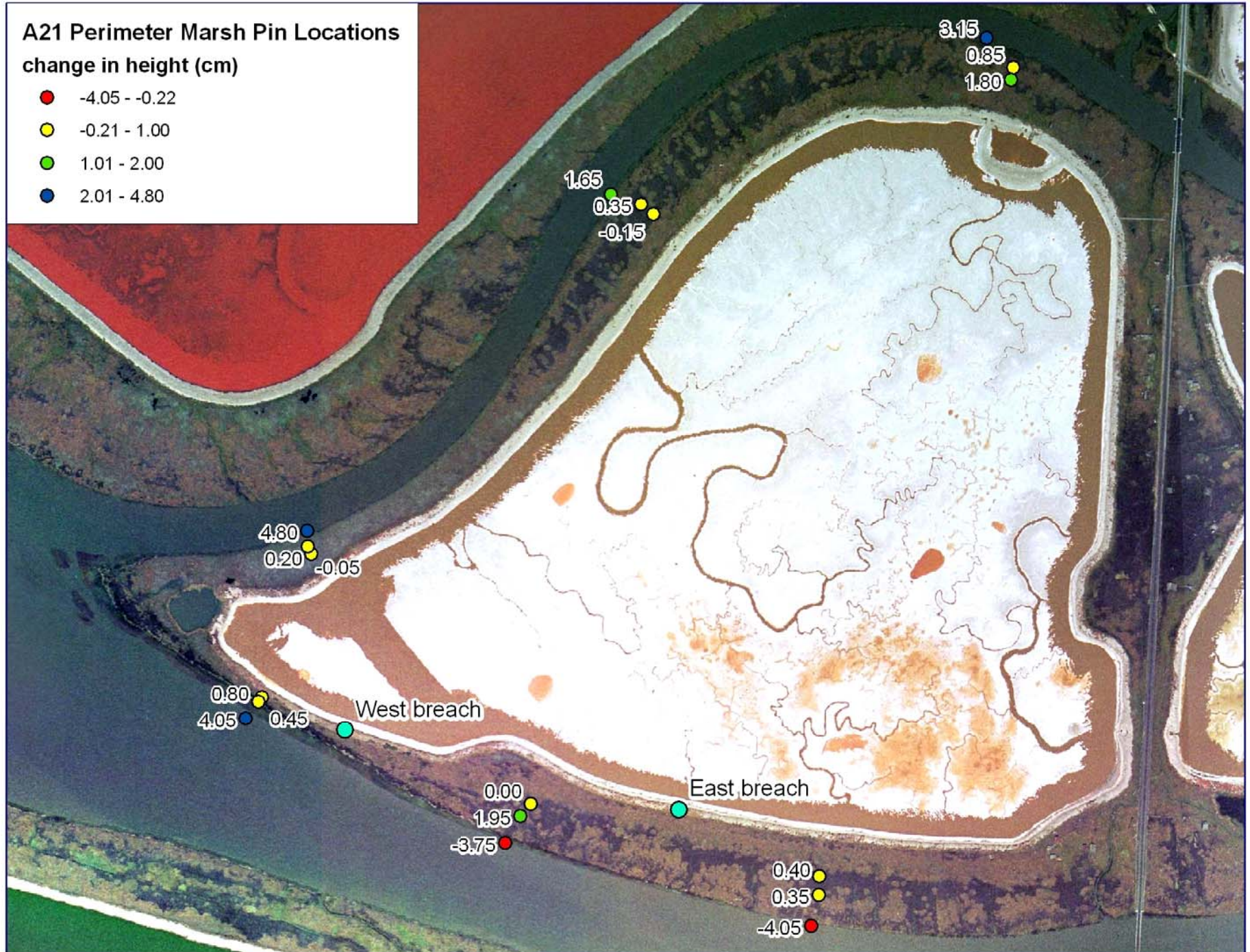






# A21 Perimeter Marsh Pin Locations change in height (cm)

- -4.05 - -0.22
- -0.21 - 1.00
- 1.01 - 2.00
- 2.01 - 4.80

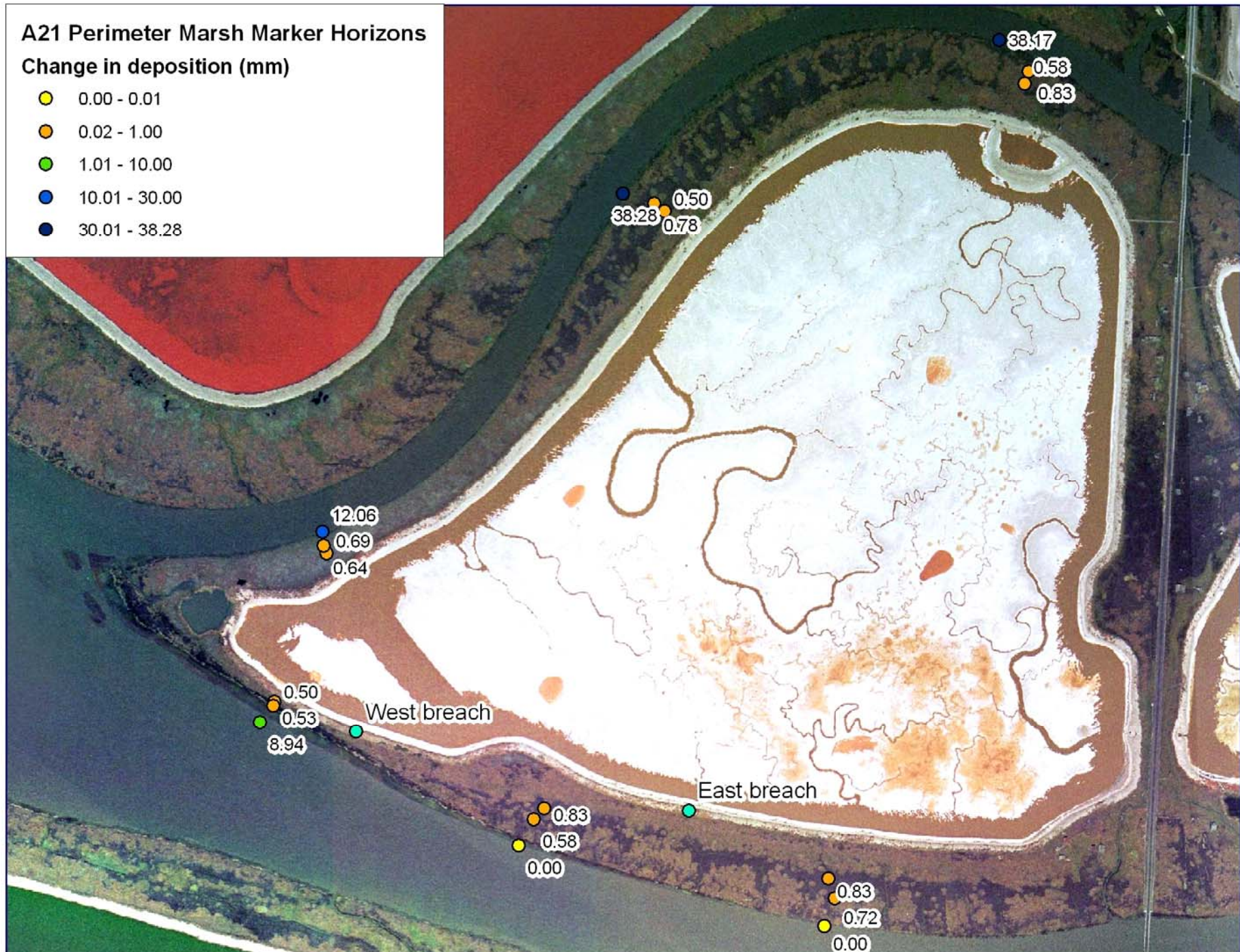




# A21 Perimeter Marsh Marker Horizons

## Change in deposition (mm)

- 0.00 - 0.01
- 0.02 - 1.00
- 1.01 - 10.00
- 10.01 - 30.00
- 30.01 - 38.28



# Summary

- Sedimentation rates in first month since breach have been highly variable across the site
- Very high rates in low areas within Pond A21
- Adjacent mudflats have been dynamic with some accretion and some erosion but no strong short-term signal
- Adjacent marshes are relatively stable with little accretion
- Results are PRELIMINARY



# Acknowledgments

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