

Peyton Slough Remediation Project

Managing for Changing Tides: Restoring a Tidal Marsh in an Urbanized



October 30, 2014



Presentation Contents

- **Constraints and Complications**
 - Existing Infrastructure
 - Flooding
 - Wildlife Needs
 - Permit Requirements
 - Tides
 - Rainfall/snow melt
 - Discharges/Runoff
 - Water Quality-Algae, DO
 - Invasive Plants
 - Neighboring Projects
 - Marsh Settlement
- **Adaptive Management Activities**
 - Changing Gate
 - Regrading
 - Planting
 - Erosion Protection
 - Power repair
 - Subsidence Fill
 - Build up levee road
 - Water level readings



BACKGROUND

Peyton Slough Site Contamination Addressed by Remediation



- Elevated Copper and Zinc in Slough Sediments
- Periodic Dredging
 - Side-cast piles
 - Contaminants also occur on Marsh Plain
- Prevent Re-contamination



Remediation – A Step-Wise Process



1. Excavate new slough using an already existing drainage
2. Remove Side-Case Dredge Piles
3. Cap Old Slough
4. Restore Disturbed Areas





CONSTRAINTS AND COMPLICATIONS

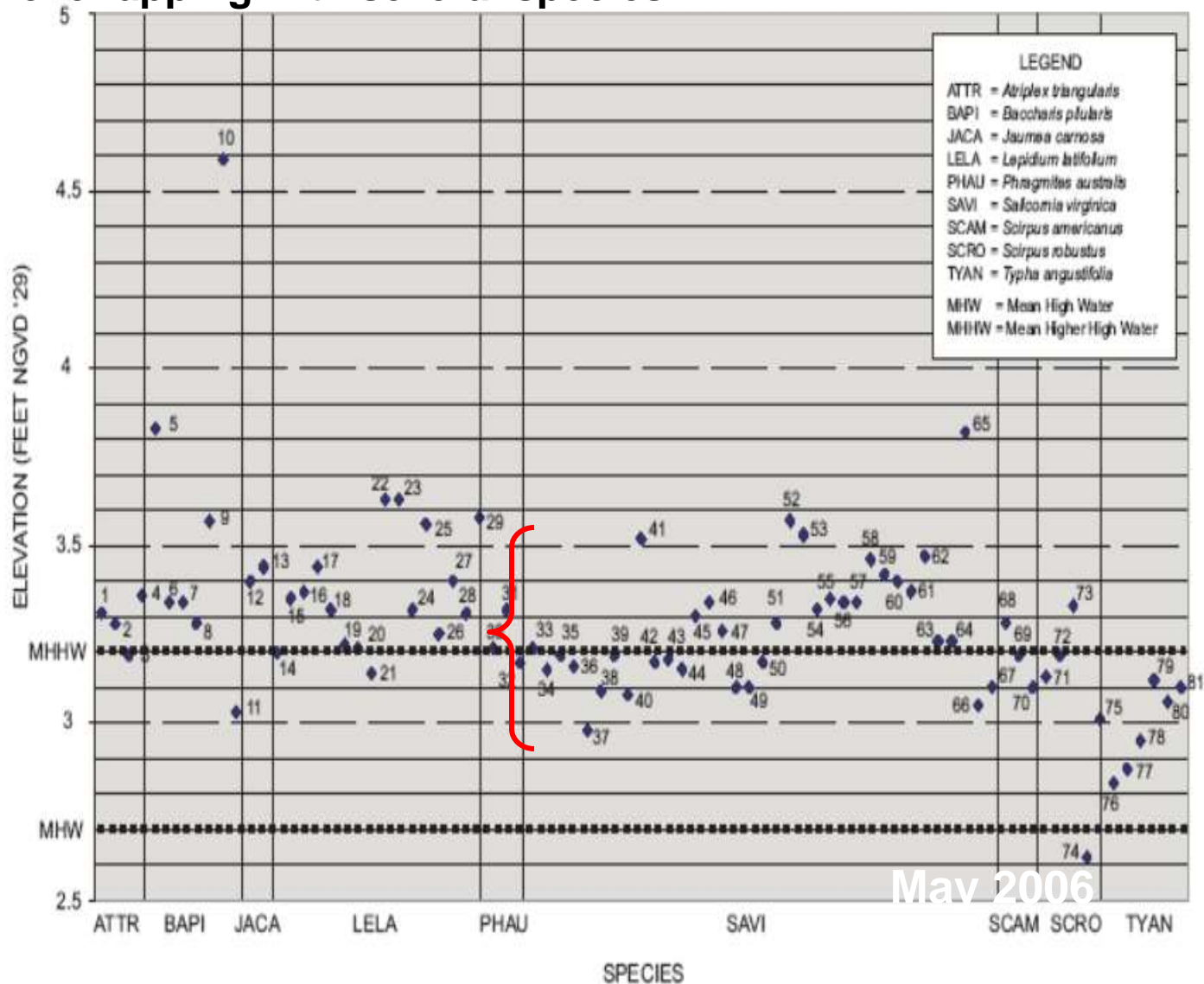
Regulatory Requirement – Grow Pickleweed



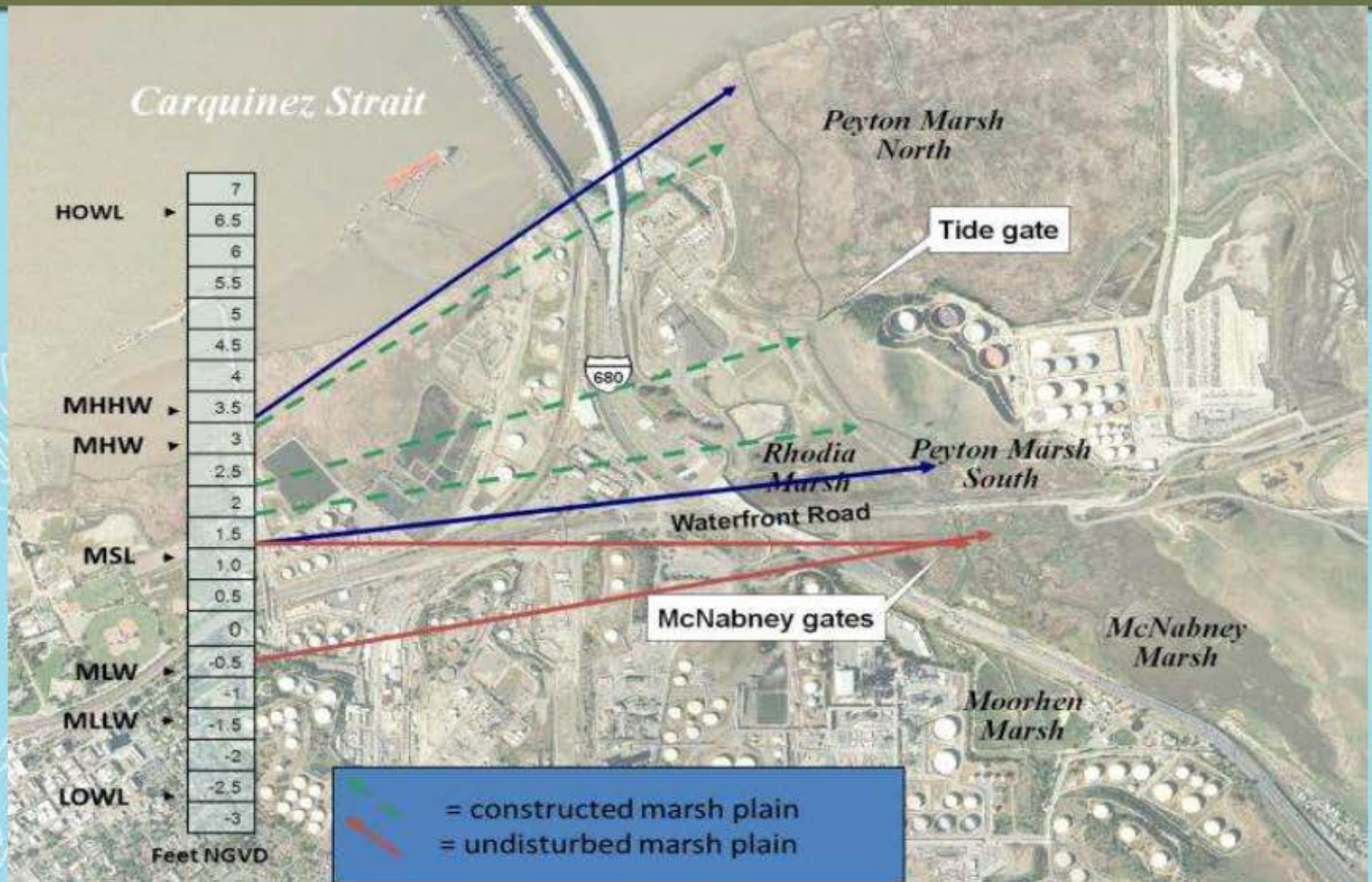
July 25, 2013

Growing Pickleweed

Pickleweed has elevation tolerance within 0.4 ft of MHHW, overlapping with several species

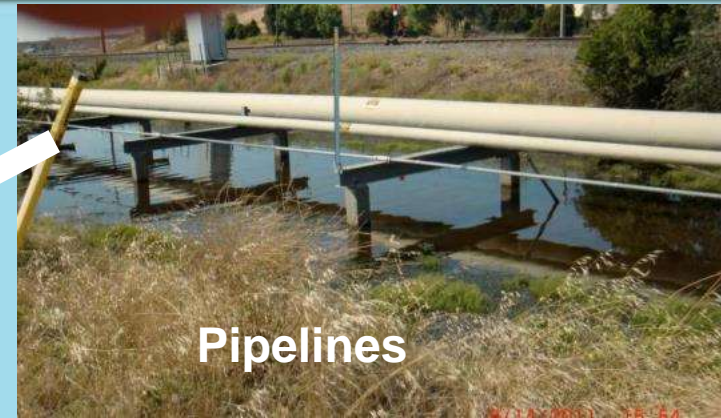


Factors influencing water level: Elevation



South Marsh/McNabney are lower elevation than North Marsh

Flooding



Discharges

- Watershed Runoff
- MVSD Discharges
- Shell Stormwater
- I-680 Runoff
- CCC Martinez Reservoir Discharges



Railroad Car Bridge Restriction



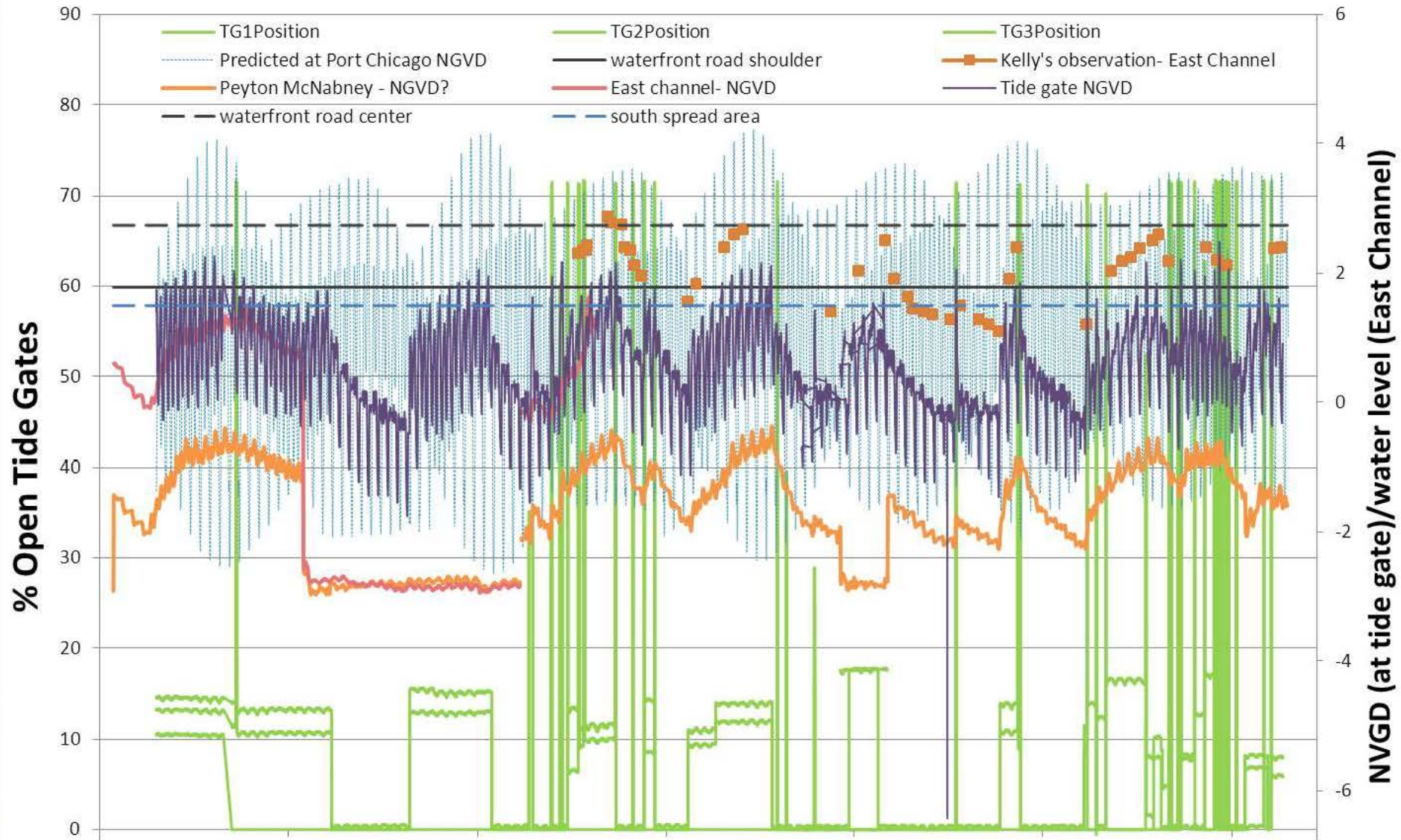
Algae





ADAPTIVE MANAGEMENT

Lots of Monitoring (and Modeling)



Adaptive Management

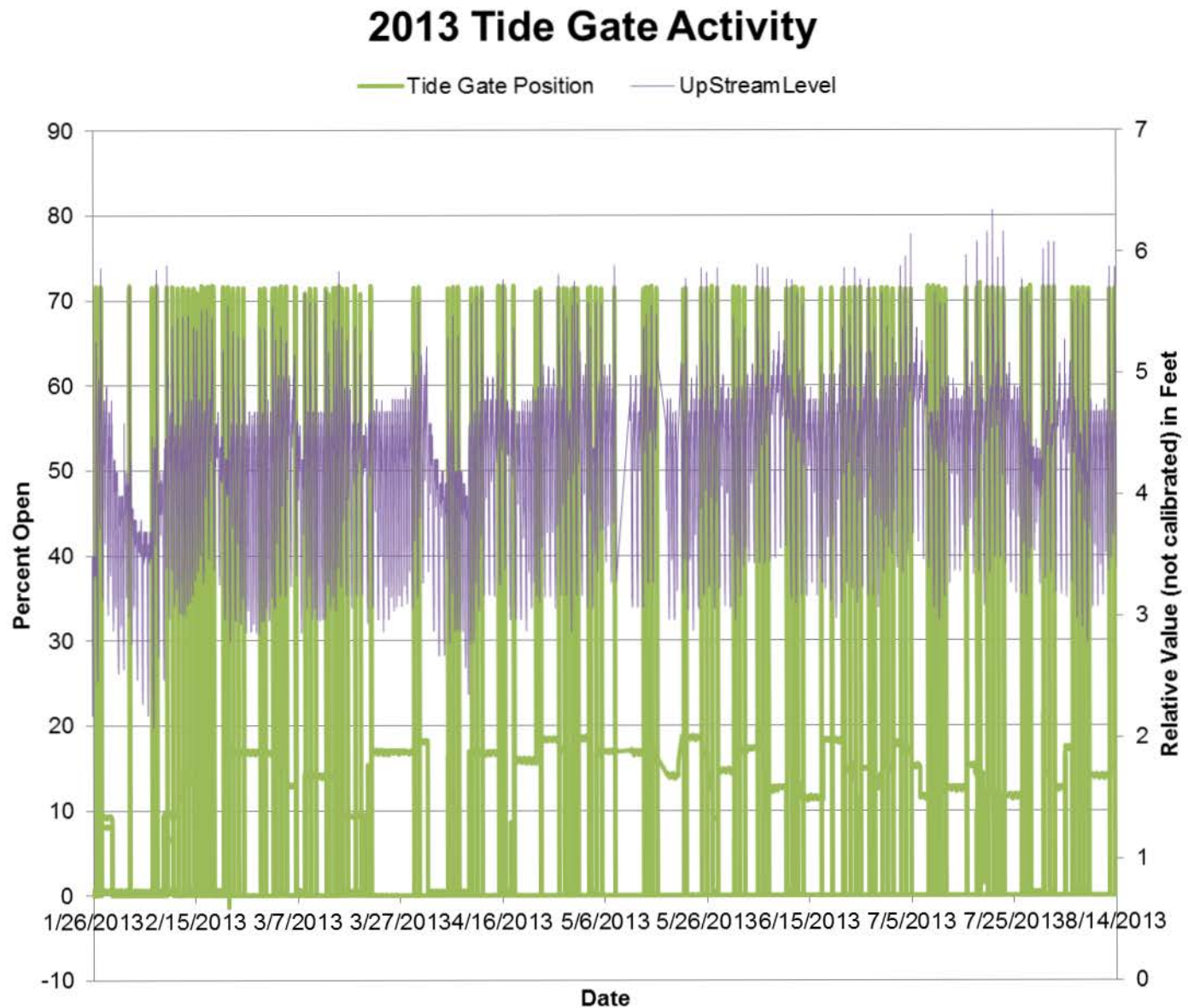
- Replacing tide gate
- Regrading
- Supplemental Planting
- Headcut Repairs
- Bulkhead Repair



Sept. 21, 2010



Change in Tide Gate Management



Bulkhead Erosion Repairs

Bulkhead erosion repair (3/07)

- Rock bags at bulkhead perimeter
- Emergent plant log rolls (200 LF) and clumps
- Redirect drainage, 60 LF ditch



Standing in eroded drainage



Stakeholder Involvement



California State
LANDS COMMISSION



PLAINS
ALL AMERICAN
PIPELINE



URS



Managing a Marsh in 10 (Not So Easy) Steps

1. Follow the Tides
2. Know Your Marsh Plain Elevation
3. Monitor Water Levels
4. Make Friends with Your Neighbors
5. Build the Appropriate Gate Structure
6. Consider Circulation
7. Know the Dischargers Upstream
8. Monitor the Plants and Wildlife
9. Be Adaptable
10. Never Stop Learning

Thank you

