

A Red-tailed Hawk is perched on a dark, rusty metal beam in the foreground. The hawk has a white chest with brown speckles and a brown head with a sharp beak. In the background, a large construction site is visible, featuring a crane, various pieces of equipment, and a fenced-in area. Beyond the construction site is a body of water, likely the ocean, under a clear blue sky. The overall scene suggests a coastal restoration project.

# BOLSA CHICA

Lowlands Restoration Project

BY Moffatt & Nichol, the USFWS, and Merkel & Assoc





**As The Result Of Being Isolated From Ocean Tides For 100 Years, And Oil Field Operations For 50 Years -**

**The Site Suffered From:**

- **Habitat Degradation And**
- **Declination Of Endangered Species**





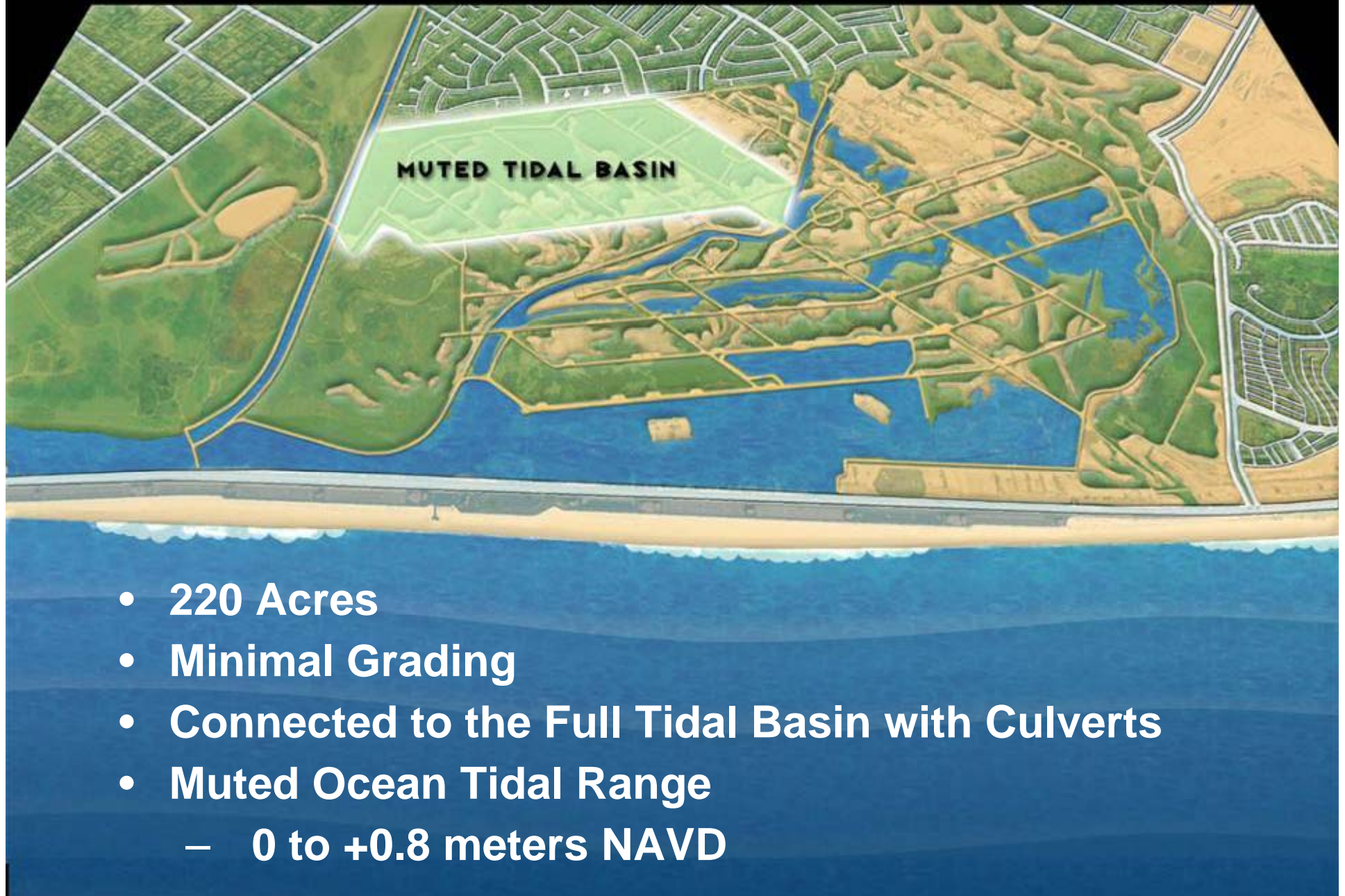
# BOLSA CHICA LOWLANDS RESTORATION



- **366 Acres**
  - Subtidal- 175 acres
  - Intertidal Habitat-122 acres
  - Low Saltmarsh- 50 acres
  - Mid-High Saltmarsh- 19 acres
- **Connected to the Sea with a New Inlet**



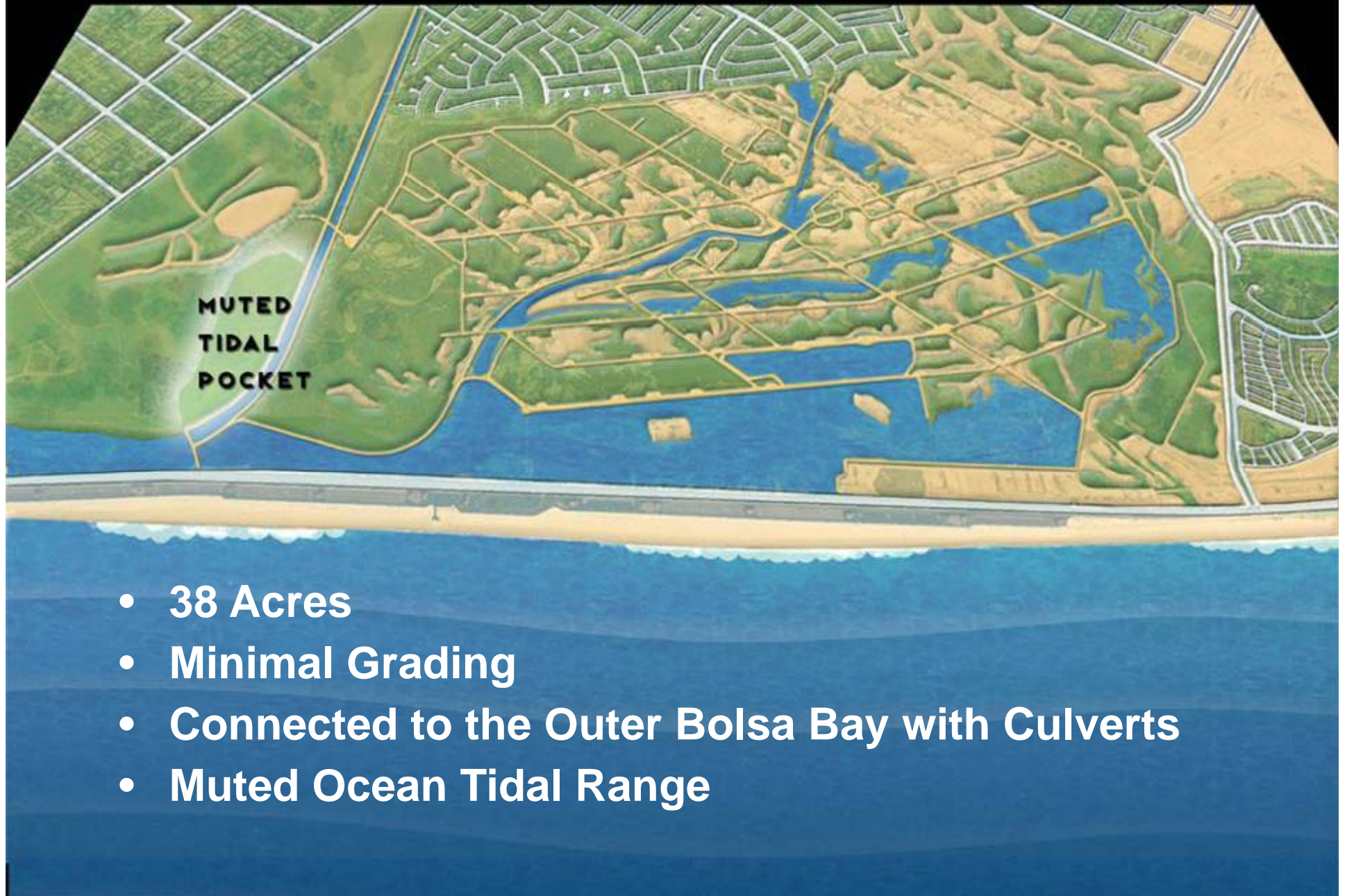
# BOLSA CHICA LOWLANDS RESTORATION



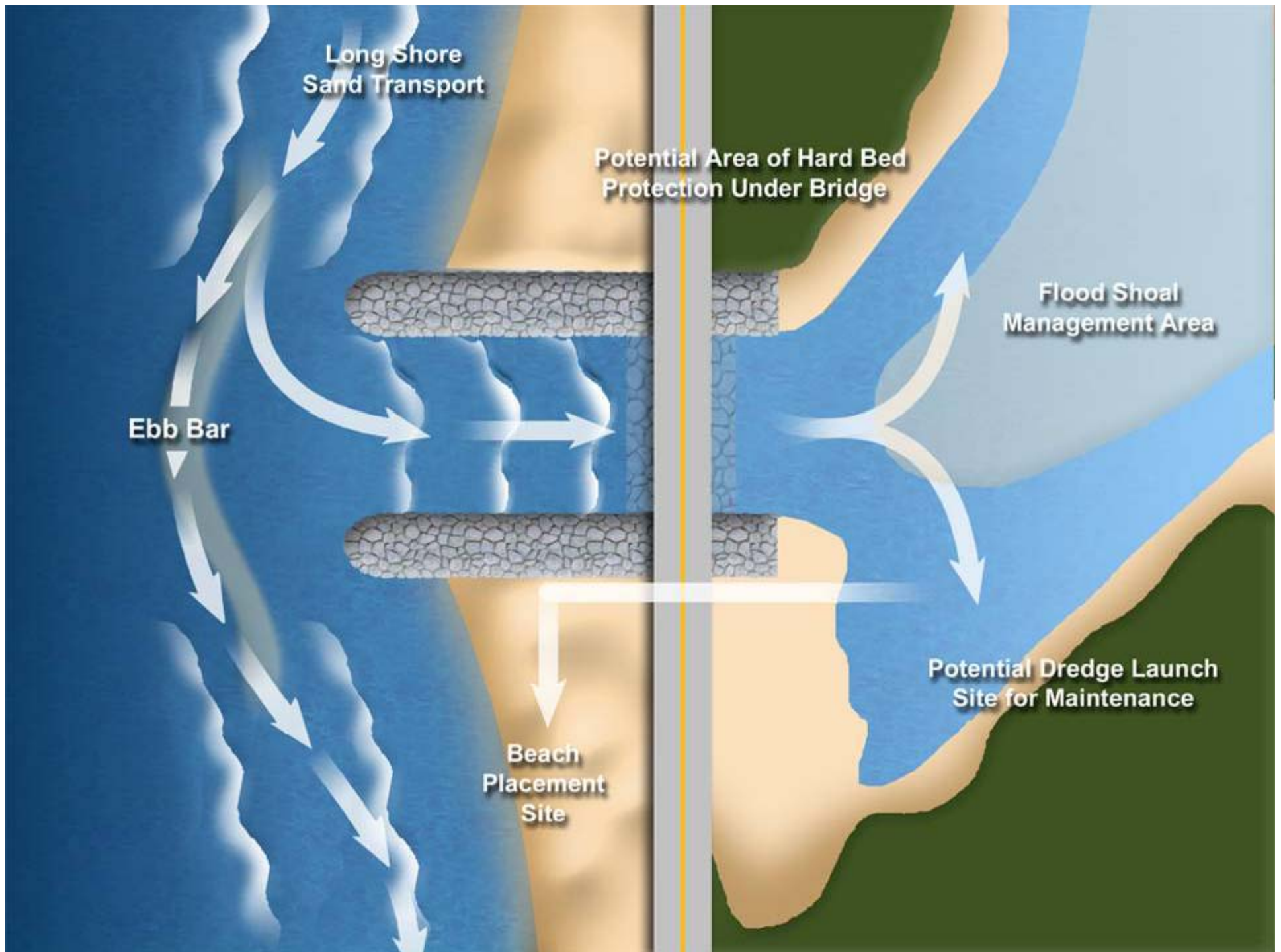
- 220 Acres
- Minimal Grading
- Connected to the Full Tidal Basin with Culverts
- Muted Ocean Tidal Range
  - 0 to +0.8 meters NAVD



## BOLSA CHICA LOWLANDS RESTORATION



- 38 Acres
- Minimal Grading
- Connected to the Outer Bolsa Bay with Culverts
- Muted Ocean Tidal Range





















# Dewatering Discharge and Stoic Birds





# Contamination Clean-Up













# Water Control Weir Constructed









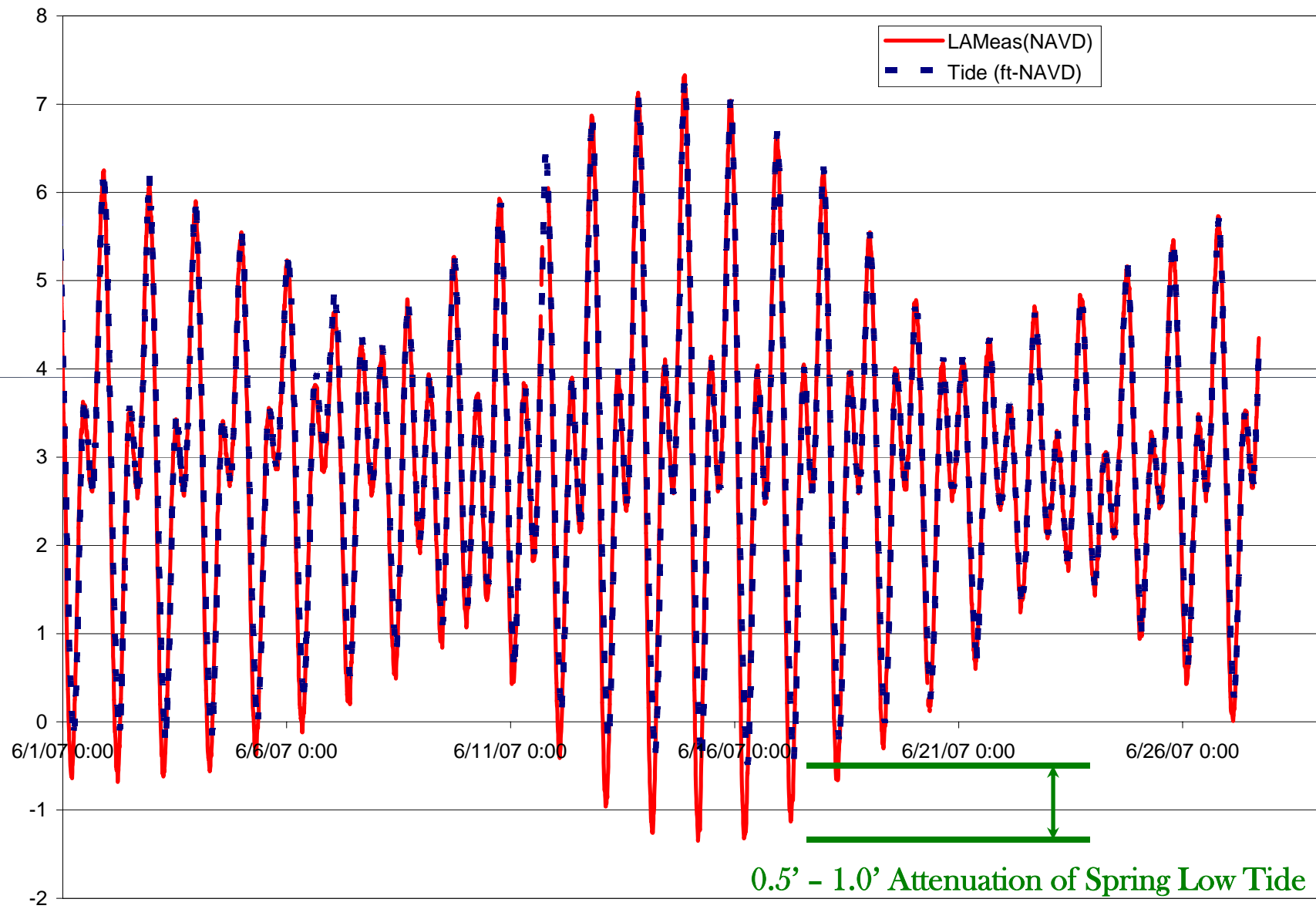














+ 140,000 yd<sup>3</sup>

June 2007

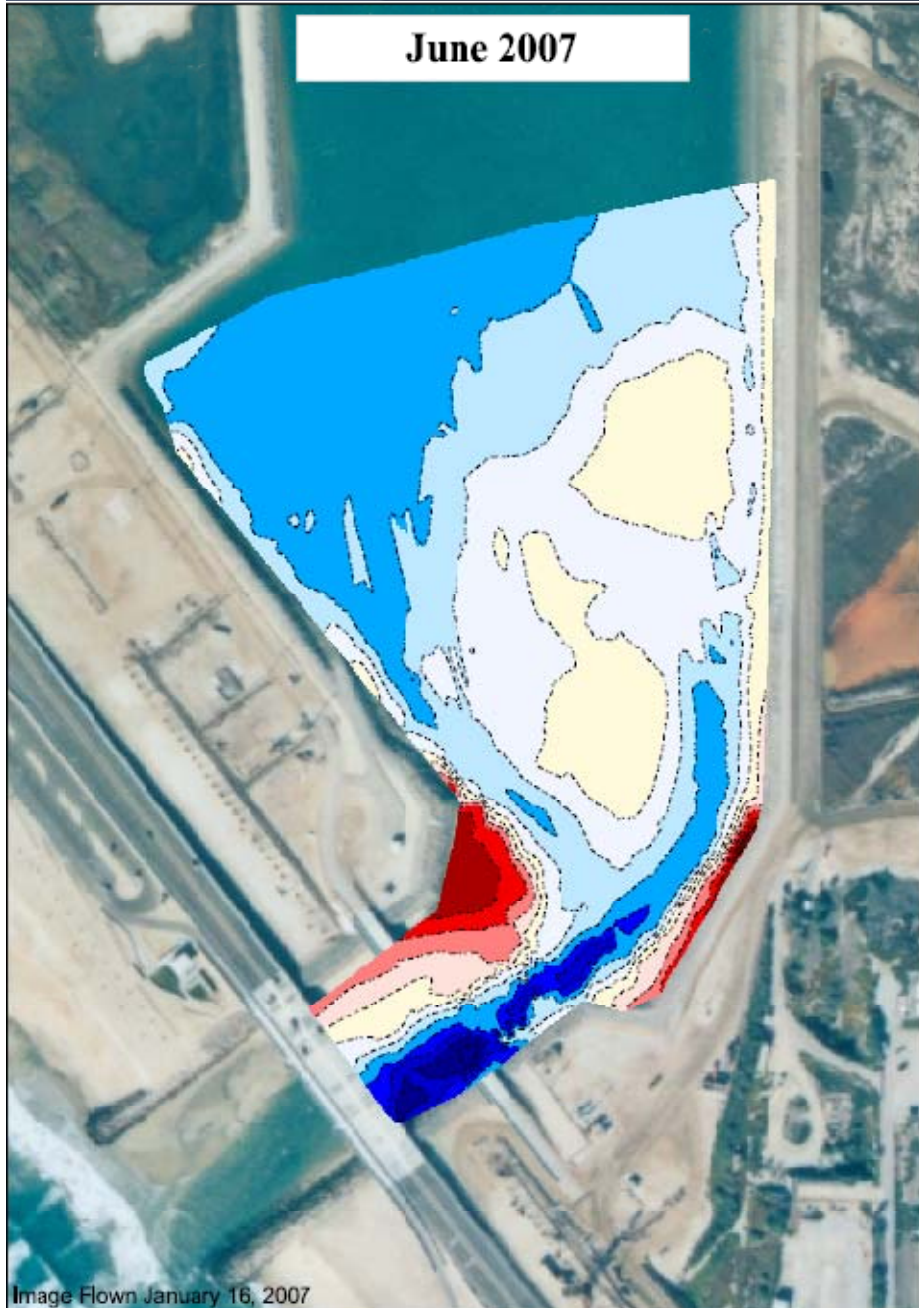
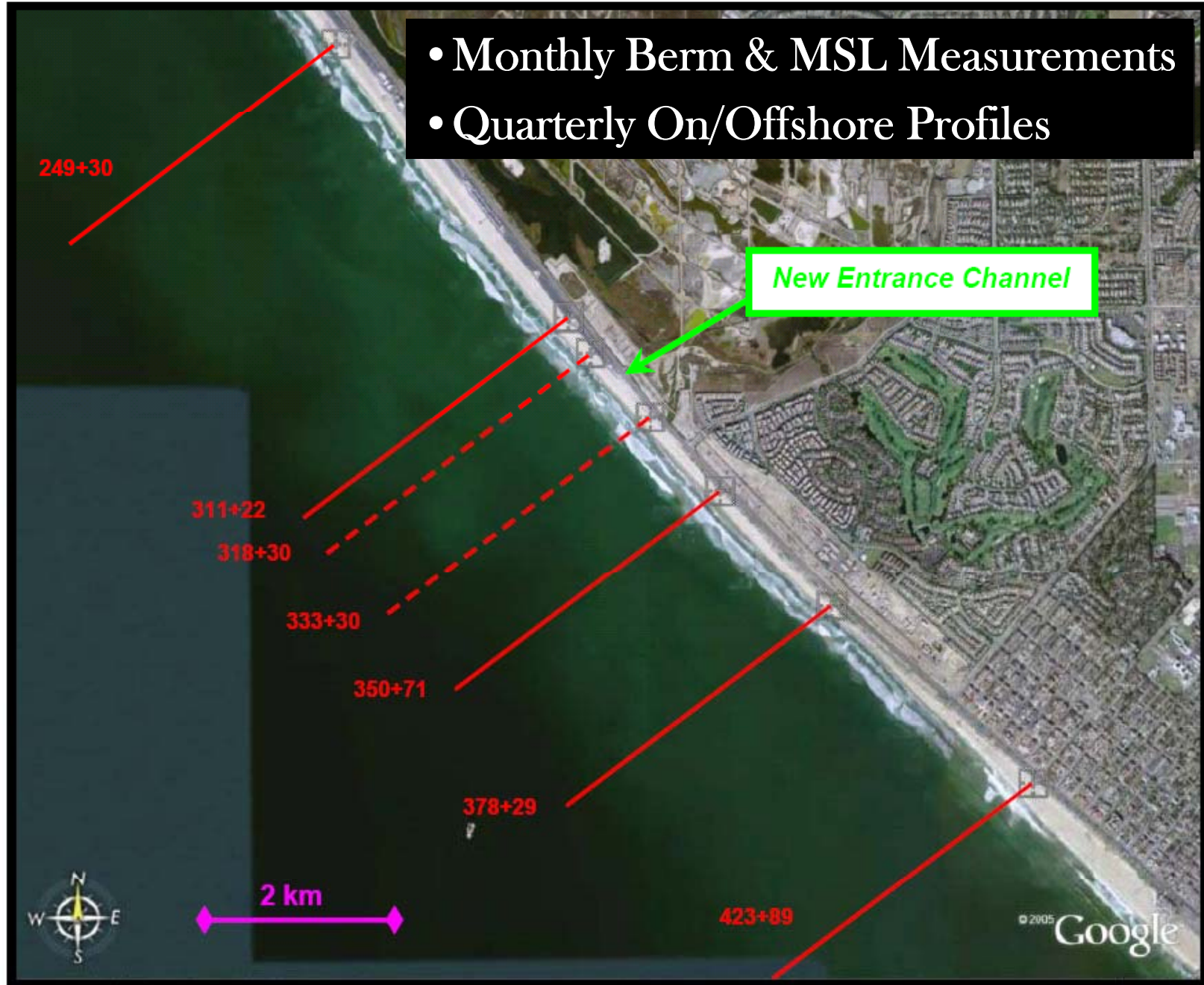


Image Flown January 16, 2007

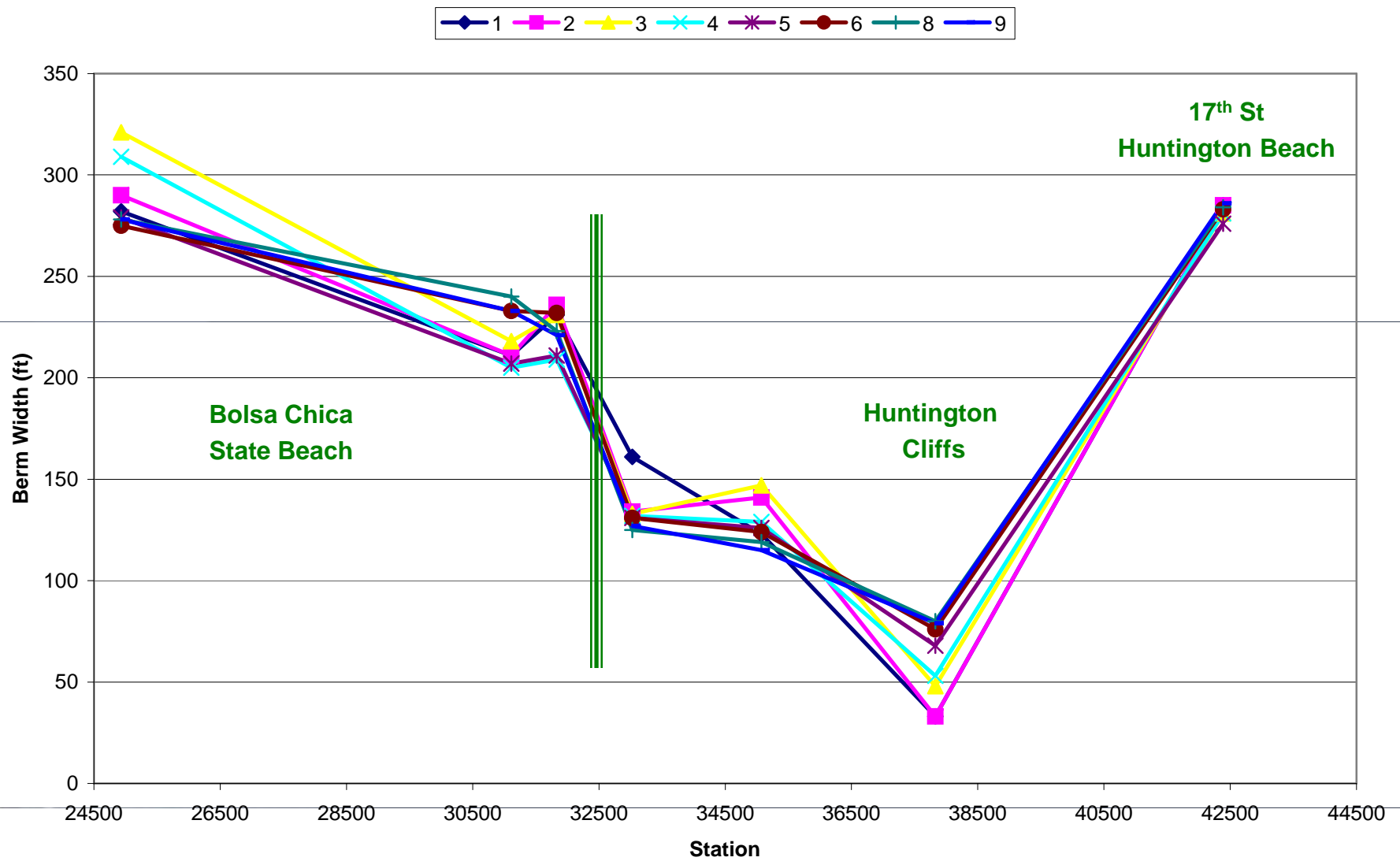


- Monthly Berm & MSL Measurements
- Quarterly On/Offshore Profiles





### Berm Width



# *SUMMARY*

- **OVERALL**
  - Project successfully installed and is being monitored for function and maintenance needs
  - CDFG is site caretaker, while State Lands is owner and monitor
- **TIDAL BASIN HYDROLOGIC FUNCTION**
  - Successful, with minor tidal attenuation and short time lag.
- **HABITAT SUPPORT**
  - Critical hydrodynamics to support habitat achieved without negative physical impacts
  - Muted tidal basin yet to be opened (oil co delay)
- **FLOOD SHOAL**
  - Shoaling is occurring as predicted
  - Maintenance dredging to occur likely in 2008 or 2009
- **BEACH**
  - Equilibrating near inlet
  - 'Erosion trend not apparent