



South Bay Salt Pond Restoration Project

Restoring the Wild Heart of the South Bay



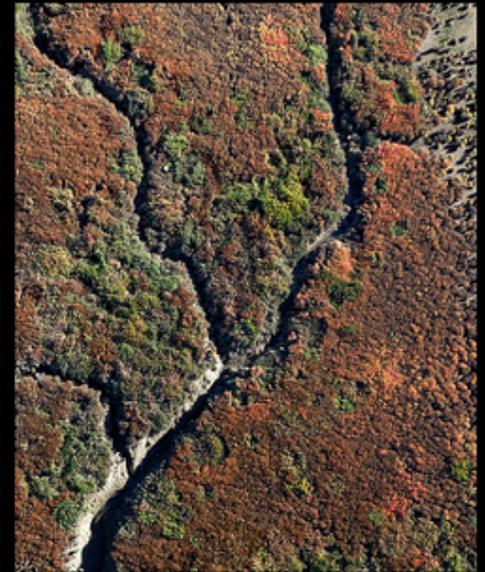
April 2008



September 2009



May 2010



October 2010

SALT POND A21 SOUTH BAY SALT POND RESTORATION PROJECT

Kite aerial photographs of a small channel in the northeast corner following the 2006 breach to tidal flow. Field of view is ~ 120 feet. . C. Benton

**John Bourgeois, Executive Project Manager
South Bay Salt Pond Restoration Project**



2003 Transfer: A Public/Private Partnership

16,500 acres

15,100 in South Bay

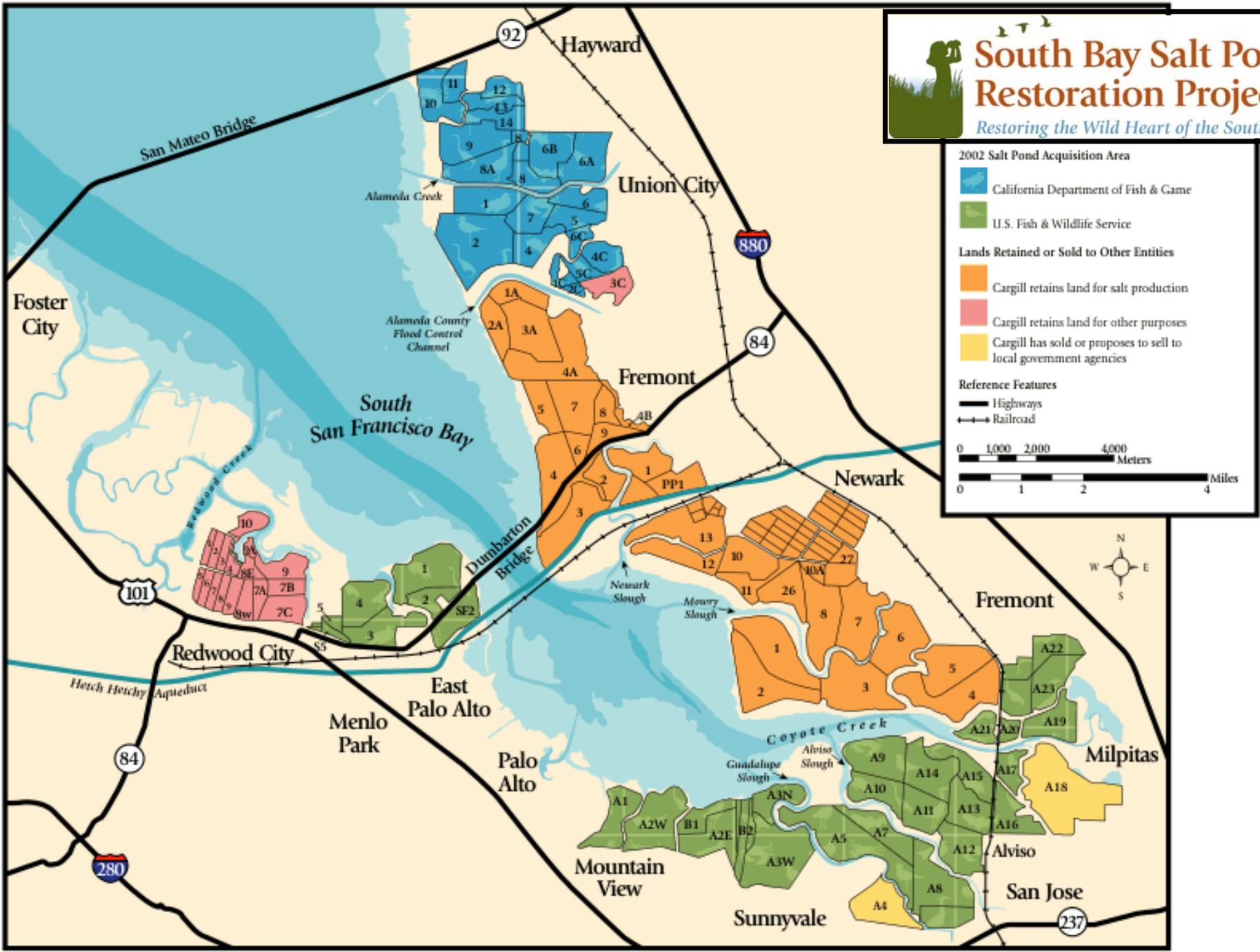
1,400 along Napa River





South Bay Salt Pond Restoration Project

Restoring the Wild Heart of the South Bay



Project Goals:

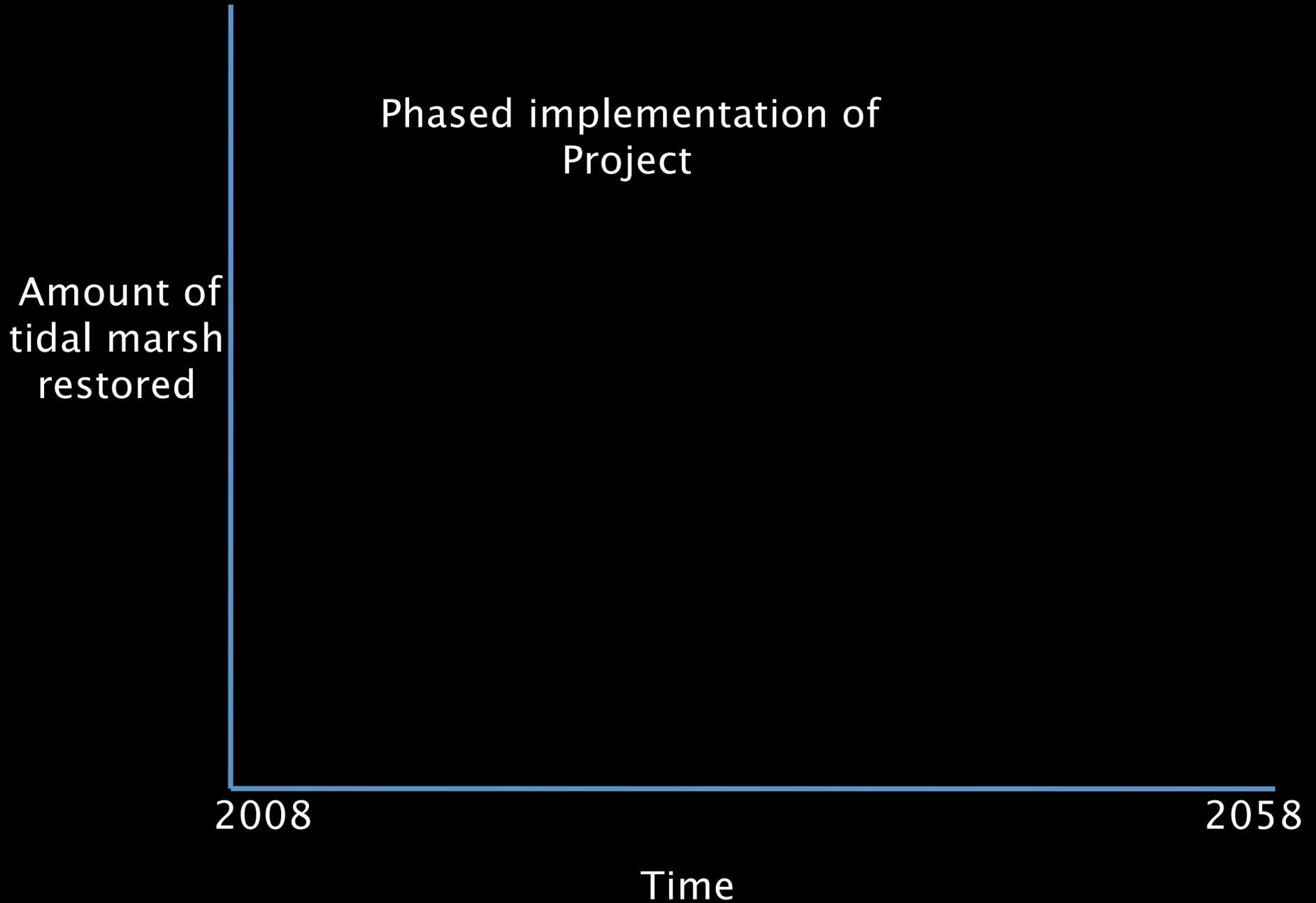
Habitat Restoration

Public Access and Recreation

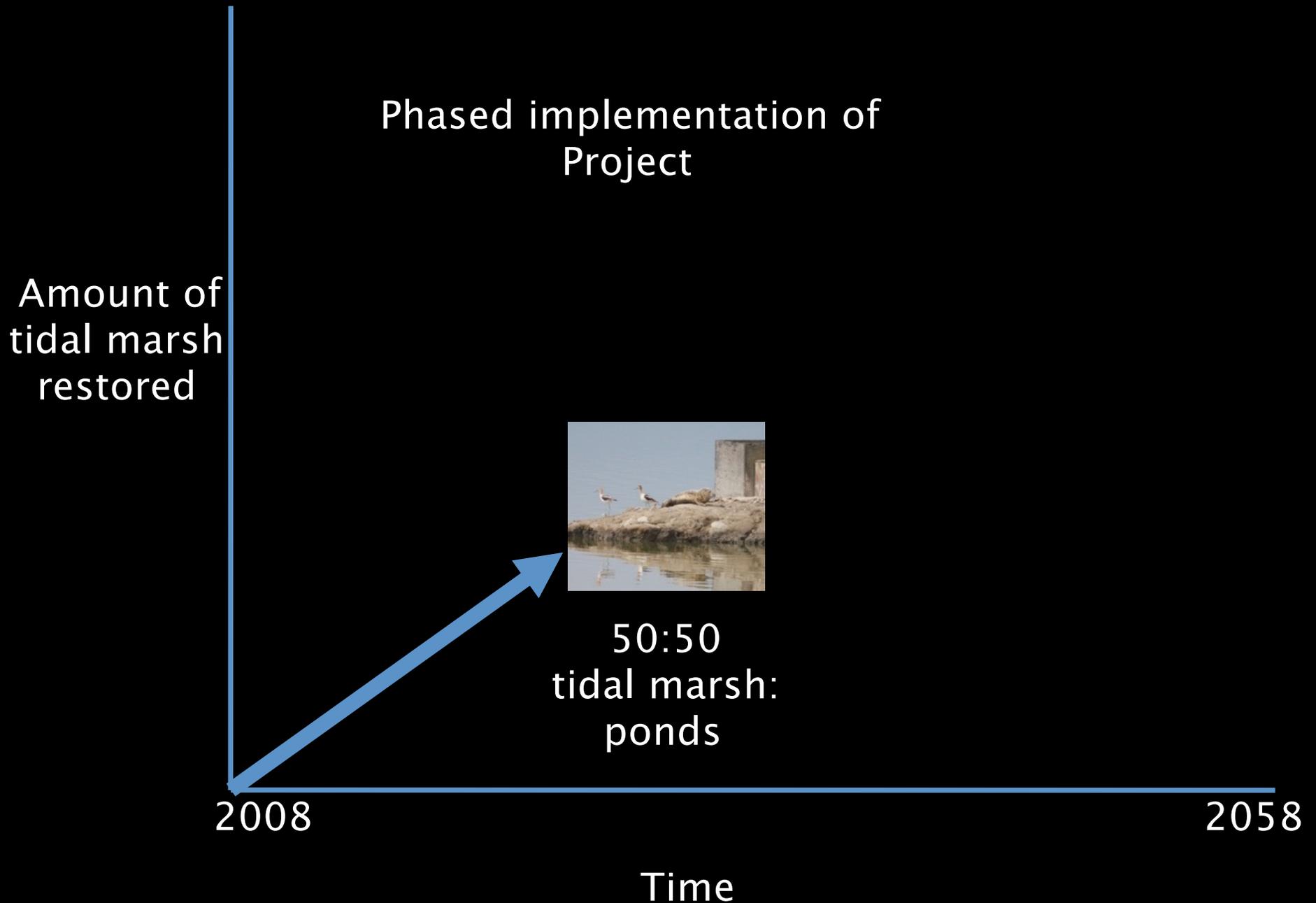
Flood Risk Reduction



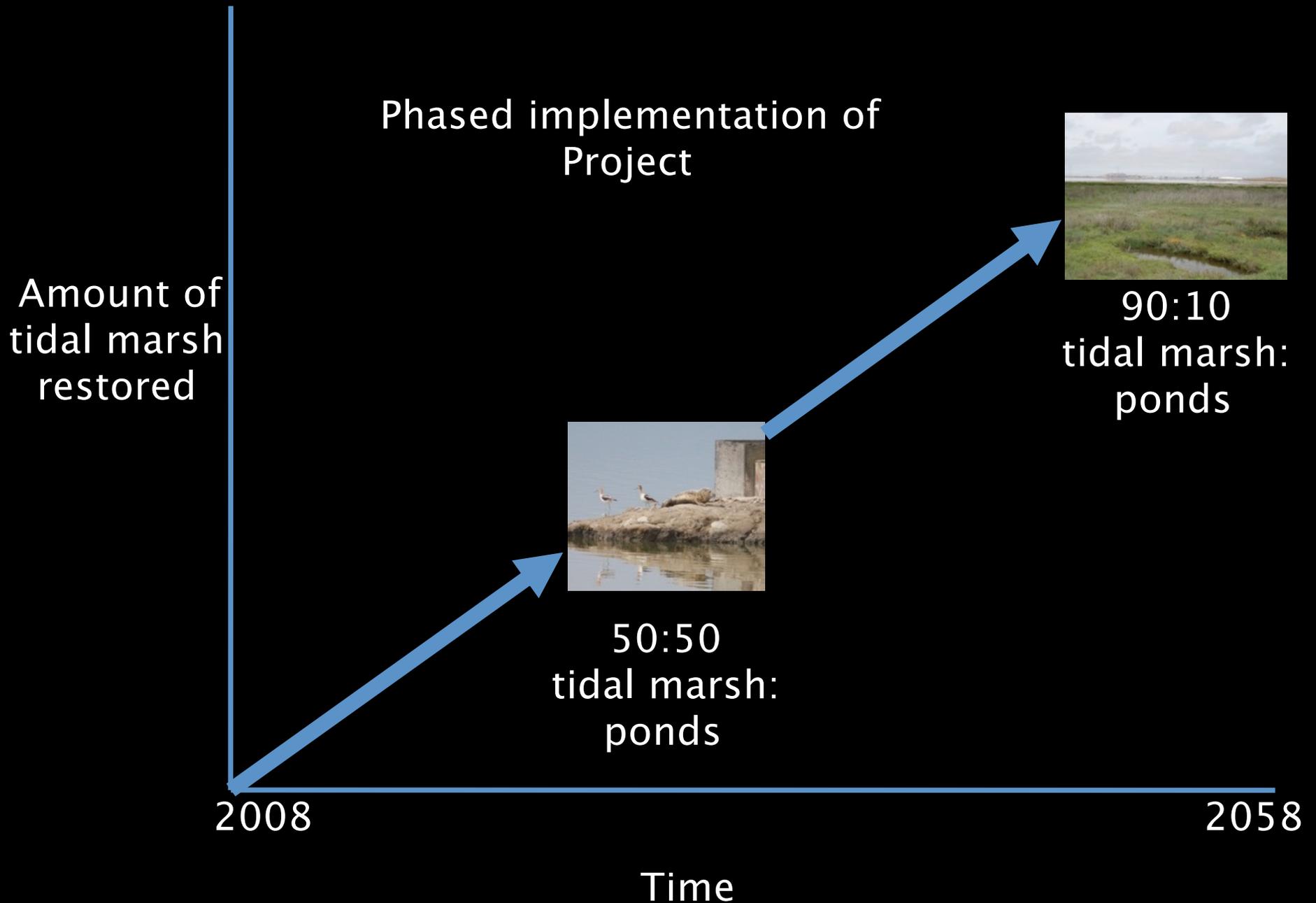
Adaptive Management Restoration



Adaptive Management Restoration



Adaptive Management Restoration

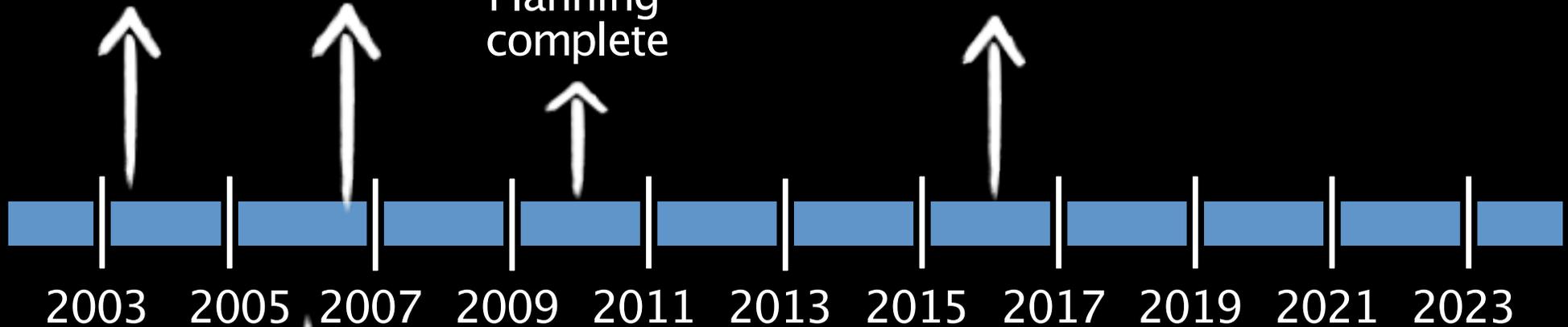


15,100 acres
acquired
from Cargill

1st
Restored
Ponds!

Phase 1
Planning
complete

Phase 1
complete



2003

2005

2007

2009

2011

2013

2015

2017

2019

2021

2023

Initial
Stewardship
Plan

Phase 1
construction
begins

Restored to Date

Tidal: 1,600 ac

Muted Tidal: 1,440 ac

Reconfigured Ponds: 710 ac

Total: 3,750 ac

New Trails: 7 miles

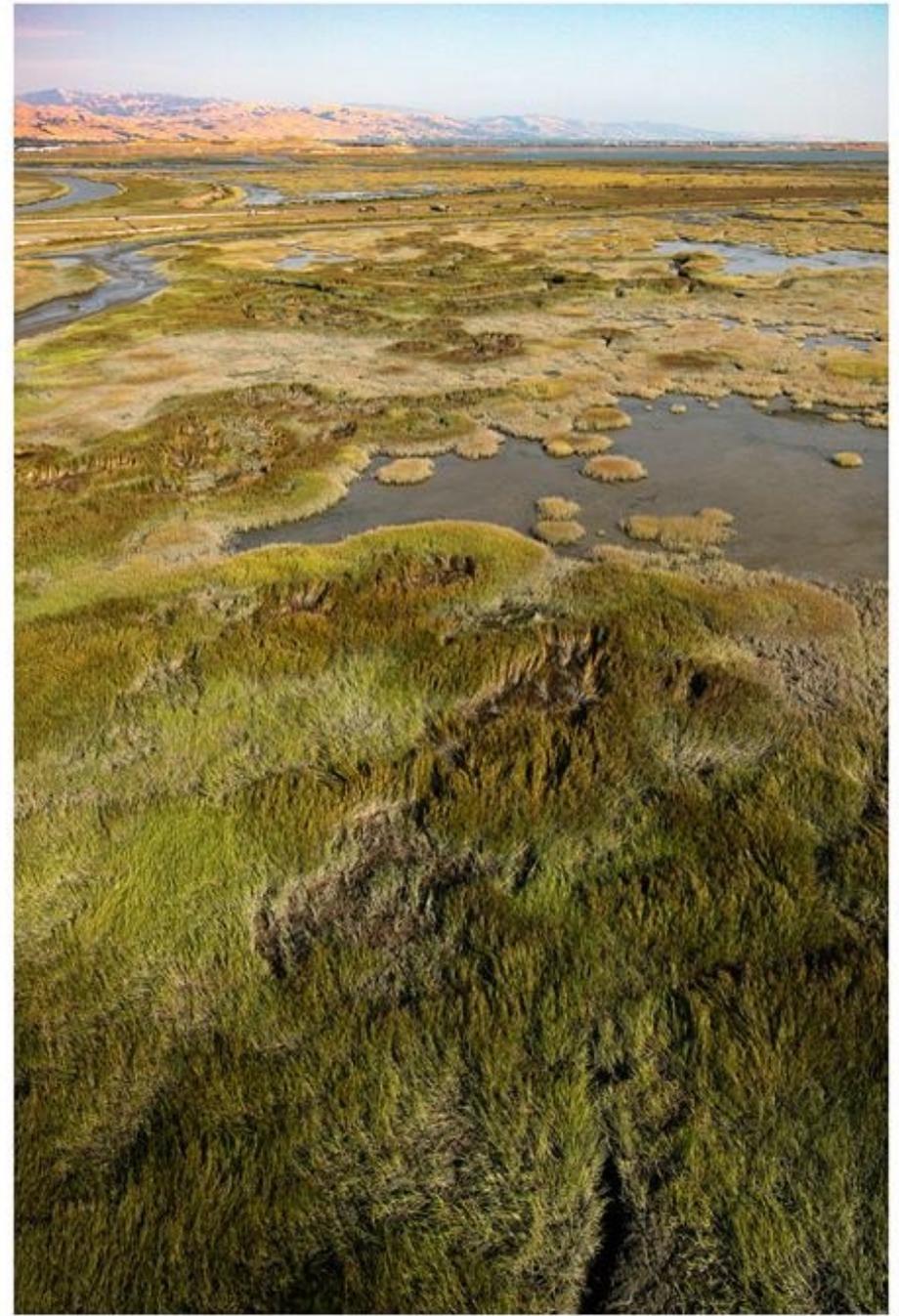


1,600 acres tidal restoration
1,440 acres muted tidal

(Mercury report coming soon!)



September 2009



August 2017

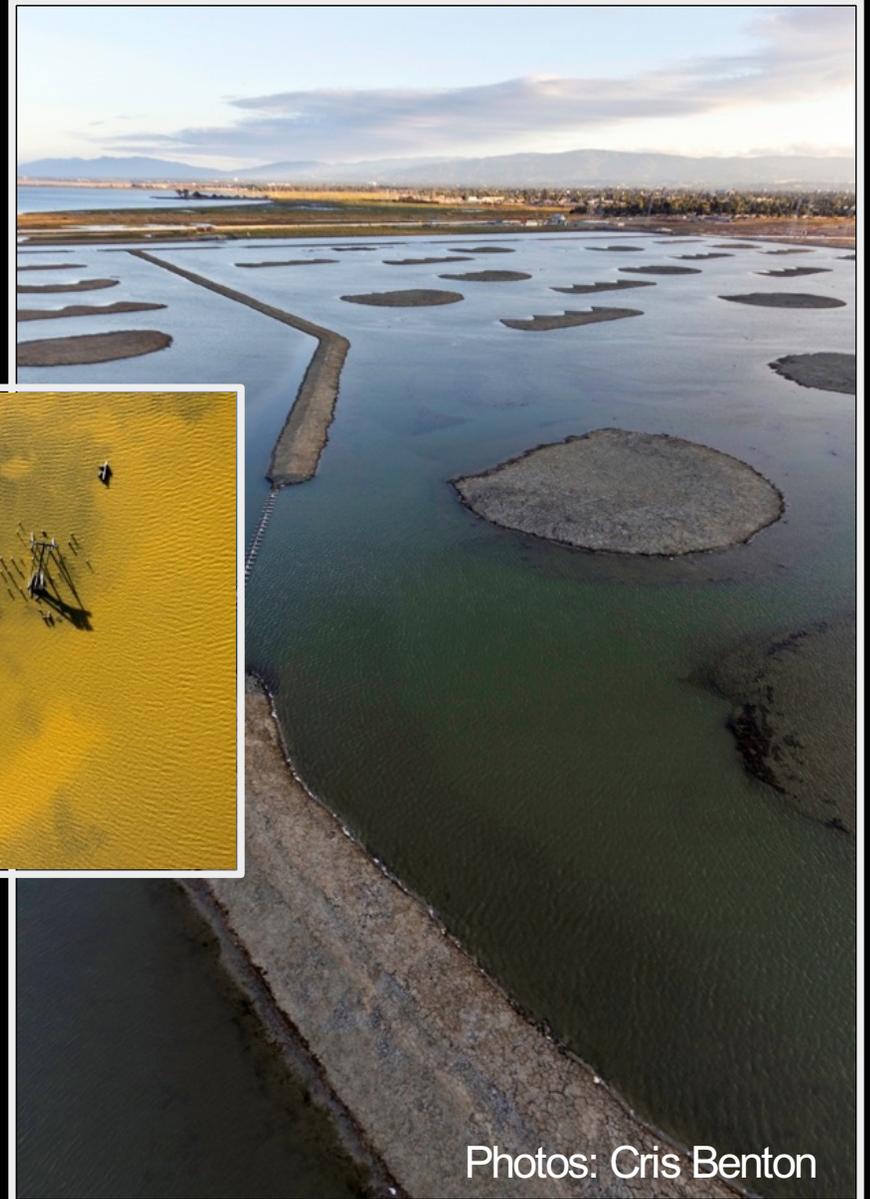
Salt Pond A21, Don Edwards San Francisco Bay National Wildlife Refuge

C. Benton

Restored ponds are now home to reproducing endangered species, after less than a decade



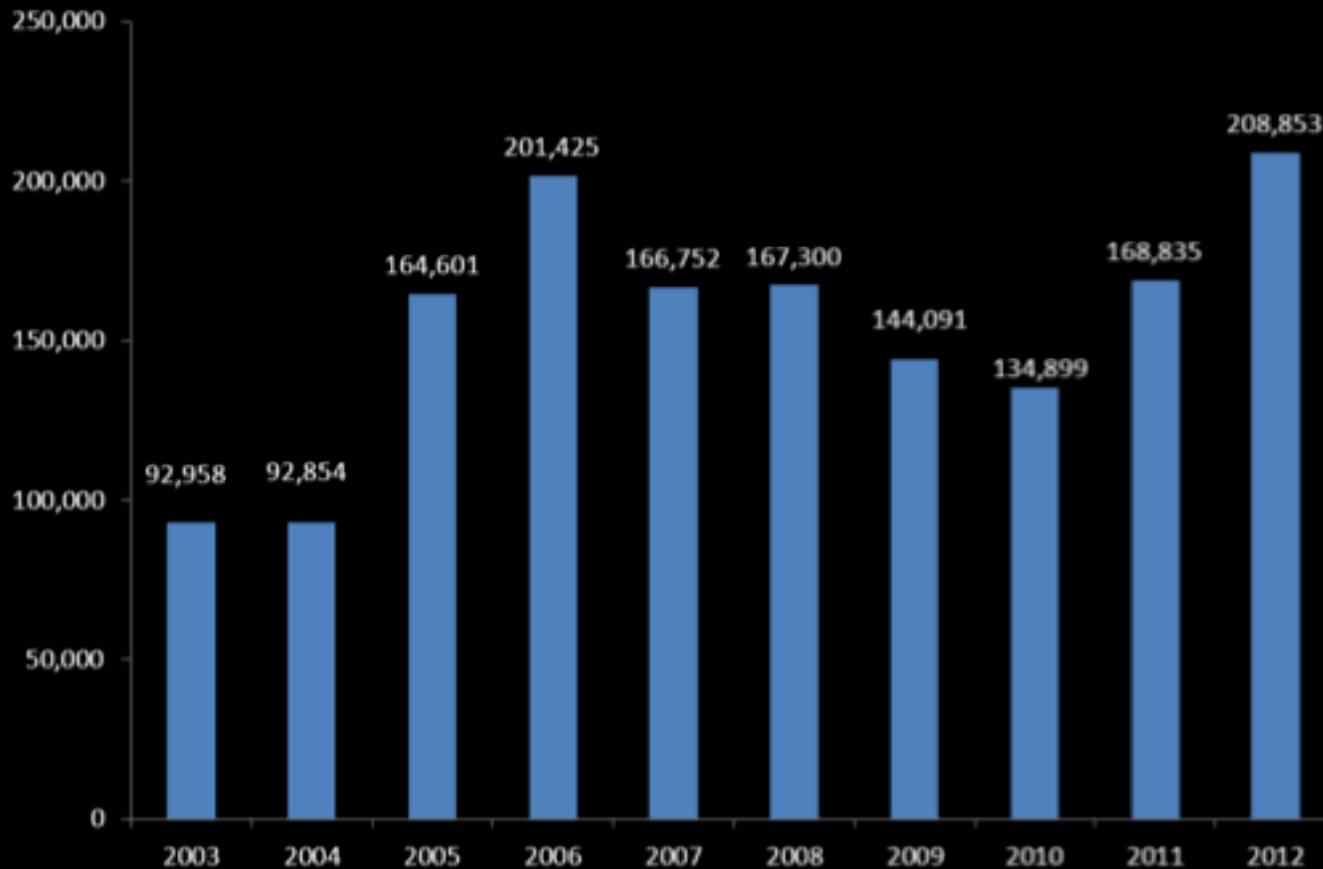
710 acres reconfigured ponds



Photos: Cris Benton

Waterbird Abundance

Mean Total Birds During Winter



Birds increased 24% from Winter 2011 to 2012
Birds increased 125% from Winter 2003 to 2012



**Protected species
are responding!**



Photo credit: Jenny Erbes



7 miles of new trails



Photos: Judy Irving - Pelican Media

Public Access Features: Kayak Launch & Saltworks Boardwalk



Eden Landing Bay Trail
improvements recently featured on
Open Road with Doug McConnell.





April 2008

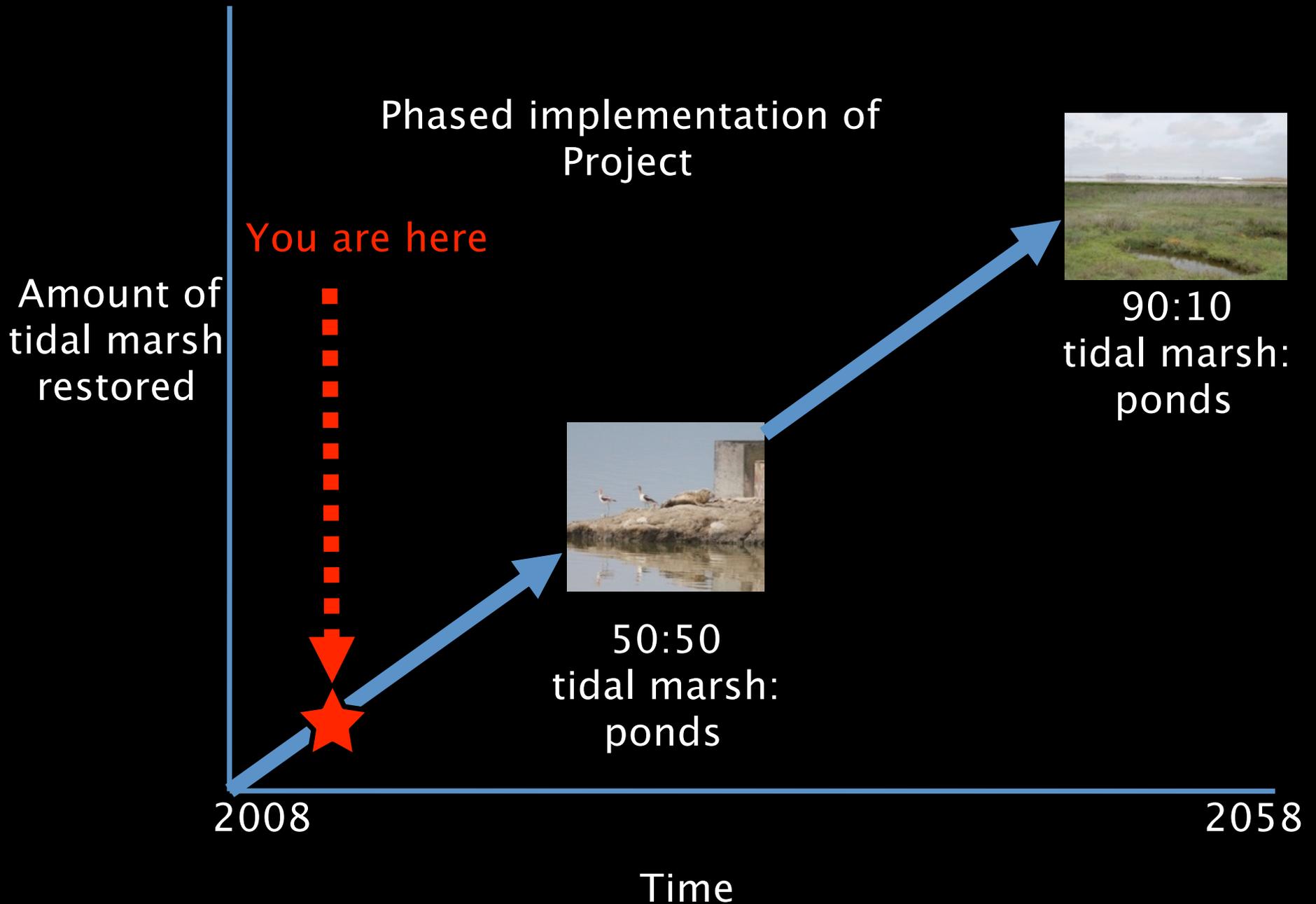


September 2009

Salt Pond A21

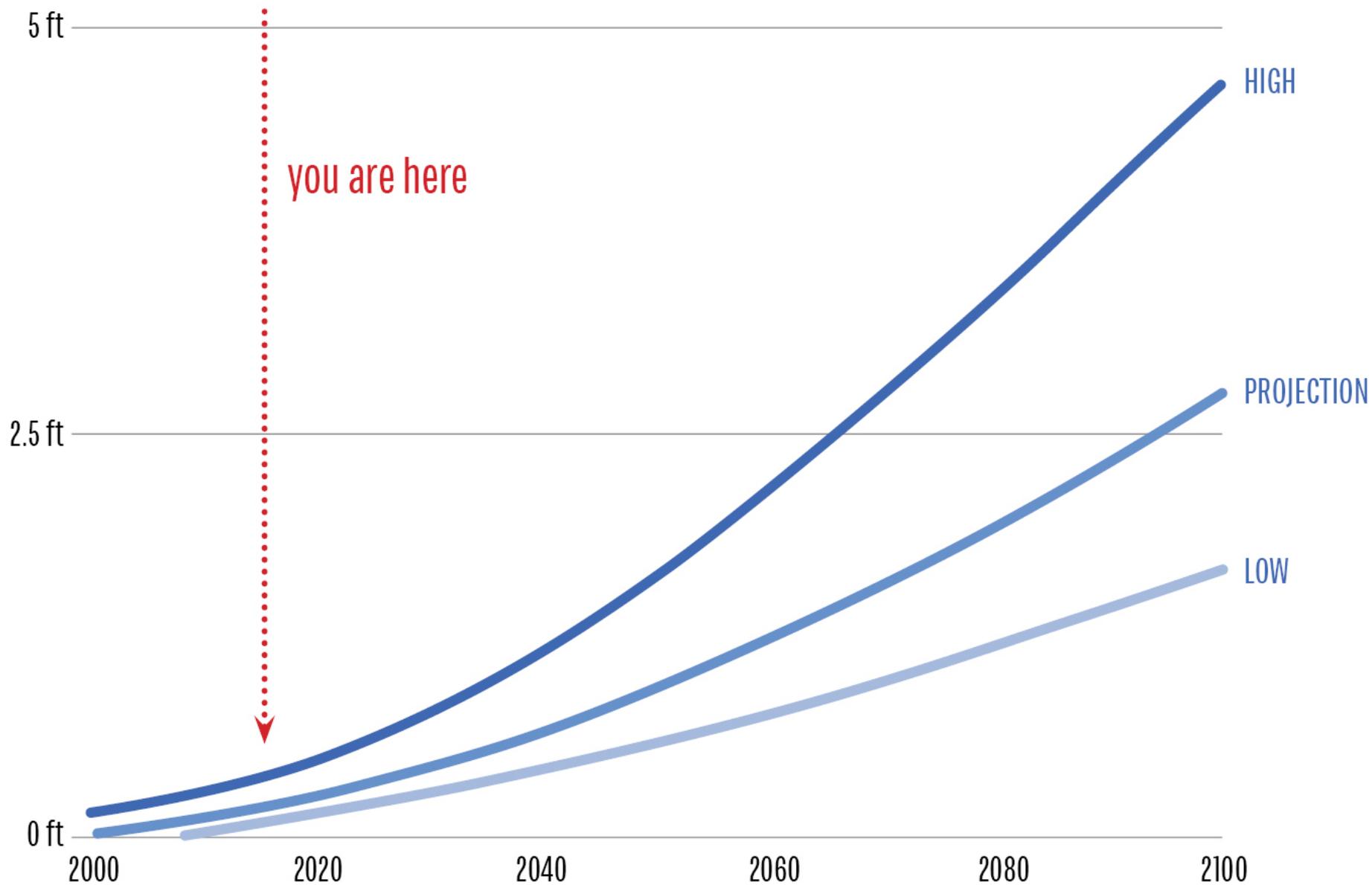


Adaptive Management Restoration

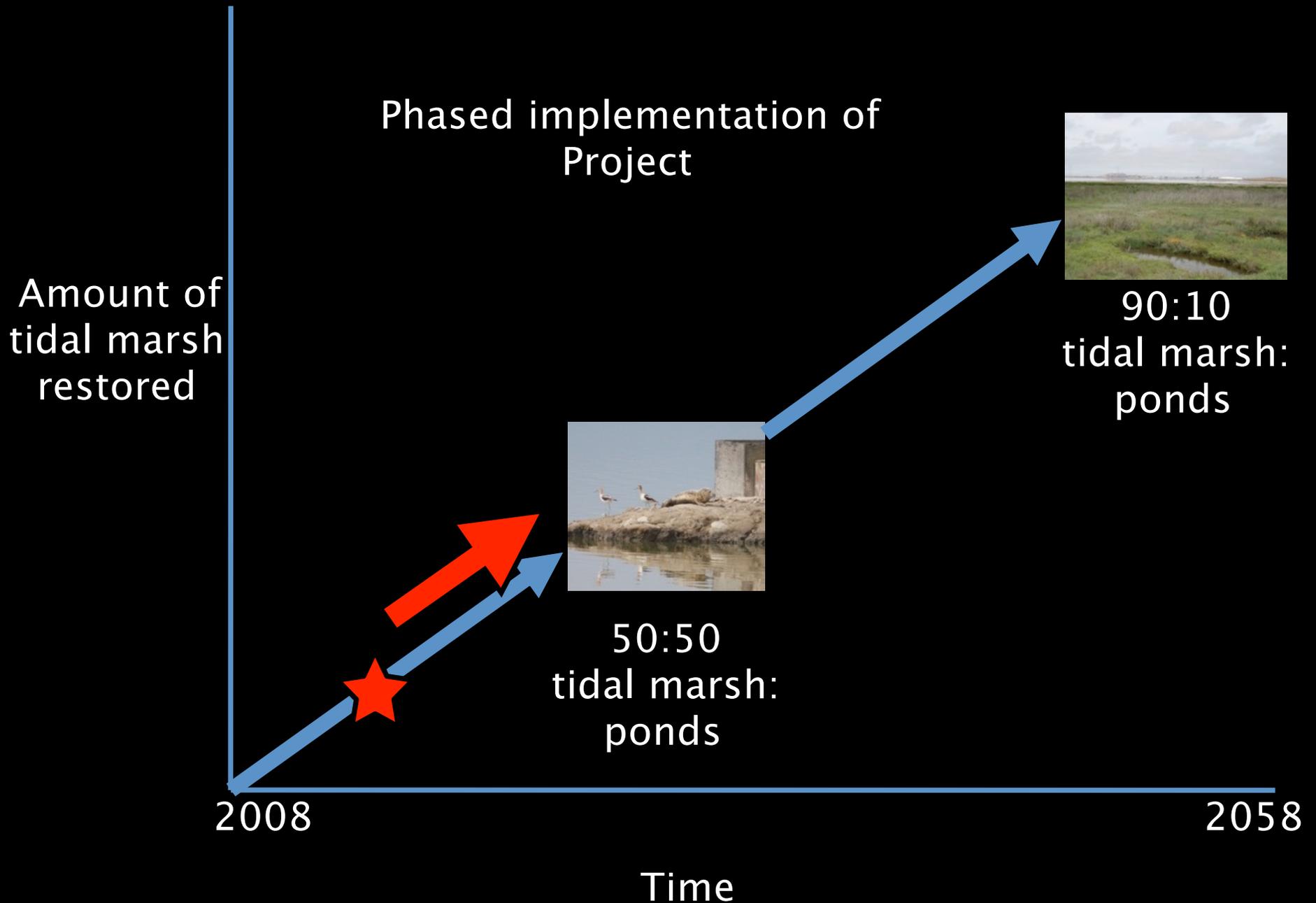


SEA LEVEL *rise* FOR CALIFORNIA

Courtesy NRC 2012



Adaptive Management Restoration

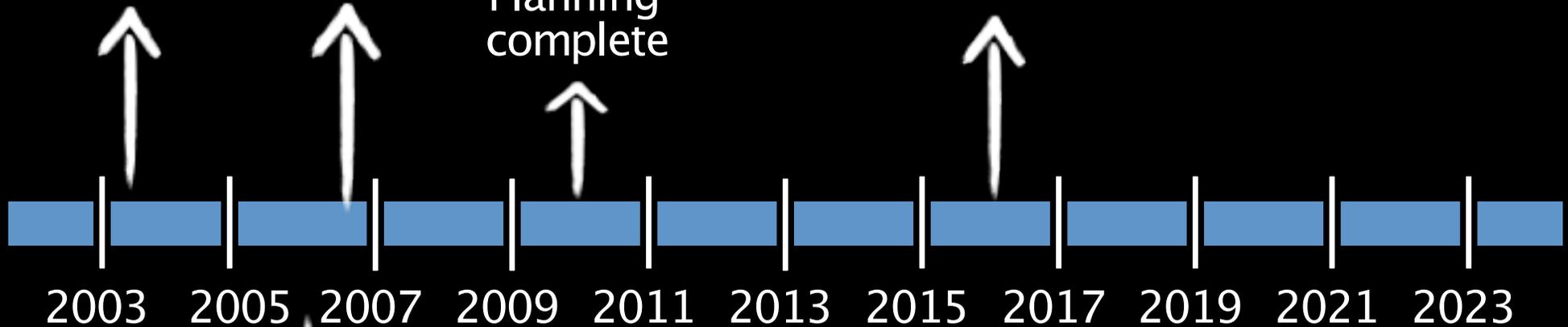


15,100 acres
acquired
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1st
Restored
Ponds!

Phase 1
Planning
complete

Phase 1
complete



2003

2005

2007

2009

2011

2013

2015

2017

2019

2021

2023

Initial
Stewardship
Plan

Phase 1
construction &
Phase 2
planning begins

Phase 2
construction
expected to
begin

Restored to Date

Tidal: 1,600 ac

Muted Tidal: 1,440 ac

Reconfigured Ponds: 710 ac

Total: 3,750 ac

New Trails: 7 miles

THE
Baylands
AND
Climate Change

WHAT WE CAN DO

BAYLANDS ECOSYSTEM HABITAT GOALS
SCIENCE UPDATE 2015



State of California

Coastal Conservancy





WHAT WE CAN DO

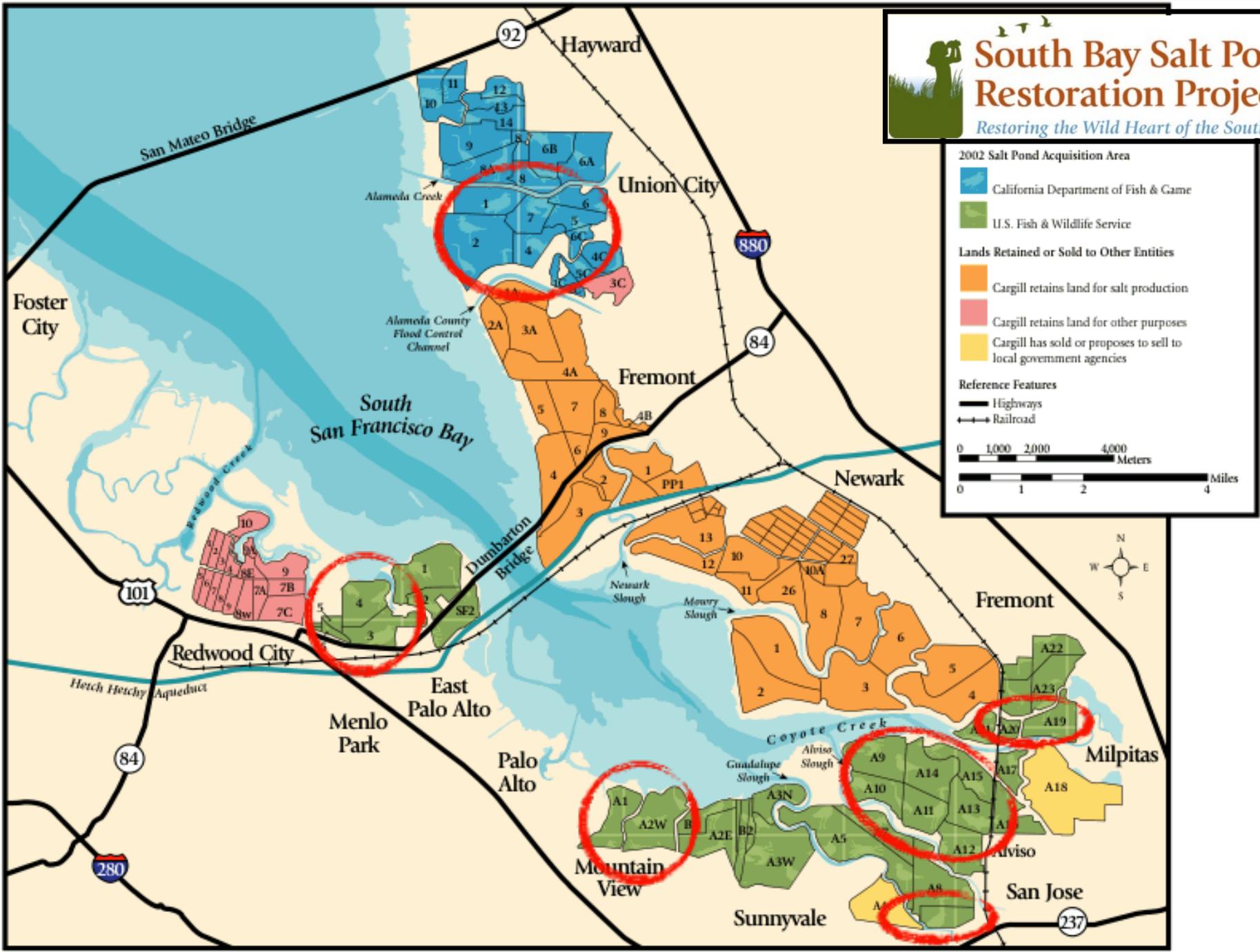
- *Restore complete systems, including processes*
- *Restore soon, in areas marshes are likely to persist*
- *Plan for the Baylands to migrate*

What's Next???



South Bay Salt Pond Restoration Project

Restoring the Wild Heart of the South Bay



Sustainable??

Sustainable??

1. History

2. Data

3. Models

Sustainable??

1. History

2. Data

3. Models

SANTA CLARA COUNTY GROUNDWATER AT-A-GLANCE

a graphic representation not intended as a technical exhibit

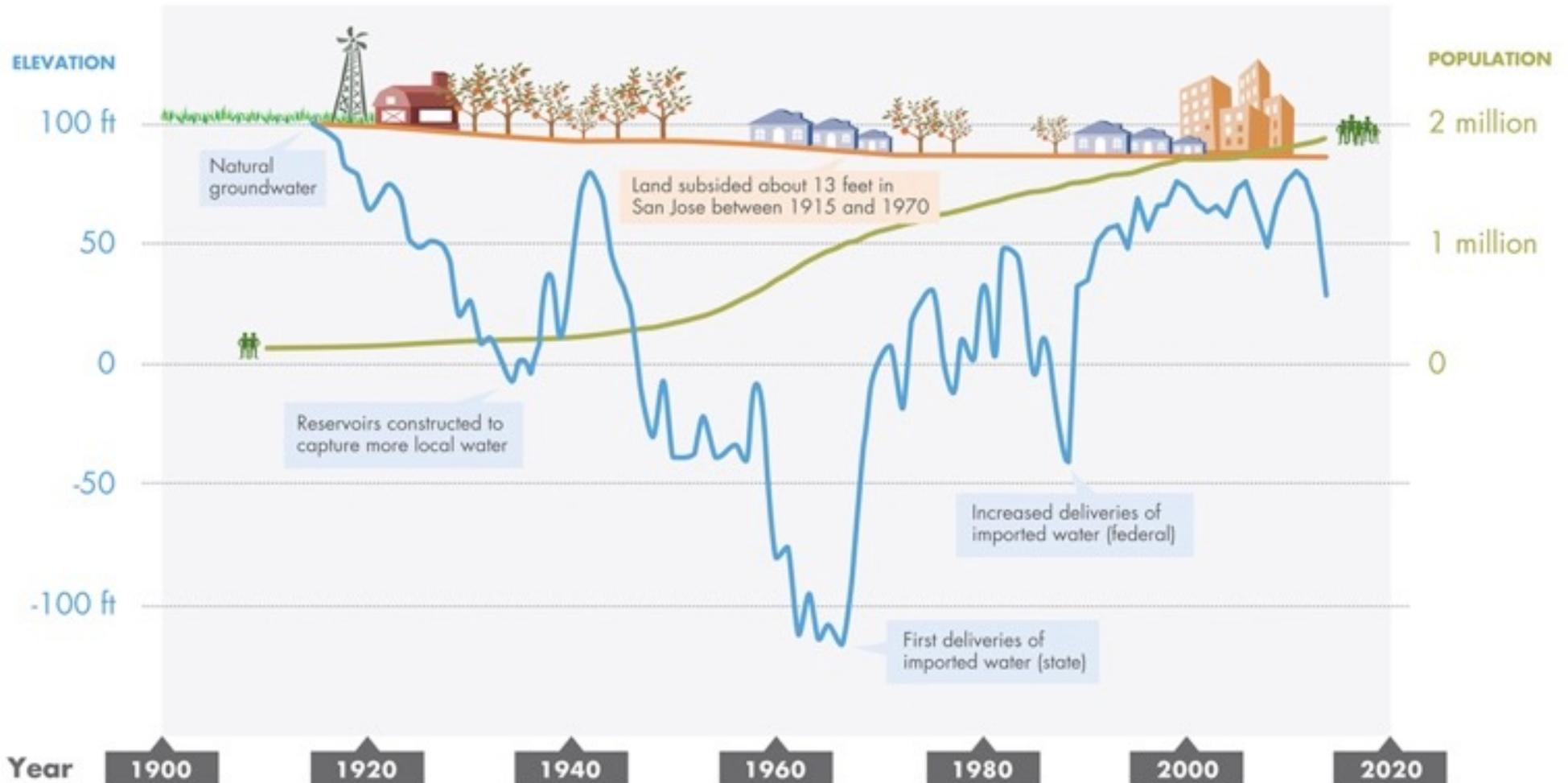
Santa Clara Valley
Water District



Land Surface Elevation

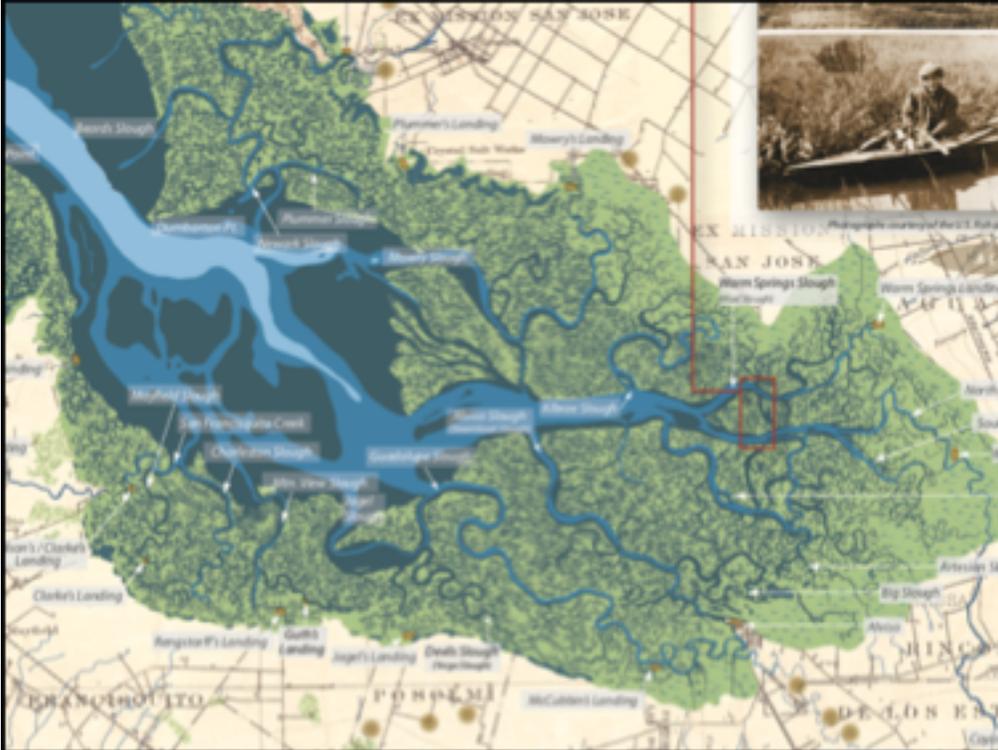
Groundwater Elevation

Population



Last updated January 26, 2015

1850 vs 1889



1850 vs 1889



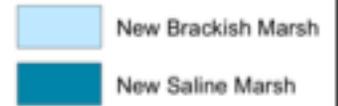
1850 vs 1989



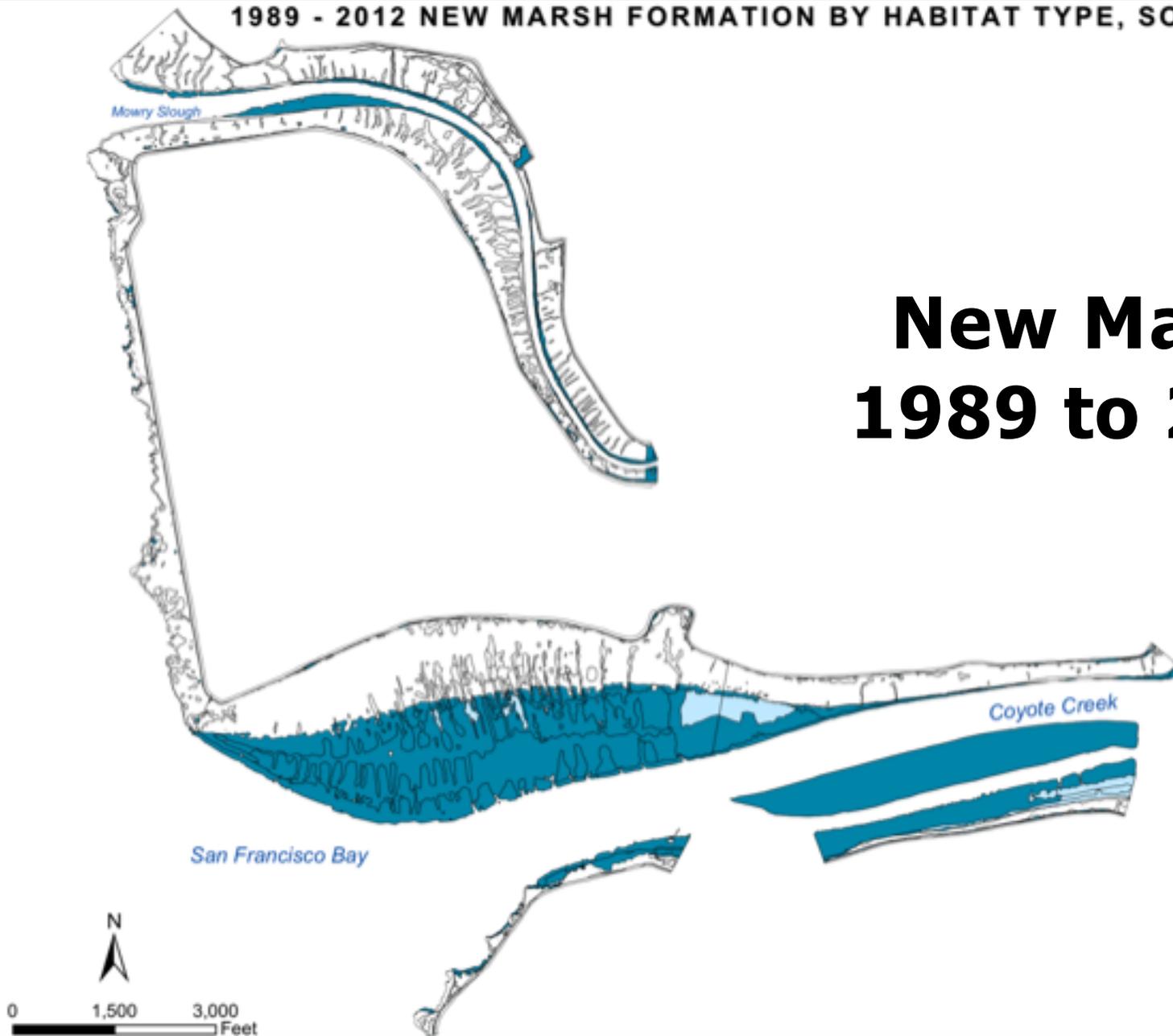
1989 - 2012 NEW MARSH FORMATION BY HABITAT TYPE, SOUTH SAN FRANCISCO BAY

LOWER REACH HABITATS

SEGMENTS 1, 2, 3, 4, 8, 22 and 23



New Marsh 1989 to 2012



 H. T. HARVEY & ASSOCIATES ECOLOGICAL CONSULTANTS		
1989 - 2012 New Marsh by Habitat Type, by Reach		
Proj No. 477-30	Date Jan. 2013	Figure B-5
ML N:\Projects\0477-30\Final Figures		

Sustainable??

1. History

2. Data

3. Models

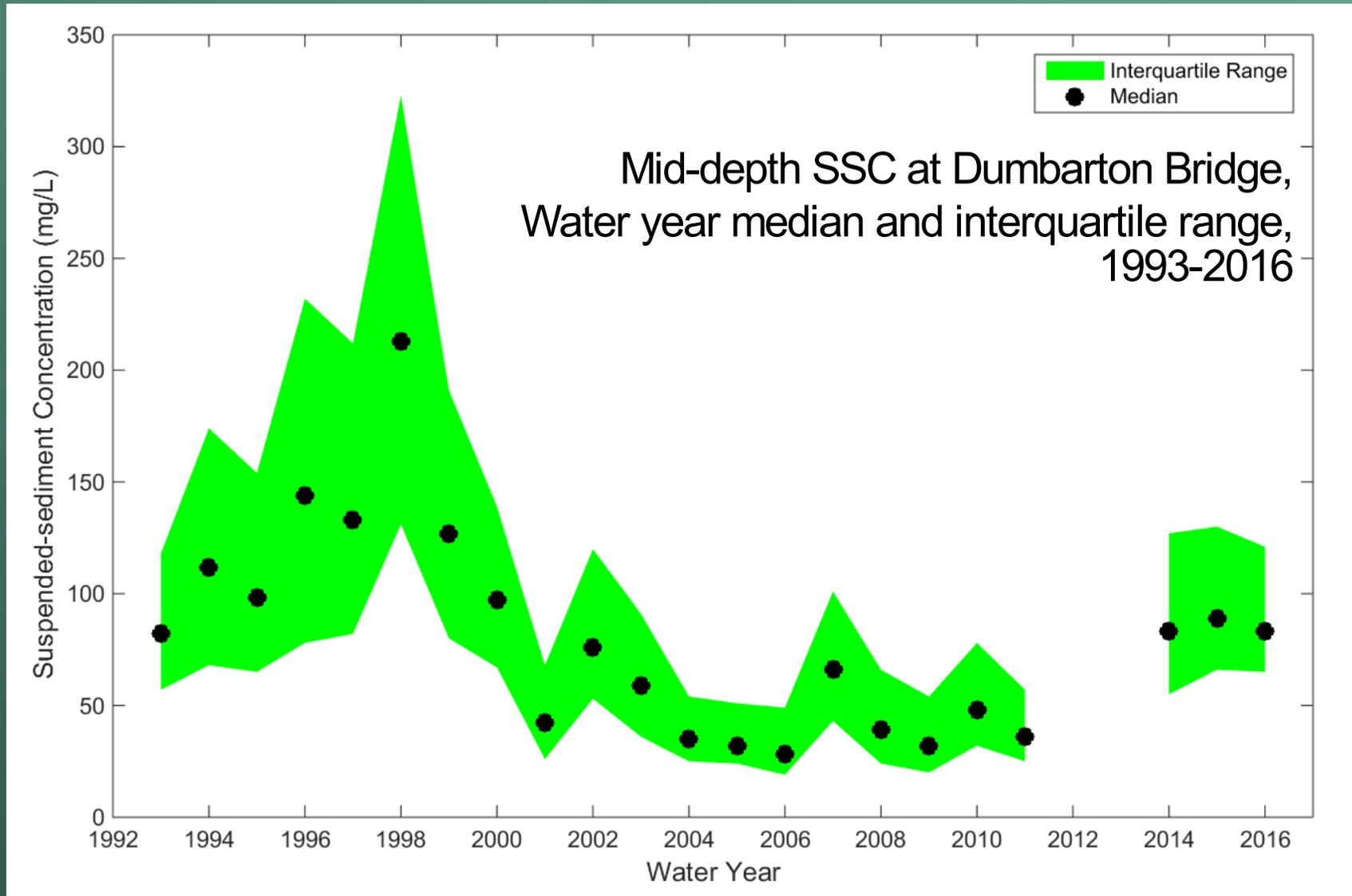
NOTE: This information is preliminary and is subject to revision. It is being provided to meet the need for timely best science. The information is provided on the condition that neither the U.S. Geological Survey nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the information.

Sediment: The Macro and Micro of Patterns in the South Bay

**Maureen Downing-Kunz
John Callaway
Daniel Livsey
David Schoellhamer**

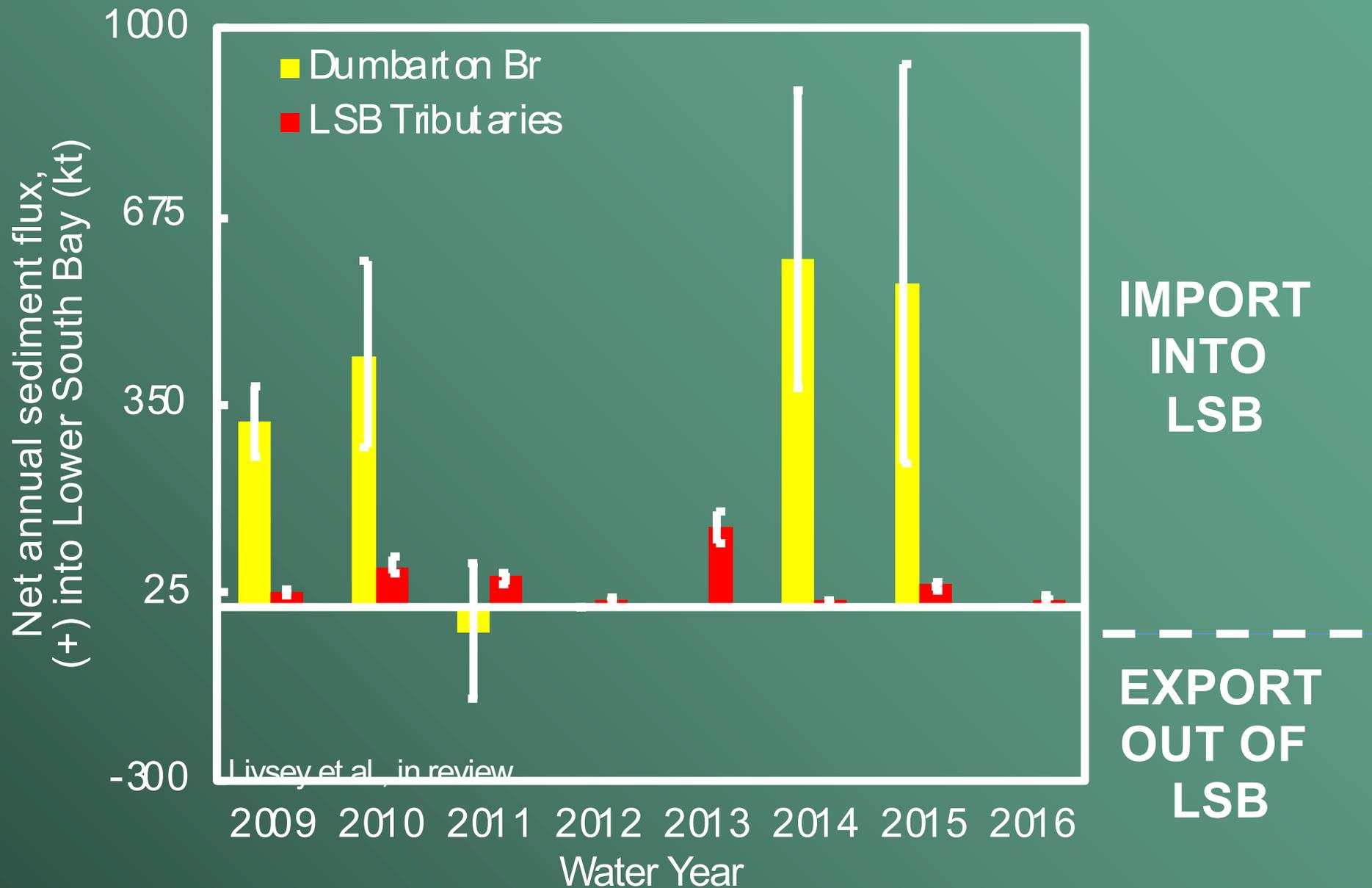


Dumbarton Bridge concentration



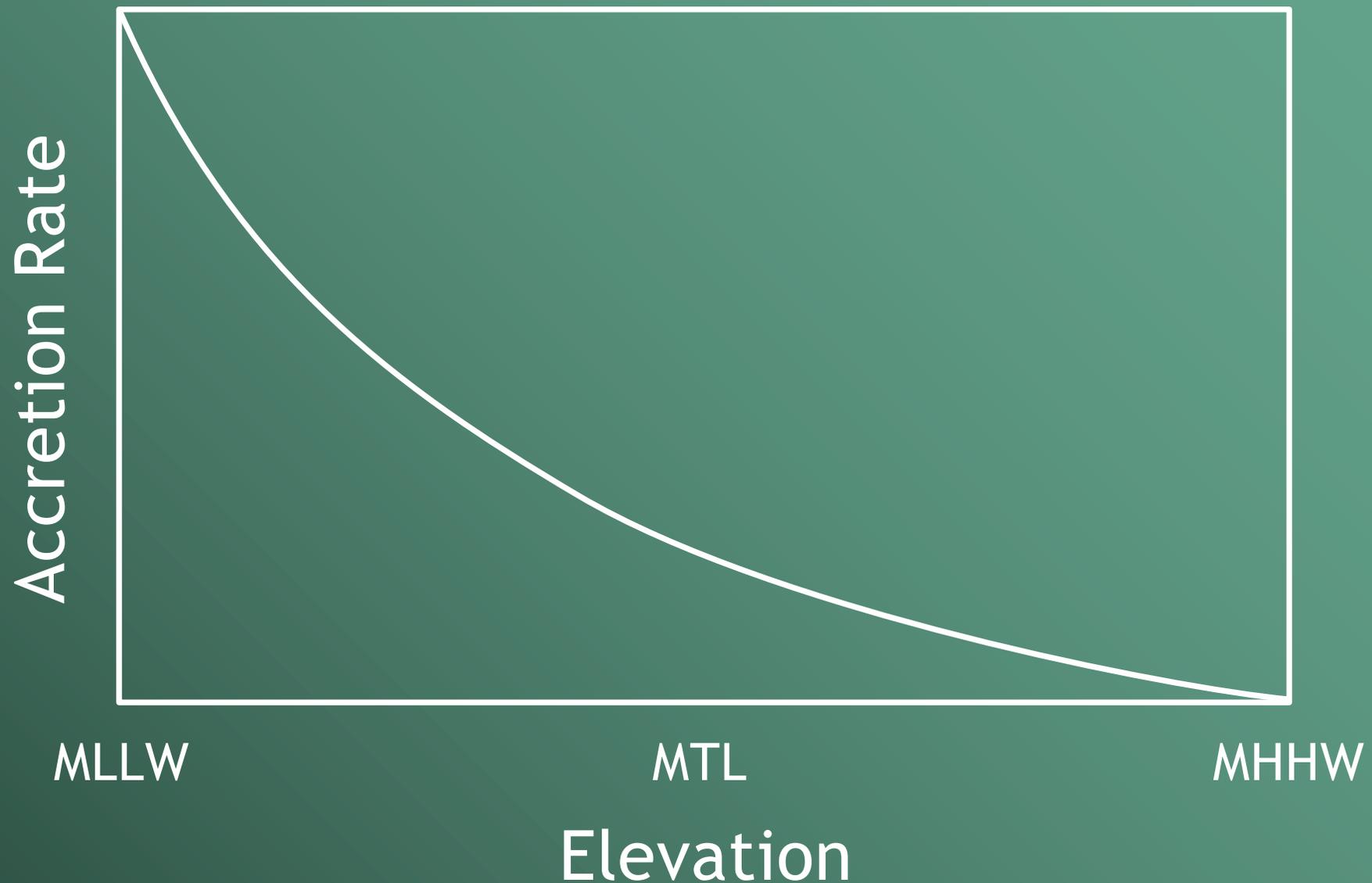
* 2012-2013 data gap due to bridge construction

Lower South Bay sediment flux

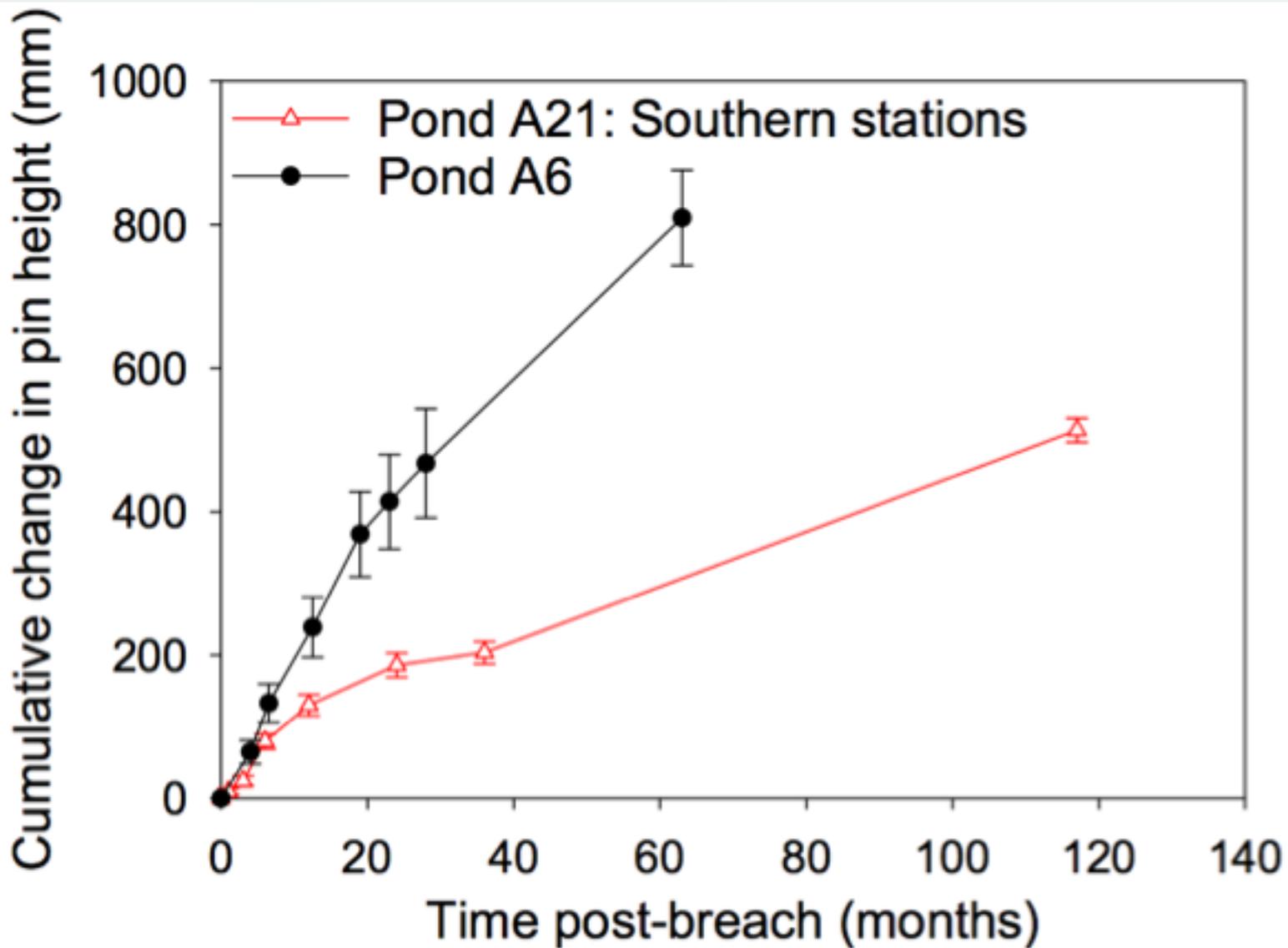


* 2012-2013 data gap due to bridge construction

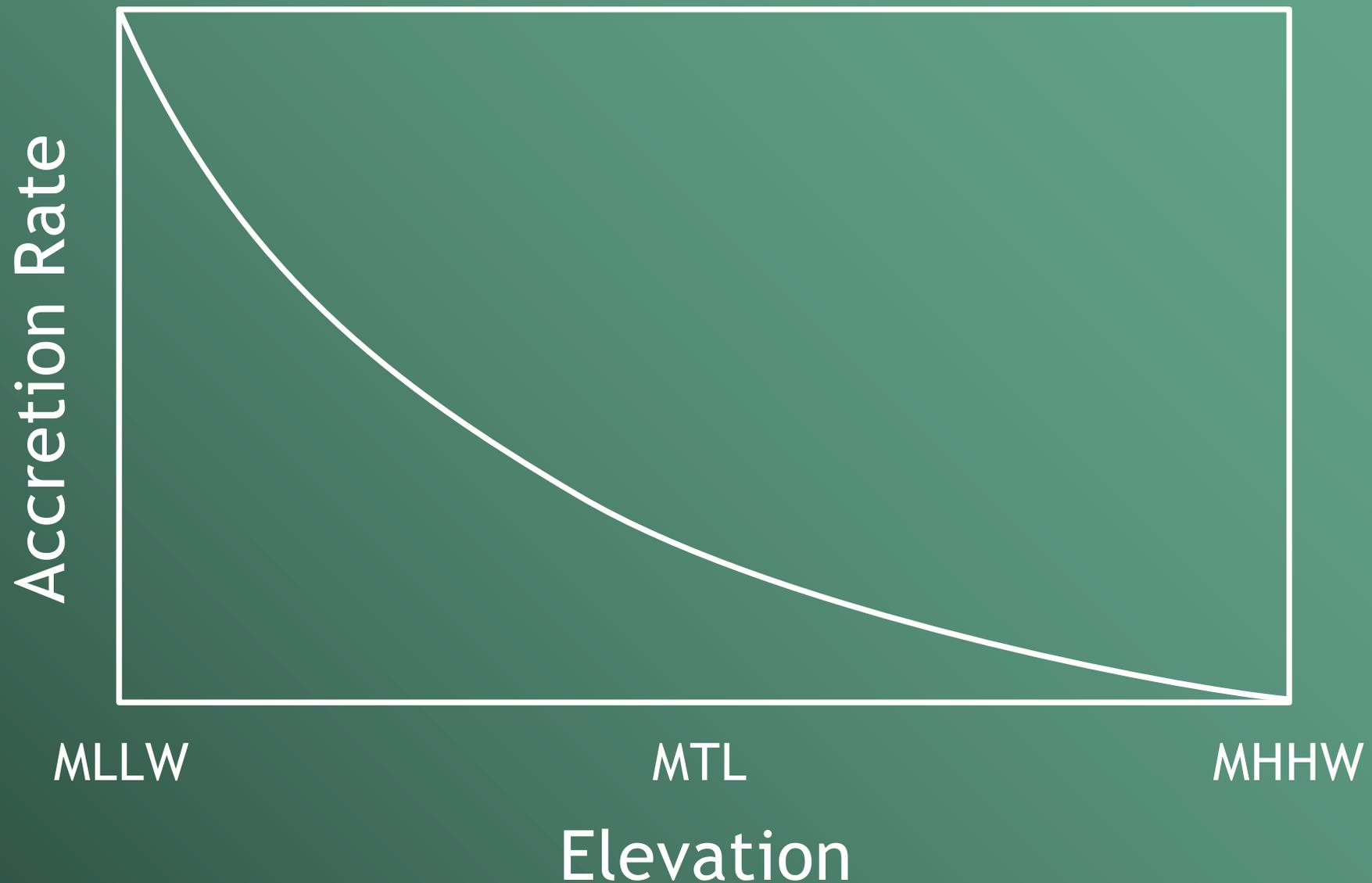
Theoretical Tidal Wetland Development



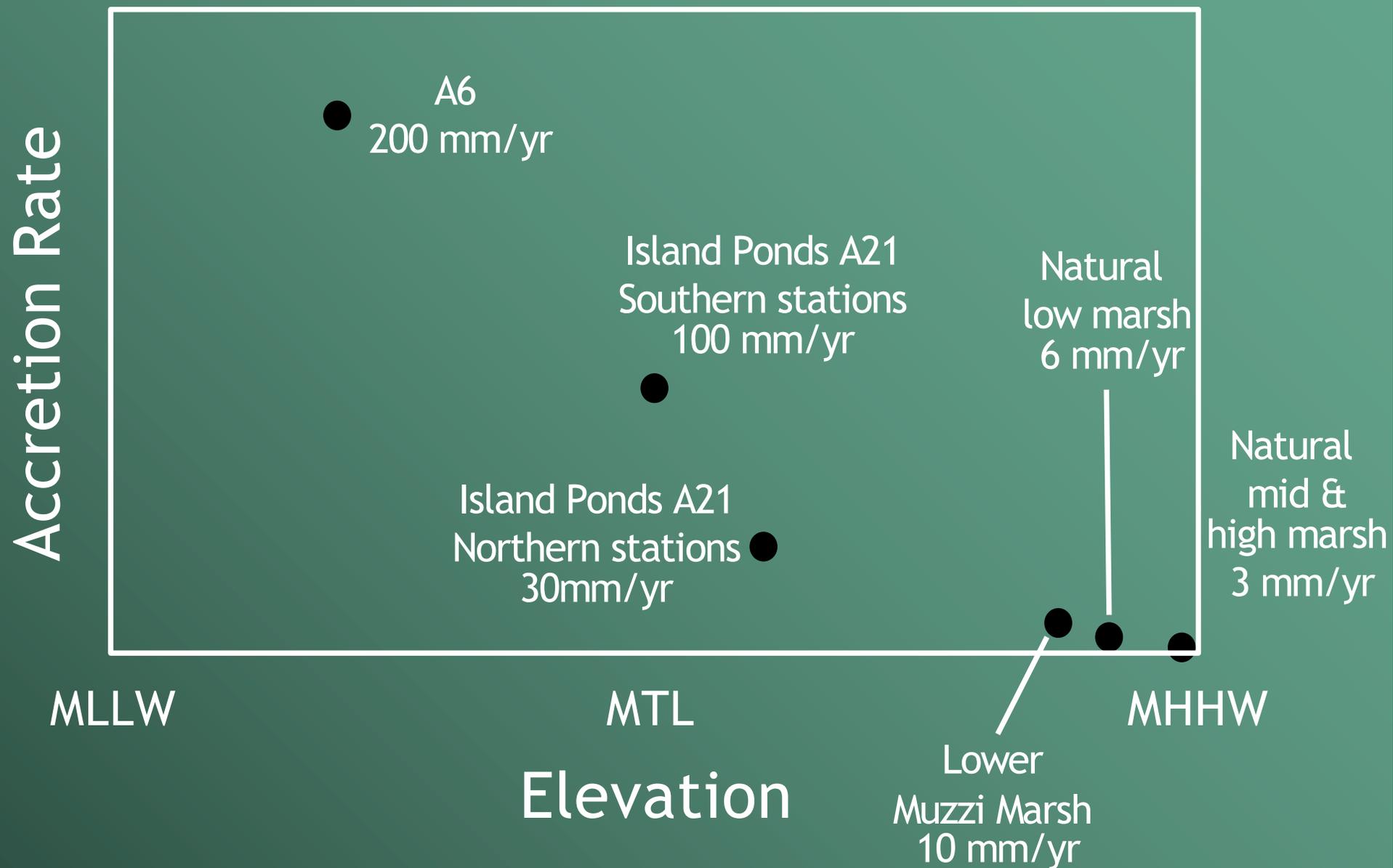
Accretion at A21 and A6



Theoretical Tidal Wetland Development



Measured Tidal Wetland Development

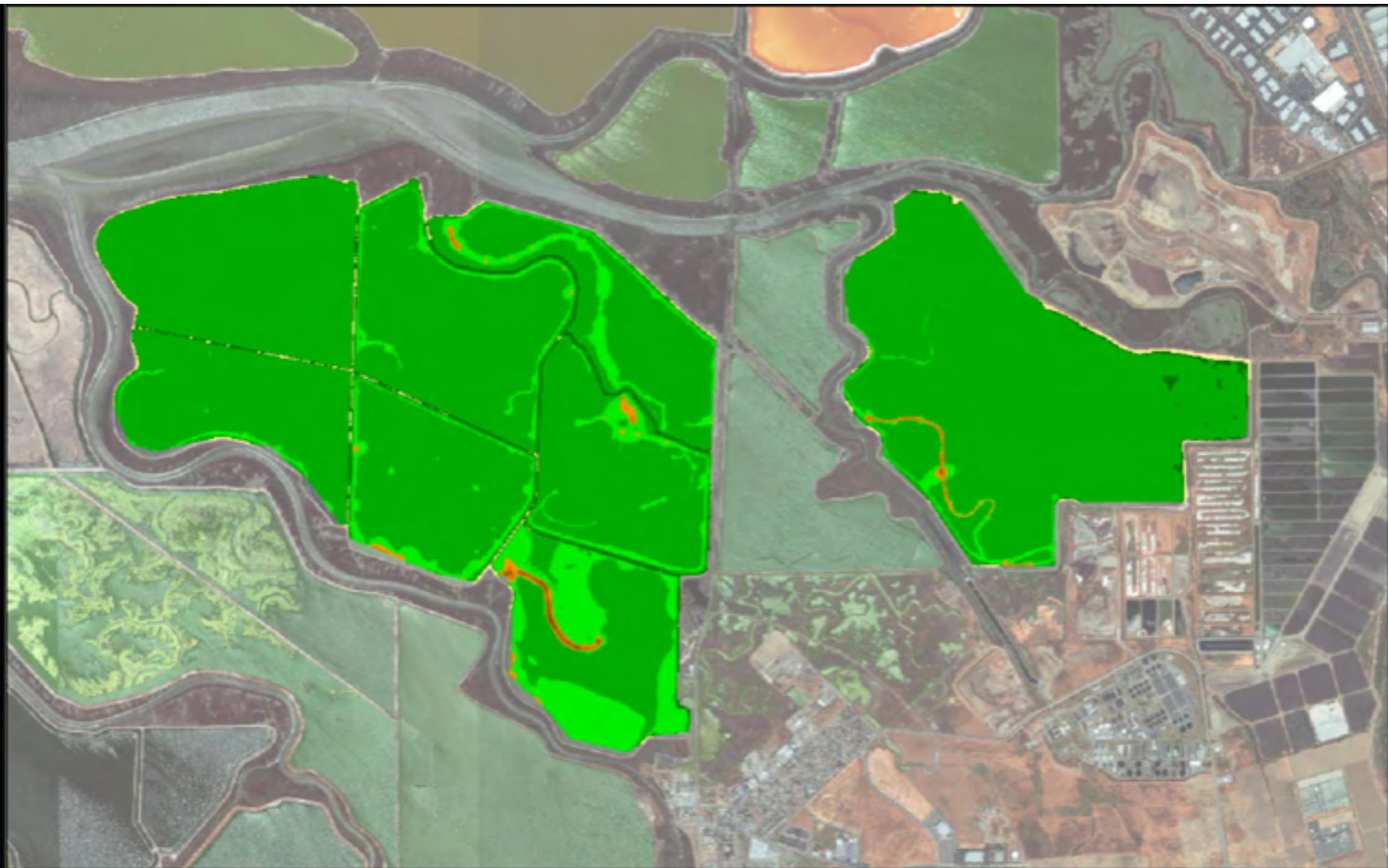


Sustainable??

1. History

2. Data

3. Models



C0 = 200 mg/L, NRC-III, organics = 1 mm/yr
 Start all areas in 2027



Habitat Zones

- | | |
|----------------------------|-----------------------------|
| Deep Subtidal | Intertidal Mudflat mid high |
| Shallow Subtidal A | Intertidal Mudflat high |
| Shallow Subtidal B | Cordgrass Dominated low |
| Intertidal Mudflat low | Cordgrass Dominated high |
| Intertidal Mudflat mid low | Pickleweed Dominated |
| Upland | |

figure 8

Shoreline Study Alternatives
**2067 Marsh Elevations with C0 = 200 mg/L
 and 2027 Start**

Proj. # 211259





CO = 200 mg/L, NRC-III organics = 1 mm/yr
 Start all areas in 2037



0 1,000 2,000 4,000 6,000 Feet

Habitat Zones

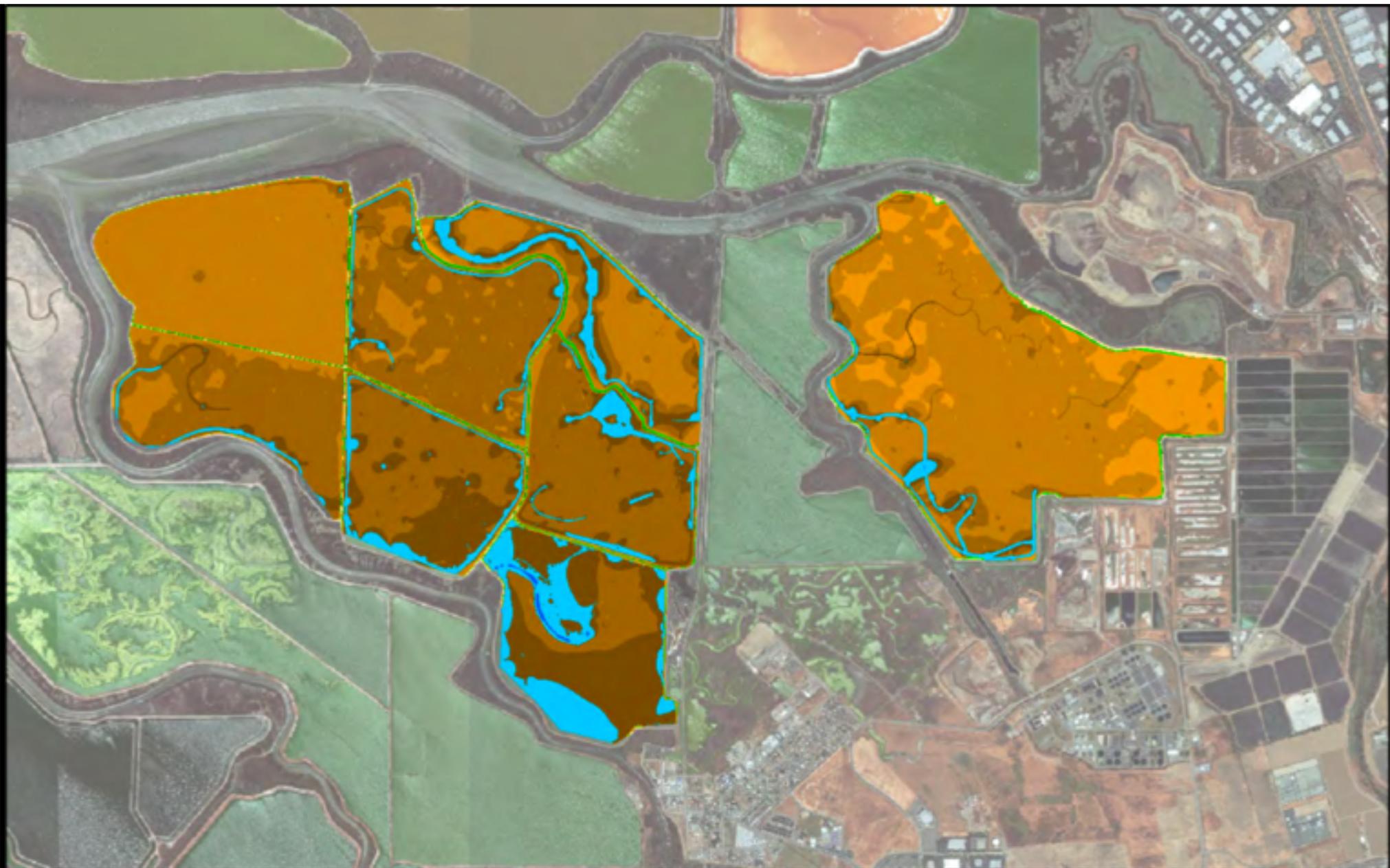
- Deep Subtidal
- Shallow Subtidal A
- Shallow Subtidal B
- Intertidal Mudflat low
- Intertidal Mudflat mid low
- Intertidal Mudflat mid high
- Intertidal Mudflat high
- Cordgrass Dominated low
- Cordgrass Dominated high
- Pickleweed Dominated
- Upland

figure 10

Shoreline Study Alternatives
**2067 Marsh Elevations with CO = 200 mg/L
 and 2037 Start**

Proj. # 211259





*C0 = 100 mg/L, NRC-III, organics = 1 mm/yr
Start all areas in 2037*



0 1,000 2,000 4,000 6,000 Feet

Habitat Zones

- Deep Subtidal
- Shallow Subtidal A
- Shallow Subtidal B
- Intertidal Mudflat low
- Intertidal Mudflat mid low
- Intertidal Mudflat mid high
- Intertidal Mudflat high
- Cordgrass Dominated low
- Cordgrass Dominated high
- Pickleweed Dominated
- Upland

figure 9

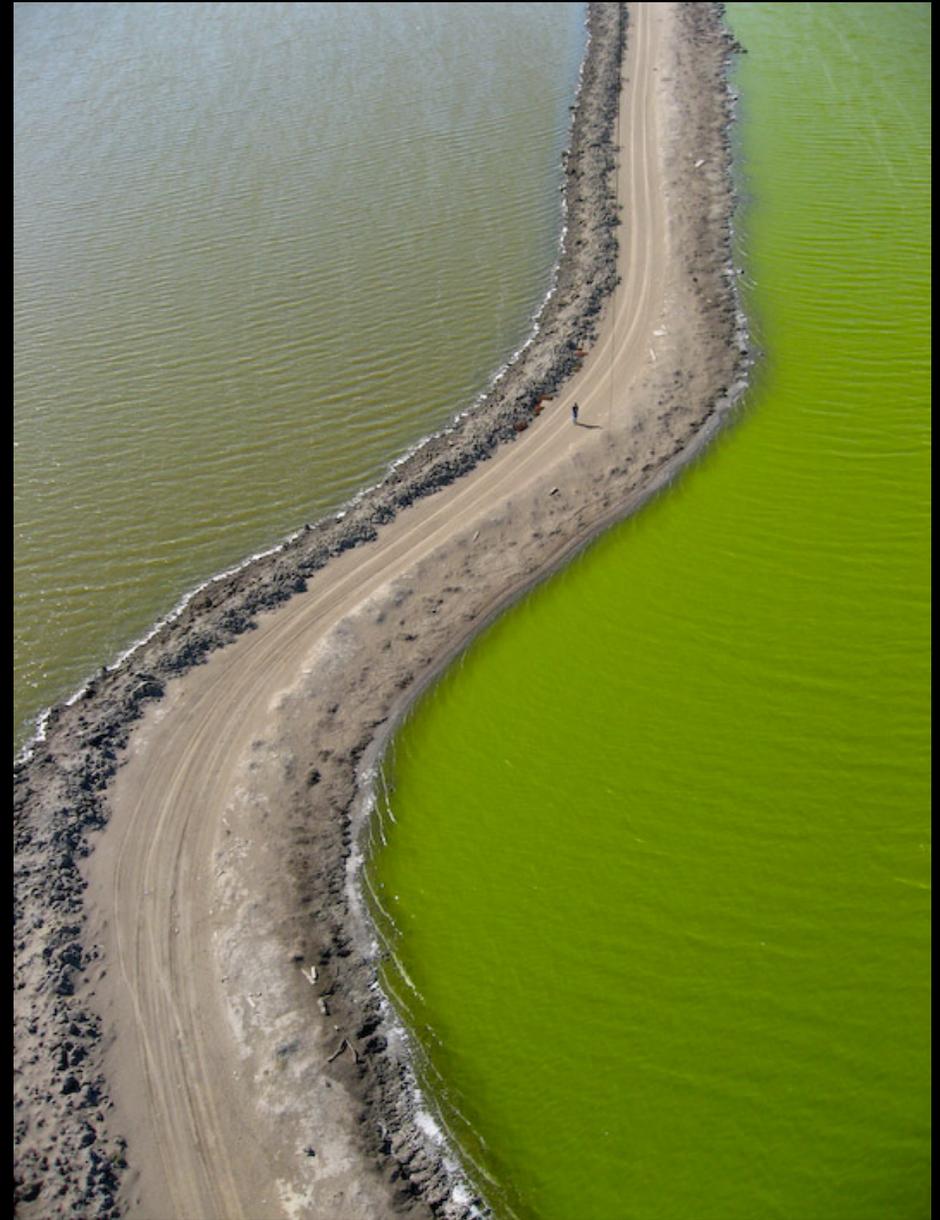
Shoreline Study Alternative
**2067 Marsh Elevations with C0 = 100 mg/L
 and 2037 Start**

Proj. # 211259





Partnerships





South Bay Salt Pond Restoration Project

Restoring the Wild Heart of the South Bay

John Bourgeois

California State Coastal Conservancy

John.Bourgeois@scc.ca.gov

408/314-8859

www.southbayrestoration.org

Like us on Facebook or Follow us on Twitter

facebook



Name:
South Bay Salt
Pond Restoration
Project

Phase 2 in Alviso & Ravenswood

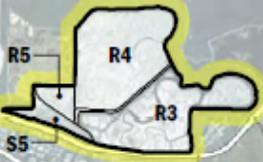
0 0.5 1 2 Miles

CALIFORNIA STATE PLANE COORDINATE SYSTEM ZONE III
NORTH AMERICAN DATUM OF 1983
NORTH AMERICAN VERTICAL DATUM OF 1988
IMAGERY Esri



US: Overland CA: 9/20/2016 USE: Redwood Path L: Program V: 6.5: Project: South Rev: Set: Ponds_2016/02 Maps/02_Map_Production and Review/RedwoodPath/Project/RedwoodPath_V02_SSP_Phase2_Ponds/Sheet.mxd

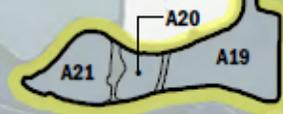
Ravenswood



Alviso MOUNTAIN VIEW PONDS



Alviso ISLAND PONDS



Alviso A8 PONDS



Island Ponds Preferred Alternative



0 500 1,000 2,000 Feet

CALIFORNIA STATE PLANE COORDINATE SYSTEM ZONE III
 NORTH AMERICAN DATUM OF 1983
 NORTH AMERICAN VERTICAL DATUM OF 1988
 IMAGERY Esri



USE: C:\Users\CA\OneDrive\Documents\Projects\South_Bay_S&P\Projects\201502_Maps\02_Map_Productions\Map_Productions\20150203\Map_Productions\Map_Productions.mxd

- LEGEND**
- Proposed breach
 - Existing breach
 - Expand existing breach
 - Railroad
 - Removed levee
 - Tidal marsh
 - Existing trail
 - Lowered levee
 - Pond boundary

Alviso Pond A8 Preferred Alternative

Mountain View Preferred Alternative



Charleston Slough

Shoreline Lake

© 2011 Google

© 2011 Europa Technologies
Image © 2011 TerraMetrics

Imagery Date: 6/19/2011

1948

37°26'33.86" N 122°04'47.27" W elev 0 m

Google

Eye al

Retain Existing Public Access



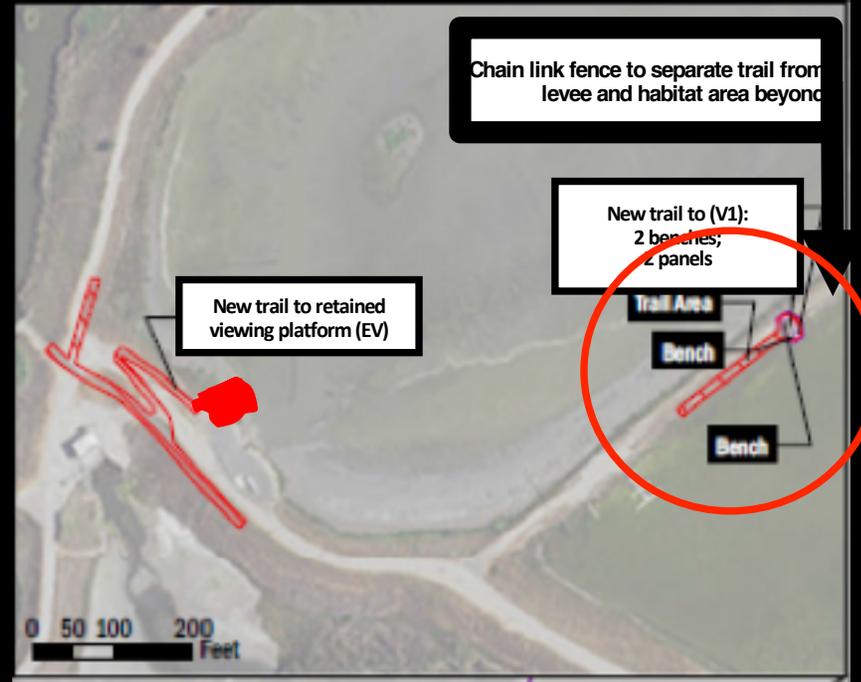
New ramp to be built to existing platform



New Public Access 1



Existing Views

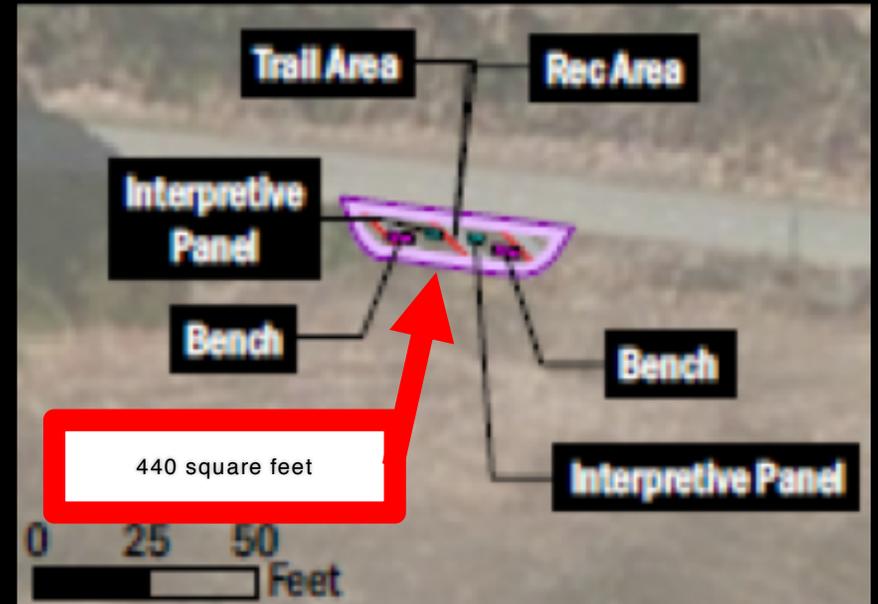


Visual Simulation of V1 & Trail

Between Refuge Pond A1 and MV-owned Charleston Slough



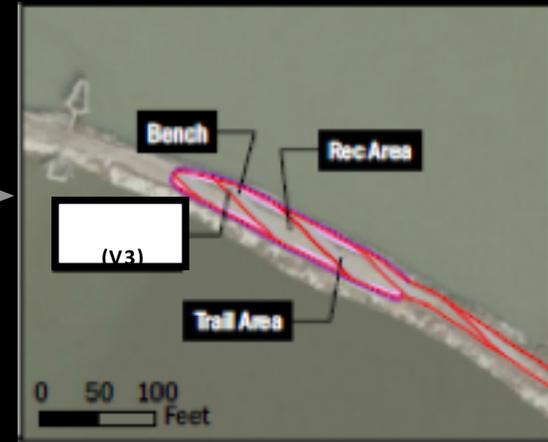
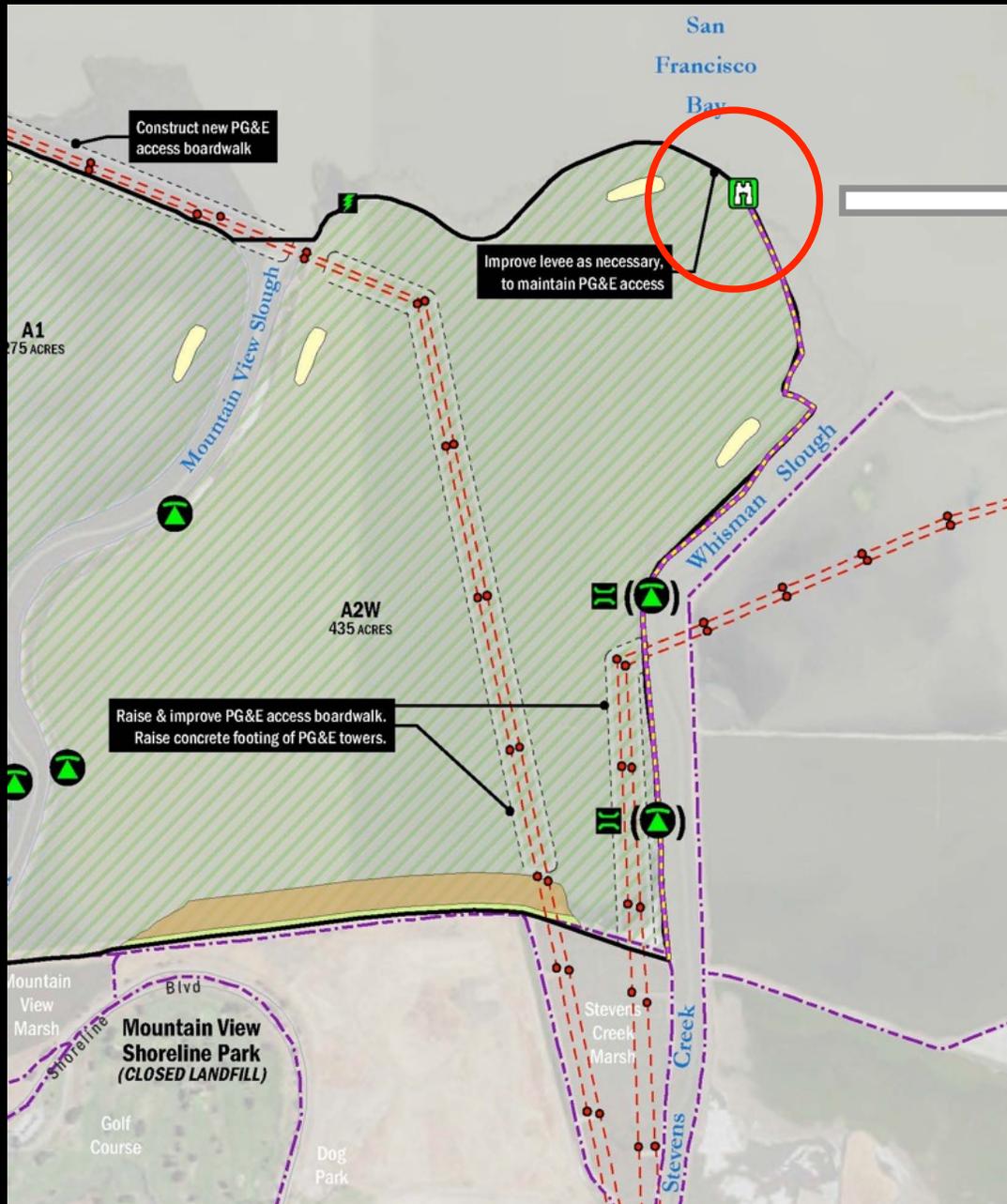
New Public Access 2



Existing Views



New Public Access 3



Existing Views



Ravenswood Preferred Alternative



Marsh Rd

Constitution Dr
Jefferson Dr

Chico St

Hacker Way

84

© 2012 Google

Google

Date: 10/31/2011 1948

37°29'24.97" N 122°09'37.69" W elev 1 m

Eye alt 3.1

0 500 1,000 2,000
Foot

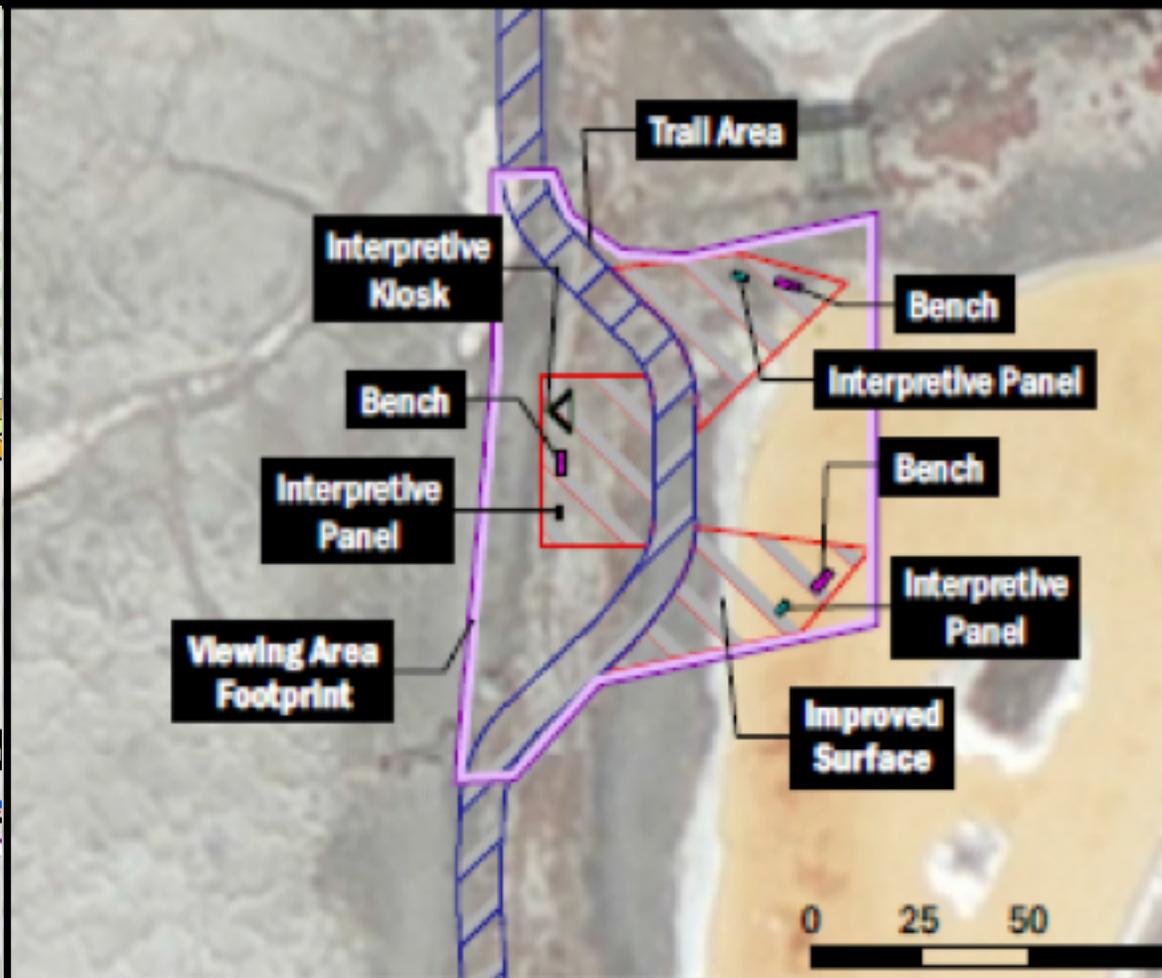
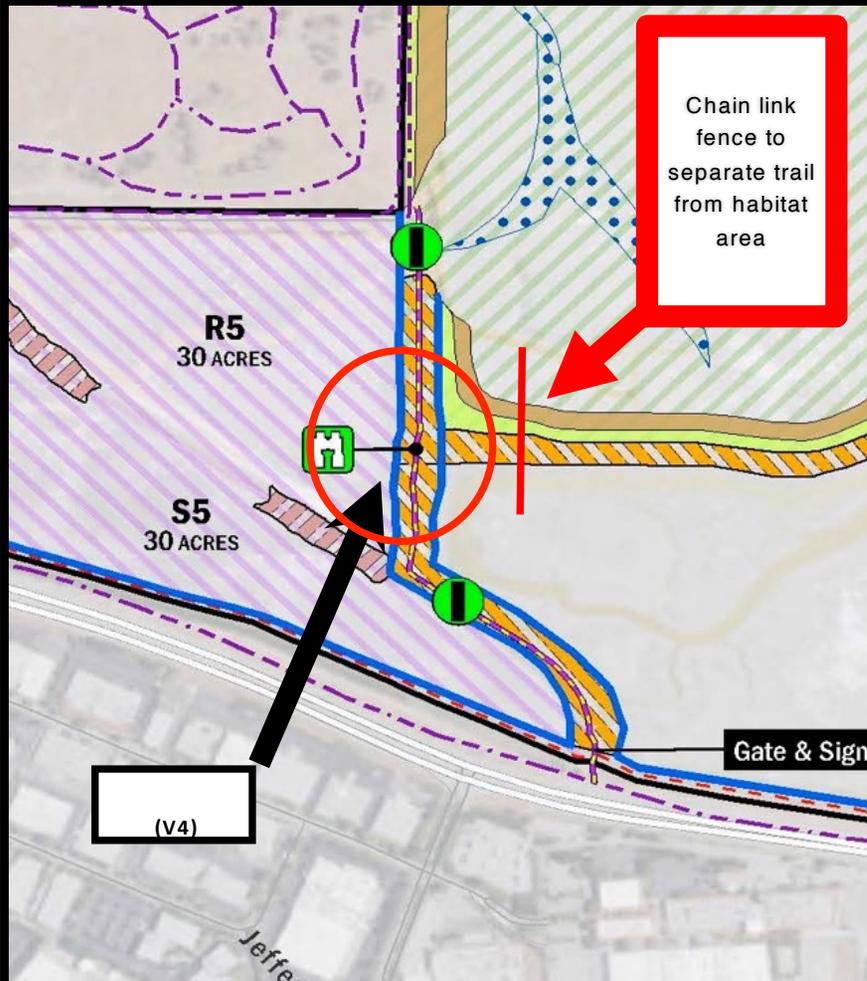
CALIFORNIA STATE PLANE COORDINATE SYSTEM ZONE 18
NORTH AMERICAN DATUM OF 1983
NORTH AMERICAN VERTICAL DATUM OF 1988
IMAGERY 6/14



Existing Conditions



New Public Access



Three red outlined areas above sum to 9,960 square feet.
Each faces a different restoring habitat.
Will be elevated several feet above surrounding areas.

Views Into Three Habitats



Dry salt panne in Pond R3

Tidal marsh in Pond R4

Managed ponds in Ponds R5/S5



Photos of Similar Features

Examples of Signage and Information Panels from Bedwell Bayfront Park and Shoreline Park



Phase 1 Recreation and Public Access Features



Examples: Phase 1 Gates & Fencing

