



South Bay Salt Pond Restoration Project

Restoring the Wild Heart of the South Bay



Stakeholder Forum & Working Groups Meeting, August 4, 2015

Today's Topics

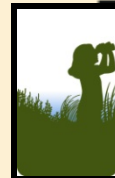
- Forum Charter Update
- Phase 1 Progress
- Phase 2 Planning
- South Bay Shoreline Study
- Science Program
- Looking Ahead to 2016

Stakeholder Forum Charter Update

Forum Charter Update

- Reflects current Forum work:
 - Focus on implementation
 - Periodic meetings
 - Option for, but not regular consensus-seeking efforts
- Any questions, concerns?

Tracking Our Progress: Phase 1



South Bay Salt Pond Restoration Project

Restoring the Wild Heart of the South Bay

2002 Salt Pond Acquisition Area

California Department of Fish & Game

U.S. Fish & Wildlife Service

Lands Retained or Sold to Other Entities

Cargill retains land for salt production

Cargill retains land for other purposes

Cargill has sold or proposes to sell to local government agencies

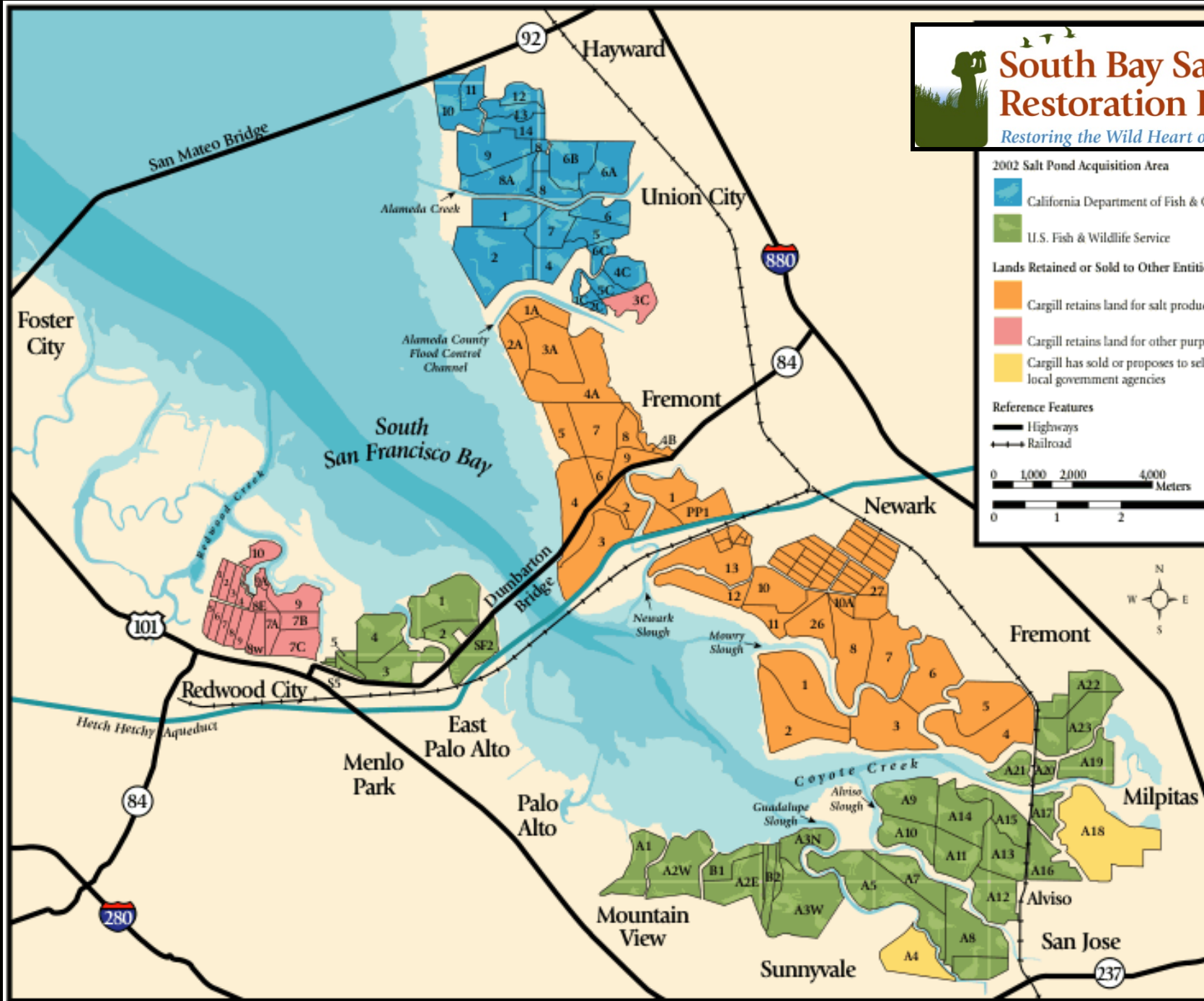
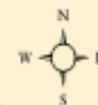
Reference Features

Highways

Railroad

0 1,000 2,000 4,000 Meters

0 1 2 4 Miles



Key uncertainties

- Wildlife use of changing habitats
- Habitat evolution and sediment dynamics
- Mercury methylation
- Water quality
- Invasive species
- Public access
- Infrastructure support
- Sea level rise and climate change



R. Wilming



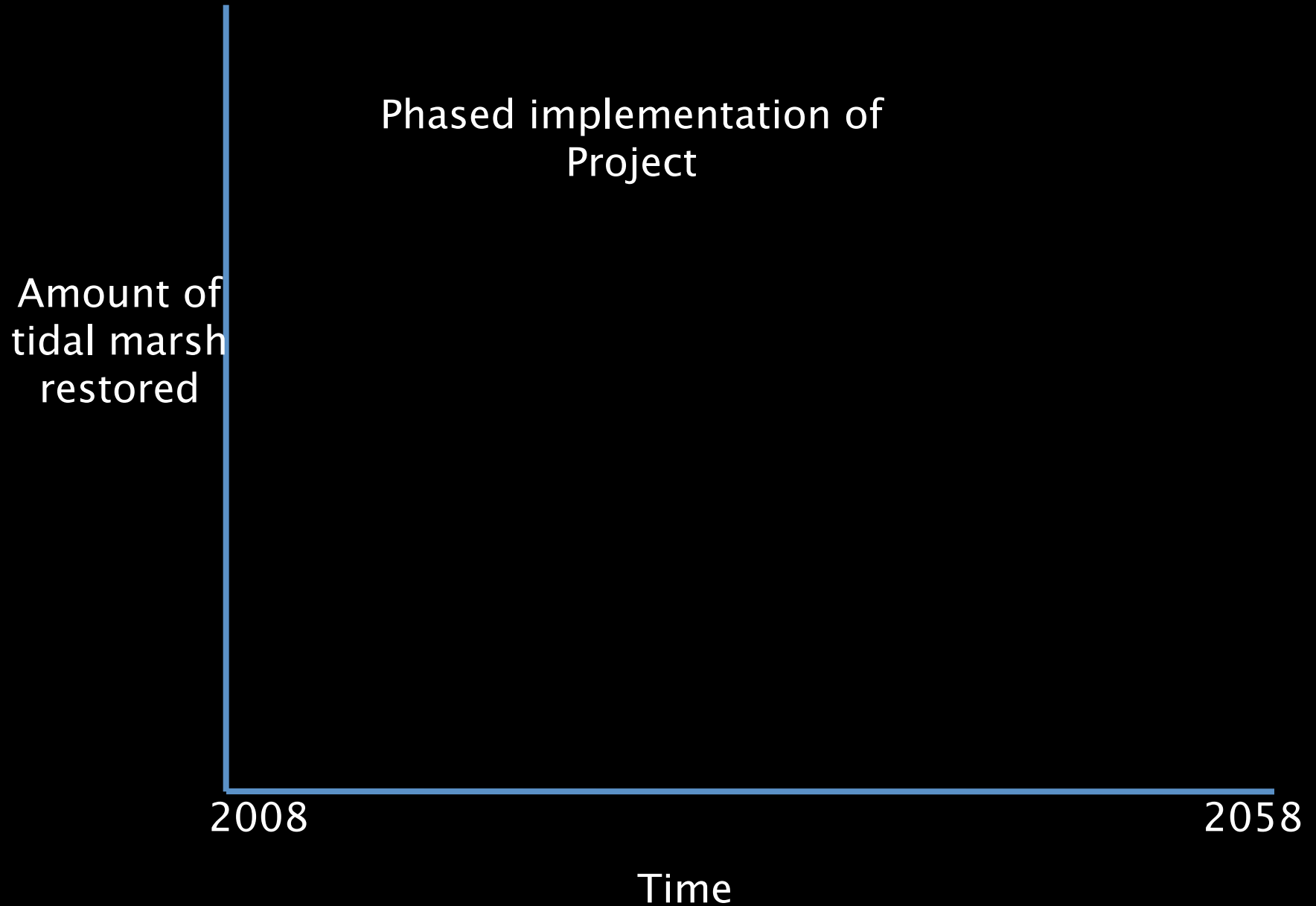
Ecological Trade-offs

■ Tidal Marsh species vs. Salt Pond species

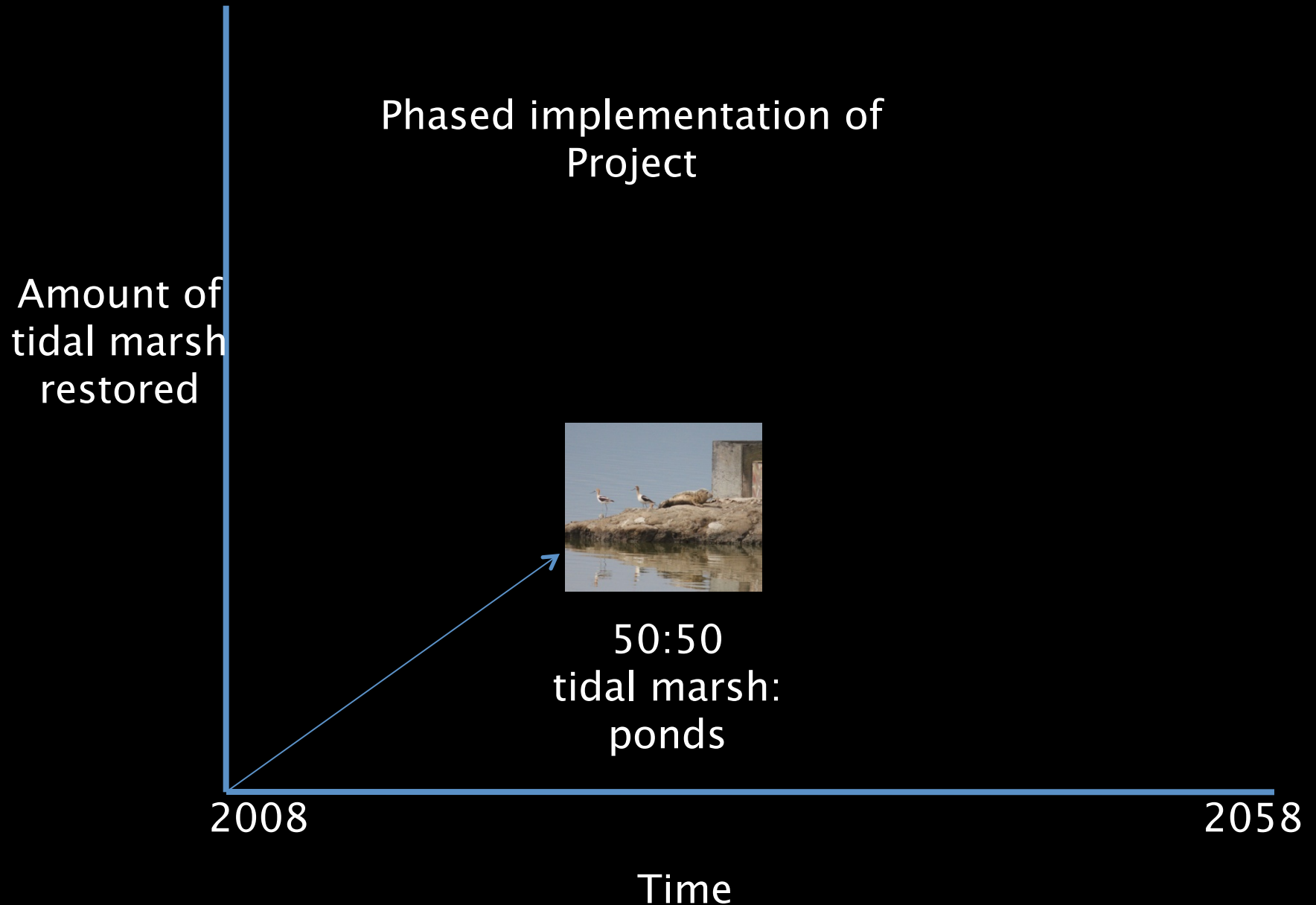


Callie Bowdish

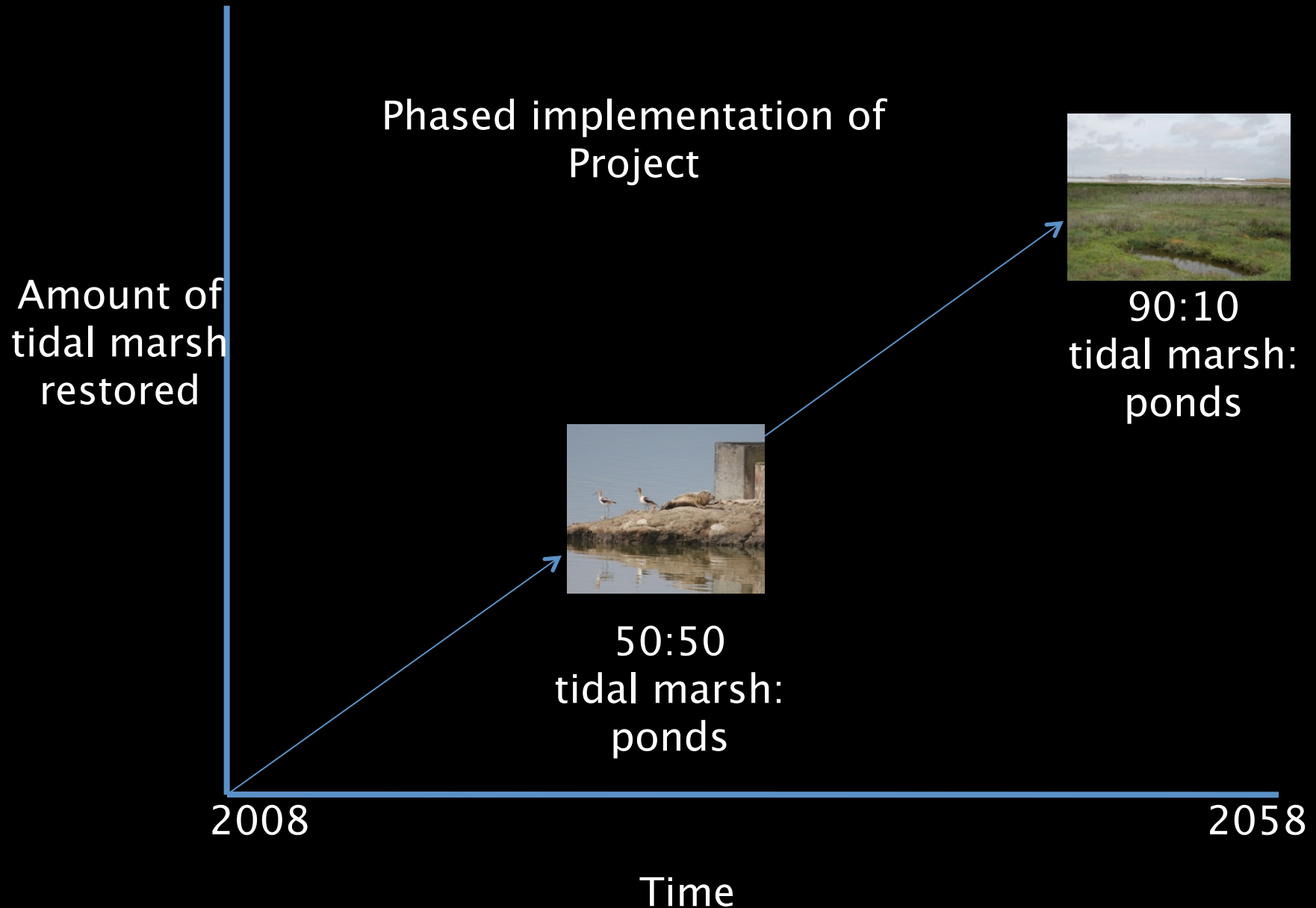
Adaptive Management Restoration



Adaptive Management Restoration



Adaptive Management Restoration

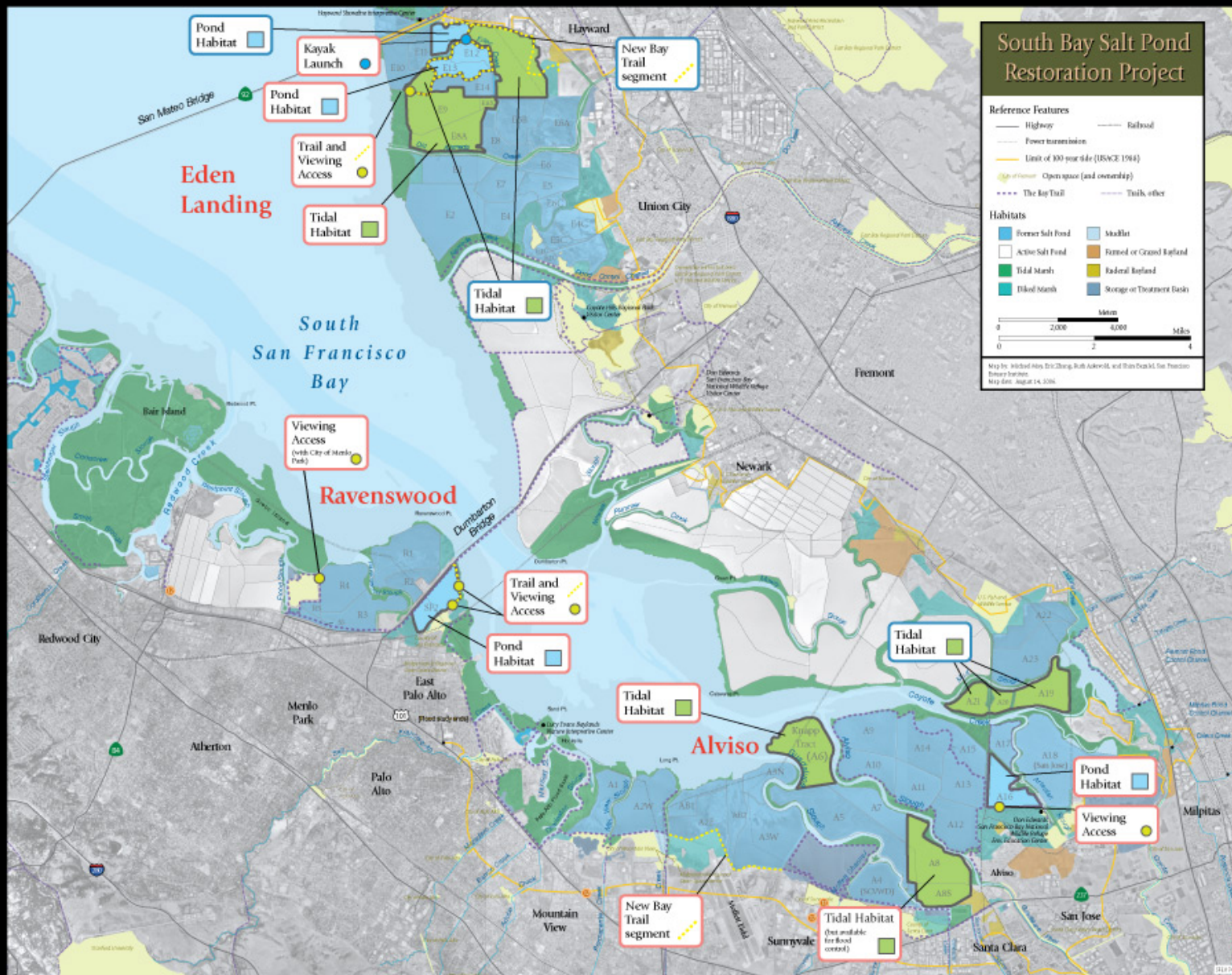


Phase 1 Progress

Project Progress

- Phase 1 implementation complete
 - 11% now becoming tidal marsh
 - 15% enhanced managed ponds
- Design & Planning for Phase 2 so far
 - Refuge (Ravenswood & Alviso complexes) only
 - If fully implemented, would bring tidal marsh to 25%–30% of total
- Phase 2 efforts at Eden Landing (CDFW) in separate process to follow ~50% tidal

Tracking our Progress: Phase One Actions

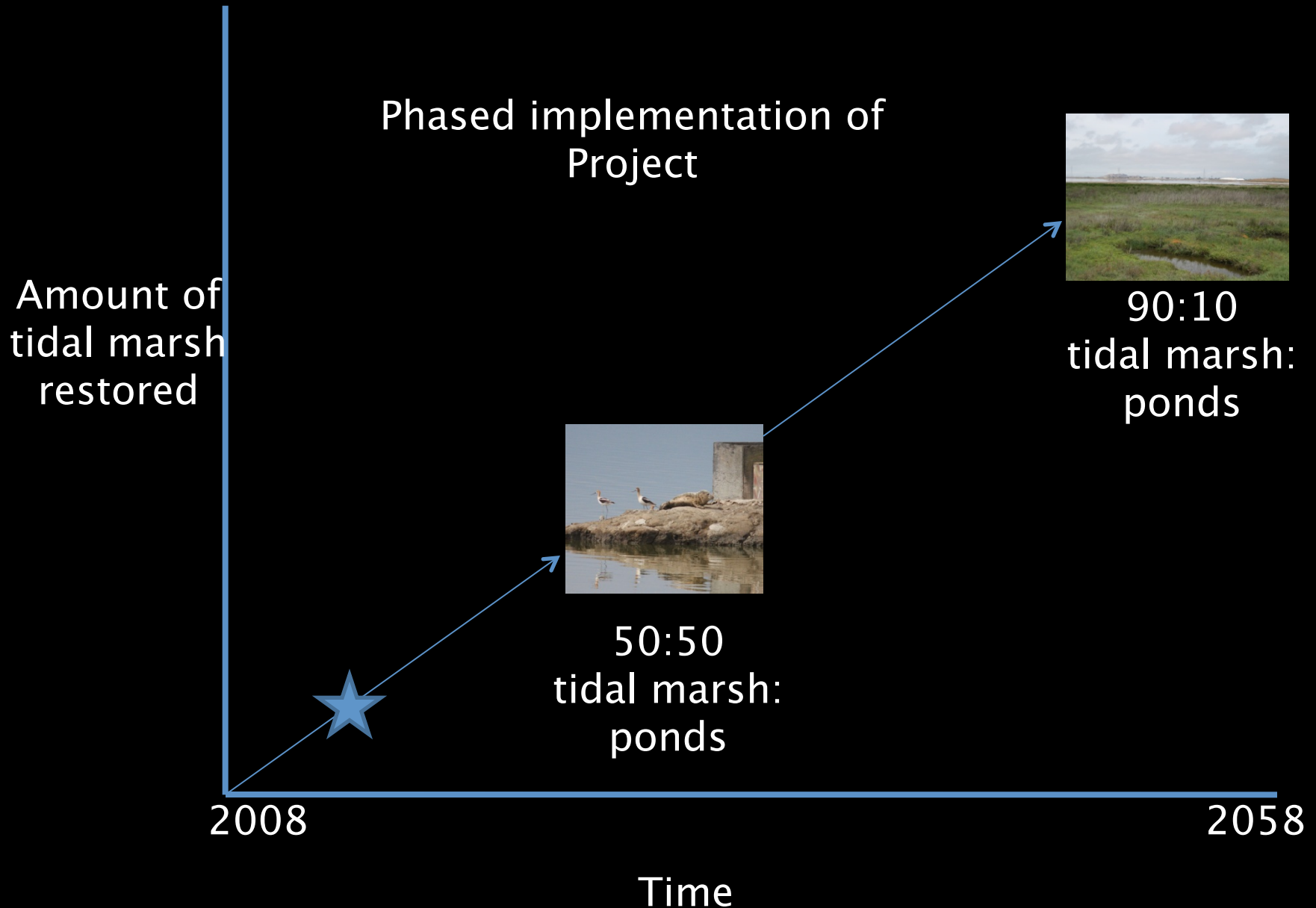


Initial Restoration Actions

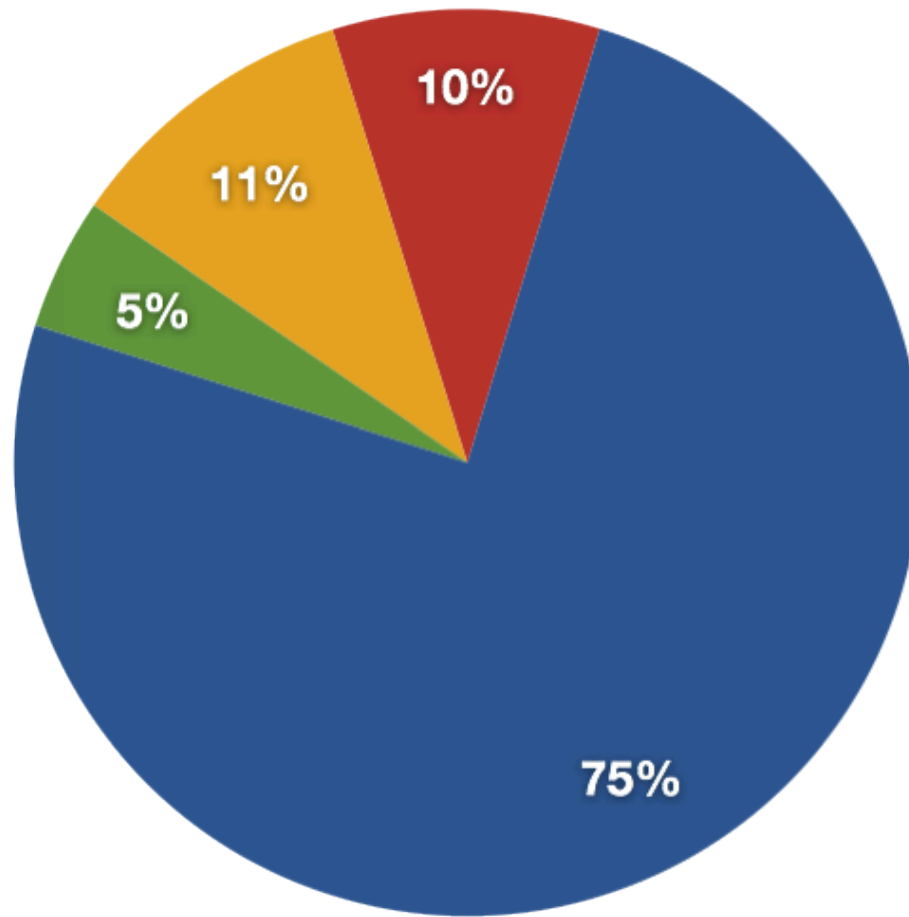
South Bay Salt Pond Restoration Project

2006 - 08 SBSP Phase 1

Adaptive Management Restoration



SBSP Phase 1



Managed Ponds
Tidal Restoration

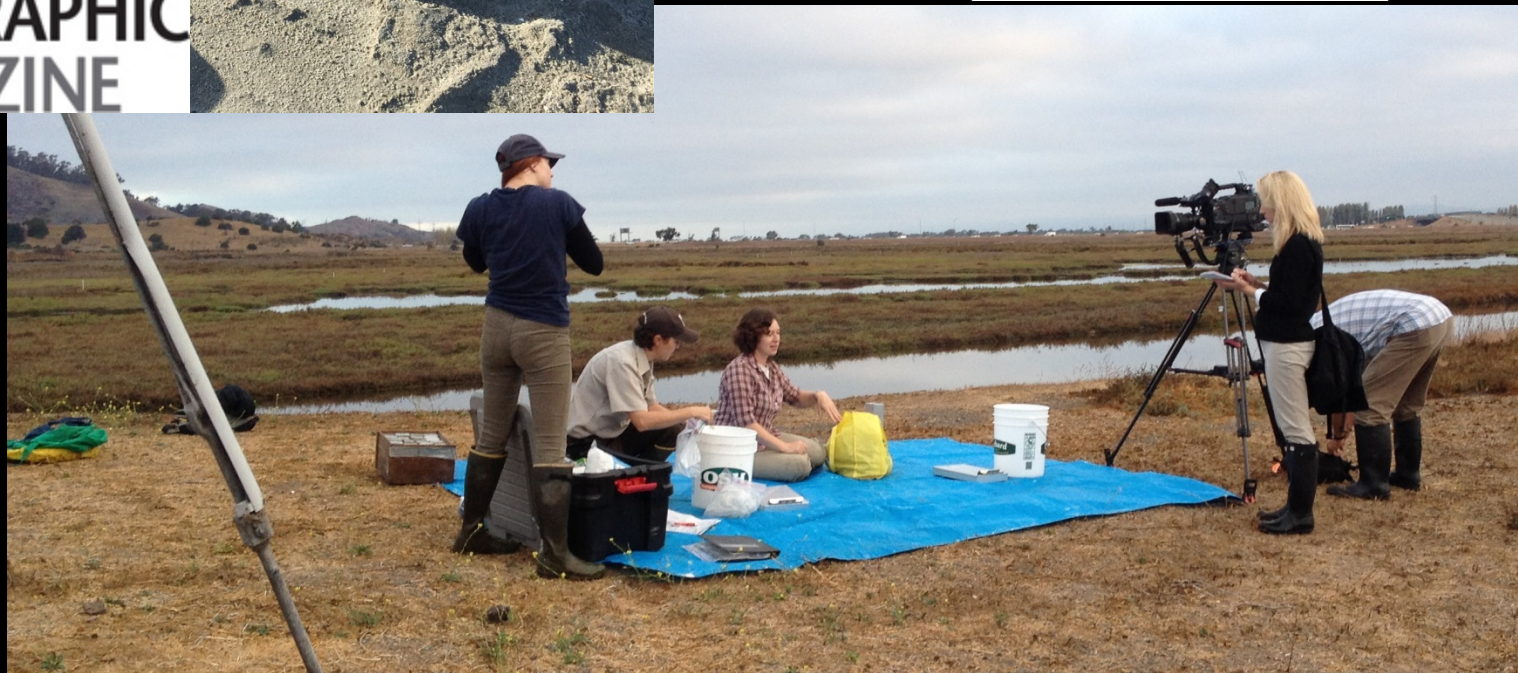
Reconfigured Ponds
Muted Tidal

National Attention



 **NATIONAL
GEOGRAPHIC
MAGAZINE**

PBS 
**NEWS
HOUR**



2006 to 2014



Eden Landing



South Bay Salt Pond Restoration Project

Restoring the Wild Heart of the South Bay

2002 Salt Pond Acquisition Area

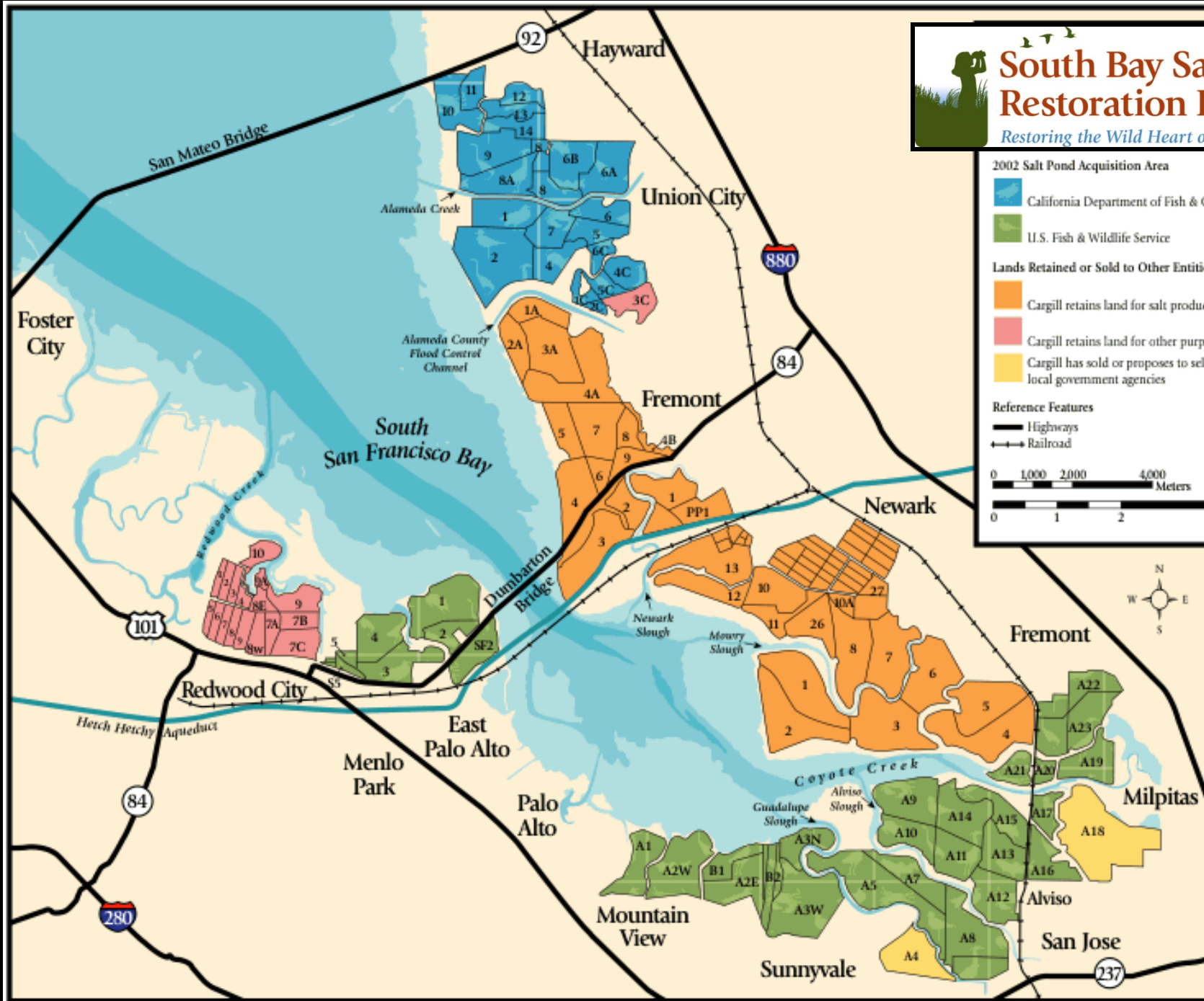
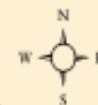
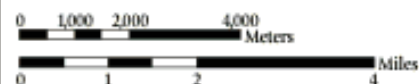
- California Department of Fish & Game
- U.S. Fish & Wildlife Service

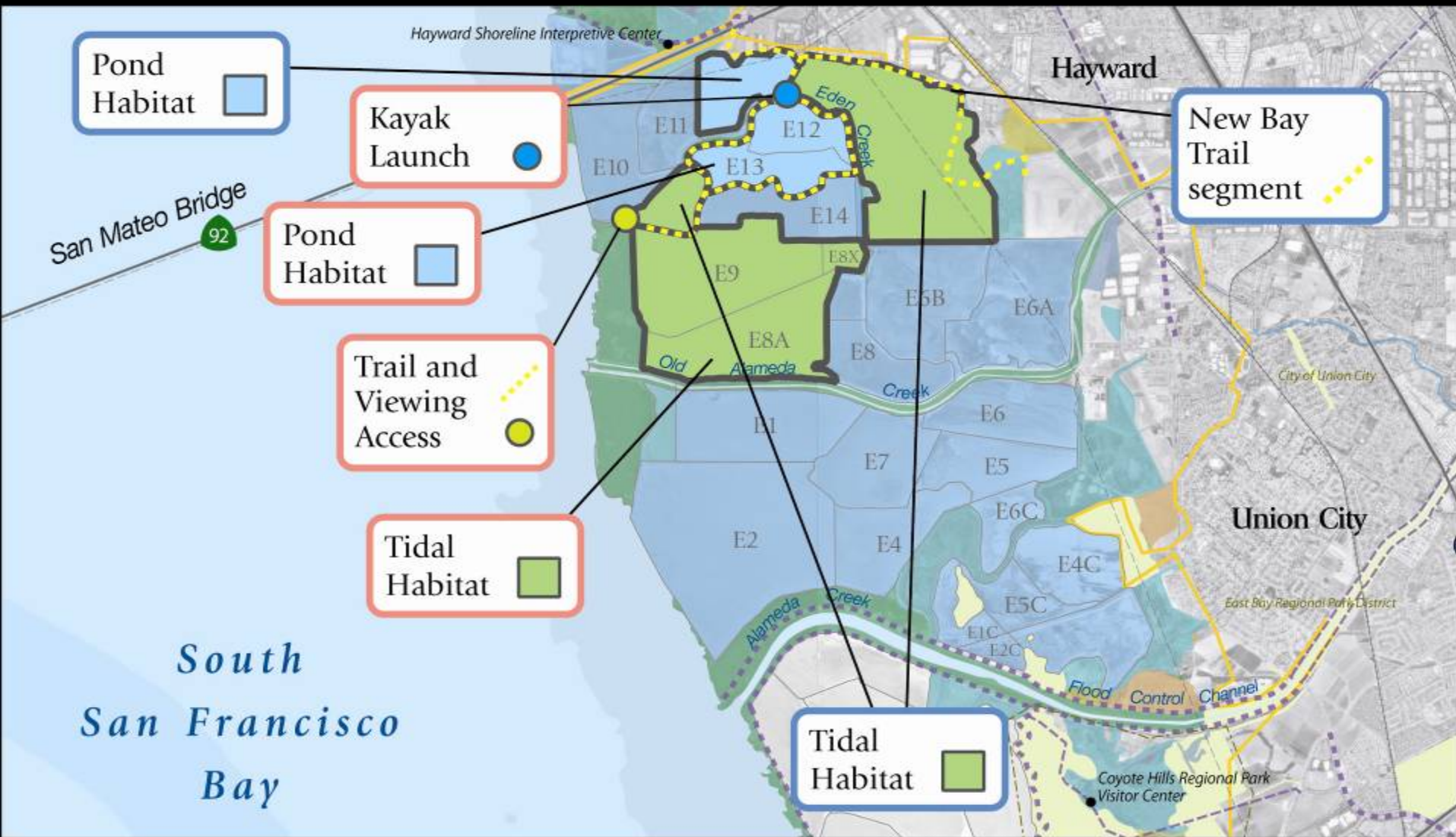
Lands Retained or Sold to Other Entities

- Cargill retains land for salt production
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Reference Features

- Highways
- Railroad





Initial Restoration Actions

South Bay Salt Pond Restoration Project—Eden Landing Area



2006 - 08



SBSP Phase 1

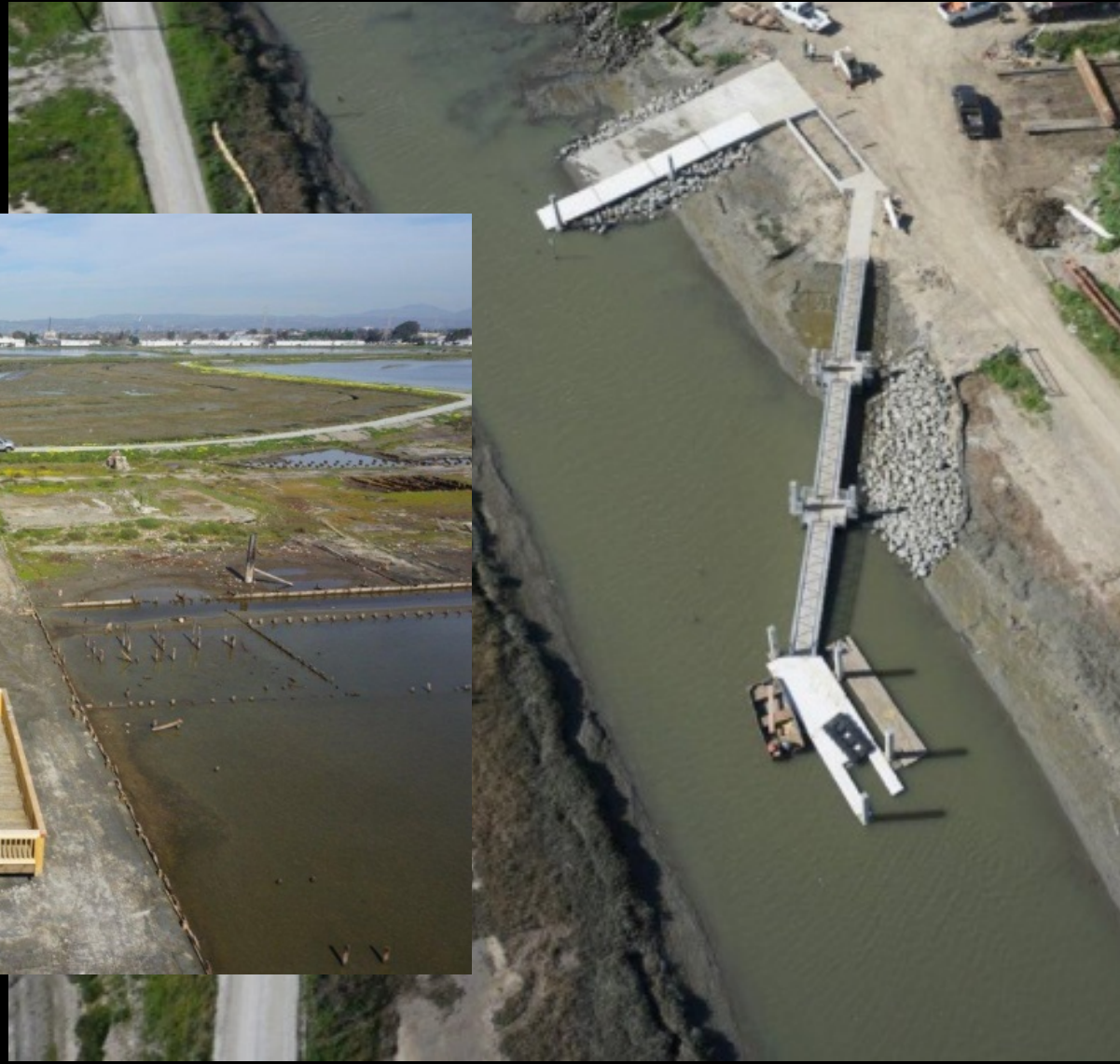
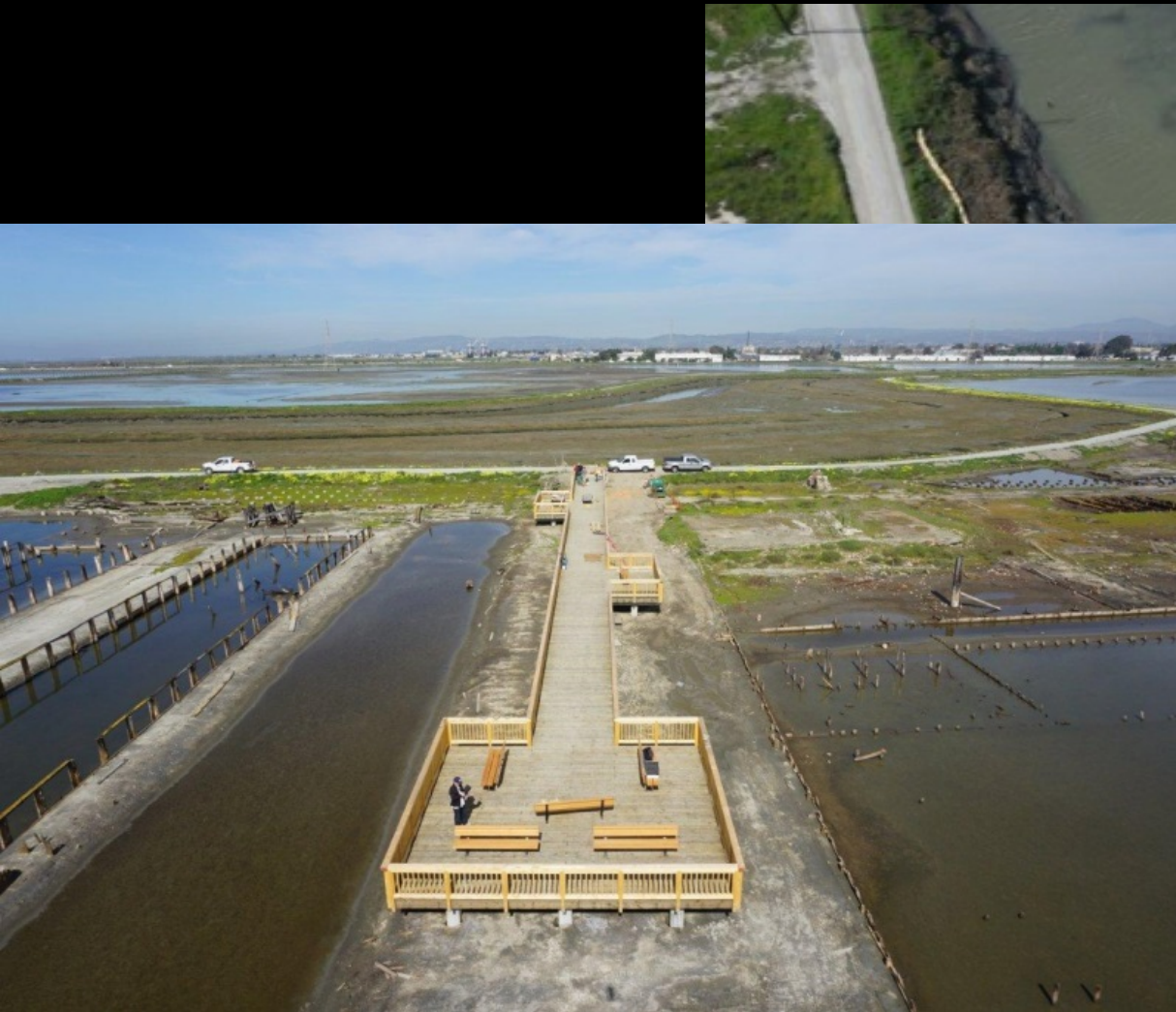
E9(E8A & E8X): Phase 1 (630-ac)



E12-E13: Constructed and Operating



Public Access: Kayak Launch & Saltworks Boardwalk



Questions?

Phase 2: Overview

Guiding Principles

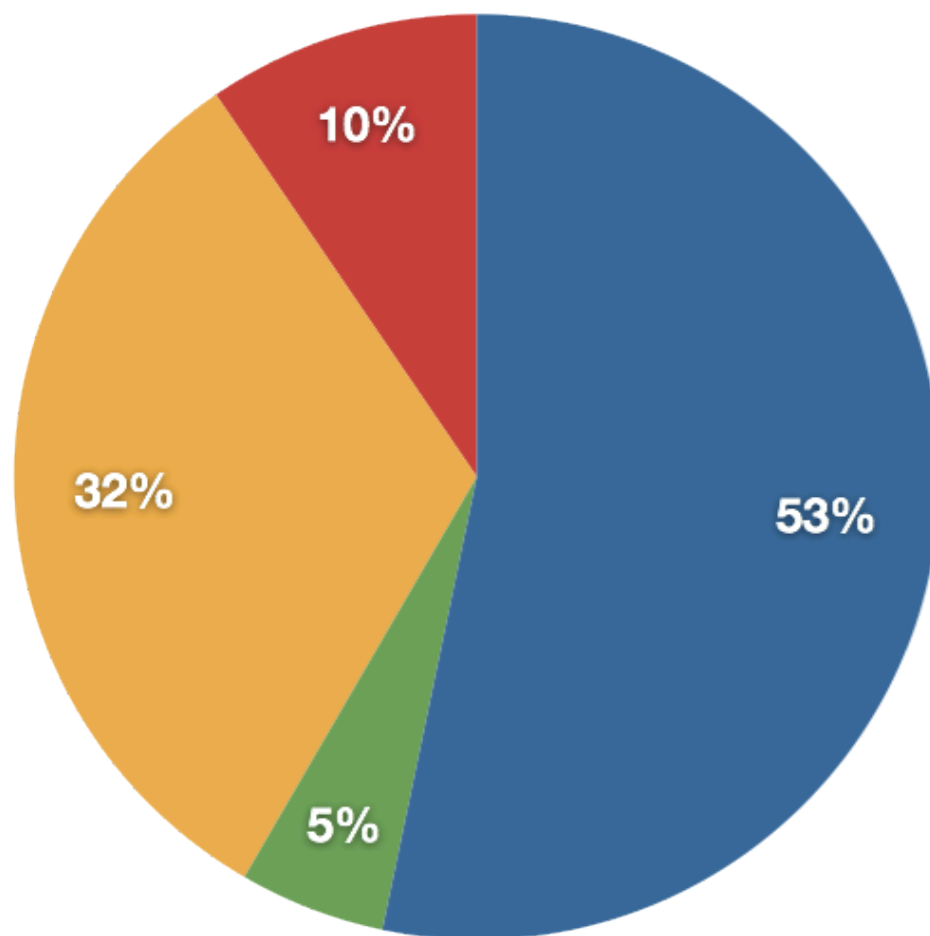
No actions that will
increase flood risk

Progress toward 50–50
vision (from EIR)

Primary Evaluation Criteria

- Likelihood of progress toward Project objectives
- Opportunities for Adaptive Management studies
- Value in building Project support
- Readiness to proceed / not dependent on precedent actions (e.g., flood levee)
- Input from Stakeholders (over 3 years)

SBSP Phases 1+2



Managed Ponds
Tidal Restoration

Reconfigured Ponds
Muted Tidal

Funding Picture

- Proposition 1
- Fall 2016 SF Bay Restoration Authority revenue measure

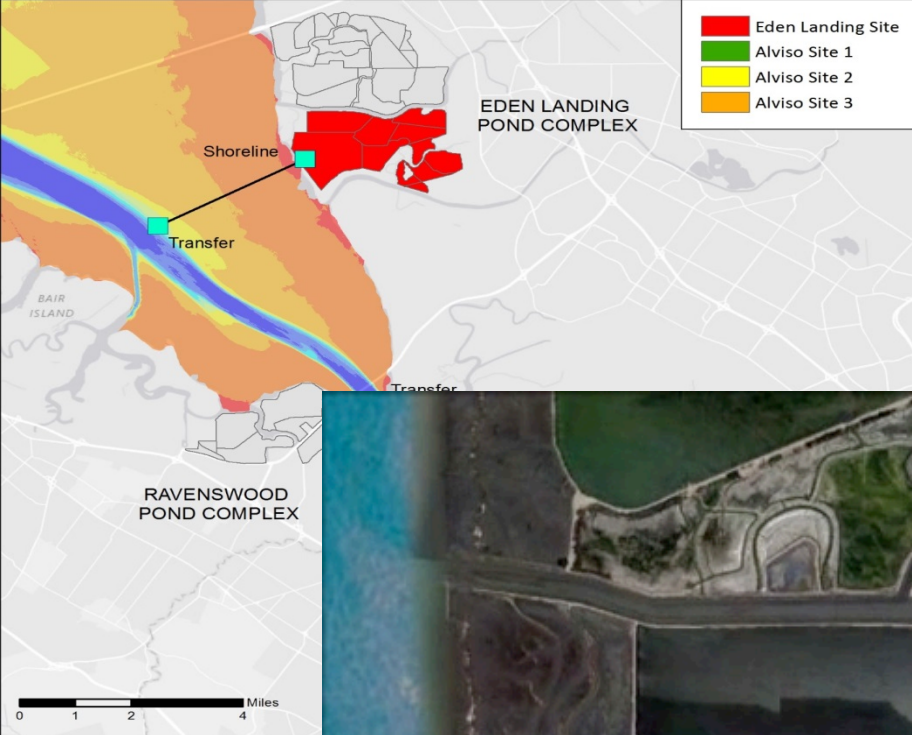
Project Progress

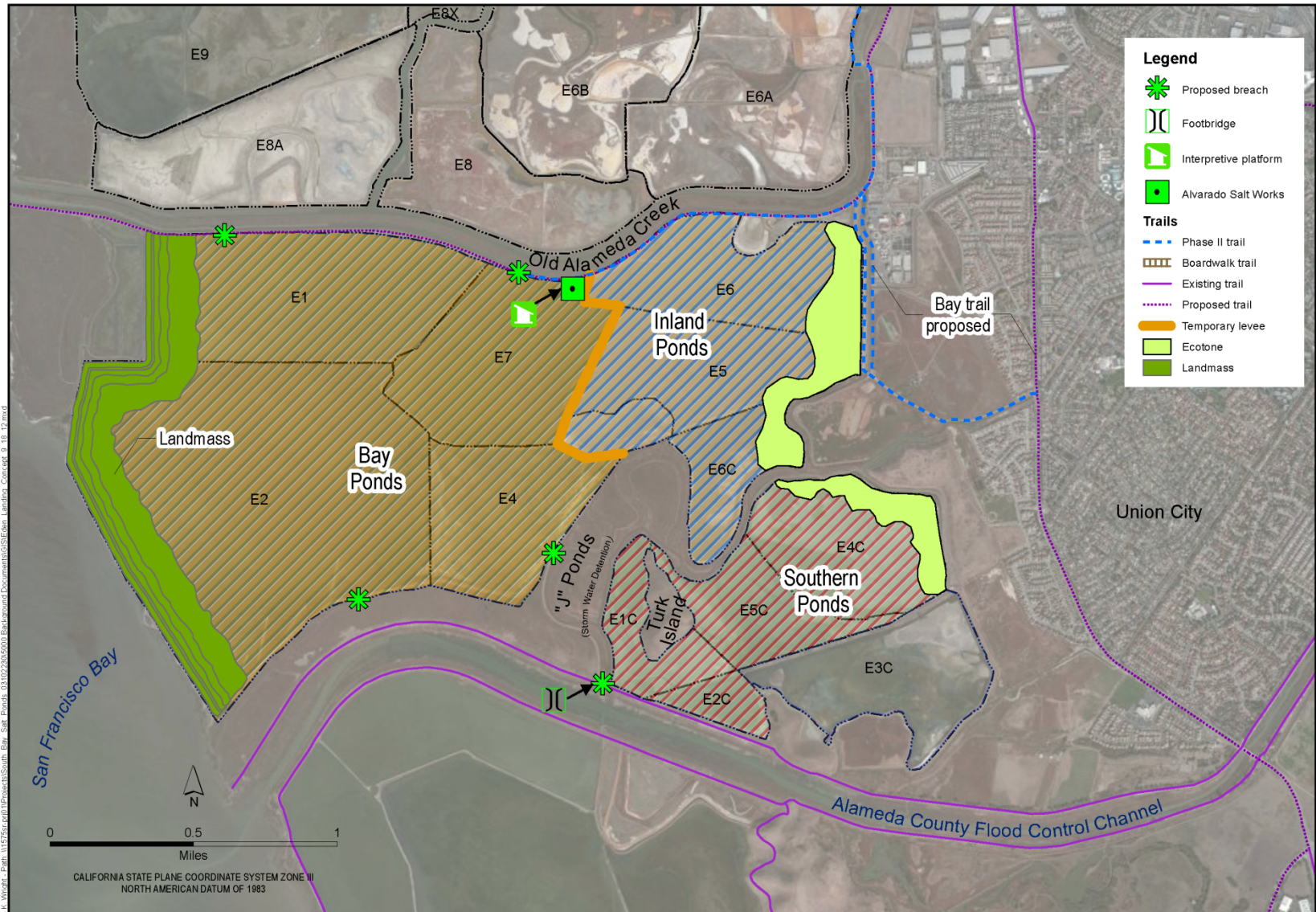
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Phase 2 in Eden Landing

Figure ES-3a. Alternative B:
Managed Pond Emphasis
Eden Landing, Year 50







SOUTH BAY SALT PONDS
EDEN LANDING
ALAMEDA COUNTY, CA

DATE OF PREPARATION: 9/18/2012
DRAFT, FOR INTERNAL USE ONLY
URS PROJECT NO. 26818346

**DRAFT PREFERRED ALTERNATIVE
EDEN LANDING POND COMPLEX**

Transition Zone Creation

- Issues:
- Sources (upland vs. dredged material)
- Placement methods (traffic, cost, etc)



even



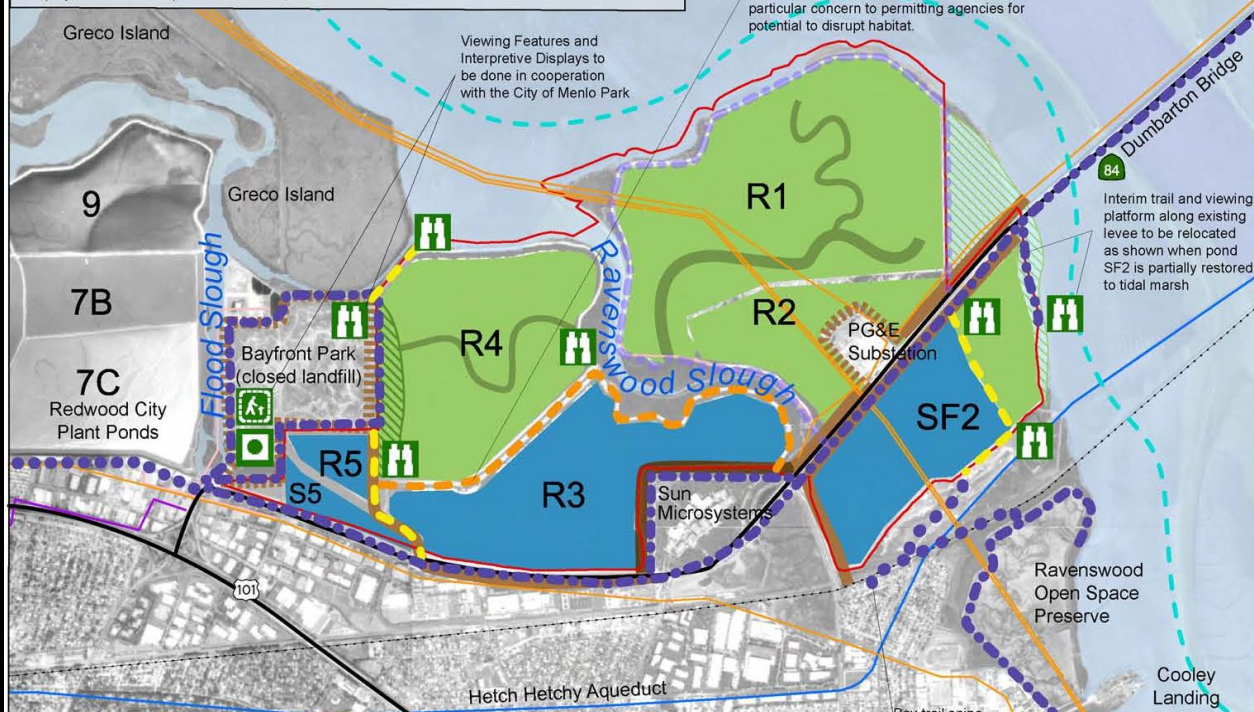
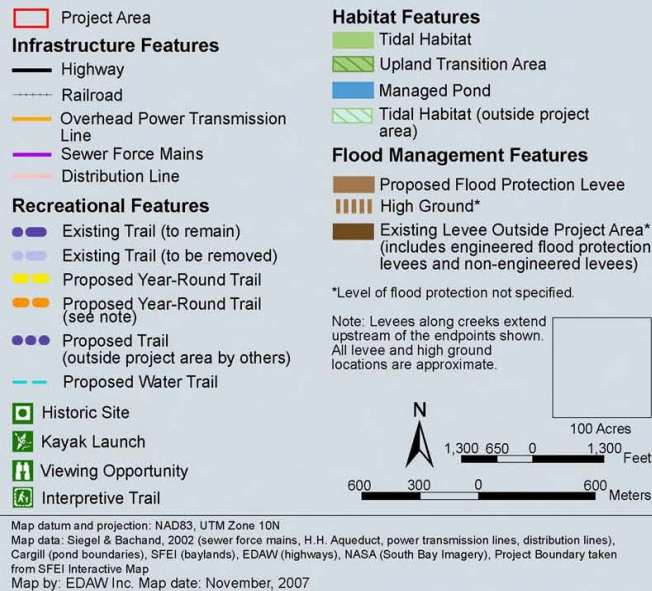
Phase 2 in Alviso & Ravenswood

Phase 2 Alternatives

- Ravenswood complex
 - 4 ponds in western half of complex
 - May also incorporate a Redwood City storm water management component
- Alviso complex – 3 separate pond clusters
 - Island Ponds
 - A8 Ponds
 - Mountain View Ponds
 - May also include City of MV's Charleston Slough

South Bay Salt Pond Restoration Project

Figure ES-3c. Alternative B:
Managed Pond Emphasis
Ravenswood, Year 50





Marsh Rd

Constitution Dr
Jefferson Dr

Chico St

Hacker Way

84

11

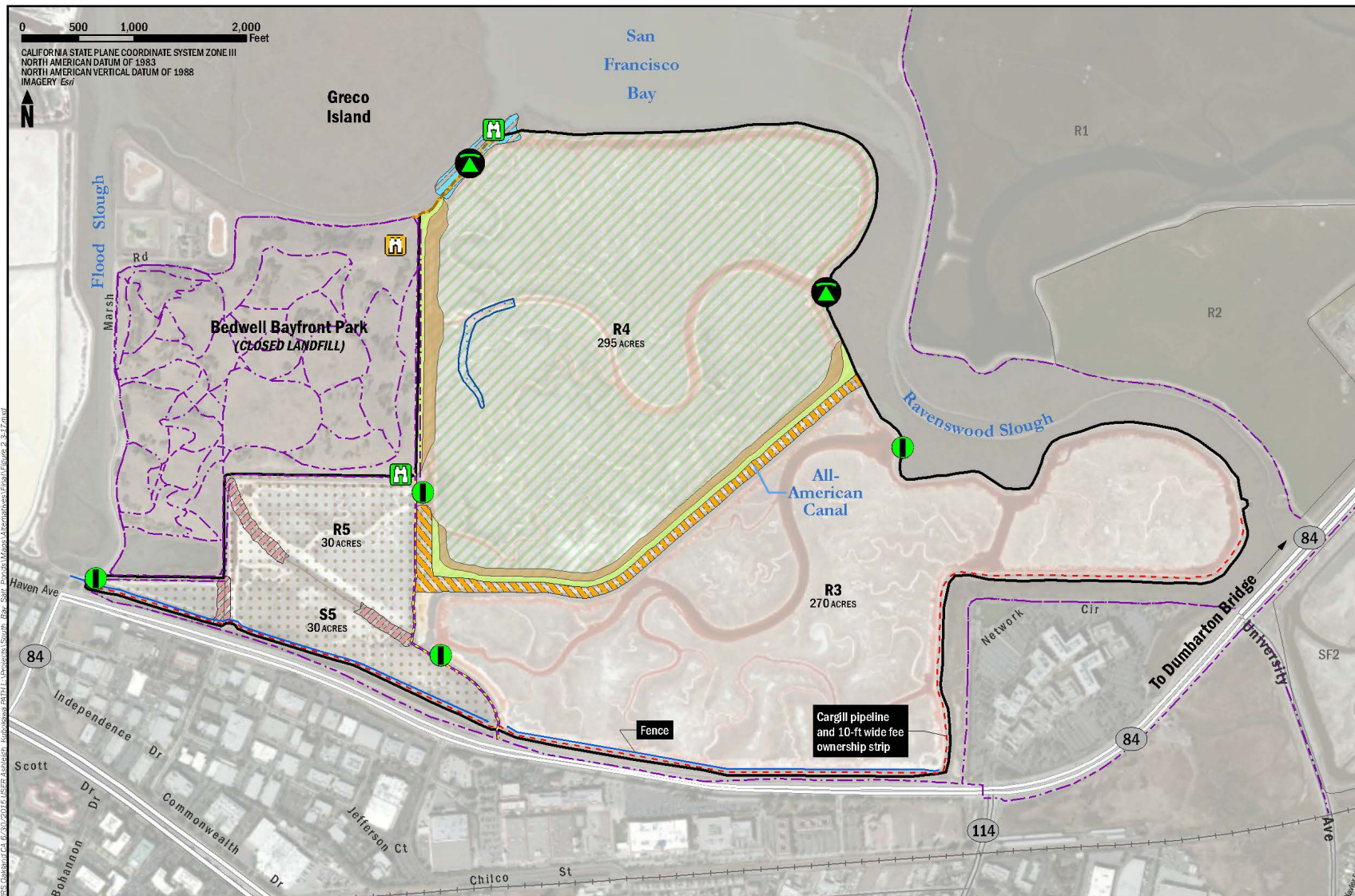
© 2012 Google

Google

ate: 10/31/2011 1948

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

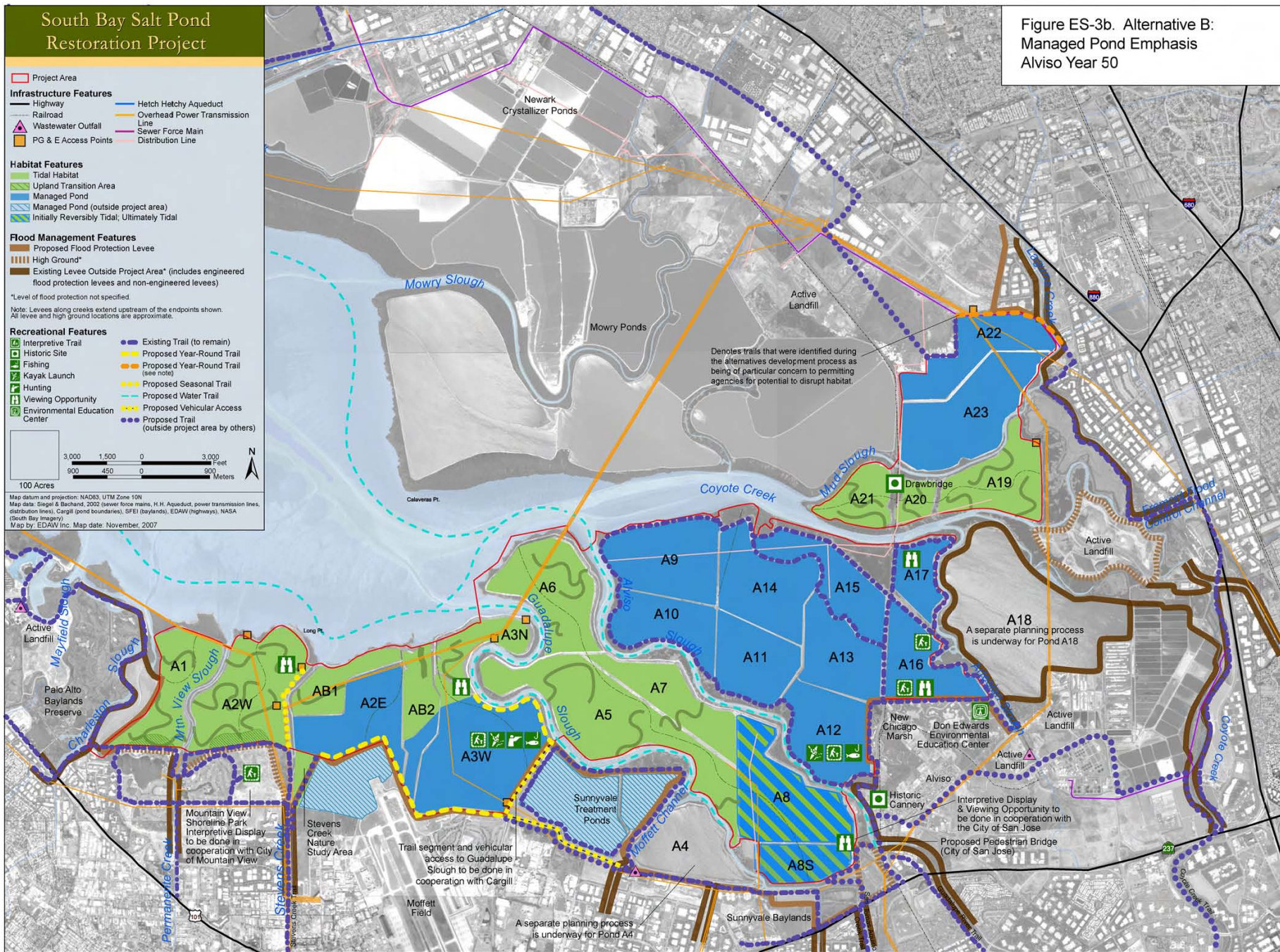
Eye alt 3.1

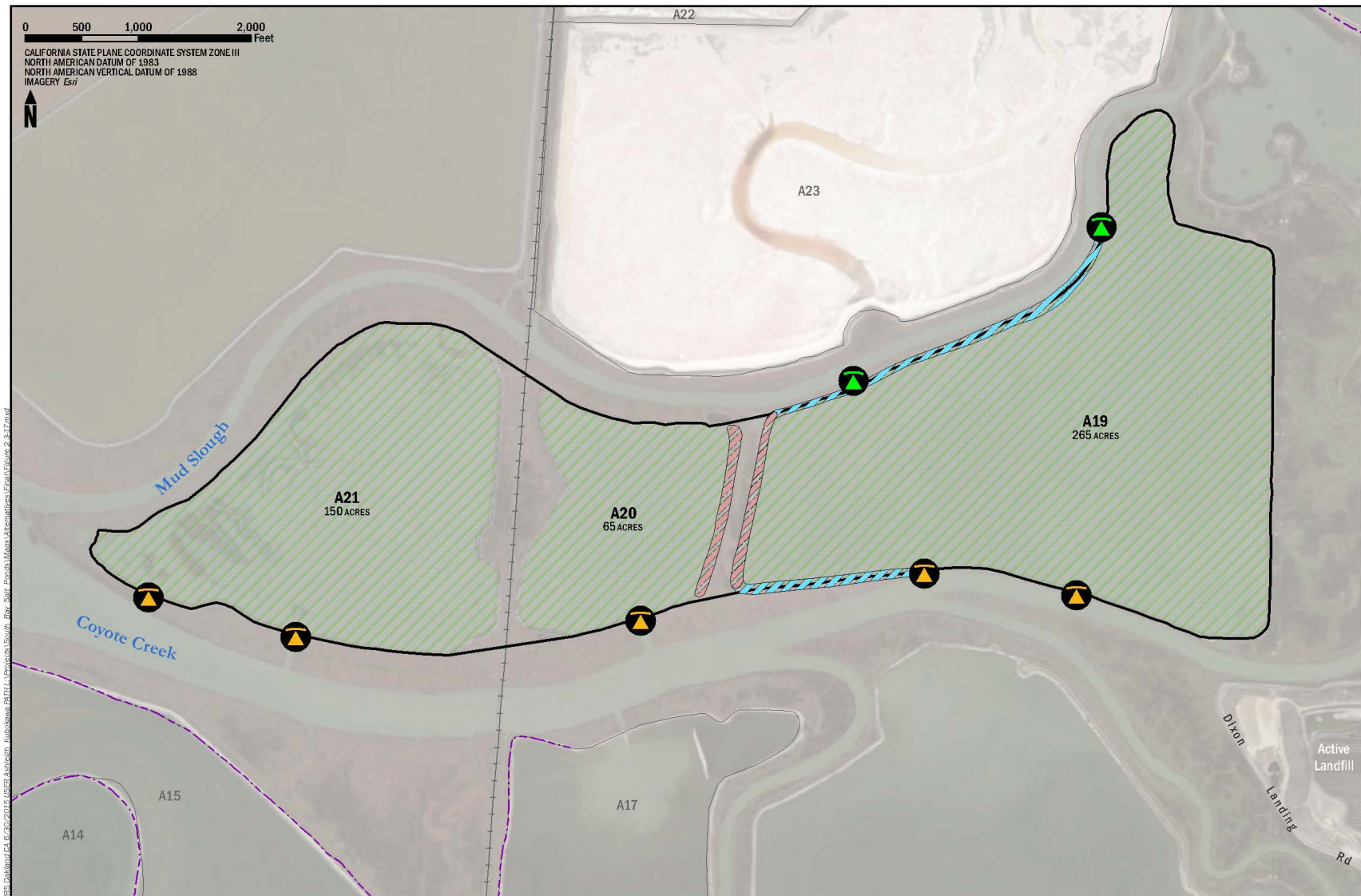


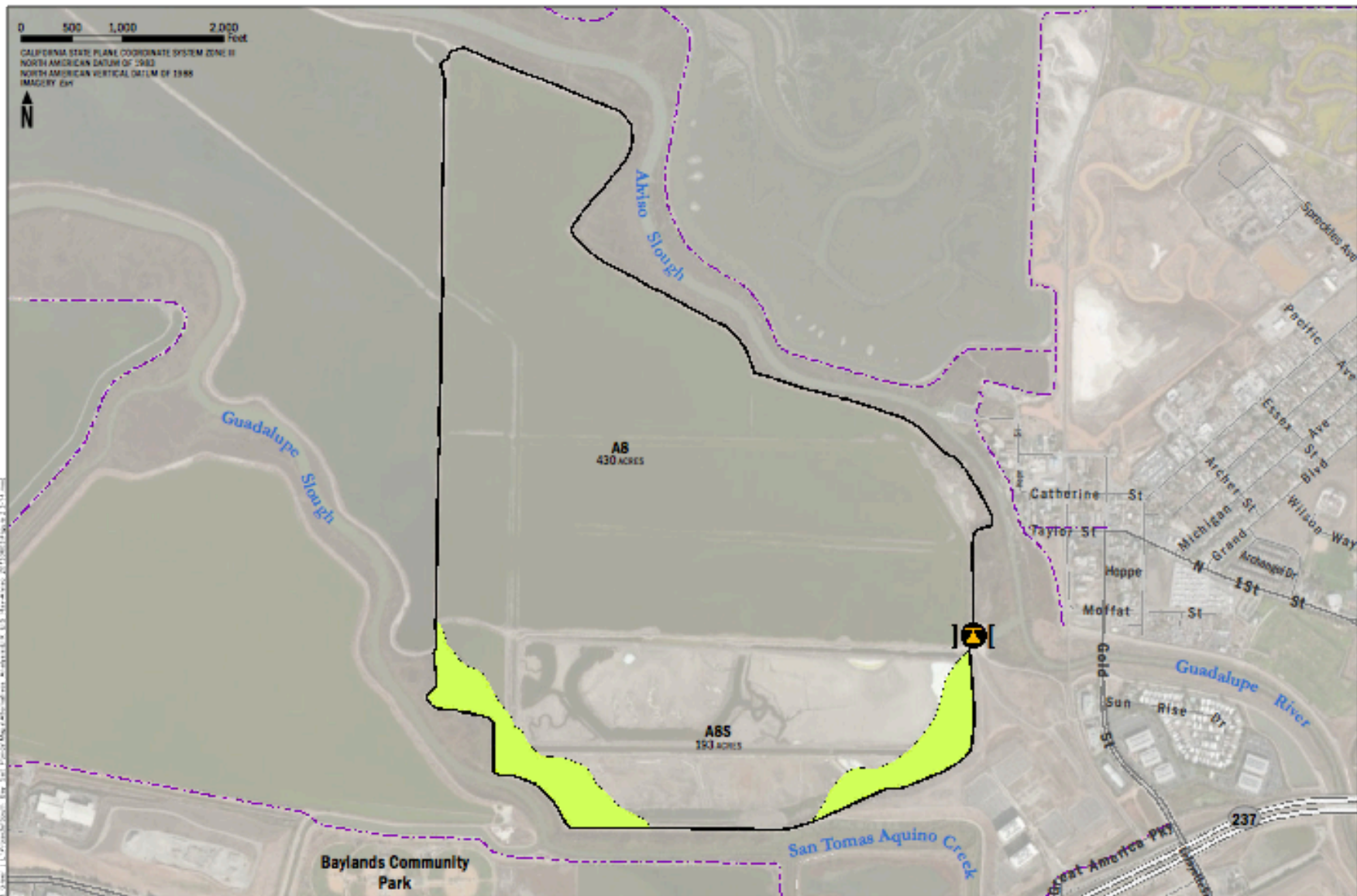
South Bay Salt Pond Restoration Project



Figure ES-3b. Alternative B:
Managed Pond Emphasis
Alviso Year 50







LEGEND



Existing Reversible
Armored Match



Existing trail



Upland Transition Zone



Pond boundary



Charleston Slough

Shoreline Lake

© 2011 Google

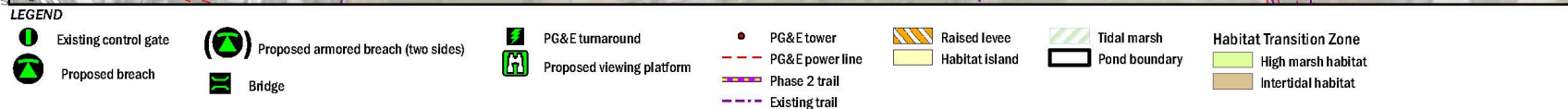
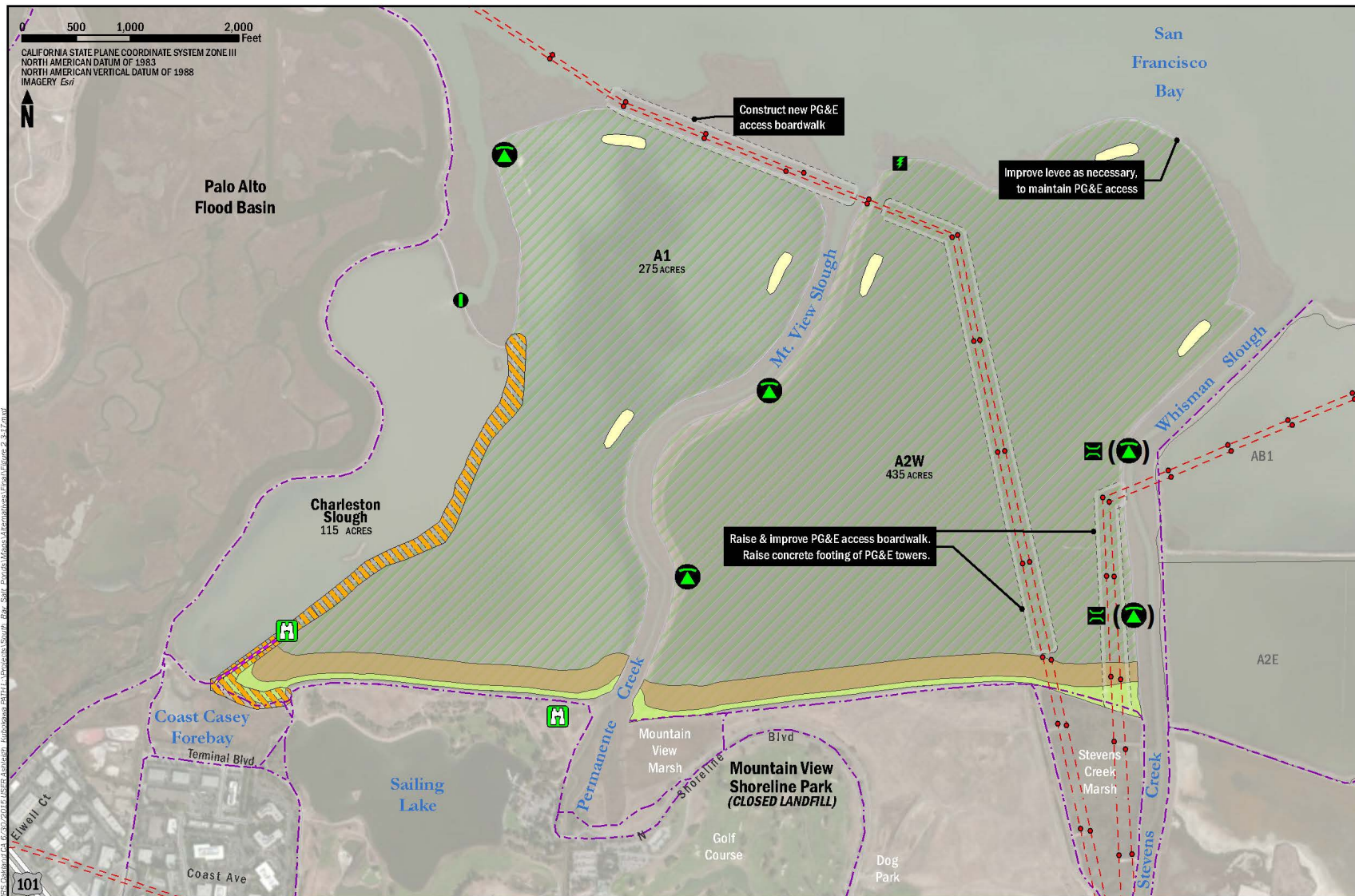
© 2011 Europa Technologies
Image © 2011 TerraMetrics

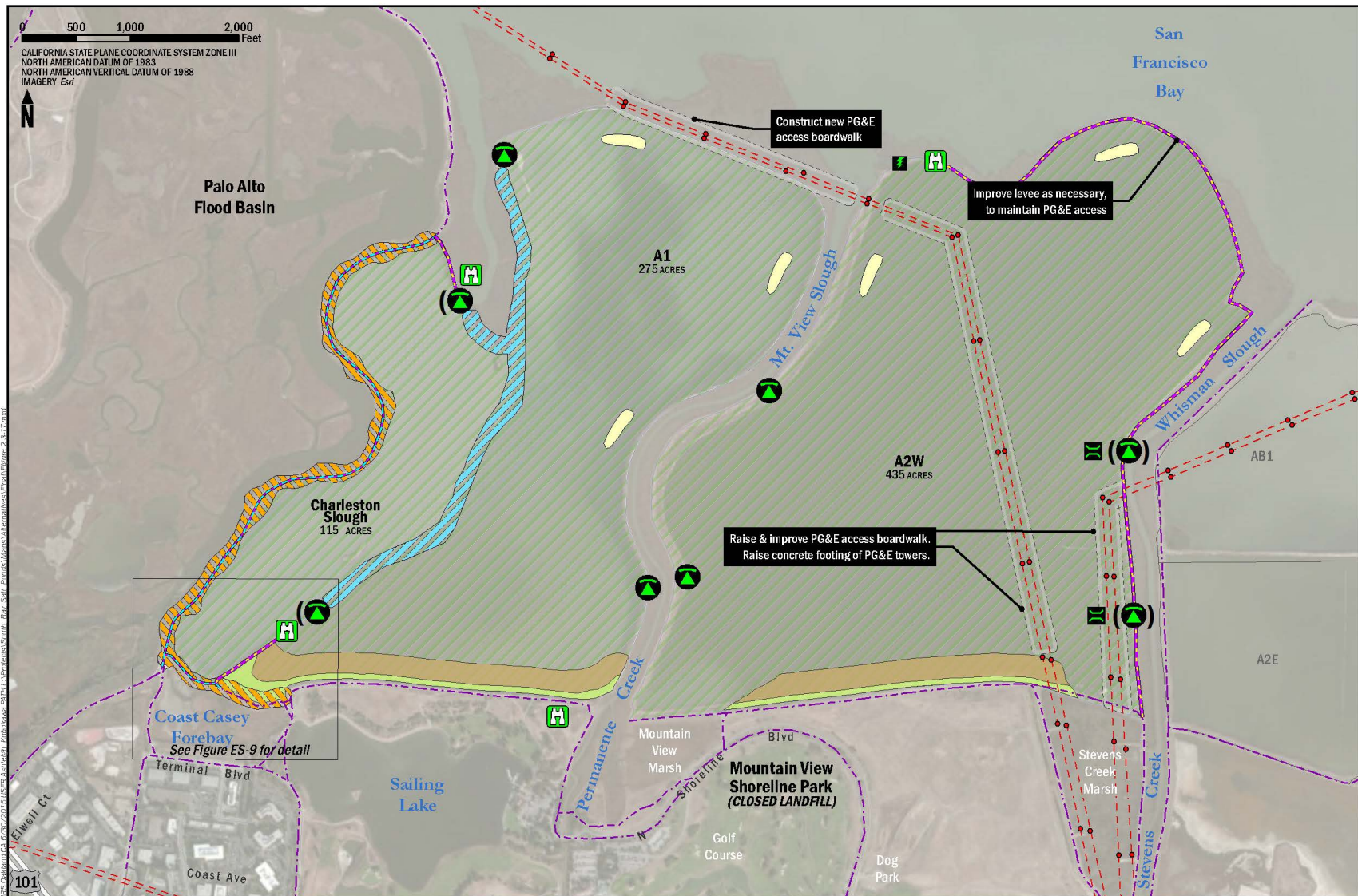
Google

Imagery Date: 6/19/2011 1948

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

Eye alt





Questions?

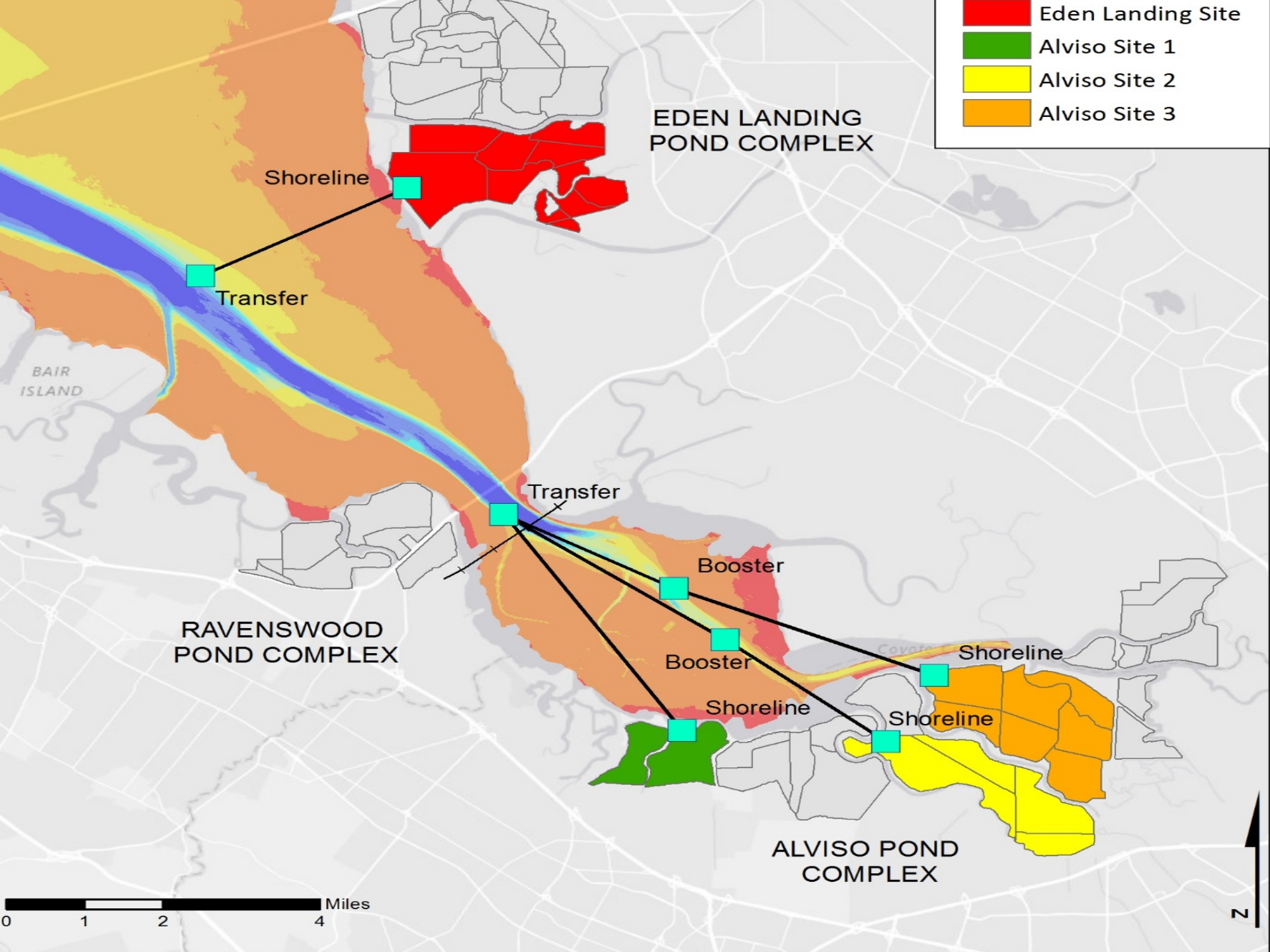
Fill for Transition Habitat

Issues:

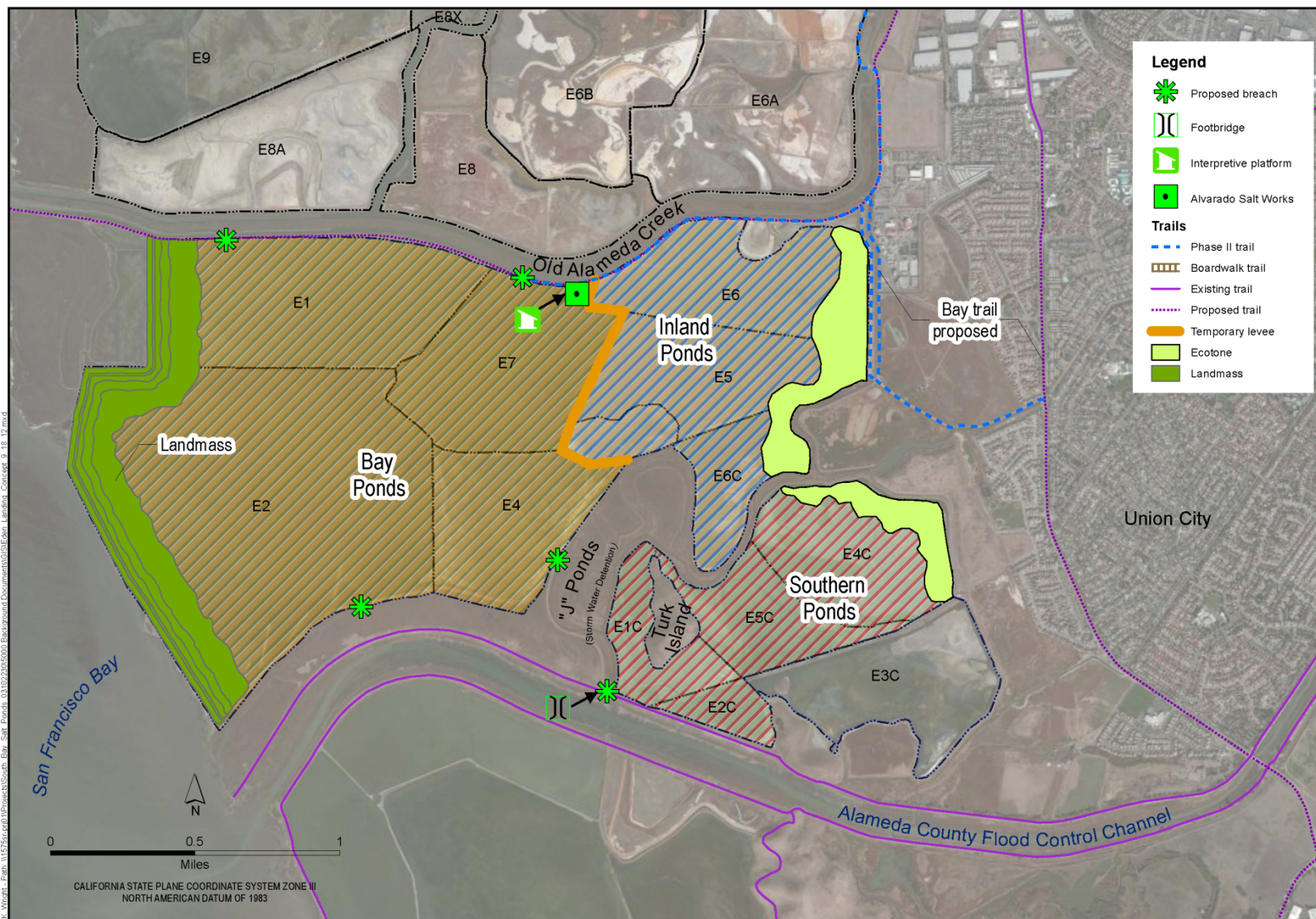
- Sources (upland vs. dredged material)
- Placement methods (traffic, cost, etc.)
- Plan released and available on our website

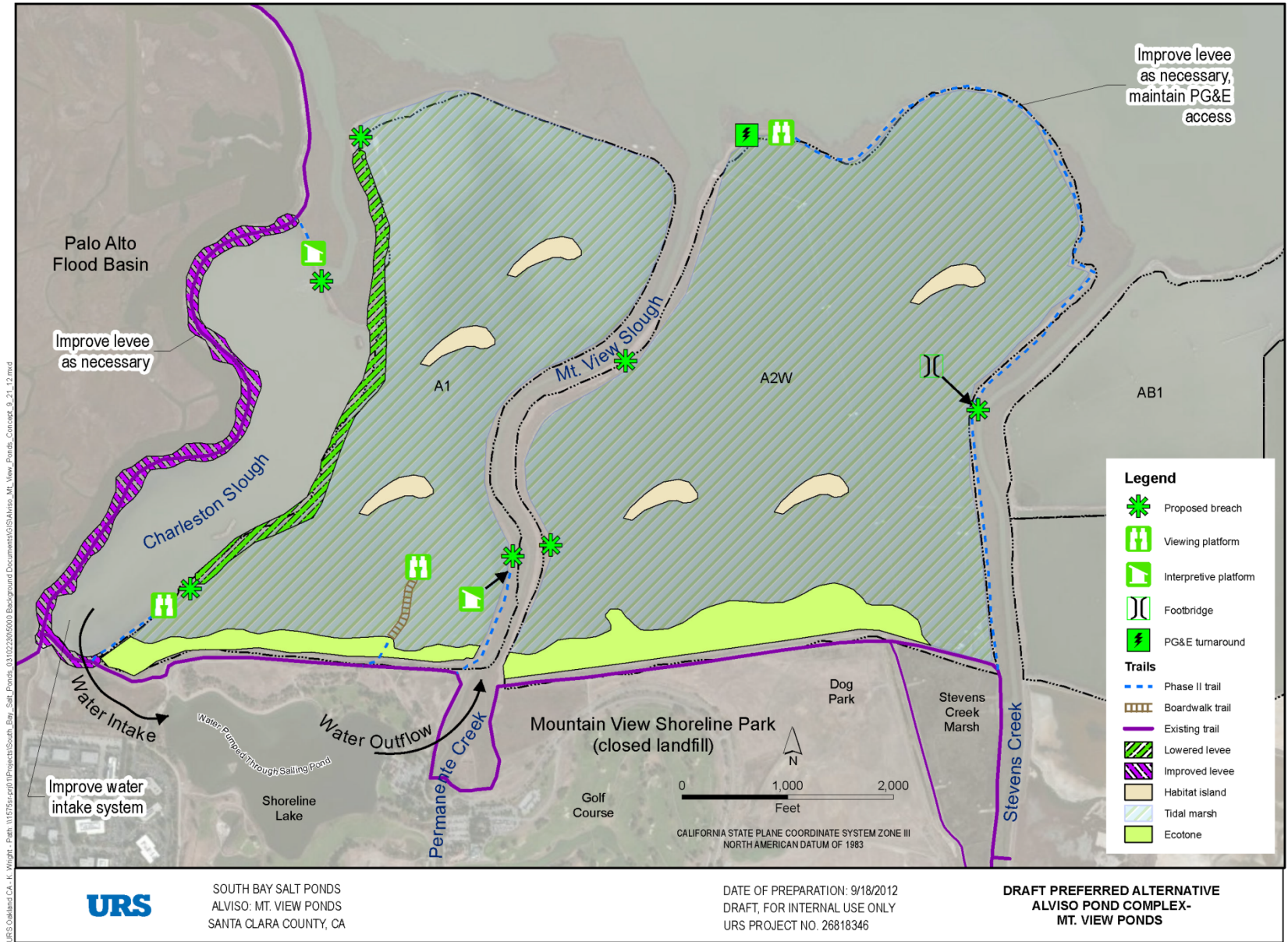


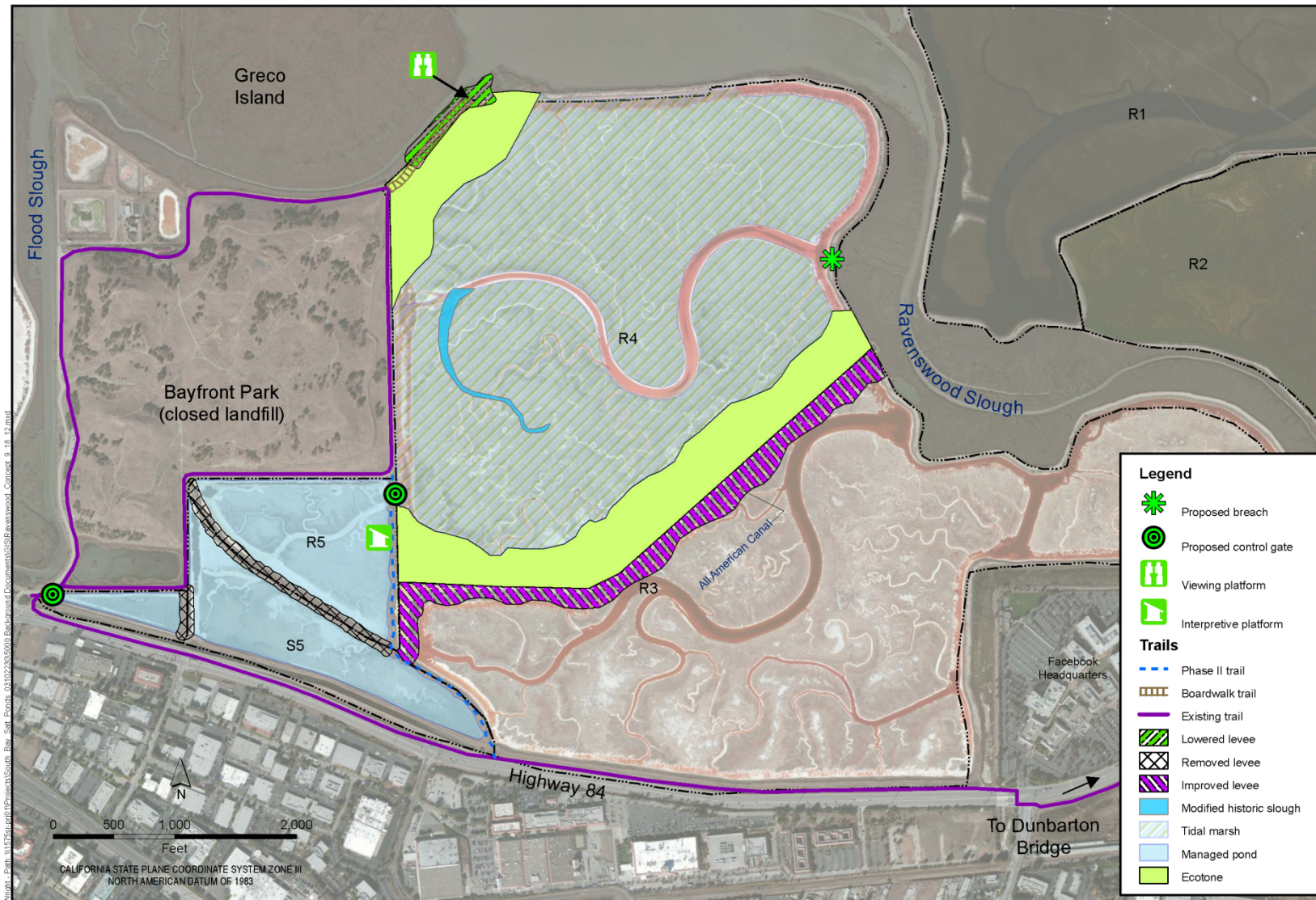










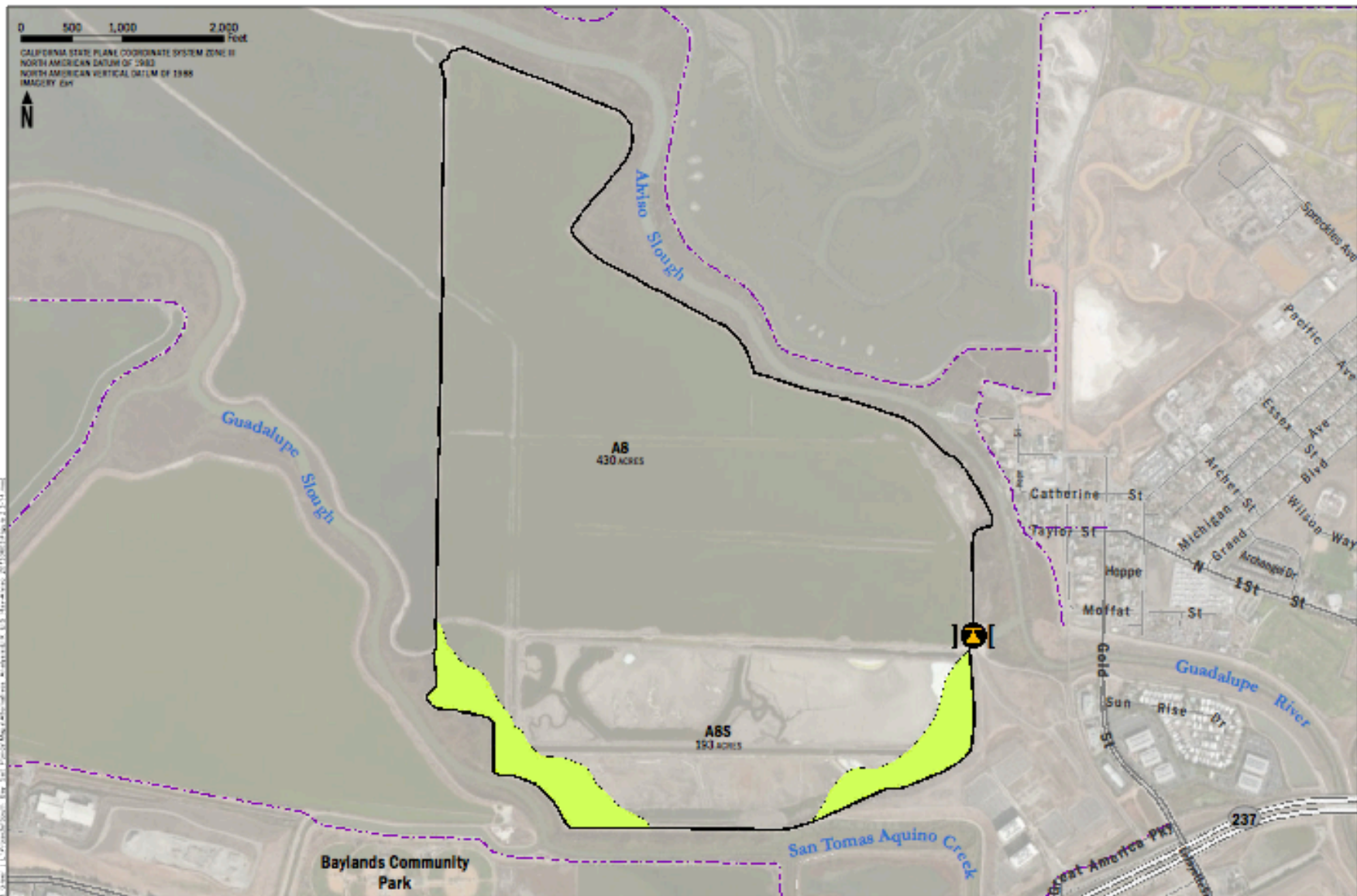


URS

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RAVENSWOOD
SAN MATEO COUNTY, CA

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RAVENSWOOD POND COMPLEX**



LEGEND



Existing Reversible
Armored Notch



Existing trail



Upland Transition Zone

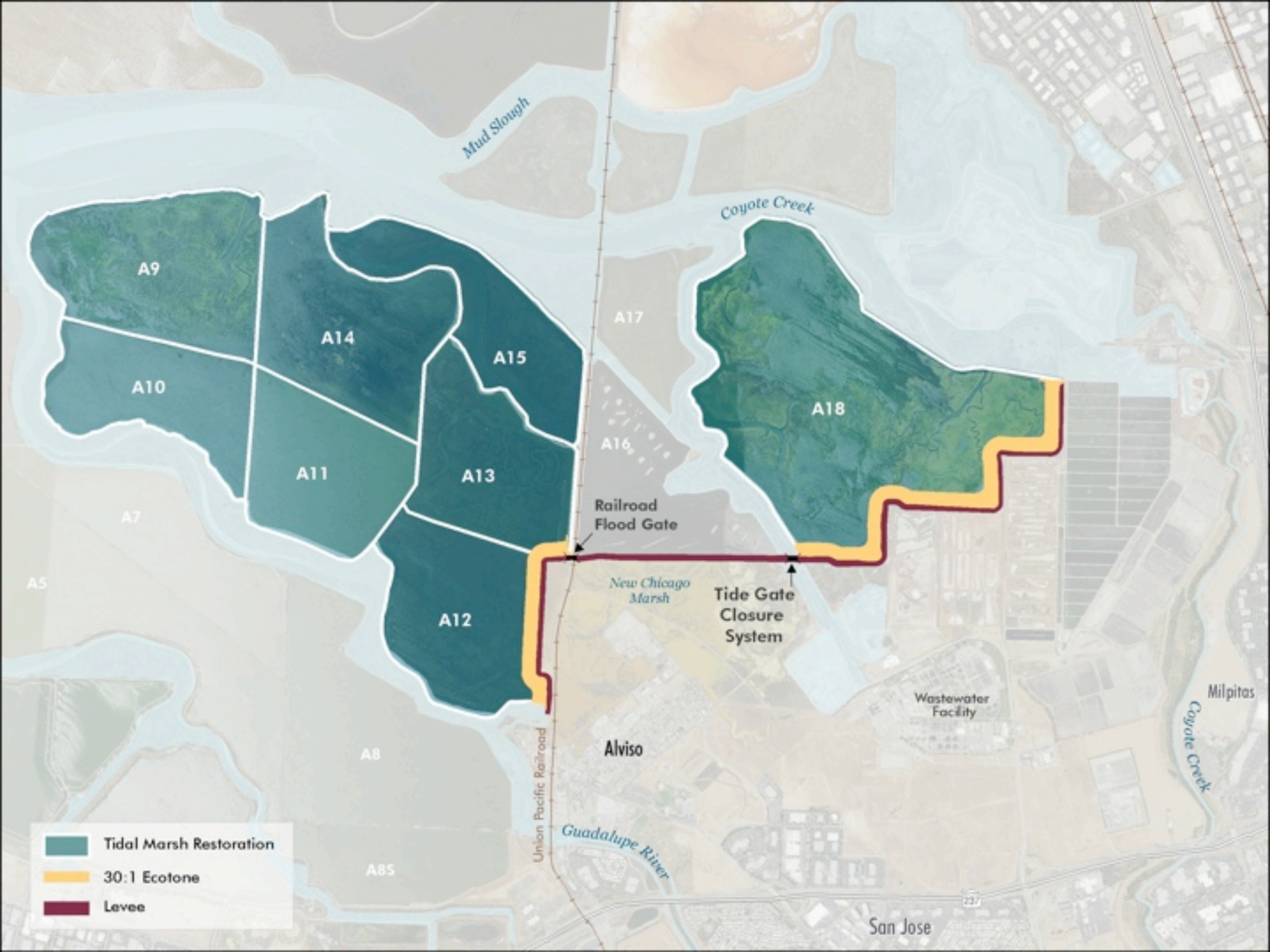


Pond boundary

Questions?

Shoreline Study Update

Brenda Buxton
Coastal Conservancy



Questions?

Science Update

Laura Valoppi
Lead Scientist

Overview

- Summary of 2014
Mercury Studies
- Social Attraction for
Birds
- Science Symposium

■ Armored Notch

Pond A8 Complex – Management History

- Opened 1 of 8 gates in June 2011 (5' out of 40')
- June of 2012 and 2013 opened 3 gates of 8 (15' out of 40')
- Gates had to be closed from Dec 1 to May 30 each year (NMFS)



Pond A8 Management

- Opened 3 gates in early March 2014
(same # of gates as in 2013)
- What is the effect of opening the gates early on mercury in the Pond A8 and Alviso Slough?

Mercury Study Locations



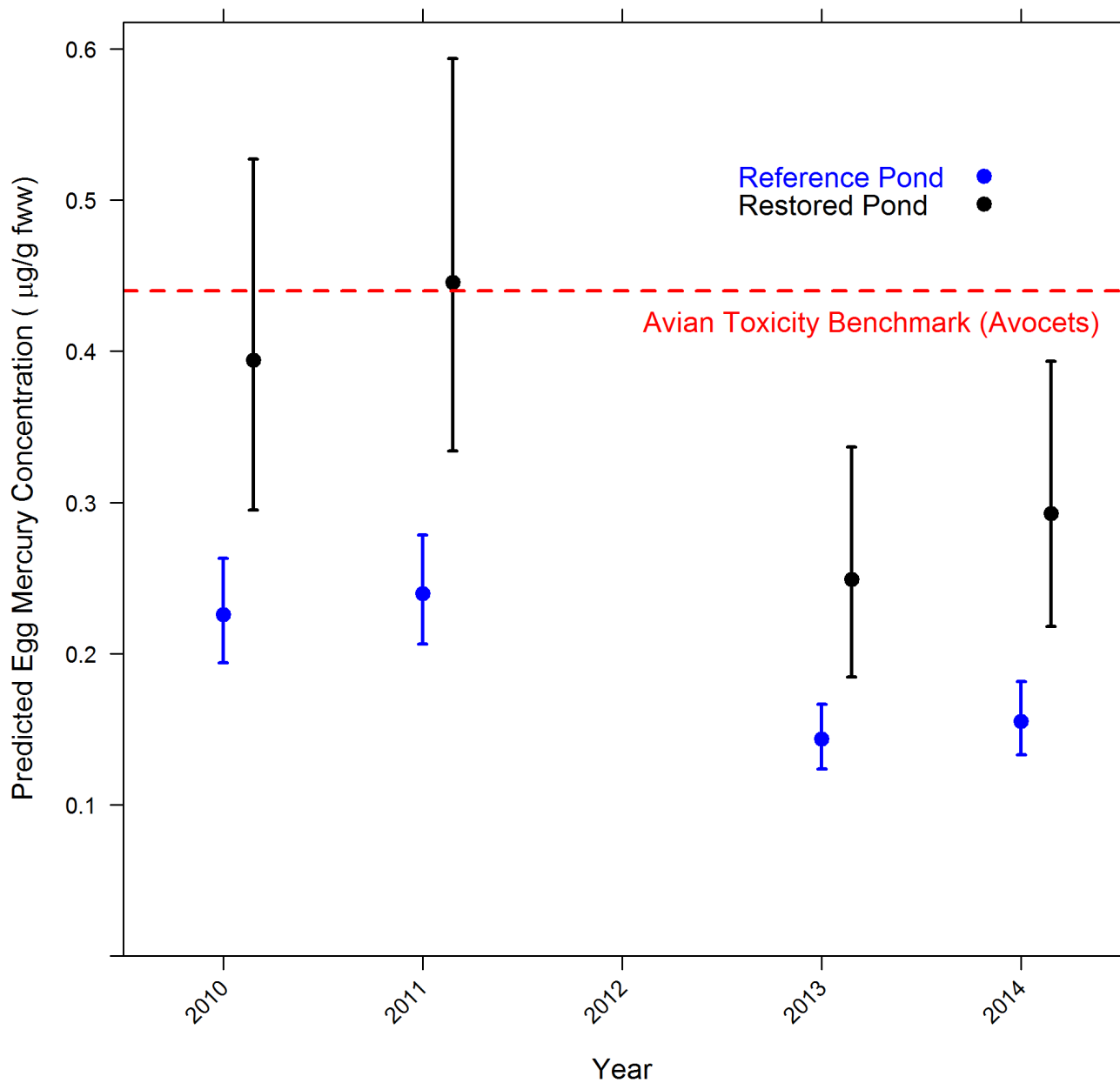
● Slough

▲ Pond

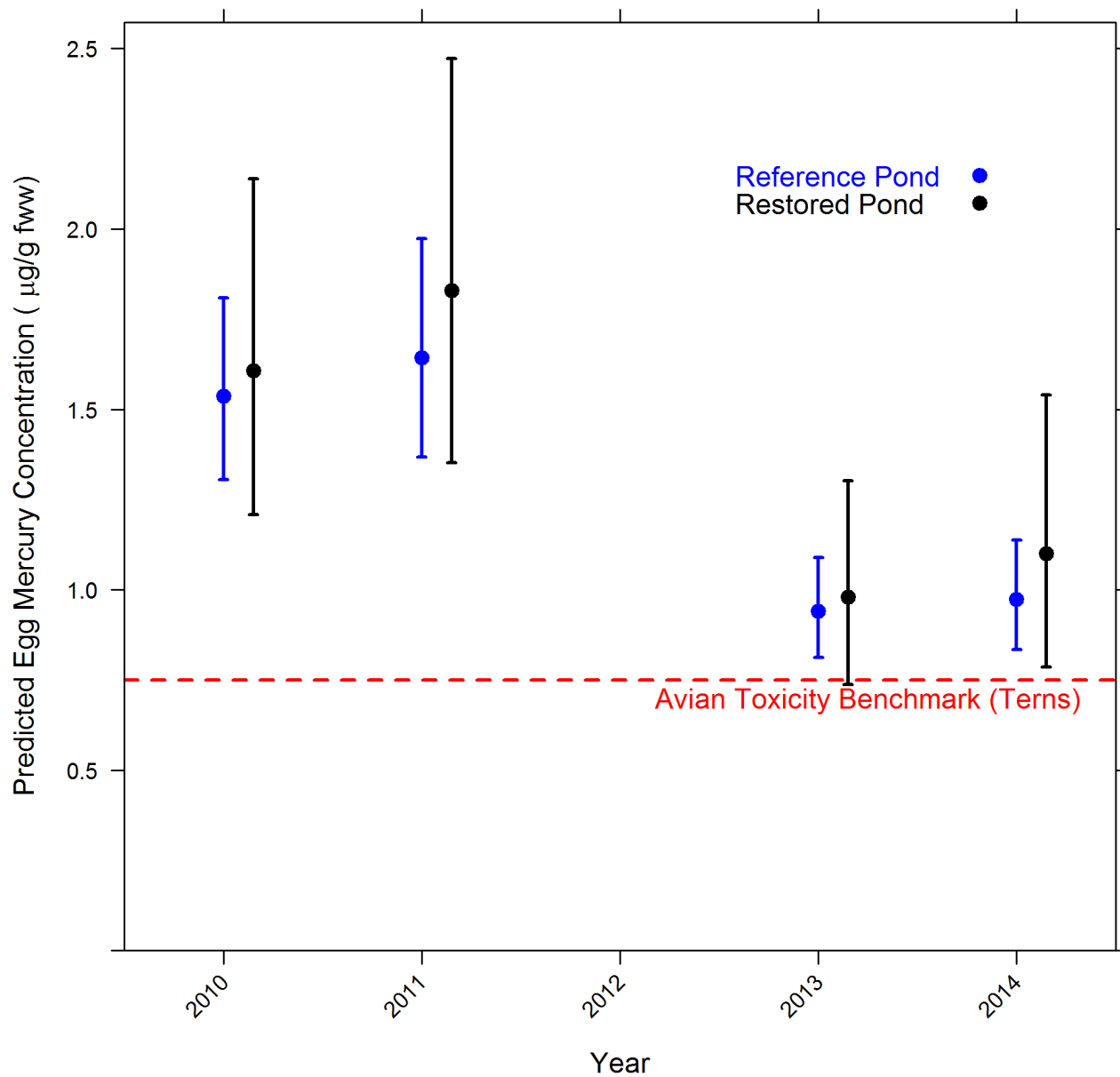
2014 Mercury Studies

Bird Eggs

American Avocet



Forster's Tern



2014 Mercury Studies

Pond Fish

Pond Fish

- Limited data
- 38% decline in Hg in mudsucker in 2014 vs 2011
- 35–44% decline in Hg in stickleback in 2014 vs 2011



Ackerman

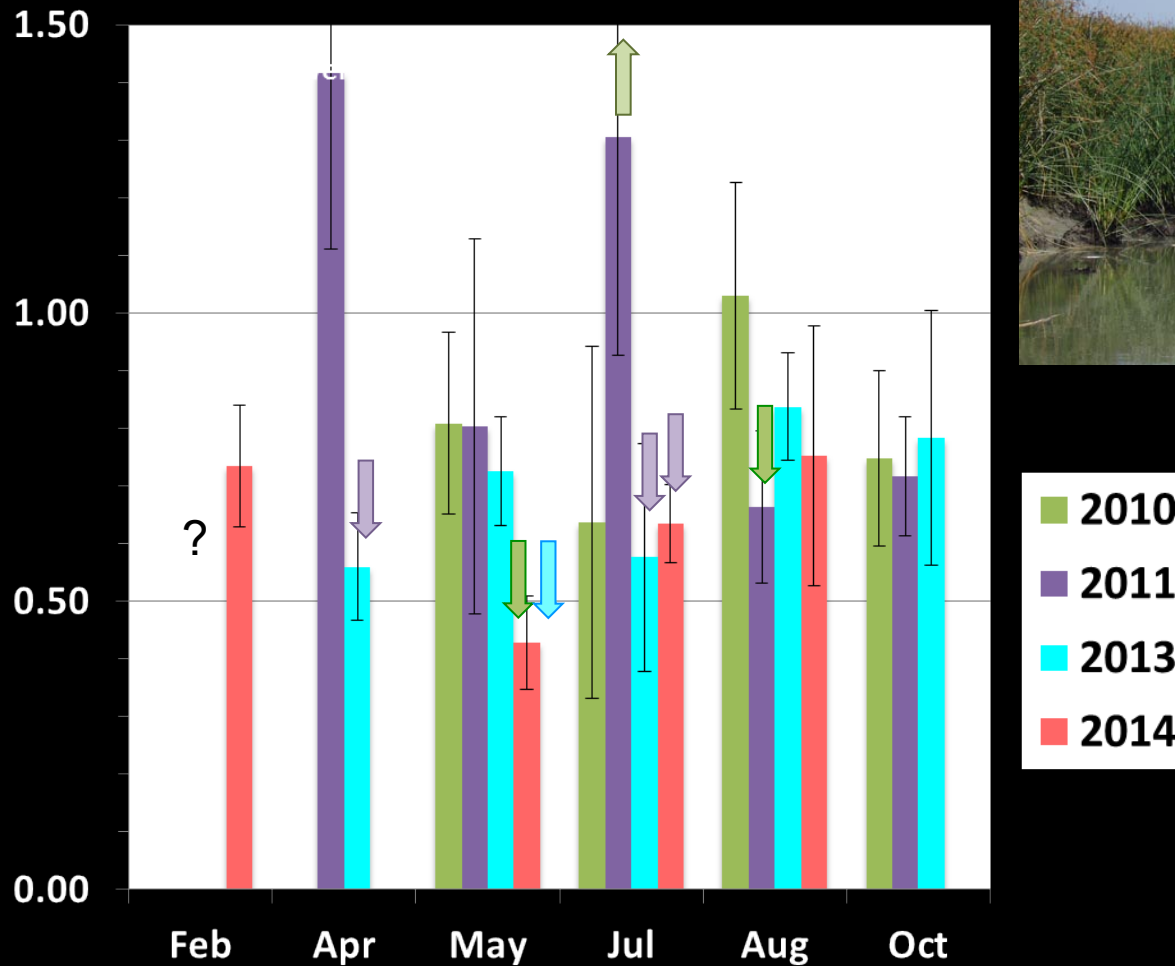


Hobbs



2014 Mercury Studies

Slough Fish



Alviso Slough at the Pond A8 notch



Mississippi Silverside

- 2014 not elevated vs past years
- < or = to Guad Slough levels



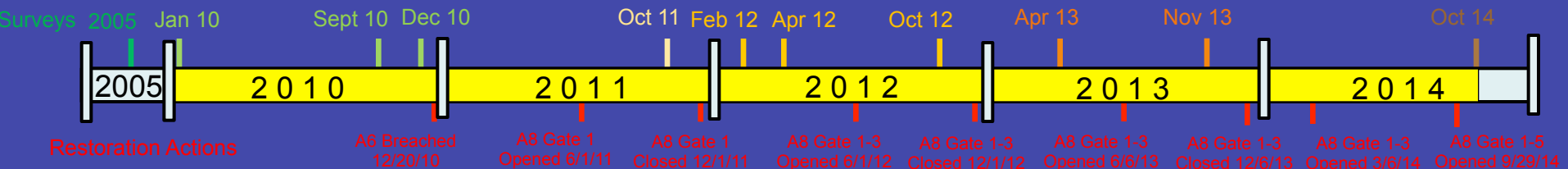
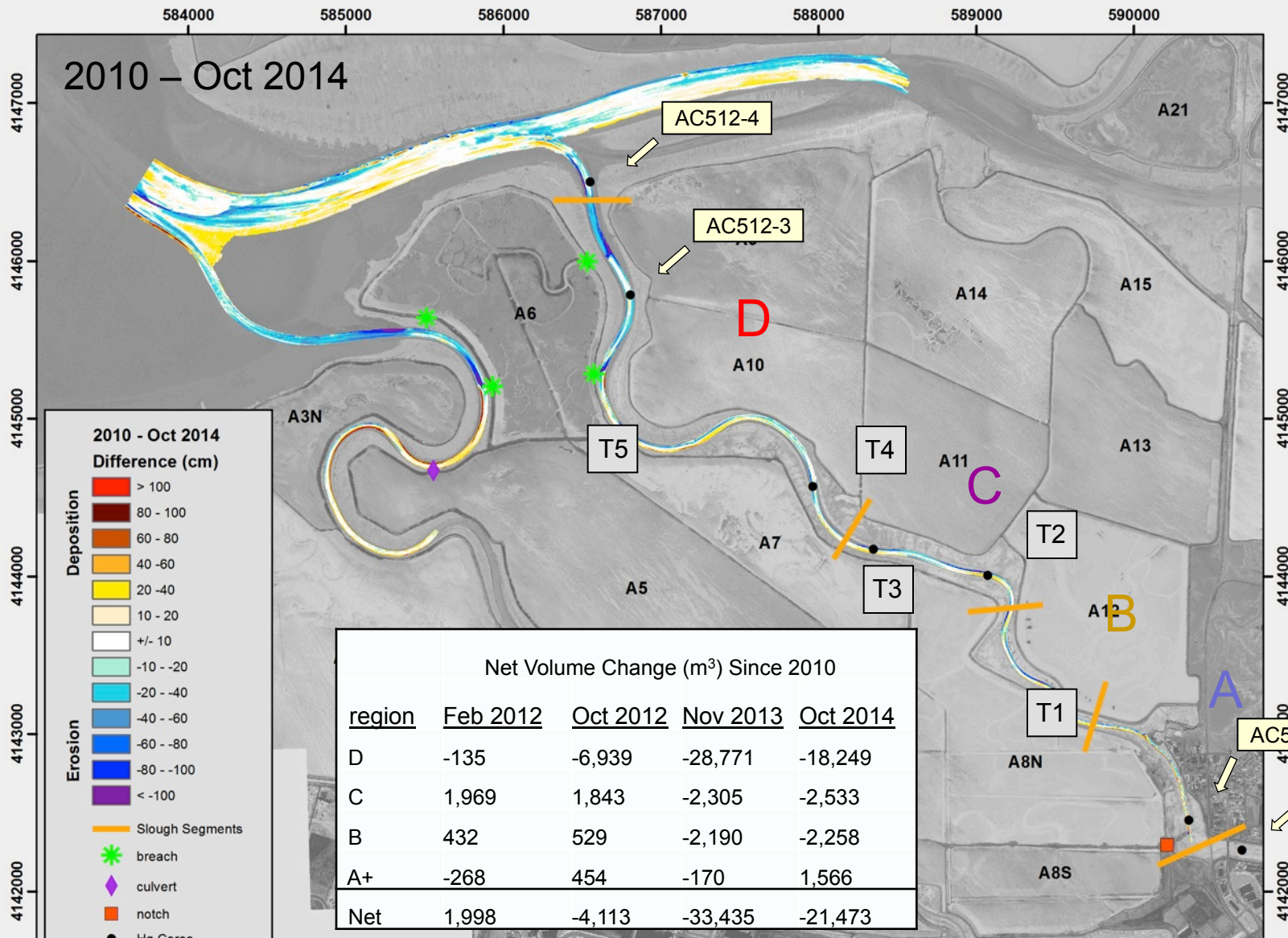
Slotton, Hobbs

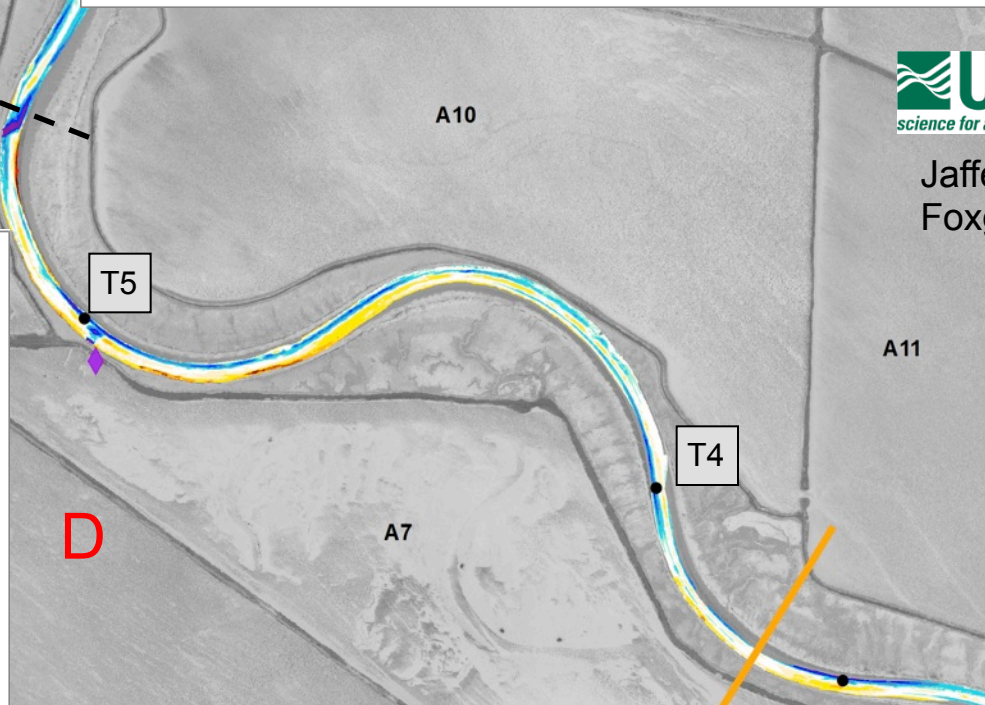
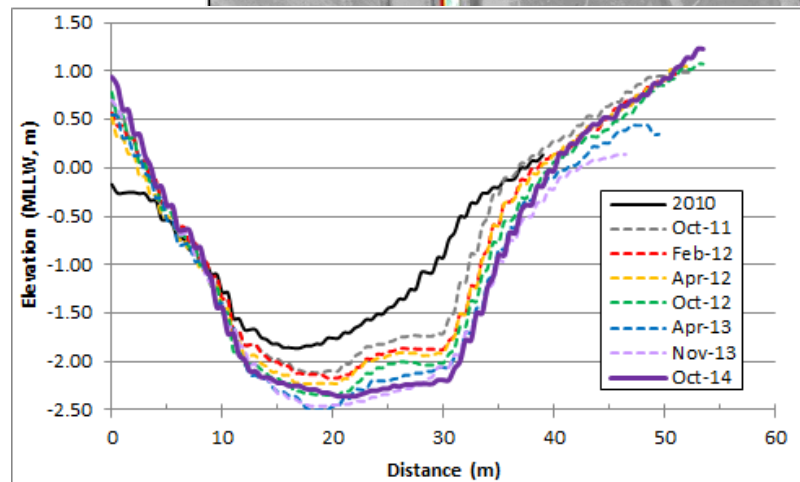
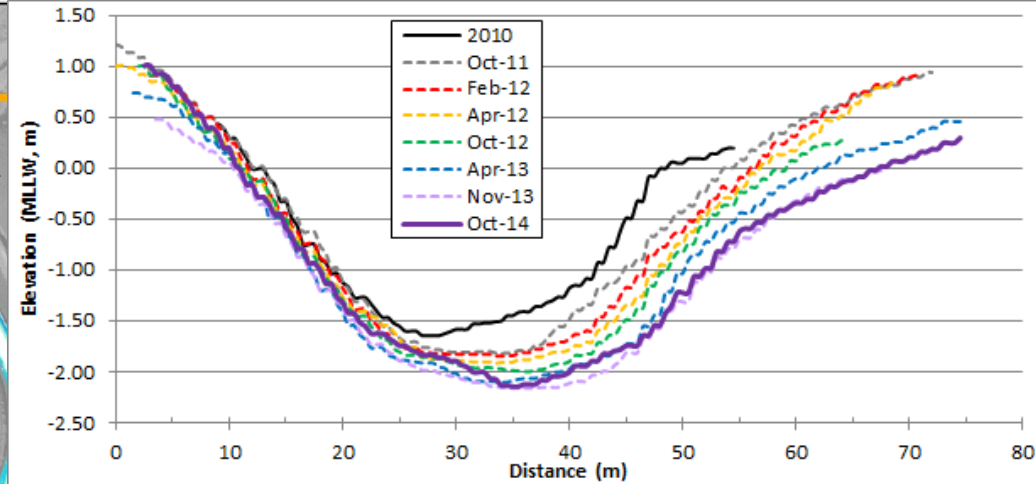
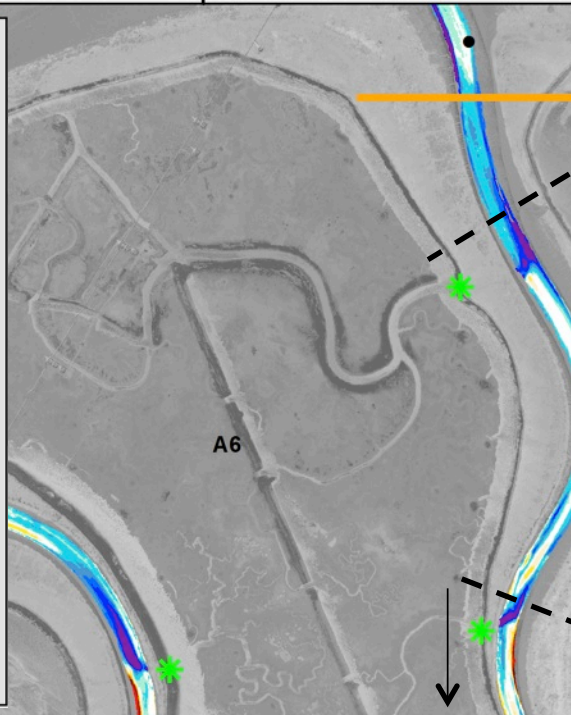
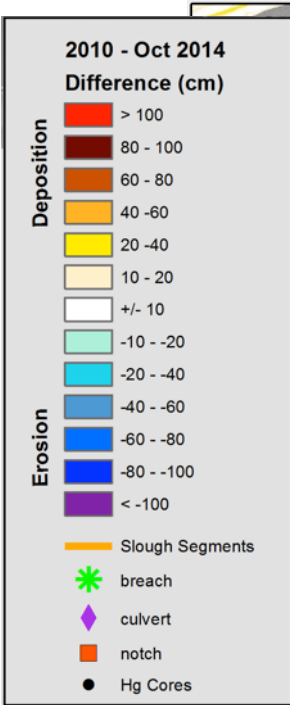
2014 Mercury Studies

Bathymetry – Slough Erosion
and Deposition

2010 – Oct 2014

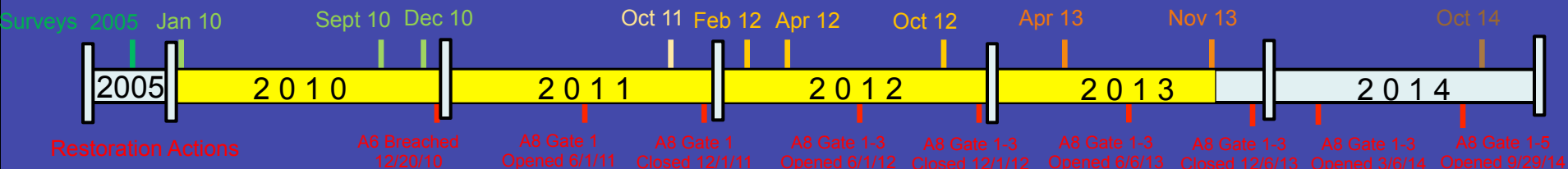
UTM ZONE 10 NORTHING IN METERS

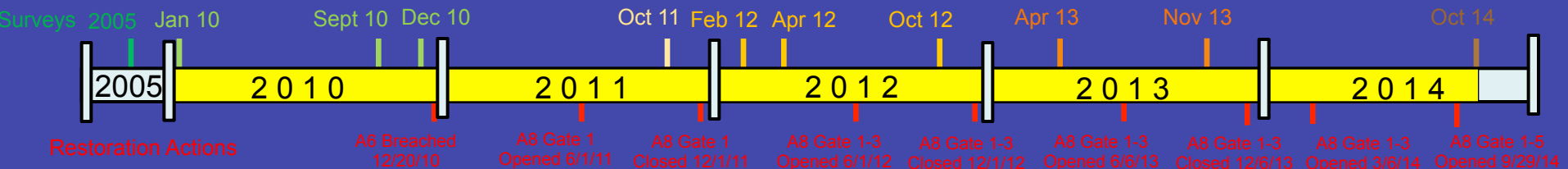
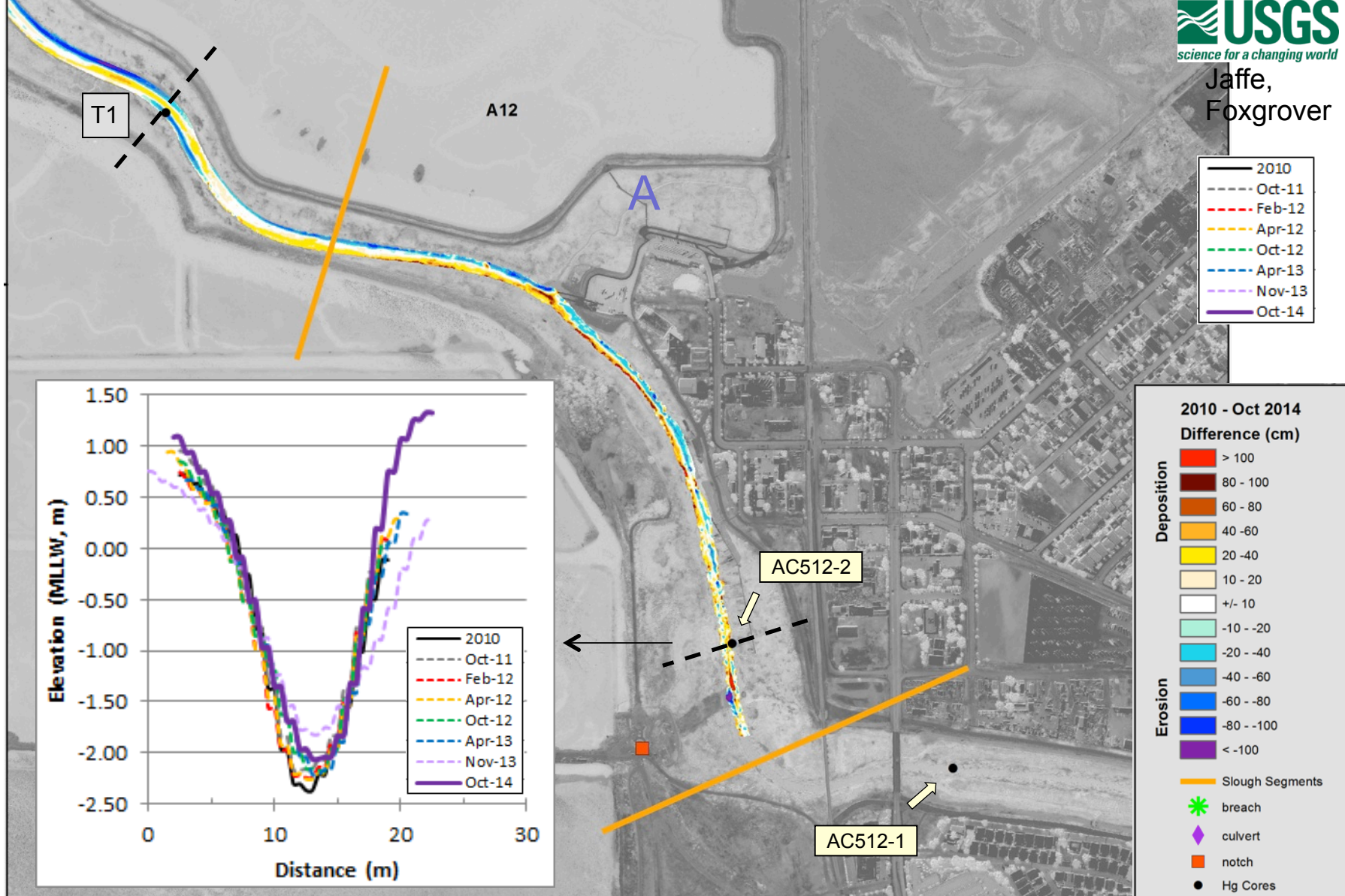




USGS
science for a changing world

Jaffe,
Foxgrover





Calculated Mobilization of Total Mercury (kg)

Method	20' Notch	40' Notch	Approach 1	Approach 2	Approach 3
MMD initial 2006 estimates	66	125			
2010 – Feb 2012 scour with 2006 cores			9.7	5.6	9.3
2010 – Oct 2012 scour with 2006 & 2012 cores			12.9 (Near A6 = 7.3)	10.8 (Near A6 = 6.5)	11.1 (Near A6 = 7.0)
2010 – Nov 2013 scour with 2006 & 2012 cores			24.1 (Near A6 = 11.1)	21.2 (Near A6 = 10.3)	20.9 (Near A6 = 10.3)
2010 – Oct 2014 scour with 2006 & 2012 cores			>21.3*	TBD	TBD

* Needs refinement

Pond A8 Management

- Opened 3 gates in early March 2014
- Opened 5 gates at end of September 2014
- Keep 5 gates open through December 2014
- Close December 2015?
- Hg Working Group –Keep 5 gates open until February 2016

Social Attraction

Social Attraction

What is it?

- Singles Bar for Birds

Why are we doing it?

- To attract nesting birds to specific areas



Social Attraction

- SF2

- 3 islands for CATE + calls
- 1 island for plovers + calls
- 1 island for FOTE



- A16

- 2 islands for CATE + calls
- 1 island for plovers + calls



Social Attraction

What are the (preliminary) results?

- SF2 islands: 126 nests, 140 CATE chicks
- A16 islands: 60 nests, 58 CATE chicks

Strong

Ackerman



Science Symposium

**Thursday, October 22, 2015 at
the
Computer History Museum in
Mountain View, CA**

Google's Ecology Program and the California Coastal Conservancy



Questions?

Next Steps

- Final environmental document for Phase 2 Alviso and Ravenswood: Winter 2015–16
- Phase 1 Completion & Eden Landing Opening Event: Early 2016
- Eden Landing draft environmental document: Fall/Winter 2016
- Continue Monitoring and Adaptive Management, Phase 2 studies
- Bay Restoration Authority measure: Fall 2016



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California Coastal Conservancy
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Anne Morkill
Don Edwards San Francisco Bay National Wildlife Refuge
anne_morkill@fws.gov or [510/792-0222](tel:5107920222)

Laura Valoppi
USGS, Lead Scientist
laura_valoppi@usgs.gov or [916/278-3124](tel:9162783124)

John Krause
California Department of Fish and Wildlife
John.Krause@wildlife.ca.gov or [415/250-0243](tel:4152500243)

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Name:
South Bay Salt
Pond Restoration
Project

2014 Mercury Studies

Pond and Slough Water

Take Home Message

Data support findings in Slough and Pond Fish

POND A5/7/8 is lower in MeHg and %MeHg, compared to control ponds



There has been an increase in MeHg partitioning onto particles in Pond A5/7/8 relative to control. Impact on bioavailability is uncertain.

No significant changes in THg, MeHg concentration or partitioning to particles at the notch, relative to control site.

Lower %MeHg in upper Alviso Slough (vs control). Otherwise, no difference compared to controls.

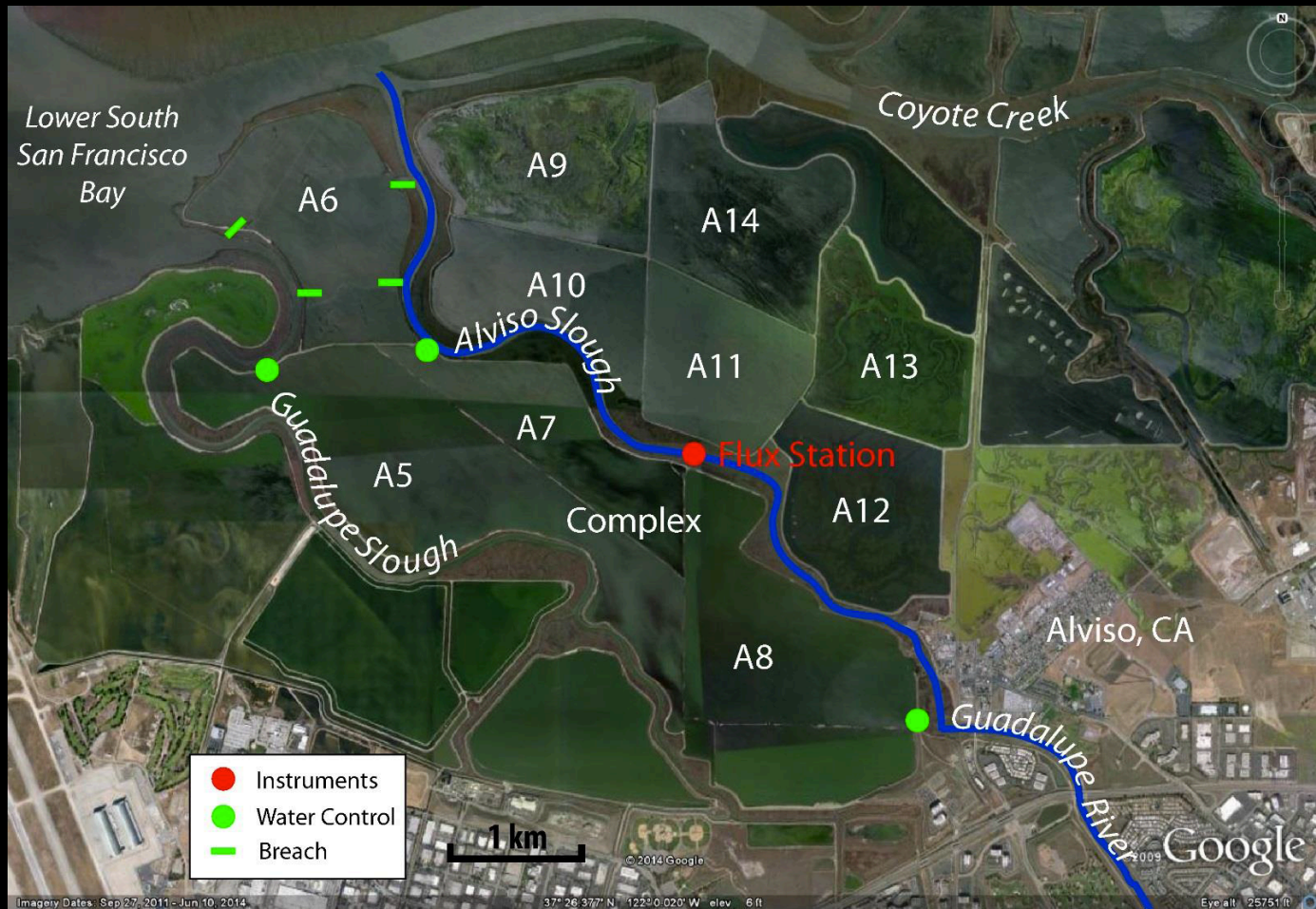


Marvin-DiPasquale

2014 Mercury Studies

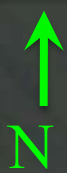
Sediment flux in Alviso Slough

Alviso Slough Sediment and Water Quality



Slough Sediment Flux and Water Quality

- Generally sediment moves upstream, except during large rainfall events
- Opening the gates in the spring leads to:



2014 Monitoring: still 3 gates open;
1 Alviso site, 2 controls

SF
Bay



Silversides

Alviso
Slough

Guadalupe
Slough

Mallard
(Artesian)
Slough

MALSL

GUASL Pond
A8

ALSL2

4 times:
May/Jun/Aug
+ Feb

Water Study Design: 2014

