



# South Bay Salt Pond Restoration Project

*Restoring the Wild Heart of the South Bay*



**Stakeholder Forum Meeting, 28 October 2010, 1-4 p.m.**

# Today's Agenda

- Introductions and Welcome
- Track Our Progress: Highlights of 2010
  - Project Management & Funding
  - Phase 1 Construction
  - Science Program Update
- Looking Ahead: Preliminary Phase 2 concepts
- South San Francisco Bay Shoreline Study Update

# **Tracking Our Progress 2010**

# **Project Management & Funding**



# Project Funding

- Federal funds
  - Appropriations
  - Grants
- Mitigation/penalty funds
- Local funds
- State funds (bonds)

# Federal Funds - Appropriations

- USFWS appropriations for construction
  - \$4.9 million FY 08
  - \$4 million FY 09
  - \$2.5 million FY 10
- USGS appropriations for science
  - \$0.5 million FY 08
  - \$0.5 million FY 09
  - \$1.0 million FY 10



# Federal Funds - Grants

- NOAA-ARRA
  - \$1.6 million – Pond A6
  - \$1.0 million – Pond A8
  - \$3.2 million – Ponds E8A/9/8X
  - \$1.6 million – Invasive *Spartina* Control
- USFWS-NCWC
  - \$1.0 million – Ponds E8A/9/8X
- USEPA/SFEP
  - \$0.4 million – Applied Studies

# Mitigation/Penalty Funds

- \$1.1 million Caltrans Ravenswood Pier
- \$0.49 million Menlo Park Bay Account
- \$0.58 million NFWF (Leopard Shark)



# Local Funds

- Santa Clara Valley Water District
  - Pond A8
  - South Bay Shoreline Study
- Alameda County Flood Control District
  - Ponds E8A/9/8X

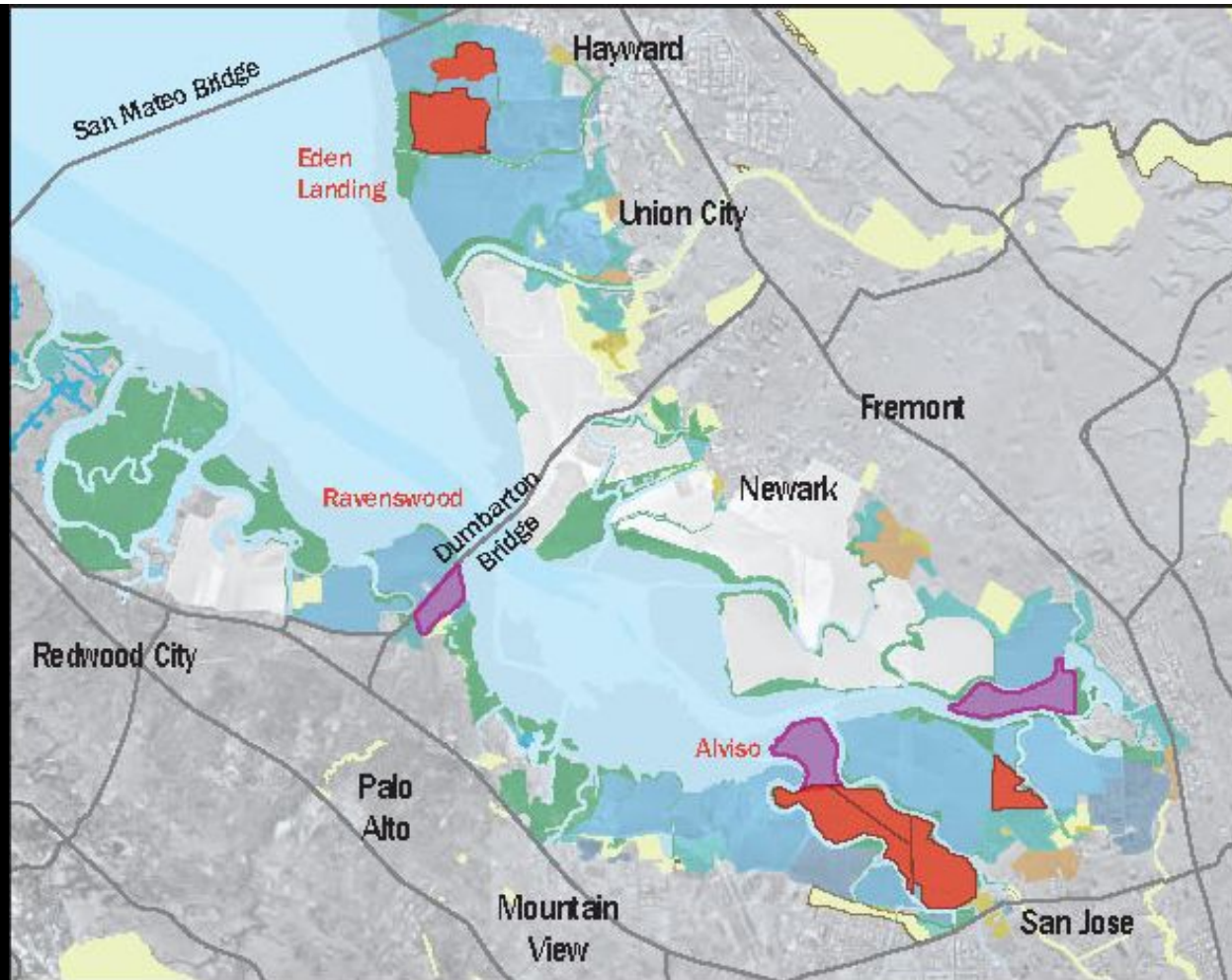


# State Funds

- Coastal Conservancy
  - Design and public participation contracts
  - \$1.5 million – Pond SF2 => Ponds E8A/9/8X
  - \$0.75 million – Applied Studies now
  - \$0.75 million – Applied Studies future
- Wildlife Conservation Board
  - \$10 million – Restoration future



**Tracking Our Progress:  
Project-wide Phase 1  
Construction**

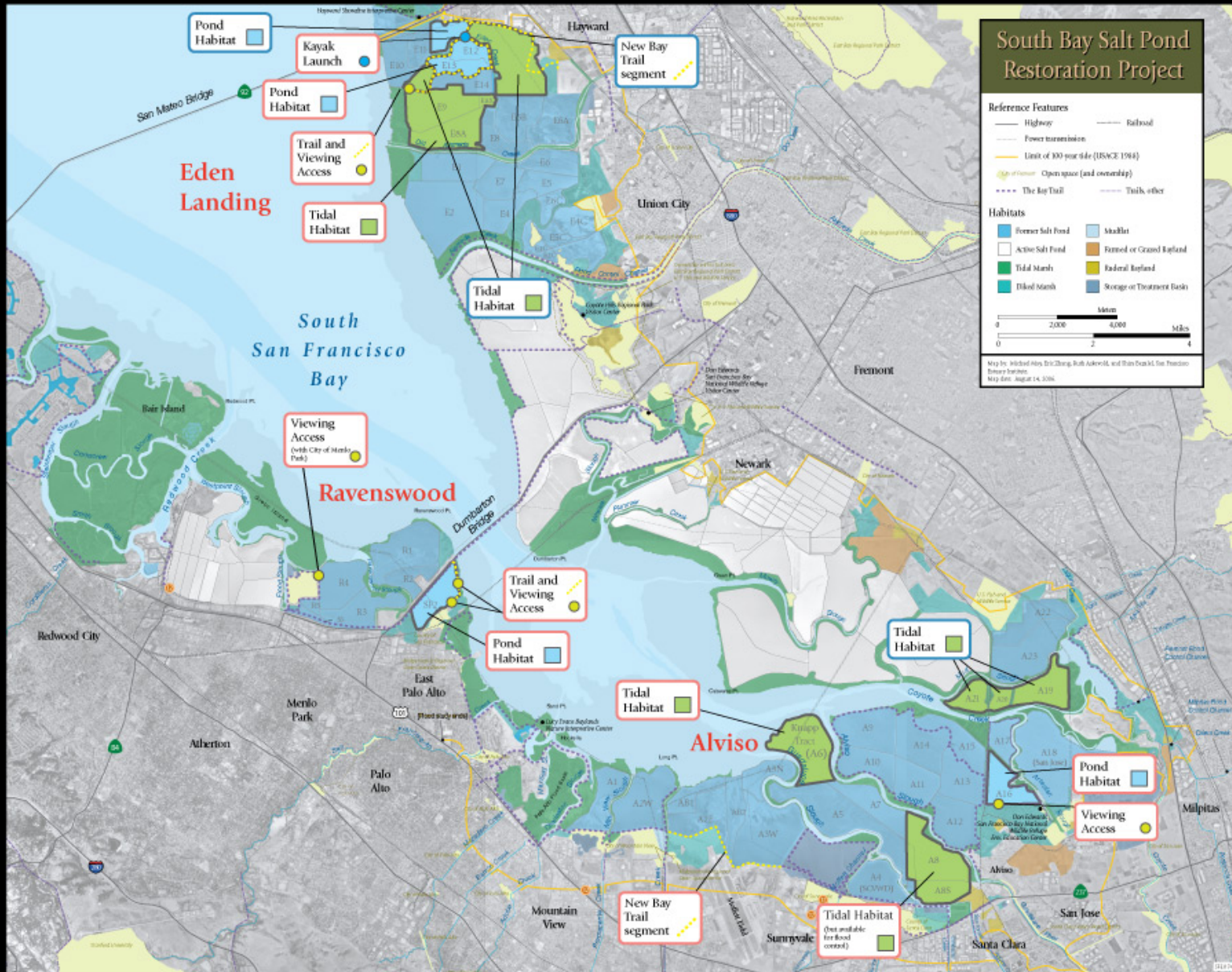


### Habitats





# Tracking our Progress: Phase One Actions



## Initial Restoration Actions

South Bay Salt Pond Restoration Project

2006 - 08      SBSP Phase 1

# PHASE ONE: RAVENSWOOD PONDS



## Initial Restoration Actions

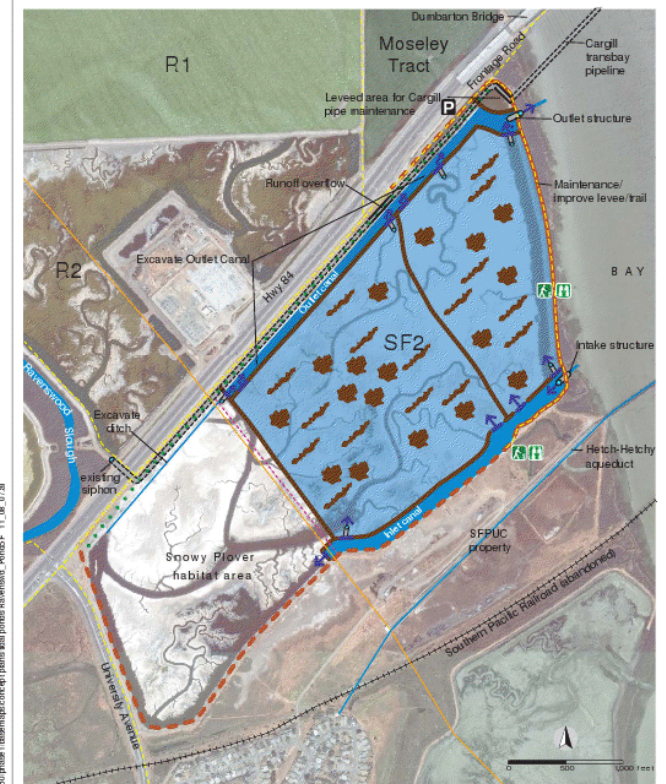
South Bay Salt Pond Restoration Project—Ravenswood Area

 proposed Phase 1



# Pond SF2

## Proposed: Managed pond reconfiguration with nesting islands





# Construction





**Status:** Construction complete.  
Opened on September 7, 2010



Photo Copyrighted



Photo Copyrighted

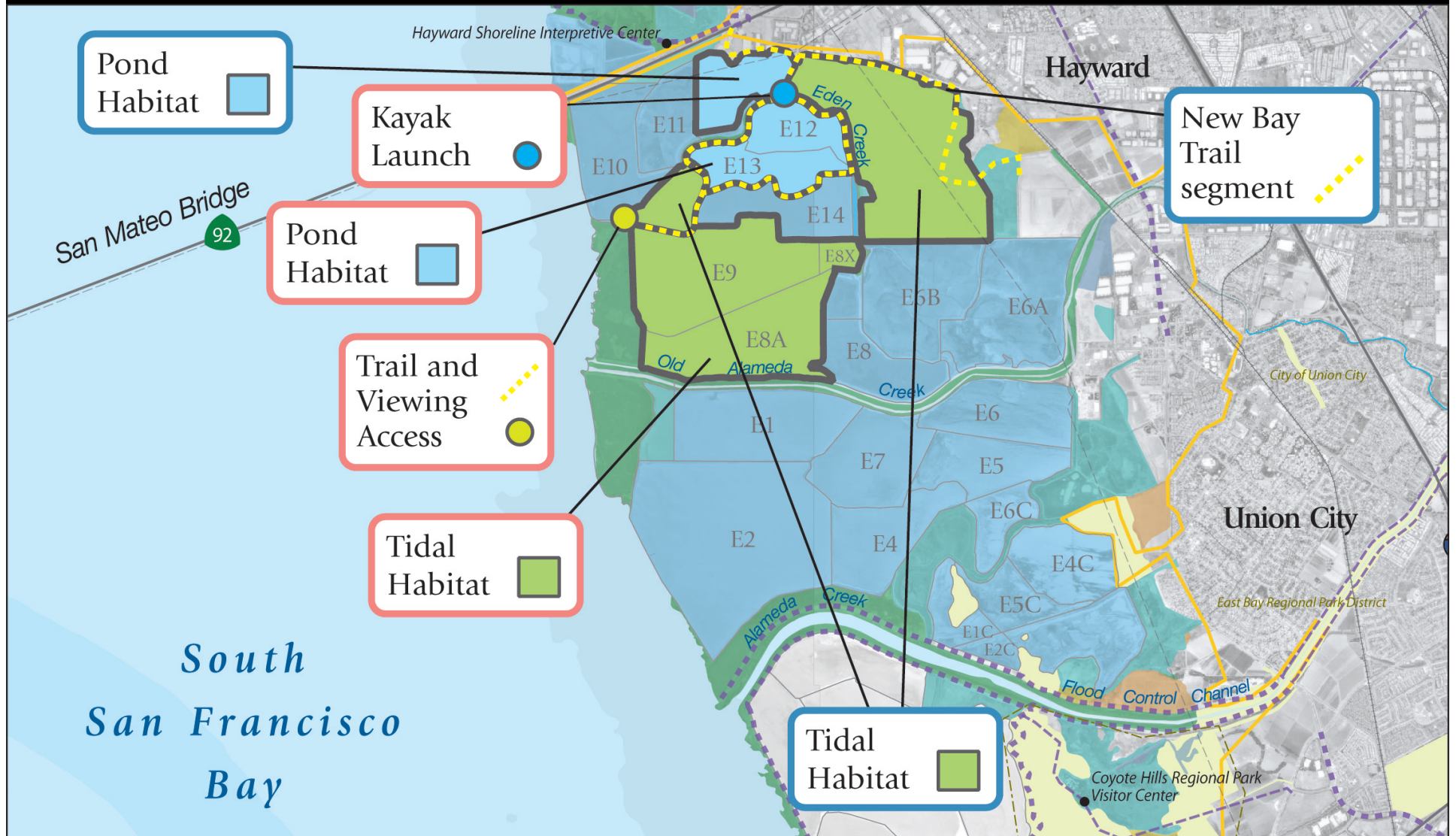


# Bedwell Bayfront Park: interpretive signage installed summer, 2010





# PHASE ONE: EDEN LANDING



## Initial Restoration Actions

South Bay Salt Pond Restoration Project—Eden Landing Area

2006 - 08 SBSP Phase 1

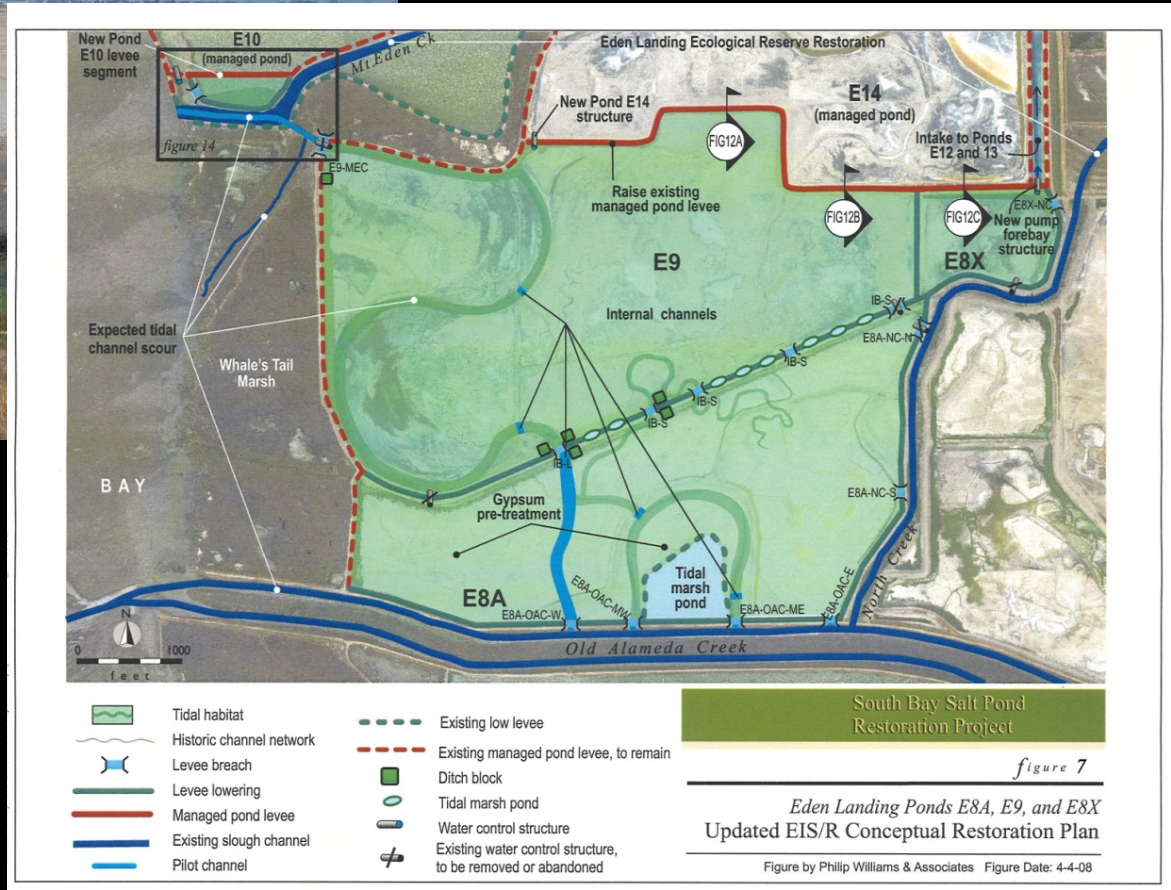


# PHASE ONE: EDEN LANDING



## Ponds E8A/E9/E8X

## Proposed: Tidal Marsh (630 acres)





# Ponds E8A/E9/E8X

Status:  
Under construction



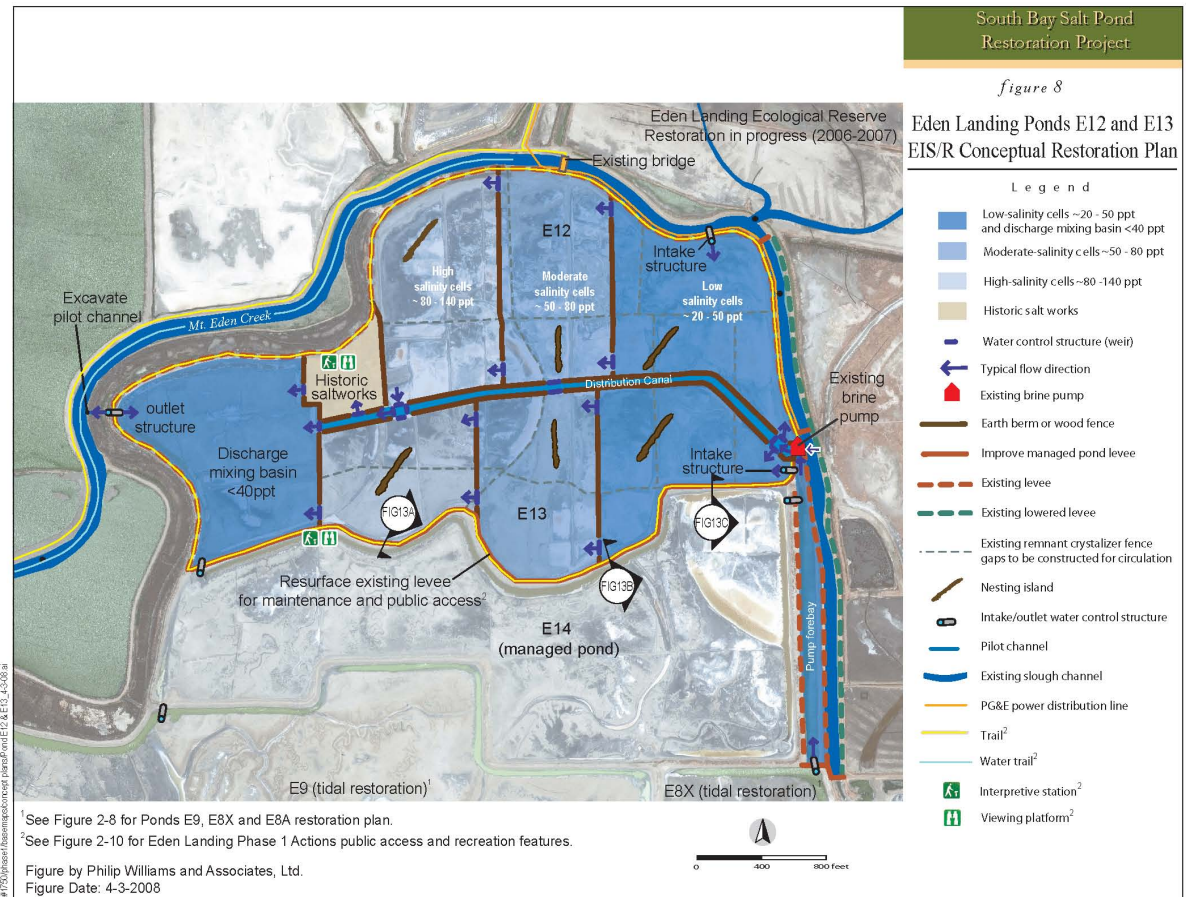
Completion expected  
Fall 2011

# PHASE ONE: EDEN LANDING

## Pond E12

Proposed:  
Reconfigured  
Managed Pond  
(230 Acres)

Status: Final design underway,  
60% plans by March 2011

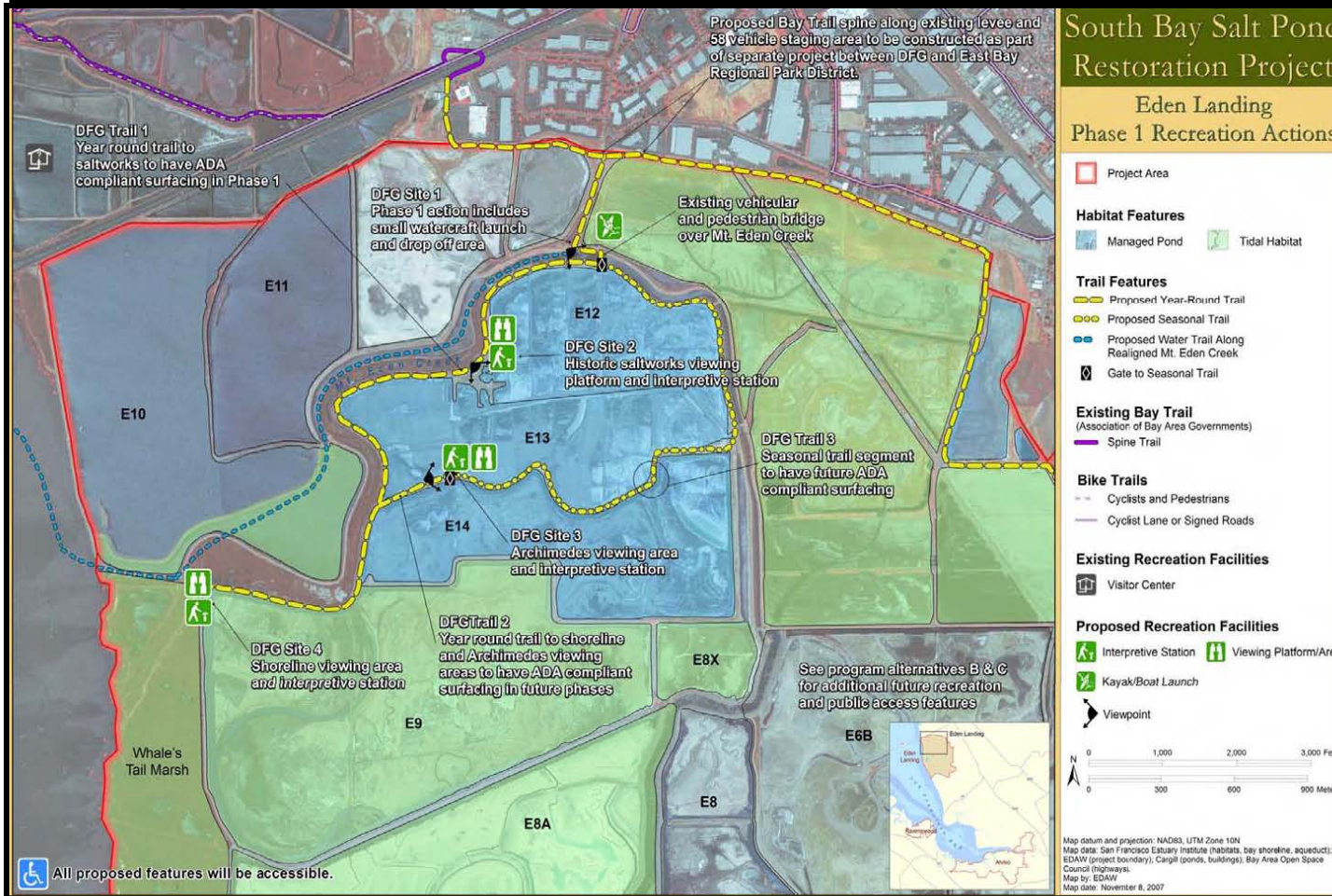




# PHASE ONE: EDEN LANDING



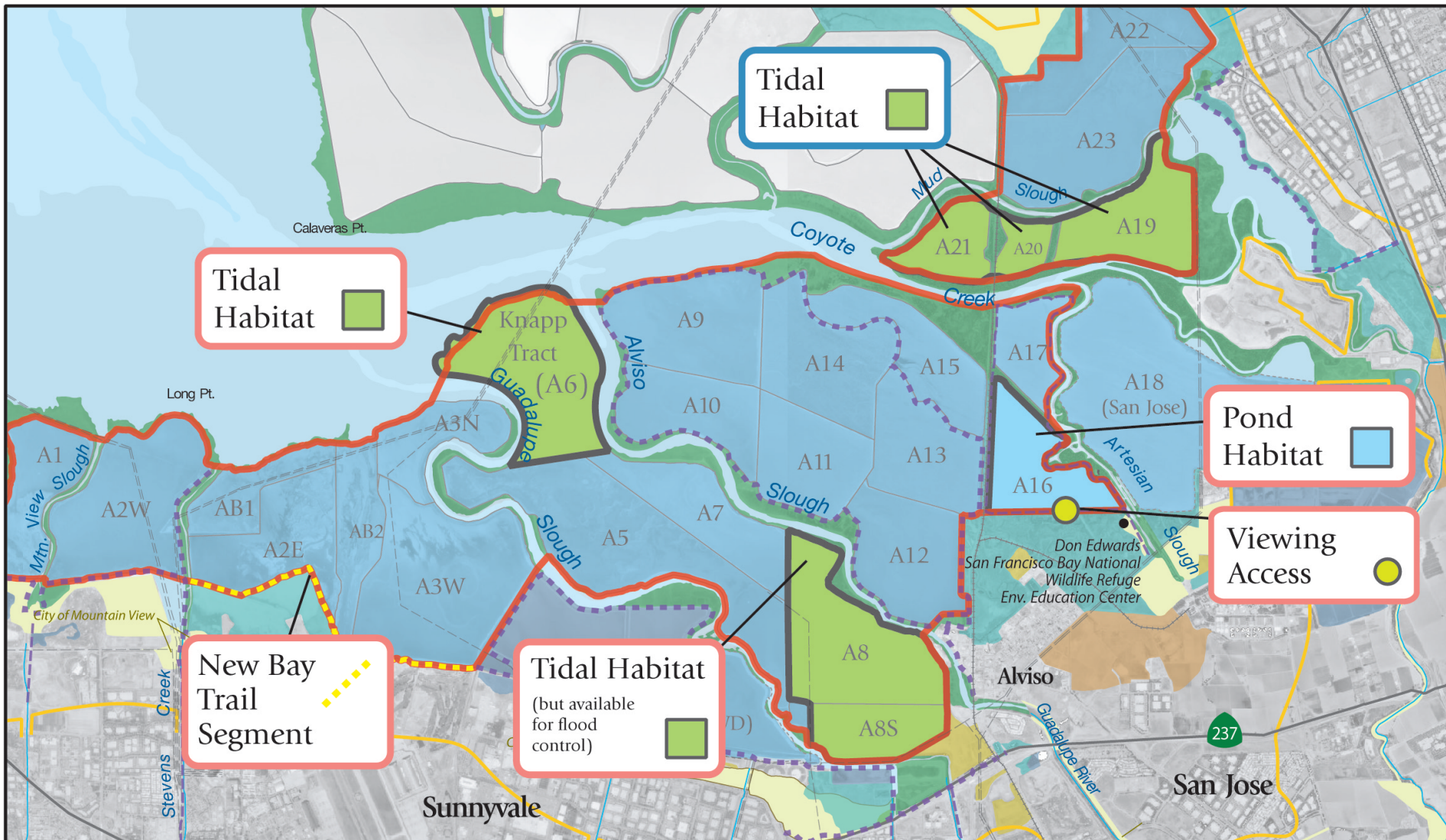
**Proposed:**  
3.8 mile trail  
Viewing platforms  
Kayak launch



**Status:**  
Final designs complete



# PHASE ONE: ALVISO



## Initial Restoration Actions

South Bay Salt Pond Restoration Project—Alviso Area



2006 - 07



Proposed Phase 1



# Ponds A19, 20, 21 (the Island Ponds)



**Proposed:** Tidal marsh restoration

**Status:** Restored in 2006







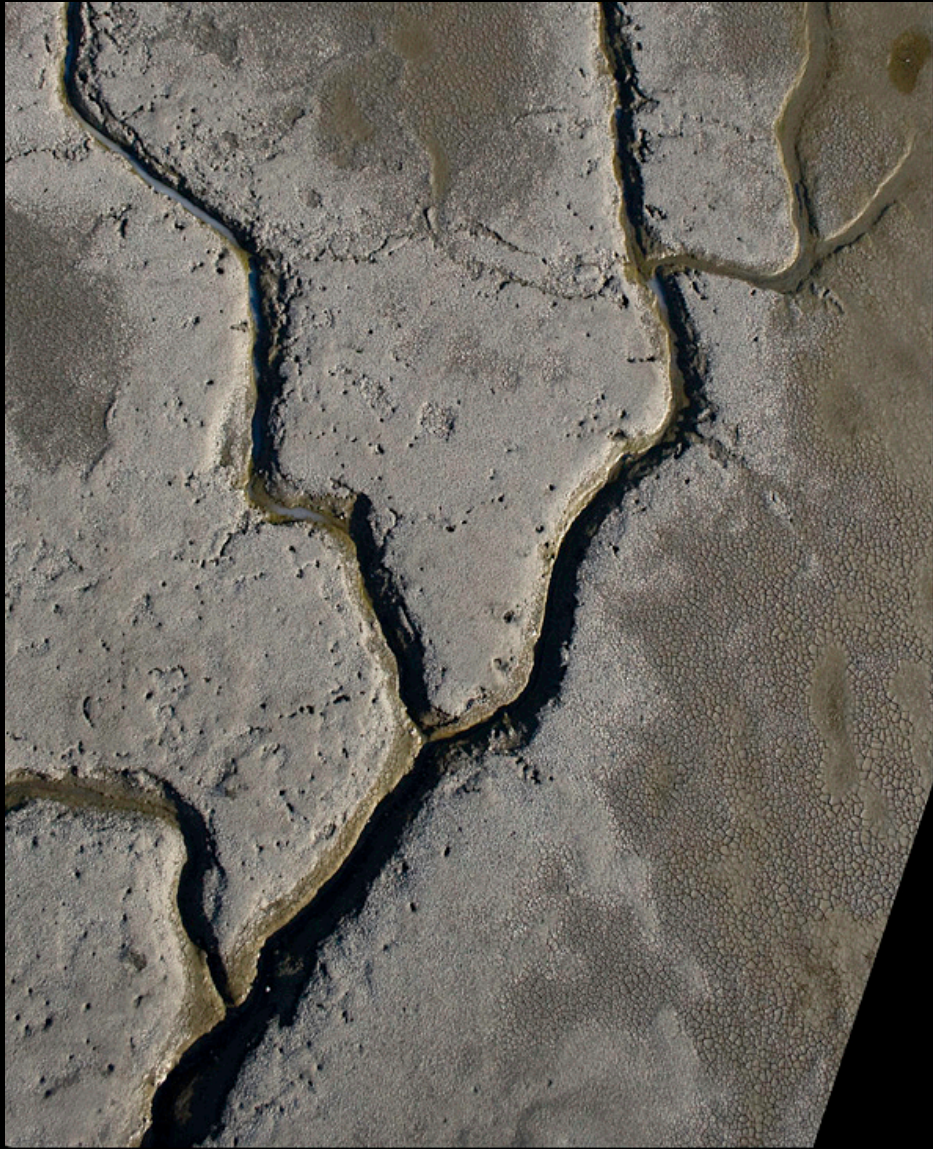
April 2007



September 2009  
Salt Pond A21



# Habitat evolution after restoration



April 2008



September 2009

C. Benton

Salt Pond A21



# PHASE ONE: ALVISO

Ponds A8, A5, A7



Proposed: shallow tidal habitat with new marsh (1400 acres)

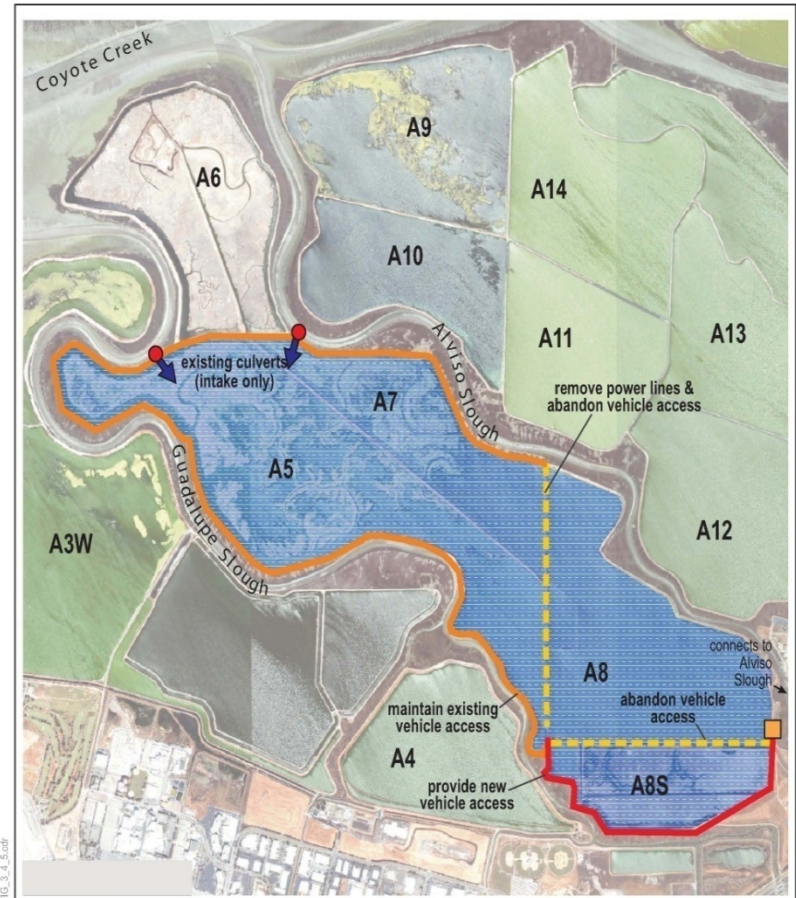






Photo Credit: Chris Benton



# Before Construction





## And After



**Status:** Gates to be opened in Spring 2011



# PHASE ONE: ALVISO

## Pond A6

Proposed:  
Tidal Marsh (330 acres)





## Pond A6

### Status:

Under construction

To be breached in  
November 2010





# PHASE ONE: ALVISO



**Now Open! 2.4 Mile Moffett Bay Trail Segment**



**Status:** Trail Opened on Monday September 20, 2010

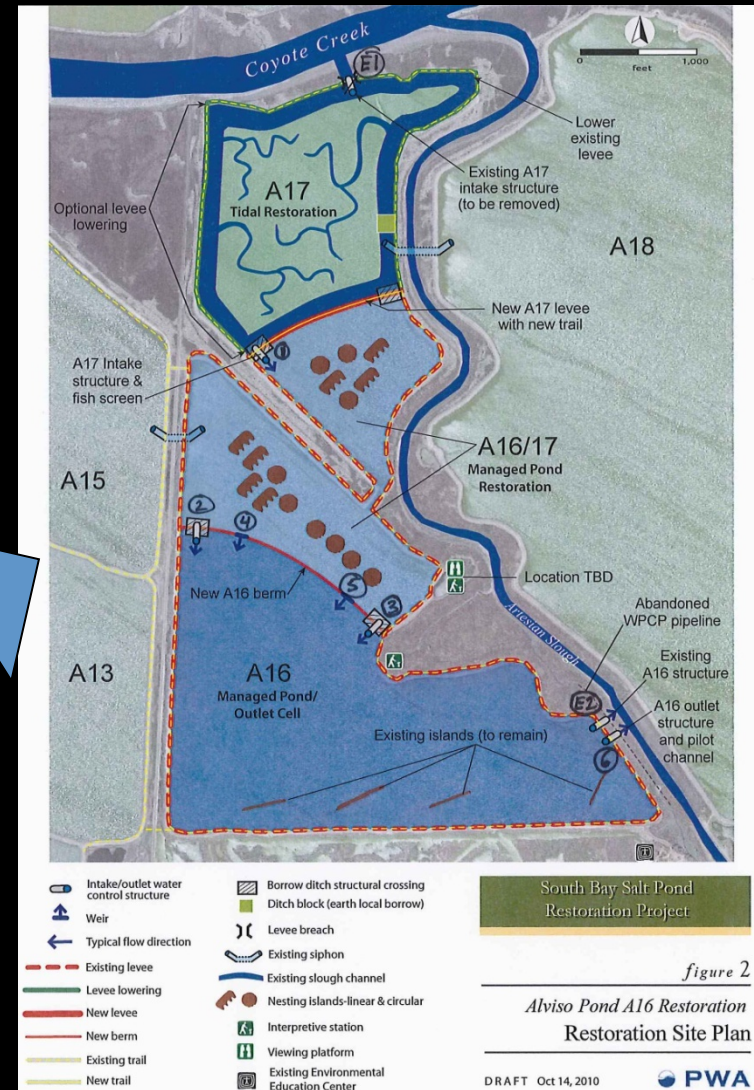
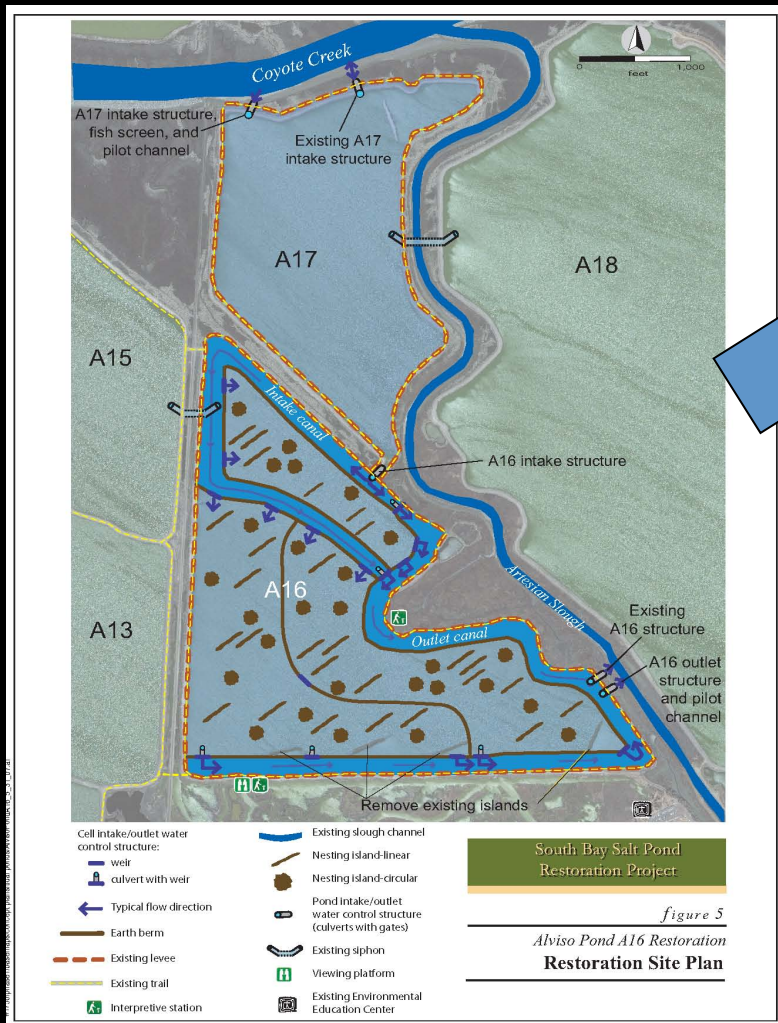




# PHASE ONE: ALVISO

## Pond A16

Proposed: Reconfigured Ponds with nesting islands (243 acres)



Status: Design modifications underway, 30% plans by February 2011



# PHASE ONE: ALVISO

## Pond A16

## Public Access: Interpretive Signs

### Changing for WILDLIFE



Northern Shoveler  
Cuchara Norte



The commercial salt industry has been an important part of the Bay economy since the 1850's.

La industria de la sal comercial ha sido una parte importante de la economía de la bahía desde la década de 1850's.



Wetlands restoration in action for wildlife.

Restauración de humedales en la acción para la vida silvestre.

During the last century, most of the South Bay salt marshes were diked and flooded to create evaporation ponds. For generations, humans used these man-made ponds to harvest salt from Bay water. Today, we are using them for wildlife. The South Bay Salt Pond Restoration Project is the largest tidal wetlands restoration project on the West Coast. Over the next 50 years, the Project will convert 15,100 acres of former salt ponds into a rich mosaic of wetlands habitats that will include managed ponds like A16.

In 2006, we took the first step in changing Pond A16 for wildlife. New water gates allow Bay water to flow in and out of the pond with the tides and the salinity has returned to Bay levels. With less salt in the water, wildlife use of the pond has doubled.

Durante el siglo pasado, la mayoría de las marismas del sur de la Bahía fueron diked e inundó para crear estanques de evaporación. Durante generaciones, los seres humanos utilizan estos estanques artificiales a la sal de la cosecha de agua de la Bahía. Hoy, el sur de la bahía de Salt Estanque Proyecto de Restauración es el mayor proyecto de restauración de los humedales de mareas en la costa oeste. Durante los próximos 50 años, se convertirá 15,100 hectáreas de estanques de sal antiguos en un rico mosaico de hábitats de humedales.

En 2006, se dio el primer paso en el restablecimiento de Estanque A16 para la vida silvestre. Compuertas de Nueva permitir que el agua fluya en la bahía y fuera del estanque, con las mareas y la salinidad que ha vuelto a niveles normales de la Bahía. Con menos sal en el agua, el uso de vida silvestre de la laguna se ha duplicado.



Salt ponds are man-made ponds used to harvest salt through solar evaporation of Bay water. Today many are being managed for wildlife habitat and are called managed ponds.

Estanques de sal son estanques artificiales utilizados para la cosecha de sal por evaporación solar de agua de la Bahía. Hoy en día muchos se están gestionando para el hábitat de la fauna silvestre y se llaman estanques administrado.

## WHAT'S in the WATER ?

Look beneath the water's surface and you will see a world teeming with life. Leopard sharks swim through the pond's deeper channels. Clams work the muddy bottom while small fish and shrimp glide through the water. Everyone is searching for their next meal. Every so often a boak breaks through the water to grab a fish - evidence of the bird life above the water.

Mirar debajo de la superficie del agua y podrás ver un mundo unido con la vida. Leopard tiburones nadan a través de canales más profundos de la laguna. Almejas a la labor del fondo fangoso mientras que los peces y camarones se deslizan por el agua. Todo el mundo está buscando su próxima comida. De vez en cuando se rompe un pico en el agua para agarrar un pez - la prueba de la vida de las aves sobre el agua.



- 1 Bites Shrimp / Artrópodos
- 2 Gem Clam / Joya De Almejas
- 3 Reticulated Water Boatman / Barquero Agua Reticulado
- 4 Leopard Shark / Tiburón Leopardo
- 5 Snowy Egret / Cucheta De Nieve Garza
- 6 Topmett / Artrópodo Olla
- 7 Blacktail Bay Shrimp / Blacktail Camarones Bahía
- 8 Threespine Stickleback / Espinosos
- 9 Ruddy Duck / Malvasa Caneta
- 10 Pacific Staghorn Sculpin / Pacífico Escorpión Cuerno De Ciervo

## Extreme LIVING

You'll need a microscope to see the most abundant life in the ponds. Billions and billions of bacteria and algae thrive in these waters and are an important food source for birds, fish, clams and many other species. Halophiles (salt loving organisms) are a special group of microorganisms that take over when salt levels increase. When present in great enough numbers, they change the salt ponds and natural salt pans of the South Bay into a rainbow of colors. Look for evidence of this microscopic life as you travel through the Alviso ponds and marshes.

Se necesita un microscopio para ver la vida más abundante en el estanque. Miles de millones y miles de millones de bacterias y algas prosperan en estas aguas y son una fuente importante de alimento para aves, peces, almejas y muchas otras especies. Halófilos (amantes de la sal organismos) son un grupo especial de microorganismos que hacerse cargo de aumentar los niveles de cuando la sal. Cuando están presentes en número lo bastante grande, cambian las salinas y las cacerolas de sal natural de la Bahía Sur en un arco iris de colores. Puedes buscar pruebas de esta vida microscópica a medida que viajan a través de los estanques y pantanos Alviso.

How many are there?  
One drop of water can have 27 billion diatoms!

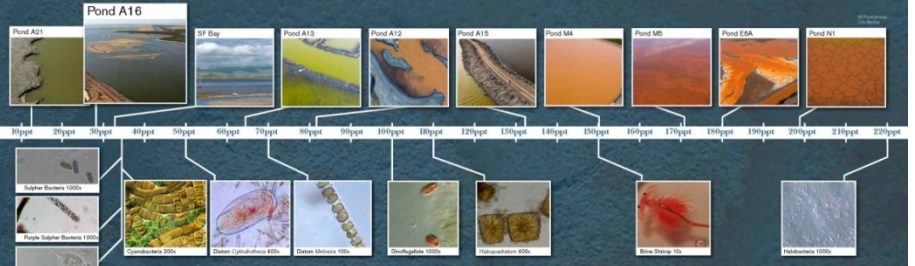
¿Cuántos hay?

Una gota de agua puede tener 27 mil millones de diatomeas!



### Ponds by Salinity

#### Estanques por la salinidad



Bacteria by Salinity  
Las bacterias por la salinidad

ppt = parts per thousand (grams of salt per liter of water)  
ppm = parts per million (grams of salt per liter of water)

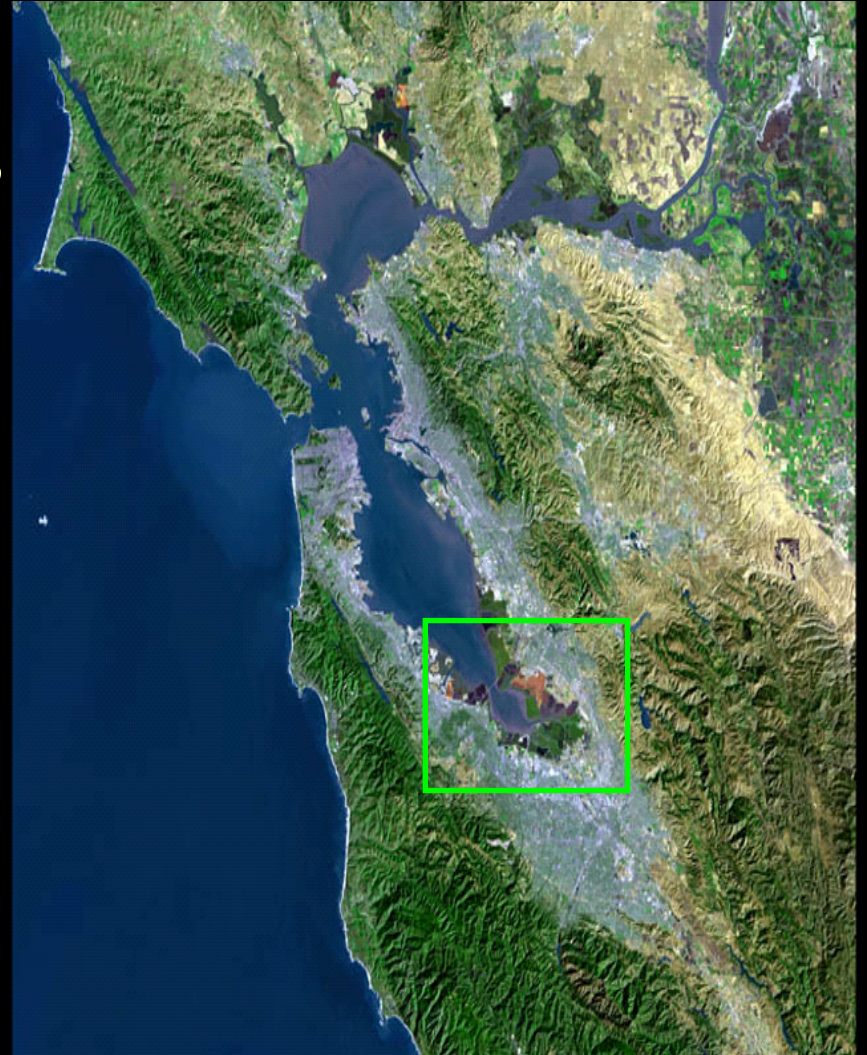
# **Science Program Update**

**Laura Valoppi, Lead Scientist**



# Outline

- Phase 1 Key Uncertainties
- Phase 1 study updates
  - Project wide
  - Alviso
  - Ravenswood
  - Eden Landing



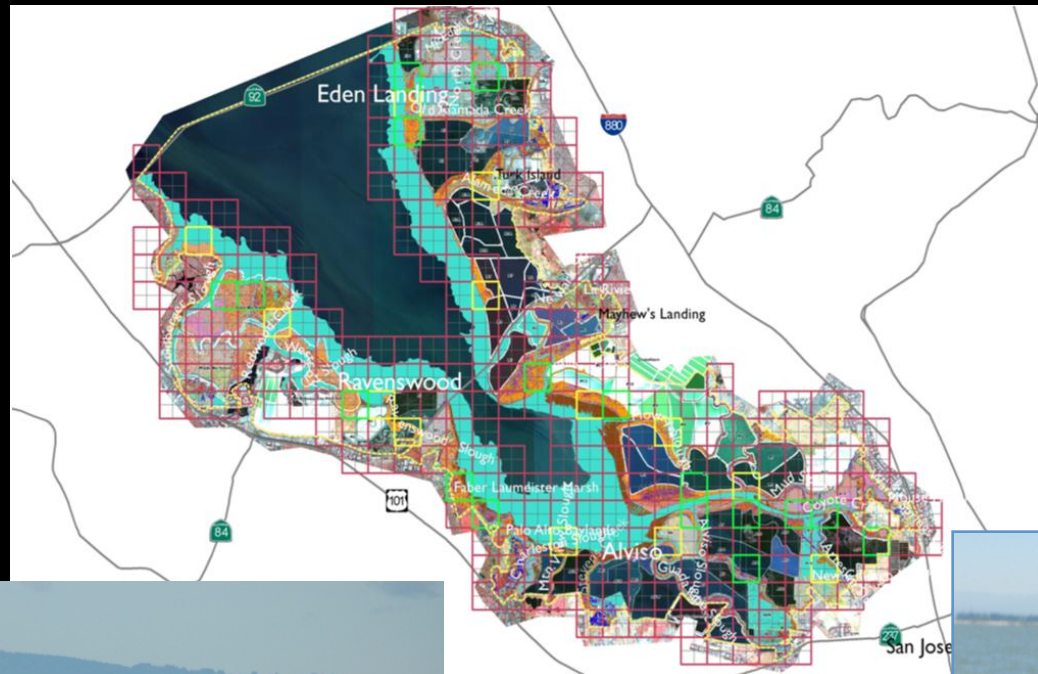
# Key uncertainties

- 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



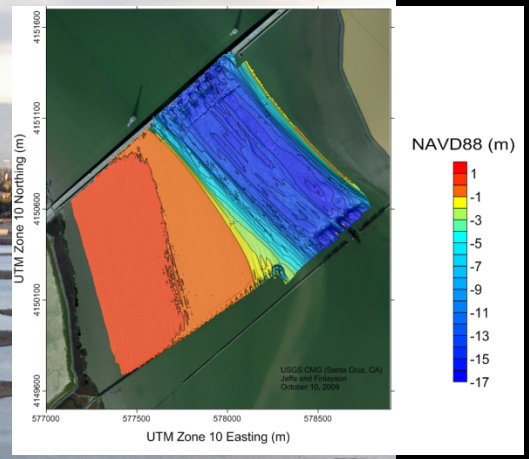


# Project –wide Studies



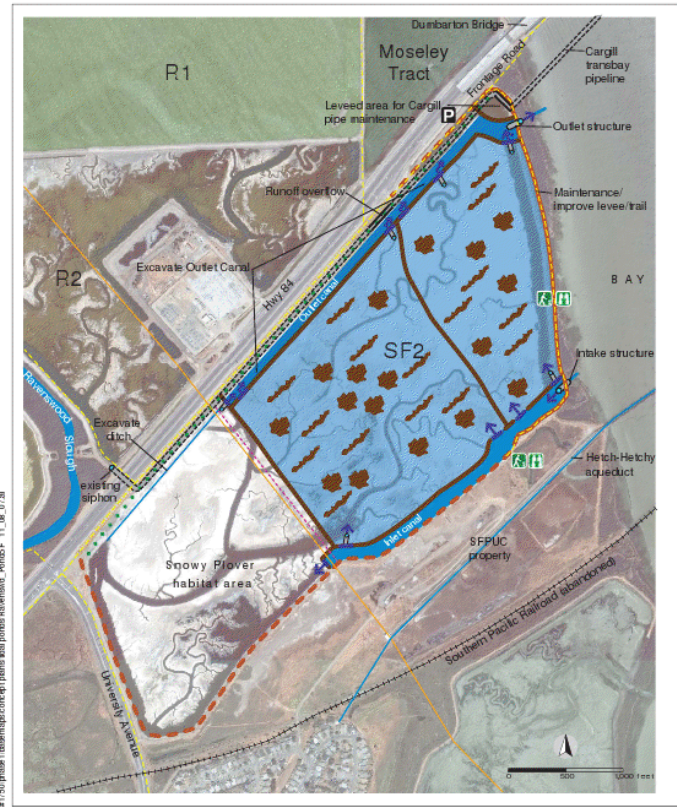
A. Chandos





# Ravenswood Complex

## Pond SF2: managed pond reconfiguration



#1750 phase 1, basin map, concrete plans, 50' pond, 10' removal, PondSF 11\_06\_07.rvt





# Alviso Complex

## Ponds A19, 20, 21: tidal marsh restoration





# Alviso Complex

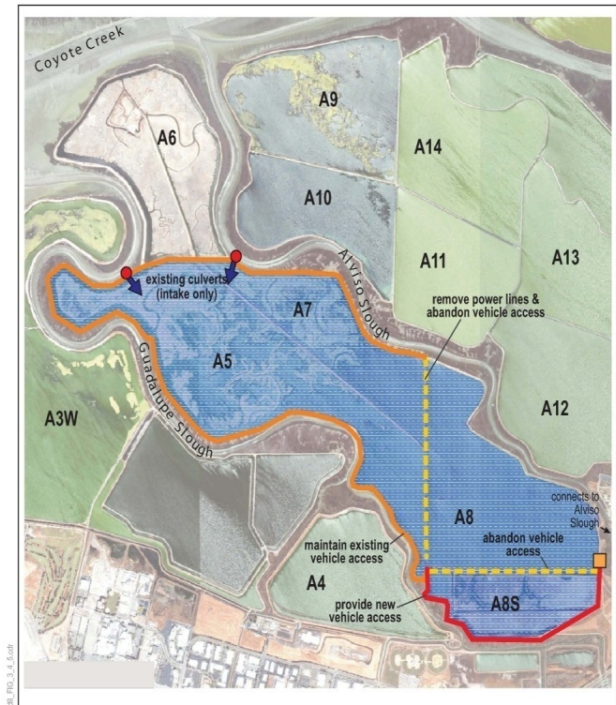
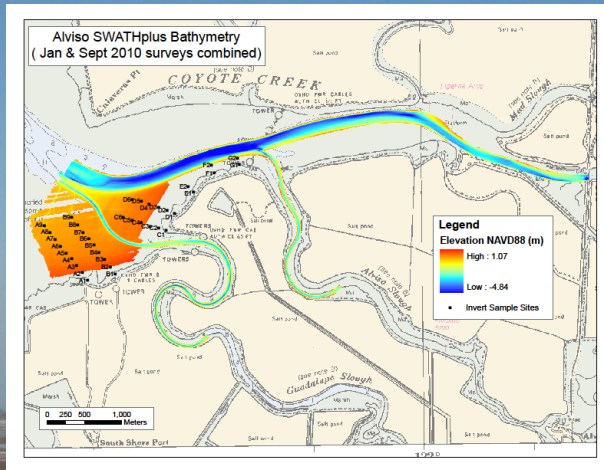
## Pond A6: tidal marsh restoration



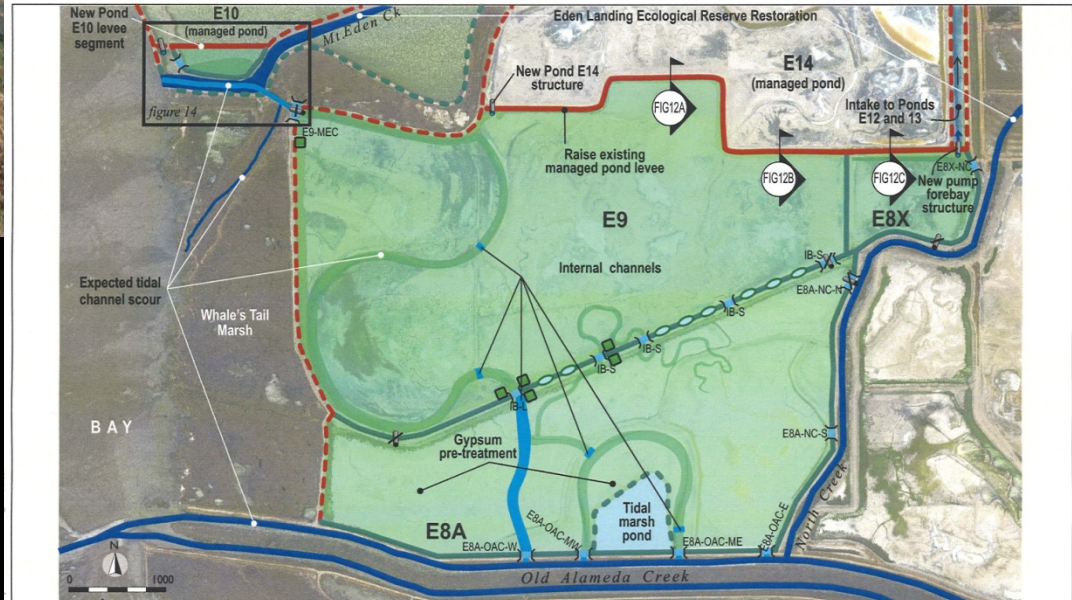


# Alviso Complex

Ponds A8, A5, A7: tidal marsh restoration, with management








# Eden Landing Complex

## Pond E8A: tidal marsh restoration





**Science Symposium  
February 3, 2011  
USGS Menlo Park**

**<http://www.southbayrestoration.org/science/>**

# Phase 2: Overview



# Guiding Principles

“Do no harm”: 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., construction of a flood levee)



# Project Wide Actions

- Beneficial re-use of dredge materials
- Subtidal Habitat Goals pilot project
- Public access and recreation study

## For each Pond Complex:

- What is your central interest/concern for this complex for Phase 2?
- Does the proposed action/concept meet the test of the Guiding Principles?
- What has the PM Team missed?



# South Bay Salt Pond Restoration Project

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

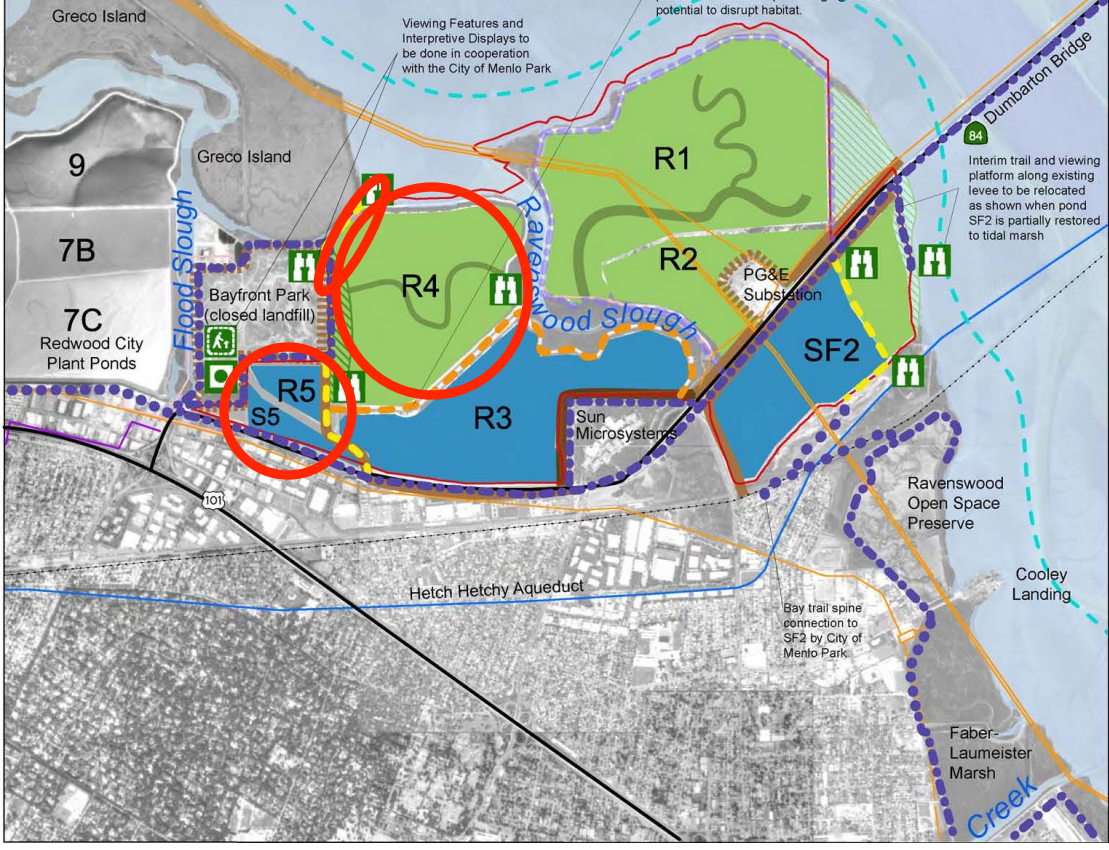
Project Area	<b>Habitat Features</b>
<b>Infrastructure Features</b>	Tidal Habitat
Highway	Upland Transition Area
Railroad	Managed Pond
Overhead Power Transmission Line	Tidal Habitat (outside project area)
Sewer Force Mains	<b>Flood Management Features</b>
Distribution Line	Proposed Flood Protection Levee
<b>Recreational Features</b>	High Ground*
Existing Trail (to remain)	Existing Levee Outside Project Area* (includes engineered flood protection levees and non-engineered levees)
Existing Trail (to be removed)	
Proposed Year-Round Trail	
Proposed Year-Round Trail (see note)	
Proposed Trail (outside project area by others)	
Proposed Water Trail	
Historic Site	
Kayak Launch	
Viewing Opportunity	
Interpretive Trail	

\*Level of flood protection not specified.

Note: Levees along creeks extend upstream of the endpoints shown. All levee and high ground locations are approximate.

100 Acres  
1,300 650 0 1,300 Feet  
600 300 0 600 Meters

Map datum and projection: NAD83, UTM Zone 10N  
 Map data: Siegel & Bachand, 2002 (sewer force mains, H.H. Aqueduct, power transmission lines, distribution lines), Cargill (pond boundaries), SFEI (baylands), EDAW (highways), NASA (South Bay Imagery), Project Boundary taken from SFEI Interactive Map  
 Map by: EDAW Inc. Map date: November, 2007



# Questions/Comments on Ravenswood



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



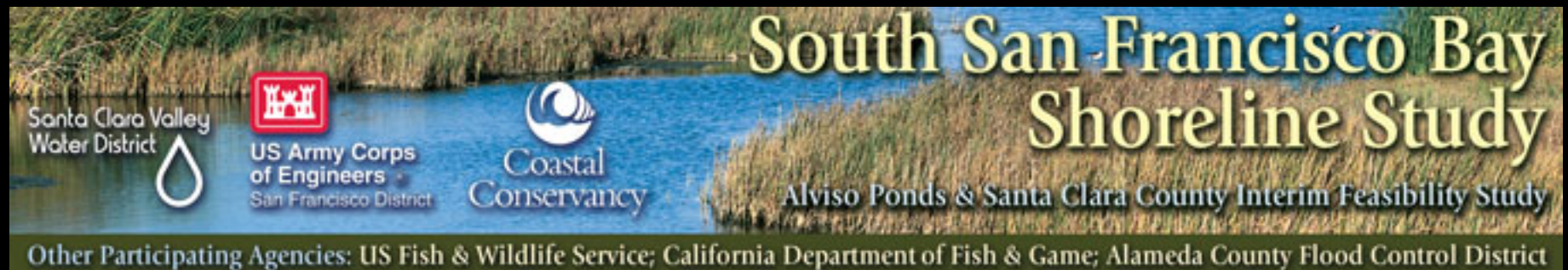
# Questions/Comments on Eden Landing



NOTE: slides shown at public meeting on flooding areas were preliminary – not for publication. They will be updated shortly to show final information.

# South Bay Shoreline Study Update

Brenda Buxton, Coastal Conservancy



# Shoreline Study Issues



# South Bay Salt Pond Restoration Project

**Project Area**

**Infrastructure Features**

- Highway
- Railroad
- Wastewater Outfall
- PG & E Access Points
- Hetch Hetchy Aqueduct
- Overhead Power Transmission Line
- Sewer Force Main
- Distribution Line

**Habitat Features**

- Tidal Habitat
- Upland Transition Area
- Managed Pond
- Managed Pond (outside project area)
- Initially Reversibly Tidal; Ultimately Tidal

**Flood Management Features**

- Proposed Flood Protection Levee
- High Ground\*
- Existing Levee Outside Project Area\* (includes engineered flood protection levees and non-engineered levees)

\*Level of flood protection not specified.

Note: Levees along creeks extend upstream of the endpoints shown. All levee and high ground locations are approximate.

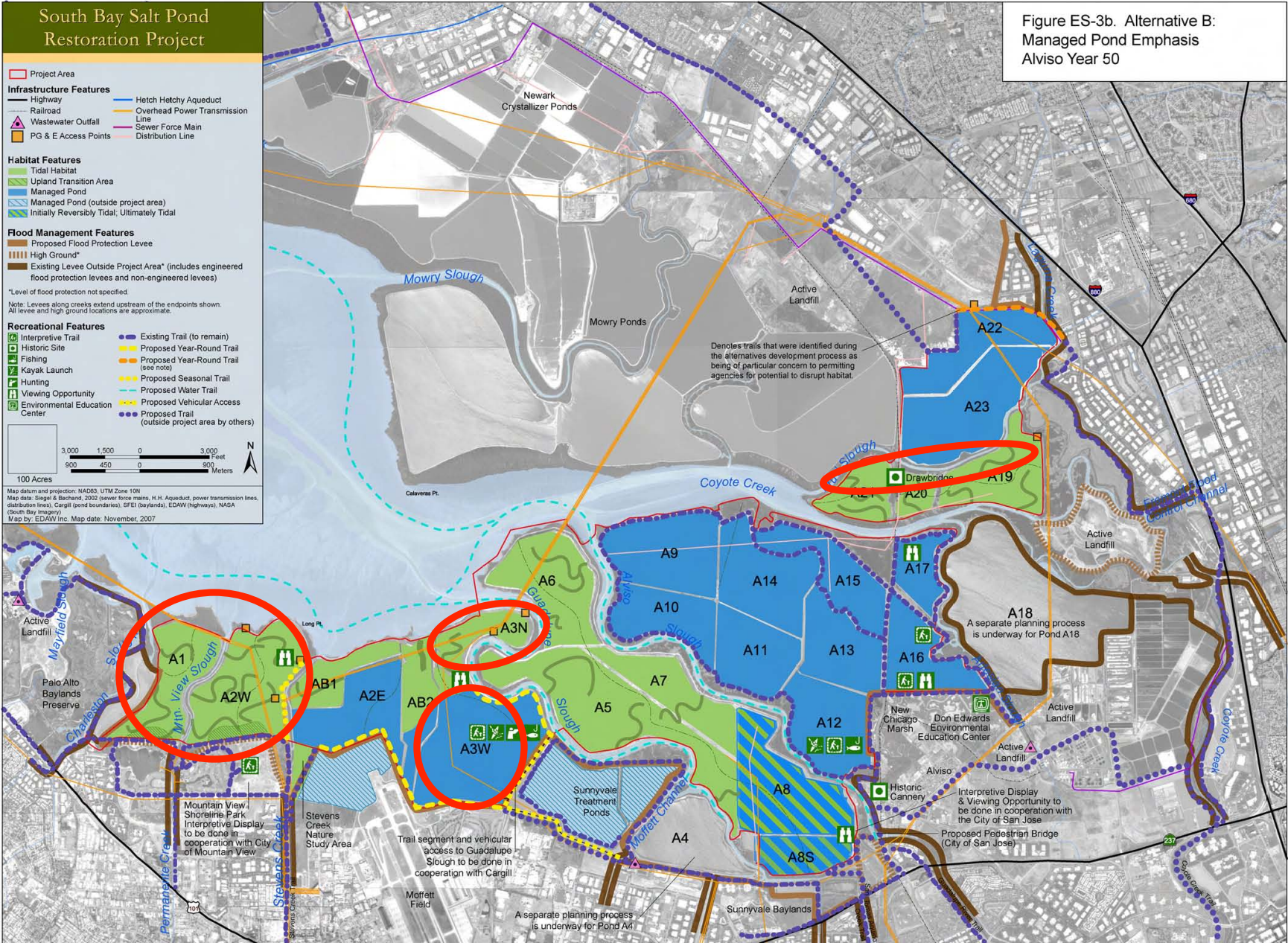
**Recreational Features**

- Interpretive Trail
- Historic Site
- Fishing
- Kayak Launch
- Hunting
- Viewing Opportunity
- Environmental Education Center
- Existing Trail (to remain)
- Proposed Year-Round Trail
- Proposed Year-Round Trail (see note)
- Proposed Seasonal Trail
- Proposed Water Trail
- Proposed Vehicular Access
- Proposed Trail (outside project area by others)

Scale: 3,000 1,500 0 3,000 Feet / 900 450 0 900 Meters

Map datum and projection: NAD83, UTM Zone 10N  
 Map data: Siegel & Bachand, 2002 (levee force main, H.H. Aqueduct, power transmission lines, distribution lines), Cargill (pond boundaries), SFEI (baylands), EDAM (highways), NASA (South Bay Imagery)  
 Map by: EDAM Inc. Map date: November, 2007

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



Questions/Comments on  
Alviso



## Phase 2 Applied Study Ideas

- Invasive *Spartina* issues
- Subtidal habitat
- Public access/use
- Upland transition zones/  
ecotone
- Use of dredge materials
- Mercury and water quality  
monitoring



# Questions/Comments on Applied Studies



# Next Steps

-E-mail Phase 2 comments to:

[Jbourgeois@coastalconservancy.ca.gov](mailto:Jbourgeois@coastalconservancy.ca.gov)

-Newsletter updates and input

-Revised Phase 2 concepts and permitting activities: Fall 2011

# Upcoming Events/Meetings

- Regulatory Agency Meeting November 4, 2010
- Pond A6 breach, late November
- Southern Eden Landing Comprehensive Planning
- Early 2011:
  - Local Government Forum
  - Eden Landing Work Group
  - Ravenswood Work Group





# South Bay Salt Pond Restoration Project

*Restoring the Wild Heart of the South Bay*

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[www.southbayrestoration.org](http://www.southbayrestoration.org) or, follow us on Facebook

facebook



Name:  
South Bay Salt  
Pond Restoration  
Project