



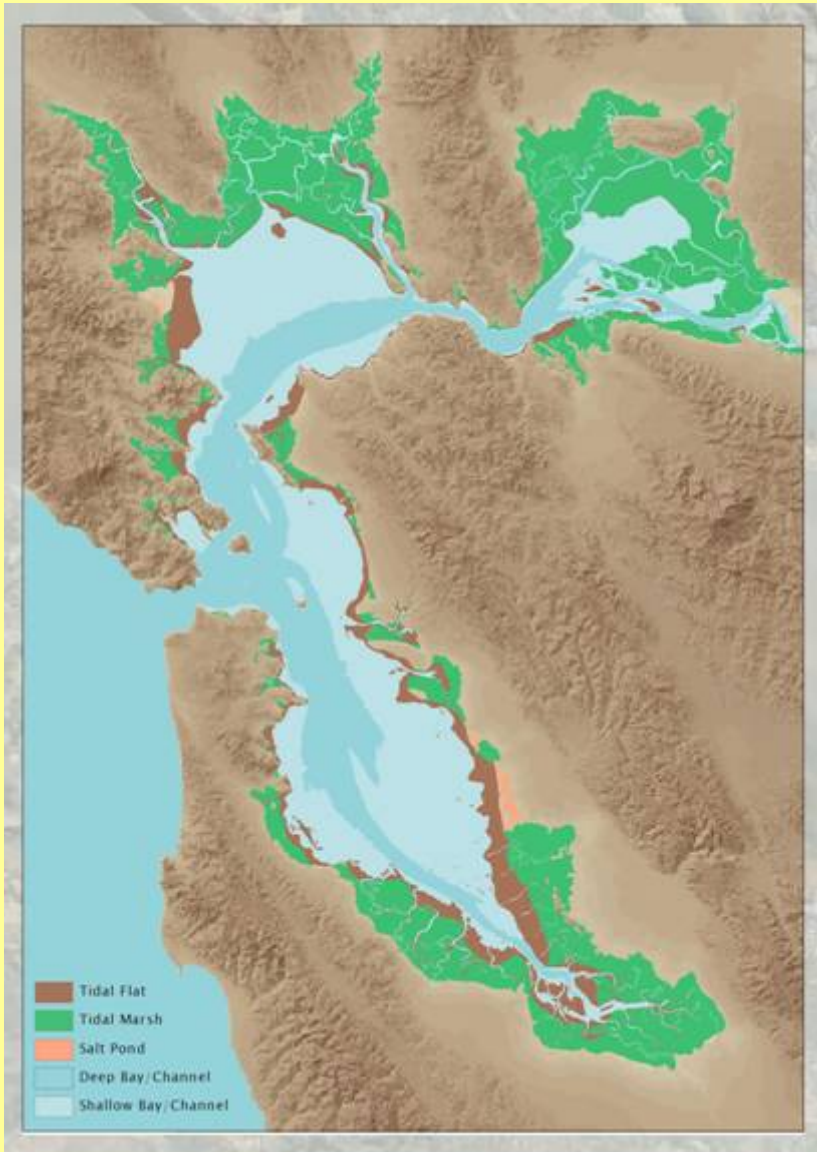
Species Response to Habitat Restoration and Management in San Francisco Bay

Joy Albertson, U.S. Fish and Wildlife Service

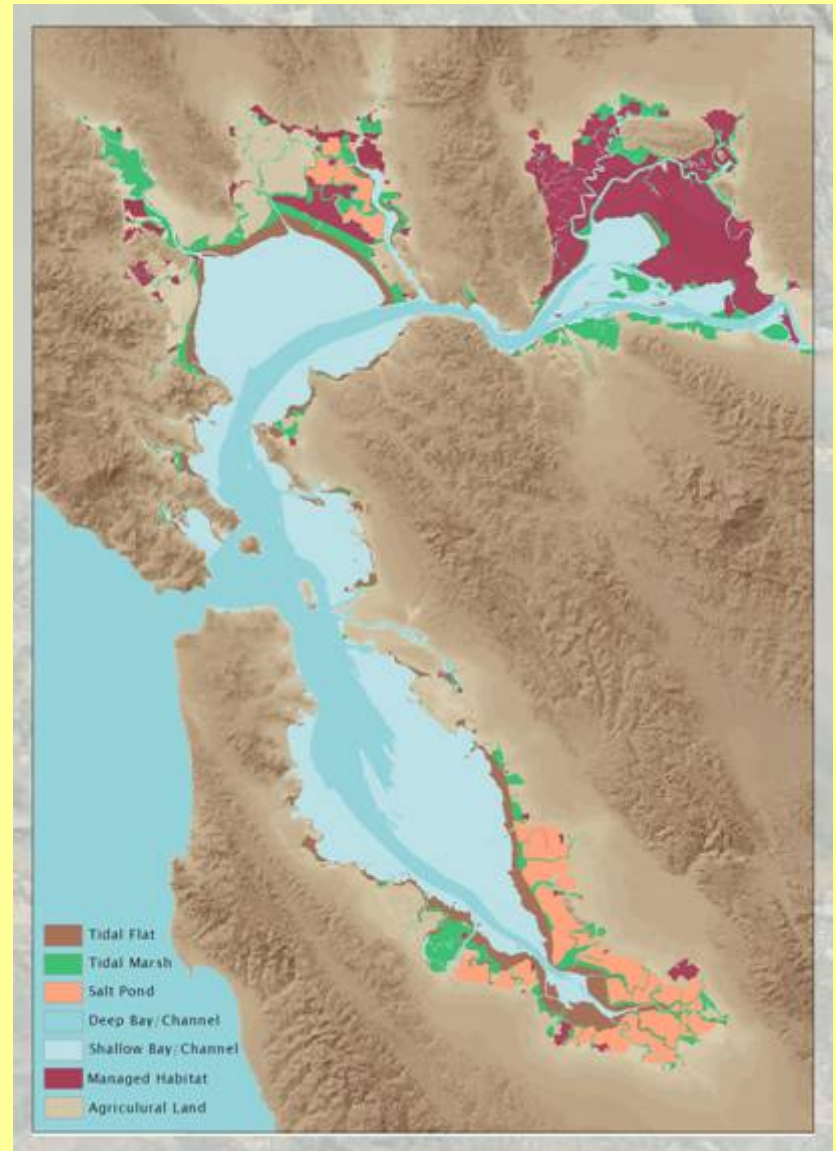
October 11, 2017

2017 State of the San Francisco Estuary Conference

Present (~2000)

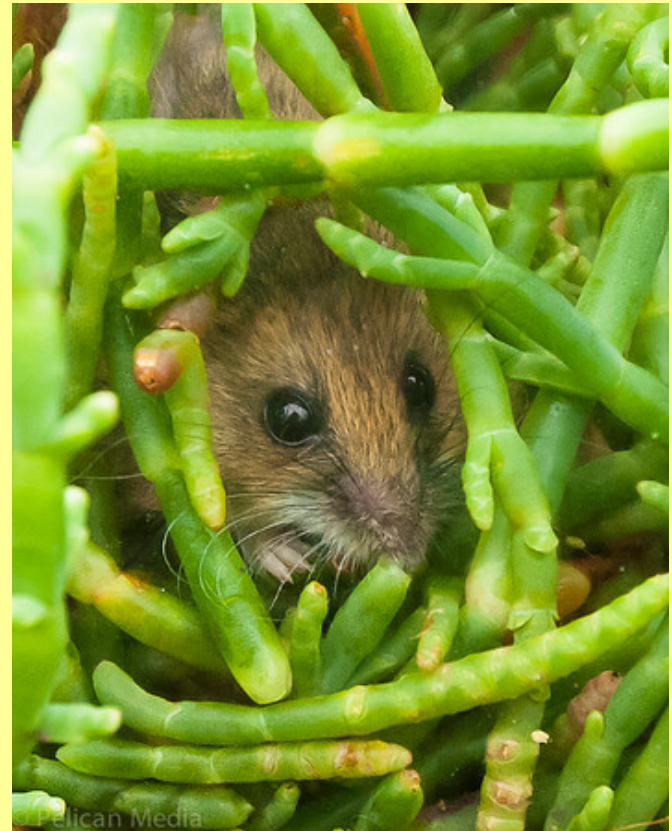


Past (~1850)



Conservation Target Focus

- Federally-listed species
- Migratory birds



Urgency of Marsh Restoration in San Francisco Bay

- Accelerated rate of sea level rise
- Reduced suspended sediment
- Changes in salinity



Landscape level planning and implementation- San Francisco Bay

- Tidal Marsh Recovery Plan (2013)
- South Bay Salt Pond Restoration Project
- Comprehensive Conservation and Management Plan (CCMP) for the San Francisco Estuary
- Baylands Ecosystem Habitat Goals Science Update (BEHGU)
- Invasive *Spartina* Project
- Climate Adaptation Decision Support (SFB Joint Venture)

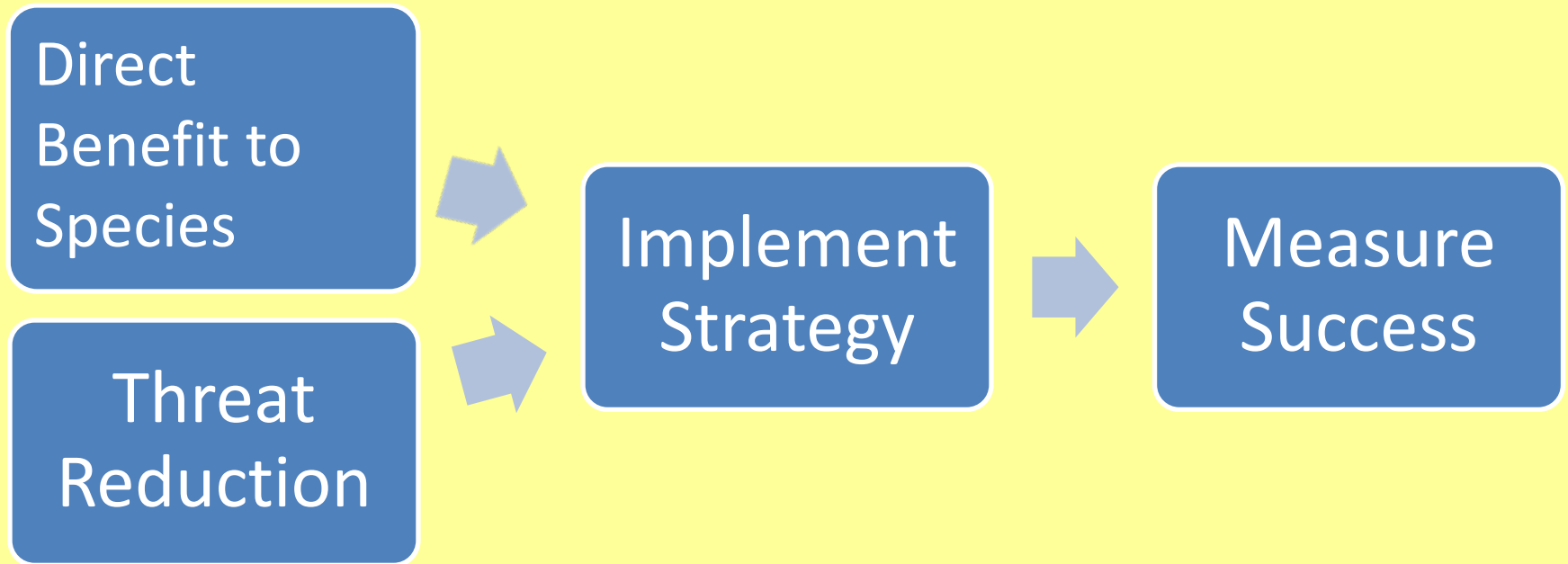
Efficiencies with partners

- Assess shared Conservation Targets,
- Cooperate with partners
- Align resource monitoring methods

Open Standards Process



Choosing Strategies



Measuring Strategy Success

- **Conservation Targets**
 - Which metric? How frequently?
- **Direct Benefits- Restoration & Enhancements**
 - How are our Targets responding to these strategies ?
- **Threat reduction**
 - Rarely measured..how do we know it is working?

South Bay Salt Pond A21



Circa 1928

2006 Pre-restoration





April 2007



C. Benton

September 2009
Salt Pond A21

2007

2009



2006



2014

C. Benton

Sonoma Baylands

Restored to tidal action in 1996

Ridgway's rail
counts:

- 2011-14 = 4
- 2015 = 7-8
- 2016 = 11
- 2017 = 19



Waterfowl and Shorebirds

- Migratory bird numbers doubled in SBSP from 2004 to 2014
- Thriving populations in new restorations

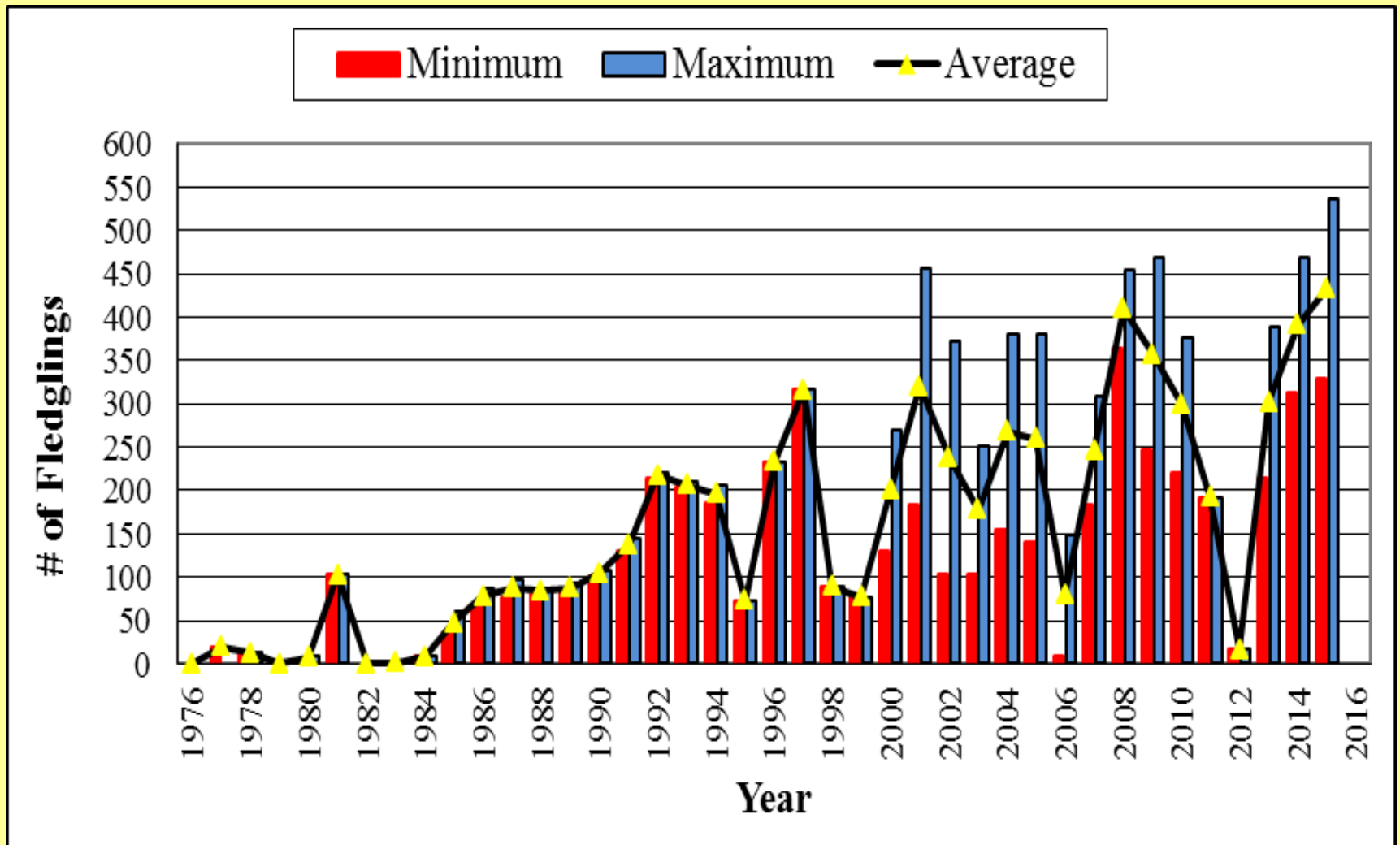


California Least Tern





Fledglings

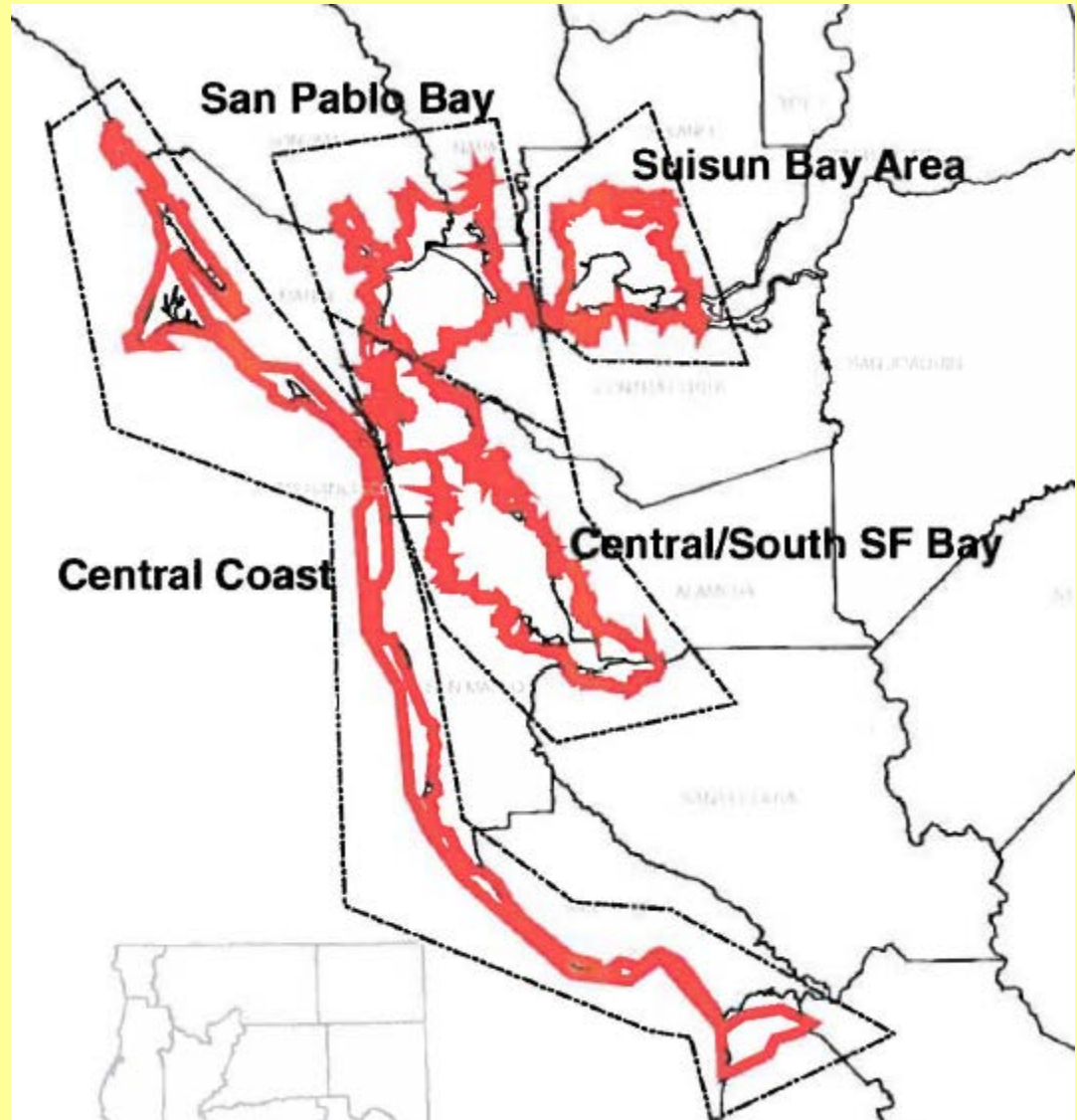


Ridgway's Rail Recovery

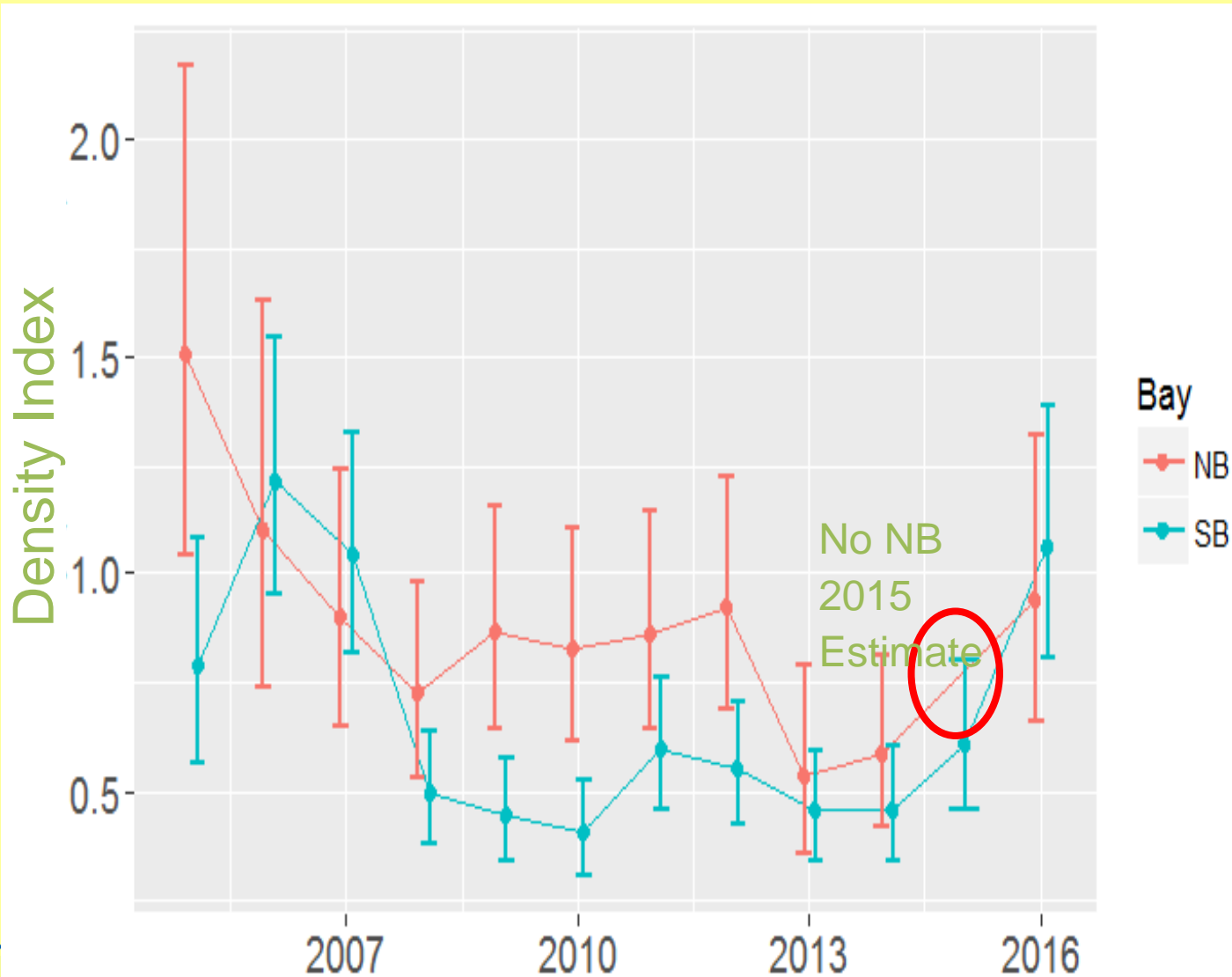


- Tidal Marsh Recovery Plan signed in 2013

- Four Recovery Units
- Tidal marsh restoration & RIRA population objectives set by Unit



North and South Bay Trends





J. Kitzenberger

California Ridgway's Rails

(*Rallus obsoletus obsoletus*)



New Protocol

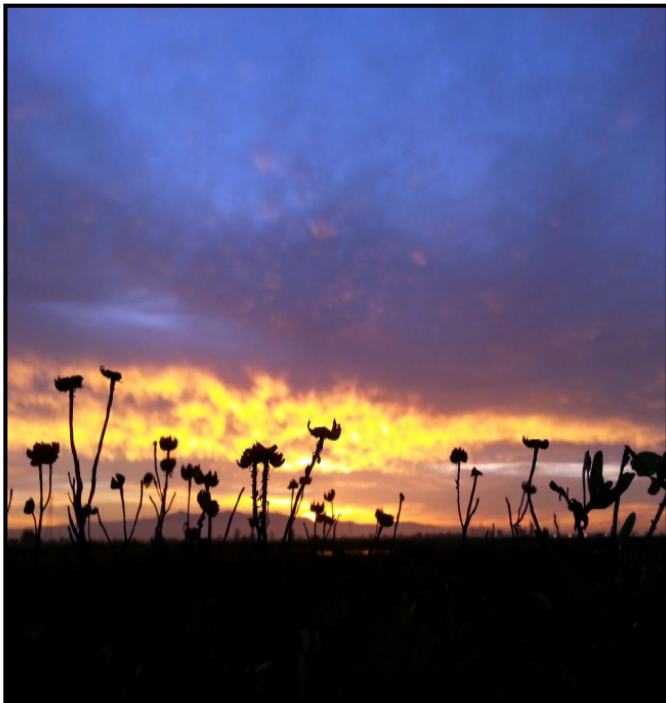
U.S. Fish and Wildlife Service
U.S. Department of the Interior
National Wildlife Refuge System
Point Blue Conservation Science



Site-specific Protocol for Monitoring Marsh Birds

*Don Edwards San Francisco Bay and
San Pablo Bay National Wildlife Refuges*

Survey ID Numbers: FF08RSFB00-003 and FF08RSNP00-008



- Standardization of survey methods
- Shared database
- Efficient, rigorous design for Refuge management assessment

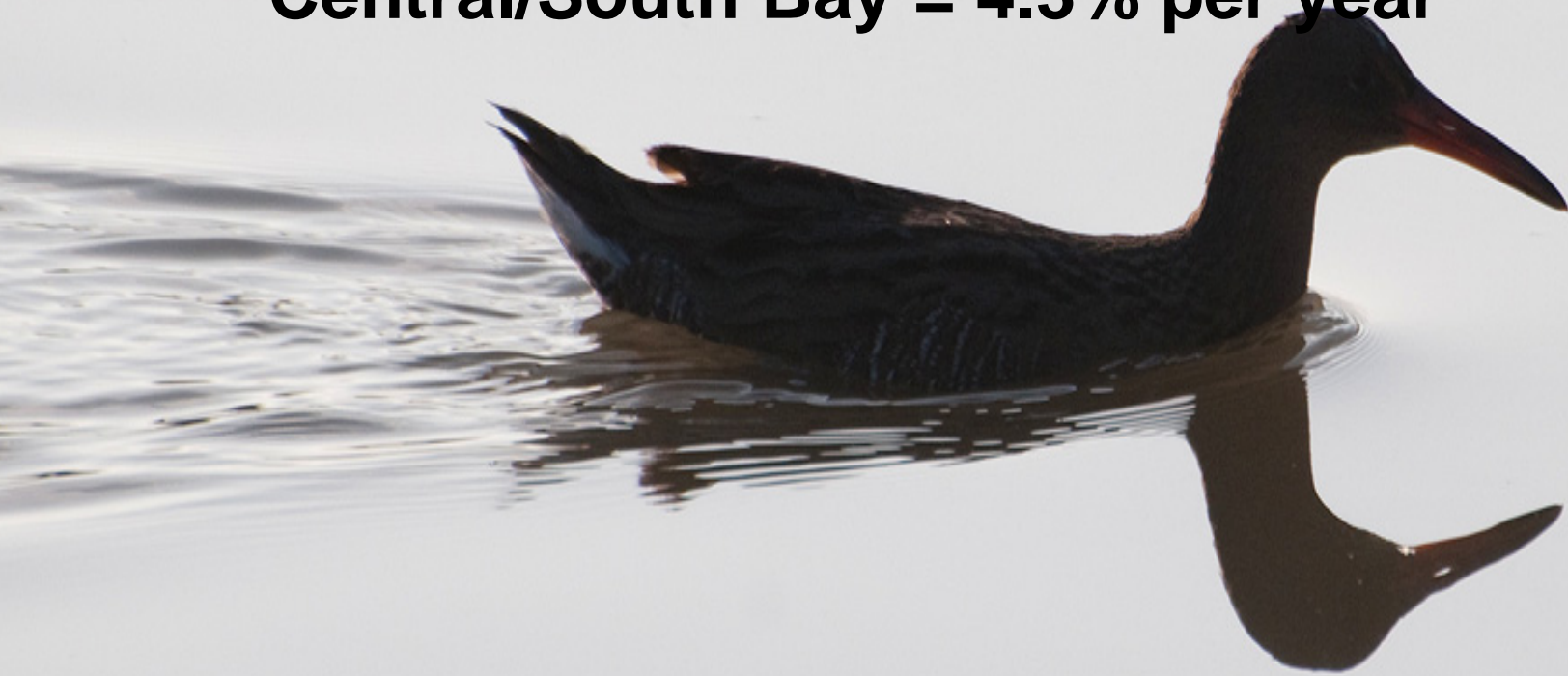
Activities

1. Complete analysis comparing two marsh bird survey methods
2. Determine RIRA biological objectives for two refuges in the San Francisco Estuary
3. Develop a sampling design and select survey methods for refuge-specific survey protocols
4. Produce draft and final site-specific marsh bird survey protocols (March 2016)

Population Growth Objectives

San Pablo Bay = 1.9% per year

Central/South Bay = 4.3% per year



Ability to detect year to year decline >40%

RIRA protocol

- Standardized field methods- everyone uses the same methods
- Sampling strategy that allows you to determine meaningful changes in species metric (population size) to evaluate success of project.

Effectiveness of management actions?

- Develop strategy to assess effectiveness management- SLR adaptation strategies
 - High tide refuge mounds
 - Native plantings
 - Marsh-upland ecotones
- Julian Wood will present on this later.

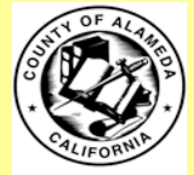
Protocol can evaluate success of management actions

- Marsh mounds, transition ramps into new restorations, to address SLR and predation threats
- Active planting/seeding of sub-dominant species such as gumplant that may not have local seed sources.

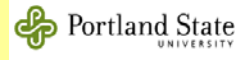
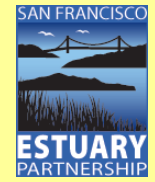




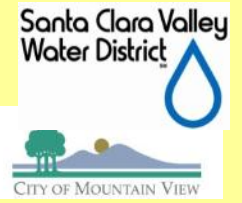
$\Sigma^2\Pi$ S.S. Papadopoulos & Associates, Inc.



Friends of the Petaluma River



San Mateo County Mosquito and Vector Control District



The End!

