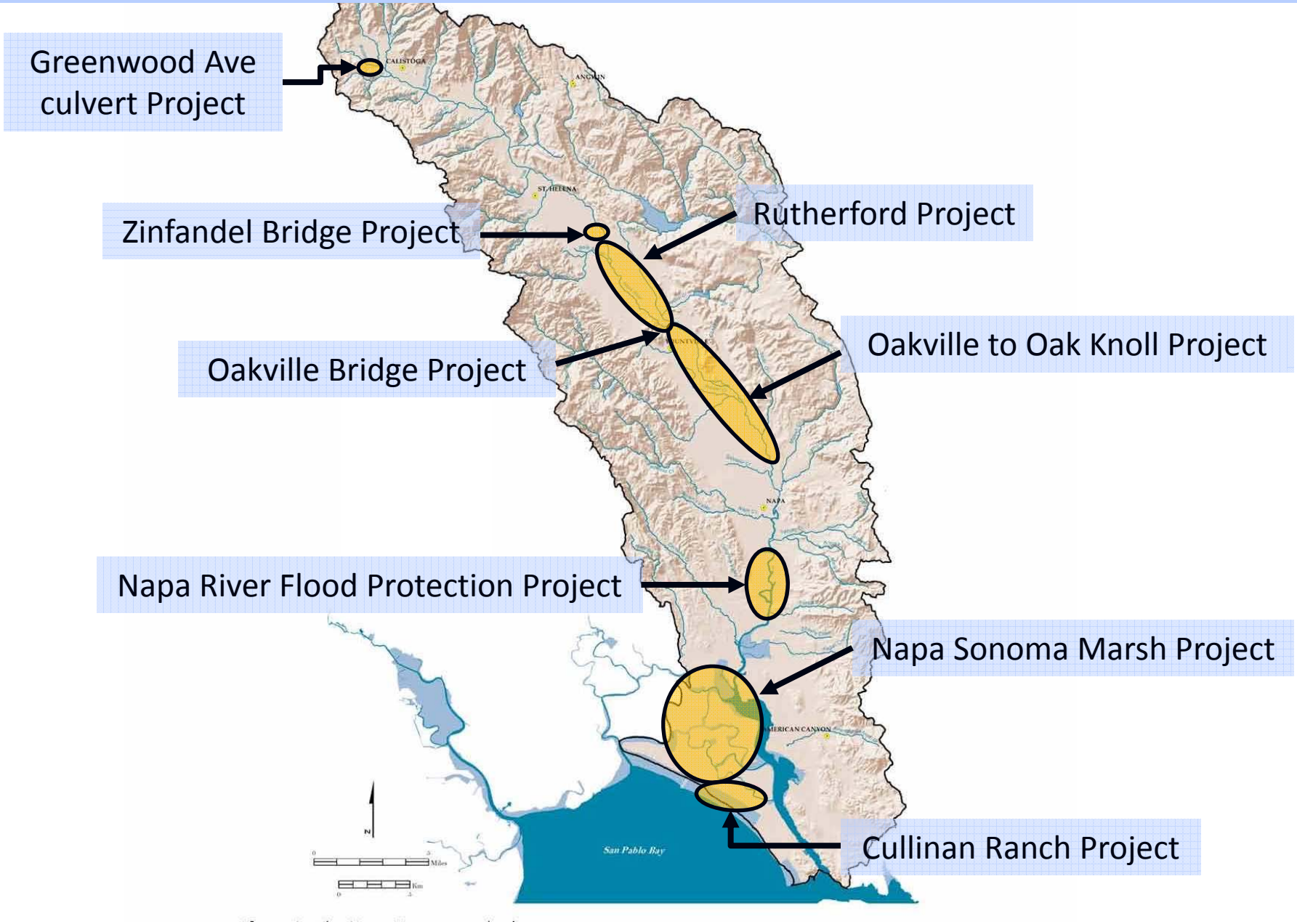
# Large Scale Restoration Projects in the Lower Napa River Watershed: The Transformative Power of Tidal Influence

Jeremy Sarrow, Napa County Watershed Symposium, May 15, 2015

# Major Restoration Projects within the Lower Napa River Watershed



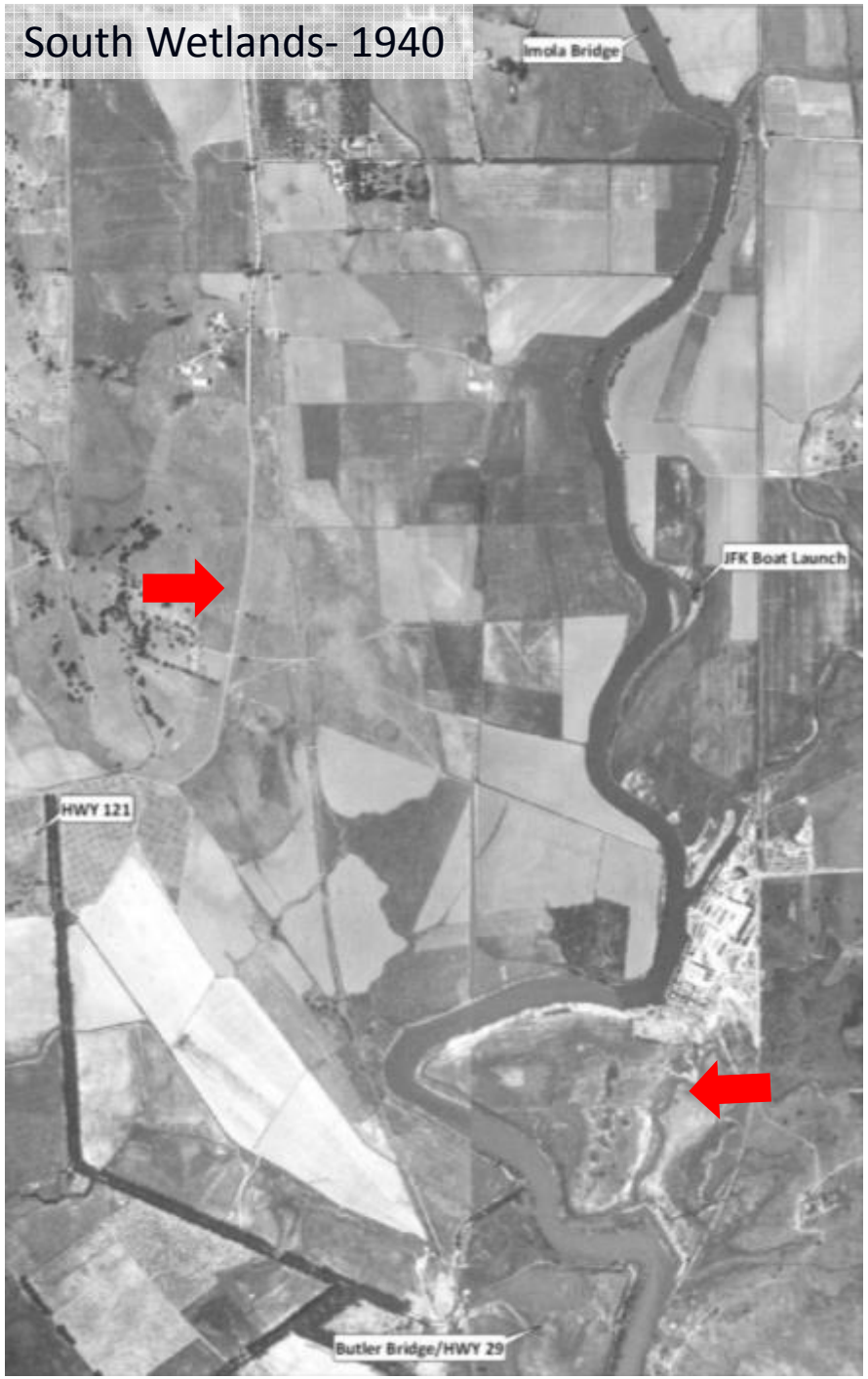
# Napa River Flood Protection Project

In addition to proving 100 year flood protection for downtown Napa with conventional elements such as flood walls, culverts, raising bridges, etc. the Project also includes:

• Restoring over 1,200 acres of former agricultural land back into flood and tidal marsh plain habitat by grading, lowering levees and removing tide gates which has reintroduced tidal influence from San Pablo Bay and reconnected the Napa River to the surrounding floodplain,

•Restoring over 1,800 linear feet of Napa Creek though the addition of large woody debris fish habitat structures and the “day lighting” of over 150 linear feet of stream channel


Creation of marsh and floodplain terraces
Restoration of historic marsh and wetland habitat
9 Bridges replaced
2005



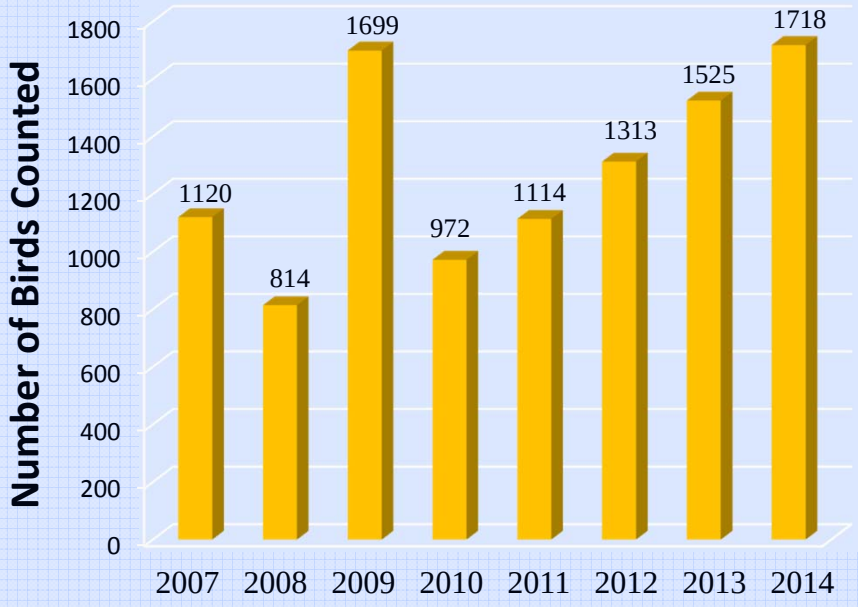


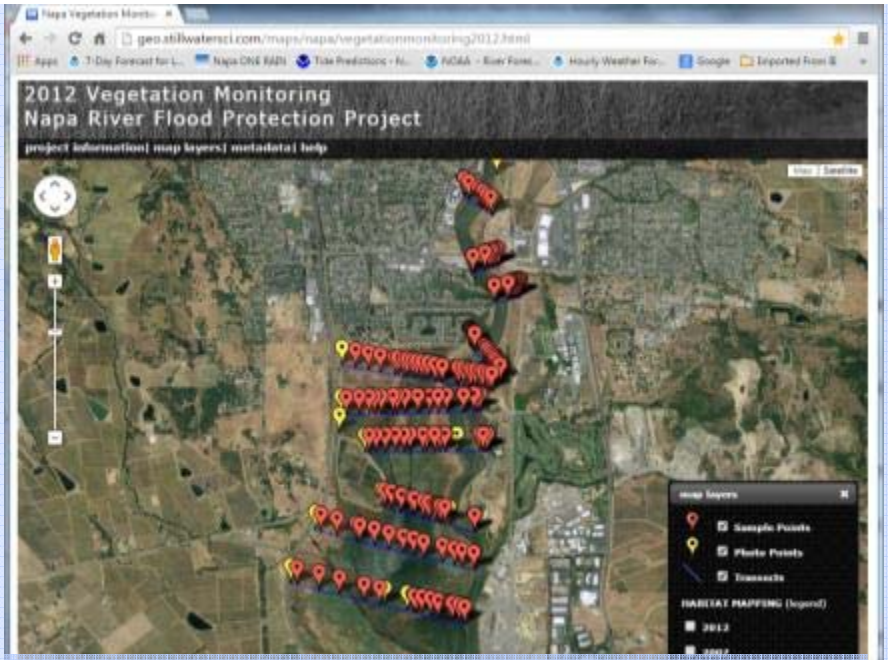
Redline = 1859 Habitat Delineation

# Monitoring Flora and Fauna in Project Area

Over 69 species of migratory and resident birds have been documented in the Project area.

**South Wetland Bird Surveys 2007-2014**

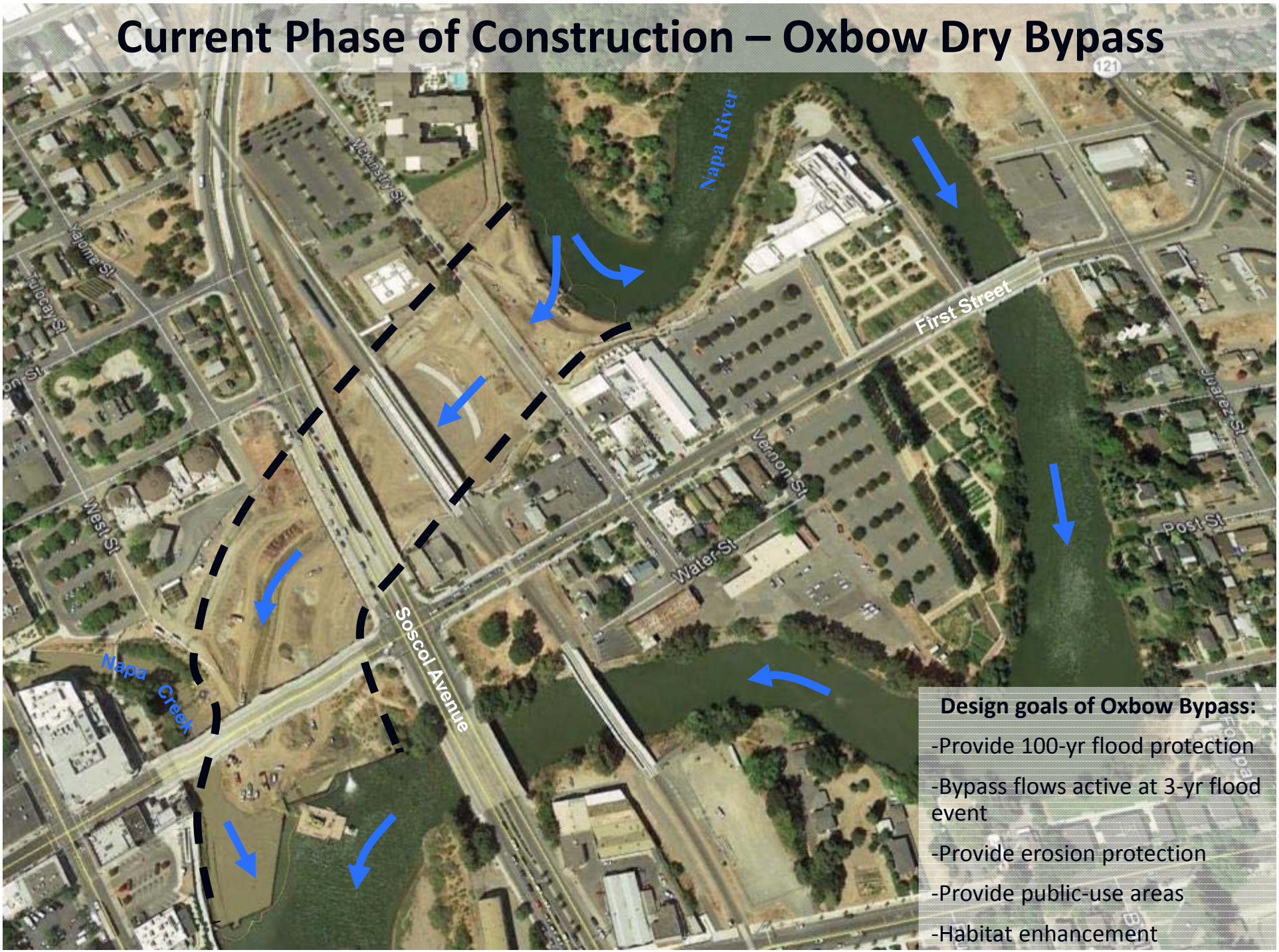



Interactive Web Based Monitoring Data

Managing Non-Native Vegetation
(Napa Youth Ecology Corps)

# Current Phase of Construction – Oxbow Dry Bypass




**Design goals of Oxbow Bypass:**

-Provide 100-yr flood protection

-Bypass flows active at 3-yr flood event

-Provide erosion protection

-Provide public-use areas

-Habitat enhancement

# Napa-Sonoma Marsh Wildlife Area

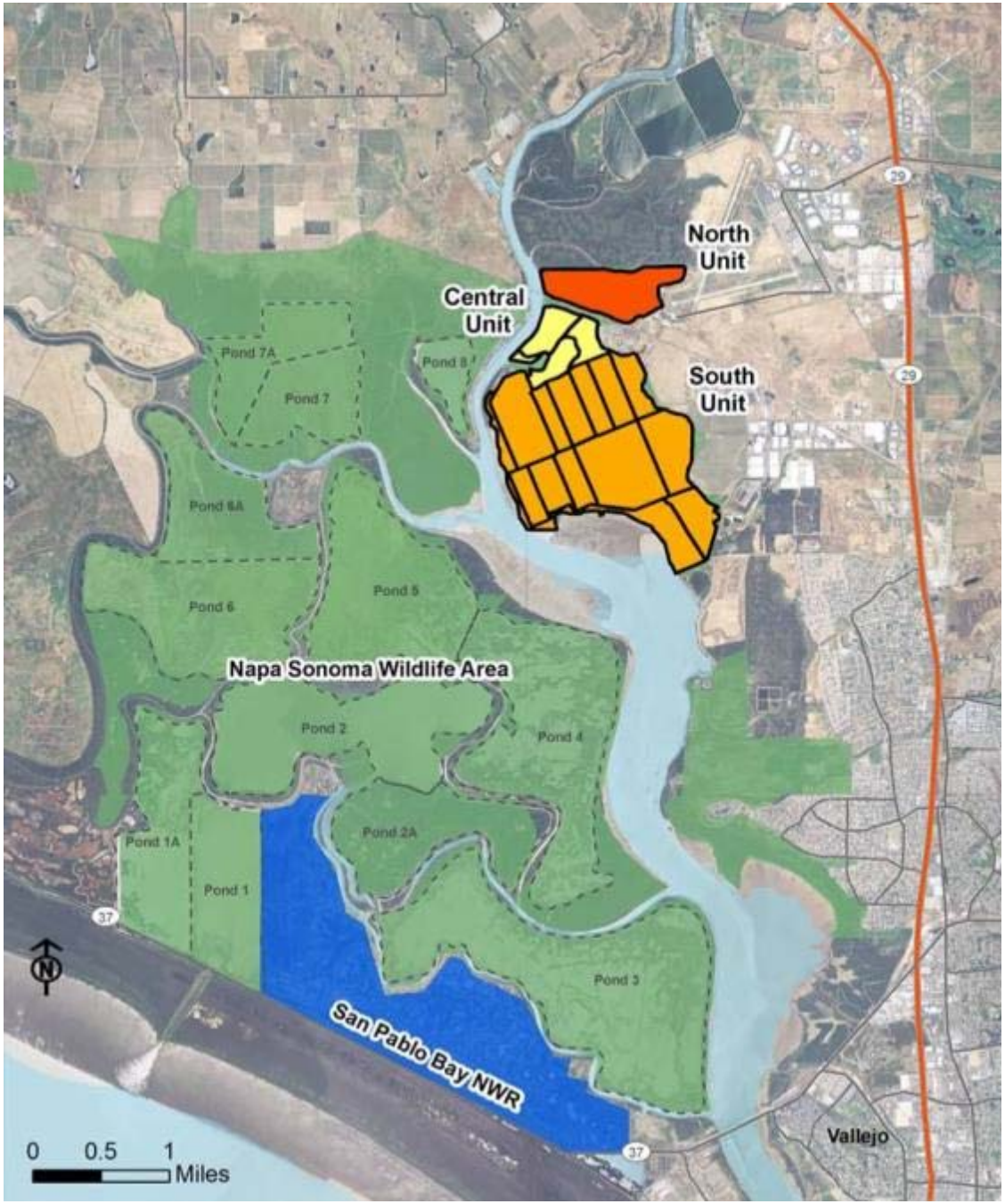
-1994, Cargill Company ceased salt production on over 9,800 acres of former wetlands, California Department of Fish and Wildlife (DFW) purchases this area and begins restoration in 2006,

-Ponds 1-5 were breached in 2006 and 2007, Ponds 6 - 7a are currently under construction and will be completed in summer 2015; work is beginning on Pond 8,

-Over 9,000 acres have been restored to date and the remaining 800 acres will be restored in the last phase of construction,

-Monitoring (USGS & DFW) focuses on water quality, rates of sedimentation and biological resources (Salt marsh harvest mouse, avian community, fisheries)

# Napa-Sonoma Marsh Wildlife Area



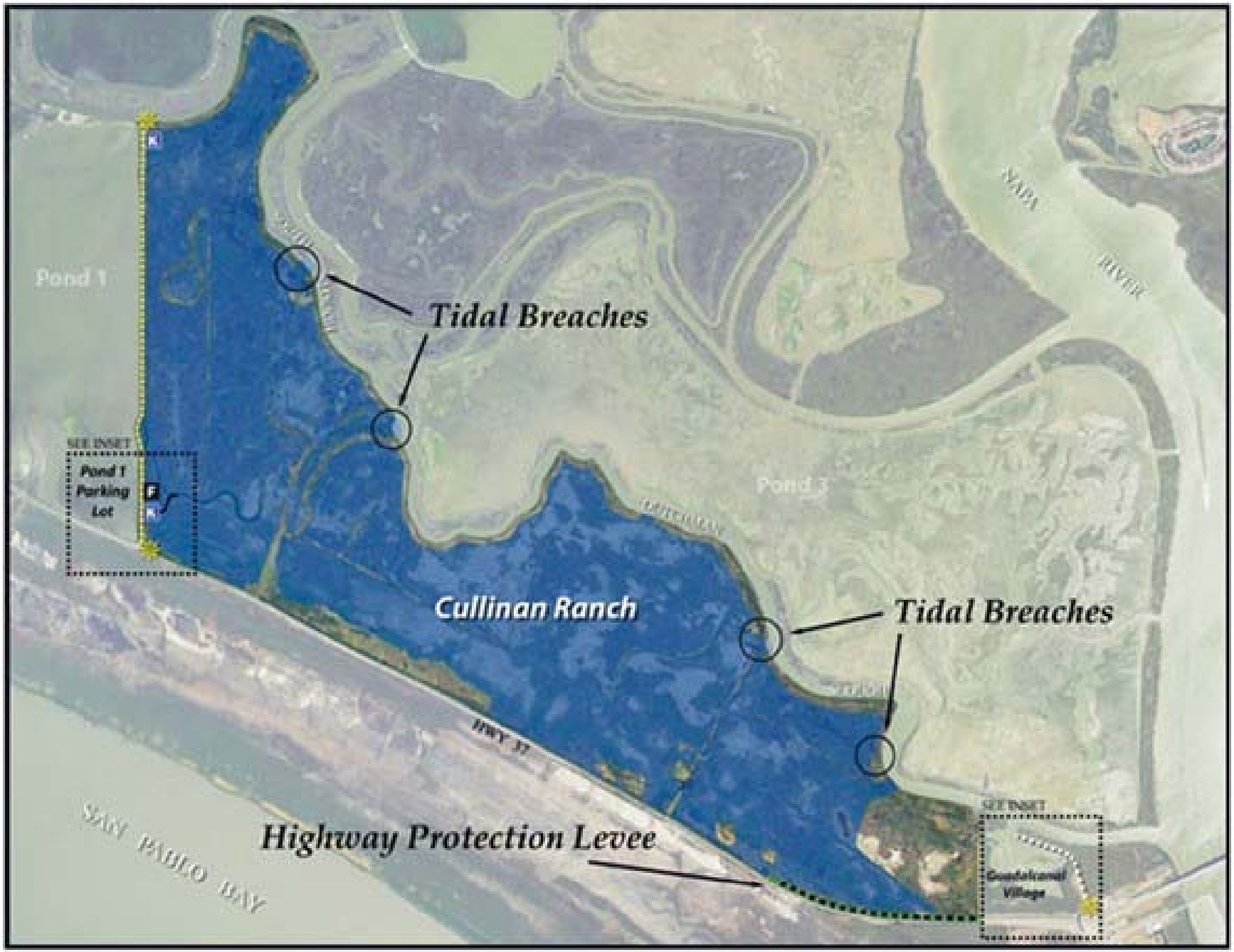
# Cullinan Ranch Restoration Project

-The Cullinan Ranch Restoration Project area, former reclaimed agricultural lands, nearly became “Egret Bay” a housing development proposed in the 1980’s that was defeated by residents in 1987,

-U.S. Fish and Wildlife Service purchased the property in 1991 in order to incorporate it into the San Pablo Bay National Wildlife Refuge; Project goals are to restore over 1,500 acres of tidal wetlands,

-Restoration activities, primarily breaching levees, began in 2011 and tidal flow was reintroduced in 2015 initially creating open water habitat. Over time suspended and dredged sediment from surrounding waterways will slowly build up areas that have subsided from past agricultural activities allowing vegetation to colonize higher elevation areas and diversifying habitat within the project area

# Cullinan Ranch Restoration Project



# Napa Sonoma Marsh and Cullinan Ranch Restoration Projects

# Implementation Tracking and Accounting System (ITAS)

- Identify progress towards TMDL goals and compliance
- Prioritize and inform management actions
- Communicate results to stake holders

**Fish Community**

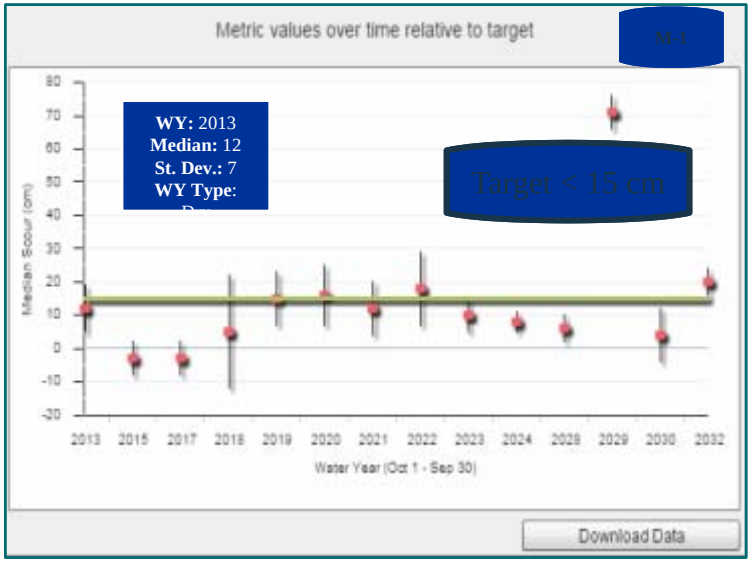
**Spawning Gravel Permeability**

**Streambed Scour**

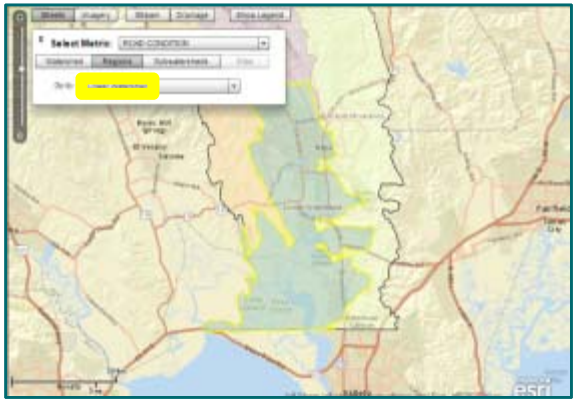
**Road Condition**

**Stream Erosion Condition**

**BMP Tracking**




- Web Based
- Focused Data Inputs
- Standardized and Spatially Integrated
- Clear Reporting



In summary, many types of large scale restoration projects are taking place throughout the Napa River watershed.

These restoration projects, and others, are interrelated and not only serve to protect and benefit the environment but also educate citizens and raise awareness of Napa County's natural resources while contributing significantly to larger regional restoration efforts within the San Pablo and San Francisco Bay Estuaries

Delta smelt

Avocets