

# Coalition Based Steelhead Recovery – San Diego



Sandra Jacobson, Ph.D.  
CalTrout, Director - South Coast Region  
4-11-2018 RWQCB Presentation

*Santa Margarita River  
Ecological Reserve*

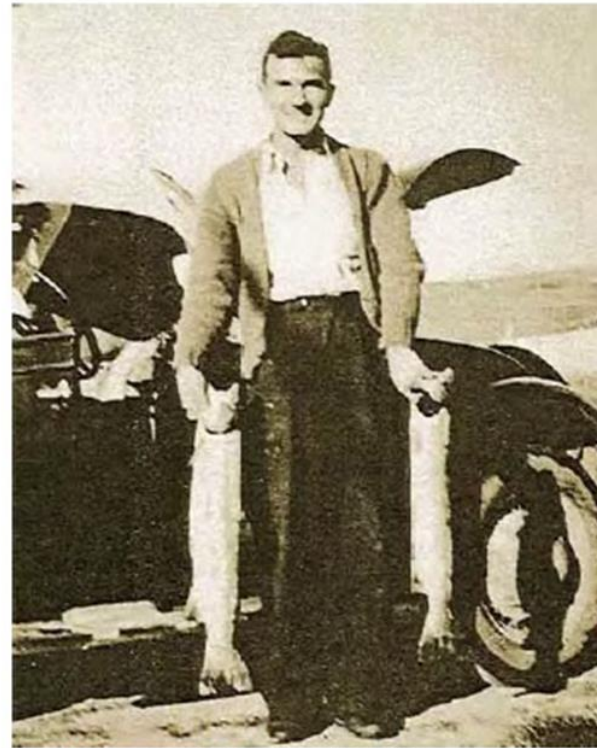
# Southern California Steelhead

Steelhead are the anadromous form of rainbow trout that migrate between ocean and freshwater.

Their population declined in mid 1900s due to habitat loss and blocked access to upstream spawning and rearing areas.

There are critically few left and they get special protection.

Sightings in rivers are now rare.

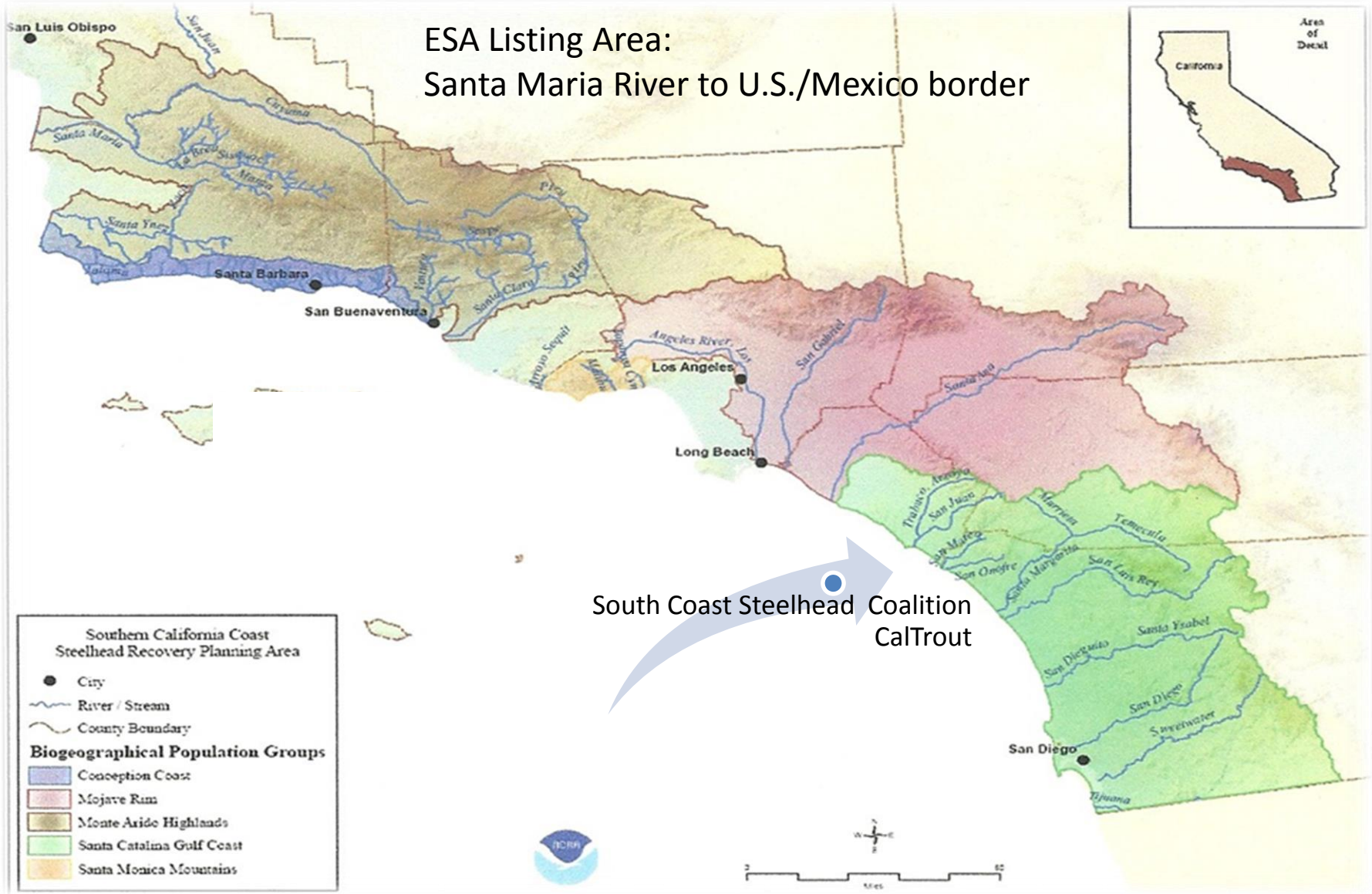


San Mateo Creek Steelhead - 1939.



# Southern California Steelhead – Endangered

ESA Listing Area:  
Santa Maria River to U.S./Mexico border



# Why are they Endangered?

Steelhead numbers in Southern California have declined from a historic high of ~40,000 adult fish to less than 500 today.

Causes of population decline:

- Fish passage barriers and dams
- Urbanization
- River channel changes
- Invasive species
- Poor water quality
- Lack of public awareness

# South Coast Steelhead Coalition

**Coalition Mission:** Implement Federal Recovery Plan  
**Impact Area:** San Diego, Orange, Riverside Counties

**Coalition Leadership:**

CalTrout, Coalition Lead  
Trout Unlimited, Co-chair



**Federal:** National Marine Fisheries Service, U.S. Fish and Wildlife Service, U.S. Forest Service (Cleveland National Forest), U.S. Marine Corps – Camp Pendleton, U.S. Geological Survey

**State and Districts:** California Department of Fish and Wildlife, Riverside-Corona Resource Conservation District; Vista Irrigation District, Santa Monica Mountains Resource Conservation District, Caltrans, SD Regional Water Quality Control Board

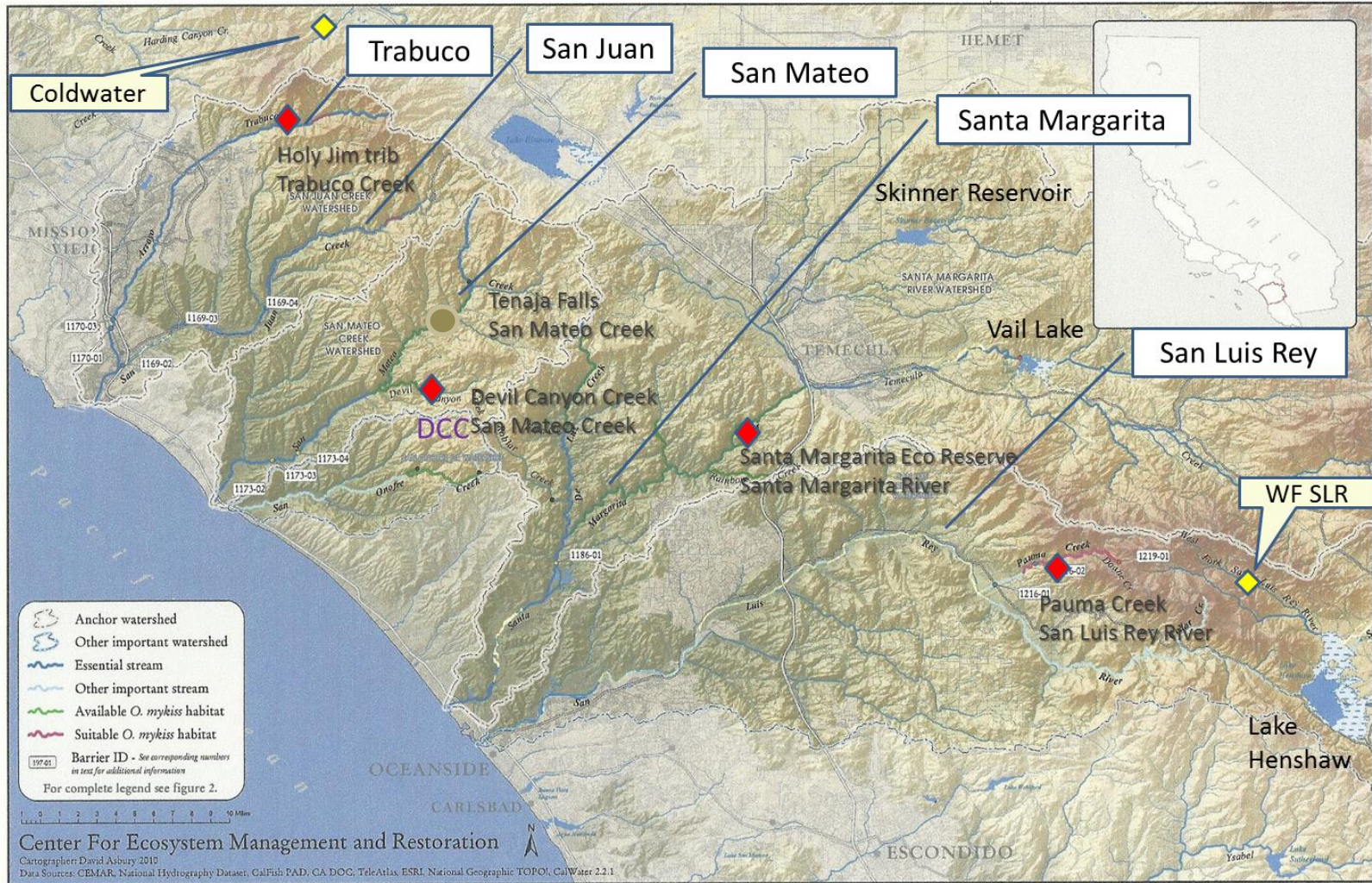
**Tribal Nations:** Pauma Band of Luiseño Indians, Pala Band of Mission Indians

**Nonprofits:** California Trout, Trout Unlimited, Santa Margarita Ecological Reserve, Sierra Club, Audubon-Starr Ranch, The Escondido Creek Conservancy, Mountains Restoration Trust, SW Council of International Federation Fly Fishers, Aquasolver, San Diego Fly Fishers, Golden State Flycasters.



# Focal Steelhead Recovery Rivers

High Priority watersheds: NMFS Steelhead Recovery Plan Core 1 Population designation



- ◆ Native trout populations: Coldwater Canyon Creek (Santa Ana River), WF San Luis Rey (San Luis Rey River)
- ◆ Proposed new connected metapopulations (red symbols).



# Native Rainbow Trout Populations Locally

West Fork San Luis Rey River  
San Diego County



Coldwater Canyon Creek  
Riverside County



Southern California *O. mykiss* population genetics study (2010-2014)

# Conservation Goals

- **CONNECT:** establish two connected steelhead populations in focal watersheds in ten years (2025)  
Coastal steelhead populations that are connected to ocean and to each other in focal watersheds
- **CREATE:** establish more unconnected native rainbow trout populations from two to eight for risk mitigation/diversity  
Expand native trout populations into high quality refuge sites; may be within same watershed or neighboring one; may be occupied or unoccupied.

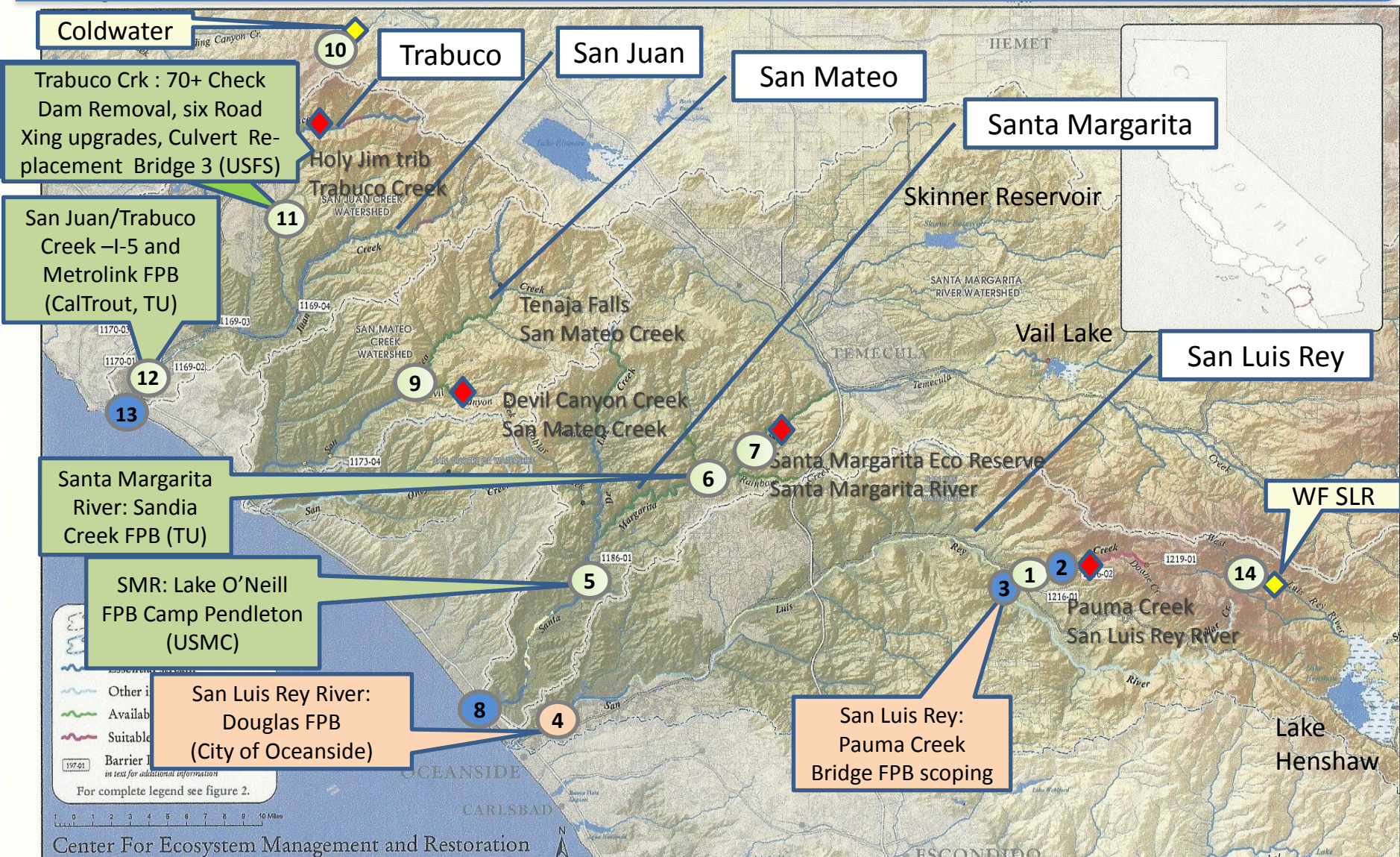


Andrew Dickinson / Mike McVey, Santa Margarita River

- Remove fish passage barriers
- Improve habitat upstream
- Water conservation / water quality
- Preserve native trout populations



# Project Implementation for Steelhead Recovery

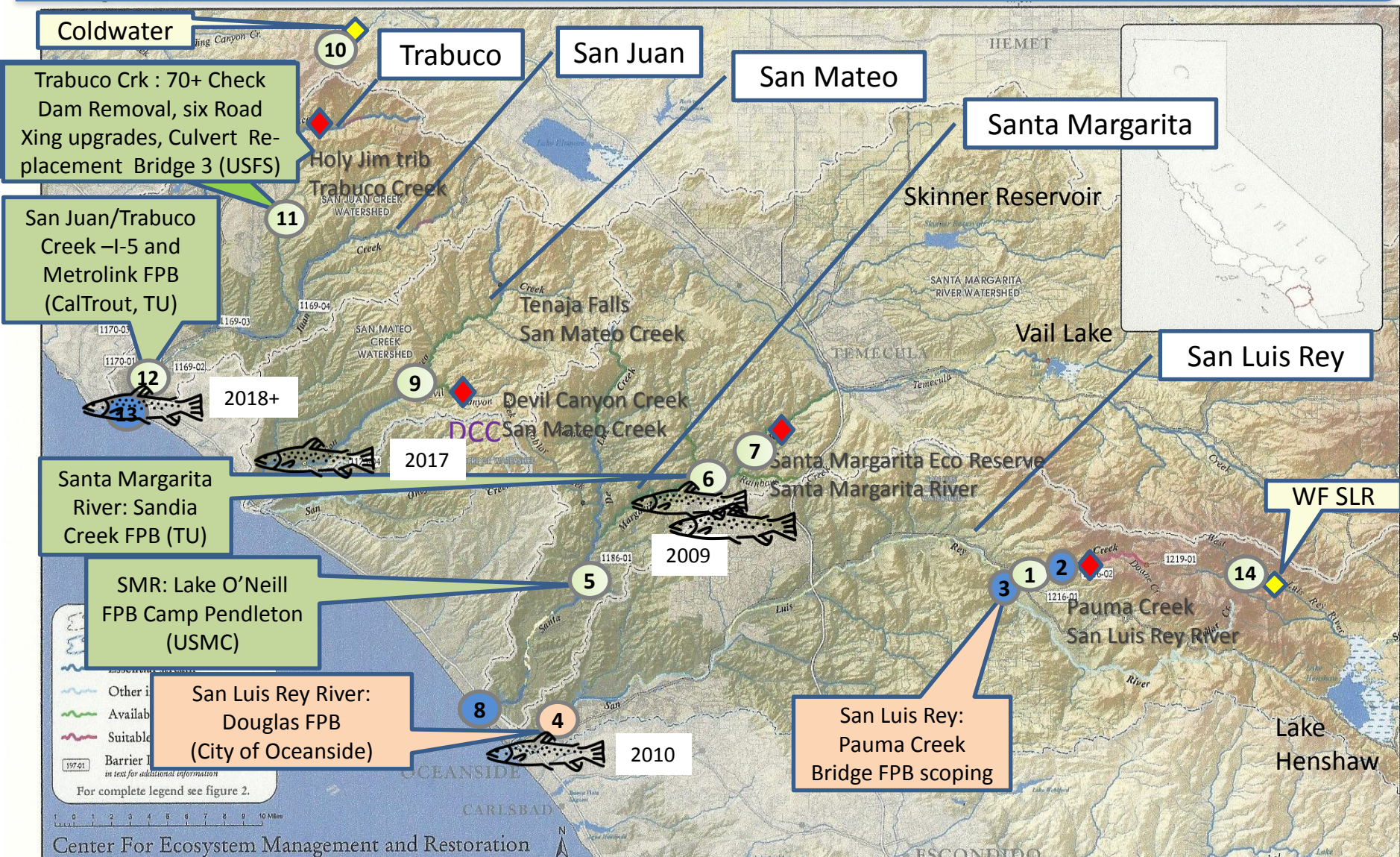


Base map from CEMAR, annotated to illustrate NMFS high priority steelhead recovery rivers and Coalition projects.

- ◆ Target habitat for new anadromous populations
- ◆ Native rainbow trout populations of steelhead lineage
- Fish Passage Barriers (square symbols, FPB)
- Projects Underway
- In Development



# Project Implementation for Steelhead Recovery

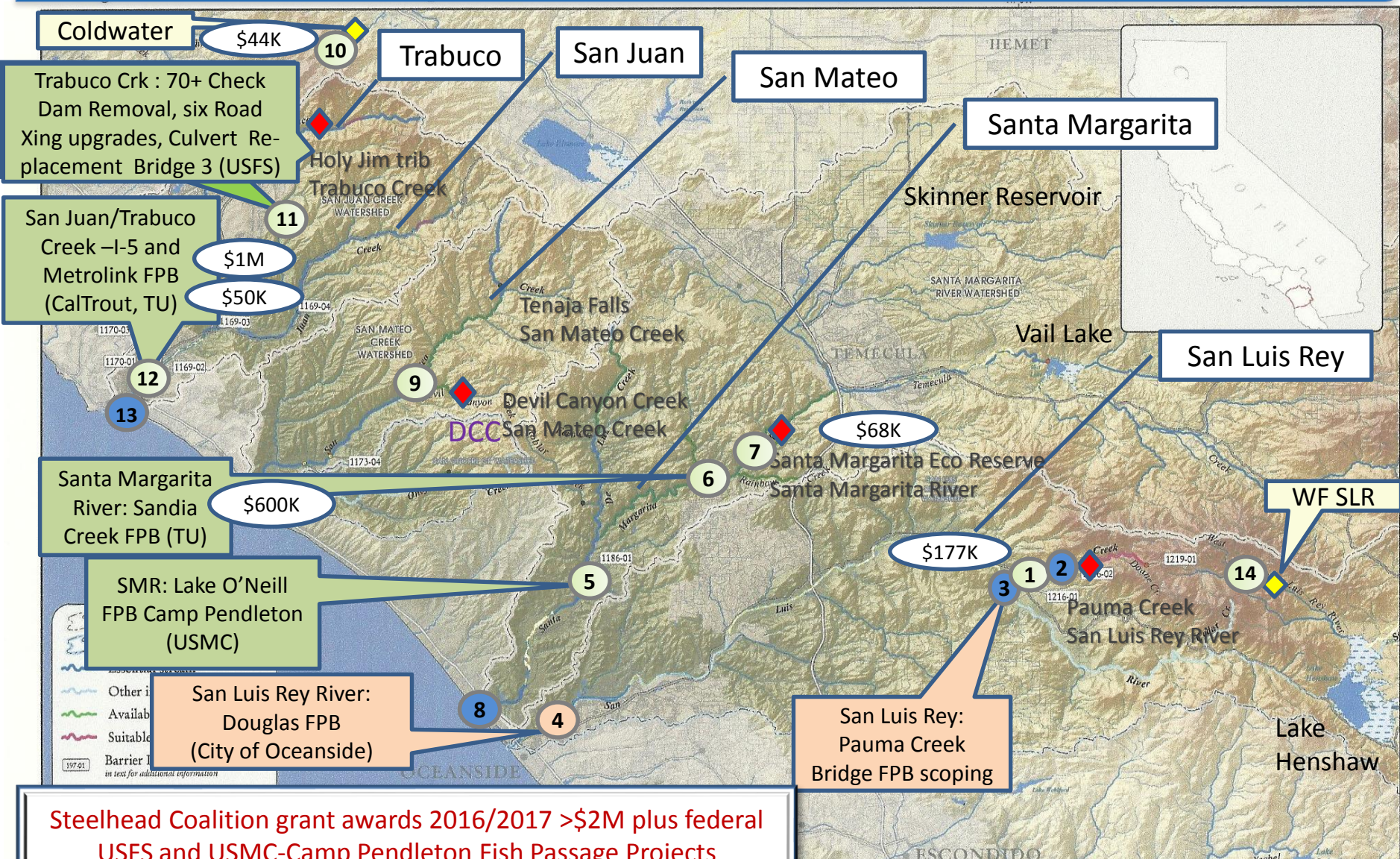


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# Project Implementation for Steelhead Recovery



**Steelhead Coalition grant awards 2016/2017 >\$2M plus federal USFS and USMC-Camp Pendleton Fish Passage Projects**

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# Coast to Headwaters Fish Passage & Stream Restoration

## San Juan Creek watershed



*San Juan Creek Estuary  
with view of Headwaters*



# Estuary to Headwaters Urban Creek Restoration

Lower River:  
Estuary growth and migration



Upper River :  
Freshwater spawning & rearing



# I-5 Bridge Array – Flood Control Channel in Trabuco Creek



*Interstate 5 Bridge Array  
Camino Capistrano Bridge  
~ 5 miles upstream from ocean*

I-5 Bridge Array Fish Passage Barrier funded for 65% design level. CalTrout project lead. Funding from CDFW (Prop 1), NFWF, WCB. CalTrout project lead, TU partner. Engineering team: NHC, Stillwater, Love & Assoc, SAGE.



# Check Dam Removal – Upper San Juan Watershed



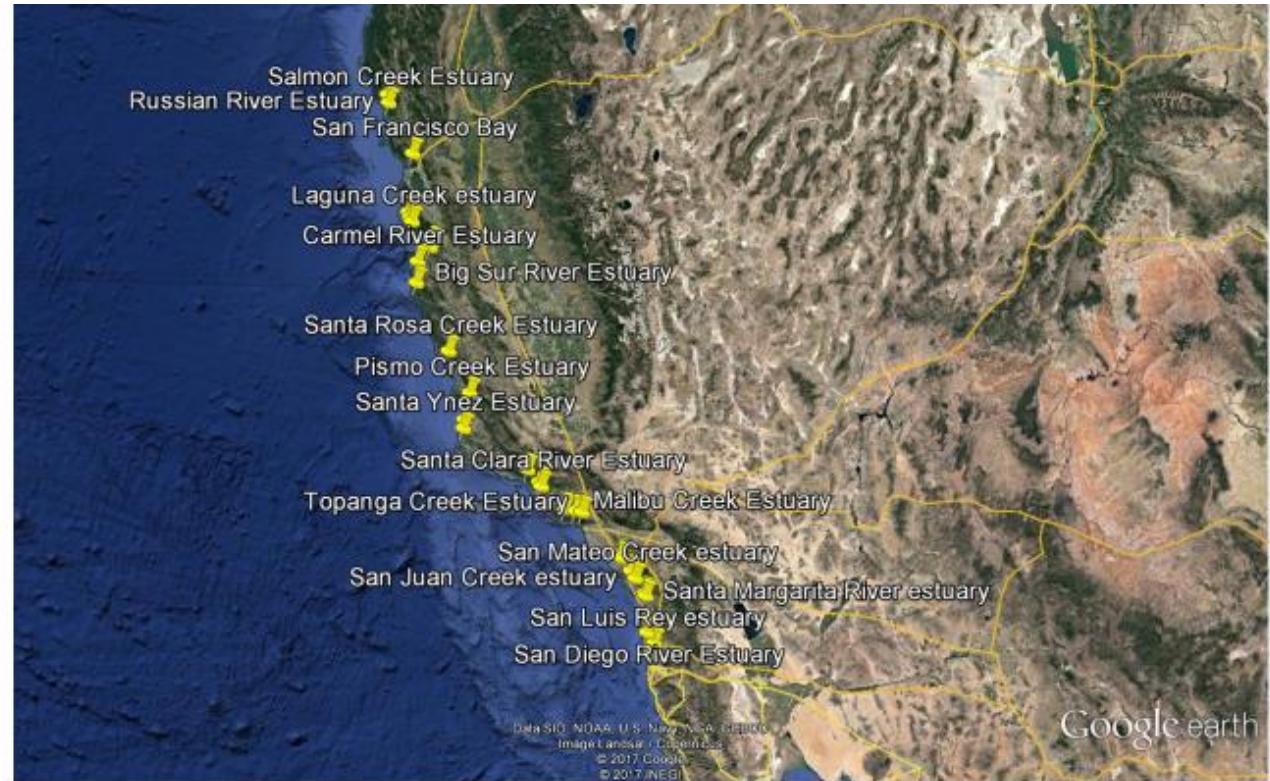
>70 check dams to be removed in upper San Juan Creek /Trabuco Creek/Silverado for enhanced fish passage. Led by Cleveland National Forest (19 out now). Project #11. Collaborative dam removal with Marines from Camp Pendleton (demolition training).

Downstream I-5 and Metrolink projects leverage concurrent coast to headwaters fish passage restoration projects in the watershed, allowing access to 15 miles of upstream habitat in an ecosystem level approach to promoting resiliency in coastal areas.

# Estuaries are Productive Habitat and Entry for Salmonids

Goal: Gain better understanding of salmonid physiological water quality tolerance levels (beneficial use) to better apply regulatory framework using biostimulatory criteria in So Cal estuaries.

- ➔ Lab scale physiology
- ➔ Estuary water quality data
- ➔ Salmonid abundance at estuaries



California Trout project lead, funding through Orange County Community Foundation, Warne Family Fund for Endangered Species



# Underwater Robotic Videography

Howard Phippen, Golden State Flycasters, OpenROV Underwater robotics



Outfit robot with water chem probes:  
Correlate estuary WQ conditions  
with presence/absence and behavior  
of aquatic species





# What the Regional Water Quality Control Board Can Do

- Support non-native aquatic species removal in high priority steelhead recovery watersheds such as San Mateo Creek; partner with non-profits to educate public on reducing source populations in private ponds.
- Partner in new technology that characterizes water quality parameters and species abundance in key salmonid habitats (e.g. estuaries, freshwater refugia)
  - E-DNA sampling for presence/absence monitoring
  - underwater robotic technology to assess WQ conditions and species presence
- Build SEP program to enhance watershed health
  - Improve water quality and habitat for sensitive species
  - Improve access to high quality habitats
- Facilitate permitting to move forward fish passage enhancement projects
  - High dollar regional projects for barrier removal in process
    - Metrolink and I-5 Trabuco in San Juan Creek watershed
    - Santa Margarita River bridge replacement at Sandia Creek Drive
    - Highway 76 at Pauma Creek in San Luis Rey watershed



Lower Pauma Creek with OpenROV  
July 17, 2015

Jeremy, Russell, Dillon, Jacob, and Howard



# Contact Information



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