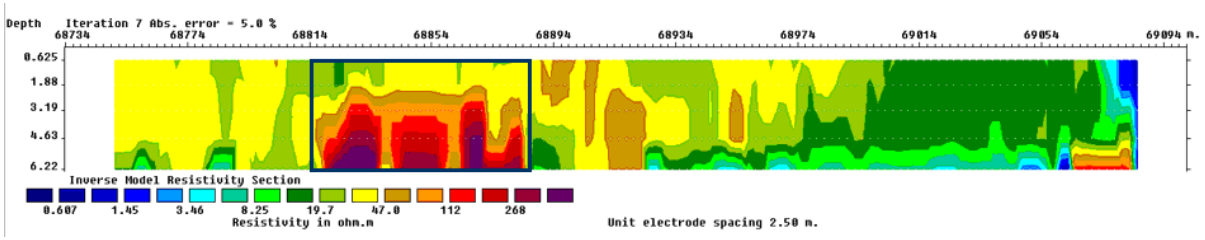
CALIFORNIA STATE UNIVERSITY
Stanislaus



The Levee Project

Resistivity mapping

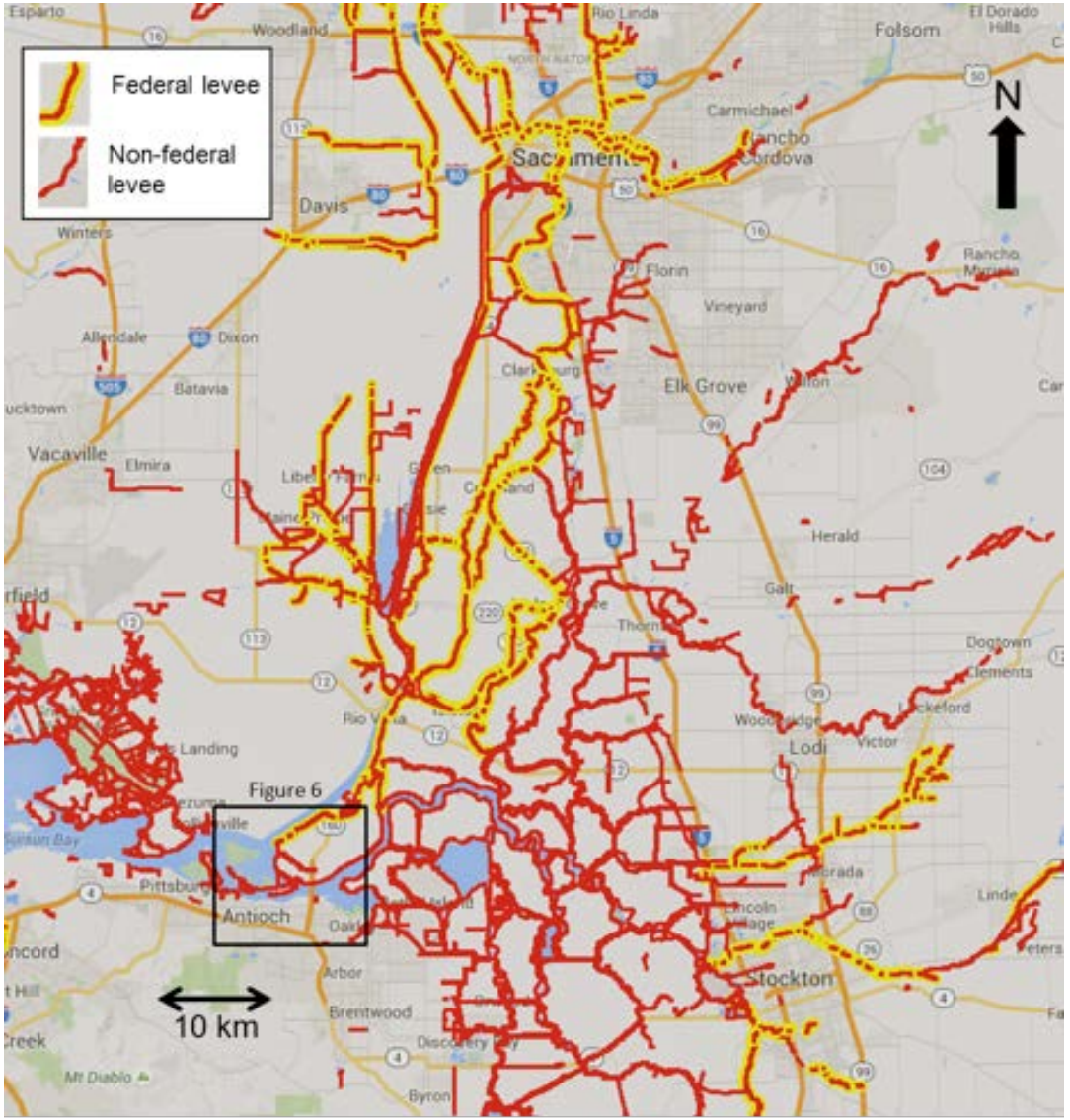
The Levee Project is a collaborative educational project between CSU Stanislaus, Merced College, and Delta College. Its goal is to have students from the different institutions meet, work collaborative in the data acquisition, and develop interest in graduating from college with a STEM degree. Our “graduates” have used the data to prepare posters (AEG, GSA, WRPI, COAST, NASA, and JPL) and to apply for graduate school. Besides, there is nothing like a sunny day in the estuary!

WHY ARE LEVEES IMPORTANT?

- PROTECT LIFE AND PROPERTY
- HELPED CLEAR THE SEDIMENT-CHOKED CHANNELS AFTER THE GOLD RUSH
- CAUSE THE UPPER ESTUARY TO BE HIGHLY TRANSMISSIVE OF PEAK FLOWS (AND NOW OF WATER RELEASED FROM THE NORTHERN DAMS)

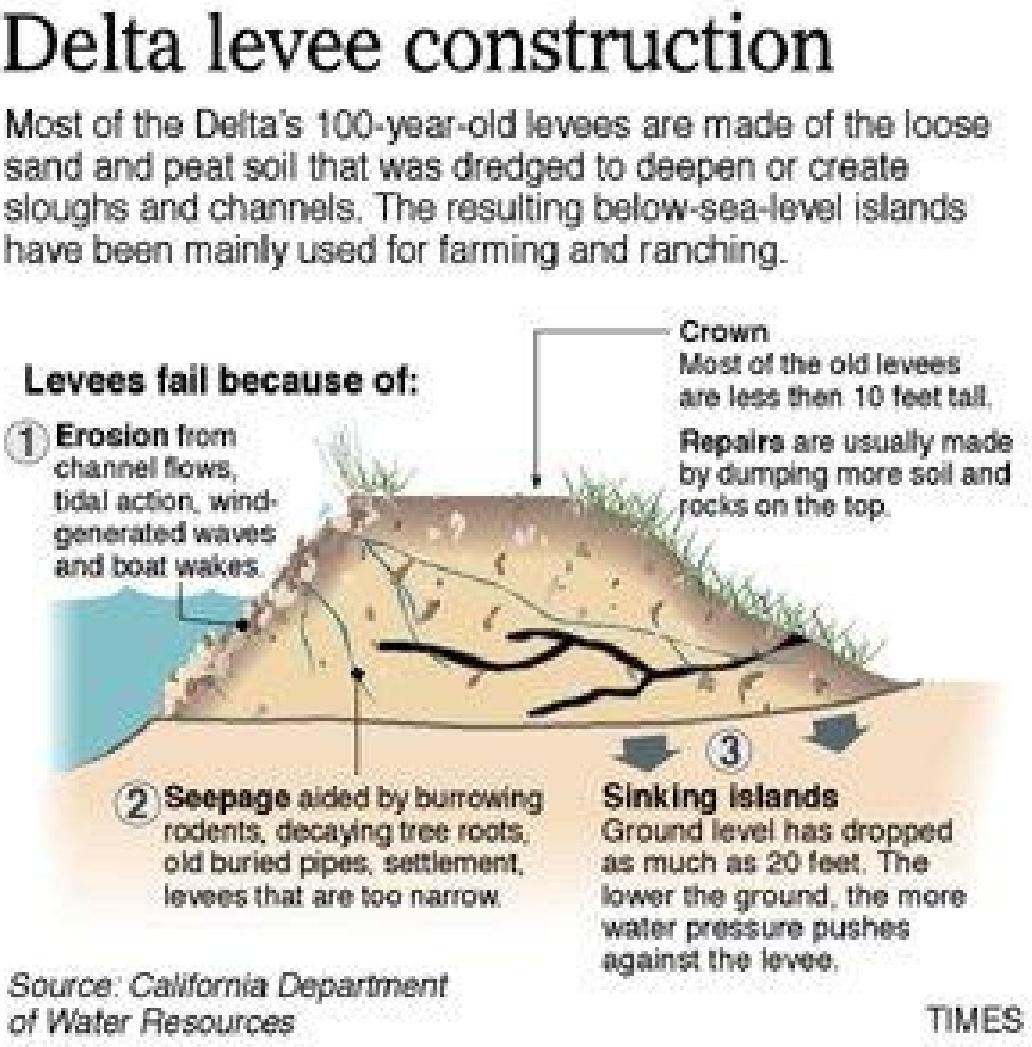
OVERVIEW OF THE LEVEE SYSTEM

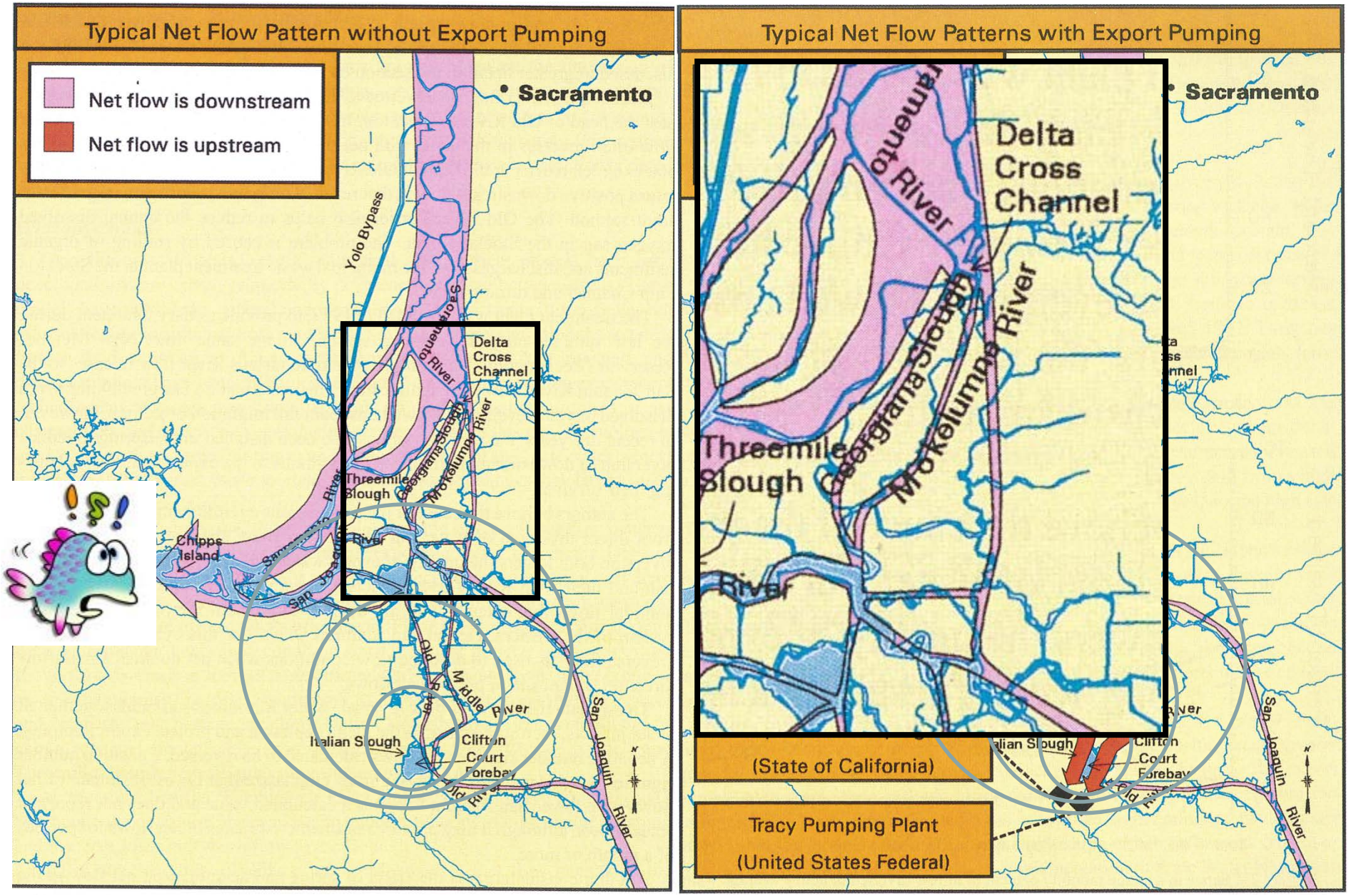
- 1000+ MILES OF LEVEE SYSTEM
- BUILT OVER A PERIOD OF 150 YEARS (SOME ARE ELDERLY & VULNERABLE)
- SUPPORTS LOCAL AGRICULTURE
- PROVIDES DRINKING WATER TO 23 MILLION CALIFORNIANS



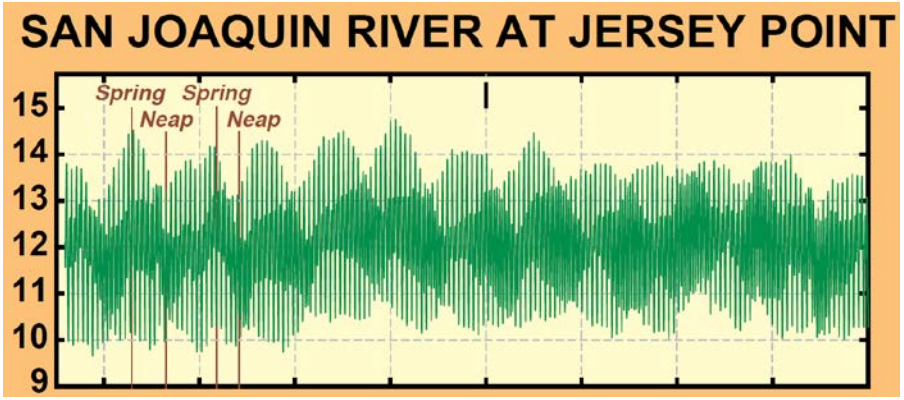
OUR RESEARCH

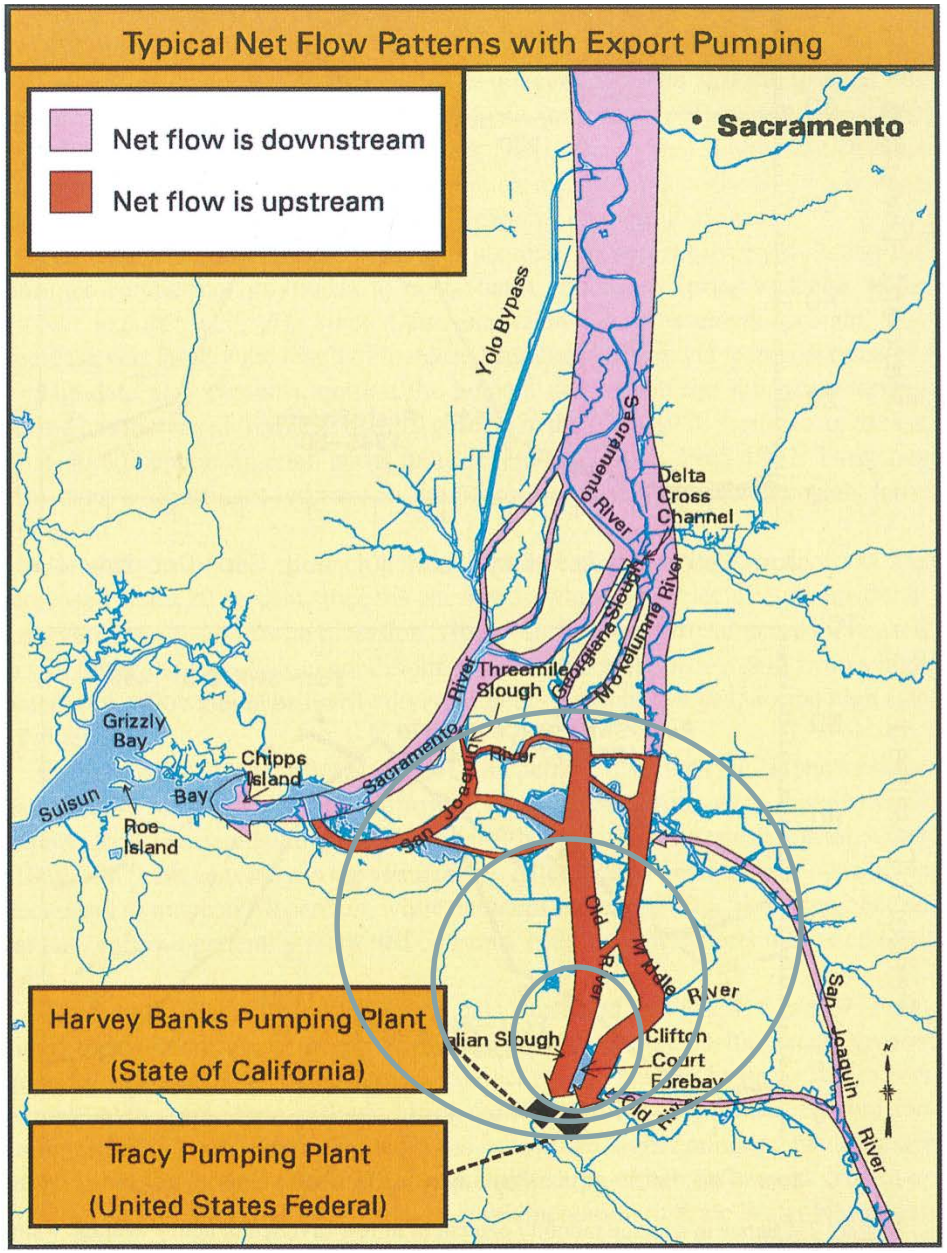
- LOCATE PROBLEM AREAS TO AVOID BREECH OF LEVEES
- GEOPHYSICAL SURVEYS
  - COST EFFECTIVE
  - NON-INVASIVE
  - SHEAR WAVE VELOCITY SURVEYS
  - CAPACITIVELY-COUPLED RESISTIVITY (CCR) SURVEYS
  - IDENTIFY SUSURFACE MATERIALS TO PINPOINT PROBLEM AREAS
- VISIT OUR POSTER FOR MORE!

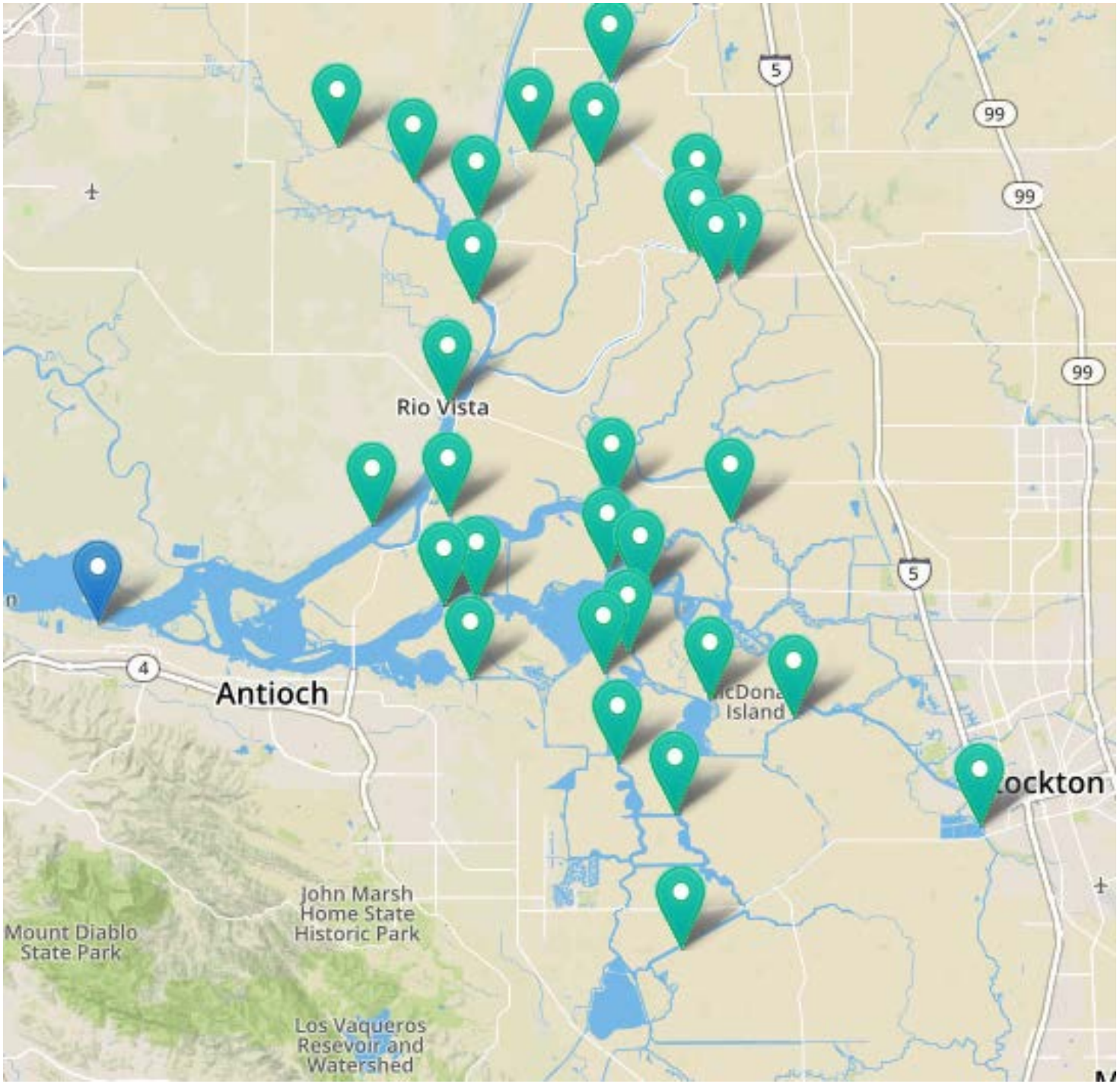




Arthur, J.F., Ball, M.D., Baughman, S.Y., 1999, Summary of Federal and State water projects environmental impacts in the San Francisco Bay-Delta estuary, California: in Hollibaugh, J.T. (ed.) *San Francisco Bay: The Ecosystem*, p. 445-495.


SAN JOAQUIN RIVER AT JERSEY POINT
Spring
Neap
Spring
Neap
15
14
13
12
11
10
9


Typical Net Flow Patterns with Export Pumping
Net flow is downstream
Net flow is upstream
Sacramento
Yolo Bypass
Sacramento River
Delta Cross Channel
Georgiana Slough
Mokelumne River
Threemile Slough
Sacramento River
San Joaquin River
Grizzly Bay
Chipps Island
Suisun Bay
Roe Island
Old River
Middle River
Clifton Court Forebay
San Joaquin River
Harvey Banks Pumping Plant
(State of California)
Tracy Pumping Plant
(United States Federal)


Rio Vista
Antioch
Mount Diablo State Park
John Marsh Home State Historic Park
Los Vaqueros Reservoir and Watershed
5
99
99
99
4
5


Courtland
Rio Vista
Lodi
Stockton
Brentwood
Suisun Bay
Suisun Marsh
Grizzly Bay
Honker Bay
Sacramento River
Hastings Tract 2060
Prospect Island 1667
Sutter Island
Ryer Island 501
Grand Island 3
Dead Horse Island
1002 Glanville Tract
McCormack Williamson Tract
551
2110
348 New Hope Tract
2086 Canal Ranch Tract
Tyler Island 563
Andrus Island
38
Brack 2033 Tract
Staten Island
Brannon Island 2067
Twitchell Island 1601
Decker Island
Sherman Island 341
Bradford Island 2059
Webb Tract 2026
Bouldin Island 756
Terminous Tract 548
Shin Kee Tract
Rio Blanco Tract 2114
Venice Island 2023
Empire Tract 2029
King Island 2044
Bishop Tract 2042
Jersey Is. 830
Bethel Island (BIMID)
Mandeville Island 2027
Quimby Island
Rindge Tract 2037
Shima Tract 2115
McDonald Island 2030
Wright-Elmwood Tract 2119
Sargent 2074 Barnhart Tract
Hotchkiss Tract 799
Holland Tract 2025
Bacon Island 2028
Bishop
Lower Roberts Island 684
Veale 2065 Tract
Palm Tract 2036
Lower Jones Tract 2038
Rough & Ready Is.
2024
Orwood Tract
Wood-ward Island
Upper Jones Tract 2039
Middle Roberts Island 524
Byron Tract 800
Victoria Island 2040
Drexler Tract
Clifton Court Forebay
Union Island
Upper
San Joaquin
Van Sickle Island
Chipps Island
Browns Island
Ryer Island
160
4
12
5
684: Reclamation District Number