



Managing Kings River Water Resources Mixing the Old with the New

Paul Peschel
Kings River Conservation District
March 16, 2018



Kings River Conservation District Overview

- Formed in 1951 by special act
- A leading resource management agency for the Kings River region

Water



Power

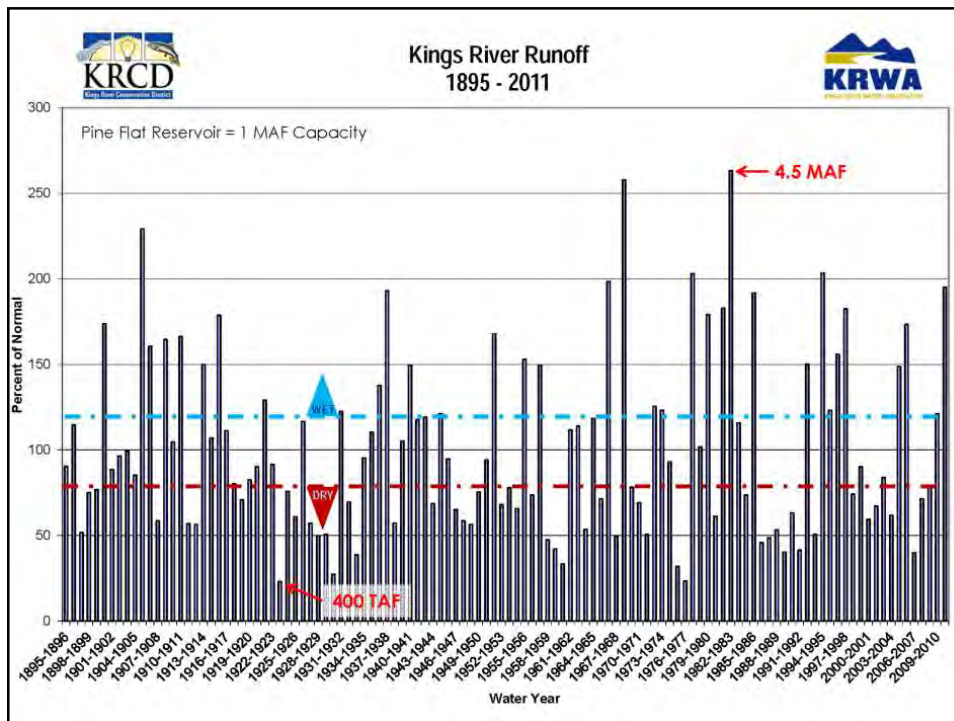


Environmental
Stewardship





Pine Flat Dam





Pine Flat Power Plant



- 165 MW power plant
- 1,000,000 a.f. reservoir
- Operating since 1984
- Located at the base of Pine Flat Dam
- Reliable, low-cost power to the State Water Project
- 420 million kilowatt hours of average annual energy production



Kings River Watershed Snowy Sierra Crest

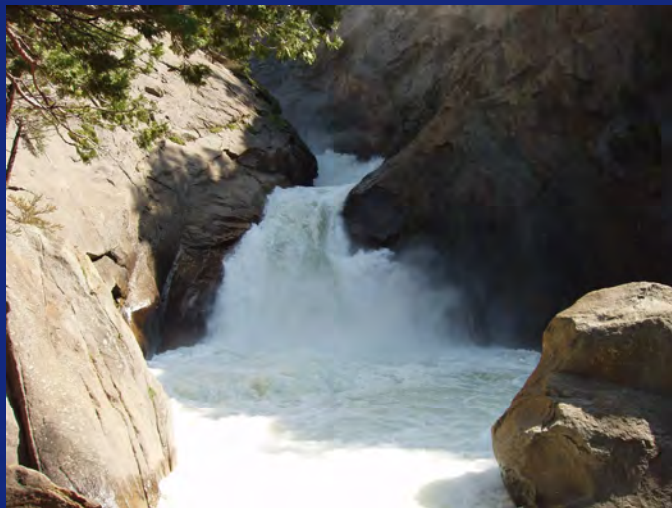




Bench Lake 10,000 feet



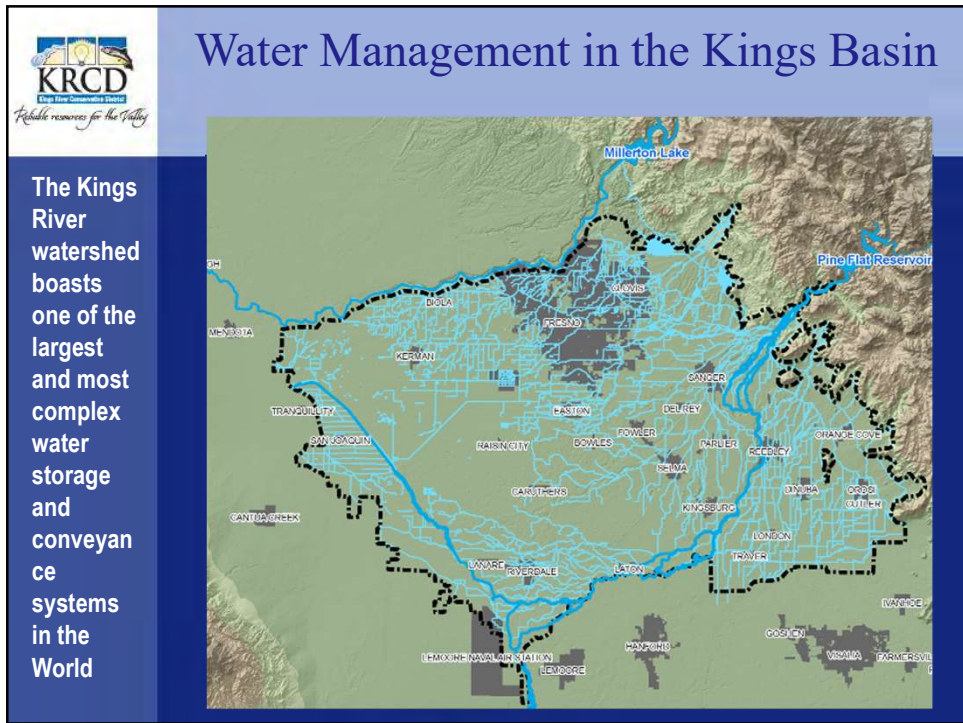
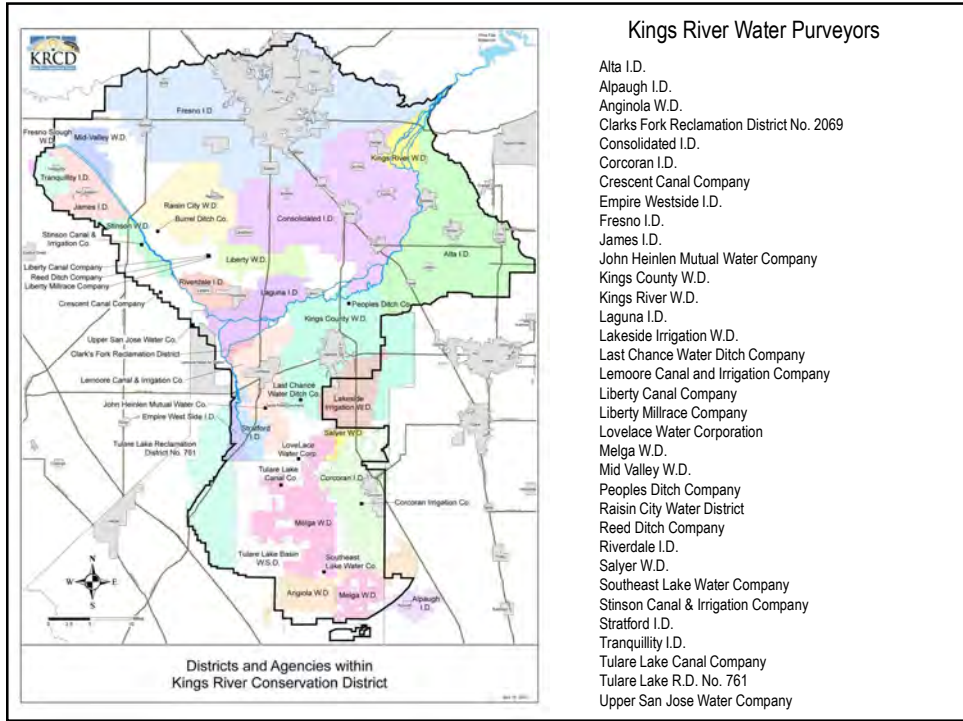
Roaring River Falls





Kings Canyon







Cobbles Weir



Fresno Weir

Fresno and Consolidated Headgates





Consolidated Canal Headgate



People's Weir *Below Highway 99, Kingsburg*





Island Weir

Controlling Flows to the North Fork and James Bypass



Army Weir

Controlling Flows to the South Fork and Tulare Lake bed



Flood Project



- Maintain approximately 140 miles of levees.
- Activities include levee repairs, levee improvement and channel maintenance.
- During flood events, staff conduct 24-hour patrols of the system
- 4,750 cfs North Fork
- 3,200 cfs South Fork
- 50/50 split once each fork is at capacity

Flood Project



- Year round maintenance
- Brush control
- Channel clearing
- Weed control



Slide 19

- CS6** Double check numbers
Christine Simon, 3/12/2018
- CS8** Waiting on Keith.
Christine Simon, 3/12/2018



Fisheries Management Program



Electrofishing survey



CS1
CS11

Raising fry at the Incubator for supplemental stocking



Habitat enhancement projects



Managing Groundwater through conjunctive use



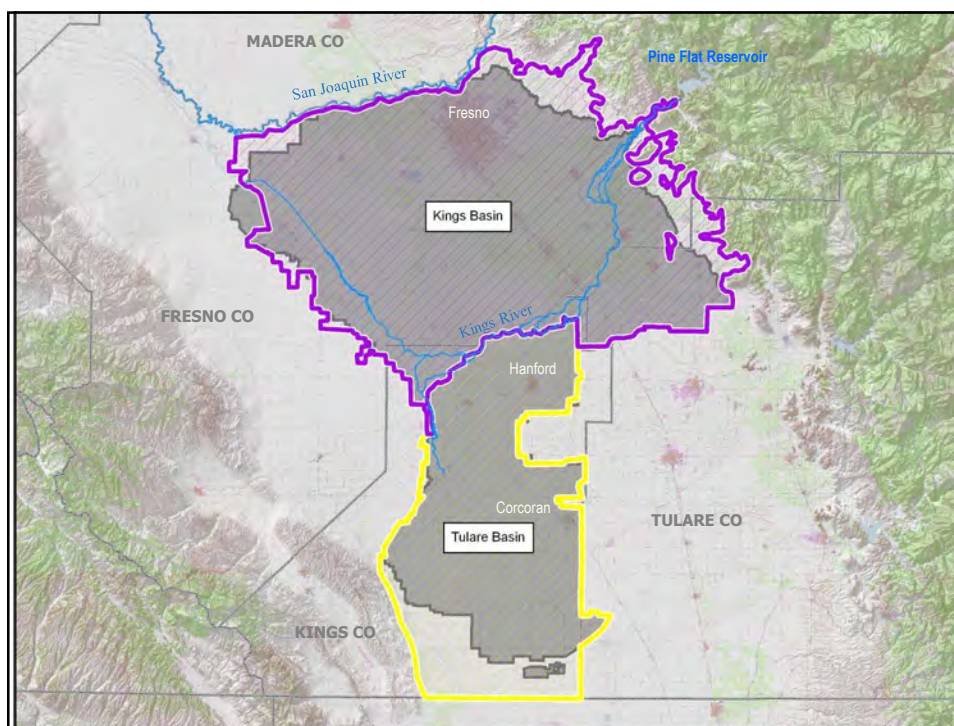
Slide 21


CS1 Update pictures and add captions

Christine Simon, 3/12/2018

CS11 Waiting on Heidi Isner

Christine Simon, 3/12/2018



 **KRC**
Kings River Conservancy District
Reliable resources for the Valley

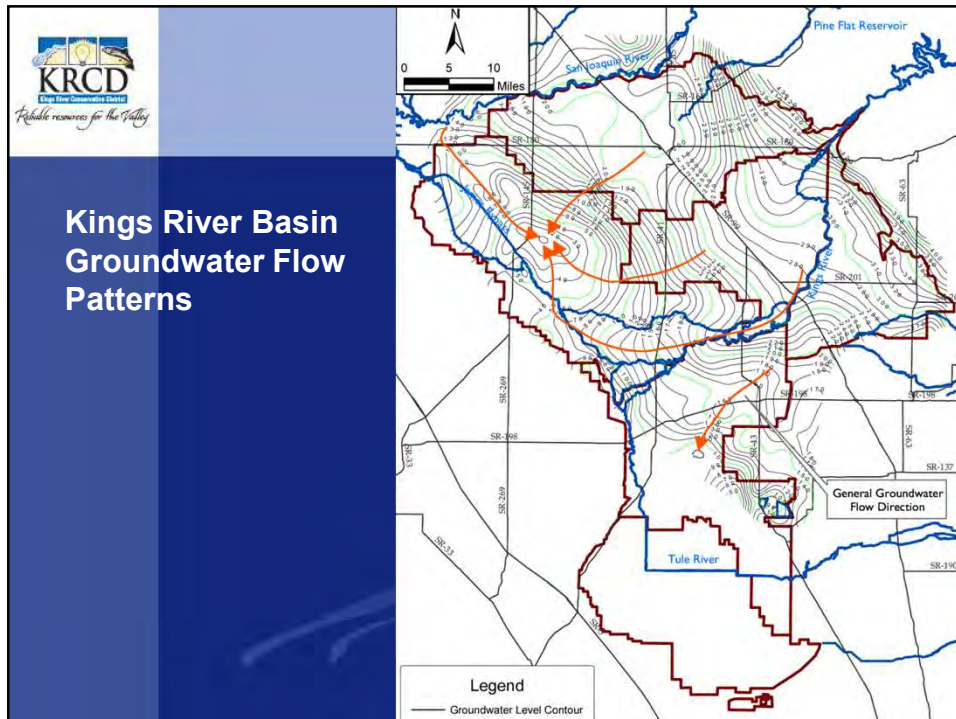
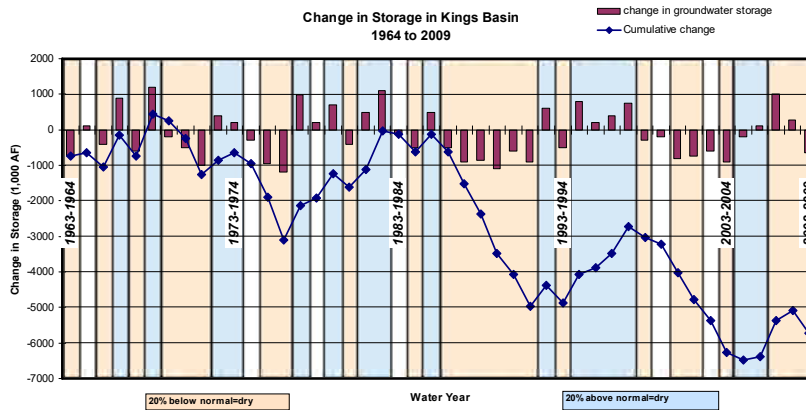
Basin Characteristics

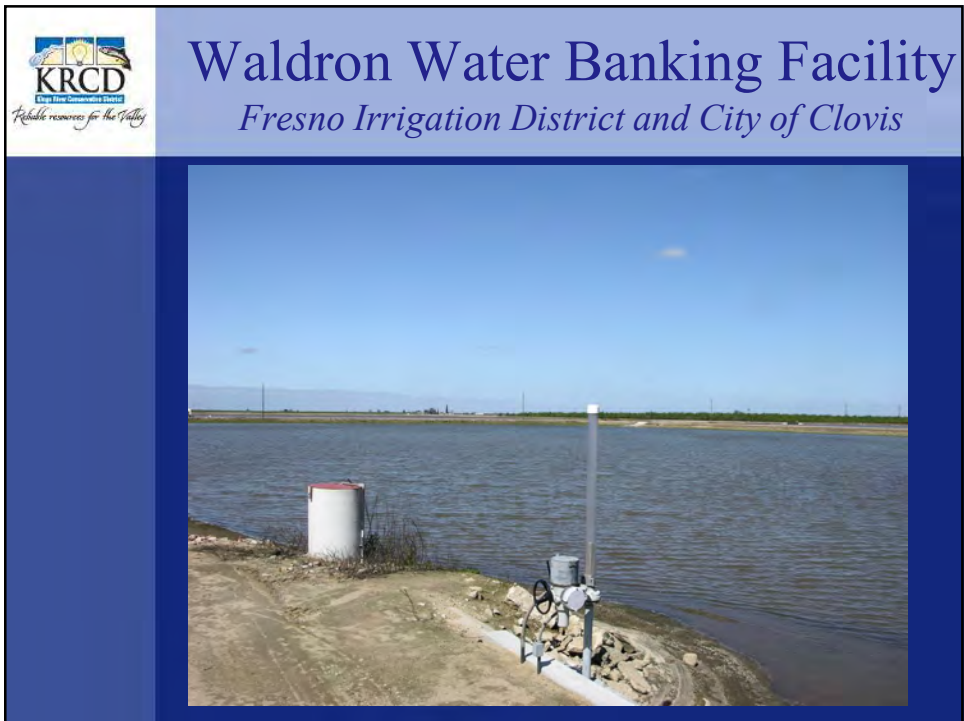
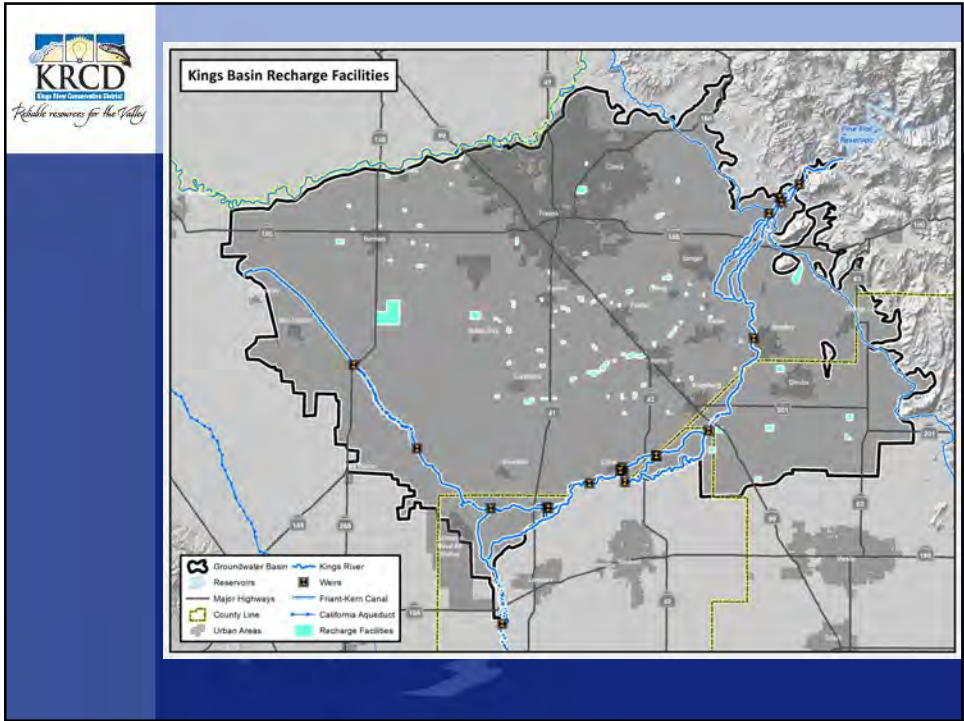
- Kings Groundwater Basin
 - 976,000 acres
 - 93 MAF of storage to 1,000 ft (2003 Bulletin 118)
- Tulare Groundwater Basin
 - 524,000 acres
 - 12 MAF of storage to 300 ft (DWR 1995)

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Groundwater Conditions

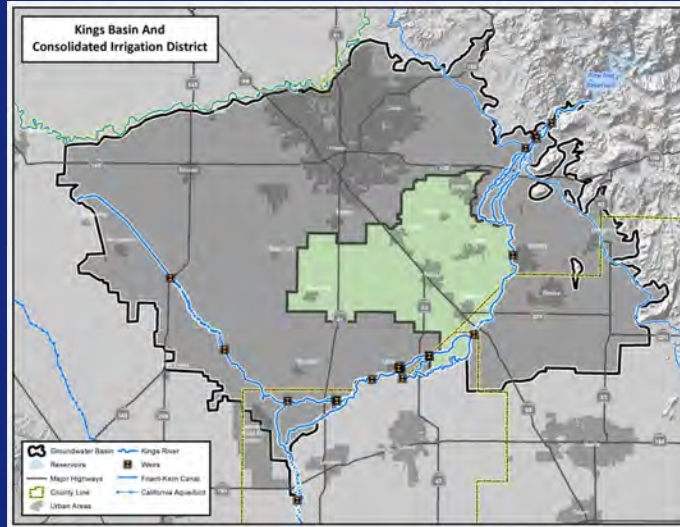
- Regional Supply Characteristics: closed system, conjunctive use basin.
- 93 million acre feet of storage to a depth of 1,000 feet
- Average annual overdraft (1963 to 2009) approx. 120 TAF.
- Largest GW depression located near Raisin City, beyond the Kings River place of use.



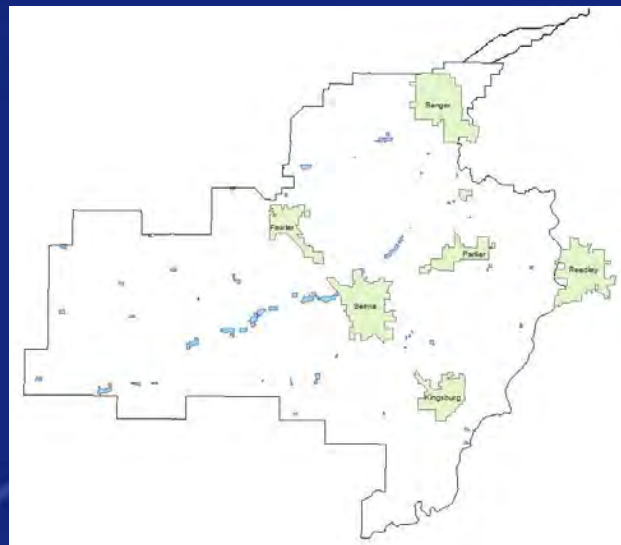




Case Study CID Recharge Program

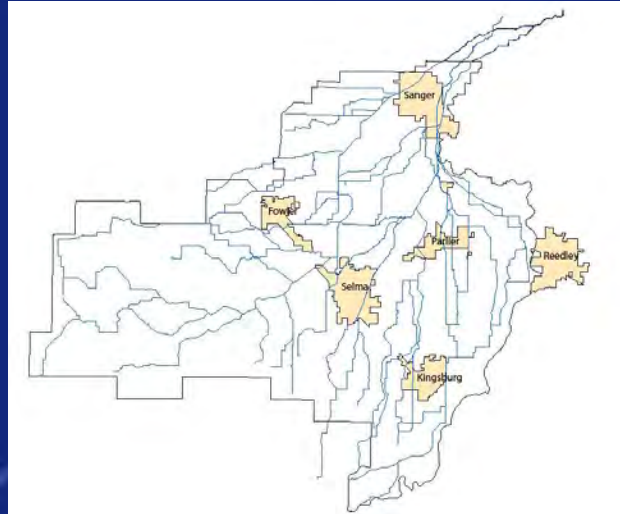


Consolidated ID Recharge Ponds



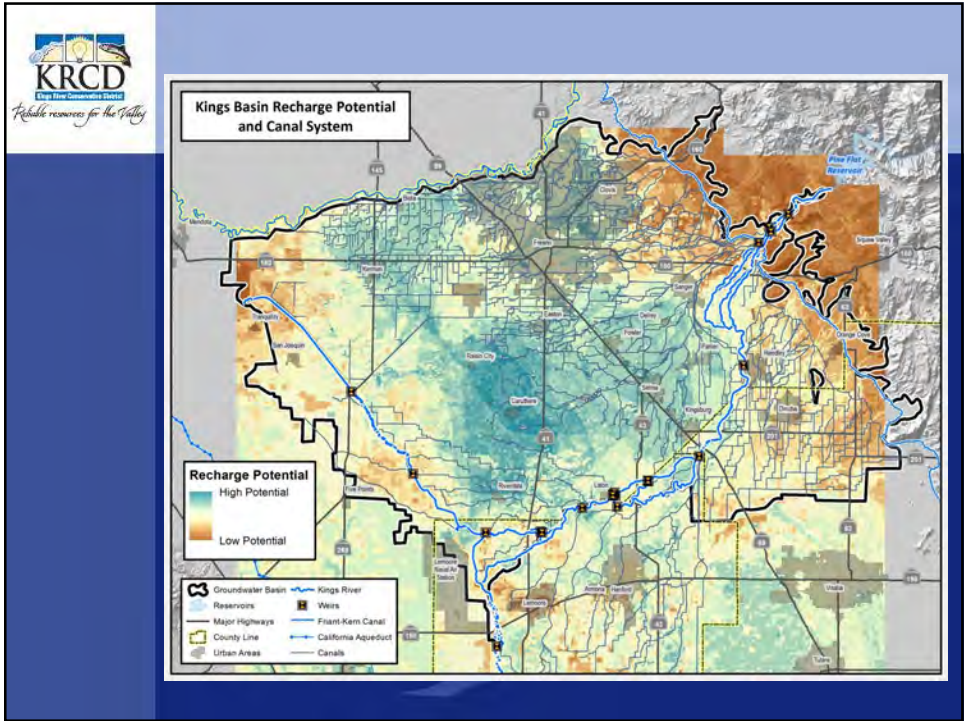


Consolidated ID network of canals



Stroud Pond *Consolidated Irrigation District, Near Selma*



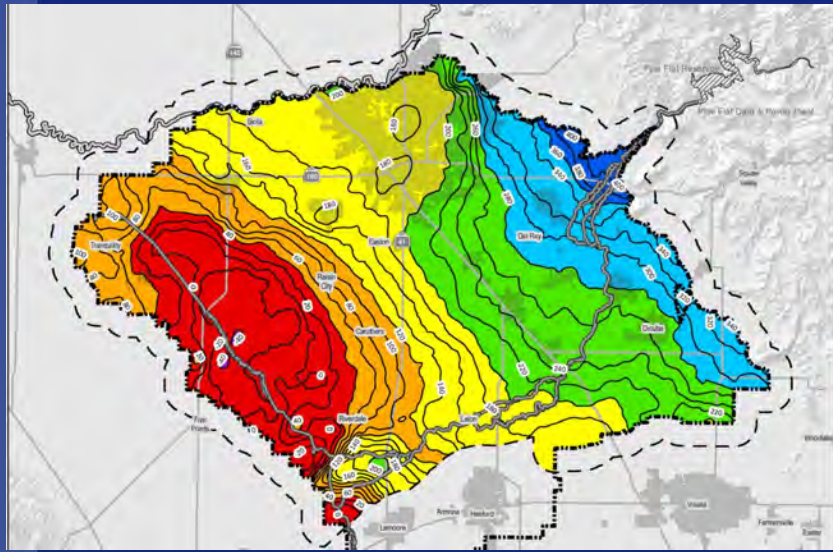


California Statewide Groundwater Elevation Monitoring Program (CASGEM)

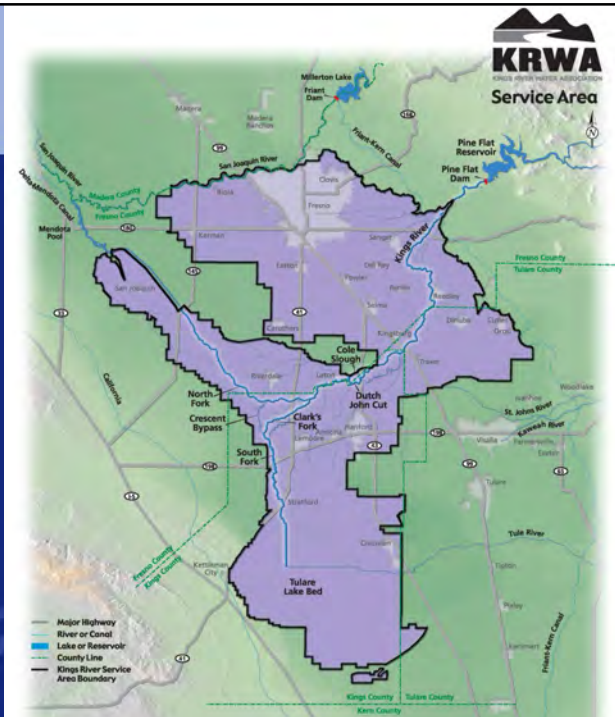
- Kings River Conservation District approved as “Monitoring Entity” for both basins
- Kings Basin: ~90 wells selected
- Tulare Lake Basin: ~30 wells selected



Spring 2014 Groundwater Elevations

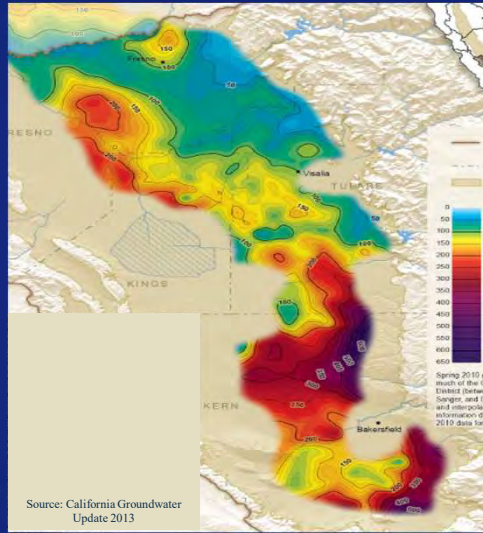


Kings River Service Area

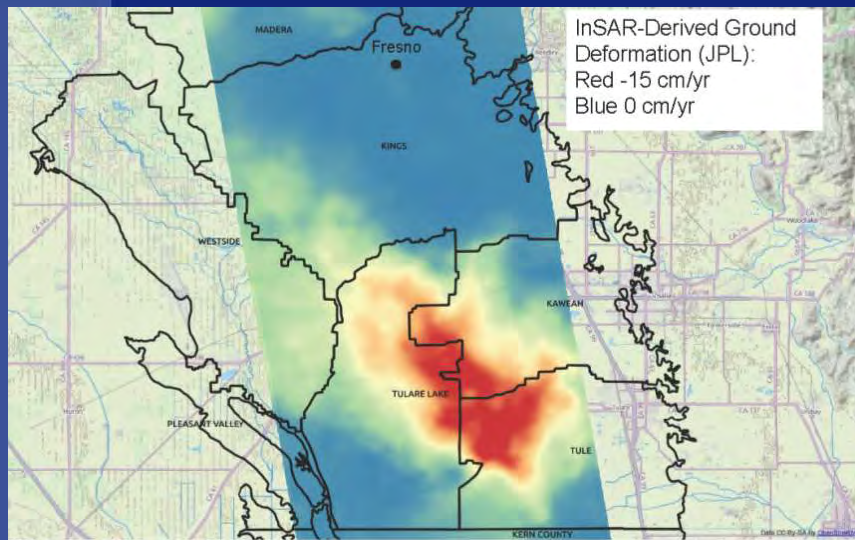




Existing Groundwater Conditions Groundwater Elevations

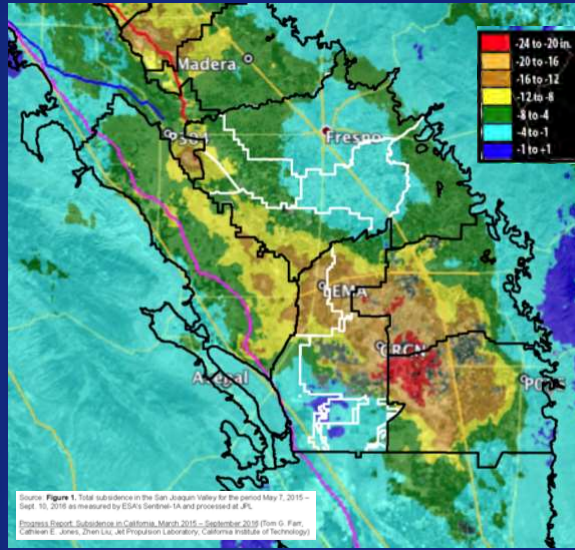


Rate of Surface Subsidence 2007 - 2011





Rate of Surface Subsidence May 2015 to September 2016



Kings Basin Integrated Regional Water Management





Kings Basin IRWM Plan Goals

- Halt, and ultimately reverse, the current overdraft and provide for sustainable management of surface and groundwater
- Increase the water supply reliability, enhance operational flexibility, and reduce system constraints
- Improve and protect water quality
- Provide additional flood protection
- Protect and enhance aquatic ecosystems & wildlife habitat



Diversity of Water Authority Planning Participation

MEMBERS

Alta Irrigation District
City of Clovis
City of Dinuba
City of Fresno
City of Kerman
City of Parlier
City of Reedley
City of Sanger
City of Selma
County of Fresno
County of Tulare
Consolidated Irrigation District
Fresno Metro. Flood Control Dist.
Fresno Irrigation District
Kings County Water District
Kings River Conservation District

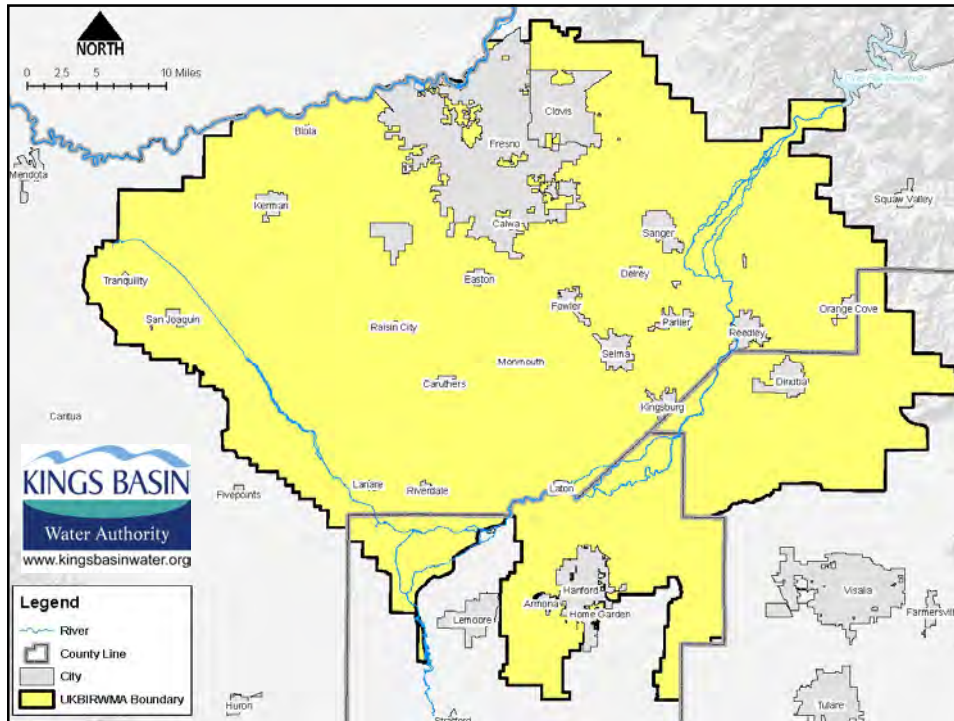
INTERESTED PARTIES

Bakman Water Company
Biola Community Services District
California Native Plant Society, Sequoia Chapter
California State University, Fresno
City of Kingsburg
City of San Joaquin
Community Water Center
County of Kings
Crescent Canal Company
Cutler Public Utilities District
East Orosi Community Services District
Easton Community Services District
El Rio Reyes Conservation Trust
Fresno County Farm Bureau
Hardwick Water Company
James Irrigation District
Kings River Conservancy
Kings River Water Association
Laguna Irrigation District
Laton Community Service District
Liberty Canal Company
Liberty Water District
London Community Services District
Malaga County Water District
Mid-Valley Water District
Orange Cove Irrigation District

Orosi Public Utilities District
Raisin City Water District
Reed Ditch Company
Riverdale Irrigation District
Riverdale Public Utility District
Sanger Environmental Fund
Self-Help Enterprises
Sierra Club, Tehipite Chapter
Sierra Resource Conservation District
Sultana Community Services District
Terranova Ranch, Inc.
Tulare Basin Wildlife Partners
UC Cooperative Extension - Fresno

OTHER PARTICIPATION

CA Department of Fish & Game
CA Department of Water Resources
Center for Collaborative Policy
Fresno Audubon Society
Kings River Fisheries Program
Regional Water Quality Control Board
Sierra Nevada Research Institute (UCM)
State Water Resources Control Board



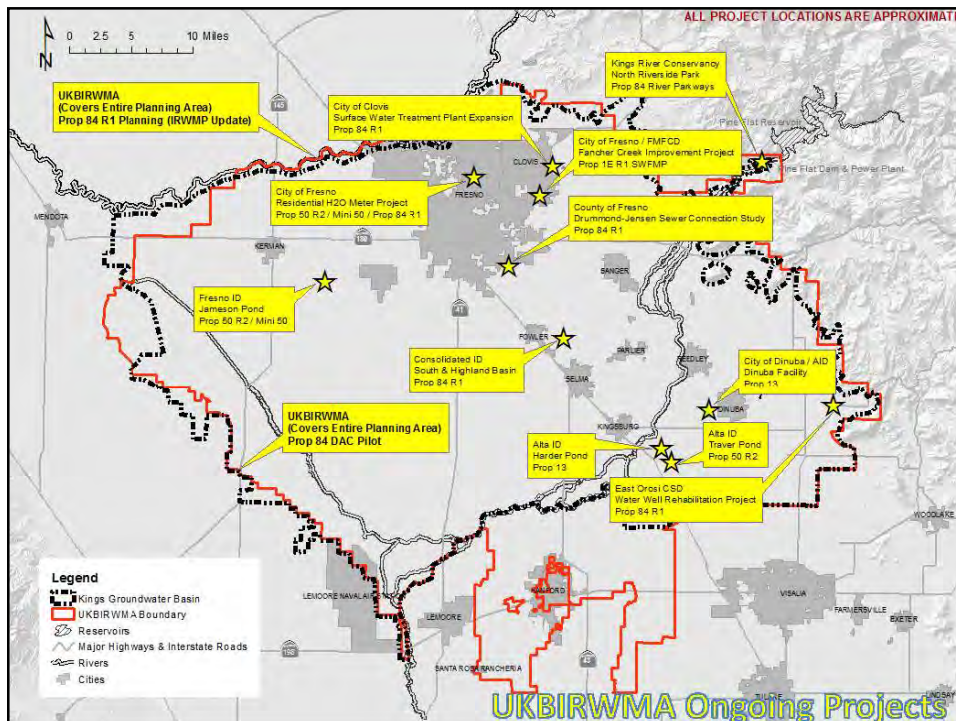
Successes in Regional Planning


- Regular meetings over time have encouraged uncommon dialog & forged partnerships between diverse groups that otherwise wouldn't exist
- Regional water resources planning & education tools that extend beyond local jurisdictions
- ~\$55 million in State and private grant funding leveraged to complete over \$88 million in planning and implementation projects
- *Over 100 planned projects with more than 100,000 AF of recharge and conservation benefits*

Collaborative Approaches to Solving Regional Issues


COLLABORATIVE PROJECTS

- DAC Drinking water & waste water projects
- Setback levees & sloughs restoration (flood control, habitat creation and in-lieu recharge)
- On-farm and dedicated recharge/banking facilities
- Ag water use efficiency & urban water conservation projects
- Coordinated Basin-level Monitoring (monitoring Groundwater elevations, quality, subsidence; future conditions modeling)
- Community outreach & education
- Integrated Groundwater and Surface-water Model
- Disadvantaged Communities (DACs) Outreach Pilot Study






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King River Community
Reliable resources for the Valley



Jameson Pond Recharge Expansion Project

- Sponsor: Fresno Irrigation District, collaboration with Fresno & Clovis
- Grant: \$2,416,865 Project Cost: \$4,409,698
- Expansion of existing 40-acre recharge/banking pond to 100-acres
- Estimated annual average recharge 4,000+ acre-feet per year



KINGS BASIN
Water Authority
www.kingsbasinauthority.org



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Traver Groundwater Recharge & Banking Project

- Sponsor: Alta Irrigation District, collaboration with local small communities
- Grant/Project cost: \$2,368,805
- 47-acre facility, extraction wells, monitoring wells, SCADA
- 2,000 acre-feet / year banked for later surface-water transfer to DACs



KINGS BASIN
Water Authority
www.kingsbasinauthority.org








Residential Water Meter Installation Project Phase I

- Sponsor: City of Fresno
- Grant: \$1,107,000 Project Cost: \$10,705,352
- Installed 10,000 of planned 110,000 residential water meters
- Estimated to conserve up to 8,500 acre-feet ground/surface water per year







North Tulare County Surface Water Treatment

- Sponsors: Alta ID, County of Tulare, surrounding small communities
- Effort seeking to develop a long-term solution to address drinking water and water supply needs of the communities within the Northern part of the County of Tulare (Cutler, East Oroshi, Monson, Oroshi Seville, Sultana and Yettem).

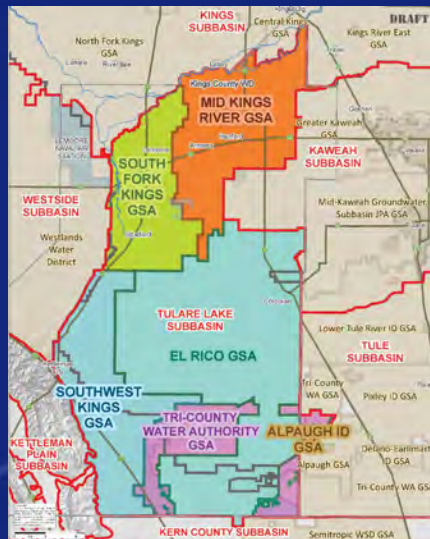




SGMA Implementation

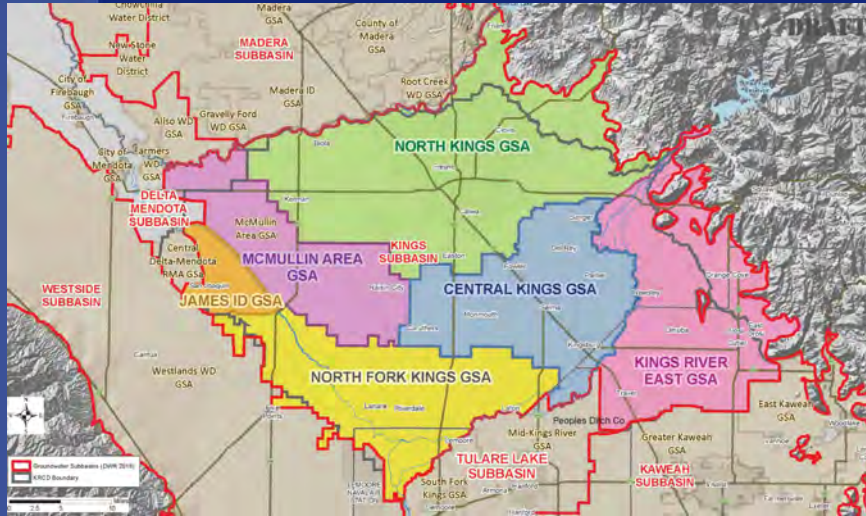


Tulare Lake Subbasin GSA Formation Efforts





Kings Subbasin GSA Formation Efforts



The Old versus the New

Changes in Water Management

- More regionalized
- New partnerships
 - Cities, counties, DACs
- Leadership change

Challenges in Water Management

- New water management paradigm
- Fracturing of water community
- Limited resources



Questions?

