



# Fresno County Water System Overview

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# General Overview of California water systems/sources

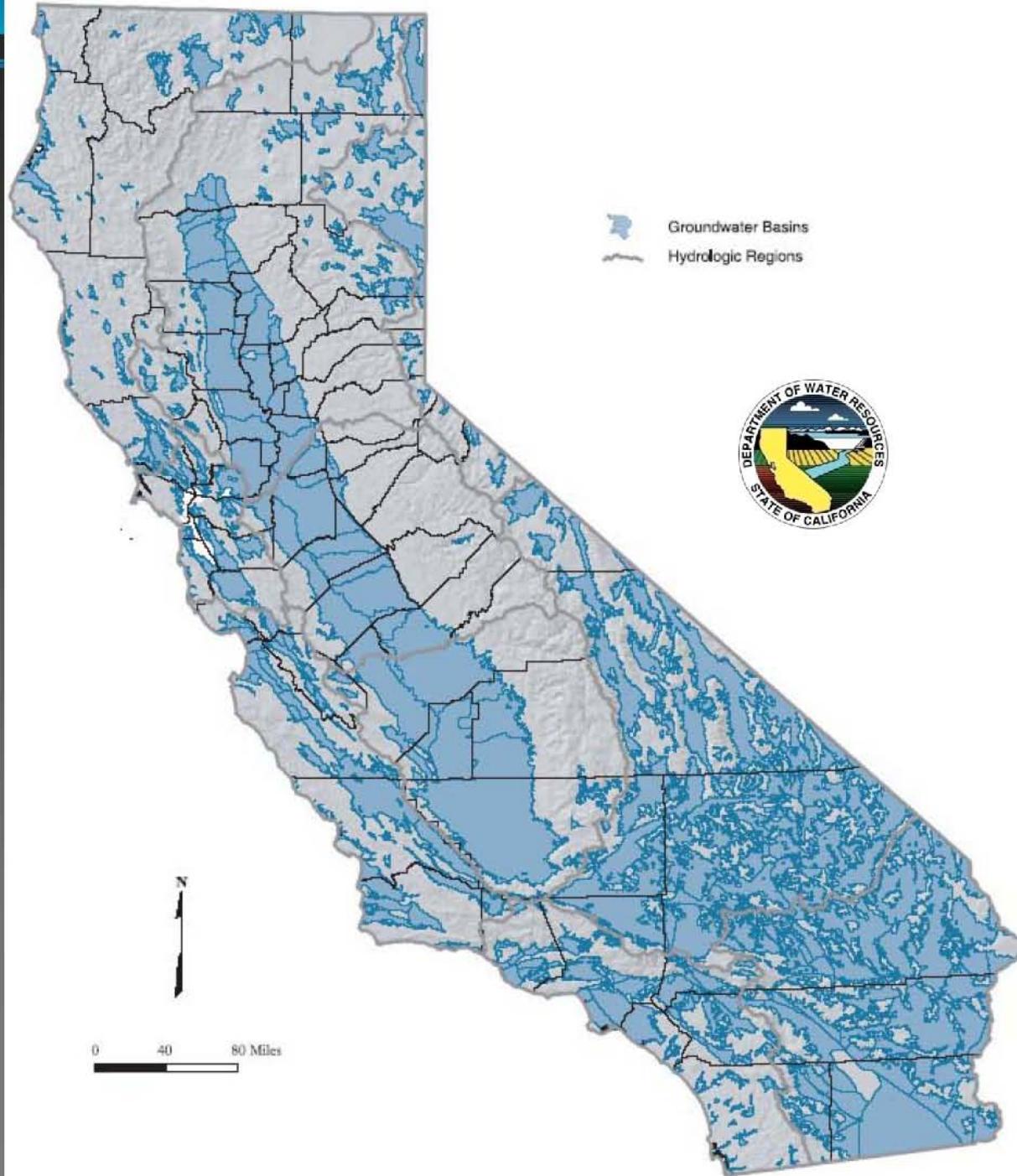
- Central Valley Project
- State Water Project
- Corps of Engineers projects
- Local projects
- Groundwater

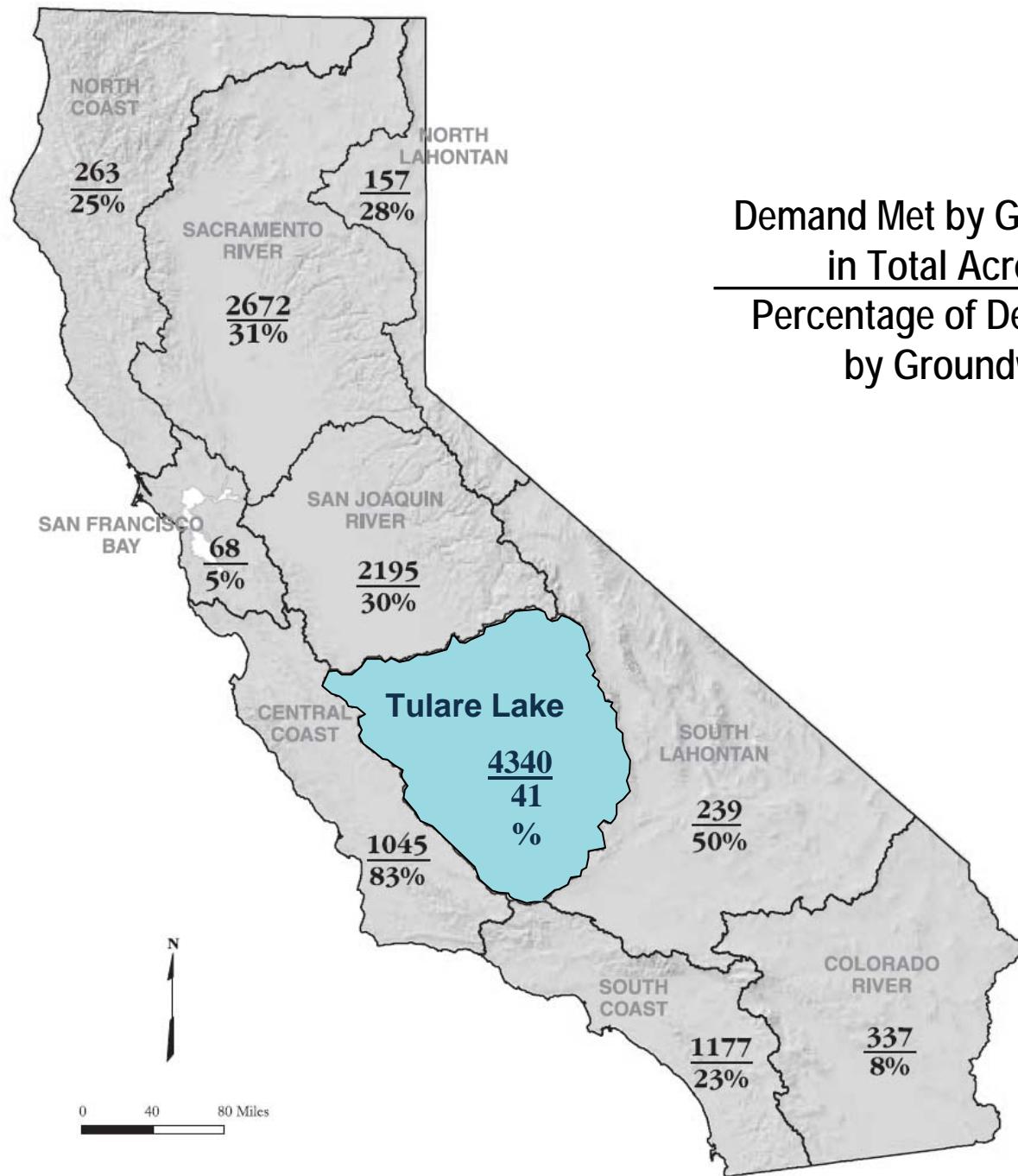
# Major California Water Systems



# Groundwater Basins are Identified in DWR's Bulletin 118 Update 2003

- 515 alluvial basins and subbasins delineated
- Groundwater provides 30 to 40 percent of the states water supply





Demand Met by Groundwater  
in Total Acre Feet

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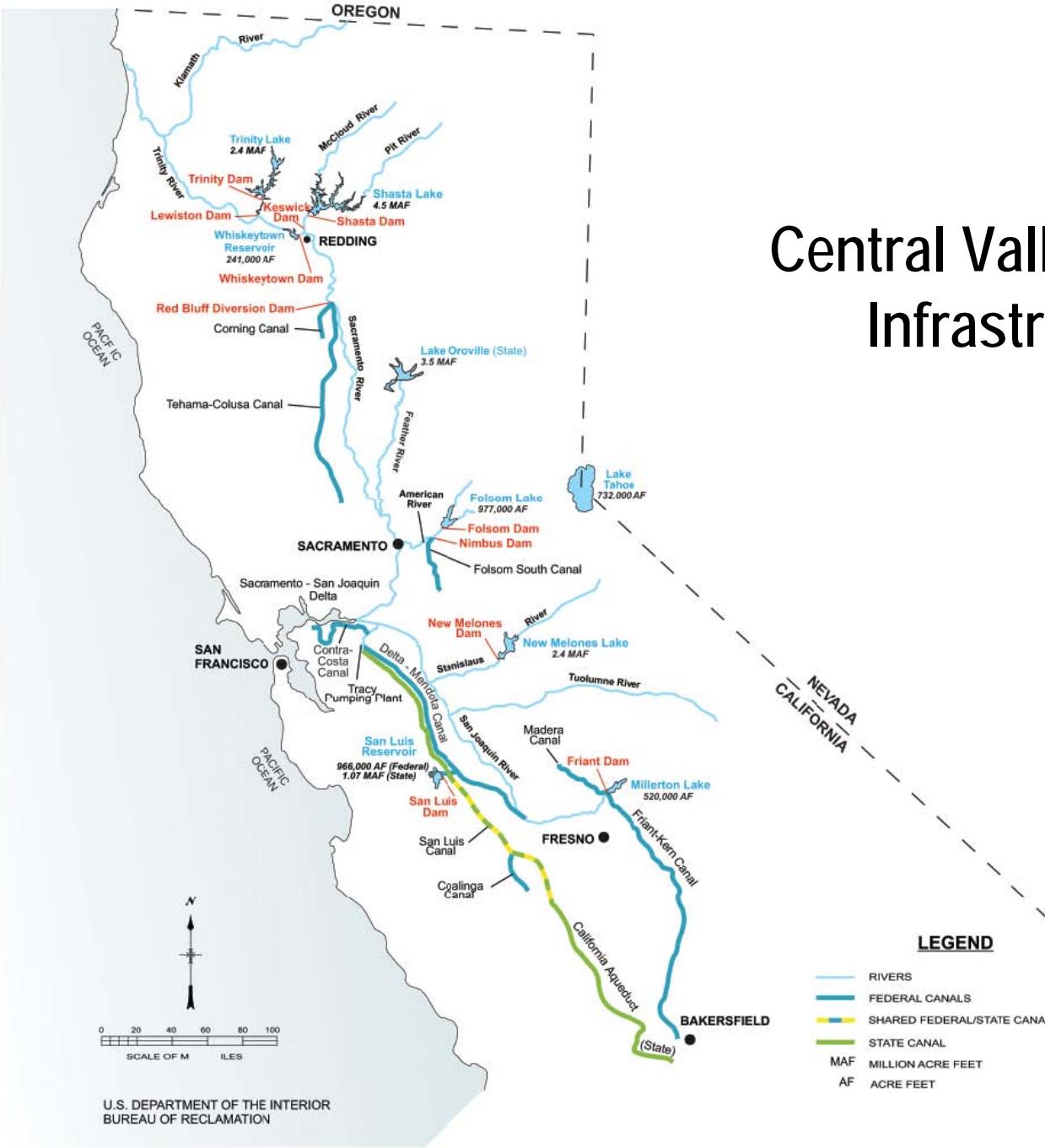
Percentage of Demand Met  
by Groundwater

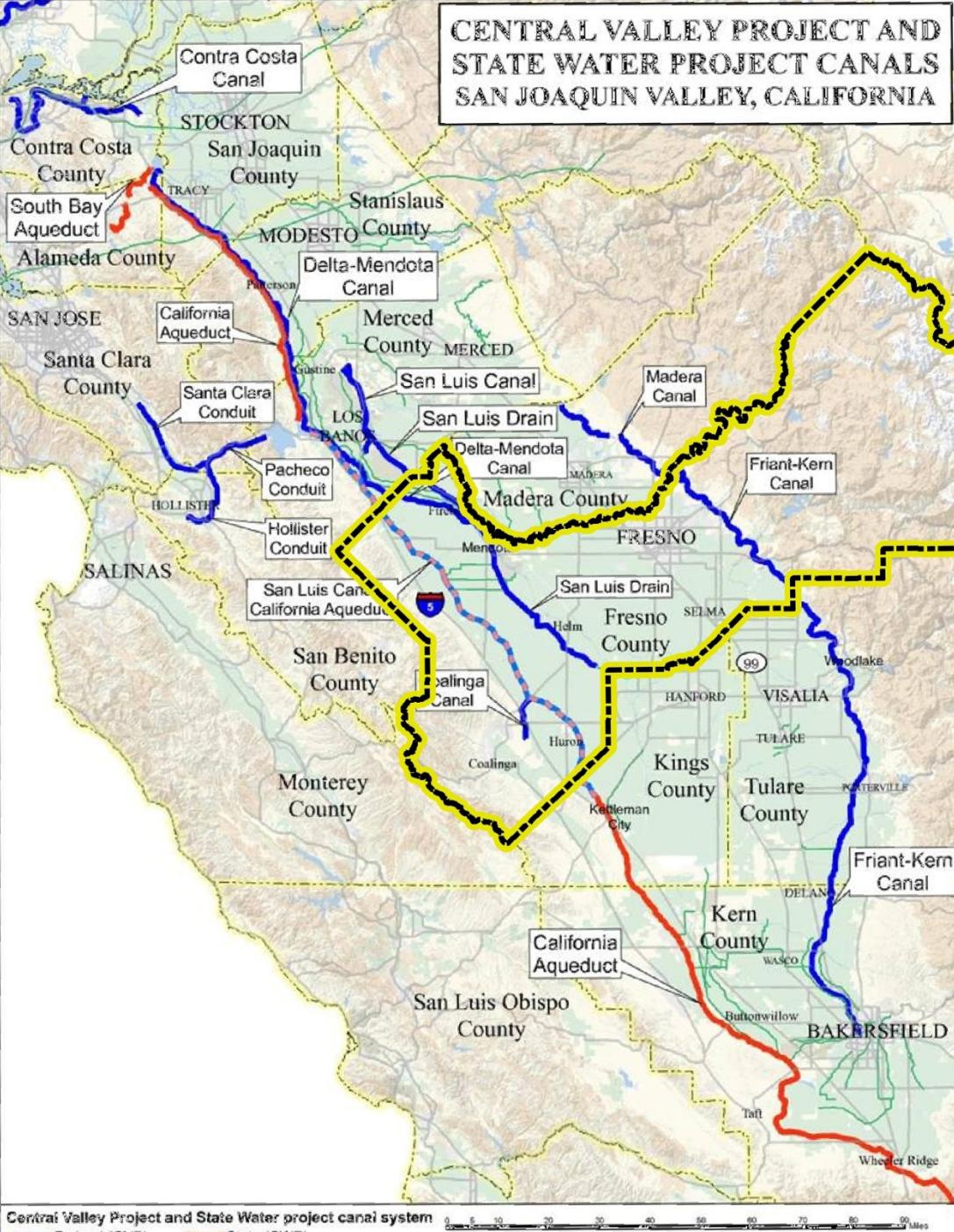


# Fresno County Water

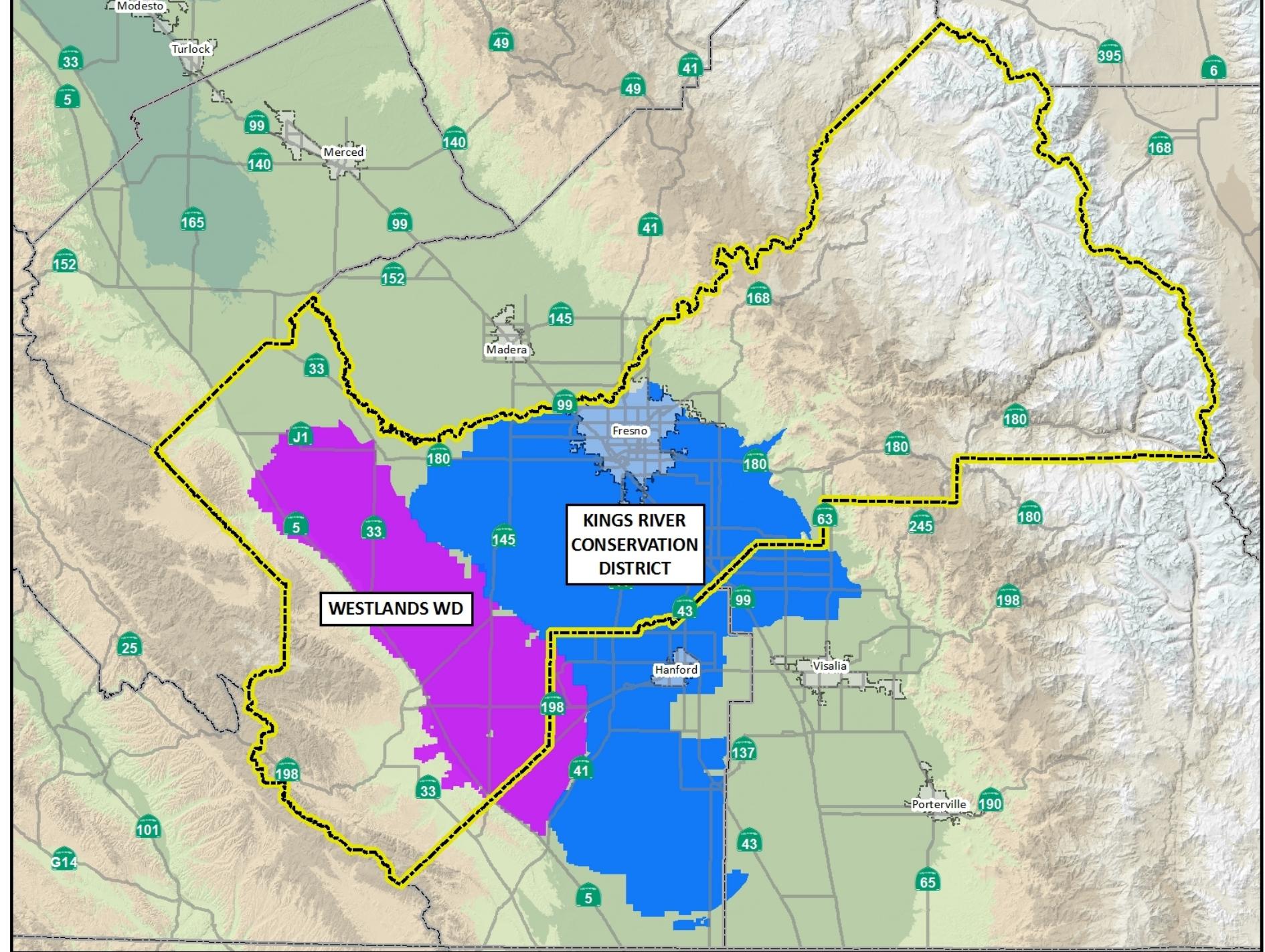
- Where does water serving Fresno County come from?
- What are the key features?
- What are the roles of local, state, and federal agencies?
  - Central Valley Project – Delta Export, Cross Valley Canals, & Friant
  - State Water Project (none)
  - Kings River
  - Groundwater

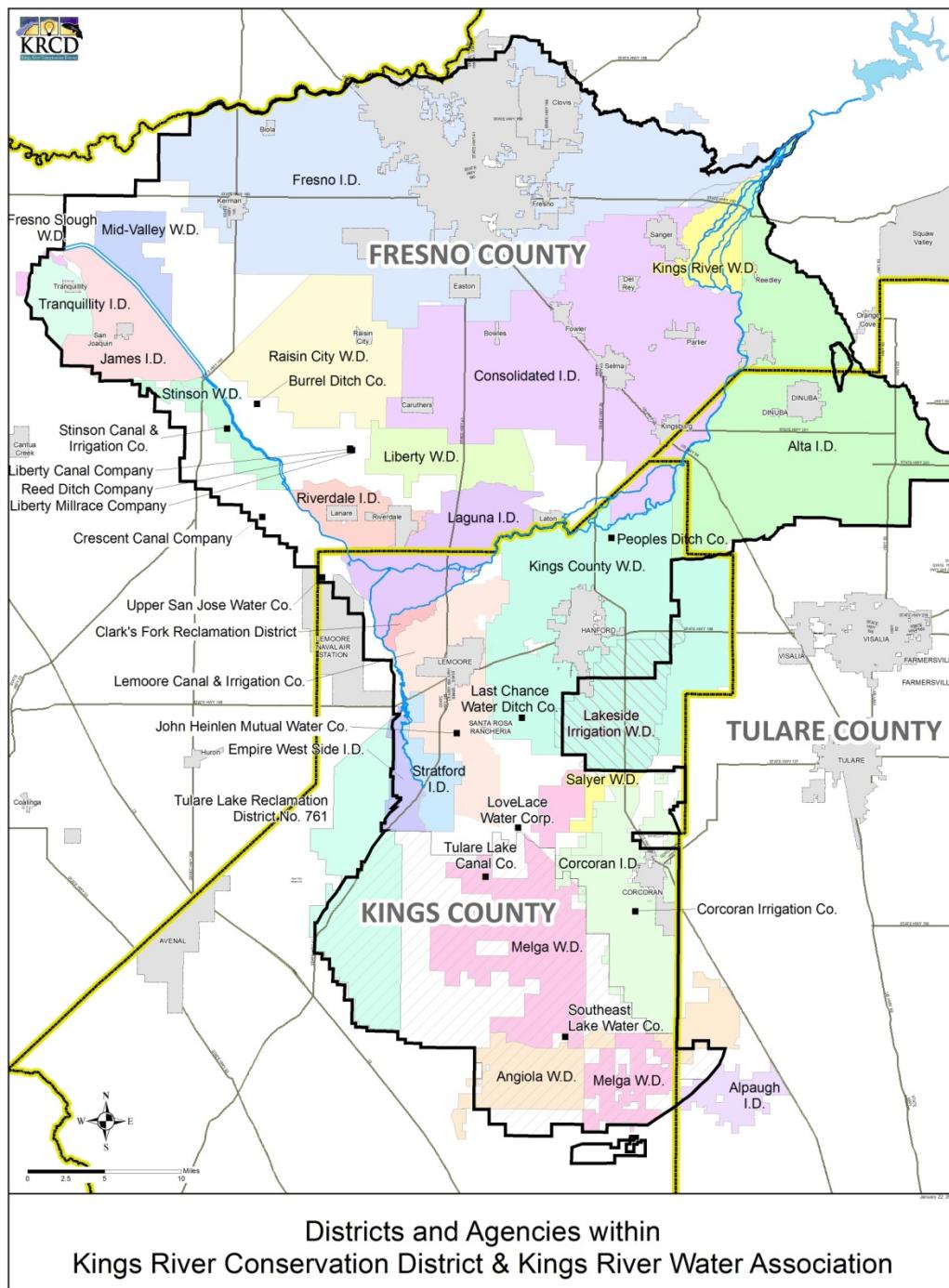
# Central Valley Project Infrastructure





# State and Federal Water Project Infrastructure serving the Valley



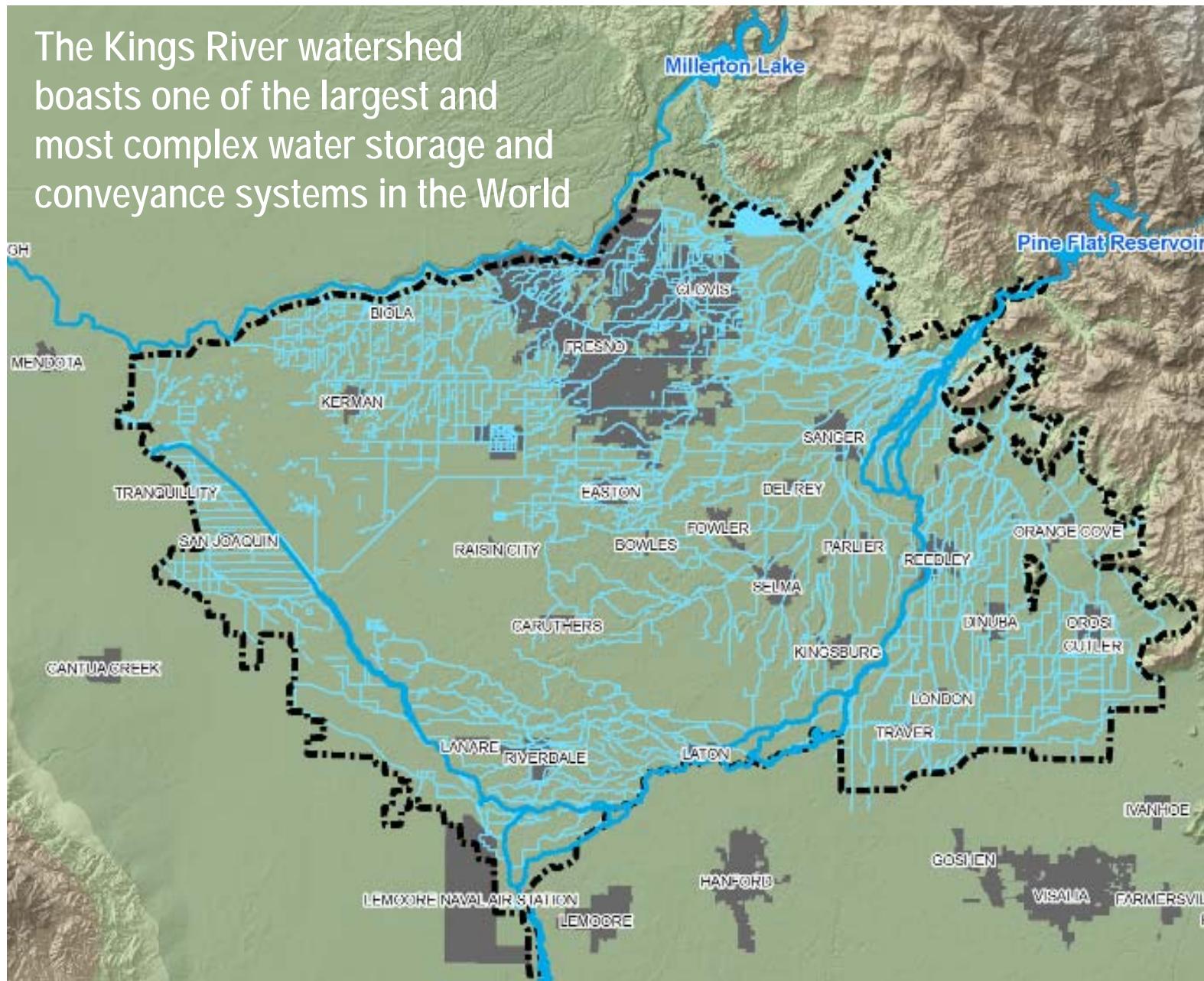


# Kings River Water Purveyors

Alta I.D.  
 Alpaugh I.D.  
 Anginola W.D.  
 Clarks Fork Reclamation District No. 2069  
 Consolidated I.D.  
 Corcoran I.D.  
 Crescent Canal Company  
 Empire Westside I.D.  
 Fresno I.D.  
 James I.D.  
 John Heinlen Mutual Water Company  
 Kings County W.D.  
 Kings River W.D.  
 Laguna I.D.  
 Lakeside Irrigation W.D.  
 Last Chance Water Ditch Company  
 Lemoore Canal and Irrigation Company  
 Liberty Canal Company  
 Liberty Millrace Company  
 Lovelace Water Corporation  
 Melga W.D.  
 Mid Valley W.D.  
 Peoples Ditch Company  
 Raisin City Water District  
 Reed Ditch Company  
 Riverdale I.D.  
 Salyer W.D.  
 Southeast Lake Water Company  
 Stinson Canal & Irrigation Company  
 Stratford I.D.  
 Tranquillity I.D.  
 Tulare Lake Canal Company  
 Tulare Lake R.D. No. 761  
 Upper San Jose Water Company

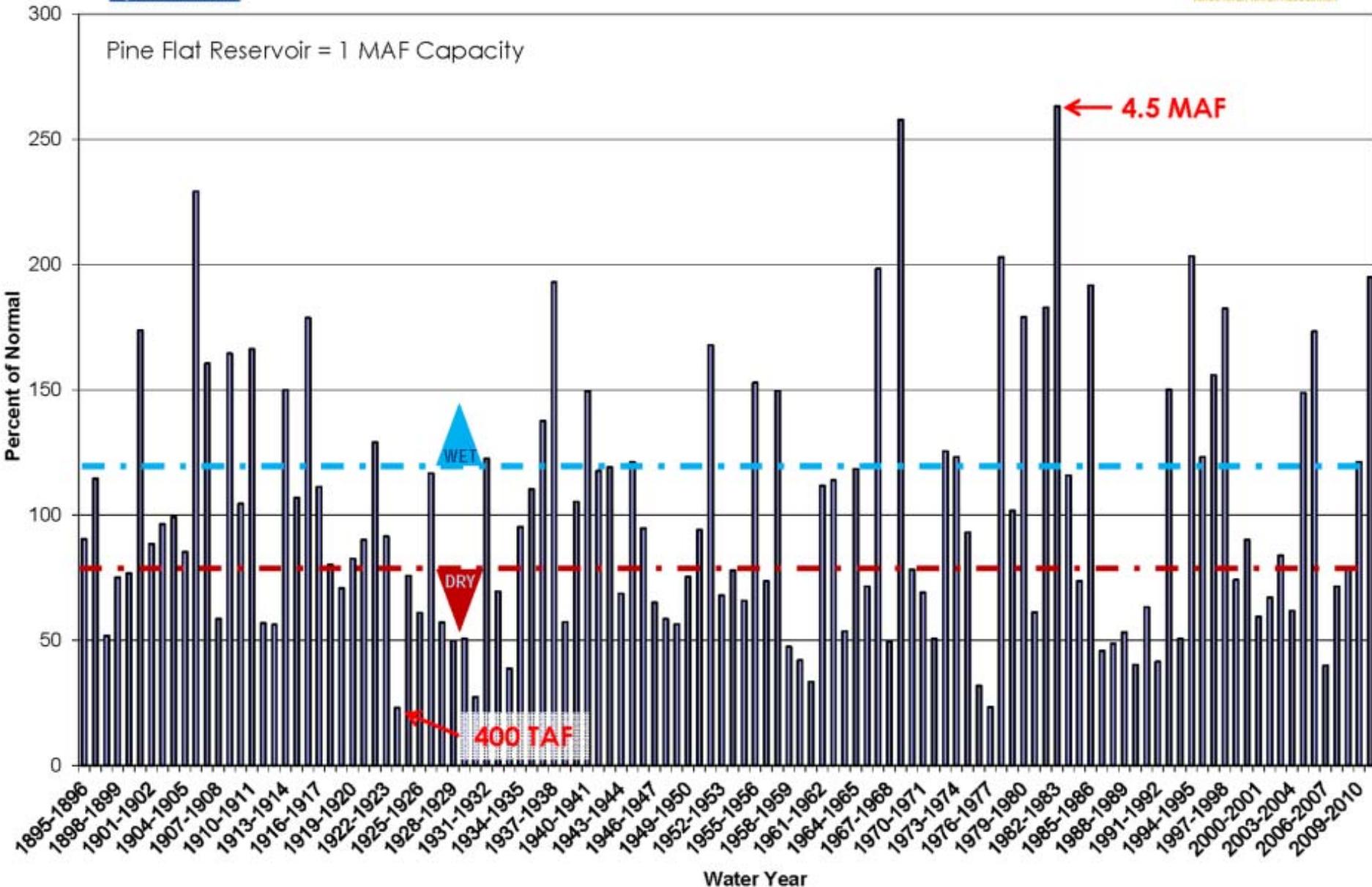
# Water Management in the Kings Basin

The Kings River watershed boasts one of the largest and most complex water storage and conveyance systems in the World

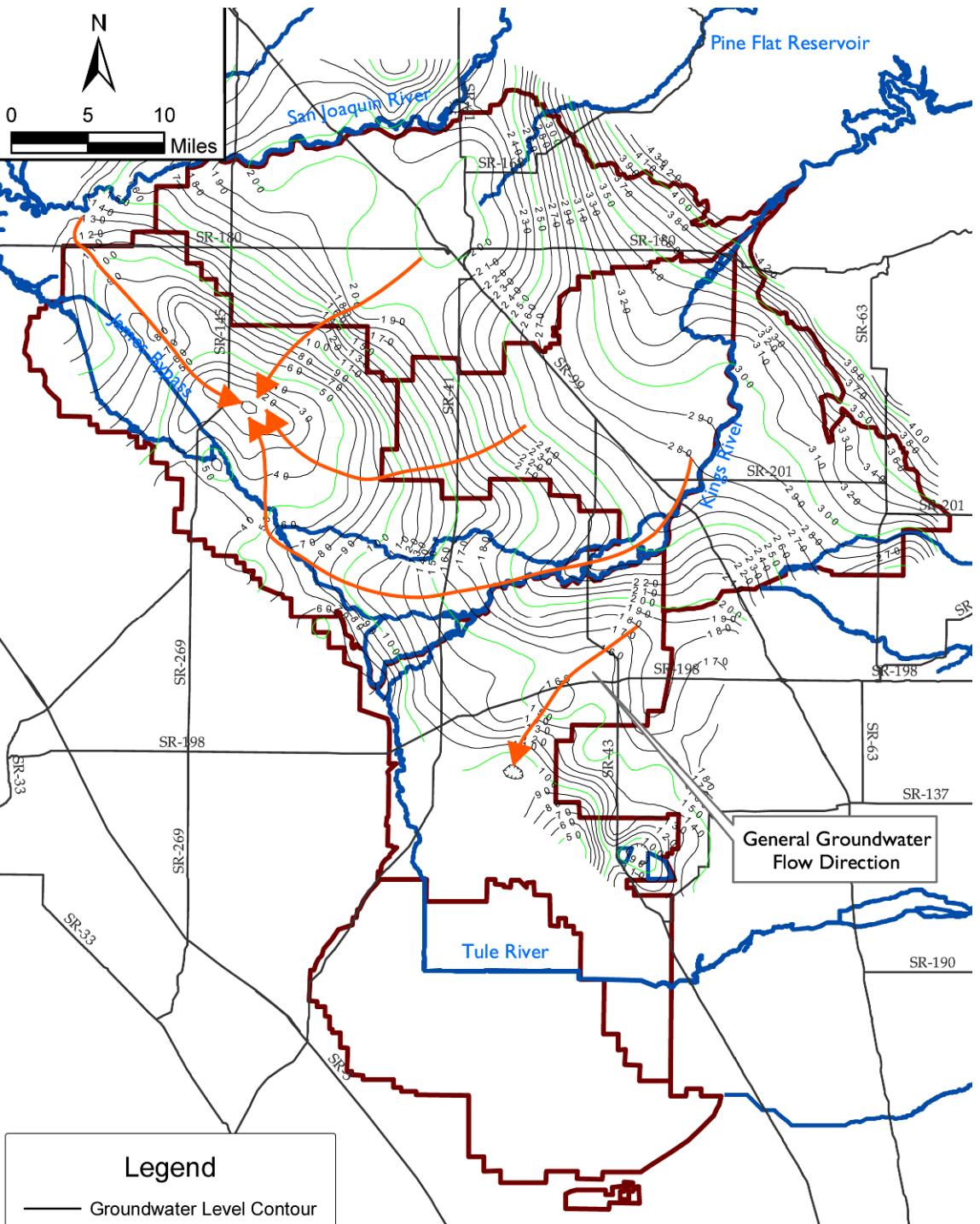




## Kings River Runoff 1895 - 2011



# Kings Basin Groundwater Flow Patterns





# What laws and regulations can/do govern the use and transfer of water supplies?

- Surface water rights – state control, place of use, area of origin
- Groundwater rights – no statewide system, overlyers vs. appropriators
- Contract terms and restrictions
- Water purveyor (districts, municipalities) rules and regulations
- Police powers of counties (groundwater and well ordinances)



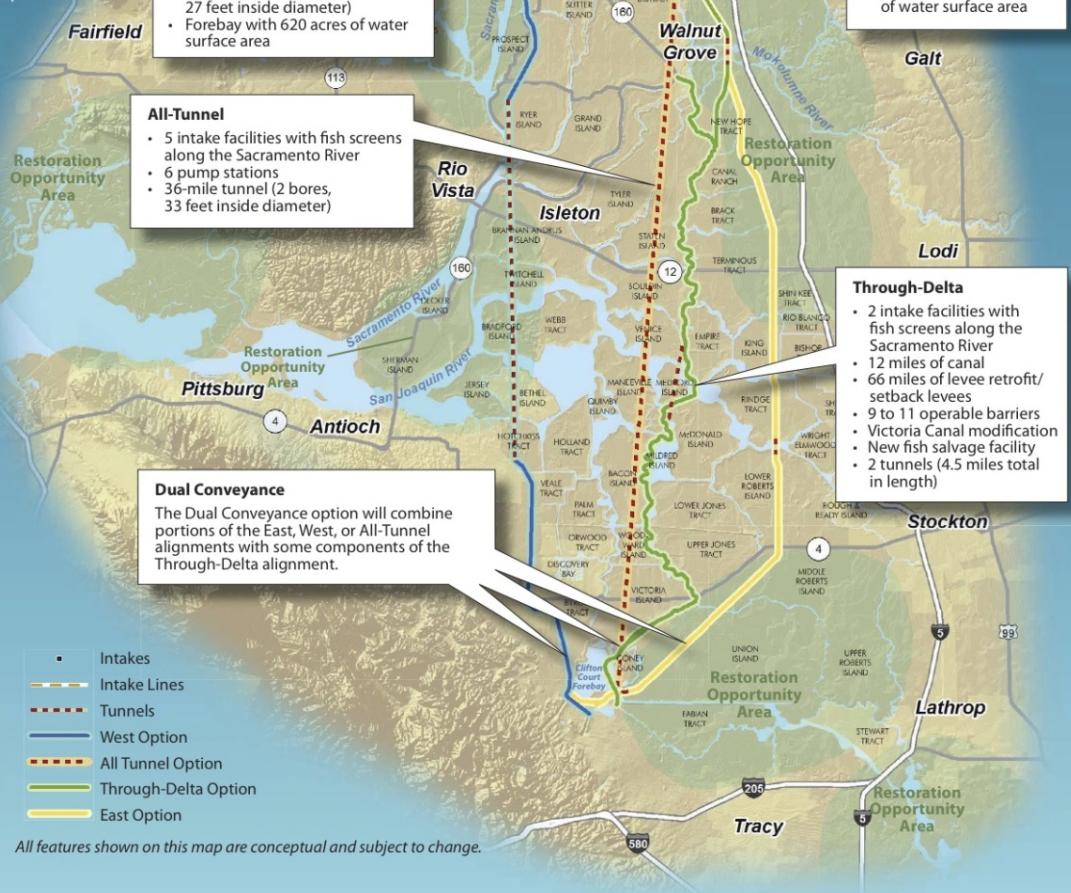
# Issues affecting San Joaquin Valley Water Supply

- Delta Conveyance and Export
- San Joaquin River Restoration
- Environmental Statutes
- Groundwater Overdraft/Subsidence
- Water Quality Regulation
- Regulatory Impediments to Banks and Transfers
- Integrated Regional Water Management Plans

## The Conceptual Options

The Delta supports California's water system by conveying water to 25 million people throughout the state. Proposals to convey water around the Delta are aimed at avoiding sensitive habitat while reliably delivering water.

The conceptual water conveyance options currently under consideration have been previously identified in a variety of planning documents. Potential habitat restoration opportunities are also being considered. These and other options will be evaluated through the EIR/EIS process.



# Delta Conveyance and Export

# SAN JOAQUIN RIVER

Explore the hydrogeography of the San Joaquin River and the five different reaches of the river that are being restored between Friant Dam and the Merced River.



Reach 5: East Side Bypass/Bear Creek Confluence to the Merced River Confluence

Until the 2012 interim flows, nearly all of the water in this anabranch reach of the river came from farm runoff. The restoration flows will help solve serious water quality problems from selenium, salt and other pollutants in this reach, which are also being addressed through other efforts.



Reach 4: Sack Dam to the confluence of Bear Creek and the East Side Bypass

This reach was also historically dry and about 20 miles of the river channel has limited capacity to carry flows. Until it is repaired, restoration water will flow down the East Side Bypass. Riverside farmland in the historic floodplain along this reach is vulnerable to seepage from the river, while the wildlife refuge will welcome the additional surface and subsurface water.



Reach 1: Friant Dam to Gravelly Ford

Since the 1940s, this reach was the only stretch of river that carried San Joaquin River water year-round. While most of the river's flow was diverted at Friant Dam to supply irrigation districts along the east side of the San Joaquin Valley, a small amount of water was released from the dam into the river for diversion by downstream landowners, leaving the river dry below Gravelly Ford. The settlement agreement requires that an average of about 20% of the river flow will be additionally released for restoration.



Millerton Lake

Friant Dam

Fresno



# Cumulative Change In Central Valley Groundwater Storage Through 2002

Central Valley Overall

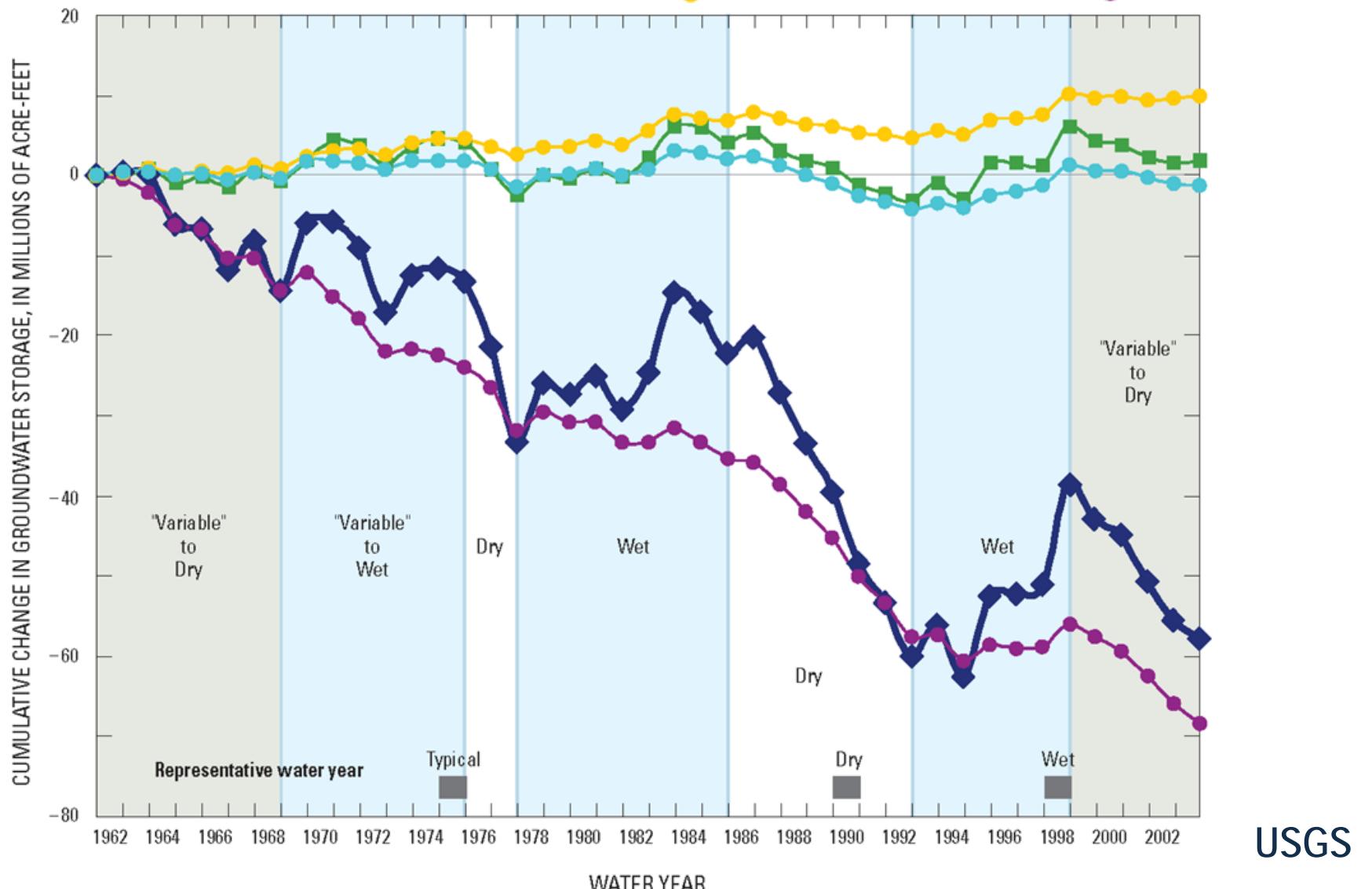
By region

Sacramento

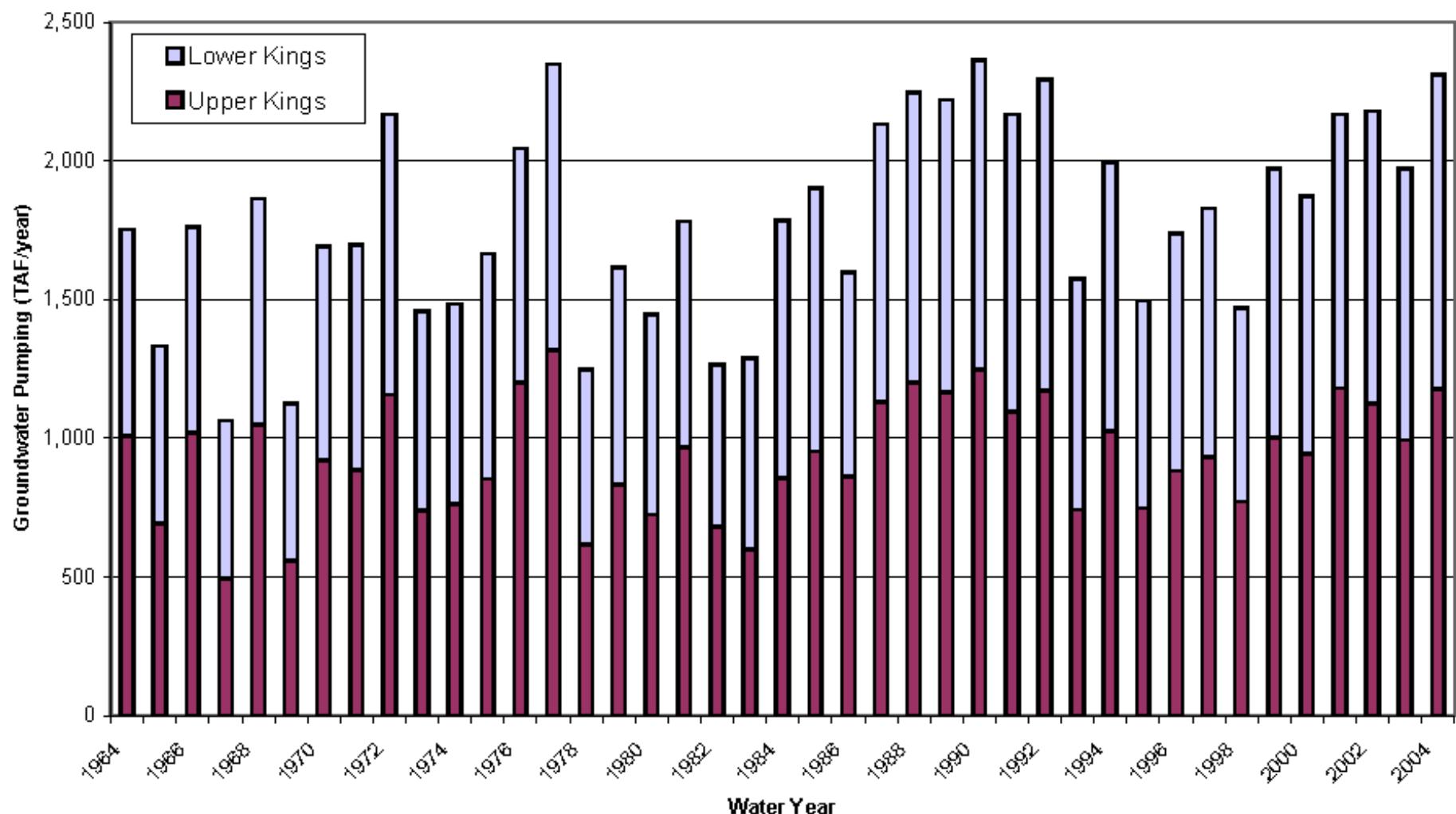
San Joaquin Basin

Delta and Eastside Streams

Tulare Basin



## Estimated Groundwater Pumping in Kings Basin





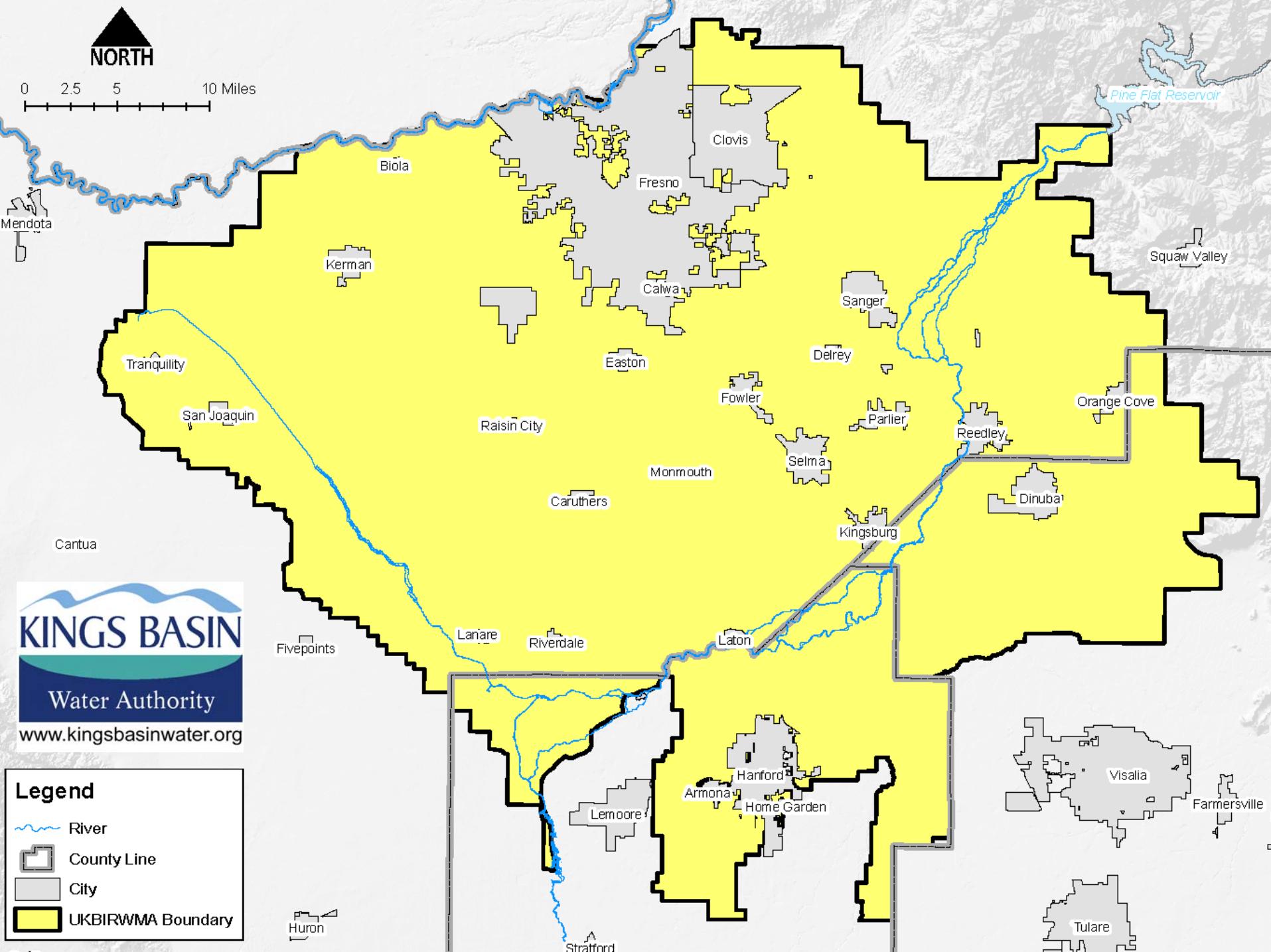
# Integrated Regional Water Management Planning

- SB 1672 (2002)
  - To encourage local agencies to work cooperatively to manage local and imported water supplies for quality, quantity and reliability
  - IRWMP required if seeking Prop 50 grant funds
- IRWMP Act amended in 2006 and 2008
  - SB1938 Groundwater management plan required for IRWM Planning Area



NORTH

0 2.5 5 10 Miles



KINGS BASIN  
Water Authority

[www.kingsbasinwater.org](http://www.kingsbasinwater.org)

#### Legend

River

County Line

City

UKBIRWMA Boundary

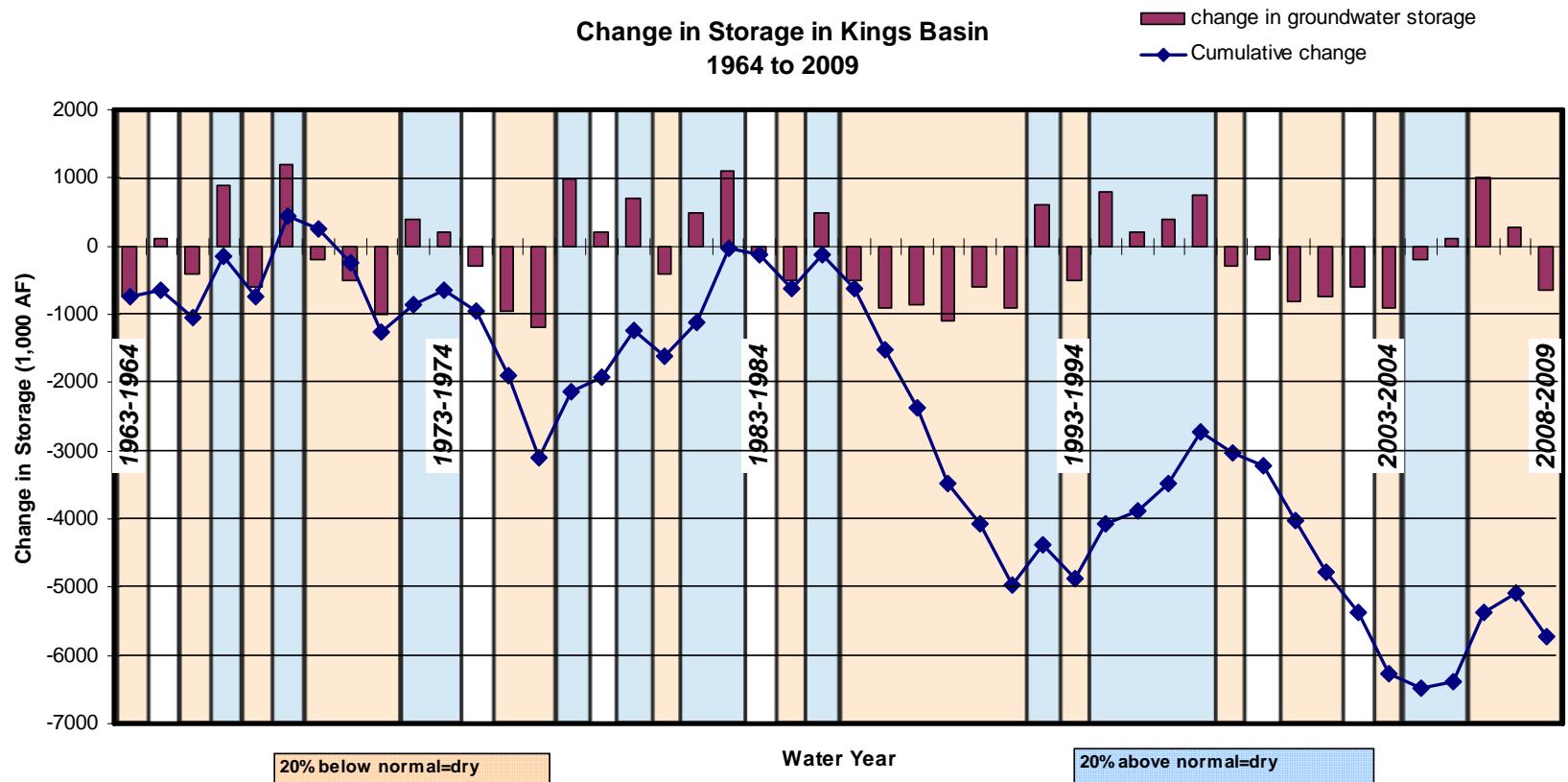


# How is groundwater managed in Fresno County?

- Effects of hydrologic cycles on groundwater reserves; overdraft and subsidence
- Groundwater management plans under California Water Code
- County ordinance
- District specific approaches (banks such as Waldron Pond, James ID, etc.)
- Integrated Regional Water Management Plans

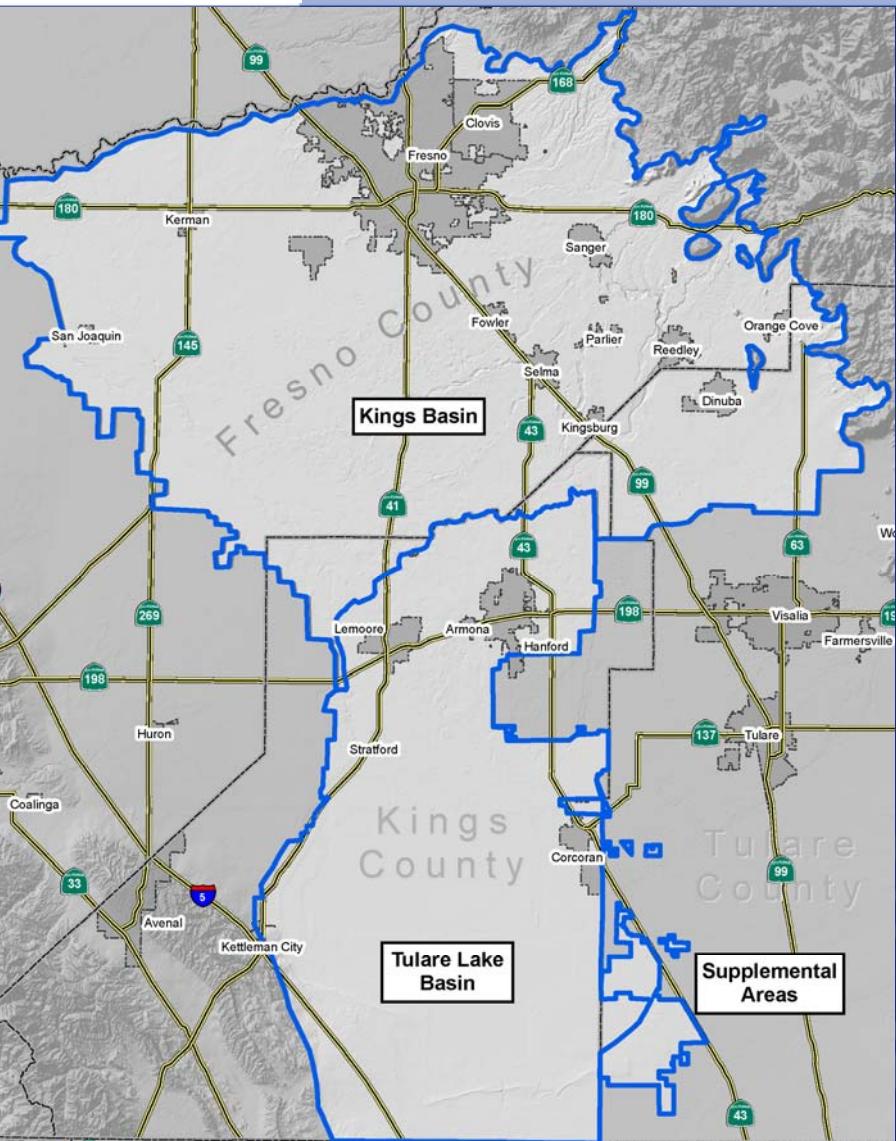
# Groundwater Conditions

- 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.



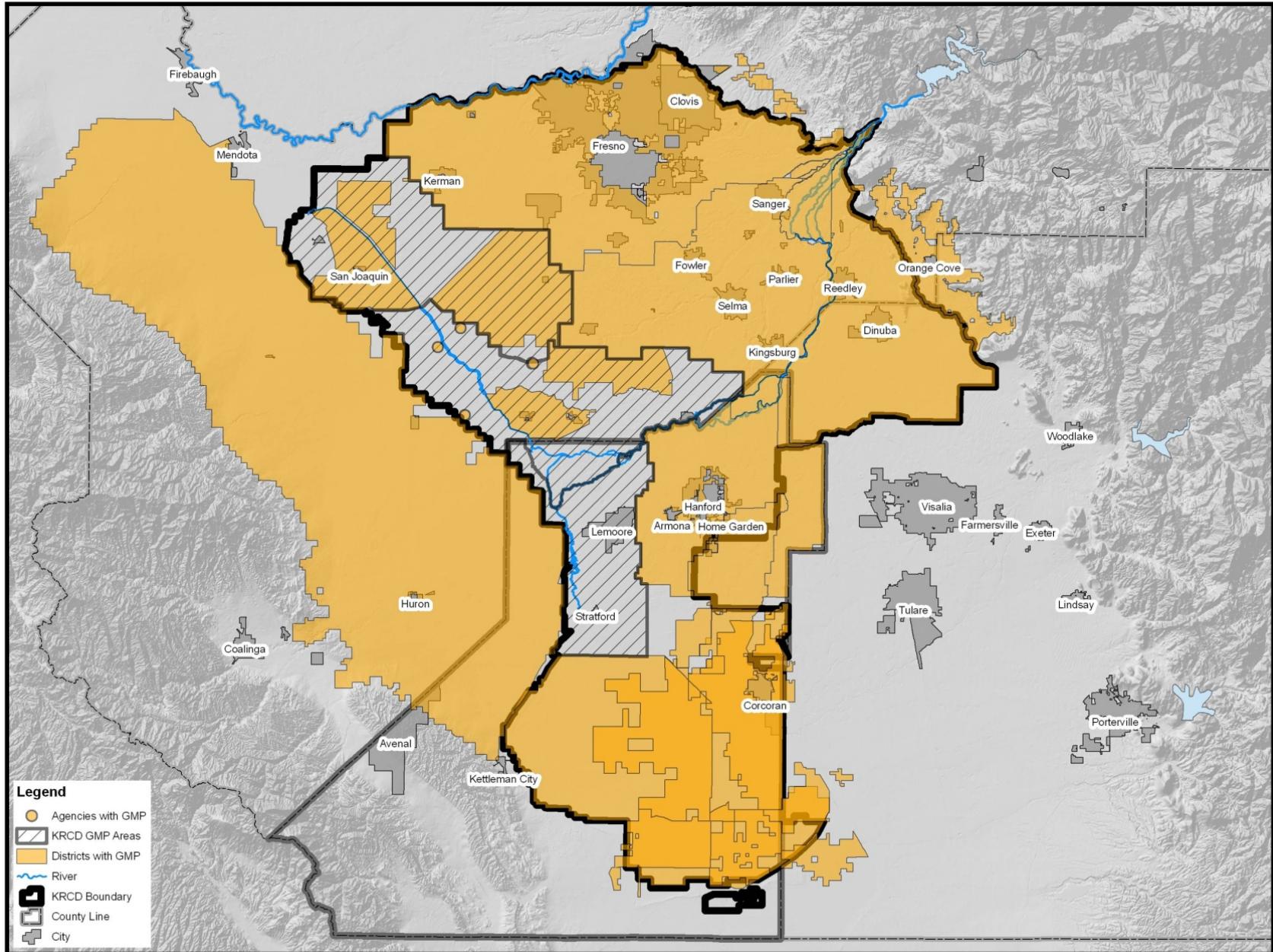


# California Statewide Groundwater Elevation Monitoring Program (CASGEM)

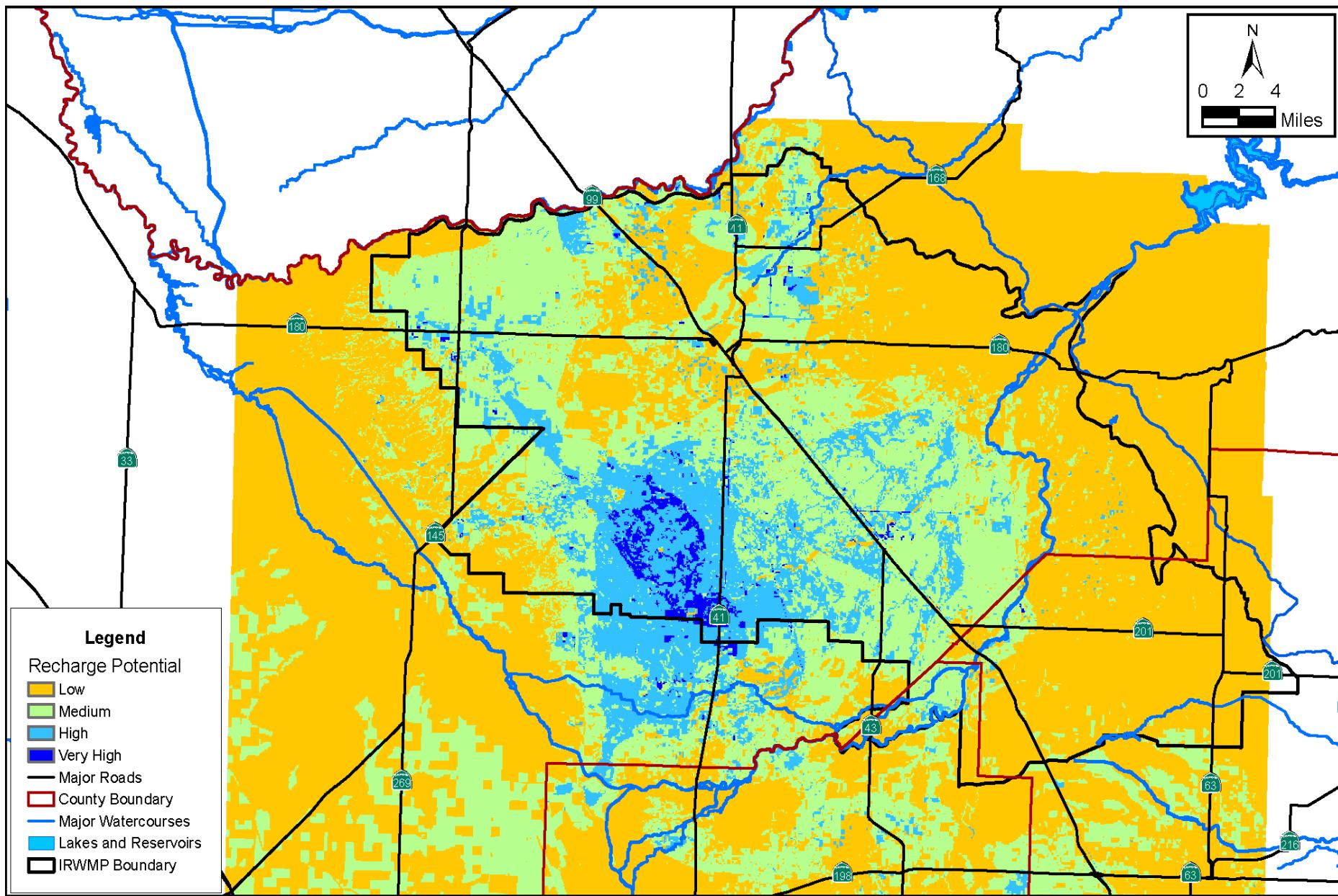


- Kings River Conservation District approved as “Monitoring Entity” for both basins
- Kings Basin: ~90 wells selected
- Tulare Lake Basin: ~30 wells selected

# Groundwater Management Plans in the Region

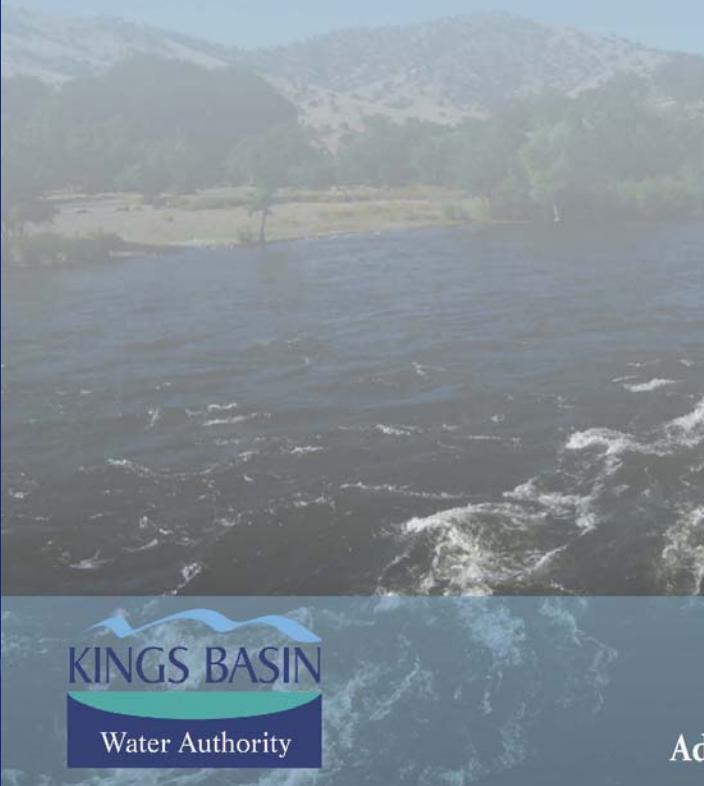


# Kings Basin Recharge Potential





# Kings Basin Integrated Regional Water Management Plan



Adopted October 17, 2012



# Questions