



Sustainable Groundwater Management through an Integrated Regional Water Management Plan (IRWMP)

David Orth
Kings River Conservation District

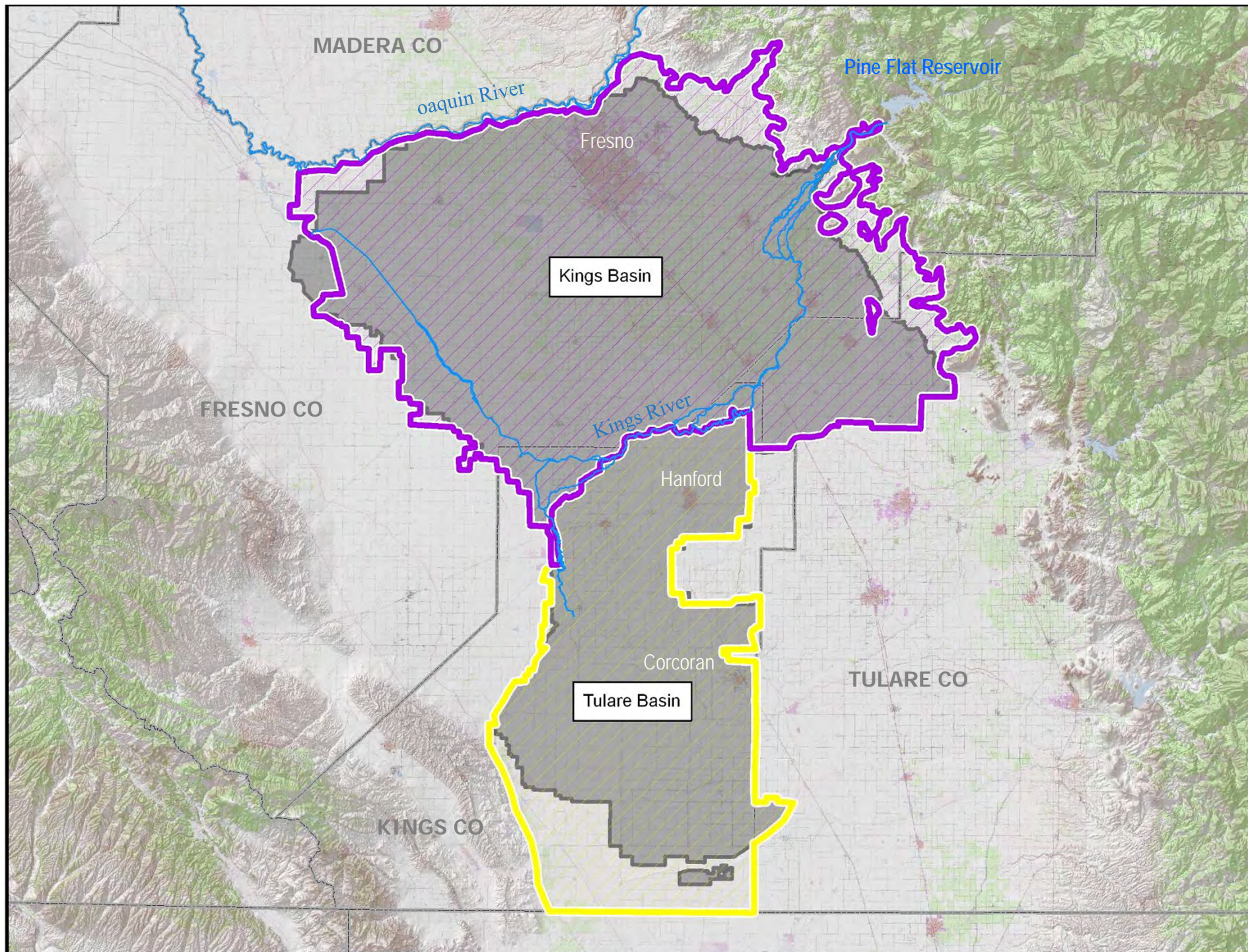


Kings River Conservation District

San Francisco

Fresno

Los Angeles





Kings Basin Characteristics

- Part of the Tulare Lake Hydrologic Region
 - 10.9 million acres
 - 12 distinct Basins/7 sub-basins
- Kings Groundwater Basin
 - 976,000 acres
 - 93 MAF of storage to 1,000 ft (2003 Bulletin 118)
- Tulare Lake Groundwater Basin
 - 524,000 acres
 - 12 MAF of storage to 300 ft (DWR 1995)

Critical Condition

- Overdraft
 - Increasing demand
 - Reduced Surface Supply reliability
- Water Quality
 - Salinity
 - Nitrates
 - Arsenic
- Inadequate Planning and Coordination

Cumulative Change In Central Valley Groundwater Storage Through 2002

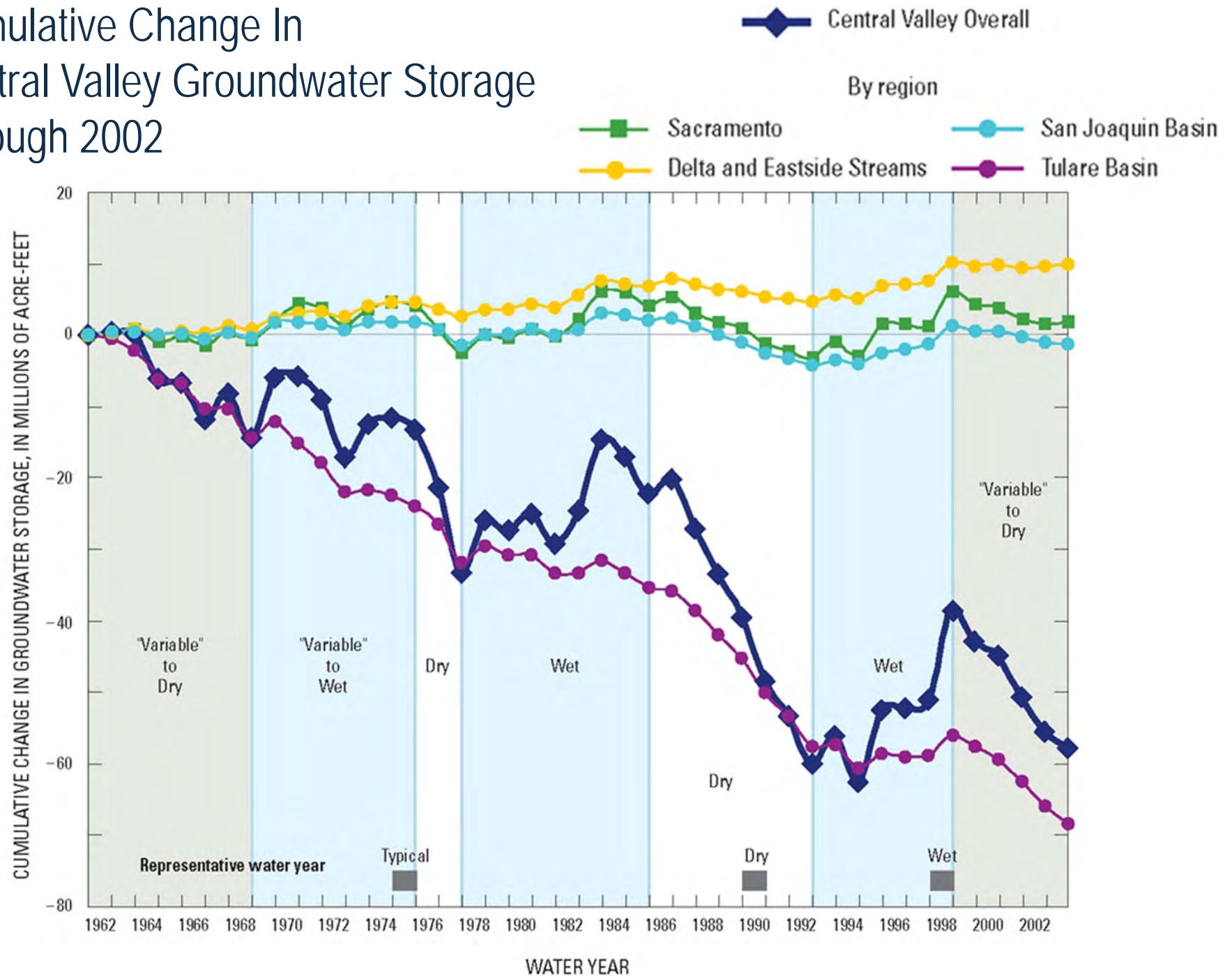
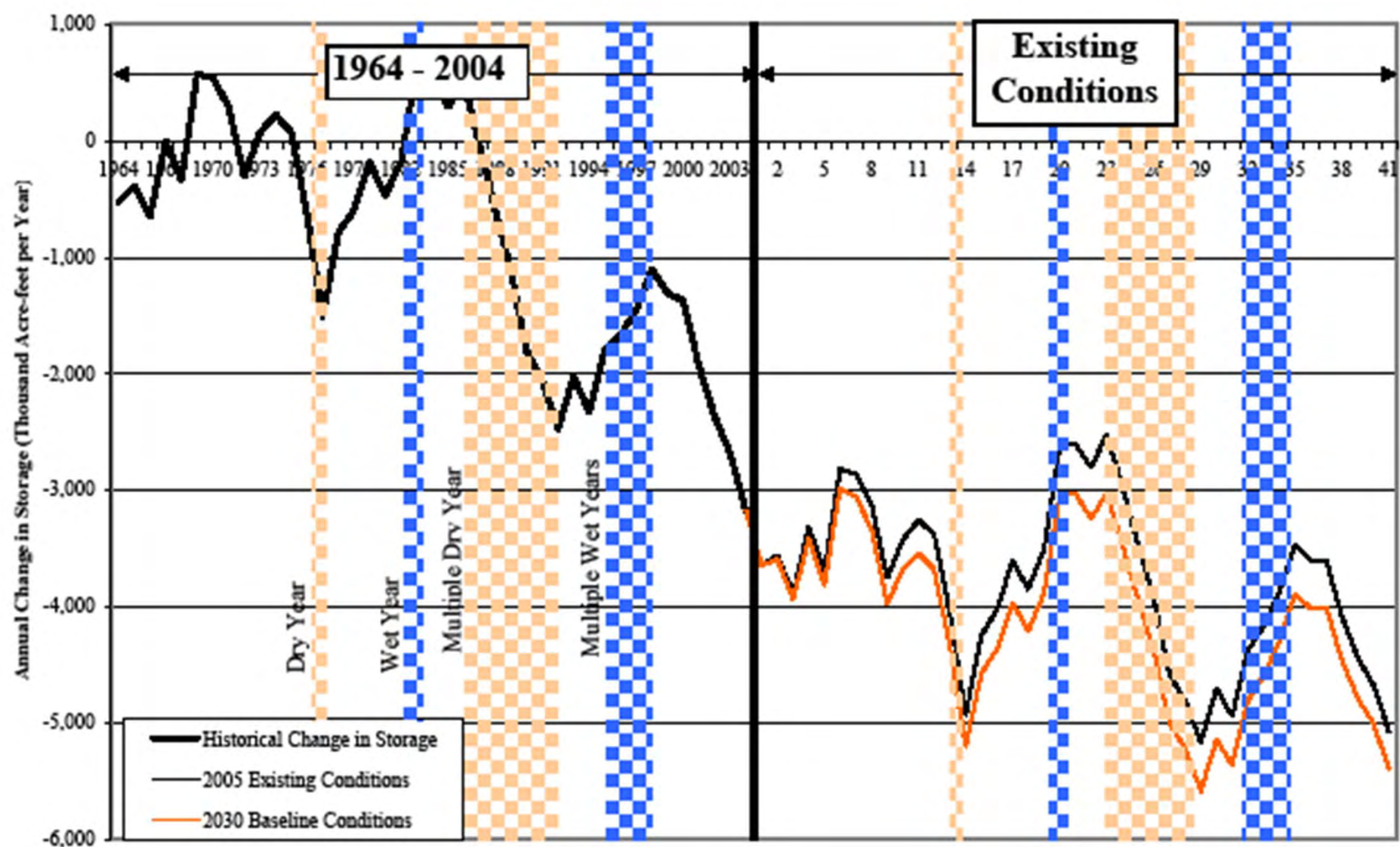
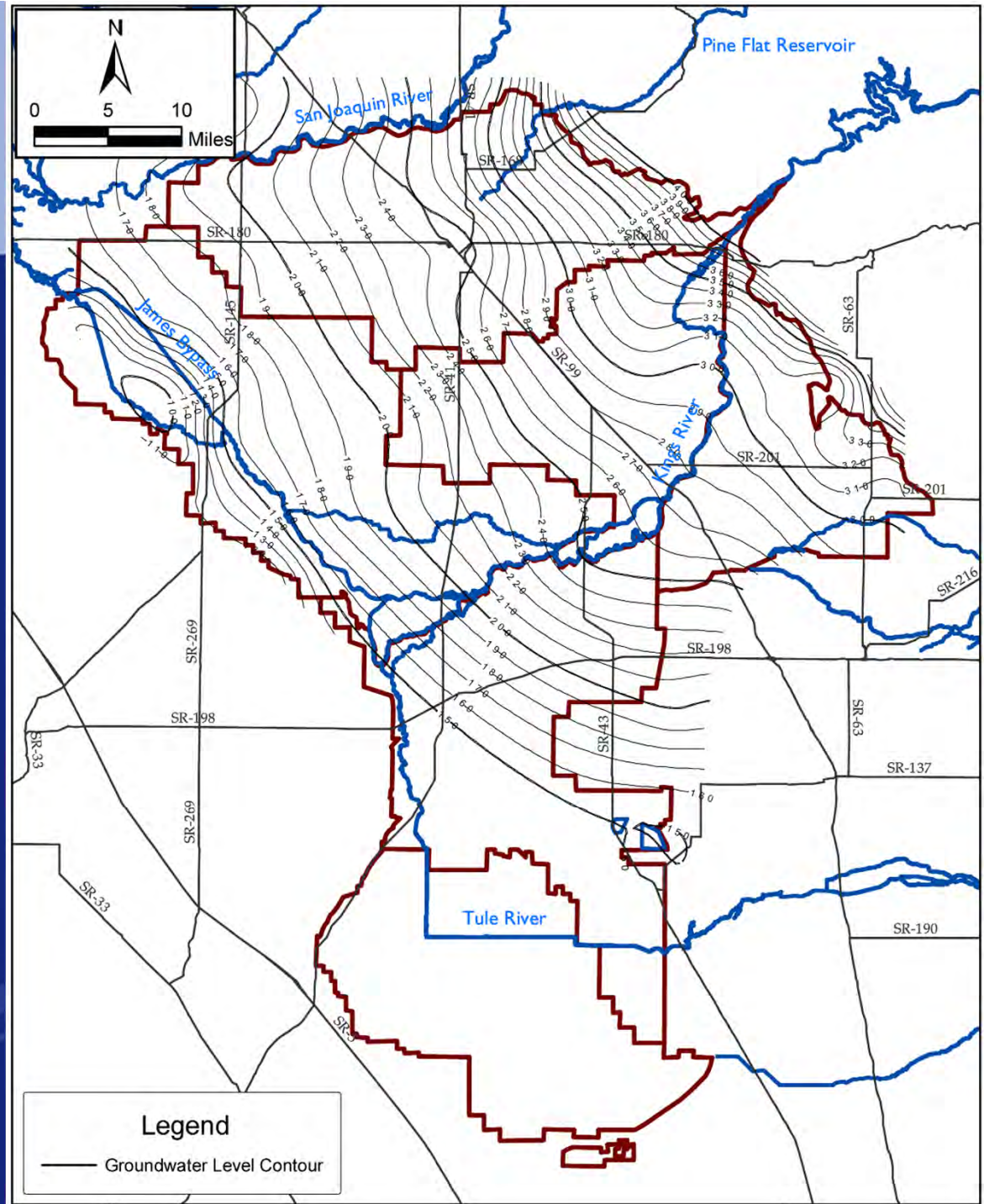


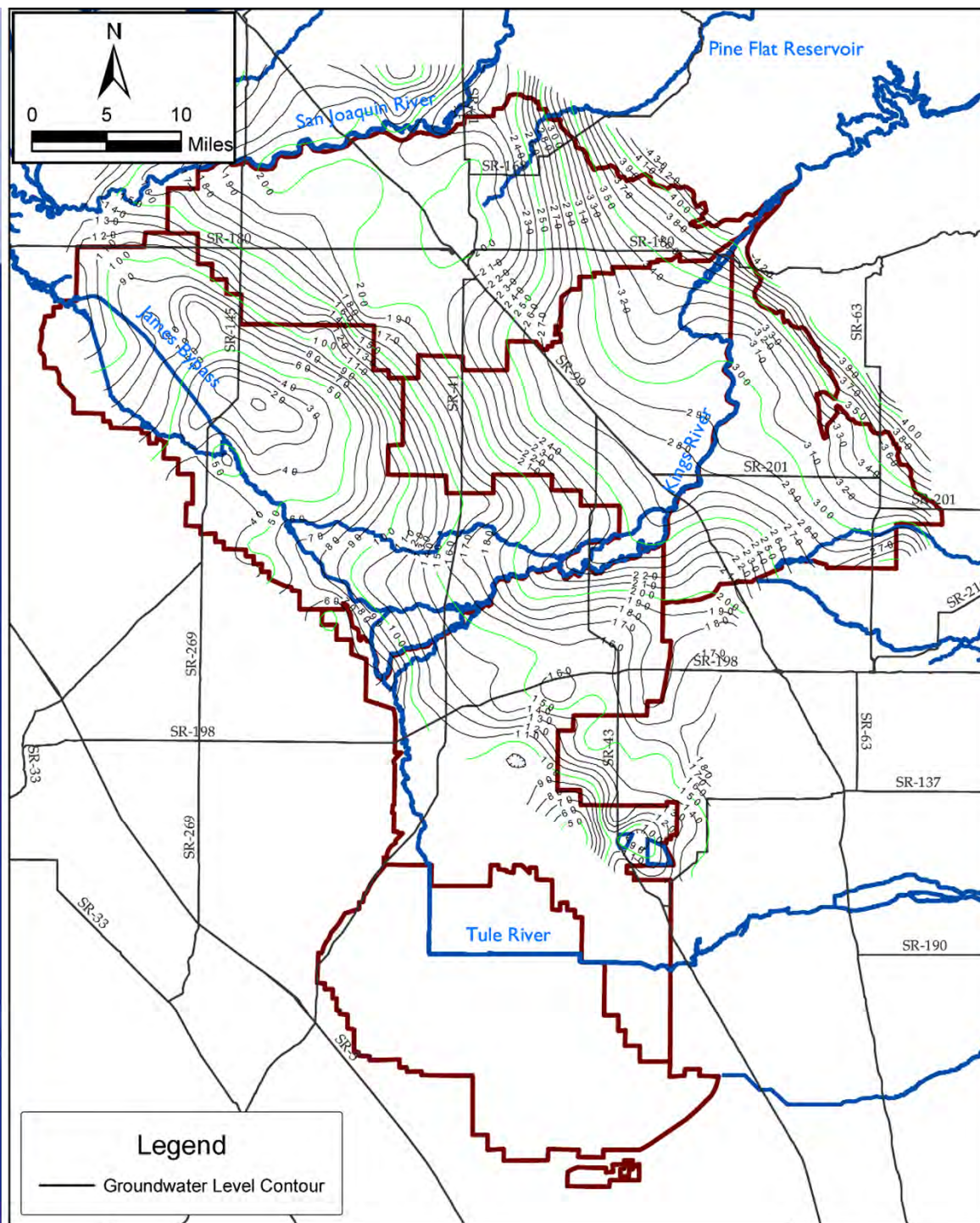
Figure 4-17. Cumulative Change in GW Storage in IRWMP Area



Groundwater Surface Elevations Spring 1950



Groundwater Surface Elevations Spring 2000





Local Management

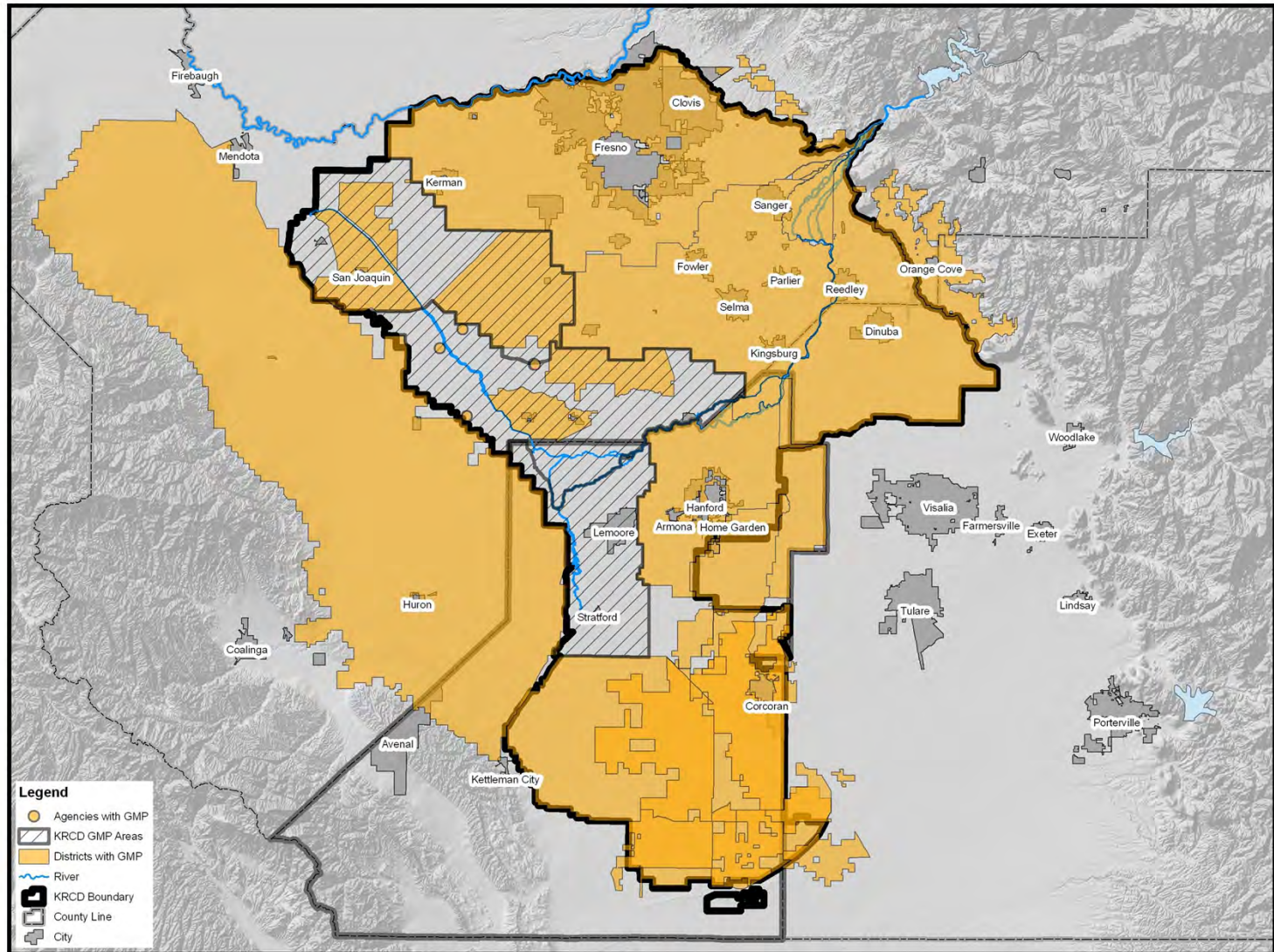
- AB 3030 (January 1, 1993)
- Provided criteria and guidance for elements of a Groundwater Management Plan
 - Monitoring, conjunctive use, well construction and destruction policies, recharge, storage, conservation, land use planning
- 54 agencies within Kings River Service Area prepared and implemented AB3030 Plans



Local Management

- SB 1938 (2002)
 - Local planning/stakeholder involvement
 - Establish Basin Management Objectives
 - Groundwater levels
 - Groundwater Quality
 - Subsidence
 - Implement Monitoring
- 23 agencies in the two basins have updated AB 3030 Plans to SB1938 standard

Groundwater Management Plans in the Region





Local Management - IRWMP

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



Upper Kings Basin IRWM Authority

- Formation of Upper Kings Basin Advisory Panel in 2001
- Creation of the Upper Kings Basin Water “Forum” in 2004 (supported by DWR)
- Development of IRWMP
- Development of Kings Integrated Groundwater & Surface Water Model (Kings IGSM)
- Adoption of IRWMP in 2007
- Formation of Joint Powers Authority in 2009



Governance Structure

Members – voting members, only public entities

Interested Parties – non-voting (on the Advisory Committee) may be public and non-public entities (non-governmental organizations and local & state agencies) advisory capacity participate in committees and sub-committees seek their support before decisions are made

Administrative Manager – executive and fiscal agent, non-voting



Diversity of Water Authority Planning Participation

MEMBERS (17)

Alta Irrigation District
City of Clovis
City of Dinuba
City of Fresno
City of Kerman
City of Kingsburg
City of Parlier
City of Reedley
City of Sanger
City of Selma
County of Fresno
County of Tulare
Consolidated Irrigation District
Fresno Irrigation District
Kings County Water District
Kings River Conservation District
Raisin City Water District

INTERESTED PARTIES (32)

Bakman Water Company
Biola Community Services District
California Native Plant Society, Sequoia
Chapter
City of San Joaquin
Community Water Center
County of Kings
Crescent Canal Company
Cutler Public Utilities District
East Orosi Community Services District
El Rio Reyes Conservation Trust
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
Mid-Valley Water District
Orange Cove Irrigation District

Orosi Public Utilities District
Reed Ditch Company
Riverdale Irrigation District
Riverdale Public Utility District
Self-Help Enterprises
Sierra Club, Tehipite Chapter
Sierra Resource Conservation District
Sultana Community Services District
Terranova Ranch, Inc.
Tulare Basin Wildlife Partners

OTHER PARTICIPATION

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



IRWM Plan Priorities

- Projects to increase water supply reliability & preserve quality
 - Groundwater recharge, conveyance
 - Recycling
 - Metering
- Protect and enhance aquatic ecosystems and wildlife habitat, and riparian recreation areas
- Public Awareness
- Coordinated Monitoring



Planning Area Successes

- Regional Awareness & Collaboration
- Unconditional Approval under State agency Regional Acceptance Process (RAP)
- Coordinated Monitoring
 - Elevation, Quality, Subsidence
 - CASGEM Monitoring Entity
- Interactive Groundwater Surface-water Model (Kings IGSM)
- Project Funding and Development
 - Groundwater Recharge Facilities
 - Residential Water Metering
 - Disadvantaged Community Outreach and Assessment Pilot
 - IRWMP Update



Awareness / Collaboration

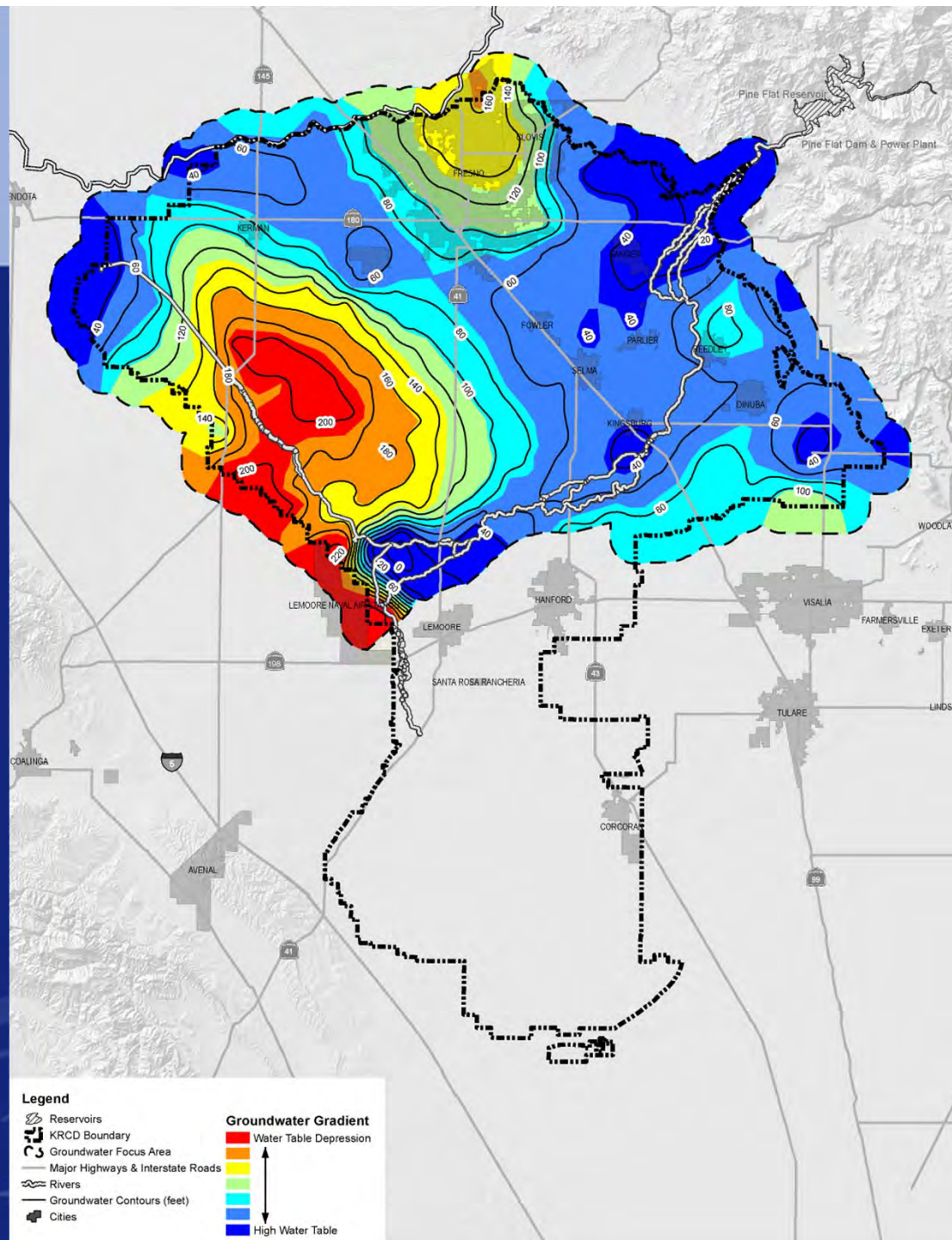
- Open meetings of Board and Committees
- Full Stakeholder Participation
- Public Outreach / Speakers' Forum
- IRWMP adopted / supported by local public agencies
- IRWMP update underway

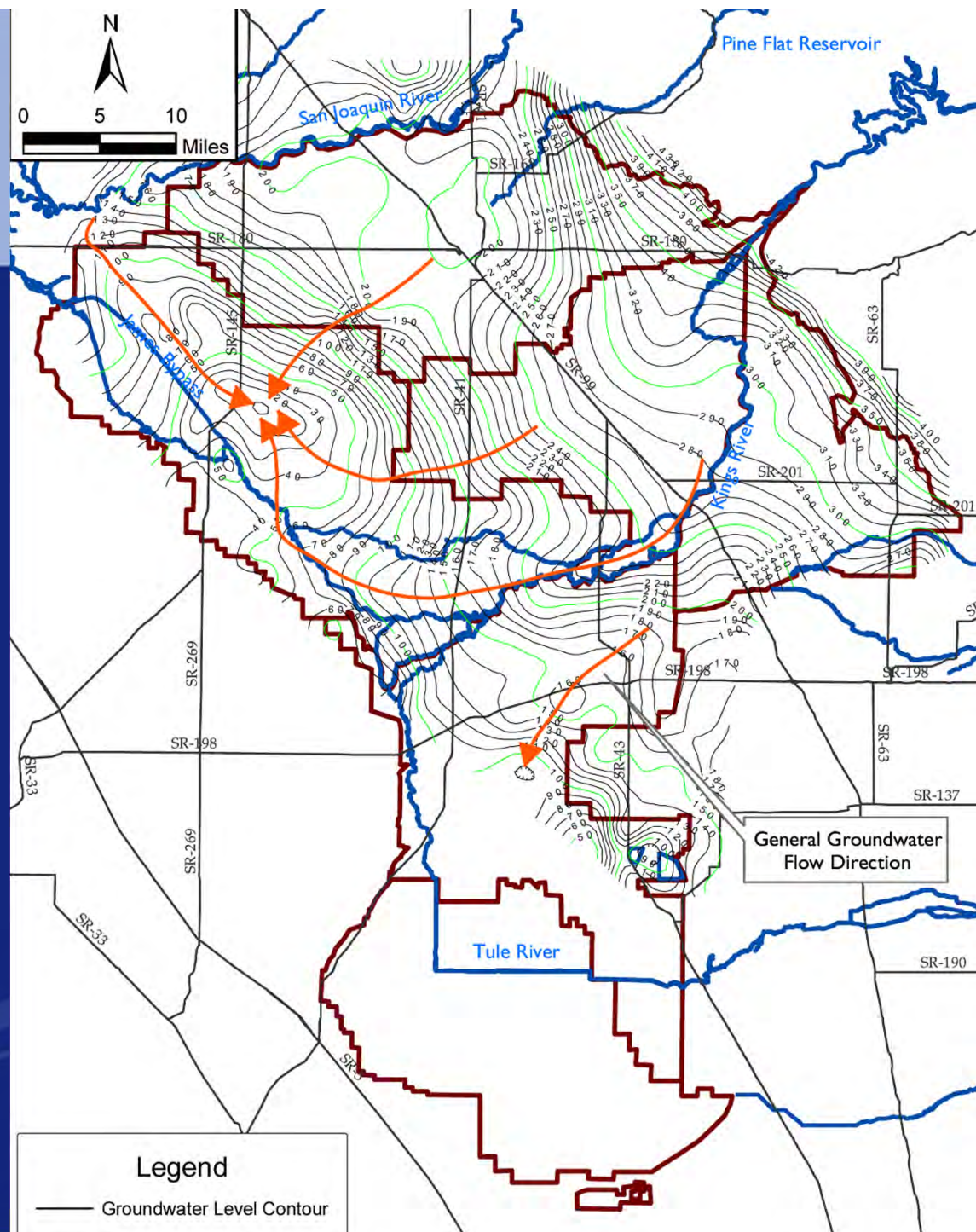
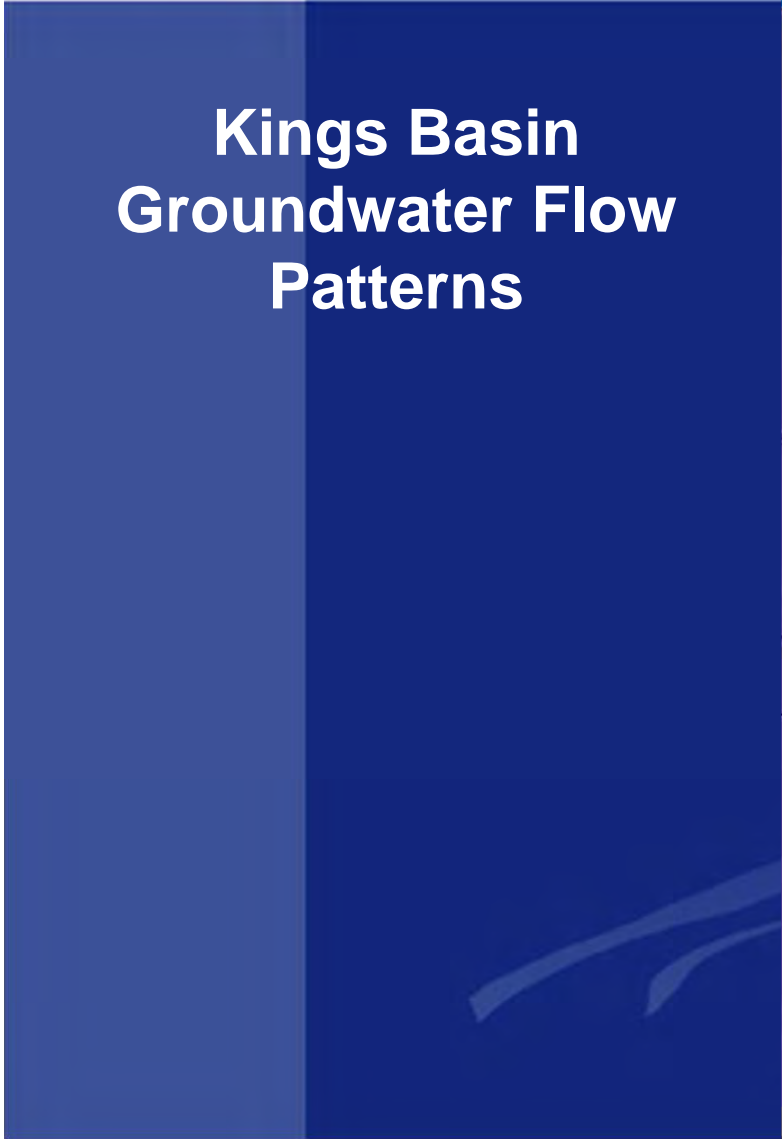


Coordinated Monitoring

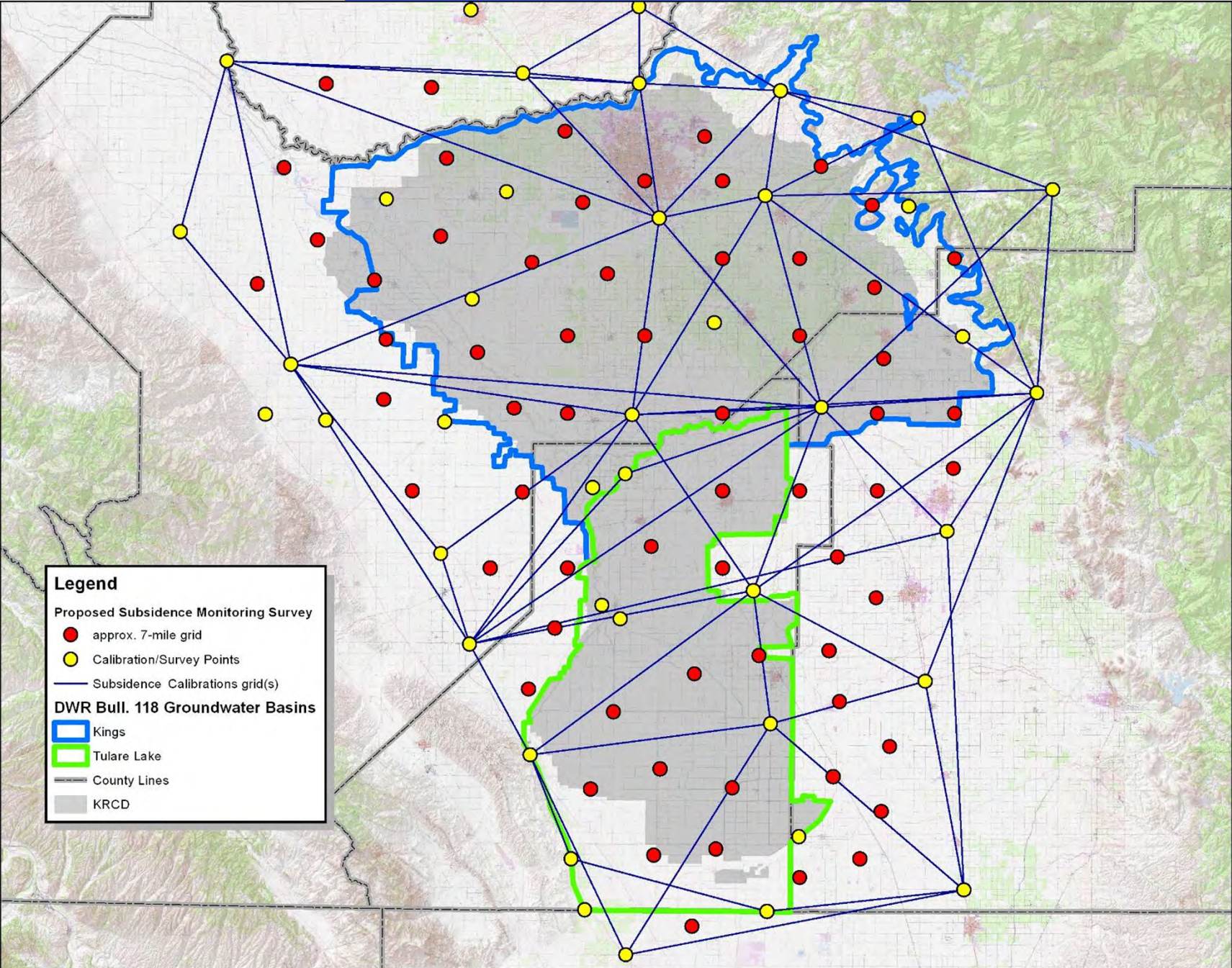
- Memorandum of Understanding to provide for SB7x 6 CASGEM monitoring by KRCD
- Coordinated SB1938 Monitoring Program
 - Quantity (elevation)
 - Quality
 - Subsidence

Depth to Groundwater Spring 2009





Proposed Subsidence Survey Grid





Recent Project Successes

Project Title	Program	Administering Agency	Grant Amount
UKBWF IRWMP	Prop 50 IRWM Planning	DWR	\$500,000
Kings IGSM	Prop 50 IRWM Services Contract	DWR	\$500,000
FID Waldron Pond Groundwater Banking Facility	Prop 13 IRWM	DWR	\$4,615,072
AID/City of Dinuba Coordinated GW Storage Project	Prop 13 IRWM	DWR	\$2,974,651
UKBWF IRWMP Implementation 1 (FID, City of Fresno, AID)	Prop 50 Round 2 IRWM Implementation	SWRCB	\$6,064,375
UKBIRWMA IRWMP Implementation 2 (FID & City of Fresno)	Prop 50 Supplemental Round (Mini 50)	DWR	\$2,099,868
KRC Kings Ribbon of Gems Implementation North Riverside Park	Prop 84 Round 1 River Parkways	Resources Agency	\$284,674
UKBIRWMA DAC Outreach and Planning Project	Prop 84 IRWM Services Contract	DWR	\$500,000
UKBIRWMA IRWMP Update	Prop 84 IRWM Round 1 Planning	DWR	\$236,890

Cumulative Grant Funding = \$17,775,530
Cumulative Cost of Projects = ~\$30,220,000

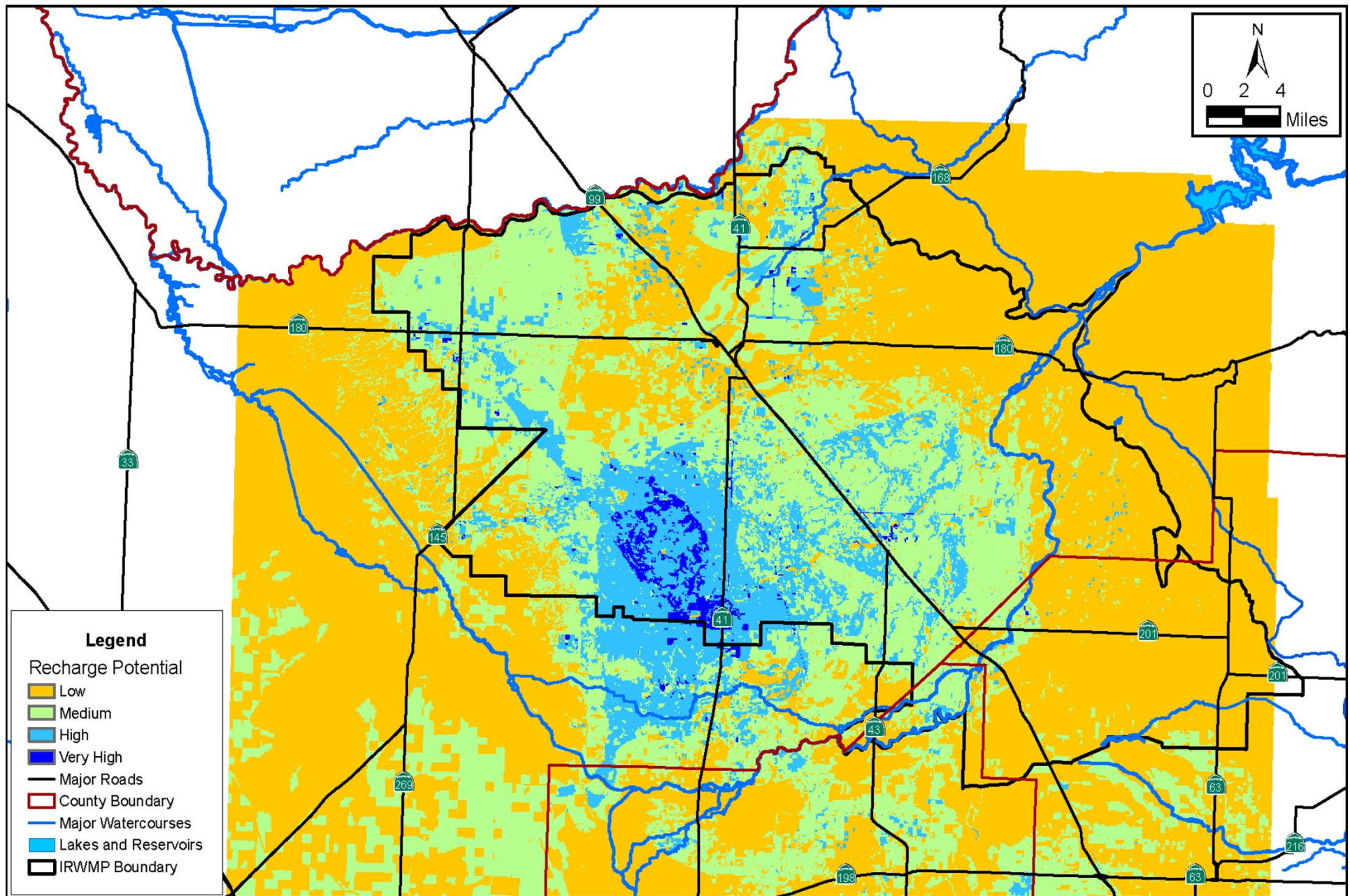


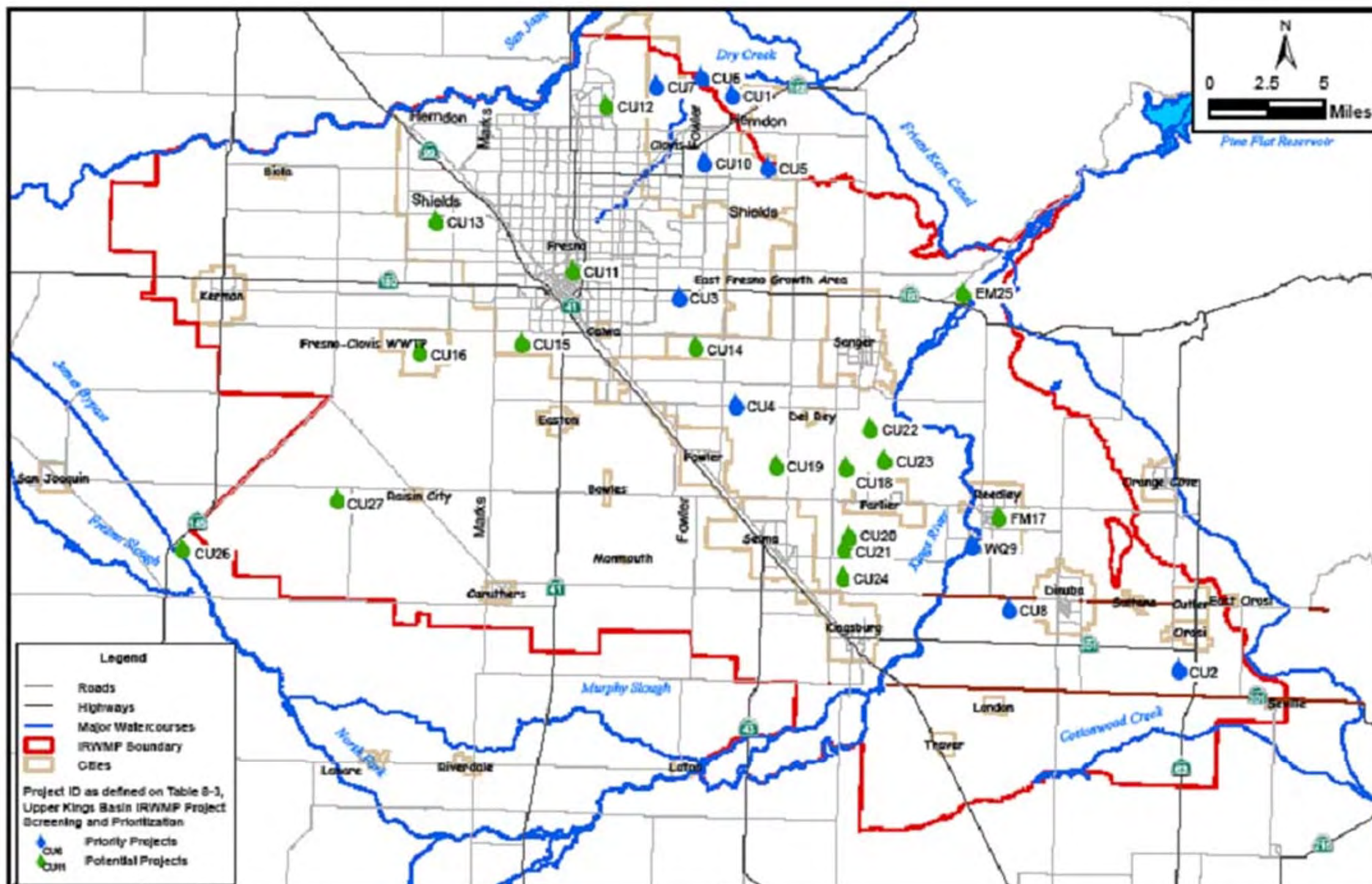
Continued Project Development

- IRWMP Update to Prop 84 Standards
- Expanded Project List
 - Groundwater
 - Water Conservation & Efficiency
 - Water Quality
 - Riparian Habitat / Flood Corridors
 - Disadvantaged Community Projects

Kings Basin Recharge Potential

→ Classified index combines
land use, hydro soils groups, A & E clay layers,
depth to groundwater contours, & specific yield





Upper Kings Basin IRWMP Proposed Project Locations

Upper Kings Basin IRWMP

June 2007

Figure 8-1



Challenges

- Groundwater Recharge is not a designated beneficial use under California Law
- Current funding highly dependent upon State financial condition
- Land Use planning not fully coordinated with IRWM process

Conclusion

- Given diversity of groundwater basins and sub basins throughout the State, local management is the best approach
- The California Legislature, through AB3030, SB1938, SB7x 6, SB7x7, and the Integrated Water Management Planning Act has provided a solid foundation for local management of California's Groundwater Resource