

# Water Markets and SGMA

First Annual GSA Summit, Groundwater Resources  
Association of California  
Sacramento, June 7, 2018

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Ellen Hanak (PPIC), Nell Green Nysten (UC Berkeley), Richael Young (Mammoth Trading), Curt Aikens (Yuba County Water Agency), Steve Knell (Oakdale Irrigation District), Jon Reiter (Maricopa Orchards), Lance Eckhart (Mojave Water Agency), Matthew Fienup (CA Lutheran Univ. and Fox Canyon Water Market Group)



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# Water Trading and Sustainable Groundwater Management

Ellen Hanak, Senior Fellow  
and Center Director

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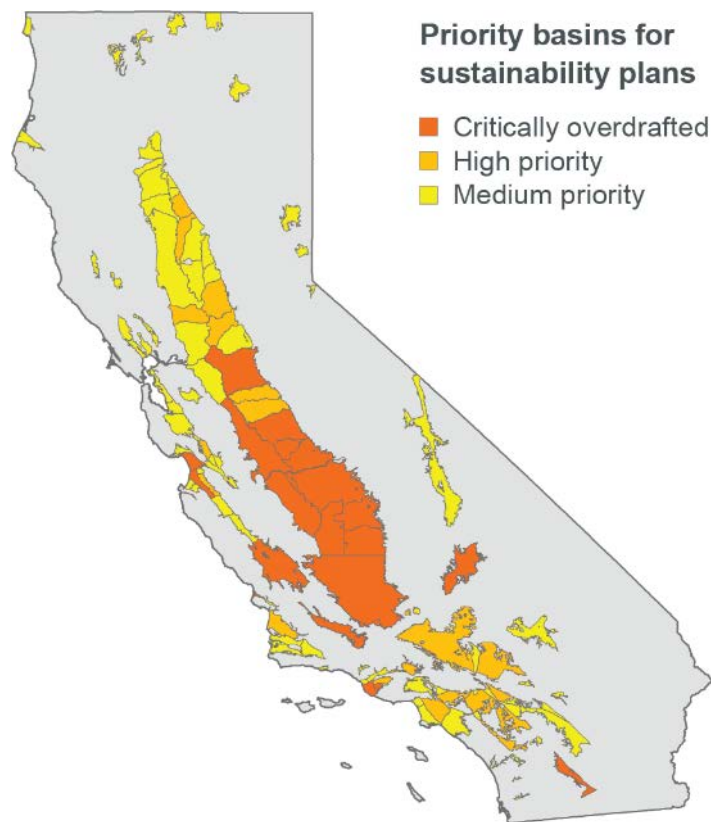


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# California's 2014 Sustainable Groundwater Management Act



- 127 priority basins, > 250 sustainability agencies
- Local sustainability plans due to launch in 2020/22
- In overdrafted basins, attaining balance means more recharge, less water use, or both

# What is water trading and how can it help?

- **Water trading:** temporary, long-term or permanent trades of water-use rights or contracts (within, across basins)
- How can trading help bring basins into balance?
  - Lowers costs of managing demand
  - Works if there's variation in water's value across users
- Two main types of trading in California
  - Surface water trading: already common (within, across basins)
  - Groundwater trading: in its infancy (within basins)

# Trading has requirements and constraints

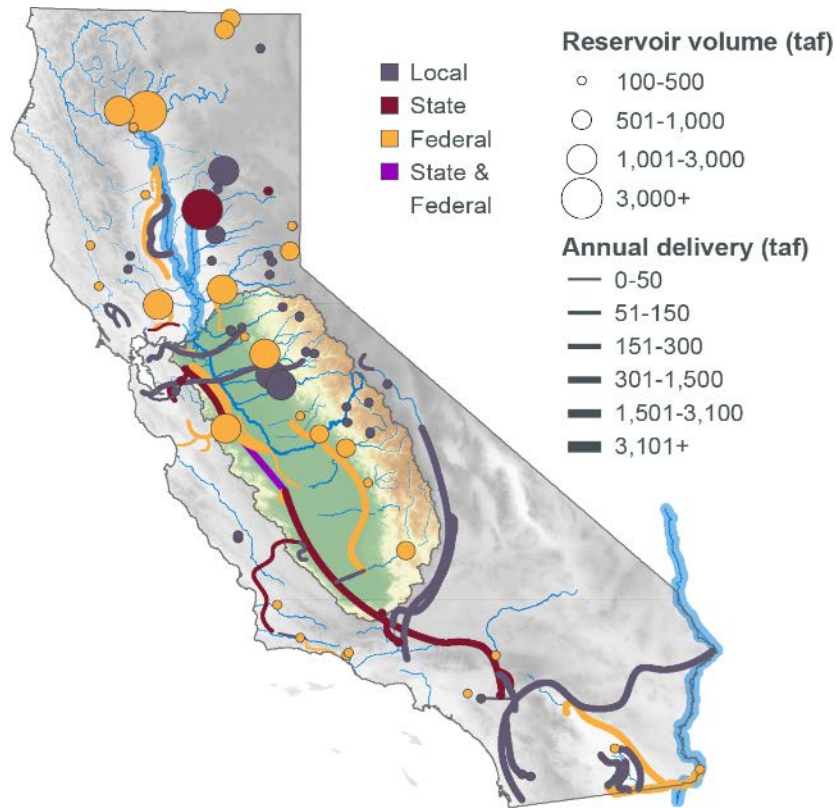
- **Infrastructure**

- To connect source/destination of water traded  
(exception: local groundwater trades)

- **Protections**

- Must prevent unreasonable harm (“no injury”) to other water users (incl. fish & wildlife)
- Should aim to prevent, mitigate significant economic harm in source areas
- Requires transparent monitoring, accounting systems everyone can trust

# California's extensive infrastructure facilitates trading, even across long distances

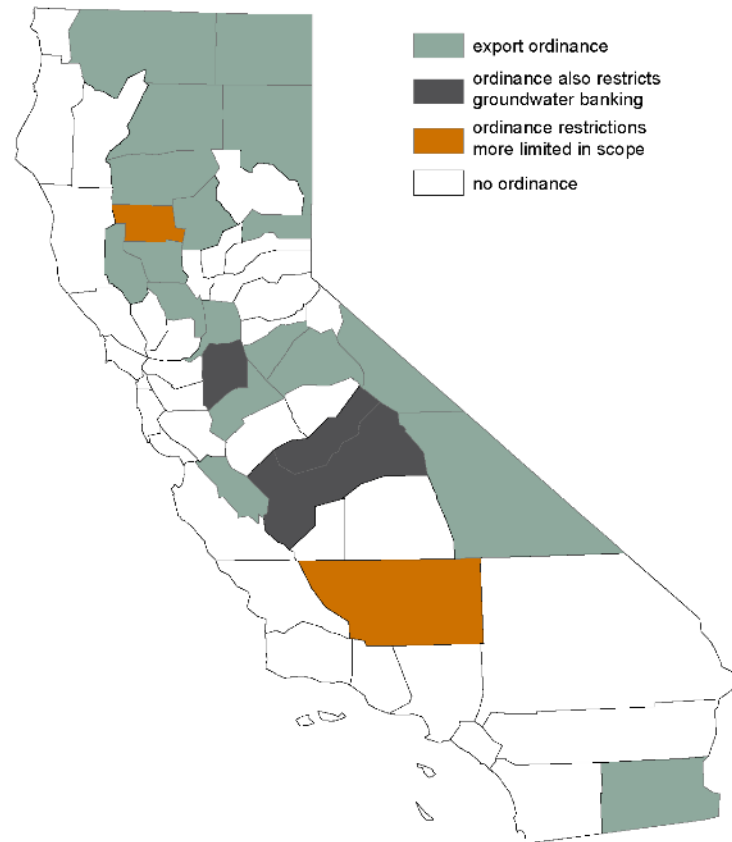


- But some conveyance challenges
  - Delta: a weak link for north-south, east-west trades
  - Regional: growing north-south capacity constraints from subsidence in SJ Valley (Friant-Kern, CA Aqueduct)
  - Local: missing links to GW-only areas

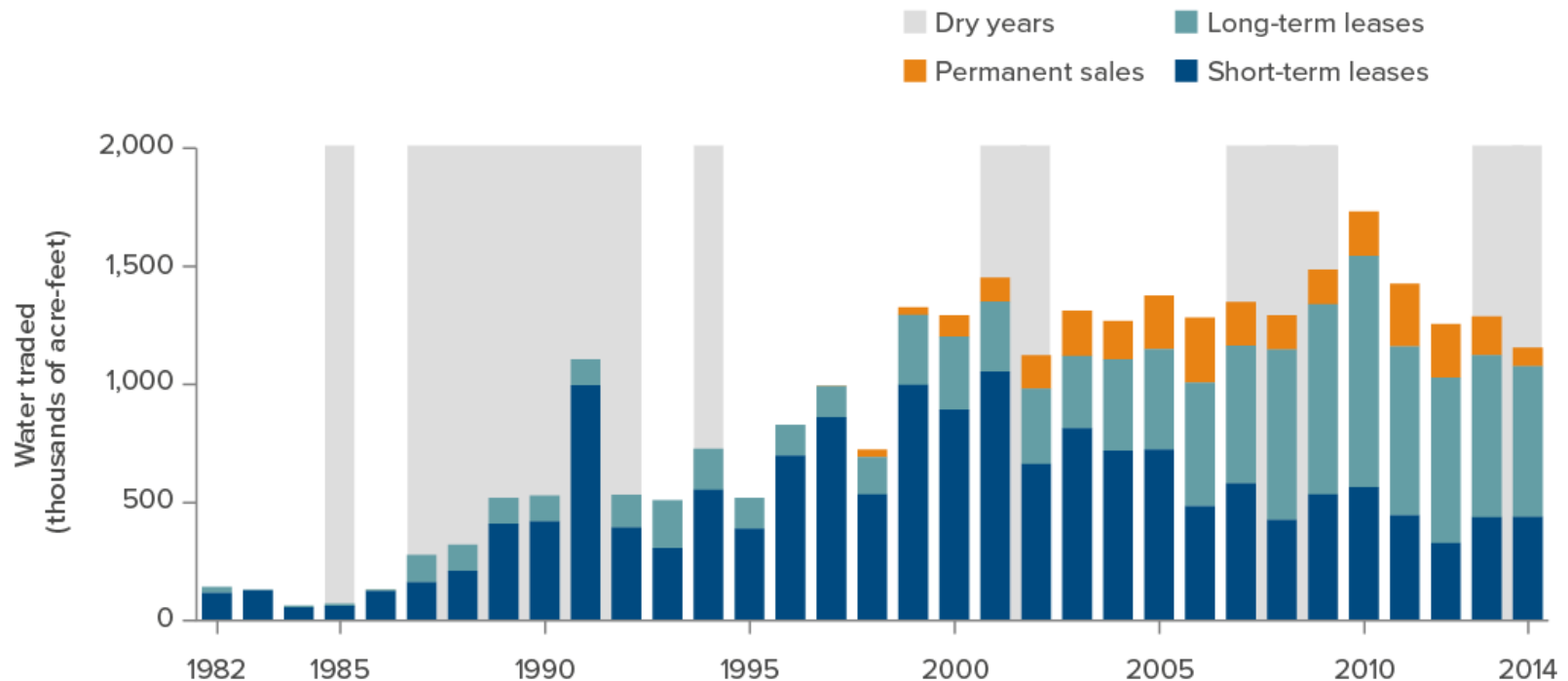
# Approval process can be cumbersome—with federal, state, local entities involved

- Water rights issues—place, purpose of use, no injury (SWRCB, courts)
- Access to conveyance (CVP, SWP, local)
- CVP, SWP, water district rules
- County rules on exporting groundwater
- GSA rules??

County groundwater ordinances

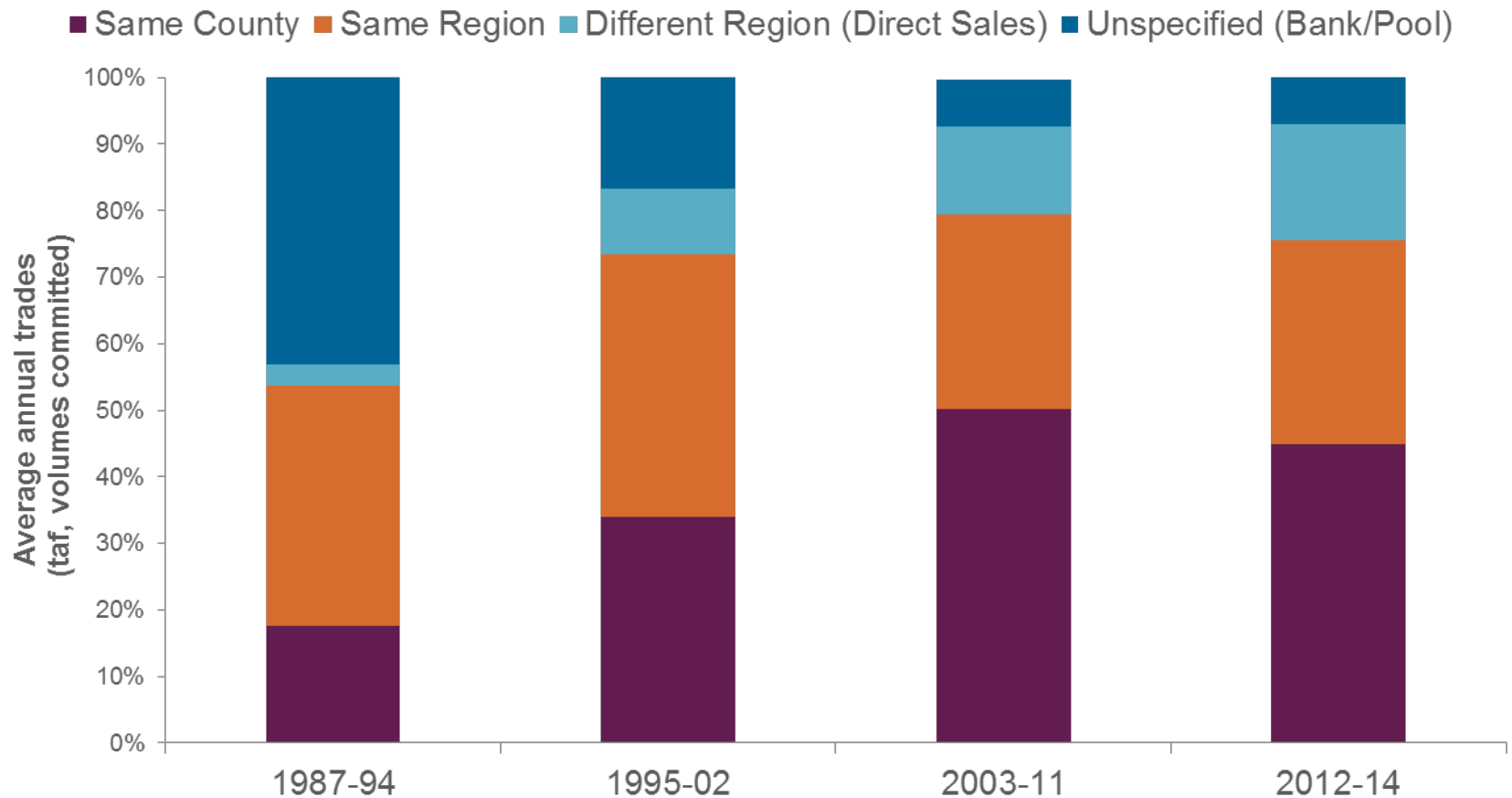


# Surface water trading has been important in California since the early 1990s

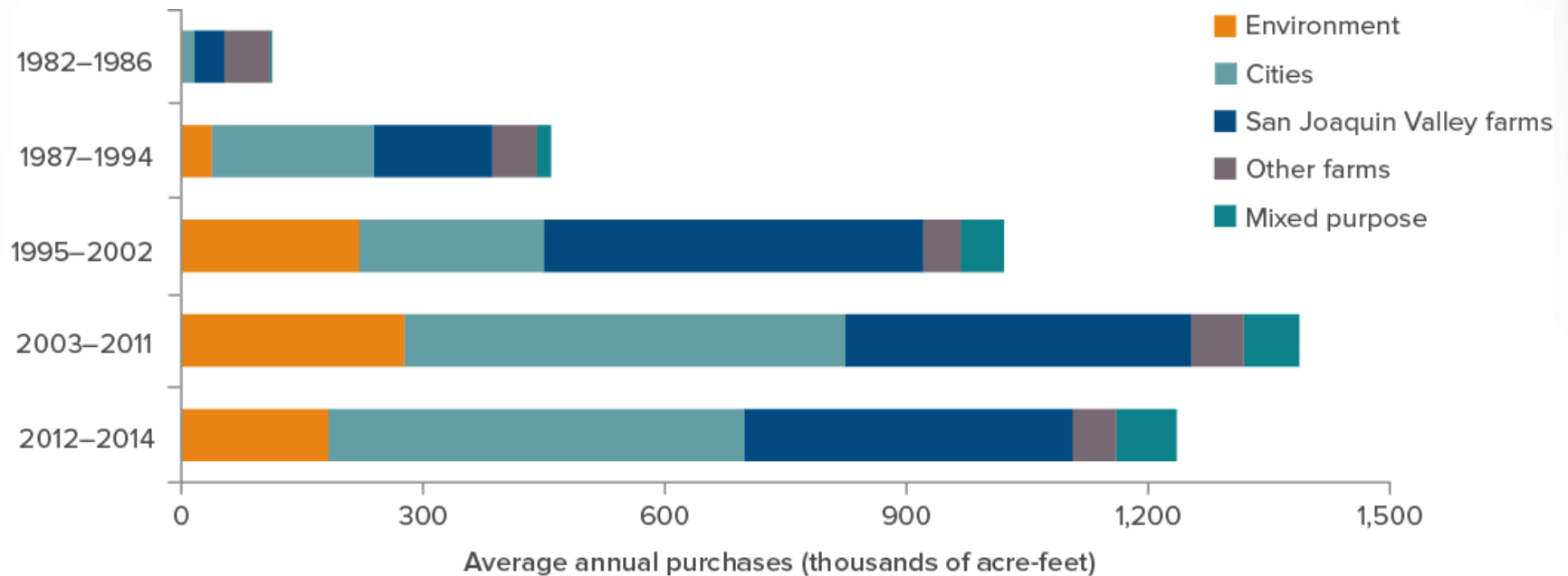




# Most trades are within same county, region

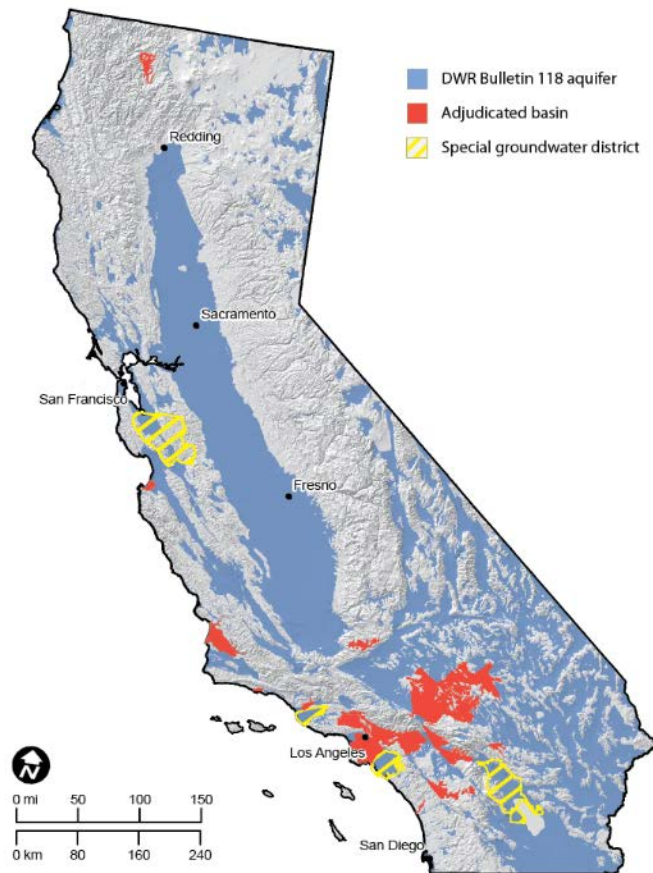


# Agriculture is the main seller; all sectors are buying



- Additional surface water trading within the SJ Valley could significantly reduce costs of demand management under SGMA

# Local groundwater trading is in its infancy



- Occurs in a few adjudicated basins in So Cal—a type of “cap and trade” to manage shortages
- Lots of potential under SGMA—but this will require establishing individual GW budgets (“caps”)

# Local Groundwater Markets and SGMA

Nell Green Nylen

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# Local groundwater markets are one potential management tool available under SGMA

- SGMA allows a GSA to
  1. Limit pumping by establishing extraction allocations
  2. Authorize transfers of groundwater extraction allocations within the GSA's boundaries

Water Code § 10726.4(a)(2),(3)
- **Carefully designed and implemented** groundwater markets could potentially contribute to sustainable management in some basins, but success is not a given
- **If considering this tool**, GSAs need to evaluate whether / under what conditions it would contribute to sustainability

# Critical considerations for local groundwater trading under SGMA

## Foundational considerations



Measuring extractions



Setting overall pumping limits



Establishing extraction allocations

## Market-specific considerations



Market goals



Groundwater rights questions



Potential impacts of trades



Trading rules



Trading system + transfer approval process

## General considerations



Monitoring



Oversight + enforcement



Evaluation



Modification



Transparency + engagement

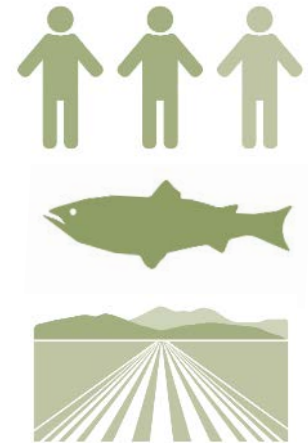


Resources

# Critical considerations include...

- **Spatial and temporal impacts of trades**

- Trading changes where / when groundwater is pumped and used, affecting its social and environmental impacts
- Trading rules must prevent unacceptable trading impacts (e.g., through trading ratios, concentration limits, “sell-only” zones)



- **Groundwater rights questions**

- How should the limitations of groundwater rights affect groundwater extraction allocations? Their transferability?



# Water Trading: Lessons from Beyond California

Richael Young  
Cofounder & CEO, Mammoth Trading

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# Markets are not a cure-all



# Most underestimate the importance of neutrality, confidentiality, and trust





# No need to reinvent the wheel



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# GSA flash talks: Where our speakers are based



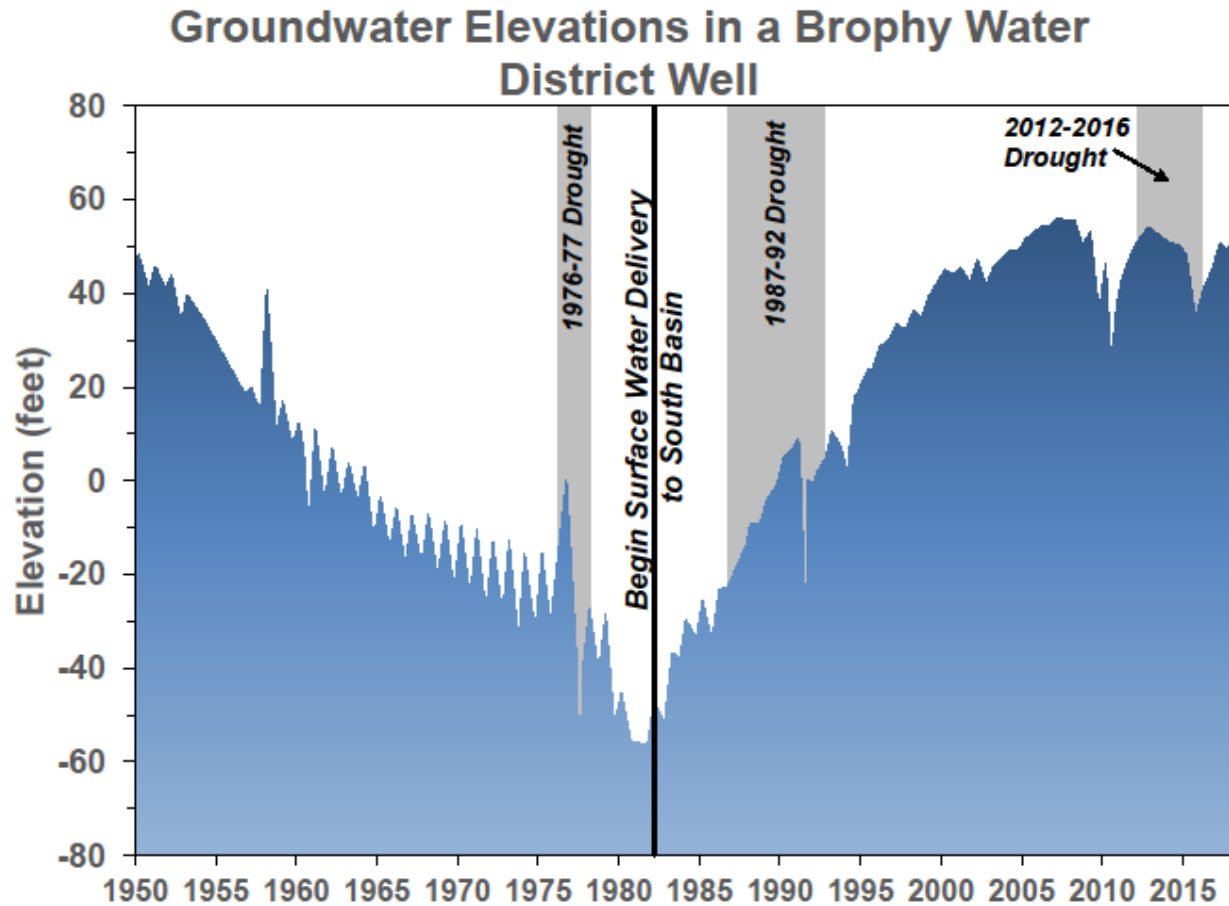
- Curt Aikens (Yuba County Water Agency)
- Steve Knell (Oakdale ID)
- Jon Reiter (Maricopa Orchards)
- Lance Eckhart (Mojave Water Agency)
- Matthew Fienup (Fox Canyon GMA)

# Yuba County Water Agency perspective



- **Curt Aikens (Yuba County Water Agency)**
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# Yuba County Water Agency perspective





# Oakdale ID perspective



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# Water sales fund CIP/CRP and soon...SGMA

- **OID Water Resources Plan (2007)**
  - Develop long-term strategy to protect water rights
  - Rebuild and modernize 100+ year old water delivery system
  - Develop affordable ways to finance improvements
- **Infrastructure needs over 30 year period**
  - \$95 million existing facility replacements
  - \$44 million main canal and tunnel repairs
  - \$30 million modernization projects (SBx7-7 / WC 10608.48)
  - Total of \$169 million in 2007 dollars
  - In today's dollars - \$7 million a year in CIP
- **1998-2016**
  - \$69 mill. in water sales - \$67.6 mill spent on CIP
  - Diversions down from 260 KAF to 230 KAF (40-50 TAF annual sales)
- **Coming soon...funding of SGMA costs and projects?**
  - GSA admin \$\$\$ GSP funding \$\$\$ Water cost ???

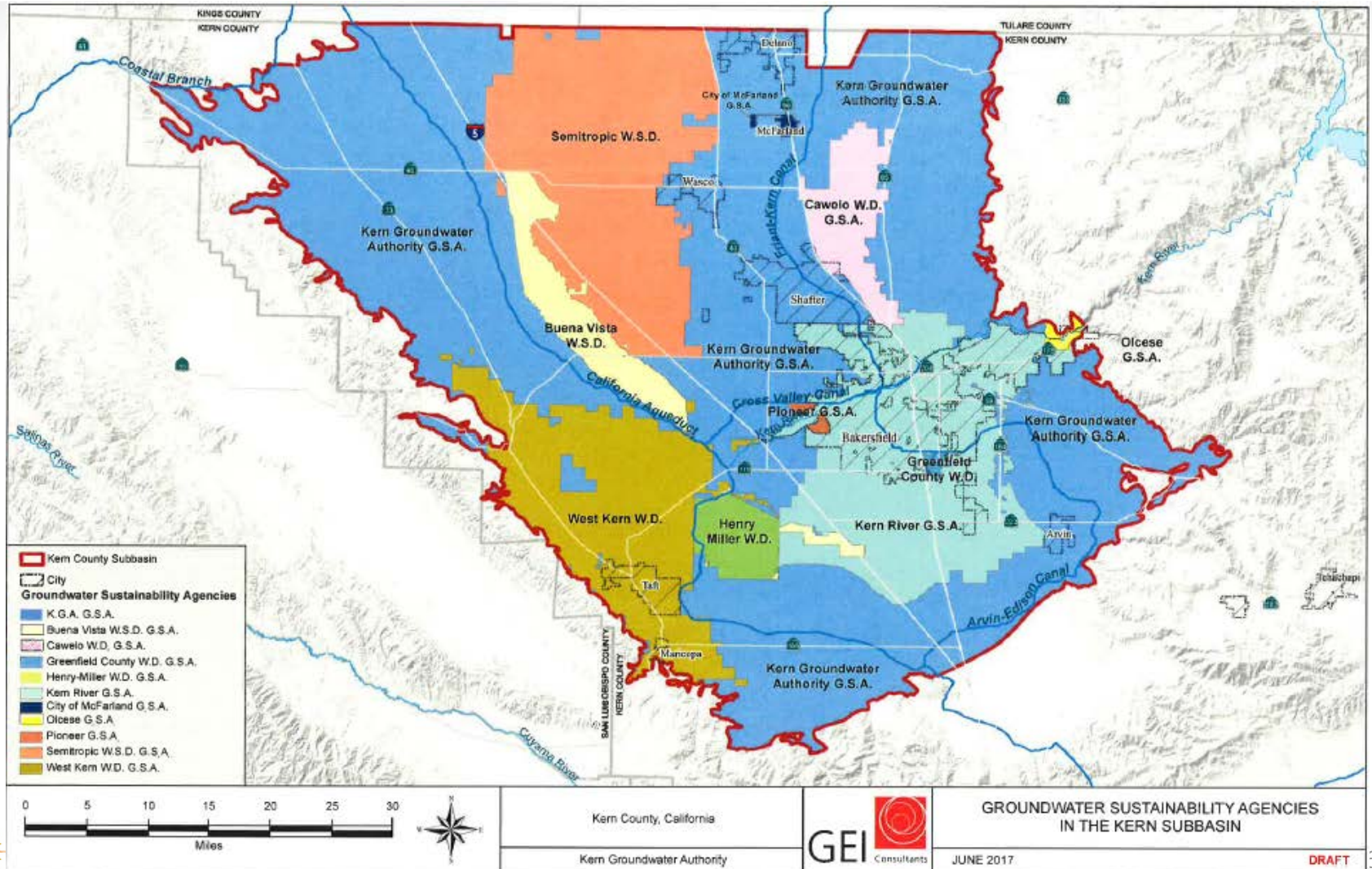


# Maricopa Orchards perspective



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# GSAs in the Kern sub-basin



# Maricopa Orchards: Grower perspective

- **Surface Water Trading:**
  - Reduce environmental and bureaucratic road blocks
  - Allow for more flexibility (e.g., loosen place-of-use restrictions)
- **Groundwater Trading:**
  - Allow for basin-wide trading to open market beyond districts
  - Allow for carryover of SGMA credits
  - Encourage development of recharge and banking facilities
- **Groundwater Credit Mechanisms:**
  - Flexibility during drought periods ('emergency release valve')
  - Consistency of allocations and measuring across sub-basin

# Mojave Water Agency perspective



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# Fox Canyon GMA perspective



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- Jon Reiter (Maricopa Orchards)
- Lance Eckhart (Mojave Water Agency)
- **Matthew Fienup (Fox Canyon GMA)**

# Thank you!    Where to find us....

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