Kern County Ag and Water Issues

Melissa Frank
Wonderful Orchards

Photo Source: URS 2007
Kern County Ag Report

- Kern County #1 producing ag County in 2016!
- Top crops by value in 2016: grapes, almonds, citrus, pistachios, milk
- Top crops by value in 1996: grapes, cotton, almonds, citrus, milk
- Top crops by value in 1976: cotton, grapes, cattle, alfalfa, potatoes
Changes in Cropping Patterns

- Permanent acreage in 2016: 553,000 acres
- Annual acreage in 2016: 330,000 acres

- Permanent acreage in 1996: 266,000 acres
- Annual acreage in 1996: 604,000 acres

- Permanent acreage in 1976: 200,000 acres
- Annual acreage in 1976: 730,000 acres
Major Issues

- Air quality
- Water quality
- Water supply
- Pesticide usage
- Proposition 65
Air Quality

- Based on federal Clean Air Act and additional state laws
  - Stationary source permitting
  - Indirect source rule
  - PM plan
    - Dust mitigation
  - Climate change
    - AB 32
    - Cap and trade extension
    - Compliance
Water Quality

- Irrigated Lands Regulatory Program regulation
  - Currently, managed by water quality coalitions but increased focus on individual reporting
  - Expansion to cover impacts to groundwater

- Drinking water funding challenges
  - Historic nitrate contamination
  - Threatened clean up and abatement orders
Pesticide Usage

- Continued pressure on use of crop protection tools (e.g., chlorpyrifos, pyrethroids, fumigants)
  - Additional pressure due to country-specific MRLs

- Proposed limitations on methods of use
  - New rules re applications near schools
Proposition 65

- CA specific law that requires labeling of products containing chemicals known to have harmful impacts
  - Total of 800 chemicals listed, but not all have Safe Harbor Levels
  - Additional listings and development of Safe Harbor Levels
Water Use in the USA

- On average, each person requires daily:
  - 100 gallons for personal use
  - 100 gallons for household use
  - 1,000 gallons to grow their food
  =1,200 gallons of water/day

- One almond meat takes 1–1/4 gallons of water

![Image of almond orchard]
Rain does not fall where the majority of CA residents live.

Source: Oregon Climate Service, 1995
CA Annual Average (1961-1990) - inches
California Water Storage
Kern County Water Sources

Historic

- Groundwater: 47%
- SWP: 17%
- CVP: 11%
- Kern River & Local Streams: 23%
- Recycled Water: 2%
- Oilfield Water: 0%
# Surface Water Rights

## Unique dual system

<table>
<thead>
<tr>
<th></th>
<th>Riparian</th>
<th>Appropriative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How obtained</strong></td>
<td>By virtue of owning land next to a watercourse</td>
<td>Diverting water from a watercourse and putting it to beneficial use</td>
</tr>
<tr>
<td><strong>Regulatory scheme</strong></td>
<td>Required to file statement of diversion and use with SWRCB</td>
<td>Pre–1914: no permit required</td>
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<td></td>
<td></td>
<td>Modern era: license from SWRCB</td>
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<tr>
<td><strong>Loss of right</strong></td>
<td>Prescription; severance from riparian parcel</td>
<td>Prescription; non–use</td>
</tr>
<tr>
<td><strong>Dispute resolution</strong></td>
<td>Typically, statutory adjudication through SWRCB; judicial relief also available</td>
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Legal Doctrines that Impact Water Rights

- Beneficial use and the prohibition on unreasonable use
  - CA Constitution, Article X, Section 2
  - Doctrine evolves over time

- Area of Origin protections

- Public Trust
  - Navigation, commerce, fisheries, recreation
  - Public Trust values evolve over time, making rights uncertain
  - Makes water rights different than other property rights
  - Application requires balancing with other interests in managing water resources
Kern River

- Law of the River has developed over last 150 years
- Various local interests (including ag water districts and the City) have certain established riparian, appropriative and contractual rights
- Recent litigation resulted in SWRCB declaring River not “fully appropriated”
- Local interests seeking additional rights on the River
- Differing views on best use of this important local resource (aesthetic, recreation, ag, future growth)
Central Valley Project

- Initially developed as part of larger state project in 1930s
- Federally-sponsored water project
- Supplies water to over 250 contractors throughout the state
- Shasta (Sacramento and Trinity Rivers) is largest reservoir
- Includes Friant and San Luis units
- Delivers water to 2 million people and 3 million acres of irrigated ag lands
- Originally developed to deliver over 10 MAF/year; today, delivers approximately 6 MAF in an average year
State Water Project

- Developed in 1950s
- State-sponsored water project
- Supplies water to 29 public water agencies throughout
- Lake Oroville (Feather River) is the main reservoir
- Supplies water to 25 million people and 1 million acres of irrigated ag lands
- Originally scheduled to deliver 4.2 MAF/year; today, delivers approximately 2 MAF in an average year
Moving the Water through the Delta

[Map showing water routes through California's Central Valley Project, including Coachella Canal and All American Canal.]
The Impact of the 2008-2009 Regulatory Drought: Delta Pumping with Similar Year Types

1989 Total = 6.16 mill acre feet
2009 Total = 3.67 mill acre feet

Oct  Nov  Dec  Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep
Long Term Delta Solution? Alternative Conveyance

The Delta
California WaterFix

- Will allow for construction of two (or maybe one) large pipeline(s) to improve through Delta conveyance
  - Less impacts to fish species
  - Actions to improve habitat
  - Questions about reliability and affordability (especially for ag users)
Most other western states do manage groundwater
Some basins actively managed via adjudication or special legislation
Reduced surface supplies have resulted in declining groundwater levels
Consequences of declining groundwater levels
  ◦ Subsidence
  ◦ Increased pumping costs
Groundwater rights
  ◦ Two basic types – appropriative and overlying
Groundwater Management Act of 2014
  ◦ Governance structure by 2017
  ◦ Plan by 2020
  ◦ Sustainability achieved by 2040
# Sustainable Groundwater Management Act

## Phases

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<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Phase 4</th>
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<tr>
<td>Establishment of Governance and Modification of Boundaries</td>
<td>Development and Adoption of Groundwater Sustainability Plans (GSPs)</td>
<td>Initial Management through Water Budgets</td>
<td>Sustainable Groundwater Management</td>
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Looking Ahead

- Permitting and implementation of California Water Fix??
- SGMA implementation
  - Definition of sustainability
  - Local implementation or state?
  - Cooperation possible?
- Water bond implementation and more water bonds?
  - Construction of storage – below or above ground, where?