

California Drought 2015 and beyond

Felicia Marcus
Chair, State Water Resources Control Board
MWDOC
Costa Mesa, July 29, 2015



Overview



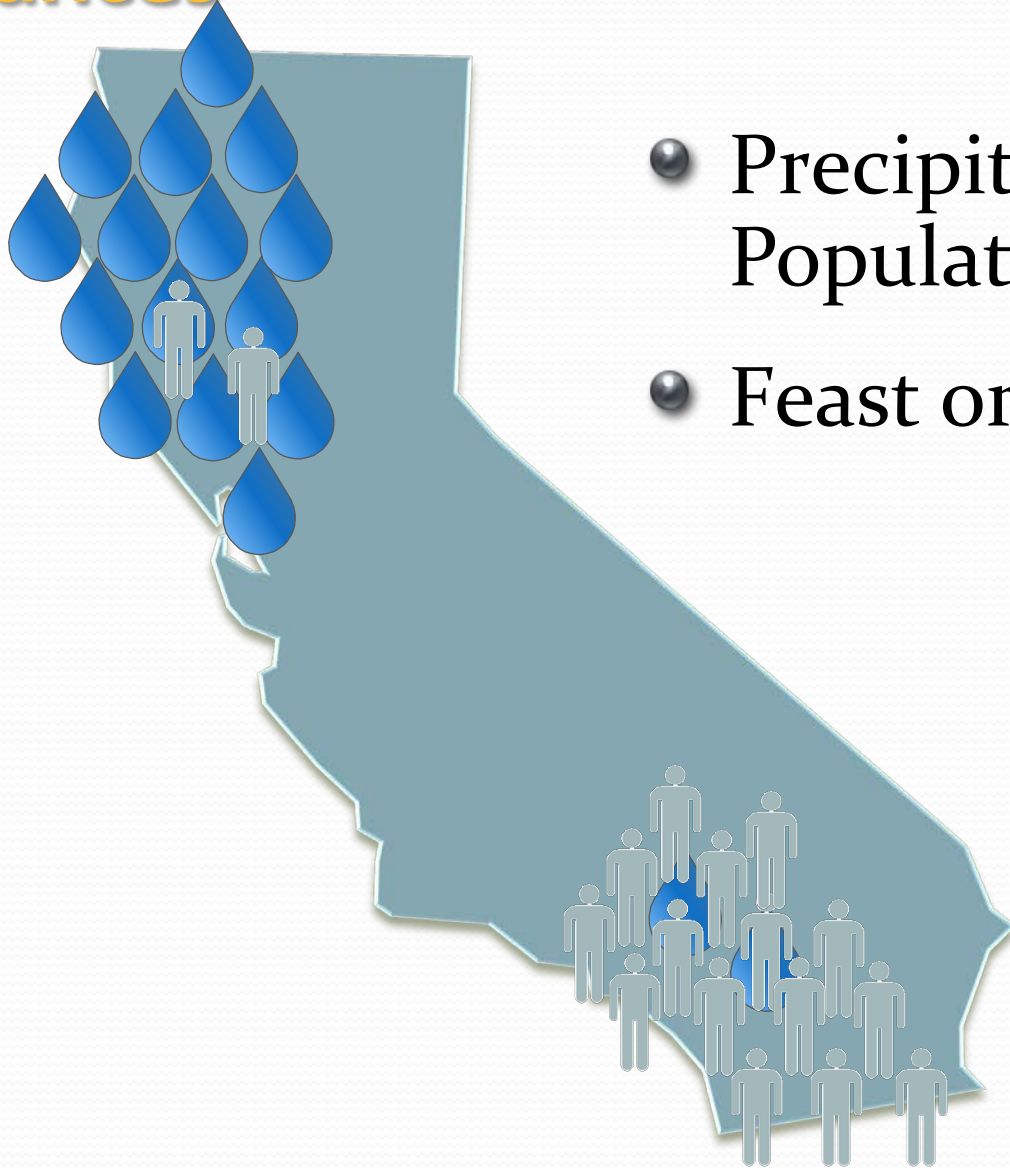
- Overview
- Drought update
- Urban Conservation Regulations, and, what we're seeing
- Q&A

Setting—the whole elephant

- **Most Variable hydrology**
 - Year to year
 - Location to Location
 - Time of year
- **Mix of sources**
 - Surface Water local or imported (storage/conveyance)
 - Groundwater (intensely local)
 - Every locale different mix
 - Mix of water rights varies greatly
 - Impact of drought varies greatly
- **Climate change and other drivers as game-changers**
- **Mix of solutions**
 - Conservation/Recycling/Stormwater/Desal
 - Integrated Water Management in regions and statewide, e.g., upper watershed thinking
 - Storage, storage, storage, storage and other infrastructure improvements
- **Drought**
 - Worst in impact in modern history
 - 3rd re precip
 - More pop; more irrigated ag; more endangered and threatened species make impact greater than '24 & '77
 - 2015 worse despite December/February rains because of temperature=dismal snowpack



Managing Hydrologic and Geographic Imbalances



- Precipitation vs. Population
- Feast or Famine

Major Water Projects

- 💧 Federal – Central Valley Project (CVP)
- 💧 State – State Water Project (SWP)
- 💧 Local – Many other projects throughout state, including Colorado River system, Hetch Hetchy, EBMUD, Owens Valley

Source: Water Environment Foundation



California Drought 2014

“Beer is proof
that God loves us
and wants us to
be happy.”

Benjamin Franklin

Poor Richard's Almanac



California Drought 2014



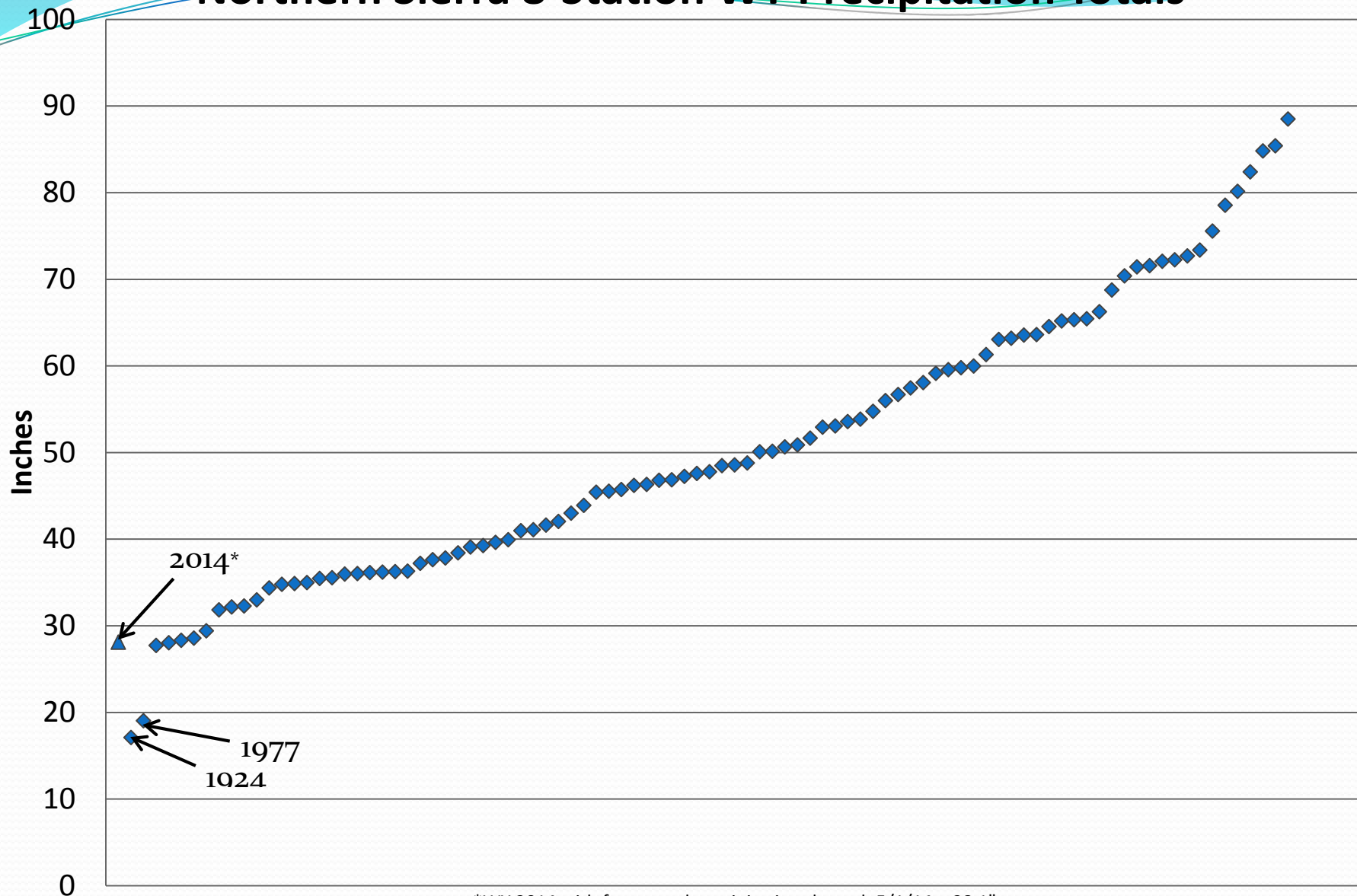
When the well is dry, we know the worth of water.

~ Benjamin Franklin

Current crisis: Worst drought in modern times

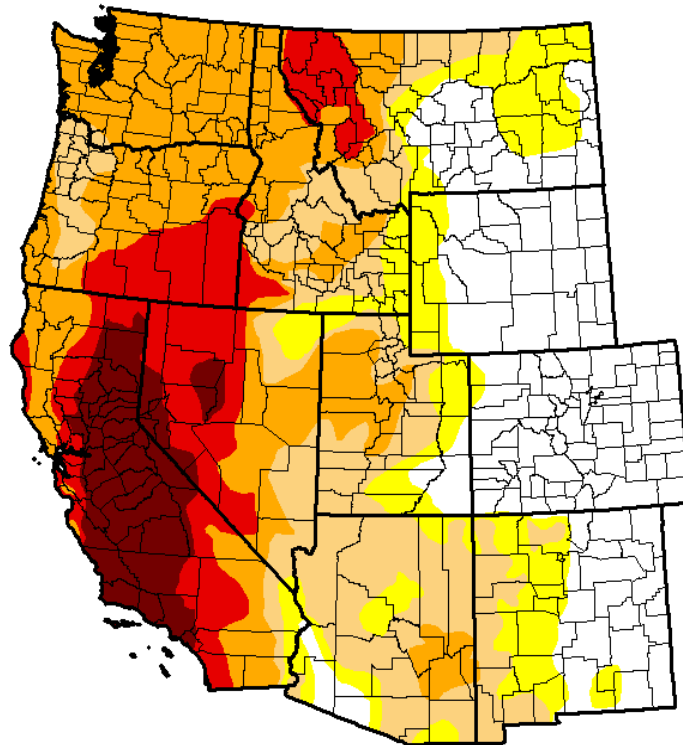
- 2013 “driest” year on record; January 2014 driest January; 2014 record heat with less precip some places; a bit more others
- Snowpack fraction of average/ “normal”
- Reservoirs low—some slightly better, some much worse
- December and February rains welcome, but not enough, and snowpack abysmal so no recovery in sight
- Third worst on record, with far greater impact than the 1920s
- Beyond anything we’ve dealt with, but not what others have
- Harbinger of things to come—think Australia or Climate Change

Northern Sierra 8-Station WY Precipitation Totals



*WY 2014 with forecasted precipitation through 5/1/14 = 28.1"

U.S. Drought Monitor West



July 21, 2015

(Released Thursday, Jul. 23, 2015)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	25.49	74.51	61.04	41.92	18.87	7.17
Last Week 7/14/2015	25.49	74.51	61.37	43.76	18.87	7.17
3 Months Ago 4/21/2015	28.21	71.79	61.51	37.95	17.19	7.95
Start of Calendar Year 12/02/2014	34.76	65.24	54.48	33.50	18.68	5.40
Start of Water Year 9/08/2014	31.48	68.52	55.57	35.65	19.95	8.90
One Year Ago 7/22/2014	27.30	72.70	60.66	47.17	23.19	6.02

Intensity:

D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought
D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

David Simeral
Western Regional Climate Center



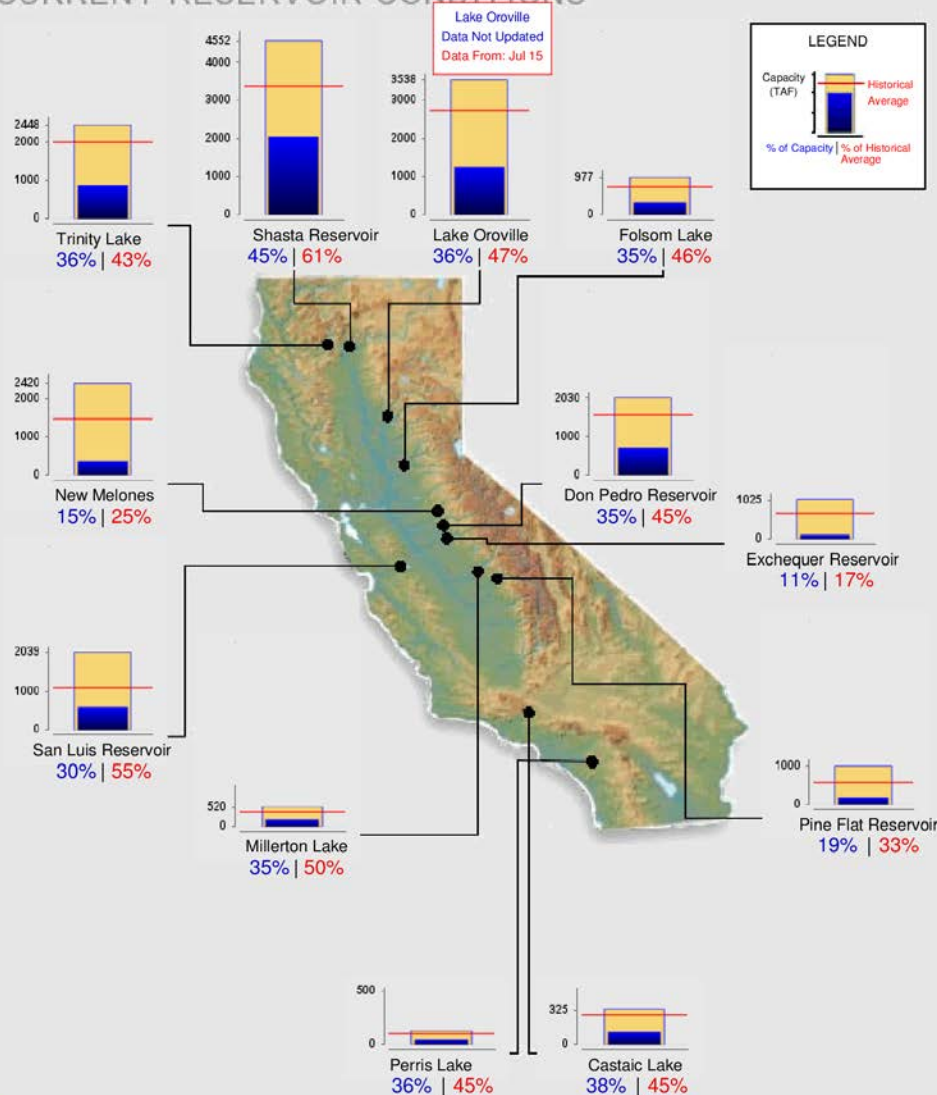
<http://droughtmonitor.unl.edu/>



Reservoir Conditions

Ending At Midnight - July 19, 2015

CURRENT RESERVOIR CONDITIONS



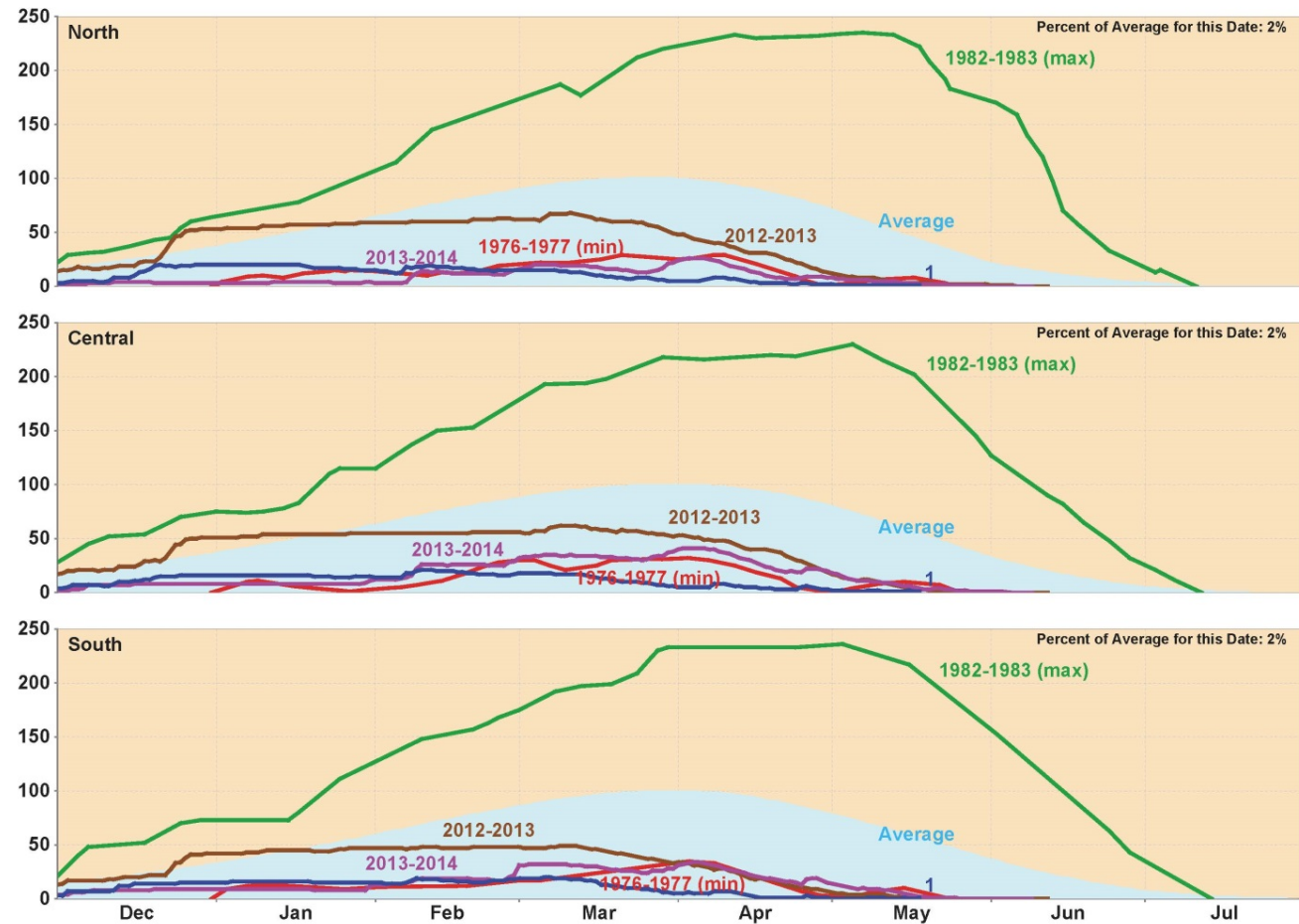


Statewide

Water Content

April 18, 2015

California Snow Water Content, May 18, 2015, Percent of April 1 Average





Jan 18, 2013



Jan 18, 2014

Selected impacts

- 400,000+ acres fallowed*; more this year
- Diminished yield on others
- 17,000+ out of work directly connected to agriculture
- Groundwater levels dropping precipitously
- Communities running out of drinking water
- Fish and wildlife impacts across the board
- Increased wildfires=\$\$, ecological devastation, air, land, and water impacts now and into future
- 5-10x worse without groundwater

Selected Actions—

- Drought Task Force
- Emergency Orders—Governor Brown February 2014/April 2014/Sept 2014/April 2015
- **Emergency Legislation--\$680m (2014) \$2+b (2015)(includes Prop 1 acceleration)**
- Disaster relief—Food and Water
- State Federal coordination:
 - Real-time operations team/Federal-State coordination calls
 - Temporary flow adjustments to water right permits and adjustments to implementation of federal biological opinions
 - Contract water allocation cutbacks by state and federal projects

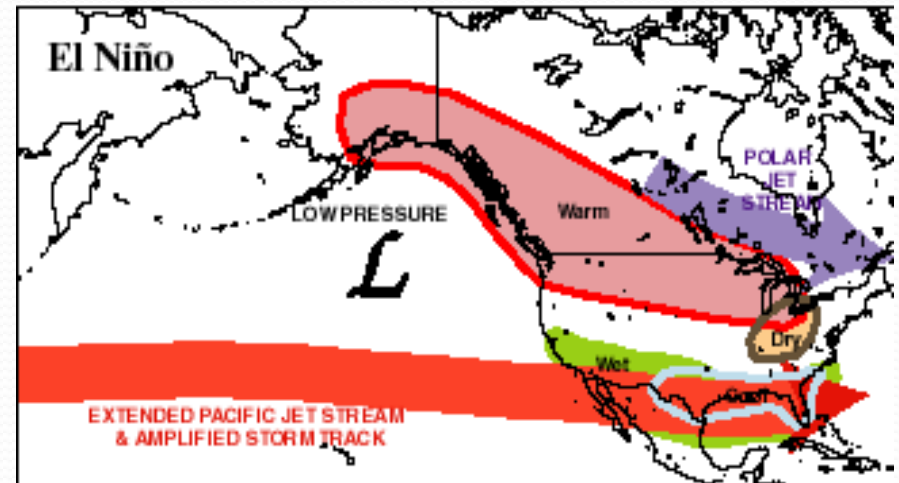
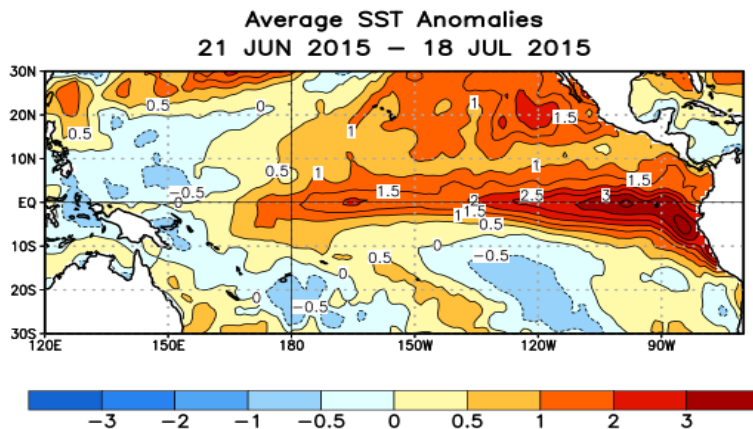
Actions—con't

- Water rights implementation: “Curtailments” of junior water rights holders in favor of their seniors; even seniors junior to other seniors
- Adding supply →
 - IRWM \$\$\$
 - Recycled water advancement
 - 1% financing through SRF (\$800m/150,000 af/yr)
 - Streamlined permitting at state and regional level
 - SB322 timeline: groundwater recharge/indirect potable/direct potable feasibility report
- Fish and Wildlife rescues/voluntary agreements
- **Water Conservation—statewide regulations on urban water purveyors and SaveOurWater.com campaign**

El Nino for Winter 2015/16?

And would it matter?

<http://www.wrh.noaa.gov/sto/climate/ENSO>.



Governor's April 1 Exec Order



- 25% statewide reduction in potable urban water use
- Additional specific use prohibitions and recommendations (medians; new homes)
- Assistance on rates and pricing
- Additional conservation incentive programs—turf, fixture, and appliance rebate programs
- Additional agricultural user requirements
- Streamlining emergency salinity barriers

Emergency Urban Conservation Regulations

- January 2014—voluntary call for 20%
- April 2014—directs State Board to survey results and consider emergency regulations
- May 2014—Emergency regulations enacted after results closer to 4-5%, updated March 2015
 - Specific use restrictions
 - Urban agencies to implement stage of UWMP that restricts outdoor irrigation
 - Local agency ability to levy fines up to \$500 to implement
 - Monthly reporting of water produced and R-GPCD
- April 2015—direction for 25% urban use reductions by Feb 2016 to prepare for drought going another year or more after results of modest regulations yields 9-10%

Regulatory Elements

- Use Restrictions:

- Using potable water to wash sidewalks and driveways;
- Allowing runoff when irrigating with potable water;
- Using hoses with no shutoff nozzles to wash cars;
- Using potable water in decorative water features that do not recirculate the water;
- Irrigating outdoors during and within 48 hours following measureable rainfall; and
- Restaurants serving water to their customers unless the customer requests it.
- Hotels and motels must offer their guests the option to not have their linens and towels laundered daily, and prominently display this option in each guest room.

- Tiered mandatory targets

- 8-36% based on R-GPCD Summer 2014
- Reduction off 2013

- Enforcement

- Progressive—goal is **conservation**
- Governor proposed and got increased penalty authority for most local govts (\$10,000/day)

Issues

- Climate
- Urban agriculture
- Non-reducible process water and the like
- Past efforts (timing)
- Production of “new” water
- Groundwater
- Rates/pricing—post San Juan Capistrano decision
- Principle.....

Actions and response:

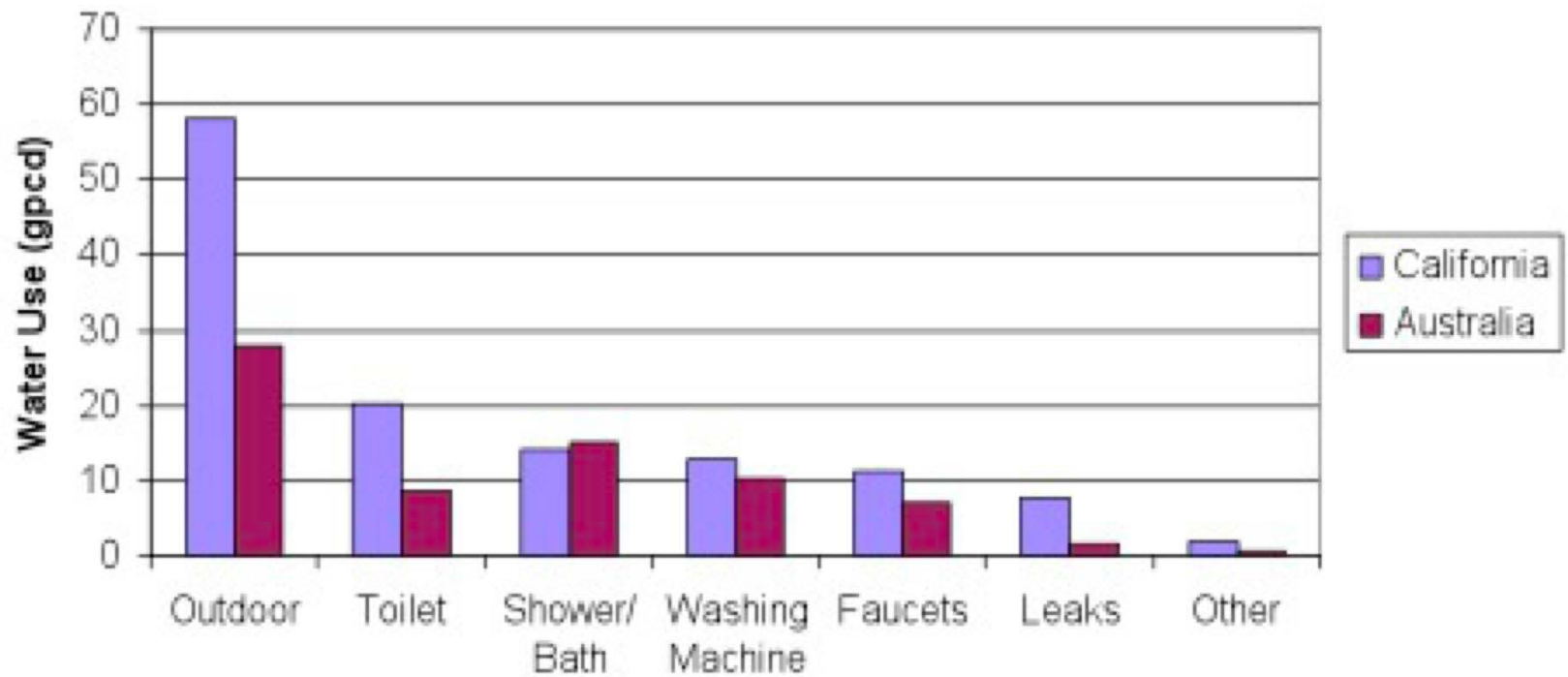
- Ag exception
- Exception process
- 4% tier
- Workgroup
- Website, workshop, and workgroup on pricing post Capistrano
- Online reporting site soon

Think Australia, or Sao Paulo, or Tulare

- Have to assume it won't end in any "normal" cycle
- Australian advice
- Sao Paulo experience
- Pray for best but plan for worst



Californian and Australian End Uses of Water



What we'd like to see

- Effective and rapid conservation—*results*
- Acceleration of recycling and stormwater capture programs and integrated water management of all kinds
- Partnership in crisis: in communication, engagement, and projects—on the ground and on pricing
- Stepping up regionally has potential to find synergies and leverage each other's efforts—communication, community spirit, creativity, and innovation
- Considering the community that is California in the spirit of “we're all in this together” and “all of the above”

Planning

For a dry 2015



Planning

Mid and Long Range



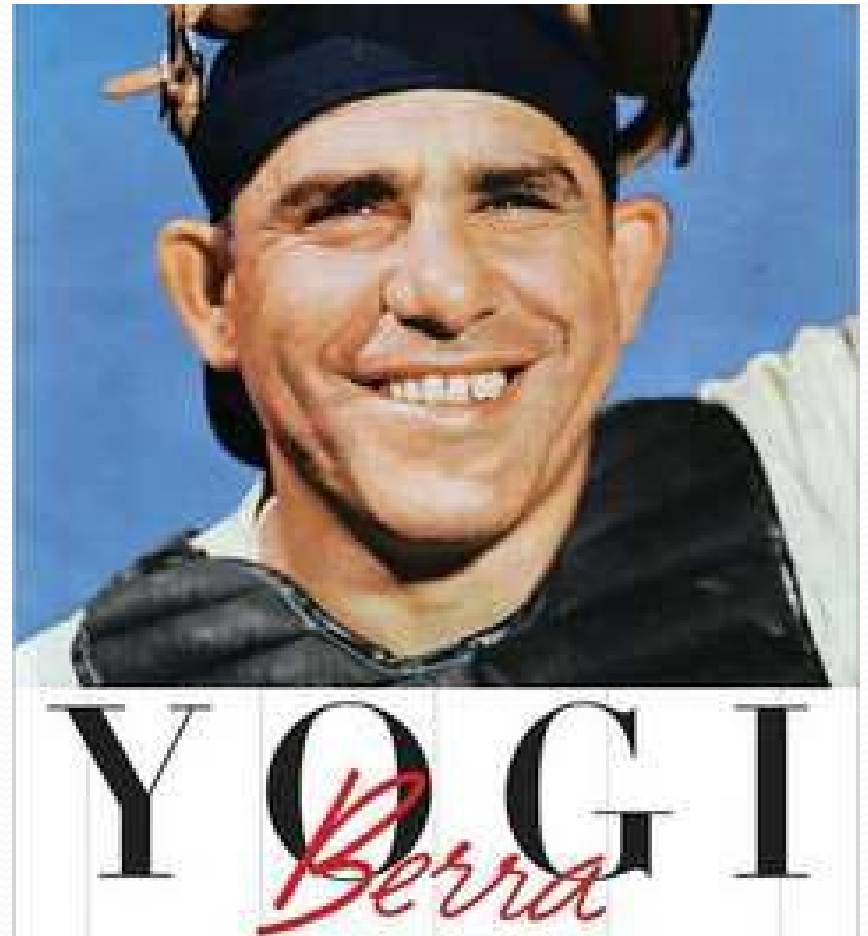
California
Water Bond

Prop. 1



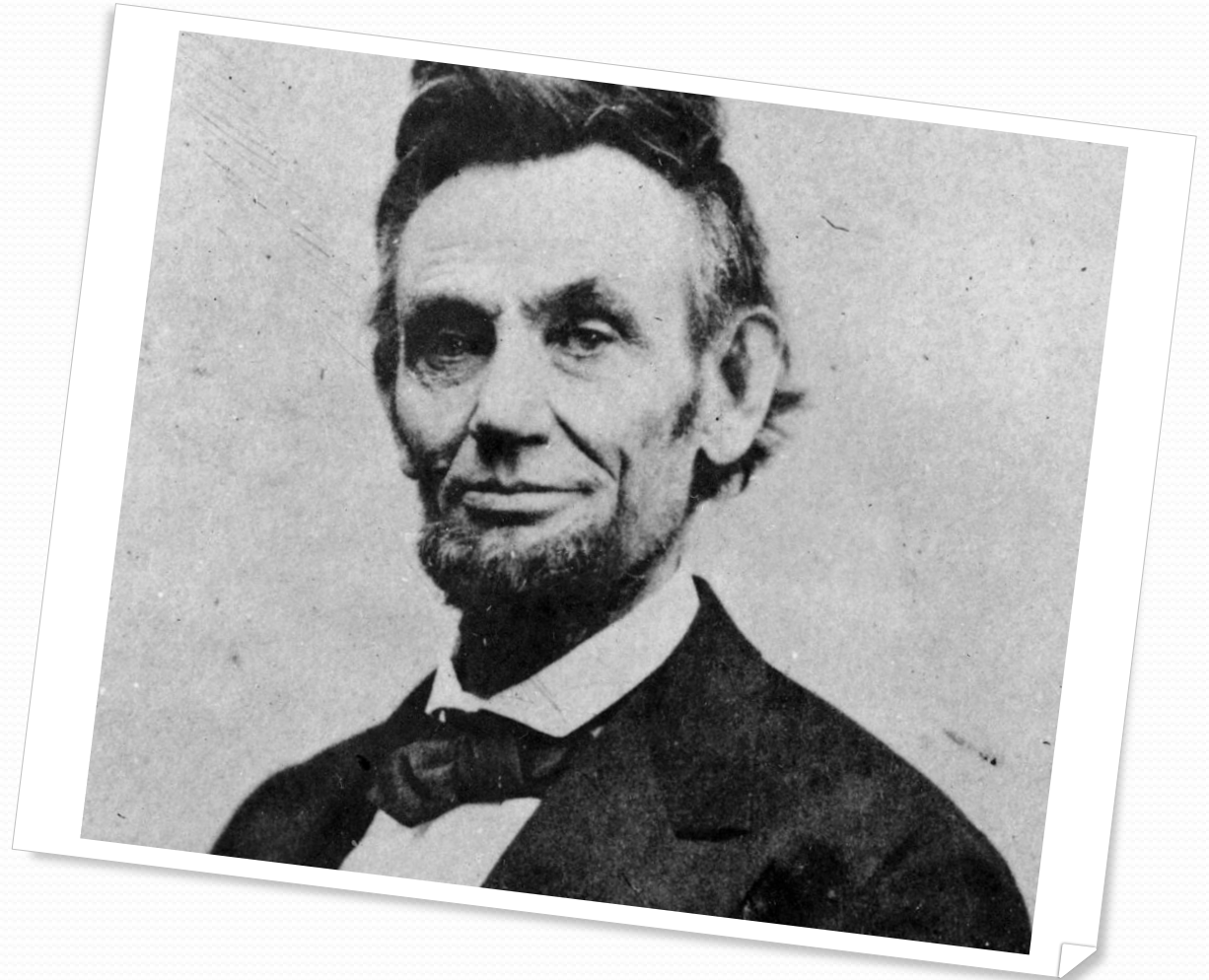
The Wisdom of Yogi Berra

- “If you don’t know where you are going, you might wind up someplace else.”
- “In theory there is no difference between theory and practice. In practice, there is.”



Dealing with reality

“I am a firm believer in the people. If given the truth, they can be depended upon to meet any national crisis. The great point is to bring them the real facts, and beer.”



Reality: Loss of snowpack



Reality: Sea Level Rise



Reality: It matters



Water Supplies for Bay Area, Central Valley & So. California

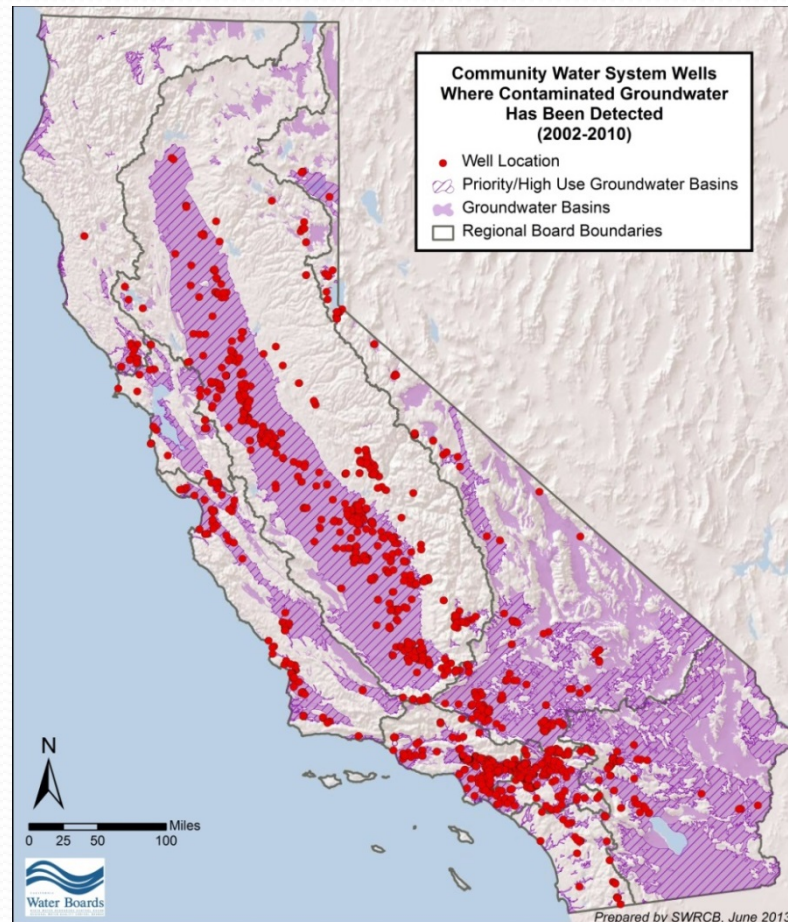
Bay Area – 33%

Kern County – 23%

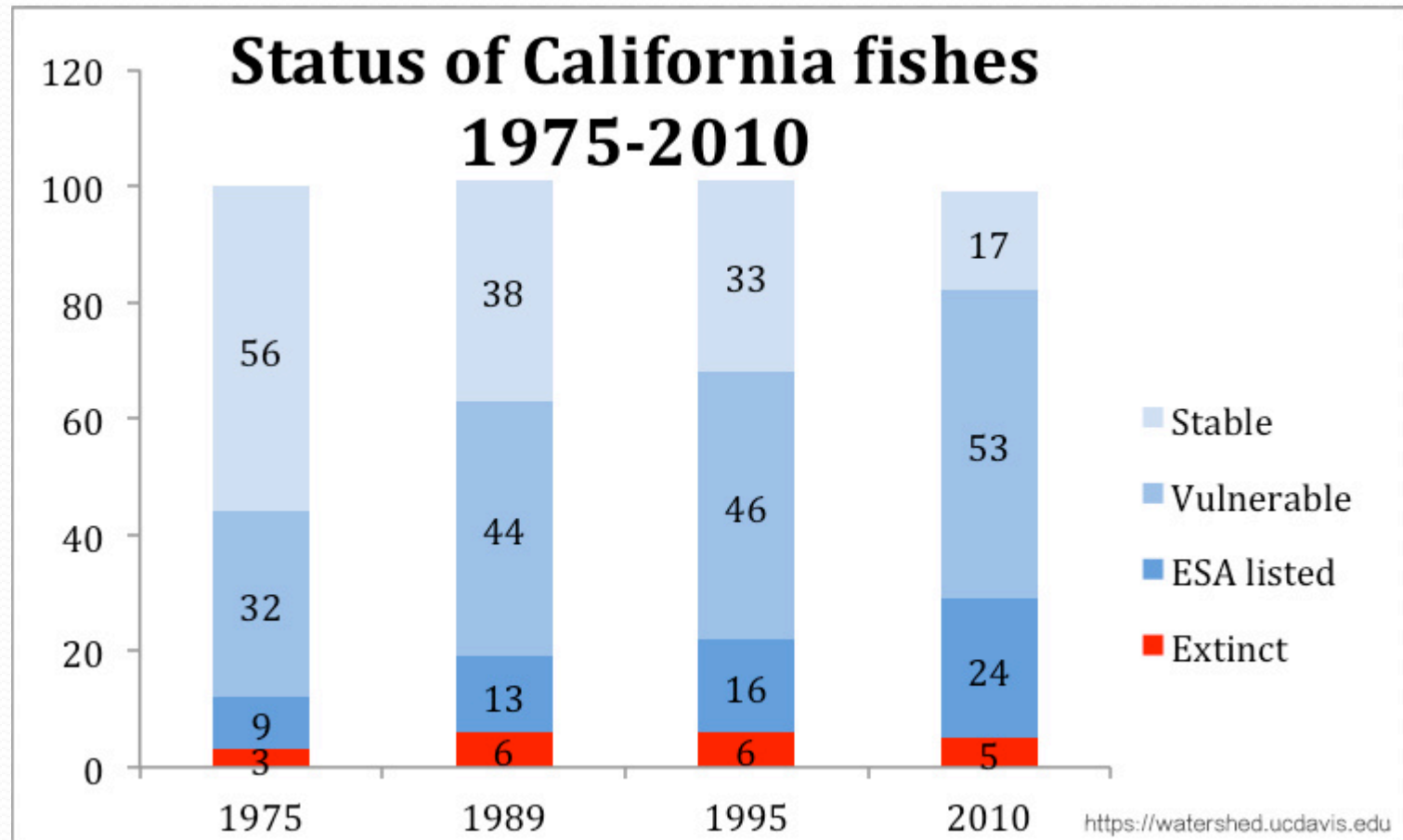
Southern Cal – 30%

**Some regions
up to 100%
dependent on the
Delta**

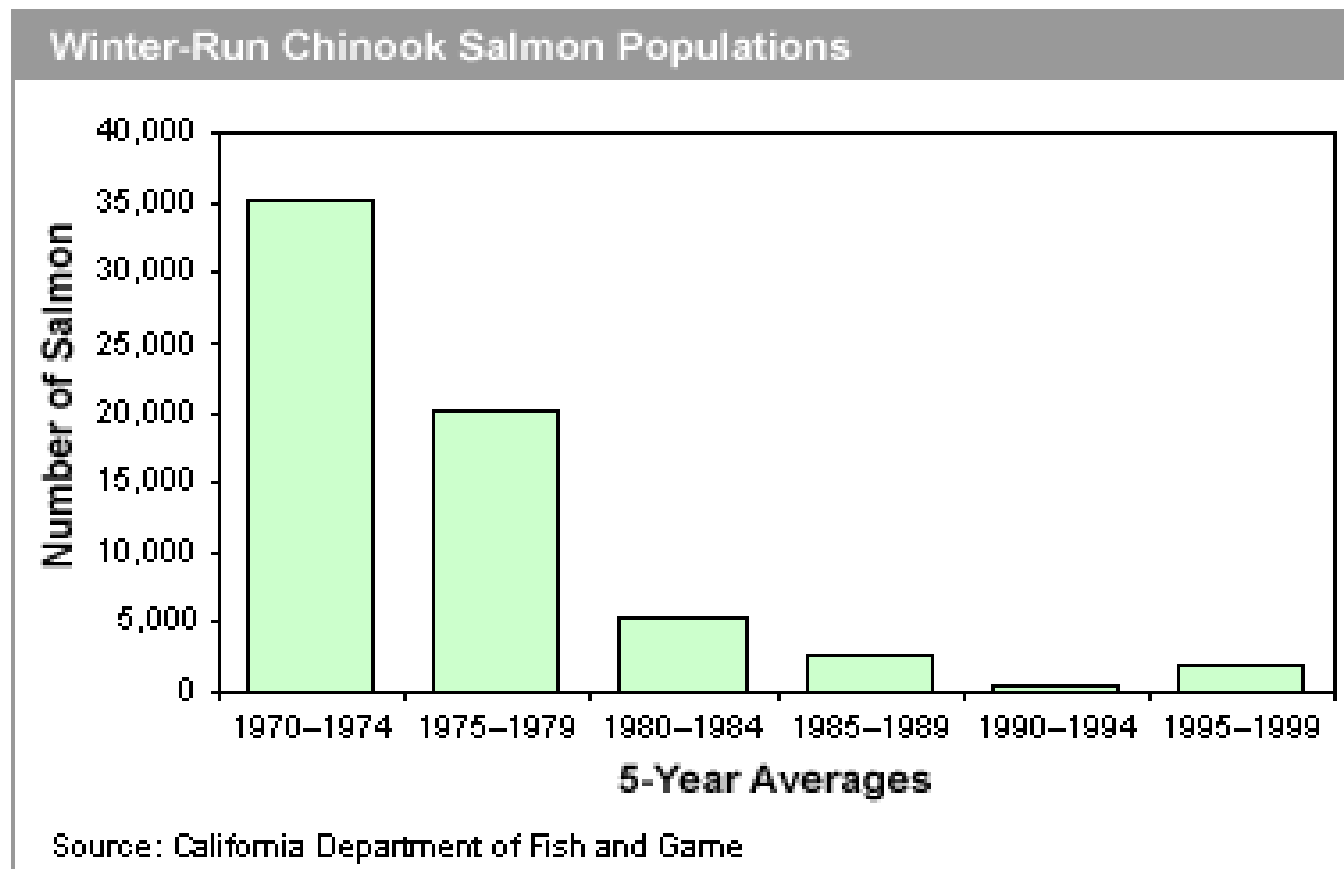
Reality: Community Well Systems Where Contamination has been Detected



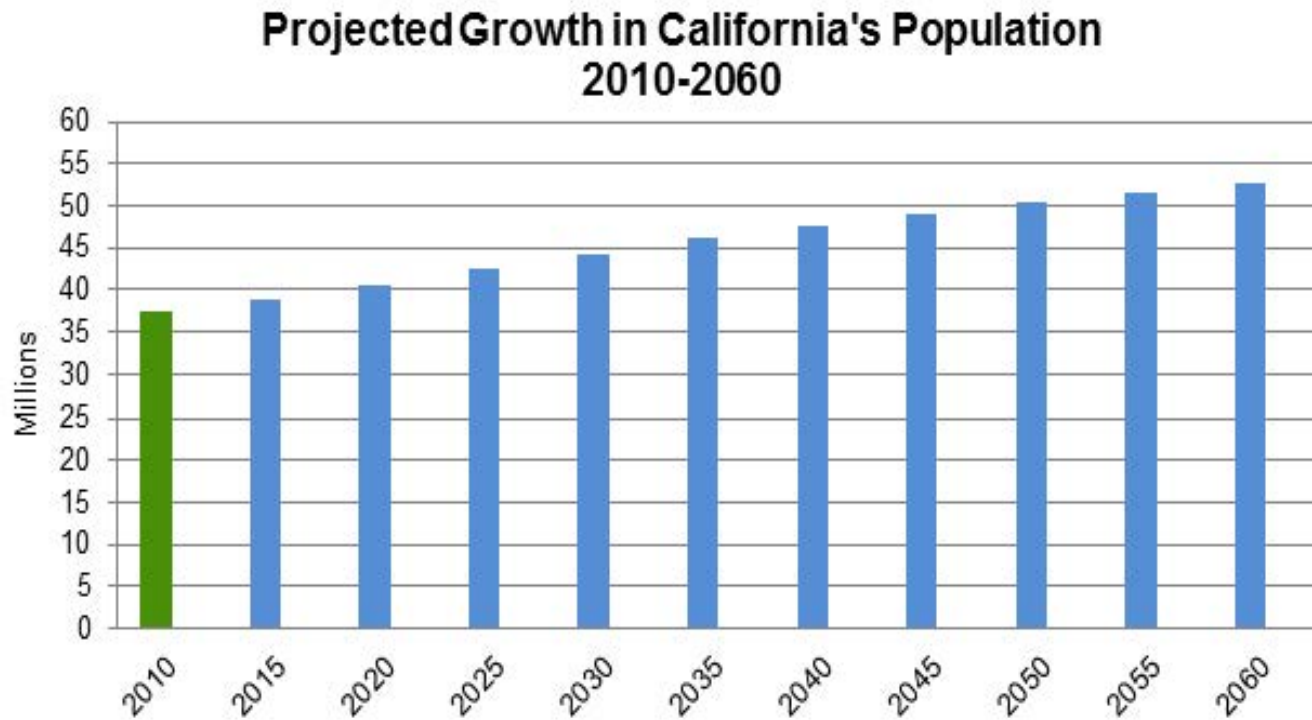
Reality: Fish and wildlife are in trouble



Reality: Fish and wildlife are imperiled



Reality: Population will rise



- Source: Department of Finance; Controller Betty Yee website

**Reality: Lack of
statewide
groundwater
management has
been a problem**



Reality: We can do something about it

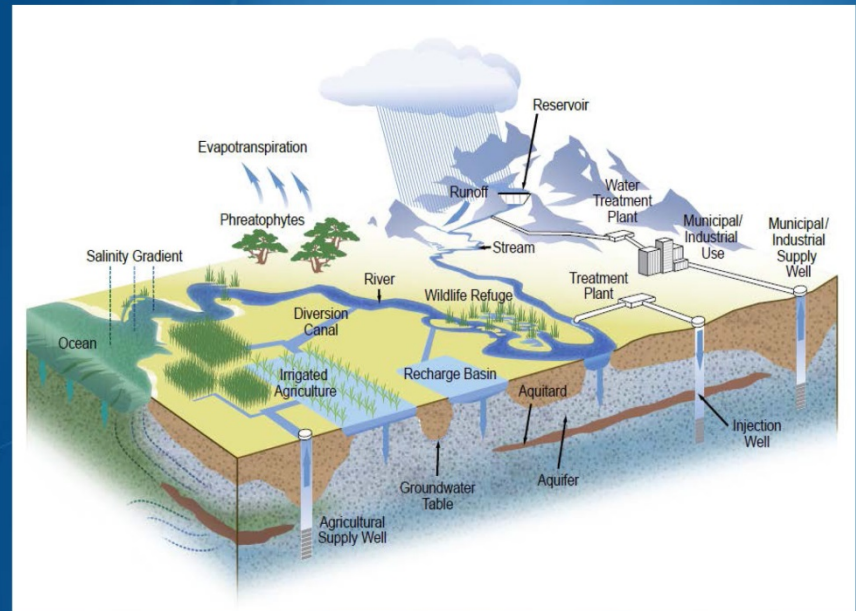


Water 4.0

The Past, Present, and Future of
the World's Most Vital Resource

David Goodland

A Call to Integrate Interconnected Systems Require Integrated Solutions



Reality: We can do something about it

Forests and Water in the Sierra Nevada: Sierra Nevada Watershed Ecosystem Enhancement Project

Roger C. Bales, John J. Battles, Yihsu Chen, Martha H. Conklin, Eric Holst, Kevin L. O'Hara, Philip Saksa, William Stewart

November 29, 2011



Sierra Nevada Research Institute,
UC Merced

Center for Forestry,
UC Berkeley

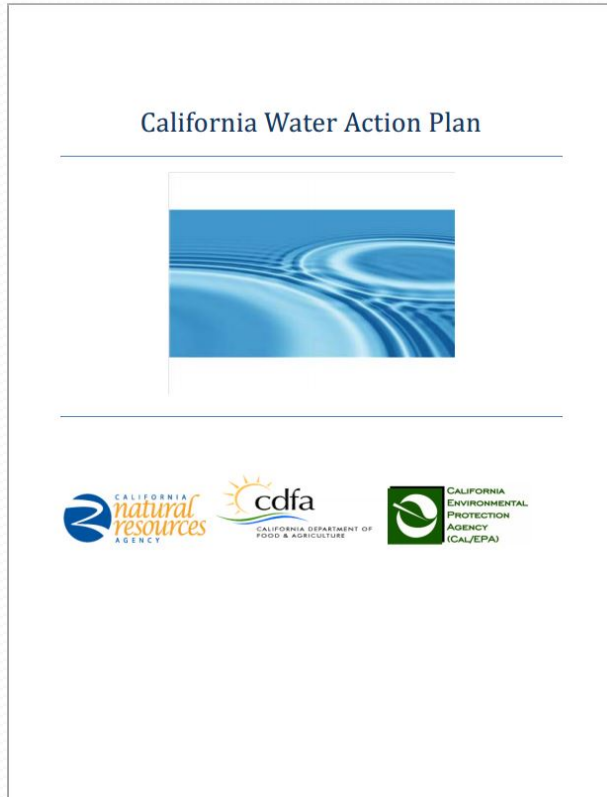
Environmental Defense
Fund



Reality: We are doing something about it

- Myriad Individual acts of transcending traditional silos
 - Integrated Regional Water Management
 - Drought “angels”
 - Fish/farmer win/wins
- Legislative agreements, e.g.,
 - “Human right to water”
 - 2009 legislation/“coalition of the willing”
 - Groundwater legislation
 - Water Bond
 - Move of drinking water program and creation of Office of Sustainable Solutions
- Local leadership
 - Conservation heroes
 - Stormwater capture/Recycled water/Contaminated basins—and other integrated solutions
- Water Action Plan—see next slide

California Water Action Plan



- Make Conservation a California Way of Life
- Increase Regional Self-Reliance and Integrated Water Management Across All Levels of Government
- Achieve the Co-Equal Goals for the Delta
- Protect and Restore Important Ecosystems
- Manage and Prepare for Dry Periods
- Expand Water Storage Capacity and Improve Groundwater Management
- Provide Safe Water for All Communities
- Increase Flood Protection
- Increase Operational and Regulatory Efficiency
- Identify Sustainable and Integrated Financing Opportunities

Water Bond 2014



- AB 1471 (Rendon)
- Water Quality, Supply, and Infrastructure Improvement Act of 2014 – \$7.545B
- Hard fought, but near unanimous vote at end
- Real mix of “all of the above” minus BDCP
- Down-payment on full needs, but a lot that is good, visible, and paves way for next round

Water Board Priorities

Water Rights

- Dealing with drought
- Bay-Delta Water Quality Plans
- Delta Water Fix Water Rights Permit change
- Resolving decadal conflicts between water users
- Taking Public Trust and Waste and Unreasonable Use responsibilities seriously
- Supporting groundwater management efforts
- Action over stasis

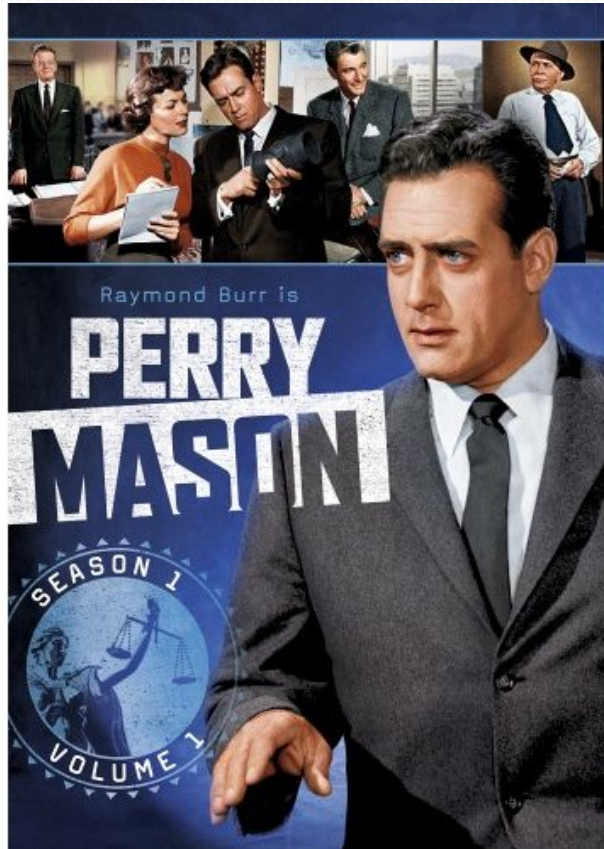
Water Quality

- Big point source to diffuse externality of socially productive exercise
- Integrating program and making significant progress on Safe Drinking Water
- Stormwater Strategic Plan
- Recycled water advancement
- Desal policy
- Innovative partnerships and dealing more effectively with contaminated basins
- Irrigated lands implementation
- Implementing SB4

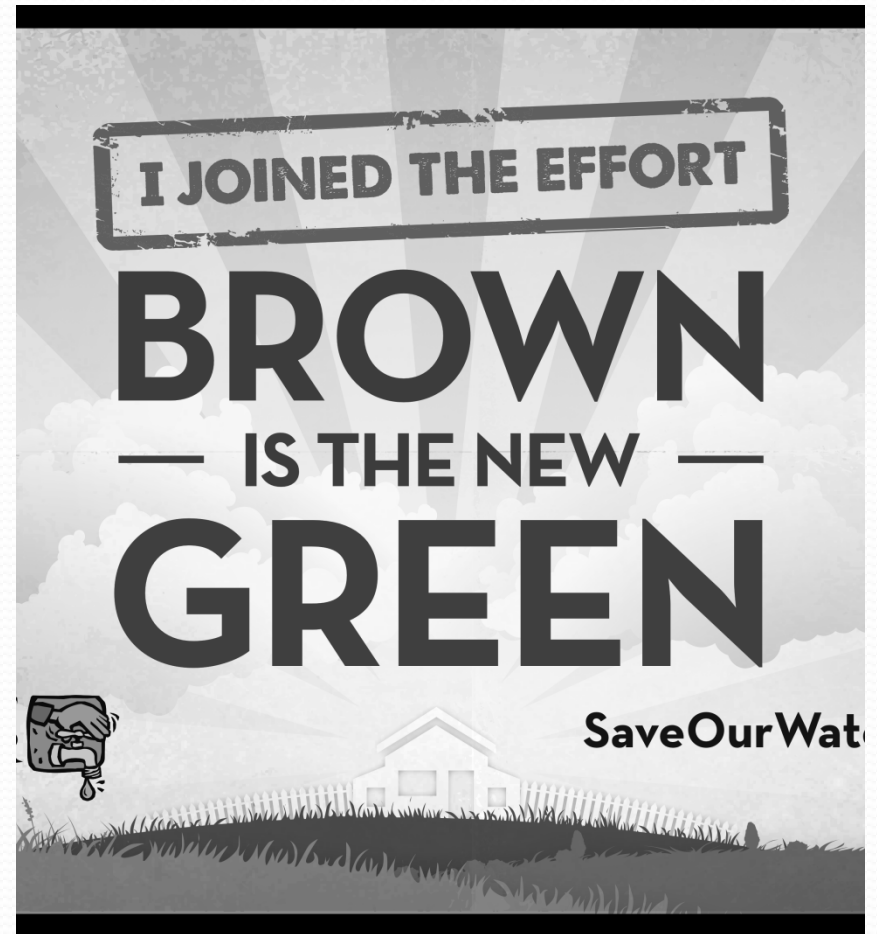
How do we get there?

- Clear-eyed focus on the decades ahead vs. the decades behind us
- Focus on Reality vs. Rhetoric; Practical vs. Theoretical
- Embrace complexity
- Action over Stasis
- Convergence over Conflict
- “All of the Above” vs. “Either/Or”
- Ag and Urban, Ag and Ecosystem, North and South, the Delta and the Projects, Agriculture and Safe Drinking Water

What it will take



www.saveourwater.com



Thank you!!!



Contacts

- Information on conservation:
www.SaveOurWater.com
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- Conservation Regulations:
Max.Gomberg@waterboards.ca.gov
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