TEMPERANCE FLAT AND PROPOSITION 1 FUNDING

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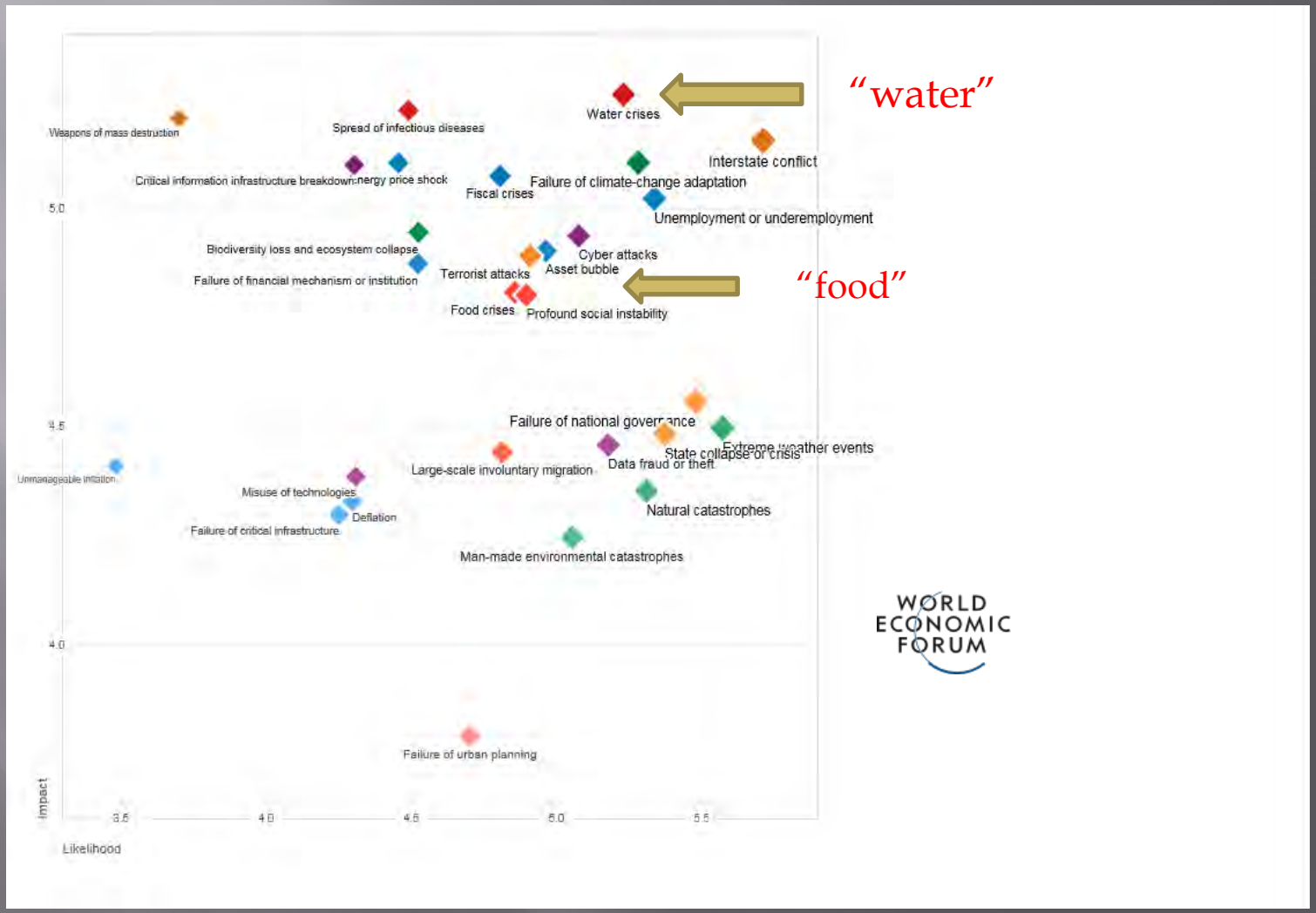
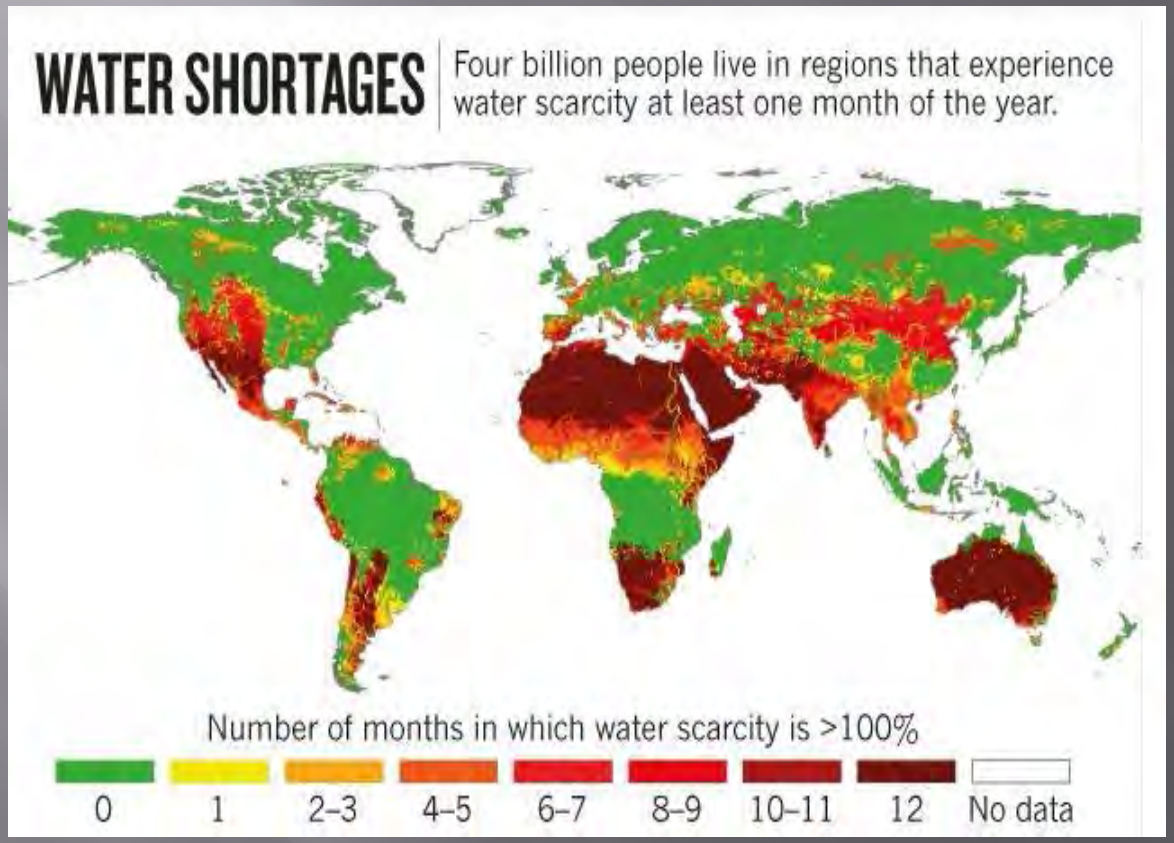
The Outline for Today

- The foundation
  - Global needs for water and food
  - California's water system and roles
- The drivers for Temperance Flat
- The Proposition 1 process and where Temperance Flat stands

World Economic Forum – Global Risks 2015



Global Water Shortages



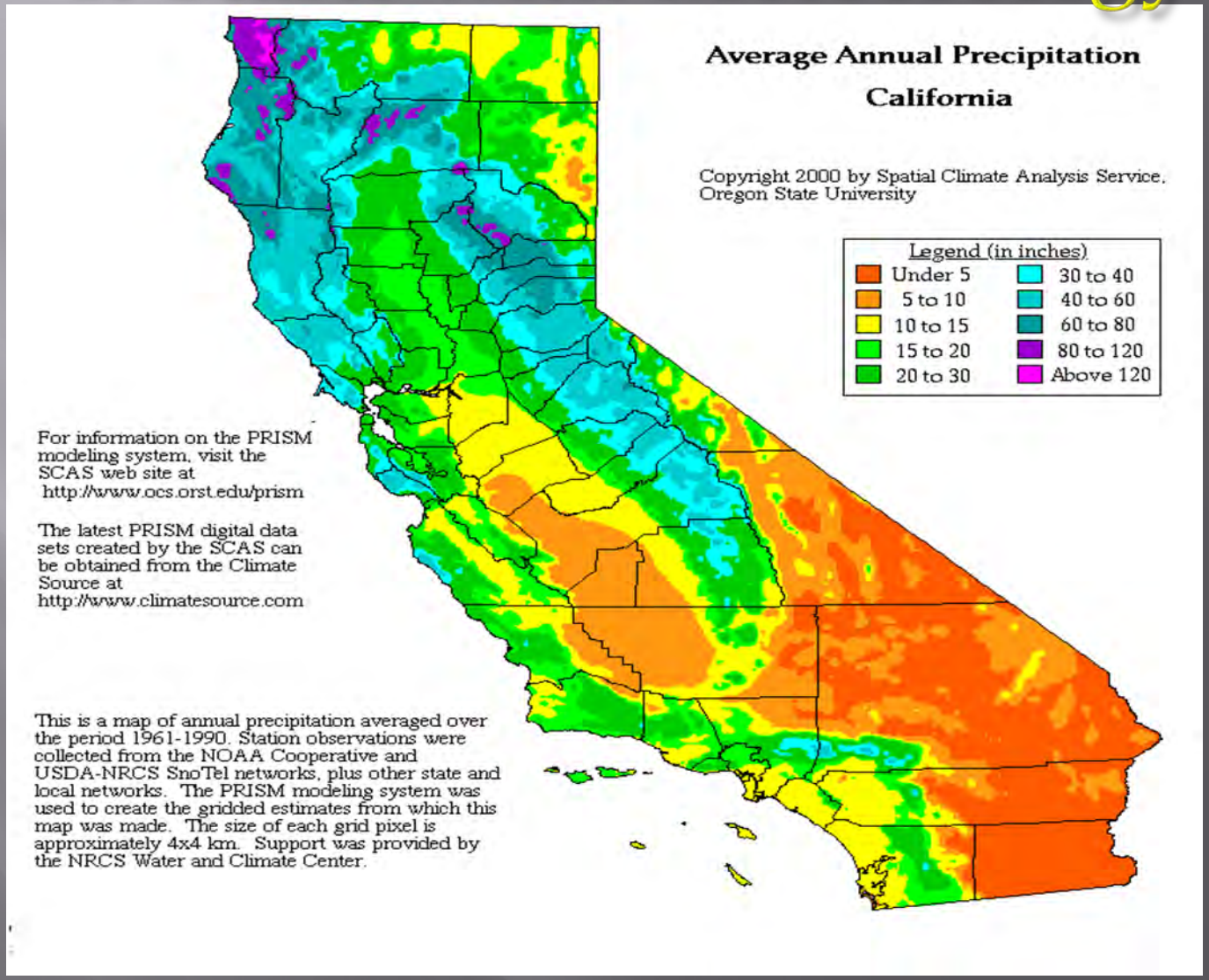
From: Waterfind - AU

UN FAO "Aqua-stats"

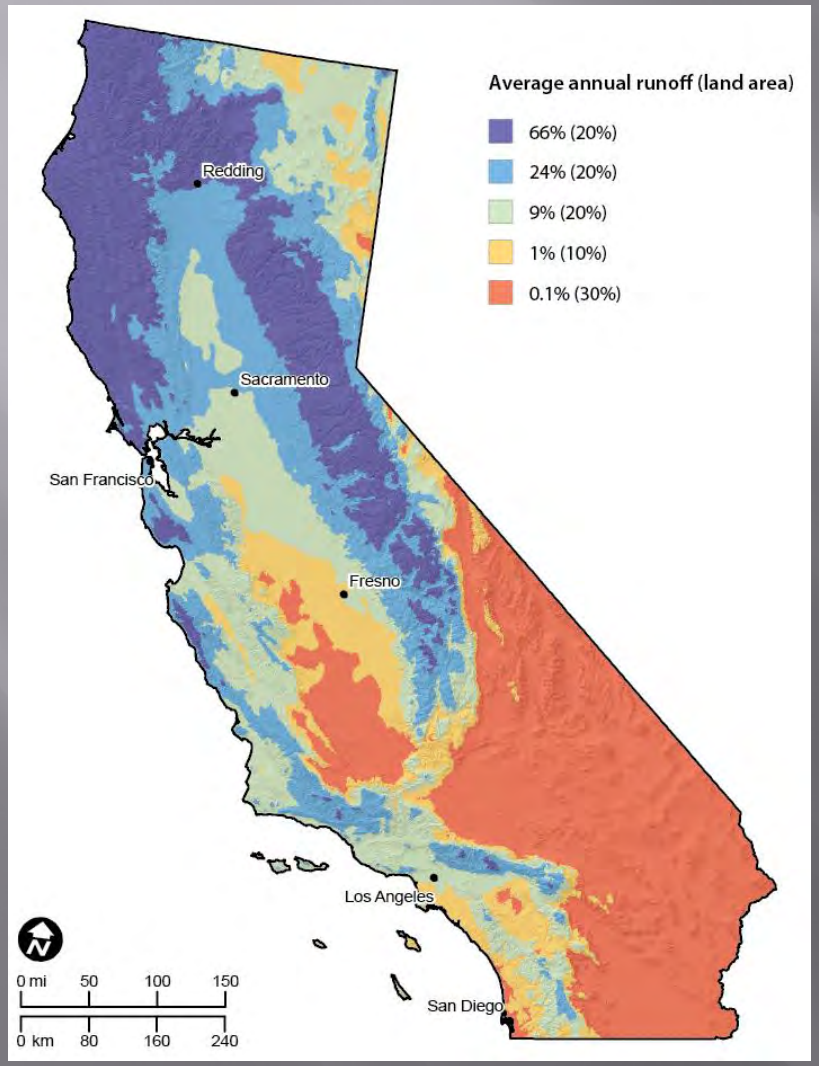
- Irrigation areas, irrigated crops, environment:
  - "Irrigated agriculture represents 20 percent of the total cultivated land, but contributes 40 percent of the total food produced worldwide."

http://www.fao.org/nr/water/aquastat/didyouknow/index3.stm
http://www.fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf

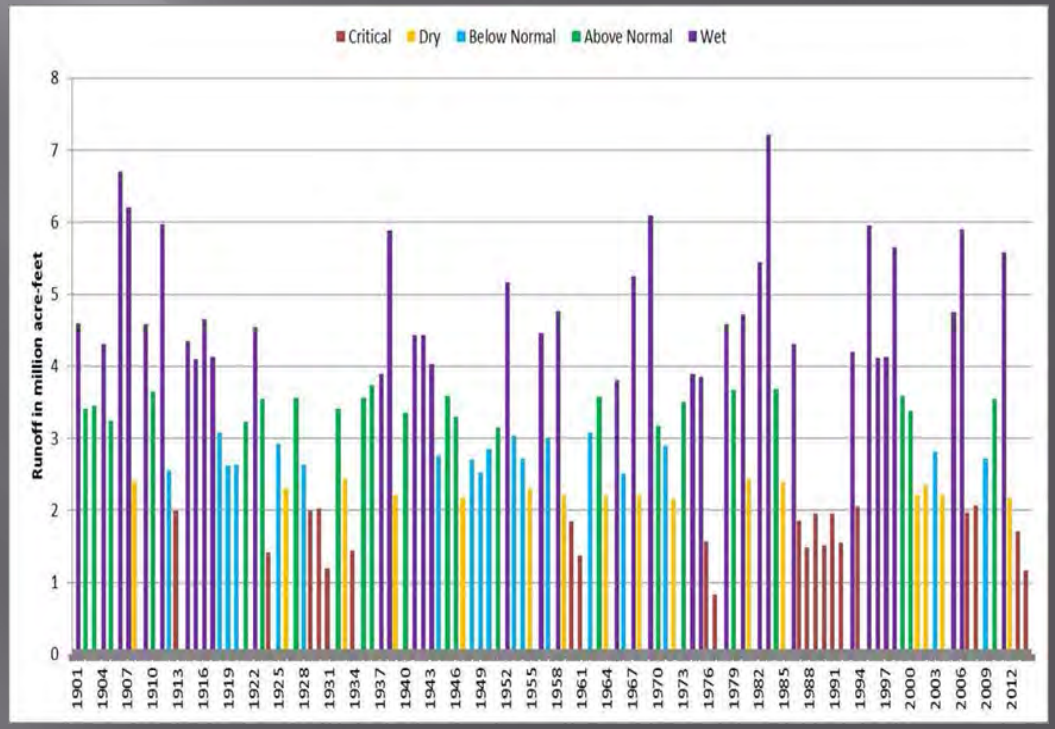
CA Water
It Starts with Meteorology



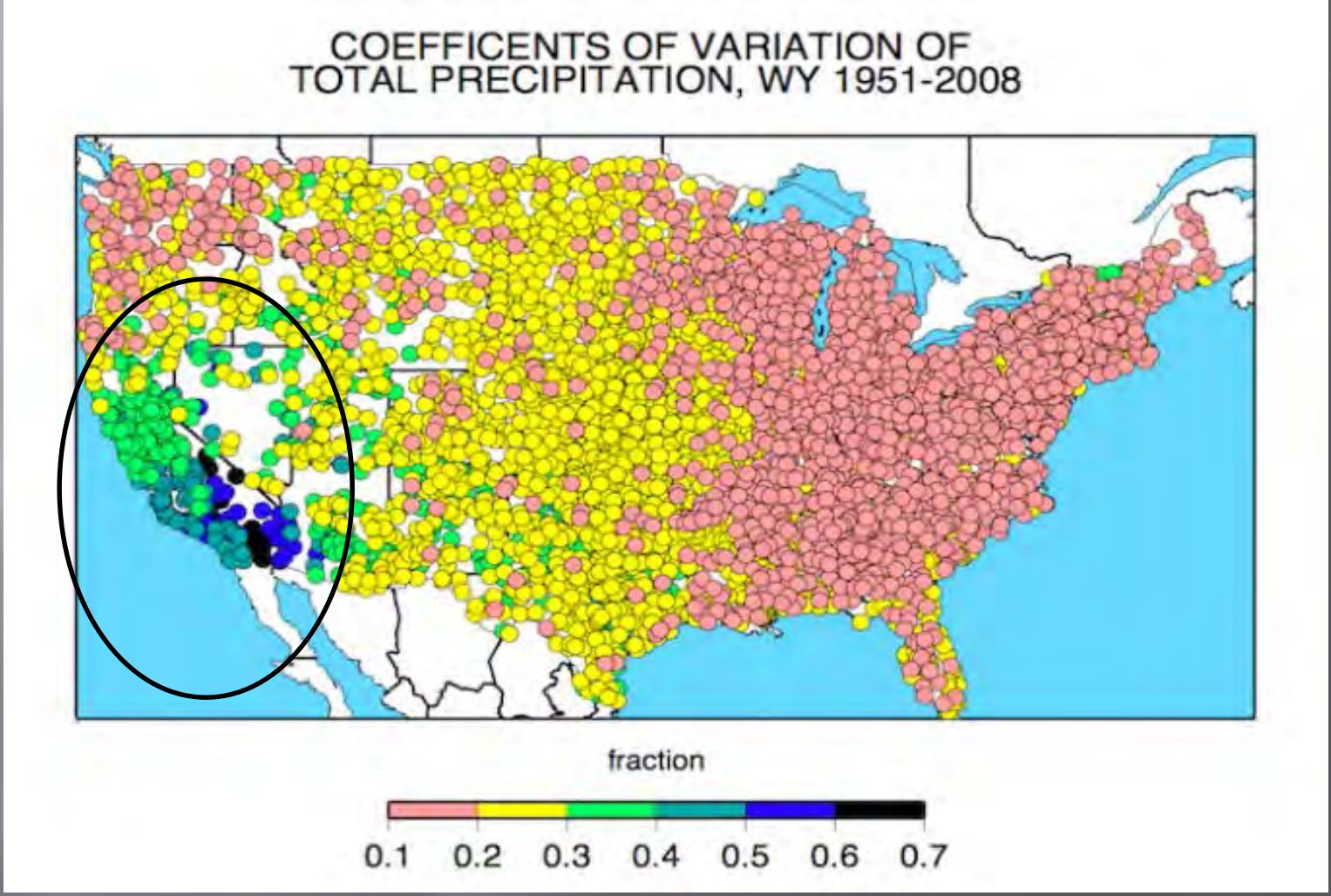
And the Resulting Hydrology



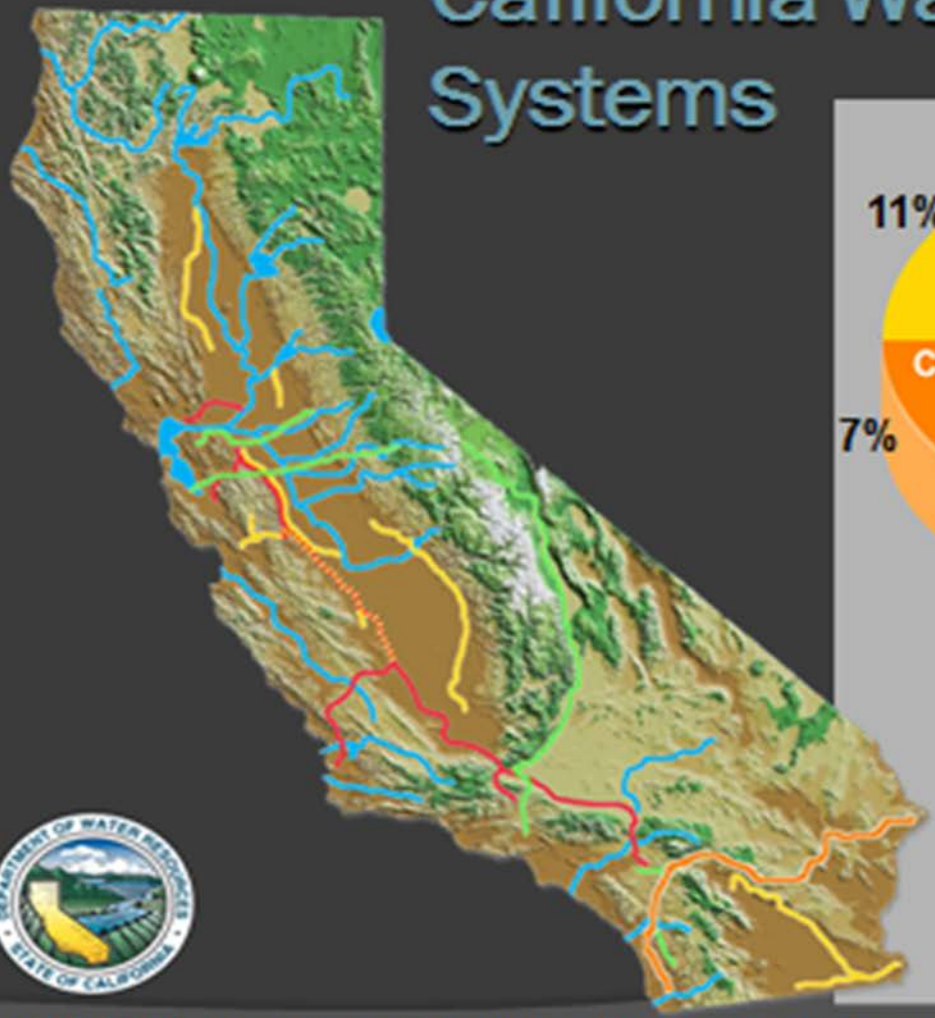
Water Variability

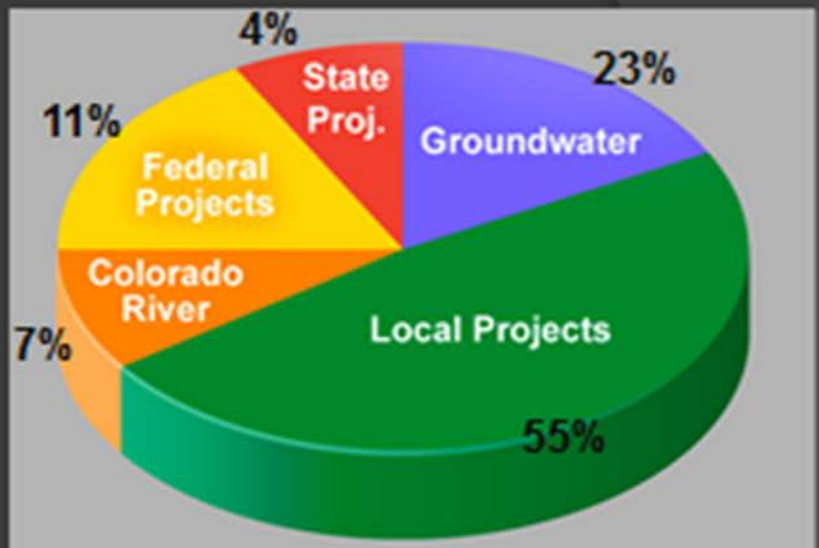


CA Water Variability



California Water Supply Systems

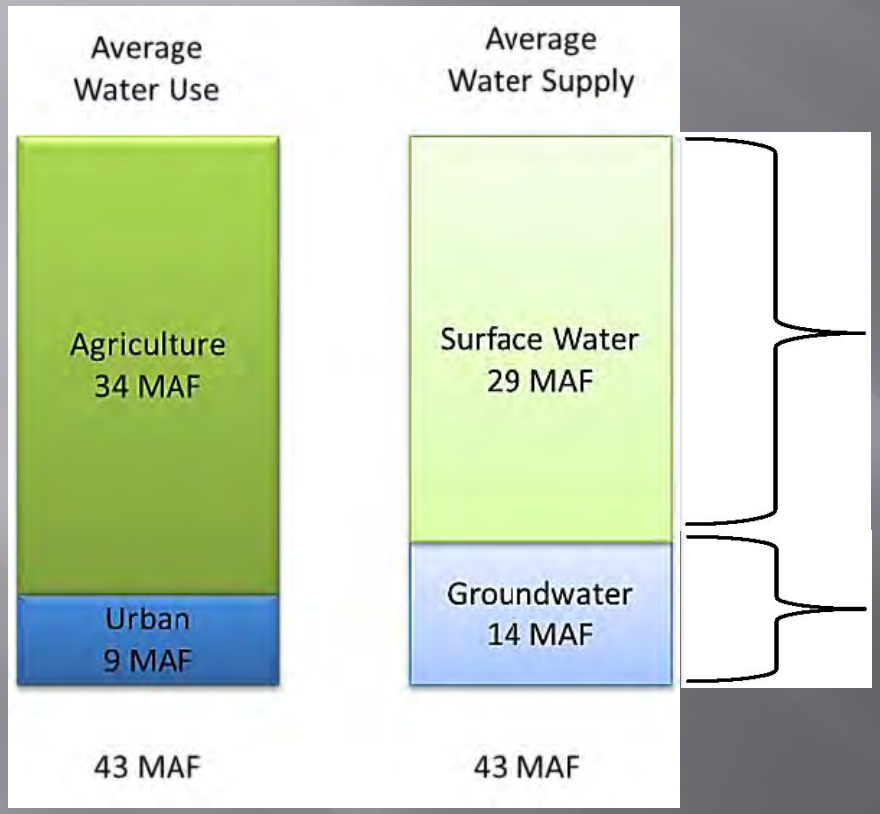




Local	--	38.6 maf
Colorado	--	4.8 maf
Federal	--	7.9 maf
State	--	2.8 maf
Groundwater	--	16.0 maf

1998-2010 average Applied Water. Does not include reuse or recycling. Quantities vary by year.

Current Use and Sources



- Environmental Decline
- Conflict
- Increased Variability

- Includes Overdraft (deficit spending)

Factors Contributing to Uncertain Water Supply

- Increasing population
- Aging infrastructure
- Groundwater overdraft
- Degraded ecosystems
- Increasing conflict
- Uncertainty due to climate change

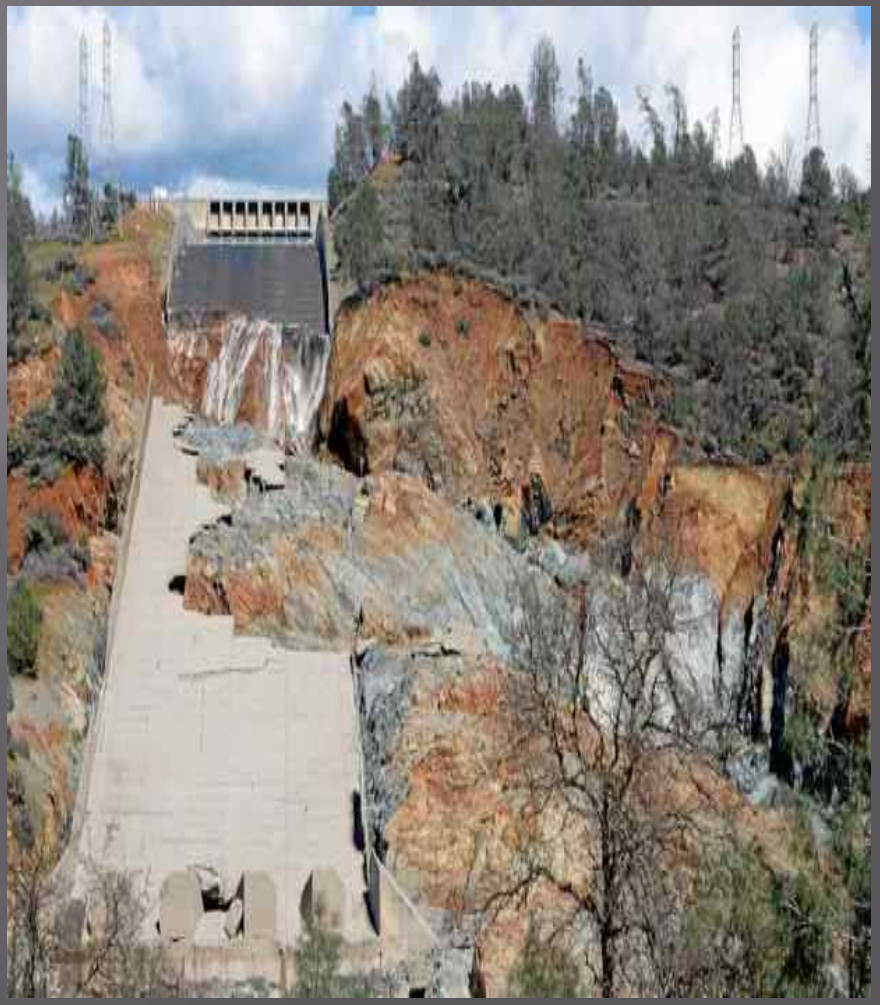
Chronic Under-investment in Water Infrastructure

Much of CA's local water infrastructure is approaching 100 years old

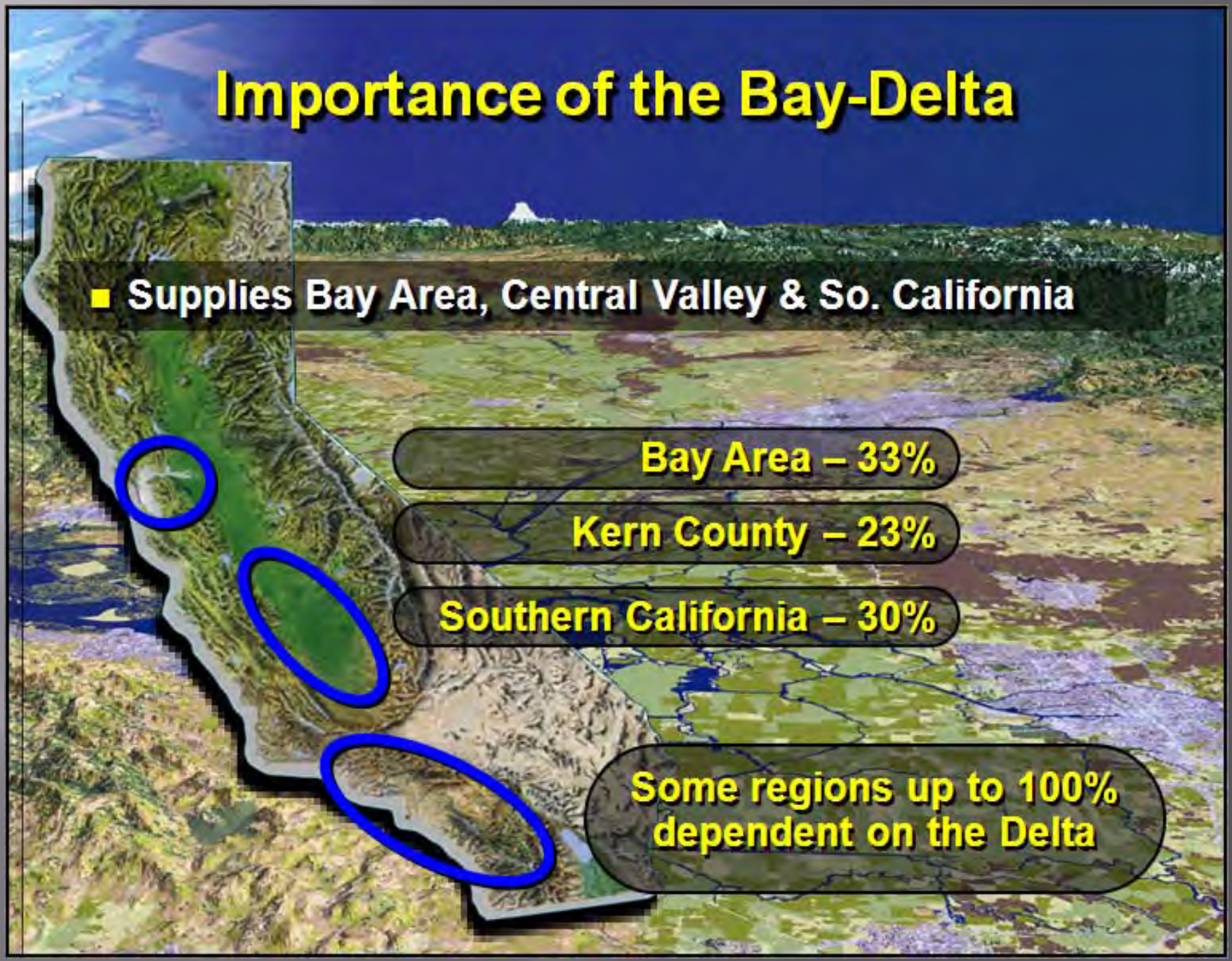
- More than 1,300 local, state, and federal reservoirs
- 2 major water development systems
- SWP: 34 reservoirs, 25 dams, 20 pumping plants, 4 pumping-generating plants, 701 miles of canals and pipelines, 1,595 miles of levees
- CVP: 20 dams and reservoirs, 11 power plants, 500 miles of major canal as well as conduits, tunnels, and related facilities

California has a $12 billion annual deficit in funding for critical water infrastructure

Oroville Spillway



Importance of the Bay-Delta



Groundwater Extraction in the Central Valley

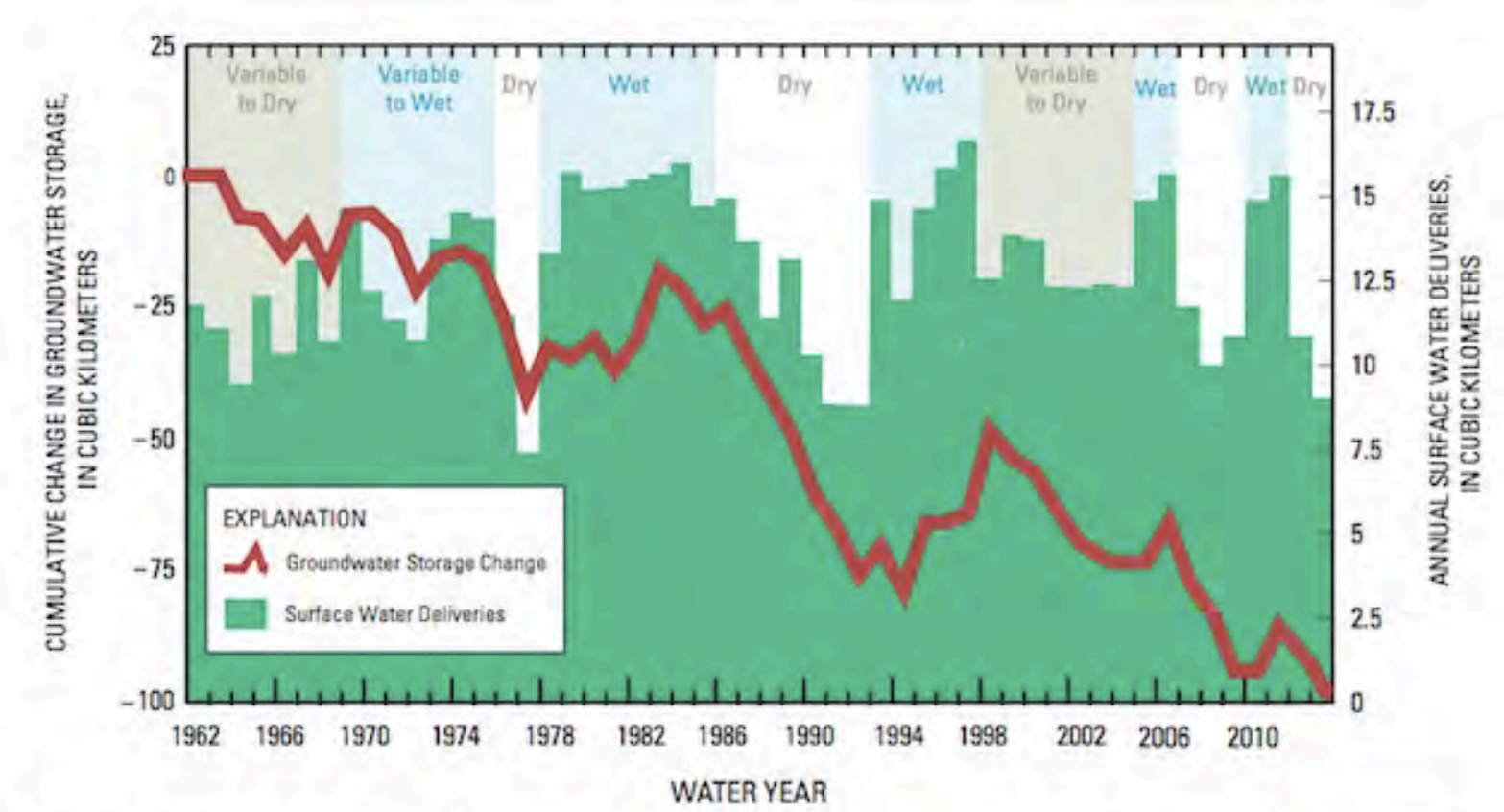
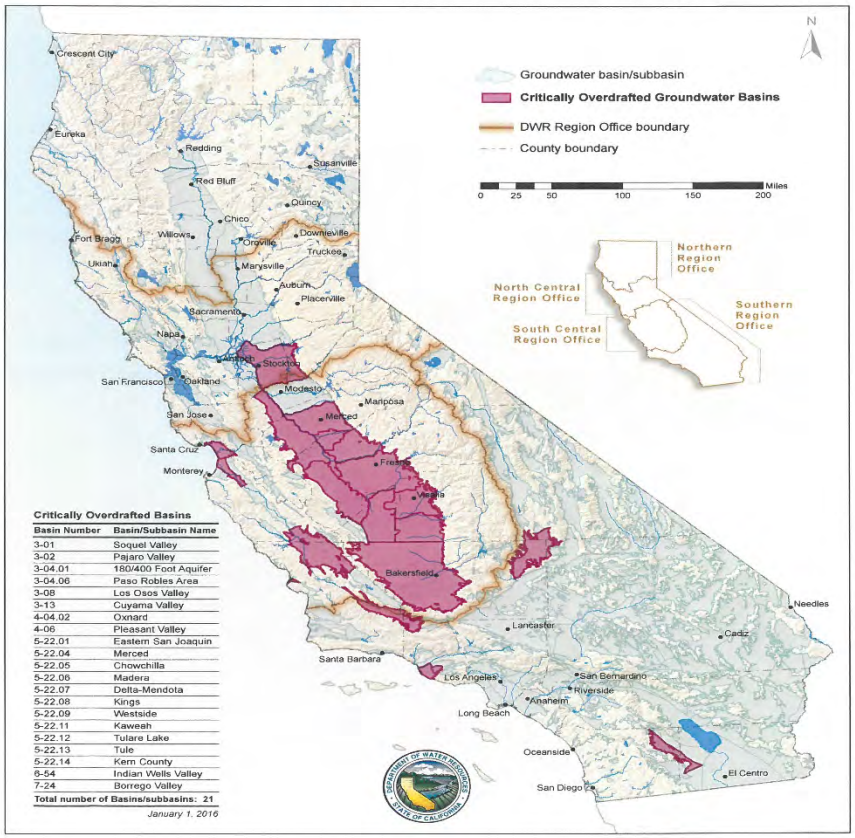


Figure 3 Graph showing surface water deliveries and cumulative storage changes simulated by the Central Valley Hydrologic Model. One cubic kilometer is about 811,000 acre-feet.

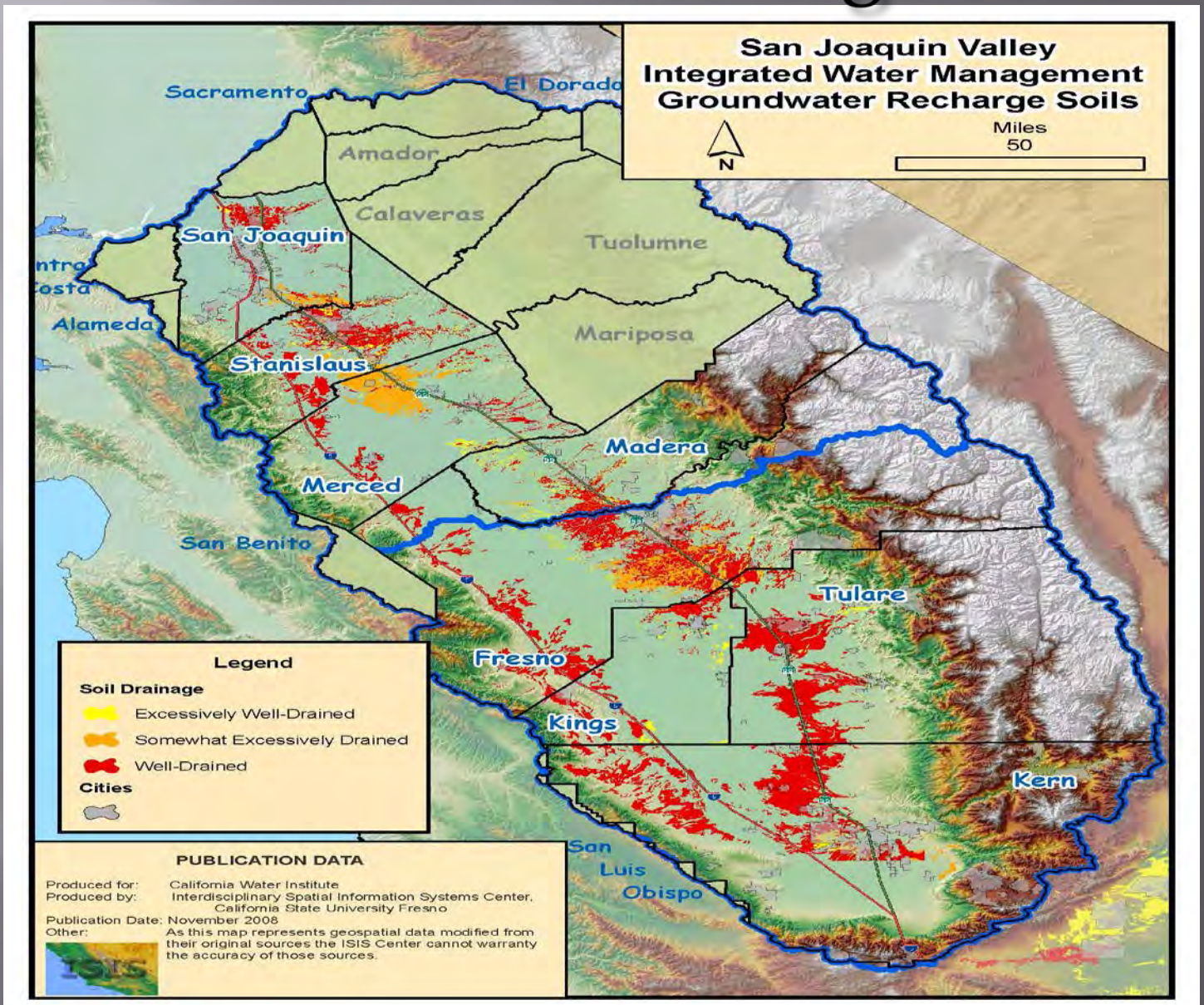
Critical Basins



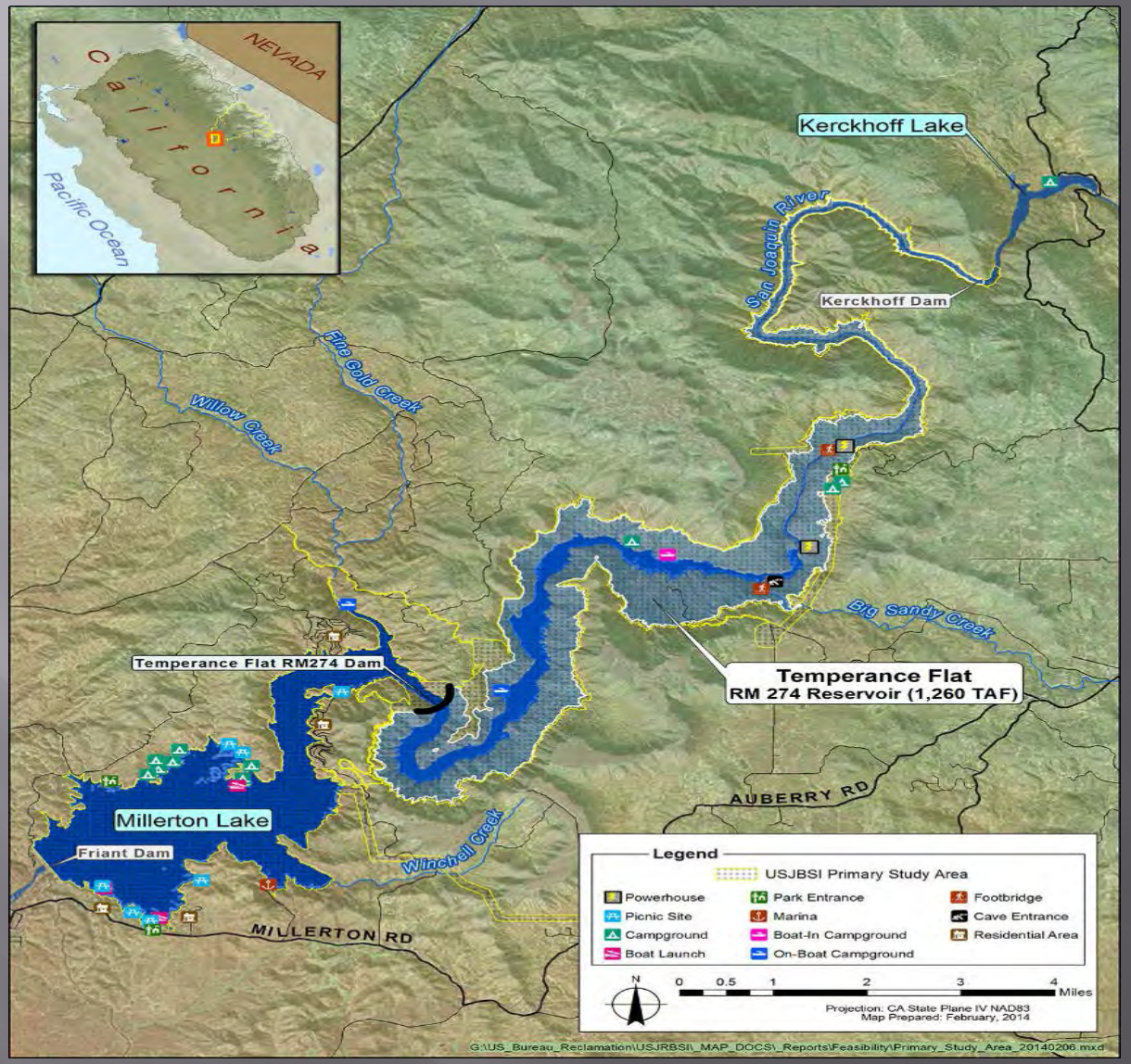
SGMA 2014

- Now all groundwater will be managed under new terms including:
  - Well water users participation in “groundwater sustainability agencies”, based on regional groundwater basins
  - Groundwater plans will be designed to attain “sustainability” and avoid “undesirable results” such as: subsidence, water quality impairment, unsustainable extraction, loss of storage or seawater intrusion

San Joaquin Valley Groundwater Recharge Soils



Temperance Flat Location



Temperance Flat History

Historical Dam Site Selection

Almost 84 years ago, Hyde Forbes, an engineering geologist, issued a geological report on three potential dam sites on the San Joaquin River for the State of California. The report evaluated geologic conditions at the Friant, Fort Miller, and Temperance Flat (RM 274) sites. The geologic study contributed to planning efforts that led to construction of Friant Dam (Forbes 1930).

The RM 274 site was considered superior to the two other sites, but the Friant location was selected to reduce construction and conveyance costs (Reclamation 2003).

USBR Feasibility Report 2014

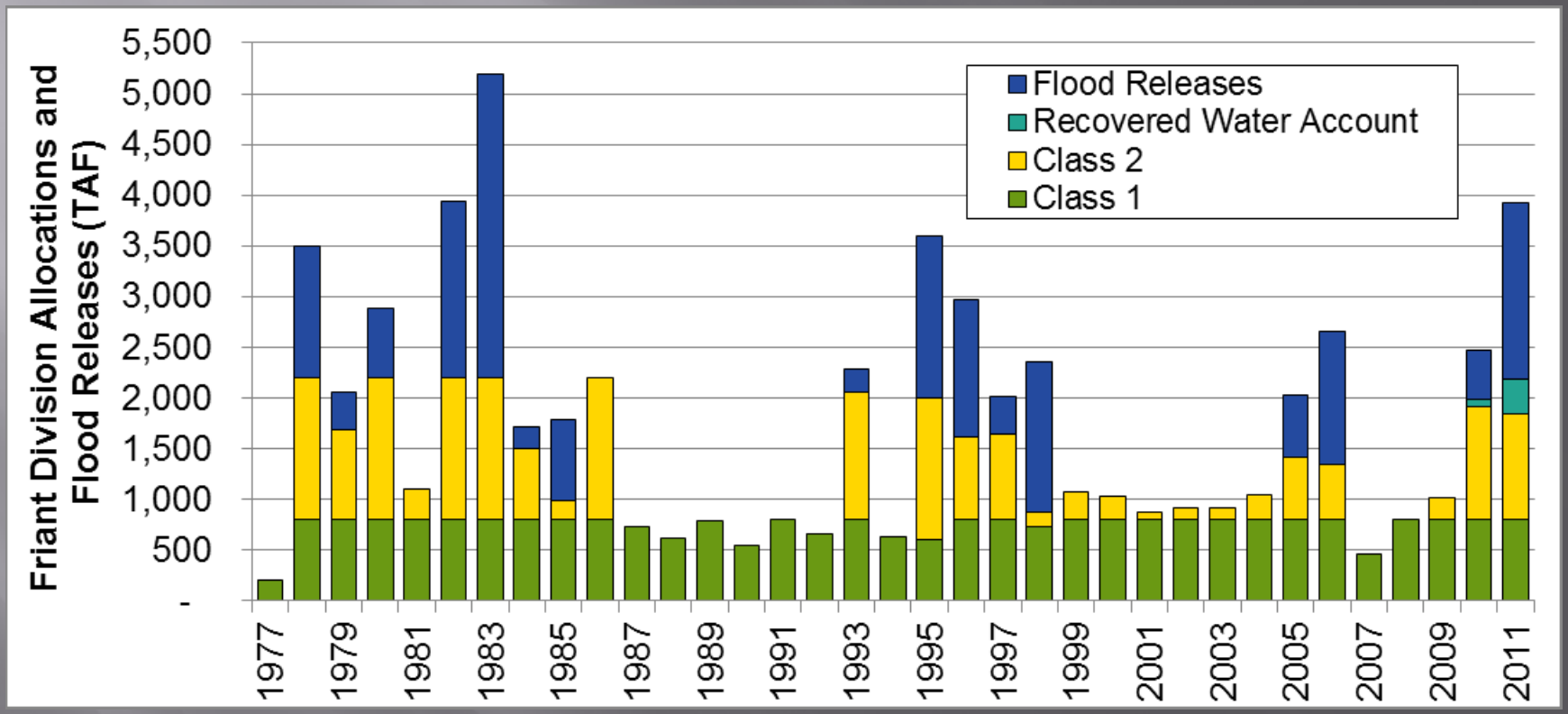
RM = river mile

Aerials

Upper Millerton

Over the top in 1997

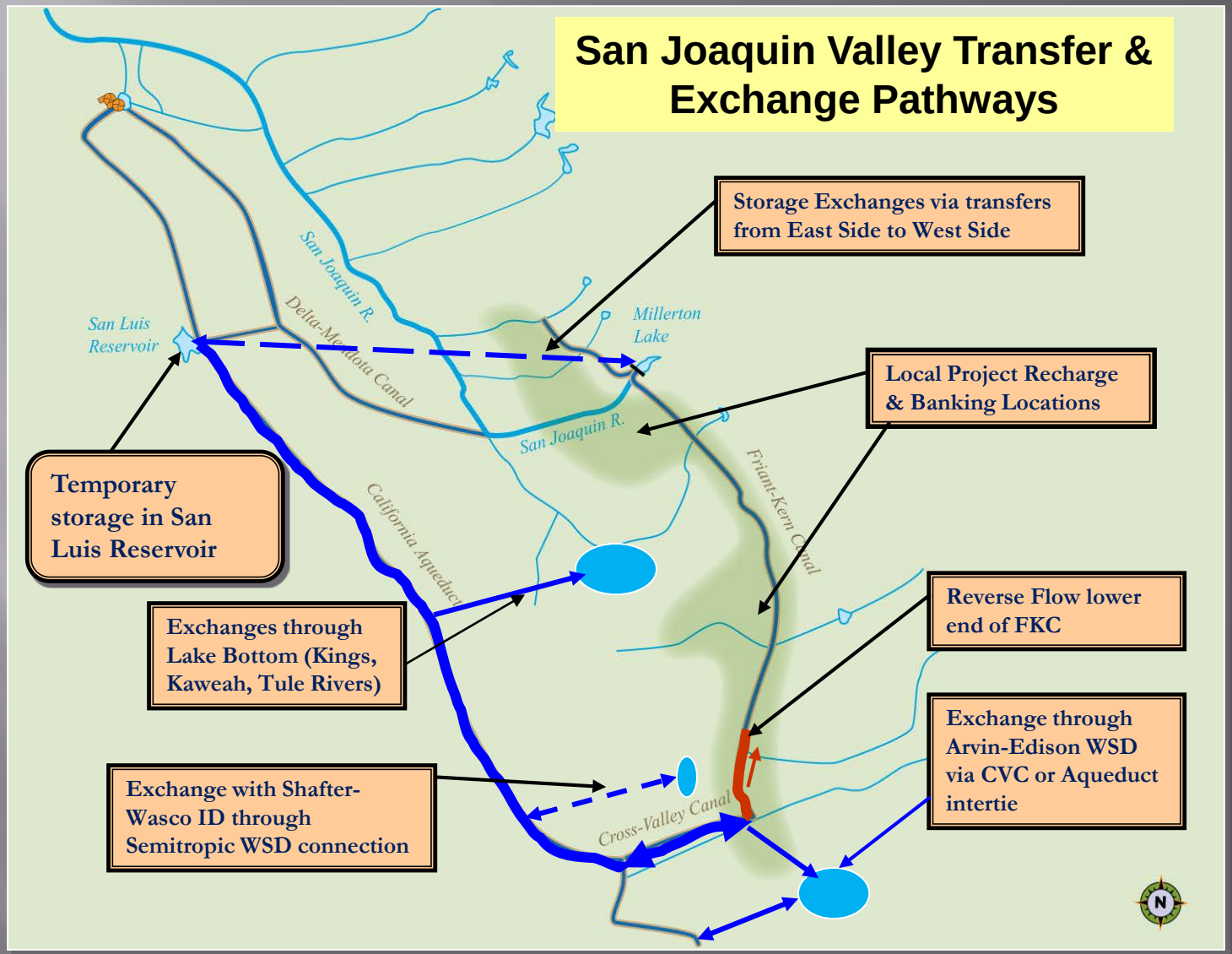
Flood Water


Friant Division Allocations and Flood Releases (TAF)
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
-
Flood Releases
Recovered Water Account
Class 2
Class 1
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011

Operational Strategies

- Storage and release for groundwater recharge
- Cool water for salmon restoration flows
- Flood mitigation (1.74 MAF total storage v. 520,000 AF)
- Exchanges and re-operation of westside storage and SJR restoration flow recovery
- Emergency source for SoCal with catastrophic loss of Delta supplies

San Joaquin Valley Transfer & Exchange Pathways



Pros and Cons

- Pros
  - More total storage 1.75 MAF v .5 MAF to assist with metering out for groundwater recharge
  - More stable cool water for salmon restoration
  - Additional flood control
  - Expanded recreation
- Con
  - Only 200,000 acre-feet of "new" water
  - Loss of riverine habitat and unique visual and cultural sites
  - Loss of power production from PG&E facility that will be inundated (but replaced and included in the cost)
  - Could be as many as 30 years before any water is stored and made available
  - No current institutional requirement for water to go to recharge

Proposition 1

- Can only fund "PUBLIC Benefits"
  - Core benefits are environmental improvements, reduction of diversions from the Delta, flood control and recreation
  - Groundwater recharge is not a public benefit ?????
- Temperance Flat failed the public benefit tests
- Temperance Flat/SJVWIA has re-submitted in accordance with new requirements

Proposition 1 Status

- All Proposition 1 applications failed the public benefits tests developed by the responsible agencies and used by the Water Commission staff

- The Water Commission has the final say on what projects get funding and can alter the weighing factors, however, the money can still only be spent on the public benefits approved by the Commission

Discussion

- Are there alternatives to a new dam?
  - Conservation, demand reduction, crop land retirement
  - Re-allocation to the highest beneficial use, drinking water (loss of water rights by lower uses including agriculture)
- Can mitigation or environmental restoration elsewhere off-set any local loss?
- Do dams induce growth? What is the geopolitical limit of water demands in CA?


Questions ?
Thank You !
CaliforniaWater.org