

ENVIRONMENTAL PERSPECTIVE ON SUSTAINABLE GROUNDWATER MANAGEMENT

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OPPORTUNITY IS RIPE FOR STATE BOARD ACTION

- California Water Action Plan
- Governor's 2014/2015 Budget appropriation for groundwater management
- Transition of the Drinking Water Program
- Recent Anti-degradation lawsuits



OVERARCHING PRINCIPLES TO BE INCORPORATED THROUGHOUT THE STRATEGIC PLAN

- Human Right to Clean Water
- Constitutional power to regulate reasonable and beneficial use
- “Polluter Pays” Principle
- Protection of groundwater reflected in Anti-degradation Policy
- Connection between surface and groundwater

STATE BOARD'S AUTHORITY TO REGULATE GROUNDWATER

- The Board is not “overreaching” by regulating groundwater pumping
- Constitutional authority to regulate against overdraft and unsafe yields
- Water Code (Subterranean streams/Basin adjudication impacted by water quality)
- Waste and Unreasonable Use Doctrine (Water Code, separate from Constitutional Power)
- Public Trust Doctrine

STATE BOARD SHOULD USE EXISTING REGULATIONS TO PROTECT GROUNDWATER QUALITY

- **Action:** Provide Regional Board guidance on CAFOs.
- **Action:** Mandate a proper Anti-Deg analysis for both surface and groundwater.
- **Action:** Develop and adopt statewide meaningful standards for irrigated lands.
- **Action:** Develop meaningful septic tank regulations.



STATE BOARD SHOULD ENCOURAGE STORMWATER RECHARGE

- **Action:** Leverage efforts underway to promote stormwater retention through Municipal Stormwater Permits.
- **Action:** Identify incentives to implement stormwater capture at the local level, and compel land use zone planning to encourage groundwater recharge.



GROUNDWATER AND SURFACE WATER ARE CONNECTED



PUBLIC TRUST & THE WASTE AND UNREASONABLE USE DOCTRINES

- **Action:** Exercise existing legal authority to limit groundwater withdrawals where local groundwater management entities fail to protect surface water flows or prevent waste or overdraft.
- **Action:** Support legislation that establishes a statewide permitting system for groundwater withdrawals.
- **Action:** Develop an official Board position recognizing that groundwater and surface water are physically interconnected.

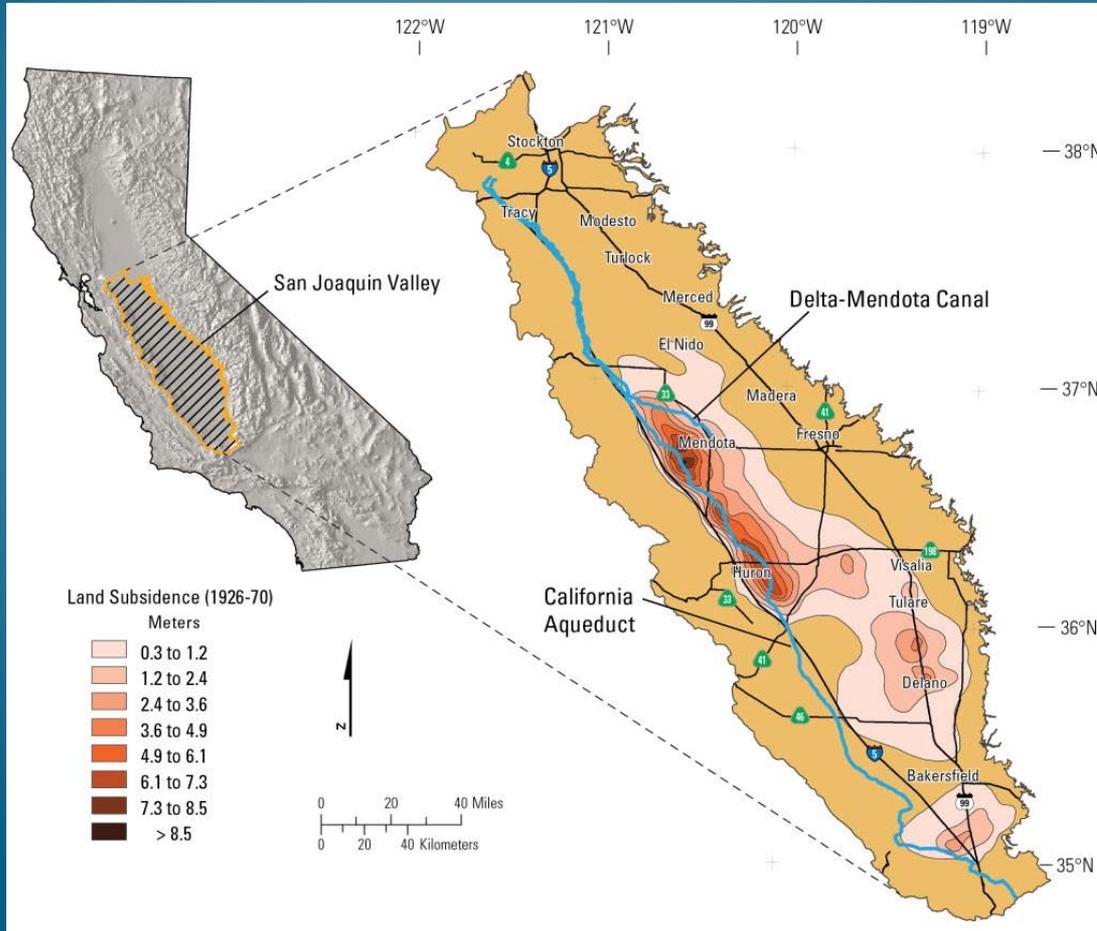


Depleted surface flows in the Ventura River at the Foster Park subsurface diversion and well field, owned and operated by the City of Ventura.

PUBLIC TRUST & THE WASTE AND UNREASONABLE USE DOCTRINES

- **Action:** The Department of Fish and Wildlife should be actively involved in California's groundwater management to prevent further reductions of instream flows.
- **Action:** Place meters on wells, and prioritize most heavily overdrafted basins.
- **Action:** Find conjunctive use that diverts surface water to a groundwater basin in persistent overdraft constitutes a waste and unreasonable use of water and an unreasonable method of diversion.

State Oversight of Local Groundwater Management is Necessary



Delta-Mendota Canal Buckles Under Subsidence Bowl stretching 1 200 mi²: \$29 million intertie connects the federal and state canals through two massive pipes

Establishing a Sustainable Yield is the Key to Groundwater Management

HYDROLOGIC STUDY AREAS							
PRESENT WATER SUPPLIES -- NET WATER DEMAND (1000 AF/YR)							
Hydrologic Study Area	Groundwater Safe Yield	Groundwater Long-Term Overdraft	Local Surface Water, Local Imports, Waste Water Reclamation	Central Valley Project and Other Federal Projects	State Water Project	* Reserve	Total
North Coastal	140	--	392	430	--	(20)	942
San Francisco Bay	330	--	878	180	130	(260)	1,258
Central Coastal	720	140	60	55	--	(20)	955
South Coastal	930	160	1,867	20	190	(90)	3,077
Sacramento Basin	1,190	90	2,500	2,900	1	(1,050)	5,631
Delta-Central Sierra	630	120	1,338	240	--	(60)	2,268
San Joaquin	520	250	2,256	1,720	9	(110)	4,645
Tulare Basin	510	1,310	2,265	2,900	790	(480)	7,295
North Lahontan	56	--	347	--	--	(10)	393
South Lahontan	120	120	37	--	34	(30)	281
Colorado Desert	<u>74</u>	<u>40</u>	7	3,950	14	(10)	<u>4,075</u>
	5,220	2,230					30,820

Source: Compiled from California Department of Water Resources, Bulletin No. 160-74, The California Water Plan Outlook in 1974, Figures 33-53 (1974). At least one of these figures, the groundwater safe yield for the South Lahontan Hydrologic Study Area, appears to be seriously understated.

* Reserve refers to regulated water supply in a hydrologic service area which exceeds demands for water in the area, or which cannot be served to places of need within the area with available conveyance facilities, or which is not subject to contracts for use within the area. In case of transfer to other areas, the reserve amount would have to be adjusted.

To Adjudicate or Not to Adjudicate?



Supply & Avoided Treatment Rationale

BMP Location	BMP Type	Service Life of Project (Year)	Pilot Design & Construction Cost Estimate	Annual Infiltrated Volume (ΔF)	Service Life Value of Infiltrated (Supply)	Service Life Value of Infiltrated (Quality)	Total Service-life Value per acre-foot	Total Service life Cost per acre-foot	Benefit-Cost Ratio
Residential Single & Multi-Family	Rain Garden	30	\$111,600	2.4	\$48,744	\$69,912	\$1,648	\$1,550	1.06
Residential Street	Intersection Catch-basin BMP	30	\$425,256	6.8	\$138,108	\$188,436	\$1,601	\$2,085	0.77
Commercial Green Street	Multiple*	30	\$2,279,400	3.1	\$62,961	\$100,232	\$1,755	\$24,510	0.07
Sub-Regional BMP	Subsurface Infiltration	30	\$1,432,080	28.7	\$582,897	\$1,082,506	\$1,934	\$1,663	1.16

In the Meantime....SWRCB should

- Prioritize basins for agency assistance
- Require monitoring & reporting of meter readings from all wells
- Act as gatekeeper for well permits in over-drafted basins
- Establish thresholds for local injunctive relief from pumping or drilling
- Provide water-users with guidance to file Reasonable Use petitions



PRO Water Equity

Paso Robles groundwater basin Overliers for Water Equity

ENCOURAGING NATURAL RECHARGE, AND PROMOTING ACCOUNTABILITY



THIS NEEDS TO BE AVOIDED...



IMPROVE RECHARGE THROUGH RIPARIAN RESTORATION

- **Action:** Protect existing recharge areas.
- **Action:** Better management of natural recharge zones.
- **Action:** Floodplain restoration objectives in water quality control plans.

BETTER MONITORING AND DATA COLLECTION

- **Action:** Require collection and reporting of raw groundwater data—not just aggregated data—to increase transparency and accountability to better inform the public.
- **Action:** Fund state monitoring and modeling to trace USGS flows to understand connection to groundwater.
- **Action:** Monitoring should include stream gauge monitoring.
- **Action:** Prioritize data gaps in which the Board has jurisdiction.
- **Action:** Prioritize basins with impaired surface waters.

MAPPING TO BETTER MANAGE SURFACE AND GROUNDATER CONNECTIVITY

- **Action:** Subterranean stream depletion maps can be a useful tool for monitoring and managing the groundwater/surface water interactions.
- **Action:** Include basin management objectives into management plans.