

Empowering Responsible Water Management: Uniting State Officials and Leaders for Accountability and Sustainable Solutions

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Summary:

The research focuses on the complex challenges that California faces in effectively managing its water resources, especially considering the Sustainable Groundwater Management Act (SGMA). The paper emphasizes the urgent need for collaboration among state officials and leaders to tackle these challenges and develop sustainable solutions. Key findings highlight the dual pressure on farmers caused by groundwater and surface water regulations, underlining the importance of flexibility and innovative approaches like voluntary agreements and new water-supply projects. Additionally, the research suggests that inflexible water management can have significant economic implications, highlighting the need to balance environmental sustainability with financial prosperity. Drawing insights from various studies and practical data, the paper advocates for initiatives such as the proposed Sites Reservoir project, which could provide vital water supply security, flexibility for farmers, and support for agriculture. Ultimately, this research aims to promote discussion and collaboration towards responsible and sustainable water management practices for the benefit of present and future generations in California, farmers' flexibility, and agriculture support. Ultimately, this research looks to foster dialogue and collaboration towards accountable and sustainable water management practices for the benefit of present and future generations in California.

Empowering Responsible Water Management: Uniting State Officials and Leaders for Accountability and Sustainable Solutions:

- The state's plan to limit diversion of surface water flows in tributaries amid farmers' efforts to comply with SGMA has raised dual pressure on farmers from groundwater and surface water regulations showing a need for flexibility including voluntary agreements and new water-supply projects like Sites Reservoir while creating an Emphasis on the need for balance in water management to sustainably support California's population and food supply of 40 Million People in the State of California (Souza, 2024).
- Inflexible water management is a costly way to cope with growing water scarcity. In the most constrained scenario—when cuts from SGMA, climate change, and increased

environmental regulations are all included and no trading is allowed—GDP would decline by more than \$4.5 billion, employment by nearly 50,000 jobs, and regional economic activity by 2.3 percent (Person, Escriva-Bou, et. al, 2023).

- The valley is looking at close to half a million acres coming out of irrigated production which will lead to haphazard land fallowing increasing dust and air quality problems, exacerbating the spread of weeds and pests, and degrade soils (Person, Escriva-Bou, et. al, 2023). It will be essential to put these lands to alternative uses that avoid these problems and generate economic and environmental benefits (Person, Escriva-Bou, et. al, 2023).
- In the SGMA-only scenario, we conclude that farmers in the San Joaquin Valley can expect to experience the following impacts: Change in Crop Acreage: -798,000, Change in Crop Revenue: -\$5.9 Billion, Change in Farm Operating Income: -\$1.6 Billion (WATER BLUE PRINT CA, 2021).
- Adding the effect of anticipated reductions in surface water deliveries to farmers, expected effects are larger: Change in Crop Acreage: -992,000, Change in Crop Revenue: -\$7.2 Billion, Change in Farm Operating Income: -\$1.9 Billion (WATER BLUE PRINT CA, 2021).
- California's Top 10 Agricultural Commodities: California's agricultural abundance includes more than 400 commodities (California Department of Food and Agriculture, 2023). Over a third of the country's vegetables and nearly three-quarters of the country's fruits and nuts are grown in California. California's top 10 valued commodities for the 2022 crop year are: Dairy Products, Milk — \$10.40 billion, Grapes — \$5.54 billion, Cattle and Calves — \$3.63 billion, Almonds — \$3.52 billion, Lettuce — \$3.15 billion, Strawberries — \$2.68 billion, Pistachios — \$1.86 billion, Broilers — \$1.59 billion, Tomatoes — \$1.46 billion, Carrots — \$1.11 billion (California Department of Food and Agriculture, 2023)
- After two back-to-back storms, California lakes increased their water levels. The two lakes with the largest percentage increase were Folsom Lake, rising from 66% to 72% capacity, or 115% of its historical average, and Millerton Lake, rising from 72% to 78% or 114% of its historical average (CFWC, 2024).
- The need for investment in water storage is dire: The state's drought from 2012 to 2016 led to about 540,000 acres of fallow farmland in 2015, costing the state's economy \$2.7 billion in gross revenue and 21,000 jobs (CFWC, 2024). With the lack of precipitation, farmers increasingly pumped groundwater to irrigate crops, depleting those resources (CFWC, 2024).
- According to the 2022 USDA NASS survey, the value of fruit and nut production in California is over 70% of the nation's total. From ripe stone fruits to crunchy almonds (CFWC, 2024).
- In an average year, California agriculture will irrigate about 9.6 million acres with 34 MAF of water, or about one-third of the available surface water supplies (CFWC, 2024).

- California has doubled its population since the 1960's
- More than thirty agriculture groups released the eighth annual "Feeding the Economy" report and the 2024 report's findings show the total economic impact for the food and agriculturally related industries grew almost 12% over the past year and reached \$9.63 trillion, that's 20% of the total U.S. output, total jobs in the industry reached more than 48 million, total wages were \$2.7 trillion, up 34% since the 2020 report, total taxes were \$1.25 trillion, up 37% since the 2020 report, total exports of \$181.6 billion were down 3% since 2020, from the 2020 report till now, food and agriculture manufacturing jobs grew at a faster rate than any other job category in America while Agricultural production now accounts for 20% of all U.S. manufacturing jobs (KMJ, 2024).

Fostering Sustainability Beyond SGMA: Achieving Balance Between Urban Development and Agriculture:

- In 2023 rain season that ended in California, over 25-million-acre feet of water passed through the Sacramento-San Joaquin Delta and out to the Pacific (Ring, 2023). This is more than twice what is required for the health of Delta ecosystems, and if that water had been stored it would have offered enough supplemental supply to withstand several years of drought (Ring, 2023).
- Channels cut into Delta islands with gravity-fed French Drains that move water without harming fish where feasibility studies indicate that a 200 acre site could move 15,000 acre feet per day during storms, and this water could be stored in vacant underground aquifers that are, just in the San Joaquin Valley, estimated to have a capacity of 75 million acre feet (Ring, 2023).
- The Pacific Institute released a study that showed just through capturing urban runoff, up to 3-million-acre feet could be stored each year (Ring, 2023).

The proposed Sites Reservoir project could bring several benefits to both the population and farmers in California:

- Sites Reservoir would store as much as 1.5 million acre-feet of Sacramento River water and could eventually boost water supplies — especially in dry years — for more than 24 million people, mostly in Southern California, and 500,000 acres of Central Valley farmland (Bland, 2023).
 - Water Supply Security: The reservoir could provide a reliable water supply, which is crucial for sustaining the needs of California's growing population, estimated at over 40 million people (Bland, 2023).
 - Flexibility for Farmers: The reservoir could offer flexibility in water management, potentially easing some of the regulatory pressures faced by farmers regarding groundwater and surface water use. This flexibility could help farmers adapt to changing conditions and sustain agricultural productivity (Bland, 2023).

- Support for Agriculture: Access to a stable water supply from Sites Reservoir could support agricultural activities, ensuring the continued production of crops and food supplies for both Californians and consumers nationwide (Bland, 2023).

In conclusion, the intricate web of challenges posed by the Sustainable Groundwater Management Act (SGMA) underscores the critical need for collaborative solutions prioritizing environmental sustainability and economic prosperity. As illustrated by the findings of various studies, inflexible water management approaches can have significant financial repercussions, impacting GDP, employment, and regional economic activity. Moreover, the looming prospect of land fallowing in the San Joaquin Valley highlights the urgent necessity of innovative strategies to mitigate adverse environmental effects while harnessing economic opportunities. Amidst these complexities, initiatives such as the proposed Sites Reservoir project offer promising avenues for fostering sustainability beyond SGMA. Projects like Sites Reservoir exemplify the potential for uniting state officials and leaders to achieve accountable and sustainable water management solutions by providing water supply security, flexibility for farmers, and crucial support for agriculture. This study was conducted to foster meaningful dialogue and elicit invaluable feedback from individuals directly affected by the SGMA ruling, underscoring the imperative of collaborative efforts in empowering responsible water management for the benefit of present and future generations.

Figure 1

Change In Harvested Acreage from SGMA Plus Surface Water Restrictions

Table 1: Change in Harvested Acreage from SGMA Plus Surface Water Restrictions								
	Hay and Pasture	Tree Nuts	Tree Fruits	Vines	Corn	Vegetables	Field Crops and Grains	Total
Total Area (Acre)								
Madera	-2,024	-17,065	-1,966	-7,891	-2,157	-972	-833	-32,908
Fresno	-14,892	-84,749	-33,668	-56,378	-11,039	-34,095	-19,542	-254,364
Merced	-7,291	-14,947	-1,023	-1,782	-8,028	-3,689	-4,294	-41,054
San Joaquin	-3	-130	-21	-12	-15	-3	-6	-190
Stanislaus	-4,101	-16,651	-1,121	-1,039	-5,811	-778	-1,007	-30,509
Tulare	-16,640	-35,809	-48,246	-16,031	-43,923	-1,338	-10,415	-172,401
Kings	-14,904	-25,702	-5,733	-3,013	-20,099	-15,004	-48,846	-133,301
Kern	-31,587	-132,763	-38,614	-42,941	-10,147	-30,269	-40,820	-327,141
Total	-91,442	-327,815	-130,394	-129,087	-101,219	-86,148	-125,764	-991,870

https://waterblueprintca.com/wp-content/uploads/2021/09/Blueprint.EIA_PhaseOne.2.28-v41.pdf

Figure 2

Change In Operating Income from SGMA Plus Surface Water Restrictions

Table 2: Change in Operating Income from SGMA Plus Surface Water Restrictions								
	Hay and Pasture	Tree Nuts	Tree Fruits	Vines	Corn	Vegetables	Field Crops and Grains	Total
<i>Operating Income (millions of 2016 dollars)</i>								
Madera	-1	-35	-27	-3	-1	-2	0	-69
Fresno	-7	-154	-287	-27	-5	-182	-9	-671
Merced	-3	-33	-9	-1	-3	-18	-2	-69
San Joaquin	0	-7	-15	0	0	-5	0	-29
Stanislaus	-3	-35	-4	-1	-4	-3	-1	-50
Tulare	-11	-42	-181	-11	-30	-4	-7	-286
Kings	-5	-43	-16	-1	-7	-35	-17	-123
Kern	-21	-195	-227	-29	-7	-134	-28	-641
SJV Direct	-51	-545	-767	-72	-57	-383	-64	-1,940
SJV Indirect	-32	-246	-334	-46	-51	-146	-32	-887
Other CA	-21	-109	-149	-73	-38	-89	-28	-507
Total	-105	-899	-1,251	-192	-146	-618	-124	-3,334

https://waterblueprintca.com/wp-content/uploads/2021/09/Blueprint.EIA_PhaseOne.2.28-v41.pdf

Figure 3

State of California Total Resident Population, 1850 to 2020

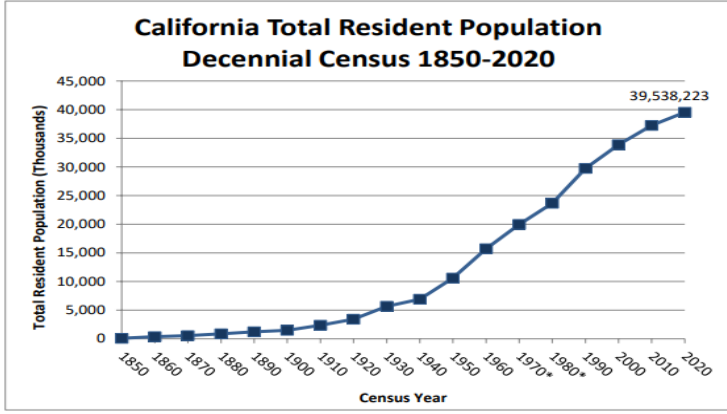
State of California Total Resident Population, 1850 to 2020

Source: US Census Bureau

For additional information, go to

<https://www.census.gov/data/tables/2020/dec/2020-apportionment-data.html>

Census Year	Total Resident Population	Percent Change
1850	92,597	
1860	379,994	310.4%
1870	560,247	47.4%
1880	864,694	54.3%
1890	1,213,398	40.3%
1900	1,485,053	22.4%
1910	2,377,549	60.1%
1920	3,426,861	44.1%
1930	5,677,251	65.7%
1940	6,907,387	21.7%
1950	10,586,223	53.3%
1960	15,717,204	48.5%
1970*	19,971,069	27.1%
1980*	23,667,764	18.5%
1990	29,760,021	25.7%
2000	33,871,648	13.8%
2010	37,253,956	10.0%
2020	39,538,223	6.1%



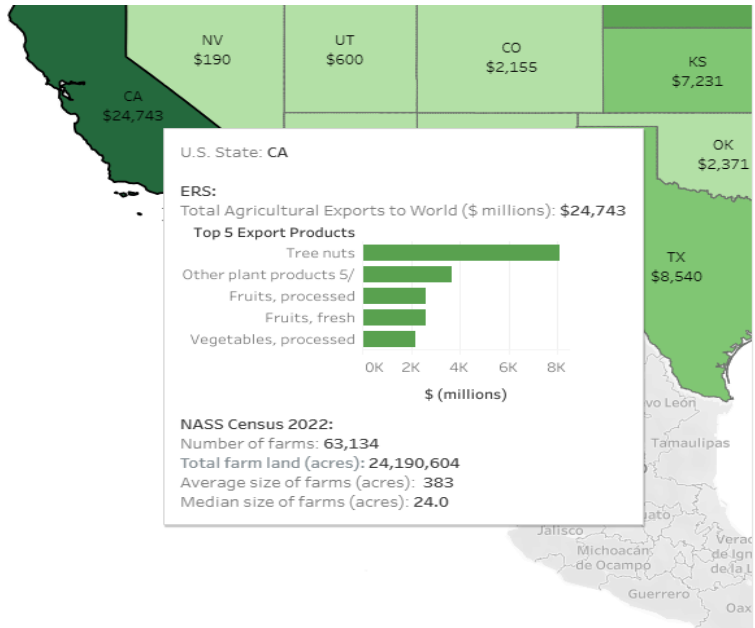
* Revised after apportionment.

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<https://dof.ca.gov/wp-content/uploads/sites/352/Forecasting/Demographics/Documents/California-Apportionment-1860-2020.pdf>

Figure 4

Total Agricultural Exports to the World (\$ millions)



Sources: USDA ERS State Agricultural Export Data
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<https://fas.usda.gov/data/mapping-us-state-agricultural-exports>

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