

Building a Resilient Water System

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What are our goals?

- Only “new” water?
- Or new water *and* reliable, timely, and appropriate water?

NRDC/Pacific Institute Findings

ISSUE BRIEF

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The Untapped Potential of California's Water Supply: Efficiency, Reuse, and Stormwater

California is suffering from a third year of drought, with near-record-low reservoirs, mountain snowpack, soil moisture, and river runoff. As a direct result, far less water than usual is available for cities, farms, and natural ecosystems. There are far-reaching effects that will intensify if dry conditions persist. Several response strategies are available that will provide both near-term relief and long-term benefits. This report examines the significant potential contributions available from four priority opportunities: improved efficiency in urban and agricultural water use, reuse and recycling of water, and increased capture of local rain water.



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“[T]here is tremendous untapped potential to improve efficiency and augment supplies in California. Water efficiency, water reuse, and stormwater capture can provide **10.8 million – 13.7 million acre-feet of water in new supplies and demand reductions**. These alternatives can provide both effective drought responses in the near-term and permanent water-supply reliability benefits for the state.”

Every year, California uses
6 MILLION ACRE-FEET
more water than our rivers and
aquifers can sustainably provide

Every year, California
could save up to
14 MILLION ACRE-FEET
of water to close this gap

That's enough water to irrigate
all of the orchards, nuts, berries, vineyards,
tomatoes, lettuces, rice, and vegetables grown
in California, with water left over.

**Agricultural Efficiency:
5.6-6.6 MILLION ACRE-FEET**

- Use smart irrigation scheduling to ensure crops are watered when they most need it
- Use deficit irrigation to limit water use at drought-tolerant growth stages
- Expand efficient drip and sprinkler irrigation technology

**Stormwater Capture:
0.4-0.6 MILLION ACRE-FEET**

- Install rainwater barrels and cisterns at homes and businesses
- Recharge groundwater with stormwater runoff

Water Reuse: 1.2-1.8 MILLION ACRE-FEET

- Use recycled water to irrigate landscapes and crops
- Install graywater systems to water lawns and flush toilets in homes and businesses
- Recharge groundwater with recycled water

**Urban Efficiency:
2.9-5.2 MILLION ACRE-FEET**

- Replace unneeded turf grass with native and drought-tolerant plants
- Accelerate replacement of inefficient plumbing fixtures and appliances
- Find and fix water leakage in buildings and under streets
- Operate cooling towers more efficiently in factories and office buildings



Get the Drought Series Fact Sheets at:
www.nrdc.org/water/ca-water-supply-solutions.asp
www.pacinst.org/publication/ca-water-supply-solutions

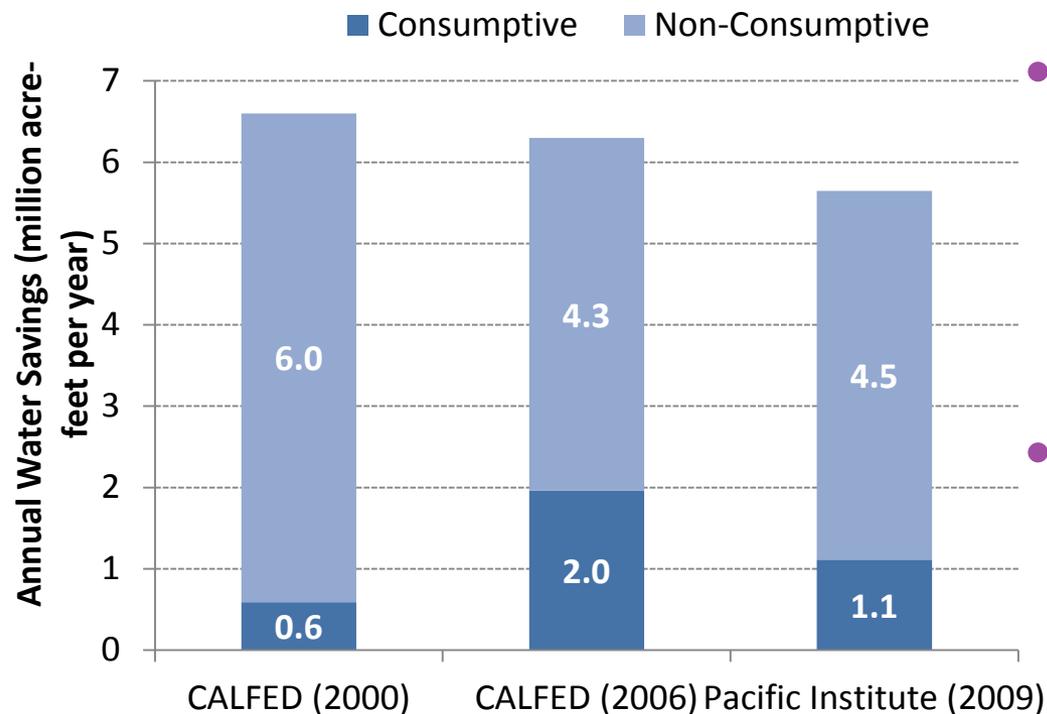
* 1 Million Acre-Feet is generally enough to supply
2 million families for 1 year (until we all become more efficient!)

- Focused on improving *resiliency*, not just increasing *supply*

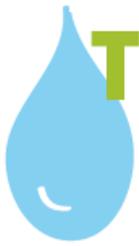
Findings: Water Reuse, Stormwater Capture, and Urban Efficiency

- **Water Reuse** could provide an additional 1.2 – 1.8 MAF/year
- **Stormwater Capture** could provide an additional 420,000 – 630,000 AF/year to coastal communities
- **Urban Efficiency** could be increased by 30% - 60%, decreasing demand by 2.9 – 5.2 MAF/year

Findings: Ag Efficiency

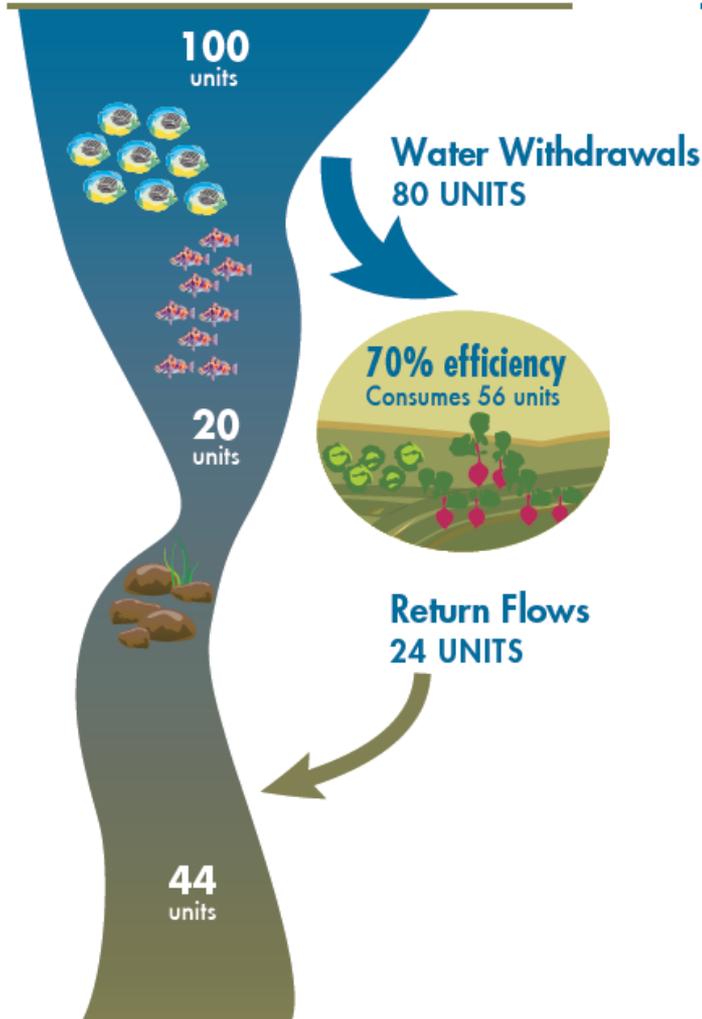


- **Agricultural Water Efficiency** could be increased by 17% - 22%, reducing demand by 5.6 – 6.6 MAF/year
- **Consumptive savings** of 0.6 – 2.0 MAF/year

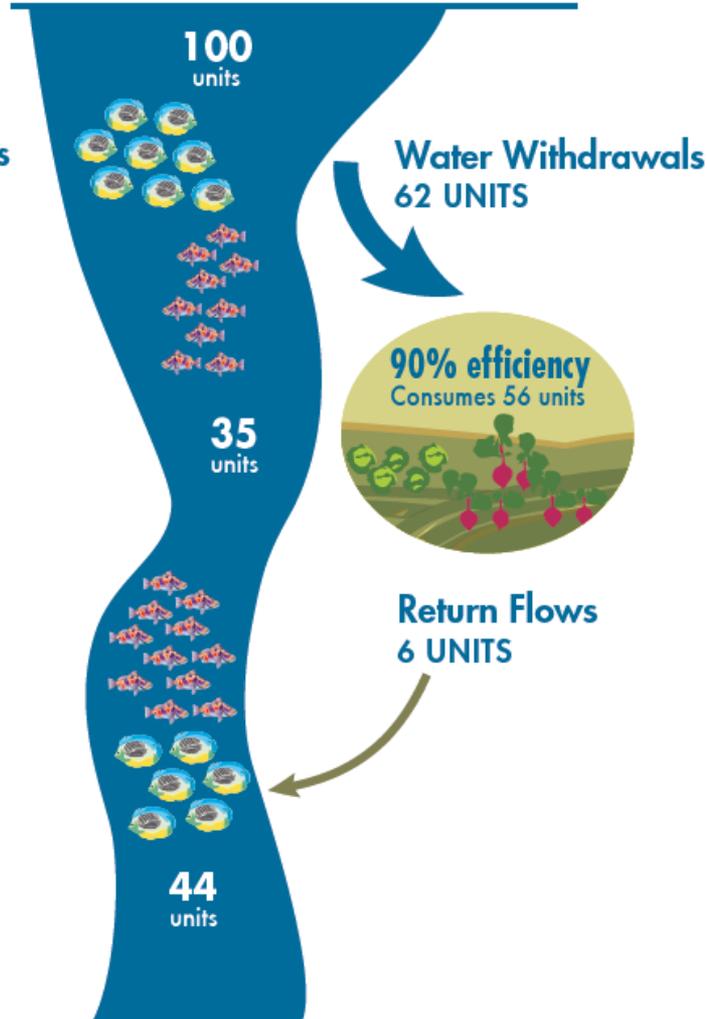


The Real Benefits of Water Efficiency

LESS EFFICIENT WATER USE



MORE EFFICIENT WATER USE

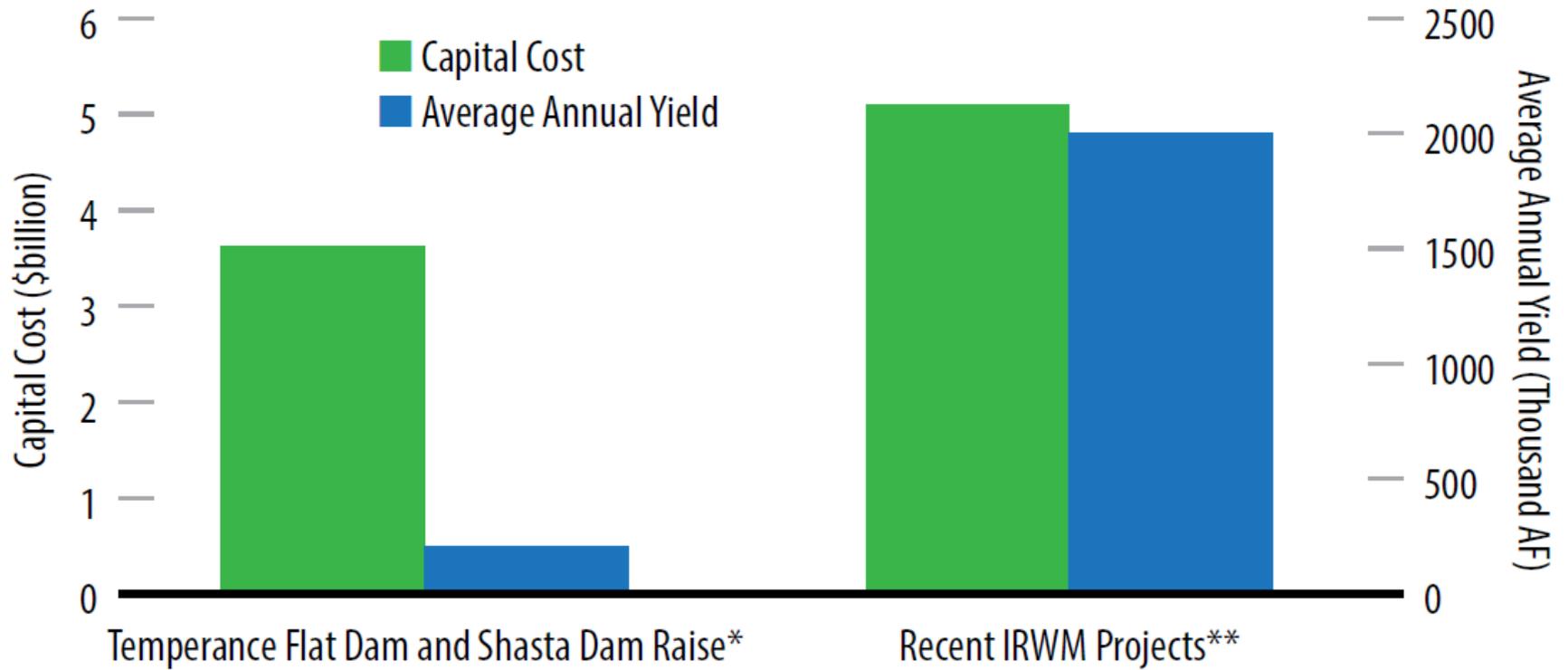


BENEFITS OF EFFICIENCY INCLUDE:

- Less polluted runoff into rivers, streams, and groundwater aquifers
- More water to support in-stream flows
- Lower energy use from pumping
- Reduce or eliminate need for expensive infrastructure
- Less vulnerability to drought

Source: Pacific Institute

Figure 1: Capital cost and annual water yield comparison



Take Aways

- Our goal is broader than “new water;” we need to have a resilient system that can provide the right kind of water in the right place at the right time
- Improved efficiency (in urban and ag) is *often* the cheapest and quickest way to work toward that resilient system



Thank You!

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