

Stormwater Capture for Water Supply in California

Morgan Shimabuku

Pacific Institute
October 27, 2022



Pacific Institute helps solve global water challenges.

- Non-profit, 501(c)3, established in 1987
- **Mission:** Create and advance solutions to the world's most pressing water challenges
- Headquartered in Oakland, California, with research staff in other parts of U.S., as well as globally
- Supported by foundation grants, government and private sector contracts, and individual donors

Pacific Institute and CA Stormwater Capture

ISSUE BRIEF
JUNE 2014
IB 1405-C

The Untapped Potential of California's Urban Water Supply

California is suffering from a severe drought. The lack of snowpack, soil moisture, and rainfall has made water available for cities, farms, and businesses scarce. This drought has intensified if dry conditions continue. Both near-term relief and long-term solutions are needed. Contributions available from agricultural water users, urban water users, and the state are being explored.

© Ron Kozetz Flickr Creative Commons

Economic evaluation of stormwater capture and its multiple benefits in California

Sarah E. Diring , Morgan Shimabuku , Heather Cooley

Published: March 24, 2020 <https://doi.org/10.1371/journal.pone.0230549>

Article

- Abstract
- Introduction
- Methods
- Results
- Discussion
- Conclusions
- Supporting information
- Acknowledgments
- References

Reader Comments (0)
Media Coverage (0)
Figures

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

Heather Cooley, Anne Thebo, Sonali Abraham, Morgan Shimabuku, Peter Gleick, Sarah Diring

PACIFIC INSTITUTE

April 2022

Pacific Institute and CA Stormwater Capture

Hydrologic Region	Urban Stormwater Capture Potential (AFY)		
	Low Precipitation	Medium Precipitation	High Precipitation
Central Coast	20,000	89,000	140,000
Colorado River	11,000	11,000	36,000
North Coast	31,000	82,000	130,000
North Lahontan	3,000	7,000	10,000
Sacramento River	84,000	250,000	350,000
San Francisco Bay	85,000	300,000	460,000
San Joaquin River	40,000	110,000	170,000
South Coast	260,000	620,000	1,400,000
South Lahontan	12,000	23,000	63,000
Tulare Lake	34,000	90,000	180,000
Total	580,000	1,600,000	3,000,000

Notes: Numbers are rounded to two significant figures. Totals may not equal column sums due to rounding.

Source: Cooley et al., 2022. *The Untapped Potential of California's Urban Water Supply: Water Efficiency, Water Reuse, and Stormwater Capture*. Pacific Institute.

Stormwater Capture and Use: Challenges

- Unknown baseline of existing capture and use
- Lack of a standardized method for measuring and accounting for multiple-benefits
- Distributed nature is a challenge under traditional water supply paradigm
- Water quality & associated treatment needs (including cost of treatment)
- Urban landscapes are a mix of public and private
- Onerous voter-approval requirements for stormwater services



Stormwater Capture and Use: Opportunities

- Framework to support urban communities identify optimal mix of centralized and decentralized projects
- Incentives for on-site capture and use by private and public entities and public-private partnerships
- Develop a systematic approach to measuring and tracking stormwater capture, especially for future projects
- Stacked incentive opportunities
- SB 996 passed in 2018: risk-based water quality standards for onsite treatment and reuse of nonpotable water to be available relatively soon



Moscone Center in SF captures, treats, and reuses 46 AF of rainwater, drainage, and steam condensate annually.

Stormwater Capture and Use: Examples



Fresno recharges approximately 17,000 AF of stormwater per year via 165 distributed stormwater basins across the city.



**Component 2 - Alternative Water Supply
Sustainable Water Infrastructure Project (SWIP)**

City of Santa Monica's Sustainable Water Infrastructure Project (SWIP) will produce up to 1,680 AF per year of treated recycled water, (including stormwater, dry weather runoff, and municipal wastewater).

Thank You

Morgan Shimabuku
Senior Researcher
Pacific Institute

mshimabuku@pacinst.org
www.pacinst.org