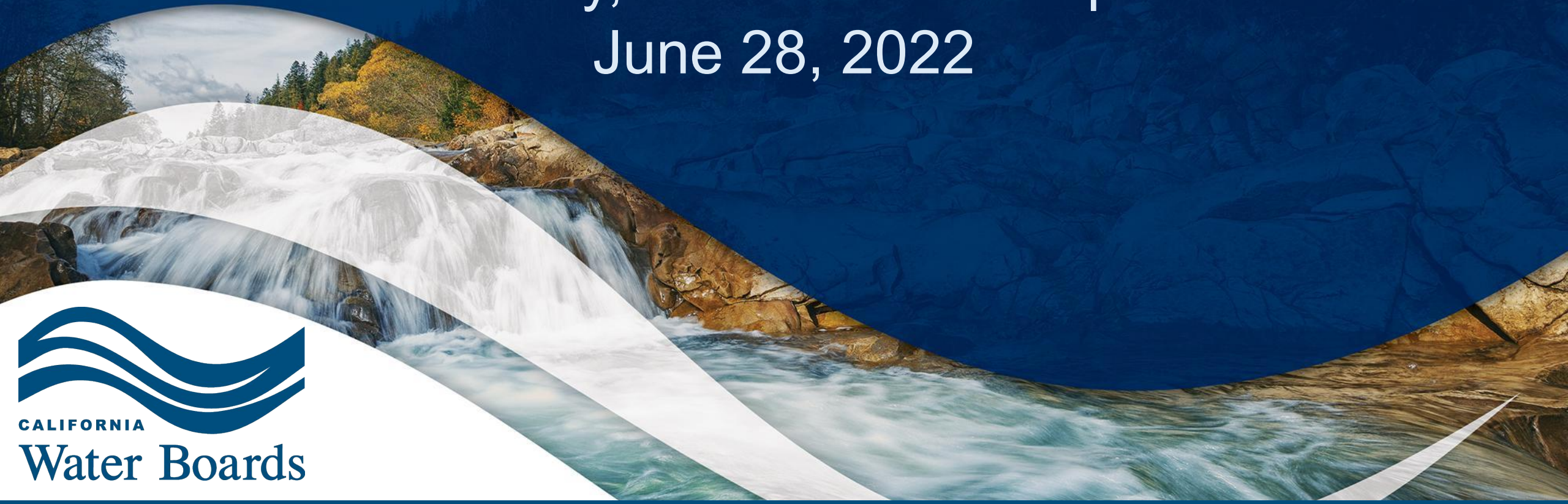
Equitably Advancing Water Conservation in the Bay Area

Charlotte Ely, Conservation Supervisor

June 28, 2022



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Agenda

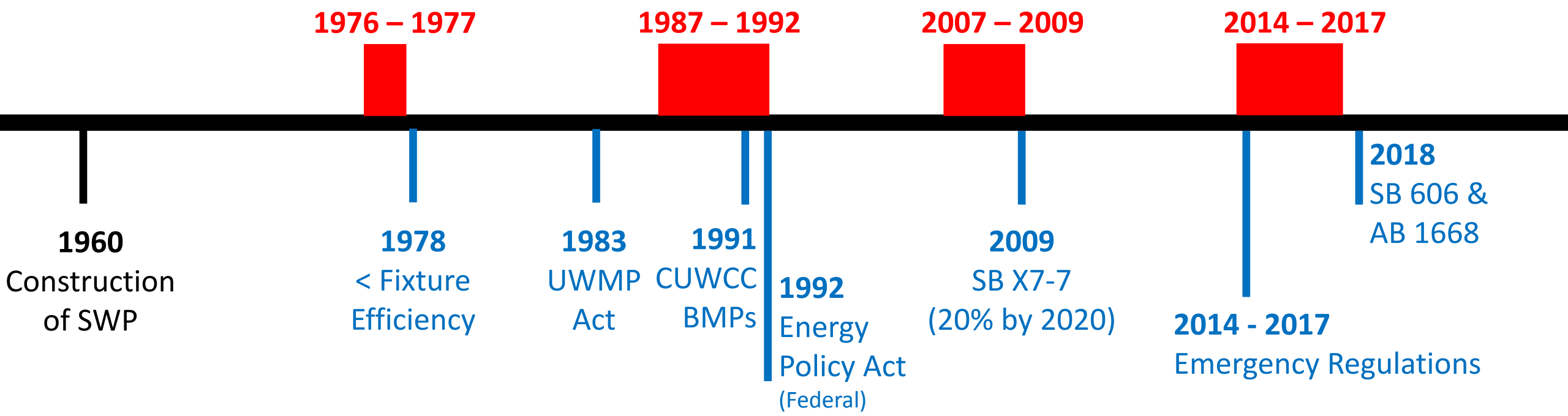
- A brief history of water conservation in California
- Looking toward the future: Introducing AB 1668 & SB 606
- Water Use Objective Exploration Tool
- Rate payer assistance and keeping water services affordable
- State and federal funding

Why make water conservation a CA way of life?

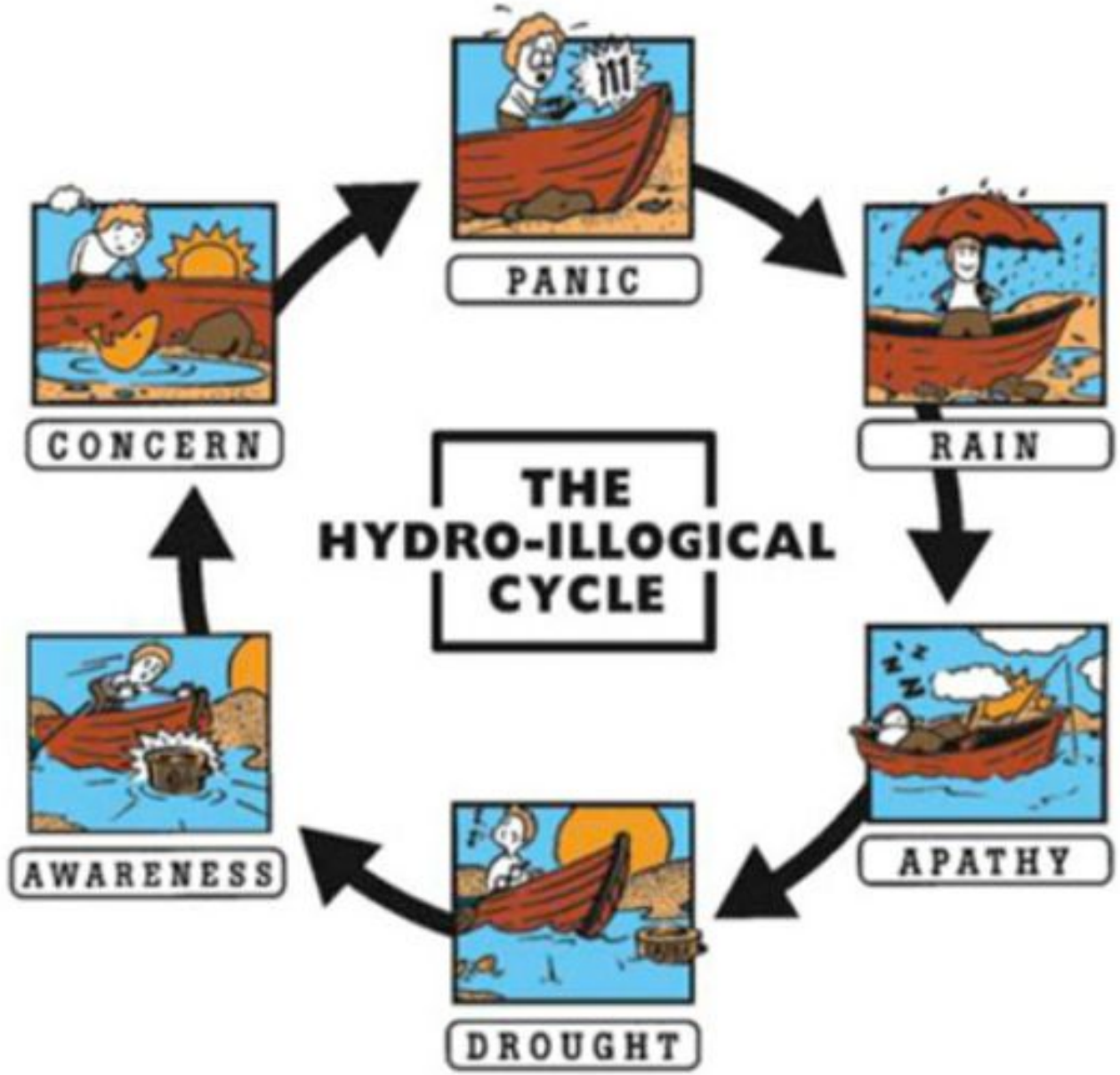
- Protects beneficial uses
  - Water supply
  - Water quality
  - Recreation
  - Habitat
- Saves energy & reduces GHG emissions
- Creates more resilient communities
- Keeps water rates affordable
- Encourages CA-friendly landscapes (i.e., water for trees to provide shade; for native plants to feed pollinators, etc.)

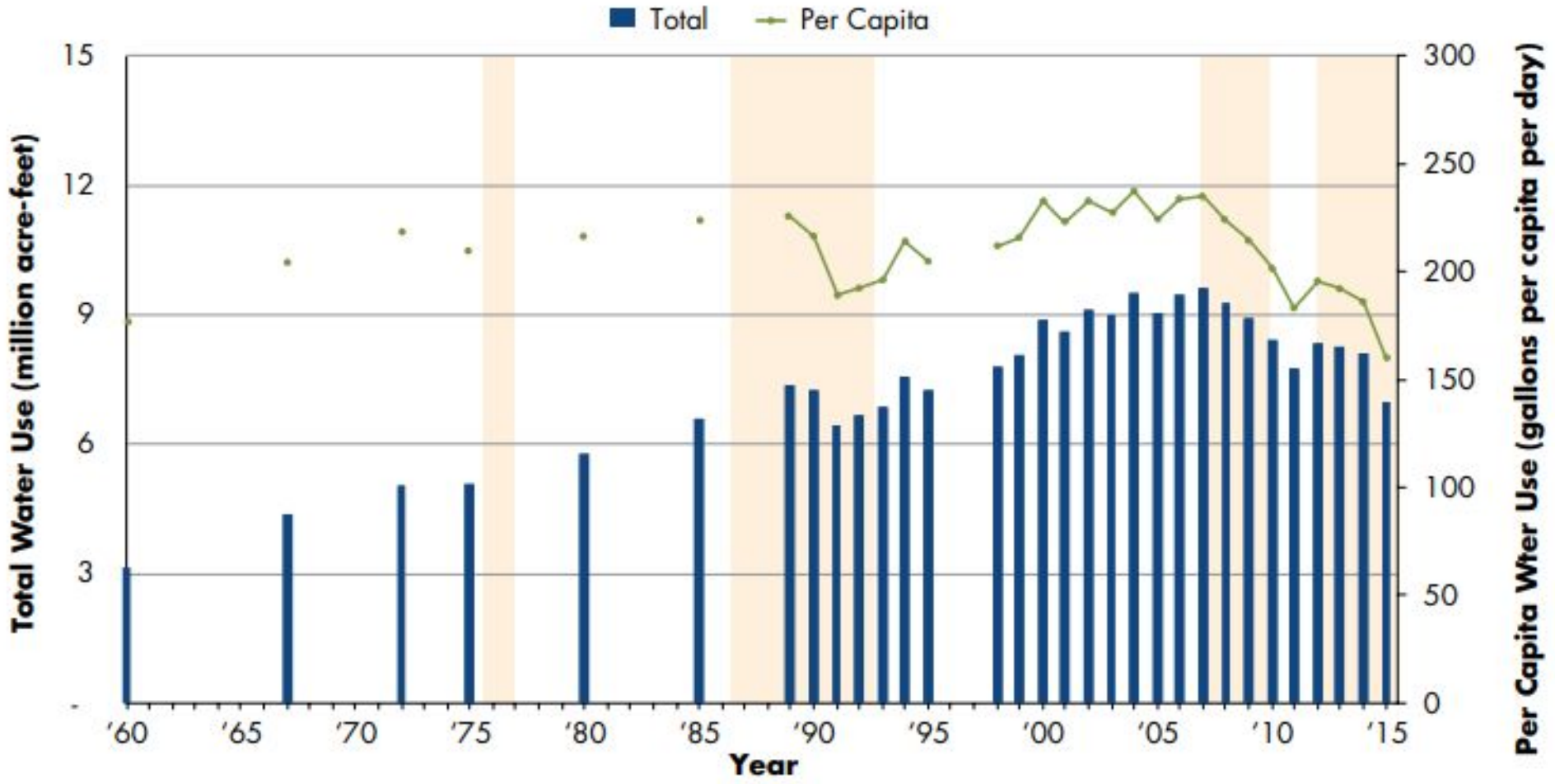
Droughts and conservation milestones in CA

Major droughts



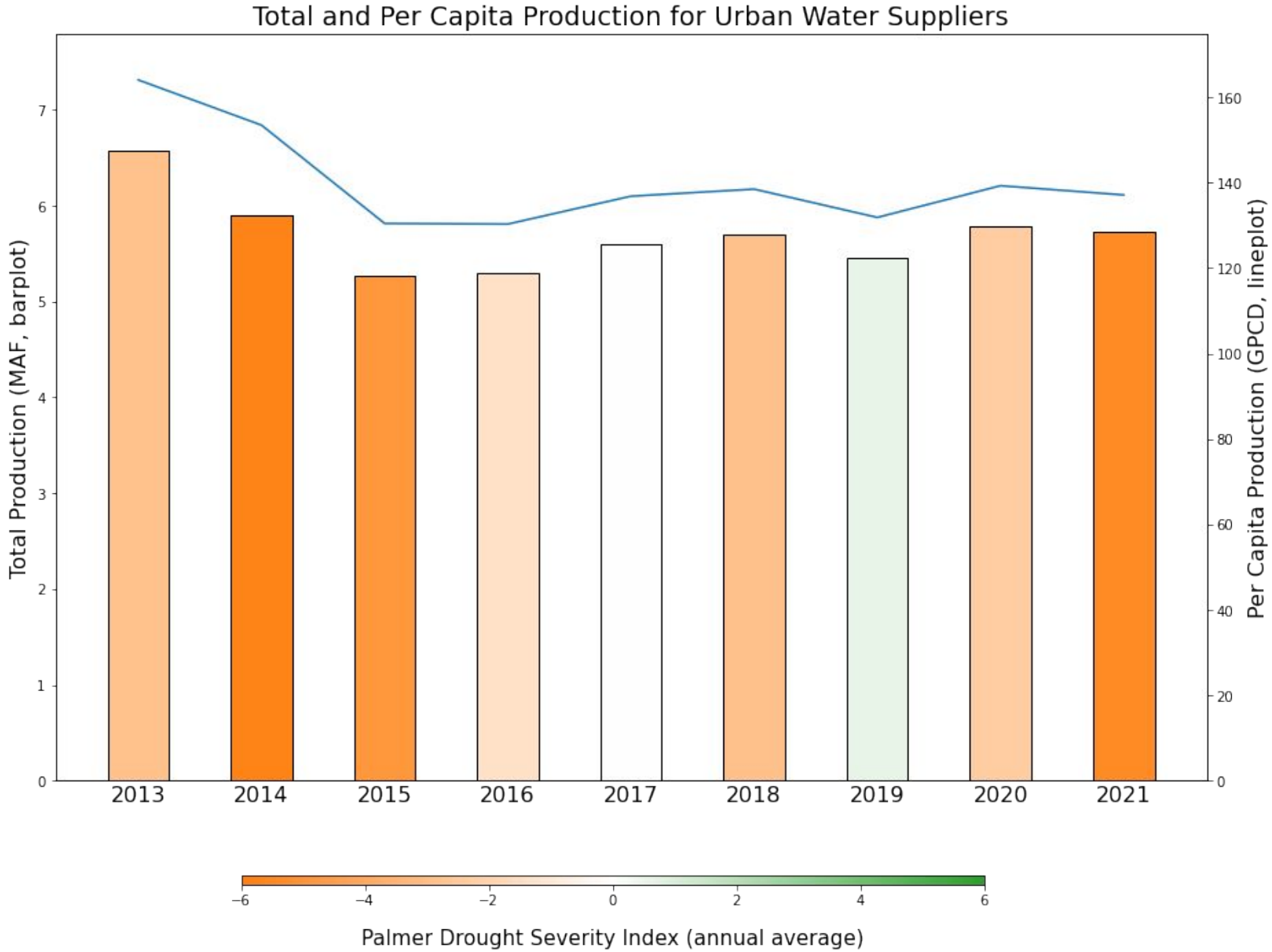
Major conservation milestones


THE HYDRO-ILLOGICAL CYCLE
PANIC
RAIN
APATHY
DROUGHT
AWARENESS
CONCERN



Total and Per Capita Water Use in California, 1960- 2015

Source: Heather, Cooley. 2020. *Urban and Agricultural Water Use in California, 1960–2015.*


Total and Per Capita Production for Urban Water Suppliers
Total Production (MAF, barplot)
Per Capita Production (GPCD, lineplot)
0
1
2
3
4
5
6
7
0
20
40
60
80
100
120
140
160
2013
2014
2015
2016
2017
2018
2019
2020
2021
−6
−4
−2
0
2
4
6
Palmer Drought Severity Index (annual average)

How past statewide efforts have been criticized

Critiques from advocates

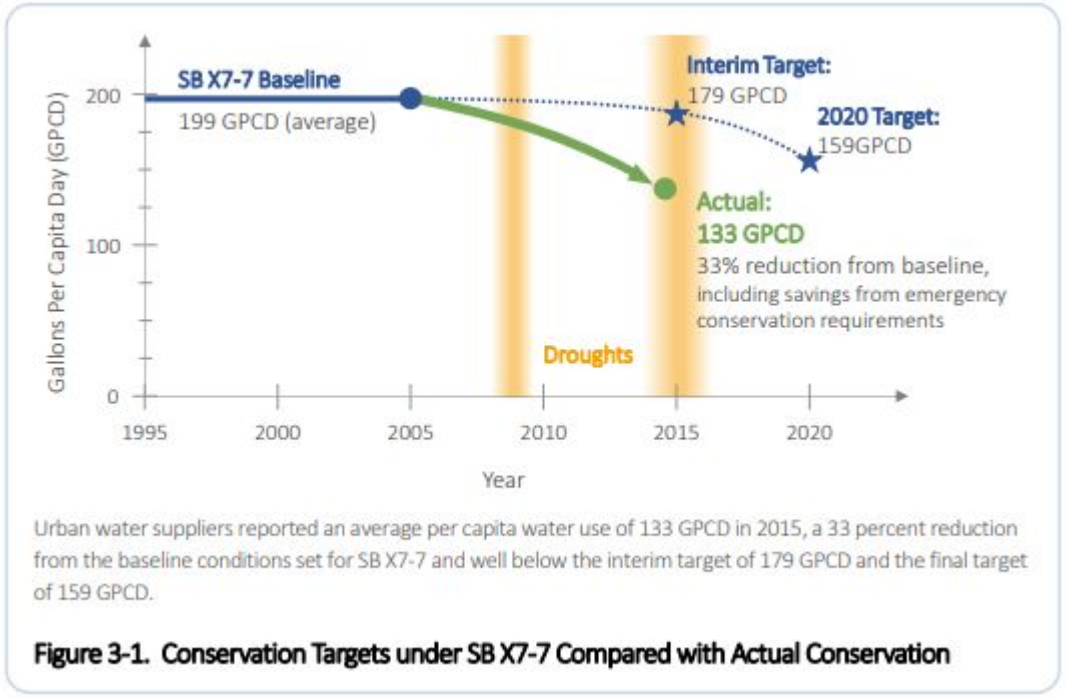
- Inadequate b/c of failure to:
  - Substantively reduce urban use
  - Curb agricultural use
  - Adapt to a changing climate
  - Protect ecosystems
- Inequitable b/c:
  - Subsidizes more affluent communities
  - Doesn’t improve access and affordability

Critiques from URWS

- Harms urban trees
- Burdensome
  - Excessive reporting
- Expensive
- Draconian "one-size-fits-all" approach
- Unfair, failing to take into consideration:
  - Unique local conditions
  - Past investments

SB x7-7: Reduce use 20% by 2020

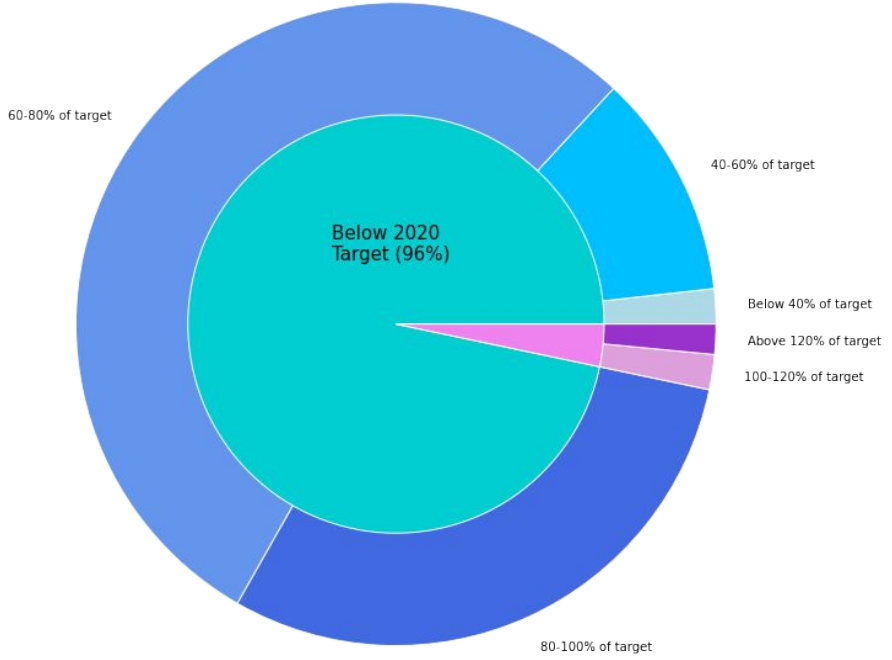
Statewide target exceeded by 2015



Urban water suppliers reported an average per capita water use of 133 GPCD in 2015, a 33 percent reduction from the baseline conditions set for SB X7-7 and well below the interim target of 179 GPCD and the final target of 159 GPCD.

Figure 3-1. Conservation Targets under SB X7-7 Compared with Actual Conservation

Most suppliers exceeded theirs too



Emergency drought response (2014-2017)

Lessons learned

- What gets measured, gets managed
- Simple, easy-to-message, and uniform approaches led to big water savings
- Strong desire for a more tailored approach, based on more nuanced data.
- Need to more sustainably transition from turf-dominant to California-friendly landscapes

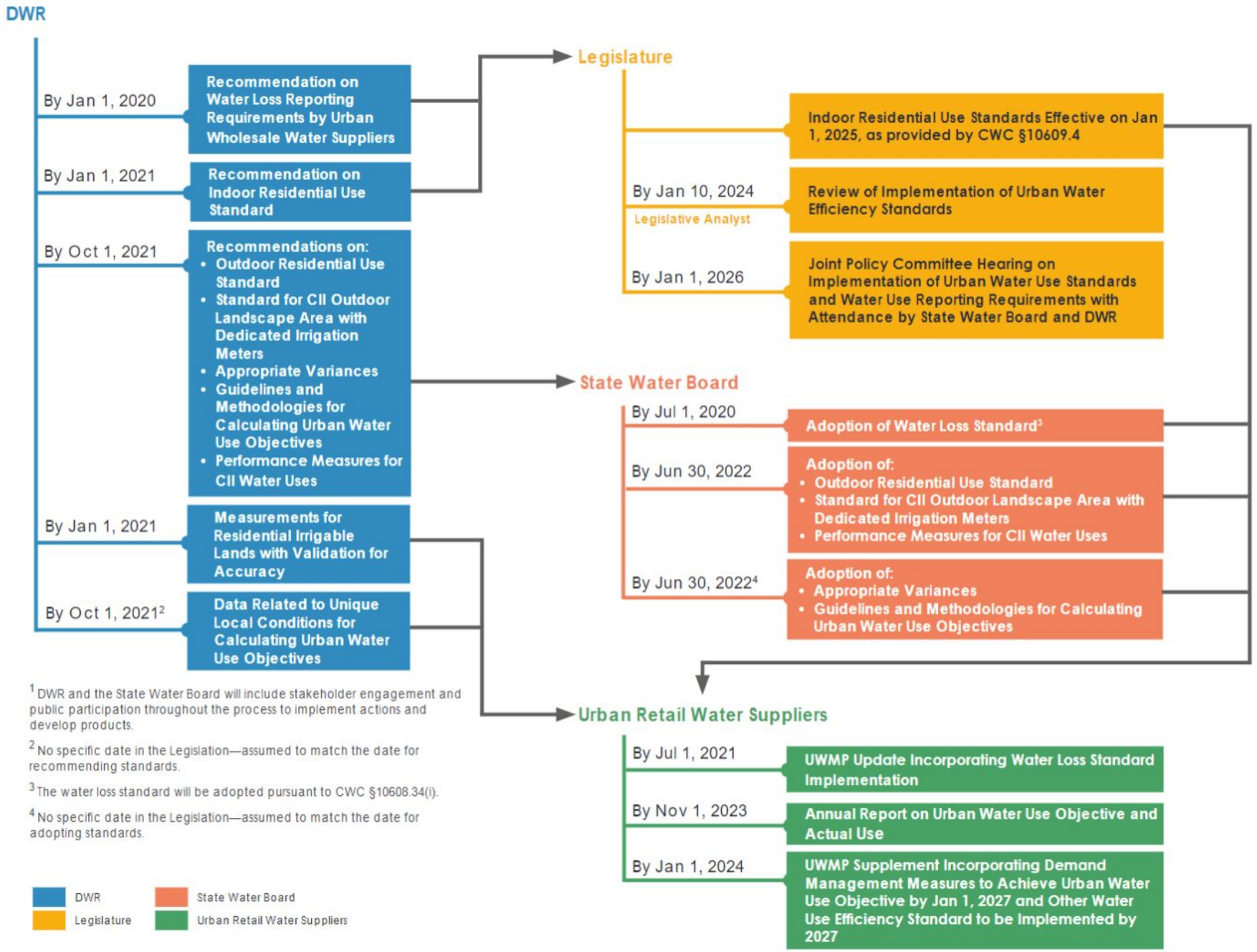
Making Conservation a CA way of Life: Background

- 2018 conservation legislation:
  - Senate Bill (SB) 606 (Hertzberg)
  - Assembly Bill (AB) 1668 (Friedman).
- Established a new framework for urban water management
- Major actions:
  - DWR provides recommendations
  - State Water Board conducts rulemaking
  - Urban Retail Water Suppliers calculate "objectives"

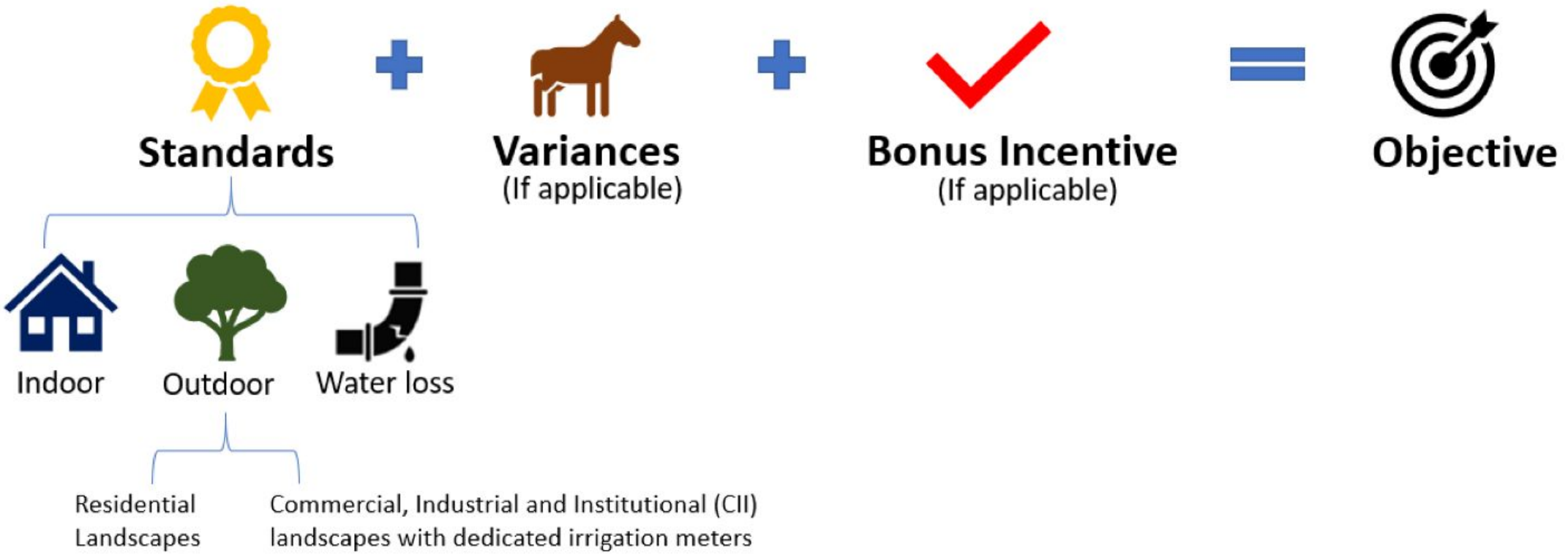
Making Conservation a CA Way of Life:
How AB 1668 & SB 606 can address critiques

- **Supports our mission**: Protect beneficial uses
- **Forward-looking**: Recognize the severity of water challenges before us
- **Transformative**: Result in increased water use efficiency, indoors and out
- **Progressive**: Become more stringent over time
- **Flexible**: Allow for diverse compliance strategies
- **Tailored:** Take into consideration local conditions and past investments
- **Data-driven**: Rely on and be informed by up-to-date and more nuanced data
- **More equitable:** Creates a framework compatible with budget-based rates
- **Tree-centric**: Sustainably transition us away from turf-dominant landscapes
- **Pollinator-friendly**: Encourage use of native plants that support imperiled species

You are here


DWR
By Jan 1, 2020
Recommendation on Water Loss Reporting Requirements by Urban Wholesale Water Suppliers
By Jan 1, 2021
Recommendation on Indoor Residential Use Standard
By Oct 1, 2021
Recommendations on:
• Outdoor Residential Use Standard
• Standard for CII Outdoor Landscape Area with Dedicated Irrigation Meters
• Appropriate Variances
• Guidelines and Methodologies for Calculating Urban Water Use Objectives
• Performance Measures for CII Water Uses
By Jan 1, 2021
Measurements for Residential Irrigable Lands with Validation for Accuracy
By Oct 1, 2021[2]
Data Related to Unique Local Conditions for Calculating Urban Water Use Objectives
Legislature
Indoor Residential Use Standards Effective on Jan 1, 2025, as provided by CWC §10609.4
By Jan 10, 2024
Legislative Analyst
Review of Implementation of Urban Water Efficiency Standards
By Jan 1, 2026
Joint Policy Committee Hearing on Implementation of Urban Water Use Standards and Water Use Reporting Requirements with Attendance by State Water Board and DWR
State Water Board
By Jul 1, 2020
Adoption of Water Loss Standard[3]
By Jun 30, 2022
Adoption of:
• Outdoor Residential Use Standard
• Standard for CII Outdoor Landscape Area with Dedicated Irrigation Meters
• Performance Measures for CII Water Uses
By Jun 30, 2022[4]
Adoption of:
• Appropriate Variances
• Guidelines and Methodologies for Calculating Urban Water Use Objectives
Urban Retail Water Suppliers
By Jul 1, 2021
UWMP Update Incorporating Water Loss Standard Implementation
By Nov 1, 2023
Annual Report on Urban Water Use Objective and Actual Use
By Jan 1, 2024
UWMP Supplement Incorporating Demand Management Measures to Achieve Urban Water Use Objective by Jan 1, 2027 and Other Water Use Efficiency Standard to be Implemented by 2027
[1] DWR and the State Water Board will include stakeholder engagement and public participation throughout the process to implement actions and develop products.
[2] No specific date in the Legislation—assumed to match the date for recommending standards.
[3] The water loss standard will be adopted pursuant to CWC §10608.34(i).
[4] No specific date in the Legislation—assumed to match the date for adopting standards.
DWR
State Water Board
Legislature
Urban Retail Water Suppliers

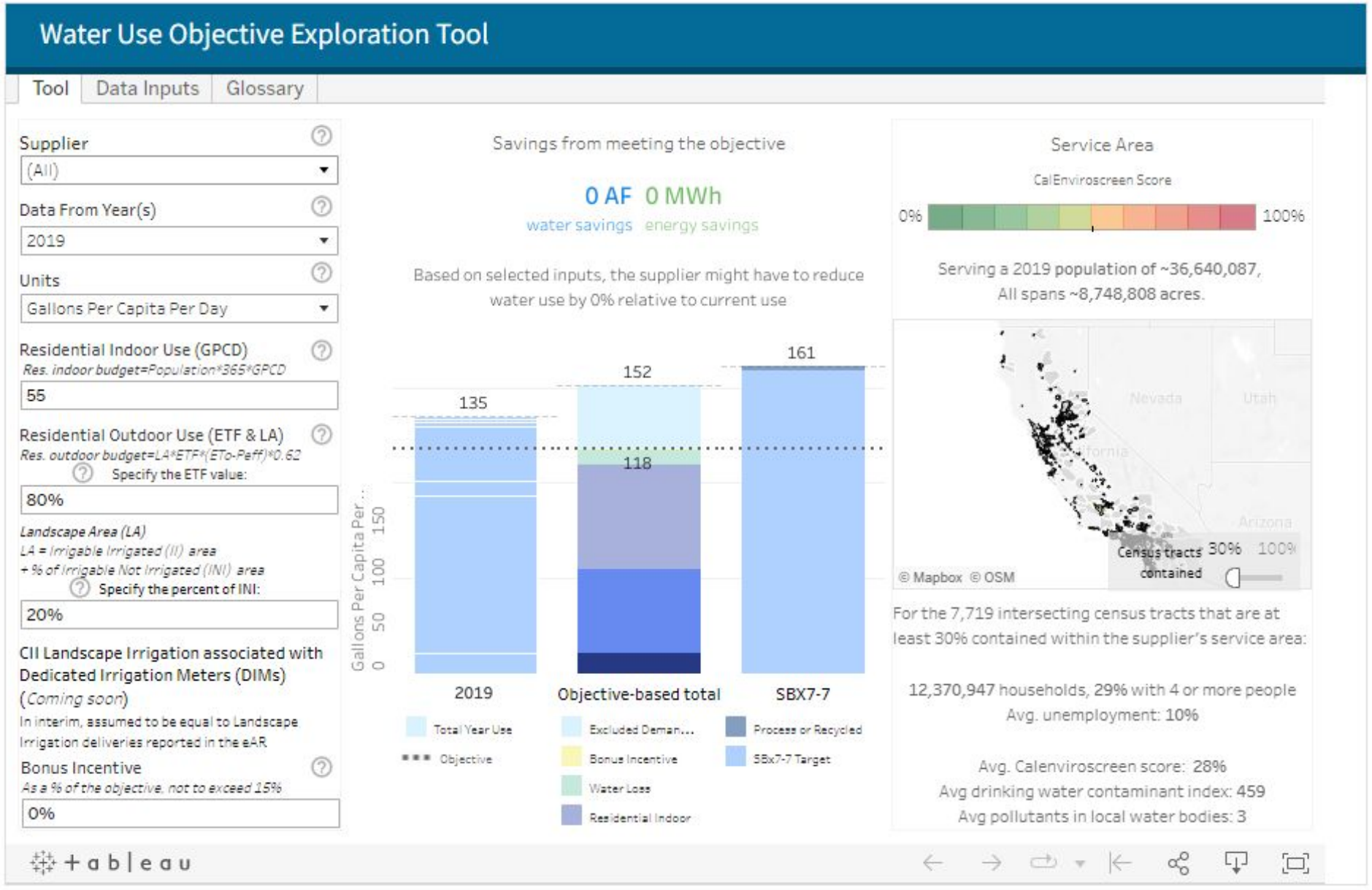
Urban Water Use Objective



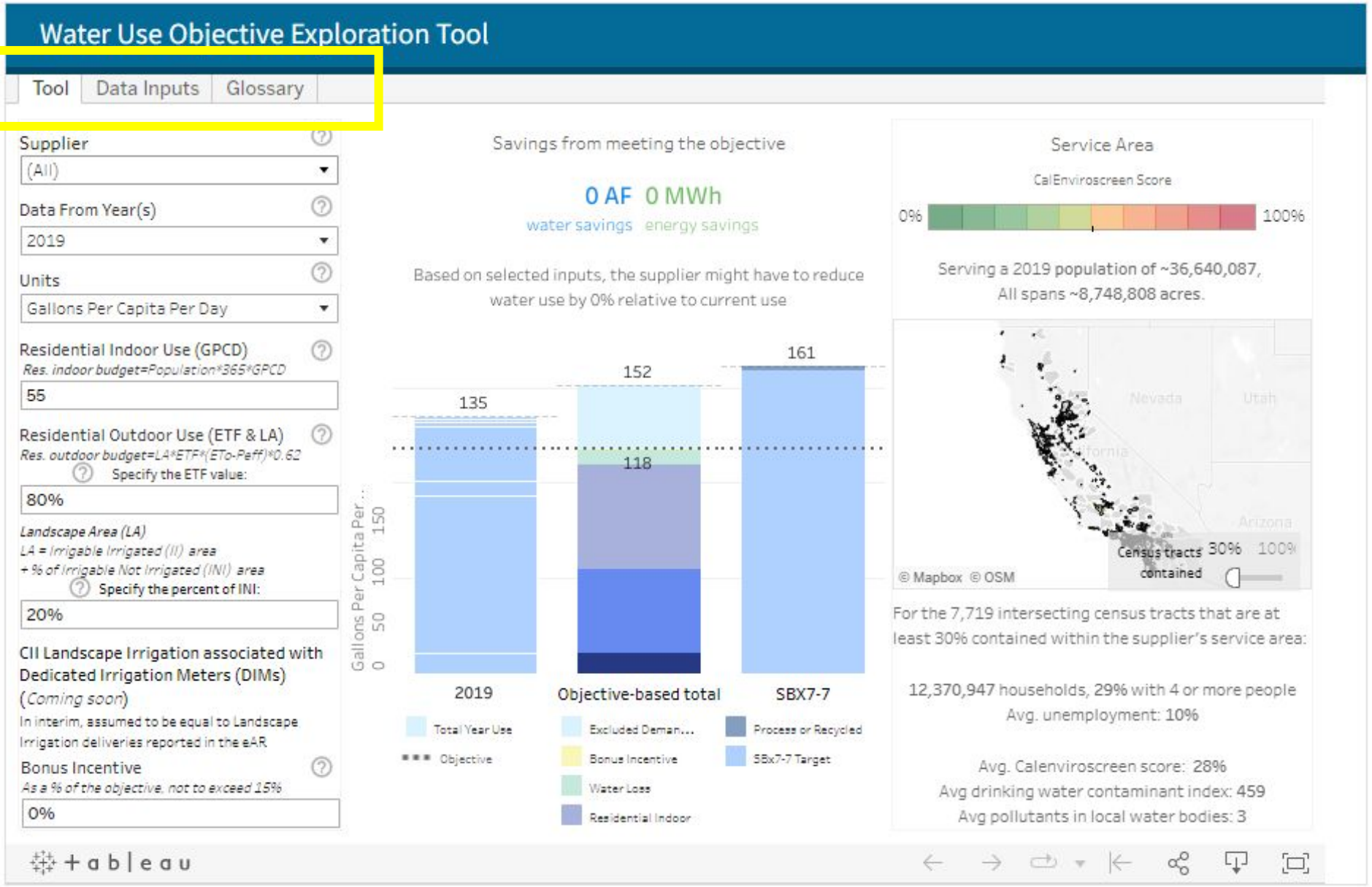
Objective Exploration Tool

- Can be accessed from the SWB site: tinyurl.com/ObjectiveTool
- Currently has data from 2017-2019
- Work in progress that will be updated as more data become available. Feedback or corrected data are welcome and encouraged.
- Please e-mail the State Water Board's conservation team at ORPP-WaterConservation@Waterboards.ca.gov

Dashboard's landing page.

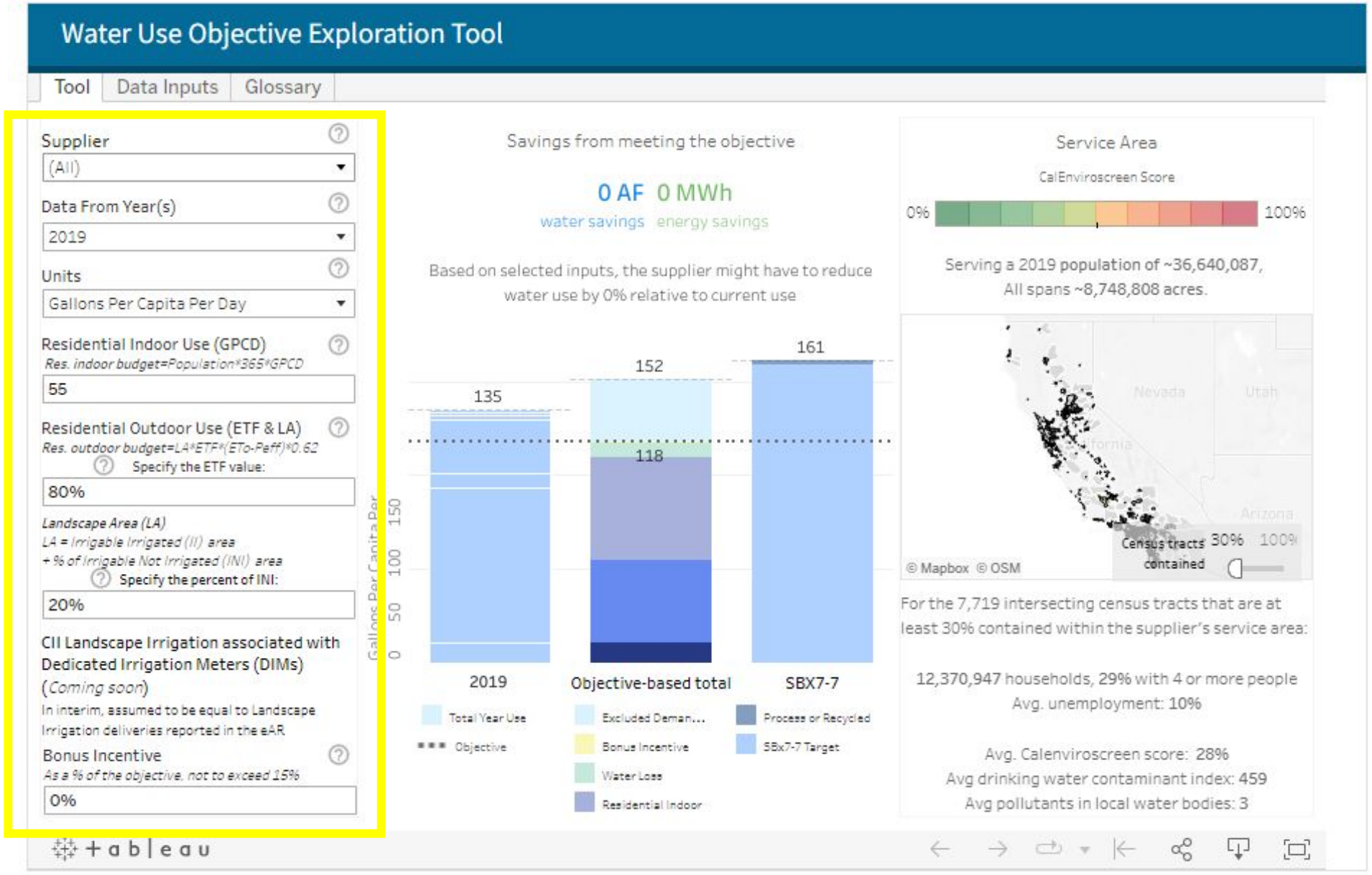


Dashboard has 3 tabs:
- Tool
- Data Inputs
- Glossary



Where the user adjusts the different parameters that affect the resulting objective.

User can hover to the ? for additional information on that parameter.

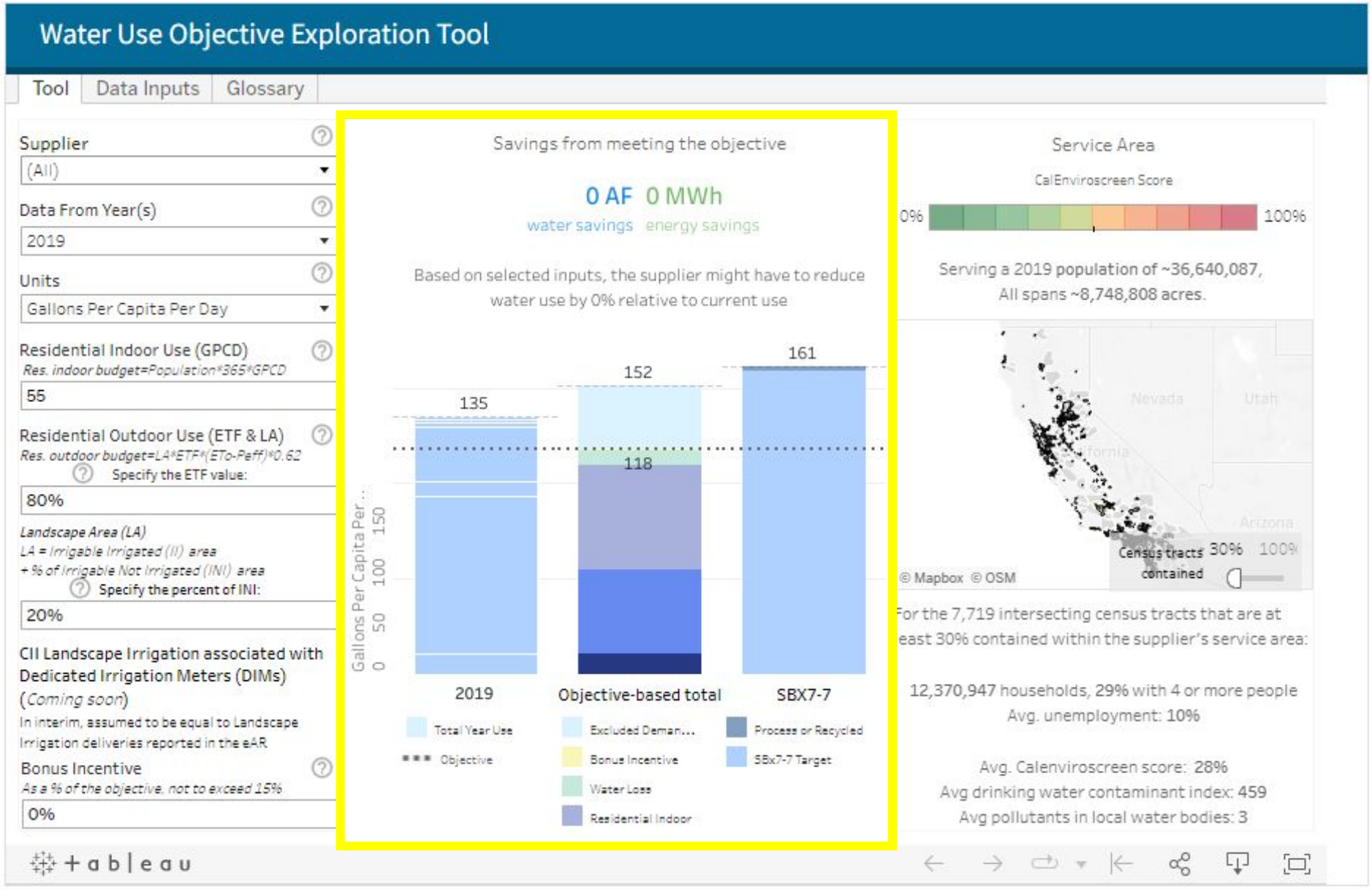


Where the results are shown.

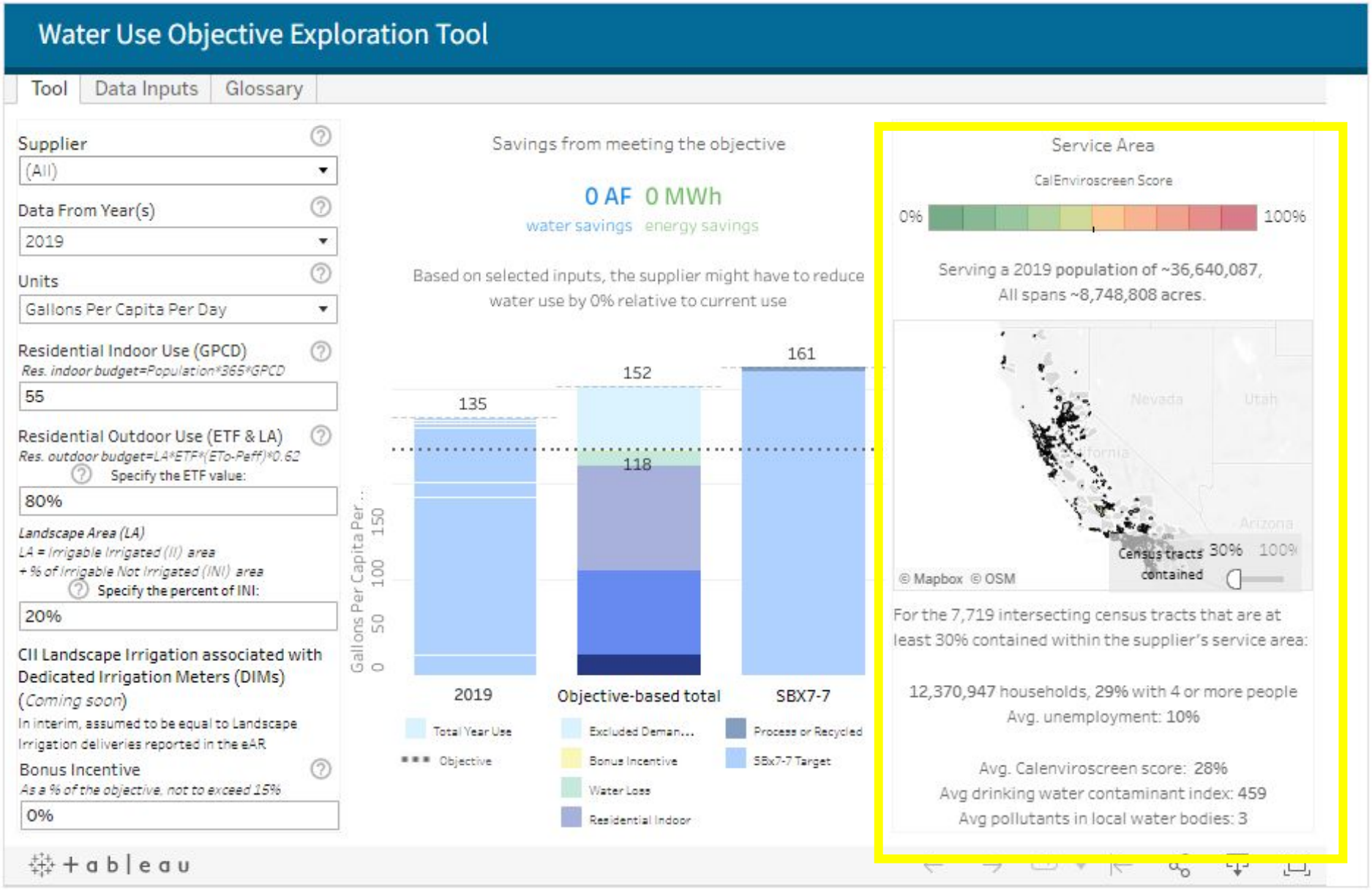
Additional information on how water savings and energy savings are calculated can be found in the "Glossary"

Left bar represents current use.
Middle bar is calculated using the parameter inputs.
Right bar is the SBx7-7 target.

Dashed line is the objective.



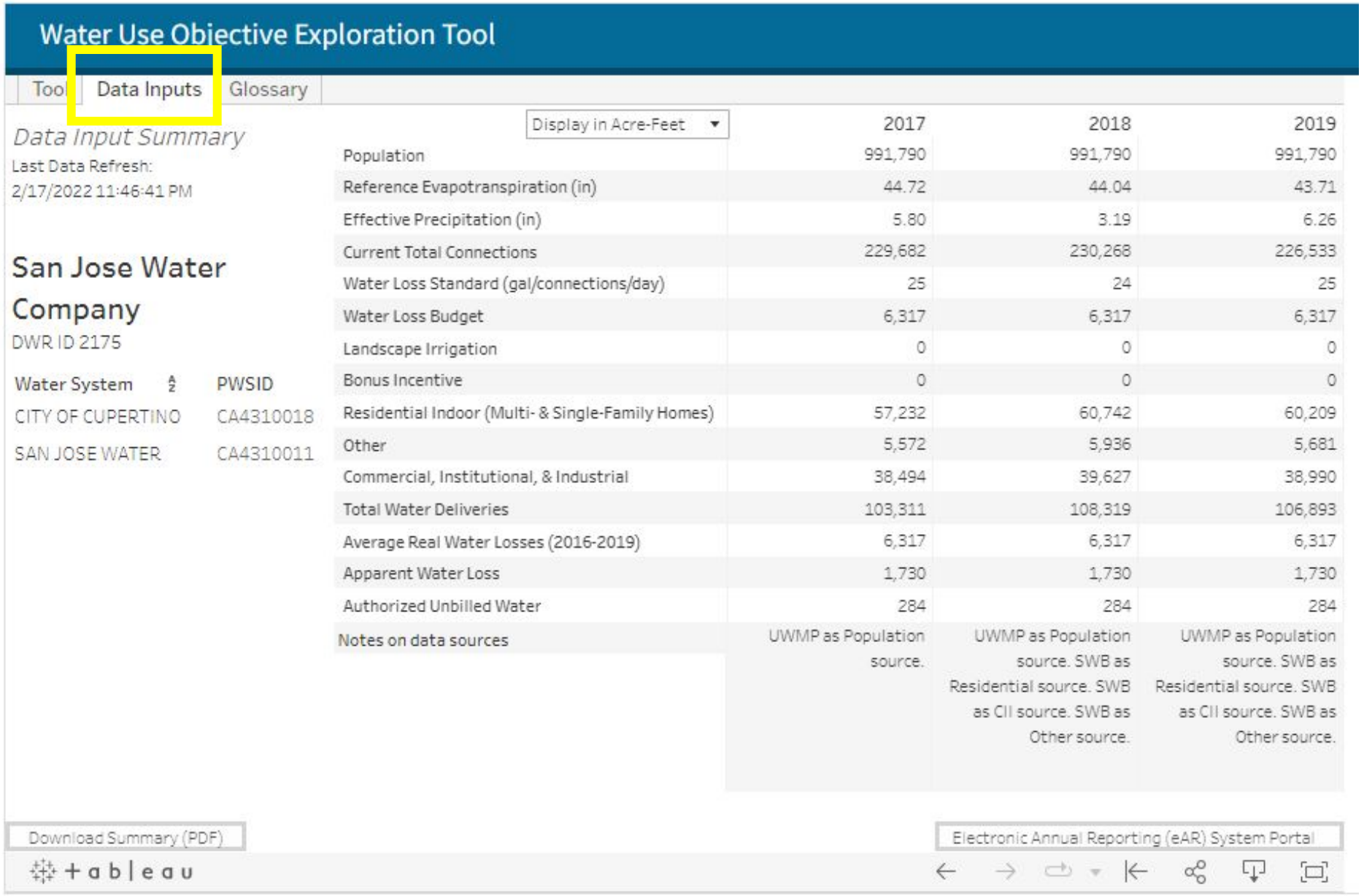
Where the service area, CalEnviroscreen scores, and summary demographics are shown



Gives a summary of all the data used by the Tool.

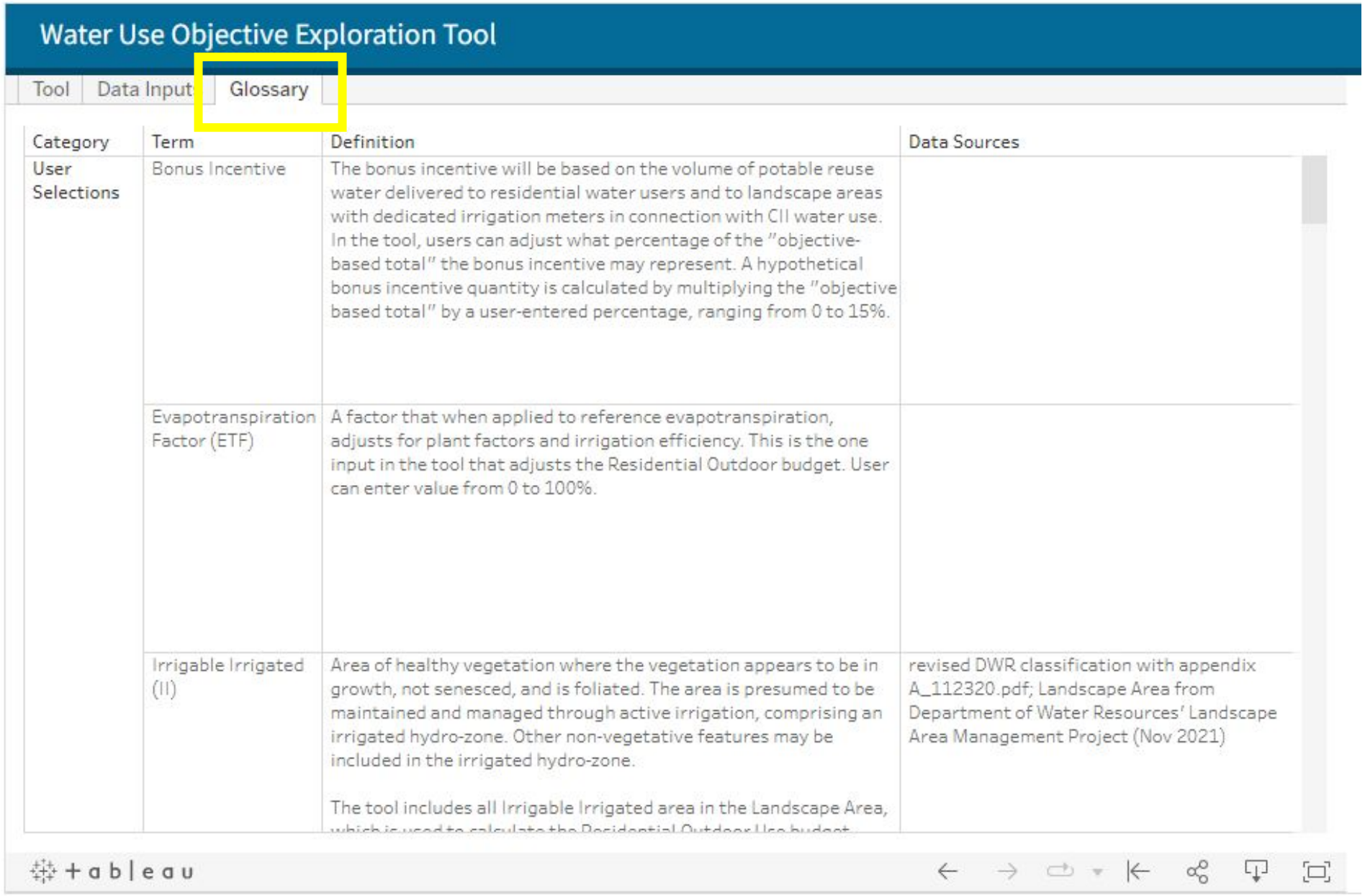
User can download one or more tabs as a PDF.

If you have corrected data, you can email the State Water Board's conservation team at ORPP-WaterConservation@Waterboards.ca.gov.



Defines tool terms and provides data sources.

Broken up into four sections: User Selections, Bar Chart, Other, Map



State Water Board efforts for rate payer assistance and keeping water services affordable

AB 401: Low-Income Rate Assistance (LIRA) study	SB 200: Safe and Affordable Drinking Water Fund	SB 998: Water Shut-off Protection Act	Data Collection and Analysis
SWB report that looked at options for a statewide LIRA program Contact: Mary.Yang@waterboards.ca.gov Curr d) 	SWB is monitoring water affordability metrics to prioritize which systems receive funding or at risk at failing. Contact: kristyn.abhold@waterboards.ca.gov	Collect and make publicly available water shutoff data Require water systems to follow procedures prior to a residential customer water shutoff EO-N-42-20 moratorium that prohibit water shutoffs Report a water shutoff at: https://watershut-off	For example: April 5, 2022 State Water Board meeting (Item #4)

Income and water use: Literature review

Communities with larger parcel sizes and higher incomes tend to use more water at home

Arbués, Fernando, Maria Ángeles García-Valiñas, and Roberto Martínez-Espiñeira. "Estimation of residential water demand: a state-of-the-art review." The Journal of Socio-Economics 32.1 (2003): 81-102.

Guhathakurta, Subhrajit, and Patricia Gober. "The impact of the Phoenix urban heat island on residential water use." Journal of the American Planning Association

Harlan, Sharon L., et al. "Household water consumption in an arid city: affluence, affordance, and attitudes." *Society and Natural Resources* 22.8 (2009): 691-709

Stewart, Rodney A., et al. "Gold Coast domestic water end use study." Water: Journal of the Australian Water Association 36.6 (2009): 84-90.

Mini, Caroline, Terri S. Hogue, and Stephanie Pincetl. "Patterns and controlling factors of residential water use in Los Angeles, California." Water Policy (2014)

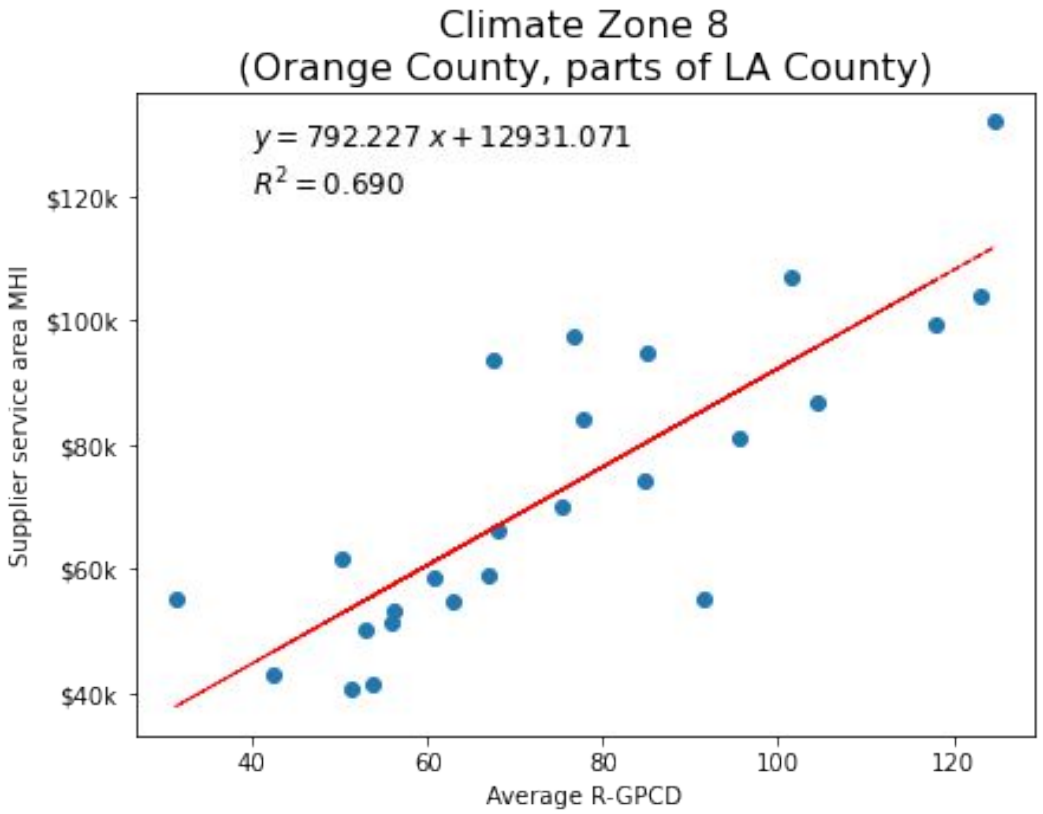
DeOreo, William B., et al. Residential end uses of water, version 2. Water Research Foundation, 2016.

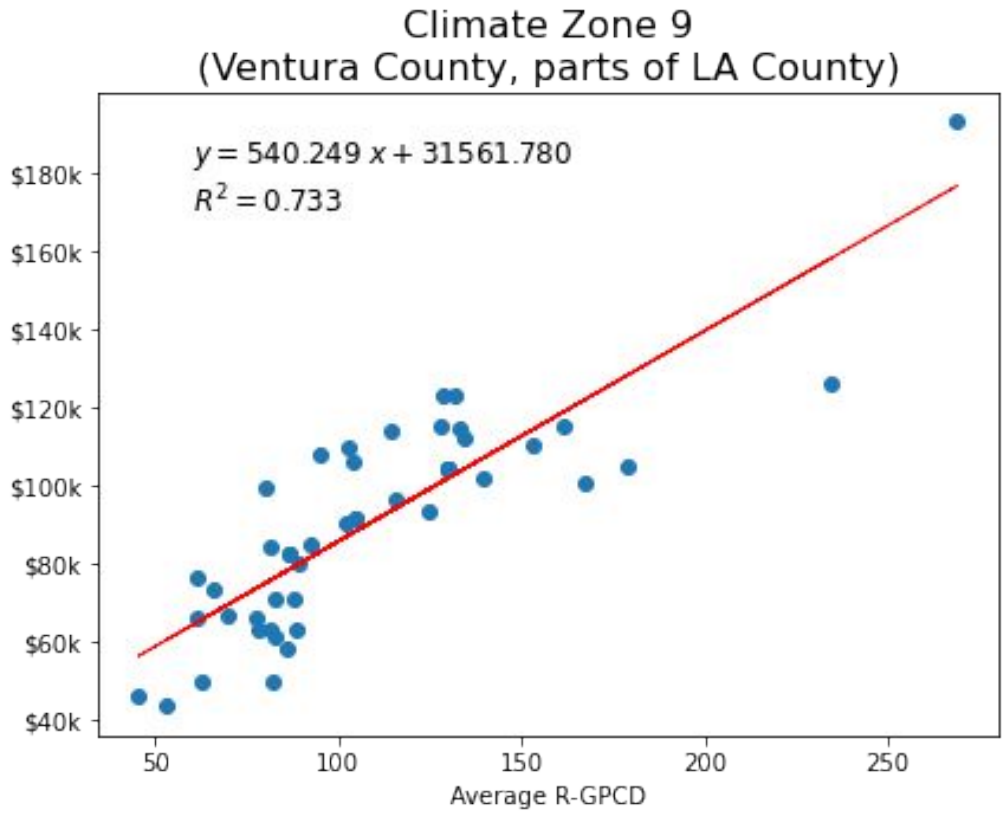
Department of Water Resources. "Results of the Indoor Residential Water Use Study" (2021)

Feinstein, Laura and Anne Thebo. "Water for a Growing Bay Area: How the region can grow without increasing water demand." San Francisco Bay Area Planning and Urban Research Association 2021 report.

Community Income and water use:

In some climate zones, strong correlation between higher water use and higher income





Residential GPCD on horizontal axis; Median Household Income on vertical axis

Community income and water use

In Ventura and parts of Los Angeles County, disproportionately higher use where suppliers serve communities with MHI > $100k

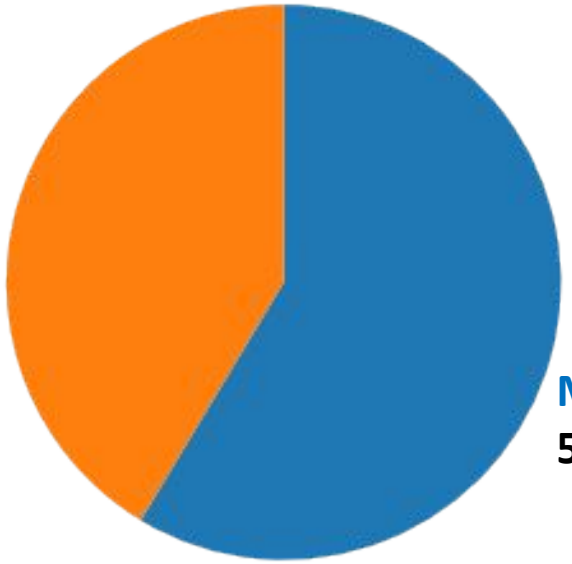
Population

MHI >$100k:
30.7% of pop

MHI <$100k:
69.3% of pop

Residential Use

MHI >$100k:
41.4% of use



MHI <$100k:
59.6% of pop

Income and water use:

How urban suppliers are using more granular data

- By integrating account-level demographic and water use data, suppliers can:
  - Understand system-scale trends
    - For example, 30% of customers estimated to use 60% of water
  - Tailor conservation messaging and programs

Data used and analytical approach

- Relied on 2020 rate and residential use data, as reported in the eAR
- Each Urban Retail Water Supplier provided data on water cost at 6, 9, 12 and 24 hundred cubic feet (HCF).
- For a four-person household:

6 HCF = 36 GPCD

Efficient indoor use

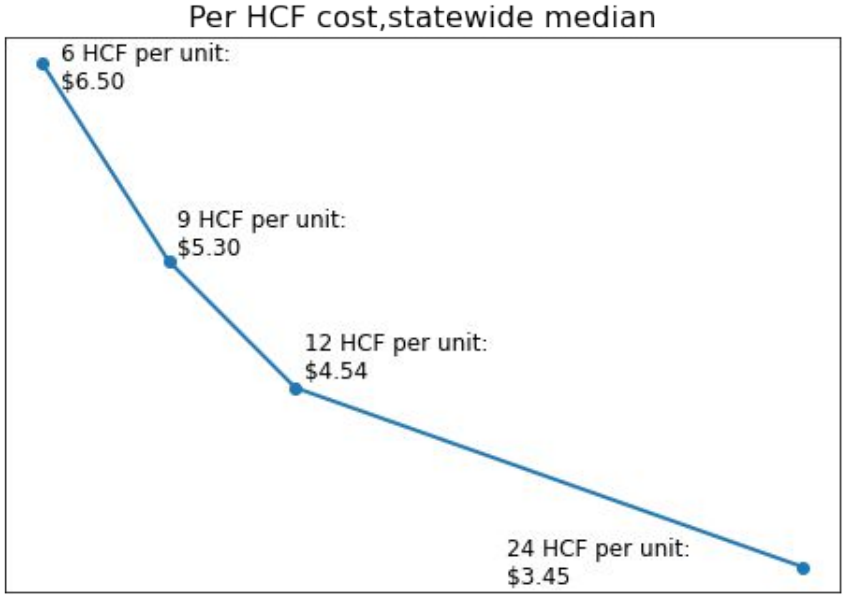
24 HCF = 145 GPCD

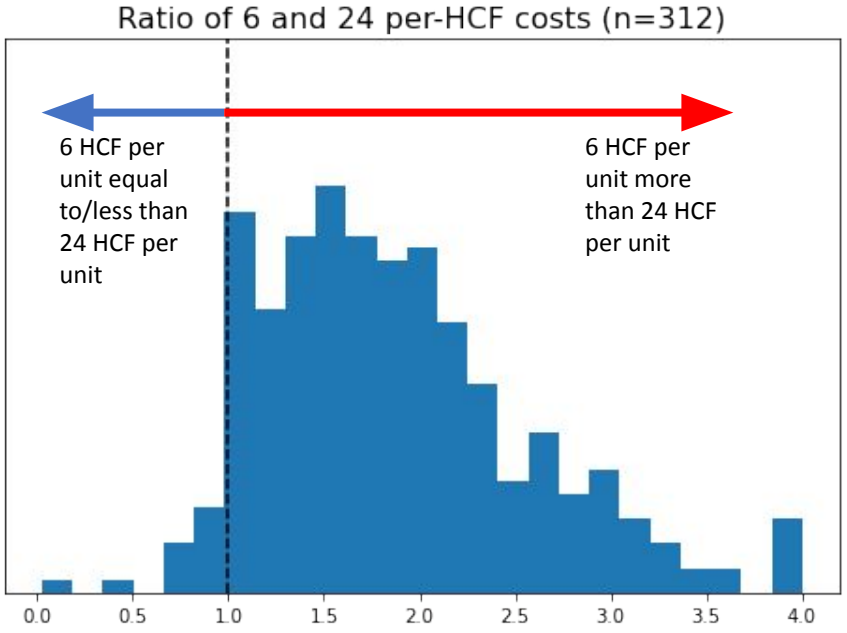
Top 10% of residential water use

Unit costs of water:
Statewide trends

- The statewide median cost per unit at 6 HCF is almost double the median cost per unit at 24 HCF.
  - Price per unit for 6 HCF is $6.50
  - Price per unit for 24 HCF is $3.45
  - 6-24 $/HCF ratio = 1.88

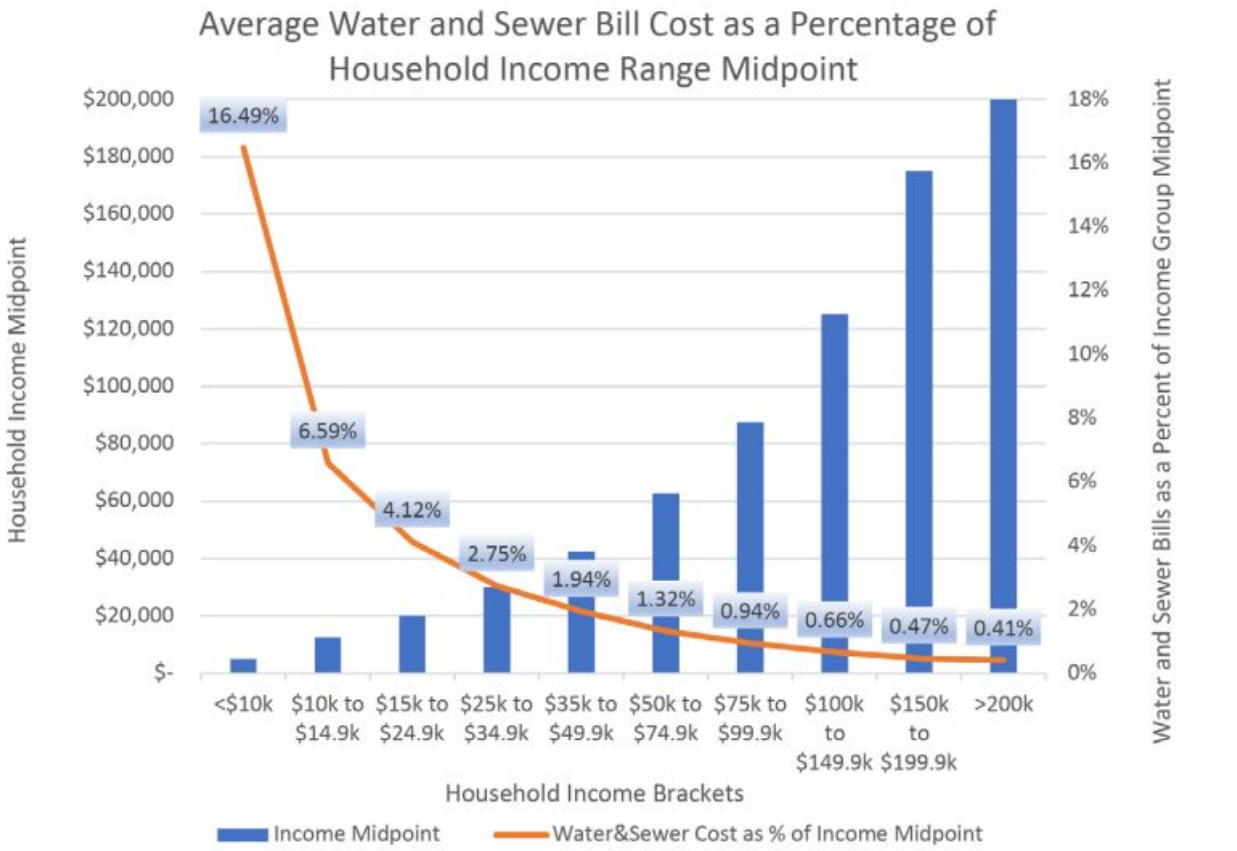
- Vast majority of URWS in California appear to charge less per unit as customers consume more.
  - 95% have a 6-24 $/HCF ratio over 1





Examining water and sewer bills as a percentage of annual income

- *Alliance for Water Efficiency:*
  - *An Assessment of Water Affordability and Conservation Potential in Long Beach*.
- For households making between $25 & $34.9k/year, the average bill would represent 2.75% of annual income; for the wealthiest, less than 0.5%.

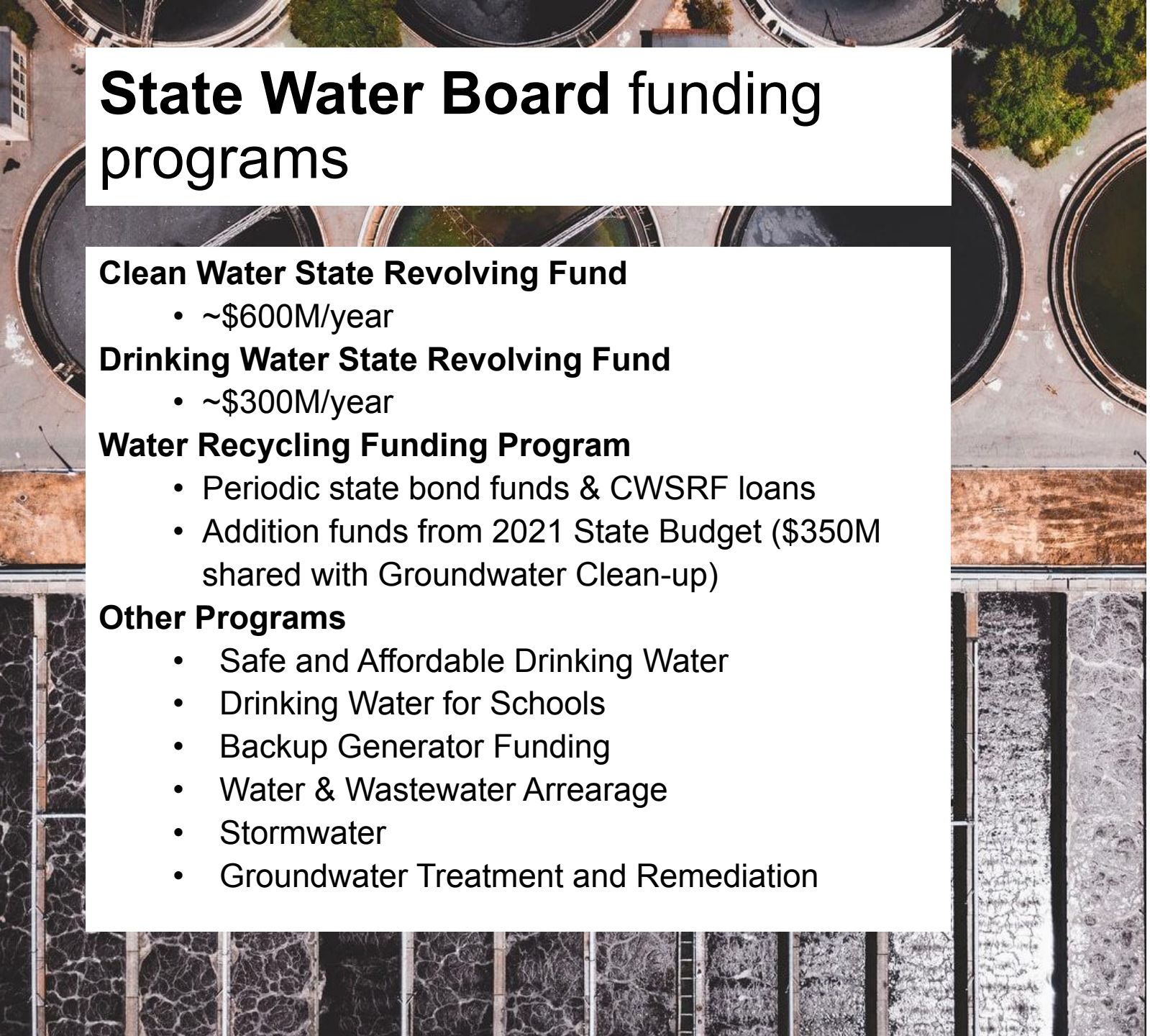


Key Findings

- In some climate zones, strong relationship between higher income communities and higher average water use.
- In most places, but not all, higher water-using customers pay less for each unit of water consumed.
- More analysis needed to evaluate how rates may influence water use.
- This analysis would benefit from more granular data, and data accounting for other factors that influence water use.

Funding opportunities at state and national scale

State Water Board California Water and Wastewater Arrearages Payment Program	California Department of Community Services and Development (CSD)
• SWB provided $435 million to water and wastewater agencies for debt relief • $550 million unclaimed. • Contact: jennifer.toney@waterboards.ca.gov	• Low Income Home Energy and Water Assistance Programs • Contact: kathy.andry@csd.ca.gov



State Water Board funding programs

Clean Water State Revolving Fund

- ~$600M/year

Drinking Water State Revolving Fund

- ~$300M/year

Water Recycling Funding Program

- Periodic state bond funds & CWSRF loans
- Addition funds from 2021 State Budget ($350M shared with Groundwater Clean-up)

Other Programs

- Safe and Affordable Drinking Water
- Drinking Water for Schools
- Backup Generator Funding
- Water & Wastewater Arrearage
- Stormwater
- Groundwater Treatment and Remediation

How to apply

Financial Assistance Application Submittal Tool (FAAST): faast.waterboards.ca.gov

Technical Assistance Program: waterboards.ca.gov/water_issues/programs/grant_loans/tech_assit_funding.html

Stay informed

Division of Financial Assistance (DFA): waterboards.ca.gov/water_issues/programs/grants_loans/

Email list: waterboards.ca.gov/resources/email_subscriptions/

Contact:

Christopher Stevens
Assistant Deputy Director, DFA
Christopher.Stevens@waterboards.ca.gov

Current community resilience funding

- $440M for **Transformative Climate Communities & Regional Climate Collaboratives** (Strategic Growth Council)
- $350M for **Adaptation Planning, Regional Resilience Planning, and Extreme Heat** (Office of Planning & Research)

2022-23 May Revised Climate Budget for conservation & community resilience

Program	Department	May Revision
Small Water Suppliers Drought Relief & Urban Water Management Grants	Department of Water Resources	$180M
Water Rights Modernization & Drought Resilience	SWRCB	$44M
Drinking Water/Wastewater Infrastructure & State Revolving Fund	SWRCB	$400M
Water Recycling/Groundwater Cleanup	SWRCB	$100
Water Conservation Programs (Small & Urban), Turf Replacement, & State Water Conservation Projects	Various	$26M
Green Schoolyards & Resilience Centers	Various	$110M
Enhanced Protections for Vulnerable Populations	Various	$18M

Promote equitable distribution of the benefits and costs of water conservation

- Share information
- Right-size $RF investments
- Adopt standards for the efficient use of water
- Coordinate with sister agencies to leverage funding
- Require SB 814 reporting
- If SB 222 passed, co-coordinate statewide LIRA program.