2019 Santa Ana River Watershed Sustainability Assessment

One Water One Watershed

SAWPA

Santa Ana Watershed Project Authority

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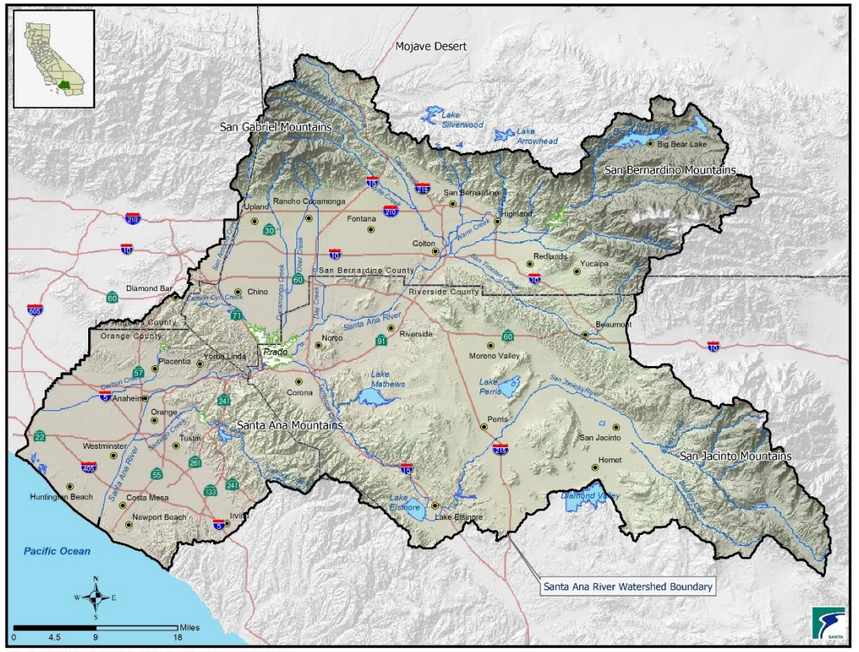
Riverside, CA 92503

sawpa.org/owow

August 2020

The Sustainability Assessment was developed in order to inform progress in executing the six goals of the One Water One Watershed (OWOW) Plan Update 2018.

The OWOW Plan Update 2018 is a long-term and project planning document focused on the Santa Ana River Watershed.



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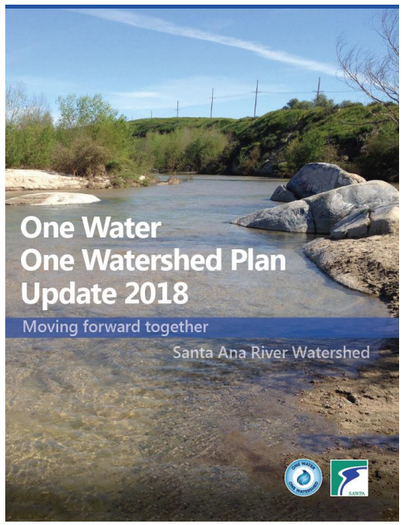


About the Santa Ana River Watershed

The watershed, depicted above, drains a 2,840-square-mile area. The watershed is home to over 6 million people and includes major population centers in Orange, Riverside, and San Bernardino Counties, as well as a small area of eastern Los Angeles County. The Santa Ana River flows over 100 miles and drains the largest coastal stream system in Southern California. It discharges into the Pacific Ocean at the City of Huntington Beach. The total stream length of the Santa Ana River and its major tributaries is about 700 miles.

The six goals of the OWOW Plan Update 2018 are to:

- Achieve resilient water resources through innovation and optimization.
- Ensure high-quality water for all people and the environment.
- Preserve and enhance recreational areas, open space, habitat, and natural hydrologic function.
- Engage with members of disadvantaged communities to diminish environmental injustices and their impacts on the watershed.
- Educate and build trust between people and organizations.
- Improve data integration, tracking, and reporting to strengthen decision making.

About the Sustainability Assessment

A sustainable Santa Ana River Watershed equitably balances competing interests to ensure long-term health and prosperity for society and nature. The different goals for the watershed should compliment each other, as opposed to compete.

How Indicators Are Rated

Negative | Neutral | Positive | No Data

In some instances there was no current dataset to analyze for the 2019 Sustainability Assessment.

The rating represents the evaluation of the watershed's effectiveness in the pursuit of sustainability. The Assessment's ratings reflect trends (that is, scores are relative to past performance) instead of scoring each indicator on its relationship to a desired condition.

The rating process was initially created in the 2018 Sustainability Assessment. The ratings methodology and indicators were adopted by the watershed's OWOW governance structure – the OWOW Steering Committee and SAWPA Commission.

Rating the Watershed Over Time

Comparison from Year to Year

As the Sustainability Assessment is updated each year, it will attempt to maintain consistency in the indicator definitions and datasets analyzed so changes overtime are clearly understood.

Goal	Indicator No.	Indicator Definition	Rating from 2018 Assessment	Rating from 2019 Assessment
Achieve resilient water resources through innovation & optimization	1*	Maximization of locally-managed supplies	😐	🙂
	2*	Efficiency of outdoor water use	🙂	🙂
Ensure high quality water for all people & the environment	3	Maintenance of groundwater salinity at target levels	🙂	🙂
	4	Safety of water for contact recreation	🙂	🙂
Preserve & enhance recreational areas, open space, habitat	5	Abundance of riparian vegetation	🙂	🙂
	6	Abundance of conserved open space	🙂	🙂
Engage with members of disadvantaged communities	7	Equitable access to clean drinking water	😐	?
	8	Equitable implementation of climate change adaptation	😐	?
Educate & build trust between people & organizations	9	Collaboration for more effective outcomes	🙂	🙂
	10	Adoption of a watershed ethic	🙂	🙂
Improve data integration, tracking & reporting to strengthen decision-making	11*	Broaden access to data for decision-making	🙂	🙂
	12*	Participation in a regional database.	😐	😐

*Indicator also discussed in the Appendix.

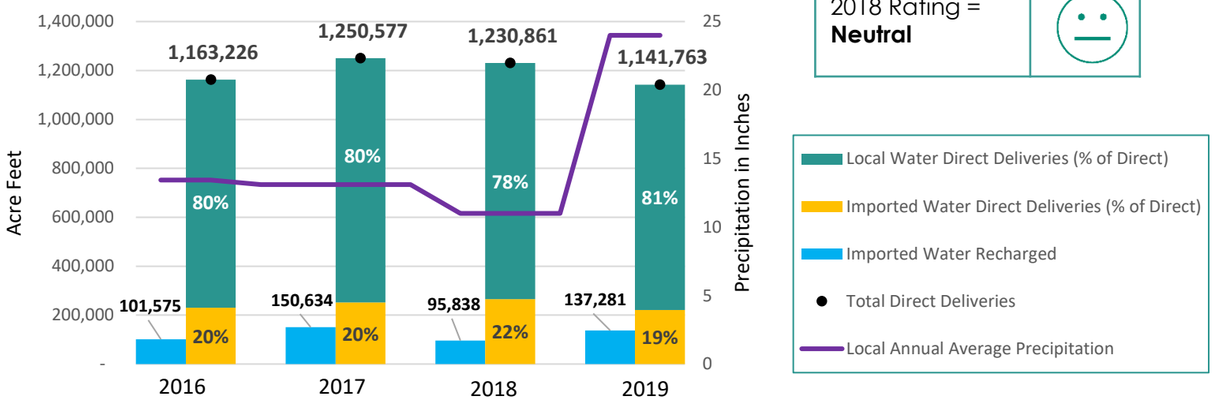
Goal: Achieve resilient water resources through innovation and optimization.

1 Indicator: Maximization of locally-managed supplies.

How It's Measured: Percent of total direct deliveries (to end-use customers of retail water agencies) sourced or managed locally.

Datasets: SAWPA member agencies, Yucaipa Groundwater Basin retail water agencies and Big Bear Valley retail water agencies.

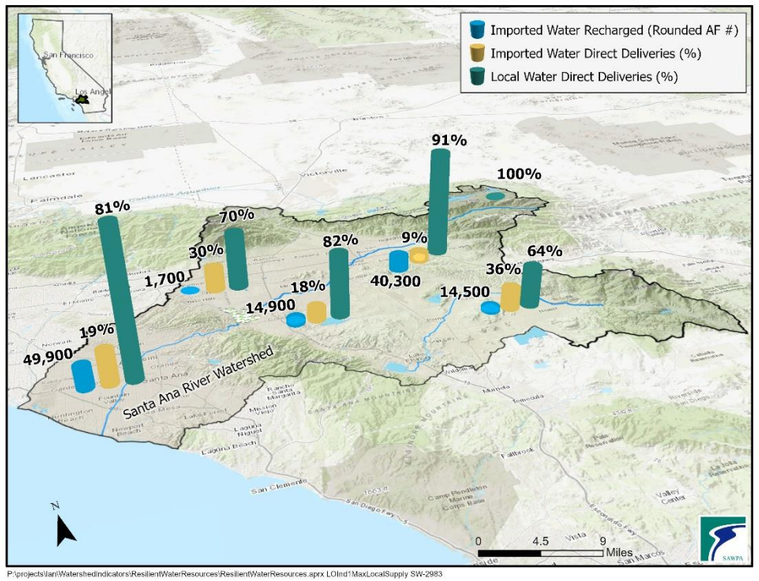
Indicator Results



Current Rating = **Positive**	
2018 Rating = **Neutral**	

Rating Justification: Trends for the past four years show that at least 78% of the watershed's direct deliveries are managed locally. This demonstrates the tremendous investments agencies have made in local projects.

Average Direct Deliveries and Imported Water Recharge



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Notes:

-Imported water recharged is not included in the percent calculation for this indicator as it can be double counted when it is eventually extracted from groundwater pumping (which is considered locally managed water).

-Imported water recharged does not include imported water from the Metropolitan Water District Conjunctive Use Program in the Chino Basin.

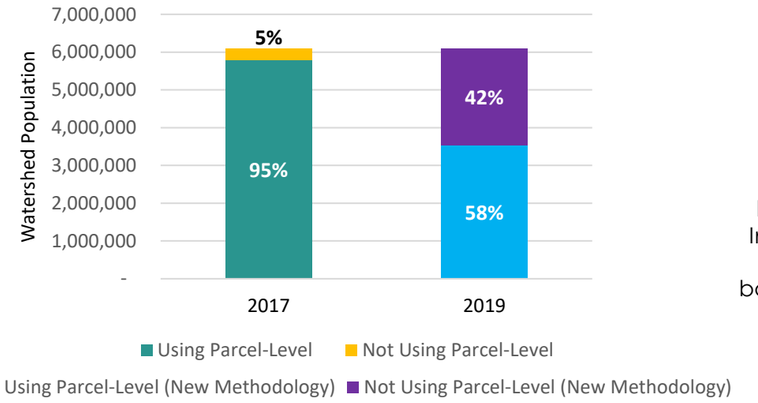
2 Indicator: Efficiency of outdoor water use.

How It's Measured: Percent of watershed population in agencies using parcel-level data to assess outdoor water use.

Datasets: SAWPA member agency survey of their retailers on use of customer portals, SAWPA staff analysis of existing water rates in watershed, and amount of users who participated in a geolocation/water budget SAWPA project.

Indicator Results

(Methodology Varies Between Years)

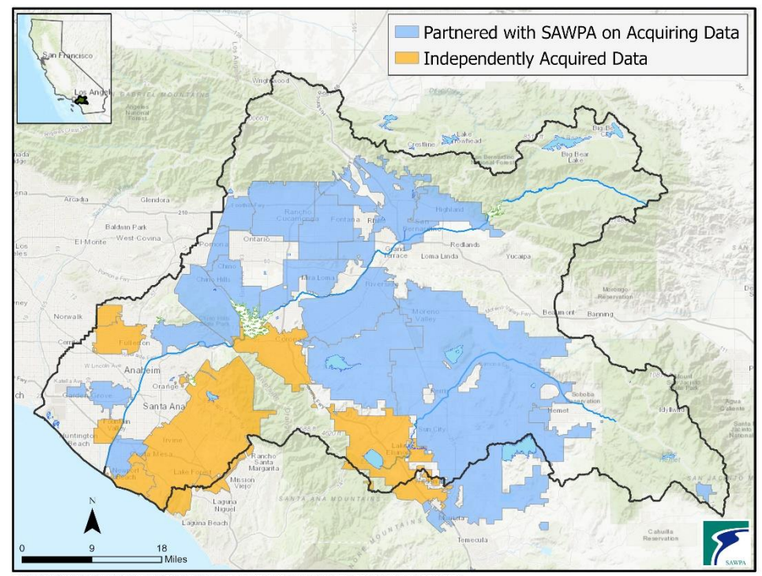


Current Rating = **Positive**	
2018 Rating = **Positive**	

Rating Justification (Modified in 2019): Results are positive as over 50% of the watershed's population is using parcel-level data. For the 2019 Assessment, the Indicator tallied the amount of agencies who have a customer portal, budget-based rates or participated in the SAWPA geolocation/water budget project]

This map shows those retail water agencies that have used parcel level data using the 2019 methodology. Some of the agencies have partnered with SAWPA through various projects that utilize high resolution aerial imagery and other tools to created water budgets at the parcel level. The areas that are uncolored represent retailers not using parcel-level data.

Water Agencies Using Parcel-Level Data (2019)



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Goal: Ensure high quality water for people and the environment.

3 Indicator: Maintenance of groundwater salinity at target levels.

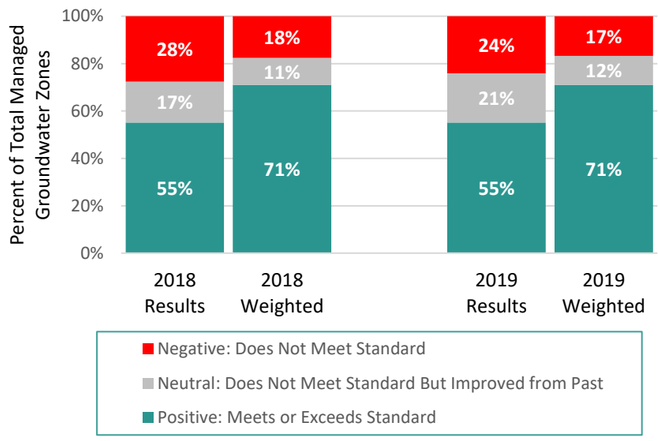
How It's Measured: Amount of groundwater zones meeting, or exceeding water quality standards for salinity.

Datasets: The water quality modeling analysis conducted for the Regional Water Quality Control Board (RWQCB) Triennial Basin Plan that measures salinity using Total Dissolved Solids (TDS) concentrations.

Current Rating = **Positive**	
2018 Rating = **Positive**	

Rating Justification: Of the 29 managed groundwater zones for which sufficient data exists for evaluation, 55% of them (16 of the 29 basins) continue to meet salinity standards or better. When the results are weighted, by the volume of storage of each of the zones, the result for those 16 basins with positive results rises to 71%. The amount of negative zones was also slightly reduced from 2018 to 2019.

Indicator Results



4 Indicator: Safety of water for contact recreation.

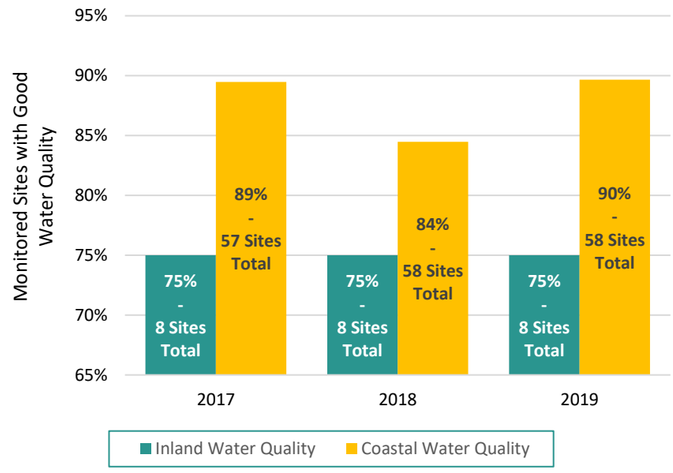
How It's Measured: Percentage of monitored sites (8 inland sites and 57-58 coastal sites) where recreational use is possible.

Datasets: Santa Ana River Watershed Bacteria Monitoring Program Annual Report for inland waterways and the Heal the Bay Beach Report for coastal waterways.

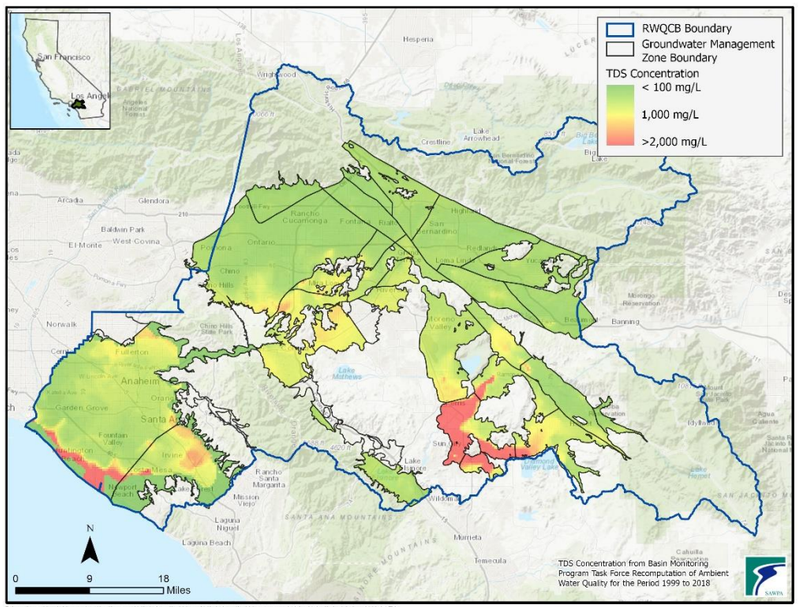
Current Rating = **Positive**	
2018 Rating = **Positive**	

Rating Justification: For inland waterways, there has been exceedances of E. Coli bacteria standards for two sites over time from 2017 through 2019. All others (75% of inland sites) consistently meet standards. For coastal sites, 84% to 90% of them from 2017 to 2019 have not exceeded total coliform, fecal coliform and enterococcus bacteria monitoring thresholds.

Indicator Results



TDS Concentrations by Groundwater Zone



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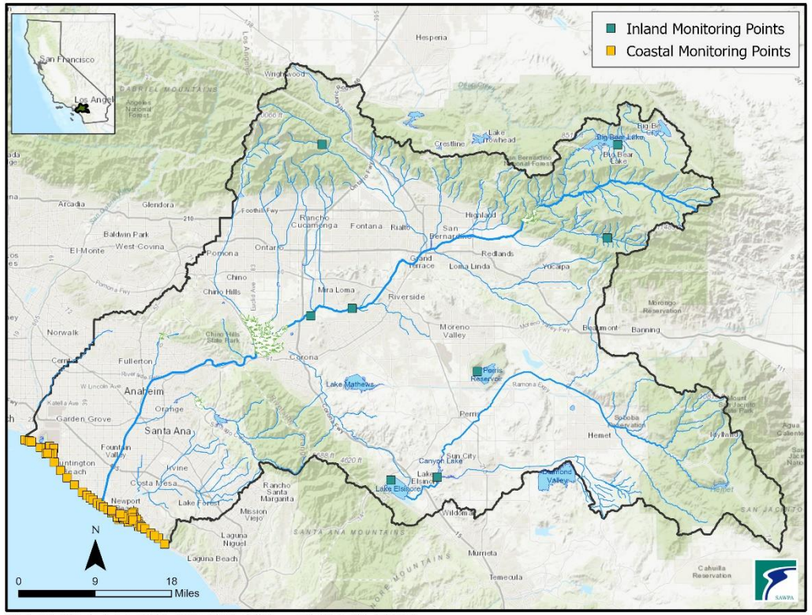
Monitoring Points Used for Indicator



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Goal: Preserve and enhance recreational areas, open space, habitat, and natural hydrologic function.

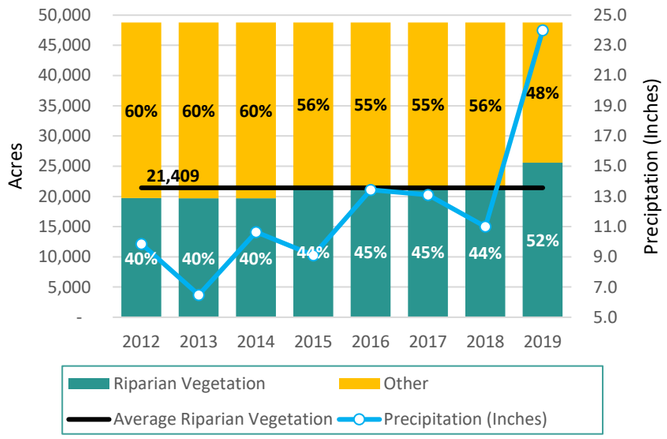
5 Indicator: Abundance of riparian vegetation.

How It's Measured: Percent of stream corridor that has riparian vegetation.
Datasets: U.S. Geological Survey (USGS) stream gaging network, USGS National Hydrology Dataset, The National Map and the National Agricultural Statistics Service's CropScape Data Layer.

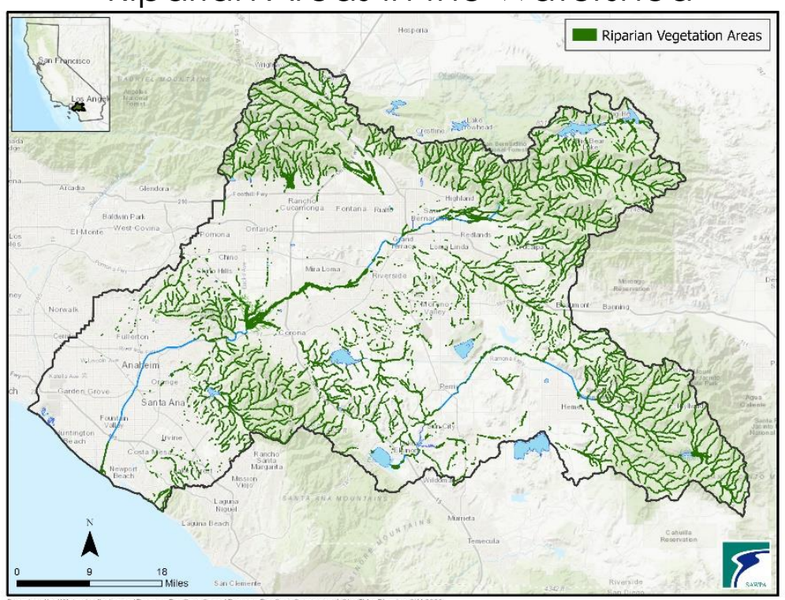
Current Rating = **Positive**	
2018 Rating = **Positive**	

Rating Justification: Riparian vegetation increased in 2019 after it declined slightly in 2018. This may be partially due to the wide fluctuation in local precipitation in the watershed for the past two years. Its eight-year average is 21,409 acres across the stream corridor (or 44%). On average, the amount of riparian acreage of the entire watershed (1,817,600 acres) is approximately 1%.

Indicator Results



Riparian Areas in the Watershed



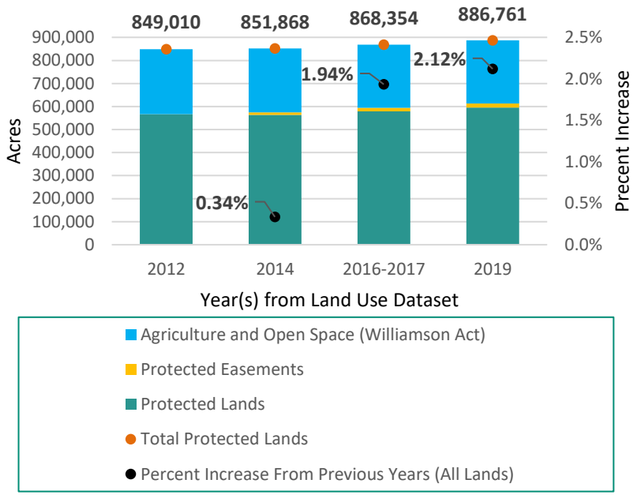
6 Indicator: Abundance of conserved open space.

How It's Measured: Change in area of conserved open space.
Datasets: California Protected Areas Database, California Conservation Easement Database and county tax assessors (for Williamson Act protected agriculture/open space).

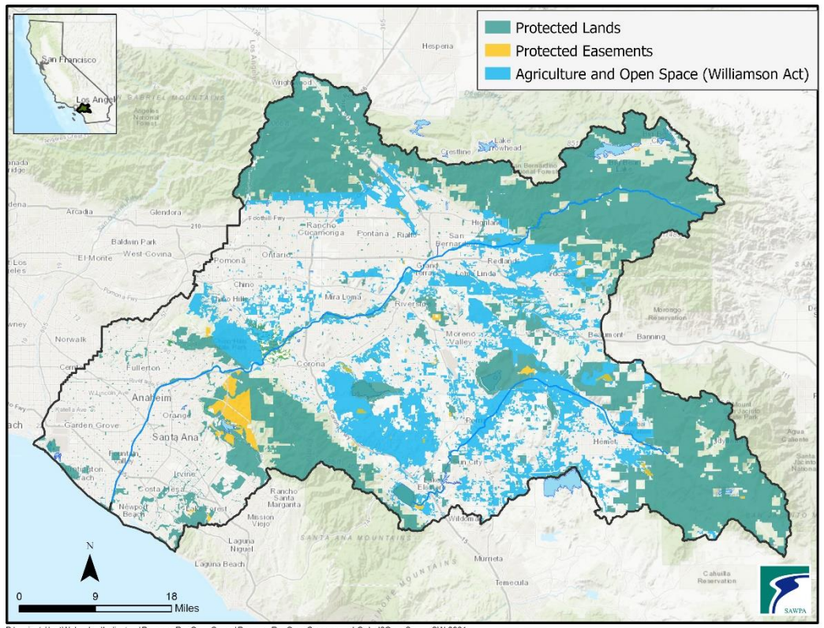
Current Rating = **Positive**	
2018 Rating = **Positive**	

Rating Justification: The amount of protected lands has been steadily increasing and the growth rate for each time period has also increased to 2.12% from the 2016-17 data to the 2019 data. 49% of the watershed's total area (1,817,600 acres) is protected lands according to the 2019 data.

Indicator Results



Conserved Open Space



Goal: Engage with members of disadvantaged communities and associated supporting organizations to diminish environmental injustices and their impacts on the watershed.

7 Indicator: Equitable access to clean drinking water.

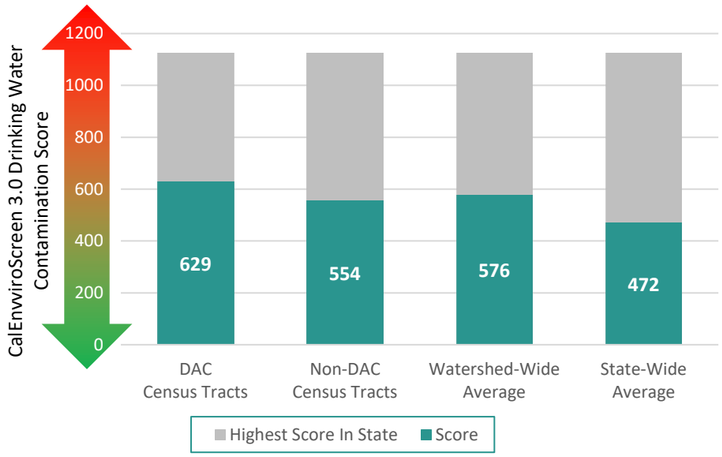
How It's Measured: Mean CalEnviroScreen 3.0 drinking water score of Disadvantaged Community (DAC) census tracts compared to mean score of non-DAC census tracts.

Datasets: CalEnviroScreen 3.0 released by the California Office of Environmental Health Hazard Assessment in 2017. DAC census tract released by the California Department of Water Resources (DWR) using state-wide median household income survey data.

Current Rating = **No current data**	?
2018 Rating = **Neutral**	😐

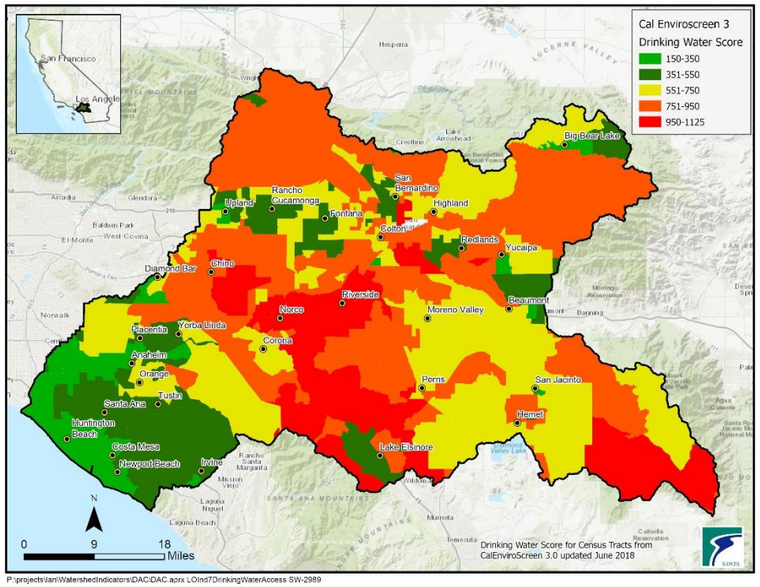
Rating Justification: The newest version of CalEnviroScreen will be released in late summer or fall of 2020. A neutral rating for 2018 was provided as results from CalEnviroScreen 3.0 show that drinking water quality scores in less-resourced areas is somewhat worse than drinking water quality scores in more-resourced areas.

Indicator Results from 2018



Note: a higher value score indicates increased contaminant presence. The scores across California range from approximately 165 to over 1,000.

CalEnviroScreen Scores by Census Tract



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More information on this Indicator

CalEnviroScreen 3.0 analyzed statewide data from 2005 to 2013 and includes 20 statewide indicators to calculate their scores at the census tract level.

8 Indicator: Equitable implementation of climate change adaptation.

How It's Measured: Relative value of tree and shrub density in DAC and non-DAC census tracts.

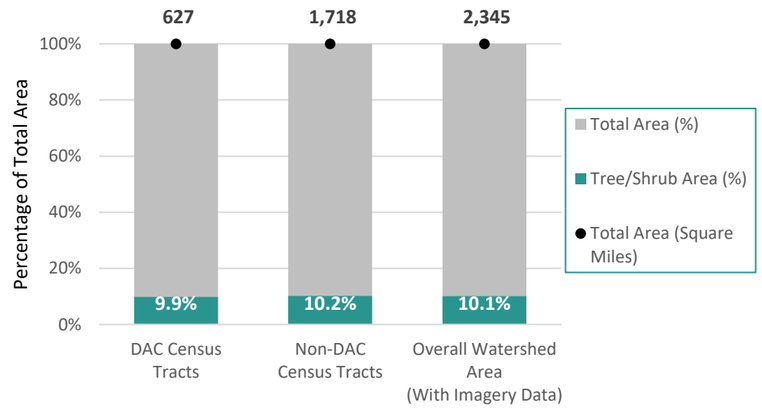
Datasets: Tree/shrub areas were available through SAWPA-acquired imagery data captured in May/June of 2015 for 2,345 acres of the watershed. DAC census tract released by DWR using median household income survey data.

Current Rating = **No current data**	?
2018 Rating = **Neutral**	😐

Rating Justification: There is currently not a watershed-wide aerial imagery dataset to analyze. One will likely be available in 2021.

A neutral rating for 2018 was provided as the mean tree and shrub density of DAC census tracts (9.9%) is slightly less than non-DAC census tracts and the overall watershed (10.2% and 10.1%).

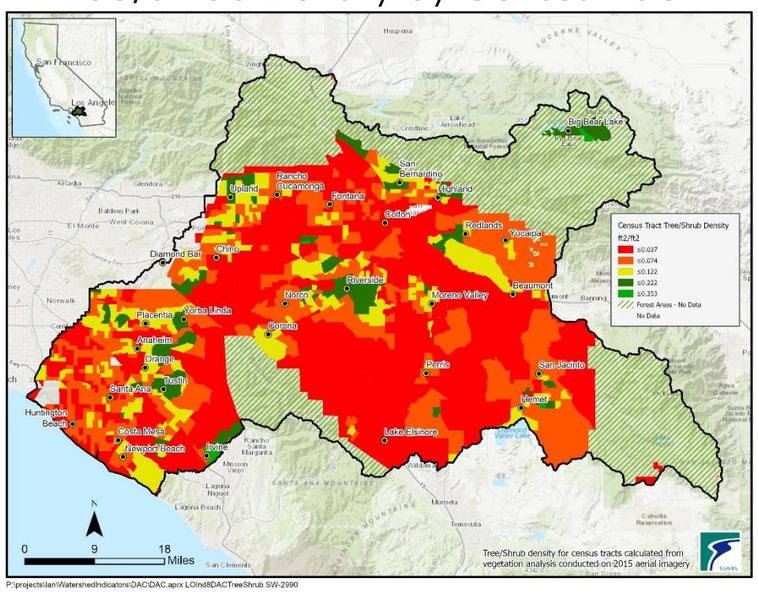
Indicator Results from 2018



More information on this Indicator

Tree/shrubs were detected using a GIS-based methodology to analyze 2,345 square miles (urban areas) of the 2,840 square mile watershed.

Tree/Shrub Density by Census Tract



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Goal: Educate and build trust between people and organizations.

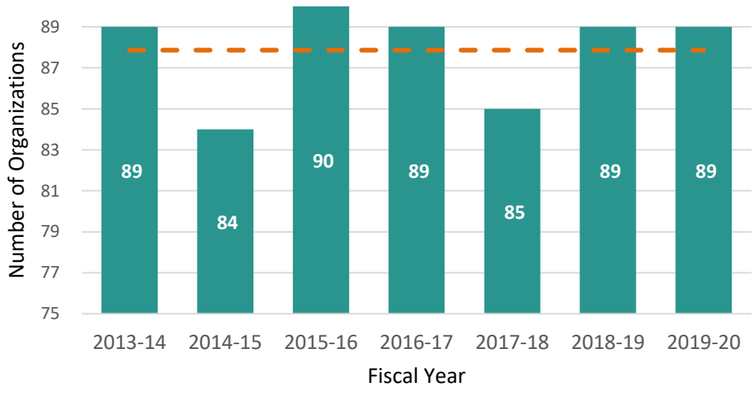
9 Indicator: Collaboration for more effective outcomes.

How It's Measured: Amount of contributing participants to a multi-organization task force.
Datasets: SAWPA staff spreadsheet that tabulates the percent of entities participating in one or more of the eight task forces administered by SAWPA.

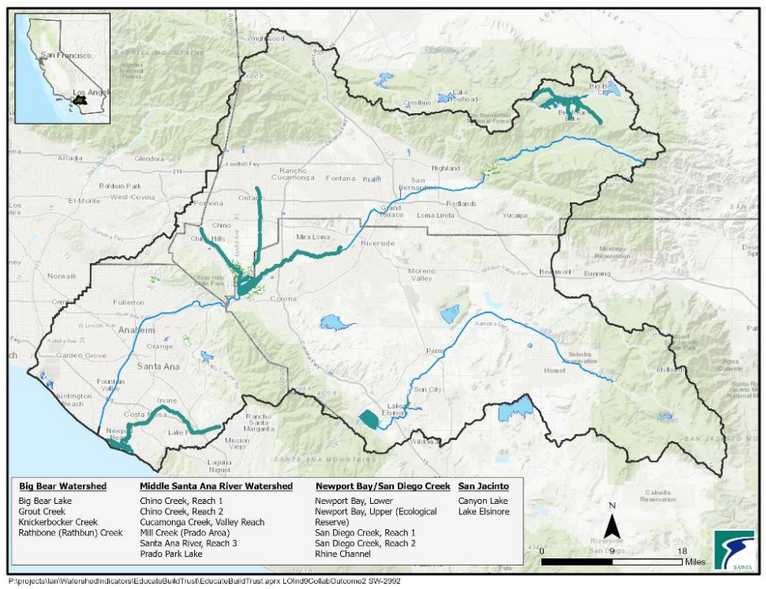
Current Rating = **Positive**	
2018 Rating = **Positive**	

Rating Justification: From Fiscal Year 2013-14 to Fiscal Year 2019-20, the average amount of participants in the eight task forces has been 88 organizations. In Fiscal Year 2019-20 the amount exceeded that average by one.

Indicator Results



TMDLs Projects in the Watershed



As an example of the task forces in this watershed, many of the Total Maximum Daily Loads (TMDLs) implementation plans are being conducted in part through a collaborative entity, such as a SAWPA Task Force.

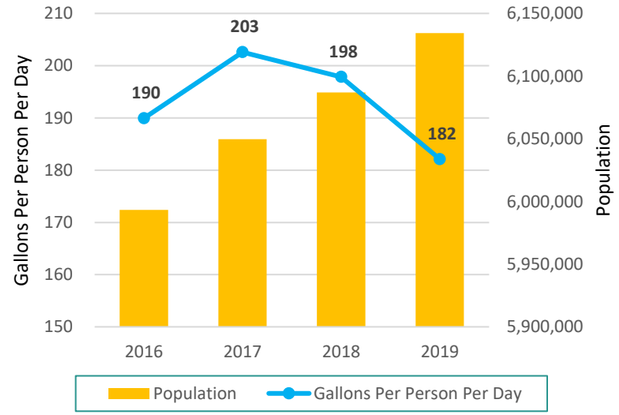
10 Indicator: Adoption of a watershed ethic.

How It's Measured: Gallons of water used per person per day.
Datasets: 1) Gallons delivered available from SAWPA member agencies, Yucaipa Groundwater Basin retail water agencies and Big Bear Valley retail water agencies, 2) population data from the U.S. Census Bureau's American Community Survey.

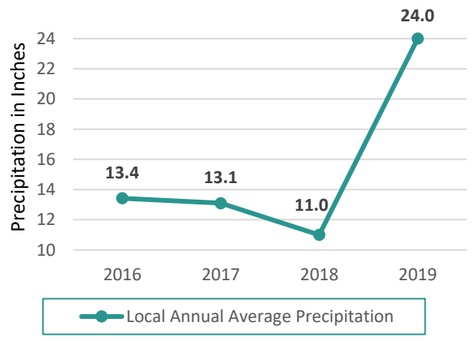
Current Rating = **Positive**	
2018 Rating = **Positive**	

Rating Justification: Like in 2018, gallons per person per day continued its decline in the watershed, even though the watershed population has surpassed 6 million. Local precipitation increased in 2019, which may explain some of the reduction as outdoor watering likely decreased.

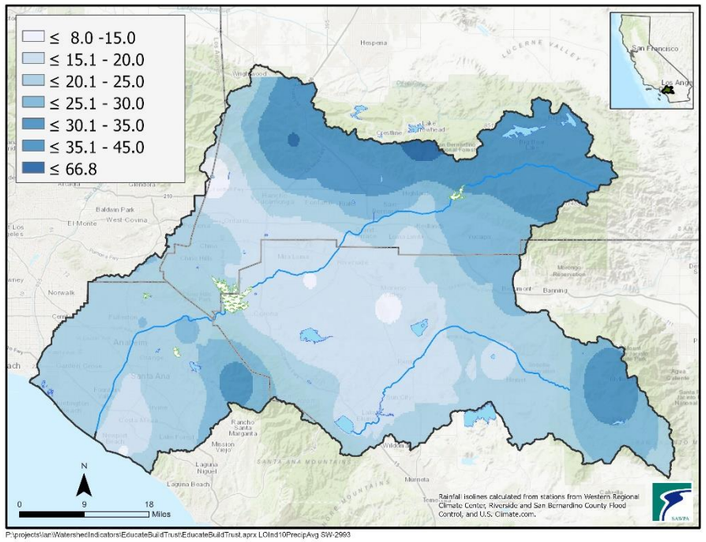
Indicator Results



Precipitation



2019 Total Precipitation (In Inches)



Goal: Improve data integration, tracking and reporting to strengthen decision-making.

11 Indicator: Broaden access to data for decision-making.

How It's Measured: Percent of watershed population in agencies using parcel-level data to assess outdoor water use.

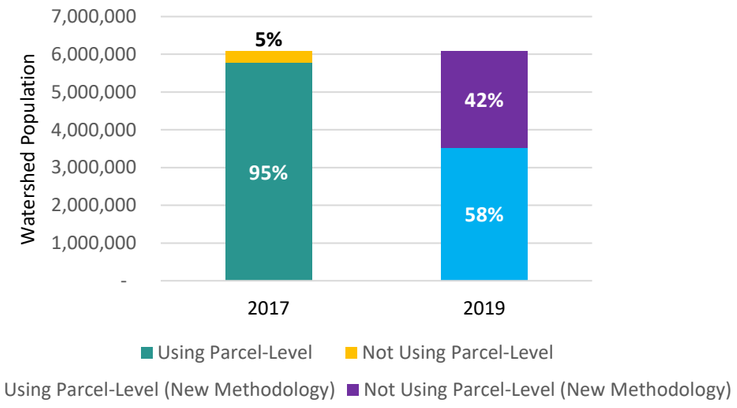
Datasets: Same as indicator No. 2 - SAWPA member agency survey to their retailers on use of customer portals, SAWPA staff analysis of existing water rates in watershed, and amount of users who participated a geolocation/water budget SAWPA project.

Current Rating = **Positive**	
2018 Rating = **Positive**	

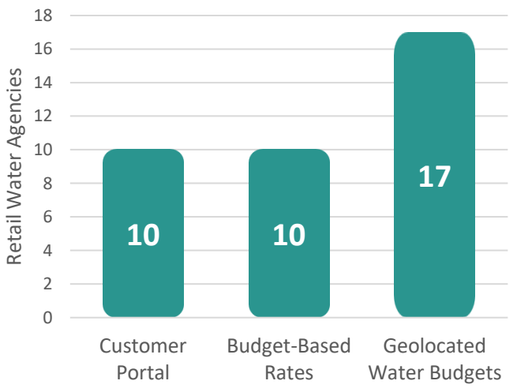
Rating Justification (Modified in 2019): This measure uses the same results as Indicator No. 2 as there is overlap between customers who receive performance information about their water use (Indicator No. 11) and customers served by retail water agencies that use parcel-level data to assess outdoor water use (Indicator No. 2).

Results from Indicator No. 2

(Methodology Varies Between Years)

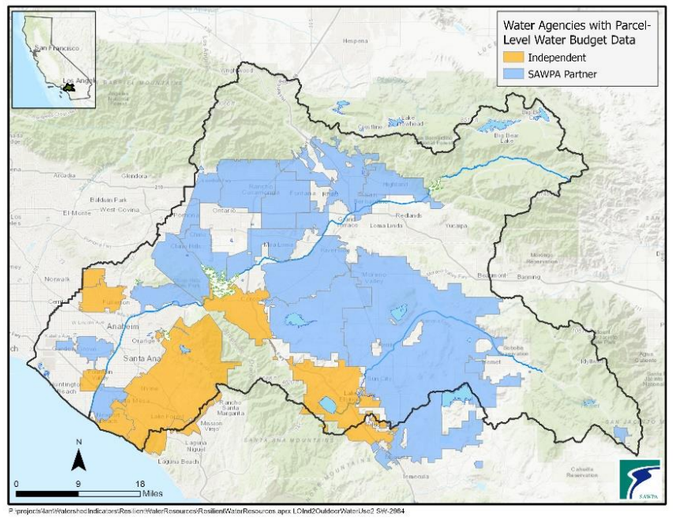


Results Explained



The amount of agencies in each category is provided above (some are in more than one category).

Water Agencies Using Parcel-Based Data



12 Indicator: Participation in an open data process.

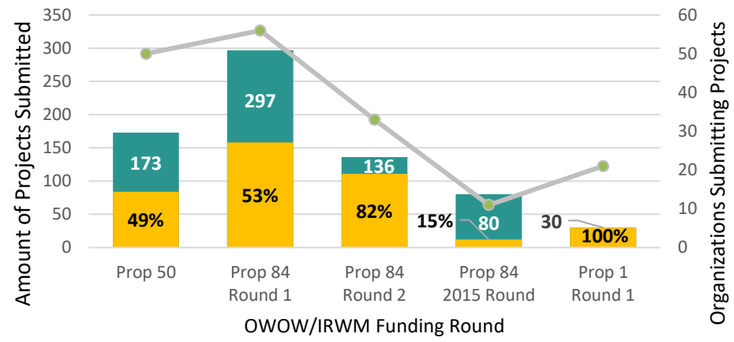
How It's Measured: Analysis of trends in the amount of agencies participating in a regional project database.

Datasets: SAWPA's OWOW Project Submission Database.

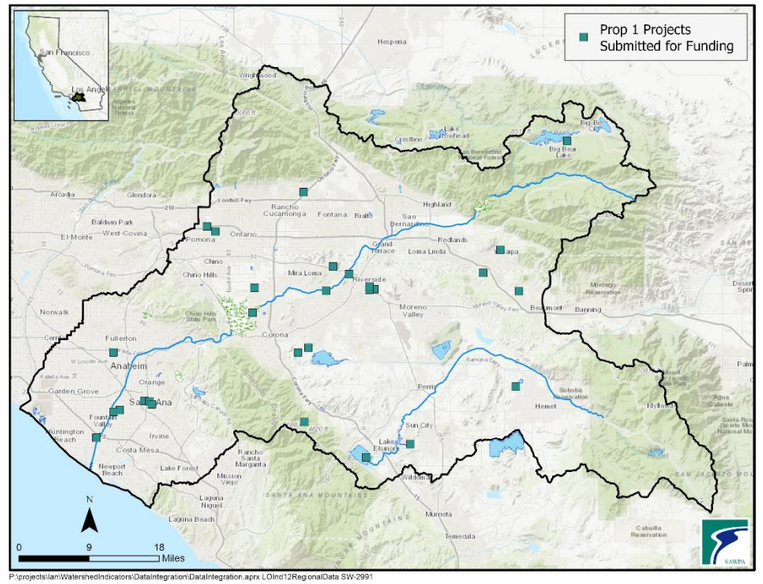
Current Rating = **Neutral**	
2018 Rating = **Neutral**	

Rating Justification: Although the amount of organizations submitting projects declined in Proposition (Prop) 84 Round 2 and the 2015 Round, it has increased with Prop 1 Round 1. A neutral rating is given as the amount of projects submitted and organizations involved have not risen closer to the level of past rounds.

Indicator Results



Prop 1 Round 1 Project Submissions



Additional Information for Select Indicators

Indicator Definition		Additional Information
1	Maximization of locally-managed supplies	The 2018 Assessment rating was neutral as it attempted to use Public Water System Statistics (voluntary survey) and Urban Water Management Plan data, but further data quality control was needed before publication. In 2019, SAWPA used data, such as watermaster reports, that had been quality controlled by the SAWPA member agencies and other retail water agencies.
2	Efficiency of outdoor water use	The 2018 Assessment used a different dataset and methodology than 2019. In 2018, the indicator counted water agencies receiving parcel-level data from a SAWPA-managed 2015 imagery project. The agencies that received it included wholesalers with larger service areas, which is a major reason for the higher results in 2018 compared to 2019.
11	Broaden access to data for decision-making	The 2018 Assessment used a different dataset and methodology than in 2019. In 2018, the indicator counted the water agencies that provided their customers with water use data, mostly through bills to customers. Now that a new methodology is used for Indicator No. 2 in 2019, the scope of No. 2 and 11 are very similar so the same results are presented for both measures.
12	Participation in an open data process	The 2018 Assessment rating was neutral as no data was available regarding a watershed-wide regional database. In 2019, SAWPA staff decided to analyze the trends in project submissions through the OWOW Project Submission database, which serves as a watershed-wide project data-tracker.

Rating Difference Between the 2018 and 2019 Assessment:

In 2018, the ratings were in two categories – faces with hats and without hats. The 2018 face icons had hats to highlight that some indicators were somewhat subjective as there was not a prior year of data to compare the current results to. For the 2019 Assessment, all indicators that were rated had prior year data, so the hats were removed from the 2018 icons for ease of communicating the changes between assessments.

Contacts for Questions on the Assessment

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Special Thanks

California Department of Water Resources

Elizabeth Andrews (Environmental Science Associates)

Peter Vorster (The Bay Institute)

Eastern Municipal Water District

Inland Empire Utilities Agency

Orange County Water District

San Bernardino Valley Municipal Water District

Western Municipal Water District