



The State of California &
The White House CEQ
**California Water
Data Challenge**

National WQ Monitoring Council: December 1, 2016

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CODE4SAC





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CA Water Board Open Data Initiative

- Culture change → Data Driven Management
- WB Open Data Dataset Curating → Report Cards, Dashboards, etc.
- Open Data Data Challenges to Raise Interest and Awareness
- Training, Inreach, etc.





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CA / CEQ Water Data Challenge Context

- The Drought in California
- White House's March 2016 [Federal Action Plan of the National Drought Resilience Partnership](#)
- The California Governor's [Water Action Plan](#)
- Open Government and Open Data



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Opportunity

- Collaboration and transparency and to promote creative solutions to solve drought challenging problems.
- Technology revolution
- Data Science
- Open Data and Open Government
- Managing with data and information
- Public interest in water management and the drought



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California Water Challenges

- * Uncertain water supplies
- * Water scarcity/drought
- * Declining groundwater supplies
- * Poor water quality
- * Declining native fish species and loss of wildlife habitat
- * Floods
- * Supply disruptions
- * Population growth and climate change further increase the severity of these risks



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Water Action Plan Objectives

1. More reliable water supplies for farms and communities
1. Restoration of important species and wildlife habitat
1. More resilient, sustainably managed water resources system (water supply, water quality, flood protection, and environment) that can better withstand inevitable and unforeseen pressures in the coming decades.



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Charge Questions

1.- How might data be used to help describe and make informed decisions about the reliability of water supply in California in the following or other relevant areas?

- Water availability (e.g., water inventories, flows, groundwater availability)
- Water uses (i.e. urban, agriculture, environment)
- Water conservation and water efficiency in the urban and agricultural sectors
- Water losses (e.g., leaks, evapotranspiration, etc.)
- Water waste



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Charge Questions

2.- How might data be used to help describe and make informed decisions about protecting and restoring important species and habitat in the following or other relevant areas?

- Environmental flows
- Water quality monitoring techniques and strategies
- Water quality information and analysis
- Water quality protection



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Charge Questions

3.- How might data be used to help describe and make informed decisions about more resilient, sustainably managed water resources system in California, in light of the following factors?

- Water scarcity and drought
- Climate change and population
- Water supply disruptions and flood protection and other unforeseen pressures
- Integrated forecasting of agriculture, urban and environment water quantity, quality and demand
- Integrating water quantity and quality operations of California's water systems
- Water prices and water markets
- Land use linkages to water resources
- Households/communities that do not have safe drinking water

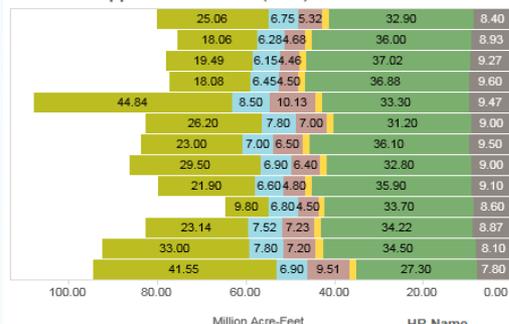


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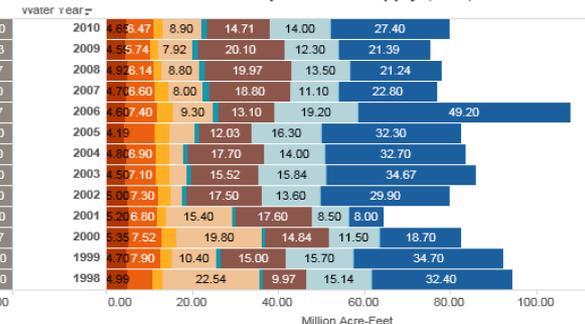
Examples

- Water Energy Nexus.
- Water Conservation
- Water Budget

California Applied Water Use (MAF)

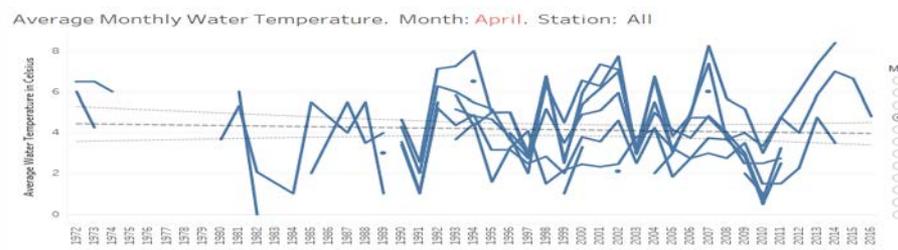
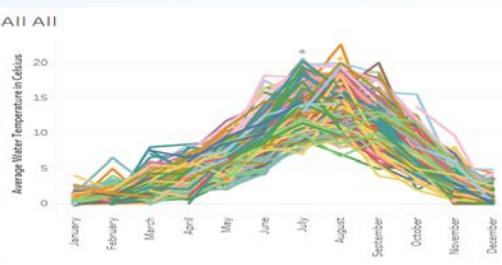
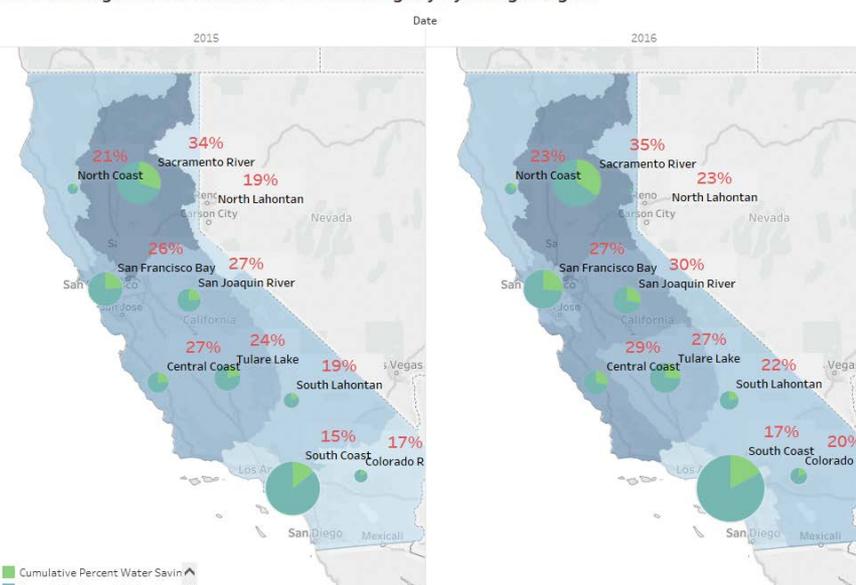


California Dedicated & Developed Water Supply (MAF)



- Use
- Wild & Scenic River
 - Instream Flow
 - Req. Delta Outflow
 - Managed Wetlands
 - Irrigated Agriculture
 - Urban
- HR Name
- California
 - Central Coast
 - Colorado River
 - North Coast
 - North Lahontan
 - Sacramento River
 - San Francisco Bay
 - San Joaquin River
 - South Coast
- Supply
- Instream Environmentals
 - Recycled Water
 - Reuse Water
 - Ground Water
 - Local Imports
 - Local Projects
 - State Project
 - Federal Projects

June 2014-August 2016 Cumulative Water Savings by Hydrologic Region





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Examples of solutions

- Visualizations
- Analysis tools
- Search Engines
- Data collection and storage
- Data sharing
- Communicating information to the public
- Data science
- Etc.....



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Data Categories

- Data Visualizations and Insights
 - Includes entries that analyze and visualize water data to reveal new truths or explore common assumptions about water in California, demonstrate the links between different water related issues, or illuminate ongoing challenges in new ways.
- Decision Support, Data Sharing and Information Communication Tools
 - Includes applications that use real-time or recent data to directly assist in more effective and efficient decision making that results in more sustainable management our water resources.

What datasets will be available?



National Water Quality Monitoring Council
Working together for clean water



The State of California is developing an open data portal at data.ca.gov that currently contains several [water-related datasets](#), and the National Water Quality Monitoring Council maintains a data portal housing water quality information from Federal agencies at <http://www.waterqualitydata.us/>. Users can easily download data in a machine readable format from both of these sites.

In addition, a wide range of water-related datasets can be obtained directly from the agencies that collect and maintain water data in California. To help contestants get oriented to these agencies and their datasets, the table below provides some example datasets for different categories of data, including groundwater, surface water and environmental conditions, urban, irrigation, water-energy, and other general data. However, this isn't an exhaustive list, so feel free to search for and use any other publicly available datasets that help you gain insights into California's water issues and address the challenge questions.

- Groundwater
- Surface and Environmental Data
- Urban
-



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Examples of Data Sources

- State, federal and local agencies
 - Water Boards
 - Department of Water Resources
 - Department of Fish and Wildlife
 - Government Operations
 - United States Geological Survey
 - United States Bureau of Reclamation (etc..)
- Non-profit organizations
- Universities and research centers



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Updates

- 30 registrations.
- Location of closing event and award ceremony
- Panel of judges
- Final Date for Submissions: 5:00 pm Pacific Time on December 5, 2016
- Closing Event: December 9, 2016



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