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How Did the State Respond to the Last Major Drought?

PRESENTED TO: Assembly Committee on Water, Parks, and Wildlife
Hon. Eduardo Garcia, Chair

LEGISLATIVE ANALYST'S OFFICE

Background on 2012 Through 2016 Drought

California Experienced Severe Drought From 2012 Through 2016

- This includes 2012 through 2015, which was the driest consecutive four-year stretch since statewide precipitation record-keeping began in 1896, with 2014 representing the third driest year on record.
- The effects of these trends were compounded by higher than normal temperatures, with 2015 and 2014 registering as the first and second warmest years on record, respectively.

Drought Impacts Were Widespread, but Varied by Sector

- ***Urban Communities.*** The primary drought impact for urban residents was a state-ordered requirement for larger water agencies to use less water, including mandatory constraints on the frequency of outdoor watering.
- ***Rural Communities.*** Many communities—mainly in the Central Valley—struggled to identify alternative water sources upon which to draw when their domestic wells went dry.
- ***Agriculture.*** The agricultural sector experienced a decrease in water deliveries and a corresponding decline in production. Farmers and ranchers, however, were able to moderate the drought's impacts somewhat by pumping groundwater.
- ***Environment.*** Habitats for fish, water birds, and other wildlife were severely degraded, and nearly all of two cohorts of native salmon runs were lost due to high water temperatures. Additionally, millions of the state's trees died or became diseased, contributing to more prevalent and intense wildfires.

Major Drought Response Activities and Spending

State Drought Response Appropriations

2013-14 Through 2016-17 (In Millions)

Activity	Amount
Water Supply	
Support groundwater management and clean-up	$843
Improve/increase water recycling, wastewater treatment, stormwater management, and desalination	609
Fund Integrated Regional Water Management projects	473
Improve drinking water infrastructure	311
Subtotal	($2,235)
Emergency Response	
Expand/enhance fire protection	$379
Address emergency drinking water needs	115
Provide food and other assistance to drought-affected communities and farmworkers	99
Conduct statewide drought assistance, monitoring, and response	55
Remove and dispose of dead trees	41
Monitor/enforce water rights and conservation regulations	20
Various other activities	21
Subtotal	($730)
Water Conservation	
Increase urban water efficiency and conservation	$166
Increase agricultural water efficiency and conservation	122
Fund innovative water efficiency technologies	30
Conduct conservation outreach and public messaging	23
Increase water efficiency at state facilities and wildlife refuges	28
Subtotal	($369)
Environmental Protection	
Emergency fish and stream activities	$70
Eradicate water hyacinth	4
Study and model flows	3
Subtotal	($78)
Total	**$3,410**

Major Drought Response Activities and Spending

(Continued)

State Spent $3.4 Billion for Drought Response Activities, Mostly for Longer-Term Water Supply Projects

- Because water supply projects typically take several years to complete, they were more likely to enhance supplies and build greater resilience for subsequent droughts than provide immediate relief.
- Spending for emergency response, water conservation, and environmental protection was more targeted for addressing and ameliorating urgent drought effects on people, agriculture, and the environment.

Majority of Funding Was From Voter-Approved General Obligation Bonds

- About 70 percent of the state's drought response activities were supported by voter-approved general obligation bonds, dedicated primarily for water supply projects.
- The state's General Fund supported about 20 percent (close to $700 million) of the state's drought response, including for emergency response, water conservation, and environmental protection activities.
- The remainder of the funding was from 13 different special funds for various efforts that aligned with each fund's allowable uses, with the largest share coming from the state's Greenhouse Gas Reduction Fund for water and energy efficiency programs.

Drought Response Involved Multiple State Departments

Department	Major Drought Response Activities 2013 Through 2017
CalFire	Conducted fire protection activities, removed and disposed of dead trees.
CCC	Conducted conservation outreach and messaging.
CDFA	Allocated grants to increase agricultural water efficiency.
CDFW	Conducted emergency fish and stream activities, improved water efficiency at wildlife refuges.
CEC	Funded innovative water efficiency technologies, provided water efficiency rebates and upgrades.
CSD	Assisted drought-impacted farmworkers.
DGS	Increased water efficiency at state facilities.
DSS	Provided food to drought-affected communities.
DWR	Allocated water conservation grants, assisted with drinking water shortages, supported and monitored groundwater use and management, installed/removed Delta emergency rock barriers, managed State Water Project allocations and transfers, managed Save Our Water campaign, and allocated Integrated Regional Water Management grants.
EDD	Provided job training in drought-affected communities.
HCD	Assisted and relocated drought-affected households.
OES	Coordinated statewide drought response, provided emergency drinking water, and allocated grants to remove dead trees on public lands.
Parks	Conducted water hyacinth eradication activities.
SWRCB	Provided emergency drinking water, made emergency improvements to drinking water systems, adopted/monitored/enforced water rights and conservation regulations, and allocated bond-funded grants for various water supply projects.

CalFire = California Department of Forestry and Fire Protection; CCC = California Conservation Corps; CDFA = California Department of Food and Agriculture; CDFW = California Department of Fish and Wildlife; CEC = California Energy Commission; CSD = Department of Community Services and Development; DGS = Department of General Services; DSS = Department of Social Services; DWR = Department of Water Resources; EDD = Employment Development Department; HCD = Department of Housing and Community Development; OES = Office of Emergency Services; Parks = Department of Parks and Recreation; and SWRCB = State Water Resources Control Board.

Several Major Policy Changes Undertaken

Drought Response Included Numerous Short-Term Policy and Regulatory Changes

- Implemented temporary water conservation requirements for urban potable water users, including specific limitations on outdoor irrigation.
- Temporarily relaxed flow and water quality standards within the Delta to allow federal and state water projects to modify the volume and timing of reservoir releases in order to both maximize the amount of water delivered and address the needs of migrating fish.
- Ordered and enforced that less water be diverted from some of the state's rivers and streams, and closed some rivers and streams to fishing in order to protect fish in low water flows.
- Expedited certain drought-response projects and activities by exempting them from meeting some state contracting requirements and from undergoing environmental impact reviews typically required by the California Environmental Quality Act.

State Also Adopted Some Permanent Policy Changes to Respond to Droughts

- Adopted the Sustainable Groundwater Management Act, California's first comprehensive statewide requirement to monitor and operate groundwater basins to avoid depletion (2014).
- Authorized the state to consolidate small water systems that consistently fail to meet drinking water standards (2015).
- Increased state requirements for water efficiency in new and retrofitted outdoor landscapes (2015).
- Established new water conservation standards and planning requirements (2018).
- Created the Safe and Affordable Drinking Water Fund, which provides up to $130 million annually to address drinking water problems (2019).

Lessons to Inform Response to Current Drought

- **Taking Action Soon Can Help State Prepare to Address Issues Before Conditions Worsen.**
- **Coordination and Efficiency of State Departments Is Key.**
- **Large Water Supply Projects Typically Not Able to Address Urgent Conditions.**
- **Because of Its Flexibility, General Fund Usually Best Fit for Many Emergency Response Activities.**
- **Ongoing Drinking Water Challenges Become Compounded During Droughts.**
- **Rural, Vulnerable Communities Particularly Affected by Drought.**
- **State Has Responsibility to Help Protect Fish and Wildlife.**
- **Drought Conditions Increase Risk of Severe Wildfires.**