

Drought Resiliency

The years from 2012 to 2015 were the driest four consecutive years on record in California. The winter of 2015-16 brought welcome storms to Northern California, but the southern half of the state remains dry. Although the state's major northern reservoirs—Shasta, Oroville, and Folsom—all have higher-than-average storage levels for this time of year, storage in southern state reservoirs continues to lag. San Luis Reservoir—a key supplier to urban Southern California and the San Joaquin Valley—holds only half its average storage this time of year, and less than it held a year ago. These conditions serve as another reminder that it will take more than one wet year to erase the impacts of a multi-year drought that include dry wells in rural communities, fallowed farmland, heightened wildfire risks, and degradation of important ecosystems.

The California Water Action Plan, a roadmap to sustainable water management, guides the state's emergency drought response and includes a long-term commitment to making conservation a way of life, improving groundwater sustainability, and managing and preparing for dry periods.

Emergency Drought Response

The Governor's Budget proposed an additional \$323.1 million to continue the state's emergency response to the drought, with the expectation that the Administration would continue to monitor and evaluate statewide drought conditions through the winter months and reevaluate budget-year needs. The May Revision proposes an additional \$11.4 million,

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for a total of \$334.5 million, for emergency drought response, based on current drought conditions (see Figure DRT-01).

Figure DRT-01
Emergency Drought Response
 (Dollars in Millions)

<i>Investment Category</i>	<i>Department</i>	<i>Program</i>	<i>Amount</i>
Protecting Water Supplies	Department of Water Resources	Local Assistance for Small Communities	\$10.0
	Water Board	Water Curtailment	\$5.4
	Water Board	Emergency Drinking Water Projects	\$16.0
Water Conservation	Department of Water Resources	Urban Water Conservation & Save Our Water Campaign	\$12.0
	Energy Commission	Rebates for Appliances	\$30.0
	Energy Commission	Water and Energy Technology Program	\$30.0
	Department of Food and Agriculture	Agricultural Water Conservation	\$20.0
Emergency Response	Department of Forestry and Fire Protection	Enhanced Fire Protection	\$87.8
	Department of Forestry and Fire Protection	Tree Mortality	\$11.0
	Department of Water Resources	Drought Management and Response	\$12.0
	Department of Fish and Wildlife	Protection of Fish and Wildlife	\$13.5
	Department of Fish and Wildlife	Delta Smelt Management Strategy	\$4.2
	Department of Social Services	Drought Food Assistance	\$18.4
	Office of Emergency Services	California Disaster Assistance Act	\$52.7
	Office of Emergency Services	State Operations Center	\$4.0
	Department of Community Services and Development	Farmworker Assistance	\$7.5
	Total		

Tree Mortality

Aerial surveys show an estimated 29 million trees have died as a result of the drought and effects of bark beetle infestation. This is an increase of more than 800 percent

from 2014. These dead and dying trees make forests more susceptible to destructive wildfires and pose public safety risks from falling trees for residents living in rural, forested communities. The Department of Forestry and Fire Protection (CAL FIRE) has already identified Kern, Fresno, Madera, Mariposa, Tulare, and Tuolumne counties as high hazard zones.

In October 2015, the Governor issued an emergency declaration directing state and local entities, as well as utilities, to remove dead and dying trees that threaten power lines, roads, structures, and critical community infrastructure.

Significant Adjustments:

- Tree Removal— A one-time increase of \$11 million General Fund to CAL FIRE to assist in the removal and disposal of trees in high hazard areas. This includes:
 - \$6 million for grants to local entities, including local governments, special districts, fire districts, local conservation corps, tribal entities and fire safe councils, and funding for the California Conservation Corps to provide support for local efforts to remove hazardous trees that pose a threat to public health and safety.
 - \$5 million to support additional miscellaneous equipment and personnel overtime, including foresters, hand crews, engine companies, and heavy equipment operators, for hazardous tree removal and fuels reduction efforts.
 - To accelerate the utilization of biomass materials for energy production in high hazard fire zones, legislation is proposed to allow small biomass facilities to defer certain system interconnection costs.

The May Revision also includes an additional \$30 million for the Office of Emergency Services to provide assistance to counties through the California Disaster Assistance Act, which could be used to assist counties with tree mortality.

Delta Smelt

Delta smelt have experienced extremely poor habitat conditions during the last four years of unprecedented drought. Consequently, populations of smelt are at historic lows, and the scientific community has begun to assess the viability of the species. Delta smelt function as an indicator species for the overall health of the Delta's ecosystem. This winter's increase in rainfall, the state's existing aquatic weed control program, and recent advances in non-lethal means for monitoring Delta smelt provide an

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opportunity to accelerate habitat improvement and aggressively reduce other stressors for Delta smelt. The May Revision proposes \$4.2 million General Fund on a one-time basis to benefit Delta smelt.

Significant Adjustments:

- **Habitat Restoration and Food Production**—An increase of \$2 million General Fund for: (1) an adaptive management pilot project to promote food production where Delta smelt are known to occur, and (2) a restoration design plan to restore intertidal habitat near the confluence of the Sacramento and San Joaquin rivers. Delta smelt remain stressed due to insufficient transport of food to downstream areas inhabited by the smelt. Habitat restoration that converts shallow water habitat to intertidal elevations and modifies tidal circulations to restore historic tidal channel patterns can reduce invasive aquatic weeds, reduce predation, and improve food webs in the western Delta.
- **Enhancing Aquatic Weed Control**—An increase of \$1.8 million General Fund to complete Delta-wide mapping of aquatic weeds to increase weed control in critical Delta smelt areas, and to assess the effectiveness of such control action in improving habitat quality. Aquatic weeds adversely impact smelt habitat by decreasing turbidity and increasing predator habitat. These weeds also restrict boating on waterways.
- **Modern Monitoring and Targeted Studies**—An increase of \$400,000 General Fund for: (1) development of non-lethal monitoring of Delta smelt distribution, and (2) a pilot project using new technologies for turbidity monitoring to further refine data on smelt location and movement during periods of conflict with water pumps. Monitoring for distribution patterns and population estimates is essential for species conservation. Modernizing monitoring through “environmental DNA” and “Smelt Cam” technologies improves data collection and reduces impacts to the fish. Smarter data collection can be linked with targeted research to better inform management during high-conflict periods such as when winter storms and associated turbidity increase the chance of smelt movement towards the water pumps.

Other Adjustments

- **Salinity Barriers**—A decrease of \$42 million General Fund to reflect that removal of salinity barriers in the Delta will not be needed in the fall of 2016, and an extension

of \$31 million in existing bond funds to install barriers in the spring of 2017, if necessary.

- Local Assistance for Small Communities—An increase of \$5 million General Fund for the Department of Water Resources to provide emergency drinking water support for small communities, including addressing private wells. Combined with the \$5 million already included in the Governor’s Budget, a total of \$10 million will be available for this purpose.
- Enhanced Fire Protection—An increase of \$10.4 million General Fund for CAL FIRE to contract for additional helicopters and seasonal helicopter crews during peak fire season.
- Fish and Wildlife—A decrease of \$4.2 million General Fund to reflect improved conditions in the north, reducing the necessity for fish rescues and water infrastructure and conveyance improvements.
- Save Our Water Campaign—A reduction of \$3 million General Fund from the Save Our Water Campaign to reflect the reduced need for a statewide campaign this year.

Manage and Prepare for Future Droughts

California’s hydrology is volatile and complex. Flooding and drought conditions can occur at the same time. Temperatures in the southern coastal areas set records for the third year in a row. This year, the Colorado River, which provides roughly one-third of the water supply for Southern California, is in its 16th year of drought. Although the state has managed well in many respects, drought conditions have exposed weaknesses of the state’s water system and the laws that govern it. For example, thousands of water rights in California require no permit or license. Consequently, the State lacks basic information needed to accurately apply the water right priority system, especially during dry periods. The Administration is interested in collecting more accurate information to protect water rights and to improve water accounting.

Both climate change and future population growth will place increasing pressure on the state’s water supplies. The current drought may persist into 2017 and beyond, and droughts will continue to be regular events in California. Warmer winter temperatures driven by climate change will reduce water supply held in mountain snowpack and result

in drier soil conditions. California needs to adopt permanent changes that help the state manage the current drought and prepare for future droughts.

Conservation as a Way of Life

California must use water more efficiently. Californians have responded to the drought by conserving water at significant levels, reducing water use in communities by 23.9 percent between June 2015 and March 2016, and saving enough water during this period to provide 6.5 million Californians with water for one year.

On May 9, 2016, the Governor issued an executive order directing the State Water Resources Control Board to adjust its emergency water restrictions to account for this winter's snow and rain. While drought conditions have improved in many parts of the state, California needs to improve water conservation continuously to become more resilient in future droughts.

Efficient water use requires a multifaceted approach by state and local government. The state must provide a unifying framework with targets for efficient water use, prohibitions on wasting water, standards for minimizing system leaks, and criteria for local water agencies to measure their success. Fundamentally, though, local and regional water suppliers plan, manage, and deliver water. To endure future droughts, local suppliers must take the lead to develop substantive, reliable plans based on their local supplies and circumstances.

Significant Adjustment:

- Drought Preparedness and Resiliency for Urban Water Agencies— An increase of \$4.5 million General Fund for a coordinated effort by the Department of Water Resources and the Water Board to review and update local water shortage contingency plans, develop recommendations for new water use efficiency targets, and establish a permanent urban water use efficiency data tracking system, consistent with the directives of the most recent executive order.

Enabling Successful Implementation of Sustainable Groundwater Management

Two years ago, the state adopted historic legislation to manage groundwater sustainably. The Sustainable Groundwater Management Act (Groundwater Act) recognized that groundwater management is most successful when done locally. In the high and

medium-priority basins, local government sustainability agencies need to be formed by June 30, 2017. Effective governance structures are urgently needed to implement the Groundwater Act.

Significant Adjustments:

- **Groundwater Sustainability Agency Facilitation**—An increase of \$1 million General Fund for the Department of Water Resources to support local public agencies with facilitation services as they implement the Groundwater Act. Successful implementation depends on how well local public agencies coordinate and develop governance structures to meet the new requirements. In an ongoing effort by the Department of Water Resources and the Water Board, these funds will support efficient formation of groundwater sustainability agencies by water districts, counties, cities, and other local groups.
- **Statewide Agricultural Land Use Data**—An increase of \$1 million General Fund for the Department of Water Resources to support the use of remote sensing technology to establish statewide agricultural land use data. Groundwater agencies must develop water budgets to eventually balance water supply and use within basins. To create water budgets, agencies must have estimates of agricultural water demand, and agricultural land use data is more efficiently captured on a statewide scale than by hundreds of separate local agencies