

FloodSAFE California Achievements

Improving public safety through integrated flood management



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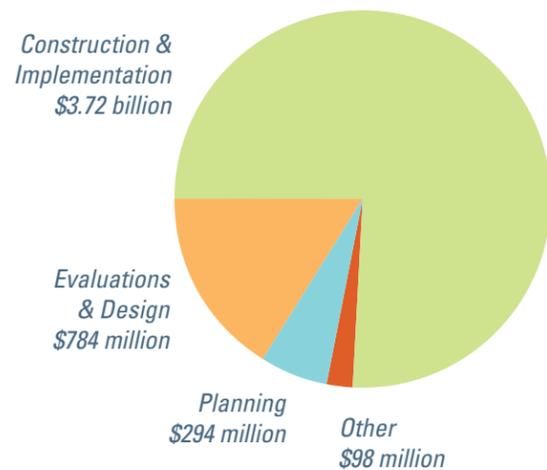
Improving public safety through integrated flood management

Many Californians face unacceptable risk from flooding. Large segments of our population must rely on aging infrastructure for their personal safety and economic stability. As more people live and work in flood prone areas, and climate changes make large flood flows more likely, the need to improve public safety through integrated flood management becomes more urgent.

The California Department of Water Resources (DWR) has launched a multi-faceted initiative to improve public safety through integrated flood management. The FloodSAFE California Initiative is a collaborative, statewide effort to accomplish the following goals: reduce the chance of flooding, reduce the consequences of flooding, sustain economic growth, protect and enhance ecosystems, and promote sustainability.

The beginnings of FloodSAFE began in January 2005 when Governor Schwarzenegger drew attention to the state's flood problems, calling for improved maintenance, system rehabilitation, effective emergency response, and sustainable funding. In "Flood Warnings: Responding to California's Flood Crisis (2005)," DWR outlined the flood risks that California faces and offered specific recommendations for administrative action and legislative changes.

Planned Expenditures through 2020



In 2006 Governor Schwarzenegger continued to work with the Legislature to place two critical bond measures on the November 2006 ballot to help address the state's urgent flood protection needs. In response, California voters passed the Disaster Preparedness and Flood Prevention Bond Act (Proposition 1E) and the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act (Proposition 84), authorizing the sale of nearly \$5 billion in State bonds for flood management improvements throughout the state with \$4.275 billion of this amount specifically earmarked for the repair and improvements to State and Federal flood projects within the Central Valley.

Integrated flood management is a comprehensive approach to flood management that considers land and water resources at a watershed scale within the context of integrated water management; employs structural and non-structural measures to maximize the benefits of floodplains and minimize loss of life and damage to property from flooding; and recognizes the benefits to ecosystems from periodic flooding.

With the new funding, work accelerated to upgrade the flood management system in order to protect life and property from flooding and to safeguard the state's drinking water. But more needed to be done.

In the latter part of 2007, the California Legislature passed and the Governor signed five interrelated bills to direct use of the bond funds, increase levels of urban protection and address flood liability.

Together, this flood legislation outlines a comprehensive approach to improving flood management at the State and local levels, with elements to address both the chance of flooding (e.g., improvements to reduce the probability that floods will occur) and the consequences when flooding does occur.

Using the funds from Props 1E and 84, and with direction from the 2007 flood legislation, DWR is leading the first phase of FloodSAFE California implementation. But program success depends on active participation from many key partners and stakeholders, such as the California Emergency Management Agency, Central Valley Flood Protection Board, California Department of Fish and Game, U.S. Army Corps of Engineers, Federal Emergency Management Agency, U.S. Fish and Wildlife Service, the National Oceanic Atmospheric Administration, Tribal entities, and many local agencies and districts. DWR will continue to work closely with key partners and stakeholders to accomplish the FloodSAFE California Initiative.

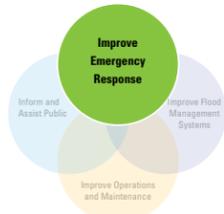
FloodSAFE California includes four major categories of program actions as shown:

- Improve Emergency Response
- Improve Flood Management Systems
- Improve Operations and Maintenance
- Inform and Assist Public

All FloodSAFE California actions are designed to accomplish specific objectives that help satisfy the FloodSAFE California goals.

While the challenges ahead remain great, much has already been accomplished. The following pages highlight those accomplishments.





1 Improve Emergency Response

Flood management experts recognize that no matter how much we spend to improve flood protection systems, some risk of damaging floods will still exist. As a result, DWR has already taken action to plan and provide efficient and effective response capabilities to protect lives, property, and public resources when flood events occur.

Projects Completed

- Enhancement of Incident Command Team response capability
- Stockpiling of rock for catastrophic Delta levee failure response

Projects Underway

- Development of four pilot projects for collaborative flood emergency response, preparedness, and evacuation
- Delta Emergency Response, DWR contribution to the Delta Emergency Plan
- Developed Coordinated Reservoir Operations Forecast - San Joaquin River System Program - Merced River Watershed Work Plan
- Initiation of Climate Data Collection and Precipitation Runoff Forecasting Project – Collaboration with National Oceanic Atmospheric Administration, National Weather Service, and Scripps Institute to evaluate and install new gauges, instruments, data transfer and analysis, and improve flood forecasting
- Compiling updates on Central Valley and other regional hydrology
- Conducting Emergency training, exercises, and interagency coordination



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Improve Flood Management Systems

Most of California's flood management facilities were designed and built 50 to 100 years ago. A lot has changed since then. The consequences of flooding are greater, engineering standards and construction techniques have improved, planning has become more sophisticated, and the climate is changing in ways that is expected to cause a rise in sea levels and larger floods in the decades ahead.

When improvements to a flood management system are made on a project-by-project basis, systemwide needs may not be adequately addressed. That is why DWR is taking a system-wide approach for immediate and future investments in improved flood protection.

STATE-FEDERAL FLOOD PROTECTION SYSTEM

Beginning a century ago, the state, local interests, and the U.S. Army Corps of Engineers designed and built an extensive collection of levees, channels, and related flood management structures in the Central Valley to protect large land areas from frequent inundation by storm flows. This collection of federally and state authorized flood management facilities is referred to as the 'state-federal system.' Extensive repairs and evaluations of this system have been completed in the past few years, and additional work is underway through FloodSAFE California.



Projects Completed

- 116 critical levee repairs (erosion, through seepage, and underseepage)
- 121 proactive repairs (levees damaged during 2006 high water events)
- Developed initial Levee Flood Protection Zone Maps
- Contributed cost-sharing funds for new Folsom Dam bridge construction
- Flood protection improvements along South Sacramento creeks

Projects Underway

- Cost-sharing in six Early Implementation Projects – Four levee repair/ improvement projects to be completed in 2009
- Geotechnical evaluation of approximately 500 miles of urban levees – 70% Complete
- Geotechnical evaluation of approximately 1,600 miles of non-urban levees
- Compiling Aerial photography, topography, and bathymetry data – 50% Complete
- Developing Central Valley flood planning hydrology and systemwide flood hydraulics models
- Cost-sharing in new Folsom Dam spillway construction – Approximately 10% Complete
- Developing Central Valley Flood Protection Plan

SACRAMENTO-SAN JOAQUIN DELTA

In addition to the challenges of maintaining a sustainable and integrated flood management system in the Central Valley, great challenges also exist within the Sacramento-San Joaquin Delta (Delta). Levee failures in the Delta can affect farmland, small communities, the ecosystem, and water supplies for millions of Californians. The Delta contains nearly 1,100 miles of levees (385 miles are part of the state-federal system) that protect nearly 60 major islands and tracts. Central Delta levees, which are founded on weak and unstable peat soils, work year-round to protect lands lying below sea level.

Initial improvements have been completed and additional work is in progress through FloodSAFE California to specifically advance flood protection in the Delta.



Projects Completed

- 21 Delta Special Projects to improve levee stability and habitat
- Urgent restoration of levee deficiencies on Upper Jones Tract
- Geophysical surveys of approximately 200 miles of levees on 15 islands
- Levee set-back on Sherman Island, including 4 acres intertidal habitat and 10 acres shaded riverine aquatic habitat
- Delta Risk Management Strategy Phase 1
- Dutch Slough Tidal Marsh Restoration Project Draft Environmental Impact Statement
- North Delta Flood Control Improvements Project Environmental Impact Report
- Urgent repair of Bradford Island levee

Projects Underway

- Three critical levee repairs – Plans and specifications under development
- Aerial topographic levee surveys – 95% Complete
- Planning for subsidence reversal and habitat enhancement of 300 acres on Sherman Island
- Preliminary design for Meins Landing Habitat Enhancement Project (Suisun Marsh)
- Levee repairs – 16 projects recommended for State cost share (in cooperation with Federal Levee Stability Program)
- Draft near-term investment strategy for Delta Subventions and Special Projects programs
- Five-year plans for maintenance, repair, and improvement of critical Delta levees system on 60 Delta islands

LOCAL FLOOD MANAGEMENT ASSISTANCE

DWR is also providing financial and technical assistance for evaluation and improvement projects for areas that are not part of the state-federal system.

Projects Completed

- Federal Flood Control Subventions Program
 - \$76 million reimbursed to local sponsors for State cost share of federally authorized flood management projects
- Flood Protection Corridor Program
 - Eight non-structural flood risk reduction and ecosystem restoration projects statewide, from Napa County to San Diego County, selected for funding
 - Acquisition of Knaggs Ranch (Natomas) for future mitigation of flood projects
- Local Levee Assistance Program
 - Local levee urgent repair – Three projects

Projects Underway

- Local Levee Assistance Program
 - Local levee urgent repair – One project recommended for local assistance funding
 - Local levee evaluations – 11 projects recommended for local assistance funding
- Alluvial Fan Task Force
 - Establishment of alluvial fan flood mapping priorities



Setback levee near Feather River

3 Improve Operations & Maintenance



Improved maintenance of the flood protection system is a key component of managing flood risk. Flood maintenance work is needed on a consistent basis to address flood system deficiencies and to allow the system to operate properly during high water and storm events. DWR is responsible for the operation and maintenance of 292 miles of levees, 11 weirs, five gate structures, four pumping plants, and all channels in the Sacramento River system. Local maintaining agencies have responsibility for the remaining state-federal (or “project”) flood facilities in the Sacramento Valley, project facilities in the San Joaquin Valley, and non-project levees in the Sacramento Valley, San Joaquin Valley, and in the Delta.

Through the Central Valley Flood Management Planning Program, DWR is taking steps to improve the system in ways that are sustainable, acknowledging inherent factors such as levee erosion that will need costly maintenance work unless the system is modified. Sustaining the system and maintaining it properly requires adequate and dependable funding. A sustainable system must also be resilient, anticipating the effects of changing climatic conditions, such as higher peak runoff flows and higher Delta water levels.

Projects Completed

- Tisdale Bypass Sediment Removal Project
- Sacramento Bypass Sediment Removal Project
- Modernization of levee inspection and reporting procedures
- Development of 137 acres riparian habitat at Colusa State Recreation Area (mitigation)

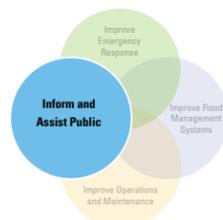
Projects Underway

- Cherokee Canal, Bear Creek, and Elder Creek evaluations and planning
- Upgrades to Sutter Bypass Pumping Plants – Plans and specifications 90% complete
- Replacement of Sutter Bypass Weir #2 and Willow Slough Water Control Structures – Plans and specifications 90% complete
- Cost-sharing in local maintenance activities through the Delta Levees Maintenance Subventions Program
 - Approximately 650 miles of levees in Fiscal Year 2007-08
 - Approximately 500 miles of levees in Fiscal Year 2008-09



Critical levee repair (Mile 85.6), northwest of Sacramento

4 Inform and Assist Public



It is not enough to simply improve and maintain flood management systems. Californians must be aware of the flood risks they face, the actions they can take to reduce that risk, and how to respond when a flood occurs. DWR is the State’s lead agency in time of flood emergencies and is continually working to improve access to timely information and emergency preparedness.

Providing accurate information on flood risks is essential to support local communities in making responsible land use decisions and in developing effective emergency response plans. Recognizing that all communities should be provided access and opportunity to participate in the decision-making processes that affect them, DWR has taken major steps to provide resources and venues in which communities may participate in planning and decision making related to FloodSAFE California programs.

DWR has designed and implemented an extensive communications and engagement program for FloodSAFE California. DWR will continue to share information and promote dialogue among key partners and stakeholders as it works toward the FloodSAFE California goal to improve public safety through integrated flood management.

Projects Completed

- Development of the FloodSAFE California Web site and email subscriber list to provide information and updates to interested parties regarding FloodSAFE California activities, news features, funding opportunities, and opportunities to provide input: www.water.ca.gov/floodsafe/
- Draft FloodSAFE California Strategic Plan – Circulated for public comment
- Public workshops to introduce FloodSAFE California and preview draft Strategic Plan
- Public meetings to inform and discuss critical levee repairs
- Public meetings to inform and discuss levee evaluation activities
- Provide best available information about flood risk and levee flood protection zones for Sacramento-San Joaquin Valley communities
- Public workshop on role of integrated flood management in key California programs, including the FloodSAFE California, California Water Plan, and Integrated Regional Water Management
- Central Valley flood management facilities tours to promote improved understanding and support of flood management activities among State legislative staff
- DWR Regional Coordination Program
- Central Valley Flood Management Planning Program Web site and Partner Registry to provide program news, event information, and publications
- Charter initial place-based and topic-based work groups to develop content recommendations for the Central Valley Flood Protection Plan
- Conducted Central Valley Flood Management Planning Program Regional Forums to inform partners/stakeholders about development of the Central Valley Flood Protection Plan and to promote broad participation by diverse interests
- Development of website to support local levee maintaining agencies in complying with legislatively mandated reporting requirements
- Workshops to solicit local levee maintaining agency input on newly mandated annual reporting submittal processes

Projects Underway

- Participation in interagency funding fairs – On-going
- Federal advocacy program to facilitate improved understanding and support of California flood management activities among congressional delegates – On-going
- Participation in statewide and national conferences of flood management professionals – On-going



FloodSAFE California Vision

A sustainable integrated flood management and emergency response system throughout California that improves public safety, protects and enhances environmental and cultural resources, and supports economic growth by reducing the probability of destructive floods, promoting beneficial floodplain processes, and lowering the damages caused by flooding.

