

**REPORT OF ACTIVITIES
OF THE
DEPARTMENT OF WATER RESOURCES**

By

**Keith E. Swanson, Chief,
Division of Flood Management
Department of Water Resources
California Natural Resources Agency
State of California***

Report of Activities of the Department of Water Resources

January 23, 2015

Page 2

Contents

FLOOD EMERGENCY RESPONSE (FER) 7

 REAL-TIME FLOOD CONDITIONS, STATUS, & WARNING 7

 HYDRO-CLIMATE DATA COLLECTION & PRECIPITATION/RUNOFF FORECASTING 7

 Snowmelt & Seasonal Volume Runoff Forecasting 9

 Hydrologic Data Management..... 9

 Bulletin 120 and Water Supply Index Forecasts 9

RESERVOIR OPERATIONS & RIVER FORECASTING 10

FLOOD EMERGENCY PREPAREDNESS & OPERATIONS..... 10

 State-Federal Flood Operations Center Activation – December 10-12, 2014..... 11

 Flood Emergency Response Grants 11

 Statewide Flood ER Grants: 11

 Delta Flood ER Grants: 11

 Delta Communications Grants:..... 11

 Delta Flood Emergency Facilities Improvement Project: 11

CEQA MITIGATED NEGATIVE DECLARATION-INITIAL STUDY:..... 12

 Rio Vista and Webber Improvement Projects: 12

DELTA FLOOD MANAGEMENT PLANNING AND COORDINATION: 12

 Delta Flood Emergency Management Plan: 12

 DWR-USACE Delta Emergency Operations Integration Plan:..... 12

FLOOD MANAGEMENT PLANNING (FMP) 12

 CENTRAL VALLEY FLOOD MANAGEMENT PLANNING (CVFMP) 12

 CONSERVATION STRATEGY..... 12

 Conservation Strategy Document:..... 12

 Measurable Objectives Technical Memorandum:..... 13

STATEWIDE INTEGRATED FLOOD MANAGEMENT PLANNING (SIFMP) 13

FLOODPLAIN RISK MANAGEMENT (FRM)..... 13

 CALIFORNIA FLOODPLAIN RISK MANAGEMENT (CFRM) 14

FLOODPLAIN MANAGEMENT ASSISTANCE 14

 Flood Risk Notification (FRN) 14

 Coastal Floodplain Evaluation and Planning..... 14

| | |
|--|----|
| FLOOD RISK REDUCTION PROJECTS (FRRP) | 14 |
| DELTA FLOOD PROJECTS..... | 15 |
| Delta Levees Maintenance Subvention Program | 15 |
| DELTA LEVEES SPECIAL FLOOD CONTROL PROJECTS..... | 15 |
| DELTA LEVEE SYSTEM INTEGRITY (DLSI) | 16 |
| Delta Stewardship Council (DSC) Interagency Agreement (IA) | 16 |
| DELTA PROTECTION COMMISSION (DPC) INTERAGENCY AGREEMENT (IA) | 16 |
| USACE/BOARD PROJECTS | 16 |
| American River Common Features (ARCF) Project..... | 16 |
| American River Watershed – Natomas Basin Project | 17 |
| Folsom Dam Modifications Joint Federal Project (JFP) | 17 |
| Folsom Dam Raise Project | 17 |
| Lake Kaweah Enlargement Project (Terminus Dam, Kaweah River Project)..... | 17 |
| Marysville Ring Levee Improvement Project..... | 17 |
| South Sacramento County Streams Project..... | 17 |
| USACE/BOARD STUDIES..... | 18 |
| American River Common Features (ARCF) General Re-evaluation Report (GRR)..... | 18 |
| Central Valley Integrated Flood Management Study | 18 |
| Cache Creek Settling Basin Project GRR | 18 |
| Lower San Joaquin River Feasibility Study..... | 18 |
| Merced County Streams Project – Bear Creek GRR..... | 18 |
| Sutter Basin Feasibility Study..... | 18 |
| West Sacramento Project GRR | 18 |
| Woodland/Lower Cache Creek Feasibility Study..... | 18 |
| Yuba River Basin Project GRR | 18 |
| URBAN FLOOD RISK REDUCTION PROGRAM (UFRR)..... | 18 |
| Knights Landing Levee Repair Project..... | 19 |
| Levee District 1, Sutter County (LD-1 Sutter) – Setback Levee at Star Bend Feather River Project..... | 19 |
| Reclamation District 17 (RD-17) – 100-Year Levee Seepage Area Project | 19 |
| Three Rivers Levee Improvement Authority (TRLIA) – Feather River Levee Improvement Project..... | 19 |
| TRLIA – Upper Yuba River Levee Improvement Project | 19 |

| | |
|---|----|
| Sacramento Area Flood Control Agency (SAFCA) – Natomas Cross Canal Project..... | 19 |
| SAFCA-Sacramento River East Levee Project..... | 19 |
| San Joaquin Area Flood Control Agency (SJAFCA) – Smith Canal Closure Structure Project | 19 |
| West Sacramento Area Flood Control Agency (WSAFCA) – North Area and Southport Improvement Project..... | 19 |
| Sutter Butte Flood Control Agency (SBFCA) – Feather River West Levee Project (FRWLP). | 19 |
| SMALL COMMUNITIES FLOOD RISK REDUCTION (SCFRR) PROGRAM..... | 20 |
| FLOOD CORRIDOR PROGRAM (FCP) | 20 |
| LOCAL LEEVE ASSISTANCE PROGRAM (LLAP) | 20 |
| 2014 LLAP Proposal Solicitation Package (PSP) | 20 |
| Jacobs Avenue Levee Evaluation Project..... | 20 |
| YUBA-FEATHER FLOOD PROTECTION PROGRAM | 20 |
| Gridley Bridge Bank Erosion Project..... | 21 |
| LEEVE EVALUATIONS (NON-URBAN AND URBAN) | 21 |
| ULE Summary | 24 |
| NULE Summary | 26 |
| SAN JOAQUIN RIVER RESTORATION PROJECT (SJRRP) | 26 |
| FLOOD SYSTEM OPERATIONS AND MAINTENANCE (FSO&M)..... | 27 |
| CHANNEL EVALUATION AND REHABILITATION | 27 |
| Bear River Hydraulic Model | 28 |
| Butte Creek Hydraulic Model..... | 28 |
| Cherokee Canal Hydraulic Model | 28 |
| Chico Area Streams Hydraulic Model | 28 |
| East Side Canal (aka Coon Creek Interceptor, Sacramento County) | 28 |
| Knights Landing Ridge Cut/Colusa Drain Hydraulic Model..... | 28 |
| Llano Seco Riparian Sanctuary Unit Restoration and Pumping Plant/Fish Screen Facility Protection Project..... | 28 |
| Middle Creek Hydraulic Model (Lake County)..... | 28 |
| Natomas East Main Drainage Canal (NEMDC)..... | 28 |
| Putah Creek Hydraulic Model | 28 |
| Sacramento River National Wildlife Refuge (Refuge) Complex Annual Habitat Management Plan Tour and Flood Mitigation Property Visits..... | 29 |
| Sutter Bypass Hydraulic Model..... | 29 |

| | |
|--|----|
| Sutter Pumping Plants Fish Screen Investigation | 29 |
| Tisdale Bypass Hydraulic Model | 29 |
| Wadsworth Canal Hydraulic Model | 29 |
| Yuba River Hydraulic Model..... | 29 |
| FLOOD CONTROL FACILITIES EVALUATION AND REHABILITATION (FCFER) | 30 |
| Butte Slough Outfall Gates (BSOG) | 30 |
| LEVEE OPERATIONS AND MAINTENANCE COMPONENTS..... | 30 |
| FLOOD SYSTEM EVALUATION AND REHABILITATION (FSER)..... | 31 |
| Lower Feather River Corridor Management Plan..... | 31 |
| Small Erosion Repair Program (SERP) | 32 |
| LEVEE REPAIRS | 32 |
| Flood System Repair Project (FSRP)..... | 32 |
| Sacramento River Bank Protection Project (SRBPP) | 32 |

FLOOD EMERGENCY RESPONSE (FER)

Flood Emergency Response (FER) prepares for and responds to flood threats in close coordination with local, state, and federal entities. Preparing for flood response requires continuous data collection, regular flood system inspections and evaluations, forecasts and information dissemination, annual training and exercises, review and replenishment of supplies and equipment, and preseason coordination.

REAL-TIME FLOOD CONDITIONS, STATUS, & WARNING

The purpose of the Real-Time Flood Conditions, Status, and Warning element is to provide information needed to manage floods as they are occurring. This element supports flood operations by 1) inspecting, documenting, and assessing the integrity of the Sacramento and San Joaquin Flood Control Project levees, 2) storing and managing information so that it is accessible to flood managers and the general public, 3) providing emergency flood information and warnings based upon existing and forecasted conditions and field reports, and 4) developing information management tools to support emergency operations.

Staff continued to integrate levee vulnerability data (serious and critical points of interest) into the Flood Emergency Response Information Exchange (FERIX) web portal. FERIX will allow flood emergency responders to view and share historic and real-time flood system data.

In December, staff continued conducting the Annual Flood Project Hydraulic Conveyance Capacity Evaluation and Reporting work for supporting flood system status and integrity assessment, and flood emergency response planning, preparedness, and operation. This effort also supports coordinated reservoir operations, forecasting, and issuing flood warning by providing updated existing hydraulic conveyance capacity information for the flood control system. Preliminary analyses using Central Valley Floodplain Evaluation and Delineation (CVFED) and Central Valley Hydrology Study (CVHS) models and data are being incorporated into a draft annual report.

Staff continued to manage and disseminate CVFED model, data, and tools. This month, staff processed four requests for data, and transferred a total of 15,262 Light Detection and Ranging (LIDAR) tiles and 47,942 tiles of Aerial Imagery. One request also included bathymetric and field survey data. Three requests were from DWR and the other four were from outside public agencies. Approximately 7,425 GB of data were transferred covering a land area of approximately 13,685 square miles.

HYDRO-CLIMATE DATA COLLECTION & PRECIPITATION/RUNOFF FORECASTING

This element supports Flood Emergency Response by providing information on current and forecasted water conditions, and by providing meteorological and climate information. Additionally, this element includes evaluating and improving the data collection and exchange network and forecasting models, providing water supply and watershed runoff information and forecasting, and the development of a new generation of forecasting and data collection tools to improve the quality, timeliness, and length of watershed and river forecasts. Real-time data,

its timely availability, and quantities and quality are all critical to improving forecasting quality and timeliness.

As of November 30, statewide hydrologic conditions were as follows: precipitation, 70 percent of average to date; runoff, 50 percent of average to date; and reservoir storage, 55 percent of average for the date. Sacramento River Region unimpaired runoff for Water Year 2015 observed through November 30, 2014 was about 0.8 million acre-feet (MAF), which is about 56 percent of average. In comparison to Water Year 2014, the observed Sacramento River Region unimpaired runoff through November 30, 2013 was about 0.7 MAF, or about 49 percent of average.

On November 30, the Northern Sierra 8-Station Precipitation Index Water Year total was 7.6 inches, which is about 82 percent of the seasonal average to date and 15 percent of an average water year (50.0 inches). During November, the total precipitation for the 8-Stations was 3.9 inches, or about 62 percent of average for the month. Last year on November 30, the Water Year 2013 seasonal total for the 8-Stations was 2.4 inches, or about 25 percent of average.

On November 30, the San Joaquin 5-Station Precipitation Index Water Year total was 3.3 inches, which is about 47 percent of the seasonal average to date and 8 percent of an average water year (40.8 inches). During November, the total precipitation for the 5-Stations was 3.1 inches, or about 66 percent of average for the month. Last year on November 30, the Water Year 2013 seasonal total for the 5-Stations was 1.9 inches, or about 27 percent of average.

| Selected Cities Precipitation Accumulation as of 11/30/2014 (National Weather Service Water Year. July through June) | | | | | |
|--|--|--------------|--|--------------|--|
| City | July 1 to Date 2014 – 2014 (in inches) | % Average | July 1 to Date 2013 – 2013 (in inches) | % Average | % Avg "Water Year" July 1 to June 30 2014 - 2015 |
| Eureka | 11.70 | 131 | 4.56 | 51 | 29 |
| Redding | 9.19 | 123 | 3.12 | 42 | 27 |
| Sacramento | 2.23 | 66 | 1.47 | 44 | 12 |
| San Francisco | 2.91 | 64 | 1.69 | 37 | 12 |
| Fresno | 1.09 | 58 | 0.58 | 31 | 9 |
| Bakersfield | 0.66 | 62 | 0.97 | 92 | 10 |
| Los Angeles | 0.85 | 43 | 0.74 | 38 | 7 |
| San Diego | 0.45 | 25 | 1.78 | 100 | 4 |

| Key Reservoir Storage (1,000 AF) as of 11/30/2014 | | | | | | | | |
|---|------------|---------|--------------------|--------------|----------|---------------|-------------------------------|--------------------------|
| Reservoir | River | Storage | Average Storage | % Average | Capacity | % Capacity | Flood Control Encroachment | Total Space Available |
| Trinity Lake | Trinity | 562 | 1,587 | 35 | 2,448 | 23 | --- | 1,886 |
| Shasta Lake | Sacramento | 1,048 | 2,705 | 39 | 4,552 | 23 | -2,204 | 3,504 |
| Lake Oroville | Feather | 910 | 2,138 | 43 | 3,538 | 26 | -2,253 | 2,628 |
| New Bullards Bar Res | Yuba | 390 | 529 | 74 | 970 | 40 | -406 | 576 |
| Folsom Lake | American | 278 | 468 | 59 | 977 | 28 | -299 | 699 |
| New Melones Res | Stanislaus | 513 | 1,355 | 38 | 2,400 | 21 | -1,457 | 1,907 |

| | | | | | | | | |
|----------------|-------------|-----|-------|----|-------|----|------|-------|
| Don Pedro Res | Tuolumne | 756 | 1,320 | 57 | 2,030 | 37 | -934 | 1,274 |
| Lake McClure | Merced | 77 | 450 | 17 | 1,032 | 7 | -598 | 948 |
| Millerton Lake | San Joaquin | 175 | 219 | 80 | 520 | 34 | -260 | 345 |
| Pine Flat Res | Kings | 119 | 371 | 32 | 1,000 | 12 | -406 | 881 |
| Isabella | Kern | 45 | 156 | 29 | 568 | 8 | -125 | 523 |
| San Luis Res | (Offstream) | 489 | 1,225 | 40 | 2,041 | 24 | --- | 1,550 |

Snowmelt & Seasonal Volume Runoff Forecasting

Snow Surveys and Snow Course Maintenance

As of January 6, 2015, the regional snow pack conditions as reported by the remote snow sensors are as follows:

- **Northern Sierra** – 6” of SWC for 20% of April 1 Avg.
- **Central Sierra** – 5” of SWC for 16% of April 1 Avg.
- **Southern Sierra** – 4” of SWC for 15% of April 1 Avg.
- **Statewide** – 5” of SWC for 17% of April 1 Avg
- **Statewide** – Percent of normal to date = 43%

The January 1, 2015 Snow Survey Results from the courses near Echo Summit along Highway 50 indicate a snow pack that remains well below average. The results were:

| Location | Elevation | Snow Depth | Water Content | % of Average |
|------------------|-----------|------------|---------------|--------------|
| Alpha | 7600' | 19.0" | 5" | 37 |
| Phillips Station | 6800' | 21.5" | 4.0" | 33 |
| Lyons Creek | 6700' | 17.0" | 4.5" | 39 |
| Tamarack Flat | 6500' | 18.0" | 5.0" | 43 |

Hydrologic Data Management

The Snow Surveys section continues to collect, review, Quality Control, and enter Full Natural Flow (FNF), precipitation, snow, and reservoir storage data for thousands of locations statewide on a daily basis. With this data staff continues to issue daily, monthly, and seasonal water condition reports on CDEC. The extreme dry conditions during 2014 combined with the heavy rainfall in early December 2014 increased media attention in regards to the state’s water supply conditions. Media interest peaked around the time of the big storm in early December and again around the time of the snow surveys.

Bulletin 120 and Water Supply Index Forecasts

The next Bulletin 120 forecast will be for February 1, 2014.

The December 1, 2014 WSI forecast indicates a Dry classification for the Sacramento Valley Water Year Type and a Critical classification for the San Joaquin Valley Water Year Type. The median Sacramento River Runoff water year runoff forecast is 13.7 MAF or 75% of the 50-year

historic average. The January 1, 2015 Sacramento Valley forecasts will no doubt be bolstered by the impressive rainfall amounts in the Sacramento Valley, the Lake Shasta watershed, and the Northern Sierra Nevada. Updated Water Supply Index forecasts will be available January 9, 2015.

While rains were impressive in the Sacramento River region, the San Joaquin River region continued to receive less than average precipitation. Since the early December storms, the state has been mostly dry – a trend expected to continue into mid-January.

RESERVOIR OPERATIONS & RIVER FORECASTING

This element supports Flood Emergency Response through a coordinated effort with various agencies' operating reservoirs in the system to enhance reservoir operations. The goal of coordinated operation of the reservoirs will be to reduce peak flood flows downstream of the reservoirs. Additionally, this element supports Flood Emergency Response through river forecasting activities conducted in coordination with the National Weather Service River Forecast Center located at the Joint Operations Center in Sacramento. By conducting real-time and long-range hydrologic and watershed analyses, this element provides accurate and timely runoff and river peak flow forecasts.

In December, system-wide hydraulic channel routing models to support enhanced River Forecasting and Forecast Coordinated Reservoir Operations for the Sacramento and San Joaquin River systems were completed.

Staff completed developing the flood inundation maps for 55 pre-selected locations throughout the Sacramento and San Joaquin basins. A presentation (Searchable Flood Inundation Maps for Simulated Levee Breaches) was given to the CVFPB at the monthly meeting on December 19, 2014. A retrieval and display system using FERIX as the platform is being developed to enable easy and quick reference of the maps. It is expected the system will be implemented during this flood season.

Staff continued to populate and manage Library of Models (LOM) with CVHS and CVFED models to support River Forecasting and Forecast Coordinated Reservoir Operations to provide necessary flood intelligence during an event. LOM also supports the Central Valley hydrology update for risk assessment and project development. As of December, 98% of the CVFED hydraulic models are populated in the LOM. Completed CVHS watershed, reservoir and channel routing models are also being populated in the LOM.

FLOOD EMERGENCY PREPAREDNESS & OPERATIONS

This element includes preparing the Department to respond to flood emergencies by providing emergency response training, flood fight training, coordinating emergency preparedness endeavors with the various flood response partners, analyzing season flood threats, and assuring the staffing and function of the State-Federal Flood Center to coordinate State response to flood events.

State-Federal Flood Operations Center Activation – December 10-12, 2014

High winds and intense precipitation were forecasted to affect California on December 10-12, 2014. With this forecast, high water and flash flooding were anticipated, especially in northern California. On December 10, 2014, at 1400 hours, a Flood Alert was declared by the Flood Operations Branch chief. The State-Federal Flood Operations Center (FOC) was staffed for extended hours until it was deactivated on December 12, 2014, at 1200 hours. The FOC received requests for sandbags from the city of Fortuna and Monterey County and technical assistance from Tehama County and Glenn County. Levee inspectors and flood fight specialists were dispatched to the Tehama County, Glenn County, and Monterey County areas to monitor situations. No significant incidents were reported to the FOC and all flooding concerns were handled at the local level.

Flood Emergency Response Grants

Flood ER Grants are intended to improve local flood emergency response and increase public safety. They consist of three subprograms: 1) Statewide ER Grant, which excludes the Delta; 2) Delta ER Grant for Delta only; and 3) the Delta Emergency Communications Grant, a one-time grant to local Delta agencies only. Public agencies with primary responsibility for flood emergency response and coordination are eligible to apply for either Statewide or Delta competitive grants. A key priority of these grants is the development and coordination of flood emergency plans between local flood agencies and county emergency response operational areas.

Statewide Flood ER Grants:

Staff continued to manage the 14 executed grant contracts with local agencies to improve their flood emergency response. A Proposal Solicitation Package for an additional \$5 million in Proposition 84 funds was released in December 2014.

Delta Flood ER Grants:

The grant agreement with Solano County for \$450,000.00 was executed by the DFM Division Chief on December 29, 2014.

Delta Communications Grants:

No new information this month.

Delta Flood Emergency Facilities Improvement Project:

The purpose of the Delta Flood Emergency Facilities Improvement Project (FIP) is to ensure that state agencies have the appropriate infrastructure and supplies in the Delta to respond to and recover quickly and effectively from major flood or earthquake disasters in the Sacramento-San Joaquin River Delta. The FIP is focused on identifying, evaluating, selecting, acquiring, and improving barge loading sites, which can also serve as Incident Command Posts (ICPs), and storage locations for flood fight materials at strategic locations in the Delta region.

CEQA MITIGATED NEGATIVE DECLARATION-INITIAL STUDY:

The proposed Mitigated Negative Declaration for the Facility Improvement Projects closed a 30 day comment period on December 26, 2014.

Rio Vista and Webber Improvement Projects:

The comment period for the 95% Design plan set for the Rio Vista and Webber South sites closed on December 26, 2014.

DELTA FLOOD MANAGEMENT PLANNING AND COORDINATION:

Delta Flood Emergency Management Plan:

No new information this month.

DWR-USACE Delta Emergency Operations Integration Plan:

No new information this month.

FLOOD MANAGEMENT PLANNING (FMP)

FMP formulates strategies, plans, and investment priorities for implementation of flood management projects and development of flood risk management policy. It includes the Statewide Flood Management Planning Program and the Central Valley Flood Management Planning Program, which developed California's Flood Future: Recommendations for Managing the State's Flood Risk (California's Flood Future) and the 2012 Central Valley Flood Protection Plan (CVFPP).

CENTRAL VALLEY FLOOD MANAGEMENT PLANNING (CVFMP)

No new information this month.

CONSERVATION STRATEGY

The Central Valley Flood Protection Act of 2008 directs DWR to achieve multiple objectives through implementation of the CVFPP. Among these are environmental objectives to improve natural dynamic hydrologic and geomorphic processes; habitat quantity, diversity, and connectivity; and native species populations. The CS describes DWR's approach for achieving these objectives. It outlines actions to improve programmatic environmental permitting, provide advance mitigation for flood projects, improve systemwide vegetation management, integrate environmental stewardship into multi-benefit flood improvement projects, promote agricultural stewardship, and improve the quality of scientific and planning information needed for wise decision making.

Conservation Strategy Document:

DWR is finalizing edits and pursuing Executive approval to release the Draft Conservation Strategy to the CVFPB and public in January, 2015.

Measurable Objectives Technical Memorandum:

The Technical Memorandum will be made available to the CVFPB Measurable Objectives Subcommittee in January.

STATEWIDE INTEGRATED FLOOD MANAGEMENT PLANNING (SIFMP)

Statewide Integrated Flood Management Planning (SIFMP) has identified flood risks facing Californians and proposed solutions to manage the risks. Working closely with USACE and more than 140 public agencies, SIFMP compiled comprehensive information about exposure to flood risk in each of California's counties, and about specific projects and associated costs that local agencies are planning to implement to reduce flood risks to their communities. Using this information, SIFMP presented recommendations to improve flood management in a comprehensive report titled California's Flood Future: Recommendations for Managing the State's Flood Risk. The report identified that more than 7 million Californians, or one in five, live within a 500-year level of flood risk floodplain, and approximately \$580 billion in assets (crops, structures, and public infrastructure) are exposed to flooding. This estimate does not include the impacts of future development, population change, climate change, costs due to loss of major infrastructure and critical facilities, or losses to commerce. The impact of a major flood would be devastating to California and the nation.

On October 30, 2014, the Governor's Office released the California Water Plan Update 2013 which includes flood related risk reduction management actions. Information developed for *California's Flood Future* was used to create flood management content for the 2013 update of the *California Water Plan*. Currently, the SIFMP program is working to further define ways to implement the *California's Flood Future* recommendations. A primary focus is on development of funding strategies for flood risk management throughout California within the context of overall water management investment. A report is being developed that will describe the state's investment priorities and finance options necessary to support the programs and projects that help improve flood management and reduce residual flood risk, as detailed in *Action 8* of the *California Water Action Plan*, with a draft to be produced in January 2015. The program has wrapped up an information gathering effort, in which approximately 240 flood and other water management agencies were interviewed. Work continues on creating a draft report titled *Investing in California's Flood Future*.

FLOODPLAIN RISK MANAGEMENT (FRM)

FRM promotes prudent management of floodplains to reduce flood risks by working closely with local governments and federal agencies including the Federal Emergency Management Agency (FEMA) and USACE. Policies, guidance documents, and technical products are developed to guide actions taken in floodplains. An important program of successful floodplain risk management includes educating the general public about flood risks so they can plan, prepare, and take individual actions to reduce flood risk for themselves, families, and property.

CALIFORNIA FLOODPLAIN RISK MANAGEMENT (CFRM)

The CFRM works with individuals, communities, and professionals to reduce the risk of flooding. It is a comprehensive integrated program that preserves and enhances the natural and beneficial functions of floodplains, and identifies opportunities to minimize the impacts of flooding. The goal of CFRM is to reduce the frequency and severity of flood loss, loss of life, damage to property, and damage to the natural resources of floodplains. One of the basic foundations of CFRM is the identification and delineation of flood hazard areas within the state. This program promotes awareness of flood risks through risk assessment and risk mapping; the community assistance program; Flood Risk Notification (FRN); floodplain management mitigation planning; and mitigation cost recovery.

FLOODPLAIN MANAGEMENT ASSISTANCE

Floodplain Management Assistance provides statewide technical support to federal, state and local agencies as well as the public for flood hazard maps, levee data, and the National Flood Insurance Program (NFIP) activities including the Community Rating System (CRS). As part of the NFIP Community Assistance Program (CAP) grant-partnership with the Federal Emergency Management Agency (FEMA), DWR conducts audits of communities participating in the NFIP, provides technical assistance to the public, and trains community officials.

- CA DWR hosted a G273 course “Managing Floodplain Development Through the NFIP” in Oceanside, CA, December 15-18, 2014. Staff coordinated with Regional Specialists from the Southern, South Central, North Central and Northern Regions to teach modules in the 4-day course and to coordinate all logistics leading up to the course.
- Staff proctored a Certified Floodplain Manager Examination on December 19, also in Oceanside, CA.

Flood Risk Notification (FRN)

No new information this month.

Coastal Floodplain Evaluation and Planning

No new information this month.

FLOOD RISK REDUCTION PROJECTS (FRRP)

FRRP works in coordination with local and federal agencies to implement new flood projects; provide funding that enables local agencies to repair and improve levees and other flood management facilities statewide; provide advanced mitigation for the SPFC to aid project delivery; and enhance ecosystems associated with the flood system. A primary responsibility of this program is to work closely with USACE.

DELTA FLOOD PROJECTS

This is a grants program that works with more than 60 reclamation districts in the Delta and Suisun Marsh to maintain and improve the flood control system and provide protection to public and private investments in the Delta, including water supply, habitat, and wildlife. The program, through its two major components of Delta Levees Maintenance Subventions Program and Delta Levees Special Flood Control Projects, works with the local agencies to maintain, plan, and complete levee rehabilitation projects. One of the requirements to qualify for available funds is for the project to result in no net loss of Delta habitat.

Delta Levees Maintenance Subvention Program

This is a cost-share program providing financial assistance to local agencies for maintenance, rehabilitation, and improvement of approximately 700 miles of project and non-project levees. Due to the public-private partnership nature of this program, it provides significant improvement to critical levees at a very reasonable cost. On behalf of the Board, staff initiates and manages work agreements to fund levee maintenance and rehabilitation. The current status of work agreements is as follows:

Work Agreements for FY 2012-2013

The Subventions Program reimbursed over \$8.4 million to Local Levee Maintaining Agencies for maintenance and rehabilitation activities performed in the Sacramento-San Joaquin Delta for FY2012-13.

Work Agreements for FY 2013-2014

- On September 13, 2013, the Board approved the FY 2013-14 funding plan for \$12 million.
- The Board's Executive Officer executed 68 work agreements.
- Staff received 61 final claims by the November 1, 2013 deadline totaling approximately \$11 million in work performed.
- Staff conducted 24 joint levee inspections with the California Department of Fish and Wildlife and the local levee maintaining agencies.
- Claims are being reviewed for eligibility and completeness. The eligible amounts will be reimbursed to the local agencies after final review.

Work Agreements for FY 2014-2015

- Staff received applications from 69 local agencies to participate in the FY 2014-2015 Subventions Program.
- On October 24, 2014, the Board approved the FY 2014-15 funding plan for \$12 million.

DELTA LEVEES SPECIAL FLOOD CONTROL PROJECTS

No new information this month.

DELTA LEVEE SYSTEM INTEGRITY (DLSI)

This program focuses on levee repair, maintenance, and improvement within the Sacramento-San Joaquin Delta. Funding is also available for planning, research, and habitat enhancement. The program includes the following components:

Delta Stewardship Council (DSC) Interagency Agreement (IA)

The DSC IA funds the Delta Levees Investment Prioritization Study. The DSC has been collecting information and developing the framework for its investment strategy tool. The DSC held two meetings for agency representatives and technical advisors to showcase the tool. There were two meetings for the public on the same topic. The first was held in Clarksburg on December 8th at the Clarksburg Middle School Auditorium. The second meeting was held in Brentwood. The DSC is working to develop the Independent Peer Review Process as required by the IA. The current schedule for the peer review is April 2015. The other areas that are in development are the role that California Environmental Quality Act (CEQA) will play in this study and the Quality Management Plan. An Interagency Group team consisting of DWR, Delta Protection Commission (DPC), DSC and Board staff met in November and will continue to meet monthly to confer and coordinate on relevant issues. More information on the Delta levees investment strategy is available on the DSC website.

Delta Protection Commission (DPC) Interagency Agreement (IA)

The DPC IA funds the study to investigate the feasibility of a statewide benefit assessment district for the Delta. The DPC released their Request for Proposal (RFP) in September; however, they didn't receive any bids on their proposal. The Commission revised the RFP and released it for bid. Proposals are due December 5th. The Commission hopes to award the contract at its January meeting.

USACE/BOARD PROJECTS

The Central Valley Flood Protection Board participates with the United States Army Corps of Engineers (USACE) to ensure that state flood management needs and mandates are met, and provides required non-federal cost-share funds and technical assistance to repair or upgrade the Central Valley's flood management systems. These congressionally authorized State Plan of Flood Control (SPFC) projects are being constructed to improve flood protection for urban or urbanizing areas to a 200-year level of flood protection; reduce flood risk in rural areas; reduce the risk to life, infrastructure, and property; and reduce the state's liability. The following are USACE/Board projects:

American River Common Features (ARCF) Project

The ARCF project improves levee systems along the American and Sacramento Rivers.

- Construction at Sites R7, L7, R3A, L10, and Mayhew Extension are ongoing.
- Nighttime construction for Site L7 continues through January 2015.
- The NEMDC Extension site construction start is scheduled for April 2015.

American River Watershed – Natomas Basin Project

The Natomas Basin Project was approved by President Obama in the Water Resources Reform and Development Act in June 2014. It includes significant improvements to the Natomas Basin levees resulting in a minimum of 100-year level of flood protection for the basin.

- Design Agreement Amendment #1 has been signed by the CVFPB, SAFCA, and USACE, and is being routed through the State Department of General Services for final approval.
- USACE is awaiting implementation guidance from USACE Headquarters prior to initiating a project cooperation agreement for construction of the Natomas Basin project. We hope the guidance will be provided within 6 months by June 2015.

Folsom Dam Modifications Joint Federal Project (JFP)

The purpose of the JFP is to construct an auxiliary spillway at Folsom Dam that will work in conjunction with the existing spillways to help the Sacramento region achieve a 200-year level of flood protection. The estimated construction completion date is October 2017.

Construction and Design – The project status as of December 1, 2014, is as follows:

| Phases | Planning & Design | Construction |
|--|------------------------------|---------------------|
| Preconstruction Engineering and Design | 100% | N/A |
| Phase III – Control Structure | 100% | 90% |
| Phase IV – Approach Channel, Chute, and Stilling Basin | 100% | 36% |
| Phase V – Site Restoration | 40.1% | 5.5% |
| Project Overall | 93.9% | 59% |

Folsom Dam Raise Project

No new information this month.

Lake Kaweah Enlargement Project (Terminus Dam, Kaweah River Project)

No new information this month.

Marysville Ring Levee Improvement Project

No new information this month.

South Sacramento County Streams Project

No new information this month.

USACE/BOARD STUDIES

The Board participates with USACE to ensure that state flood management needs and mandates are met, and provides required non-federal cost share funds and technical assistance for studies to repair or upgrade the Central Valley's flood management systems. These studies identify recommended project alternatives that lead to congressionally authorized projects. These multi-benefit projects will improve flood protection for urban or urbanizing areas; reduce flood risk in rural areas that are protected by the facilities of the SPFC; reduce the risk to life, infrastructure, and property; and reduce the state's liability. The following are USACE/BOARD studies:

American River Common Features (ARCF) General Re-evaluation Report (GRR)

No new information this month.

Central Valley Integrated Flood Management Study

No new information this month.

Cache Creek Settling Basin Project GRR

No new information this month.

Lower San Joaquin River Feasibility Study

No new information this month.

Merced County Streams Project – Bear Creek GRR

No new information this month.

Sutter Basin Feasibility Study

No new information this month.

West Sacramento Project GRR

No new information this month.

Woodland/Lower Cache Creek Feasibility Study

No new information this month.

Yuba River Basin Project GRR

No new information this month.

URBAN FLOOD RISK REDUCTION PROGRAM (UFRR)

This program was created to address state investment priorities as a result of the adoption of the Central Valley Flood Protection Plan (CVFPP). UFRR supports implementation of regional flood damage reduction projects for urban and urbanizing areas protected by SPFC facilities in the Sacramento-San Joaquin Valley to achieve at least a 200-year level of flood protection. UFRR provides cost-share funding to local agencies to repair and improve levees and facilities of

the SPFC. UFRR is based on competitively awarded grants and directed funding. Projects must be multi-benefit flood projects consistent with the CVFPP and State Systemwide Investment Approach. The program evolved from the Early Implementation Program (EIP) developed in 2007 in response to the passage of Propositions 1E and 84. The following projects were funded through EIP:

Knights Landing Levee Repair Project

No new information this month.

Levee District 1, Sutter County (LD-1 Sutter) – Setback Levee at Star Bend Feather River Project

LD-1 Sutter Project constructed a 3,400 foot long setback levee at Star Bend near river mile 18 on the right bank of the Feather River to relieve a pinch point on Feather River. This project improved flood protection for Yuba City.

The LD-1 Sutter Project is closed out.

Reclamation District 17 (RD-17) – 100-Year Levee Seepage Area Project

No new information this month.

Three Rivers Levee Improvement Authority (TRLIA) – Feather River Levee Improvement Project

No new information this month.

TRLIA – Upper Yuba River Levee Improvement Project

No new information this month.

Sacramento Area Flood Control Agency (SAFCA) – Natomas Cross Canal Project

No new information this month.

SAFCA-Sacramento River East Levee Project

No new information this month.

San Joaquin Area Flood Control Agency (SJAFCA) – Smith Canal Closure Structure Project

No new information this month.

West Sacramento Area Flood Control Agency (WSAFCA) – North Area and Southport Improvement Project

No new information this month.

Sutter Butte Flood Control Agency (SBFCA) – Feather River West Levee Project (FRWLP)

No new information this month.

SMALL COMMUNITIES FLOOD RISK REDUCTION (SCFRR) PROGRAM

This program provides local assistance to small communities in the Central Valley located in “high” or “moderate to high” flood risk areas. SCFRR program assists small communities by cost sharing feasibility studies, design, and construction of projects to improve flood protection to 100-year level of flood protection.

No new information this month.

FLOOD CORRIDOR PROGRAM (FCP)

The FCP is the only statewide grant program in which non-structural flood risk reduction is the primary goal, with habitat and agricultural conservation incorporated as prominent program components. The goal of FCP is to reduce flood risk by enabling waterways to function more naturally, while enhancing native wildlife habitat, and preserving agricultural uses. To do this, the program provides grant funding to local agencies statewide for FRRP that improve floodwater conveyance and transitory floodwater storage, using primarily non-structural methods while preserving or enhancing agricultural production and/or wildlife habitat. By incorporating non-structural solutions, the program achieves flood benefits at a fraction of the cost of traditional structural solutions.

No new information this month.

LOCAL LEEVE ASSISTANCE PROGRAM (LLAP)

The LLAP was created to help fund projects implemented by flood management agencies, mainly outside of the Sacramento-San Joaquin Delta. The goals of LLAP include minimizing flood risk; identifying deficiencies in flood control structures and levees; and eliminating high flood insurance costs related to FEMA unaccredited levees. LLAP projects must fulfill at least one of the two goals of inspection and evaluation of the integrity and capability of existing flood control project facilities; or improvement, construction, modification, or relocation of flood control levees, weirs, or bypasses, including repair of critical bank and levee erosion.

2014 LLAP Proposal Solicitation Package (PSP)

The PSP was posted for a period of 90 days. Applications are being accepted for new grants based on the [2011 Guidelines](#) and the [2014 Proposal Solicitation Package \(PSP\)](#). A minimum of \$13 million is available for grant awards this cycle. Public workshops are planned for Sacramento, Oakland and Cypress in January 2015. Applications are due March 17, 2015.

Jacobs Avenue Levee Evaluation Project

The agreement between DWR and Humboldt County was signed by the locals and is being routed for final DWR approval. This project will assess the structural integrity of the levee embankment and foundation for 100-year level of flood protection.

YUBA-FEATHER FLOOD PROTECTION PROGRAM

The Yuba-Feather Flood Protection Program provides Proposition 13 financial assistance to local entities that can demonstrate nonstructural flood management projects that show a peak flood flow reduction, flood stage, and flood risk in the Yuba and Feather River and Colusa Basin (including wildlife habitat enhancement and/or agricultural land preservation).

Gridley Bridge Bank Erosion Project

This grant agreement was executed on December 1, 2014. The project focuses on final design, permitting and project management of the repair of 300 feet of critical levee erosion on the Feather River.

LEEVE EVALUATIONS (NON-URBAN AND URBAN)

Levee Evaluations consists of urban levee evaluations (ULE) and non-urban levee evaluations (NULE). The program was developed to evaluate current levels of performance for SPFC levees and associated non-SPFC levees whose failure would flood areas protected by the SPFC.

Information and data obtained under this effort will assist flood managers at federal, state, and local levels in understanding overall flood risks and support them to better manage those risks in areas of the Central Valley protected by the SPFC.

Urban levees provide protection to developed areas with a population of at least 10,000 people. ULE is evaluating 470 miles of levees in 27 study areas to determine if they meet defined urban geotechnical criteria and when not, identifying remedial measures and providing cost estimates to meet the urban criteria.

Non-urban levees provide protection to agricultural areas and developed areas with a population of at least 1,000 to less than 10,000 people. NULE is evaluating approximately 1,500 miles of levees in 22 study areas to determine if they meet defined non-urban geotechnical criteria at current design water surface elevations (USACE 1955/57 water surface profiles) When the criteria is not identified, remedial measures and cost estimates will be provided.

The overall status of the ULE program intermediate and final deliverables for the 27 urban levee study areas is shown in the table below:

| No. | Urban Study Area | Historic Data Collection (TRM) | Initial Field Investigations (P1GDR) | Preliminary Analyses | Supplemental Field Investigations (SGDR) | Final Analyses & Geotechnical Evaluation Report (GER) |
|-----|--------------------------|--------------------------------|--------------------------------------|----------------------|--|---|
| 1 | Chico | Done | Done | Done | Done | Draft Volume 1 and 2 in preparation |
| 2 | Marysville | Done | Done | Done | Done | Done |
| 3 | RD 784 | Done | Done | Done | Done | Done |
| 4 | Feather River West Levee | Done | Done | Done | Done | Volume 1 Done; Print Check Volume 2 in preparation |

| No. | Urban Study Area | Historic Data Collection (TRM) | Initial Field Investigations (P1GDR) | Preliminary Analyses | Supplemental Field Investigations (SGDR) | Final Analyses & Geotechnical Evaluation Report (GER) |
|-----|-------------------------|--------------------------------|--------------------------------------|----------------------|--|--|
| 5 | Sutter Bypass Wadsworth | Done | Done | Done | Done | Volume 1 Done; Print Check Volume 2 under review by DWR |
| 6 | American River | Done | Done | Done | Done | Print Check Volume 1 and 2 in preparation |
| 7 | Sacramento River | Done | Done | Done | Done | Volume 1 Done; Print Check Volume 2 in preparation |
| 8 | Davis | Done | Done | Done | Done | Draft 2 Volume 1 under review by DWR; Draft Volume 2 in preparation |
| 9 | Woodland | Done | Done | Done | Done | Volume 1 Done; Draft Volume 2 in preparation |
| 10 | NEMDC East | Done | Done | Done | Done | Draft 2 Volume 1 under review by ICB and stakeholders |
| 11 | NEMDC West | Done | Done | Done | Done | Final Volume 1 in preparation; Draft Volume 2 under review by DWR |
| 12 | Natomas North | Done | Done | Done | Done | Print Check Volume 1 and 2 in preparation |
| 13 | Natomas South | Done | Done | Done | Done | Volume 1 Done; Print Check Volume 2 under review by DWR |
| 14 | West Sacramento | Done | Done | Done | Done | Done |

| No. | Urban Study Area | Historic Data Collection (TRM) | Initial Field Investigations (P1GDR) | Preliminary Analyses | Supplemental Field Investigations (SGDR) | Final Analyses & Geotechnical Evaluation Report (GER) |
|-----|--------------------------------|--------------------------------|--------------------------------------|----------------------|--|---|
| 15 | Deep Water Ship Channel [DWSC] | Done | N/A | N/A | Done | Volume 1 Done; Print Check Volume 2 in preparation |
| 16 | South Sac Streams | Done | N/A | Done | Done | Draft Volume 1 under review by DWR |
| 17 | RD 404 | Done | Done | Done | Done | Done |
| 18 | RD 17 | Done | Done | Done | Done | Draft 2 Volume 1 in preparation |
| 19 | Bear Creek | Done | Done | Done | Done | Volume 1 Done; Draft Volume 2 under review by DWR |
| 20 | Calaveras River | Done | Done | Done | Done | Draft 2 Volume 1 under review by ICB and Stakeholders |
| 21 | Lincoln Village | Done | N/A | N/A | Final GDR in preparation | Draft Volumes 1 and 2 in preparation |
| 22 | Brookside | Done | N/A | N/A | Final GDR in preparation | Draft Volumes 1 and 2 in preparation |
| 23 | Rough and Ready | Done | N/A | N/A | Draft GDR under review by DWR | Draft Volumes 1 and 2 in preparation |
| 24 | Boggs Tract | Done | N/A | N/A | Final GDR in preparation | Final Volume 1 in preparation; Draft 1 Volume 2 in preparation |
| 25 | Shima Tract | Done | N/A | N/A | Final GDR in preparation | Draft Volume 2 in preparation for ICB review |

| No. | Urban Study Area | Historic Data Collection (TRM) | Initial Field Investigations (P1GDR) | Preliminary Analyses | Supplemental Field Investigations (SGDR) | Final Analyses & Geotechnical Evaluation Report (GER) |
|-----|------------------|--------------------------------|--------------------------------------|----------------------|--|---|
| 26 | Smith Canal | Done | N/A | N/A | Final GDR in preparation | Draft Volume 1 under review by DWR; Draft Volume 2 in preparation |
| 27 | Walthall Slough | Done | N/A | N/A | Final GDR in preparation | Draft Volumes 1 and 2 in preparation |
| 28 | Bear Creek Wing | Done | N/A | N/A | Final GDR in preparation | Draft Volumes 1 and 2 in preparation (SJAFCA areas to be combined into one GER) |
| 29 | Walker Slough | Done | N/A | N/A | Draft GDR under review by DWR | |
| 30 | Pixley Slough | Done | N/A | N/A | Draft GDR under review by DWR | |
| 31 | Mosher Diversion | Done | N/A | N/A | Draft GDR in preparation | |
| 32 | Mosher Slough | Done | N/A | N/A | Draft GDR in preparation | |
| 33 | Upper Calaveras | Done | N/A | N/A | Draft GDR in preparation | |
| | | | | | | |

ULE Summary

- Overall, ULE is 96 percent complete.
- Tasks 5, 6, and 7 completed for multiple study areas.
- DWR completed review of American River and Natomas North Draft 2 GER Volume 1 and NEMDC West Print Check GER Volume 1.
- DWR completed review of Marysville and RD 404 Print Check GER Volume 2 and Sutter Feather River and SJAFCA Bear Creek Draft 2 GER Volume 2.
- DWR, Independent Consulting Board (ICB), and Stakeholders completed review of GER Volume 2 Draft 2 for Sutter Feather River.

- GER Volume 1 Draft 2 for NEMDC East and SJAFCA Calaveras River under review by DWR, ICB, and Stakeholders.
- Final GER Volume 1 completed for Sutter Feather River, Sacramento Deep Water Ship Channel, and SJAFCA Bear Creek and Final GER Volume 2 completed for Marysville and RD 404.

The overall status of the NULE program intermediate and final deliverables for the 21 non-urban levee study areas is shown in the table below.

| No. | Non-Urban Study Area | Geotechnical Assessment Report (GAR) | Remedial Alternatives and Cost Estimate Report (RACER) | Geotechnical Data Report (GDR) | Geotechnical Overview Report (GOR) |
|-----|------------------------|--------------------------------------|--|--------------------------------|---|
| 1 | Chico/North/South | Done | Done | Done | Done |
| 2 | Clarksburg | Done | Done | Done | Done |
| 3 | Colusa Drain | Done | Done | Done | Done |
| 4 | Colusa North | Done | Done | Done | Done |
| 5 | Colusa South | Done | Done | Done | Volume 1 Done; final Volume 2 in preparation |
| 6 | Gerber | Done | Done | Done | Done |
| 7 | Knights Landing | Done | Done | Done | Done |
| 8 | Sutter | Done | Done | Done | Done |
| 9 | Wheatland | Done | Done | Done | Done |
| 10 | Woodland South | Done | Done | Done | Done |
| 11 | Ash Slough | Done | Done | Done | Volume 1 Done; Draft Volume 2 under review by DWR |
| 12 | Berenda Slough | Done | Done | Done | Draft Volume 1 under review by ICB |
| 13 | Black Rascal/Fairfield | Done | Done | Done | Done |
| 14 | Diverting Canal/Mormon | Done | Done | Done | Done |
| 15 | ESB/Chowchilla | Done | Done | Done | Draft Volume 1 in preparation |

| No. | Non-Urban Study Area | Geotechnical Assessment Report (GAR) | Remedial Alternatives and Cost Estimate Report (RACER) | Geotechnical Data Report (GDR) | Geotechnical Overview Report (GOR) |
|-----|----------------------|--------------------------------------|--|--------------------------------|---|
| 16 | Fresno River | Done | Done | Done | Volume 1 Done |
| 17 | Gravelly Ford | Done | Done | Done | Volume 1 Done; Draft Volume 2 in preparation for ICB review |
| 18 | RD 2064 | Done | Done | Done | Responses to DWR comments on Draft Volume 1 in preparation |
| 19 | RD 2075 | Done | Done | Done | Draft Volume 1 in preparation |
| 20 | RD 2095 | Done | Done | Done | Responses to DWR comments on Draft Volume 1 under review by DWR |
| 21 | SJRRP/CCID | Done | Done | Done | Volume 1 Done; Draft Volume 2 in preparation |
| 22 | SJAFCA upland levees | Done | NA | NA | NA |

NULE Summary

- Overall, Non-Urban Levee Evaluations are 97 percent complete.
- GOR Volume 1 was finalized for SJRRP/CCID.
- The GAR for SJAFCA upland levees was finalized.

SAN JOAQUIN RIVER RESTORATION PROJECT (SJRRP)

Division of Flood Management has created the SJRRP Project to assist the United States Bureau of Reclamation (Reclamation) in assessing flood risks associated with the San Joaquin River Restoration Program. The San Joaquin River Restoration Program is a comprehensive long-term effort to restore flows to the upper San Joaquin River and restore a self-sustaining Chinook salmon fishery while avoiding adverse water supply impacts. Reclamation, lead agency for the SJRRP, has initiated Interim releases from Friant Dam and is evaluating alternatives for releases and routing of restoration flows up to 4,500 cubic feet per second to support reintroduction of fish into the San Joaquin River as required by the Stipulation of Settlement (Settlement). DWR

has offered technical and funding assistance to the program in recognition of the DWR's role in habitat restoration and flood management.

The purpose of the SJRRP is to assist the San Joaquin River Restoration Program in assessing the flood risk impacts of Restoration flows under this program due to seepage and stability and identifying potential remedies to address increased flood risks under Restoration flows in coordination with the CVFPP.

- Final Phase 1/2 Geotechnical Data Report in preparation.
- Geotechnical analysis of the Eastside Bypass continues.
- Draft GER for Eastside Bypass in preparation.

FLOOD SYSTEM OPERATIONS AND MAINTENANCE (FSO&M)

FSO&M focuses on maintaining SPFC facilities such as levees, hydraulic control structures, pumping plants, bridges, and channels to continue to achieve risk reduction benefits the system was designed to provide communities and the state. Local agencies and the state share responsibility for this work. LMAs operate and maintain a majority of the system through management of their individual levee systems, while the state is required to operate and maintain those portions of the State Plan of Flood Control (SPFC) identified in the California Water Code (CWC). Local agencies and the state work closely with the CVFPB, USACE, and environmental resource agencies to ensure that operation and maintenance activities meet statutory requirements that promote public safety, environmental stewardship, and economic stability.

CHANNEL EVALUATION AND REHABILITATION

As part of the FSO&M mega program, the Channel Evaluation and Rehabilitation Program is responsible for operating, maintaining, and repairing SPFC channels identified in assurances to the federal government and defined in CWC Section 8361. DWR operates and maintains the approximately 1,200 miles of SPFC channels within the Sacramento River Flood Control Project to ensure proper flood protection function and conveyance capacity.

Proposition 1E funding is being used for extraordinary operation and maintenance activities, including SPFC channel evaluations, mercury characterization and control implementation, and channel conveyance capacity deficiency correction. Routine operations and maintenance requirements are separately funded by the General Fund.

Specific Channel Evaluation and Rehabilitation Program activities include channel inspections and evaluations, as well as developing and utilizing hydraulic models to identify critical areas within channels requiring the removal of vegetation or sediment to maintain channel capacity and flood protection function.

Channel responsibilities also include those under the Central Valley Regional Water Quality Control Board's adopted Total Maximum Daily Loads (TMDLs) and Basin Plan Amendment, wherein the DWR is assigned responsibility for monitoring, evaluating and reducing total methyl mercury loads passing through the Sacramento River Flood Control System and into the Yolo Bypass and the Delta. DWR is mandated to conduct characterization and control studies for activities including flood control improvements, modifications, and wetland mitigation work with the potential to impact methyl mercury concentrations in the Yolo Bypass and Delta.

Bear River Hydraulic Model

Staff is continuing work on model calibration and verification. A survey will be conducted to correlate existing gage datum to the 1088 NAVD elevation datum in January.

Butte Creek Hydraulic Model

FMO and Sutter Yard conducted hydraulic channel inspection to compare current conditions to conditions when the model was initially developed approximately two years ago. The new Highway 99 North Bridge has been constructed since initial model development. The model is being updated to reflect new conditions.

Cherokee Canal Hydraulic Model

Staff is finalizing the hydraulic model report.

Chico Area Streams Hydraulic Model

FMO and Sutter Yard will be meeting with the Northern Regional Office (NRO) who are developing the proposed Channel Management plan to review the proposed channel maintenance activities needed to restore channel capacity.

East Side Canal (aka Coon Creek Interceptor, Sacramento County)

No new information this month.

Knights Landing Ridge Cut/Colusa Drain Hydraulic Model

Model development is continuing.

Llano Seco Riparian Sanctuary Unit Restoration and Pumping Plant/Fish Screen Facility Protection Project

No new information this month.

Middle Creek Hydraulic Model (Lake County)

NRO is continuing model development.

Natomas East Main Drainage Canal (NEMDC)

No new information this month.

Putah Creek Hydraulic Model

No new information this month.

Sacramento River National Wildlife Refuge (Refuge) Complex Annual Habitat Management Plan Tour and Flood Mitigation Property Visits

FMO attended the final day of the USFWS Refuge's Annual Habitat Management Plan Tour. The Refuge habitat management plan utilizes a database which identifies individual cells within each unit of the refuge. These cells consist of tracts of land which have common management issues, conditions, and activities. The habitat management plan identifies the problems and needs of each cell and specifies rehabilitation and other activities to address these concerns. Habitat management plans are created annually, and with the participation and input from the refuge manager, biologist, outdoor recreation planner, irrigator, fire management officer, law enforcement officer, and work leader, begin with a tour of each cell of each unit of the refuge to assess the current habitat and facilities conditions and results of management actions. Management activities include facilities maintenance (e.g., roads, fire breaks, fences, gates, boundary signs), vegetation management (i.e., herbicide application, prescribed fire and grazing, mowing and disking, irrigation), vegetation, plant, and wildlife inventory and monitoring surveys, habitat restoration and restoration monitoring, public use monitoring and facilities maintenance, and law enforcement issues.

The tour also visited six properties owned by the Sacramento-San Joaquin Drainage District where the Refuge is interested in drafting a Memorandum of Understanding to manage these properties for the Department of Water Resources. The Refuge and FMO staff identified activities that each property needs including weed control, access road maintenance, and tree thinning. These properties were identified as the Pine Creek, Shaw, Sam Slough, River Unit property on Phelan Island, Llano Seco, and an unnamed property within the Refuge's Ord Bend Unit. Several of these properties may be mitigation for the Phase 1 Sacramento River Bank Protection Program.

Sutter Bypass Hydraulic Model

No new information this month.

Sutter Pumping Plants Fish Screen Investigation

No new information this month.

Tisdale Bypass Hydraulic Model

No new information this month.

Wadsworth Canal Hydraulic Model

No new information this month.

Yuba River Hydraulic Model

Staff is collecting background information on O&M requirements and requested CVFED developed data for leveed sections. Staff is developing a scope of work for model development.

Additional activities during the month of December include:

- Mowing is ongoing at Bear River (15 acres), and ongoing at Little Chico Diversion (5 acres).
- Mulching is ongoing at Bear River (10 acres).
- Channel brush pile burning is 100% complete at Butte Slough Wildlife Area (14 piles).
- Tree removal is 5% complete in the Natomas East Main Drain (1 acre).
- A re-spray is ongoing at Elder Creek (10 acres).
- Debris removal is ongoing in 50 miles of seepage ditches in Sutter area.
- Beaver dam removal is ongoing in Cherokee Canal.

FLOOD CONTROL FACILITIES EVALUATION AND REHABILITATION (FCFER)

The FCFER program includes evaluating, operating, maintaining, and repairing Sacramento River Flood Control Project (SPFC) facilities defined in CWC Section 8361 and state assurance to the federal government. DWR is responsible for operating and maintaining Sacramento River Flood Control Project SPFC facilities including 11 weirs, 5 gate structures, 4 pumping plants, and specific bridges associated with the east levee of the Sutter Bypass, ensuring proper flood protection function and facility condition. Rehabilitation and improvement work includes proactive repair of known and documented problems with prioritization based on flood risks and safety.

Butte Slough Outfall Gates (BSOG)

Environmental staff submitted requisite environmental permit applications and associated environmental documents for the proposed rehabilitation work. Real Estate is working on access and right of entry agreements. The design is 95% completed and undergoing internal review. The CEQA Notice of Determination and final mitigated negative declaration (SCH # 2014082018) was submitted to the Office of Planning and Research on December 31, 2014.

Additional activities during the month of December include:

- All three Sutter pumping plants were operational for about two weeks.
- A pumping plant at Maintenance Area 17 was rewired.

LEEVE OPERATIONS AND MAINTENANCE COMPONENTS

The Levee Operation and Maintenance Program includes the following components:

- *Inspection and Evaluation*
- *Routine Operations and Maintenance*
- *Non-Routine Projects*

The Levee Maintenance Program, like the Channel Maintenance Program, is generally organized around the continual and ongoing maintenance of specific levee structures in the Sacramento River Flood Control Project. Both the Sacramento and Sutter Yards have assigned responsibilities for specific levee reaches to provide performance-based levee maintenance to help ensure the levee will perform satisfactorily during any high water flood event.

When a levee evaluation and inspection report indicates that a significant repair or rehabilitation is required, the design and construction will be turned over to the levee repair program and constructed as a capital outlay project under the flood risk reduction mega-program. Otherwise the three component activities are considered as “operations and maintenance”.

Activities during the month of December include:

- Vegetation spot spraying at Willow Slough Bypass is 100% complete (5 acres) and 55% complete at Cache Creek (5 acres).
- Pre-emergent spraying on crown roads at Putah Creek are 100% complete (30 acres) and 70% complete at Cache Creek (75 acres).
- Mowing is 30% complete at Prospect Island (7 acres).
- Toe road spraying is 100% complete at Cache Creek (10 acres).
- Pre-emergent spraying on levee slopes is 100% complete on Yolo Bypass Unit 4 slopes (10 acres), 100% complete on Putah Creek crown roads (30 acres), 70% complete at Cache Creek crown roads (75 acres), 60% complete at Cache Creek slopes (210 acres), 100% complete at MA 9 slopes (250 acres), 100% complete in Willow Slough Bypass slopes (90 acres), 15% complete on Sacramento Bypass slopes (5 acres), and is ongoing on all Sutter levee slopes.
- Crown road grading is 100% complete at Wadsworth Canal (4 miles), 100% complete at Tisdale Bypass (3 miles), 100% complete at Putah Creek (30 acres), 100% complete at the Sacramento Bypass (10 acres), and ongoing at the Tisdale Bypass.
- Mile markers have been repaired or replaced at Willow Slough Bypass.
- Gates and barricades have been repaired at Putah creek and Cache Creek.
- There was high water patrolling at the following locations:
 - Cache Creek
 - East Levee of the Sacramento River
 - Maintenance Area 1
 - Maintenance Area 13
 - Maintenance Area 12
 - Maintenance Area 5

FLOOD SYSTEM EVALUATION AND REHABILITATION (FSER)

The FSER program includes evaluating, operating, maintaining, and repairing SPFC facilities pursuant to state assurances to the federal government. This FSER program supports implementation of the CVFPP-SSIA. The program improves DWR’s integrated flood protection mission. Specific FSER activities include: program management; policy development; support for Board permitting and encroachment enforcement; corridor management strategy development; Title 23 regulation updates; easement identification and reconciliation; management of state-owned properties and easements; and integrated water management activities.

Lower Feather River Corridor Management Plan

No new information this month.

Small Erosion Repair Program (SERP)

No new information this month.

LEEVE REPAIRS

The Levee Repairs program in DFM/FMO makes repairs to the SPFC facilities (primarily levees) through several projects. Among these are the Flood System Repair Project (FSRP), the Sacramento River Bank Protection Project (SRBPP), and the Federal Public Law 84-99 Emergency Repair Project (PL 84-99). FSRP is a bond funded program that repairs rural SPFC facilities under a state-local cost share. SRBPP is a USACE-led program that repairs urban SPFC critical erosion sites along the Sacramento River and tributaries. PL 84-99 repairs minor damages incurred from a significant flood event. DWR is cost-sharing partners and manages the state's responsibilities for the SRBPP and PL 84-99 projects.

Flood System Repair Project (FSRP)

No new information this month.

Sacramento River Bank Protection Project (SRBPP)

The Public Draft Post Authorization Change Report and programmatic Environmental Impact Statement/Environmental Impact Report (PACR/EIS/EIR) for the Sacramento River Bank Protection Project (SRBPP) Phase II Supplemental Authority (proposed Program) is now available for review and comment. The proposed program would implement up to 80,000 linear feet (LF) of additional bank protection in the Sacramento River Flood Control Project (SRFCP) area as authorized by Section 3031 of the Water Resources Development Act (WRDA) of 2007. The programmatic EIS/EIR accompanying the PACR analyzes the environmental effects associated with implementing bank protection measures along the 80,000 LF of the SRFCP to arrest stream bank erosion that threatens the integrity of the SRFCP levee system.

The proposed program spans portions of Butte, Colusa, Glen, Placer, Sacramento, Solano, Sutter, Tehama, Yolo and Yuba Counties in California. The U.S. Army Corps of Engineers (USACE) is the federal lead agency for this EIS/EIR, and the Central Valley Flood Protection Board (CVFPB) is the state lead agency, pursuant to the National Environmental Policy Act and the California Environmental Quality Act, respectively.

The public Draft PACR/EIS/EIR is available on the USACE's website, and hard copies are available for viewing at libraries in the previously listed counties. The USACE and the CVFPB will be hosting four public workshops to present information and to accept public comments on the PACR/EIS/EIR. The closing date for submitting public review comments is February 27, 2015.