

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

By

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

FUNCTIONAL AREA 1 FLOOD EMERGENCY RESPONSE

This functional area includes work to better prepare for, respond to, and recover from flood emergencies. A program for flood emergency response is a necessary part of flood management because California will always face flood emergencies, even when system improvements reduce the frequency of flooding. Program activities include inspection and assessment of flood projects' integrity; reservoir operations and river forecasting; flood data collection, management, and dissemination; precipitation and runoff forecasting; Delta flood preparedness, response, and recovery; and statewide flood emergency response functions.

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.

INSPECTIONS

The Flood Project Inspection Section worked with Local Maintaining Agency Annual Reporting Section to complete the new *Inspection and Local Maintaining Agency Report*. The final version was given to the Board on January 25, 2013. A presentation over viewing report and the results of both section's activity during the year was given to the Board the same day. Copies of the report are available at <http://cdec.water.ca.gov/fsir.html>. A presentation was also given to the Board regarding the similarities between DWR and USACE inspection programs. Inspectors participated in further flood fight efforts in East Palo Alto during the month.

FLOOD PROJECT INTEGRITY/VULNERABILITY ASSESSMENT ACTIVITIES

Supplemental Levee Erosion Survey section has finalized the 2012 annual levee erosion field survey, analysis, and reporting for San Joaquin River Flood Control (SJRFC) system. The section has further discussed with the consultant for the final version of the improved erosion site scoring and ranking criteria. Staff continued to assist in the desk study and field survey tasks of Utility Crossing Inventory Surveys.

Utility Crossing Inventory Program (UCIP) continued to make progress by expanding the UCIP inventory database with additional desk studies. These desk studies are performed by extracting and reviewing levee penetrations data from the levee logs, O&M manuals, CVFPB permits, quad maps, and other available records. Program has completed desk studies for about 1000 miles of the Project Levees. Field verification of levee penetrations has also been completed for all the State Maintained Areas.

LOCAL MAINTAINING AGENCY ANNUAL REPORTING PROGRAM (CWC 9140-9141)

Staff worked with the Flood Project Inspection section to finalize the new *Inspection and Local Maintaining Agency Report*. The final version was given to the Board on January 25, 2013. A presentation was also given to the Board on the same day highlighting the report details and 2012 program findings. Copies of the report are available at <http://cdec.water.ca.gov/lma.html>.

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.

WATER CONDITIONS

As of December 31, statewide hydrologic conditions were as follows: precipitation, 135 percent of average to date; runoff, 150 percent of average to date; snow water equivalent, 135 percent of average for the date (50 percent of the April 1 average); and reservoir storage, 105 percent of average for the date. Sacramento River Region unimpaired runoff, for Water Year 2013, observed through December 31, 2012 was about 4.8 million acre-feet (MAF), which is about 155 percent of average. For comparison during Water Year 2012, on December 31, 2011, the observed Sacramento River Region unimpaired runoff through that date was about 1.5 MAF, or about 49 percent of average.

During December, most of California had significantly above average rainfall. On December 31, the Northern Sierra 8-Station Precipitation Index Water Year total was 32.8 inches, which is about 185 percent of the seasonal average to date and 66 percent of an average water year (50.0 inches). During December, the total precipitation for the 8-Stations was 17.1 inches, which is about 204 percent of the monthly average. Last year on December 31, the seasonal total for the 8-Stations was 6.9 inches, or about 39 percent of average for the date.

On December 31, the San Joaquin 5-Station Precipitation Index Water Year total was 19.1 inches, which is about 147 percent of the seasonal average to date and 47 percent of an average water year (40.8 inches). During December, the total precipitation for the 5-Stations was 11.5 inches, which is about 185 percent of the monthly average. Last year on December 31, the seasonal total for the 5-Stations was 4.0 inches, or about 31 percent of average for the date.

Selected Cities Precipitation Accumulation as of 12/31/2012 (National Weather Service Water Year: July through June)					
City	July 1 to Date 2012 - 2013 (in inches)	% Average	July 1 to Date 2011 - 2012 (in inches)	% Average	% Avg "Water Year" July 1 to June 30 2012 - 2013
Eureka	20.83	122	10.87	64	52
Redding	19.16	139	6.33	46	55
Sacramento	11.29	171	2.35	35	61
San Francisco	13.10	144	3.37	37	55
Fresno	3.39	93	1.57	43	29
Bakersfield	0.79	38	1.31	63	12
Los Angeles	4.28	107	3.00	75	33
San Diego	3.17	96	4.57	138	31

Key Reservoir Storage (1,000 AF) as of 12/31/2012								
Reservoir	River	Storage	Average Storage	% Average	Capacity	% Capacity	Flood Control Encroachment	Total Space Available
Trinity Lake	Trinity	1,910	1,668	114	2,448	78	---	538
Shasta Lake	Sacramento	3,318	2,897	115	4,552	73	-22	1,234
Lake Oroville	Feather	2,525	2,226	113	3,538	71	-263	1,013
New Bullards Bar Res	Yuba	793	537	148	966	82	-3	173
Folsom Lake	American	584	479	122	977	60	7	393
New Melones Res	Stanislaus	1,594	1,344	119	2,420	66	-376	826
Don Pedro Res	Tuolumne	1,327	1,329	100	2,030	65	-363	703
Lake McClure	Merced	434	454	95	1,025	42	-241	591
Millerton Lake	San Joaquin	300	278	108	520	58	-135	220
Pine Flat Res	Kings	257	418	61	1,000	26	-413	743
Isabella	Kern	84	154	55	568	15	-86	484
San Luis Res	(Offstream)	1,098	1,401	78	2,039	54	---	941

The latest National Weather Service Climate Prediction Center (CPC) long-range, 1-month precipitation outlook for January 2013, issued December 31, 2012, suggests below average rainfall for almost all of California, except for the very southern region, where no tendency for above or below average is expected.

HYDRO-CLIMATE ANALYSES

Work continues on the University of California Task Orders for studies supporting climate change hydrology effort. In the past month the State Climatologist has been in contact with UC Davis, UC Merced, and Scripps personnel to discuss project activity and the relation of project products to other programmatic activity. The UC Davis Study contact focused on coordinating analysis efforts with other program activities including next steps in the Central Valley Flood Protection Plan (CVFPP) Climate Change Technical Work Group and 200-year Hydrology Framework. The Scripps contact focused on the 200-year Hydrology Framework, Atmospheric River Observing Network, and sea-level-rise for CVFPP feasibility studies. UC Merced contact focused on Sierra Nevada Adaptive Management Program (SNAMP) activity. Discussions will move forward on the depiction of selected atmospheric river metrics that will be used in the design storm characterization

The State Climatologist met with the GEI team to discuss progress on the Bulletin 195 automation activity and the 200-year Hydrology Framework activities. Past progress was reviewed and next steps were discussed.

The Central Valley Flood Protection Plan (CVFPP) Climate Change Technical Work Group is moving forward with another document describing the framework for climate change analyses in the execution of the CVFPP activities. The State Climatologist has been meeting weekly with the consultant team and has made email contact with members of the external science panel for further discussion and shaping of ideas. These efforts are continuing and progress is being made. A draft report is in review. Options for sea-level-rise depictions for the Delta are being pursued.

The climate variability sensitivity study (CVSS) pilot associated of CVHS is progressing. After reviewing the results of the Feather Basin pilot, the State Climatologist met with the USACE team to discuss changing American River watershed to other San Joaquin Basins where results may provide more insight to other studies.

A draft outline of the framework for the 200-year hydrology with climate change is now being developed. Conversations are being had with the consultant team providing support and the scientists who are providing technical information for the framework. Current plans are to present the framework to the Department's Climate Change Technical Advisory Group in March.

The State Climatologist is participating in workshops on extremes and climate change with members of federal agencies and the academic community. Efforts are leading to a prioritized list of projects to collaboratively pursue. Latest effort is with California Food and Agriculture on climate change, flooding, and adaptation strategies.

REAL-TIME DATA COLLECTION NETWORK

Coordination between NOAA, DWR and Scripps continues as the 21st Century Extreme Precipitation Monitoring project moves forward. Discussions continue on the scope of a second memorandum of understanding to further implement and refine efforts for this new network. Data from this network was collected for the storm events in December 2012. It will be analyzed to evaluate how the network performed and to see what data is relevant for planning activities.

HYDROLOGIC DATA MANAGEMENT

The State Climatologist is working with contractors to coordinate programmatic activity related to data quality control procedures that are applicable across multiple programs within Hydrology Branch.

BULLETIN 120 AND WATER SUPPLY INDEX FORECASTS

No new information this month

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.

RESERVOIR COORDINATED OPERATIONS

No new information this month.

RIVER FORECASTING

No new information this month.

FLOOD OPERATIONS EMERGENCY RESPONSE

This element includes all preparation and planning to execute flood fights, deploy teams, provide training, and coordinate local response needs and federal assistance in the event of a flood. This includes maintaining the readiness of the Flood Operations Center and all the staff that may have to staff it in the event of an emergency and assuring local response efforts can be integrated into the State response system.

FLOOD OPERATIONS, TRAINING AND EXERCISES

No new information this month.

OUTREACH

No new information this month.

FLOOD SYSTEM ANALYSIS SECTION (FSAS)

No new information this month.

EMERGENCY RESPONSE SUPPORT

This element includes various efforts that will further the Departments understanding of the flood system interactions with water supply systems and conjunctive use programs. It also includes the update of the Central Valley hydrology for use in risk assessment and project development. Another component includes developing a comprehensive plan to response to flood events in the Delta.

CENTRAL VALLEY HYDROLOGY STUDY (CVHS)

No new information this month.

FUNCTIONAL AREA 2 OPERATIONS AND MAINTENANCE

Operations and Maintenance is a functional area under FloodSAFE established to ensure project facilities are operated and maintained in good working condition to function as designed. Although Operation and Maintenance has been a long-standing base program within DWR, FloodSAFE has expanded the program and provided additional funding. Historically, Operation and Maintenance projects were undertaken based on a backlog of deferred maintenance. Now, in addition to continuing to work on deferred maintenance, new projects are identified through a number of inspection programs. Operation and Maintenance must continue indefinitely into the future, even after the FloodSAFE functional objectives have been achieved although the needs are expected to change over time as system upgrades and modifications are implemented.

CHANNEL MAINTENANCE

DWR is responsible for maintaining channel flow capacity for Sacramento River Flood Control Project channels and for performing channel-specific maintenance activities identified in the USACE Operations and Maintenance Manuals, including channel clearance if required to maintain design flow capacity. Channel Maintenance consists of inspection and evaluation, routine operations and maintenance, and implementation of corridor management projects.

- Willow Slough Channel Evaluation (Hydraulic Model) is 50 percent complete, using 2006 High Water Mark data for calibration.
- Wadsworth Canal Channel Evaluation (Hydraulic Model) is 50 percent complete.

FLOOD FACILITIES OPERATION AND MAINTENANCE

DWR operates, maintains, and repairs or replaces flood control structures located throughout the Sacramento River Flood Protection Project to ensure readiness in the event of emergencies and that facilities function as designed. Actions include inspection and evaluation, routine operation and maintenance, and non-routine maintenance. Facilities include pumping plants that transfer runoff and excess water from the land-side of levees in the flood system to flood channels; bridges providing access over and to flood facilities; flow gages; and water control structures such as weirs.

- Debris removal is ongoing at all pumping plants in Sutter Bypass, Knights Landing Outfall Gates, and Sacramento Weir.

LEVEE MAINTENANCE

This element maintains levees and roads under DWR jurisdiction (State-maintained Maintenance Areas and bypasses) in accordance with USACE Operations and Maintenance Manuals. Annually, after high water recedes, levees are evaluated and repairs are made as necessary. Routine and extraordinary maintenance are also performed as necessary to meet maintenance assurances provided to the federal government.

- Spraying/spot burning ongoing in all areas for Sutter Yard.
- Grading/graveled crown roadways at Sutter Bypass are ongoing (5 miles)
- Rodent control ongoing in all areas.
- Fire guarding/spraying 85 percent complete and is ongoing in all areas.
- High water patrolling occurred last month in all Maintenance Areas.

ENVIRONMENTAL INITIATIVES

DWR is responsible for planning projects in a way that avoids or minimizes environmental impacts, and for obtaining state and federal environmental permits and clearances for projects within the Operations and Maintenance Functional Area. Environmental Initiatives touches all aspects of this functional area and therefore is considered a close partner to the other maintenance elements and their activities. As such, it should be considered a part of each of the other major elements rather than a stand-alone element. Also, with DWR's established open collaborative process, various local, state, and federal agencies examine issues and develop integrated solutions to the complex environmental compliance requirements and resource opportunities as flood control maintenance activities are undertaken. Components include developing and managing environmental programs, and managing mitigation requirements for lands and habitats developed or acquired by the Department to mitigate for flood management maintenance and improvement projects.

Sutter Bypass, East Borrow Canal Weir No. 2 Replacement Project

- The Weir No. 2 Replacement Project consists of replacing a deteriorated and antiquated water-management weir with a new weir that will improve water management in the East Borrow Canal in the Sutter Bypass, and improve migratory anadromous fish passage. The project was originally planned as a two year construction project, to be completed in October 2012. However, the project has experienced several delays and one more construction season is needed. Causes for delays on the project in 2011 and 2012, included: difficulty in driving sheet piles to construct the cofferdam; ongoing problems with cofferdam flooding and dewatering; and regulatory compliance. Staff is currently working on obtaining the necessary permit extensions and amendments with the various regulatory/resource agencies so the project can be completed during the 2013 construction season.

LEVEE REPAIRS

The Levee Repairs Program consists of projects for repair, rehabilitation, reconstruction, or replacement of levees, weirs, bypasses, channels, and other facilities of the State Plan of Flood Control. Types of repairs are critical (has likelihood of failure during next high water event), serious (can withstand one high water event; likelihood of failure on subsequent high water events), and proactive (small deficiencies that are worsening rapidly and that can be designed and constructed by the Local Maintaining Agency (LMA)). Levee repair projects are implemented through collaboration with federal and State resource agencies, USACE, and LMAs. Levee repairs are done under three federal authorized programs; Sacramento River Bank Protection Project (SRBPP), Levee Stability Project (LSP), and PL84-99 Rehabilitation Assistance Project (PL84-99). In addition, the State is developing guidelines for a new project, Flood System Repair Project (FSRP), to address deficiencies in the entire SPFC Facilities in the Central Valley Watershed; FSRP replaces the San Joaquin River Bank Protection Project.

Flood System Repair Project (FSRP)

- Field reconnaissance efforts for FSRP began on July 12, 2012 to identify and evaluate levee deficiencies for the State Plan of Flood Control. This field reconnaissance was completed in mid-September, 2012. Repair site prioritization and development of agreements with the local reclamation districts have begun, as well as preliminary repair alternative and cost development.

- Draft Guidelines for development of work and cost-sharing agreements with DWR will be available for public comment and review pending internal approval. Public outreach meetings will be held during this 45-day public review period.
- When the FSRP Guidelines are approved, DWR will begin to engage prioritized LMAs to address repair of identified critical sites.

PL84-99 Rehabilitation Assistance Project (PL84-99)

- USACE has completed installation of mitigation planting for some 2005/2006 PL 84/99 repair sites and is currently conducting planting maintenance. CVFPB, DWR and affected LMAs continue to have concerns over the maintenance requirements associated with these mitigation plantings, and as part of issuing the real estate take letters, CVFPB asked USACE to formalize their verbal commitments addressing these concerns. At this time, no effort has been made by USACE to engage any of the concerned parties to address these outstanding issues.

Sacramento River Bank Protection Project (SRBPP)

- USACE is working on resolution of slurry wall construction issues for the setback levee being constructed in West Sacramento on the right bank of the Sacramento River at river mile 57.2. Construction is anticipated to be completed in fall of 2013.

Levee Stability Program

- San Joaquin River Levee Repair Site SJR 71.5R was completed in early December, 2012. This repair consisted of placement of rock slope protection, soil, and mitigation plantings along a 2,000-ft erosion site.

Rural Levee Repair Criteria (RLRC)

- As directed by the CVFPB, DWR, in coordination with local levee maintainers, USACE, and other affected parties, has begun developing repair criteria for levees in rural areas associated with SPFC facilities. Board resolution requested draft criteria be available by July 2013.

FUNCTIONAL AREA 3 FLOODPLAIN RISK MANAGEMENT

The primary purpose of Floodplain Risk Management is to empower local communities through floodplain management program support and technical assistance to make wise land use decisions in flood prone areas that result in reduced flood risk and preservation of the beneficial uses of floodplains. FPM projects and programs work towards development of a statewide integrated approach for flood risk reduction and long term floodplain sustainability that reduces loss of life and property damage and minimizes the economic impacts associated with flooding.

FLOODPLAIN MANAGEMENT ASSISTANCE

Floodplain Management assistance provides statewide technical support to federal, state and local agencies, and the public for flood hazard maps, levee data, and the National Flood Insurance Program 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 with communities participating in the NFIP, provides technical assistance to the public, and trains community officials.

- Staff is developing an action plan for the Hazard Mitigation Grants Program. Staff met with CalEMA to discuss HMGP assistance and a high level PowerPoint presentation has been developed.
- Coordinated with the Association of State Floodplain Managers staff to schedule a CFM exam on March 22, 2013 to be held in the West Sacramento Community Center.
- Provided approximate twenty hours of technical assistance to local communities, other State agencies, and the public regarding the NFIP (including within building codes), CFM, and Federal grants related questions. Branch staff is concluding response to technical assistance request regarding alluvial fan building codes. A California community requested that CBSC (California Building Standards Commission) temporarily omit all alluvial fan building codes. Corresponding review comments will be sent to the ASCE 24 – Flood Resistant Design and Construction – manual development committee.

STATEWIDE FLOODPLAIN EVALUATION AND DELINEATION

Floodplain Evaluation and Delineation works to estimate the frequency, depth, and limits of potential flooding throughout the state providing building blocks in terms of floodplain assessments, standards, methodologies, tools, and analyses supporting multiple applications including FloodSAFE programs and projects and FEMA's National Flood Insurance Program.

Coastal Floodplain Evaluation and Delineation (CFED)

On January 14, 2013 an Inter-Agency Agreement was signed with the Ocean Protection Council (OPC) to collaborate on the Coastal Data Merge Project. The 12 month project will merge coastal California's topographic/bathymetric data into one formatted data set to provide a consistent application for the entire coast of California and to ensure compatibility among State & federal agencies for coastal mapping products.

CENTRAL VALLEY FLOODPLAIN EVALUATION AND DELINEATION

Floodplain Evaluation and Delineation works to estimate the frequency, depth, and limits of potential flooding in the Central Valley by providing building blocks in terms of floodplain assessments, standards, methodologies, tools, and analyses supporting multiple applications including FloodSAFE programs and projects and FEMA's National Flood Insurance Program.

The current status of the CVFED Hydraulic Model Development Project is as follows:

Riverine Hydraulic Model Development (HEC-RAS):

- Upper Sacramento basin: 96 % completion
- Lower Sacramento basin: 94% completion
- Upper San Joaquin basin: 88 % completion
- Lower San Joaquin basin: 98 % completion

Overland Hydraulic Model Development (FLO-2D):

- Upper Sacramento basin: 98 % completion
- Lower Sacramento basin: 91 % completion
- Upper San Joaquin basin: 92 % completion
- Lower San Joaquin basin: 98 % completion

Combined HEC-RAS/FLO-2D System Model Development:

- Upper Sacramento basin: 50 % completion
- Lower Sacramento basin: 50 % completion
- Upper San Joaquin basin: 35 % completion
- Lower San Joaquin basin: 30 % completion

In the month of January FEB will have processed 4 requests, 1 from within DWR and 3 from outside public agencies, for a total of 22,836 LiDAR tiles and 448 tiles of Aerial Imagery. The total amount of data transferred will add up to about 6.1 TB and equaling a land area of about 20,480 square miles.

FLOOD RISK NOTIFICATION

Flood Risk Notification focuses on communicating flood risk and risk mitigation strategies to the public and to local, state and federal agencies for areas protected by the facilities of the State Plan of Flood Control.

- Staff continues to respond to questions and comments from the recipients of the 2012 Flood Risk Notice; as of 1/16/2012, we have received 130 inquiries.
- Staff received access to the California Technology Agency's parcel dataset (updated September 2012). Staff is currently reviewing the dataset to determine whether it meets our program's needs.
- FPM staff met with FloodSAFE staff to discuss the options for assisting O&M with their directive from FERC to mail notices to people within dam inundation zones.
- FPM staff has been preparing the program implementation plan for the 2013 Flood Risk Notice.

FLOOD RISK PLANNING

Flood Risk Planning is focused on incorporating flood risk management into statewide and local land use decision- making to identify potential flood hazards and mitigation strategies to reduce flood risks through creation of integrated planning approaches and datasets that help agencies, communities, and individuals make well informed decisions.

No new information this month.

FUNCTIONAL AREA 4 FLOOD PROJECTS & GRANTS

Flood Protection Projects and Projects Grants has been a long-standing California Department of Water Resources (DWR) base program, and is expected to continue indefinitely, because of the ongoing need for system improvements and the long-lead time to implement federal flood control projects. The program is responsible for the majority of physical improvements to the flood management system and provides grant money in the Delta and Statewide. The State acknowledges the program need by continuing to be a significant partner in viable flood management projects in the Central Valley, Delta, and Statewide.

CENTRAL VALLEY FLOOD PROJECTS

This element is responsible for the review of flood projects and cost-sharing on federal feasibility studies. It contains three components: Feasibility Studies, Early Implementation Program (EIP) Projects, and Flood Control Projects.

USACE/CVFPB STUDIES SECTION

The State, represented by the Central Valley Flood Protection Board (CVFPB), participates and provides cost-share for feasibility studies with the United States Army Corps of Engineers (USACE) and local partners. Several studies are underway.

American River Common Features (ARCF) General Reevaluation Report (GRR)

This study will provide a 200-year level of flood protection for the Lower American River, downstream of the Folsom Dam, the Sacramento River, downstream of Natomas Cross Canal, and the Natomas Cross Canal. The Post Authorization Change Report (PACR) evaluated alternative plans for the levee system around the Natomas Basin and acts as an interim general reevaluation study to the GRR.

- USACE held public meeting preparations on January 9, 2013 to discuss the upcoming public review process for the GRR and any potential issues foreseen by local and State sponsors. USACE is proposing levee improvements that could require considerable amounts of Real Estate acquisition. The Real Estate acquisition is needed to perform the improvements, allow for emergency access during floods, and for maintenance purposes standard for USACE projects. A potential issue noted was that USACE will need to nail down their position on what parcels will be affected by the project. The public will want to know the specifics. USACE decided to take a less detailed approach. The report will not give specific parcels affected, because USACE will not be sure which parcel will be affected until further design refinements are made in PED. USACE's intentions are to inform the public of possible impacts (worst case) and provide the public with an explanation for mitigating the effects the project could have to private property owners. Public meeting preparations will be held every third Wednesday of the month until the anticipated public review document is complete; which is scheduled for June 2013.

Lower San Joaquin River Feasibility Study

This study is a coordinated effort by the State, USACE, and the San Joaquin Area Flood Control Agency (SJAFCA) to investigate feasible 200-year level flood protection and risk reduction alternatives and opportunities for floodplain restoration, recreational enhancements, and ecosystem restoration and enhancement for the city of Stockton and surrounding areas.

- A Charette workshop was conducted on January 15-16, 2012 in Stockton. This Charette is a requirement of the new Milestone #1 decision point in the new Planning Modernization guidelines for feasibility Studies. The Charette actively involved Non-federal sponsors and

three levels of the USACE Vertical Team (District, Division, and Headquarters). The intent of this workshop was to familiarize the Vertical Team with the study area and its specific flood risk issues, establish that there is a federal interest in the study, and to brief them on the study progress to date. While the Milestone #1 checkpoint was not fully accomplished, the Charette resulted in acknowledgement that there is a federal interest in the study, and in specific direction from USACE HQ on their requirements to attain that recognition in March, and to then move on to the Tentatively Selected Plan Milestone.

Merced County Streams Project-Bear Creek GRR

This project will evaluate options to increase the level of flood protection from a 50-year event to 200-year event for the Merced Urban Area.

- Nothing new to report this month.

Rock Creek/Keefer Slough Feasibility Study

This study will generate an EIS/EIR and feasibility study to evaluate federal, State, and local interests in planning, designing, mitigating, and improving existing levee systems of Rock Creek and Keefer Slough in Butte County.

- Nothing new to report this month.

Sacramento River Flood Control System Evaluation

The Sacramento River Flood Control System Evaluation will concentrate on deficiencies in non-urban levees that may be a threat to small/rural communities because of levee instability; and will identify and prioritize sites that will be presented in a final report. No projects will be created to correct deficiencies during this study.

- Nothing new to report this month.

Sutter Basin Feasibility Study

This multipurpose study will address levee improvement measures for existing levee systems protecting Yuba City and the surrounding communities in the Butte/Sutter basin, as well as environmental restoration and recreation opportunities.

- USACE is preparing an exception to policy memorandum for consideration by the Assistant Secretary of the Army. This exception would allow the Locally Preferred Plan (LPP) to be selected as the authorized project instead of the National Economic Development (NED) plan. The LPP would provide protection for the basin that exceeds the NED, and the potential for federal cost sharing for that additional protection.

West Sacramento GRR

The GRR is being conducted to study future work necessary to provide a minimum 200-year level of protection for the city of West Sacramento.

- Nothing new to report this month.

West Stanislaus County - Orestimba Creek Feasibility Study

This study will evaluate feasible flood protection alternatives for the city of Newman and the surrounding agricultural areas to achieve a 200-year level of flood protection.

- Nothing new to report this month.

White River/Deer Creek Feasibility Study

This study will generate an EIS/EIR and feasibility study to evaluate federal, State, and local interests in planning, designing, mitigating, and improving existing levee system of White River and Deer Creek in Tulare County.

- Nothing new to report this month.

Woodland/Lower Cache Creek Feasibility Study

This study is a coordinated effort by the State, USACE, and the city of Woodland to investigate feasible 200-year level flood protection and risk reduction alternatives and opportunities for floodplain restoration, recreational enhancements, and ecosystem restoration and enhancements for the city of Woodland and surrounding areas. The study will continue efforts suspended in 2004 after significant local resistance to the USACE-selected Flood Barrier Option alternative halted the Study.

- A PDT meeting was conducted to continue development of the revised scope, schedule and associated costs to align the Study with the new USACE planning modernization guidelines (3x3x3 rule).
- An amendment to the FCSA providing for acceleration of funds by the Non-federal sponsors is in process and the agreement is in its final draft stages with USACE. Acceleration of funding, not to exceed the approved budget amount, would be utilized to continue the study and maintain the schedule in the event that matching federal funds are delayed.

Yuba River Basin Project GRR

The Yuba River Basin Project GRR consists of increasing the level of flood protection in the Yuba River Basin communities of Marysville, Linda, Olivehurst, and Arboga.

- The Post Authorization Determination Report (PADR) was approved by USACE Division. The Integral Determination Report (IDR) is currently being reviewed by Division. Review of either document is anticipated to be completed by the end of January 2013; at which point the documents will be transmitted to USACE HQ for final review and approval.

EARLY IMPLEMENTATION PROGRAM (EIP) PROJECTS

EIP includes projects ready to proceed in advance of the Central Valley Flood Protection Plan. An element of approval for these projects ensures they do not eliminate opportunities or prejudice the flood risk reduction alternatives that would provide regional or system wide benefits.

Levee District 1 - Setback Levee at Starbend Feather River (LD-1)

Levee District 1 constructed a 3,400 foot long setback levee at Star Bend near RM 18.0 on the right bank of the Feather River to provide increased flood protection for Yuba City.

- Closeout documents are under staff review. Some open real estate issues are being resolved.

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

The RD-17 levees have unacceptably low factors of safety due to under-seepage and through-seepage. These issues are being addressed by constructing seepage berms, slurry walls, and a setback levee to increase the level of flood protection for South Stockton, Lathrop, and Manteca.

- DWR is working with RD-17 to establish the direction of the Phase III design, and extend the funding agreement for three years.

Three Rivers Levee Improvement Authority – Feather River (TRLIA-FR)

This project offers 200-year flood event protection for both Highways 65 and 70, benefiting the areas of Olivehurst, Linda, Plumas Lake, Marysville, and Yuba City. This project includes one of the largest setback levees west of the Mississippi River and creates 1600 acres for on-site mitigation, agricultural use, and habitat.

- Construction is 100% complete.
- Project closeout documents are under staff review.
- Partial retention was released in 2012.
- Open real estate issues are being resolved.
- The larger setback site is under consideration to receive a grant from FESSRO to create habitat for advanced mitigation to offset the environmental effects from flood system maintenance and construction.

Three Rivers Levee Improvement Authority – Upper Yuba River (TRLIA-YR)

This project offers 200-year flood event protection for both Highways 65 and 70, benefiting the areas of Olivehurst, Linda, Plumas Lake, Marysville, and Yuba City. This project includes a portion of the south levee on the Yuba River.

- Construction is now 100% complete, excluding punch list items and some real estate issues. A final walk-through is planned in the future.
- No closeout documents have been submitted to date.

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

This project is part of the Natomas Levee Improvement Program and will improve the level of flood control protection in the Natomas Basin by providing a 200-year minimum level of flood protection. This will be accomplished by installing cutoff walls to prevent seepage, under-seepage, and raising the levee.

- Closeout documents for Phase II are currently under staff review.

Sacramento Area Flood Control Agency – Sacramento River East Levee (SAFCA-SREL)

This project is part of the Natomas Levee Improvement Program and will improve the level of flood control protection for the Natomas Basin by providing a 200-year minimum level of flood protection. This will be accomplished by installing cutoff walls to prevent through-seepage, under-seepage, and raising the levee. SAFCA plans to complete components to Element 12A (approximately RM 67) along the Sacramento River and have USACE complete the remaining work.

- SAFCA is still seeking a funding agreement amendment for approximately \$37 million. EIP is still waiting for the required supporting documentation.

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

The California Highway Patrol Academy, the Rivers, and the I-Street Bridge projects are part of the North Area Plan. All major construction is complete for these sites. These projects correct through-seepage and foundation under-seepage with excessive hydraulic gradients, embankment instability and erosion, and scouring. All three projects are designed to provide a 200-year level of protection for about 47,000 residents. The Southport area is under design and may include a large setback levee.

- A 65% review meeting will be held in March 2013.

Sutter Butte Flood Control Agency, Feather River West Levee Design Project (SBFCA)

The Feather River West Levee Project plans to design the repair of approximately 35 miles of levee along the west bank of the Feather River from Thermalito Afterbay to the north end of Star Bend. The design will include use of slurry walls and seepage berms to protect the communities of Gridley, Biggs, Live Oak, Yuba City, and parts of Sutter and Butte counties.

- SBFCA submitted a financial plan to EIP on December 21, 2012, that is under staff review. This document is needed to support a decision memo that is required for executive approval, and to proceed with a construction funding agreement for \$56 million for critical levee improvements adjacent to Yuba City.
- SBFCA is working with DWR under the existing contract for the final design of the project. SBFCA will hold a public meeting in January 2013 for potential construction contracts and intends to award a construction contract for work in the summer of 2013.

USACE/CVFPB PROJECTS

The Board continues to participate with USACE on non-federal cost-share funding for projects to upgrade the State-federal flood management system in the Central Valley.

American River Common Features Project

The American River Common Features Project is improving the levee system along the American and Sacramento Rivers in Sacramento.

- Howe Avenue and R6 construction is complete. The Howe Avenue asphalt access ramp did not meet specifications and will be corrected by the USACE contractor in spring 2013.
- Sites L10 and R3A designs are at 60% with the intent for a FY13 award. Site L7 and R7 designs are at 90%.
- Work on the Natomas Basin and American River design and construction component was postponed indefinitely until federal authorization and funding is approved.
- A \$1.5M payment for FY13 work was submitted to USACE.

Folsom Dam Raise and Bridge Element

The Folsom Dam Raise and Bridge Element Project provide flood damage reduction and dam safety benefits to Sacramento.

- A Project Partnership Agreement (PPA) is scheduled for discussion and execution in 2014. The temperature control shutters design is 35% complete and will be shelved to focus on updating three existing emergency spillway gates.
- USACE is working on the dam raise funding stream with possible construction beginning in 2017.
- USACE is working on revising the Project Management Plan (PMP).

Folsom Dam Modifications (Joint Federal Project)

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

- Construction – The Phase III control structure construction is now estimated to be 35% complete. USACE awarded a site preparation contract on November 30, 2012, for the Folsom Prison property for the Phase IV staging area. The pre-construction meeting was held on-site on January 15, 2013. The site preparation contract is estimated to be complete by early 2013.

- Design – On December 26, 2012, the Phase IV contract solicitation was posted to the Federal Business Opportunities website: <https://www.fbo.gov/spg/USA/COE/DACA05/W91238-13-R-0001/listing.html>. The Phase IV contract includes the construction of the approach channel, chute, and stilling basin of the new auxiliary spillway.
- Environmental – On December 21, 2012, the final supplemental Environmental Impact Statement/Environmental Impact Report for the Folsom Dam Modification Project Approach Channel, Phase IV construction was published online; The State Clearinghouse number is #2012072039.
- Folsom Dam Water Control Manual Update –The project team is scheduling second sets of stakeholder outreaching meetings in February 2013.

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

The Lake Kaweah Enlargement Project was completed in 2006. The remaining work is focused on turning over the O&M to the local sponsors, finalizing all financial balancing, and completing final real estate documents.

- DWR anticipates preparing a crediting package for LERRD expenses in early 2013. Initial estimates are approximately \$1.5 million in creditable costs. DWR would expect to receive credit or cash reimbursement from USACE after approval of the crediting package.
- DWR and KDWCD are in process of writing easements in favor of SSJDD. Easement documents will require research and probable land surveying prior to DWR approval.

Marysville Ring Levee Improvement Project

The Marysville Ring Levee Project will provide a 200-year or greater level of flood protection to the city of Marysville by constructing cut-off walls coupled with levee strengthening and reshaping of features to the existing levee systems surrounding the Marysville urban area.

- Phase 1 cutoff wall construction is almost complete. The contractor is completing the outstanding inspections and certification items.
- Phases 2A and 4A design will continue in January, with Phase 4A construction beginning in the summer of 2013.
- Phase 2B design will begin the summer of 2013.
- Phases 2C and 3 designs will begin in the winter of 2013.

Mid-Valley Area Levee Reconstruction Project

The Mid-Valley Reconstruction Project extends from the Tisdale Bypass to the Sacramento Bypass and includes levees adjacent to the Sacramento River, Feather River, Yolo and Sutter Bypasses, and Knights Landing Ridge Cut.

- Nothing new to report this month.

South Sacramento Streams Project

The South Sacramento County Streams Project will increase the level of flood protection for the urbanized area of South Sacramento County and an area to the south and east of the city of Sacramento. Portions of the project were completed on the four creeks, and additional improvements are planned.

- Approximately 95% of construction on a 3,000-foot floodwall was completed in 2012, but the site had to be shut down in early December 2012. Construction will continue in May 2013. DWR continues to work with SAFCA and USACE to certify the floodwall as “functionally

complete” so the city of Sacramento can submit plans to FEMA for modification of the flood insurance rate maps.

West Sacramento Area Project, Slip Repair

The West Sacramento Area Project raised and strengthened five miles of levees by a maximum of five feet on the east side of the Yolo Bypass and the south side of the Sacramento Bypass. Initial repairs were completed in 2001, but additional slips were identified during the high water events of 2006 and March 2011.

- Nothing new to report this month.

STATEWIDE FLOOD PROGRAMS

The Statewide Flood Programs provide financial support to local entities for flood and ecosystem restoration related projects throughout the State. These programs include Flood Control Subventions Program (FCSP), Flood Corridor Program (FCP), Local Levee Assistance Program (LLAP), and Yuba-Feather Flood Protection Program (YFFPP).

FLOOD CORRIDOR PROGRAM (FCP)

FCP provides local assistance grants to local governments, special districts, and non-profit organizations for flood risk reduction projects using non-structural methods. Each project must also include an ecosystem restoration or agricultural land conservation component.

- Flood Corridor Grant Program – The Program submitted funding agreements to the DWR Chief Counsel’s Office for review of 11 of 13 awarded flood risk reduction projects approved by Director Cowin earlier this year. The projects will fund over a total of \$58 million in Proposition 84 and 1E grants to 13 localities statewide to reduce flood risk in communities while protecting wildlife habitat and agriculture. The \$8.9 million Elkhorn Basin - River Ranch funding agreement was signed, and ten additional grant funding agreements, totaling approximately \$36 million, are expected to be signed by DFM management within the next several weeks. FCP anticipates that there will be approximately \$28 million in remaining funds available for future grant awards.
- Elkhorn Basin – River Ranch Conservation Easement Acquisition Project – The Grantee requested that escrow close on the easement acquisition at the end of 2012. In anticipation of fulfilling this request, the Program staff expedited project processing. All items necessary for escrow closure were completed, except for appraisal review, which took longer than anticipated due to supporting documents being more complicated than initially anticipated and limitations on appraisal review staff availability during the holiday period. Appraisal review is still ongoing, and is not expected to be completed until the end of January.
- Carmel River Floodplain & Environmental Enhancement Flood Corridor Project – Funding partners, including staff from FPO’s Flood Corridor Program, attended a meeting with Resources Agency staff member, Bryan Cash, to discuss scheduling delays for the project. The meeting focused on keeping funding alive despite an anticipated project schedule delay, while the primary land owner seeks transfer of water rights approval from the State Water Resources Control Board. Some funding sources have deadlines for committing the funds that fall before the project can move forward. An update on resolving the water rights issue is anticipated in early January.
- Magpie Creek – SAFCA will review the resolution of the formal dispute (expected at the end of January 2013) between California Department of Toxic Substances Control and USAF

regarding toxicity issues at the site, as previously noted. A decision on whether to proceed with the proposed project is expected to be made in early February 2013.

- Alamo Creek Flood Corridor Grant – City of Vacaville (City) notified Flood Corridor Program Branch staff on September 12, 2012, of a discovery of cultural resources in the inlet channel of the basin. The City is working with the various stakeholders for the project to come to an acceptable resolution. At this time, the earliest the City would move forward with the project is next year. Kimberly Johnston-Dodds, DWR Tribal Liaison and Policy Advisor, was notified. The City has hired Far Western, an Anthropological consultant firm, for additional cultural identification to be done in three phases. All work was originally slated to be completed prior to October 15, 2012.

FLOOD CONTROL SUBVENTIONS PROGRAM (FCSP)

FCSP provides financial assistance to local agencies cooperating in the construction of federally authorized flood control projects outside of the Central Valley and the State Plan of Flood Control.

- Two claims for total of \$1 million were approved for payment.
- Five claims for total of \$6.3 million are currently under review.
- No audit payment was processed.
- In total, 41 funding reimbursement requests for total of about \$73 million are pending review (excluding amount pending SCO audit release).
- FCSP is continuing with cost share evaluation for the Los Angeles County Drainage Authority (LACDA) project.
- FCSP is in the process of updating Program Guidelines.

LOCAL LEVEE ASSISTANCE PROGRAM (LLAP)

LLAP provides financial assistance to local agencies to evaluate and perform urgent repair on their flood control facilities outside of the Central Valley and the State Plan of Flood Control.

- New Local Levee Assistance Program Grant Agreements – The Directors Decision Memo was signed for approval of 38 new grants.
- Alameda County LLAP Grant Agreements – Alameda County's grant agreements were finalized, reviewed, and signed by OCC legal. The agreements for the 7 Projects were finalized and sent to the sponsor for signature.
- County of Ventura LLAP Grant Agreements – County of Ventura returned 10 signed grant agreements. These were signed by OCC and sent to the Division Chief for approval.
- King's River Conservation District LLAP Grant Agreement – Contract language for an Agreement with Kings River Conservation District was finalized. The Agreement was sent to Kings River Conservation District for signature.
- Port of Oakland LLAP Grant Agreements – Contract language for two agreements with the Port were finalized. Port of Oakland's CEQA/NEPA issues were resolved.
- Santa Clara Valley LLAP Grant Agreements – Contract language for two agreements with Santa Clara Valley were finalized. Santa Clara Valley's labor compliance issues were resolved.
- Contra Costa County LLAP Grant Agreement – Staff has completed contract negotiations with Contra Costa County for two Projects and the Agreements were sent to Contra Costa County for signature.
- Local Levee Assistance Program Projects in the News – LLAP had selected 3 projects for grant funding located near and hydrologically linked to the San Francisquito Creek. On

December 23rd and 24th the San Francisquito Creek flooded nearby highway 101 and other streets in the Palo Alto area. LLAP projects directly related to this water system are:

- Design and CEQA Documentation of East Palo Alto and Menlo Park Tidal Flood Protection, Ecosystem Restoration, and Recreation Project;
- Levee Evaluation, and Feasibility Study of East Palo Alto and Menlo Park Tidal Flood Protection, Ecosystem Restoration, and Recreation Project; and
- The San Francisquito Creek to Guadalupe River Shoreline Feasibility Study.

YUBA-FEATHER FLOOD PROTECTION PROGRAM

YFFPP provides Proposition 13 financial assistance to local entities demonstrating non-structural flood management projects showing a potential significant reduction of peak flood flows, flood stage, flood risk (including wildlife habitat enhancement and/or agricultural land preservation) on the Yuba and Feather Rivers.

- The Director's Decision Memo for the YFFPP 2012-13 PSP is currently under review for approval.

PROGRAM SUPPORT

The program support function is designed to ensure the various programs and their projects receive sufficient technical and administrative support to be successful. These support functions are Grant Guidelines, Environmental Services, Technical Assistance, and Federal Coordination.

GRANT GUIDELINES & PROGRAM SOLICITATIONS

- Local Levee Assistance Program – The final Director's Decision Memo (DDM) for the approval of the Final List of LLAP Grantees was approved by the Division of Flood Management (DFM) Chief. The Final List of Grantees was published on December 10, 2012, through email and the web. The DDM also approved the signature and execution of 38 grant agreements.
- Non-Urban Flood Risk Management (NFRM) Program – FPO staff created an NFRM program fact sheet for the January CVFPB meeting and an NFRM program briefing for executive review. The draft NFRM Guidelines and Proposal Solicitation Package were created and are ready for the first series of reviews.

ENVIRONMENTAL SUPPORT

FCP-ES Branch provides environmental technical support to FPO programs and projects.

- Most activities are described under the individual project headings.
- Lower Feather River Corridor Management Plan – Low-flow modeling is continuing. AECOM, the consultant developing the Plan, suggested refinements in the future conditions scenario to reflect less frequent inundation of the 1600-acre floodplain created by the TRLIA setback levee. The future conditions scenario refinements, under review by DWR, would result in substantially reduced earthmoving activities from what was anticipated under the previous future conditions scenario. Once the refinements are approved, additional low-flow modeling will be done to identify and map areas that will be subject to frequent inundation of sufficient duration to be biologically significant.
- Lower San Joaquin Feasibility Study – USACE scheduled a two day SMART Planning Charette on January 15-16, 2013. The objective is to have consensus at all levels of USACE on the future direction of this study.
- FESSRO's Conservation Grants – DFM's FPO and FMO environmental and engineering staff are part of FESSRO's Conservation Framework and Strategy proposal evaluation team (PET)

charged with evaluating 12 full proposals to provide advance habitat mitigation for SPFC projects and activities. Approximately 40 concept proposals were first evaluated by the PET, including DFM staff in the fall of 2012. The PET also includes staff from FESSRO and from federal and State resource agencies. Preliminary selection by the PET is anticipated in early March.

TECHNICAL ASSISTANCE

LLAP has resources to provide technical assistance in flood modeling, geographic information systems, technical consultation, design criteria development, and databases to various programs in FPO.

- In-house Technical Training for FPO Staff – On December 20, 2012, Jim Mars from USACE Sacramento District Hydraulics and Hydrology, gave a brown bag seminar to FPO staff on topics related to the National Levee Database (NLD), corps flood engineering GIS, SPK geospatial working processes, and USACE's response in the aftermath of hurricane Sandy.
- FAIR Committee – FPO staff coordinated with multiple offices to develop documentation for contracting language and processes to be used toward an FAPP. Staffs are completing the final draft and are packaging all documents for submission for approval.

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; 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 habitat in the Delta. Additional responsibilities under the Bay-Delta Levees Branch are to support of the levee system and habitat development; improve the flood fight capability of the Delta through planning, cooperative efforts, encouraging the development of emergency response plans for each Delta island, and conduct studies and contract efforts necessary for program purposes.

DELTA LEVEES MAINTENANCE SUBVENTION PROGRAM

DWR staff, on behalf of the CVFPB, initiates and manages work agreements to fund levee maintenance and rehabilitation. To date, the status of work agreements is as follows:

Work Agreements for FY 2011-2012

- DWR staff mailed work agreements to 66 reclamation districts and received signed work agreements from 64 reclamation districts.
- Final claims were received from 63 reclamation districts totaling \$11.7 million by the deadline of November 1, 2012.
- DWR staff completed 31 joint levee inspections.

Work Agreements for FY 2012-2013

- The FY 2012-2013 funding allocation plan, presented to the Board on September 28, 2012, was approved by the Board. The plan allocates the funding of \$12 million to 67 reclamation districts.

- DWR staff mailed work agreements to 67 reclamation districts for signature. To date, staff received signed work agreements from 34 districts. Agreements received will be forwarded to the board's executive office for execution.

DELTA LEVEES SPECIAL FLOOD CONTROL PROJECTS

DWR initiates and manages project funding agreements in support of local agencies' levee rehabilitation, habitat, or other projects. DWR executes agreements authorizing the work proposed under Project Solicitation Packages (PSPs).

- DWR committed approximately \$350 million dollars for levee work in the Delta, of which, approximately \$135 million was allocated to PL 84-99 projects and \$85 million to HMP Projects. To date, 42 miles of levee work has been completed.

Current information can be found at:

<http://www.water.ca.gov/floodmgmt/dsmo/bdlb/spp/>

FUNCTIONAL AREA 5 EVALUATION & ENGINEERING

Evaluation & Engineering is a FloodSAFE Functional Area established to address assessments of existing flood management facilities to identify deficiencies and needed improvements. This is a new Functional Area that is expected to continue after the FloodSAFE foundational objectives are met. Functional Area activities are performed in partnership with the USACE, which prior to FloodSAFE, conducted most evaluations and engineering for existing facilities. This Functional Area is based on the acknowledgement that changing conditions, new knowledge about system performance, and eventual facility deterioration will demand continued evaluation and engineering services.

URBAN LEEVE EVALUATION (ULE)

DWR is required to evaluate the current level of performance of the State-Federal flood protection system in the Central Valley. Urban levees are levees that provide protection to developed areas with a population of at least 10,000 people. The evaluation of current urban levee performance is to include an estimate of the risk of levee failure, a discussion of the inspection and reviews performed, and recommendations regarding the levees and future work activities. The geotechnical engineering being performed will help flood managers understand the overall flood risks to populated areas in the Central Valley and consider alternative changes to the flood management system to better manage the risks.

ULE is evaluating 470 miles of urban levees that include State-Federal project levees, as well as appurtenant non-project levees that provide protection to urban areas receiving some protection from the State-Federal flood system. Urban levees are being evaluated to determine whether they meet defined geotechnical criteria for landside and waterside slope stability, under- and through-seepage, erosion, freeboard, seismic and, where needed, to identify remedial measures and cost estimates to achieve the defined geotechnical criteria. The information developed to date has been used in support of the Central Valley Flood Management Planning Program to inform development of two required 2012 documents: The Flood Control System Status Report and the Central Valley Flood Protection Plan. Information currently shown in the table below is in process or pending, and will be used to support the 2017 updates to these documents.

The final analyses and Geotechnical Evaluation Report (GER) is the end result of a five-step process that includes the following steps: 1) historical data collection, 2) initial field investigation, 3) preliminary analysis, 4) supplemental field investigation, and 5) final analyses and reporting. Each of these five steps results in the below listed deliverables.

The overall status of the ULE program intermediate and final deliverables for the 27 urban levee study areas are 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 & Report (GER)
1	Chico	Done	Done	Done	Done	In Progress
2	Marysville	Done	Done	Done	Done	In Progress
3	RD 784	Done	Done	Done	Done	In Progress
4	Feather River West Levee	Done	Done	Done	Done	In Progress
5	Sutter Bypass Wadsworth	Done	Done	Done	Done	In Progress
6	American River	Done	Done	Done	Done	In Progress
7	Sacramento River	Done	Done	Done	Done	In Progress
8	Davis	Done	Done	Done	In Progress	In Progress
9	Woodland	Done	Done	Done	In Progress	In Progress

No.	Urban Study Area	Historic Data Collection (TRM)	Initial Field Investigations (P1GDR)	Preliminary Analyses	Supplemental Field Investigations (SGDR)	Final Analyses & Report (GER)
10	NEMDC East	Done	Done	Done	Done	In Progress
11	NEMDC West	Done	Done	Done	Done	In Progress
12	Natomas North	Done	Done	Done	Done	In Progress
13	Natomas South	Done	Done	Done	Done	In Progress
14	West Sacramento	Done	Done	Done	Done	Done
15	DWSC	Done	N/A	N/A	In Progress	Pending
16	South Sac Streams	Done	N/A	Done	In Progress	Pending
17	RD 404	Done	Done	Done	Done	In Progress
18	RD 17	Done	Done	Done	In Progress	In Progress
19	Bear Creek	Done	Done	Done	Done	In Progress
20	Calaveras River	Done	Done	Done	In Progress	Pending
21	Lincoln Village	Done	N/A	N/A	Done	In Progress
22	Brookside	Done	N/A	N/A	Done	In Progress
23	Rough and Ready	Done	N/A	N/A	In Progress	In Progress
24	Boggs Tract	Done	N/A	N/A	In Progress	In Progress
25	Shima Tract	Done	N/A	N/A	In Progress	In Progress
26	SJAFCA upland levees	Done	N/A	N/A	In Progress	In Progress
27	Smith Canal	Done	N/A	N/A	In Progress	In Progress

Notes:

- 1) In areas where detailed recent studies were performed in advance of the GER five-step process, initial field investigations and preliminary analyses were not performed and the Technical Review Memorandum (TRM) incorporated these recent studies instead.
- 2) In Progress means that the work has been initiated and is in various stages of completion. Most of the In-Progress SGDR work is nearing completion.
- 3) Pending means that the work is either waiting on the results of the SGDR to be completed or waiting to be scheduled to even out the workload.

ULE Summary

- Overall, ULE is 81% complete.
- Over 2000 interview records and historic reports have been obtained and reviewed. These records/reports have not currently been entered into the database but will be after completion of the ULE program.
- 400 miles of urban levees were surveyed using low altitude, high accuracy (+/- 6 cm) LiDAR survey techniques to generate topographic survey data.
- A bathymetric survey, to generate underwater topographic survey data, was performed for over 100 miles of river systems and integrated with the LiDAR survey to provide levee cross-section profiles that have both landside and waterside topography.
- 300 miles of levees were subject to Helicopter-based Electro-Magnetic Geophysical Survey (HEM). The HEM was performed to assist in assessing the subsurface stratigraphy between borings and determine the need for additional explorations.
- To supplement the HEM in no fly zones, over 100,000 feet of land based geophysical surveys were performed.
- For each of the 27 urban areas, detailed geomorphic studies and associated mapping were conducted to support the field explorations and subsequent analyses.
- Over 5,300 explorations along with approximately 15,000 laboratory tests have been performed as part of this effort for the 27 urban levee study areas.
- The West Sacramento GER, the template for all GERs, was finalized in May 2012.
- Based on local stakeholder input, additional drilling was completed in the Sacramento study area.
- The current delivery date for completion of all GERs is currently planned for the end of 2013.

- Close coordination of the GER efforts and the EIP projects for RD 17 and Sutter Butte continues.
- The 17th Independent Consultant Board meeting was held December 10-11, 2012. The GER tasks 1, 2, and 3 delivery packages for RD 404 were presented and reviewed.
- Comments from the ICB have been received and responses are being prepared. Impacts on GERs and other ULE work products and schedule are expected to be minor.

NON-URBAN LEVEE EVALUATION (NULE)

DWR is required to evaluate the current level of performance of the State-Federal flood protection system in the Central Valley. Non-urban levees are levees that provide protection to agricultural areas and developed areas with a population of fewer than 10,000 people. The evaluation of current system performance includes an estimate of the risk of levee failure, a discussion of the inspection and reviews performed, and recommendations regarding the levees and future work activities. The geotechnical engineering being performed will help flood managers understand the overall flood risks to populated areas in the Central Valley and consider alternative changes to the flood management system to better manage the risks.

NULE is evaluating approximately 1,500 miles of non-urban levees that include State-Federal project levees and appurtenant non-project levees that also provide protection to non-urban areas receiving some protection from the State-Federal flood protection system. Non-urban levees are being evaluated to determine whether they meet defined geotechnical design criteria at the 55/57 design water surface for slope stability, under- and through-seepage, erosion, and, where needed, identify remedial measures and cost estimates to achieve the defined geotechnical design criteria. The information being developed will be used in support of the Central Valley Flood Management Planning Program to inform development of the nine regional plans.

The overall status of the NULE program intermediate and final deliverables for the 21 non-urban levee study areas are 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	In Progress
2	Clarksburg	Done	Done	Done	In Progress
3	Colusa Drain	Done	Done	Done	In Progress
4	Colusa North	Done	Done	Done	In Progress
5	Colusa South	Done	Done	Done	In Progress
6	Gerber	Done	Done	Done	In Progress
7	Knights Landing	Done	Done	Done	Draft Complete
8	Sutter Bypass	Done	Done	Done	In Progress
9	Wheatland	Done	Done	Done	In Progress
10	Woodland South	Done	Done	Done	Draft Complete
11	Ash Slough	Done	Done	Draft under review by DWR	In Progress
12	Berenda Slough	Done	Done	Draft under review by DWR	In Progress
13	Black Rasca/Fairfield	Done	Done	Draft complete	In Progress
14	Diverting Canal/Mormon	Done	Done	Draft under review by DWR	In Progress
15	ESB/Chowchilla	Done	Done	Draft under review by DWR	In Progress

16	Fresno River	Done	Done	Draft under review by DWR	In Progress
17	Gravelly Ford	Done	Done	Draft being revised	In Progress
18	RD 2064	Done	Done	Draft submitted to DWR	In Progress
19	RD 2075	Done	Done	In Progress	In Progress
20	RD 2095	Done	Done	Draft complete	In Progress
21	SJRRP/CCID	Done	Done	Draft under review by DWR	In Progress

NULE Summary

- Overall, Non-Urban Levee Evaluations are 66% complete.
- Over 8,000 records have been obtained and incorporated into a searchable Microsoft Access database.
- Over 7,000 points of interest have been recorded and incorporated in GIS-based maps that also link to the project records database.
- For the 21 non-urban areas, surficial geomorphic studies and associated mapping efforts were conducted. More detailed efforts were performed in selected areas. The surficial mapping was performed to aid the GAR, while the more detailed efforts were performed to aid field exploration efforts.
- Over 3,000 explorations along with approximately 6,000 associated laboratory tests were performed as part of this effort for the 21 leveed areas protecting populations greater than 1,000.
- No drilling occurred during this reporting period or is planned for the above reports.
- Laboratory testing is complete.
- Preparation of GDRs for NULE study areas is ongoing and nearly complete. Final GDRs for Sacramento River basin are complete; final GDRs for San Joaquin River basin are expected in the first quarter of 2013.
- Preparation of GORs is continuing, with the current delivery dates scheduled for the middle of 2013.
- Preparation of GORs continued for each of the study areas. The results presented in the GORs will support FMO, regional plans, and SJRRP studies.
- To support the CVFPP, the NULE effort has been/was redirected to prioritize support for the Flood System Repairs Program and nine Regional Plans.
- To support the Flood System Repairs Project (FSRP), contract task orders have been awarded to assist in assessing the need for repairs for areas identified in the GAR process. More information on the FSRP is presented below.
- The 17th Independent Consultant Board meeting was held December 10-11, 2012. The GOR meetings 1 and 2 delivery packages for Ash Slough, and GOR volume 2 for Woodland South were presented and reviewed.
- Comments from the ICB have been received and responses are being prepared. Impacts on GORs and other NULE work products and schedule are expected to be minor.

Support of Other DWR and USACE Programs

- CVFPP
In support of Central Valley Flood Planning Program (CVFPP), ULE and NULE data and preliminary analyses were used to define levees reaches requiring remediation to bring them up to appropriate design standards; develop corresponding conceptual cost estimates; and

prepare levee reliability curves and maps showing limits of deficiencies by failure mode (e.g., seepage, stability, erosion).

- CVFED
To support Central Valley Flood Evaluation and Delineation Program, ULE and NULE data and preliminary analyses were used to establish the height at which a levee no longer meets criteria for stability and seepage for 2100 miles of levees.
- FSRP
In support of the FSRP, NULE and ULE information is being used to perform detailed assessment of potential repair sites. The 8000 records and 7000 points of interest collected for NULE were used as a basis for FSRP. Information and processes developed under NULE and ULE have been used to screen, assess and estimate the initial remediation costs of specific repair sites. In addition, FSRP repair sites undergoing further feasibility and design studies will use field investigation and analyses data being performed under the NULE project. Field reconnaissance for the FSRP project was completed by eight teams comprised of a combination of DWR and contractor staff. Second Draft of the Field Reconnaissance Summary Reports was prepared to support the preparation of the pre-feasibility cost estimate (underway for Tier 1 critical and serious sites). Planning for outreach to LMAs is underway, with outreach expected to occur during the first quarter of 2013.
- San Joaquin River Restoration Program
Task Order SJ105 is being implemented during the reporting period and geomorphology mapping is in progress. Current work plans are being developed based being able to quantify if levees meet defined geotechnical criteria based on different flow regimes.

TECHNICAL REVIEW

Geotechnical analyses are being conducting on behalf of the CVFPB on an “as-needed” basis and to support proposed and ongoing capital improvement projects. Collaboration with the USACE is occurring with on-going geotechnical studies, including review of associated documents that may impact the CVFPP.

- Technical reviews are currently being performed for the Sutter Butte Area Flood Control Agency, the (LSJFS) Lower San Joaquin Feasibility Study, and RD 17.
- ULE/NULE continues providing additional supporting data to USACE for the LSJFS.
- ULE continues to review the SBFA Feather River West design project.

TECHNICAL POLICY SUPPORT

A statewide seismic policy is being developed for levee performance, emergency levee remediation, and long-term levee remediation. Urban Levee Design Criteria (ULDC) are also being developed to guide local urban levee improvement projects. Research is being conducted to resolve gaps in knowledge associated with the effects that woody vegetation growing on or near levees has on levee integrity; and to provide technical support for the development of vegetation management policies as part of the CVFPP.

- Vegetation management policies and joint research with Sacramento Area Flood Control Agency (SAFCA) continues with ULE/NULE logistical and technical support. The following studies have been or are nearly completed:
 - Tree Root Architecture – How and where do tree roots grow on and near levees?

- Levee Slurry Wall Investigations – Do tree roots penetrate slurry walls? What are their effects?
- How Trees affect Seepage and Stability of Levees – Do tree roots become preferential seepage pathways through a levee and do trees contribute to levee slope instability?
- Tree Windthrow – What are the forces necessary to topple trees on California Levees?
- Burrowing Mammal Habitat Associations – How is burrowing mammal abundance related to the presence or absence of trees on levees?
- Levee Mammal Burrow Characterization and Grouting Efficacy – What are the seepage and stability implications? Do standard grouting methods seal burrows in a levee?
- Forensics – Has woody vegetation affected historic levee performance?
- In addition to the ULE five-step process, two seismic studies are being performed. The objective of the first study is to develop conceptual seismic remediation alternatives and associated costs for areas of levees that have been identified as being potentially compromised by earthquake loading in the GER. The second seismic study focuses on West Sacramento as a prototype to perform economic analyses and to develop a cost/benefit assessment for seismic remediation. As part of this effort, a draft Seismic Remediation Alternative Report was prepared during this reporting period.
- Participated in various FloodSAFE FAXCTs (Functional Area Cross Coordination Teams).
- Continuing to provide support to the CVFED program.

FUNCTIONAL AREA 6 FLOOD MANAGEMENT PLANNING AND CONSERVATION STRATEGY

The Flood Management Planning and Conservation Strategy Functional Area refer to the planning and analysis necessary to evaluate flood systems as complete systems consistent with the intent of the FloodSAFE Implementation Plan rather than a set of individual, isolated projects. This functional area consists of three elements: Central Valley Flood Management Planning (CVFMP) Program, Statewide Integrated Flood Management Planning, and Conservation Strategies.

CENTRAL VALLEY FLOOD MANAGEMENT PLANNING (CVFMP)

The CVFMP Program is one of several programs being managed within FloodSAFE California. The CVFMP Program addresses most of the flood-related planning activities that were authorized by the Legislature during the 2007/2008 session within much of the Central Valley. The CVFMP Program consists of two primary projects - State Plan of Flood Control (SPFC) and the Central Valley Flood Protection Plan (CVFPP).

STATE PLAN OF FLOOD CONTROL (SPFC)

The SPFC primarily includes: (1) SPFC Descriptive Document and (2) Flood Control Systems Status Report (FCSSR), which were completed and provided to Central Valley Flood Protection Board (Board) in November 2010 and December 2011, respectively. The SPFC Descriptive Document is to be updated as the SPFC is modified. The FCSSR is to be updated in 2016, and in subsequent years ending in 1 and 6.

CENTRAL VALLEY FLOOD PROTECTION PLAN (CVFPP)

The CVFPP reflects a system-wide approach to protecting lands currently protected from flooding by the SPFC. The 2012 CVFPP was presented to the Board on schedule by January 1, 2012. The Board adopted the plan on June 29, 2012. The CVFPP is to be updated in 2017, and in subsequent years ending in 2 and 7. The 2012 CVFPP presents a State System-wide Investment Approach (SSIA) for making improvements to the SPFC over time through five flood management programs: (1) Flood Emergency Response Program, (2) Flood System Operations and Maintenance Program, (3) Floodplain Risk Management Program, (4) Flood System Assessment, Engineering, Feasibility, and Permitting Program, and (5) Flood Risk Reduction Program. Two important components in further refining flood system improvements include developing Regional Flood Management Plans (RFMP) and two State-led Basin-wide Feasibility Studies (BWFS).

Regional Flood Management Planning

RFMP is a DWR sponsored and locally lead planning process to develop a long-term vision of flood management in nine regions in the Central Valley. Elements of the RFMP's will include a Regional Flood Atlas, Regional Flood Management Priorities and a Regional Financial Plan. RFMP's are being coordinated with the two basin-wide feasibility studies being lead by DWR.

- DWR expects to issue Letters of Commitment for Directed Funding to the Feather River and Lower Sacramento River/Delta North Regions by the end of January. Funding Agreements for those regions are also being drafted.

Basin-Wide Feasibility Studies

The two basin-wide feasibility studies (Sacramento River Basin and San Joaquin River Basin) have been initiated. The studies are to describe the State's flood management objectives in each river basin, refine the scale and location of system elements in the SSIA, inform development of the CVFPP financing plan, and integrate a system-wide environmental conservation strategy.

- Work continues on refining resources, problems and objectives.
- Coordination between the Basin-wide Feasibility Studies and Conservation Strategy development and communications and engagement activities continues.

STATEWIDE INTEGRATED FLOOD MANAGEMENT PLANNING

The Statewide Integrated Flood Management Planning Program (SFMP) will assess the flood risk to life and property statewide, and develop recommendations to guide the state's flood risk management strategic policies and investment decisions. The program will inventory existing and future flood management needs in the state's regions, identify opportunities for integrated flood management, and formulate potential integrated flood management solutions. The program will publish a report titled "Report on Flood Future: Recommendations for Managing California's Flood Risk" (Flood Future Report). In addition, SFMP includes integration of flood management into the California Water Plan.

Flood Future Report

No new information this month.

Integrated Flood Management in the California Water Plan

No new information this month.

CONSERVATION STRATEGIES

The Conservation Strategies Element is designed to provide support and integrate environmental stewardship into the CVFMP Program. Therefore, major progress, such as the status of key documents, progress on major milestones, and upcoming events, is described under the Central Valley Flood Management Planning section above.

CONSERVATION STRATEGY

Basin-wide Feasibility Studies Coordination

FESSRO and CVFPO staffs are aligning their efforts for communication and engagement for the coming calendar year, including a draft work plan, engagement schedule, and joint technical workshops.

Conservation Strategy Interagency Advisory Committee (IAC)

FESSRO continues to keep regulatory agencies informed and to seek their advice in the development of the Conservation Strategy. At the January meeting of the IAC's Conservation Strategy Development Subcommittee, staff received input on the Conservation Strategy development schedule and the first five (of 17 planned) Targeted Conservation Planning Species Accounts. These Accounts are technical support documents for the full Strategy.

Agricultural Stewardship

Staff has started working with the Department of Conservation's Division of Land Resource Protection to discuss specific opportunities for working on joint habitat/agricultural stewardship projects within the Central Valley.

Outreach and Communication

Staff is creating a series of fact sheets on Conservation Strategy topics and updating FESSRO's web page.

INTEGRATED FLOOD AND RESTORATION PROJECTS

PSP Proposal Evaluation

Staff is working with the interagency Project Evaluation Team to review 11 full proposals covering 10 projects.

REGIONAL CONSERVATION PLANNING

RAMP coordination with PSP and Regional Permitting efforts

Staff is working with RAMP agency partners to evaluate proposals received through the PSP process for their potential as a RAMP project. Staff briefed RAMP partners on DWR's developing approach to programmatic ESA compliance using existing, or developing new, HCP/NCCPs.

Regional Permitting

- **Existing HCP/NCCP coordination**

Staff met with several local agencies to discuss the DWR's potential participation in their existing HCP/NCCP's. These include the Yuba/Sutter HCP/NCCP, the Yolo Natural Heritage Plan, and the Placer County HCP/NCCP. Staff also met with the Sutter Butte Flood Control Agency and the Three Rivers Levee Improvement Agency to discuss potential interest of Local Maintaining Agency participation in the Yuba/Sutter Plan. In both meetings, the meeting participants discussed scheduling a meeting with the LMA's that they represent, to discuss the options for the LMA's and the perceived benefits.

- **Floodway Mitigation Project Permitting**

DWR staff met with staff from the CVFPB, USFWS and CDFW staff to discuss ways to improve compatibility of both encroachment permits and mitigation agreements on habitat projects located within the floodway. The group discussed development of standardized language for agreements and a mitigation site's vegetation management plan. This may be part of a new guidance document for applying for an encroachment permit.

INVENTORY, ANALYSIS, AND MODELING

Fine-scale vegetation map

Work on the fine-scale vegetation map continues on schedule for a summer 2013 delivery.

Lower Feather River CMP Hydrology/Hydraulics modeling

Staff is working with DFM and consultants to review and make recommendations on the revised draft H & H modeling for the Lower Feather R. Corridor Management Plan components.

Vegetation Research

Staff is working with DFM staff to collaboratively fund additional vegetation research as part of the California Levee Vegetation Research Program. This interagency program hosted the Levee Vegetation Research Symposium in fall 2012. Staff met with the Program's steering group to discuss a developing synthesis report of CLVRP-funded research and to begin identifying needs for additional research.

FUNCTIONAL AREA 7 LEGISLATION, BUDGETS, AND COMMUNICATION

The primary goal of the Legislation, Budget, and Communication functional area is to facilitate legislation, budget, and communication matters to aid the efficient work of all functional areas in improving flood safety. This functional area will work to secure sustainable funding to implement the FloodSAFE initiative and to secure legislative support for all other functional areas that must continue indefinitely into the future. It is also responsible for coordination and public outreach consistency.

COMMUNICATION AND BRIEFING MATERIALS

No new information this month.

FUNDING ADVOCACY & AGENCIES' ALIGNMENT

No new information this month.