

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

By

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*Prepared for the Central Valley Flood Protection Board for October 25, 2013 meeting.

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

Summer channel and structure inspections have been completed and reports have been published to the website at <http://cdec.water.ca.gov/fsir.html>. The LMAs have been notified via the list serve and inspection staff that they are available. Inspectors have started fall levee inspections and continue to inspect Encroachment Permit projects. The Encroachment Permit and Levee Log databases continue to be updated and consolidated under task orders. Section staff continues to coordinate with DWR, USACE, CVFPB, and LMA staff in a number of venues.

FLOOD PROJECT INTEGRITY/VULNERABILITY ASSESSMENT ACTIVITIES

No new information this month.

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

On August 30, 2013, DWR mailed the LMAs with the required forms and instructions to submit information on their levee maintenance for the 2013 annual reporting program. The deadline for the LMAs to submit this information to DWR is September 30, 2013. LMAs were reminded of the deadline on September 17 using the listserv. LMAs are responding and information is being submitted using mostly the online web application tool.

The initial effort has been put in on how to design this year's report. In order to automate and simplify information flow for this report, staff is looking into different available tools. Staff is also working on updating the aerial maps for the 89 LMAs to be presented in the report.

LMAs are also responding to the information solicitation request made by DWR in early August regarding the non-project levee existence (if any within their jurisdiction), alignment, and the maintenance of those levees.

Library of Model is being populated with models and check-in-guidelines. Currently the contractors are working on the final phase of uploading the check in guidelines for different models.

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 August 31, statewide hydrologic conditions were as follows: precipitation, 80 percent of average to date; runoff, 60 percent of average to date; and reservoir storage, 80 percent of average for the date. Sacramento River Region unimpaired runoff, for Water Year 2013, observed through August 31, 2013 was about 11.6 million acre-feet (MAF), which is about 65 percent of average. For comparison during Water Year 2012, the observed Sacramento River Region unimpaired runoff through August 31, 2012 was about 11.5 MAF, or about 64 percent of average.

On August 31, the Northern Sierra 8-Station Precipitation Index Water Year total was 44.3 inches, which is about 90 percent of the seasonal average to date and 89 percent of an average water year (50.0 inches). During August, the total precipitation for the 8-Stations was 0.0 inches. Last year on August 31, the seasonal total for the 8-Stations was 41.6 inches, or about 85 percent of average for the date. The combined total January through May precipitation, in Water Year 2013, is the driest in about 90 years of record.

On August 31, the San Joaquin 5-Station Precipitation Index Water Year total was 26.2 inches, which is about 66 percent of the seasonal average to date and 64 percent of an average water year (40.8 inches). During August, the total precipitation for the 5-Stations was 0.0 inches. Last year on August 31, the seasonal total for the 5-Stations was 24.9 inches, or about 62 percent of average for the date. The combined total January through May precipitation, in Water Year 2013, is the driest in about 90 years of record.

Selected Cities Precipitation Accumulation as of 08/31/2013 (National Weather Service Water Year, July through June)					
City	July 1 to Date 2013 – 2013 (in inches)	% Average	July 1 to Date 2012 – 2012 (in inches)	% Average	% Avg "Water Year" July 1 to June 30 2013 - 2014
Eureka	0.08	16	0.74	151	0
Redding	0.00	0	0.00	0	0
Sacramento	0.00	0	0.03	60	0
San Francisco	0.04	67	0.02	33	0
Fresno	0.00	0	0.00	0	0
Bakersfield	0.00	0	0.02	50	0
Los Angeles	0.03	38	0.00	0	0
San Diego	0.05	100	0.00	0	0

Key Reservoir Storage (1,000 AF) as of 08/31/2013								
Reservoir	River	Storage	Average Storage	% Average	Capacity	% Capacity	Flood Control Encroachment	Total Space Available
Trinity Lake	Trinity	1,407	1,839	77	2,448	57	---	1,041
Shasta Lake	Sacramento	2,101	2,966	71	4,552	46	-2,451	2,451
Lake Oroville	Feather	1,783	2,377	75	3,538	50	-1,755	1,755
New Bullards Bar Res	Yuba	577	653	88	966	60	-389	389
Folsom Lake	American	429	621	69	977	44	-548	548
New Melones Res	Stanislaus	1,087	1,374	79	2,420	45	-1,333	1,333
Don Pedro Res	Tuolumne	1,135	1,427	80	2,030	56	-895	895
Lake McClure	Merced	364	584	62	1,025	36	-660	661
Millerton Lake	San Joaquin	304	230	132	520	59	-216	216
Pine Flat Res	Kings	153	387	39	1,000	15	-847	847
Isabella	Kern	62	212	29	568	11	-299	506
San Luis Res	(Offstream)	465	890	52	2,039	23	---	1,574

The latest National Weather Service Climate Prediction Center (CPC) long-range, 1-month precipitation outlook for September 2013, issued August 31, 2013, suggests no tendency for above or below average rainfall for California, except for the extreme southeastern portion of the State where slightly above average precipitation is expected.

HYDRO-CLIMATE ANALYSES

No new information this month.

REAL-TIME DATA COLLECTION NETWORK

No new information this month.

HYDROLOGIC DATA MANAGEMENT

No new information this month.

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.

HYDRAULIC ANALYSIS AND EVALUATION

In September 2013 the Hydraulic Analysis Section continued to manage the remaining hydraulic model development work under the CVFED program.

The combined riverine and overland flow hydraulic models for the Upper and Lower Sacramento River System are 89% and 83% completed, respectively; and for the Upper and Lower San Joaquin River System 60% and 88%, respectively. Following the deliveries of the ULOP 200-year Informational Floodplain Maps (SB 1278 and AB 1965) for urban communities in July 2013, we continued to respond to communities regarding model and data requests related to the maps during the month of September.

In addition, we processed nine more requests for CVFED topographic data. A total of 414 LiDAR tiles and 857 tiles of Aerial Imagery were transferred. Six of these requests were from within DWR and the other three were from outside public agencies. Approximately 143 GB of data were disseminated covering a land area of approximately 400 square miles.

FUNCTIONAL AREA 2 OPERATION AND MAINTENANCE

Operation and maintenance is a functional area under FloodSAFE established to ensure project facilities are operated and maintained in good working condition. DFM's Flood Maintenance Office (FMO) has responsibility for operation and maintenance of the Sacramento River Flood Control Project as outlined in California Water Code sections 8361 and 12878. Routine operation and maintenance is performed by the Sacramento and Sutter Maintenance Yards (Yards). Outside contractors are sometimes given responsibility for non-routine operation and maintenance. Funding from FloodSAFE has expanded the program by providing additional funding for deferred maintenance and for new projects identified through a number of inspection programs. FMO also provides funds to share costs with the federal government and with local maintaining agencies for repair projects.

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 Functional Area 2. DWR works to conduct operation and maintenance in a manner that supports public safety while protecting, and where possible, enhancing the environment. As such, environmental stewardship is integrated into 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 together and develop integrated solutions to complex environmental compliance requirements and resource opportunities as flood control maintenance activities are undertaken.

FLOOD SYSTEM PREPAREDNESS

Routine maintenance of project facilities is an essential component of Flood System Preparedness and is conducted by the Yards. Routine annual maintenance of project levees, channels, and flood control facilities begins in March and continues until the beginning of the flood season in October. The project's operation and maintenance manuals and the criteria for evaluating maintenance practices developed by the United States Army Corps of Engineers (USACE) serve as a guide for establishing maintenance practices. The Yards focus on completing all routine maintenance activities (including repair of damage caused by previous flood season's high water events) and having adequate flood fighting supplies on hand before the onset of the next flood season.

Levee Maintenance

Maintenance of levees includes: mowing levees and managing vegetation to maintain visibility and accessibility for flood fighting, filling rodent holes, inspecting and repairing pipe penetrations, keeping levee crown roads in good condition, repairing damaged gates, and repairing slumping or eroded levee sections. Levees are inspected four times per year.

- Mowing is 90% complete at Cache Creek (25 acres) and mowing is 100% complete at Willow Slough Bypass (10 acres).
- Fire guarding/spraying is 80% complete at MA9 (8 acres), 80% complete at MA4 (3 acres), 60% complete at Putah Creek (4 miles), 90% complete at Willow Slough Bypass (80 acres), 80% complete at White Slough (10 acres), and is on-going in all areas in the Sutter Maintenance Area.
- Tree trimming is 90% complete for MA9 (4 acres).

- Burning slopes are 100% complete at MA5 (20 miles), 100% complete at the East Levee of the Sutter Bypass (16 miles), 100% complete at Tisdale Bypass (8 miles), 100% complete at MA1 (3 miles), on-going at Wadsworth Canal (3 miles), 50% complete at Putah Creek (40 acres), and 90% complete at Cache Creek (180 acres).
- Rodent control is on-going in all areas maintained by the Yards.
- Grouting of rodent holes is 65% complete on Cache Creek (100 acres).
- Repairing beaver holes at the Sacramento Bypass is 100% complete (2 holes).
- Repairs of levee sloughs are 100% complete at Sacramento Bypass (5 acres) and 100% complete at the east levee of the Yolo Bypass (3 acres).
- Stump removal is 55% complete at MA9 (5 stumps).
- Crown road dragging is 10% complete on Putah Creek (5 acres), 100% complete at Willow Slough Bypass (100 acres), 100% complete at MA3 (3 miles), 100% complete at MA12 (11.21 miles), on-going at the east levee of the Sutter Bypass (5 miles), on-going at MA1 (8 miles), and on-going at MA5 (25 miles).
- Grading crown roadways is 100% complete on the east levee of the Sutter Bypass (2 miles).
- Spraying seepage ditches is on-going in the Sutter Basin (40 miles).
- Levee pipe repairs are on-going at MA5 (2 pipes).
- USACE Periodic Inspections Item #0286 – Swimming Pool Slope Stability and Seepage Analysis Report submitted to CVFPB staff for review and possible enforcement action.
- Nelson Road Culvert Replacement Emergency Repair - Environmental staff continues to work on post-construction emergency permit consultations with USACE. Permit requirements include restoring the impacted areas in the fall by seeding the area with native grass. DWR is evaluating mitigation options for impacts related to the addition of rip rap/soil mix on the bank of the overflow and removal of an alder tree.

Channel Maintenance

Channels are maintained to convey the design flood flow by removing and thinning vegetation, and by removing accumulated debris and sediment as necessary. Hydraulic models are developed and applied to analyze channel flow capacity and identify critical areas within channels where vegetation or sediment needs to be removed to maintain channel capacity. As the models are completed, channel-specific management plans are developed to support on-going maintenance activities in the channel. Approximately 20 percent of the project channels will be modeled every year with priority given to channels with suspected deficiencies and every channel will be modeled no less than every 5 years.

- Six beaver dams were removed from Cherokee Canal.
- Mowing is on-going in Tisdale Bypass (40 acres), Cherokee Canal (60 acres); 40% complete in the Cache Creek Settling Basin (30 acres), 100% complete in the Sacramento Bypass (15 acres), 100% complete in Ridge Cut (85 acres), and 100% complete at Schreiners (65 acres).
- Natomas East Main Drainage Canal (NEMDC) beaver dam removal is 95% complete (8 dams).
- Toe road repair is 100% complete in Tisdale Bypass (8 miles).
- Tree trimming is on-going at Butte Creek (25 acres).

- Debris removal is on-going in 50 miles of Sutter area seepage ditches, Little Chico Creek, and Little Chico Diversion.
- Butte Creek Hydraulic Model – Determined additional data needed for lower section of Butte Creek downstream of Colusa-Gridley Bridge. Extracted data from CVFED LiDAR data and entered in partnering agreement with DWR's Northern Region Office (NRO) for bathymetric survey of six additional cross sections.
- Cherokee Canal Hydraulic Model – Reviewing final draft of Cherokee Canal Channel evaluation report.
- Chico Area Streams Hydraulic Model – CVFED consultants have incorporated the model developed for FMO by NRO into the CVFED system wide model. The model is currently going through the QA/QC process for the CVFED model.
- Linda and Arcade Creek Hydraulic Model – No new information this month.
- Natomas Cross Channel Hydraulic Model – Extracted Natomas Cross Channel (NCC) reach from USACE Common Features model. Modeling staff met with Yard staff for a site visit to NCC to view current conditions. After the field visit, it was determined that the East Side Canal (aka Coon Creek Interceptor) needs to be included in the modeling. Incorporating additional information based on CVFED LiDAR for NCC and the East Side Canal into model.
- Natomas East Main Drainage Canal (NEMDC) – Verification Request Form (VRF) required under the existing Routine Maintenance Agreement submitted to California Fish and Wildlife. Assuming VRF is approved, vegetation management activities expected to begin first week of October.
- Putah Creek Hydraulic Model – No new information this month.
- Tisdale Bypass Hydraulic Model – No new information this month.
- Wadsworth Canal Hydraulic Model – Developing estimate of fill requirements to restore levees to design requirements.

Flood Control Facilities Maintenance

DWR operates and maintains flood control structures such as weirs, pumping plants, fish ladders, and bridges. Routine activities, such as maintaining electrical and mechanical systems, removing debris from intakes, and inspecting facilities for deterioration, are performed so the facilities are ready for operation.

- Sheer boom repair is 100% complete at Butte Slough Outfall Gates.
- Testing is on-going at Sutter Pumping Plants 1 through 3.
- Debris removal is on-going at all Sutter Pumping Plants and is 100% complete at Knights Landing outfall gates.
- Gate/barricade repair 20% complete at MA9 (10 each).
- Spraying at the Colusa Weir is 100% complete (400 acres).
- Installation of 10 in-situ chemical oxidation wells and 8 soil vapor monitoring probes associated with remediation of a dissolved petroleum hydrocarbon groundwater plume underlying the Sacramento Maintenance Yard is scheduled to begin during the week of October 21, 2013, and anticipated to be completed within 2 weeks.

Maintenance Yard Flood Season Preparedness

The Yards serve as first responders for State-operated Maintenance Areas (MA) and those areas where the State Legislature has given DWR levee maintenance responsibilities. By October, the Yards prepare for the next flood season by: restocking flood fighting supplies, conducting flood fight training that is needed for new staff, preparing schedules for high water patrolling or staking that may be conducted during the forthcoming flood season, inspecting and repairing communication equipment, and coordinating flood fighting activities with DWR's Flood Operations Center.

No new information this month.

Emergency Response

The Yards, when requested, respond to flood events as first responders in areas where they have maintenance responsibilities. They also provide support to other locally maintained areas for flood fighting when requested.

No new information this month.

CENTRAL VALLEY FLOOD PROTECTION PLAN – IMPLEMENTATION

In addition to the routine maintenance described above, FMO is using FloodSAFE bond funds to complete deferred non-routine maintenance projects (such as rehabilitation of pumping plants), and rehabilitation and repair of system facilities (such as removing accumulated channel sediment and repairing major levee and bank erosions sites). The CVFPP identified several near-term priority actions that are being implemented including: development of rural levee repair criteria, proactive erosion repair and stabilization, risk-prioritized repair of critical system problems, rehabilitation and maintenance of all-weather levee access roads, and participation in federal levee repair programs. Implementation of the rural levee projects will be consistent with the State System-wide Investment Approach (SSIA).

Levee Rehabilitation and Repair

FMO is supporting the rehabilitation and repair of levees through a variety of cost-share programs with the federal government and local maintaining agencies. A key program for providing local cost-share assistance in rural/agricultural areas is the Flood System Repair Project (FSRP) that repairs critical damage to flood control facilities. The State, in collaboration with the Central Valley Flood Protection Board (CVFPB) and members of the flood control community, is also developing the Rural Levee Repair Criteria (RLRC) to provide guidance for repairs of smaller-scale levee deficiencies in rural/agricultural areas. Once developed, these criteria may be applied to repairs conducted under the FSRP.

Small Erosion Repair Program (SERP)

No new information for this month.

Flood System Repair Project (FSRP)

- DWR is engaging the Local Maintenance Agencies (LMAs) to verify repair sites and enter into work agreements. Construction of levee repairs is anticipated to begin in summer 2014.
- Reconnaissance efforts for 2013 are nearing completion, with the intent of verifying previously identified sites and identifying new sites for repair.

Rural Levee Repair Criteria (RLRC)

The fourth meeting of the RLRC Development Work Group was held August 27, 2013.

Sacramento River Bank Protection Project

The Cache Creek North Levee Setback at LM 3.9 and 4.2 pre-construction job walk was held on August 1, 2013 with construction beginning the final week of August.

PL 84-99

No new information this month.

Channels – Corridor Management Strategy (CMS)

CMS is a concept for planning, designing, and implementing projects for flood control features that DWR has responsibility for maintaining and repairing. It incorporates DWR's environmental stewardship and sustainability policies, and involves developing a vision, strategy, and Corridor Management Plan (CMP) for managing corridors that integrate public safety, environmental stewardship, and economic stability over a long-term (greater than 30 years) planning horizon. CMPs are a foundation for securing programmatic regulatory agency approvals for on-going maintenance activities and habitat restoration. CMPs effectively support the objectives of the CVFPP and Conservation Framework in establishing an integrated management plan to reduce flood risk, improve ecosystem function, and create a more sustainable flood management system that allows for on-going operation and maintenance of flood management facilities.

Lower Feather River Corridor Management Plan (LFRCMP)

- The Geomorphic and Ecological Modeling Technical Report describing the results of low-flow modeling for stage and sediment transport at various storm recurrence intervals was completed by the CBEC consulting firm and submitted to AECOM, the primary support services contractor. This information will allow completion of Chapter 4 of the LFRCMP that describes the management actions recommendations for long-term modifications and management of the channel. Chapter 4 is due to DWR on September 9, 2013. The other remaining LFRCMP chapters are expected to be completed by the end of September.
- FMO staff has completed review of the CBEC Geomorphic and Ecological Modeling Technical Report and submitted comments to AECOM.

Willow Slough Bypass Channel Rehabilitation Project

No new information this month.

Flood Control Facilities – Rehabilitation and Repair

DWR repairs or replaces flood control structures that are part of DWR responsibilities within the Sacramento River Flood Control Project. These facilities include weirs, pumping plants, fish ladders, outfall gates, and bridges.

Butte Slough Outfall Gates (BSOG)

- In-water geotechnical exploration activities began at BSOG on September 3, 2013 and were completed on September 25, 2013. Four geotechnical borings were completed, two in the Sacramento River and two in Butte Slough channels. These borings will provide underwater soils information for future BSOG rehabilitation work.

Sutter Bypass East Borrow Canal – Weir No. 2

- In-stream construction activities at Weir 2 are scheduled to be completed by October 15, 2013, and permit extensions have been obtained. In-stream work remaining to be completed is limited to the removal of the existing weir. The remaining work to be completed on shore consists of testing of the control and communications equipment.

Pumping Plants

- Pumping Plant testing is on-going.

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.

No new information this month.

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.

No new information this month.

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.

No new information this month.

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.

No new information this month.

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.

USACE/CVFPB PROJECTS

The Central Valley Flood Protection Board (CVFPB) continues to participate with the U.S. Army Corps of Engineers (USACE) on project non-federal cost-share funding to upgrade the Central Valley's State-federal flood management.

American River Common Features (ARCF) Project

The ARCF project is improving the levee system along the American and Sacramento rivers.

- Construction is underway on sites L5A, R10, L9, L9A, and the Natomas East Main Drainage Canal (NEMDC) South, and is scheduled for completion in fiscal year (FY) 2013. R10 nighttime construction is complete.
- USACE just completed 100% design on sites R3A, L10, L7, and R7. The design for the NEMDC North Extension is at 90%.

ARCF – Natomas Basin

The Natomas Basin Project is part of the ARCF Project's General Reevaluation Report (GRR) as an ARCF Project component. The Sacramento Area Flood Control Agency (SAFCA) and DWR have spent approximately \$350 million on improvements under the Early Implementation Program's (EIP) Natomas Levee Improvement Project generally along the northern and western levees of the basin. Significant work remains along the southern and eastern boundaries of the basin to improve flood protection to modern engineering standards.

- The entire Natomas Basin Project is currently included in two separate bills under consideration in Congress. The project is identified by name for authorization in the September 11, 2013, proposal from the House of Representatives (HR 3080) that identifies federal cost at \$943,300,000, and non-federal cost at \$479,500,000 for work in the basin. SAFCA and DWR expect to apply for credit for their approximate \$350,000,000 invested to date – this credit has been approved in concept by USACE in its December 10, 2013, Chief of Engineer's letter to the Secretary of the Army. In addition, a minimum 5% cash contribution in the amount of approximately \$71,140,000 will be required of the non-federal sponsor beyond the credit amount. The Water Resources Development Act of 2013 (S.601, Boxer) passed the Senate in May 2013 and also includes authorization for projects with a Chief's Report. DWR is actively participating in the bill review and comment process through its attorneys, stakeholders, and federal advocates.

Folsom Dam Raise

The Folsom Dam Raise Project will provide flood damage reduction by increasing the reservoir storage capacity by 3.5 feet and performing structural modifications to the existing tainter gates for operational safety. In addition, improvements to the temperature shutters and ecosystem restoration along the lower American River will provide environmental benefits.

- The project is tentatively subdivided into three work packages: tainter gate improvements, dam raise, and temperature shutters and ecosystem restoration.
- The design is currently at 35% for the tainter gate improvements and is scheduled for plan review by December 2013.
- The schedule is being updated by USACE this month.
- Project delivery team meetings are occurring monthly.
- USACE, SAFCA, and DWR partners are currently working together to draft a three way project partnership agreement to be signed by the end of 2014.

Folsom Dam Modifications Joint Federal Project (JFP)

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

- Construction and Design – The status as of Aug 31, 2013, is as follows:

Phases	Planning & Design	Construction
Pre-construction Engineering and Design	100%	N/A
Phase III – Control Structure	100%	62%
Phase IV – Approach Channel, Chute, and Stilling Basin	100%	0%
Phase V – Site Restoration	16%	0%
Project Overall	90%	28%

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 operation and maintenance to the local sponsors, finalizing all accounting, and completing the final real estate documents.

- The local sponsor, Kaweah Delta Water Conservation District (KDWCD) proposed a revision to the Water Resources Reform and Development Act of 2013 (WRRDA 2013) proposed in the House of Representatives Bill 3080. KDWCD is requesting operation and maintenance (O&M) costs be clearly divided among separate project cooperation agreements for a project and its subsequent expansion project. This comes after years of disagreement between USACE and KDWCD, related to O&M costs.

Marysville Ring Levee Improvement Project

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

- Phase 1 cutoff wall construction was completed in 2012.
- Phase 4A construction award is planned for fall 2013.

- Phase 2A design is 60% complete.
- Phase 2B design will begin the summer of 2013.
- Phases 2C and 3 designs will begin the winter of 2013.

Mid-Valley Area Levee Reconstruction Project

The Sacramento River Flood Control System Evaluation – The Phase III Contract Area 3 Project is located near Knights Landing in east Yolo County, approximately 26 miles northwest of Sacramento. Contract area 3 includes levee reconstruction at sites 9, 10, and 11 planned along the Sacramento River. Sites 12, 12A, and 13 are planned along the Knights Landing Ridge Cut drainage canal.

Phase one will repair Sites 12, 12A, and 13, which will be funded by the State's EIP. USACE continues to request funding for sites 9, 10, and 11, but federal funding for construction is currently unavailable.

USACE recommends that if the non-federal sponsors wish to precede with construction in 2014, a Section 408 minor permit application is required. The Knights Landing Ridge Drainage District prepared a July 23, 2013, letter to request the State's concurrence with the Knights Landing Ridge Drainage District Board's decision to pursue a Section 408 minor permit for the project. The Division of Flood Management prepared an August 12, 2013, letter stating concurrence with the Knights Landing Ridge Drainage District Board to pursue a Section 408 minor permit for the project sites 12, 12A, and 13 to allow construction to begin in 2014. DWR realizes that the State may not receive federal credit for project work done.

South Sacramento Streams Project

The South Sacramento County Streams Project will increase the flood protection level for south Sacramento County's urbanized area 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 for Florin Creek in this area.

- Approximately 95% of construction on a 3,000-foot floodwall along Morrison Creek was completed in 2012. The remaining construction is underway and planned for completion in October 2013.
- USACE placed a hold on the Florin Creek's improvements at DWR's request. DWR and SAFCA are actively working with the City of Sacramento, utility owners, County representatives, elected officials, and the public to determine the best approach to design and construct this portion of the project. USACE met with DWR and SAFCA on September 5, 2013, to discuss options to move forward.

West Sacramento Area Project, Slip Repair

The West Sacramento Slip Repair Project was completed in 2011 and is awaiting close-out by USACE. On September 4, 2013, Flood Projects Office staff made a request to the Project Leadership Board to provide the State with a schedule to complete project closeout and final accounting as soon as possible.

CENTRAL VALLEY FLOOD PROJECTS

This element is responsible for flood projects review and federal feasibility studies cost-sharing. It contains three components: Feasibility Studies, EIP Projects, and Flood Control Projects.

EIP PROJECTS

EIP includes projects ready to proceed in advance of the Central Valley Flood Protection Plan (CVFPP). An approval element 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 (LD-1) – Setback Levee at Starbend Feather River

LD-1 constructed a 3,400-foot-long setback levee at Star Bend (RM 18.0) on the right bank of the Feather River to provide increased flood protection for Yuba City. No new information this month.

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

RD-17 levees have unacceptably low safety factors 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 flood protection level for south Stockton, Lathrop, and Manteca.

No new information this month.

Three Rivers Levee Improvement Authority (TRLIA) – Feather River

This project will result in a 200-year flood protection level for Highway 65 and 70, and will also improve flood protection for 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.

No new information this month.

TRLIA – Upper Yuba River

This project will result in a 200-year level of flood protection for Highway 65 and 70, and will also improve flood protection for Olivehurst, Linda, Plumas Lake, Marysville, and Yuba City. This project includes a portion of the Yuba River's south levee.

No new information this month.

SAFCA – Natomas Cross Canal

This Natomas Levee Improvement Program project will install cutoff walls to prevent seepage, under-seepage, and raise the levee to improve the Natomas Basin's flood protection and create a 200-year minimum flood protection level.

No new information this month.

SAFCA – Sacramento River East Levee

This Natomas Levee Improvement Program project will install cutoff walls to improve the Natomas Basin's flood protection and create a 200-year minimum flood protection level. SAFCA plans to complete components to element 12A (RM 67) along the Sacramento River and have the USACE complete the remaining work.

No new information this month.

San Joaquin Area Flood Control Agency – Smith Canal Closure Structure

The Smith Canal Closure Structure Project will construct an Obermeyer gate at the mouth of the Smith Canal on the San Joaquin River/Stockton Deep Water Ship Channel. The cost to design the structure is \$2,412,500.

No new information this month.

West Sacramento Area Flood Control Agency – North and Southport Improvement

The California Highway Patrol Academy, Rivers, and I-Street Bridge projects are part of the North Area Plan. All construction is complete for these sites. These projects correct through-seepage and foundation under-seepage that have excessive hydraulic gradients, embankment instability, and erosion problems. All three projects are designed to provide a 200-year flood protection level for about 47,000 residents.

The Southport area project is being designed and may include a large setback levee.

- CVFPB approved an action to submit a letter to USACE to begin the 408 review process on September 13, 2013.

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

FRWLP is designed to repair approximately 35 miles of levee along the west bank of the Feather River from the Thermalito Afterbay to the north end of Star Bend. The design will include slurry walls and seepage berms to protect Gridley, Biggs, Live Oak, Yuba City, and parts of Sutter and Butte counties. FRWLP's highest priority segment was identified as Project Area C. DWR has decided to pursue this project area as the first construction contract.

No new information this month.

STATEWIDE FLOOD PROGRAMS

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

YFFPP (Yuba-Feather Flood Protection Program)

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

No new information this month.

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.

- Hamilton City Setback Levee and Floodplain Expansion – The Nature Conservancy is working on completing the acquisition of three small parcels. These parcels are essential for the new setback levee alignment which would be built if federal funding is ultimately approved for this project.
- Dos Rios Hidden Ranch Acquisition – DWR management is considering the purchase of 466 acres of floodplain property which would enable the expansion of the existing Dos Rios project using FCP bond funds. The project would greatly increase transitory water storage and provide habitat for protected species. Partners in the acquisition would potentially include the FloodSAFE Environmental Stewardship and Statewide Resources Office and the Wildlife Conservation Board.
- Middle Creek Flood Damage Reduction and Ecosystem Restoration Project – During August 2013, one property was acquired using funds provided by FCP (Proposition 13), and two more acquisitions are in the process of being completed. The total number of homes purchased to date is 14 including these acquisitions. This will reduce the flood risk and the State's associated flood maintenance responsibilities and liability. FCP is providing \$12.7 million in funding to the Lake County Watershed Protection District for the acquisitions and removal of 18 residential structures from 1,600 acres within the project area. The project is part of a larger USACE and Lake County Watershed Protection District project to restore the Middle Creek floodplain to a natural wetland ecosystem, and to provide flood damage reduction.

USACE/CVFPB COST-SHARED STUDIES

The State, represented by the Central Valley Flood Protection Board, participates and provides cost-share for feasibility studies with the United States Army Corps of Engineers 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 the Natomas Cross Canal), and the Natomas Cross Canal.

- USACE held their monthly Project Review Board meeting September 10, 2013. USACE and the State continued discussions for resolving funding and process issues for moving forward with the GRR. USACE anticipates GRR funding will run out in October 2013 and will need advanced funding from the non-federal sponsors to continue. USACE and the State will need to identify a federal process and federal agreement which allows the state to move forward with the GRR in partnership with USACE. USACE suggested the non-federal sponsors begin the advanced funding of the Memorandum of Understanding which will take three months to process. USACE plans to recommend alternative 1 (repair the levees in place) as the National Economic Development plan. The non-federal sponsors would prefer Alternative 2 (includes levee raises and Sacramento Weir and Bypass improvements). The non-federal sponsors will be submitting a Locally Preferred Plan (LPP). The LPP will include the Sacramento Weir and Bypass improvements along with proposing that vegetation, landside access, and encroachments be implemented through a system wide improvement framework.

Lower San Joaquin River Feasibility Study

This study is a coordinated effort by the State, USACE, and the San Joaquin Area Flood Control Agency 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.

- USACE is sponsoring an internal peer review meeting on October 1, 2013 to brief USACE Division and Headquarters staff on the study's progress toward the milestone #2 accomplishment. Milestone #2 is reached when the tentatively selected plan is determined for further study, environmental review, and public comments. Milestone #2 is currently scheduled to be completed in April 2014.
- The project development team (PDT) study schedule is targeting a chief's report and study completion date of December 2014. As the PDT approaches milestone #2, there is a consensus at USACE that the schedule must slip several months based on their workload projections.

Merced County Streams Project-Bear Creek GRR

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

No new information this month

Rock Creek/Keefer Slough Feasibility Study

This study will generate an environmental impact statement/environmental impact report (EIS/EIR) and feasibility study to evaluate federal, State, and local interests in planning, designing, mitigating, and improving Rock Creek and Keefer Slough levee systems in Butte County.

No new information 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.

- SBFCA, DWR, USACE project and management team met on September 5, 2013, for a problem solving workshop to expedite FRWLP Section 408 permit. As a result, on September 13, 2013, USACE approved the 408 permit. This permit will allow SBFCA to construct the proposed improvements for FRWLP.
- USACE rescheduled the Civil Works Review Board (CWRB) for the study to October 22, 2013.

West Sacramento GRR

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

- USACE provided a draft amendment to the feasibility cost-share agreement that increases the overall cost of the study from \$5,700,000 to \$7,350,000. It is currently under review by the DWR legal office and will be presented at an upcoming CVFPB meeting for approval.

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.

- The PDT was recently advised that the timeline for approval of the West Stanislaus Chief's Report has moved from September 2013 to December 2013. Schedule delays are attributed to additional review periods necessary by USACE Head Quarters.

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.

No new information this month.

Woodland/Lower Cache Creek Feasibility Study

This study is a State, USACE, and the city of Woodland coordinated effort to investigate the feasible 200-year level flood protection and risk reduction alternatives and opportunities for floodplain restoration, recreational enhancements, and ecosystem restoration 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.

No new information this month

Cache Creek Settling Basin

This settling basin was initially constructed in 1937 and modifications were completed in 1993. As a part of the federal authorization for the most recent improvements completed in 1993, the project authorization specified additional improvements to be considered at year 25 or when the sediment trapping efficiency fell below 30%.

No new information this month.

Yuba River Basin Project GRR

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

No new information this month.

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 Delta habitat net loss. Additional Bay-Delta Levees Branch responsibilities are to support the levee system and habitat development; improve

Delta flood fight capability through planning, cooperative efforts, encouraging the emergency response plan development for each Delta island; and conducting necessary program studies and contract efforts.

DELTA LEVEES MAINTENANCE SUBVENTION PROGRAM

DWR staff, on behalf of 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 2012-2013.

- DWR staff mailed work agreements to 67 local agencies for signature. DWR has received signed work agreements from 65 agencies.
- The CVFPB executive officer executed 65 work agreements.
- Final claims are due November 1, 2013.

Work Agreements for FY 2013-2014.

- On September 13, 2013, the Board approved the FY 2013-14 funding plan for \$12 million dollars. Work Agreements will be drafted and mailed to the 67 local agencies for signature.
- DWR staff is working to provide additional information regarding ability to pay studies and will update the board's executive officer once the information is compiled.

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).

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 LEVEE 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: historical data collection, initial field investigation, preliminary analysis, supplemental field investigation, and 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	Draft

No.	Urban Study Area	Historic Data Collection (TRM)	Initial Field Investigations (P1GDR)	Preliminary Analyses	Supplemental Field Investigations (SGDR)	Final Analyses & Report (GER)
						complete
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	Preparing Final	In Progress
9	Woodland	Done	Done	Done	Preparing Final	In Progress
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	Done	In Progress
16	South Sac Streams	Done	N/A	Done	Preparing Final Draft	In Progress
17	RD 404	Done	Done	Done	Done	Draft complete
18	RD 17	Done	Done	Done	Done	In Progress
19	Bear Creek	Done	Done	Done	Done	In Progress
20	Calaveras River	Done	Done	Done	Done	In Progress
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. The remaining In Progress SGDR work is nearing completion.

ULE Summary

- Overall, ULE is 87% 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 was finalized in May 2012.
- Comments from the ICB following the 19th ICB meeting were received on August 20, 2013. Responses to comments were prepared and closed with ICB members. The agenda for the 20th ICB meeting, to be held on October 21 and 22, 2013, is in preparation.
- The current delivery date for completion of all GERs is planned for the end of 2014.
- Close coordination of the GER efforts and the EIP projects for RD 17 and Sutter Butte continues.

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 six 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	Final volume 1 in Progress, Draft volume 2 in preparation for ICB review
3	Colusa Drain	Done	Done	Done	Draft volume 1 Submitted to DWR
4	Colusa North	Done	Done	Done	In Progress
5	Colusa South	Done	Done	Done	In Progress
6	Gerber	Done	Done	Done	Final volume 1 in Progress, Draft volume 2 in Progress
7	Knights Landing	Done	Done	Done	Draft volume 1 complete – conversion to template underway
8	Sutter	Done	Done	Done	Draft volume 1 complete – conversion to template underway, Draft volume 2 in Progress
9	Wheatland	Done	Done	Done	In Progress
10	Woodland South	Done	Done	Done	Draft volume 1 complete – conversion to template underway
11	Ash Slough	Done	Done	Print check version under preparation	In Progress
12	Berenda Slough	Done	Done	Print check version under preparation	In Progress
13	Black Rascal/Fairfield	Done	Done	Print check version under preparation	In Progress
14	Diverting Canal/Mormon	Done	Done	Print check version under preparation	In Progress

No.	Non-Urban Study Area	Geotechnical Assessment Report (GAR)	Remedial Alternatives and Cost Estimate Report (RACER)	Geotechnical Data Report (GDR)	Geotechnical Overview Report (GOR)
15	ESB/Chowchilla	Done	Done	Print check version under preparation	In Progress
16	Fresno River	Done	Done	Print check version under preparation	In Progress
17	Gravelly Ford	Done	Done	Print check version under preparation	Final volume 1 in Progress, Draft volume 2 in Progress
18	RD 2064	Done	Done	Print check version under preparation	In Progress
19	RD 2075	Done	Done	Pre-final draft in progress	In Progress
20	RD 2095	Done	Done	Print check version under preparation	In Progress
21	SJRRP/CCID	Done	Done	Print check version under preparation	In Progress

NULE Summary

- Overall, Non-Urban Levee Evaluations are 88% 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.
- Drilling is complete.
- 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 third quarter of 2013.
- Preparation of GORs is continuing, with the current delivery dates scheduled for mid-late 2013 and early 2014.
- Preparation of GORs continued for each of the study areas. The results presented in the GORs will support FMO, regional plans, and SJRRP studies.
- Comments from the ICB following the 19th ICB meeting were received on August 20, 2013. Responses to comments were prepared and closed with ICB members. The agenda for the 20th ICB meeting, to be held on October 21 and 22, 2013, is in preparation.

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 levee 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).
- ULE and NULE data are being used to refine the breach definitions used in hydraulic modeling (e.g., width of breach based on embankment material). A Technical Memorandum describing the refinement process was completed and delivered to MWH on September 4, 2013.

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. Revisions to the previously submitted data set using updated (circa February 2013) ULE/NULE analyses have been submitted to CVFED. An addendum to the previously submitted technical memorandum was prepared.

FSRP

In support of the FSRP, NULE and ULE information is being used to perform detailed assessment of potential repair sites in 74 Leveed Areas in the Central Valley. 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. During 2012, field reconnaissance for the FSRP project was completed by eight teams comprised of a combination of DWR and contractor staff. The Field Reconnaissance Summary Reports for the Sacramento River Basin and the San Joaquin River Basin have been finalized. Pre-feasibility Cost Estimate Reports are in preparation. The report for north leveed areas was finalized. The final report for south leveed areas will be finalized by the end of September 2013. Outreach to LMAs is underway, with the first phase of outreach expected to be completed during the third quarter of 2013. To support the FSRP, NULE project information is being used to support development of the Rural Levee Repair Criteria including preparation of templates for typical repairs.

San Joaquin River Restoration Program

Task Order SJ105 is being implemented during the reporting period and draft geomorphology mapping is complete. The first phase of field explorations has been completed. Laboratory testing is nearly complete for soil samples from these explorations. Planning for the second phase of field work is under way, including a geophysical resistivity study. Analyses for areas with significant channel fill have

been completed and a summary technical memorandum was prepared. A pilot study to define the analysis approach for the remainder of the levees is being planned. Bureau (USBR) plans for agricultural seepage mitigation are being reviewed from a flood perspective.

USACE Lower San Joaquin General Reevaluation Report

- Estimating support – protocol developed for ULE/NULE levee repair cost estimating has been provided to USACE to assist their GRR program.

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/provide construction support the SBFCA Feather River West design project.

TECHNICAL POLICY SUPPORT

A statewide seismic policy was developed for levee performance, emergency levee remediation, and long-term levee remediation. Urban Levee Design Criteria (ULDC) were 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 and animal burrowing activities have on levee integrity; and to provide technical support for the development of management policies as part of the CVFPP.

Vegetation on Levees Support

For vegetation issues, 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?

Seismic Support

In addition to the static evaluation process, two seismic studies are being performed for the ULE project. The objective of the first study is to develop conceptual seismic remediation alternatives and associated costs for areas of urban 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 and a prototype seismic remediation cost/benefit study reports for the West Sacramento study area were prepared.

FloodSAFE Support

Staff participated in various FloodSAFE FAXCTs (Functional Area Cross Coordination Teams).

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 Board adopted the 2012 CVFPP 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)

RFMP is a DWR sponsored and locally led planning process to develop a long-term vision of flood management in six regions in the Central Valley. Initial elements of the RFMPs include a Regional Flood Atlas, information on Regional Flood Management Priorities, and a Regional Financial Plan. RFMPs are being coordinated with the two BWFS led by DWR. DWR staff continues to support RFMP efforts. DWR staff and SPFC Coordinators have participated in locally led workgroups and meetings to help with identifying regional problems, financial planning, flood emergency response, and small community protection strategies.

Basin-Wide Feasibility Studies (BWFS)

The two BWFS (Sacramento River Basin and San Joaquin River Basin) are being conducted to describe the State's flood management objectives in each river basin, refine the scale and location of system elements in connection with regional improvements in the SSIA, inform development of the CVFPP financing plan, and integrate a system-wide environmental conservation strategy.

Technical Evaluations

The Central Valley Flood Planning Office (CVFPO) continues work on a number of tasks to support the Sacramento River and San Joaquin River Basin-wide Feasibility Studies. Some of these tasks include assessing potential bypass system modifications to the State Plan of Flood Control (SPFC) to improve flood conveyance, and developing an economic analysis procedure for flood management studies.

Flood Planning Activities

- CVFPO staff continues coordinating with the USACE.
- The Urban Level of Flood Protection (ULOP) Criteria Refinement Work Group discussed final revisions to the criteria at the work group meeting on September 20th in West Sacramento.
- DWR sent out save the date announcements on September 11th to the Central Valley Flood Management Planning email list for the upcoming 2-day Technical Workshop #2 on October 23-24. The workshop will focus on tools and data being used to develop measurable objectives for flood management and ecosystem functions.

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.

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.

Basin-Wide Feasibility Studies and Conservation Strategy coordination

- DWR Technical Workshop: Tools and Data for Measuring Progress Towards Achieving the Basin-Wide Feasibility Studies and Conservation Strategy Objectives - Staff are working closely with CVFPO staff to prepare for this two-day technical workshop on Wednesday, October 23 and Thursday, October 24. During the workshop, DWR will provide an update on the status of measurable objectives and how input from the May 2, 2013 technical workshop was incorporated. DWR will present the proposed tools, data, and methodologies that will be used to measure progress towards achieving BWFS and CS objectives, regional subject-matter experts will highlight local/regional applications of data and tools, and workshop participants will provide technical input on the application and proposed methodology. DWR will also share some preliminary analysis of individual system elements from the Sacramento River BWFS and highlight how some of these tools and data were used in the analysis.

Regional Flood Management Planning

- Regional Flood Management Plan (RFMP) Environmental Support Staff are attending the RFMP meetings and assisting participants with information about the Conservation Strategy, environmental problems in the flood system, and available environmental data useful for RFMP planning.
- Upper/Mid Sacramento RFMP Marc Hoshovsky briefed the RFMP Steering Committee in Colusa about the Conservation Strategy. Approximately 50 people attended who had several questions and suggestions. The presentation was well received.

Advance Mitigation Projects

Staff are working on seven advanced mitigation projects throughout the CVFPP planning area. These are in varying levels of development, internal review, and consultation with regulatory agencies and project proponents. The projects that are furthest along towards full funding agreements are the Grasslands Giant Garter Snake mitigation bank and Hidden Valley Ranch.

Implementation of the Safe Harbor Agreement / Voluntary Local Program

Staff and contractors are conducting substantial outreach for the developing Safe Harbor Agreement program on the Sacramento River. They have closely coordinated with the Sacramento River Conservation Area Forum Board of Directors, consulted with CDFW's related Voluntary Local Program and met with several other stakeholders and interested landowners. They will use the upcoming November conference of the California Association of Resource Conservation Districts in Napa to publicize. They are also working with USDA Natural Resources Conservation Service staff to coordinate this program with Farm Bill programs and conduct outreach to local RCDs adjacent to the Sacramento River.

Agricultural Land Stewardship Strategies

DWR is making good progress in a Department-wide effort to identify key strategies for improving agricultural land stewardship in areas potentially affected by DWR activities. Staff has been working with multiple DWR divisions and programs, the California Department of Conservation, and the Delta Conservancy to refine these strategies.

Vegetation Management

FESSRO and DFM have been working closely on several levee vegetation topics. They are collaborating to lead the California Levee Vegetation Research Program, consolidating research findings on levee vegetation into a Synthesis Report, and developing (1) a protocol for identifying and remediating trees that pose an unacceptable threat to levee safety for DWR's vegetation management strategy.

Floodplains Ecology Institute

Staff received a draft summary from the Chico Floodplain Ecology Institute. Thirty-one Northern California educators were informed about the importance of floodplains, rivers, and corresponding ecosystems. The goal is for participants to be able to inform hundreds of California's students and their families, year after year, about the importance of floodplains and rivers.

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.