REPORT OF ACTIVITIES
OF THE
DEPARTMENT OF WATER RESOURCES

By

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**Prepared for the Central Valley Flood Protection Board Meeting – April 27, 2018.*

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FLOOD EMERGENCY RESPONSE (FER)

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

REAL-TIME FLOOD CONDITIONS, STATUS, & WARNING

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

The Flood Projects Inspection Section held its quarterly Local Maintaining Agency coordination meeting on March 8, and inspection staff are actively performing spring levee inspections.

HYDRO-CLIMATE DATA COLLECTION & PRECIPITATION/RUNOFF FORECASTING

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

The statewide May snow surveying efforts will begin on April 24 and conclude on May 3. These will be the final manual snow survey measurements for the 2018 winter season.

The Snow Surveys Section Chief will be representing the Department at an Airborne Snow Observatory (ASO) booth at the Spring Association of California Water Agencies (ACWA) Conference on May 8-10 in Sacramento.

The State Climatologist:

- Participated at a National Aeronautics and Space Administration (NASA) Western Water Applications Office (WWAO) workshop to discuss opportunities for earth observations supporting water management in the west, where they developed potential case studies for NASA Jet Propulsion Laboratory (JPL) teams to explore when designing new missions or developing projects with partners.
- Participated in a Department of the Interior Climate Science Center project update on research into snow droughts.

- Continued efforts to work through the documentation to set up the sub-seasonal to seasonal forecast work team, that includes members from the National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Center and the Earth Systems Research Laboratory.
- Continued to work with the USACE/DWR team on a vulnerability assessment and management with uncertainty in Central Valley Floods; the team is headed by John Kucharski at the Hydrologic Engineering Center (HEC).
- Collaborated on three proposals going to NASA for forecasting and decision support for water management in the west; worked with the 3 teams (UC Davis, UCLA, and UC San Diego Scripps Institution of Oceanography (SIO)) in the development of their ideas and concepts.
- Reviewed material from USACE with respect to the Forecast Informed Reservoir Operations project at Lake Mendocino
- Worked with Hydrology and Flood Operations Office staff supporting forecasting and observations associated with the early April atmospheric river.

Water Supply:
The April 1 Bulletin 120 was issued on Monday, April 9. The projected median April-July (AJ) runoff ranges from 37 percent on the Tule River to 79 percent for the Inflow to Lake Shasta and Tuolumne River.

The latest update of the Bulletin 120 was issued Thursday, April 12 and includes the snow and precipitation from the early April atmospheric river that impacted the state and caused high runoff from Sierra Nevada streams. For the rivers included in this forecast, the projected median April-July (AJ) runoff ranges from 44% on the Tule River to 97% on the American River. The Feather River at Oroville forecast is now at 81%, or about a 17% increase since April 1.

The April 1 Water Supply Index (WSI) forecast is based on precipitation and flows observed through March 2018 and can be summarized as follows:

Sacramento River Unimpaired Runoff Water Year Forecast (50 percent exceedance)	12.1 MAF (68 percent of average)
Sacramento Valley Index (SVI) (50 percent exceedance)	6.9 (Below Normal)
San Joaquin Valley Index (SJI) (75 percent exceedance)	2.7 (Below Normal)

Runoff:
With the barrage of storms throughout March, runoff is now flowing above average for March for the majority of rivers in the Sierra Nevada. Rivers from the Feather through the Kings are flowing well above average, with the American, Tuolumne, and Merced rivers each flowing above 165 percent of average for the month to date.

Precipitation:
Precipitation for the 2017-2018 water year has accumulated at the rates of average shown in the table below.

Region/Index	WY-to-date precipitation as a percent of average (inches) through April 9, 2018	Month-to-date precipitation as a percent of month total (inches) through April 9, 2018
Northern Sierra 8-Station Index	83 (37.1 inches)	84 (3.2 inches)
San Joaquin 5-Station Index	83 (28.5 inches)	80 (2.8 inches)
Tulare Basin 6-Station Index	67 (16.7 inches)	68 (1.7 inches)

The 12.6 inches of precipitation measured during March in the Northern Sierra 8-Station Index ranks as the 13th wettest total over the entire record of the 8-Station Index dating back to 1921. The 15.3 inches of precipitation measured during March in the San Joaquin 5-Station Index ranks as the 4th wettest total over the entire record of the 5-Station Index dating back to 1913. The 9.8 inches of precipitation measured during March in the Tulare Basin 6-Station Index ranks as the 8th wettest total over the entire record of the 6-Station Index dating back to 1922.

Snowpack:
The results of the April 1, 2018 statewide snow surveys are as follows:

Region	No. Courses Measured	Average WC (inches)	% Average April 1
North Coast	18	9.9	35
Sacramento	79	15.3	56
San Joaquin Valley	71	20.7	66
Tulare Lake	41	13.9	54
North Lahontan	17	18.7	72
South Lahontan	19	15.0	68
Statewide Average (weighted)			58

Water Conditions:
As of March 31, 2018, statewide hydrologic conditions were as follows: precipitation, 70 percent of average to date; runoff, 60 percent of average to date; and reservoir storage, 105 percent of average to date.

Sacramento River Region unimpaired runoff, for Water Year 2018, observed through March 31, 2018, was about 7.0 million acre-feet (MAF), which is about 65 percent of average. In comparison to Water Year 2017, the observed Sacramento River Region unimpaired runoff through March 31, 2017, was about 26.1 MAF, or about 243 percent of average. San Joaquin River Region unimpaired runoff, for Water Year 2018, observed through March 31, 2018 was about 2.1 MAF, which is about 84 percent of average. In comparison to Water Year 2017, the observed San Joaquin River Region unimpaired runoff through March 31, 2017 was about 8.6 MAF, or about 350 percent of average.

Tulare Lake Region unimpaired runoff, for Water Year 2018, observed through March 31, 2018, was about 0.6 MAF, which is about 67 percent of average. In comparison to Water Year 2017, the observed Tulare Lake Region unimpaired runoff through March 31, 2017 was about 2.5 MAF, or about 284 percent of average.

Daily Precipitation (in inches) for Selected Stations as of 03/31/2018

Station	Water Year 2018 to Mar 31, 2018	% Average	Water Year 2017 to Mar 31, 2017	% Average	WY 2018% of Avg Water Year (Oct 1 – Sep 30)
Mount Shasta	14.73	41	49.41	138	34
Eureka	29.54	88	45.08	135	73
Redding	14.52	51	40.81	142	42
South Lake Tahoe	15.40	95	41.93	260	76
Sacramento Executive Airport	12.47	77	29.90	185	67
Santa Rosa (Sonoma Co AP)	19.76	61	53.32	166	54
San Francisco	13.46	64	29.69	141	57
Stockton	7.37	61	19.66	162	52
Yosemite	22.86	72	67.88	215	60
Monterey	10.66	75	22.81	161	66
Paso Robles	9.15	80	13.10	114	72
Fresno	6.09	63	13.66	141	53
Bakersfield	3.73	67	7.39	133	58
Death Valley	0.62	35	1.28	73	26
Los Angeles	4.47	33	17.46	130	30
Riverside	3.59	33	11.77	109	29
Palm Springs	1.69	38	6.96	155	29
San Diego	3.18	35	11.66	127	31

Key Reservoir Storage (1,000 AF) as of 03/31/2018

Reservoir	River	Storage	Avg Storage	% Average	Capacity	% Capacity	Flood Control Encroachment	Total Space Available
Trinity Lake	Trinity	1,844	1,927	96	2,448	75	---	604
Shasta Lake	Sacramento	3,880	3,691	105	4,552	85	-607	672
Lake Oroville	Feather	2,093	2,696	78	3,538	59	-948	1,445
New Bullards Bar Res	Yuba	868	701	124	966	90	69	98
Folsom Lake	American	817	628	130	977	84	133	160
New Melones Res	Stanislaus	2,019	1,510	134	2,400	84	49	401
Don Pedro Res	Tuolumne	1,785	1,483	120	2,030	88	95	245
Lake McClure	Merced	825	565	146	1,025	81	86	200
Millerton Lake	San Joaquin	406	366	111	520	78	-115	114
Pine Flat Res	Kings	660	564	117	1,000	66	-255	340
Isabella	Kern	196	201	98	568	35	-165	372
San Luis Res	(Offstream)	1,774	1,846	96	2,041	87	---	265

The latest National Weather Service Climate Prediction Center (CPC) long-range, 1-month precipitation outlook for April 2018, issued March 31, 2018, suggests above-average precipitation for Northern California, average precipitation for Central California, and below-average precipitation for Southern California.

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.

Conditions of Central Valley and Russian River Flood Control Reservoirs

Reservoir Name	CDEC ID	Capacity (AF)	Storage on 04/12/2018 (AF)	% of Capacity	TOC on 04/12/2018	Enchroached? (AF)	River Release Source	Current River Release (CFS)
SONOMA(WARM SPRINGS)	WRS	381,000	228,569	60%	245,000		WRS	75
MENDOCINO (COYOTE)	COY	122,400	82,994	68%	86,400		COY	30
SHASTA	SHA	4,552,000	4,079,212	90%	4,552,100		**KES**	3,250
OROVILLE	ORO	3,537,577	2,242,125	63%	**2,550,000**		ORO	5,000
NEW BULLARDS BAR	BUL	966,000	884,518	92%	839,333	**45,185**	BUL	3,300
FOLSOM	FOL	977,000	773,207	79%	706,577	**66,630**	**NAT**	5,000*
INDIAN VALLEY	INV	300,000	246,728	82%	275,665		INV	3
BLACK BUTTE	BLB	143,700	72,468	50%	112,883		BLB	30
CAMANCHE	CMN	417,120	348,100	83%	329,241	18,859	CMN	1,305
NEW HOGAN	NHG	317,000	219,403	69%	246,417		NHG	22
NEW MELONES	NML	2,400,000	2,057,828	86%	2,113,750		**GDW**	1,500
DON PEDRO	DNP	2,030,000	1,817,583	90%	1,690,000	127,583	**LGR**	3,100
MC CLURE (NEW EXCHEQUER)	EXC	1,024,600	821,332	80%	*746,883*	74,449	**MBH**	1,740
EASTMAN (BUCHANAN)	BUC	150,000	119,682	80%	129,744		BUC	2
HENSLEY (HIDDEN)	HID	90,000	42,155	47%	64,218		HID	2
MILLERTON (FRIANT)	MIL	520,500	477,087	92%	520,500		MIL	350
PINE FLAT	PNF	1,000,000	807,411	81%	949,773		PNF	480
KAWEAH (TERMINUS)	TRM	185,600	121,423	65%	71,071	50,352	TRM	15
SUCCESS	SCC	82,300	45,506	55%	55,879	10,373	SCC	0
ISABELLA	ISB	568,000	227,232	40%	361,250		ISB	411
"Enhanced Flood Pool Target" for April			*Target River Release					
Deviation approved by USACE								

The basins above the Central Valley flood control reservoirs received more than 150% of average precipitation in the month of March. The runoffs from these March along with the early April storms led to flood releases out of both Sacramento and San Joaquin Valley reservoirs. Over a dozen forecast points exceeded their monitor or flood stages. Flood releases peaked in the first

week of April and are currently receding with the current dry conditions and forecast.
On February 28, the management team represented by the U.S. Army Corps of Engineers (USACE), Yuba County Water Agency (YCWA), and the Divisions of Operations and Maintenance (O&M) and Flood Management met to discuss the Water Control Manual (WCM) update for Lake Oroville and New Bullards Bar Reservoir. YCWA proposed a plan to increase its lower outlet capacity. O&M initiated a Comprehensive Needs Assessment study for Lake Oroville. The team will continue to work together to develop a framework for the WCM update and tackle challenges including USACE participation funding, potential environmental considerations, and the application of Forecast-Informed Operations for Lake Oroville and New Bullards Bar Reservoir.

On April 4, the Yuba-Feather Forecast-Coordinated Operations (F-CO) Program held its quarterly meeting. Participants included the U.S. Army Corps of Engineers (USACE), National Weather Service CA-NV River Forecast Center (CNRFC), Yuba County Water Agency, and DWR's Divisions of Flood Management and Operations & Maintenance. The discussion included the development of the decision process for application of Forecast-Informed Operations for Lake Oroville and New Bullards Bar Reservoir. The team determined the need to have an October 2018 functional flood exercise that applies use of the ensemble mode of the HEC Res-Sim reservoir model.

On April 11, the San Joaquin F-CO Program held its first quarterly meeting in 2018. Participants included the USACE, CNRFC, DWR, and reservoir operators of Don Pedro, New Exchequer, Friant, and Pine Flat. Discussions included 1) the current operations and flood releases due to the early April storms, 2) comments and support for a Letter of Intent to be signed by San Joaquin F-CO partners, and 3) initiating a plan for an F-CO summit in Fall 2018. DWR provided an update of the snowmelt forecast, and the CRNFC presented a review of the latest atmospheric river storm event that hit California. DWR demonstrated the latest version the San Joaquin F-CO Decision Support System, which was well received by the F-CO partners.

FLOOD EMERGENCY PREPAREDNESS & OPERATIONS

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

Staff continued to update the FERIX website to include the Emergency Operations Plans and Contingency Maps developed from the Flood Emergency Response Grant projects.

Staff continued to develop inundation maps and an emergency action plan (EAP) for the Board-owned Chester Diversion Dam in Plumas County. The maps and EAP will be submitted to the Division of Safety of Dams and Cal OES by January 1, 2019. Staff gave a presentation about the project at the January Board meeting. Staff met with Plumas County on March 27 to conduct a site visit and discuss the project.

Staff completed improvements to the Delta Emergency Response Tool which gives DWR the ability to quickly assess potential impacts of flooding in the Delta and optimize response actions. Staff continued to evaluate response strategies to multiple-island breach scenarios and document recommendations in the Delta Flood Emergency Management Plan: Supplement C. Staff gave a presentation about the project at the February Board meeting.

Staff continued to make improvements to the Flood Emergency Management System (FEMS) which is used by the Flood Operations Center staff to manage incidents, track resources and requests, and develop status reports and action plans.

Staff conducted the quarterly meeting of the Yuba-Feather Working Group in Butte County with flood emergency response agencies responsible for the Yuba-Feather region. Agenda topics included updates on construction at Oroville Dam and flood fight materials and resources.

Flood Emergency Response Grants

Statewide Flood Emergency Response Grants - Round 1
Staff continued to manage two grant contracts with local agencies to improve their flood emergency response capabilities. The two grantees are currently working on final invoices and closeout reports. The deliverables from the completed grant projects include emergency operations plans, flood contingency maps, decision support tools, communications equipment, flood fight supplies, and enhanced early warning systems.

Flood Operations Center (FOC) staff presented on FOC procedures for flood risks at the CalOES Continuity Planners Workshop on March 7. Also on March 7, FOC staff conducted its first quarterly meeting of 2018 of the Yuba-Feather Working Group in Butte County with flood emergency response agencies responsible for the Yuba-Feather region. Agenda topics included updates on the construction at Oroville Dam and flood fight materials and resources.

Flood Operations Branch (FOB) staff held the 2018 First Quarter Delta Working Group Meeting on March 28 in Stockton. Topics discussed at the meeting included operational area and partner agency current events and project status, Delta Emergency Response Grant status, the Delta Emergency Response Tool, and a presentation on the Small Communities Grant Program from Flood Projects Office. Following the meeting, FOB staff hosted a tour of its Emergency Material Transfer Facility located on West Weber Avenue in Stockton. Tour attendees included Deputy Director of Security and Emergency Management Program, Christy Jones, and two members of the US Army Corp of Engineers, John Beldin-Quinones and Michael Krehely.

FLOOD MANAGEMENT PLANNING (FMP)

FMP formulates strategies, plans, and investment priorities for implementation of flood management projects and development of flood risk management policy. It includes the Statewide Flood Management Planning Program which developed California's Flood Future: Recommendations for managing the state's flood risk (California's Flood Future) and the

Central Valley Flood Management Planning Program, and which developed the 2012 Central Valley Flood Protection Plan (CVFPP) and 2017 CVFPP Update.

STATEWIDE INTEGRATED FLOOD MANAGEMENT PLANNING

Statewide Integrated Flood Management Planning (SIFMP) is working on identifying flood risks facing Californians statewide and determining state investment levels required to achieve the intended outcomes necessary to progress the state's flood management system towards sustainability. In 2013, the SIFMP presented recommendations to improve flood management in a comprehensive report titled ***California's Flood Future: Recommendations for Managing the State's Flood Risk*** *(Flood Future Report). The report was produced working jointly with USACE and more than 140 public agencies and presented comprehensive information about exposure to flood risk in each of California's counties, and about specific projects and associated costs that local agencies are planning to implement to reduce flood risks to their communities. Information developed for "California's Flood Future" was used to create flood management content and recommended flood related risk reduction management actions presented in the "California Water Plan Update", published in October 2013. Currently, the SIFMP is developing a document titled* ***Investing in California's Flood Future: An Outcome Driven Approach to Flood Management****, which builds on the information from the Flood Future Report. The SIFMP is also assisting in the development of the 2018 Update of the California Water Plan (CWP).*

Investing in California's Flood Future: An Outcome Driven Approach to Flood Management

- SIFMP staff is working on developing the report, highlights, and accompanying technical attachments, which is anticipated to be released in June 2018.

California Water Plan, Update 2018

- SIFMP staff is assisting California Water Plan (CWP) staff in developing the Funding Plan (Chapter 4) and the Policy Recommendations for the CWP, with the Public Review Draft scheduled for release in May 2018.

CENTRAL VALLEY FLOOD MANAGEMENT PLANNING (CVFMP)

The CVFMP focuses on working with stakeholders to formulate plans for reducing flood risk and increasing the resiliency of the State Plan of Flood Control (SPFC). In August 2017, the Board adopted the first five-year update, as required by the California Water Code (CWC).

2022 Update to 2012 Central Valley Flood Protection Plan

- The 2017 CVFPP Update prepared by DWR is complete.
- DWR and Board staff are coordinating on developing the scope of the 2022 Update to the 2012 CVFPP.
- Work is ongoing on development of a CVFPP performance tracking framework.
- Planning staff is coordinating with local partners on studies involving Little Egbert Tract and Paradise Cut Bypass.

Supplemental Program EIR for 2022 Update to 2012 Central Valley Flood Protection Plan

- On August 4, 2017, DWR certified the Final Supplemental Program Environmental Impact Report on the 2017 CVFPP Update.

Technical Services:

- No new information this month.

CONSERVATION STRATEGY

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

- The 2016 Conservation Strategy is complete.

FLOODPLAIN RISK MANAGEMENT (FRM)

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

Floodplain Management Assistance

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

- April 10, 2018, Floodplain Management Assistance Section (FPMAS) staff will be conducting a FEMA National Flood Insurance Program (NFIP) workshop entitled "Floodplain Management and Duties of the Local Administrator" in Yreka, CA.
- April 12, 2018, FPMAS staff will be conducting a FEMA NFIP workshop, "FEMA Elevation Certificate" in Eureka, CA.

FLOOD RISK REDUCTION PROJECTS (FRRP)

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

DELTA LEVEE SYSTEM INTEGRITY (DLSI)

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

Delta Levees Maintenance Subvention Program

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

- Subventions Program FY 2014-15 – No new information this month.
- Subventions Program FY 2015-16 – No new information this month.
- Subventions Program FY 2016-17 – Sixty-seven final claims were received. Forty final claims for $4.0 million are being processed for reimbursement.
- Subventions Program FY 2017-18 – Seventy-two applications were received and reviewed. The CVFPB approved $12M for the FY 2017-2018 Funding Plan on June 23, 2017. Fifty-five work agreements have been executed.
- Subventions Program FY 2018-19 – Applications due April 1, 2018.

USACE/CVFPB PROJECTS

The Central Valley Flood Protection Board (CVFPB), along with local agencies where applicable, participates with USACE to ensure that state flood management needs and mandates are met, and provides its required non-federal cost share funds and technical assistance to repair or upgrade the Central Valley's flood management systems. These congressionally authorized SPFC projects are being constructed to improve flood protection for urban or urbanizing areas; reduce flood risk in rural areas; reduce the risk to life, infrastructure, and property; and reduce the state's liability.

The following are ongoing USACE/CVFPB projects:

American River Watershed Project - Common Features (WRDA 96/99 Sites)

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

- No new information this month.

American River Watershed Project – Natomas Basin

The Natomas Basin Project was authorized in the 2014 Water Resources Reform and Development Act. It includes significant improvements to the Natomas Basin levees resulting in a minimum of 100-year level of flood protection for the basin. This project in combination with other projects will provide the Natomas Basin with 200-year level flood protection.

- USACE provided partners the 60% Plans and Specifications submittal for the Reach B Riverside Canal relocation on March 12, 2018. Comments were provided to USACE on March 27, 2018.
- Reach D bid opening was held on March 29, 2018. The base of the contract is the Vestal Drain relocation with options for the pump station work, dependent on Federal funding.

American River Watershed Project – WRDA 2016

This project consists of the design and construction of levee improvement measures to address seepage, stability, erosion and overtopping concerns identified for the Sacramento River, Natomas East Main Drainage Canal (NEMDC), Arcade Creek, and Magpie Creek as well as erosion measures for specific locations along the American river, as well as to widen the Sacramento Weir and Bypass.

- No new information for this month.

Folsom Dam Modifications Joint Federal Project (JFP)

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

Post Construction status as of March 30th, 2018, is as follows:

- USACE has completed project commissioning of the control structure, and additional work on warrantee items such as the HVOF cylinder coating will continue. Additionally, USACE has retained a contractor to complete project punch list items such as reseeding and storm drainage restoration through 2019.

Folsom Dam Raise Project

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 Folsom Dam tainter gates for operational safety.

- USACE has sent the Pre-Engineering Design (PED) of dikes #7 & 8, Left Wing Dam, and Right Wing Dam, out for bid to A/E firms. The bids are due May 1, 2018.
- DWR, SAFCA and USACE are coordinating the language and schedule for the project PPA, LPPA, and PPA Addendum in order to meet the USACE funding constraints for 2019 Workplan funds.
- DWR provided an informational presentation for the project's CEQA documentation at the March 27, 2018, CVFPB meeting, and is asking for certification of CEQA at the April 27, 2018, Board meeting.

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

The Lake Kaweah Enlargement Project was completed in 2006, and is near the closeout phase.

- No new information this month.

Marysville Ring Levee Improvement Project

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

- On March 23, 2018, an informational briefing was provided to the Central Valley Flood Protection Board. The briefing covered environmental compliance work conducted in Phases 2A South and 2C of the project. DWR will request the CVFPB certify the Supplemental EA/IS and adopt the Statement of Findings, Supplement to the Mitigation and Monitoring Plan, and Mitigated Negative Declaration for Phases 2A South and 2C of the project at the regular board meeting on April 27, 2018.

South Sacramento County Streams Project

The South Sacramento County Streams Project will increase the flood protection level for south Sacramento County's urbanized area and areas to the south and east of the city of Sacramento.

- USACE and non-federal sponsors are working together to address and close the comments made on the draft O&M manual for South Sacramento County Streams Project.

Sutter Basin Preconstruction Engineering and Design (PED)

The Preconstruction Engineering and Design (PED) phase is for the design of the remaining portions of the federal project, authorized in the Water Resources Reform and Development Act of 2014 and modified in the Water Resources Development Act of 2016 that have not been already implemented by the Sutter Butte Flood Control Agency (SBFCA) and DWR through DWR's Early Implementation and Urban Flood Risk Reduction Programs.

- DWR, SBFCA and USACE are coordinating the language and schedule for the project PPA and LPPA, in order to meet the USACE funding constraints for 2019 Workplan Funds, pending successful receipt of a Construction New Start.

USACE/CVFPB Studies

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

The following are USACE/CVFPB studies:

Cache Creek Settling Basin Project GRR

This settling basin was initially constructed in 1937 and modifications were completed in 1993. As part of the federal authorization for the 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 percent.

- No new information this month.

Central Valley Integrated Flood Management Study (CVIFMS)

This Watershed Study identifies federal interest in the Sacramento River Basin by identifying opportunities to reduce flood risk and protect floodplain and environmental assets. The CVIFMS Watershed Plan, the final report of the study, will serve as a Federal companion document to the state's Central Valley Flood Protection Plan once approved by the Assistant Secretary of the Army for Civil Works.

- No new information this month.

Lower San Joaquin River Feasibility Study (LSJRFS)

The LSJRFS will evaluate feasible flood risk reduction alternatives focused in the city of Stockton and vicinity, identify a project having federal interest that is consistent with the Central Valley Flood Protection Plan and complete a Final Chief's Report.

- No new information this month.

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.

Sacramento River GRR

The GRR will evaluate flood risk reduction alternatives within the Sacramento River Flood Control Project area, identify a project having federal interest that is consistent with the Central Valley Flood Protection Plan and complete a Final Chief's Report.

- At the February Board meeting, USACE recommended that the GRR be placed on inactive status.

Success Reservoir Enlargement Project (SREP) GRR

The Success Reservoir is a multi-purpose facility built to provide flood control, water supply, and recreation. USACE and the non-Federal sponsors intend to move forward with improvements which are intended to provide improved flood risk reduction, water supply, and recreation improvements. The enlargement project will add additional storage for water supply, increased flood protection, and improve dam safety.

- No new information this month.

Woodland/Lower Cache Creek Feasibility Study

This study is a USACE, state, and 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.

- 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. The study is currently on hold.

- No new information this month.

URBAN FLOOD RISK REDUCTION PROGRAM (UFRR)

*This program was created to address state investment priorities as a result of the adoption of the Central Valley Flood Protection Plan (CVFPP). UFRR supports implementation of regional flood damage reduction projects for urban and urbanizing areas protected by SPFC facilities in the Sacramento-San Joaquin Valley to achieve at least a 200-year level of flood protection. UFRR provides cost share funding to local agencies to repair and improve levees of SPFC facilities. UFRR is based on competitively awarded and directed funding. Projects must be multi-benefit flood projects consistent with the CVFPP and State Systemwide Investment Approach. The program evolved from the **Early Implementation Program (EIP)** developed in 2007 in response to the passage of Propositions 1E and 84. The following are EIP and UFRR projects.*

Knights Landing Levee Repair Project (EIP)

This project repaired 3.4 miles of levee along the left (east) bank of the Knights Landing Ridge Cutback to the USACE 1957 Design Profile.

- No new information this month.

Lathrop Study and Preliminary Design (UFRR)

This project has a long-term plan to fully comply with SB5 requirements, which is well beyond the RD-17 seepage project funded under EIP. The state is requiring the area to regain federal interest and meet the Central Valley Flood Protection Plan requirements, which will require looking at floodplain development and a multi-benefit project.

- No new information this month.

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

RD-17 levees have 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.

Sacramento Area Flood Control Agency (SAFCA) – Levee Accreditation Project (LAP)

SAFCA proposes levee improvements along 3-4 miles of levees along Arcade Creek and NEMDC in the Sacramento North area and 5-6 miles of levees along the Sacramento River between downtown and the town of Freeport. Improvements are required to meet requirements under the Urban Levee Design Criteria Program (ULDC) and FEMA standards.

- No new information for this month.

SAFCA – Natomas Cross Canal Project (EIP)
This Natomas Levee Improvement Program project installed 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 for this month.

SAFCA – Sacramento River East Levee Project (EIP)
This Natomas Levee Improvement Program project installed 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. SAFCA completed components to element 12A (RM 67) along the Sacramento River and USACE will complete the remaining work.

- No new information for this month.

San Joaquin Area Flood Control Agency (SJAFCA) – Smith Canal Closure Structure Project (EIP & UFRR)
The Smith Canal Closure Project will construct a miter gate at the mouth of the Smith Canal on the San Joaquin River/Stockton Deep Water Ship Channel to provide a 100-year level of flood protection and meet ULDC requirements for 200-year flood protection to a portion of the city of Stockton.

- No new information for this month.

Sutter Butte Flood Control Agency (SBFCA) – Feather River West Levee Project (FRWLP) (EIP & UFRR)
FRWLP repairs approximately 35 miles of levees along the west bank of the Feather River from the Thermalito Afterbay to the north end of Star Bend. This project includes construction of slurry walls and seepage berms to protect Gridley, Biggs, Live Oak, Yuba City, and parts of Sutter and Butte counties.

- A final walk-through on the Project Area C cutoff wall gaps construction contract was completed on April 2, 2018. SBFCA anticipates delivery of a Project Completion Report by the end of April 2018.
- Construction of slurry walls and levee work on the Reach 14-16 Emergency Project (Area C in Yuba City) are complete, with final stages of levee crown road resurfacing, bike trail paving, and Gilsizer Slough pipe crossings under construction.

Three Rivers Levee Improvement Authority (TRLIA) – 200-year Goldfields Levee Project (UFRR)
This project proposes to construct a new levee south of the Goldfields (Yuba River) area to complete 200-year flood protection for the Yuba Basin east of the Feather River.

- No new information for this month

TRLIA – Feather River Levee Improvement Project **(EIP)**
This project resulted in a 200-year flood protection from the Yuba River for Highway 65 and 70,

and also improved flood protection from the Feather River 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 1,760 acres for on-site mitigation, agricultural use, and habitat.

- No new information this month.

TRLIA – Upper Yuba River Levee Improvement Project (EIP)

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 a portion of the Yuba River's south levee, as well as 200-year improvements to the Western Pacific Interceptor Canal.

- No new information this month.

West Sacramento Area Flood Control Agency (WSAFCA) – Design (EIP)

Design agreement funded all design activities for project elements in the North basin and majority of the project design in Southport.

- No new information this month.

West Sacramento Area Flood Control Agency (WSAFCA) – Construction (EIP & UFRR)

Construction of the California Highway Patrol Academy, Rivers, and I-Street Bridge projects in the north basin is complete. These projects corrected through-seepage and foundation under-seepage that had excessive hydraulic gradients, embankment instability, and erosion problems. The Southport Improvement Project will construct flood risk reduction measures along approximately 5.6 miles of the Sacramento River right (west) bank levee. The project consists of approximately 1.6 miles of strengthen-in-place measures and 4 miles of setback levee. For setback levee areas, the work will include the breaching and degrading of the existing levee and allow for natural restoration of the Sacramento River floodplain.

- No new information this month.

Woodland Study and Preliminary Design (UFRR)

This project's long-term objective is to provide flood protection to the city of Woodland while improving flood system elements in Yolo County. The state is requiring the city to continue to work with USACE to determine federal interest in the project and to meet Central Valley Flood Protection Plan requirements. The city is working to develop a multi-benefit project which will consider deep floodplain development, existing maintenance issues, and residual risk measures.

- No new information this month.

SMALL COMMUNITIES FLOOD RISK REDUCTION PROGRAM

The Small Communities Flood Risk Reduction (SCFRR) Program was created as a result of the adoption of the 2012 Central Valley Flood Protection Plan (CVFPP). The SCFRR Program objective is to reduce flood risks for small communities protected by the State Plan of Flood Control (SPFC) facilities. Small communities are defined as developed areas with between 200 and 10,000 residents, as described in the CVFPP. The SCFRR Program supports the continued viability of small communities within the SPFC Planning Area to preserve cultural and historical continuity and

important social, economic, and public services to rural-agricultural populations, agricultural enterprises, and commercial operations.

- The San Joaquin County funding agreements for Kasson, Weatherbee Island, Stoneridge, Banta, Morada, and French Camp were executed on March 27, 2018.

SYSTEMWIDE FLOOD RISK REDUCTION PROGRAM (SFRR)

Consistent with the Central Valley Flood Protection Plan, SFRR works with in coordination with local and federal agencies to implement large-scale flood system improvements that have cross-regional benefits and that when packaged together offer multi-benefit opportunities.

Lower Elkhorn Basin Levee Setback (LEBLS) Project

This project will reduce flood risk by increasing the capacity of the Yolo and Sacramento Bypasses, and lowering flood stages in the Sacramento River. New areas of inundated floodplain will result from the construction of the levee setback that may benefit ecosystem function in the future.

- No new information this month.

Other Systemwide Projects

Folsom Dam JFP, Folsom Dam Raise, and Sacramento River GRR are covered under the Urban Flood Risk Reduction Mega Program above.

FLOOD CORRIDOR PROGRAM (FCP)

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

- No new information this month.

LOCAL LEVEE ASSISTANCE PROGRAM (LLAP)

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

- No new information this month.

SAN JOAQUIN RIVER RESTORATION PROJECT (SJRRP)

The Division of Flood Management has created the SJRRP to assist the United States Bureau of

Reclamation (USBR) in assessing flood risks associated with the San Joaquin River Restoration Program. The San Joaquin River Restoration Program is a comprehensive long-term effort to restore flows to the upper San Joaquin River and restore a self-sustaining Chinook salmon fishery while avoiding adverse water supply impacts. USBR, lead agency for the SJRRP, has initiated Interim releases from Friant Dam and is evaluating alternatives for releases and routing of restoration flows up to 4,500 cubic feet per second to support reintroduction of selected fish species into the San Joaquin River, as required by the Stipulation of Settlement (Settlement). DWR has offered technical and funding assistance to the program in recognition of the DWR's role in habitat restoration and flood management.

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

- A presentation to the Board regarding the San Joaquin River Restoration Project was made at the Board's March 23 meeting.

YUBA-FEATHER FLOOD PROTECTION PROGRAM

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

- No new information this month.

FLOOD SYSTEM OPERATIONS AND MAINTENANCE (FSO&M)

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

CHANNEL EVALUATION AND REHABILITATION

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

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

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

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

The Channel Evaluation and Rehabilitation Program reports progress within the following components:

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

INSPECTION AND EVALUATION:

2017 Storms – Channel Evaluations

- During the 2017 Storms, flood conveyance channels experienced significant hydraulic flows, sediment transport, and deposition. Post event channel evaluations (including LiDAR and bathymetric data collection) are being conducted for the Feather River, Tisdale Bypass, Colusa Bypass, and Sacramento Bypass to determine if a channel rehabilitation project is needed to restore flood conveyance capacity.

Chico Area Streams Project

- Flood Maintenance Office (FMO) initiated project planning to address hydraulic deficiencies within Big Chico Creek, Lindo Creek and Sycamore Creek diversion channels. Sutter Yard in conjunction with the city of Chico has identified several debris choke points within the Chico creeks area and has been working with CDFW to remove debris from Big Chico Creek. The debris removal is an ongoing effort.

Feather River Hydraulic Model

- No new information this month.

Mercury Characterization Studies

- DWR met with the United States Geological Survey (USGS) on April 4, 2018, to review the status of concurrent flow, sediment, and mercury sampling conducted during Water Year 2018 and the need to capture upcoming April 2018 storm events.

Middle Creek Project (MCP)

- No new information this month.

ROUTINE OPERATIONS AND MAINTENANCE

The Maintenance Yards' routine channel maintenance is limited to vegetation management through such methods as spraying, mowing, and trimming. These activities are planned at the end of flood season and are completed before the next flood season. Although DWR manages large areas in channels, only a small percentage is actively maintained by DWR. Reporting on planned activities in actively maintained areas started on November 1, 2017, and will end on October 31, 2018. Additional work that is completed as needed includes removing debris, removing trees, removing sediment, and removing beaver dens. These activities are reported as they are completed.

In the month of March 2018:

- At Tisdale Bypass, piles of accumulated vegetation were burned.

NON-ROUTINE ACTIVITIES:

Elder Creek Channel Rehabilitation Project

- Transplanting of 16 elderberry shrubs was completed in January 2018. Project work is anticipated to resume in June 2018 when the channel dries up.

FLOOD CONTROL FACILITIES EVALUATION AND REHABILITATION (FCFER)

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

The Flood Control Facilities Evaluation and Rehabilitation Program reports progress within the following components:

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

- *Non-Routine Projects*

INSPECTION AND EVALUATION:
Two times a year, once immediately after flood season and once prior to flood season, the Flood Maintenance Office (FMO) conducts inspections of structures, bridges, and pipes that penetrate the levee. Deficiencies are identified with corrective actions. Minor deficiencies can be remedied through maintenance practices while larger issues will require a project level effort.

For the month of March 2018:
- No new information this month.

ROUTINE OPERATIONS AND MAINTENANCE:
The Maintenance Yards' routine maintenance for flood facility structures varies based on the type of structure. Pumping plants require periodic mechanical and electrical maintenance while weir maintenance primarily consists of concrete repairs. Additional work that is completed as needed includes removing debris and sediment, and emergency repairs. These activities are reported as they are completed.

For the month of March 2018:
- At the Highlands Canal Diversion Structure, sediment removal is complete.
- At the Little Chico and Butte Creek Diversion, 25 cubic yards of sediment were removed.
- At Middle Creek Pumping Plant, minor structural repair was completed.
- At the Sacramento Weir, minor structural repair is in progress.

NON-ROUTINE PROJECTS:

Butte Slough Outfall Gates (BSOG)
- An interagency meeting between DWR and regulatory agency staff was held to discuss the proposed BSOG rehabilitation construction work, long-term operations and maintenance, and multi-benefit opportunities.

Collecting Canal Bridge CC-2 and CC-4 Repair and Replacement
- Bids have been obtained from pre-cast concrete vendors for the CC-2 bridge components.
- The geotechnical boring program for CC-4 has been scheduled for the week of April 16, 2018.

Knights Landing Outfall Gates Fish Barrier
- No new information this month.

Old Sutter Pumping Plant Rehabilitation
- FMO is initiating a project to remove the old, unused pumping plant buildings in Sutter County and provide access and safety for staff to operate the gravity drain culverts that remain in place.

Sacramento Maintenance Yard (SMY) Paving Project

- FMO continues to work with DOE to develop a project to rehabilitate underground utilities and restore the parking area. The drainage and grading plan is at 60 percent, but information regarding electrical conduits needs is still several months out and must be complete before drainage and pavement plans are finalized.

West Borrow Canal Bridge WL-1 Evaluation

- Real Estate reported that the land (including the bridge) was sold to a private farming operation by CDFW in recent months. Real Estate has been tasked with documenting the transaction to assure DWR has no remaining liability.

LEVEE OPERATIONS AND MAINTENANCE COMPONENTS

The Levee Maintenance Program, like the Channel Maintenance Program, is generally organized around the continual and ongoing maintenance of specific levee structures in the Sacramento River Flood Control Project. Both the Sacramento and Sutter Yards have assigned responsibilities for specific levee reaches to provide performance-based levee operating and maintenance to help ensure the levee will perform satisfactorily during any high water flood event. When a levee evaluation and inspection report indicates that a significant repair or rehabilitation is required, the design and construction will be turned over to the levee repair program and constructed as a capital outlay project under the flood risk reduction mega-program. Otherwise the three component activities are considered as "operations and maintenance."

The Levee Operation and Maintenance Program reports progress within the following components:

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

ROUTINE OPERATIONS AND MAINTENANCE

The Maintenance Yards' routine levee maintenance includes vegetation management through spraying, mowing, and trimming, maintaining levee geometry through dragging levee crown roads, dragging levee slopes, repairing minor erosion, and maintaining waterside and landside toe roads where they exist, protecting levees from rodent damage and repairing damage that has occurred through FMO's Rodent Abatement/Damage Repair and Rehabilitation Program, and removing or remedying encroachments. Reporting on routine maintenance activities started on November 1, 2016, and ended on October 31, 2017. Additional activities that are completed as needed include repairing or replacing gates, barricades, and mile markers; placing gravel on crown roads; and repairing or replacing pipes that penetrate the levee. These activities are reported as they are completed.

The following activities were completed in the month of March 2018:

- At Cache Creek, the following activities occurred:
  - 7 miles of vegetation cutting and limbing were completed, and
  - Repair or replacement of gates is ongoing.

- At Colusa Bypass, the following activity occurred:
  - 4 miles of crown road gravel was placed.
- At the East Levee of the Sutter Bypass, the following activities occurred:
  - Vegetation spot spraying is in progress, and
  - Repair or replacement of signs is in progress.
- At the East-West Interceptor Canal, the following activity occurred:
  - Vegetation spot spraying is in progress.
- At the Upper 2 miles of the East Yolo Bypass, the following activity occurred:
  - Repair or replacement of gates is ongoing.
- At MA 1, the following activity occurred:
  - Rodent fumigating was completed.
- At MA 3, the following activities occurred:
  - Repair or replacement of signs is in progress, and
  - Vegetation spot spraying is in progress.
- At MA 5, the following activities occurred:
  - 40 cubic yards of sediment was removed, and
  - Repair or replacement of gates is ongoing.
- At MA 7, the following activity occurred:
  - 12.07 miles of vegetation spot spraying.
- At MA 9, the following activities occurred:
  - Vegetation cutting and limbing is in progress, and
  - Crown road gravel placement is in progress.
- At MA 12, the following activities occurred,
  - Rodent fumigating is complete, and
  - Repair or replacement of gates is ongoing.
- At MA 13, the following activities occurred:
  - Vegetation cutting and limbing is complete,
  - 5 miles of crown road gravel was placed,
  - A bridge crossing was repaired, and
  - Vegetation spot spraying is in progress.
- At MA 16, the following activity occurred,
  - 4.09 miles of vegetation spot spraying is complete.
- At Putah Creek, the following activities occurred:
  - Rodent baiting is in progress,
  - Vegetation cutting and limbing is in progress, and
  - Repair or replacement of signs is in progress.
- At Tisdale Bypass, the following activities occurred:
  - Vegetation spot spraying is in progress, and
  - Repair or replacement of gates is in progress.
- At Wadsworth Canal, the following activities occurred:
  - Repair or replacement of signs is complete, and
  - Repair or replacement of gates is in progress.

- At the West Yolo Bypass Units 1-4, the following activities occurred:
  - Vegetation spot spraying is in progress,
  - 200 feet of fence was repaired, and
  - Repair or replacement of gates is in progress.

NON-ROUTINE PROJECTS

- No new information this month.

FLOOD SYSTEM EVALUATION AND REHABILITATION (FSER)

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

Small Erosion Repair Program (SERP)

This is a maintenance program to obtain all permits necessary to repair small reaches of levee erosion along DWR-maintained waterside areas. Up to 15 sites can be repaired annually. SERP permits are active as of May 2014 and expire May 2019.

- On March 30, 2018, DFM purchased 8.37 acres of credit to mitigate for potential incidental take of the Giant Garter Snake during construction of 12 repairs that will be completed this season.

Deferred Maintenance Project (DMP)

DFM has developed the DMP to evaluate and repair levee penetrations, help implement systemwide rodent damage mitigation, and perform specific deferred maintenance actions for DWR maintenance yard facilities. Work will address known threats to levee integrity, enhance emergency response capabilities, and ultimately reduce the potential for catastrophic flooding.

Staff continues meeting with LMAs to deliver Notice of Eligibility (NOE) documents for the video inspection portion of the project.

As of the month of March 2018:

- There are 29 DWR directed funding agreements for Phase 1 video inspections that have been executed with Local Maintaining Agencies (LMAs). There are 16 contracts in place and LMAs are starting the inspections. There are 13 contracts under finalization process.
- There are five DWR directed funding agreements in process with LMAs.

- One DWR directed funding agreement is currently in process for Phase 2 repair of a failed pipe in RD 784. RD 784 has provided a signed assurance agreement to the CVFPB for long term operations and maintenance (O&M) of the pipe to be replaced.
- DWR has video inspected 82 of 333 pipes passing through levees in areas of DWR "O&M" responsibility.

LEVEE REPAIRS

The Levee Repairs Program in the Division of Flood Management, Flood Maintenance Office, makes repairs to the State Plan of Flood Control (SPFC) facilities (primarily levees) through several projects. Among these are the Flood System Repair Project (FSRP), the Sacramento River Bank Protection Project (SRBPP), and the Federal Public Law 84-99 Emergency Repair Project (PL 84-99). FSRP is a bond funded program that repairs rural SPFC facilities of the Sacramento and San Joaquin River Systems under a state-local cost share. SRBPP is a USACE-led program that repairs urban SPFC critical erosion sites along the Sacramento River and tributaries. PL 84-99 repairs minor damages incurred from a significant flood event. DWR is a cost-sharing partner and manages the state's responsibilities for the SRBPP and PL 84-99 projects on behalf of the CVFPB.

Flood System Repair Project (FSRP)

Progress on FSRP work has been delayed due to the USACE and DWR rehabilitation repairs to the SPFC from the 2017 high water events. DWR will conduct LMA outreach and field reconnaissance to prioritize eligible repairs and continue to enter into project agreements with the remaining program funding.

Sacramento River Bank Protection Project (SRBPP)

Nothing significant to report.

2017 Storm Damage DWR Emergency Rehabilitation (SDDER) Program

SDDER has assessed over 300 reported damage sites on the Sacramento River and San Joaquin River State Plan of Flood Control (SPFC) levee systems. DWR has completed all major work at the 29 critical DWR sites. There are nine remaining critical repair sites, with plans and specifications completed, scheduled for construction this summer; environmental permits are anticipated to be in place by May 2018. These nine sites represent the final critical sites identified for state rehabilitation. DWR is continuing the prioritization and repair process for previously identified serious sites, with preliminary design and permitting work underway.

Federal Public Law 84-99 Emergency Repair Project (PL 84-99)

USACE completed construction on 15 PL 84-99 repair sites damaged during the 2017 storms. Continuing these repairs, USACE anticipates construction of 24 sites this summer and fall, and 8 more sites in 2019.

Environmental Permitting for Operations and Maintenance Project (EPOM)

A second draft of Section 1600 Lake or Streambed Alteration Agreements was received from CDFW Region 2 that authorizes required maintenance on portions of the Sacramento River Flood

Control Project that DWR is responsible for maintaining.

On April 3, 2018, FMO met with the United Auburn Indian Community (UAIC) to continue consultation on implementation of ongoing maintenance that DWR conducts within the flood system. UAIC expressed interest in monitoring as part of the routine maintenance activities.

OTHER ACTIVITIES:

Emergency Response Support
Nothing significant to report.