A Working Vision: The Central Valley Flood Protection Plan

Water Education Foundation
Northern California Tour

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TODAY’S DISCUSSION

California Central Valley Flood Issues
• Historical and Spatial Context
• Recent Trends

2017 Central Valley Flood Protection Plan Update
• What it is and says
• Components

Recent Implementation Efforts and Programs
• Work underway
• Where we are headed
California Central Valley Flood Related Issues

Image: Looking Over Highway 70 Overpass, Plumas Lake Area During 1997 Flood and Present Day
Understanding the Scale

California’s Central Valley compared to Florida
Flood Hazards in CA

- Tsunami Flooding
- Engineered Structure Failure Flooding
- Coastal Flooding
- Debris Flow Flooding
- Slow Rise Flooding
- Flash Flooding
- Alluvial Fan Flooding
- Stormwater Flooding

Potential Occurrence by County:
- Absent
- Present
- Likely
100 Years of Evolving Flood Management

1917 Local Leadership Era

- Need: Protect agriculture
- Land Use: Predominantly rural agriculture
- Design and Construction Standards: Locally available materials and practices, trial and error, as needed
- Storage and Flows: No reservoirs, scouring flows

2017 Partnerships and Obtaining Sustainable Funding

- Need: Flood control for urban areas and agriculture, plus water supply, ecosystem, recreation
- Land Use: Widely varied: urban centers, industry, small communities, rural agriculture, public infrastructure
- Design and Construction Standards: Engineered structures with design life, advanced geotechnical practices and materials
- Storage and Flows: Many reservoirs, coordinated operations, regulated flows for multiple objectives
Central Valley Flood Risks and Trends

- **Future growth will increase risk**
- **Climate change increases flood risk**
- **Habitat, processes, and species declining**
- **Societal expectations emphasize a multi-benefit approach**
- **Operations and maintenance is underfunded and complex**
2017 Central Valley Flood Protection Plan Update

Los Angeles Times
By The Times Editorial Board
SEPTEMBER 2, 2017, 5:00 AM

“We should take hope and inspiration from the little-discussed but crucially important Central Valley flood management plan.”

Yolo Bypass serves as model for future California flood protection
By Ellen Knickmeyer, Associated Press, and Democrat staff
POSTED: 09/26/17, 9:39 AM PDT

“It’s rare and powerful for such a dramatic change in California water policy to be driven by a consensus in the stakeholder community.” – Jacob Katz, Cal Trout
Planning Context

Flood management plan for the entire State of California

Flood management plan for State Plan of Flood Control facilities and planning area
Scope defined by Central Valley Flood Protection Act of 2008
Example of Large-Scale Public Infrastructure Project: State Plan of Flood Control

Key Elements:
- 1,600 miles of Federal-State levees
- Extensive system of bypasses & floodways
- 2 completely different river basins, each w/ over 5 major rivers
- 5 major urban centers, plus additional adjacent urban areas
- Dozens of small communities
- Dozens of endangered species
- Over million people living in floodplains
- +$80B property / assets at risk
2017 Update to the CVFPP

- Refines SSIA
- Refines capital and ongoing costs, funding, and implementation phasing
- Identifies and seeks to address long-standing policy issues
- Establishes an outcome-based planning framework
CVFPP Planning Process, Assessments

- Regional Flood Management Plans
- Conservation Strategy
- Basin-Wide Feasibility Studies
- OMRR&R Workgroup Technical Memo
- Investment Strategy
Regional Planning for CVFPP Update

- Mid-Upper Sacramento Region
- Feather River Region
- Lower Sacramento Delta North Region
- Lower San Joaquin Delta South Region
- Mid San Joaquin Region
- Upper San Joaquin Region
Conservation Strategy

• Long-term approach for improving riverine and floodplain habitats

• Provides guidance, data and tools for multi-benefit planning

• Identifies measurable ecological objectives
Operations & Maintenance Needs

- Operations, Maintenance, Repair, Rehabilitation & Replacement (OMRR&R)
- Aging Structures
- Current Funding Gap

Photo: DWR Flood Maintenance Office Employee Opening One Bay of the 100-year old Sacramento Weir during the winter 2017 high water event. The weir protects the cities of Sacramento, West Sacramento and Elk Grove by removing flood flows from capacity limited Sacramento River.
Investment Strategy

$17 to 21 billion
Investment over 30 years

ONGOING INVESTMENTS
$M/Y

Annual funding for routine activities:
$250–310 M/year

+  

CAPITAL INVESTMENTS
$ $$

One-time funding for construction or improvements:
$12–16.2 B
Sacramento BWFS Recommended Plan
Assessing the Usability of the CVFPP

Plan Recipe
1. Provide Context & Set Objectives
2. Describe Performance of Several Ideas
3. Estimate Cost (Time & $$$) of Recommendation
4. Show a Path to Implementation for Recommendation

CVFPP Update

- Increased life risk due to climate change and socioeconomic changes
- Reduced life risk due to Early Implementation Program projects
- Reduced life risk due to SSIA project elements
- Reduced life risk due to enhanced flood response and emergency management actions

Expected Annual Life Loss

- WITH SSIA: 
  - 2007: 350
  - 2017: 290
  - 2037: 141
  - 2047: 66
  - 2057: 22
  - 2067: 43

- WITHOUT SSIA: 
  - 2007: 350
  - 2017: 300
  - 2037: 250
  - 2047: 200
  - 2057: 150
  - 2067: 100

CONTRIBUTIONS TO SUPP (G&I, Ecosystem, Institution)

- Achieve SPFC Design Flow Capacity: $19-23B
- Project High Risk Communities: $9-11B
- Enhance Flood System Capacity: $32-41B

2017 Update SSIA
- 2017 State Systemwide Investment Approach Includes:
  - Conservation Strategy
  - OMR&R & BNWS
  - RFMP Projects

CONTRIBUTIONS TO PRIMARY GOAL: IMPROVE FLOOD RISK MANAGEMENT

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Stakeholder-Driven Process

- Presentations to Central Valley Flood Protection Board (CVFPB)
- Presentations to Coordinating Committee and CVFPB Advisory Committee
- Meetings to gather technical input on CVFPP supporting documents
- Meetings to inform development of Regional Flood Management Plans and actions
- Public workshops, open houses, and webinars
- Meetings with State and federal agency staff
- Tribal meetings on CVFPP topics
- Additional small group and individual stakeholder meetings and briefings on CVFPP topics
Recent Implementation Efforts
DWR Public Safety Initiative
Yolo Bypass Implementation

Lower Elkhorn Basin Levee Setback

Little Egbert Tract
Tisdale Weir Rehabilitation
Enhanced O&M

• Increasing State and Local contributions to OMRR&R
  – Flood System Maintenance Assistance Program (FMAP)
  – CVFPB study of new local funding
  – CVFPB encroachment enforcement program

• O&M Goals and Performance Tracking

$130 million

$30 million
2017 Storm Damage DWR Emergency Rehabilitation Program

- Critical sites repaired before the start of the 2018 flood system
Performance Tracking

• Justifies Priorities and Investment
• Demonstrates Value
• Informs Adaptive Management
Questions

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