

# Integration of Flood Management into Water Resource Planning



**California Water Plan Plenary Meeting  
September 19, 2008**

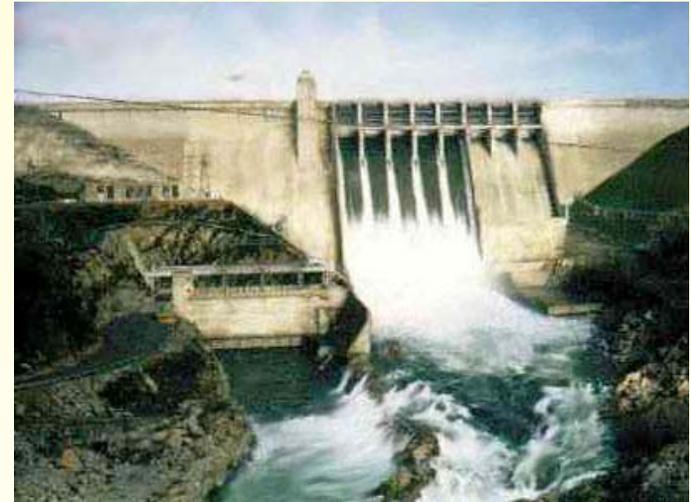
# Content

- Integrated Flood Management
- Flood Management
  - Update 2009
  - Integrated Regional Water Management
- Looking Forward
- Breakout Discussions
- Report Backs

# Traditional Flood Control

Use structural measures to capture, store, and route flows away from specific areas

- Dams and Reservoirs
- Levees, Dikes, and Flood Embankments
- Channelization
- High Flow Diversions and Bypasses



# Broader Flood Management

- Non-Structural
  - Floodplain Regulation
  - Housing and Building Codes
  - Disaster Preparedness / Recovery
  - Flood Insurance
  - Information and Education



# Flood Management Today

- Focus on managing risk and reward for multiple objectives
- Rely on structural and non-structural systems and actions
- Actions spread across multiple agencies
  - Federal, state, and local
  - Various roles
    - Land use
    - Flood protection
    - Operations and Maintenance

# What is Integrated Flood Management (IFM)?

World Meteorological Organization:

*“A process promoting an integrated... approach to flood management. It integrates **land and water resources development** in a river basin, within the context of integrated water resource management, and aims at maximizing the net benefits from flood plains and minimizing loss to life from flooding.”*

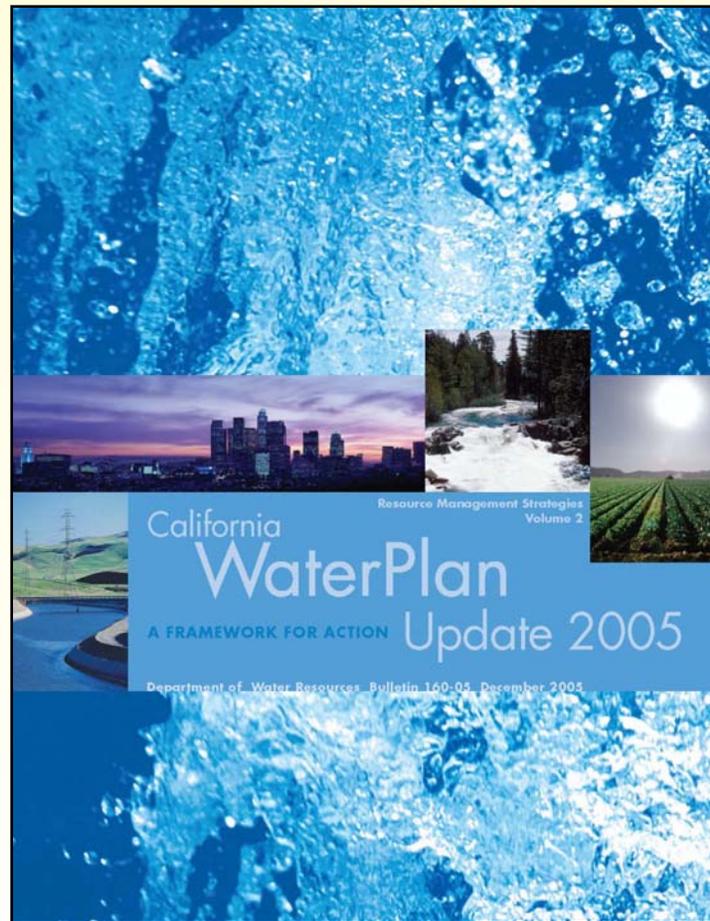
# FloodSAFE IFM Framework

- Recognizes:
  - **Interconnection** of flood management actions within broader **water resources** management
  - Value of **coordinating across** geographic and agency **boundaries**
  - Need to evaluate opportunities and potential impacts from a **system perspective**
  - Importance of environmental **stewardship** and **sustainability**

**Questions?**



# Flood Management in the California Water Plan



## Update 2009

- Volume 1: Strategic Plan
  - Companion Plans: FloodSAFE
- Volume 2 : Resource Mgmt Strategies
  - New Flood Strategies
- Volume 3: Regional Reports
  - New Flood Content
- Volume 4: Reference Guide
- Volume 5: (Online) Technical Guide

# Update 2009 Content

- Volume 2 :  
Resource Management Strategies



# Update 2005 Resource Strategies

## Reduce Water Demand

- Agricultural Water Use Efficiency
- Urban Water Use Efficiency

## Improve Operational Efficiency & Transfers

- Conveyance
- System Reoperation
- Water Transfers

## Increase Water Supply

- Conjunctive Management & Groundwater Storage
- Desalination –Brackish & Seawater
- Precipitation Enhancement
- Recycled Municipal Water
- Surface Storage

## Improve Water Quality

- Drinking Water Treatment
- Groundwater Remediation
- Matching Quality to Use
- Pollution Prevention
- Urban Runoff Management

## Practice Resource Stewardship

- Agricultural Lands Stewardship
- Economic Incentives
- Ecosystem Restoration
- Floodplain Management
- Recharge Areas Protection
- Urban Land Use Mgmt
- Water-Dependent Recreation
- Watershed Management

# Update 2005 Strategies

Reduce Water Demand

Improve Water Quality

Improve Operational Efficiency &  
Transfers

Practice Resource Stewardship

Increase Water Supply

# Update 2009 Strategies

- Reduce Water Demand
- Improve Operational Efficiency & Transfers
- Increase Water Supply
- Improve Water Quality
- Practice Resource Stewardship
- Improve Flood Management



# Flood Management Strategies

- National Unified Program for Floodplain Management:
  - Modify Flooding
  - Preserve Natural Floodplain Functions
  - Modify Flood Impacts
  - Modify Susceptibility to Flood Damage



## Flood Management Strategies (2)

- Resource Management Strategies:  
Initial Draft
  - Modify Flooding
  - Preserve & Restore Natural Resources
  - Modify Flood Impacts
  - Modify Flood Susceptibility



## Flood Management Strategies (3)

- Resource Management Strategies:  
Working Draft
  - Flood Flow Modification
  - Floodplain Restoration
  - Flood Impact Modification
  - Flood Susceptibility Modification

# Flood Management Strategies (4)

- Resource Management Strategies  
July 1<sup>st</sup> Strategy Workshop:
  - Flood Flow *Management*
  - Floodplain *Function* Restoration
  - Flood Impact *Reduction*
  - Flood Susceptibility Modification



# Flood Management Strategies (5)

- Resource Management Strategies Proposal:
  - Flood Flow *Management*
  - Flood Impact *Reduction*



# Flood Management Strategies (6)

- Resource Management Strategies:  
Pre-Admin Draft
  - Flood Flow Management
  - Flood Impact Reduction



# Flood Management Strategies (7)

- Resource Management Strategies:  
Pre-Admin Draft

- Flood Flow Management

- Dams and Reservoirs
- Levees, Dikes, and Flood Embankments
- Channelization Improvements
- High Flow Diversions and Bypasses
- Floodplain Function Restoration



# Flood Management Strategies (8)

## ■ Resource Management Strategies: Pre-Admin Draft

### – Flood Impact Reduction

- Floodplain Regulation
- Housing and Building Codes
- Information and Education
- Disaster Preparedness
- Flood Insurance
- Post-Flood Recovery



# Integrated Flood Management

- Flood-Focused Strategies
  - Flood Flow Management
  - Flood Impact Reduction
- Other Resource Management Strategies
  - Conjunctive Management
  - Conveyance
  - Ecosystem Restoration
  - Forest Management
  - Land Use Planning and Management
  - Surface Storage
  - System Reoperation
  - Urban Runoff Management
  - Watershed Management

# Additional Flood Content

- Volume 3: Regional Reports
  - Ch 1: State Summary
  - Ch 2: North Coast Hydrologic Region
  - Ch 3: San Francisco Bay Hydrologic Region
  - Ch 4: Central Coast Hydrologic Region
  - Ch 5: South Coast Hydrologic Region
  - Ch 6: Sacramento River Hydrologic Region
  - Ch 7: San Joaquin River Hydrologic Region
  - Ch 8: Tulare Lake Hydrologic Region
  - Ch 9: North Lahontan Hydrologic Region
  - Ch 10: South Lahontan Hydrologic Region
  - Ch 11: Colorado River Hydrologic Region
  - Ch 12: Sacramento–San Joaquin Delta
  - Ch 13: Mountain Counties

# Additional Flood Content

- Volume 3: Regional Reports
  - Setting
    - Watersheds
  - Regional Water Conditions
    - Flood Management
  - Relationship with Other Regions
  - Regional Water Management
    - Flood Planning
  - Looking to the Future
    - Climate Change

**Questions?**



# Flood and Integrated Regional Water Management (IRWM)

- Flood management strategy one of the original Prop. 50 requirements
- Flood content in existing plans varies
- Pending development of Prop. 84 guidelines
- How to enhance regional flood management?

# Flood Management in IRWM (2)

- Plan Standards
  - Regional Water Management Group
  - Governance
  - Regional Description
  - Objectives
  - Water Management Strategies
  - Integration
  - Regional Priorities

# Flood Management in IRWM (3)

- Plan Standards
  - Implementation
  - Project Review Process
  - Impact and Benefits
  - Technical Analysis
  - Plan Performance
  - Data Management
  - Financing

# Flood Management in IRWM (4)

- Plan Standards
  - Relation to Statewide Water Management
    - Central Valley Flood Protection Plan
  - Relation to Local Land Use Planning
  - Stakeholder Involvement
  - Coordination
  - Climate Change

**Questions?**



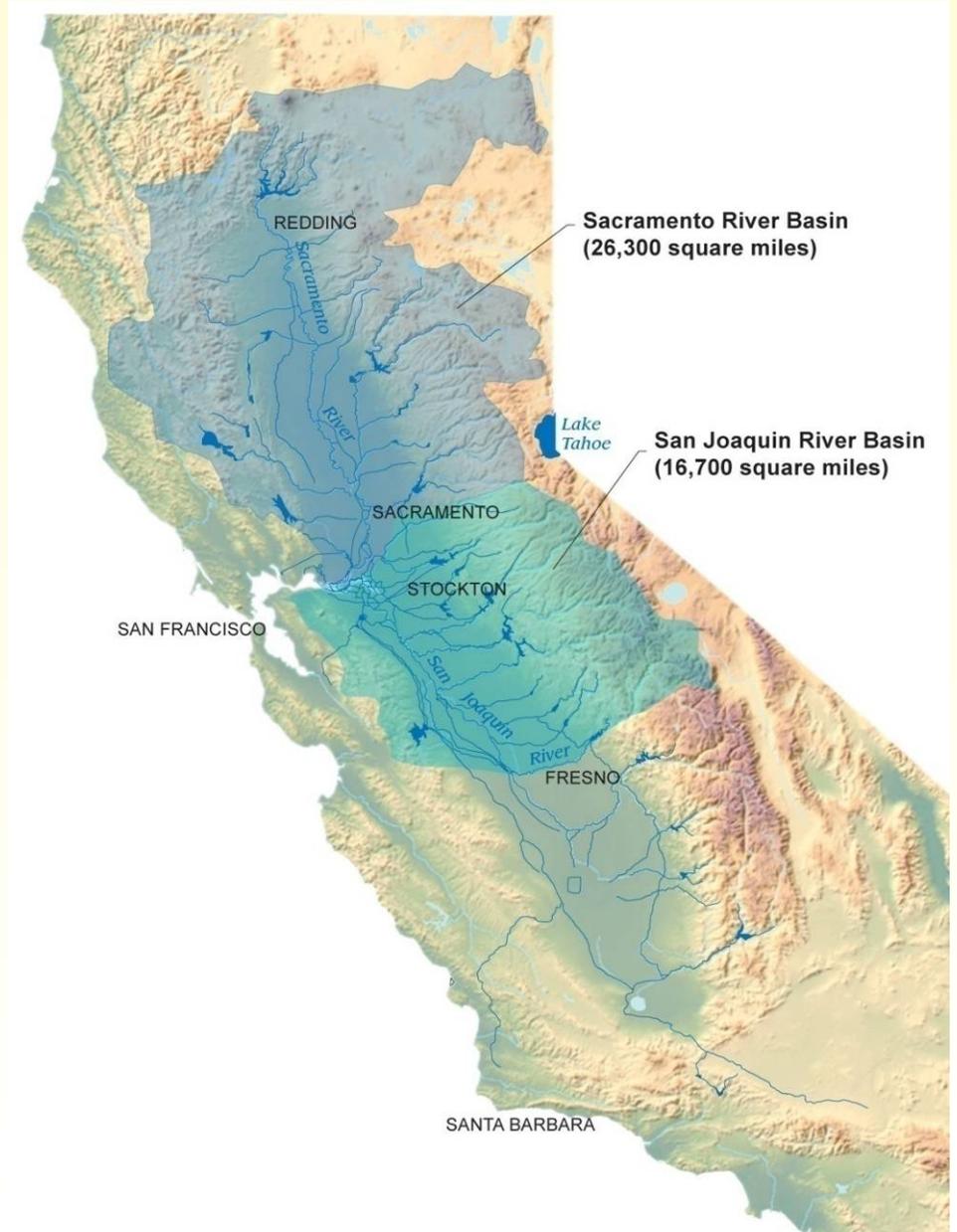
# Flood Management: Looking Forward

- FloodSAFE
  - Central Valley Flood Protection Plan
  - Statewide Flood Management Planning Report
- Integrated Regional Water Management
- CWP Update 2013

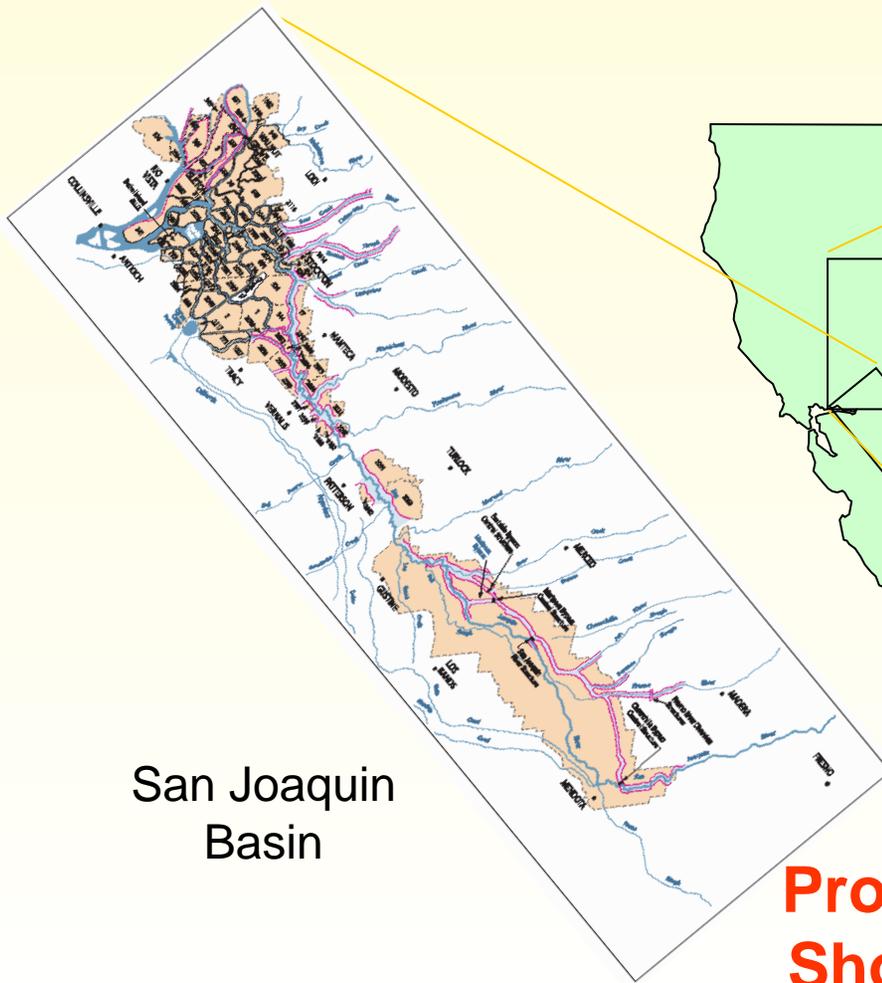
# Central Valley Flood Protection Plan

- An integrated flood management plan for the Sacramento-San Joaquin River Flood Management System
- Required to be developed by January 1, 2012
- Required to be adopted by July 1, 2012

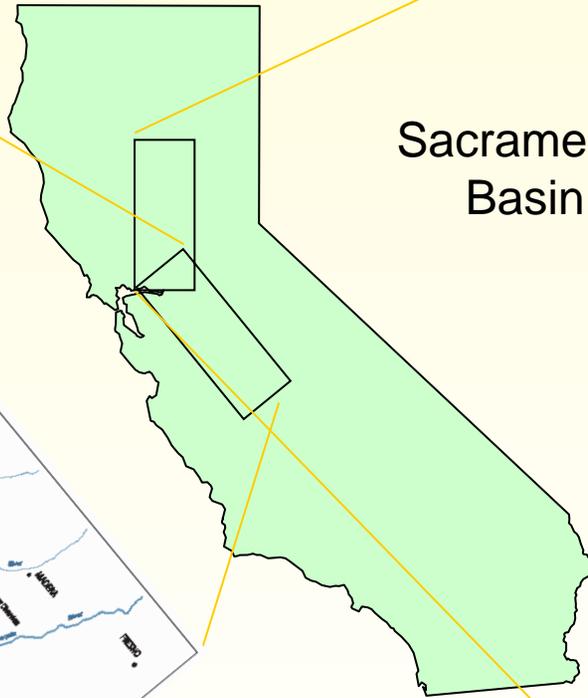
# Sacramento – San Joaquin Valley



# Focus on State Flood System

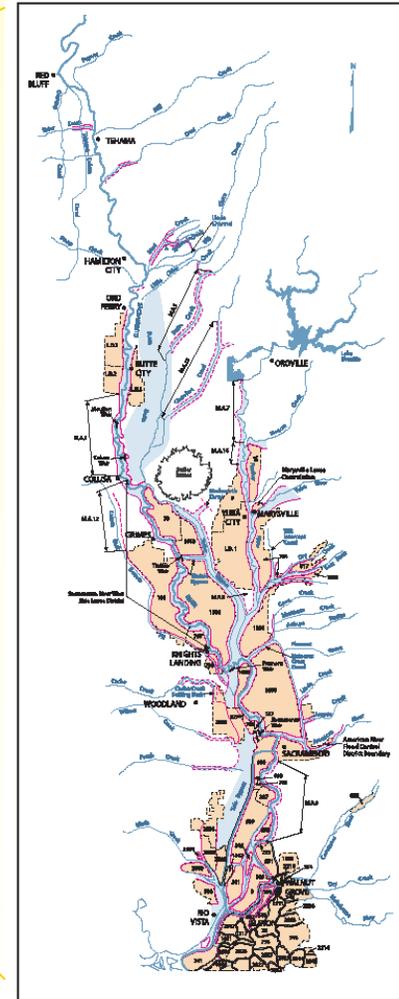


San Joaquin Basin



Sacramento Basin

**Project Levees  
Shown in Red**



# CVFPP Content

- Description of system and status of current performance
- Recommendations for changes throughout system to better manage flood risk for areas currently receiving protection from State-federal system
- Consider multiple objectives

# Statewide Flood Planning

- Conduct New Statewide Evaluation
  - *“Recommendations for Improving and Sustaining Integrated Flood Management in California”*



## Statewide Flood Planning (2)

- Assess significant flood risks
- Inventory existing and future flood management needs
- Identify opportunities for integrated flood management



## Statewide Flood Planning (3)

- Formulate potential flood management solutions
- Develop regional cost estimates
- Develop a finance strategy to fund improvements



# Integrated Regional Water Management

- Draft / Final Guidelines
  - Timing Depends on appropriation
- Planning Funds
  - IRWM
  - Enhance Regional Flood Management
- Implementation Funds
  - IRWM (Prop. 84)
  - Stormwater (Prop. 1E)



**Questions?**



## Breakout Discussions

- Each group to consider several questions (Refer to Handout)
- Select one person as a note taker and another to serve as a spokesperson
- Each group will report on their discussions

## Breakout Questions

- What is Integrated Flood Management?
  - How should it be implemented at the Statewide level?
  - How should it be implemented at the Regional level?
- What are the impediments to Integrated Flood Management and how can they be removed?

## Breakout Questions (2)

- What are the most promising opportunities for Integrated Flood Management?
- For Update 2009:
  - Is the Flood Management content ready for the Public Draft?
  - Are there issues that need to be Cross-Referenced?

# Breakout Discussions

- From 2:00 to 2:45
- Followed by reports from groups

# **Integration of Flood Management into Water Resource Planning**

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