

On Course for Sustainable Water Resources Management

December 2015

Gary Bardini

Deputy Director

CA Department of Water Resources

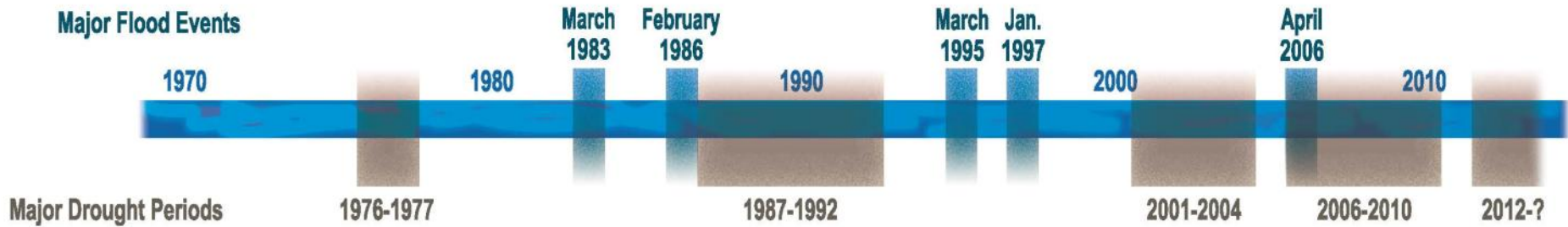


Topics To Cover Today

- **Managing Risk in California Today**
- Investing in Flood Management
- Implementing Projects
- Aligning State, Federal and Local Agencies
- Moving Forward: A New Approach is Needed



California's Water Management Challenge: A Tale of Two Extremes



Situational Awareness Uncertainties and El Niño

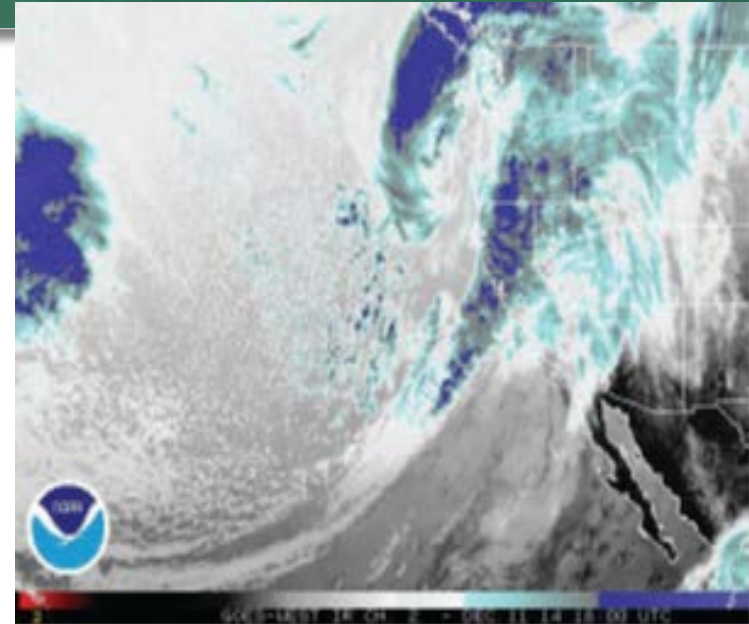
Threats

- El Niño – current conditions among strongest on record
- California's Atmospheric Rivers
- Heavy rains could trigger flooding, mudslides, infrastructure failure

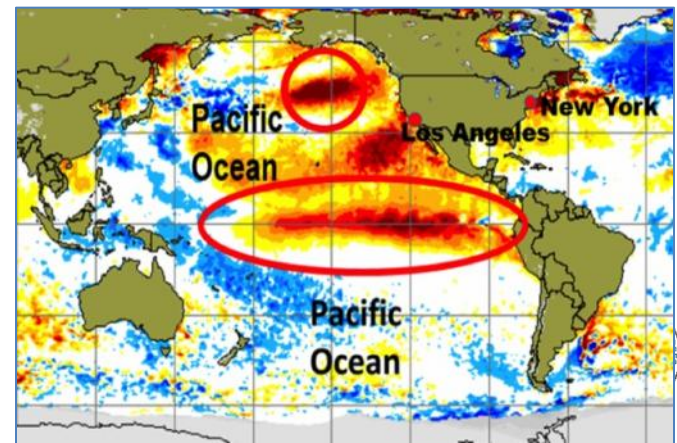
Projections

- Above average precipitation expected for most of CA after the New Year
- NOAA's latest outlook (Nov 20) does not project where and when storms may occur

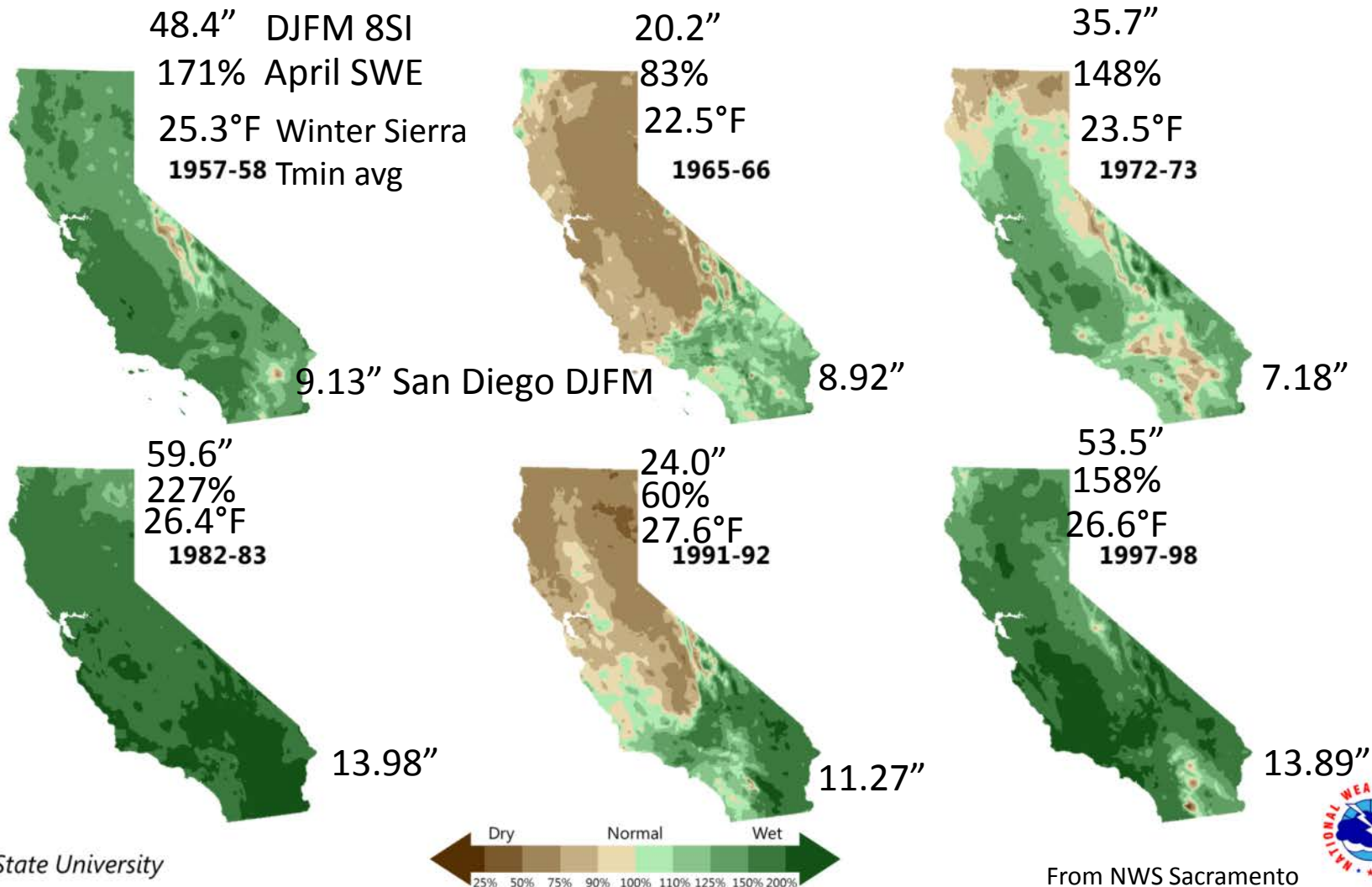
www.water.ca.gov/waterconditions



Atmospheric river that hit California, 12/2014 (NOAA)



Historical Strong El Niño Outcomes



Example: Water Year 1998

Precipitation Outcome by Month

8 Station Index

- Nov 9.45" (150%)
- Dec 4.79" (57%)
- Jan 18.82" (209%)
- Feb 21.22" (265%)
- Mar 8.63" (125%)
- Apr 7.47" (192%)

5 Station Index

- Nov 4.35" (92%)
- Dec 4.17" (67%)
- Jan 13.56" (180%)
- Feb 18.68" (270%)
- Mar 7.29" (120%)
- Apr 5.00" (139%)

California Statewide Average Snowpack

	% of avg			
Water Year	1-Feb	1-Mar	1-Apr	1-May
1998	72	159	158	154



State Flood Preparedness Strategies

Grants

NFIP

DWR

Flood
Preseason
Meetings

Flood
Fight &
Resources

Outreach



California is Under-Insured

NFIP flood policies in force: **5,112,061**
As of September 30, 2015

Top 5 states:

Florida.....	1,845,614
Texas.....	590,583
Louisiana.....	455,104
New Jersey.....	237,240
California.....	231,976

Source: National Flood Insurance Program



Preseason Flood Coordination

Division of Flood Management

2015 California Preseason Flood Coordination Meetings



Department of Water Resources



Agenda Topics

- Winter Weather Outlook
- Regional Updates
- Flood Fight Training
- Roles and Responsibilities under State Emergency Plan and SEMS/NIMS
- Latest DWR Grant News
- Web Resources (California Data Exchange Center and CA-NV River Forecast Center)
- Reimbursement Basics **NEW!**
- Regional Flood Management Planning Phase 2, if applicable

You are invited to join flood emergency response partners to discuss flood preparedness in your region. Hosted by County Offices of Emergency Services in partnership with the State-Federal Flood Operations Center, these meetings provide regional and local updates on annual preparedness activities.

VENTURA

Tuesday, September 15
9:00 – 11:30 am
Ventura County Hall of Justice
800 S. Victoria Avenue
Pacific Conference Room
Ventura

SANTA BARBARA

Wednesday, September 16
9:00 – 11:30 am
Santa Barbara County Office of Emergency Management
Emergency Operations Ctr
4408 Cathedral Oaks Road
Santa Barbara

SAN BERNARDINO

Thursday, September 17
9:00 – 11:30 am
San Bernardino OES
Training Room
1843 Miro Way
Rialto

MERCED

Tuesday, September 22
1:00 – 3:30 pm
Merced County
Emergency Operations Center
3500 N. Apron Ave
Atwater

FRESNO

Wednesday, September 23
9:00 – 11:30 am
Firebaugh Community Ctr
City Council Chambers
1655 13th Street
Firebaugh

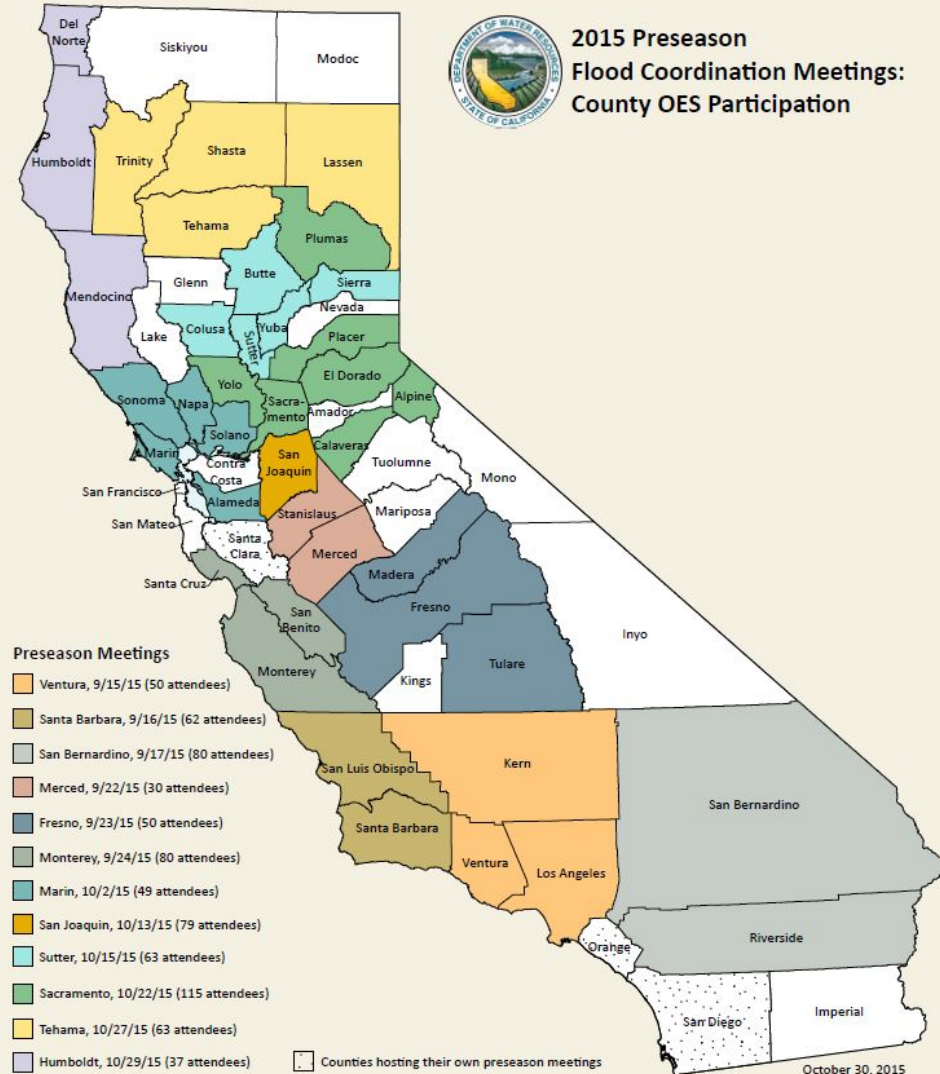
MONTEREY

Thursday, September 24
9:00 – 11:30 am
Seaside Community Center
220 Coe Ave
Seaside

Continued on next page

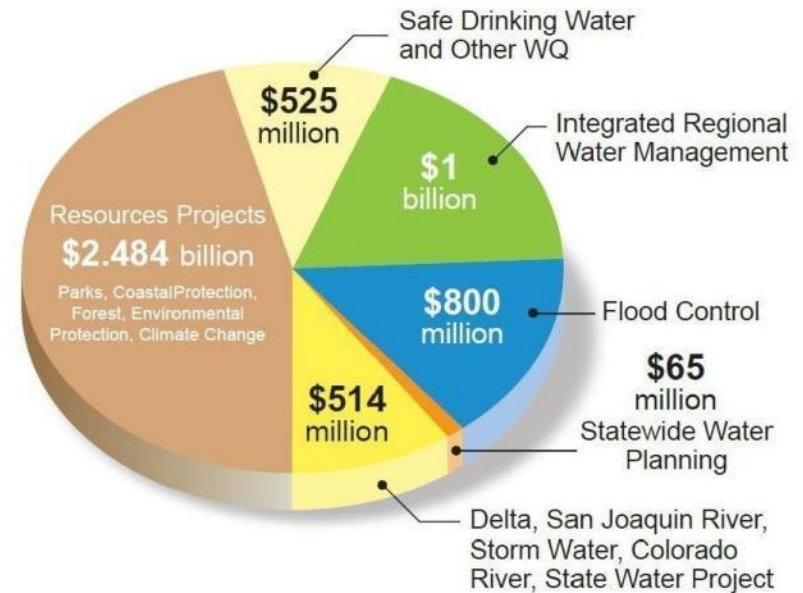


2015 Preseason
Flood Coordination Meetings:
County OES Participation

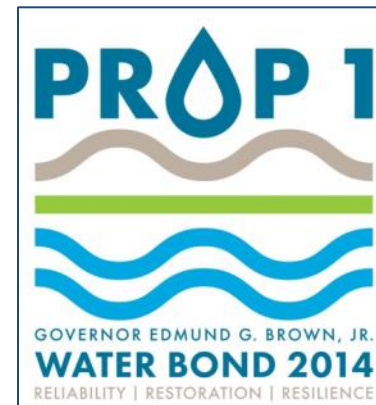


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Proposition 84 Bond Fund Distribution
Source: www.bondaccountability.resources.ca.gov/p84.aspx



Drivers of Change are Opportunities

- **Natural Events:** Floods and droughts
- **Policies and Legislation:** CA Water Action Plan, Groundwater Legislation, *demand for outcomes*
- **Financing:** Prop 1 Water Bond (End of the Water Bond Era?), Reduced Federal Funding

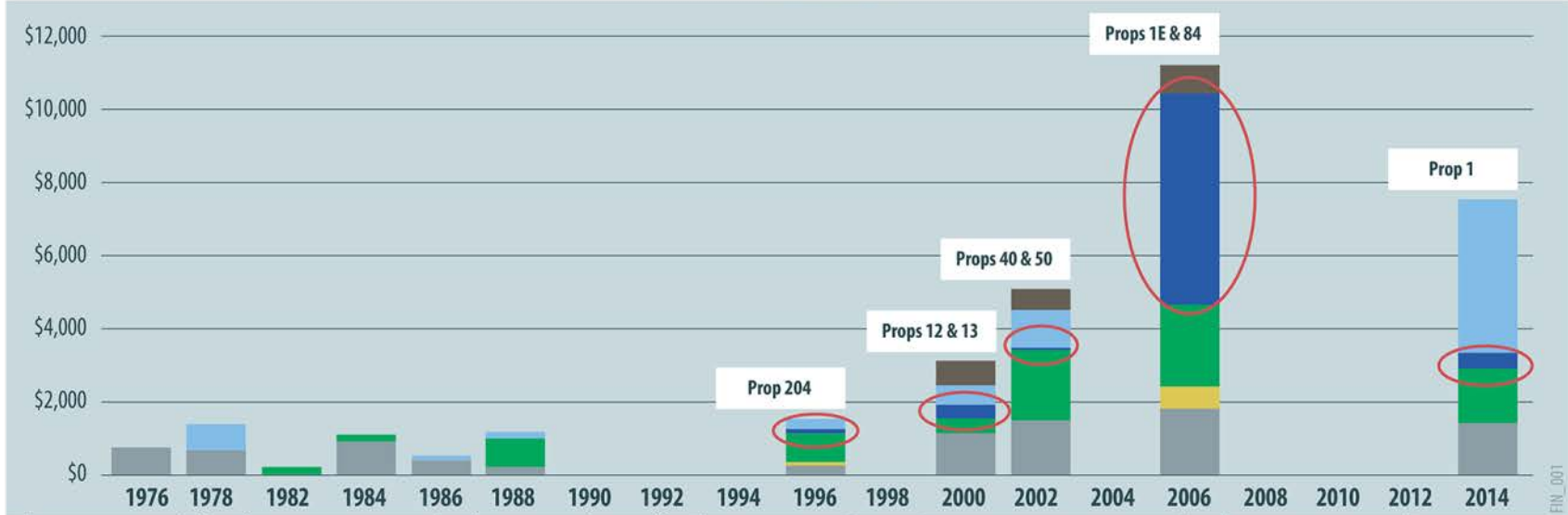


GO Bonds are Reactionary and Unreliable, and Flood Usually Receives Only a Small Portion of Funds

Bond Designations

by Water Management Category (in 2014 \$M)

■ Watershed Multipurpose
 ■ Supply Reliability/ Demand Reduction
 ■ Flood
 ■ Ecosystem/Recreation
 ■ Admin / Misc
 ■ WQ / Safe Drinking



Bond Funds
Slated for Various Water Management Purposes

<p>1969 OIL SPILL IN SANTA BARBARA, OHIO'S CUYAHOGA RIVER BURSTS INTO FLAMES</p>	<p>1977 CALIFORNIA'S 2ND DRIEST WATER YEAR ON RECORD. (2-YEAR DROUGHT 1976-77)</p>	<p>1978 WET WATER YEAR</p>	<p>1980s COLLAPSE OF THE COHO SALMON AND OTHER FISHERIES</p>	<p>1986 LINDA LEVEE BREACH</p>	<p>1987-92 DROUGHT</p>	<p>1993 DELTA SMELT AND COASTAL COHO SALMON LISTINGS</p>	<p>1994 SACRAMENTO CHINOOK SALMON LISTING</p>	<p>1997-98 STATEWIDE FLOOD EVENTS</p>	<p>1999 CALIFORNIA COASTAL CHINOOK SALMON LISTING</p>	<p>2006 HURRICANE KATRINA</p>	<p>2007 JUDGE WANGER RULING; DELTA PUMPING REDUCTIONS</p>	<p>2012-Present DROUGHT</p>
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California Water Action Plan: 10 Priority Actions

Historical Finance Categories	CA Water Action Plan
Sustainable Financing through Integration and Alignment	10. Identify sustainable and integrated financing opportunities
Residual Risk Management	1. Make conservation a California way of life
	5. Manage and prepare for dry periods
	9. Increase operational and regulatory efficiency
Water Reliability	3. Achieve the co-equal goals for the Delta
	6. Expand water storage capacity and improve groundwater management
Regional Sustainability	2. Increase regional self-reliance and integrated water management across all levels of government
	7. Provide safe water for all communities
Flood Management/ River Basin	4. Protect and restore important ecosystems
	8. Increase flood protection



Uses of Proposition 1 Bond Funds

(In Millions)

Water Supply \$4,235

- Dams and groundwater storage—cost share associated with public benefits. \$2,700
- Regional projects to achieve multiple water-related improvements (includes conservation and capturing rainwater). 810
- Water recycling, including desalination. 725

Watershed Protection and Restoration \$1,495

- Watershed restoration and habitat protection in designated areas around the state. \$515
- Certain state commitments for environmental restorations. 475
- Restoration programs available to applicants statewide. 305
- Projects to increase water flowing in rivers and streams. 200

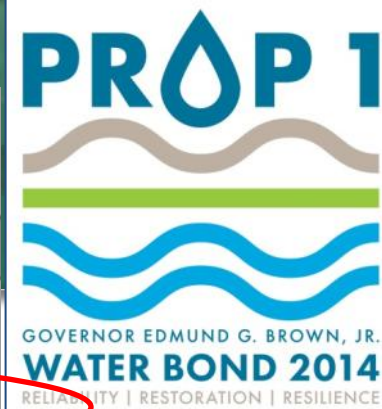
Improvements to Groundwater and Surface Water Quality \$1,420

- Prevention and cleanup of groundwater pollution. \$800
- Drinking water projects for disadvantaged communities. 260
- Wastewater treatment in small communities. 260
- Local plans and projects to manage groundwater. 100

Flood Protection \$395

- Repairs and improvements to levees in the Delta. \$295
- Flood protection around the state. 100

Total \$7,545



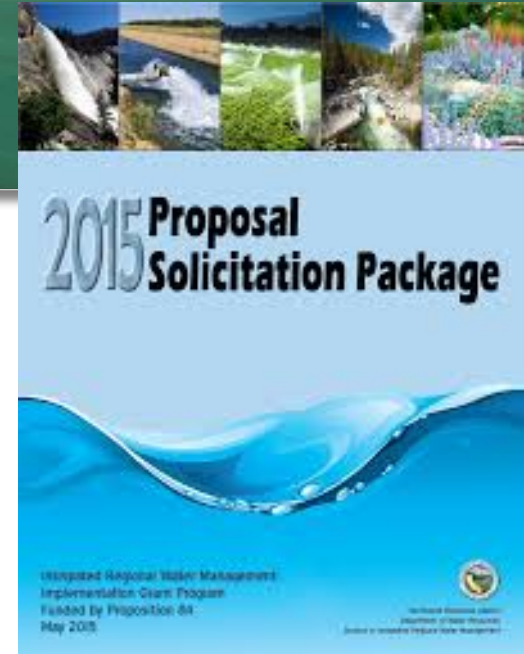
**2014
Prop 1:
\$7.5B**

**\$510
IRWM**

**\$395K
Flood**



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State Grant Investments in Integrated Regional Implementation Projects

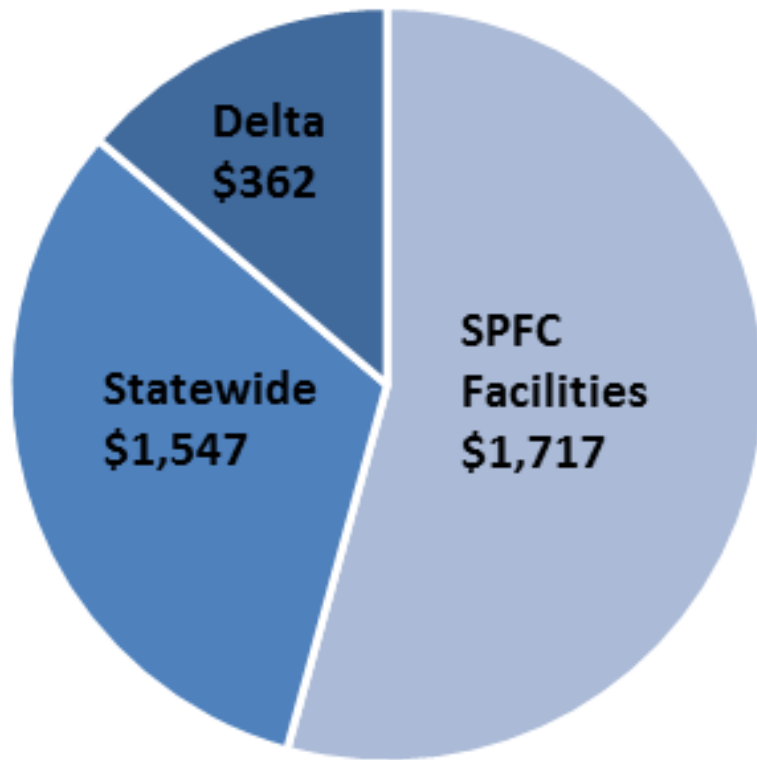
As of Dec 2014:

- 700 projects funded statewide
- \$991 Million in State grant investments
- Leveraged by \$4.25 Billion in local (non-State) cost match

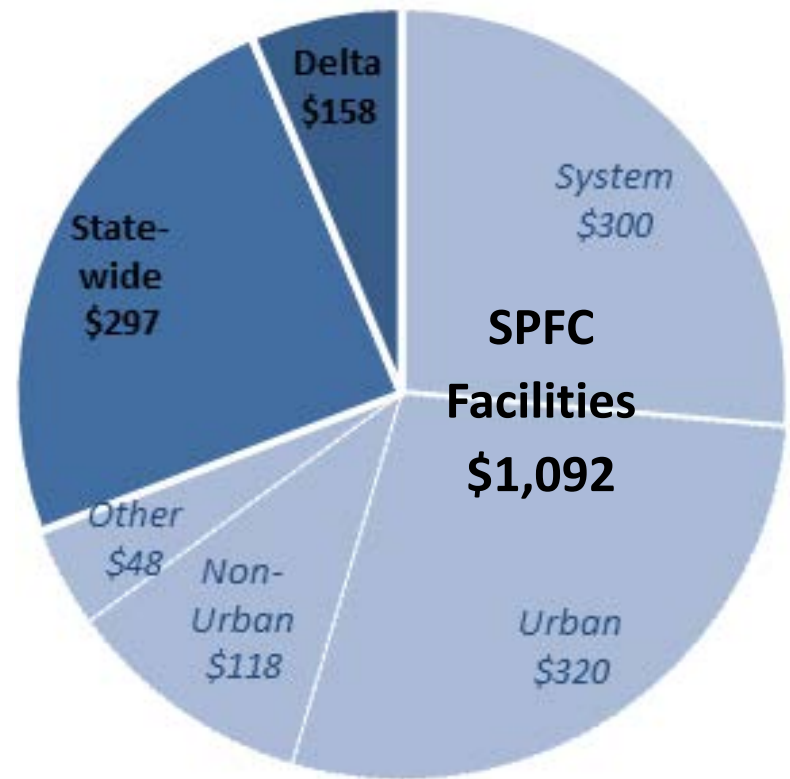
*Figure shows
Round 1 Prop 84
Distribution only*



Investing in Flood Risk Reduction Projects in California, 2015–2018



Flood Management Expenditures
2007–2014 (\$ Millions)



Planned Investment in Flood Risk Reduction Projects
2015–2018 (\$ Millions)

Note: "Other" category includes O&M, Engr



Flood Risk Reduction Projects

	Programs	Projects	# of Projects
Urban	Urban Flood Risk Reduction	DWR/USACE Projects Central Valley - SPFC	36
Non-urban	Levee Repair Program	Sacramento River Bank Protection	164
	Levee Repair Program	San Joaquin River Bank Protection	15
	Levee Repair Program	PL 84-99 Rehabilitation	192
	Channel Evaluation & Rehabilitation	Modeling, Sediment Removal & Vegetation Management - Central Valley	11
Systemwide	Flood Control Facilities Rehabilitation	Weirs, Control Structures, Pumps – SPFC	8
	System Reoperation	Folsom Joint Federal Project	1
	Forecast-Coordinated Operations	Yuba-Feather Coordinated Operations	1
State-Wide	Local Levee Assistance	Statewide	59
	Flood Corridor Program	Statewide	12
	Floodplain Management	Flood Awareness	9
	Flood E.R.	Emergency Response	3
	Flood Control Subventions		26
Delta	Delta Levee Special Projects	Delta-Wide	34
	Delta Special Investigation	Delta-Wide	25
	Flood Emergency Response	Delta-Wide	34



Continued leveraging of funding sources will help ensure a sustainable future

Project type

Funding type

Self-Funding Programs

supported through local users' fees

local

Cost-Sharing Programs

supported through a combination of local and public funding

local

public

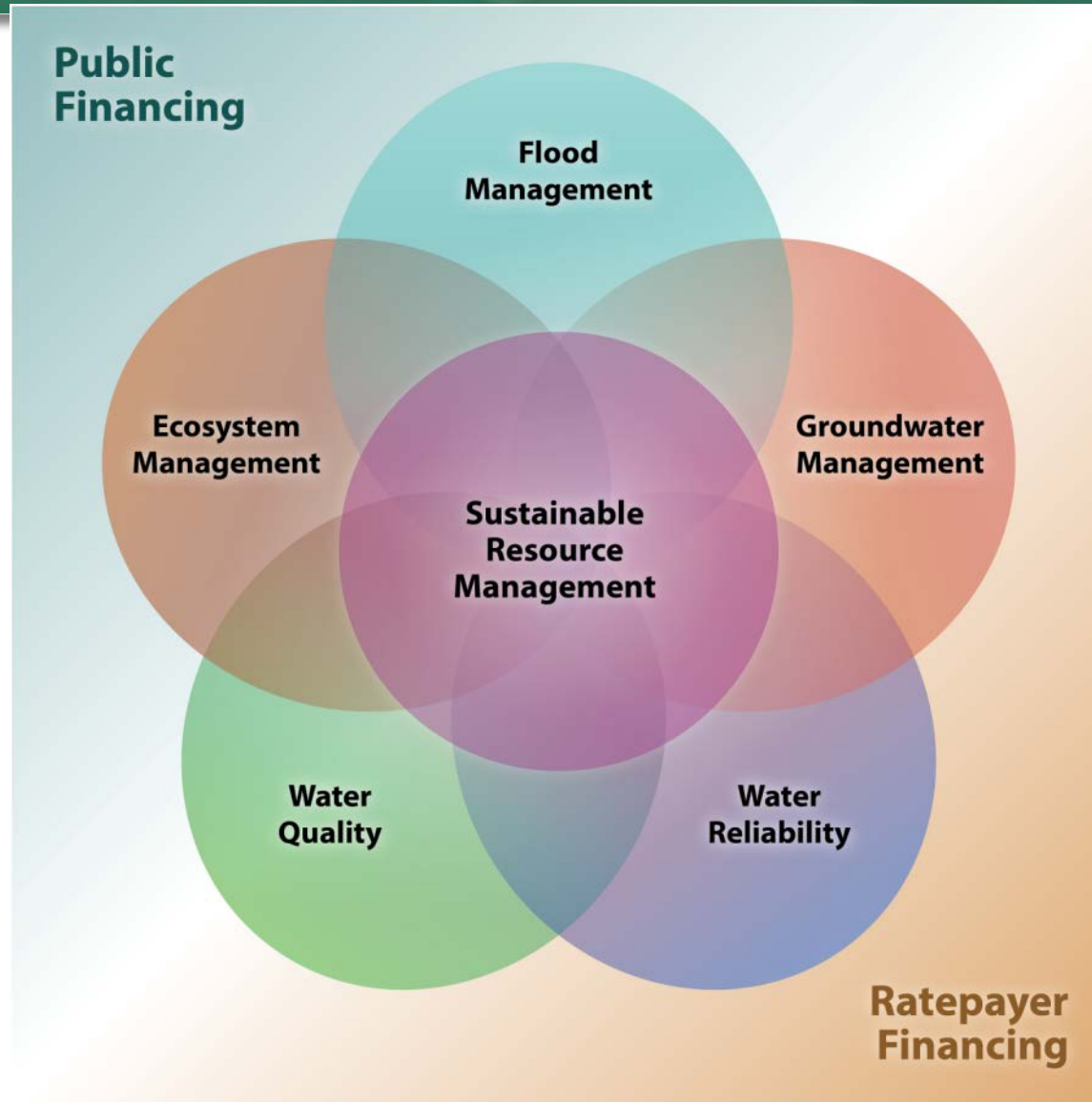
Public Benefits Programs

supported through public funding (State or federal)

public

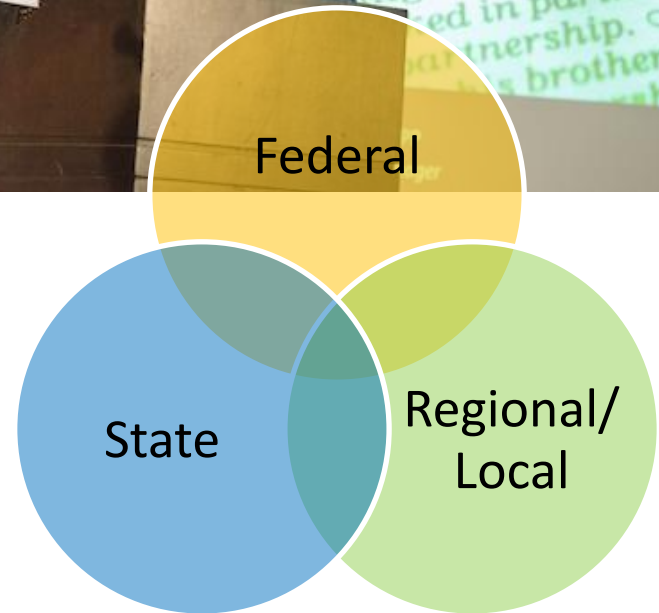


Continued leveraging of funding sources will help ensure a sustainable future



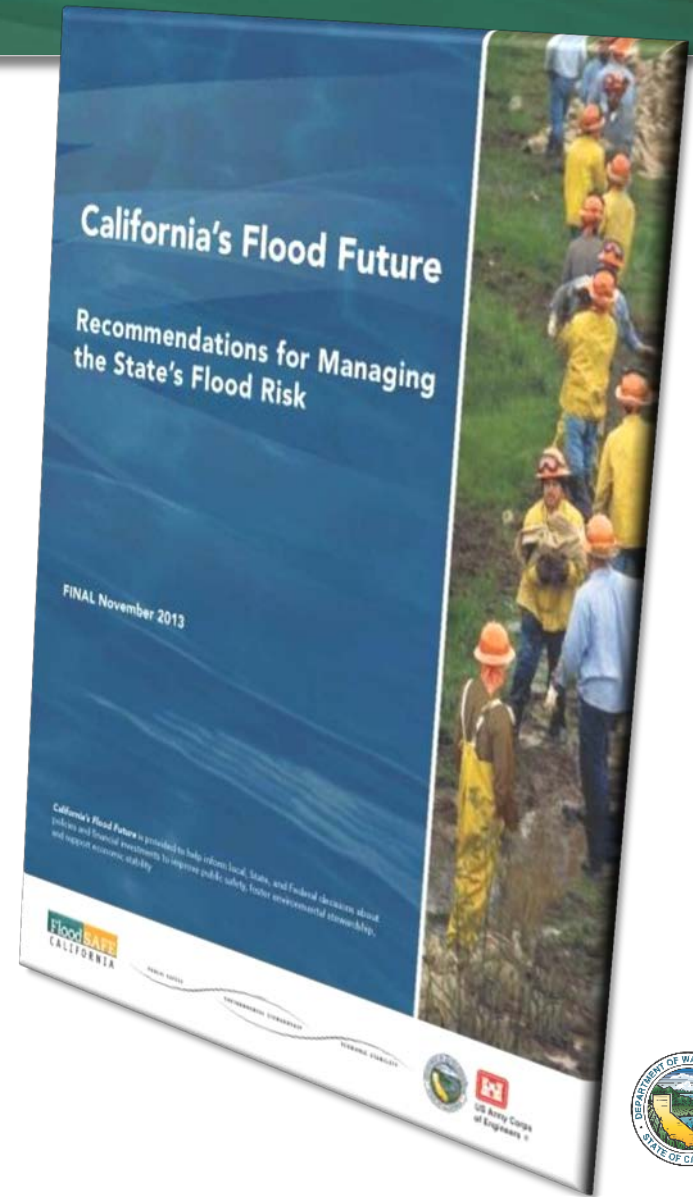
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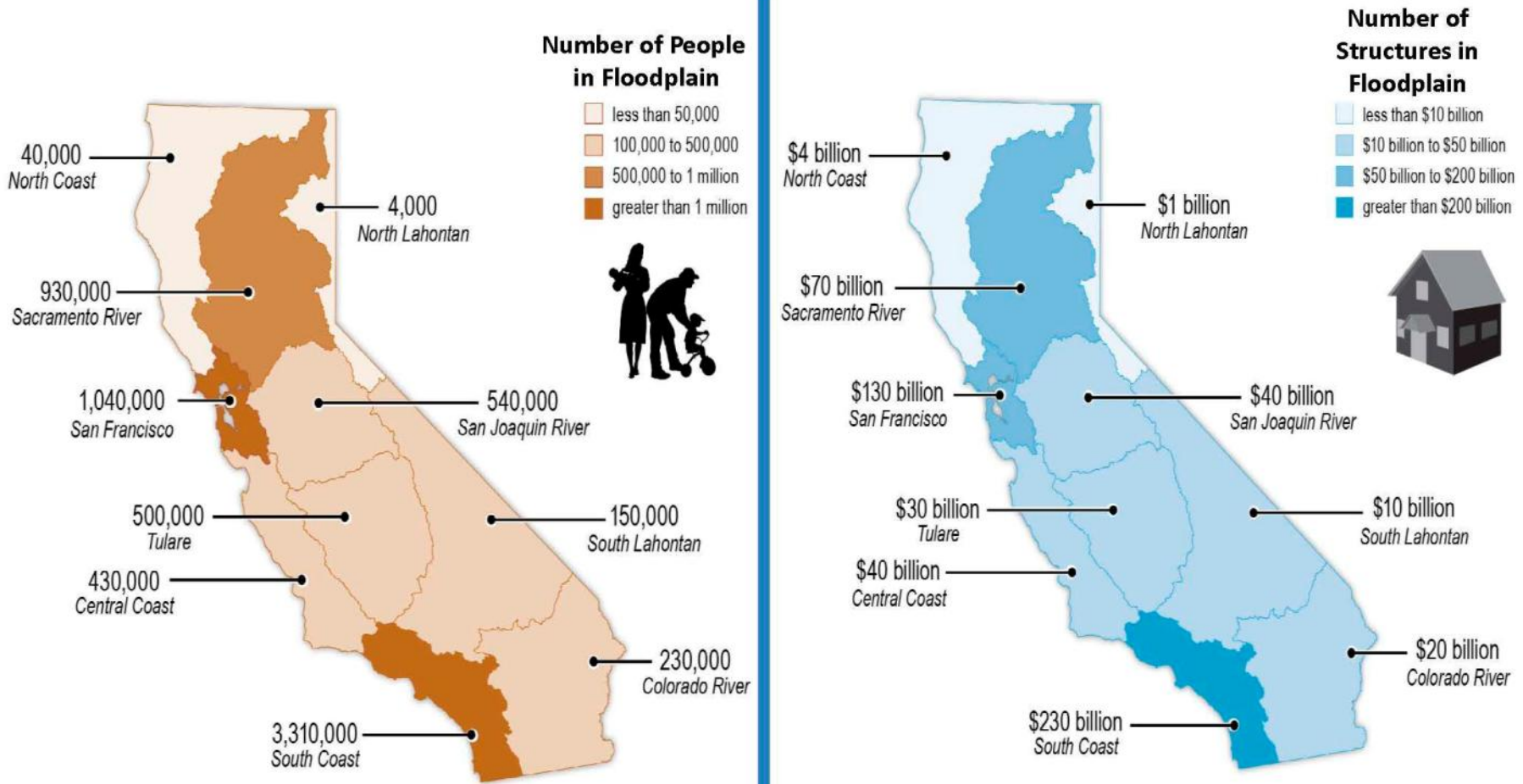


California's Flood Future (2013)

- **DWR and USACE Collaboration**
- Engaged 142 local agencies
- Map books to show flood risk exposure for every county
- Historical flooding reference for local and regional planning agencies and land use officials
- 7 high level / policy recommendations – *work underway now on statewide flood investment strategy*



Statewide Flood Exposure



State - Federal Cooperation DWR/U.S. Army Corps MOU (Fall 2015)

DWR	SHARED WORK PLAN	CORPS
Statewide Programs		
Statewide Flood Management Planning	Flood Future Report	Planning Assistance to States
Floodplain Management		
Flood Emergency Response	TBD	TBD
Drought Emergency Response		
State Plan of Flood Control		
Central Valley Flood Protection Plan	Pref. Plan/s & corresp. federal interest	CVIFMS
Yolo Bypass Implementation	SRFCP via Sac Bank reevaluation	SRFCP via Sac Bank reevaluation
<ul style="list-style-type: none"> - Cache Creek - Sacramento Bypass and Weir/levee improvements - Levee improvements 	<ul style="list-style-type: none"> - Lower Cache Creek Feasibility Study - American River Common Features GRR - West Sacramento GRR 	<ul style="list-style-type: none"> - Lower Cache Creek Feasibility Study - American River Common Features
Sacramento-San Joaquin Delta		
Delta Levee		
Delta Ecosystem Restoration	Delta Islands and Levee Feasibility Study	
Delta Conveyance		



* Need to flush out potential for future FPMS and PAS activities.

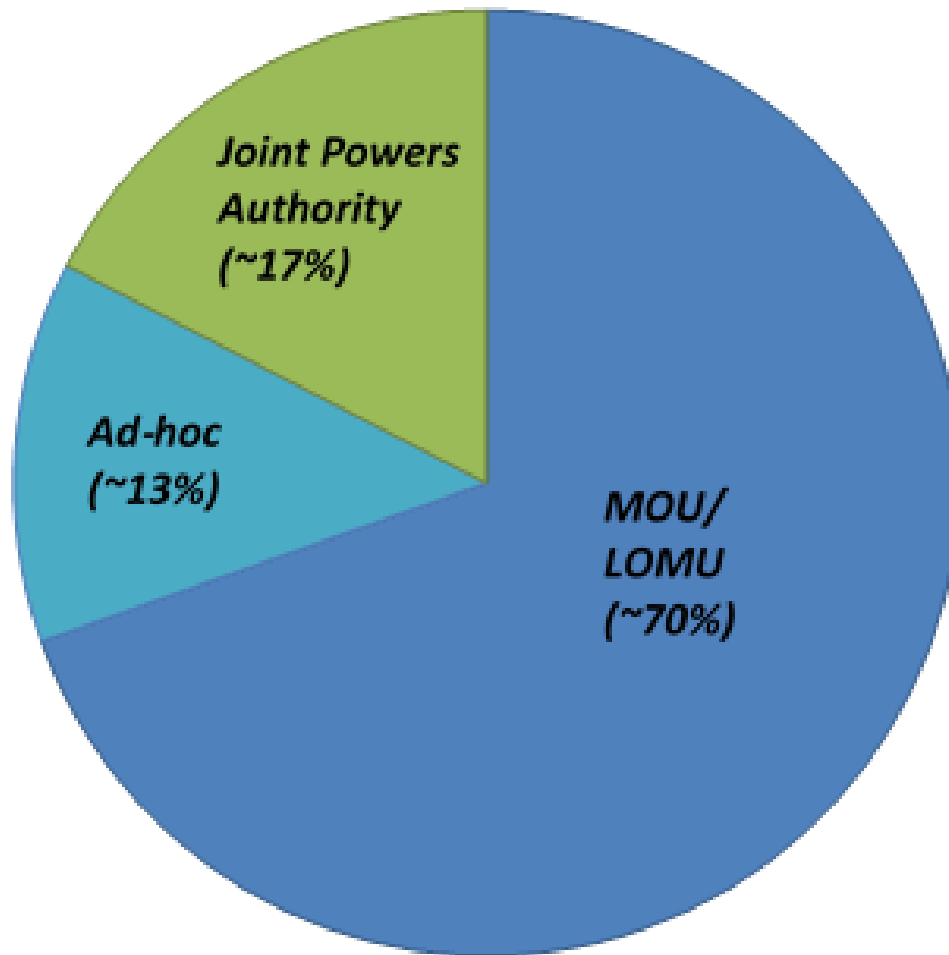
Local – Local Cooperation

By the numbers

FAST FACTS ABOUT IRWM



48 IRWM regions cover **99%** of California's population and **87%** of its geography



= \$250 M



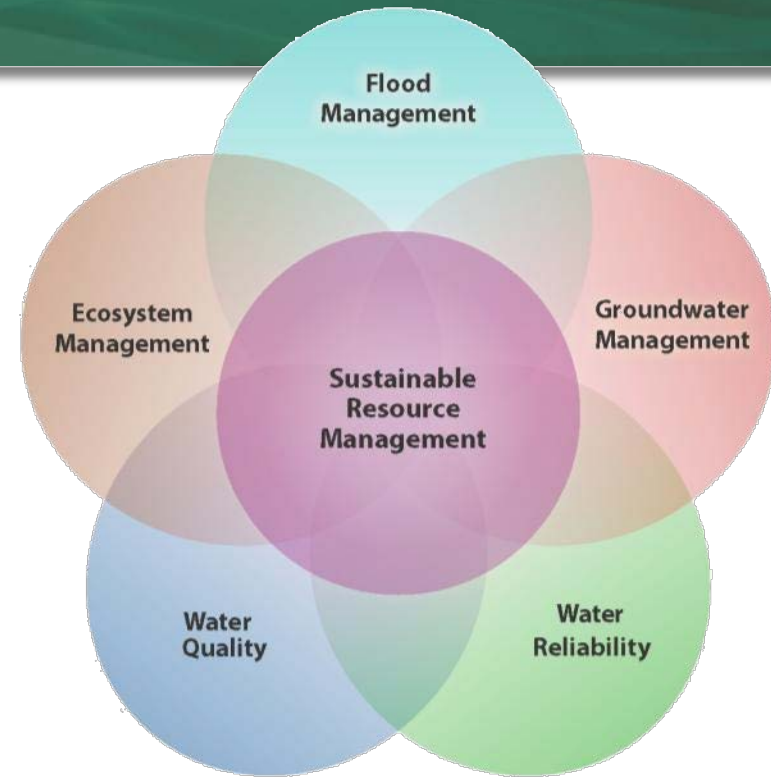
As of December 2014, **\$991 million** in State grants to regional groups have been matched by about **\$4.25 billion** in local and regional investments in IRWM



45 adopted IRWM plans and **700** IRWM projects

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- **Moving Forward: A New Approach is Needed to get to Sustainable Resource Management**



***Integrated Regional
Water Management 2.0***
The Next Generation

Moving California Forward

MAY 21-22, 2015 • Hilton San Diego Resort • 1775 East Mission Bay Drive • San Diego, CA

Moving Toward Sustainability

Society Values:

- ⊕ Public health and safety
- 💰 Economic stability
- 🌊 Ecosystem vitality
- 🧑 Other enriching experiences



Drivers of Regional Change

Integrated
Regional Water
Management

Sustainable
Groundwater
Legislation

River Basin
Planning
Approach

New Program will:

- Strengthen regional governance & capacity
- Enhance regional assistance programs
- Move to regional water budgets/water balance

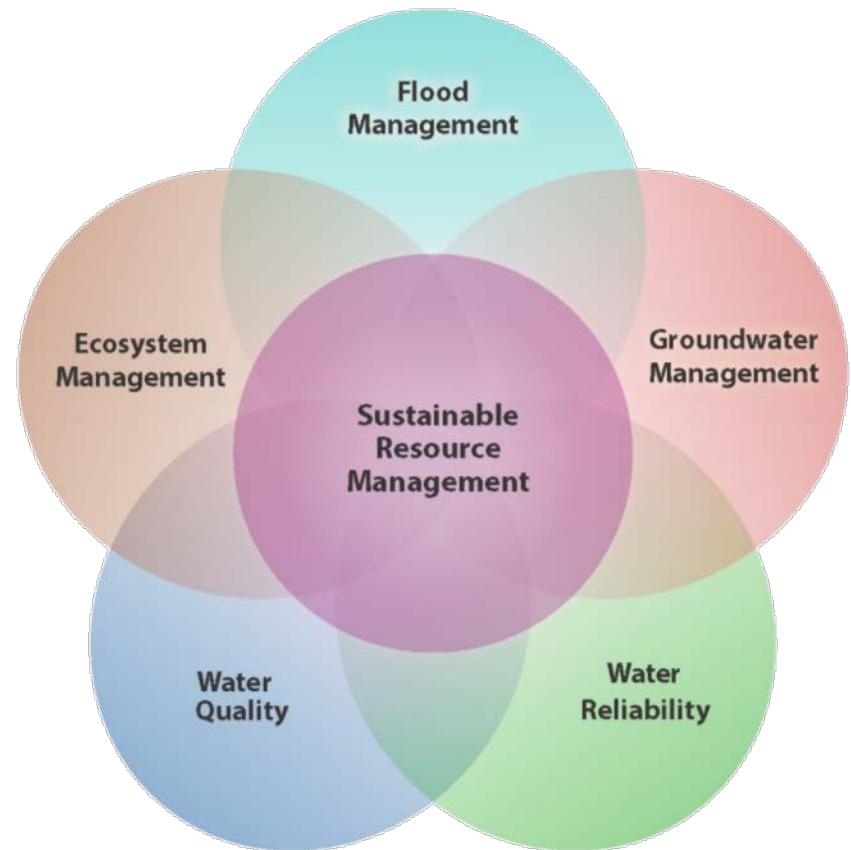
Upcoming Strategic Plan proposes strategies to:

- Align government programs & regulatory actions to support regions
- Strengthen regional governance & capacity
- Enhance regional assistance programs



Plan and Implement at a River Basin Scale

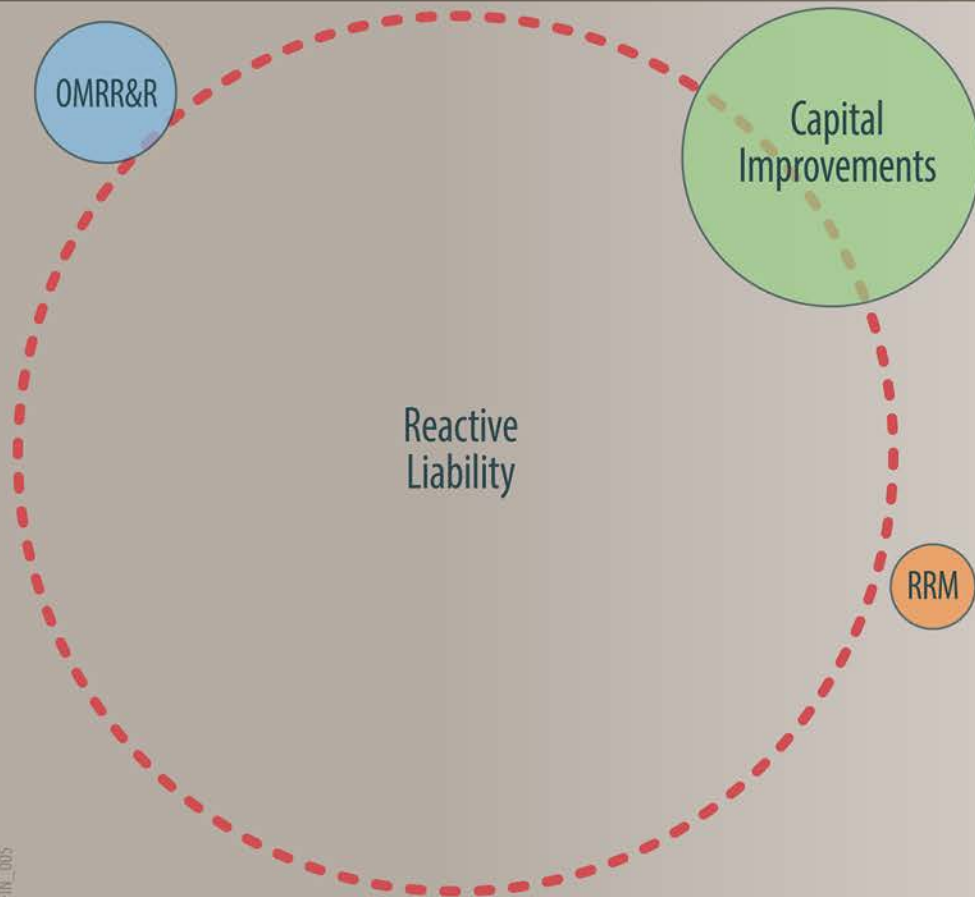
- Addresses interdependencies:
 - flood, groundwater, water reliability, water quality and ecosystem
- Considers diverse stakeholder perspectives
- Requires cooperation:
 - Local-Local scale
 - State/Fed-Local scale



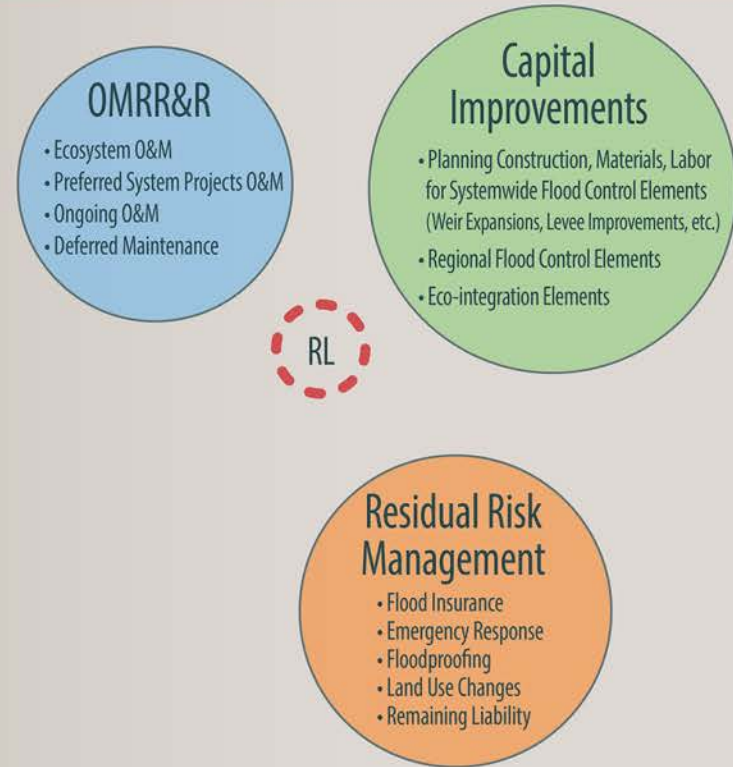
Future Investment Should be Planned, Not Reactive

REACTIVE COSTS MUST BE SHIFTED TO PROACTIVE INVESTMENT

PAST COST PATTERN



CVFPP INVESTMENT PATTERN

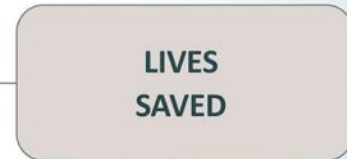
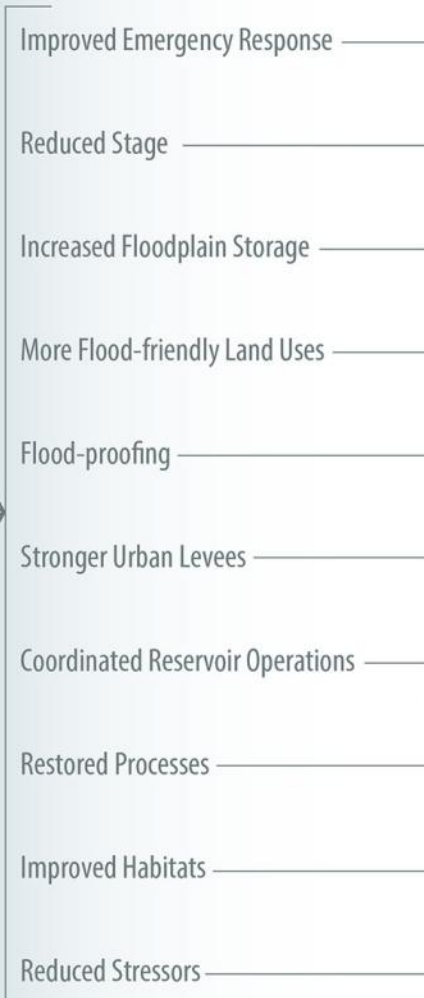


Outcome-Driven Investments will Lead to a More Sustainable, Resilient System

CVFPP Goals and Intended Outcomes

Foundational Goals for Integrated Water Management

IMPROVE FLOOD RISK MANAGEMENT



RESILIENCY

What Outcomes are We Achieving Today?

- Value drives the outcomes and programs
- Actions are planned to contribute toward outcomes



Level 1:
Enabling
Conditions

—



Level 2:
Physical Assets
and Behaviors

+ (On-the ground project
Implementation)



Level 3:
Resource and
Societal Benefits

+ (Reduced
flood risk)



Level 4:
Sustainability

—



Thank You!



Gary Bardini
Deputy Director

Integrated Water Management
California Department of
Water Resources

(916) 654-7180

gary.bardini@water.ca.gov

www.water.ca.gov

