

Managing California's Water Resources Sustainably for Future Generations

California Water Association
2017 Spring Conference

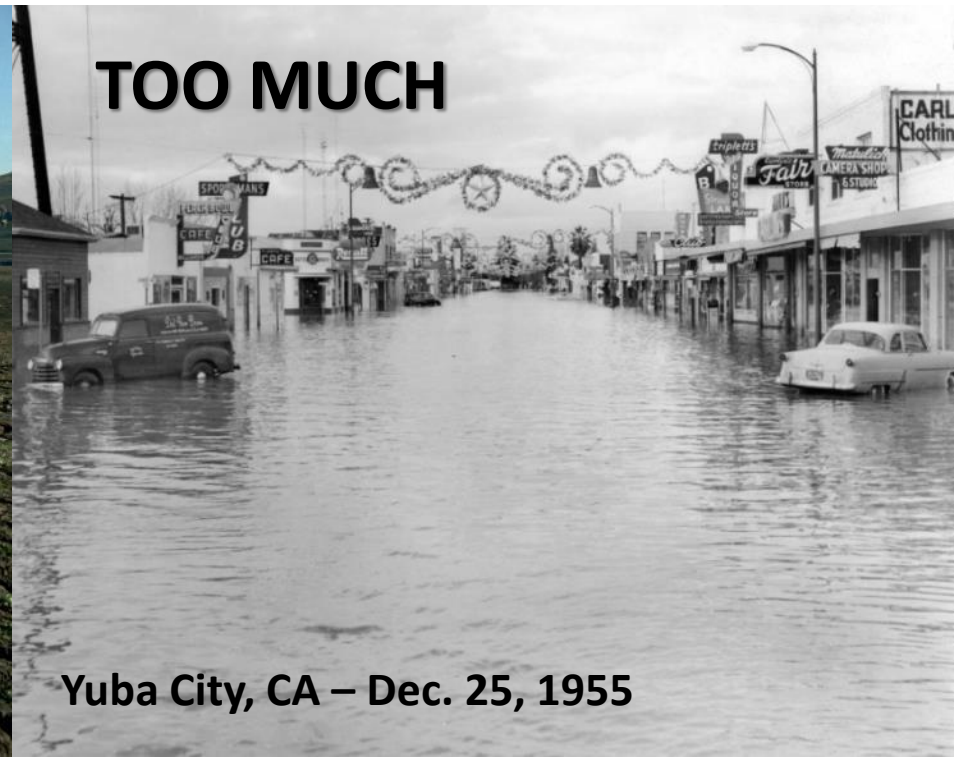
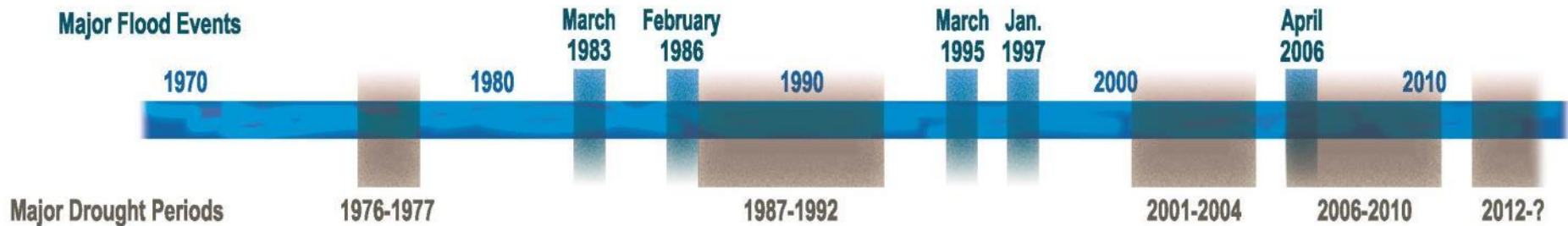
Sacramento, CA
May 18, 2017

Gary Bardini
Deputy Director
Integrated Water Management



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



California Water Policy Trends

**Water
Development**

**Resource
Awareness
& Conflict**

**Sustainable
Resources
Management**



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California Water Action Plan

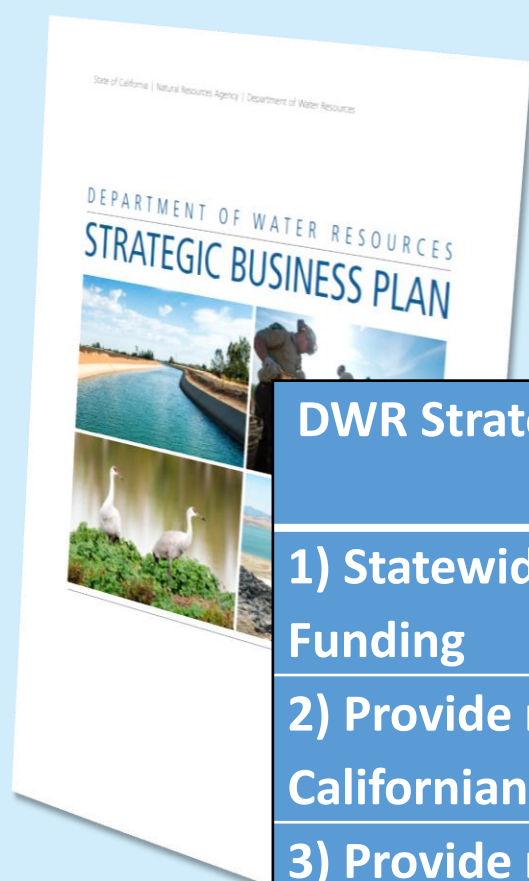
Ten Priority Actions

1. Make conservation a California way of life
2. Increase regional self-reliance and integrated water management across all levels of government
3. Achieve the co-equal goals for the Delta
4. Protect and restore important ecosystems
5. Manage and prepare for dry periods
6. Expand water storage capacity and improve groundwater management
7. Provide safe water for all communities;
8. Increase flood protection;
9. Increase operational and regulatory efficiency;
10. Identify sustainable and integrated financing opportunities.



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DWR Strategic Business Plan (2017 Update)

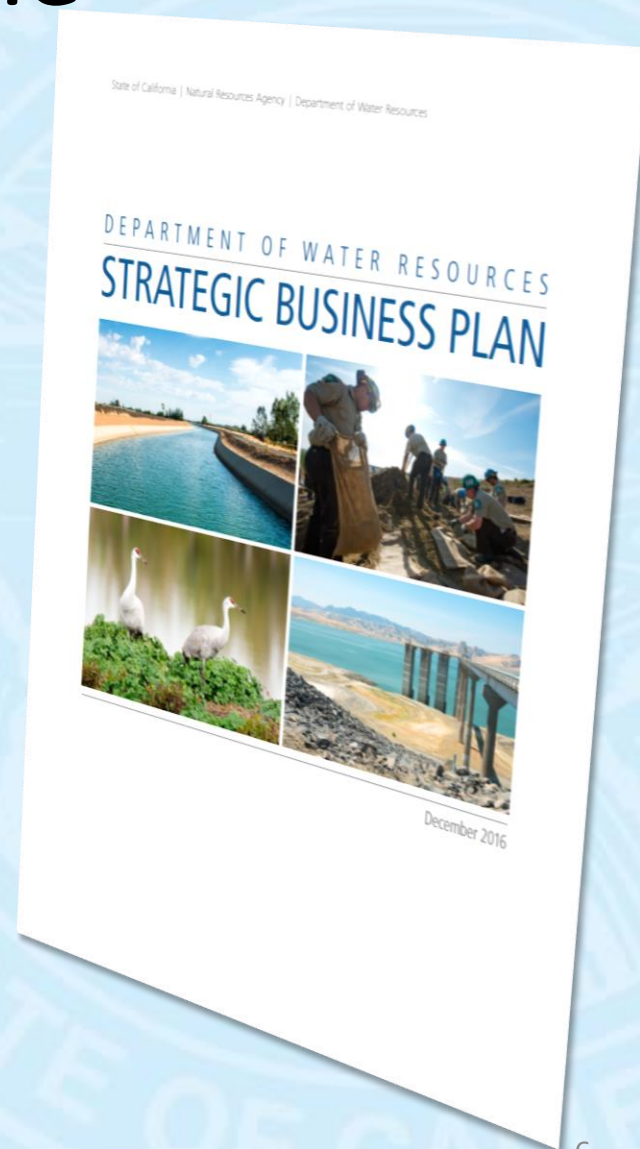


DWR Strategic Business Plan Goals (2017 Update)	CA Water Action Plan Actions
1) Statewide Planning to Inform Priorities and Funding	10
2) Provide reliable water supply for all Californians	3, 6
3) Provide regional assistance to build capacity	2, 6, 7
4) Protect lives through dam and flood management while protecting the ecosystem	4, 8
5) Increase resiliency to floods, droughts, climate change (reduce residual risk)	1, 5, 9
6) Operate our business with efficiency and accountability	NA



DWR's Mission and Role

*To **sustainably** manage the water resources of California, in cooperation with other agencies, to benefit the State's people and protect, restore, and enhance the natural and human environments*



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PROVIDING WATER MANAGEMENT SERVICES

Water Management Projects

- Maintain Large Scale Infrastructure
- Implementing System Infrastructure
- Restoration Projects
- Supporting Regional Projects

Water Management Planning

- Strategic Planning & Policy
- Investment Priority
- Collaborate on Regulatory Streamlining
- System Infrastructure Feasibility

Water Management Systems Evaluation & Assessment

- Data Management, Models & Tools
- Water Management Analysis
- Improve Science
- Assessments & Publications

Supporting Water Management

- Support Stable Funding Mechanisms
- Monitor Performance of Water Mgmt.
- Cross Cutting Programs
- Communicating Outcomes



Public Awareness

Greater
Political
Interest

Greater
Technical
Focus

Professional Awareness

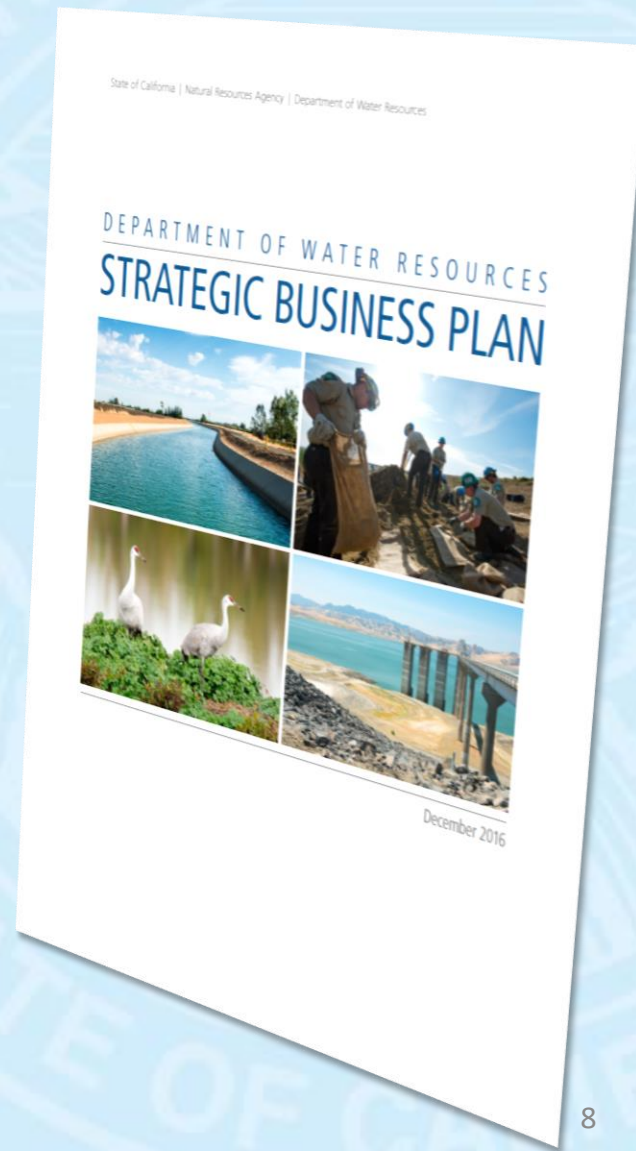
DWR's Mission and Role

➡ Statewide Planning to Inform Priorities and Funding

- Provide Reliable Water Supply
- Provide Regional Assistance to Build Capacity
- Protect Lives through Dam and Flood Management
- Increase Resiliency to Floods, Drought, Climate Change



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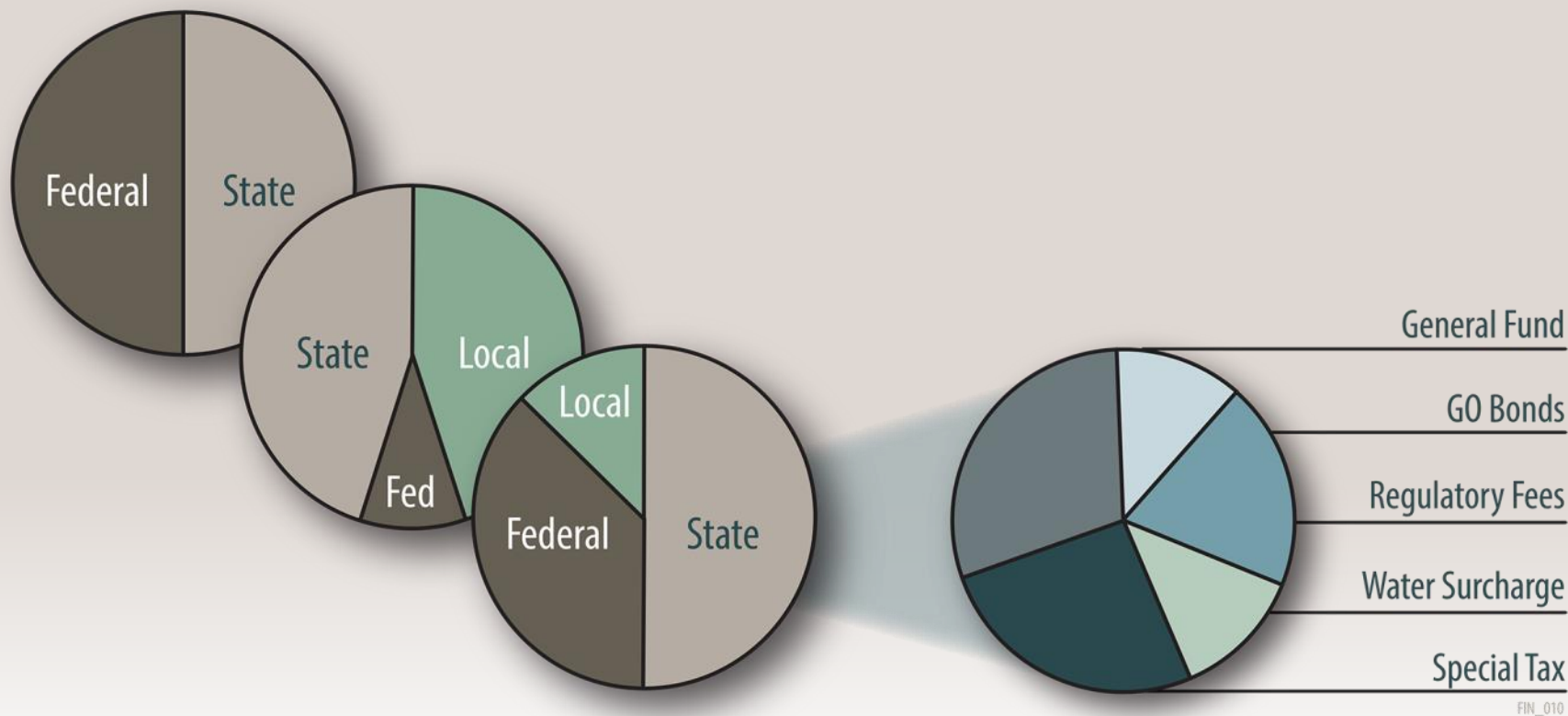
State Public Financing: Recent History

Historical Finance Categories	CA Water Action Plan	Prop. 204 1996	Prop. 13 2000	Prop. 50 2002	Prop. 84 2006	Prop. 1E 2006	Prop. 1 2014	Totals
Sustainable Financing through Integration and Alignment	10. Identify sustainable and integrated financing opportunities				\$15			\$15
Residual Risk Management	1. Make conservation a California way of life	\$60	\$105	\$200	\$180		100	\$645
	5. Manage and prepare for dry periods							
	9. Increase operational and regulatory efficiency							
Water Reliability	3. Achieve the co-equal goals for the Delta	\$168	\$250		\$325		87.5	\$830.5
	6. Expand water storage capacity and improve groundwater management	\$40	\$262	\$50			2,700	\$3,052
Regional Sustainability	2. Increase regional self-reliance and integrated water management across all levels of government	\$60	\$478	\$855	\$1,050	\$300	1,335	\$4,078
	7. Provide safe water for all communities	\$140	\$70	\$715	\$380		1,520	\$2,825
Flood Management/ River Basin	4. Protect and restore important ecosystems	\$442	\$556	\$1,550	\$2,638		1,407	\$6,593
	8. Increase flood protection	\$85	\$249	\$70	\$800	\$3,790	395	\$5,389
	TOTALS	\$ 995	\$ 1,970	\$ 3,440	\$ 5,388	\$ 4,090	7,545	\$ 23,428

Exploring a Variety of Funding Scenarios Gives Us Insight into a Realistic Financing Plan

EXPLORING COST SHARES

Emphasis is on exploring cost share mixes, then examining the State's mixes of funding mechanisms



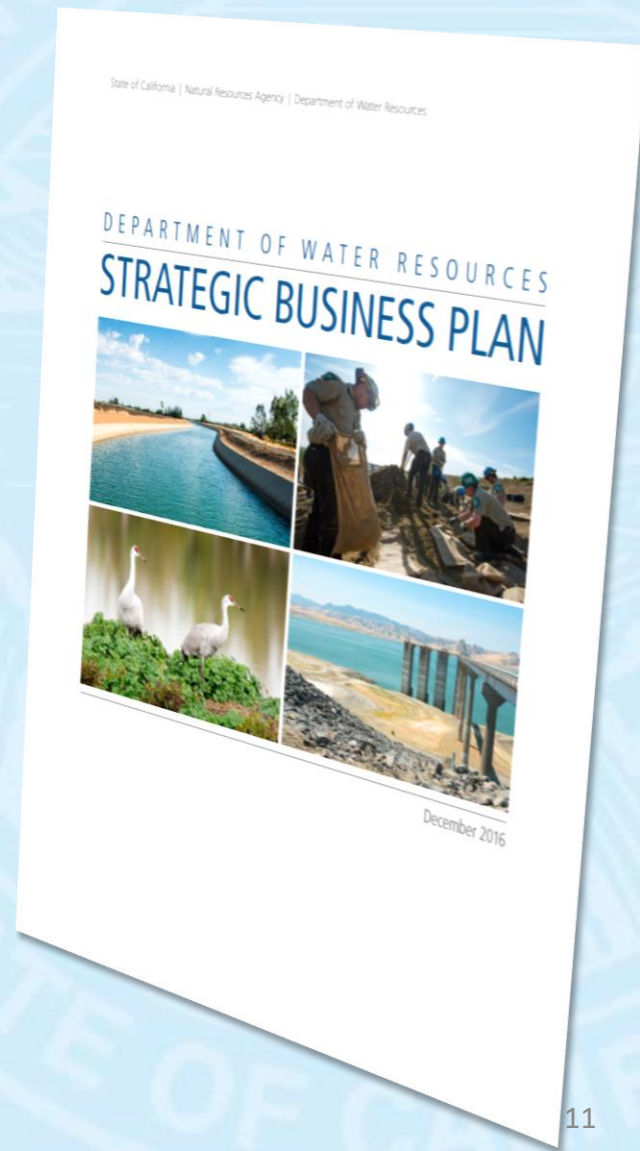
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DWR's Mission and Role

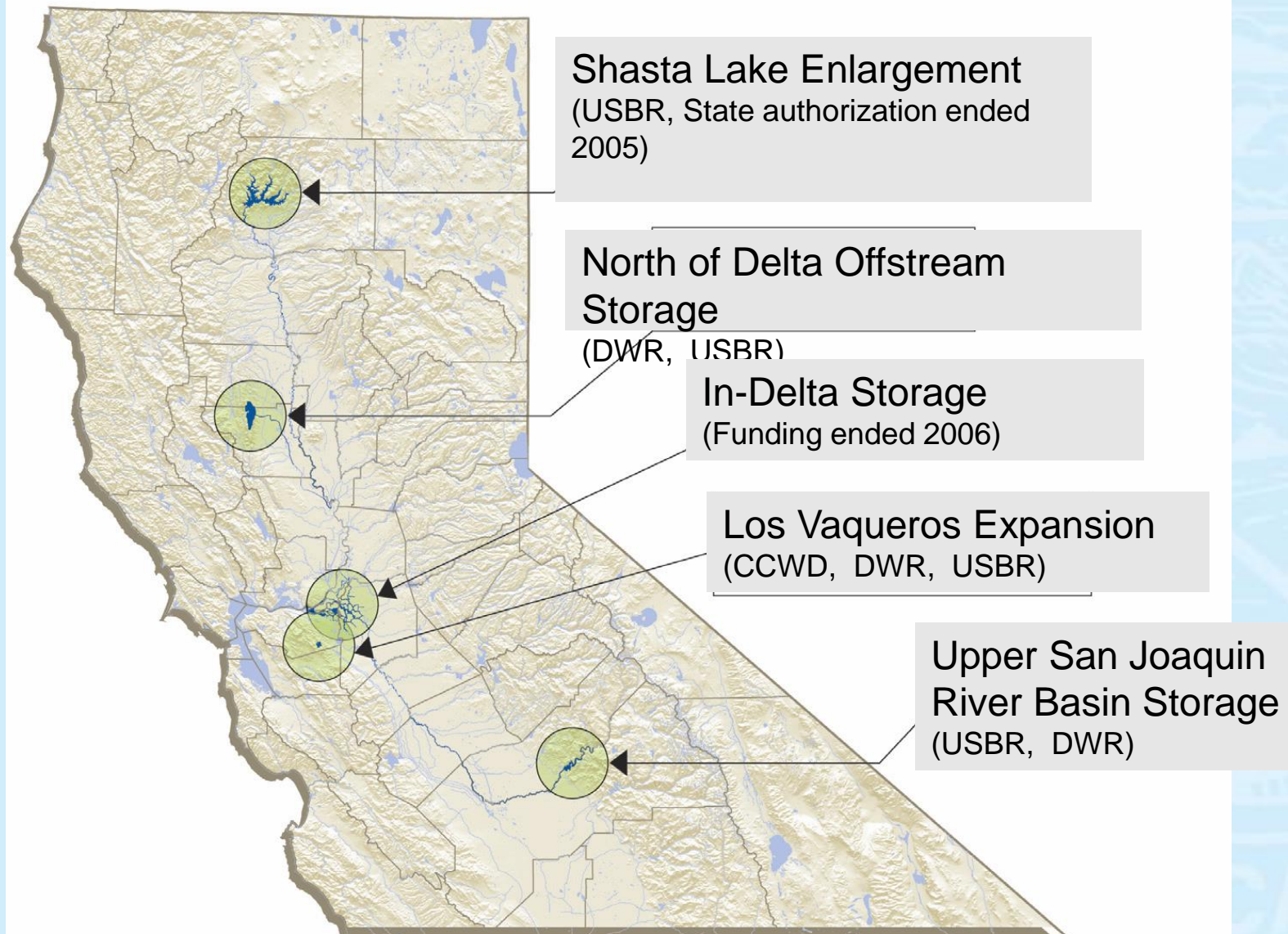
- Statewide Planning to Inform Priorities and Funding
- ➔ **Provide Reliable Water Supply**
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Surface Storage Investigations (2000 CALFED Record of Decision)



FUNDING THE

PUBLIC BENEFITS

OF WATER STORAGE



With the passage of **Proposition 1** (the Water Bond) the **California Water Commission** is implementing the Governor's Water Action Plan by developing the competitive public process to allocate **\$2.7 billion** in funding for the **public benefits** of water storage projects. The Commission invites your participation as we develop regulations to define methods for the quantification and management of public benefits of water storage projects, and grant program guidelines that will define and guide the process.

Funding available for the public benefits of water storage projects

\$2.7 billion

Projects eligible to receive funding:

- CALFED Surface Storage
- Groundwater Storage and Groundwater Clean-up
- Conjunctive Use and Reservoir Reoperation
- Local and Regional Surface Storage

Benefits that can be funded:

- Ecosystem Improvement
- Water Quality Improvement
- Flood Control
- Emergency Response
- Recreation

Prop 1 Storage Investment Program

California 
WATER COMMISSION

*Maximum State Cost-Share for **Funded Public Benefits***



50%

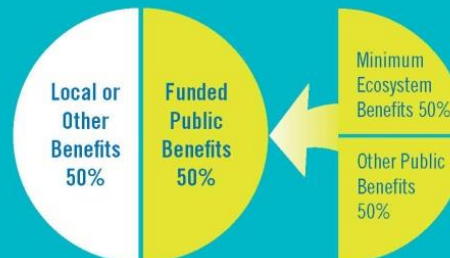
***Ecosystem Benefits** must be*

50%

of the funded public benefits

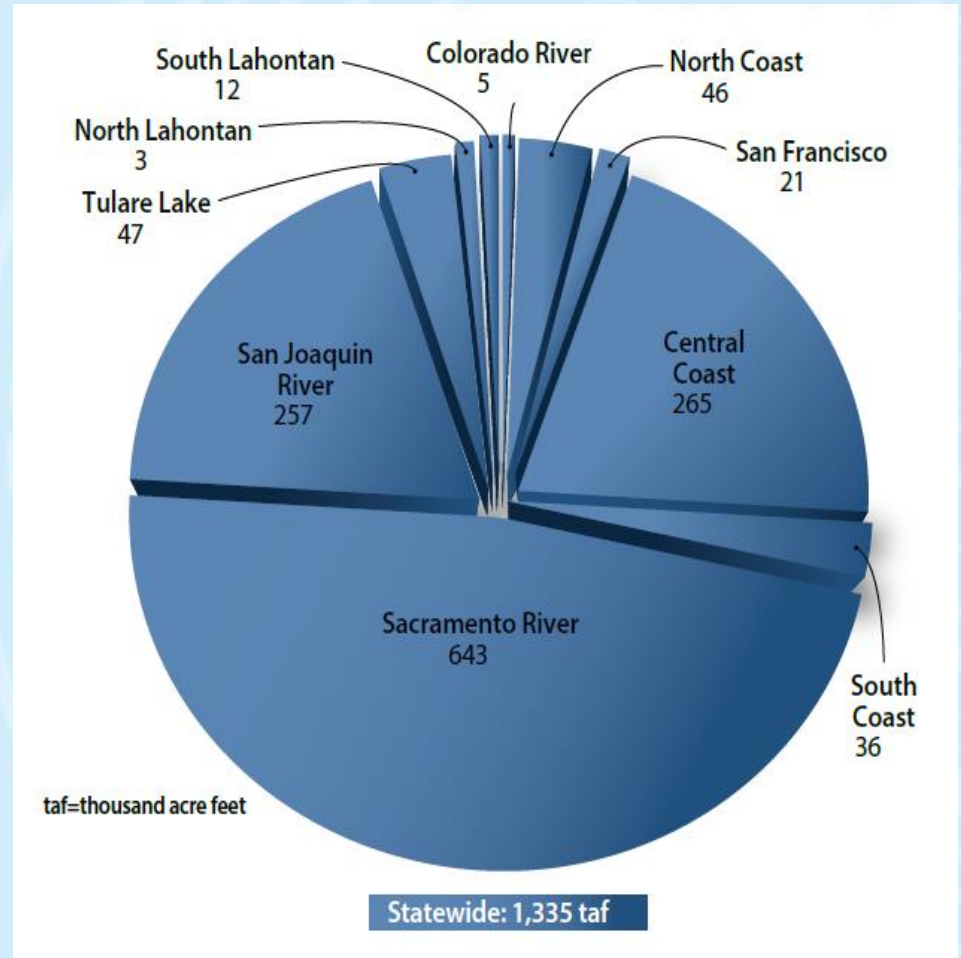
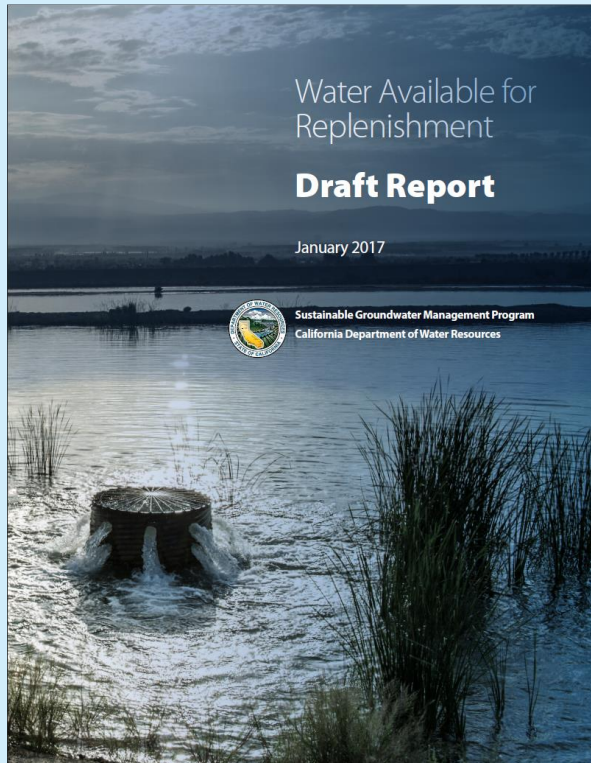
TOTAL BENEFITS

Funded Public Benefits



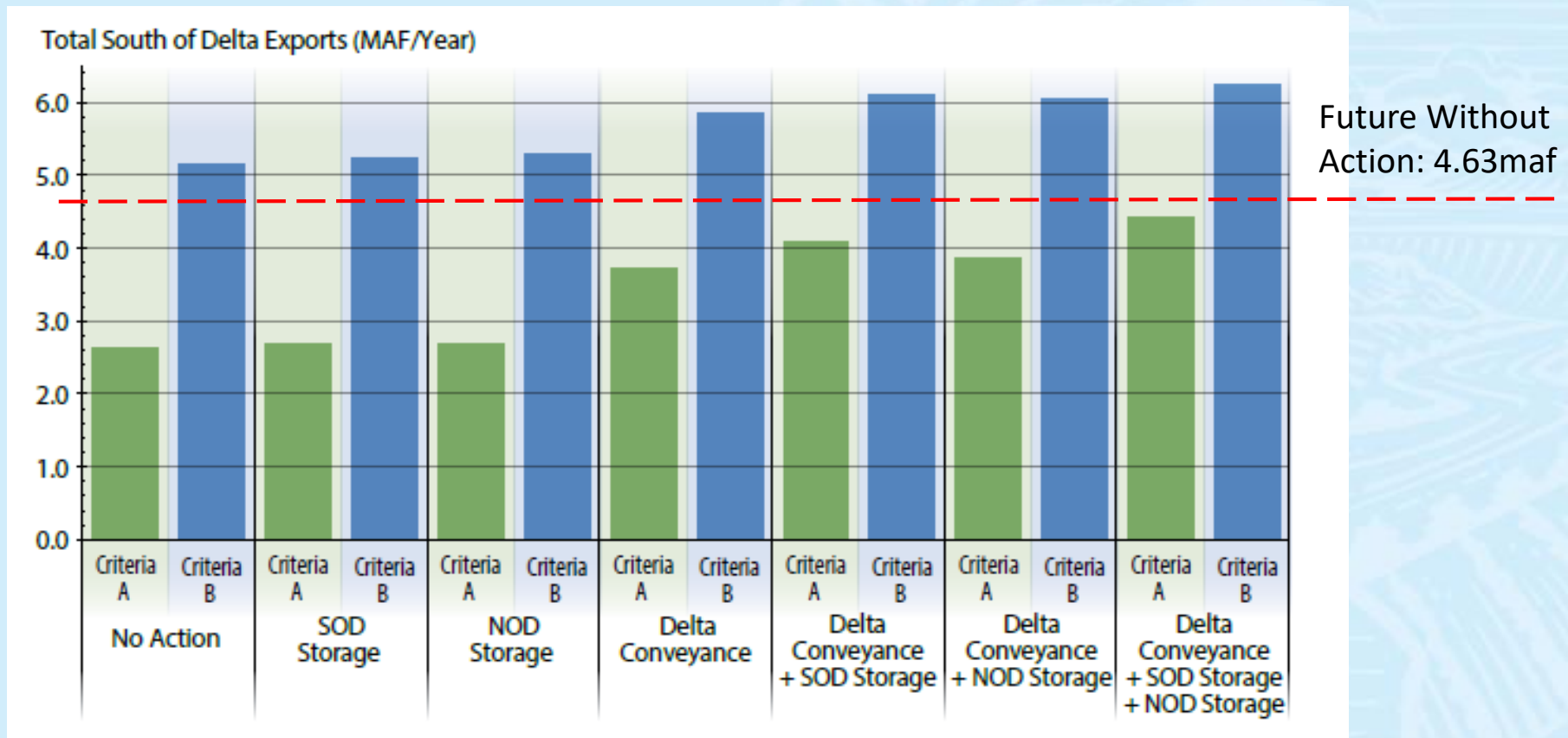
Water Available for Replenishment

Best Estimate of Average Annual WAFR, by Hydrologic Region (taf)



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State Water Project and Central Valley Project – Reliability and Availability



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State Water Project at a Glance



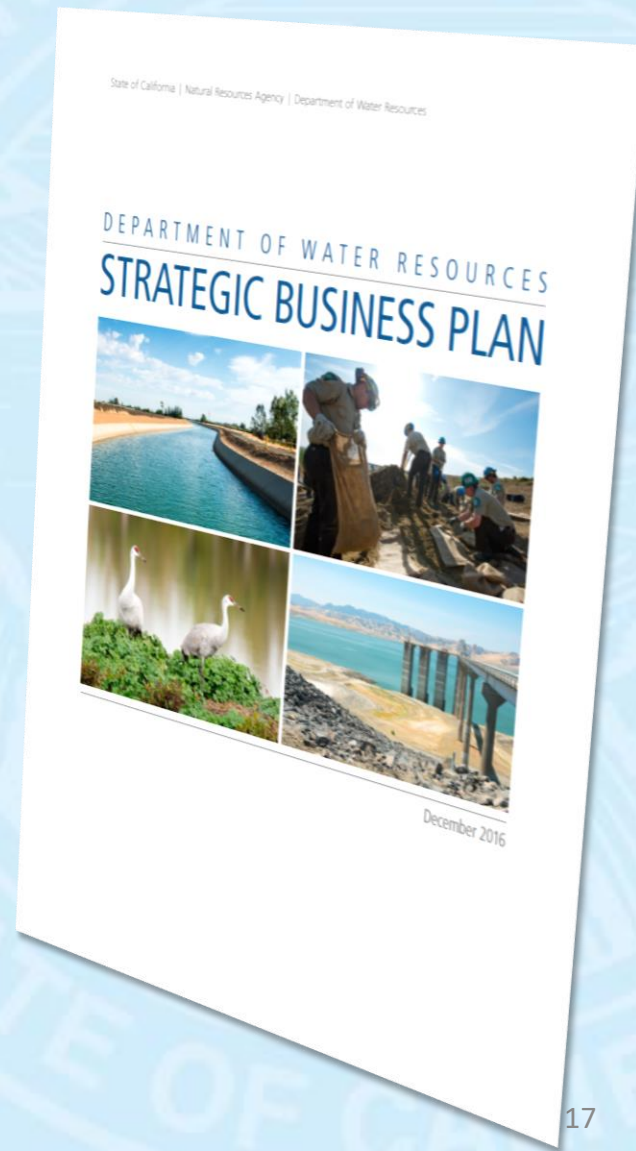
- Largest state owned & operated water system in the U.S.
- Multiple Purposes and Benefits
- Serves 25 million people over 750,000 acres of farmland
- - 32 Storage Facilities
 - 21 Pumping Plants
 - 4 Pumping-generating Plants
 - 8 Hydroelectric Plants
 - 700 miles of Canals and Pipelines

DWR's Mission and Role

- Statewide Planning to Inform Priorities and Funding
- Provide Reliable Water Supply
- ➔ **Provide Regional Assistance to Build Capacity**
- Protect Lives through Dam and Flood Management
- Increase Resiliency to Floods, Drought, Climate Change

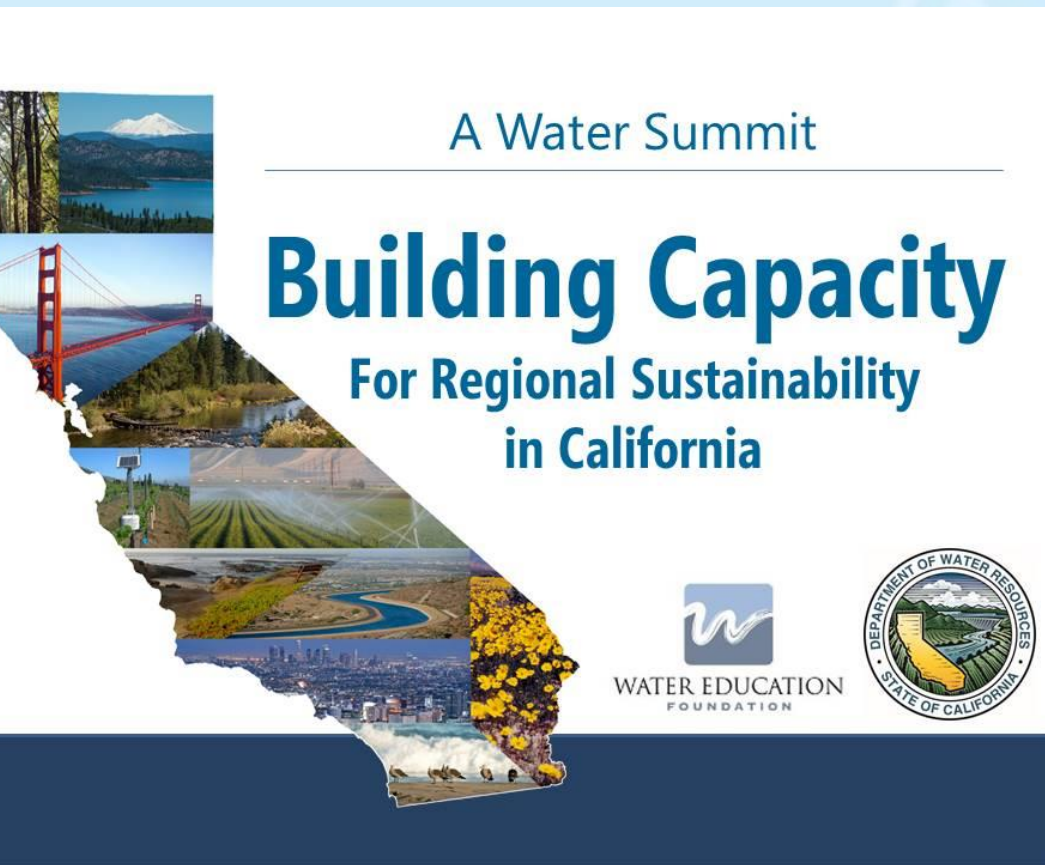


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April 2017 Water Summit

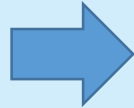
Key Takeaways



- Integrated planning approach is foundational (build on IRWM)
- Land use and water use must be connected
- Scale is important
- Trusted relationships are essential
- Regions are unique
- Regions need from State: leadership, flexibility, coordinated/streamlined planning & regulatory requirements, financial/technical assistance

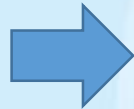
Sustainable Groundwater Management Act (SGMA)

Sustainable



Focus on **outcomes** that support sustainable water resources management

Groundwater



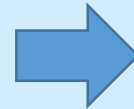
Groundwater is missing link that connects **land use and water use**

Management



Requires effective **governance** and comprehensive **water budgets**

Act



Requires **innovative solutions** appropriate for **complex systems**

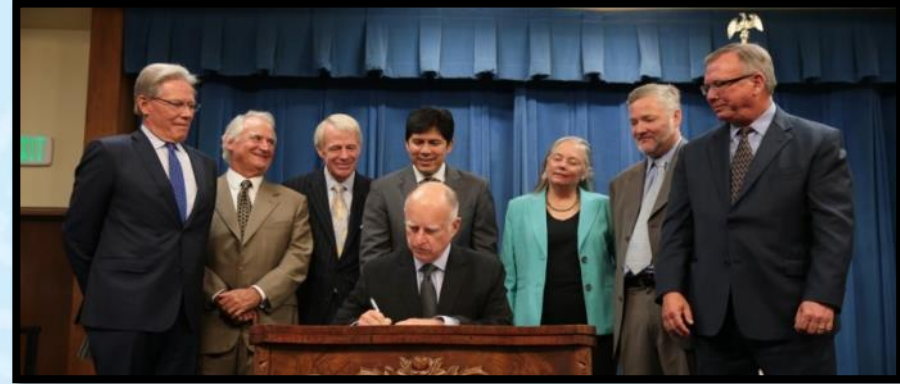


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State's Role (DWR and State Water Board)

“A central feature of SGMA is the recognition that groundwater management in California is best accomplished locally.”

Governor Jerry Brown, September 2014



Financial Assistance

- *Proposition 1*

Planning Assistance

- *Facilitation*
- *GSA/Governance Support*

Technical Assistance

- *Statewide Datasets, Analysis, and Tools*
- *Best Management Practices*
- *Water Available for Replenishment Report*

Facilitation/Advisory Role

DWR

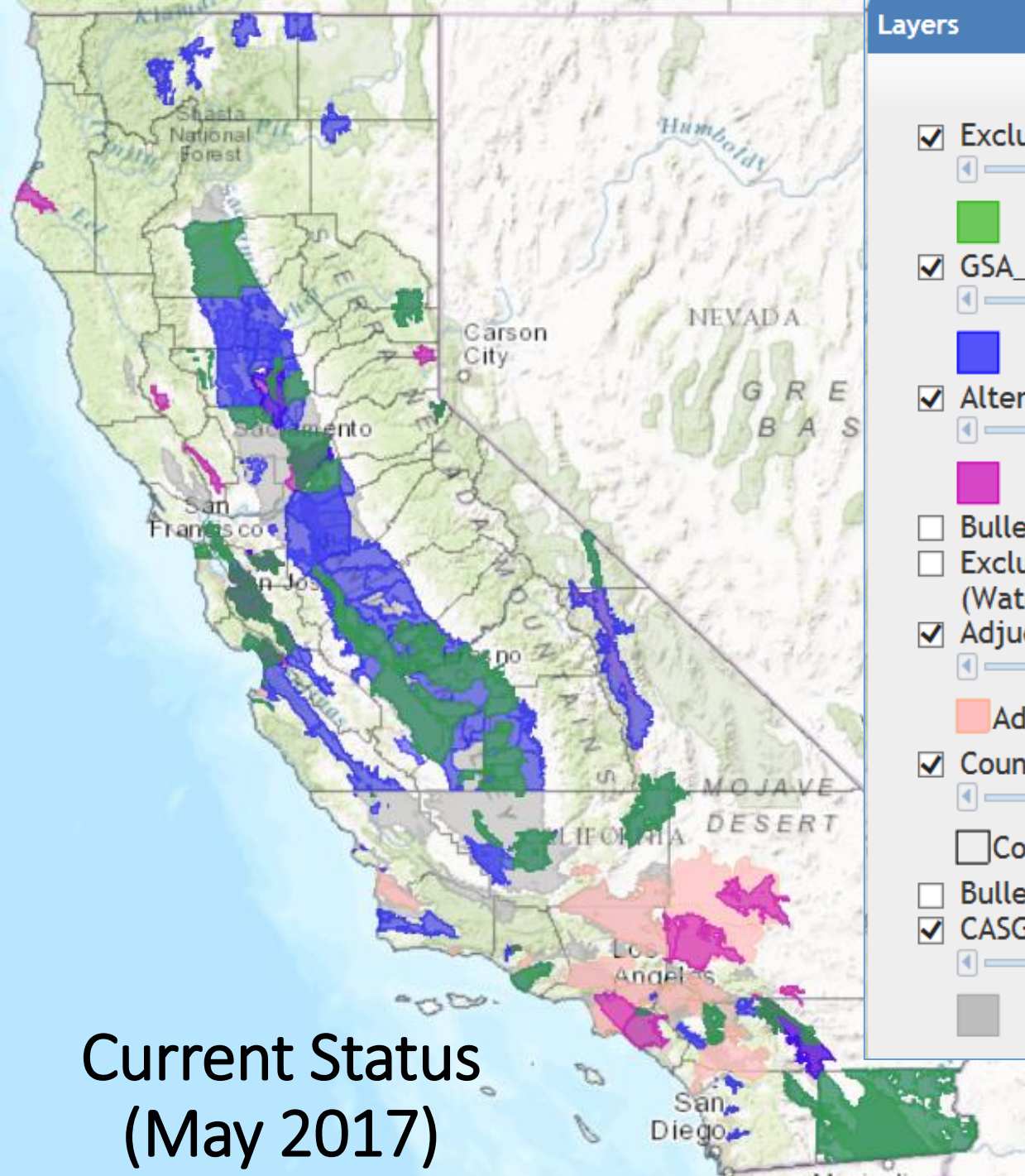
**Evaluation
of GSPs**

Evaluation Role

**State Water
Board**

Enforcement

Regulatory Role



Layers



Downloads

Clear all

☒ Exclusive GSAs



☒ GSA_Notice Submitted



☒ Alternatives Submitted



☐ Bulletin 118 Changed Areas (2003/2016)

☐ Exclusive Local Agencies
(Water_Code_\$10723)

☒ Adjudicated Areas



Adjudicated Region

☒ Counties



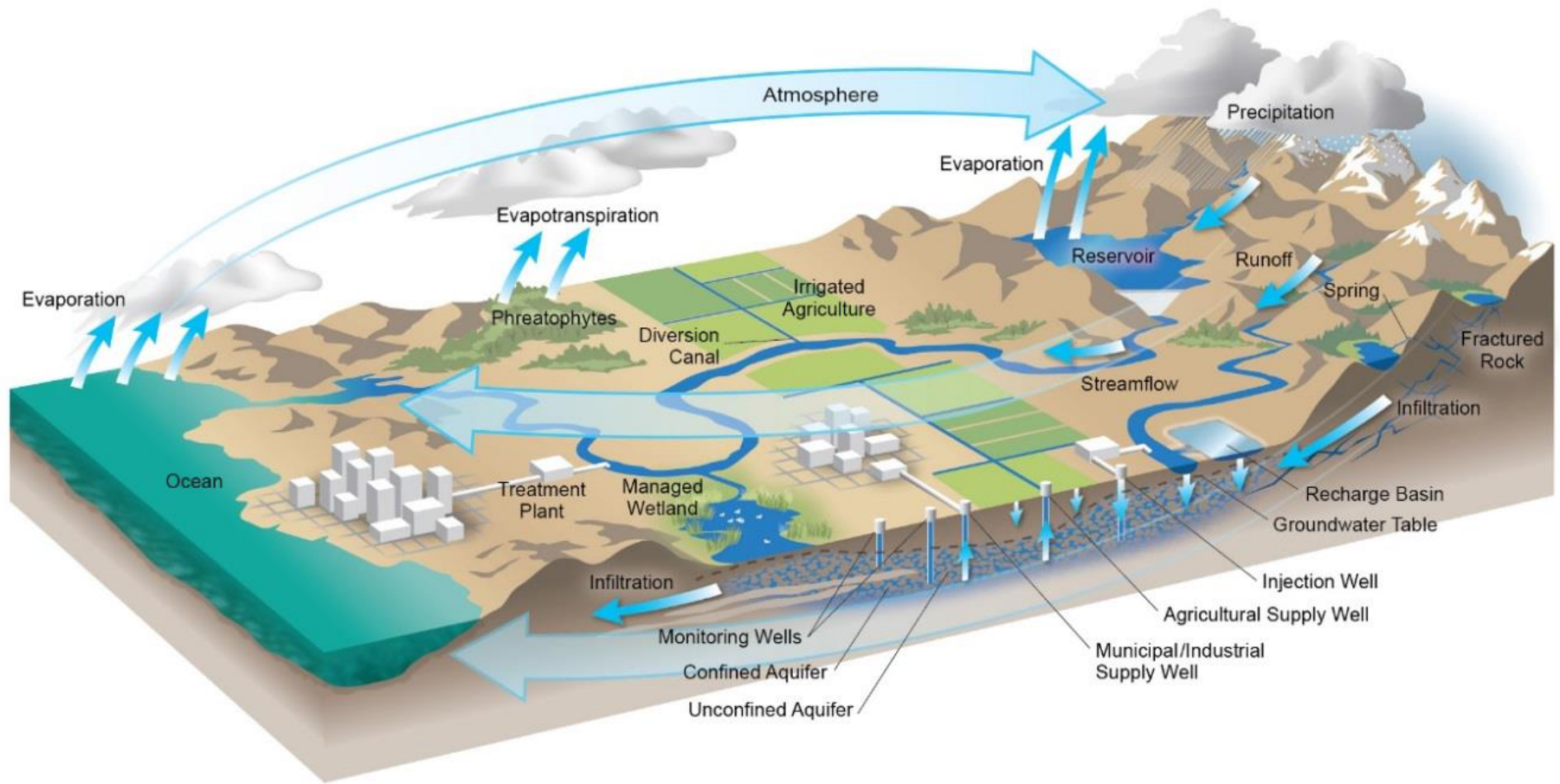
County Boundary

☐ Bulletin 118 Groundwater Basins (2016)

☒ CASGEM Basin Priorities High/Medium Only



Key Indicator of Success: Regional Water Budget and Balance

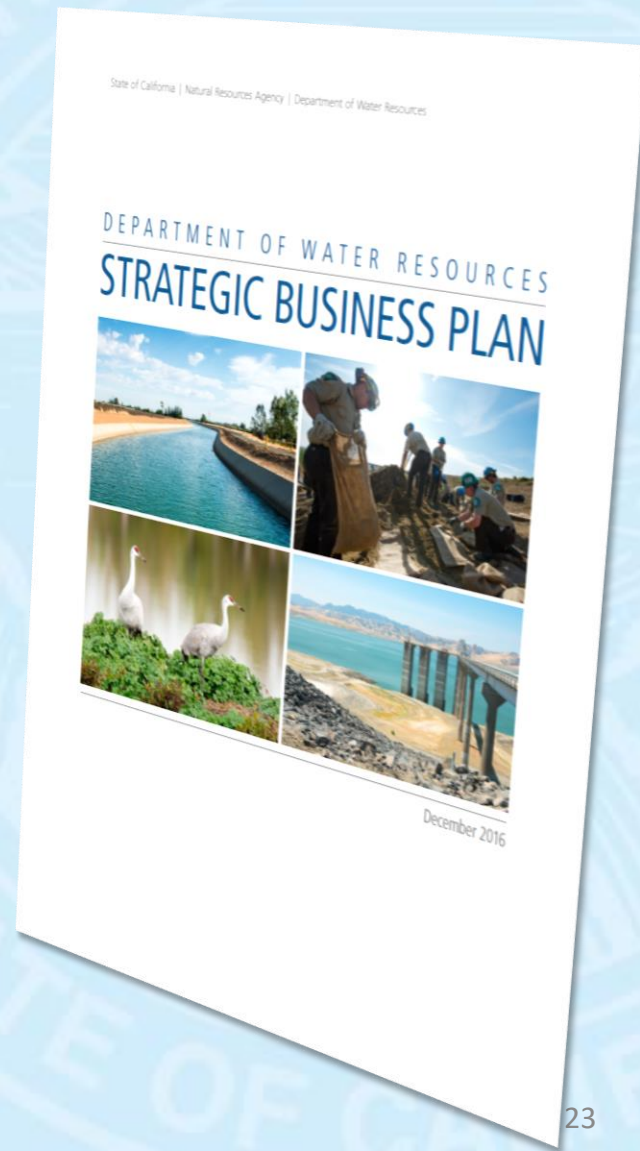


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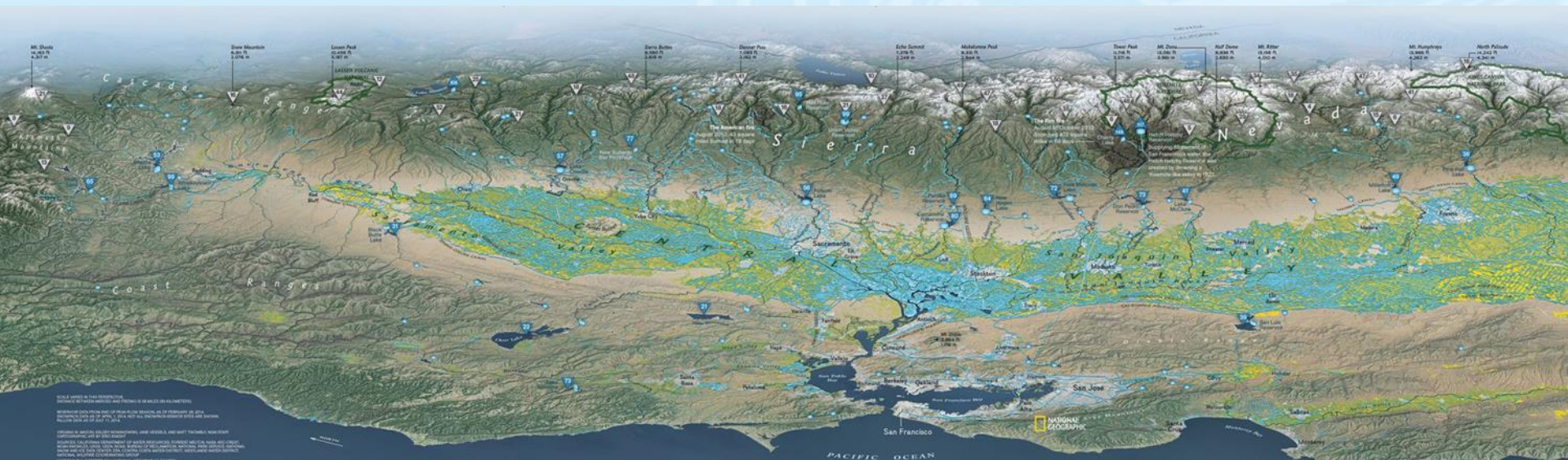
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State Plan of Flood Control

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



Source: National Geographic Magazine, Oct. 2014: Used with permission.

Central Valley Flood Protection Plan 2017 Update

- \$17.4B to \$21.3B investment needed
- The plan will take 30 years to implement
- Integrates and prioritizes investments in multi-benefit flood risk reduction projects
- Adds detail to recommended near and longer-term investment and financing approach
- 8 major policy issues identified with recommendations for resolving them
- Holistic path forwards to a different approach



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Flood-Management Policy Issues

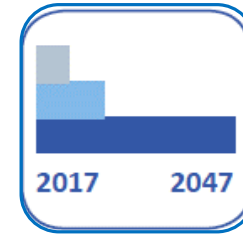
Land Use and Floodplain Management



Residual Risk Management



Hydraulic and Ecosystem Baselines and Program Phasing



Operations and Maintenance of the Flood System



Development of Multi-Benefit Projects



Effective Governance and Institutional Support



Coordination with Federal Agencies

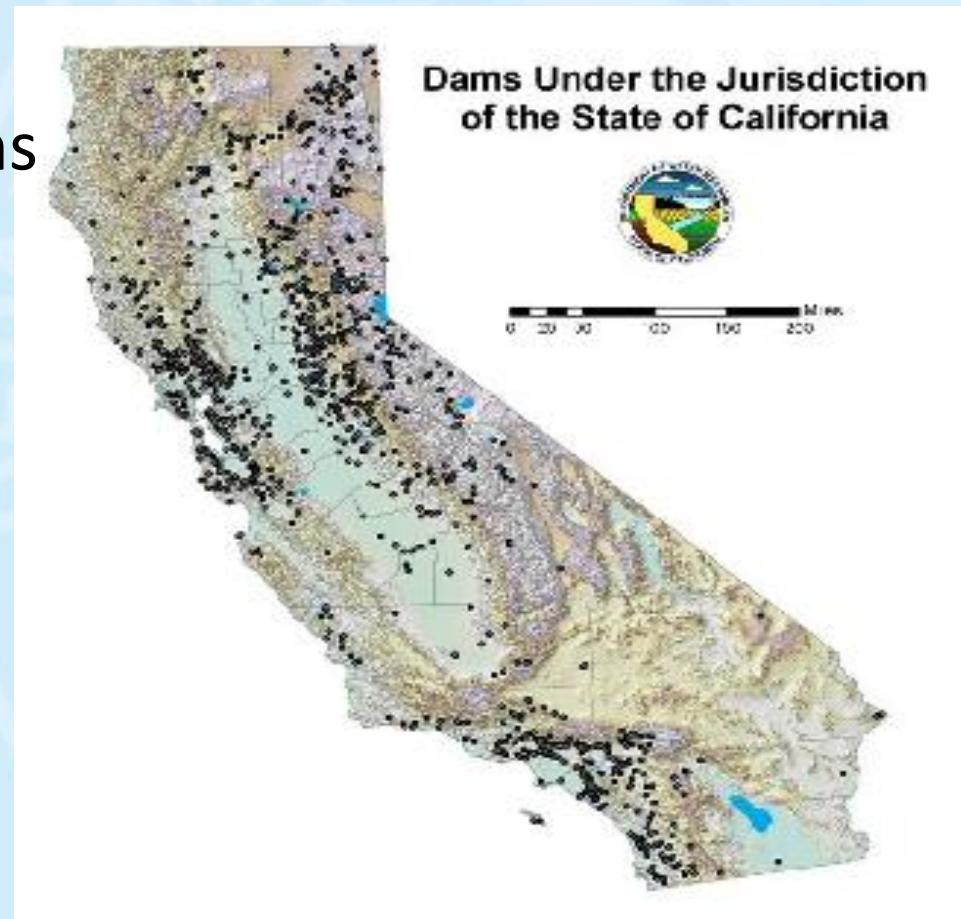


Finance



California's Dam Safety Program

- Design Reviews for New Construction, Alteration, Repair & Removal of Dams
- Construction Supervision
- Monitoring of Dams (Annual Inspections)
- Reevaluations/Special Projects
- Emergency Response



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2016 Review of DWR's Dam Safety Program

"The Team considers the DSOD program to be the leading dam safety program in the nation"

*-Association of State Dam Safety Officials,
May 2016*



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PEER REVIEW
OF THE
DAM SAFETY PROGRAM
OF THE
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS



PREPARED BY:
WILLIAM B. BINGHAM, P.E.
DANIEL J. MAHONEY
MARK B. OGDEN, P.E.
KENNETH E. SMITH, P.E.

MAY 19, 2016

ASSOCIATION OF STATE DAM SAFETY OFFICIALS

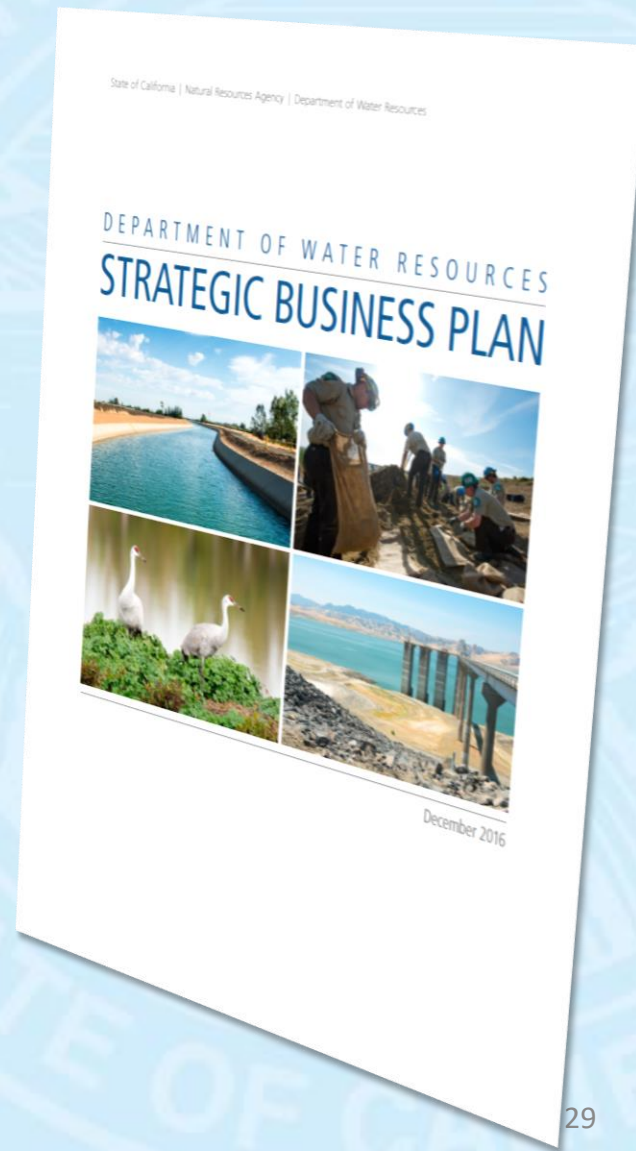
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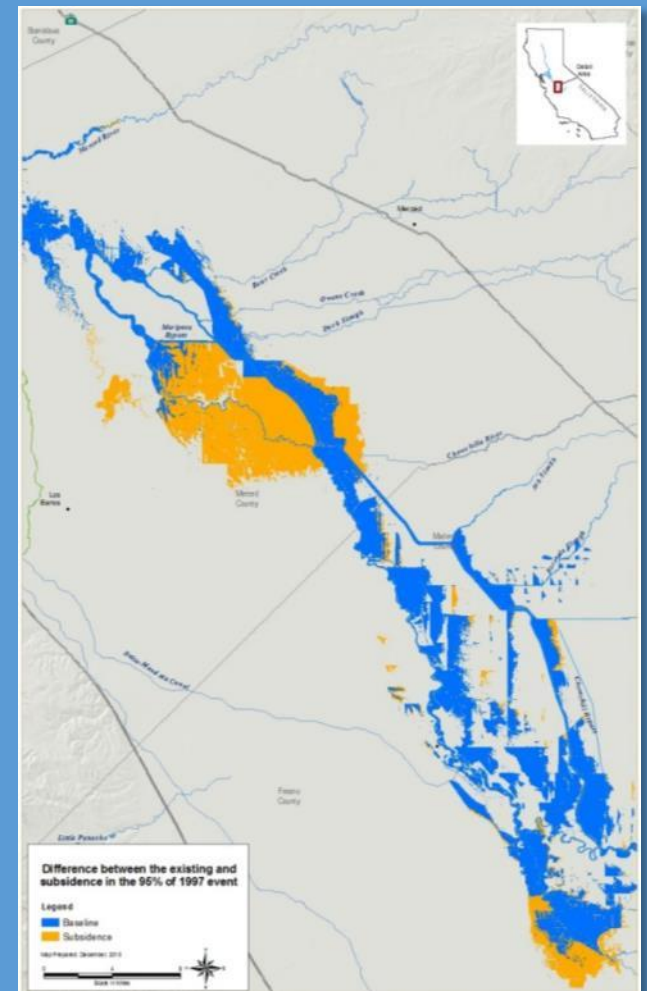
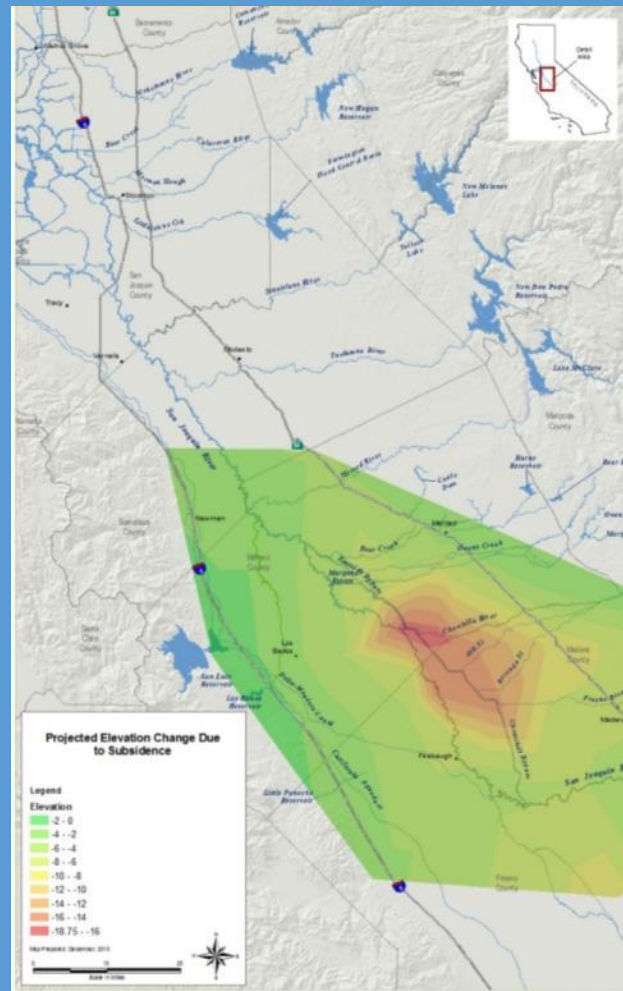
 **Increase Resiliency to Floods, Drought, Climate Change**



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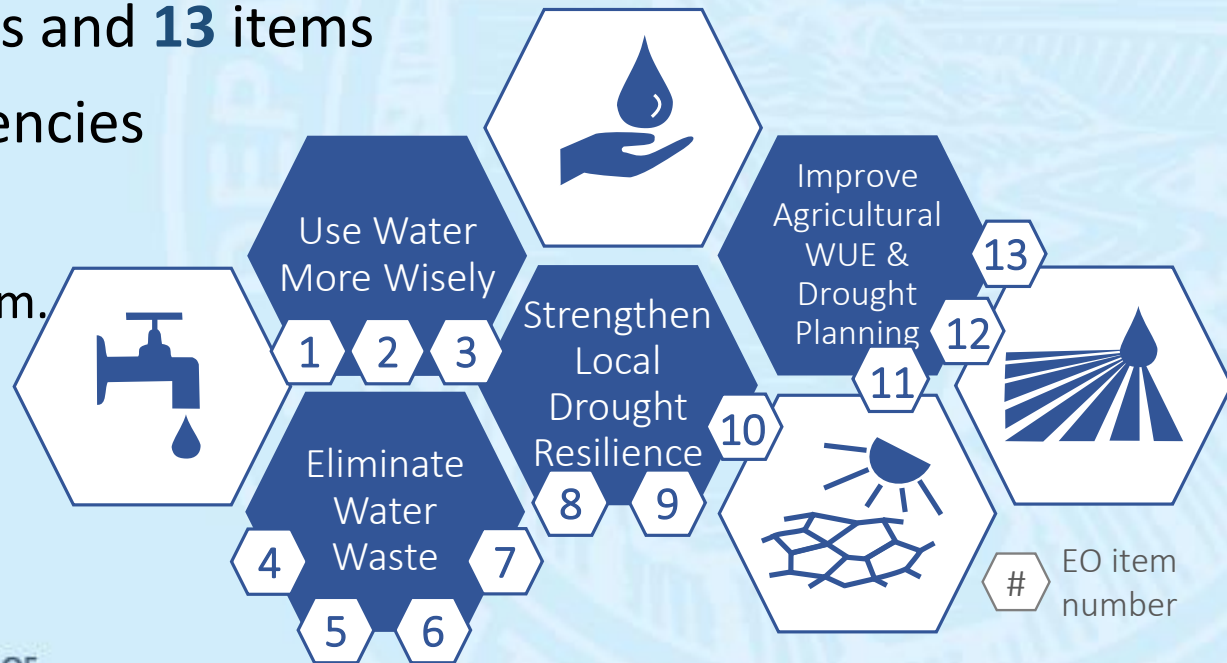


Drought & Subsidence Issues in Upper San Joaquin Valley



Executive Order B-37-16

- Issued May 9, 2016 to establish a framework
 - long-term water conservation measures
 - improved planning for more frequent and severe droughts
- Contains **4** objectives and **13** items
- Directed to **5** EO Agencies
 - Water Resources
 - Water Board
 - Public Utilities Comm.
 - Food & Agriculture
 - Energy Commission



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Chapter Section and Title where EO Item is Addressed	EO Item													Within Existing Authorities (Chapter 2)	Requires New Authority (Chapter 3)
	 Use Water More Wisely			 Eliminate Water Waste				 Strengthen Local Drought Resilience			 Improve Agricultural Water Use Efficiency & Drought Planning				
	1	2	3	4	5	6	7	8	9	10	11	12	13		
2.1 Emergency Water Conservation Regulations for 2017	●													✓	
2.2 Monthly Reporting and Permanent Prohibition of Wasteful Practices			●	●										✓	
2.3 Reduced Water Supplier Leaks and Water Losses					●	●								✓	
2.4 Certification of Innovative Technologies for Water Conservation and Energy Efficiency							●							✓	
3.1 New Water Use Targets Based on Strengthened Standards		●				●									✓
3.2 Water Shortage Contingency Plans						●		●	●						✓
3.3 Drought Planning for Small Systems & Rural Communities										●					✓
3.4 Agricultural Water Management Plans						●					●	●	●		✓

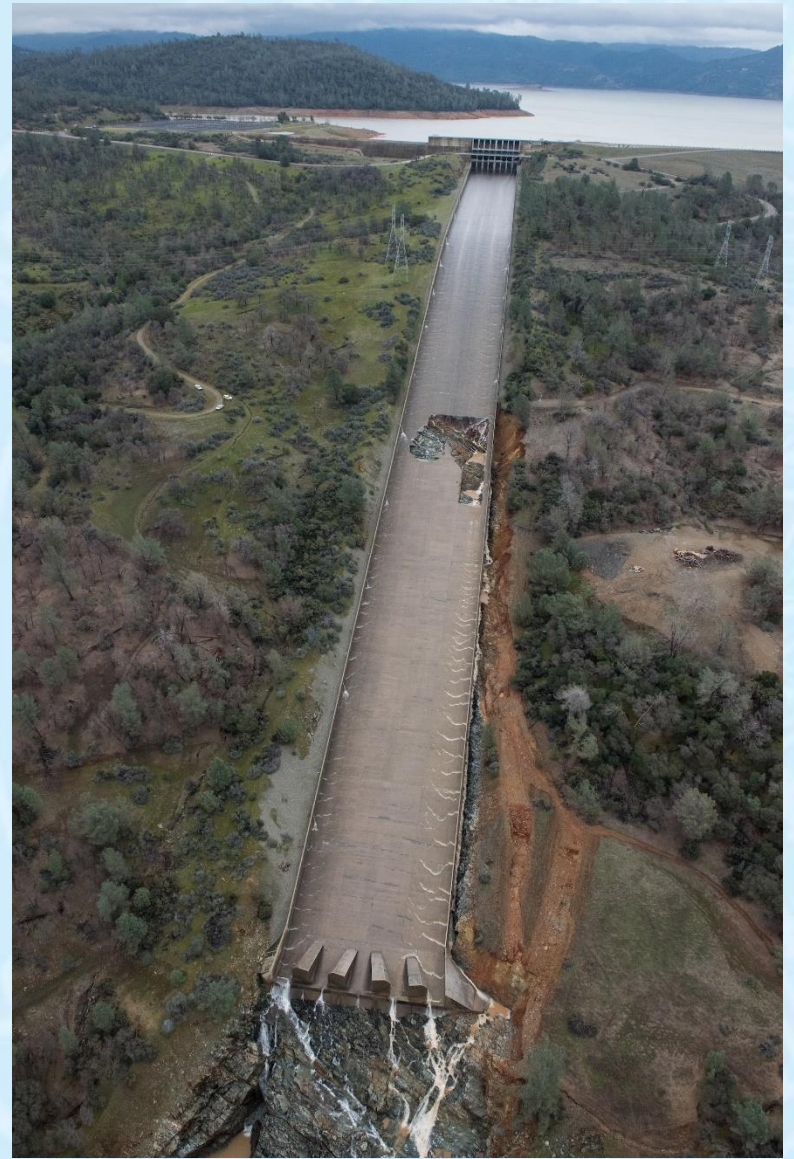
Executive Order Implementation Report

Chapter Index to EO Items

Oroville Spillway Incident and Dam Safety Program Improvements



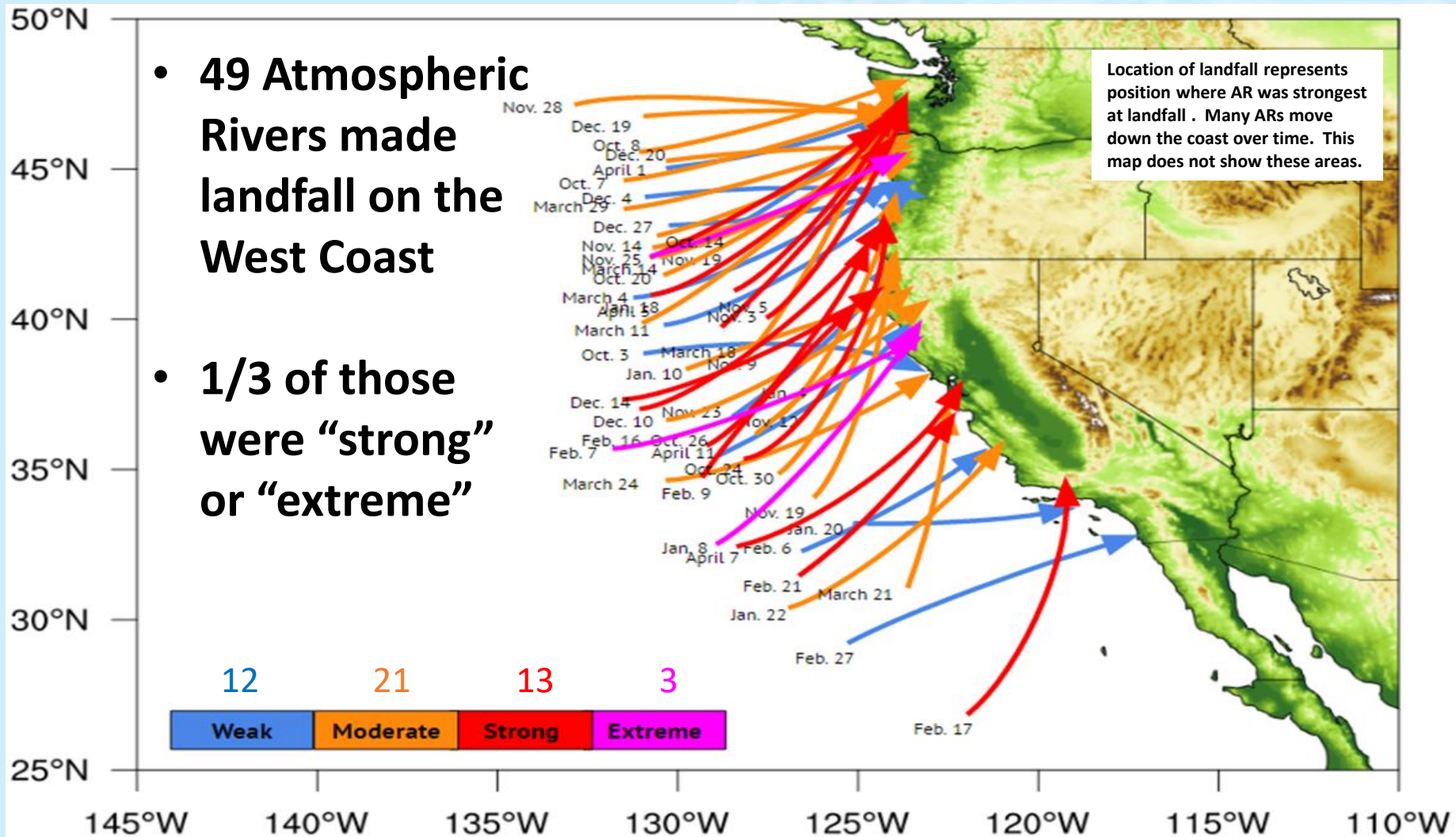
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2017 Water Year

Distribution of Landfall Atmospheric Rivers on West Coast (1 Oct 2016 to 12 April 2017)

- 49 Atmospheric Rivers made landfall on the West Coast
- 1/3 of those were “strong” or “extreme”



Lake Oroville Spillways Incident Area Overview



Damages: Appreciating Scale



Coordinated Response



Damages: Debris Dam – Diversion Pool

February 27, 2017 1.7 MCY

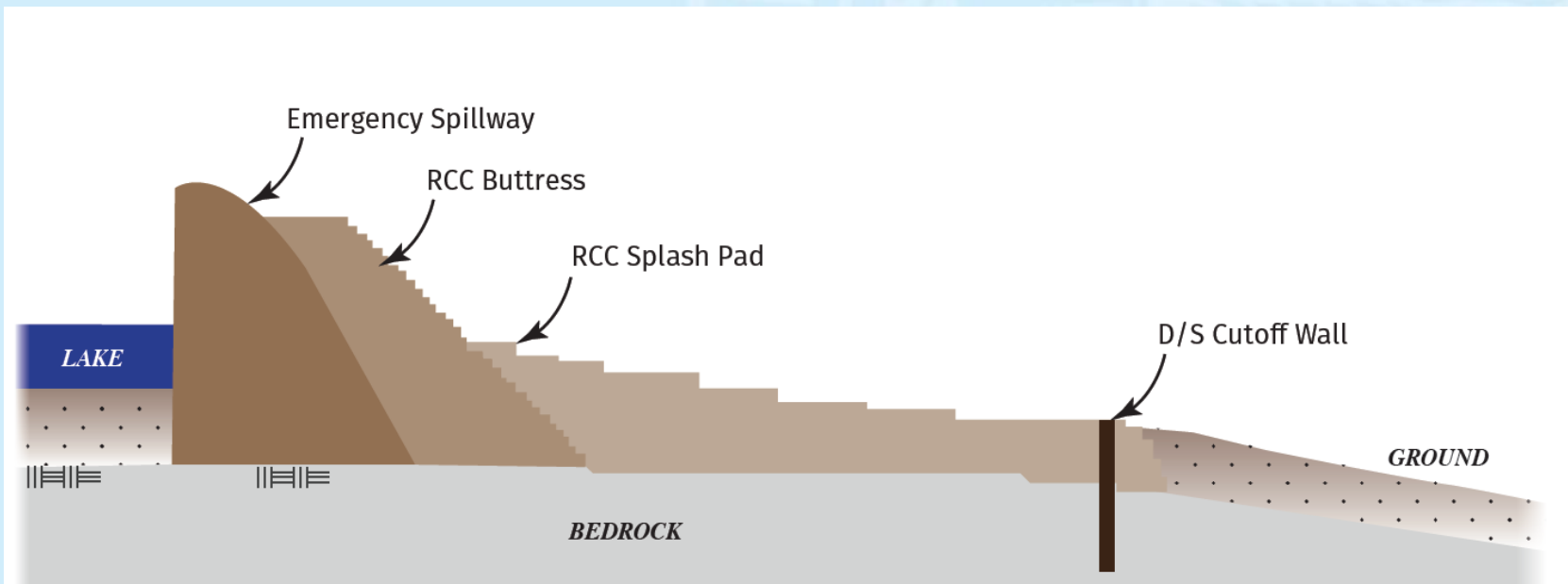


Damages: Flood Control Outlet



Recovery Objectives

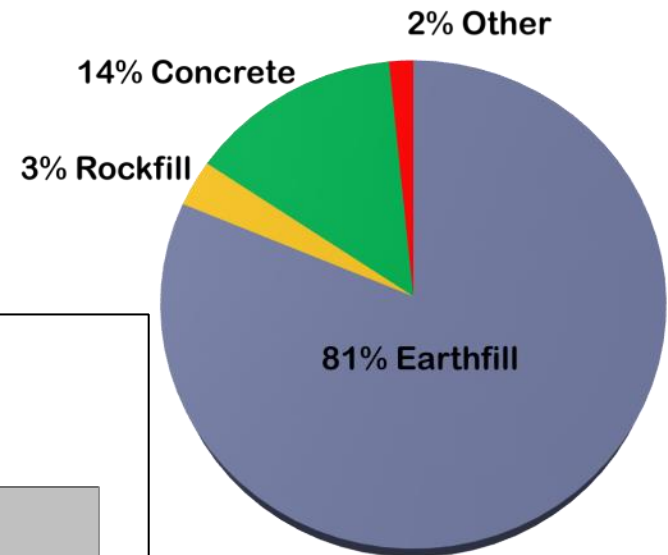
- Ensure public safety and integrity of the dam and associated facilities
- Ensure flood control and emergency spillways & associated flood risk reduction facilities can safely pass Feather River watershed flows by Nov 1, 2017



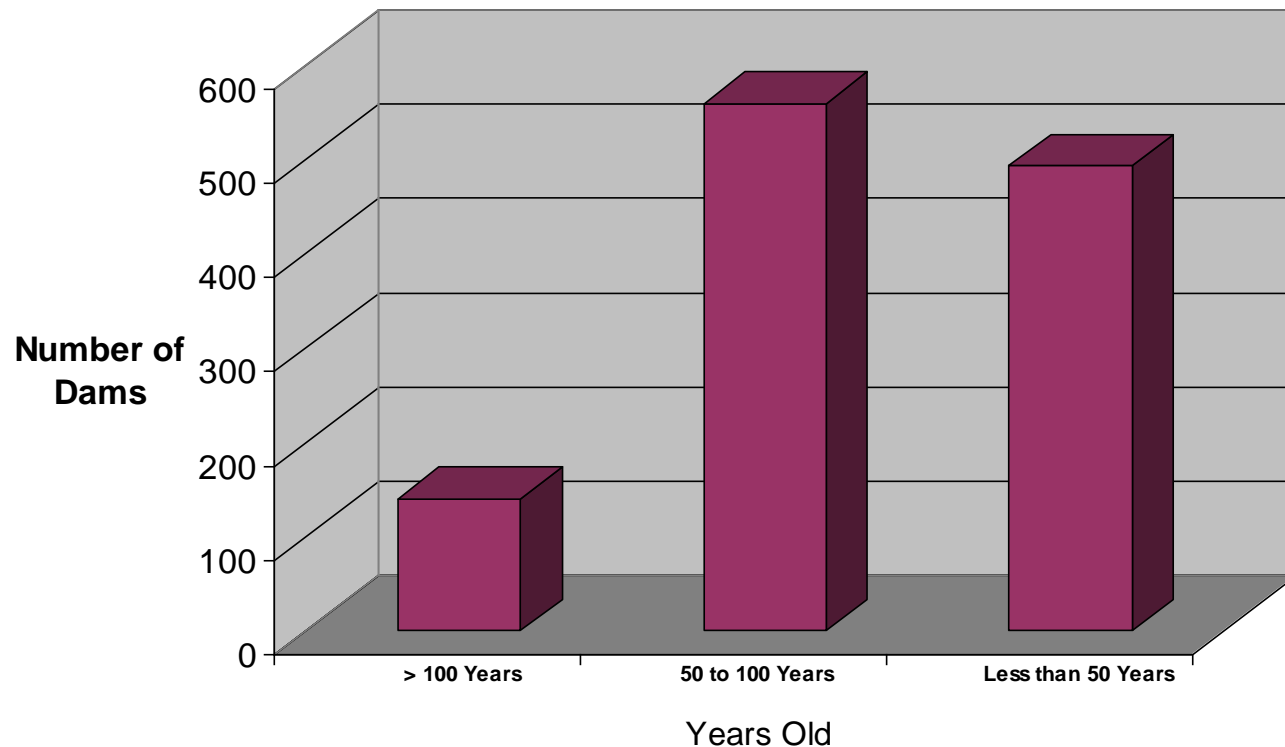
Initial Phase – Construction Anticipated Beyond November 1, 2017 for Emergency Spillway

Inventory of DWR Jurisdictional Dams

Dam Inventory by Type



Age of Dams



Enhanced Dam Safety

Governor Brown's Four-Point Plan to Bolster Dam Safety and Flood Protection

Dam Safety Components:

- Require Emergency Action Plans and Flood Inundation Maps
- Enhance CA's Existing Dam Inspection Program
- Seek Prompt Regulatory Action and Increased Funding from Federal Government to Improve Dam Safety



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Proposed Legislation

AB 1270

(Assemblyman Gallagher & Senator Nielsen)

- Annually make visual and physical inspections
- 5-Year Infrastructure and Maintenance Funding Plans for State-Operated and Maintained Dams
- Defines “owners” to include Joint Power Authorities



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