

CALIFORNIA DEPARTMENT OF WATER RESOURCES



Gary Lippner, Deputy Director
Flood Management and Dam Safety

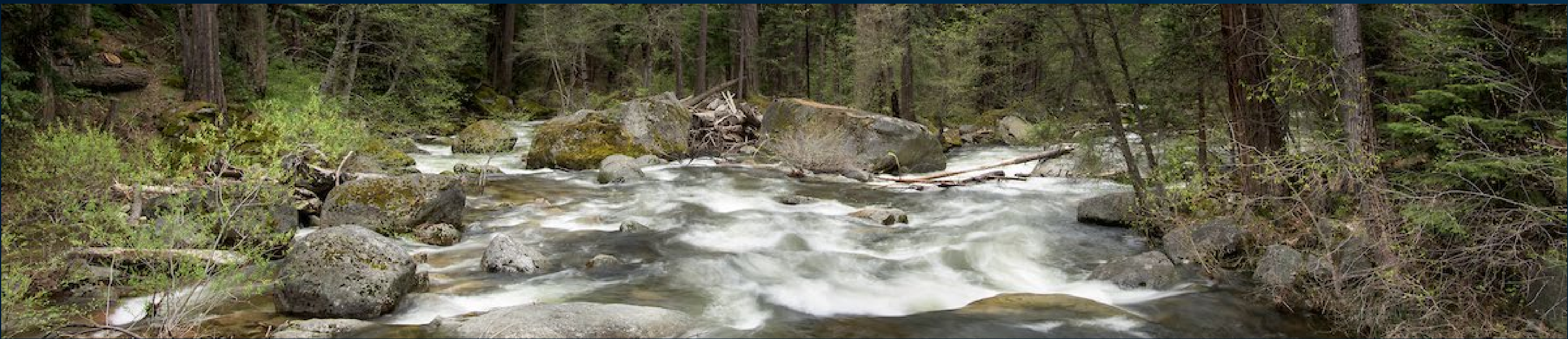
CEAC 2022 Spring Conference
Flood Control and Water Resources Policy Committee

Outline of Today's Topics

- DWR's Mission
- California's Water Resilience Portfolio
- Drought Update
- DWR's Public Safety Programs
 - Flood Management
 - Dam Safety
- Current Drivers
- Innovative Solutions
- Opportunities

Our Mission

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



What We Do

WATER SUPPLY: Manage the State Water Project (SWP)

POWER: Generate clean hydropower

PUBLIC SAFETY: Prepare for and manage flood and dam safety risks

ECOSYSTEMS: Restore and protect natural habitats

SUSTAINABILITY: Research and plan for climate change

ASSISTANCE: Provide grants & technical assistance to local entities

WATERSHEDS: Bring groundwater basins into balance

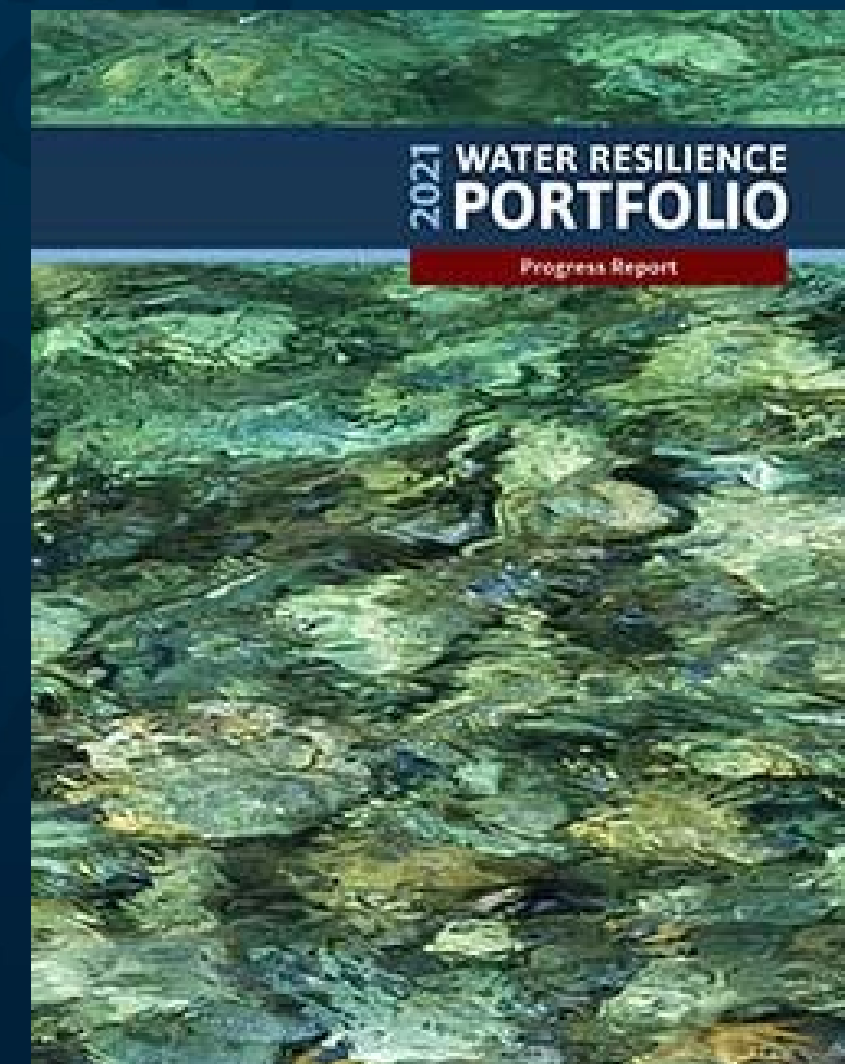
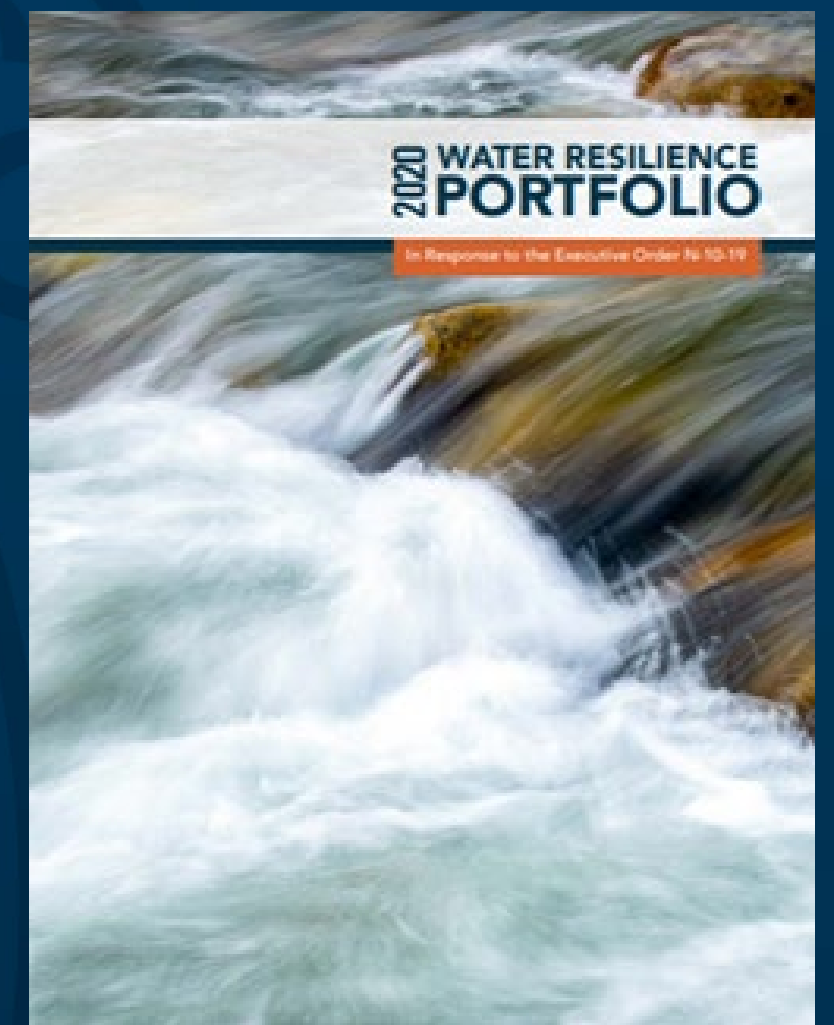
KNOWLEDGE: Inform & educate the public on California water issues

SCIENCE: Advance best practices and make data-driven decisions

Water Resilience Portfolio

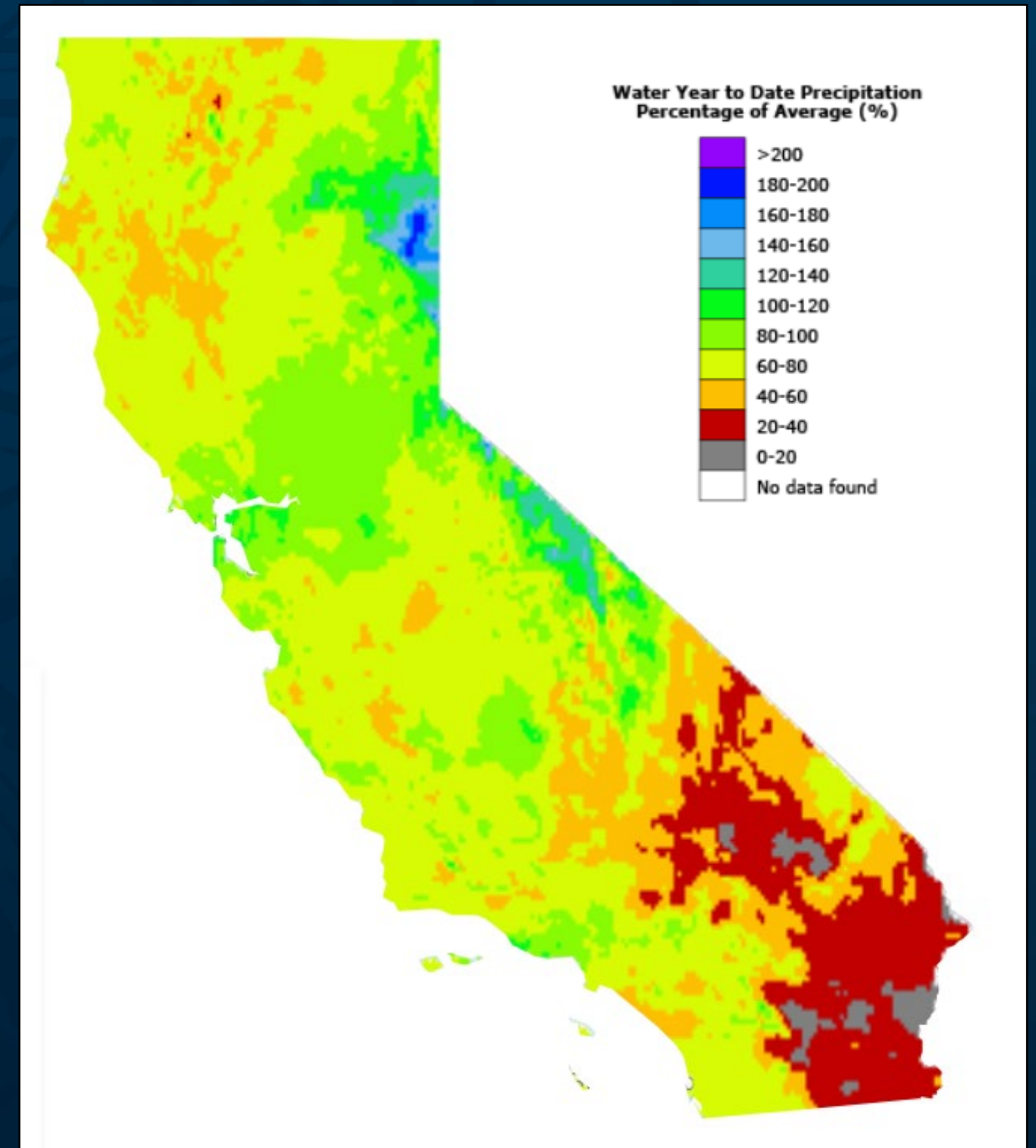
In 2020, Governor Gavin Newsom released the Water Resilience Portfolio which contains four main goals and 142 actions to serve as the Administration's blueprint for State's water resilience and ecosystem health.

1. **Maintain and diversify water supplies**: Reduce reliance on any one water source and diversify supplies to enable flexibility as conditions change.
2. **Protect and enhance natural ecosystems**: It is essential to restore the environmental health of many of our river systems in order to sustain fish and wildlife. This entails effective standard setting, continued investments, and more adaptive, holistic environmental management.
3. **Build connections**: Improve physical infrastructure to store, move, and share water more flexibly and integrate water management through shared use of science, data, and technology.
4. **Be prepared**: Each region must prepare for new threats, including flashier floods, deeper droughts, and hotter temperatures.



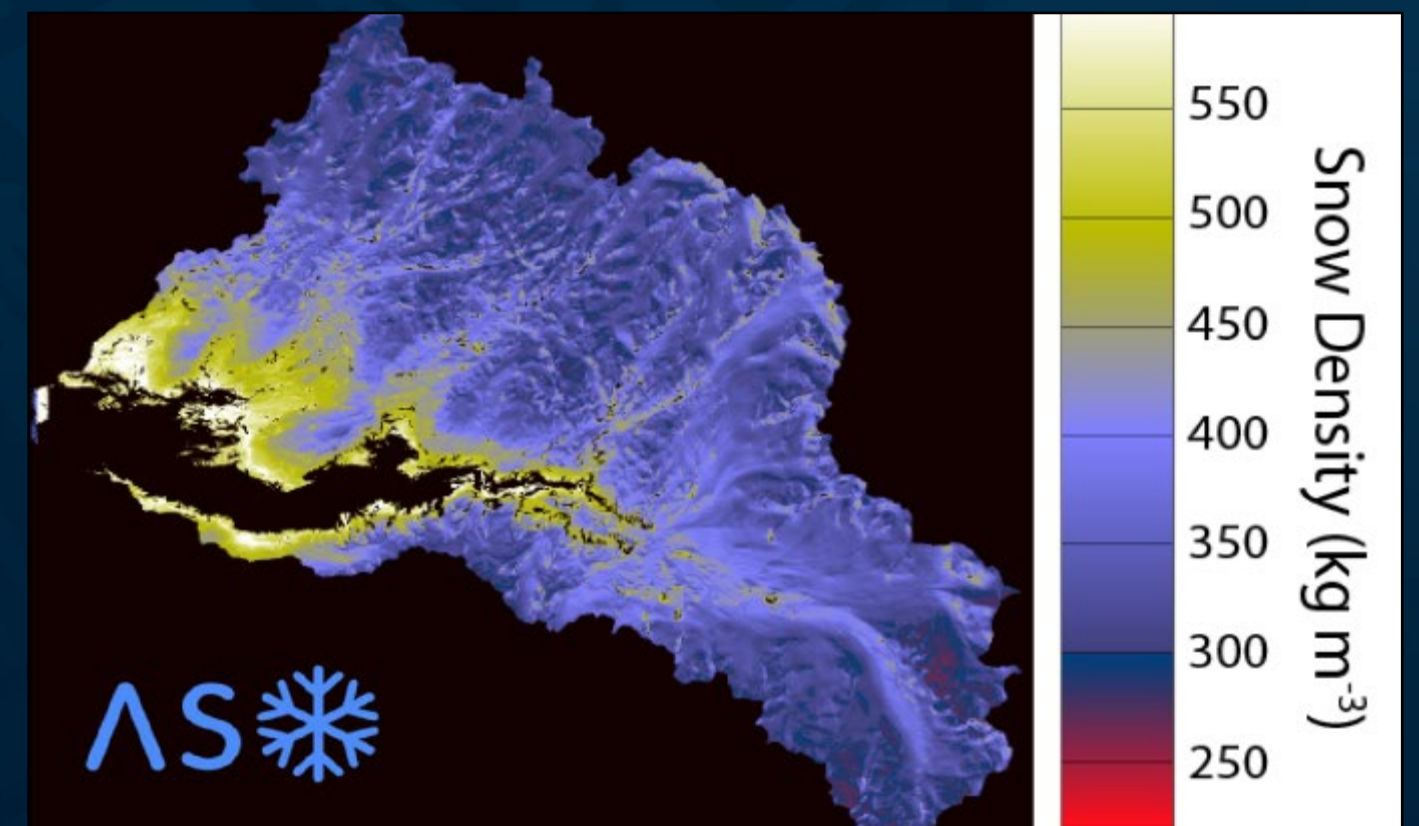
Drought Update – Current Conditions

- Driest consecutive January and February in over 100 years
- All of CA's 58 counties under drought emergency proclamation
- Snowpack 55% of normal
- Streamflow and groundwater levels below average across majority of state
- Over 1000 new dry wells reported since 2020

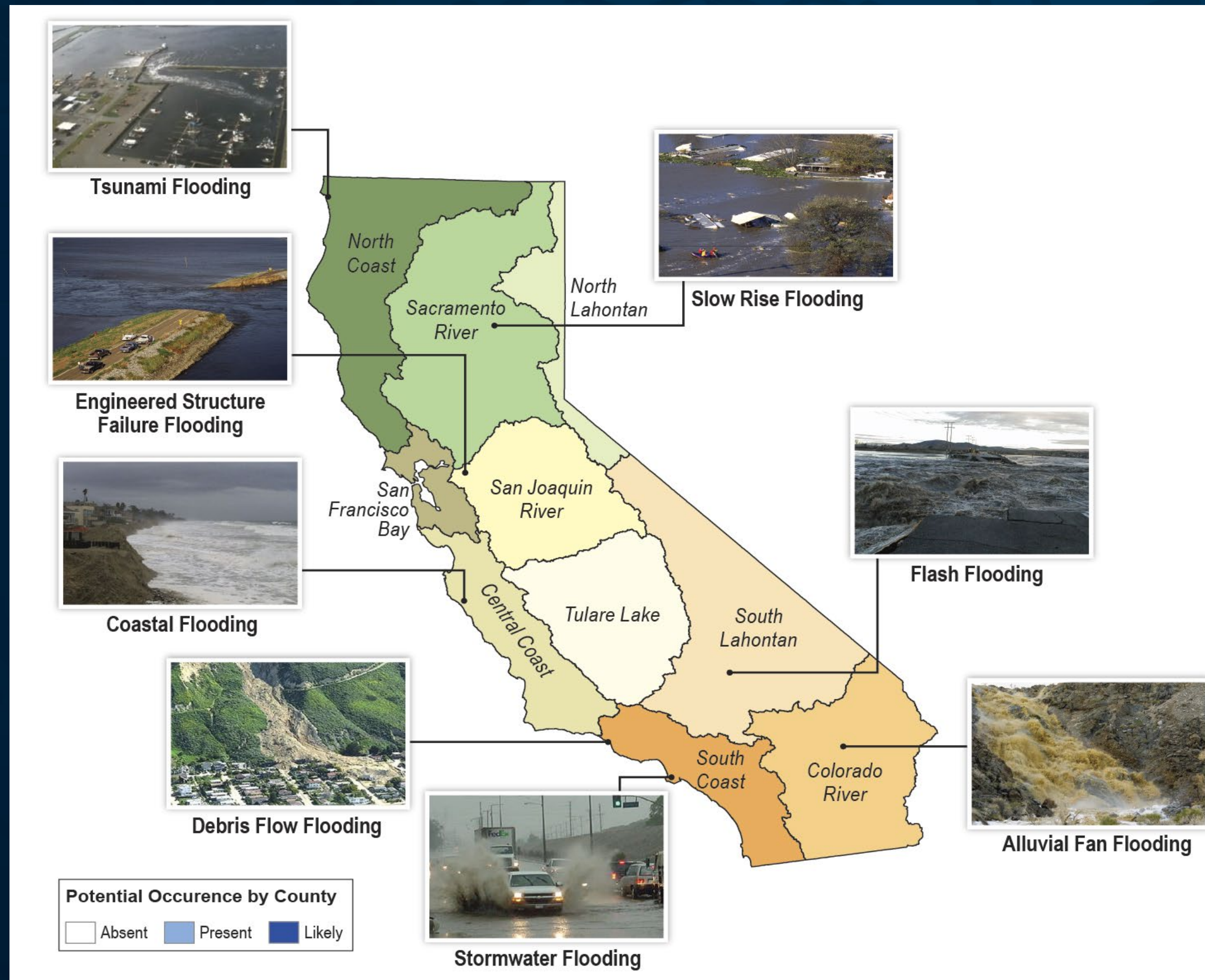


Drought Update – Response Actions

- West False River salinity barrier
- \$500M in drought relief funding
- California Water Watch
- Expanded remote snowpack sensing
- Improvements to runoff forecasts
- Drinking water well principles
- Save Our Water media campaign

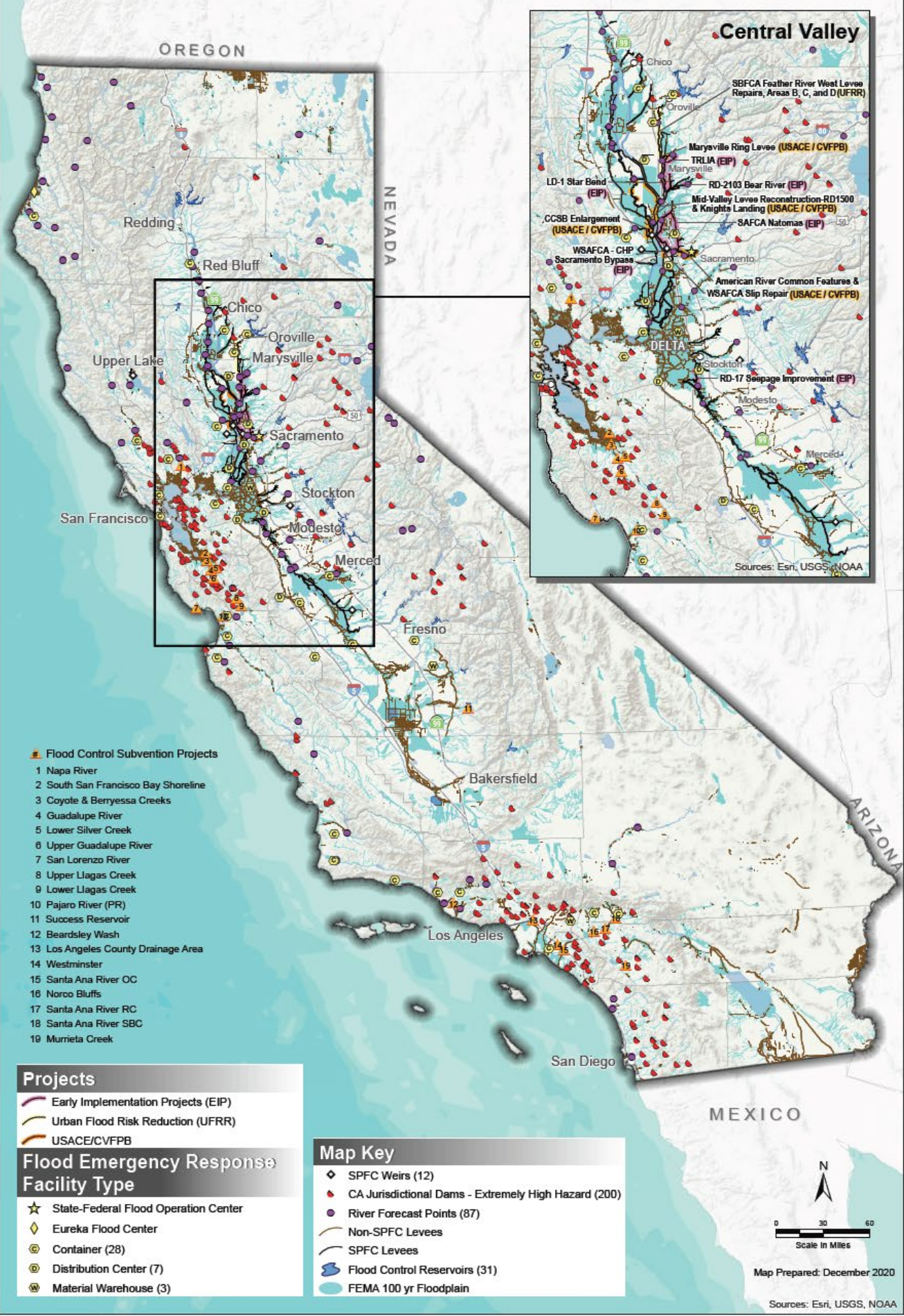


Flood Hazards in California





STATE OF CALIFORNIA Flood Management Facilities and Projects



- Central Valley Flood Protection Planning
- Regional Flood Management Planning
- Delta Planning
- Systemwide Environment Support
- Statewide Flood Management Planning
- FloodMAR
- Hazard Mitigation Planning

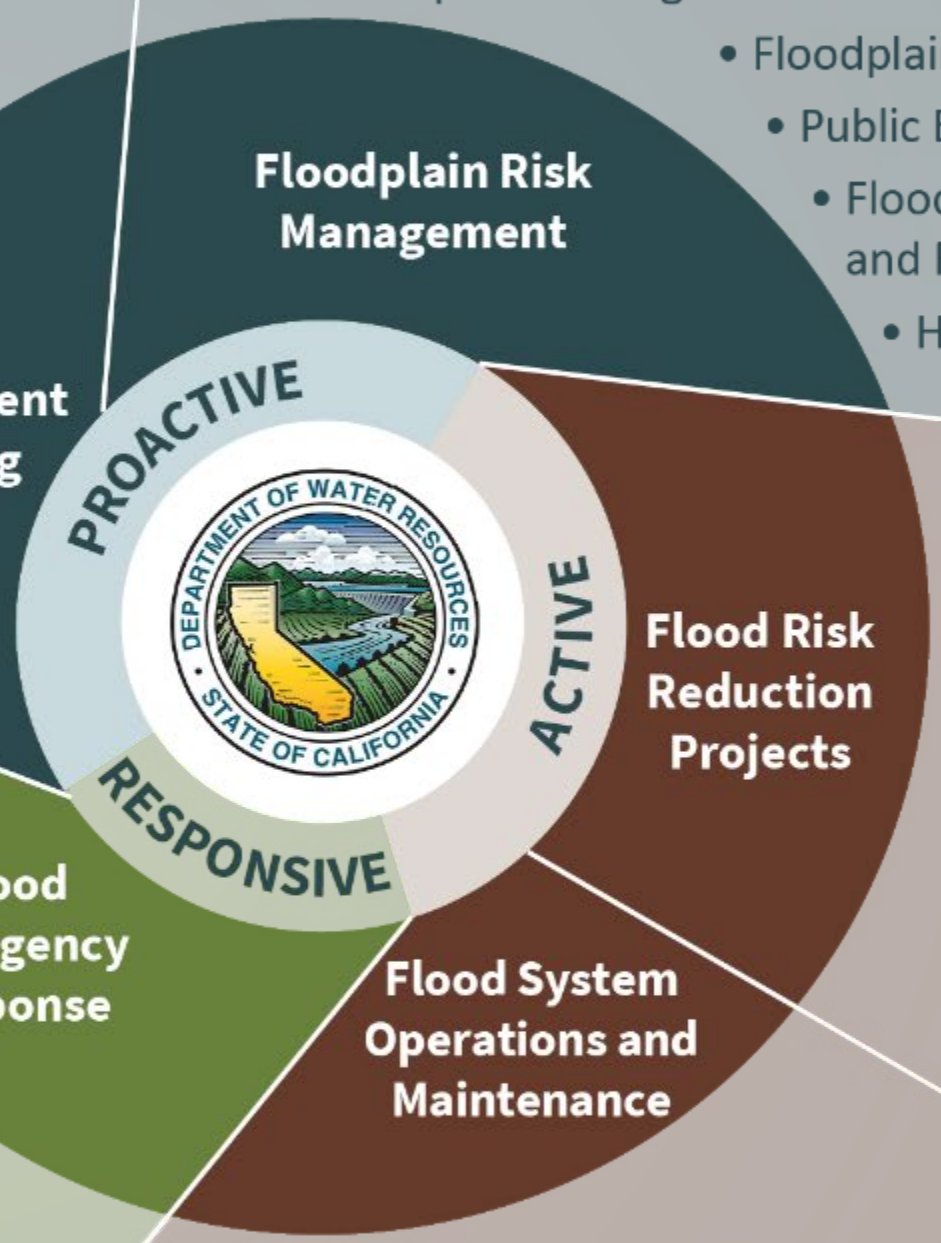
- Flood Insurance
- Flood Easements and Land Acquisitions
- Floodplain Mitigation Planning
- City and County Local Assistance
- Community Assistance and Policy Advisement
- Floodplain Management Policies

- Floodplain Risk Assessment and Risk Maps
- Public Education and Awareness
- Floodplain Management Protection and Risk Awareness
- Headwaters to Floodplains

- Reservoir Operations and River Forecasting
- Flood Emergency Preparedness and Operations
- Hydro-Climate Data Collection and Precipitation/Runoff Forecasting
- Real-Time Flood Conditions, Status, and Warnings

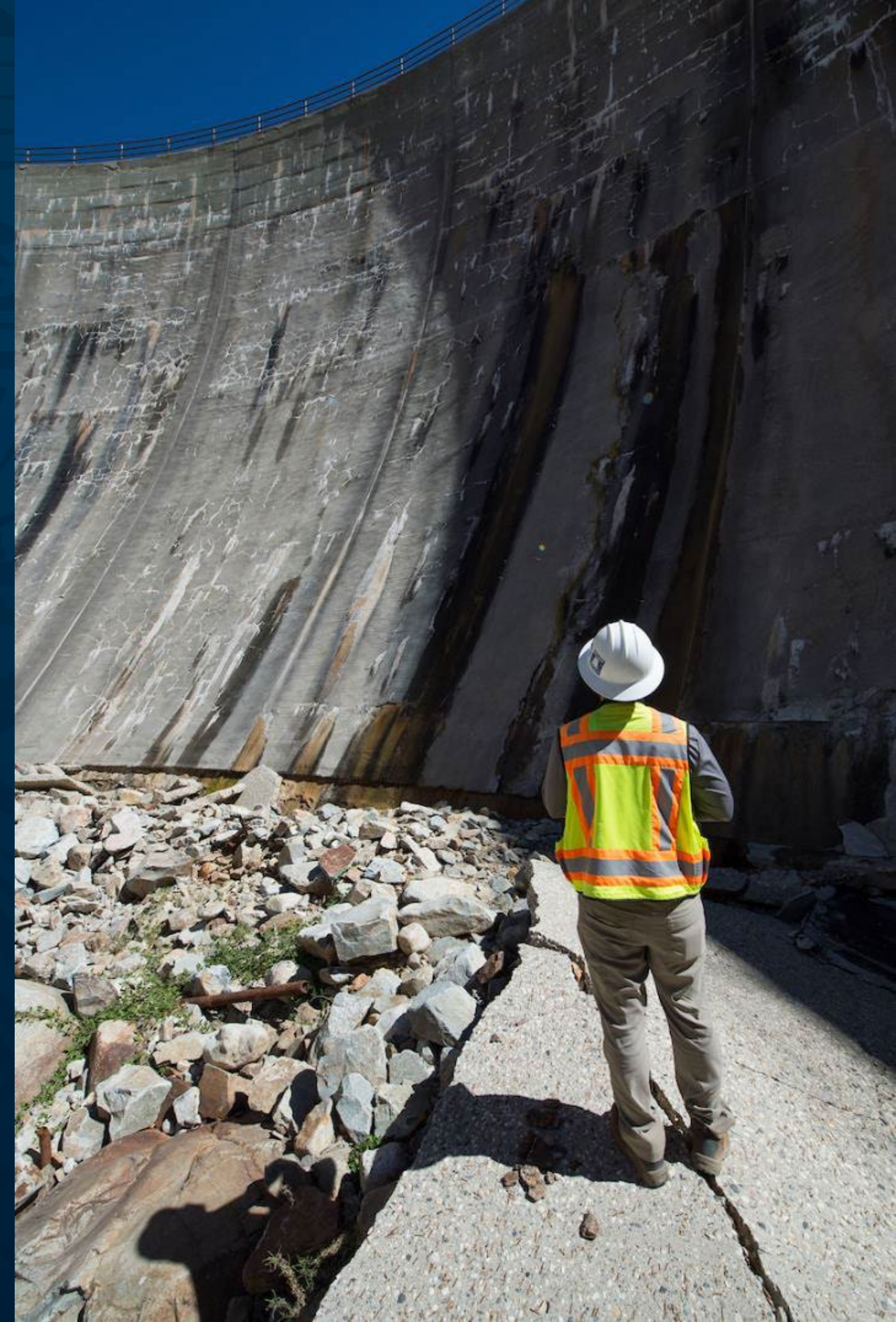
- Environmental Permitting for O&M
- Levee Tree Assessment
- Delta Levee Subventions*
- Flood Maintenance Assistance Program*

- Flood System Repair Project*
- Rural Levee Repair*
- Small Erosion Repair Program*
- Channel Operations and Maintenance
- Emergency Repair Program*



California Dam Safety

- The Division of Safety of Dams regulates approximately 1,240 dams in California
- We help ensure dam safety:
 - Inspections
 - Independent design reviews
 - Construction oversight
 - Emergency action planning
 - Dam Breach Inundation Map Approvals
 - Evaluation of dam and appurtenant structures performance



Dam Safety – Coordination Efforts

DAMS WITHIN JURISDICTION
OF THE STATE OF CALIFORNIA

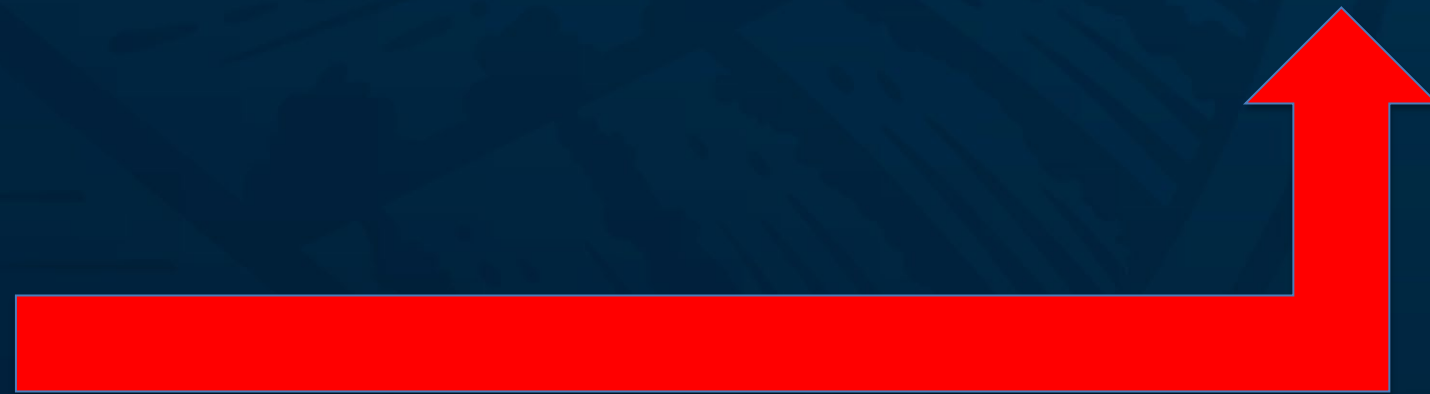
LISTED ALPHABETICALLY BY COUNTY

SEPTEMBER 2020



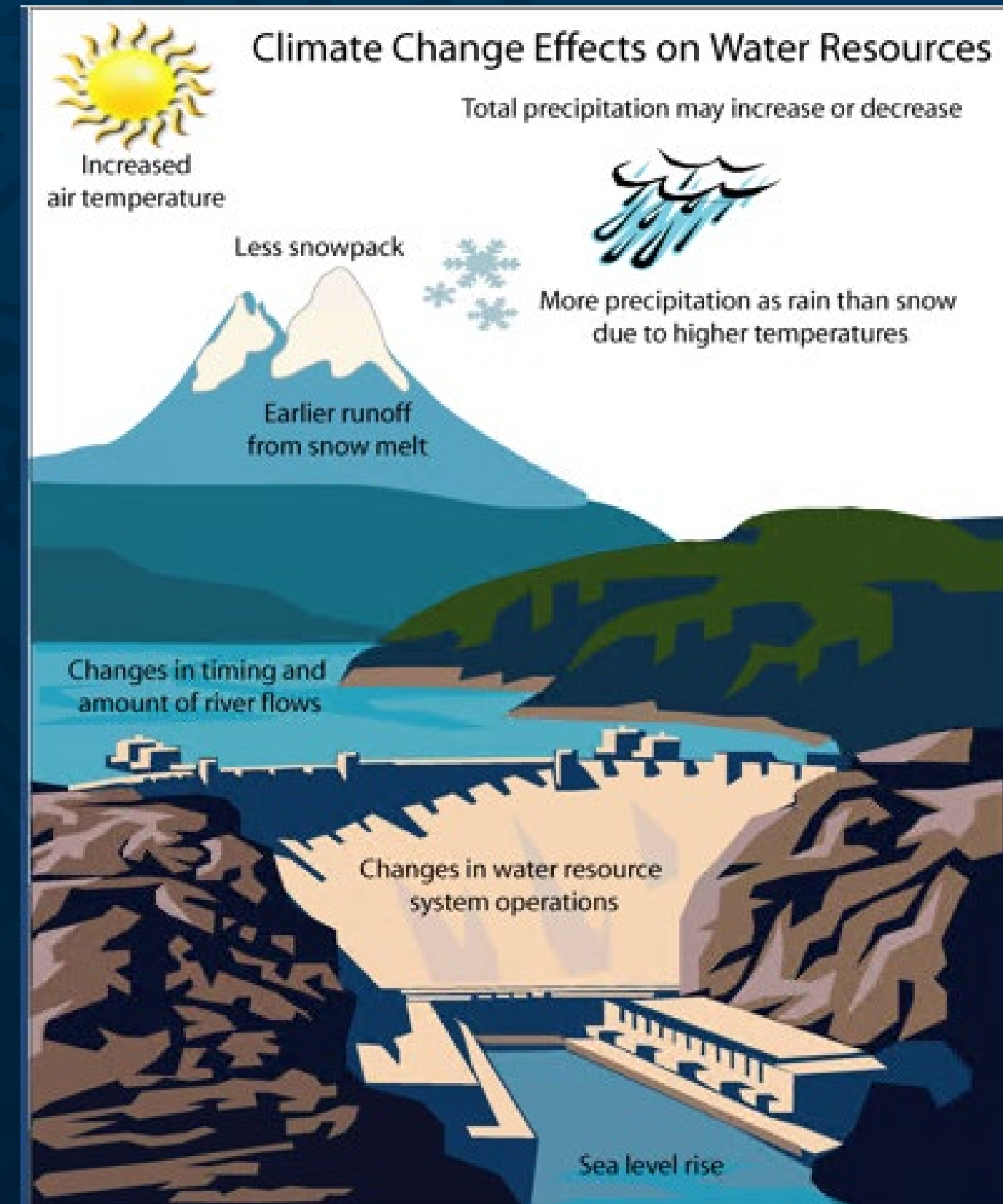
CALIFORNIA DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

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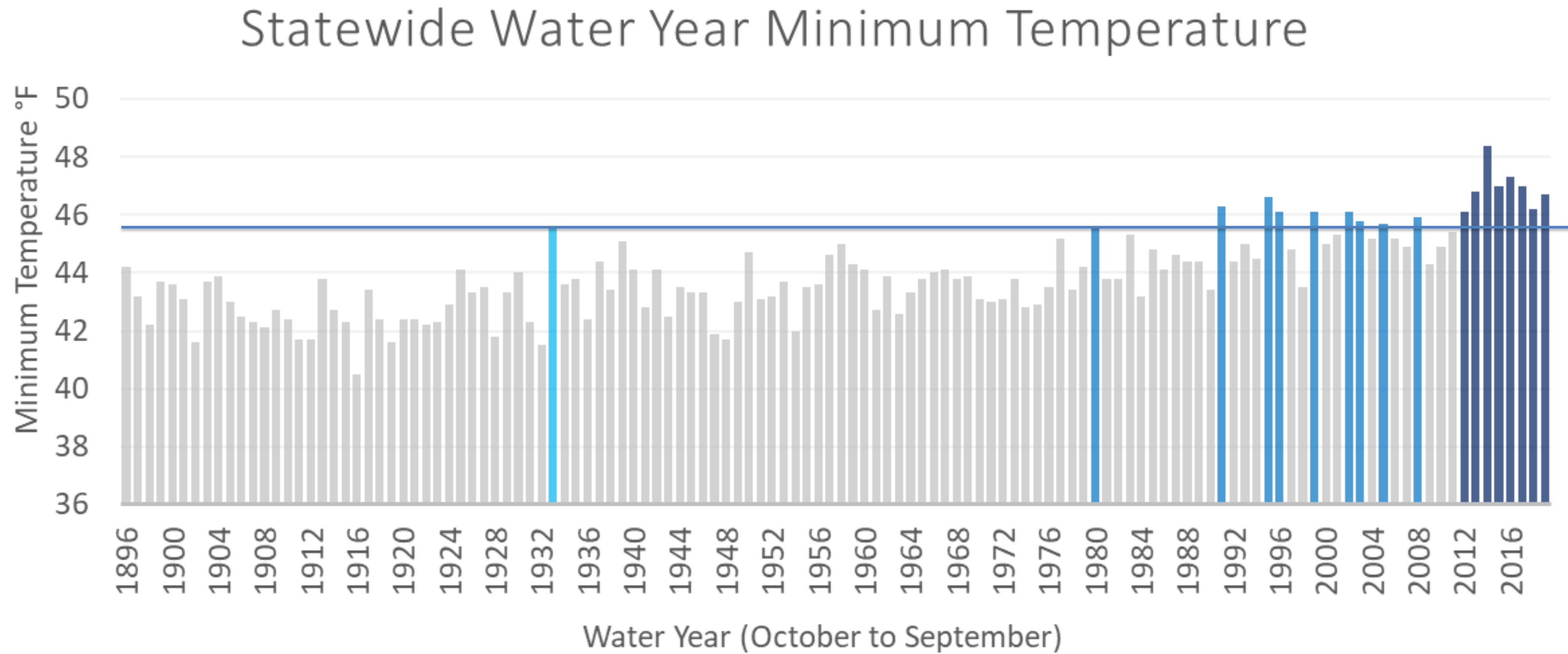


The Narrative of Climate Change in CA

- Warmer temperatures
- Greater variability/more extremes
- More rain, less snow
- Longer dry season
- Rising sea levels
- Ecosystem changes



From Extreme to Common



Annual Precipitation Accumulation (inches)

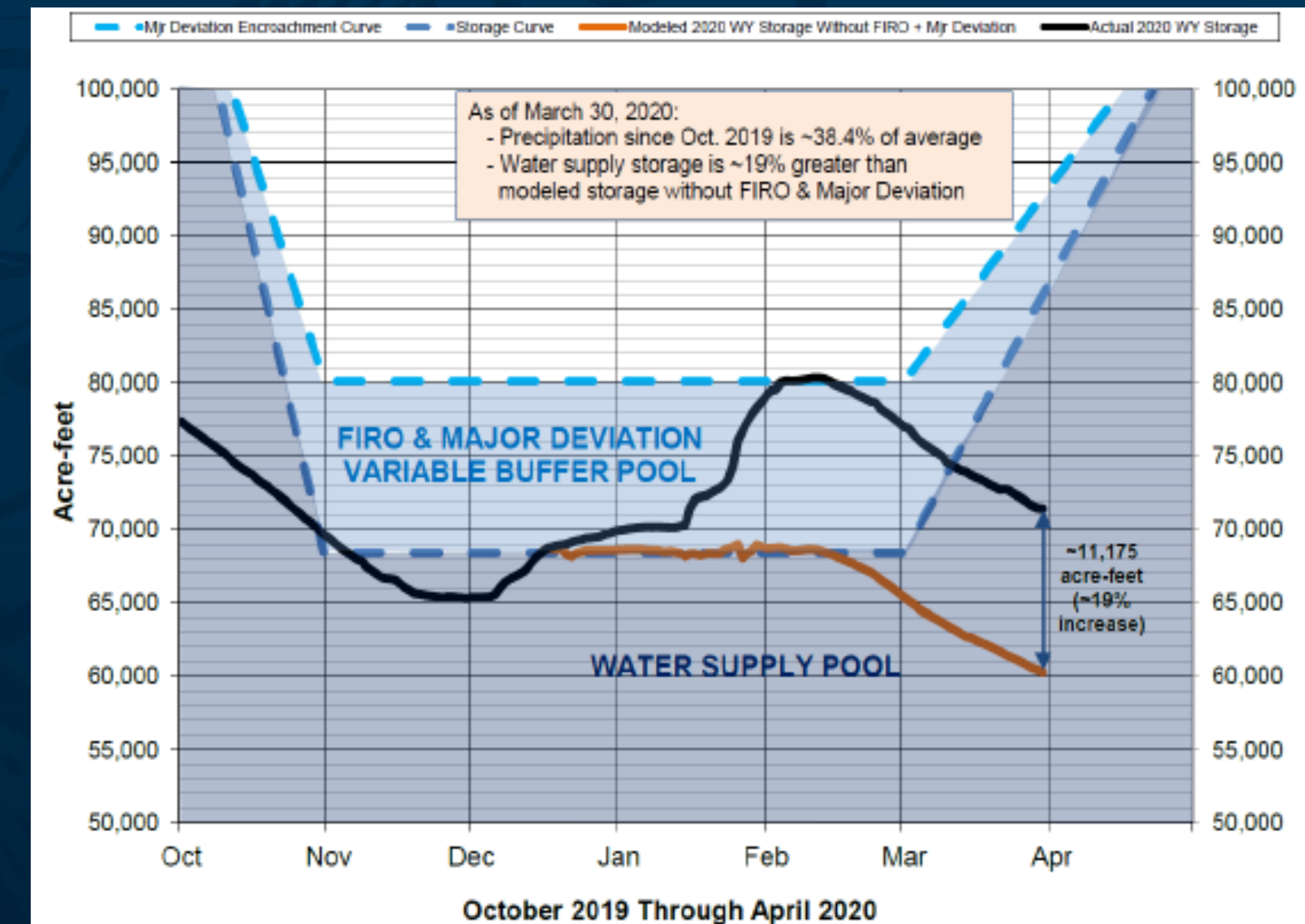


Forecasting Moving Forward

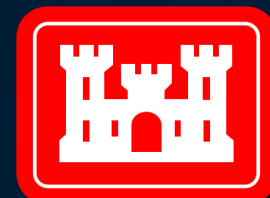
- The extreme conditions in water year 2021 require a more immediate adaptation response. What were once extremes separated by decades have become episodic events separated by a few years. It is expected in the future they will become common events to which we must adapt.
- Responding to these challenges has included investments in new observing technologies for atmospheric rivers as well as improvements in our ability to forecast conditions from the event to seasonal scales.
- DWR's ability to better respond to the current drought emergency or other extreme climate events rely upon the ability improve hydrometeorological data collection and hydrologic runoff techniques which include:
 - Investments to upgrade the Statewide Monitoring Network and broaden the types of data collected
 - Investments in remote sensing such as ASO
 - Updating the averages used in forecasting to the most recent 30-year period (1991-2020)
- Investments in observations and forecasts go hand in hand and must be accompanied by decision support development to translate new data streams into actionable information for real time water management in a changing climate.

FIRO

- FIRO is a flexible water management approach that uses watershed monitoring and improved weather forecasting to help water managers selectively retain or release water from reservoirs for increased resilience to droughts and floods.
- FIRO opportunities are currently being evaluated in the following watersheds:
 - Russian River (Lake Mendocino)
 - Santa Ana River (Prado Dam)
 - Yuba and Feather Rivers (New Bullards Bar Reservoir and Lake Oroville)

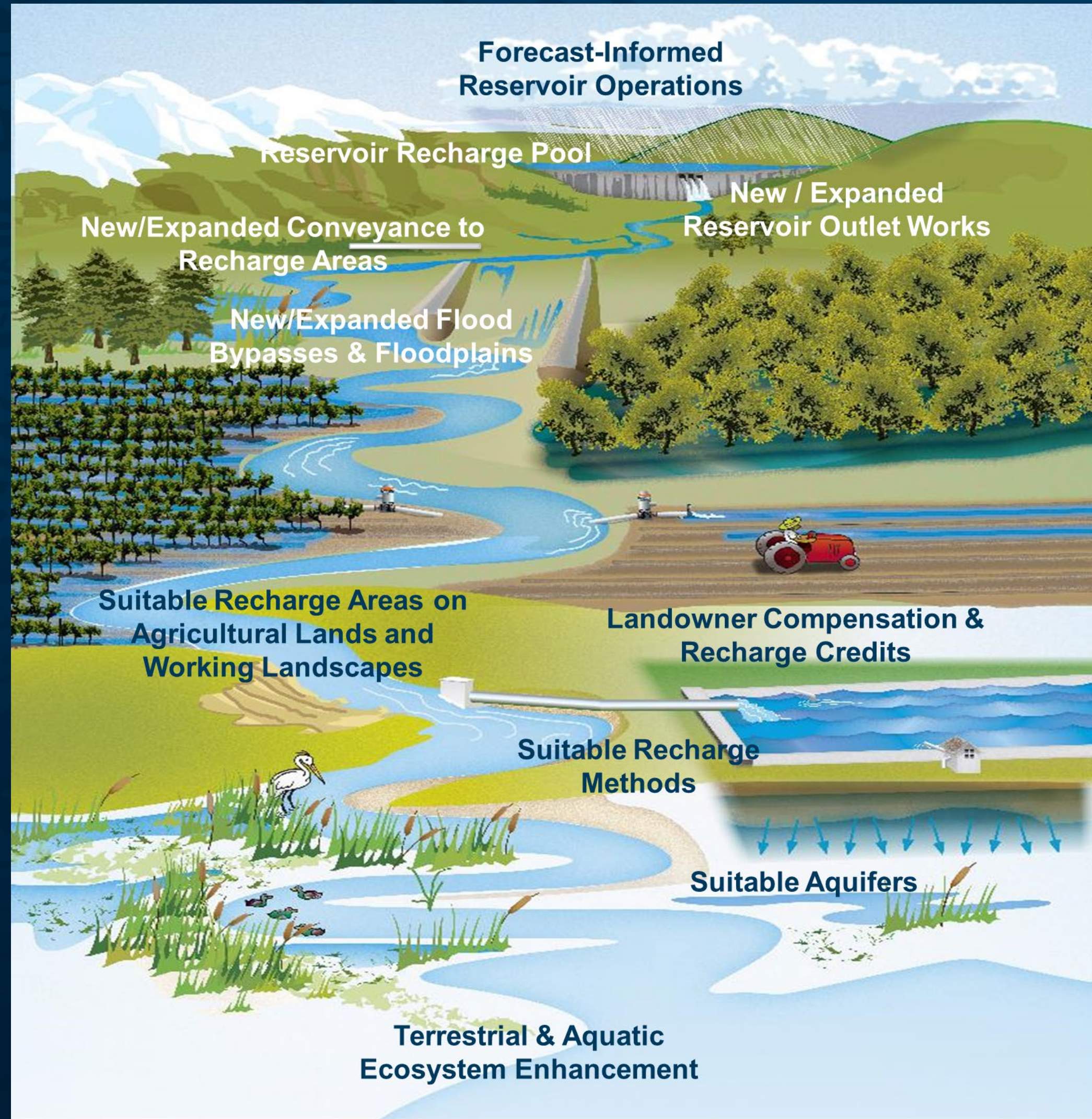


Lake Mendocino – Water Year 2020



Flood-MAR is...

...a water resource management strategy using high flows from (or in anticipation of) rainfall or snowmelt for managed aquifer recharge on agricultural lands, working landscapes, and managed natural lands.



DWR's Floodplain Management Financial Assistance Programs

DWR Flood Risk Reduction Grant Program	Status	State Plan of Flood Control	Central Valley	Statewide	Current Fund Source
Central Valley Tributaries Program	Ongoing		✓		Proposition 1
Coastal Flood Protection Program	Funding Committed			✓	Propositions 1 & 68
Conveyance Subsidence Program	Funding Committed		✓		General Fund
Floodplain Management Protection and Risk Awareness Program	Ongoing	✓	✓	✓	Proposition 68
High Hazard Potential Dam Program	Ongoing			✓	FEMA
Local Levee Assistance Program	Legacy / Closed			✓	Proposition 1E
Regional Flood Management Planning	Ongoing	✓			Propositions 1E & 68
Small Community Flood Risk Reduction Program	Funding Committed	✓			Proposition 1E
Statewide Flood Control Subventions Program	Ongoing			✓	Proposition 1E

FEMA Hazard Mitigation Assistance: The Big Three

Hazard Mitigation Assistance Program	Pre-Disaster	Post-Disaster	Authorities & Requirements
Building Resilient Infrastructure and Communities (BRIC)	✓		Stafford Act (1988) / Hazard Mitigation Plan Activity
Flood Mitigation Assistance (FMA) Grant Program	✓		National Flood Insurance Program (1968) / Must be NFIP Community / Must be HMP Flood Activity
Hazard Mitigation Grant Program (HMGP)		✓	Stafford Act (1988) / Hazard Mitigation Plan Activity

NOTE: FEMA has other specialty programs too, including its High Hazard Potential Dam (HHPD) Program.

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