KEYNOTE ADDRESS

MANAGING WATER RESOURCES FOR SUSTAINABILITY & RESILIENCE

KAMYAR GUIVETCHI

EXECUTIVE ADVISOR OF WATER INNOVATION & TECHNOLOGY

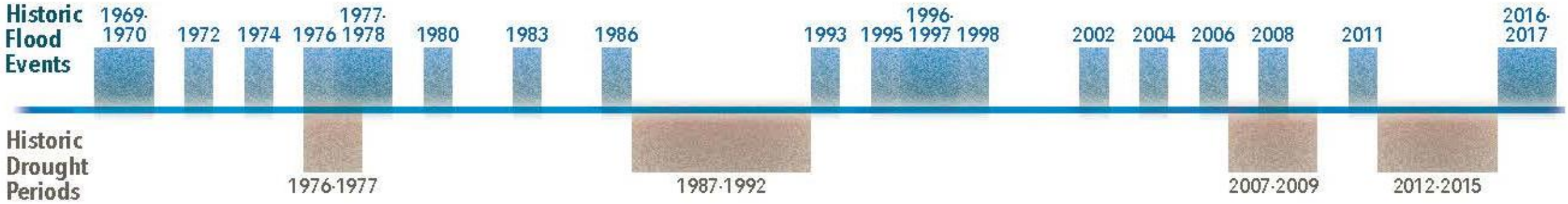
CALIFORNIA DEPARTMENT OF WATER RESOURCES

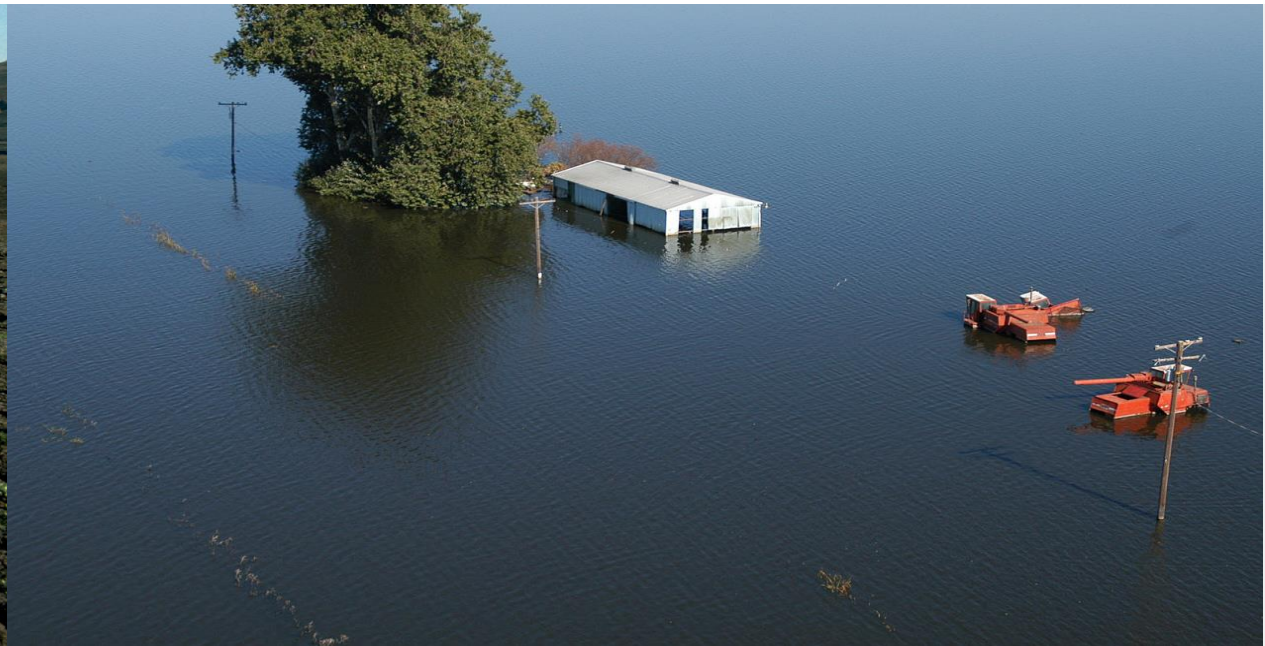
Managing Water Resources for Sustainability & Resilience

Napa County Watershed Symposium

December 5, 2024

California's Water Management
A Tale of Extremes





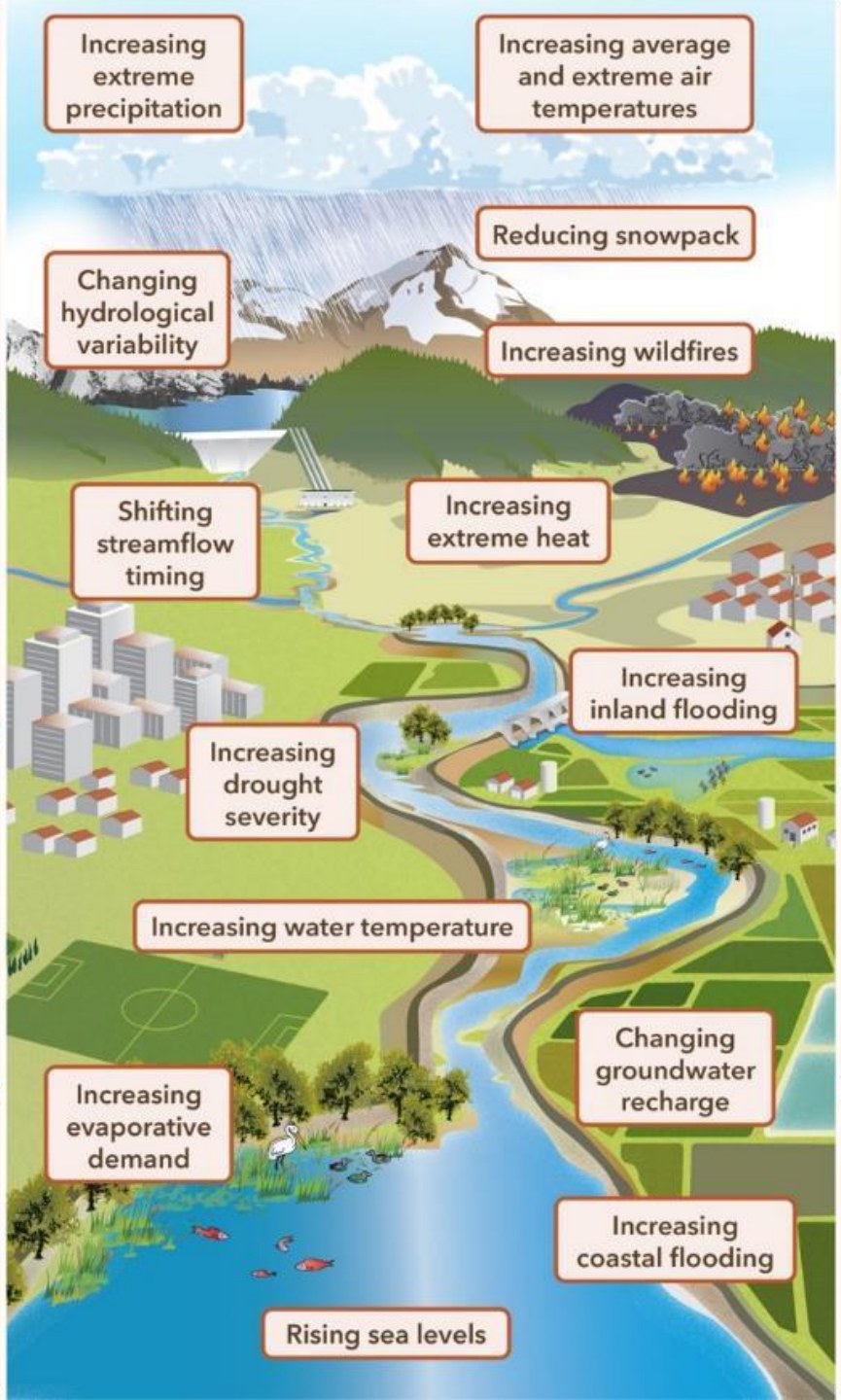
Climate Change Impacts Affecting Many Sectors

Forest and Wildfire Management
Rising temperatures, extended periods of dryness, and increasing wildfire potential will further stress and challenge management of headwater forests and lands and impact public health and safety.

Hydropower
Changing snowpack and melt timing, increasing peak electrical demands, and extreme heat events will challenge hydropower management.

Ecosystems
Higher temperatures, changing hydrology, rising sea levels will change habitats for many species and the pace of ecosystem adaptation will be challenged.

Groundwater
Changing recharge patterns, seawater intrusion in coastal aquifers, and increasing demands will continue to put pressures on groundwater systems.



Water Supply
Changing hydrological patterns including reduced snowpack, earlier melt, extended droughts, and increasing evaporative demands will stress reservoir operations and impact overall availability of water supplies.

Flood Management
More intense precipitation events, specifically atmospheric rivers, less snow-more rain, flood-after-fire events, and rising sea levels will contribute to greater flood risk in inland and coastal areas.

Water Quality
Increasing temperature, reduced spring and summer streamflow, extreme runoff and flood-after-fire events will continue to challenge water quality management.

Recreation
Changing snowpack, changing river and streamflows, more variability in lake levels, and rising sea levels will stress recreational resources.

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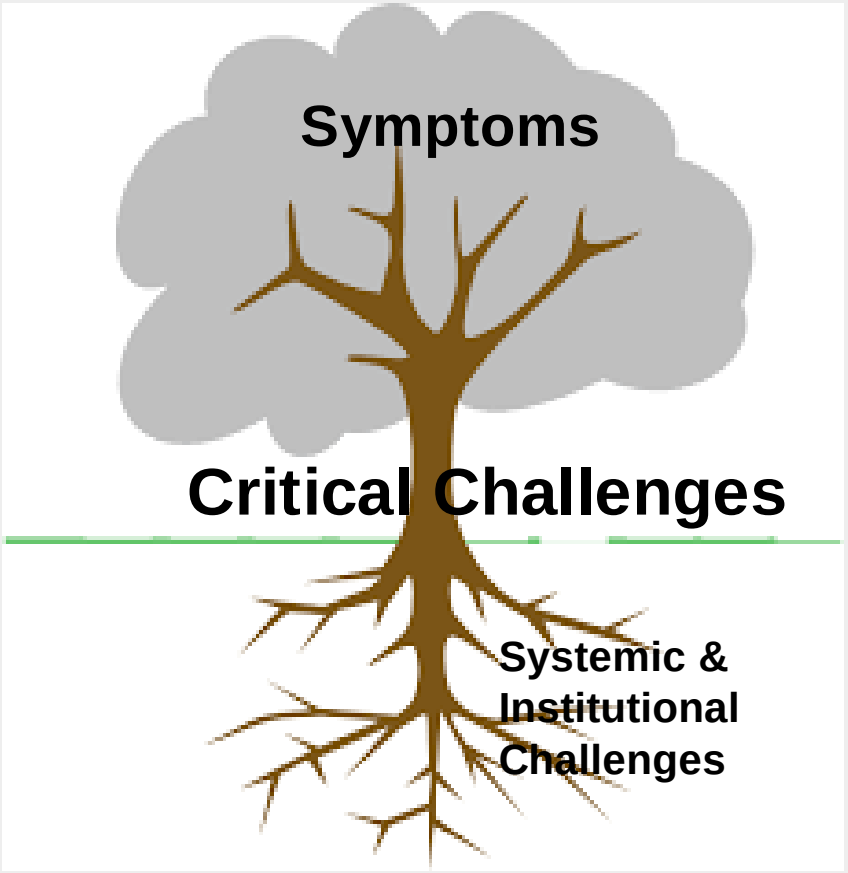
Systemic & Institutional Challenges

Overcoming them Increases Return on Investment

- Fragmented and uncoordinated decisions, initiatives & actions
- Inconsistent, inflexible, & conflicting regulations
- Insufficient capacity for data-driven decisions
- Insufficient & unstable funding
- Inadequate performance tracking
- Inequities in water management decisions, benefits, and impacts



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Resilience Requires Big Collaboration, Agency Alignment, Sector Co-Management, & Data Integration

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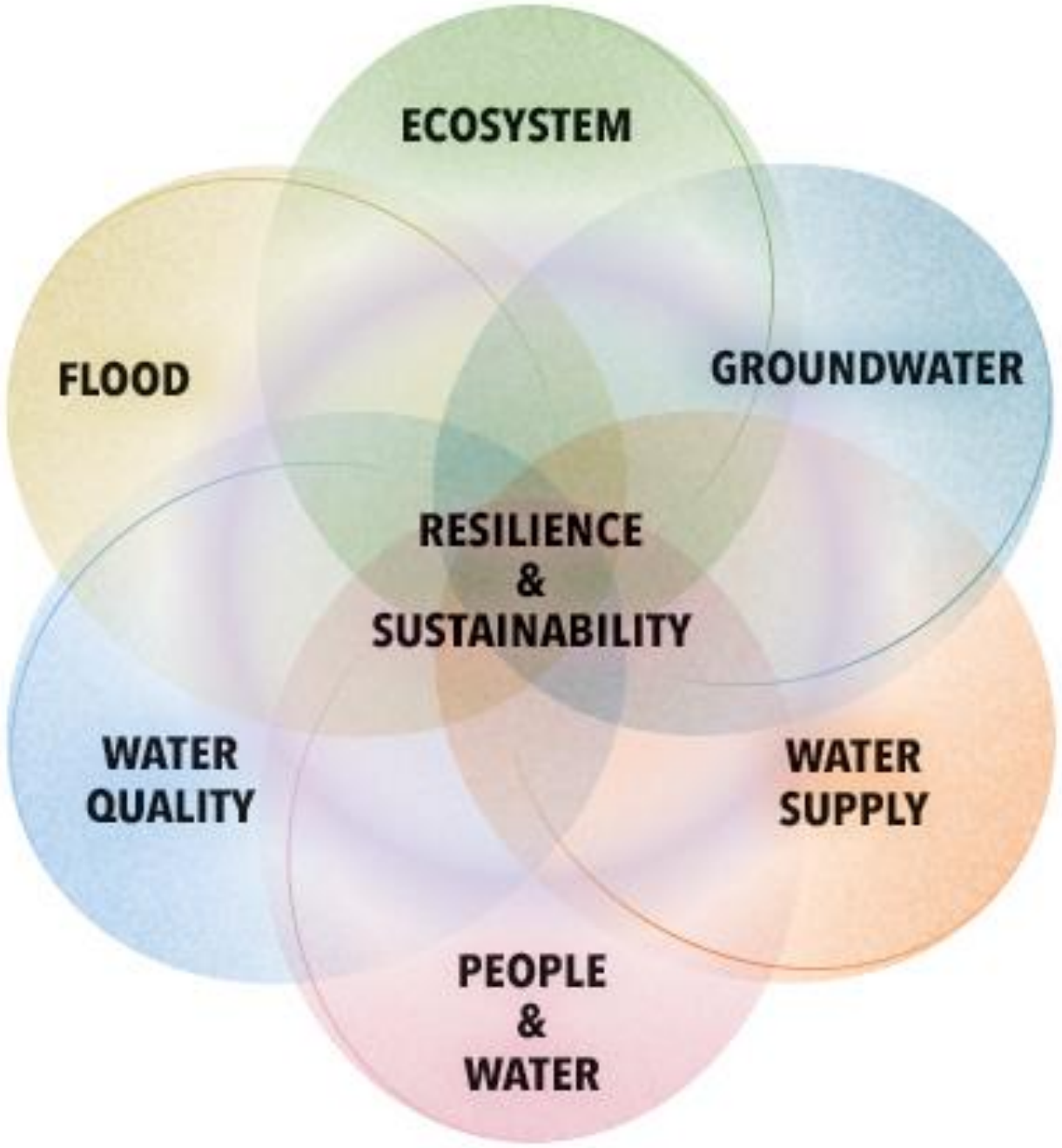
Multi-Sector Collaboration

Multi-Discipline Planning

Multi-Benefit Projects

Multi-Fund Investments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CA Water Plan Update 2023 Themes Advancing Administration Water Policies & Programs

Climate Urgency

Watershed Resilience

Equity in Water Management

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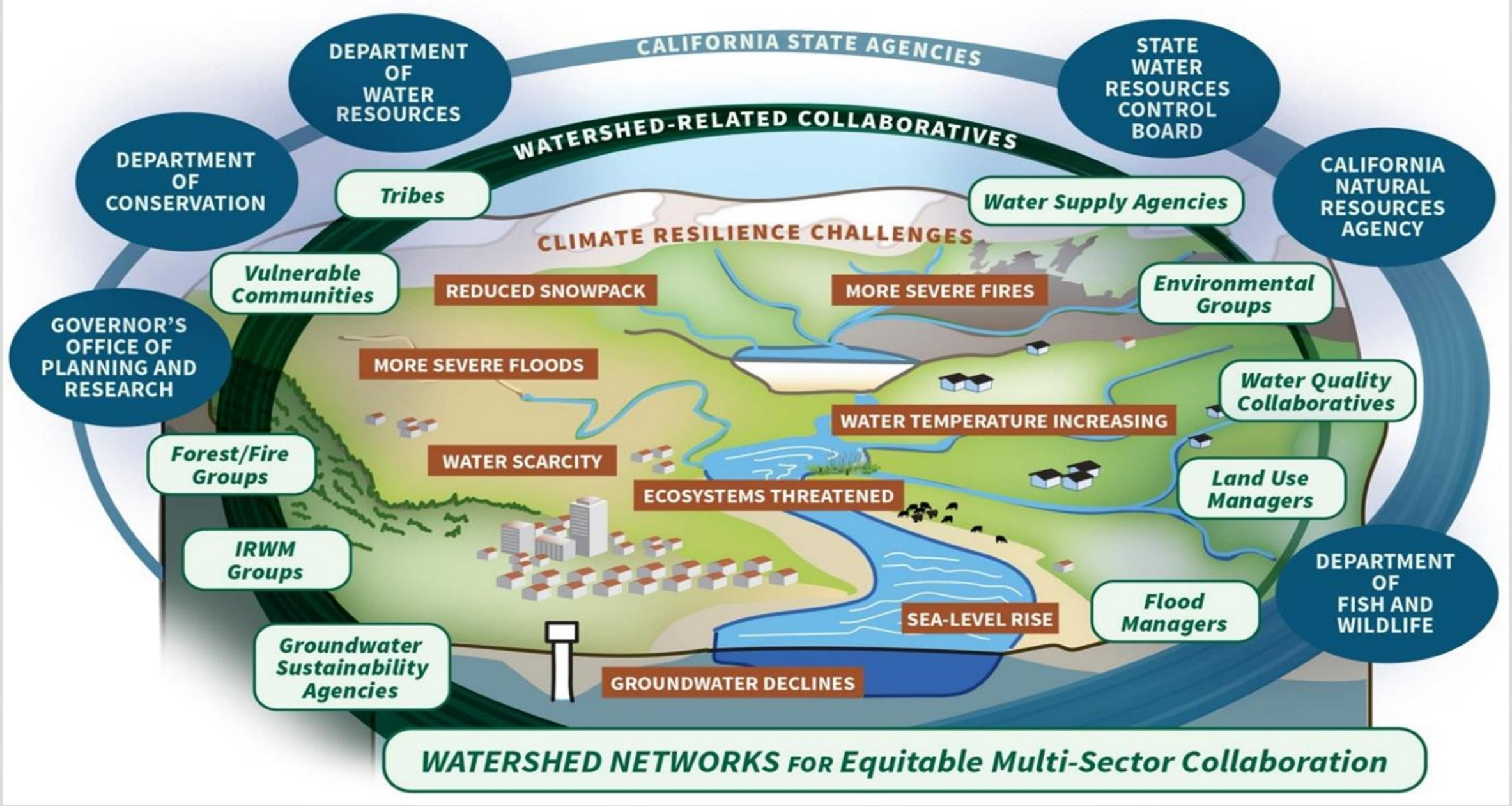

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Watershed Resilience Framework

2024 Watershed Resilience Pilots

Watersheds	Lead Agency	Award
American River	Regional Water Authority	$2M
Calaveras River	Stockton East Water District	$2M
Pajaro River	Pajaro Valley Water Management Agency	$2M
Russian River	Sonoma Water Agency	$2M
Ventura River	Ventura Resource Conservation District	$2M

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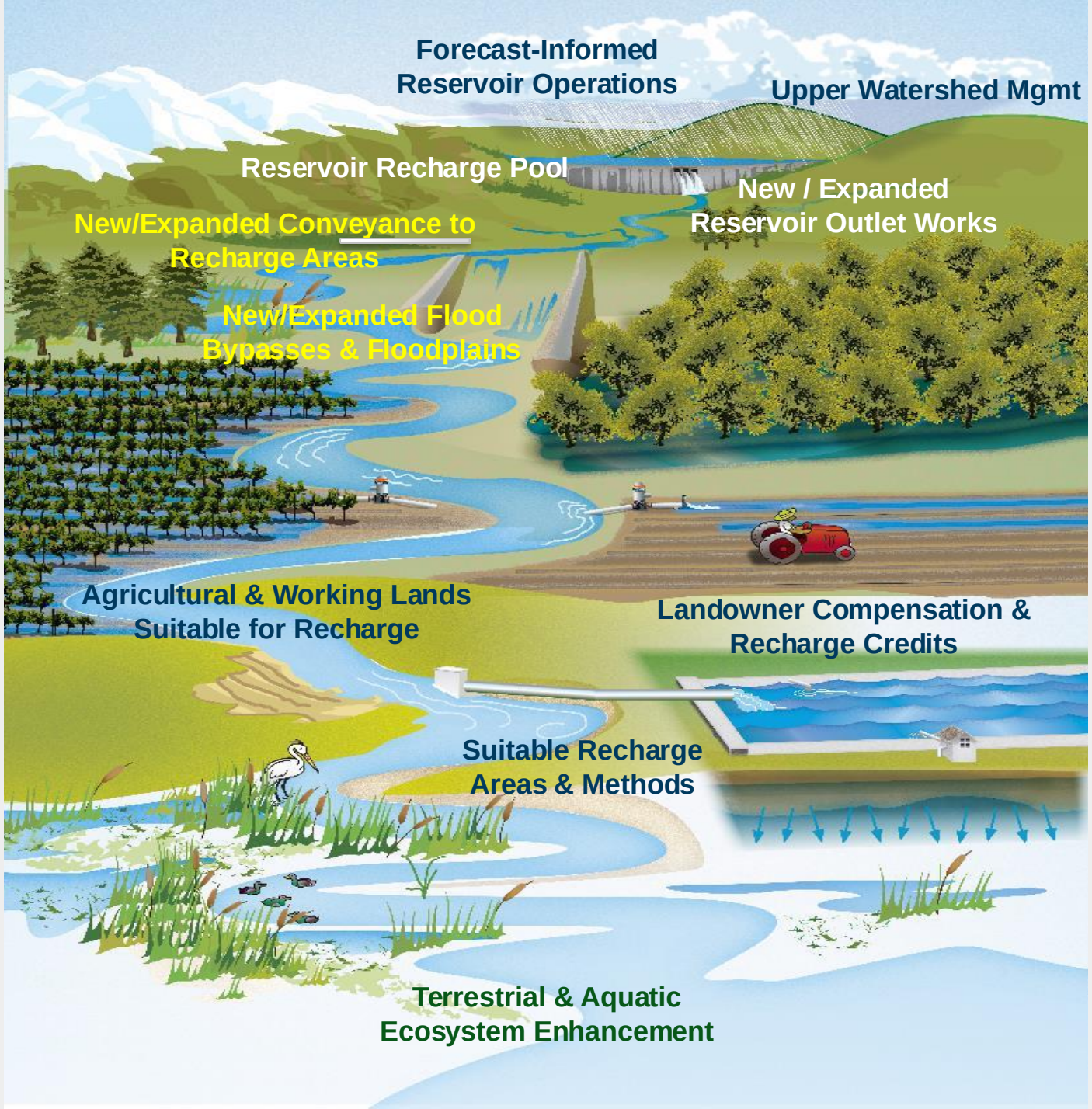

Flood-MAR Takes a Headwater to Groundwater Approach

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Requires Big Collaboration, Agency Alignment, Sector Co-Management & Data Integration

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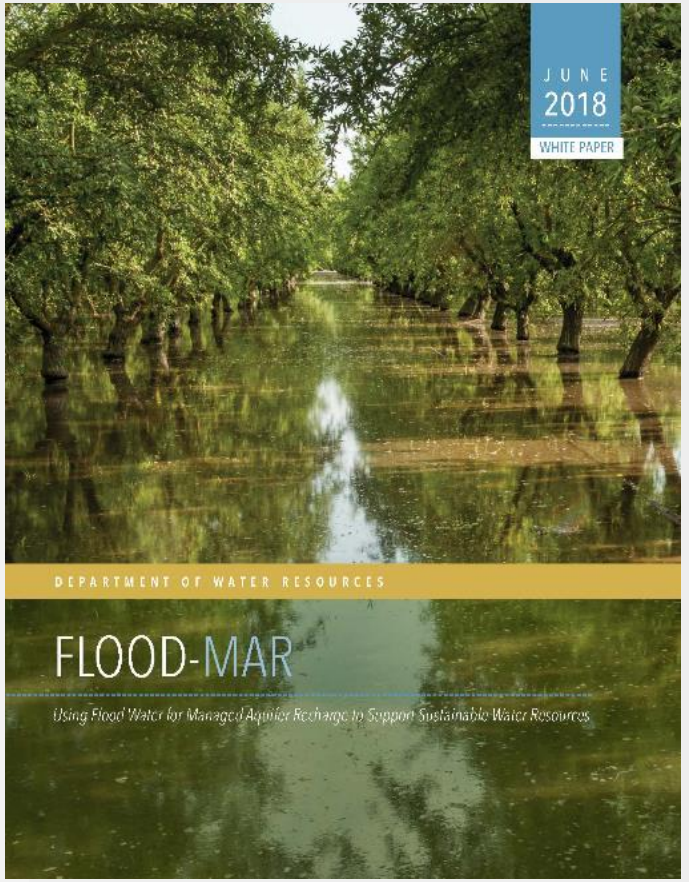
Example Strategies & Projects

How State Can Increase & Fast-Track Flood-MAR Projects

- Recognized aquifers as natural infrastructure (SB 122, 2023)
  – Replenishment/remediation with public funding
- Protect prime recharge areas using AEM surveys
- Provide fiscal and regulatory incentives for aquifer replenishment & repurposing land use
- Promote Watershed Networks & Studies to build knowledge and capacity for implementing multi-sector, multi-benefit projects

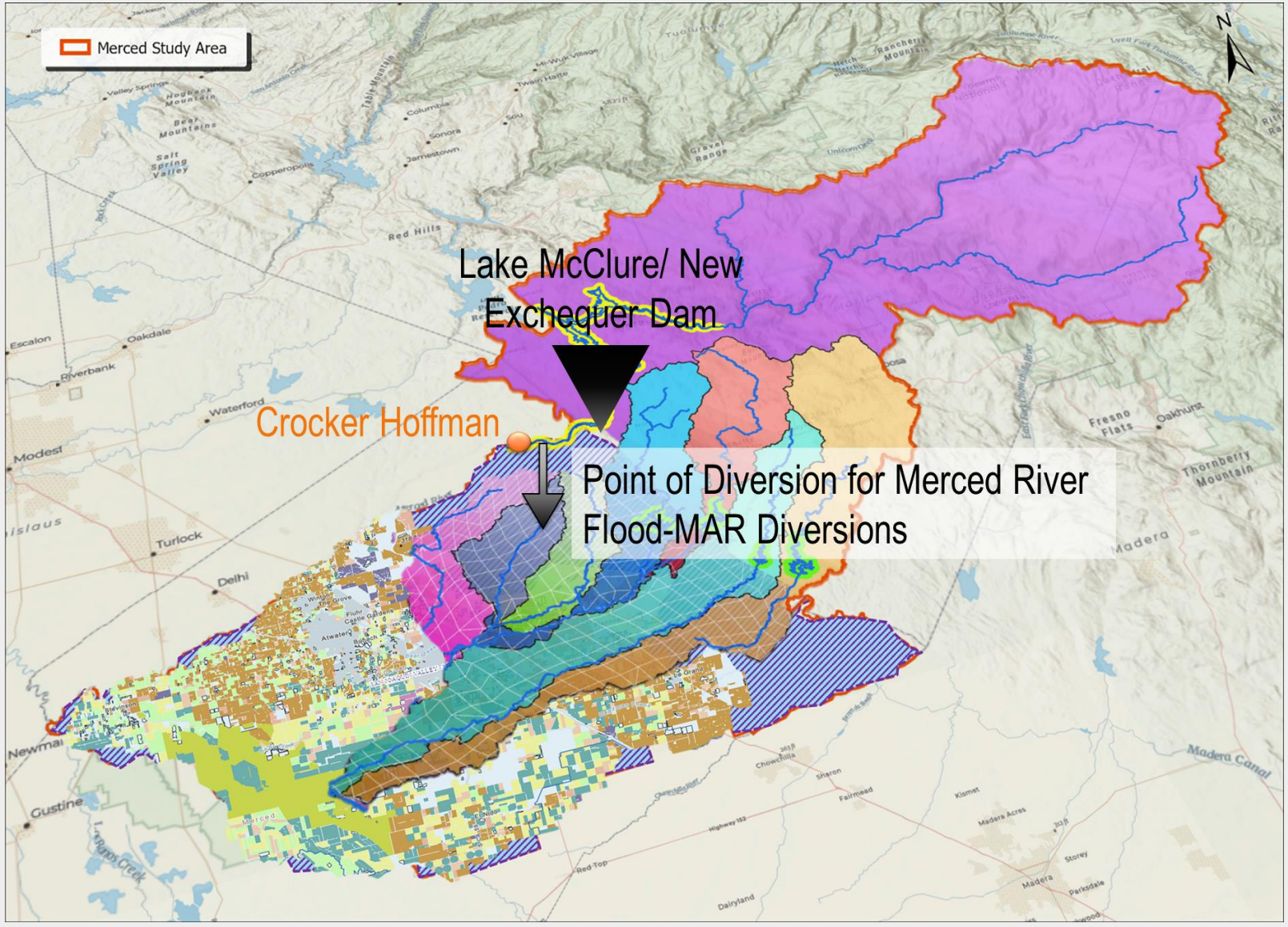
Creating Markets for Flood-MAR Public-Private Partnerships

- Multi-benefit recharge for flood risk reduction, aquifer replenishment & ecosystem restoration
- Environmental groundwater accounts
- *Repurposing* land use (now in cultivation)
  - Crop rotation for healthy soil management
  - Recharge basins
  - Terrestrial ecosystem restoration
  - Aquatic ecosystem restoration
  - Solar farms (with recharge)



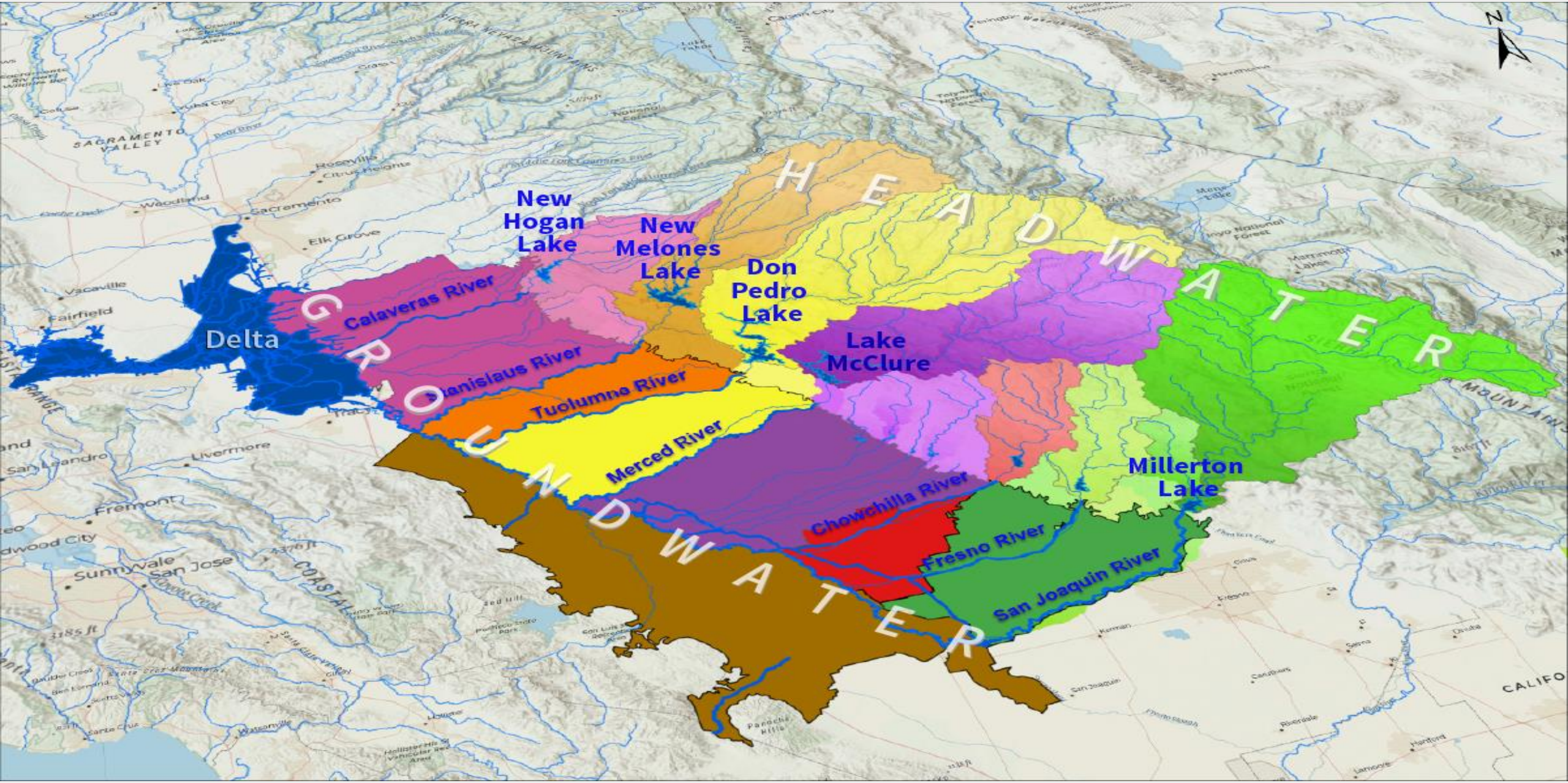
Merced Flood-MAR Study

Demonstrates Watershed Vulnerability & Adaptation Potential



- Watershed scale analysis
- Integrated toolset
- Risk-based climate change vulnerability assessment
- Adaptation strategies evaluation
- Initiating other San Joaquin Valley watershed studies
- Motivation & guidance for watershed studies elsewhere

San Joaquin Valley Watershed Studies

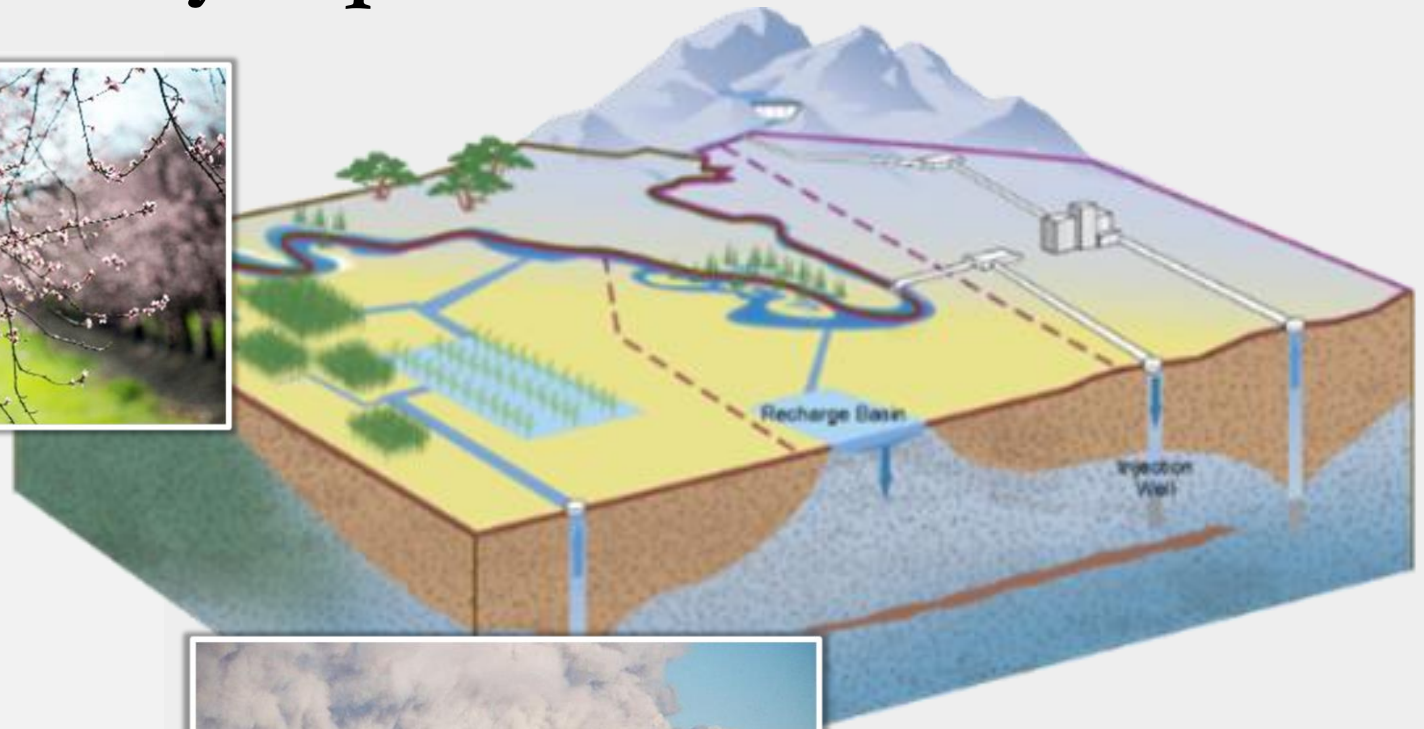


Recognizing Aquifers as Natural Infrastructure &
Replenishment a Public Benefit Eligible for Public Funding

- State of California has recognized aquifers as natural infrastructure (SB 122) providing ecosystem services.
- Actions replenishing overdrafted / degraded aquifers should be considered a public benefit eligible to receive State technical assistance, agency regulatory alignment, and/or public funding.
- Actions that replenish aquifers are scalable & benefits increase
  - with spatial scale (from parcel to watershed)
  - with greater water sector collaboration
  - with stronger agency & institutional alignment
  - with multiple funding sources

Ecosystem Services of Healthy Aquifers

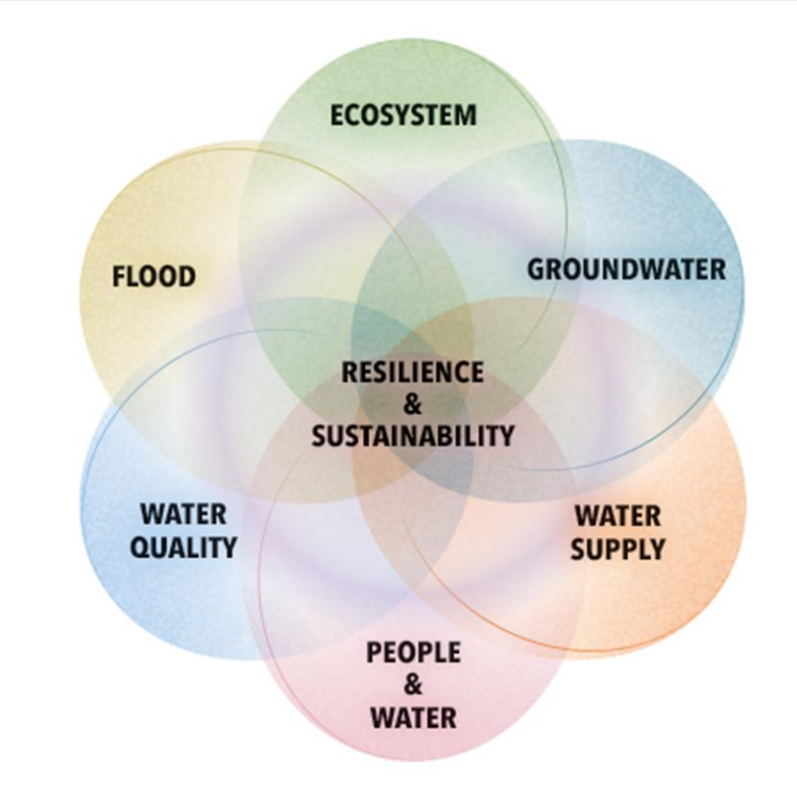
- Water storage
- Water supply
- Water treatment
- Flood flow attenuation
- Base flow augmentation
- Land surface maintenance
- GDEs preservation
- Nutrients recycling
- Soils formation



Strategies to Replenish Aquifers to Health -- Restoring their Ecosystem Services

- Recharging groundwater (natural & managed)
- Reducing water demand (agricultural & urban)
- Repurposing land use (water footprint & quality)
- Remediating groundwater quality (pretreatment)
- Integrating surface & groundwater management
- Storing & banking groundwater
- Attenuating & retaining flood water (Flood-MAR)

Questions & Comments



SAVE OUR WATER

Kamyar Guivetchi, PE
Executive Advisor
Water Innovation & Technology
CA Department Water Resources