California Water Commission
Drought Strategies: Expert Panel Recap
August 16, 2023

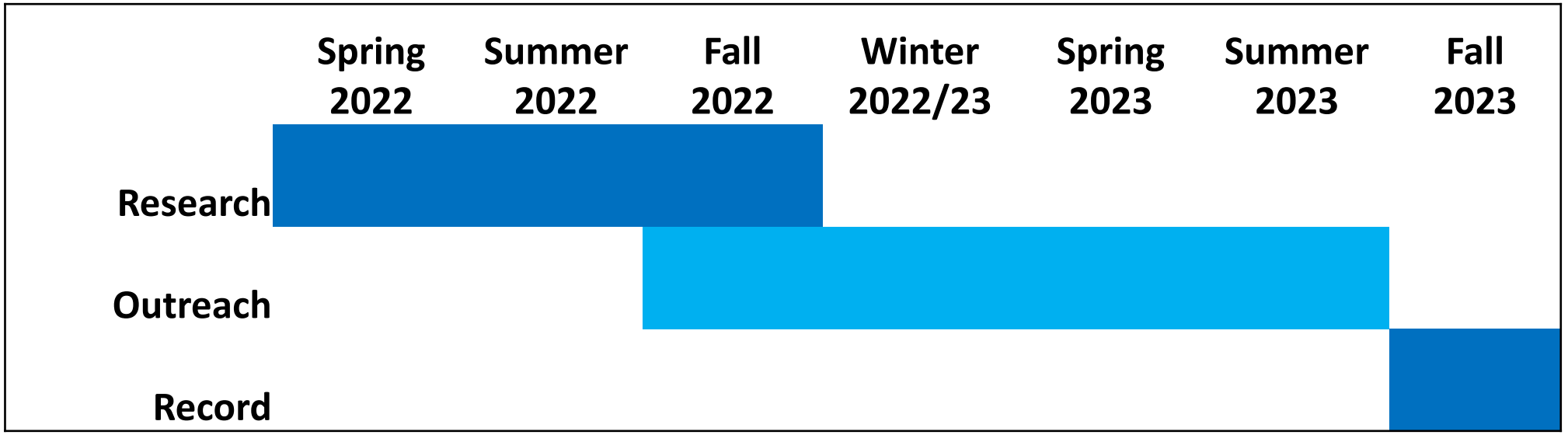
California WATER COMMISSION

Water Resilience Portfolio Action 26.3

Develop strategies to protect communities and fish and wildlife in the event of drought ~~lasting at least six years~~

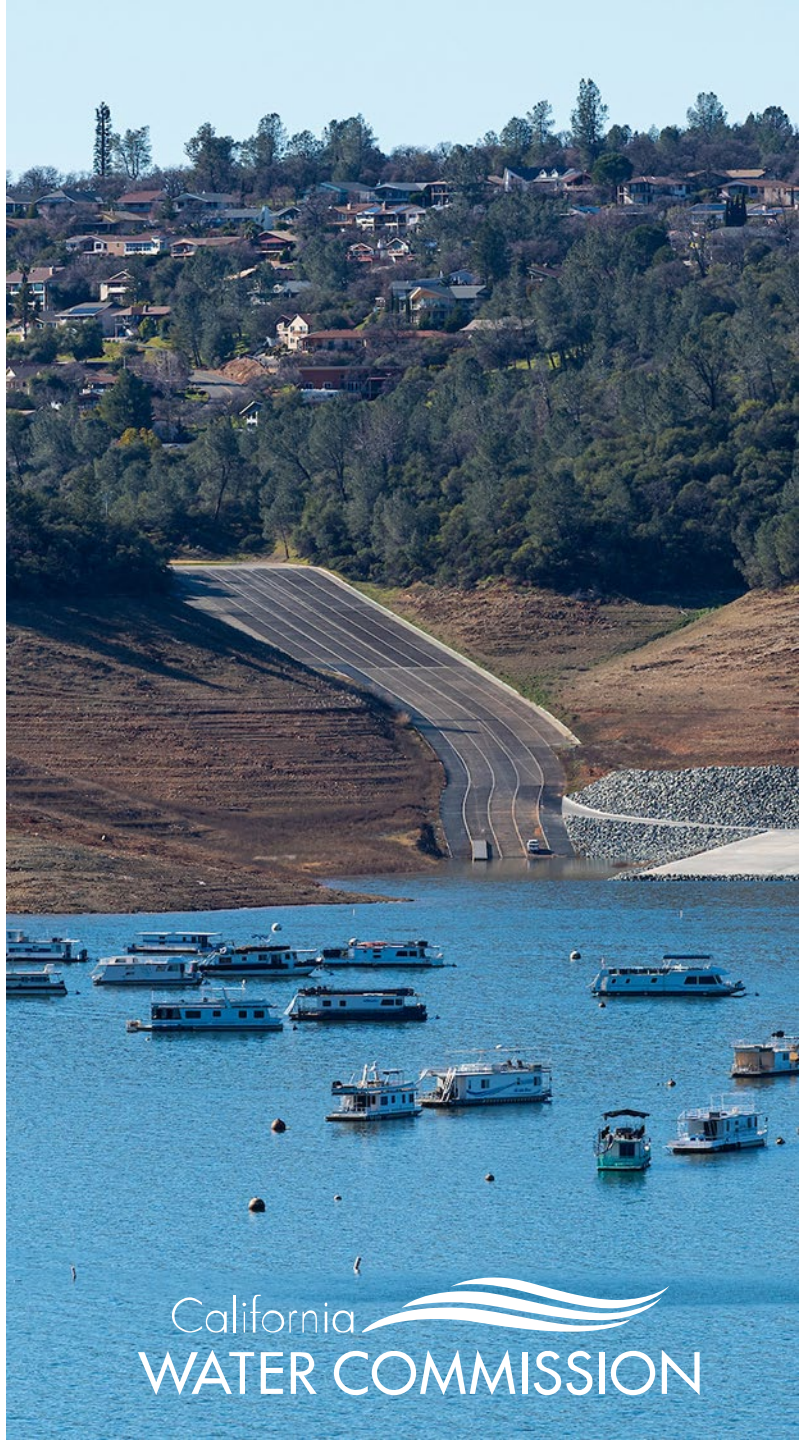
California WATER COMMISSION

Timeline of Effort



Expert Panels

- California Droughts of the Past, Present, and Future (July 2022)
- Protecting Communities and Species (November 2022)
- Overview of State Drought Actions (January 2023)
- Drought Preparedness and Response Strategies (February 2023)
- Wildfire and Forest Management (April 2023)
- Desalination (May 2023)

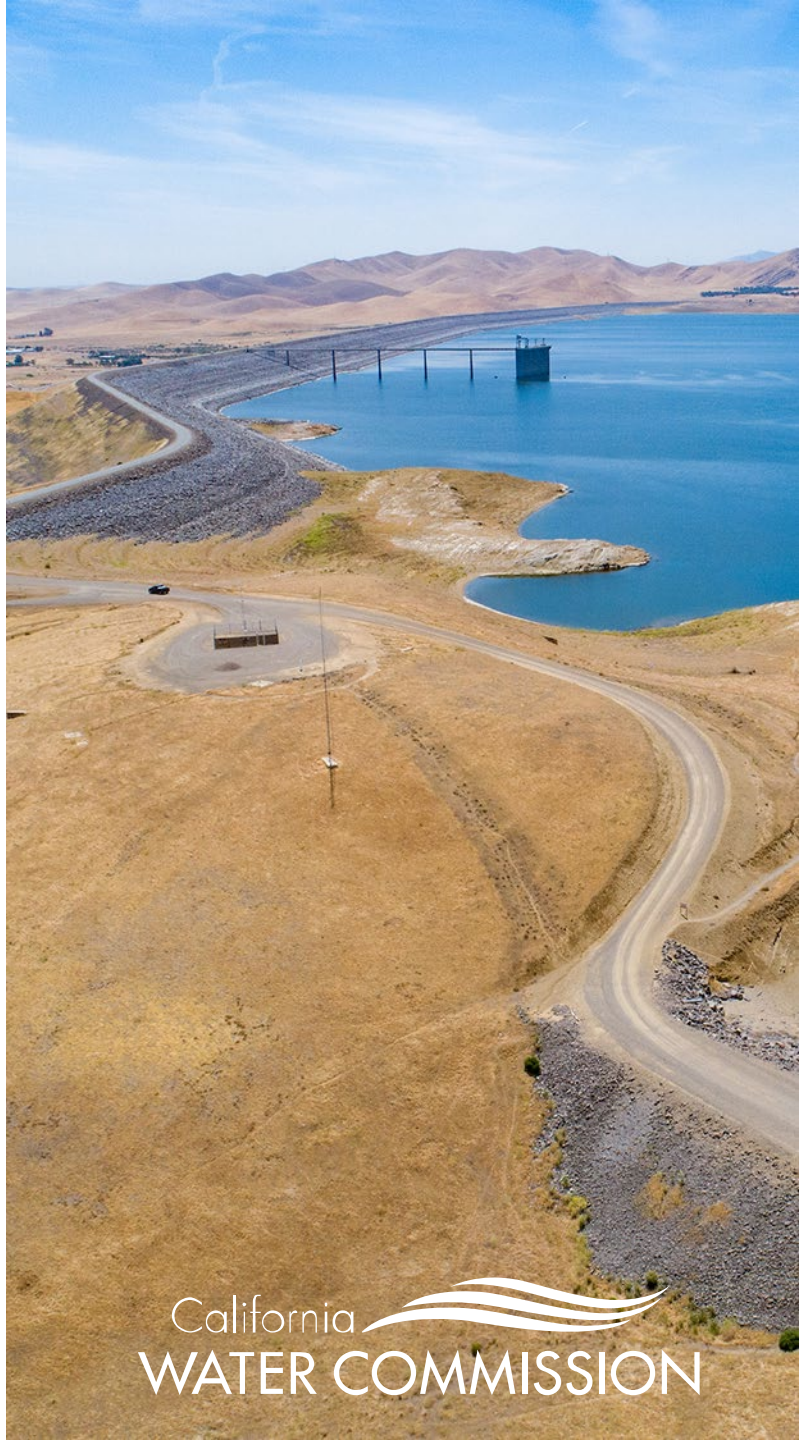


California Droughts of the Past, Present, and Future

- Drought is defined by its impacts
- California is a drought-prone State
- Climate change is leading to drought-like conditions, is drought magnifier
- 21st century droughts are different: hotter, worsening fires, regional drought, groundwater impacts, Delta impacts
- State's doing well: tracking groundwater, helping small water systems
- State needs to:
  - Act sooner
  - Factor in warmer temps, arid climate
  - Plan for dry wells & wildfire
  - Manage and store water for the environment
  - Protect biological strongholds
  - Support consolidations
  - Support seasonal forecasting

Protecting Communities and Species

- Most drought vulnerable: aquatic ecosystems, groundwater, Delta, rural communities
- Species in CA are drought-adapted, but suffer from suite of systemic problems & climate change makes it worse
  - Groundwater is species' drought strategy
  - Ecosystem management lacks business model and agreed-upon objectives
- Rural communities suffer from unsafe/unreliable wells, water systems, as well as water quality, affordability, infrastructure issues
  - Lack finances and organization
- Groundwater management is linked to supporting species and rural communities
  - Need to fallow land, retire responsibly
  - SGMA implementation needs to protect species



Overview of State Drought Actions

- **Providing funding** for land fallowing, planning for land repurposing, recycling/wastewater/stormwater projects, drinking water projects (consolidations), emergency response for communities
- **Supporting planning and water management** through county drought planning, runoff and seasonal/sub-seasonal forecasting, snowpack monitoring, forecast-informed reservoir operation
- **Managing water** by decreasing SWP allocations, installing drought barrier, conveying water transfers, submitting temporary urgency change permit
- **Regulating water supplies** by implementing emergency curtailments, water conservation standards, water use prohibitions/reductions
- **Supporting species** through terrestrial/aquatic monitoring & rescues, hatchery improvements, restoration/fish passage (relocation of winter-run Chinook), guiding water operations & permitting, resiliency measures on state-owned/partnership lands, responding to human-wildlife conflict response, law enforcement on State lands

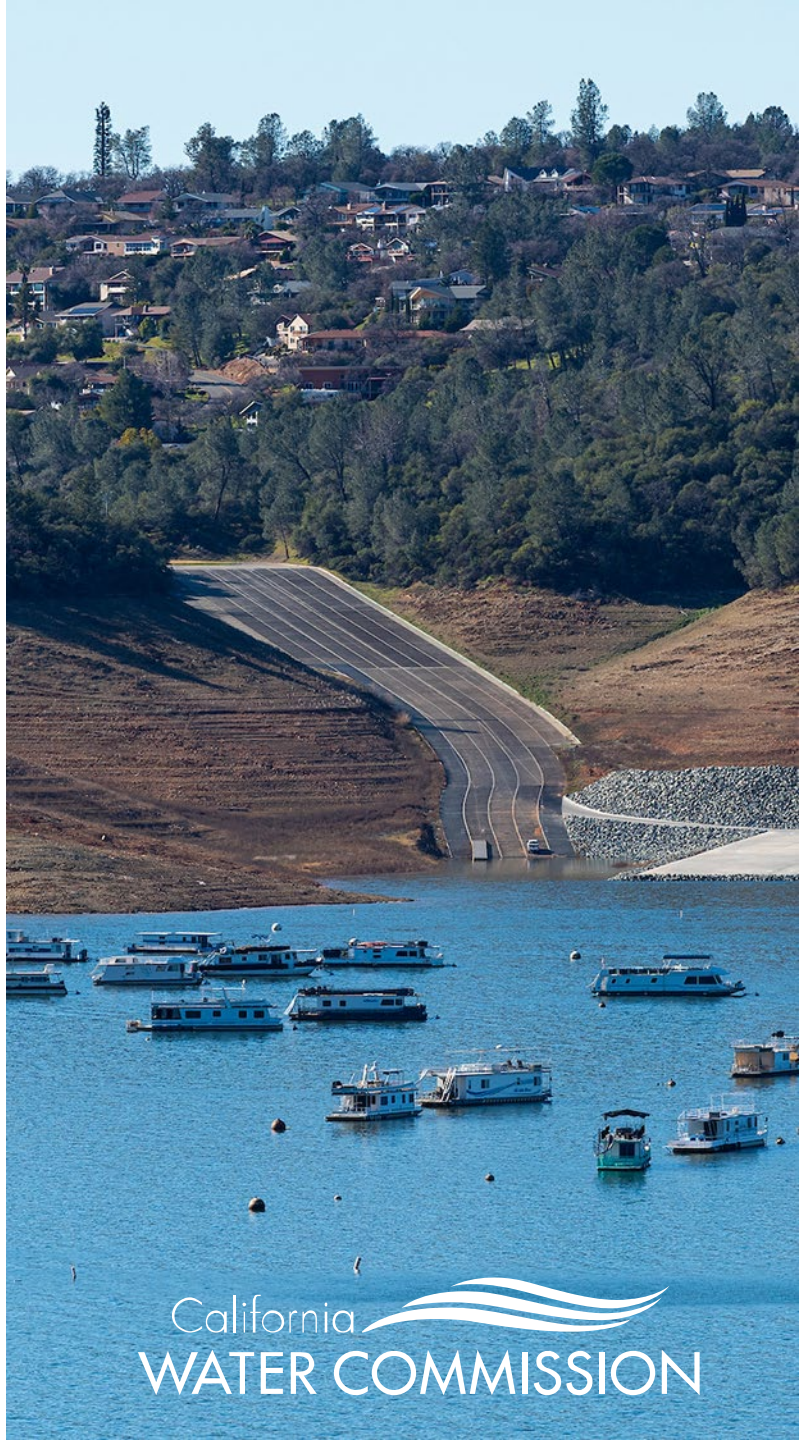
Drought Preparedness and Response Strategies

- **Overarching …**
  - Integrate water management and value green infrastructure
  - Collaboration/partnerships are key
- **For rural and urban communities ...**
  - Prioritize water conservation to reduce demand
  - Diversify water supplies through reuse, stormwater capture, managed groundwater, desal
  - Develop/implement water shortage contingency plan
- **For species …**
  - Ecosystem-based management: flexibly manage a defined amount of water for system condition (not single species)
    - Pair with physical habitat/drought refugia
- **Ag lands provide benefits to species, communities (employment)**

Drought Preparedness and Response Strategies

- **For Tribes…**
  - Context:
    - Tribes not located in historical territory
    - No two Tribes are the same
    - Deep place-based knowledge
  - Drought impacts: natural & cultural* resources impaired, traditional foods harder to get, human/wildlife conflict, human/species migration, food sovereignty, water quality issues, unable to conduct ceremonies
  - Drought needs: engagement, ability to apply Tribal Ecological Knowledge

* Cultural resources include: water, plants, animals, fish, language, baskets, regalia, sacred sites, village sites, burial sites

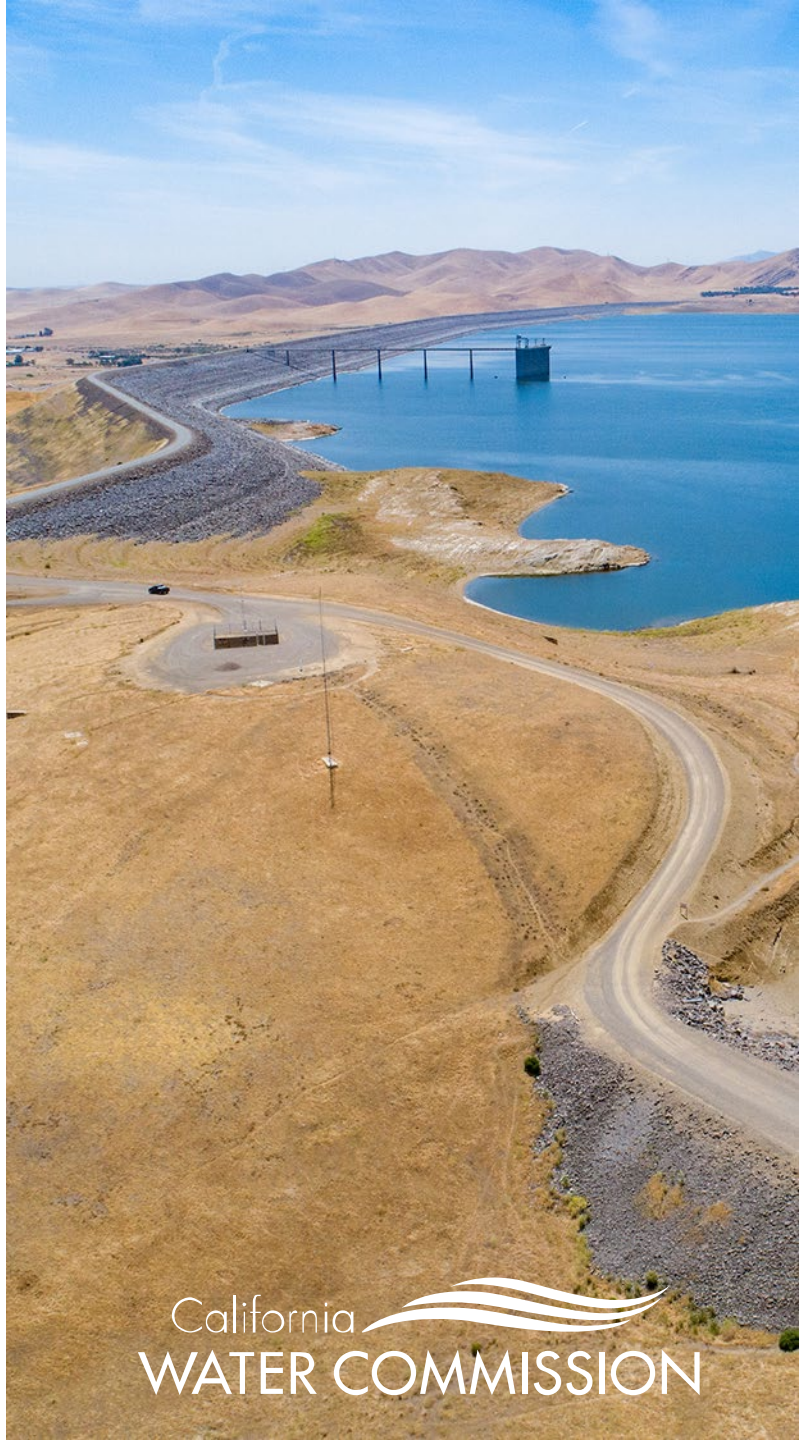


Wildfire and Forest Management

- Drought → forest stress → wildfire
- Headwater forests are a major, multi-benefit asset
- Historically, trails/ridges kept open by Tribes' burning practices
  - Now, too much tree canopy
- To manage:
  - Destructive wildfire → beneficial, regenerative wildfire
    - Need cultural burning – "good fire"
  - Forest restoration
    - Need repeated efforts, dedicated attention, partnerships
    - Need more open meadows

Desalination

- **Desalination in California**
  - 41 locations operative in 2020; most sites in Southern California
  - Desalinating more brackish groundwater than seawater
- **Santa Barbara case study**
  - Plant produces 3 million gallons per day of desalinated water - part of diversified water supply
    - Capital cost: $72M
- **Issues with desal:**
  - Cost to ratepayers; high energy use and emissions; impacts on marine life (at intake, brine disposal)
  - Ocean water desalination should be option of last resort
    - When necessary: scale to needs of community, utilize subsurface intakes, site discharges appropriately
- **Biggest opportunity = go small – distributed, small-scale**



Outreach: Status

- **20 presentations scheduled: 14 presentations made, 6 to go**
  - Sharing preliminary strategies
  - Feedback gets wrapped back into strategies as we develop white paper

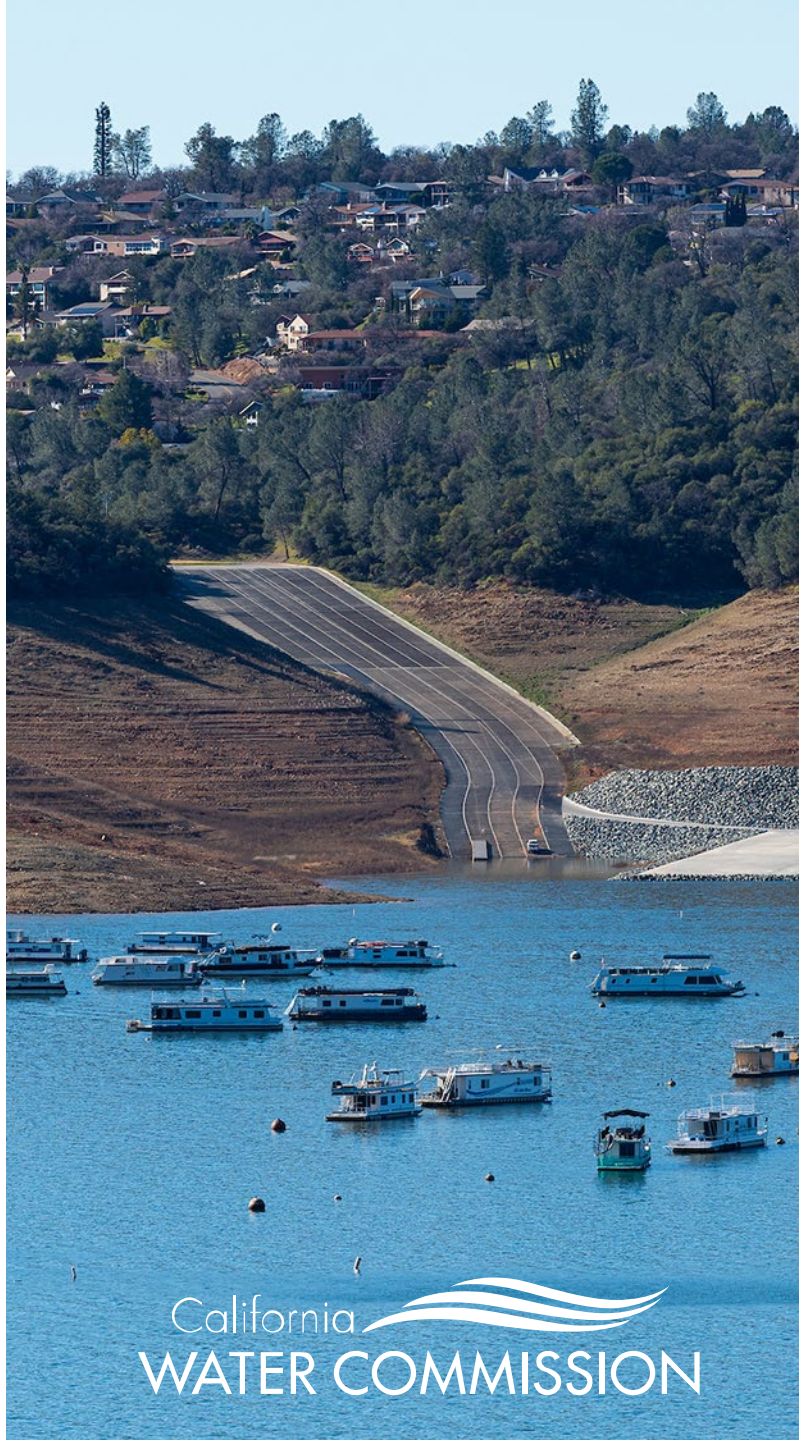
- **Reaching diverse parties:**
  - Environmental
  - Agriculture
  - water districts
  - Local agencies
  - Special districts
  - Community-based orgs
  - Groundwater managers
  - Tribes
  - State agencies
  - Academia
  - Local electeds
  - Floodplain managers

Outreach:
Feedback on Preliminary Strategies

- Recharge – general support, but need infrastructure, to integrate into managing reservoirs, and to plan ahead for recharge
- Species/ecosystems – big problem that needs big solutions, big money, big, aligned political support & State leadership
  - Bring State funders together to move projects quickly - Need administrative authority to participate in new/different ways: operate flexibly, pool funding, think about landscapes
  - Build on planning/efforts that already exist
  - Develop metrics – like those seen in the Water Supply Strategy – for species
  - Think about establishing emergency drought flows
  - Important not to overturn environmental rules during states of emergency
  - Focus on: reconnecting floodplains, wetlands, getting fish above rim dams/into upper watersheds
- Forest/fire management = very important

Outreach:
Feedback on Preliminary Strategies

- Communities – need State support to plan ahead for drought impacts AND need counties to have capacity to offer emergency assistance
  - Special consideration to farmworkers, small farms
  - Well-drilling backlog
- Tribes – overloaded with requests for involvement: align State efforts, implement plans post-engagement (if not, discourages future involvement)
  - The connection of land to sea needs to be at the forefront
  - Align Tribal interests with species and habitat restoration: basketweaving and culture-bearing should be incorporated into habitat restoration
  - Remove stigmas around cultural burning



Outreach:
Feedback on Preliminary Strategies

- State Capacity/Funding/Data – “every time there's a drought, we don't want it to be an emergency: we want to plan in advance so that we can be prepared to weather a drought”
  - Manage flood and droughts together – challenge is collaboration
  - Increase transparency around State decision-making during drought
  - Data - need better data on atmospheric rivers, for forecast-informed reservoir operations, from stream gaging
    - Better data-sharing between agencies, data collection during non-drought
  - Need flexible, integrated funding for watershed coordination
- Other
  - Brackish desalination – explore/advance
  - Storage – mixed feelings, new ideas: individual residential storage, work with Tribal partners, manage Prop 1 projects holistically for environment

Anticipated Timeline

White paper

- October meeting – Draft white paper
- November meeting – Final white paper

California WATER COMMISSION