California Water Plan Update 2018
Focus & Features

- CA Water Today
  -- accomplishments
  -- challenges & drivers

- Understanding sustainability

- Actionable recommendations

- Sustainability Outlook
to track progress & adapt

- Investment strategy & funding scenarios
California Water Plan Update 2018
Table of Contents – Under 50 pages

Chapter 1: California Water Today
Conditions assessment – status, trends, initiatives & investments

Chapter 2: Challenges to Sustainability
Understanding sustainability and critical, systemic & institutional challenges

Chapter 3: Actions For Sustainability
Recommended actions for the next 5 to 50 years

Chapter 4: Investing in Water Resources Sustainability
Implementation cost, funding mechanisms, and funding scenarios

28 Supporting Documents & 45 Companion State Plans
California Water Management
A Tale of Extremes

Historic Flood Events:
- 1969-1970
- 1972
- 1974
- 1976-1978
- 1980
- 1983
- 1986
- 1993
- 1995
- 1997
- 1998
- 2002
- 2004
- 2006
- 2008
- 2011
- 2016-2017

Historic Drought Periods:
- 1976-1977
- 1987-1992
- 2007-2009
- 2012-2015

Images:
- Drought-affected land
- Flooded area with a house submerged in water
California Water Today
Conditions Assessment

❖ Setting the Context for Update 2018
  o Unprecedented multi-year drought
  o 2nd wettest year on record

❖ Diverse Water Supplies & Uses
  o Water balances 2011 - 2015

❖ State Initiatives & Investments
  o Water Action Plan & related State actions
  o Propositions 1 and 68
California Water Today
Historical Investment in Water

- State expends ~ $2 Billion/year on water management
- State allocates only 2% of State General Fund for water
- 80% of investment from Local/regional entities
- 75% for ongoing costs
- Investment backlog is at least $350 Billion over next 50 years

Total Capital and Ongoing IWM Expenditures

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Challenges to Sustainability Threaten the People & Ecosystems of CA

- Greater Drought Impacts - Unreliable Water Supplies
- Increasing Flood Risk
- Groundwater Depletion & Subsidence
- Degraded Water Quality
- Declining Environmental Conditions
- Aging Infrastructure
- Climate Change Impacts
Systemic & Institutional Challenges
Overcoming them Increases Return on Investment

- Fragmented and uncoordinated decisions, initiatives & actions
- Inconsistent, inflexible, & conflicting regulations
- Insufficient capacity for data-driven decision-making
- Insufficient & unstable funding
- Inadequate performance tracking
6 Sustainability Goals & 19 Rec’d Actions To Overcome Challenges

1. Improve Integrated Watershed Management
2. Strengthen Infrastructure Resiliency & Operational Flexibility
3. Restore Critical Ecosystem Functions
4. Empower Under-Represented & Vulnerable Communities
5. Improve Agency Alignment & Address Persistent Regulatory Challenges
$90.2 Billion State Water Investment Plan

- **$77.8 Billion** – State Cost Share for Local/Regional Infrastructure & Ecosystem Projects (Capital/O&M)
- **$9.7 Billion** – State Projects (Capital/O&M)
- **$2.7 Billion** – Actions to overcome systemic & institutional challenges
Sustainability Requires Alignment & Integration

Integrated Watershed Management

- Multi-Sector Collaboration
- Multi-Discipline Planning
- Multi-Benefit Projects
- Multi-Fund Investments
What is Flood-MAR?

Using high flows from, or in anticipation of, rainfall or snowmelt, for managed aquifer recharge on agricultural lands, working landscapes, and natural managed lands.
Flood-MAR is also...

- ... an integrated & voluntary management strategy to improve water resources sustainability & climate resiliency
- ... multi-sector (flood, surface & groundwater, ecosystem, quality)
- ... scalable (farm, GSA, basin, region, watershed)
- ... multi-faceted (reoperation, conveyance, storage, recharge, banking, transfers, cultivation, restoration, etc.)
- ... an untapped part of California’s water portfolio
State Recommends Flood-MAR

- State Board of Food & Agriculture letter (May 2018)
Example Components of Flood-MAR Projects

- Forecast-Informed Reservoir Operations
- Reservoir Recharge Pool
- New/Expanded Reservoir
- Outlet Works
- New/Expanded Conveyance to Recharge Areas
- New/Expanded Flood Bypasses/Floodplains
- New/Expanded Conveyance to Recharge Areas
- Suitable Recharge Areas, such as some agricultural lands or other working landscapes
- Landowner Compensation/Recharge Credits
- Suitable Recharge Methods
- Suitable Aquifers
- Ecosystem Enhancement Features
Public Benefits of Flood-MAR

• Flood risk reduction ★
• Drought preparedness ★
• Aquifer replenishment ★
• Ecosystem enhancement ★
• Groundwater remediation/water quality ★
• Working landscape preservation and stewardship
• Climate change adaptation
• Recreation and aesthetics ★

Public benefits defined in Proposition 1

Green Infrastructure
Flood-MAR Implementation Factors

- **Governance and Coordination:** How will project needs be coordinated?
  - Landowner willingness
  - Local or system needs and opportunities
  - Partnerships and agreements
  - Coordination and operations decisions
  - Legal/regulatory framework

- **Funding and Incentives:** How will project be funded and landowners compensated?
  - Available funding sources
  - Landowner incentive or compensation programs
  - Recharge quantification

- **Source Water:** Where will the surface water come from?
  - High flows
  - Reservoir reoperation
  - Timing and quantity of flows
  - How are flows expected to change in the future?

- **Conveyance:** How will surface water get to the site?
  - Existing infrastructure
  - New infrastructure

- **Site Suitability:** Where are good candidate sites for recharge?
  - Soil suitability
  - Crop suitability
  - Aquifer suitability
  - Aquifer capacity
  - Aquifer water quality
  - Vadose zone water quality

- **Recharge Method:** How will the water get into the ground?
  - On-farm
  - Fallowed land
  - Dedicated basin
  - In-lieu
  - Direct injection

- **Groundwater Use:** How will groundwater be recovered or otherwise used?
  - Groundwater extraction wells
  - Beneficial Uses
  - Augmentation of groundwater for replenishment/restoration

- **Feasibility Analysis:** Is the project feasible?
  - Benefits and beneficiaries
  - Costs and impacts
  - Agreements and assurances
Potential Barriers to Flood-MAR Implementation

- **Cooperation and Governance** – trust, sector coordination, operations agreements
- **Legal** – water rights, regulations, permitting
- **Policy** – public benefit, beneficial use, landowner compensation/incentives
- **Implementation** – land use, recharge/recovery suitability, conveyance, reservoir operations, economics, funding
Current Plans and Activities

- Fact Sheet
- White Paper
- Draft Research & Data Development Framework
- Merced River Basin Conceptual Study
- Tuolumne River Climate Vulnerability Study
- Convened Research Advisory Committee
What Can I Do?

- **Landowners** -- Look for project opportunities and expand partnerships
- **Academia and Private Researchers** -- Continue to fill data gaps and conduct pilot projects
- **NGOs and Other Stakeholders** -- Encourage broad public benefits and look for partnership opportunities
- **Gov’t Agencies** -- Provide technical and facilitation assistance (financial assistance, when available)
- **Regulators** -- Streamline processes and provide compliance assistance
- **Policy- and Decision-Makers** -- Authorize & fund agencies to remove barriers, conduct research, and support projects
Questions?

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www.water.ca.gov/Programs/All-Programs/Flood-MAR