CALIFORNIA DEPARTMENT OF
WATER RESOURCES

Climate Change Adaptation Strategies and Resources

Wildlife Conservation Board - Lower American River Parkway Advisory Committee

September 1, 2022

Outline

1. Overview of the CA Dept. of Water Resources Climate Change Program
2. Regional Climate Change Strategies
3. Climate Change Adaptation Measures from the Central Valley Flood Protection Plan (CVFPP) Conservation Strategy

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CLIMATE LEADERSHIP AWARDS 2020
Organizational Leadership Award Winner

CLIMATE CHANGE PROGRAM

The DWR Climate Change Program is committed to building resiliency in water management by preventing, preparing for, and adapting to climate change. We perform a wide range of science-based services for water managers and provide technical assistance to improve research, monitoring, and strategies to address the challenges posed by climate change.

Guiding Principles

1. We ask, *"what else can we do?"* on a continual basis, to facilitate ongoing improvements in carrying out our objectives.
2. We conduct business in an ethical, fiscally sound, and employee-focused manner.
3. Most of all, we lead by example.

DWR supports numerous partnership initiatives that improve science-practitioner collaboration, foster the use of the best available science in water management, and create unique public outreach on the impacts of climate change on the State of California.

Who we are

CALIFORNIA DEPARTMENT OF
WATER RESOURCES

REGIONAL CLIMATE CHANGE SPECIALISTS

Lindsay Correa
North Central Region Office
Lindsay.Correa@water.ca.gov

North Central Region Office
3500 Industrial Blvd #131,
West Sacramento, CA 95691

Peter Coombe
Northern Region Office
Peter.Coombe@water.ca.gov

Northern Region Office
2440 Main St,
Red Bluff, CA 96080

Jennifer Morales
South Central Region Office
Jennifer.Morales@water.ca.gov

South Central Region Office
3374 E Shields Ave,
Fresno, CA 93726

Vanessa Velasco
Southern Region Office
Vanessa.Velasco@water.ca.gov

Southern Region Office
770 Fairmont Ave,
Glendale, CA 91203

STATE CLIMATE CHANGE SUPPORT

Mitigation

Michelle Jesperson
Carbon Sequestration
Michelle.Jesperson@water.ca.gov

Jordi Vasquez
GHG Reporting & Outreach
Jordi.Vasquez@water.ca.gov

Adaptation

Romain Maendly
Engineering Studies
Romain.Maendly@water.ca.gov

Alejandro Perez
Modeling Approaches
Alejandro.Perez@water.ca.gov

DWR and Program Support

Andrew Schwarz
State Water Project
Andrew.Schwarz@water.ca.gov

Emily Alejandrino
Project Mgmt., Tribal & Web
Emily.Alejandrino@water.ca.gov

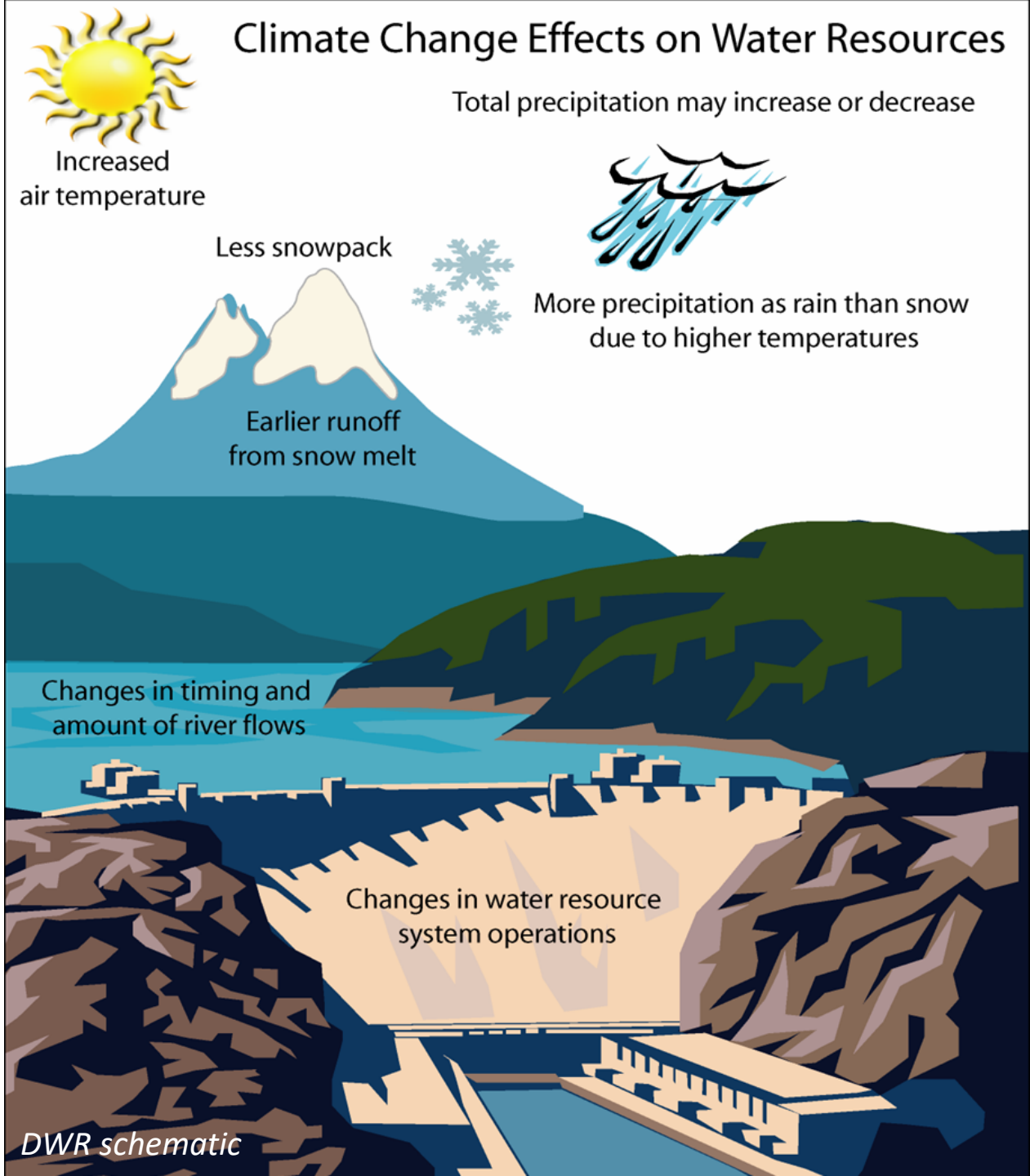
CLIMATE CHANGE PROGRAM MANAGEMENT

John Andrew
Deputy Director - Climate Resilience
John.Andrew@water.ca.gov

Elissa Lynn
Program Manager
Elissa.Lynn@water.ca.gov

Anticipated Impacts

- Less snow and earlier spring runoff
- Sea level rise
- More severe storms and flooding
- More frequent droughts
- Increased water demand for crops, environment, and cities
- Too warm water for cold- water fish like salmon and steelhead



Relevant DWR Climate Change Program Goals

- Anticipate and prepare for future climate change impacts to infrastructure, the environment, and people by facilitating decision making under deep uncertainty.
- Provide assistance to improve climate resilience with a special focus on disadvantaged communities, local collaboration, small systems, and Tribes.

Regional and Local Support

GRANT AND PLAN REVIEW

TECHNICAL ASSISTANCE

OUTREACH AND EDUCATION

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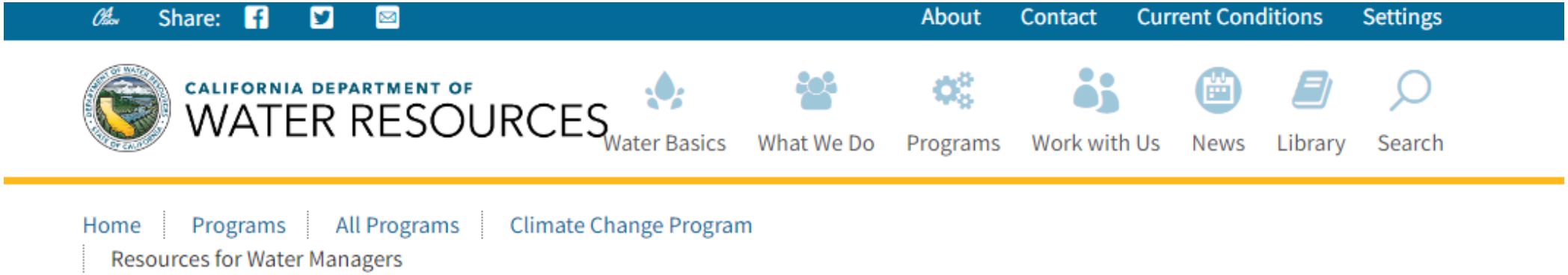
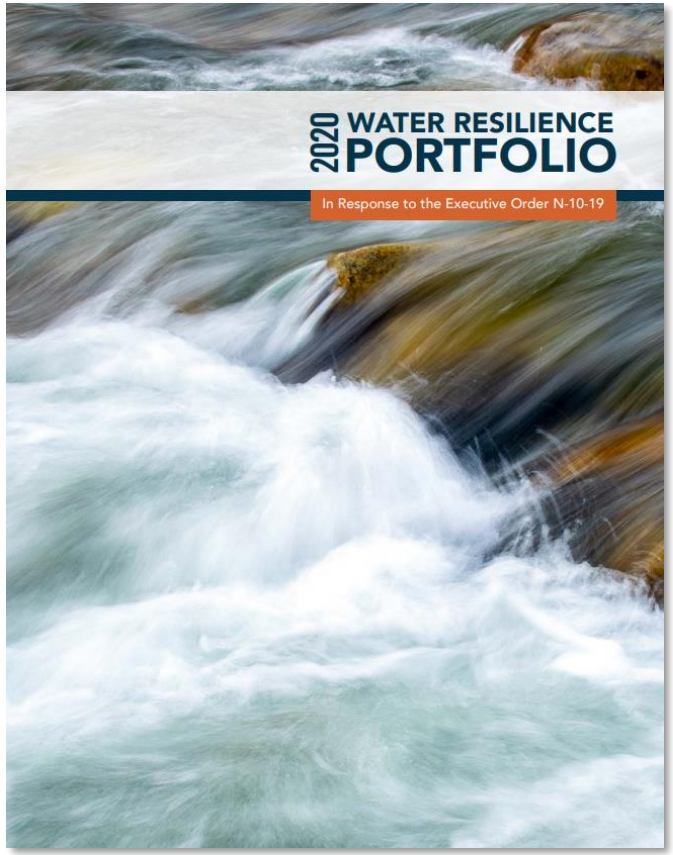
Resources for Water Managers



https://water.ca.gov/Programs/All-Programs/Climate-Change-Program/Resources-for-Water-Managers

California Climate Change Guidance



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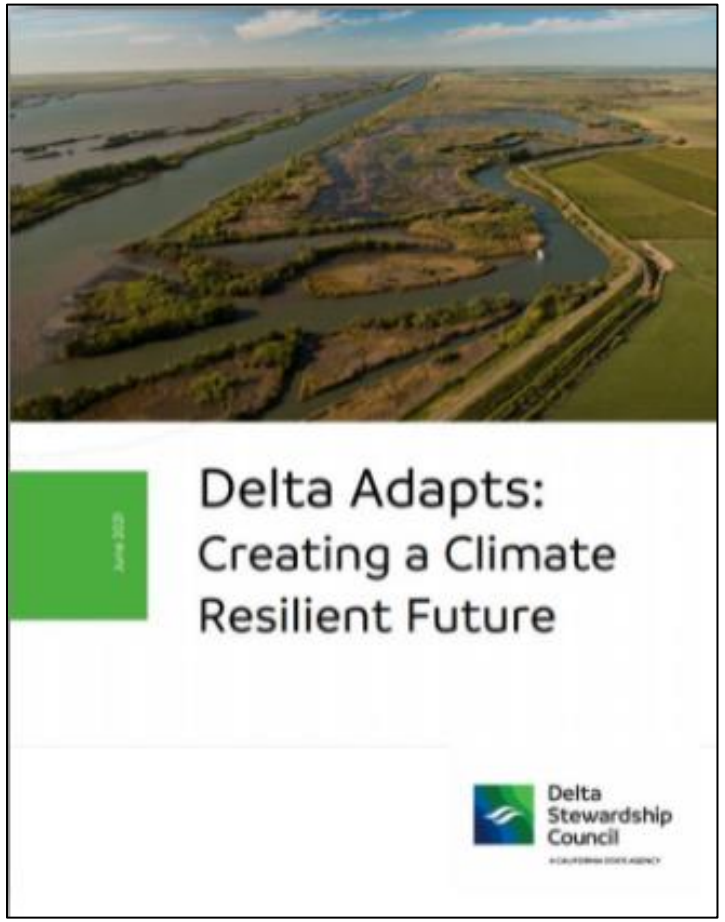
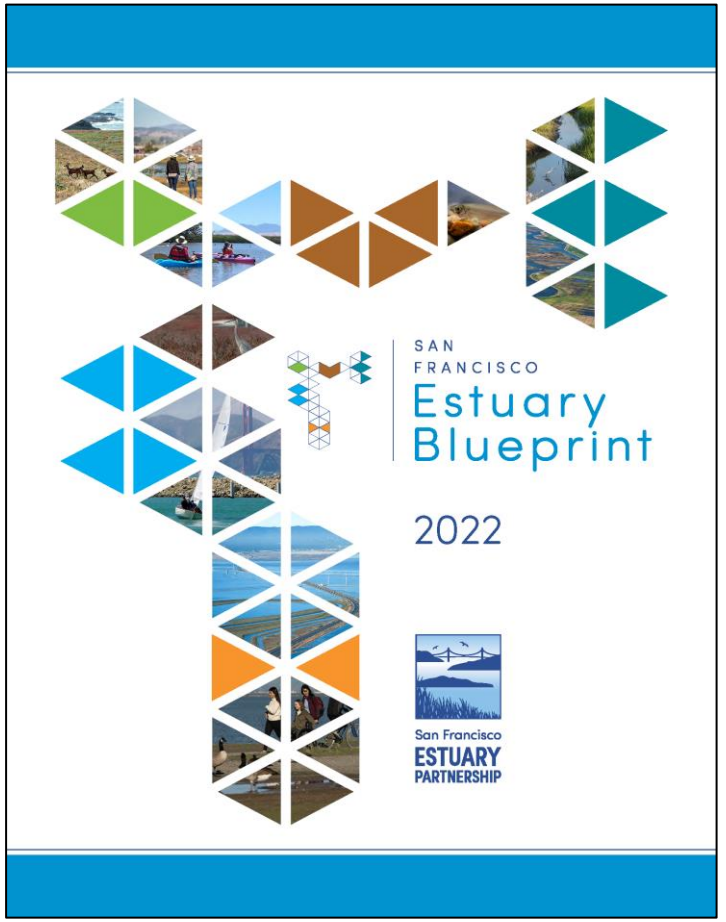
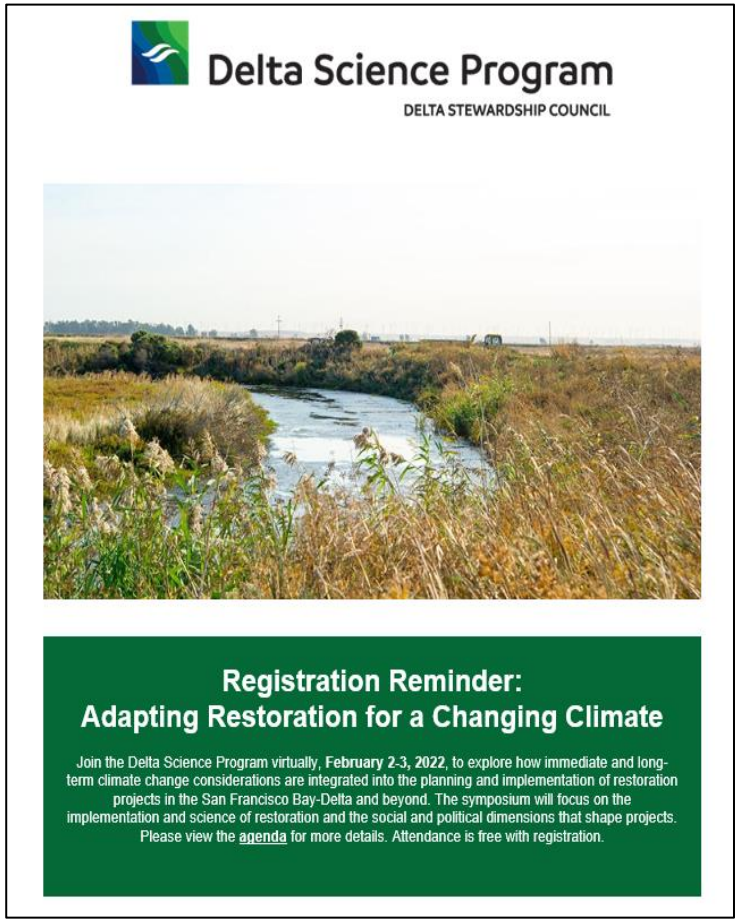
Regional Planning and Engagement



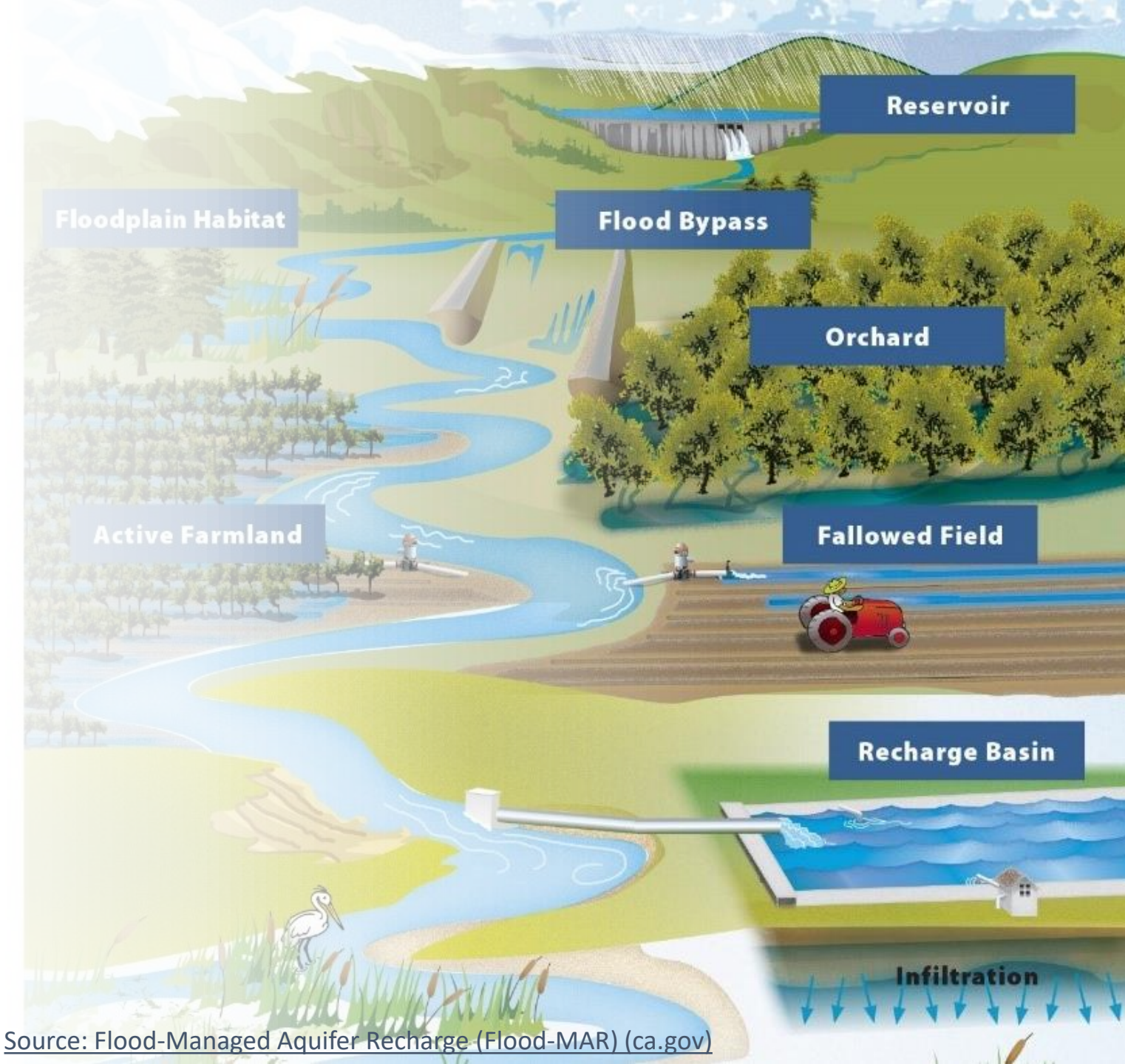




Watershed Vulnerability and Adaptation Planning Studies

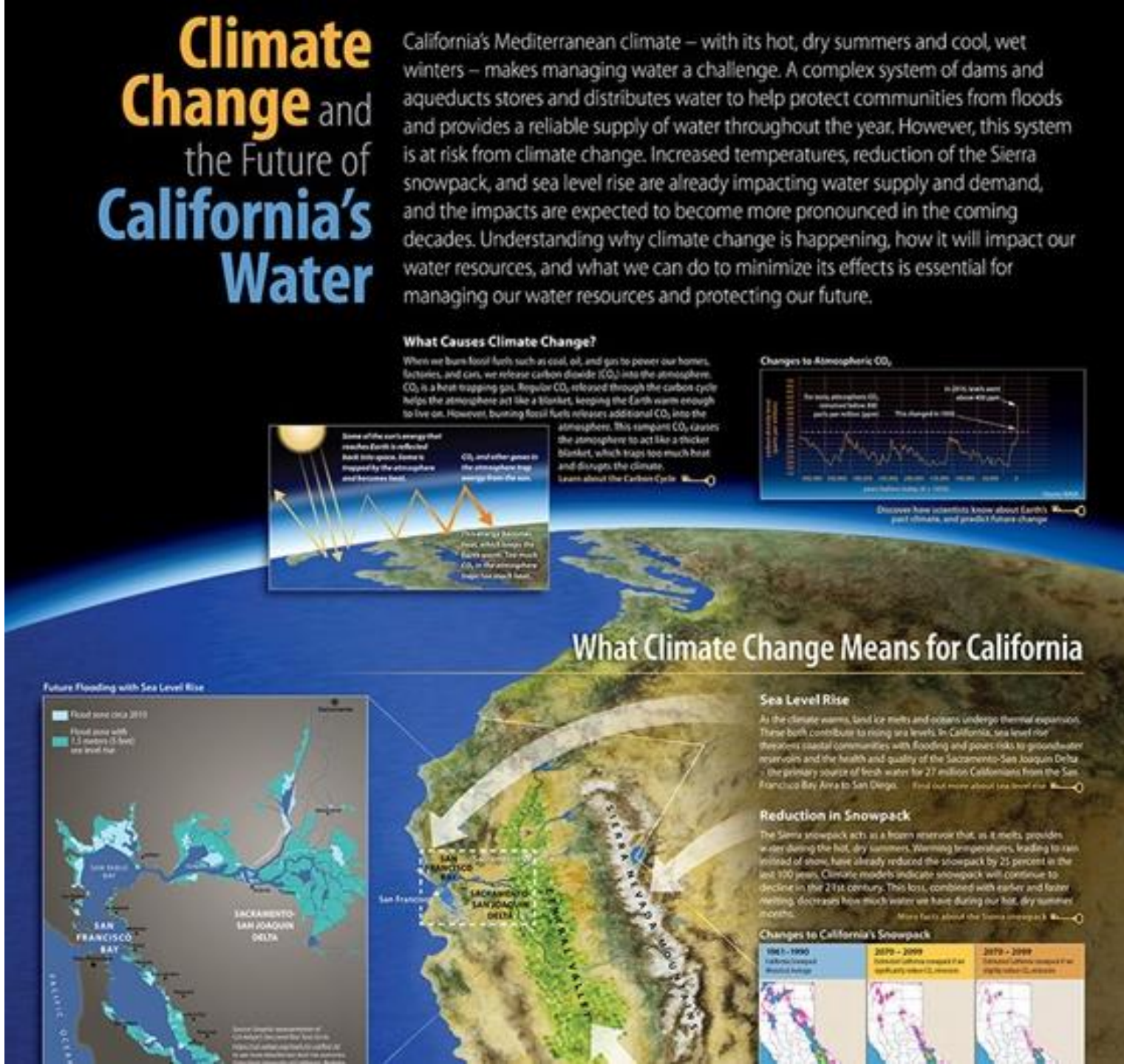
- Merced River Basin Flood-Managed Aquifer Recharge Reconnaissance Study

- Tuolumne River Watershed Vulnerability Assessment and Adaptive Planning Study



Source: Flood-Managed Aquifer Recharge (Flood-MAR) (ca.gov)

Outreach and Education



Climate Change Basics

Climate change is impacting Califor
evidenced by changes in snowpack
flows. As we seek to adapt to and r
climate change, responsible mana
water resources is essential for the
state.

Climate Basics

Climate refers to conditions, such as temperature and precipitation, measured over an extended period of time. Most of California has a "Mediterranean climate," with hot,

- Climate Change Basics Webpage
- Presentations
- Educational Materials

Dept. of Water Resources Climate News Digest

Credit: Getty Images

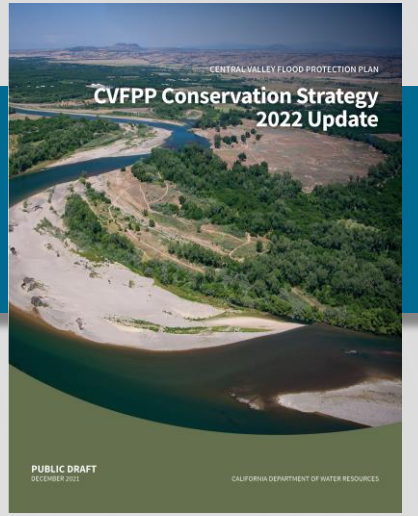
California's largest reservoirs at critically low levels – signaling a dry summer ahead

June – 2022

To subscribe, send an email to:
climatechange@water.ca.gov

CVFPP Conservation Strategy

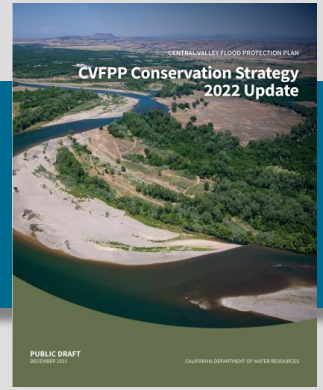
Update



- A primary component of the CVFPP
- Contributes to CVFPP goals – focused on improving ecosystem quality, quantity, function, and sustainability
- Helps CVFPP meet Water Code Requirements
- 2016 Conservation Strategy adopted by Central Valley Flood Protection Board in Aug 2017
- 2022 CVFPP Update anticipated to be adopted by the Central Valley Flood Protection Board, (October 28th, 2022)

CVFPP Conservation Strategy part 2

Update



- Purpose - **integration of ecological principles with flood risk reduction projects**

- Provides guidance to floodplain managers **integrating project components and management strategies that benefit native species and their habitats**

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CVFPP Conservation Strategy part 3

STATE LEGISLATION

ECOLOGICAL GOALS
CALIFORNIA WATER CODE SECTION 9616A

Ecosystem processes
Improve and enhance dynamic hydrologic and geomorphic processes in the SPFC.

Habitats
Increase and improve quantity, diversity, and connectivity of riverine aquatic and floodplain habitats.

Species
Contribute to the recovery and sustainability of native species populations and overall biotic community diversity.

Stressors
Reduce stressors related to the development, operation, and maintenance of the flood management system that negatively affect at-risk species.

ALIGNED TO EXISTING POLICIES AND PLANNING

- Governor's Water Resilience Portfolio
- California Water Plan
- Delta Plan
- DWR's Environmental Stewardship Policy

DESIRED OUTCOMES

MEASURABLE OBJECTIVES

Floodplain inundation

Riverine geomorphic processes

Shaded riverine aquatic (SRA) habitat and cover

Riparian

Marsh (and other wetlands)

Improvements are linked to actions that improve ecosystem processes and habitats.

Improvements are linked to actions that reduce:

- Revetment (unnecessary for flood protection)
- Fish passage barriers
- Invasive plants

IMPLEMENTATION OF MULTI-BENEFIT PROJECTS

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2022 CVFPP Conservation Strategy Update: Focus on Climate Change

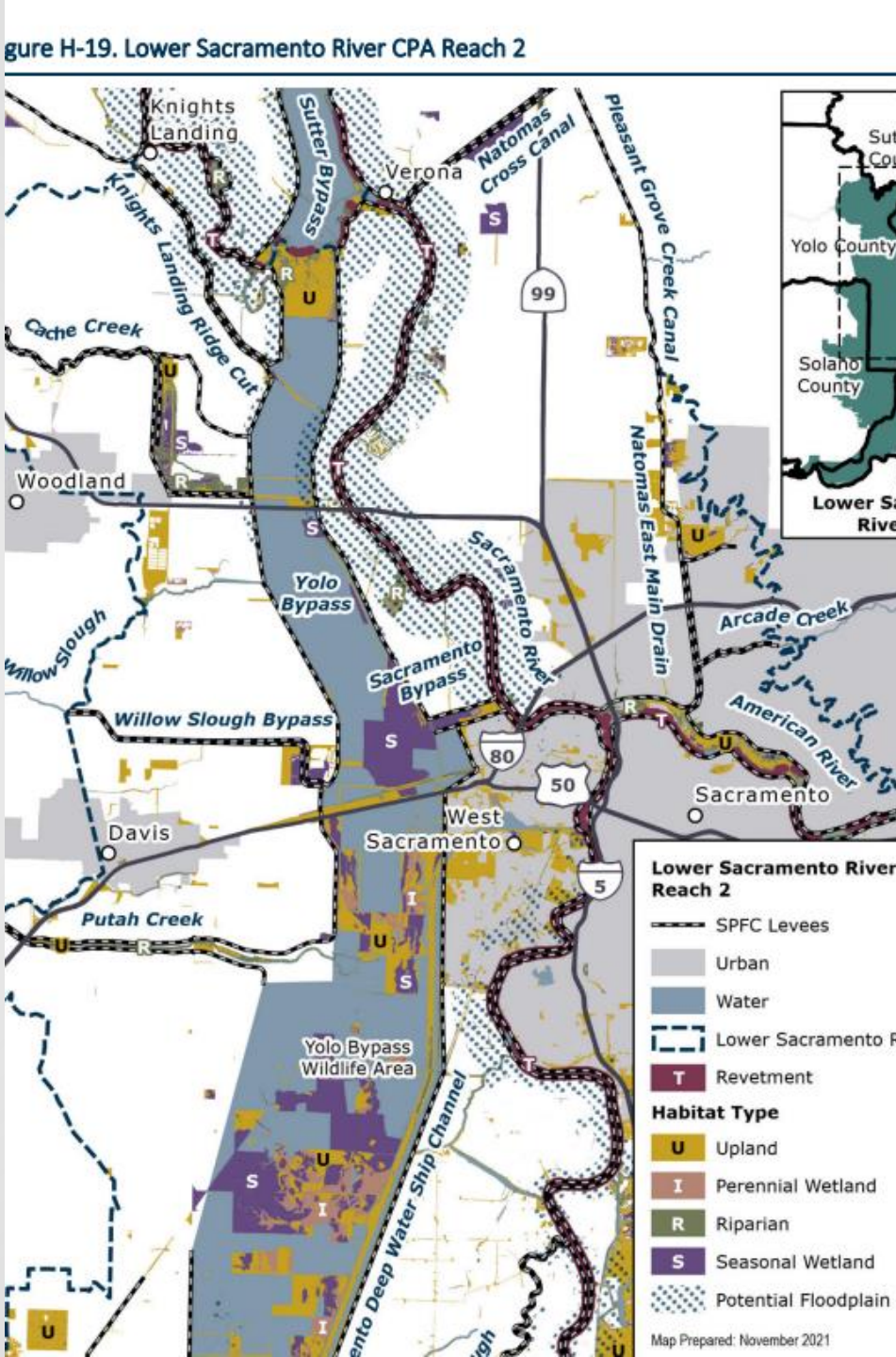
- Uses current climate modeling data to estimate impacts
- Considers ecological, habitat, and species-specific responses
- Identifies preliminary adaptation strategies and methods for increasing resiliency
- Identifies data gaps and additional tools or analyses that could be used to inform development of adaptation strategies
- **Conservation Strategy-specific adaptation approaches inform the development and implementation of multi-benefit projects**

CVFPP Conservation Strategy: Guiding Principles for Adaptation

- Reintroduce physical processes and reconnecting rivers to their floodplains
- Protect remaining habitats from loss and fragmentation
- Provide for species movement and migration
- Reduce other (non-climatic) stressors on species
- Use adaptive management to act under uncertain and changing climatic conditions
- Increase institutional capacity for effective management

CVFPP Regional Adaptation Measures

- Build ecosystem resilience
- Further incentivize and prioritize the implementation of multi-benefit projects
- Perform more detailed analyses of climate change impacts to Conservation Strategy processes, habitats, and species
- Better communicate climate change risks and adaptation opportunities to DWR partners and stakeholders



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Application to the Lower American River Parkway – Existing Conditions/Challenges

- Highly developed and reduced opportunities for floodplain expansion
- Highly disturbed channel and floodplain—disconnected from river
- Riparian corridor is mostly upland with little vegetative recruitment
- Fires have replaced natural disturbance regime (flooding)
- Engaged community, connected with Parkway

Application to the Lower American River Parkway – Potential Adaptation Measures

- Microtopography: swales, backwater channels to increase floodplain activation during lower and more frequent flows
- Create areas to support early successional plant species (willows, cottonwood, Oregon ash)
- Replace stands of invasive weeds with native plant populations
- Reduce disturbances to sensitive areas
- Protect and enhance watershed by restoring tributary creeks (remove concrete) and providing natural stormwater retention

Thank You

Lindsay Correa

lindsay.correa@water.ca.gov

David Martasian

david.martasian@water.ca.gov