Public Review Draft Overview
Chapters 1 - 4

California Water Plan Plenary

October 29, 2013
Plenary PRD Review Sessions

Plenary Sessions by Water Plan Volume

<table>
<thead>
<tr>
<th>Day</th>
<th>Chapter</th>
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<tr>
<td>DeSal</td>
<td>2</td>
<td>11:15 a.m.</td>
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The Strategic Plan

Regional Reports

Resource Management Strategies
Navigating Water Plan Update 2013

California Water Plan Update 2013 (Update 2013) provides a wide range of information, from a detailed description of California’s current and potential future conditions to a “Roadmap For Action” intended to achieve desired benefits and outcomes. Update 2013 applies at statewide, regional, and local scales, and serves to advise a diverse audience, including elected officials, planners and resource managers, tribal governments and communities, academia, and the general public. The plan is organized in five volumes. Volumes 1, 2, and 3 are outlined below. The Highlights booklet, Volume 4, Reference Guide, and Volume 5, Technical Guide, will be released with the Final Update 2013 document in March 2014.

Volume 1, The Strategic Plan

- Executive summary.
- Call to action, new features for Update 2013, progress toward implementation.
- Update 2013 themes.
- Comprehensive picture of current water, flood and environmental conditions.
- Strengthening government alignment and water governance.
- Planning (data, analysis and public outreach) in the face of uncertainty.
- Framework for financing the California Water Plan.

Volume 2, Regional Reports

- State of the region — watersheds, groundwater aquifers, ecosystems floods, climate, demographics, land use, water supplies and uses, governance.
- Current relationships with other regions and states.
- Accomplishments and challenges.
- Looking to the future — future water demands, resource management strategies, climate change adaptation.

Volume 3, Resource Management Strategies

Integrated Water Management Toolbox

30+ management strategies to:
- Reduce water demand.
- Increase water supply.
- Improve water quality.
- Practice resource stewardship.
- Improve flood management.
- People & water.
Recent investment has yielded benefits, however ....

Many water conditions and trends in many areas of California need improvement

Significant threats to future prosperity (public safety, environment and economy)

All Californians (and the Nation) have a stake
State and federal governments funded less than 10% of all IWM investment

State and federal roles and public funding are changing and must be clarified

Collaboration is required to manage wide diversity of Californians’ values and priorities
State government needs to improve methods (and public support) and funding stability to meet its obligations, commitments and responsibilities

- Protect public trust assets
- Implement statewide or interregional infrastructure
- Meet basic public health and safety needs for all Californians
- Planning, policy research, and technical assistance
Effective solutions require:

- More integrated planning and management
- Better government agency alignment
- More disciplined, strategic and stable investment in innovation and infrastructure
Volume 1 Chapters

Chapter 1 - Planning for Environmental, Economic, and Social Prosperity

Chapter 2 – Imperative to Invest in Innovation and Infrastructure

Chapter 3 - California Water Today

Chapter 4 – Strengthening Government Alignment
Volume 1 Chapters (Continued)

Chapter 5 - Managing an Uncertain Future

Chapter 6 – Integrated Data and Analysis: Informed and Transparent Decision-Making

Chapter 7 – Finance Planning Framework

Chapter 8 – Roadmap For Action
Chapter 1

Planning for Environmental, Economic, and Social Prosperity
Update 2013 Public Review Draft
Planning for Prosperity - Chapter Purpose

- Convey urgency
- Identify key challenges
- Underscore the need to invest in integrated water management (IWM)
- Preview key features and themes of Update 2013
Current investments cannot sustain our personal safety, financial stability, and way of life

Urging the avoidance of foreclosure on our future prosperity

Foundational features of the Water Plan

New features for Update 2013

Water Management Progress Report
12 New and Expanded Features

- Finance Planning Framework
- Groundwater conditions and management
- CA Water Management Progress Report
- Flood management
- Land use
- Surface and groundwater quality
- New resource management strategies (RMSs)
Update 2013 Public Review Draft
Chapter 1: 12 New and Expanded Features

- Surface and groundwater quality
- New resource management strategies (RMSs)
- Surface and groundwater quality
- Water technology and science
- Expanded outreach and collaboration
- Sustainability indicators
Chapter 1
Foundational Features

Figure 1-2 Foundational Components of the 2013 California Water Plan

- **Strategic Plan**
  - Volume 1
  - Goals, Objectives and Related Actions
  - State and Federal Companion Plans
  - Water Portfolios
  - Future Scenarios

- **Regional Reports**
  - Volume 2
  - Reports for 10 Hydrologic Regions
  - Reports for 2 areas with common water interests

- **Resource Management Strategies**
  - Volume 3
  - Reports for 30 resource management strategies

- **Reference Guide**
  - Volume 4
  - Detailed reference material related to information presented in Volumes 1, 2, and 3

- **Technical Guide**
  - Volume 5
  - Web portal to document assumptions, data, analytical tools, and methods
# Chapter 1 – Progress Report

## Table 1-1 Progress Report on Implementation of Update 2009

<table>
<thead>
<tr>
<th>Update 2009 objective</th>
<th>Status</th>
<th>Trend</th>
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<tbody>
<tr>
<td>1. Expand Integrated Regional Water Management</td>
<td>Good</td>
<td>Neutral</td>
</tr>
<tr>
<td>2. Use and Reuse Water More Efficiently</td>
<td>Requires attention</td>
<td>Good</td>
</tr>
<tr>
<td>3. Expand Conjunctive Management of Multiple Supplies</td>
<td>Requires attention</td>
<td>Good</td>
</tr>
<tr>
<td>4. Protect Surface Water and Groundwater Quality</td>
<td>Requires attention</td>
<td>Good</td>
</tr>
<tr>
<td>5. Expand Environmental Stewardship</td>
<td>Requires attention</td>
<td>Neutral</td>
</tr>
<tr>
<td>6. Practice Integrated Flood Management</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>7. Manage a Sustainable California Delta</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>8. Prepare Prevention, Response, and Recovery Plans</td>
<td>Neutral</td>
<td>Requires attention</td>
</tr>
<tr>
<td>9. Reduce Energy Consumption of Water Systems and Uses</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
<tr>
<td>10. Improve Data and Analysis for Decision-making</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>11. Invest in New Water Technology</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>12. Improve Tribal Water and Natural Resources</td>
<td>Neutral</td>
<td>Requires attention</td>
</tr>
<tr>
<td>13. Ensure Equitable Distribution of Benefits</td>
<td>Unavailable</td>
<td>Unavailable</td>
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How can this chapter be improved to more clearly or thoroughly represent the intended message/story?

What would you add or change to better emphasize a call for action?
Chapter 2

Imperative to Invest in Innovation and Infrastructure
Update 2013 Public Review Draft
Imperative to Invest – Chapter Purpose

- Encourage and guide strategic, disciplined investment
- Elaborate on key challenges, lessons learned and Update 2013 themes
- Remove implementation impediments
- Support conversations to clarify future role of State government
- Introduce Update 2013 Roadmap For Action
A Critical Time to Invest

Fundamental Lessons Learned (from prior updates)

Focus of Update 2013 —Three Overarching Themes

Role of State Government in Integrated Water Management

Looking to the Future
A Critical Time to Invest

People & Assets at Risk of Drought and Flooding

Multi-Year Droughts of Large-Scale Extent Since 1900

- 1918–1920
- 1923–1926
- 1928–1935
- 1947–1950
- 1959–1962
- 1976–1977
- 1987–1992
- 2000–2002
- 2007–2009

(Based on statewide runoff)

Figure 2-2 Types of Flooding

- Tsunami Flooding
  - Example: Crescent City, 1964

- Slow Rise Flooding
  - Example: Yuba City, 1955

- Engineered Structure Flooding
  - Example: Sweetwater Dam Failure, 1916

- Coastal Flooding
  - Example: Salinas River Basin, 1969

- Alluvial Fan Flooding
  - Example: Borrego Palm Canyon, 1979

- Debris Flow Flooding
  - Example: Laguna Canyon Channel, 1999

- Stormwater Flooding
  - Example: Borrego Springs, 2003

- Flash Flooding
  - Example: Perris, 1916
A Critical Time to Invest

5.5 – 13 MAF
A Critical Time to Invest

State and Federal Listed Species
A Critical Time to Invest in Climate Change Effects

What are the Expected Impacts from These Changes?
Climate change is already having a profound effect on California’s water resources as evidenced by changes in snowpack, river flows, and sea levels. Scientific studies show these changes will increase stress on the water system in the future. Because some level of climate change is inevitable, the water system must be adaptable to change.

The impacts of these changes will gradually increase during this century and beyond. California needs to plan for water system modifications that adapt to the following impacts of climate change:

Water Supply
- A reduction of snowpack will change water supply.
- Changes in river flow impacts water supply, water quality, fisheries, and recreation activities.

Ecosystem
- Increases in water temperature and reductions in cold water in upstream reservoirs may hasten spawning and recruitment success of native fishes.
- Lower streamflows will lead to concentrated, urban, and agricultural runoff, creating more water-quality problems.

Water & Power Operations
- Operation of the water system for urban, agricultural, and environmental water supply and for flood management will become increasingly difficult because of the decline in and trade-offs that must be made.
- California’s hydroelectric power generation may be less reliable; at the same time, higher air temperatures may increase energy consumption through increased use of air conditioning.
- Warmer temperatures will affect water treatment.

Flooding & Drought
- Increased flooding potentially causes more damage to the levee system.
- Higher temperatures and changes in precipitation will lead to droughts.

Coast & Delta
- Higher water temperatures will make the Delta intolerable to some native species and also make attractive to non-native invaders that may compete with natives.
- Sea level rise threatens coastal communities and infrastructure, in particular, the water system in the Sacramento-San Joaquin Delta where the existing Delta levers were not designed or constructed to withstand these higher water levels.

Increased salinity in the Delta will degrade drinking and agricultural water quality and other ecosystem conditions.
Update 2013 Public Review Draft
Imperative to Invest
Elaborate on strategic approach to problem solving

Themes of 2013 California Water Plan

- Integrated water management
  - provides a set of principles
  - and practices that include
  - government agency alignment
  - through open and transparent planning process. This leads to
  - stakeholder and decision-maker support for investment …
  - in innovation and infrastructure.

- Integrated Water Management
  - System flexibility and resiliency
  - Advocacy from implementers and financiers
  - Delivery of benefits using fewer resources

- Government Agency Alignment
  - Clarification of state roles
  - Reduction in implementation time and costs
  - Efficient achievement of multiple objectives

- Investment in Innovation and Infrastructure
  - Stable and strategic funding
  - Priority-driven funding decisions
  - Equitable and innovative finance strategies
Update 2013 Public Review Draft

Imperative to Invest

Elaborate on strategic approach to problem solving

<table>
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<tr>
<th>Project type</th>
<th>Funding type</th>
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<tr>
<td><strong>Self-Funding Programs</strong></td>
<td>local</td>
</tr>
<tr>
<td>supported through local users' fees</td>
<td></td>
</tr>
<tr>
<td><strong>Cost-Sharing Programs</strong></td>
<td>local, public</td>
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<tr>
<td>supported through a combination of local and public funding</td>
<td></td>
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<tr>
<td><strong>Public Benefits Programs</strong></td>
<td>public</td>
</tr>
<tr>
<td>supported through public funding (State or federal)</td>
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</table>
State, regional, and local entities must come together to deliver the resources needed to implement IWM actions.

Sustainable water management requires interaction, cooperation, collaboration, and alignment.
Update 2013 Public Review Draft
Imperative to Invest

- Awareness of health and safety risks
- Clarified State government roles
- Aligned policy, plans and regulations
- Greater funding flexibility
- Demonstrated value/return on investment
- Outcome-based regulatory approach
Update 2013 Public Review Draft

**Imperative to Invest**

*Integrated Water Management in Action*

- Heightened awareness of health and safety risks
- Clarified state government role
- Aligned policy, plans, and regulations
- Greater funding reliability
- Demonstrated value/return on investment
- Outcome-based regulatory approaches
How can this chapter be improved to more clearly or thoroughly represent the intended message/story?

What would you add or change to emphasize that this is a critical time to invest?
Chapter 3

California Water Today
Provide the backdrop of California’s water conditions, challenges and current actions to inform and support effective solutions.
Geophysical and social variability
Challenges of providing reliable water supplies, reducing flood risks and enhancing ecosystems
Recent investments and initiatives
Achievements and emerging opportunities
Update 2013 Public Review Draft
CA Water Today – Chapter Structure

- Planning For Stability Amid Extreme Diversity and Variability
- Land Use and Development Patterns
- Water Use and Supply Conditions
- IWM Funding and Expenditures
- Critical Challenges
- Responses and Opportunities
Water Uses and Supply Sources (2001 – 2010)

Stippling in bars indicates depleted (irrecoverable) water use (water consumed through evapotranspiration, flowing to salt sinks like saline aquifers, or otherwise not available as a source of supply).

Detail of bar graph: For water years 2001-2010, recycled municipal water varied from 0.2 to 0.5 MAF of the water supply.
Regional Water Uses and Supplies (2010)
Interregional and Interstate Conveyance

Some Statistics

Area: 158,542 square miles
1981-2010 average annual precipitation: 23.4 inches
2010 annual precipitation: 24.3 inches
2010 population: 37,370,595
2050 population projection: 51,013,984
Total reservoir storage capacity: 40,843 TAF
2010 irrigated agriculture: 9,399,220 acres
Urban Water Use Baseline and 2020 Target
Climate Change
(Note there is a climate change session today at 1:50 PM)

Figure 3-23 Sea Level Rise CA Study Bars
(relative to the year 2000)

...by 2030

...by 2050

...by 2100
Figure 3-21: How Earlier Runoff Affects Water Availability

The conceptual impact of earlier runoff and increased summertime water demand is shown in the two curves. The curves show the general shape and timing of runoff and demand in California (individual watersheds will each have unique characteristics). Under “Current Conditions” (top box) runoff peaks in early spring only a few months before demand peaks in early summer. Much of the difference between high runoff and low demand in fall and winter can be captured and stored in the state’s existing surface and groundwater storage facilities. That storage meets most of the demands later in spring and summer and shortages are minimal. Under “Projected Conditions” (lower box) runoff peaks in mid-winter, months before demand peaks in spring and summer. Summer-time demand is higher due to higher temperatures and high demand lasts longer into early fall due to longer growing seasons. Much of the earlier runoff is captured in storage facilities, but because the runoff arrives while reservoirs are being managed for flood protection, much of the runoff is spilled. In spring and summer demand far exceeds runoff and releases from storage, making shortages much more common.

Current Conditions:

- Maximum
- Minimum
- Runoff and demand curves peak in close succession: prolonged
- Storage
- Release from Storage
- Shortage
- Fall, Winter, Spring, Summer, Fall

Projected Conditions:

- Maximum
- As runoff and demand peaks move further apart more storage is needed and management is more complex
- Release from Storage
- Shortage
- Fall, Winter, Spring, Summer, Fall

Figure 3-24: The Water and Energy Connection

- Energy for cooling and heating of water
- Cooling water for thermal generation
- Water for solar thermal energy generation
- Water for energy exploration and production: all fossil energy sources require water for exploration and extraction including oil field cooling, hydraulic fracturing, and mining operations.
- Energy for electricity generation
- Energy for withdrawal of groundwater
- Energy for desalination of water
- Water used for energy generation from anaerobic digestion at wastewater treatment plants
- Water for maintaining water for use in irrigation systems
- Energy for production of water for cultivation of tomatoes
- Energy for production of water for energy generation from wastewater treatment plants
- Energy for production of water for irrigation systems
- Energy for desalination of water
- Energy for desalination of water

(Note there is a climate change session today at 1:50 PM)
How can this chapter be improved to more clearly or thoroughly represent the intended message/story?

Is there anything missing from the comprehensive CA water management picture?
Chapter 4

Strengthening Government Alignment
Update 2013 Public Review Draft
Government Alignment – Chapter Purpose

- Enhance understanding of the many California water management laws, polices and agencies
- Provide consistent strategic direction, goals, objectives, and actions across State government programs
- Describe mechanisms leading to alignment of government policies and practices
Many laws, polices and practices do not support IWM

Many roles and complexity of multiple agencies

Understanding current complexities is first step in agency alignment

Establishing principles and goals is second step

37 Featured State plans augmented content in Update 2013
Update 2013 Public Review Draft
Government Alignment – Chapter Structure

- Water governance and management in CA
- Water Plan State Agency Steering Committee
- Featured State agency plans
  - Informed Roadmap for Action (Ch. 8)
  - Informed Resource Mgmt. Strategies (Vol. 3)
- Implications and considerations
How can this chapter be improved to more clearly or thoroughly represent the intended message/story?
We are pleased to release the Public Review Draft (PRD) of California Water Plan Update 2013 (Update 2013) for your review and comment according to this schedule. The content reflects input received from extensive collaboration with hundreds of stakeholders and dozens of State agencies.

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<th>Release Date</th>
<th>Comment Deadline</th>
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<td>October 2, 2013</td>
<td>November 18, 2013</td>
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<tr>
<td>2. 12 Regional Reports</td>
<td>October 23, 2013</td>
<td>December 9, 2013</td>
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You may access and download the volume chapters in PDF format by using the Web link below. There are three options for sending us your comments — e-mail, fax, or postal mail. An Update 2013 navigation guide is also available to help expedite your review.

- **Public Review Draft Web page:**
  [http://www.waterplan.water.ca.gov/cwpu2013/prd](http://www.waterplan.water.ca.gov/cwpu2013/prd)

- **Navigating Update 2013 guide:**

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  California Department of Water Resources
  P.O. Box 942836, Sacramento, CA 94236-0001