The California Water Plan

- First published in 1957 as Bulletin 3
- Updated 9 times as Bulletin 160
  - Update 2009 released Mar 2010
- Water Code requires DWR to update Water Plan every 5 years
  - next one in 2013
- Growing interest by Legislature & stakeholders
- Part of Governor’s Strategic Growth Initiative
- Not a mandate & No appropriation
Update 2009 – State’s Blueprint
Integrated Water Management & Sustainability

VISION

- Public Health, Safety, Quality of Life
- Vitality, Productivity, Economic Growth
- Healthy Ecosystem, Cultural Heritage

Foundational Actions for
SUSTAINABLE WATER USES

- Use Water Efficiently
- Protect Water Quality
- Expand Environmental Stewardship

Initiatives for
RELIABLE WATER SUPPLIES

- Expand Integrated Regional Water Management
- Improve Statewide Water and Flood Management Systems
Update 2009 Features

- Provides water community a framework & investment guide
  - Array of strategies to achieve multiple goals & benefits

- Integrates 2009 Comprehensive Water Legislation and State government companion plans, initiatives & strategies
  - Inform the 115+ near- and long-term actions

- Incorporates consideration of uncertainty, risk & resource sustainability into water & flood planning (future scenarios)
  - Advocates placing greater value on sustainable outcomes than strictly on water supply yield & extraction

See Workbook p. 5
Update 2009 Features

- Advances strategies for Integrated Flood Management and Climate Change adaptation & mitigation
- Describes 27 resource management strategies to diversify regional water portfolios & increase regional self-sufficiency
- Outlines new IWM analytical methods and tools to account for population growth & development patterns, economic & climate change, and other uncertainties
- Updates 12 regional reports with information on:
  - IRWM partnerships & planning
  - Water portfolios 1998 – 2005
  - Water quality conditions
  - Flood management
  - Future scenarios to 2050
## 36-Month Collaboration Statistics
March 2007 (start) – March 2010 (completion)

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Number</th>
<th>Person Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steering Committee</td>
<td>16</td>
<td>1,352</td>
</tr>
<tr>
<td>Advisory Committee</td>
<td>10</td>
<td>5,507</td>
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<tr>
<td>Regional Workshops</td>
<td>33</td>
<td>6,740</td>
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<tr>
<td>Mgmt Strategy Workshops</td>
<td>37</td>
<td>1,694</td>
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<tr>
<td>All-Regions Forum</td>
<td>2</td>
<td>1,928</td>
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<tr>
<td>Plenary</td>
<td>3</td>
<td>3,839</td>
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<td>SWAN Workshops</td>
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<td>1,990</td>
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<td>Scenarios Workshops</td>
<td>3</td>
<td>182</td>
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<tr>
<td>Climate Change TAG</td>
<td>4</td>
<td>464</td>
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<tr>
<td>Tribal Communication Committee</td>
<td>12</td>
<td>770</td>
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<tr>
<td>Tribal Water Summit Planning</td>
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<td>870</td>
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<tr>
<td>Tribal Water Plenary</td>
<td>8</td>
<td>1,739</td>
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<tr>
<td>Tribal Water Summit</td>
<td>1</td>
<td>5,112</td>
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<tr>
<td><strong>Totals</strong></td>
<td>149</td>
<td><strong>32,185</strong></td>
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<tr>
<td><strong>15.5 PY</strong></td>
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</table>

* Not including briefings

Comparison w/ Update 2005
138% of collaboration in 60% of the time & 24% fewer meetings
Water Plan Update Organization

- Water Plan Highlights
  - CD - Entire Water Plan
  - CD - Tribal Water Summit Proceedings
- Vol. 1 > The Strategic Plan
- Vol. 2 > 27 Resource Management Strategies
- Vol. 3 > 12 Regional Reports
- Vol. 4 > Reference Guide (120+ articles)
- Vol. 5 > Technical Guide (Online documentation)
Tribal Engagement for Update 2009
Tribal Communication Committee & Plan

- Convened a TCC in late 2007
- Draft Tribal Communication Plan in mid-2008 - First for State government
- TCP fostered Tribal engagement in the Regional and Resource Management Strategy workshops
- TCP included the goal of hosting a statewide Tribal Water Summit during Update 2009

See Workbook p. 6
Convened Tribal Water Summit Planning Team in late 2008
- Hosted 7 regional plenary meetings
- Included 8 State & 4 Federal agencies

About 300 people attend on Nov 4 & 5
- Leaders and representatives from 66 CA Tribes, 15 Tribal Organizations, 13 State & 8 Federal agencies
- Proceedings Booklet online, in Reference Guide & hard-copy
- Summit video online

See Workbook p. 6
Tribal Water Stories recorded and shared in two ways:

- Over a dozen water stories video-recorded at the Summit and available online.
- Planning Team Subcommittee published Tribal Water Stories.

See Workbook p. 6.
California Water Plan Update 2009
Objective – Improve Tribal Water & Resources

➢ One of 13 Water Plan Objectives

➢ Develop Tribal consultation, collaboration, and access to funding for water programs and projects to better sustain Tribal water and natural resources

➢ 12 Related Actions – several taken from the Tribal Communication Plan
Water Plan Highlights
It is my pleasure to introduce the 2009 California Water Plan Update (Update 2009), which sets forth a blueprint for sustainability and forgives a new direction for water management in California. Our new reality is one in which we must manage a resource characterized by uncertainty and vulnerability due to climate change and changing ecosystem needs. Our past hydrology is no longer an accurate indicator of the future.

This Water Plan follows the Update 2005 roadmap of strategies for sustainable water use but with an increased sense of urgency. Update 2000 reinforces the need to follow the principles of integrated water management – statewide and regionally – and to use water efficiently, improve water quality and reliability, and integrate environmental stewardship into every aspect of how we manage our water.

Update 2009 comes on the heels of a historic water legislation package passed by the Legislature and signed into law by Governor Schwarzenegger in November 2009. The landmark legislative package positions California for 21st Century water management by establishing new urban water conservation targets, requiring statewide groundwater monitoring, and creating a new framework for improved governance in the Sacramento-San Joaquin Delta.

The Resource Management Strategies in Update 2009 build upon the new legislation and chart a path forward into a future characterized by risk and uncertainty. There is a new urgency with which we must embrace water use efficiency in the context of climate change and increased urban demand. Improved water conveyance is a strategy from past Water Plans, but is now presented with renewed significance given the context of a Delta ecosystem in continued decline and the threats of seismicity and sea level rise.

New to this Water Plan is an integration of water resource management and flood management throughout the state. This approach aims to increase resiliency in our systems while yielding multiple benefits like increased public safety, habitat protection, and water supply reliability. A critical strategy in Update 2009 is the development of a reliable revenue stream to fund necessary system improvements and to invest in the continued resiliency and robustness of California’s water resources and the ecosystem that supports them.

Climate change and increasing demand have greatly reduced the flexibility and resilience of the last century’s infrastructure investments. Now is the time to recognize our changed conditions and reinvest in that infrastructure in a sustainable manner. In addition to statewide improvements, local resource strategies such as conservation, water recycling, groundwater storage and conjunctive use, urban runoff management, and more can converge in the context of Integrated Regional Water Management (IRWM) planning.

The strategies outlined in these pages provide the means to manage resources comprehensively; from snowmelt to estuary, from field to tap, and all of the uses within the watershed.

California water management cannot be changed overnight, but Update 2009 and the momentum behind it provide the plan, tools, and strategies to achieve momentous change beginning now. I hope you will agree that Update 2009 is the state’s blueprint for sustainability and integrated water management and marks a significant new chapter in the way California manages its water resources.

Lester A. Snow
Secretary for Natural Resources
The natural Resources Agency
“Update 2009 spells out the urgencies that demand action: dealing with longer and more pronounced droughts, increased flood risk, threats to the environment, impaired water bodies, and aging infrastructure.”

Foreword

Water Plan Update 2009 epitomizes collaboration. It reflects the perspectives of many and varied individuals, groups, and government entities representing the full spectrum of issues, concerns, and visions for the future of water management in California. Update 2009 has been enhanced by the leadership of 21 State agencies and departments that oversee or carry out water-related activities. Federal, Tribal, regional, and local entities helped shape the strategic plan—its goals, objectives, and recommendations—and 27 resource management strategies that are key to success.

Update 2009 reflects a new reality for resource management, a blueprint for sustainability, and a new direction for water decisions. This reality includes significant challenges: ecosystems in peril, the uncertainties of climate change and sea level rise, and population growth to name just a few. Update 2009 also spells out the urgencies that demand action: dealing with longer and more pronounced droughts, increased flood risk, threats to the environment, impaired water bodies, and aging infrastructure.

The Water Plan’s outreach to Native American Tribes brought about a Tribal Communication Plan and culminated in the first of its kind California Tribal Water Summit in 2009. Update 2009 also introduces new water planning methods with the use of scenarios and response packages while evaluating the effects of future climate change.

This Water Plan marks a dynamic new approach to the way California manages its water resources—statewide and regionally. We must adapt California’s water systems more quickly and effectively to keep pace with ever-changing conditions. With new urgency, regions must develop and implement truly integrated regional water management plans as roadmaps to meeting future water demands in sustainable ways. We must also continue our efforts at the statewide and implement plans for a sustainable Delta and to improve our flood management system. To assure balanced, effective solutions are implemented, we must develop long-term, reliable funding methods to make necessary system improvements and to invest in the continued resilience of California’s water resources and the ecosystem that supports them.

In November 2009, the Legislature passed and Governor Schwarzenegger signed a comprehensive water package which is integral to Update 2009. Today, State government has the responsibility and opportunity to work with local partners within a new Delta governance structure to complete and implement plans for improving both the Delta ecosystem and the reliability of water supply derived from the Delta. We also must step up our efforts to integrate this work with our ongoing responsibilities to develop a Central Valley Flood Protection Plan, implement the FloodSAFE California initiative, and improve water storage statewide.

Regional water planning and management is essential for solving California’s water issues. Local governments, agencies, and stakeholders have the best understanding of their water management challenges. DWR and other State agencies must partner with local agencies and governments to advance integrated Regional Water Management, and to implement the new requirements for water conservation and groundwater monitoring. State government can provide expertise, technical assistance, and other essential support activities.

The California Water Plan Update 2009 will help chart our course toward more sustainable, integrated resources management. In broad strokes, this means considering water supply reliability, flood protection, water quality, and environmental stewardship in all resource management decisions. By doing so, we increase our chances of realizing the Water Plan’s vision: a productive economy, healthy ecosystem, and desirable quality of life for all Californians.

Mark W. Gewin, Director
California’s Water Resources: Variable & Extreme

Butterfly Chart

Water Use
- Required Delta Outflow
- Managed Wetlands
- Irrigated Agriculture
- Urban
- Wild & Scenic Rivers
- Instream Flow

Water Supply
- Projects
  - Colorado
  - Federal
  - State
- Local Imports
- Groundwater
- Recycling
- Instream Environmental

Change in storage – MAF
(Combined surface & groundwater storage)

- 2005: +3.8
- 2004: +1.6
- 2003: -1.3
- 2002: +1.1
- 2001: -0.4
- 2000: +1.2
- 1999: +2.5
- 1998: +6.0

Million Acre-feet

% of Average Precipitation

1 Million Acre-feet
Groundwater Overdraft & Recovery

Kings Basin, Fresno County

Water Surface Elevation (feet (NGVD))

Calendar Year


Brophy Water District, South Yuba County

Water Surface Elevation (feet (NGVD))

Calendar Year

Climate Change: Future Hydrology Unlike the Past

- Higher air & water temperature
- Early snowmelt & less snowpack
- Changing runoff pattern
- Rising sea level
### 3 Future Scenarios: Key Factors of Uncertainty

<table>
<thead>
<tr>
<th>Factors of Uncertainty</th>
<th>Current Trends</th>
<th>Slow &amp; Strategic Growth</th>
<th>Expansive Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Recent trends are assumed to continue into the future. Regulations are not coordinated or comprehensive, creating uncertainty for planners and managers. The state continues to face lawsuits, from flood damages to water quality and endangered species protections.</td>
<td>Private, public, and governmental institutions form alliances to provide for efficient planning and development that is less resource-intensive than current conditions. State government implements comprehensive and coordinated regulatory programs to improve water quality, protect fish and wildlife, and protect communities from flooding.</td>
<td>Future conditions are more resource-intensive than existing conditions. Protection of water quality and endangered species is driven mostly by lawsuits. State government has responded on a case-by-case basis, creating a patchwork of regulations and uncertainty for planners and water managers.</td>
</tr>
<tr>
<td>Land Use</td>
<td>59.5 million* (22.8 million increase)</td>
<td>44.2 million (7.5 million increase)</td>
<td>69.8 million (33.1 million increase)</td>
</tr>
<tr>
<td>Irrigated Crop Area</td>
<td>Continued development</td>
<td>Compact development</td>
<td>Sprawling development</td>
</tr>
<tr>
<td>Environmental Water</td>
<td>8.6 million acres (0.7 mil. acre decrease)</td>
<td>9.0 million acres (0.2 mil. acre decrease)</td>
<td>8.2 million acres (1.0 mil. acre decrease)</td>
</tr>
<tr>
<td>Background Water Conservation</td>
<td>1.0 additional MAF</td>
<td>1.5 additional MAF</td>
<td>0.6 additional MAF</td>
</tr>
<tr>
<td></td>
<td>10% more efficient</td>
<td>15% more efficient</td>
<td>5% more efficient</td>
</tr>
</tbody>
</table>
Statewide Water Demand Change for 2050 Scenarios

Without & With Climate Change

Water Demand Change (million acre-feet per year)

- Current Trends
- Slow & Strategic Growth
- Expansive Growth

Total average historical demand (1998-2005) 80.1 MAF
Water Demand Change for 2050 Scenarios

From a Regional Perspective

Wide-ranging climate variability
### 27 Resource Management Strategies

**A Range of Choices**

<table>
<thead>
<tr>
<th><strong>Reduce Water Demand</strong></th>
<th><strong>Improve Water Quality</strong></th>
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</thead>
<tbody>
<tr>
<td>Agricultural Water Use Efficiency</td>
<td>Drinking Water Treatment &amp; Distribution</td>
</tr>
<tr>
<td>Urban Water Use Efficiency</td>
<td>Groundwater / Aquifer Remediation</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Improve Operational Efficiency &amp; Transfers</strong></th>
<th><strong>Practice Resource Stewardship</strong></th>
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<tbody>
<tr>
<td>Conveyance – Delta</td>
<td>Agricultural Lands Stewardship</td>
</tr>
<tr>
<td>Conveyance – Regional / Local</td>
<td>Economic Incentives (Loans, Grants &amp; Water Pricing)</td>
</tr>
<tr>
<td>System Reoperation</td>
<td>Ecosystem Restoration</td>
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<tr>
<td>Water Transfers</td>
<td>Forest Management</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Increase Water Supply</strong></th>
<th><strong>Other</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Conjunctive Management &amp; Groundwater Storage</td>
<td>Crop idling, dew vaporization, fog collection, irrigated land retirement, rainfed agriculture, waterbag transport</td>
</tr>
<tr>
<td>Desalination – Brackish &amp; Seawater</td>
<td></td>
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<tr>
<td>Precipitation Enhancement</td>
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<tr>
<td>Recycled Municipal Water</td>
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<tr>
<td>Surface Storage – CALFED</td>
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<tr>
<td>Surface Storage – Regional / Local</td>
<td></td>
</tr>
</tbody>
</table>

**Improve Flood Management**

- Flood Risk Management
Variable Conditions & Unique Responses
12 Regional Reports

- Setting
- Regional Water Conditions
- Relationship with Other Regions
- Regional Water and Flood Planning and Management
- Looking to the Future
- Water Portfolios 1998-2005
- Selected References
Strategic Plan Elements

double foldout 12A – 12D

- Desired future for CA water & Purpose of Water Plan
- Desired outcomes for the 2050 planning horizon
- Core values & philosophies
  - Statements of intent / Focus on what & when
- Removing impediments & leveraging opportunities

Vision & Mission
7 Goals
10 Guiding Principles
13 Objectives & 115+ Actions
9 Recommendations
Ways to Access Water Plan Information

- Visit the Water Plan Web Portal
  www.waterplan.water.ca.gov

- Subscribe to Water Plan eNews
  a weekly electronic newsletter
  www.waterplan.water.ca.gov/enews