

California Groundwater Data and Analyses: Work in Progress and Challenges

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Groundwater & Climate Change Workshop

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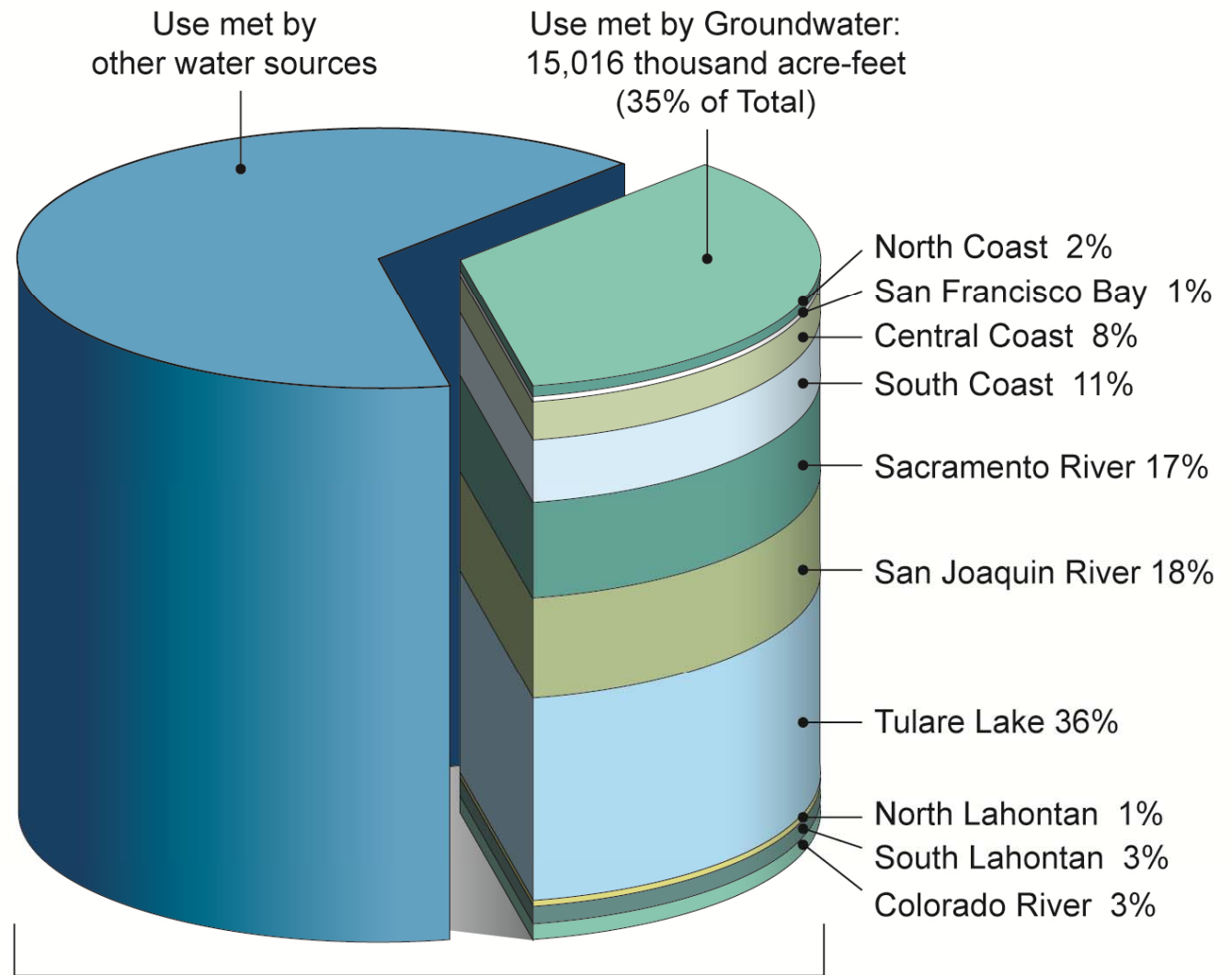


California Groundwater Data and Analyses: Work in Progress and Challenges

Presentation Outline

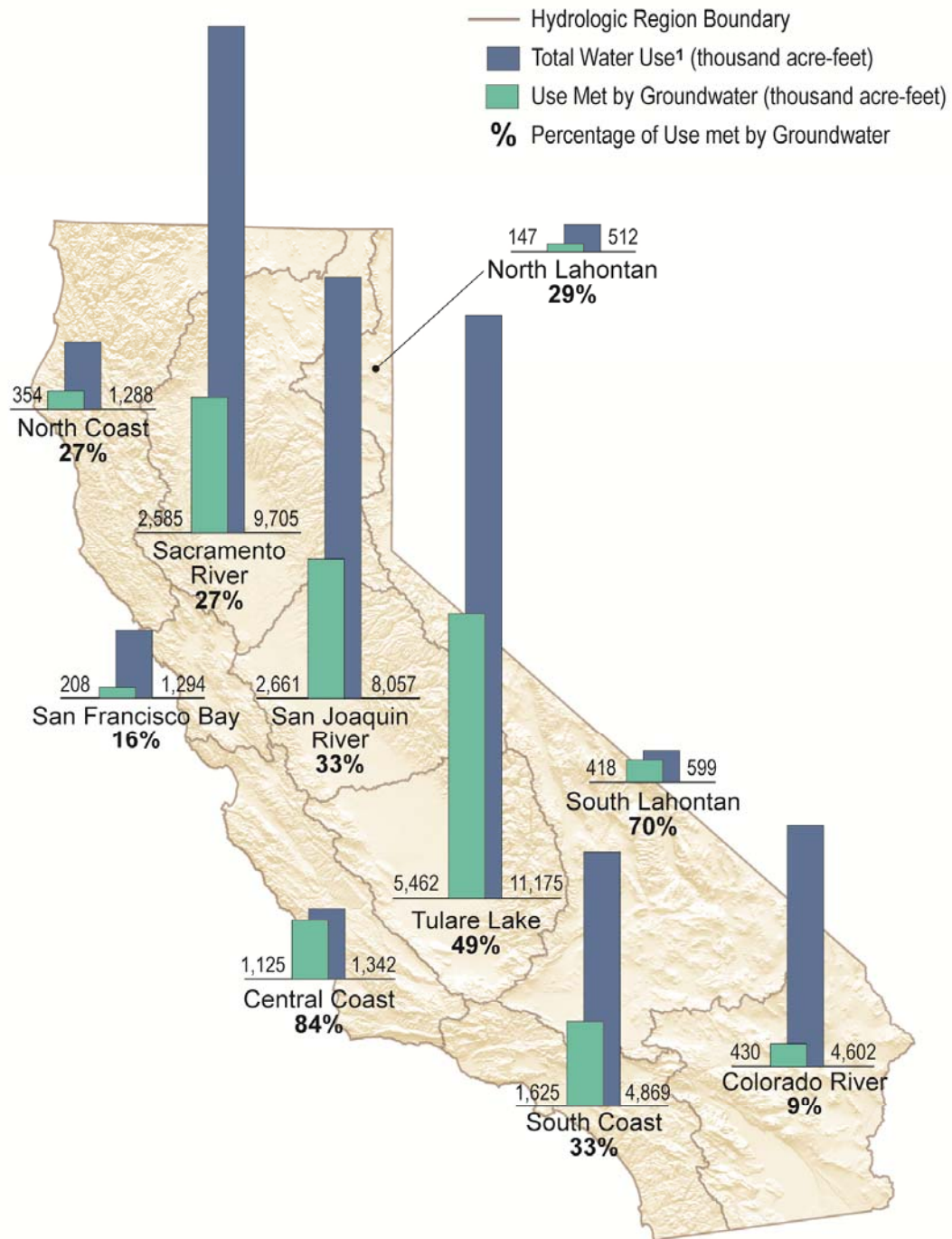
- ❑ Importance of Groundwater for California
- ❑ Groundwater Content in California Water Plan
- ❑ CASGEM

Importance of Groundwater for California



Total Water Use¹ in California:
43,443 thousand acre-feet

1. Total Water Use is defined as the sum of water uses for agricultural, urban, and managed wetlands.

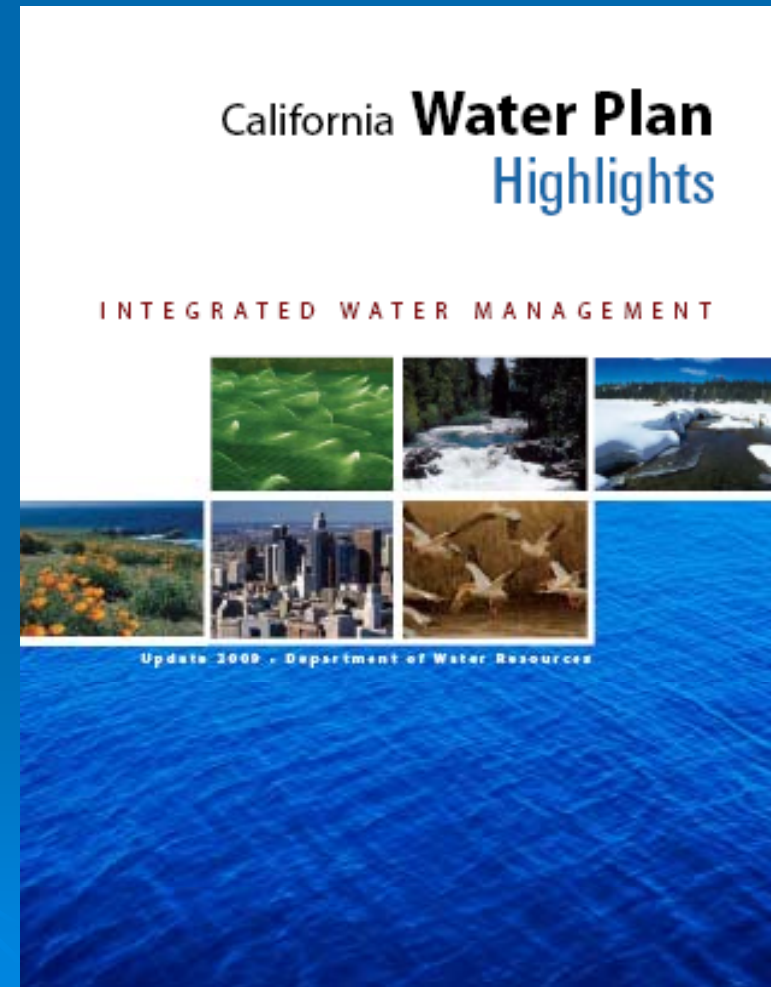


1. Total Water Use is defined as the sum of water uses for agricultural, urban, and managed wetlands.

The California Water Plan

Est. 1957

- First published in 1957
- Updated 9 times; last one in 2009
- DWR required by law (Water Code) to update the Water Plan every 5 years; next one in 2013
- Growing interest by Legislature and stakeholders
- Not a mandate & No appropriation



California Water Plan

State's Blueprint for Integrated Water Management & Sustainability



Water Plan Update 2013

Groundwater Content Enhancement

Objective

Expand information about statewide and regional groundwater conditions to better inform groundwater management actions and policies through compilation and summarization of data and analysis.

Water Plan Update 2013

Groundwater Content Enhancement

Premise

- ❑ Existing water laws and regulations are in place
- ❑ Deliverables are based on the best existing and available data, information, and analyses

Water Plan Update 2013

Groundwater Content Enhancement

Deliverables (Scope of Project)

1. Compile groundwater information
2. Summarize groundwater conditions and management activity
3. Identify data gaps
4. Estimate annual change in groundwater storage
5. Present Case Studies
6. Inventory and describe potential for conjunctive management of groundwater and other supplies
7. Inventory and describe potential for groundwater banking and integrated flood management
8. Develop preliminary sustainability indicators

Water Plan Update 2013

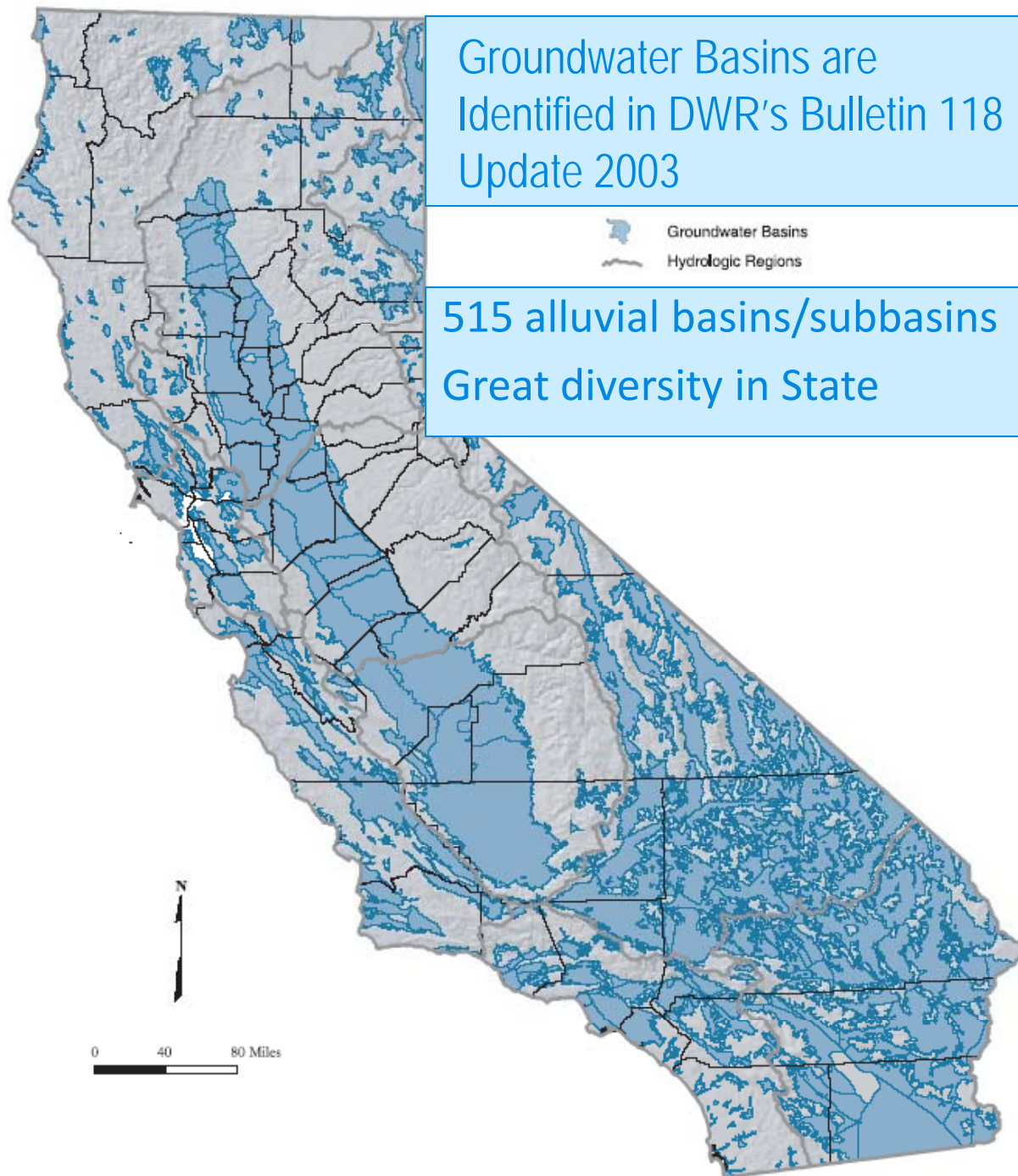
Groundwater Content Enhancement

Out of Scope

- ❑ Additional investigation or data collection.
- ❑ **New detailed groundwater budgets.**
- ❑ New detailed analysis of groundwater quality conditions.
- ❑ **New detailed analysis of the rate/volume of groundwater extraction.**
- ❑ New detailed evaluation of long-term decline in groundwater storage.
- ❑ **Evaluation of subsidence potential.**
- ❑ Extensive analysis on groundwater sustainability indicators.

Deliverable 1: Compile Groundwater Information Status

- 1.1 Groundwater Management Plans 132
- 1.2 CASGEM Groundwater Monitoring Plans 470
- 1.3 Integrated Regional Water Management Plans 47
- 1.4 Urban Water Management Plans 343
- 1.5 Agriculture Water Management Plans ongoing
- 1.6 Water Transfer Data ongoing
- 1.7 Groundwater Modeling Reports ongoing



Deliverable 2: Summarize Groundwater Conditions and Management Activities: Status

2.1 Physical description of the regional aquifers

2.2 Overview and status of regional aquifer conditions

2.3 Overview and status of GW management activities

Deliverable 4: Estimate Annual Change in Groundwater Storage

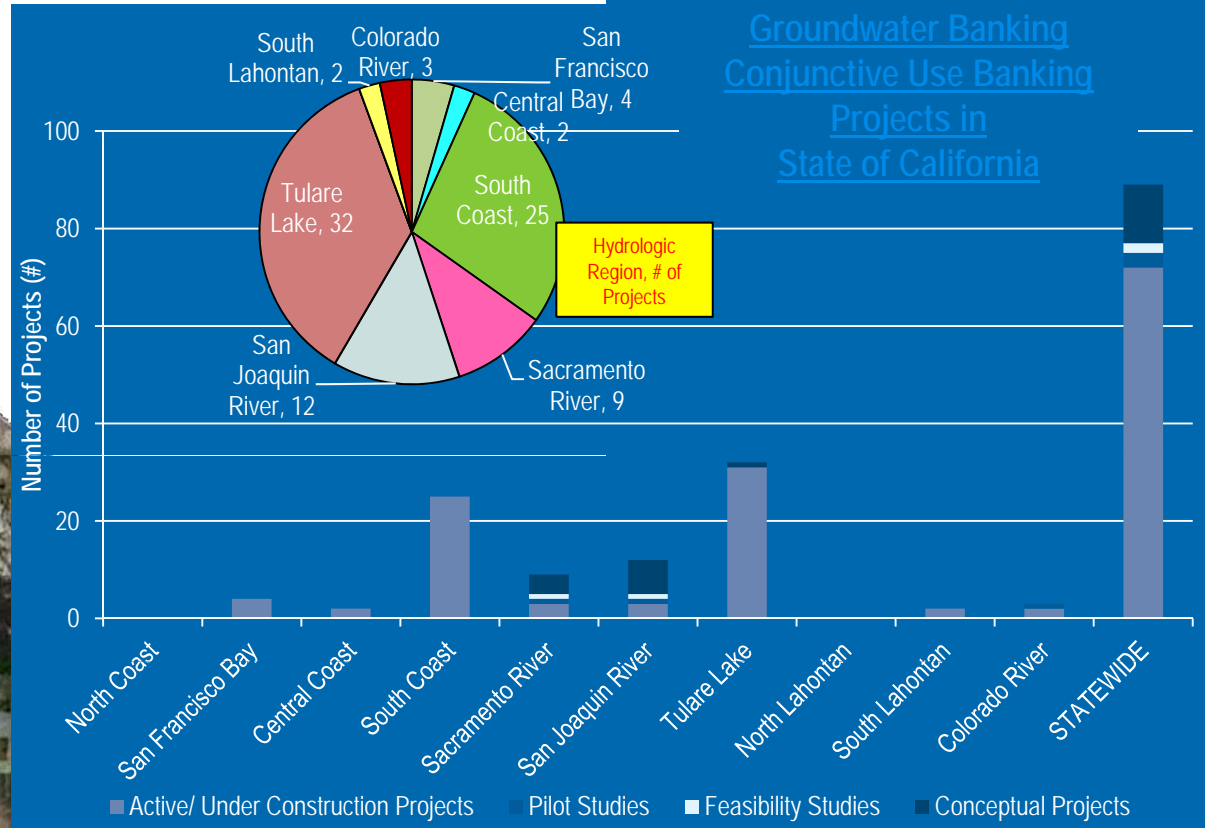
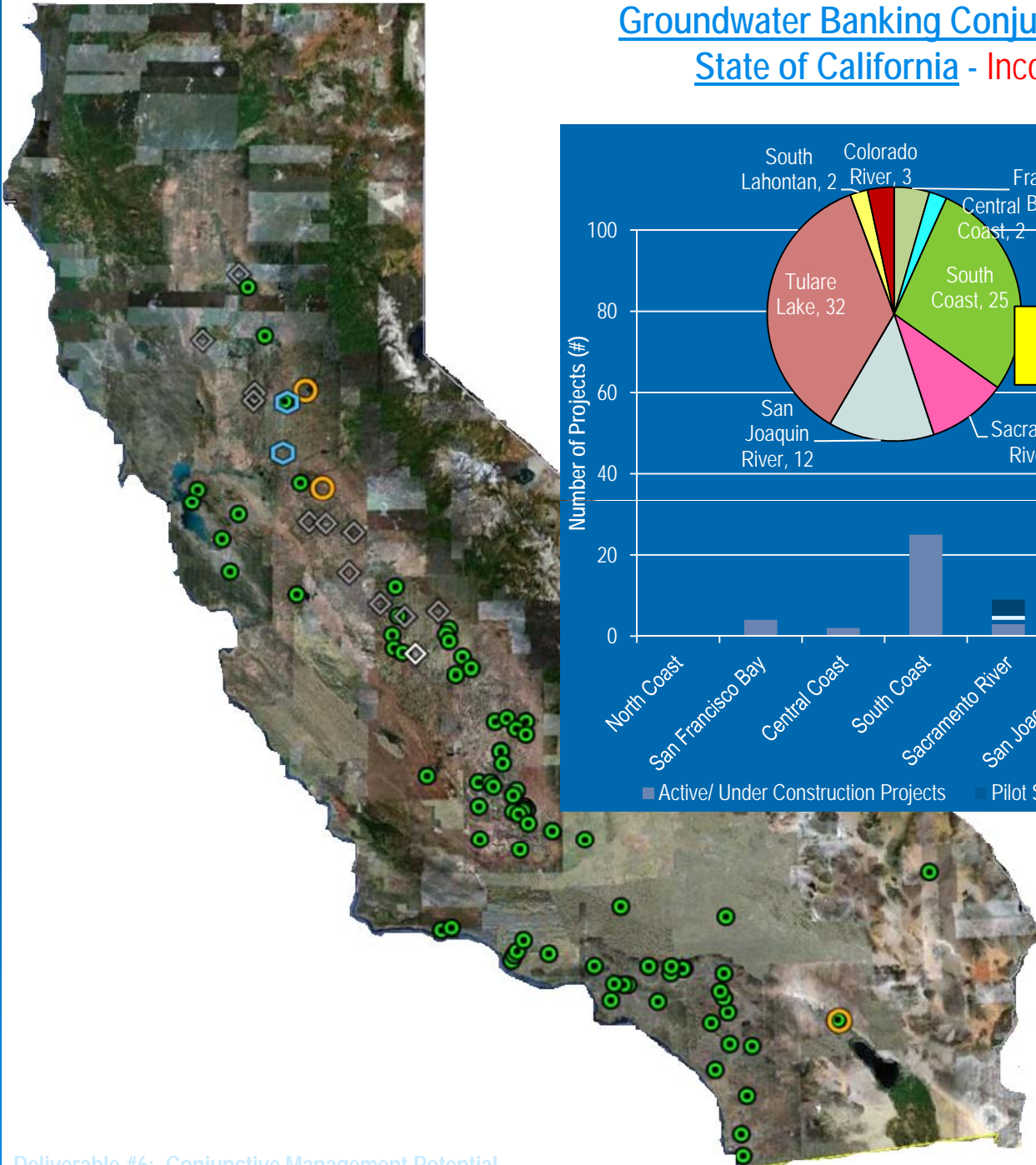
- Estimated change in groundwater storage as determined from groundwater level data
- A GIS model is being developed to complete this task (includes “tools” and “workflows”)
- Deliverable 4 includes:
 - 4.1 - A technical memorandum describing the GIS model
 - 4.2 - Annual “Spring” GW level data, 2006 - 2010
 - 4.3 - Estimated yearly change in GW storage, 2006 – 2010
 - 4.4 - Report change in GW storage results

Deliverable 6: Inventory and Describe Potential for Conjunctive Management of Groundwater and Other Supplies

Deliverable 6 includes:

- 6.1 Inventory existing conjunctive use, recharge and groundwater banking projects
- 6.2 Determine future conjunctive management potential
- 6.3 Define constraints

Groundwater Banking Conjunctive Use Banking Projects in State of California - Incomplete Preliminary DRAFT



LEGEND

	Active/ Under Construction Projects
	Pilot Studies
	Feasibility Studies
	Conceptual Projects
	15

Deliverable 6: Develop Additional Data

ACWA/DWR Survey Questionnaire

- ❑ Location of Project (groundwater basin level information)
- ❑ Year Project Developed
- ❑ Capital Costs to Develop Project
- ❑ Annual Operating Costs (O&M)
- ❑ Project Administrator/Operator
- ❑ Capacity of the Project in Acre Feet

http://www.acwa.com/groundwater_survey

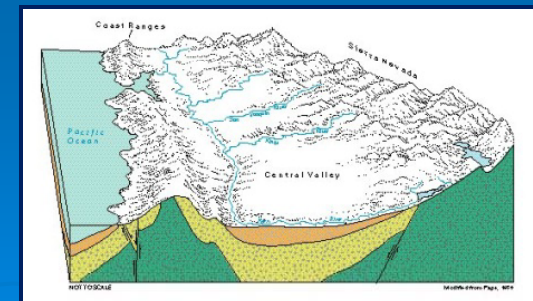
**CALIFORNIA GROUNDWATER UPDATE
CWP 2013 Groundwater Content Enhancement**

DRAFT

Report Outline

1. INTRODUCTION
2. FINDINGS
3. RECOMMENDATIONS
4. METHODS and ASSUMPTIONS (...CONCEPTS & LIMITATIONS?)
5. STATEWIDE GROUNDWATER UPDATE
6. HYDROLOGIC REGION GROUNDWATER UPDATE
 - 6.1. North Coast Hydrologic Region
 - 6.2. San Francisco Hydrologic Region
 - 6.3. Central Coast Hydrologic Region
 - 6.4. South Coast Hydrologic Region
 - 6.5. Sacramento River Hydrologic Region
 - 6.6. San Joaquin River Hydrologic Region
 - 6.7. Tulare Lake Hydrologic Region
 - 6.8. North Lahontan Hydrologic Region
 - 6.9. South Lahontan Hydrologic Region
 - 6.10. Colorado River Hydrologic Region
 - 6.11. Sacramento-San Joaquin Delta
 - 6.12. Mountain Counties Area
7. REFERENCE
8. GLOSSARY
9. APPENDIX
 - 9.1. Change in Storage Technical Memorandum.

Update 2013
Groundwater Content
Enhancement Report
Draft Outline
and
Report Organization



Water Plan Update 2013

Groundwater Content Enhancement

Schedule

- ❑ Revise Project Charter based on Public AC feedback: Spring 2011
- ❑ Form Groundwater Caucus: May 19, 2011
- ❑ Compile and summarize information, and identify data gaps: Spring 2012
- ❑ Conduct analysis and prepare draft document: Summer 2012
- ❑ Refine analysis and document: Spring 2013
- ❑ Finalize analysis and document: Fall 2013

Challenges

Risks: *What characteristics or situations could cause this project to fail? Identify those items which are outside the jurisdiction of project and could result in a “show-stopper” to the project success. Create a short list.*

- Limited data (the amount of information available is generally greatest in northern California and tends to be more limited to the south except the adjudicated basins in the south).
- Political sensitivity associated with the use of and access to groundwater data.
- Delays associated with data identification, acquisition, evaluation, analysis, and synthesis.
- The continued, focused coordination necessary to facilitate the work done by a large group of staff.
- Departure of key staff.
- Limitations in Water Plan funding that may prevent full project implementation.

Assumptions and Constraints: *What assumptions were made in defining project? Are there constraints to the execution of project? List assumptions and constraints.*

Assumptions:

- Existing water laws and regulations are in place.
- Project deliverables are based on the best existing and available data, information, and analyses.
- Water Plan Program Manager views this project as a high priority.
- Water Plan funding is available to dedicate staff in the Headquarter and the Regional Offices to work on the project.
- Staff in the Headquarter and the Regional Offices is available to work on the project on a priority basis for duration of Water Plan Update 2013.
- No turnover in key staff.


Constraints:

- Concurrent demands on the times of key staff by other projects.



California Statewide Groundwater Elevation Monitoring



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<http://www.water.ca.gov/groundwater/casgem>



What is CASGEM?

California Statewide Groundwater Elevation Monitoring

- Voluntary, long-term, statewide groundwater elevation program
- Builds on established local groundwater monitoring programs
- Uses local agencies designated as MEs to collect and submit groundwater elevation data
- Establishes an online system for data submittal
- Makes groundwater data readily and widely available online to public
- Requires DWR to prioritize groundwater basins, investigate groundwater basins, and provide status reports to Governor and Legislature



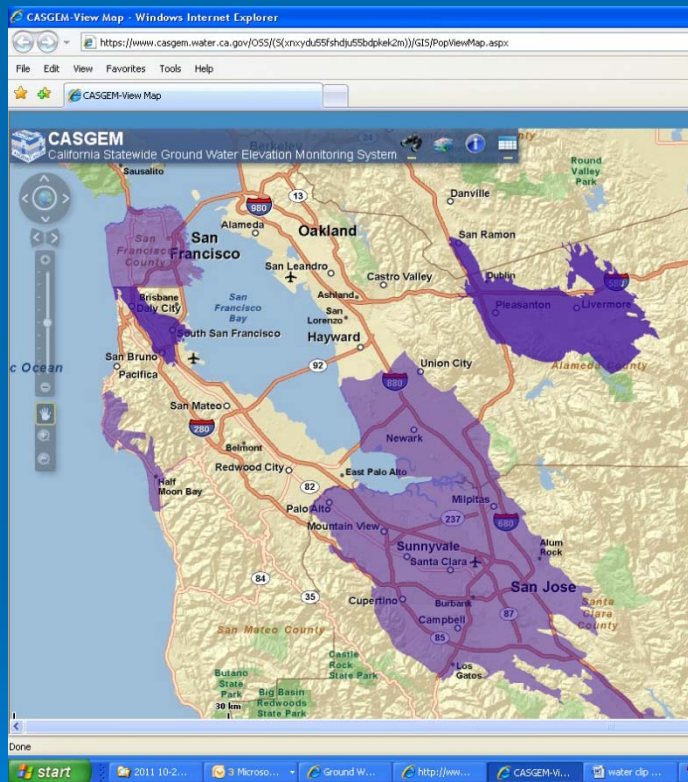
DWR Ongoing Implementation

(contingent on funding)

- Address recent revisions to the law (AB 1152)
- Prioritize groundwater basins
- Evaluate extent of statewide groundwater monitoring
- Monitor groundwater elevations in basins where no local party has agreed to perform the monitoring functions
- Conduct groundwater basin assessments and identify regional trends
- Identify basins subject to overdraft based on pattern of pumping and recharge



Monitoring Entity Designation Status as of January 10, 2012




- 470 Notifications received by DWR
- 325 Notifications Under Review
- 37 Designated Monitoring Entities
- 89 Designated Basins and Subbasins



California Statewide Groundwater Elevation Monitoring



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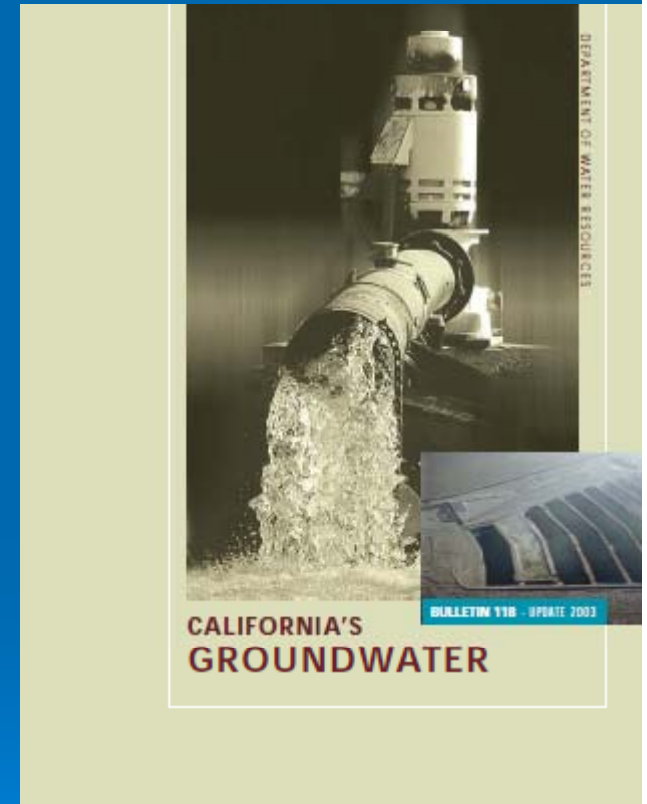
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Bulletin 118 - Update 2003

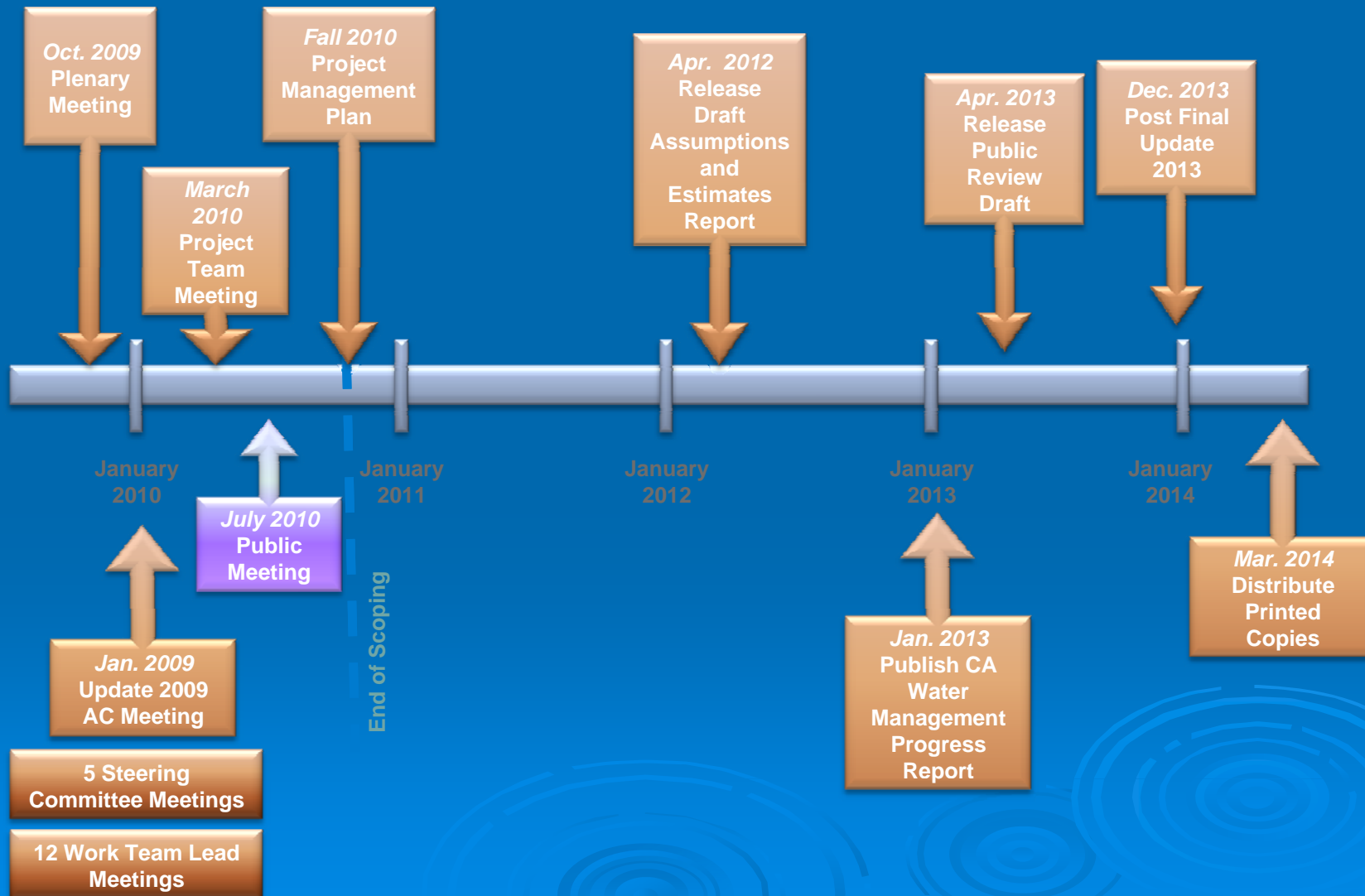
California's Groundwater

- Description of current groundwater management efforts
- Required and recommended components of groundwater management plans
- Model groundwater management ordinance that can be used by local governments.
- Roles of state and federal agencies in protecting groundwater quantity and quality.



Water Plan Update 2013

Timeline and Major Deliverables



Water Plan Update 2013

Groundwater Content Enhancement

Contact/Information

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Dan McManus: mcmanus@water.ca.gov

Groundwater Caucus Charter:

<http://www.waterplan.water.ca.gov/caucus/index.cfm>

May 19, 2011 Groundwater Caucus Materials:

<http://www.waterplan.water.ca.gov/materials/2011.cfm?subject=may1911>

Nov 10, 2011 Groundwater Caucus Materials:

<http://www.waterplan.water.ca.gov/materials/2011.cfm?subject=nov1011>

Questions?

