California Statewide Groundwater Elevation Monitoring (CASGEM)

August 9 - September 2, 2010

Workshop presented by:

California Department of Water Resources (DWR)
Division of Integrated Regional Water Management

In conjunction with:

Association of California Water Agencies (ACWA)

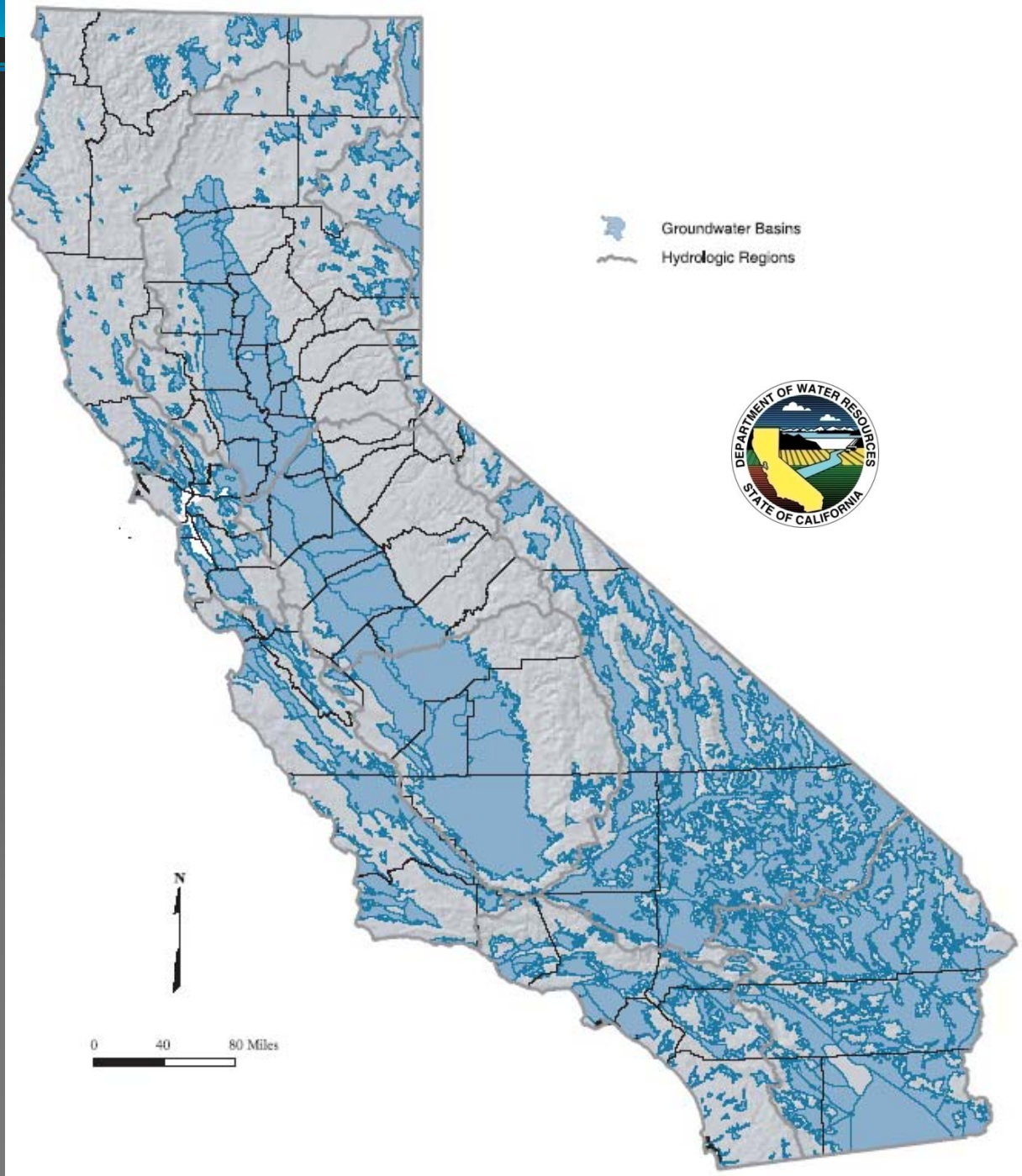
CASGEM Workshop Outline

- California Groundwater Background
- CASGEM Overview
- CASGEM Implementation
  - Monitoring Entities
  - Groundwater Elevation Data
  - Monitoring Network Plan
- Questions

California Groundwater Background

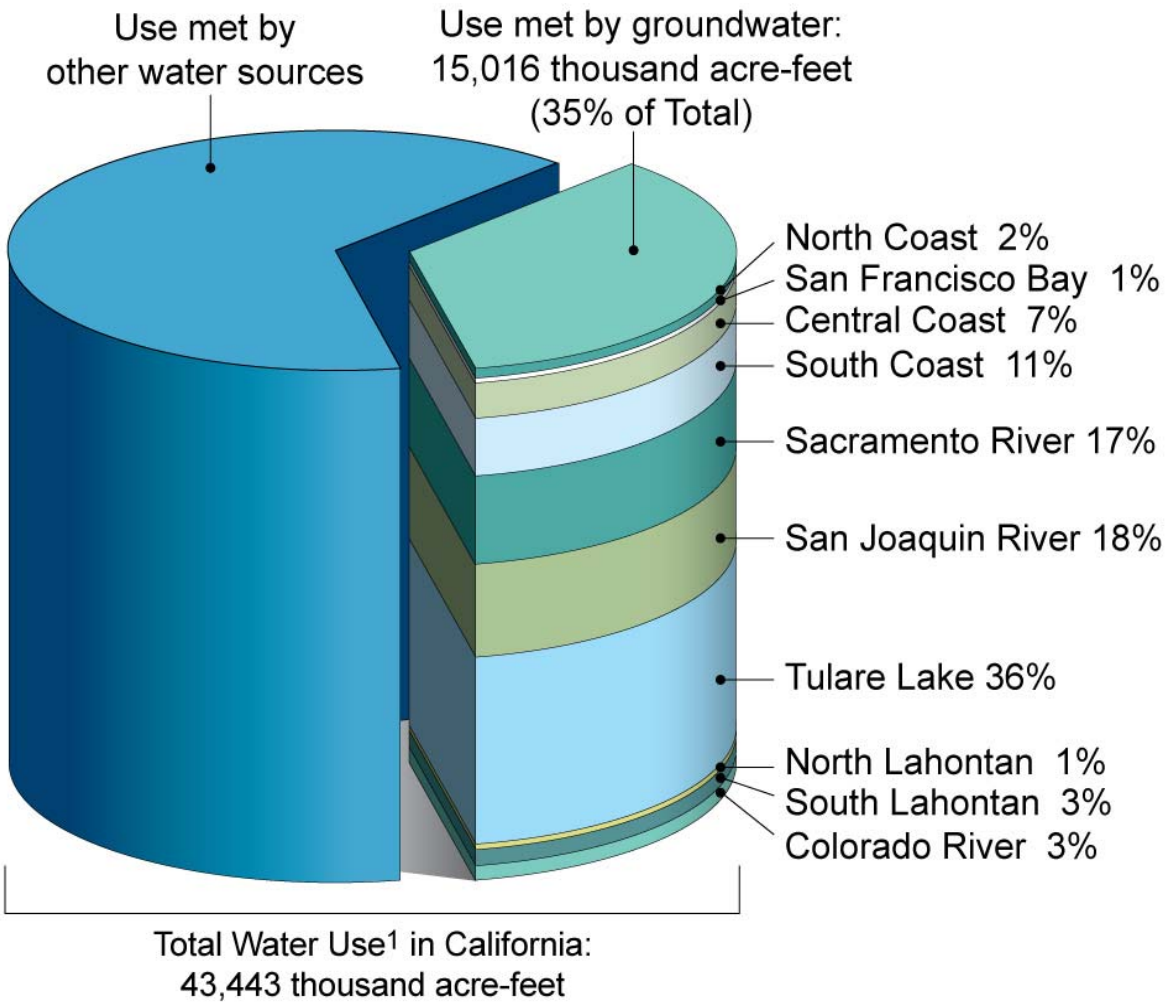
Groundwater Basins are Identified in DWR's Bulletin 118 Update 2003

- 515 alluvial basins and subbasins delineated
- Groundwater provides 30 to 40 percent of the states water supply



Water Use Met by Groundwater in California: Statewide and by Hydrologic Region

(1998-2005 average annual data)

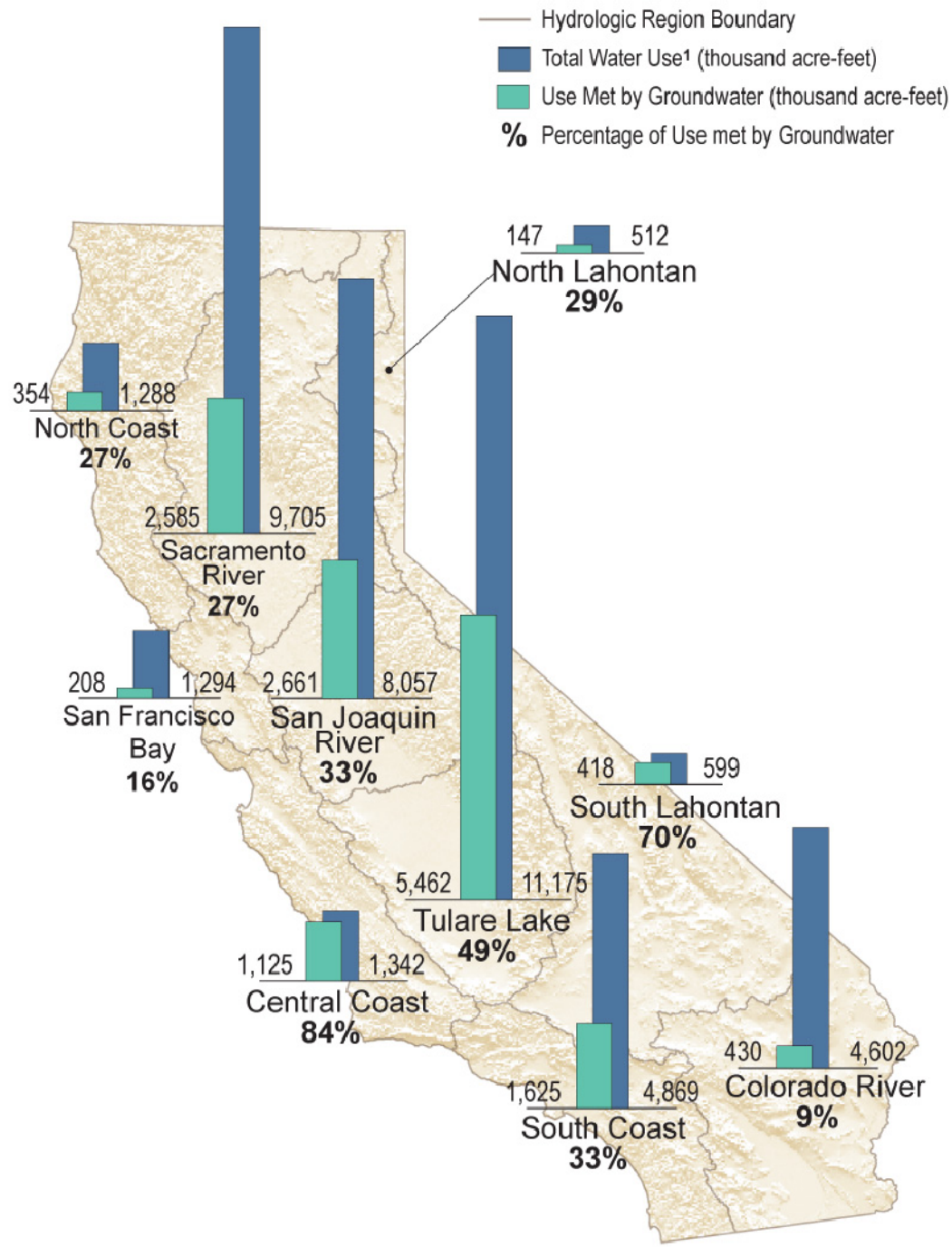


1. *Total Water Use is defined as the sum of water uses for agricultural, urban, and managed wetlands.*

Groundwater use by Hydrologic Region

(1998-2005 average annual data)

- 15 million acre-feet pumped
- 1-2 million acre-feet overdraft
- 30% on average, higher in dry years
- Some cities and coastal basins entirely dependent
- Many rural users entirely dependent
- 1995 population - 32 million
- 2020 population - 46 million



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

Selected Groundwater Management Legislation

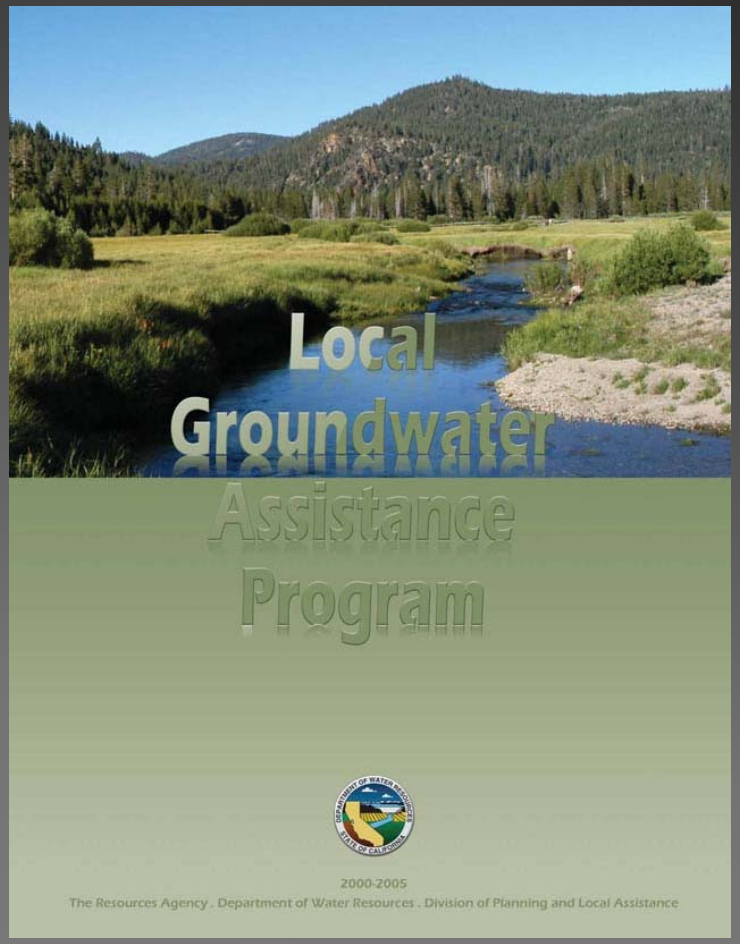
- California Water Code Sections 10750 et seq.
- 1992: AB 3030 – Groundwater Management Plans (GWMP)
- 2000: AB 303 – Local Groundwater Assistance grants
- 2002: SB 1938 – Required elements in GWMPs to be eligible for grant funds
- 2009: SBx7 6 (CASGEM) – Statewide seasonal and long-term groundwater elevation monitoring

GWMPs Submitted to DWR

- 133 Groundwater Management Plans (GWMPs) submitted to DWR
- 128 Groundwater basins or portions thereof covered by GWMPs
- 42 Counties (or portions thereof) covered by GWMPs
- 275 Agencies involved in the GWMP process
- 130 Implementing (main) agencies
- 145 Collaborating (partner) agencies

AB 303 Local Groundwater Assistance Grants

- $38 million in grants from 2001 to 2009 in 7 application rounds
- Funded 179 studies and projects
- Completed 127 studies and various projects
- $250,000 maximum funding per grant
- Next round ~$4.7 million

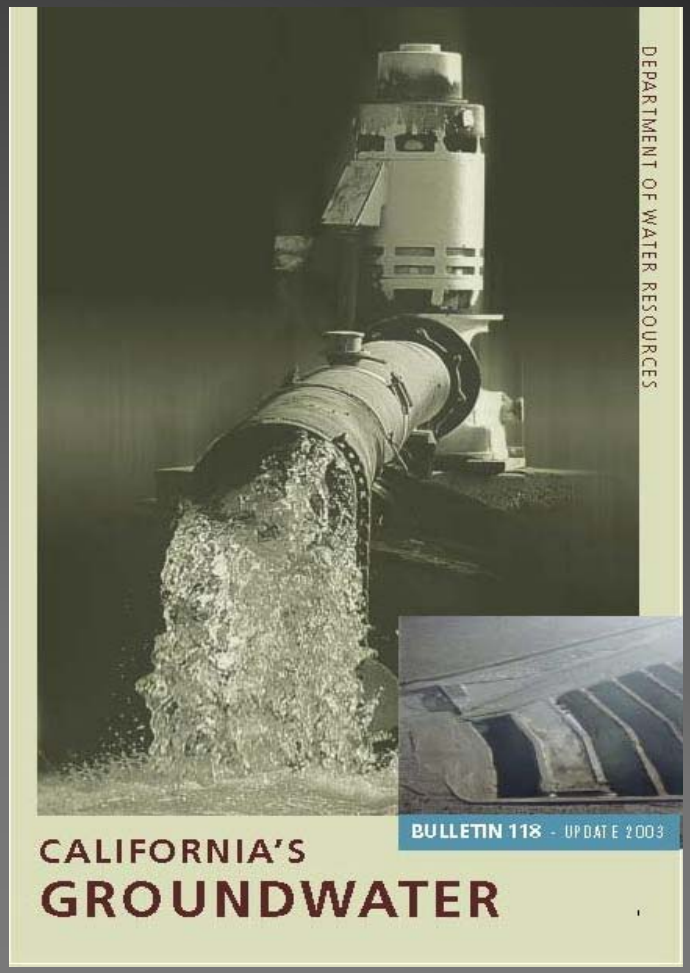


CASGEM Overview

- SBx7 6 Legislative Intent
- What is CASGEM?
- Implementation Timeline
- DWR Contact Information
- Monitoring Entities
- Groundwater Elevation Data
- Monitoring Network Plan

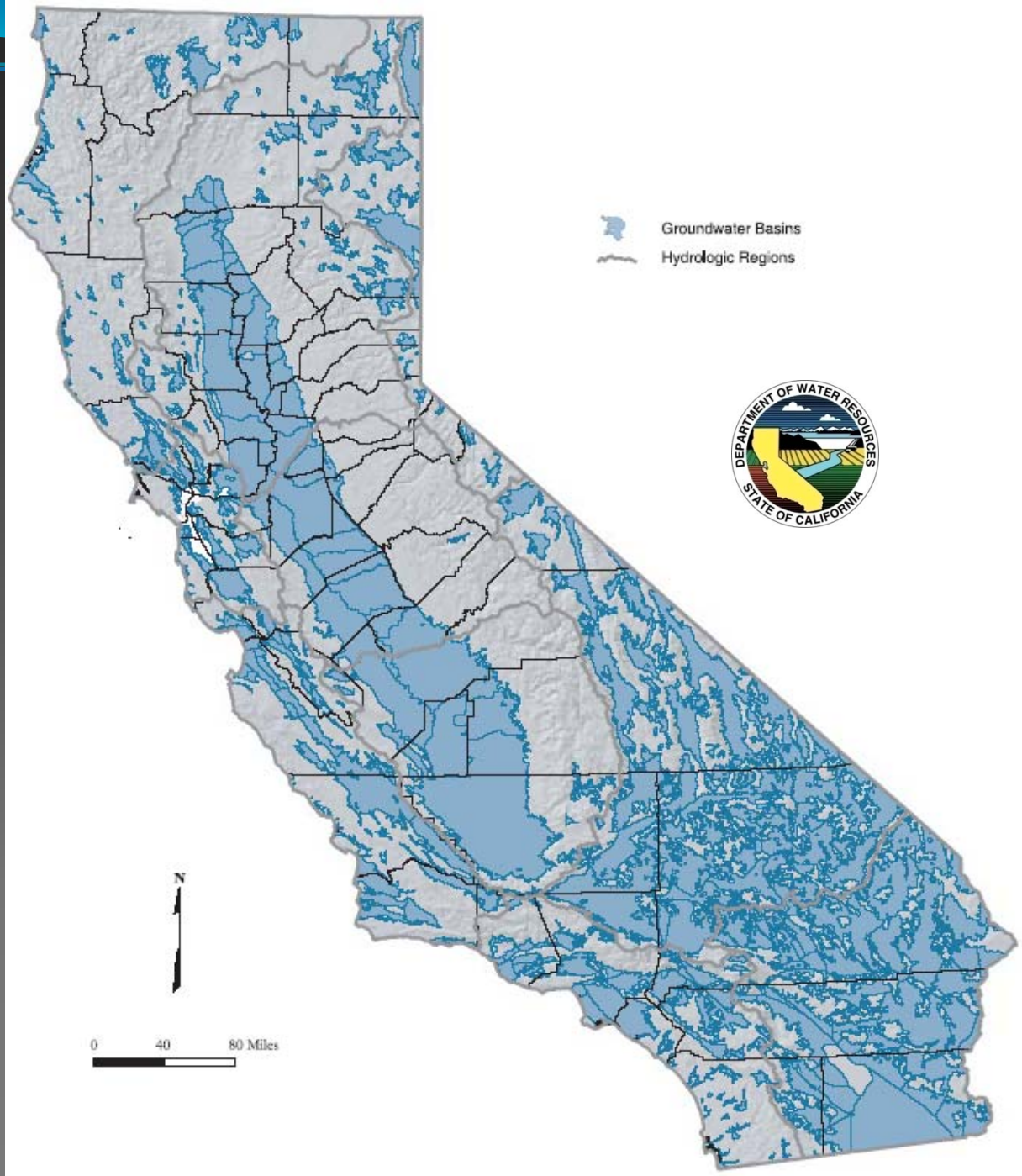
SBx7 6 Legislative Intent

- Local groundwater Monitoring Entities *regularly and systematically* monitor groundwater elevations in California's alluvial basins and subbasins
- Groundwater elevation information be made *readily and widely available*
- DWR *continues to maintain its current network* of monitoring wells and continues to coordinate monitoring with local entities



California Statewide Groundwater Elevation Monitoring (CASGEM)

- 515 alluvial groundwater basins and subbasins are delineated in *California's Groundwater*, DWR Bulletin 118-2003



What is CASGEM?

California Statewide Groundwater Elevation Monitoring

- A statewide program to measure groundwater elevations in California's basins and subbasins
- Establishes collaboration between local Monitoring Entities and DWR to collect groundwater elevations
- Groundwater elevation trends are a fundamental component to successfully manage and sustain California's limited groundwater resources

What is CASGEM? (cont.)

- Groundwater Monitoring Entities are voluntary
- Local agencies measure groundwater elevations in their basin
- Groundwater Monitoring Entities will coordinate the collection of groundwater elevation data and will submit data to DWR
- The groundwater elevation data will be made available to the public
- All data collected as part of CASGEM will be public information

What is CASGEM? (cont.)

- DWR will report its findings to the Governor and the Legislature by January 1, 2012 and thereafter in years ending in 5 and 0
- DWR is not a monitoring entity as defined by the CASGEM Program
- If DWR assumes the monitoring role in a basin, certain entities in the basin may be ineligible for water grants or loans

Details online at: http://www.water.ca.gov/groundwater/casgem

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

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California Statewide Groundwater Elevation Monitoring (CASGEM)

GROUNDWATER ELEVATION MONITORING

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- SBX7 6 (Bill Text)
- Monitoring Entities
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- Groundwater Information Center
- Bulletin 118
- IWRIS
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- IRWM

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California Statewide Groundwater Elevation Monitoring (CASGEM)

authorized by SBX7 6, enacted in November 2009

WHAT'S NEW?

Public Workshops
ACWA and DWR invite you to an interactive workshop to discuss the draft SBX7 6 Groundwater Elevation Monitoring Program guidelines... **view more**

Program Guidelines
Draft Groundwater Elevation Monitoring Program guidelines will be released for public comment in Fall, 2010.

More News

Subscribe to receive announcements on release of important documents, changes to the website, and general information... ***Sign Up/Subscribe***

Overview of SBX7 6

In 2009, the Legislature passed SBX7 6, which establishes, for the first time in California, collaboration between local monitoring parties and DWR to collect groundwater elevations statewide and that this information be made available to the public.

SBX7 6 provides that:

- Local parties may assume responsibility for monitoring and reporting groundwater elevations.
- DWR work cooperatively with local Monitoring Entities to achieve monitoring programs that demonstrate seasonal and long-term trends in groundwater elevations.
- DWR accept and review prospective Monitoring Entity submittals, then determine the designated Monitoring Entity, notify the Monitoring Entity and make that information available to the public.
- DWR perform groundwater elevation monitoring in basins where no local party has agreed to perform the monitoring functions.
- If local parties (for example, counties) do not volunteer to perform the groundwater monitoring functions, and DWR assumes those functions, then those parties become ineligible for water grants or loans from the state.

For text of the chaptered legislation, please visit the official California Legislative Information website.

MAJOR DEADLINES

On or before January 1, 2011: Parties seeking to assume groundwater elevation monitoring functions must notify DWR (WC section 10928)

On or before January 1, 2012: Monitoring Entities shall begin reporting seasonal groundwater elevation measurements (WC section 10932)

Summer 2010

ACWA/DWR Workshops

Fall 2010

- Draft Guidelines
- Solicit Comments
- Finalize Guidelines

Develop online notification and data submittal system

Local agencies work together to identify prospective Monitoring Entities

Late Fall 2010

Online notification system ready

Prospective Monitoring Entities begin submitting notifications to DWR

January 1, 2011

Monitoring Entity notifications due to DWR

January – July 2011	DWR Reviews Monitoring Plans	Monitoring Entities develop and submit monitoring network plans to DWR
No later than Fall 2011	Designation of Monitoring Entities	Groundwater elevation monitoring begins
January 1, 2012	DWR submits first CASGEM status report to Governor and Legislature	First CASGEM data submittal due to DWR

CASGEM Goals

Short term

- Encourage local participation throughout the state
- Determine the extent of groundwater elevation monitoring in California's groundwater basins
- Provide assistance to local agencies

Long term

- Establish a statewide groundwater monitoring network that shows seasonal and long-term trends
- DWR Region Offices work with local agencies to better characterize California's groundwater basins

CASGEM Challenges

- Tight deadlines
- Statewide program
- Limited resources, no funding with SBx7 6
- Diversity throughout the state
  - 515 basins with varied hydrogeology
  - Many agencies and diverse local interests
  - Various resource uses, needs, and constraints
- Asking for input and participation

DWR Regions

Division of Integrated Regional Water Management

- Northern Region
- North Central Region
- South Central Region
- Southern Region

Northern Region

Groundwater Section

- Kelly Staton, Chief
- Bill Ehorn
- Glen Gordon
- Jon Mulder
- Debbie Spangler
- Seth Lawrence
- Jamie Dubay
- April Scholzen

North Central Region

Geology and Groundwater Investigations Section

- Chris Bonds, Chief
- Bill Brewster
- Mark Souverville
- Mark Nordberg
- Steven Springhorn
- Tad Bedegrew
- Erin Greene

South Central Region

Groundwater and Regional Reports Section

- Dane Mathis, Chief
- Mike McGinnis
- Chris Montoya
- Michelle Dooley
- John Kirk

Southern Region

Groundwater Section

- Tim Ross, Chief
- Gary Guacci
- Anita Regmi
- Jack Tung
- Matt Zimmerman
- Michael Van Raalte

CASGEM Program Components

- Monitoring Entities
- Groundwater Elevation Data
- Monitoring Network Plan
- Questions

Monitoring Entities

What is a Monitoring Entity?

- A party conducting or coordinating the monitoring of groundwater elevations
- The Monitoring Entity is responsible for compiling the data and submitting it to DWR
  - Measurements can be taken by any number of agencies
  - Ensure groundwater level guidelines are followed to ensure consistent, high quality data

Who can be a Monitoring Entity?

Per Water Code Section 10927

- Watermaster or water management engineer
- Groundwater management agency that is already monitoring groundwater levels in its area on or before January 1, 2010
- Water replenishment district
- Local agency or County with an established GWMP that is already monitoring groundwater levels on or before January 1, 2010
- Local agency that is part of an established integrated regional water management plan
- County that does not have an established groundwater management plan
- Voluntary cooperative groundwater monitoring association formed by a legal agreement

What does a Monitoring Entity do?

- The Monitoring Entity(s) in a basin work with DWR to establish an effective monitoring plan
- Measure and collect groundwater level measurements from cooperating agencies
- Submit the collected data to DWR

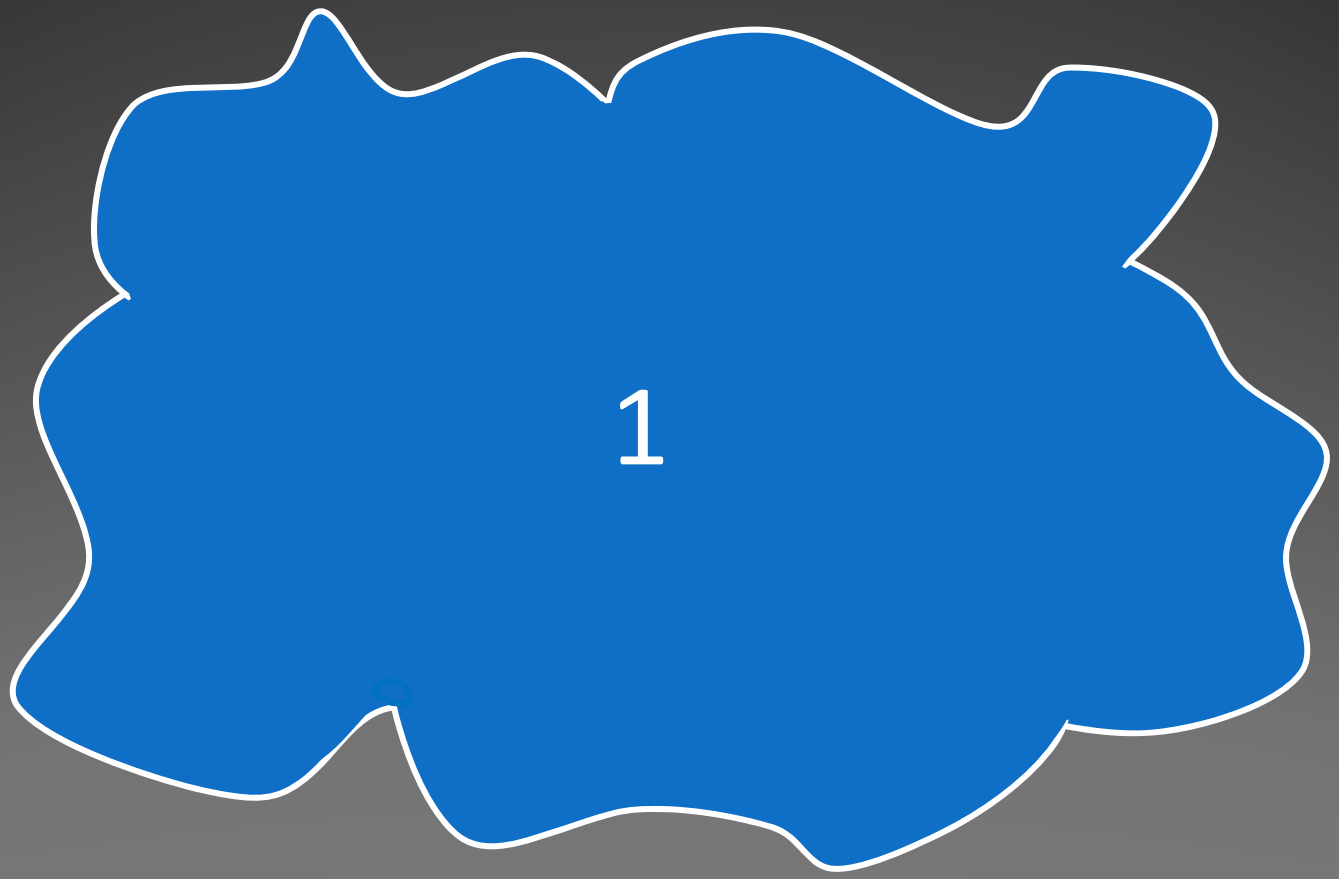
How do you determine the Monitoring Entity in a basin with multiple agencies?

- Qualified agencies within the basin should work together at the local level to determine the best coordinated plan to meet the local needs and fulfill the program requirements
- Monitoring boundaries cannot overlap

What are the possibilities?

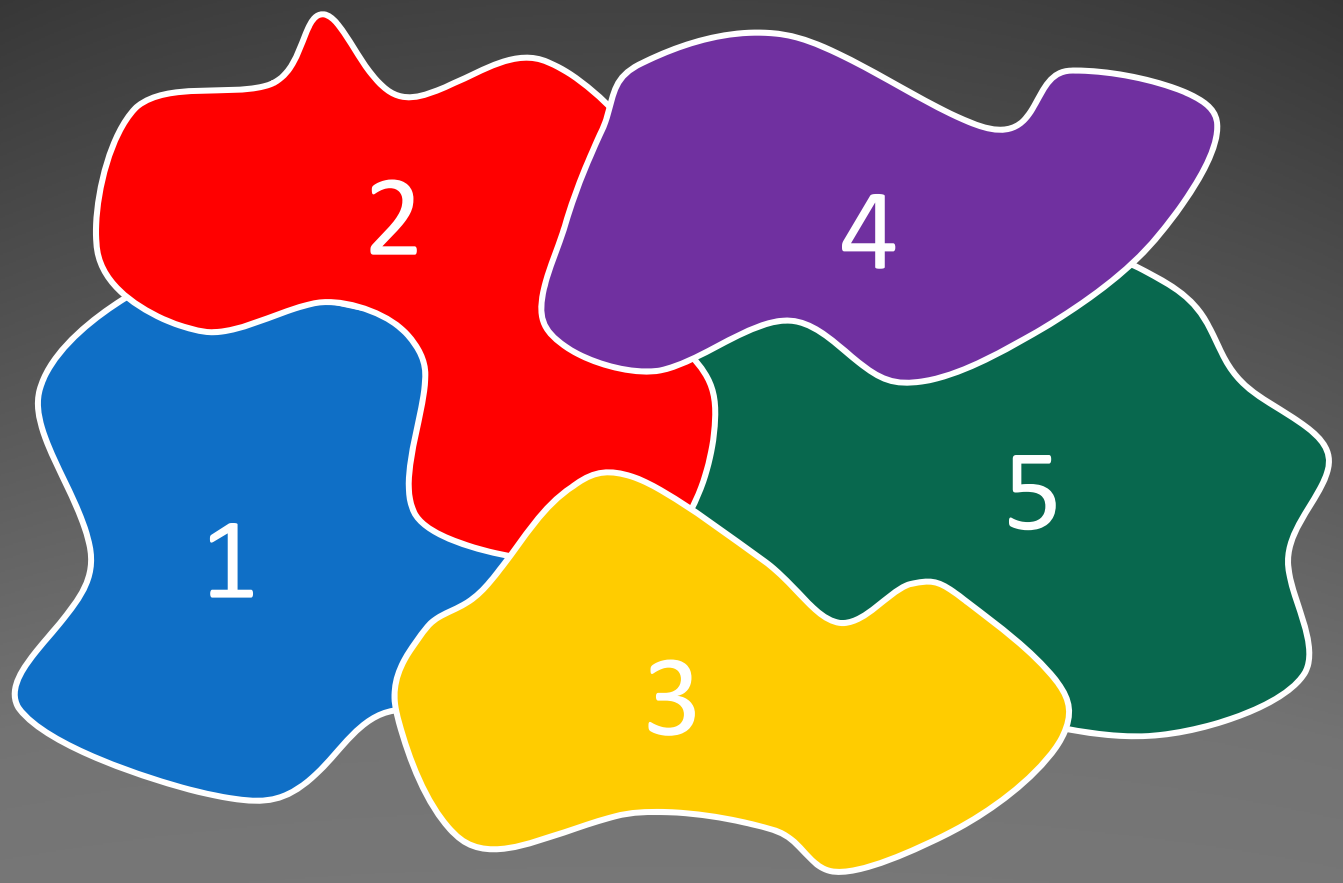
- Due to variations across the state, there are multiple possibilities for Monitoring Entities to implement the CASGEM program
  - Single Monitoring Entity
  - Multiple Monitoring Entities
  - Umbrella Monitoring Entity

Single Monitoring Entity collects and reports groundwater elevation data for the entire basin



One basin – One Monitoring Entity

Multiple Monitoring Entities collect and report groundwater elevation data for their portion of a basin



One basin – Five Monitoring Entities (1-5) which are also the collecting agencies

Umbrella Monitoring Entity coordinates and reports groundwater elevation data collected by multiple agencies within a basin or portion of a basin

One basin – One Monitoring Entity – Five collecting agencies (1-5)

How does an agency or group become the designated Monitoring Entity?

- Local agencies coordinate among themselves and determine the proposed Monitoring Entity or Entities
- The proposed Monitoring Entity or Entities must notify DWR on or before January 1, 2011
- DWR is developing an online submittal system that should be operational in Fall 2010
- DWR has 90 days from the time a notification is submitted to provide the status

What should the Monitoring Entity notification include?

Water Code Section 10928

- Agency contact information
- Specific authority that qualifies the agency to be designated the Monitoring Entity with necessary supporting documentation
- Map of the area to be monitored and groundwater basin(s)
- Statement that the agency will comply with the requirements of the CASGEM program

<u>Draft guidelines will be available in Fall 2010</u>

What happens if DWR already monitors groundwater levels in a basin?

- DWR will continue to monitor in basins where it is currently measuring groundwater elevations
- Entities must still apply to be designated as the Monitoring Entity in order to maintain grant funding eligibility
- Monitoring and data submission for a Monitoring Entity will be reduced for wells that DWR monitors
- A Monitoring Entity may need to assume data collection for wells in the monitoring network plan if DWR is unable to continue measurements for those wells

What happens if no parties volunteer to become the designated Monitoring Entity?

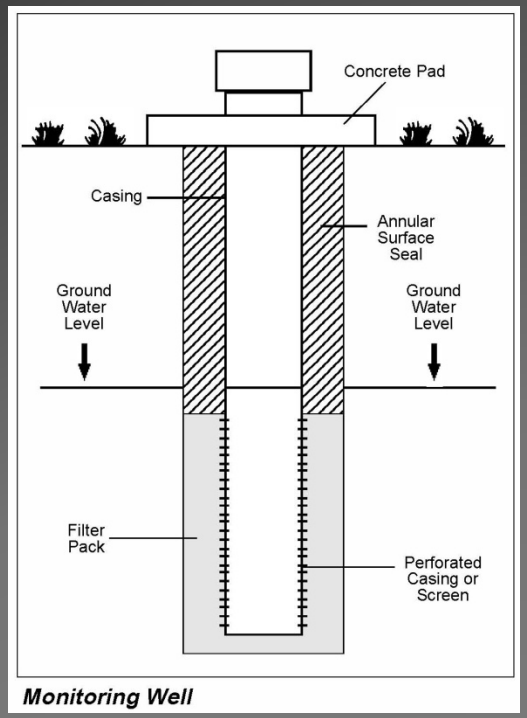
Water Code Section 10933.7

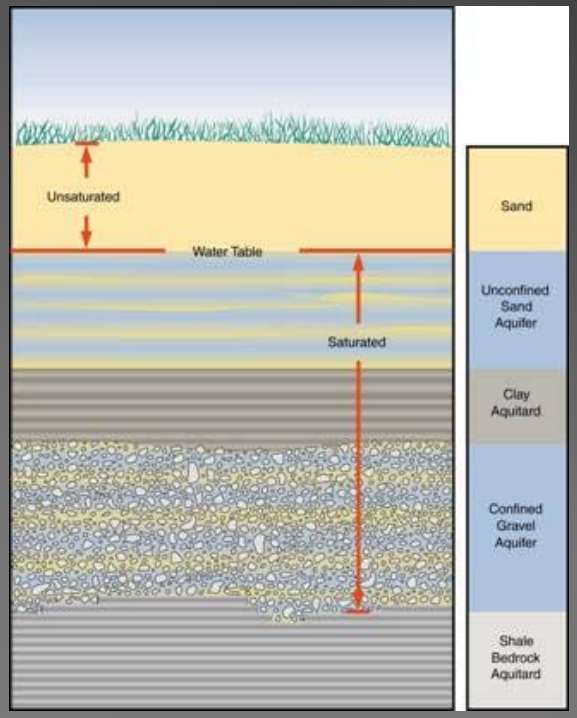
- Certain agencies in the basin may be ineligible for water grants or loans

Groundwater Elevation Data

What data do the Monitoring Entity collect?

- Groundwater elevation data within their basin to evaluate seasonal and long-term trends



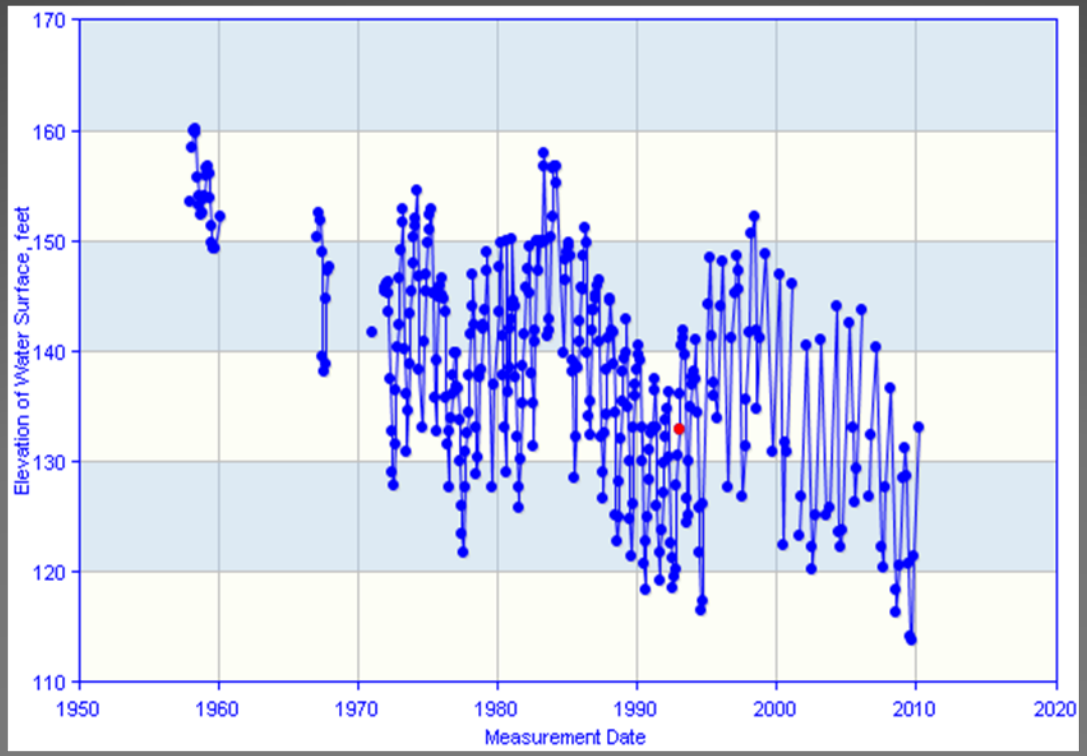


How will groundwater elevation data improve management of the resource?

- Groundwater elevation measurements can be used in many ways to evaluate the groundwater conditions within a basin
- This monitoring allows local and state entities to identify areas where there may be potential problems such as groundwater overdraft and land subsidence
- With a projected population of 46 million by 2020, California's reliance upon groundwater will increase

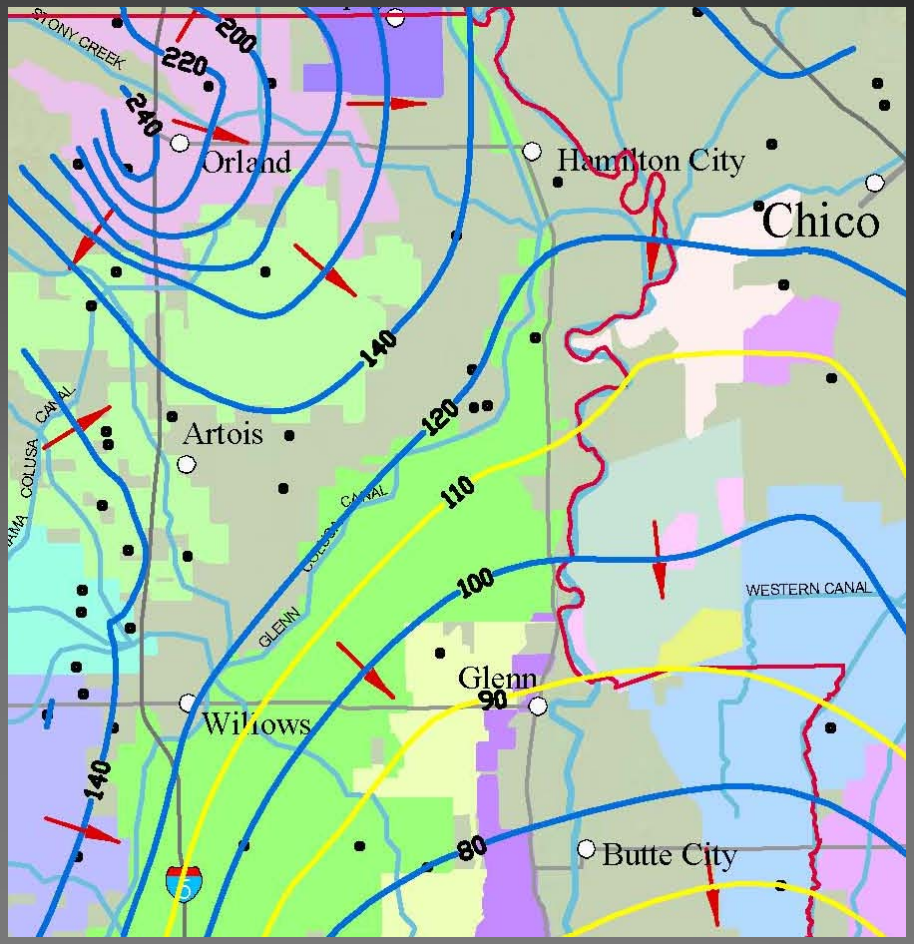
Groundwater Hydrograph

- Hydrographs depict groundwater elevations in a well or wells over the period of record



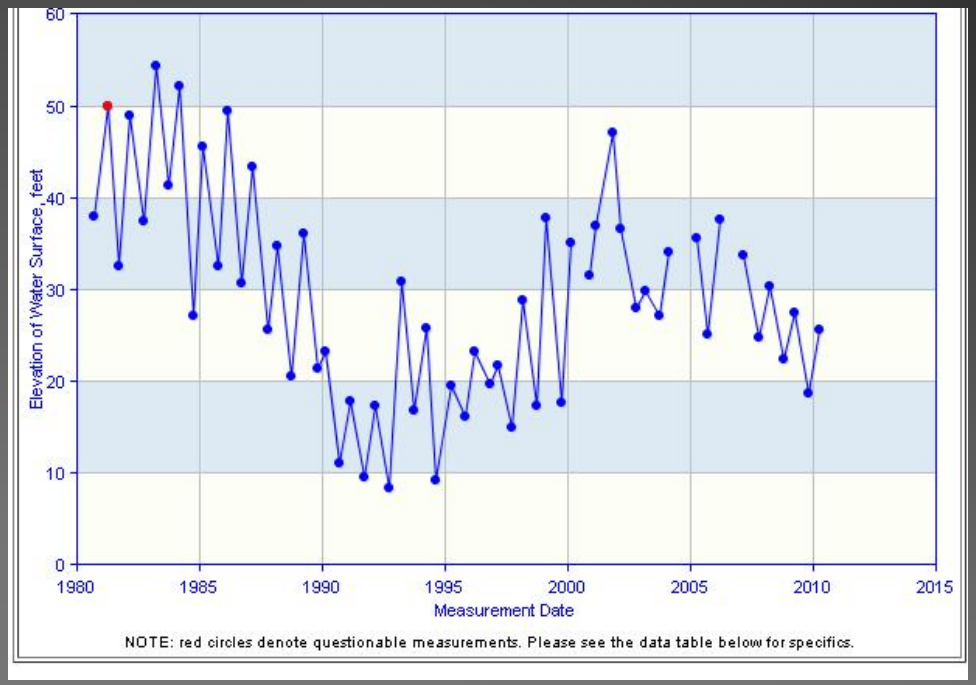
Groundwater Elevation Contour Maps

- Groundwater contour maps depict groundwater elevations and flow directions in the basin



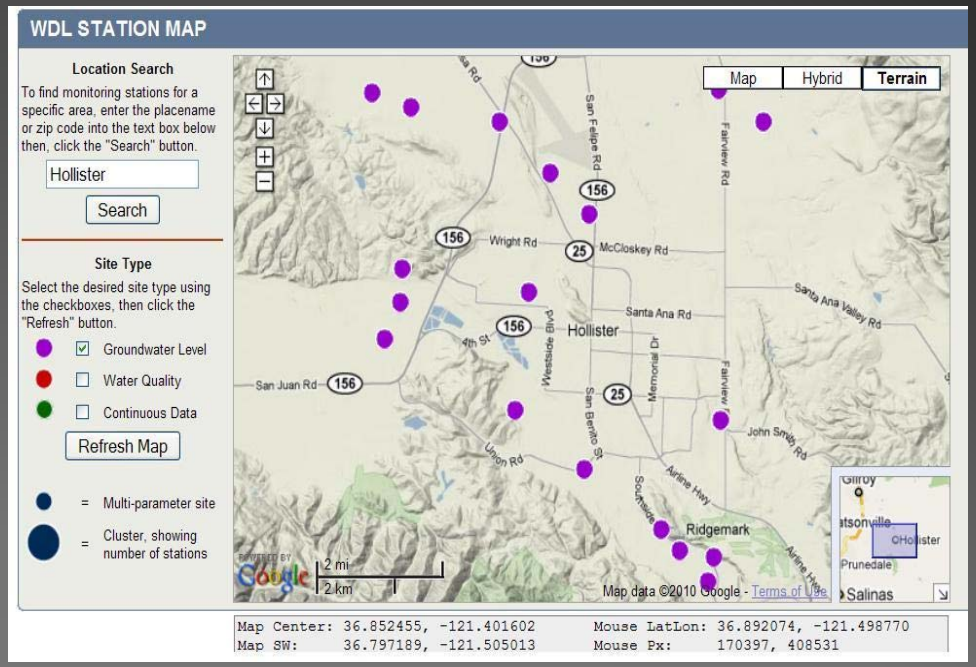
When are the data due?

- Initial groundwater level data should be submitted to DWR by January 1, 2012
- Thereafter, data should be submitted by January 1st and July 1st of each year, at the minimum
- Data will be submitted to DWR using the online submittal system



Where will the data be stored?

- The data will be compiled by DWR in an online system that is accessible to the public
- Interested parties can use the data to examine the groundwater conditions and trends in their basin
- DWR will prepare status reports for the Governor and Legislature that may incorporate these data



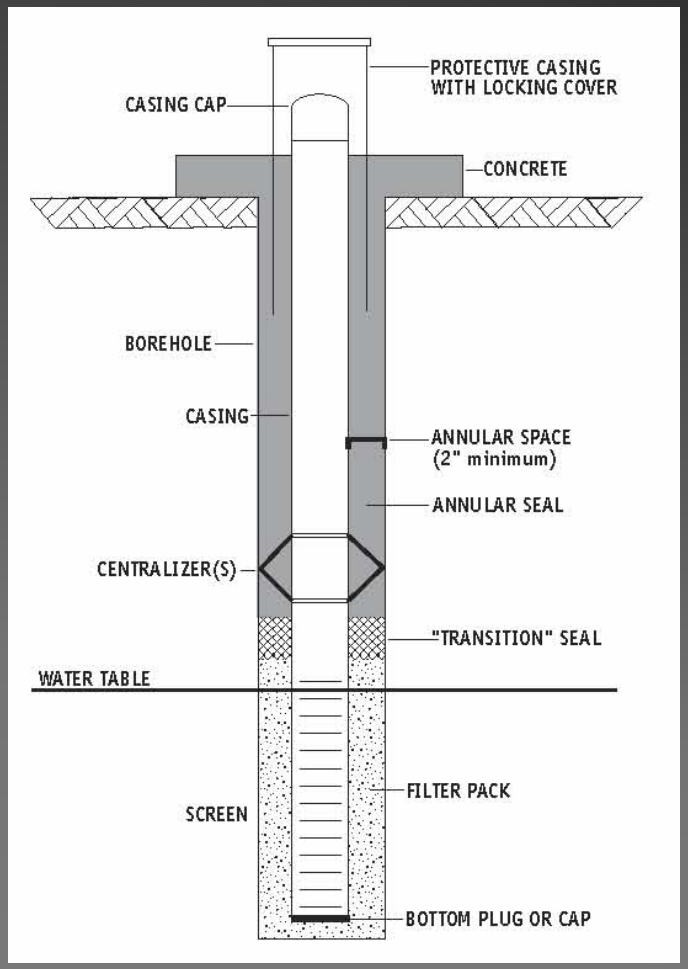
What if the designated Monitoring Entity has historical data?

- A long period of record is much more valuable for analysis than a short period of record
- Historical data can also be submitted via the DWR data system to aid in data interpretation

Monitoring Network Plan

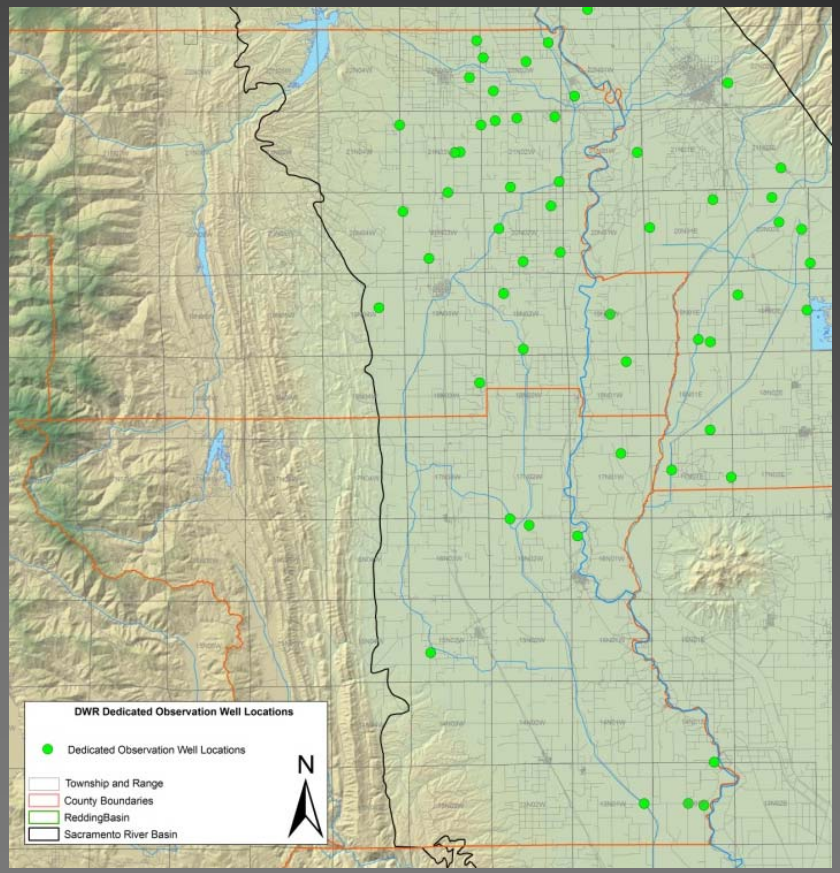
What would be included in a monitoring network plan?

- Wells to be measured – Representative wells covering spatial distribution of the basin and wells from each of the major aquifers
  - *Public water supply wells are not to be included in the monitoring network plan*
- Well information should include – type, depth, screened interval, location coordinates, elevations, who will perform monitoring



What would be included in a monitoring network plan?

- Measurement frequency and timing – At a minimum, measure the yearly high and low for the basin, usually spring and fall, but may vary from basin to basin. It is very important that the timing of all the measurements in the basin are coordinated.
- Note – DWR Region Office staff are available to help if needed



What if the Monitoring Entity needs assistance with a monitoring plan?

- Call your DWR Region Office
  - Region staff can help with developing the monitoring network plan and collecting the necessary well information
- The CASGEM program guidelines will have a detailed list of the information that is requested to be included in the groundwater monitoring network plan

CASGEM program guidelines will be available at:

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

When does the monitoring network plan need to be completed?

- Monitoring network plans should be completed and submitted to DWR's online system by Summer 2011
- Measurements should begin no later than Fall 2011
- Reporting of data to DWR is required to begin on or before January 1, 2012

DWR Contact Information

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

Questions?