

GLENN COUNTY GROUNDWATER CONDITIONS UPDATE - SPRING 2016



Van Tol Dairy – photo courtesy
Jon Mulder



MAY 10, 2016

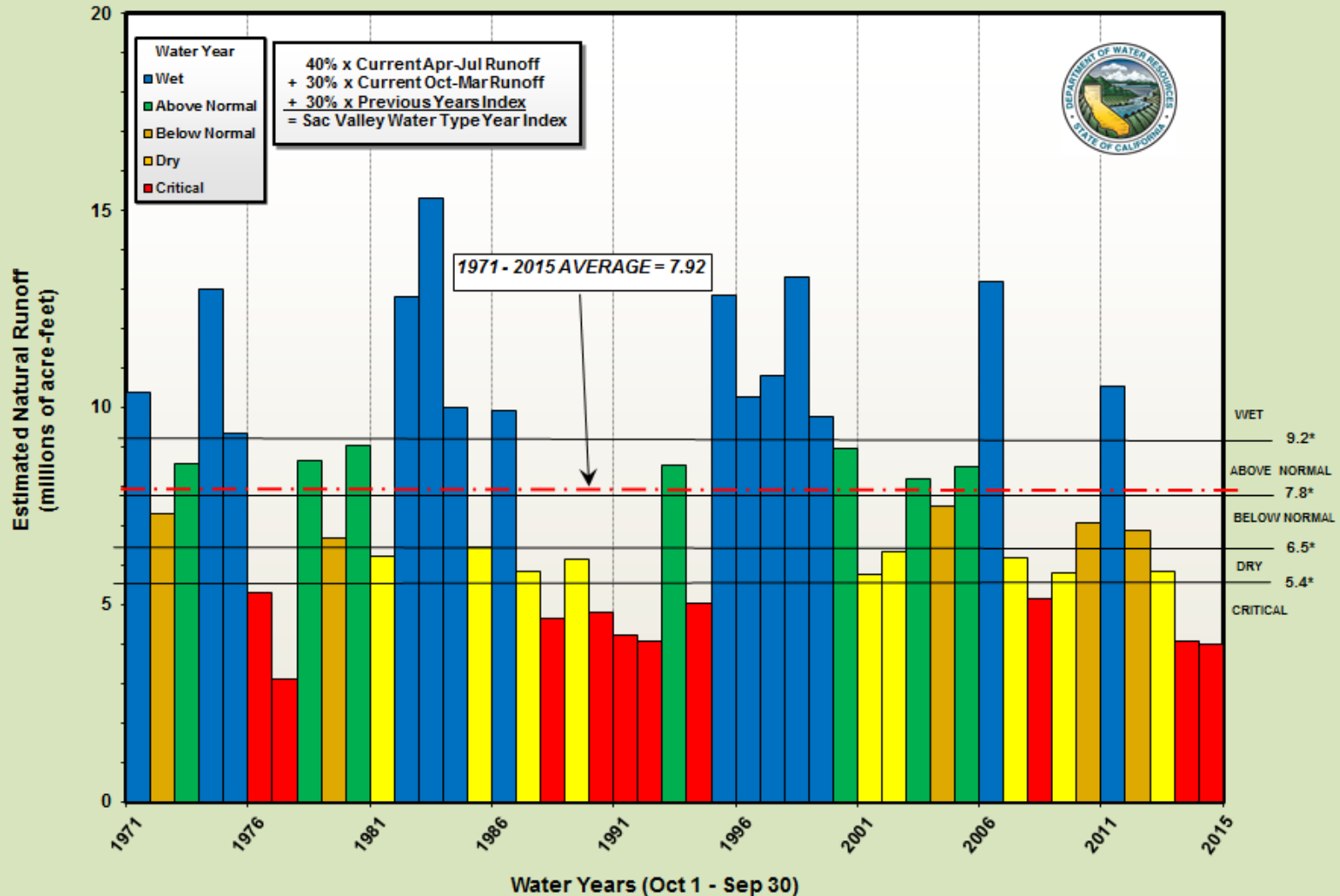


Agenda

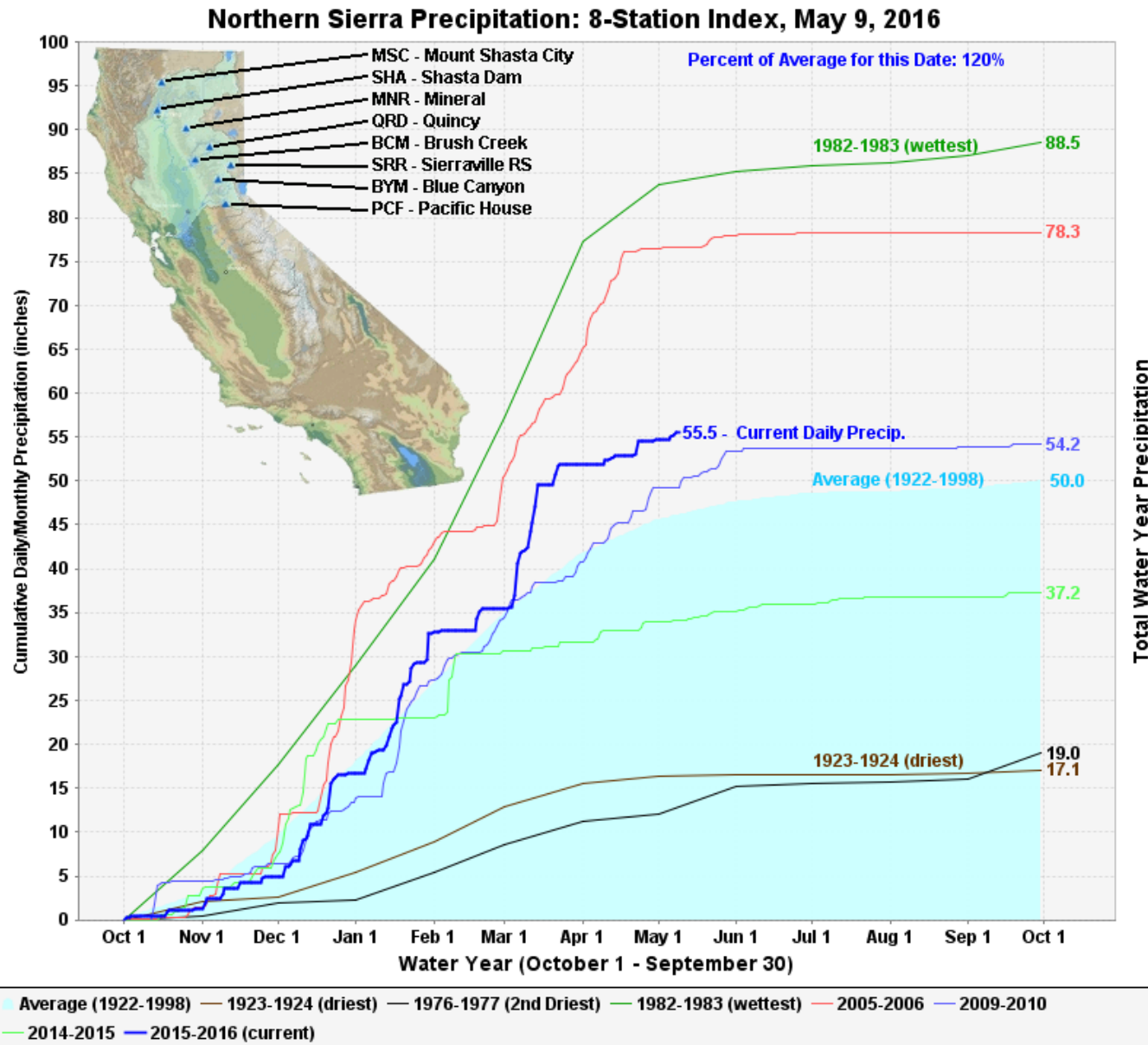
- **Water Year and Precipitation Indexes**
- **Groundwater Elevation Change Maps**
- **Hydrographs**
- **Recharge Plot**
- **Future SGMA Maps**
- **Resources**

Water Year Index 1971-2015

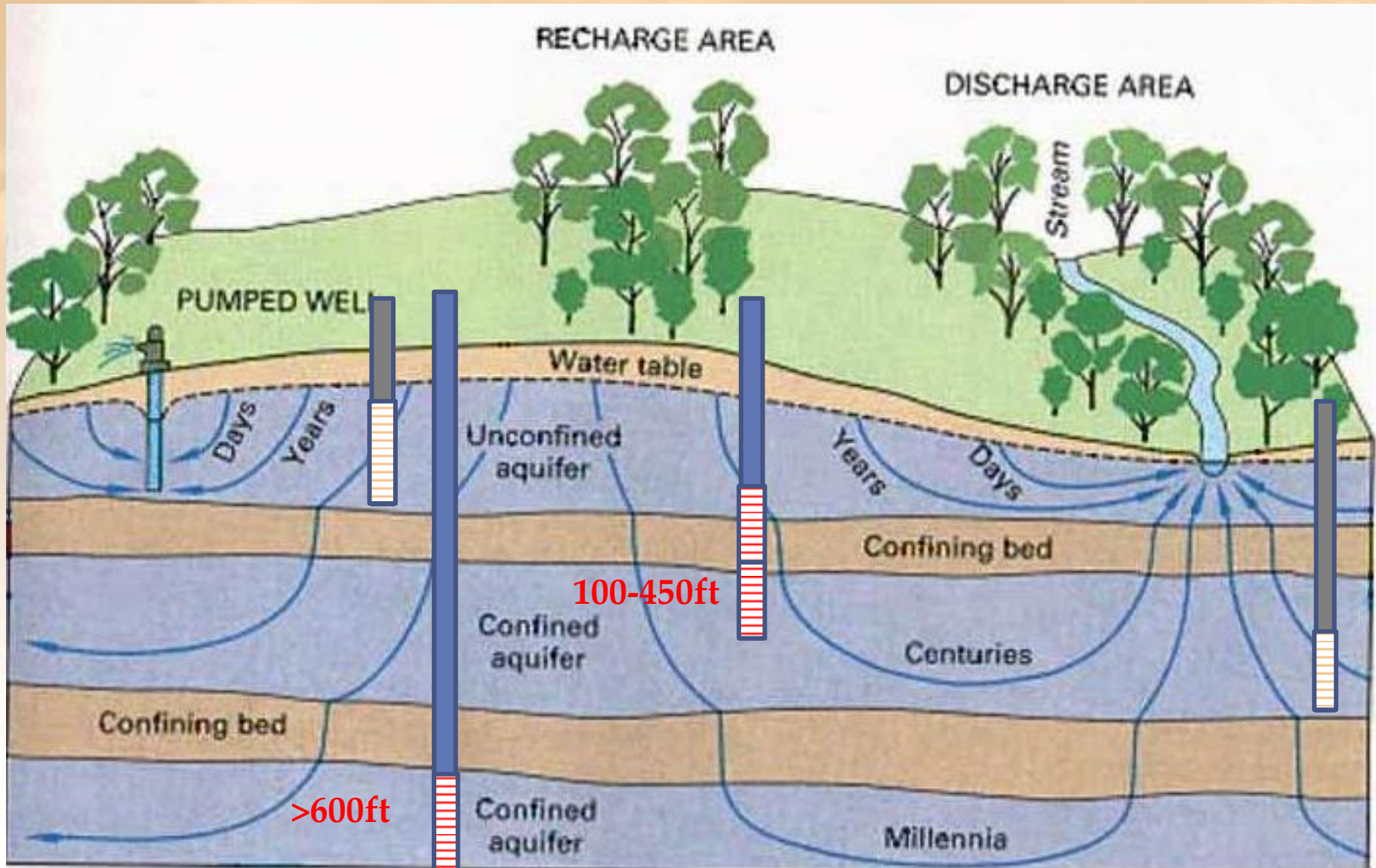
SACRAMENTO VALLEY WATER YEAR TYPE INDEX
1971-2015



Sacramento Valley Precipitation – 8-Station Index



Groundwater Elevation Measurement from Wells of Varying Depth



Groundwater Monitoring and Groundwater Elevation Change Maps

- **DWR measures groundwater levels in about 155 wells in Glenn County, in the spring, summer, and fall.**
- **Groundwater level data are then grouped for analysis by well depth:**
 - **Average: 100 to 450 ft-bgs (feet below ground surface)**
 - **Shallow: less than 200 ft-bgs**
 - **Intermediate: 200 to 600 ft-bgs**
 - **Deep: greater than 600 ft-bgs**
- **Groundwater elevation (GWE) change maps compare:**
 - **Current GWE's to the previous year's GWE,**
 - **Current GWE's to 2011's GWE, the beginning of the drought and**
 - **Current GWE's to 2004's GWE, which was the last "normal" year shown on the Water Year Index**

DRAFT!!!!

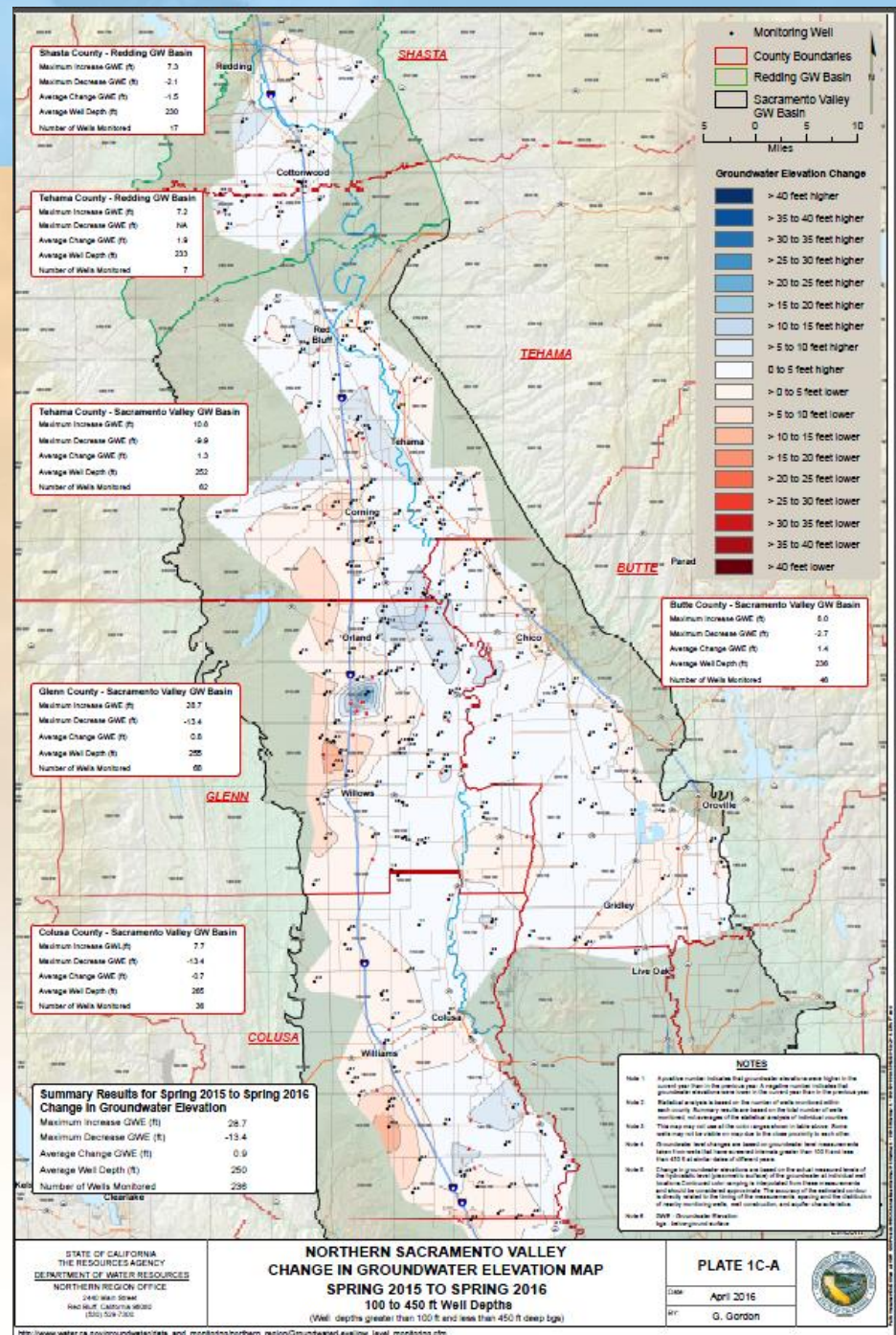
North Sacramento Valley Groundwater Elevation Change Map

Spring 2015 to Spring 2016

Average:
100 to 450 feet
below ground surface

Summary Results for Spring 2015 to Spring 2016 Change in Groundwater Elevation

Maximum Increase GWE (ft)	28.7
Maximum Decrease GWE (ft)	-13.4
Average Change GWE (ft)	0.9
Average Well Depth (ft)	250
Number of Wells Monitored	236



- Change Maps Zoom – Glenn County
- Average Depth 100-450 feet bgs
- Comparison 2016 data to previous time periods –
2015 – last year, 2011- beginning of drought, 2004-
last normal rainfall year

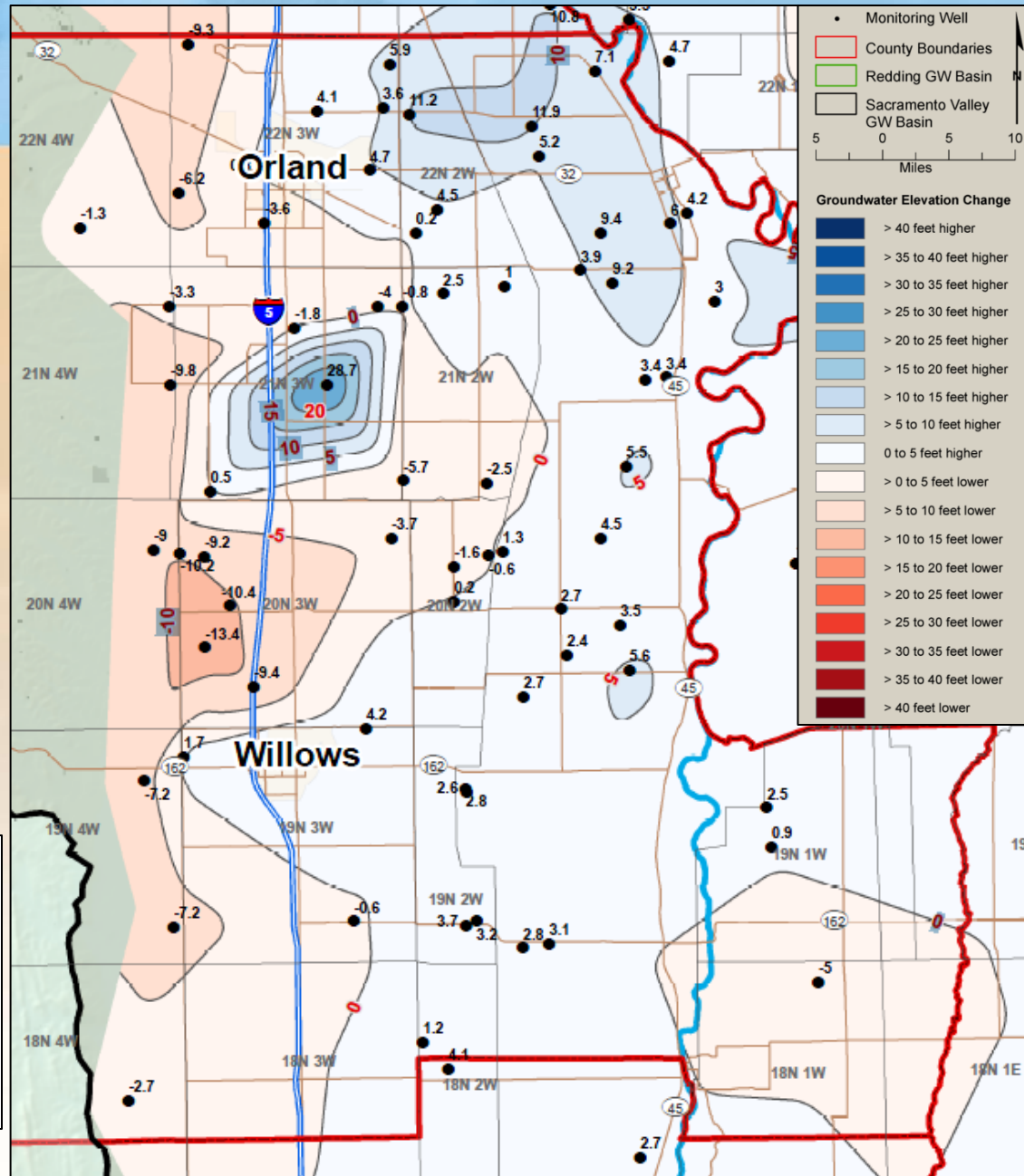
Groundwater Elevation Change Map

Spring 2015- Spring 2016

Average:
100 to 450 feet
below ground surface

Glenn County - Sacramento Valley GW Basin

Maximum Increase GWE (ft)	28.7
Maximum Decrease GWE (ft)	-13.4
Average Change GWE (ft)	0.8
Average Well Depth (ft)	255
Number of Wells Monitored	68



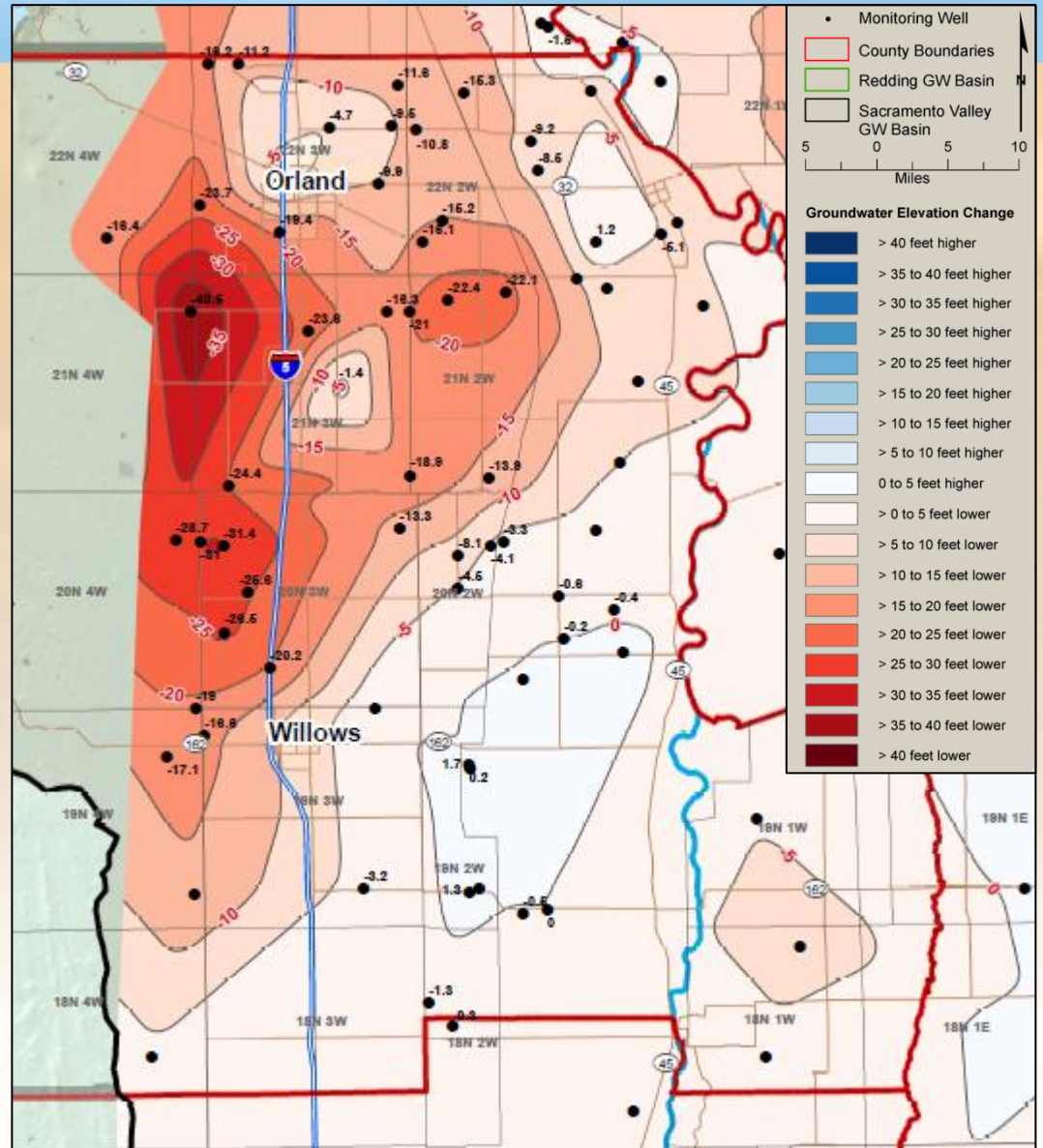
Groundwater Elevation Change Map

Spring 2011 - Spring 2016

Average:
100 to 450 feet
below ground surface

Glenn County - Sacramento Valley GW Basin

Maximum Increase GWE (ft)	1.7
Maximum Decrease GWE (ft)	-40.5
Average Change GWE (ft)	-10.8
Average Well Depth (ft)	254
Number of Wells Monitored	69

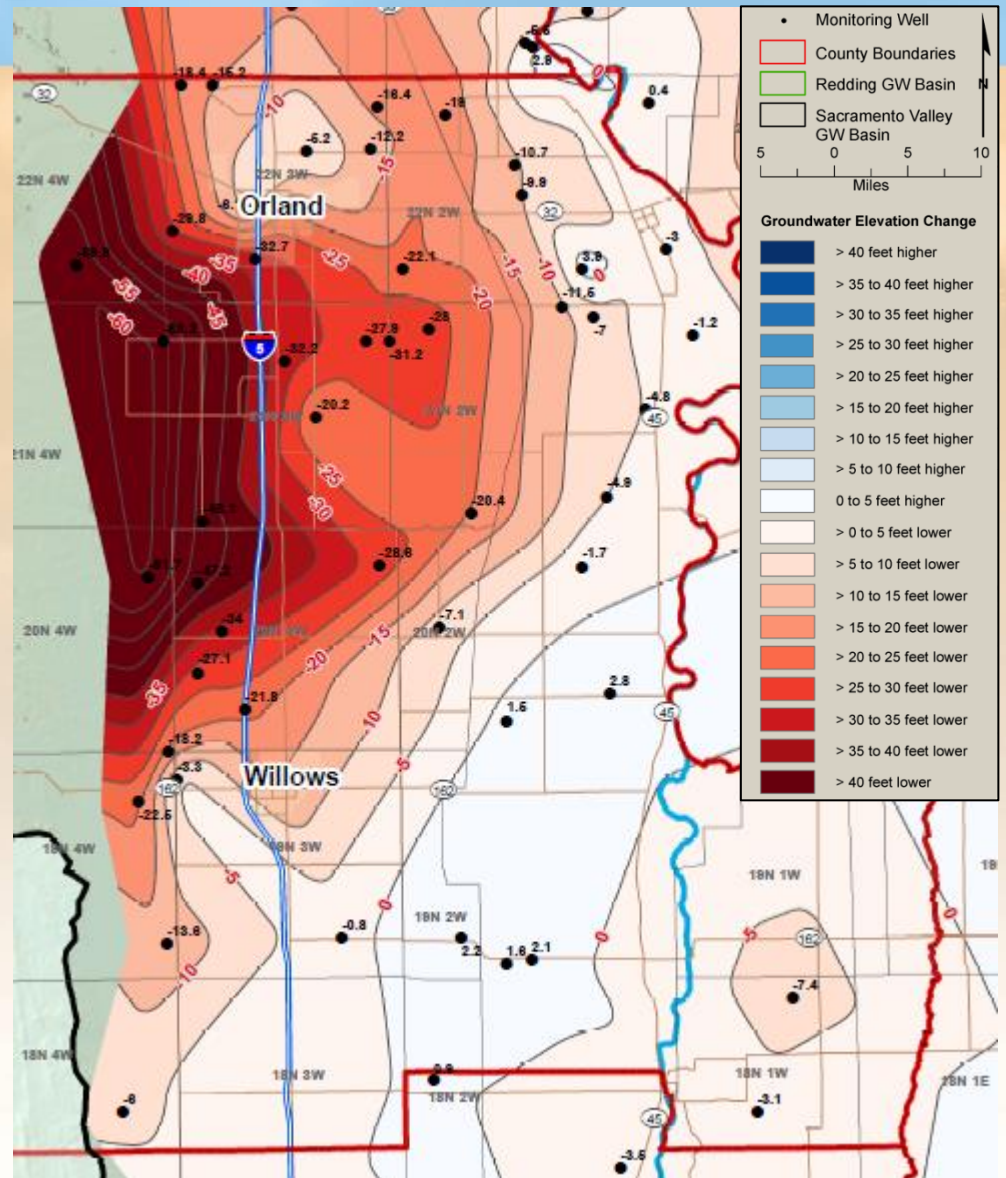


Groundwater Elevation Change Map

Spring 2004 - Spring 2016

Average:
100 to 450 feet
below ground surface

Glenn County - Sacramento Valley GW Basin	
Maximum Increase GWE (ft)	4.0
Maximum Decrease GWE (ft)	-61.7
Average Change GWE (ft)	-17.3
Average Well Depth (ft)	240
Number of Wells Monitored	49



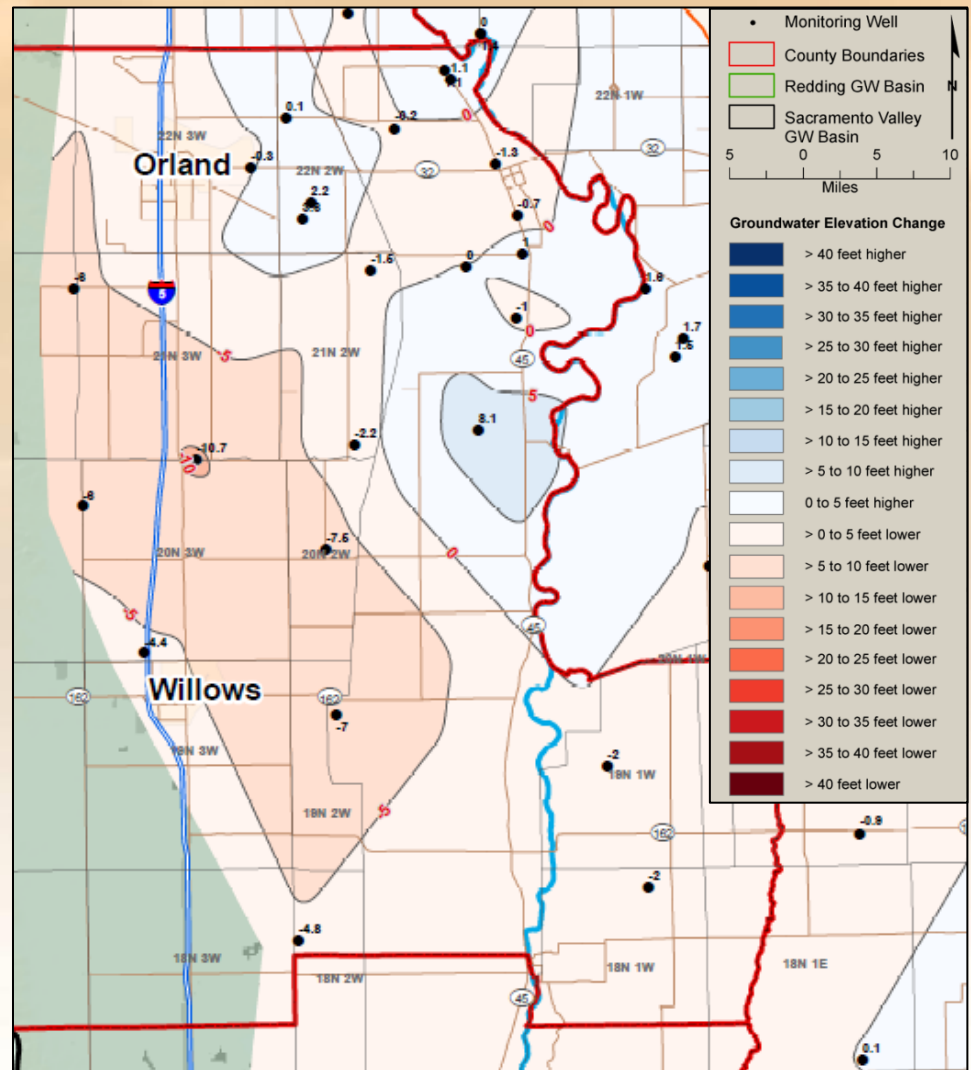
- Deep Aquifer zone (>600')
- 2016 to 2015 (previous year, 2011 (beginning of drought), 2004 (last normal water year))

Groundwater Elevation Change Map

Spring 2015-Spring 2016

Deep Aquifer Zone:
Well depths > 600 feet bgs

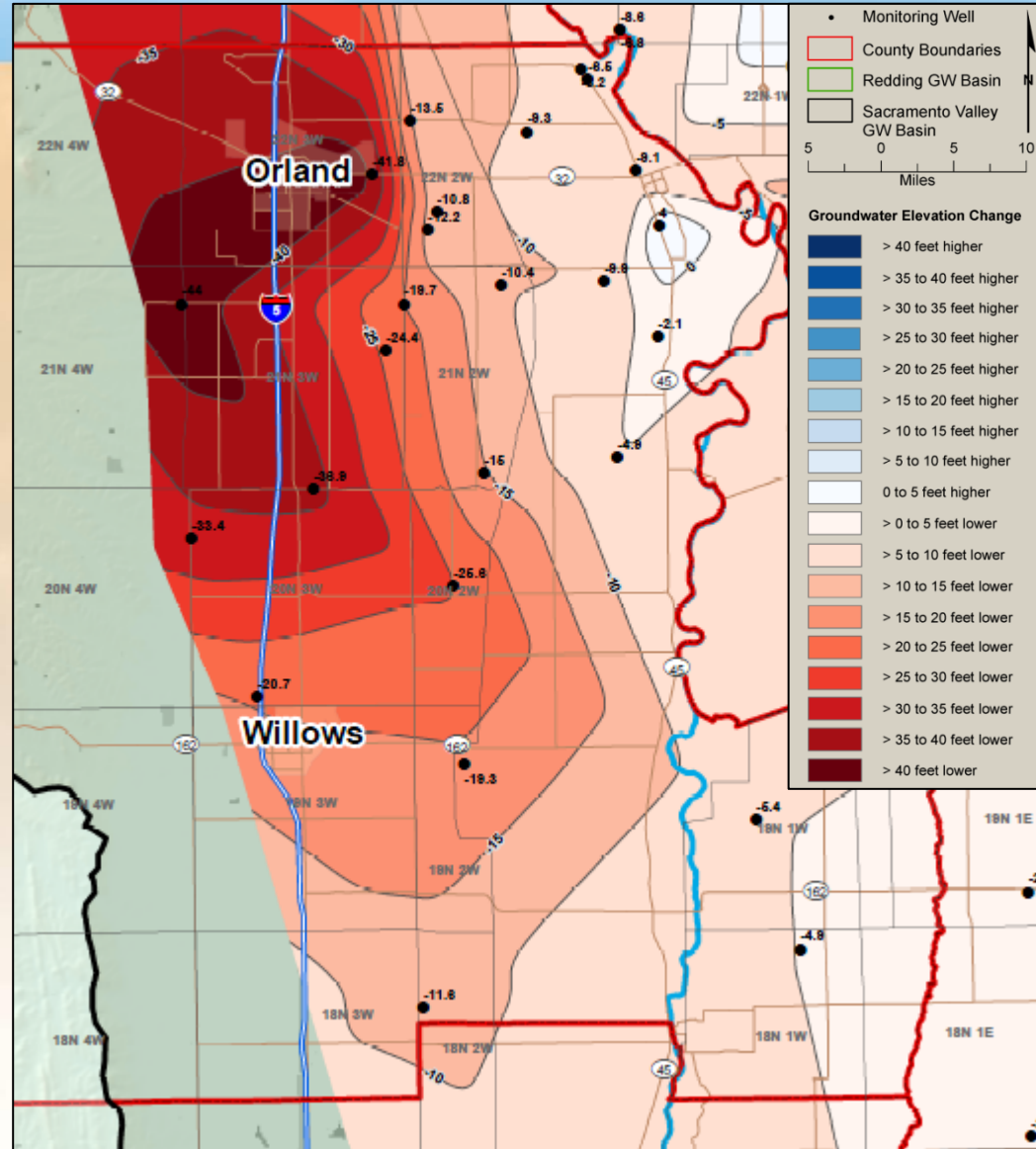
Glenn County - Sacramento Valley GW Basin	
Maximum Increase GWE (ft)	8.1
Maximum Decrease GWE (ft)	-10.7
Average Change GWE (ft)	-1.7
Average Well Depth (ft)	989
Number of Wells Monitored	24



Groundwater Elevation Change Map

Spring 2011-Spring 2016

Deep Aquifer Zone:
Well depths > 600 feet bgs



Glenn County - Sacramento Valley GW Basin

Maximum Increase GWE (ft)	4.0
Maximum Decrease GWE (ft)	-44.0
Average Change GWE (ft)	-15.8
Average Well Depth (ft)	976
Number of Wells Monitored	25

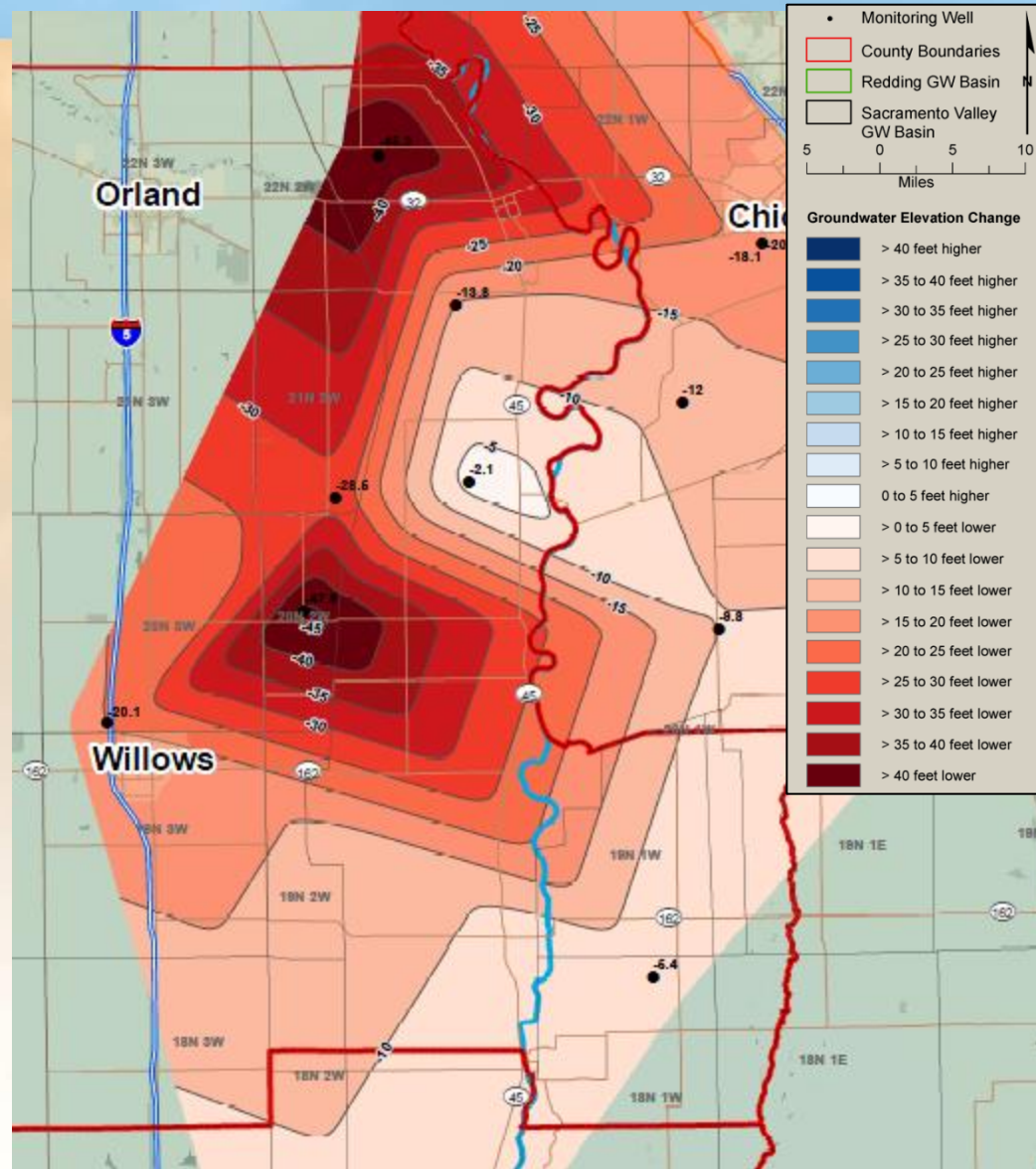
Groundwater Elevation Change Map

Spring 2004-Spring 2016

Deep Aquifer Zone:
Well depths > 600 feet bgs

Glenn County - Sacramento Valley GW Basin

Maximum Increase GWE (ft)	NA
Maximum Decrease GWE (ft)	-47.9
Average Change GWE (ft)	-23.3
Average Well Depth (ft)	780
Number of Wells Monitored	7



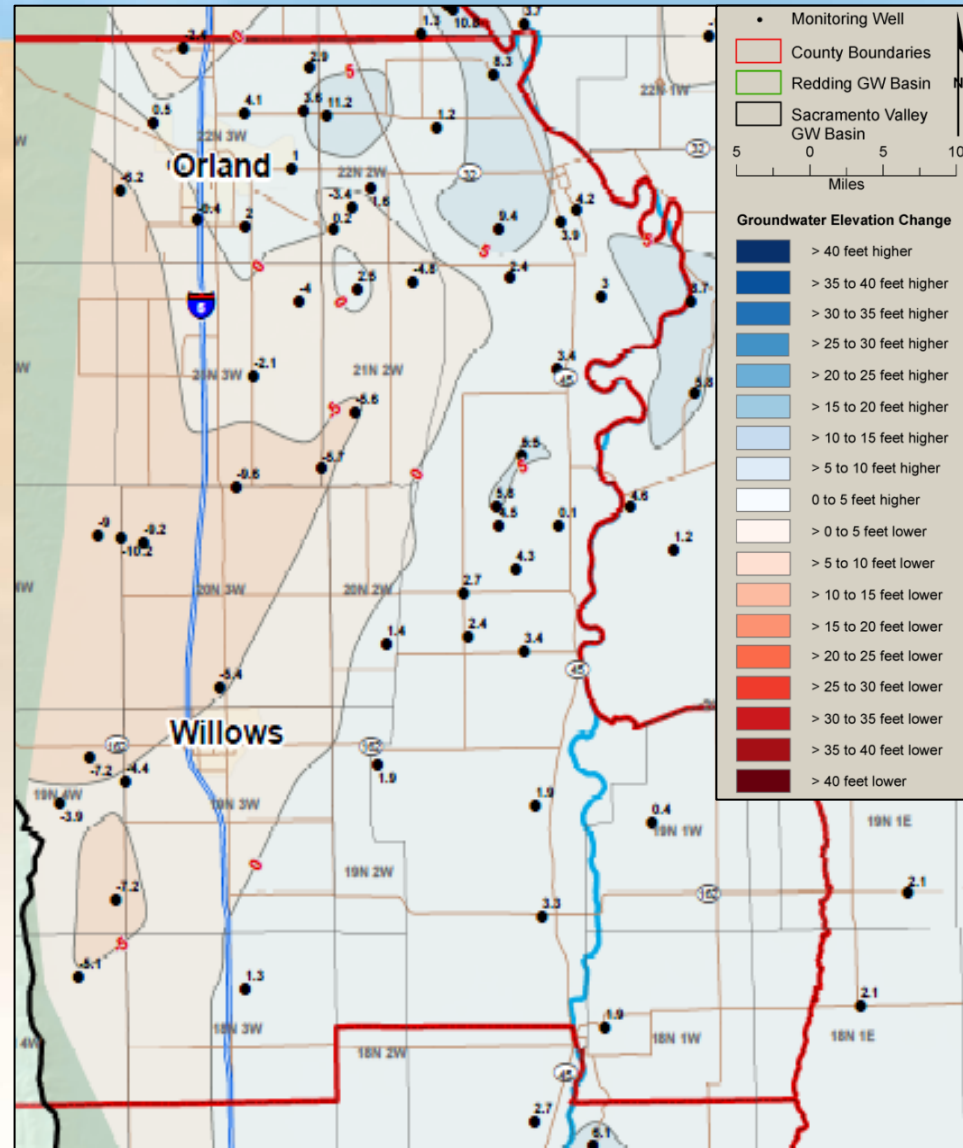
- Shallow zone map – less than 200'
- Spring 2015 – 2016

Groundwater Elevation Change Map

Spring 2015 - Spring 2016

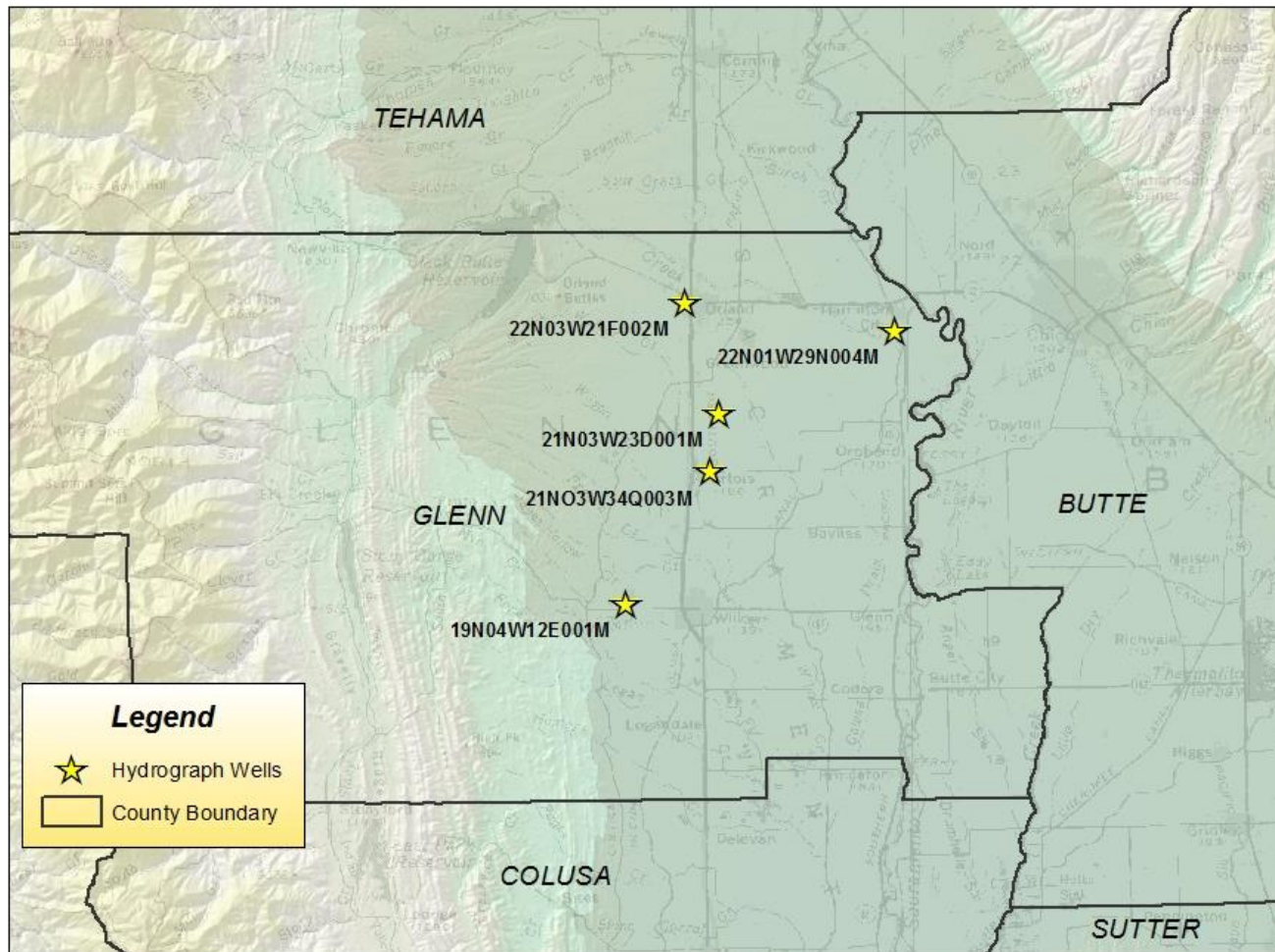
Shallow:
Less than 200 feet
below ground surface

Glenn County - Sacramento Valley GW Basin	
Maximum Increase GWE (ft)	11.2
Maximum Decrease GWE (ft)	-10.2
Average Change GWE (ft)	0.0
Average Well Depth (ft)	115
Number of Wells Monitored	53



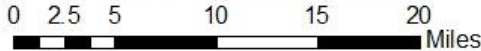
- 5 Hydrographs

LOCATION MAP FOR HYDROGRAPH WELLS



Legend

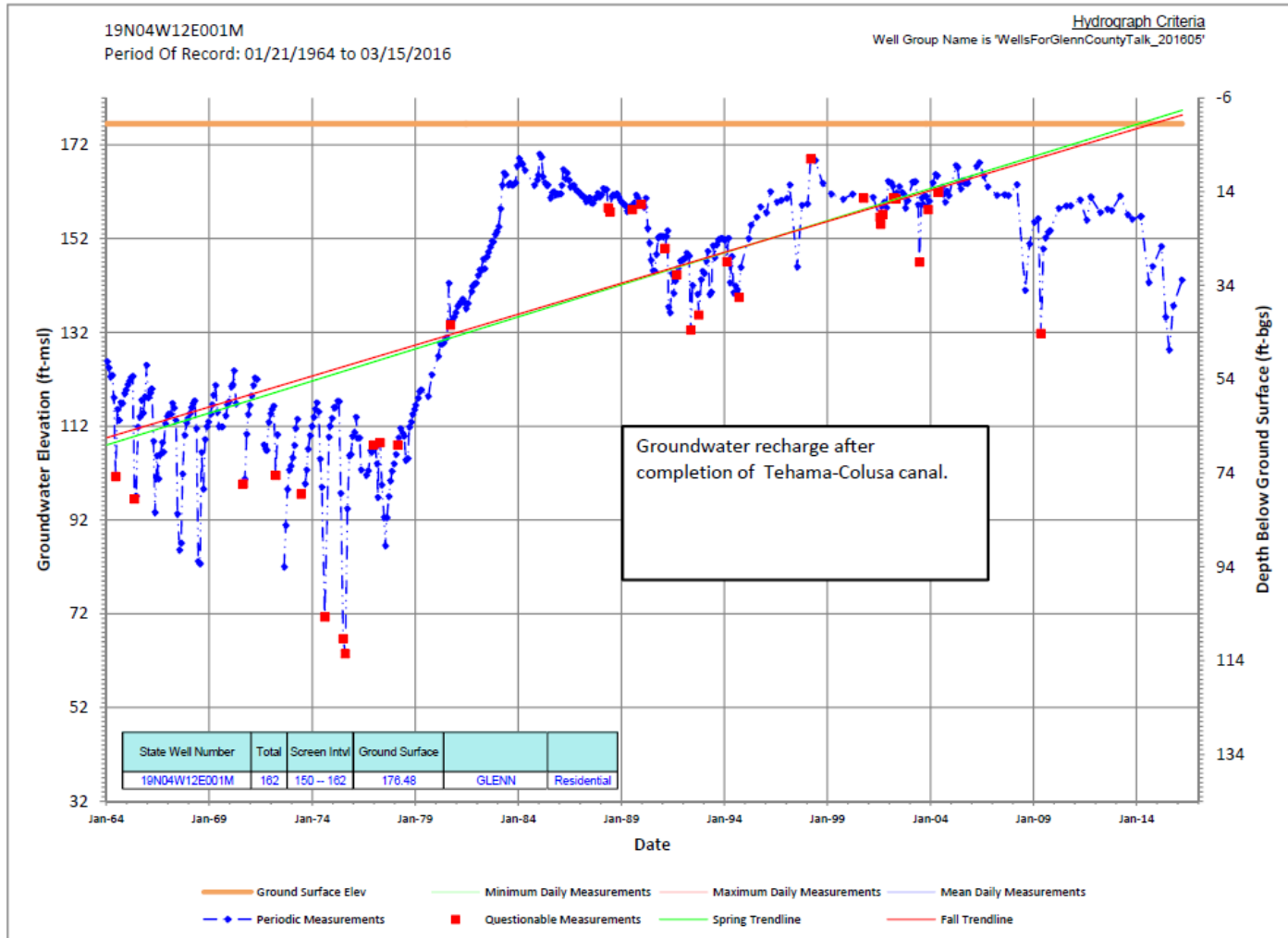
- ★ Hydrograph Wells
- County Boundary



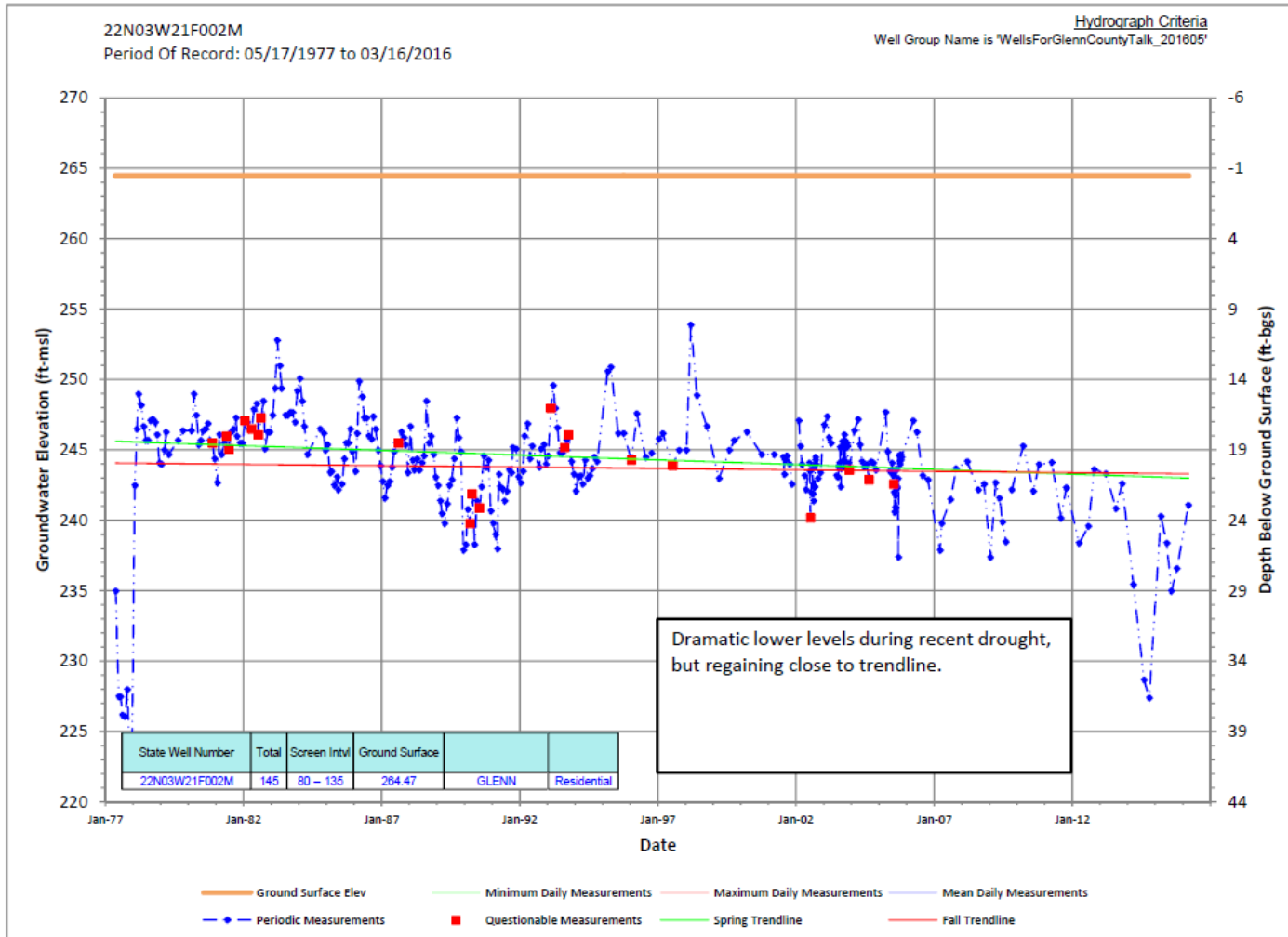
Well 22N01W29004M – NE Glenn Co.



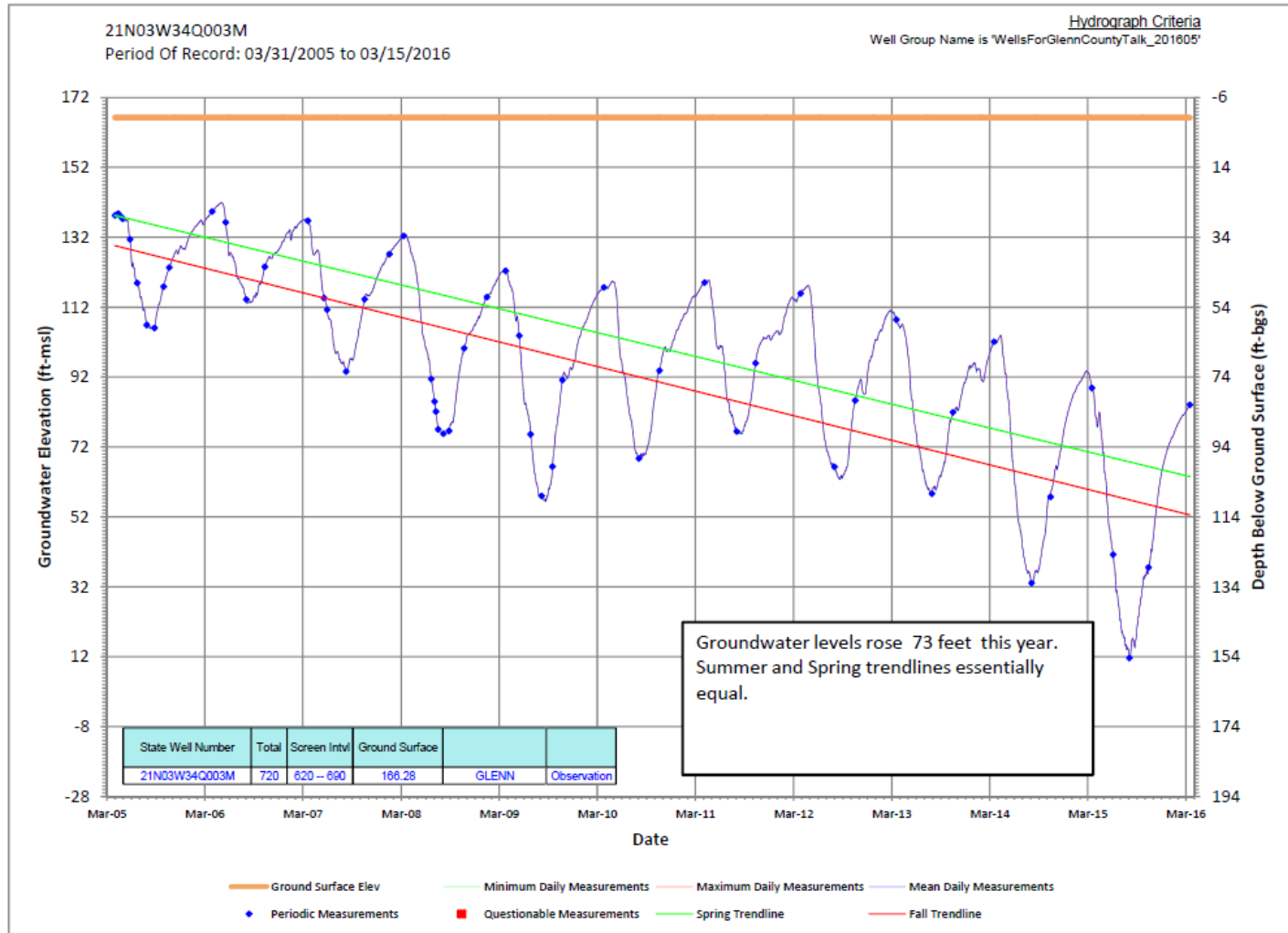
19N04W12E001M – S-Central Glenn Co.



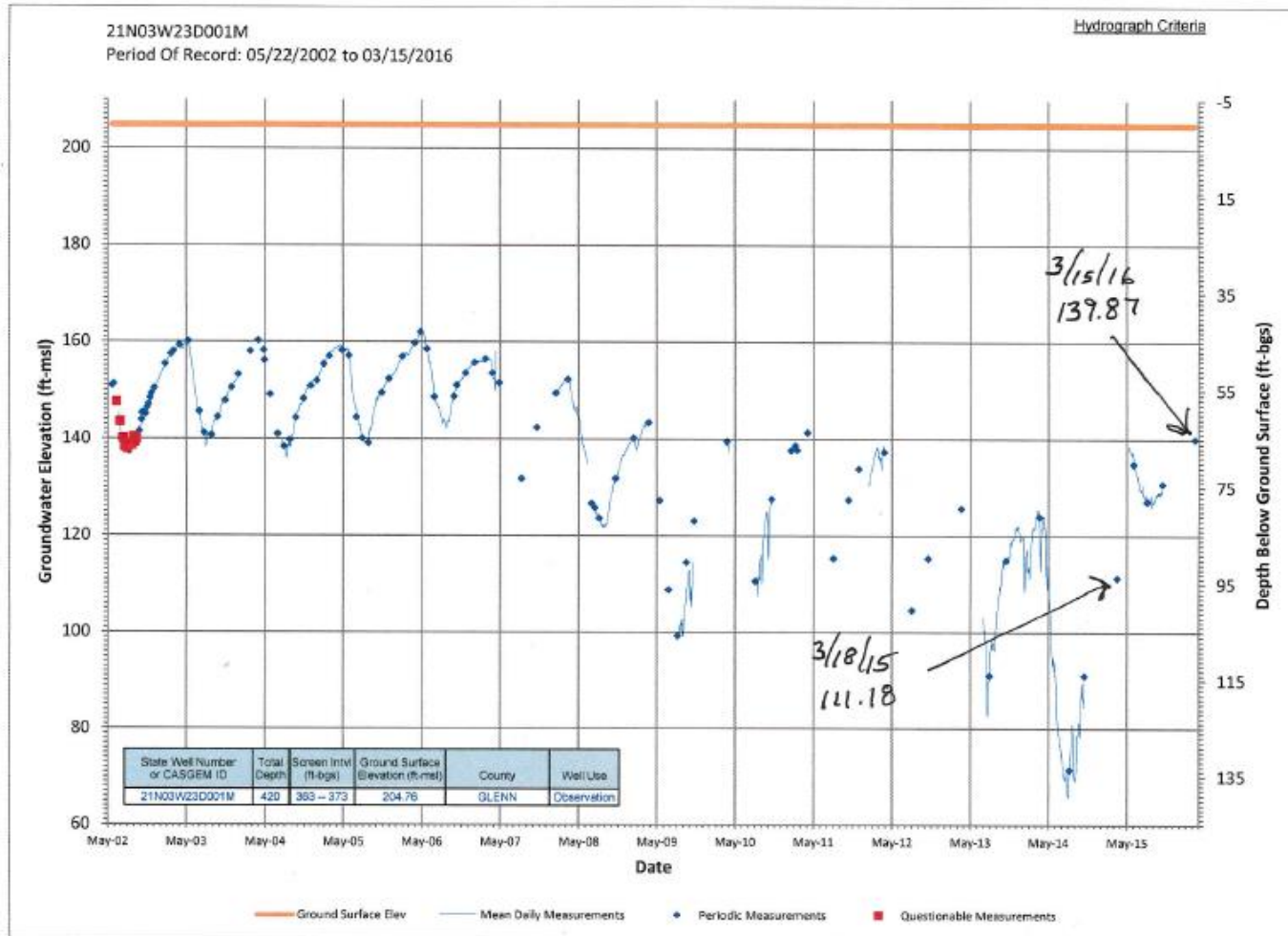
22N03W21F002M – N Glenn Co.



21N03W34Q003M – Central Glenn Co.

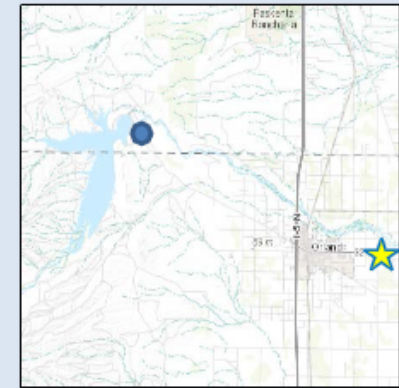
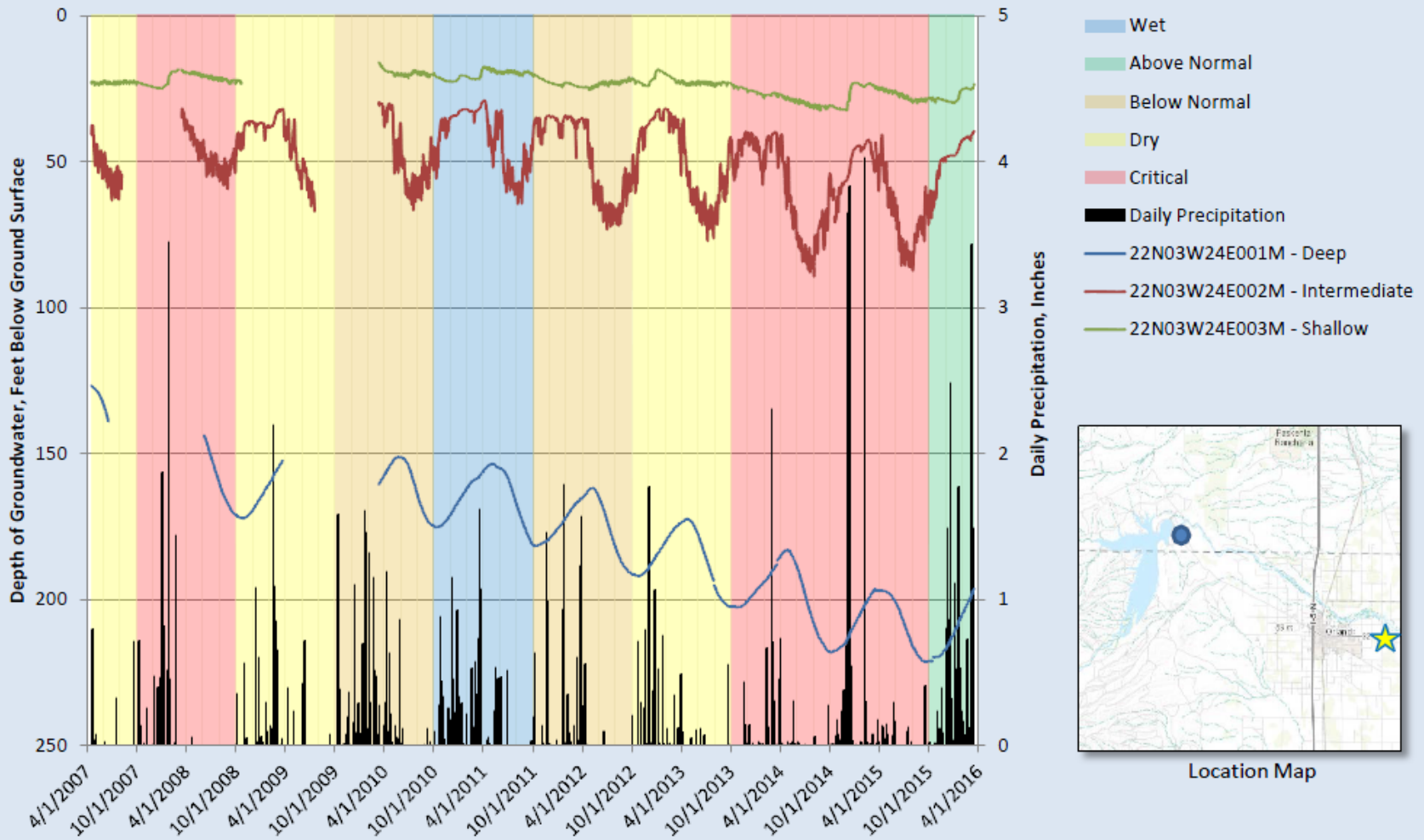


21N03W23D001M – Central Glenn Co.



Recharge Plot (*Bill's Idea)

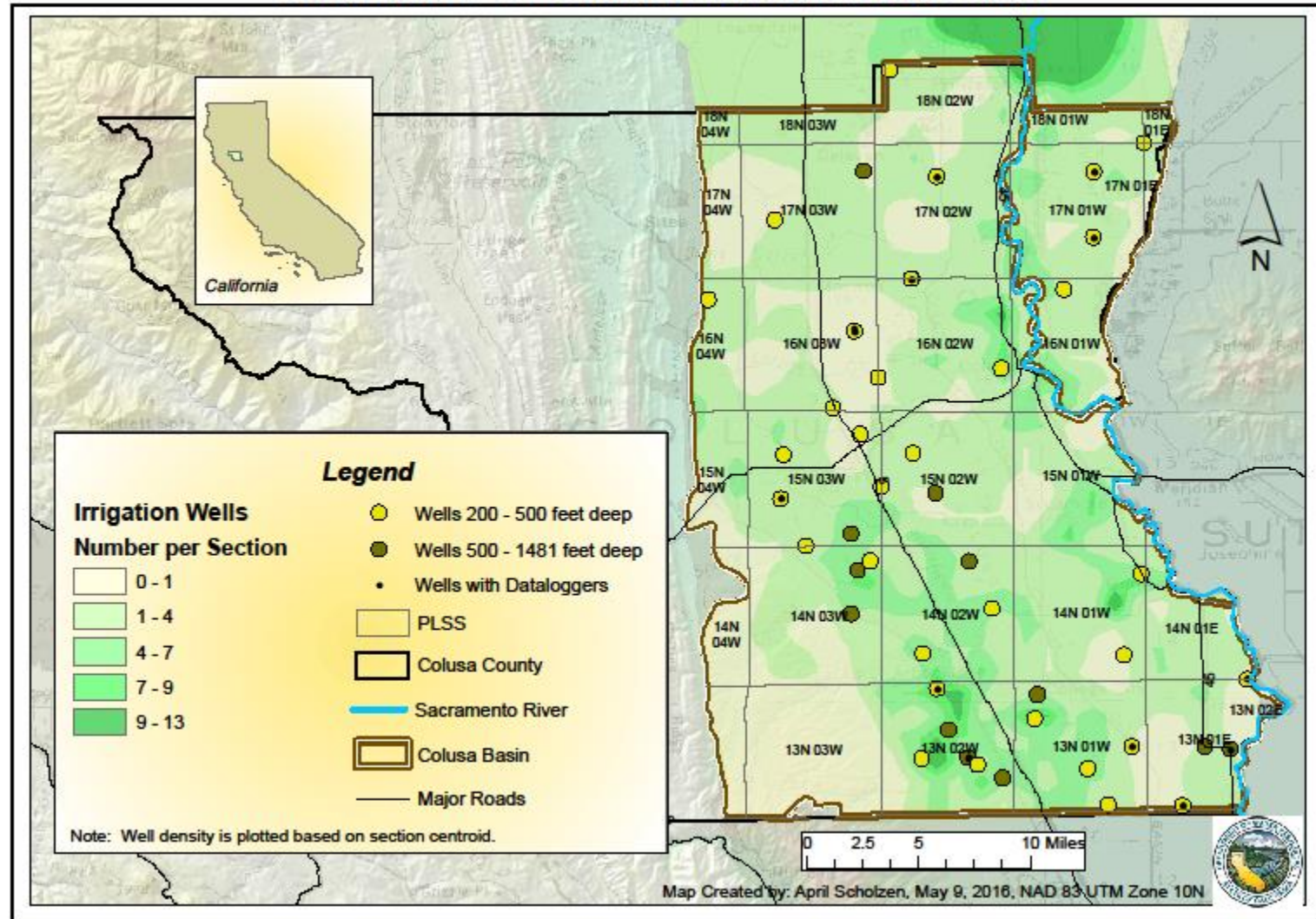
Precipitation Recharge Based on Black Butte Rain Gage Data Corning Sub Basin, Glenn County



Location Map

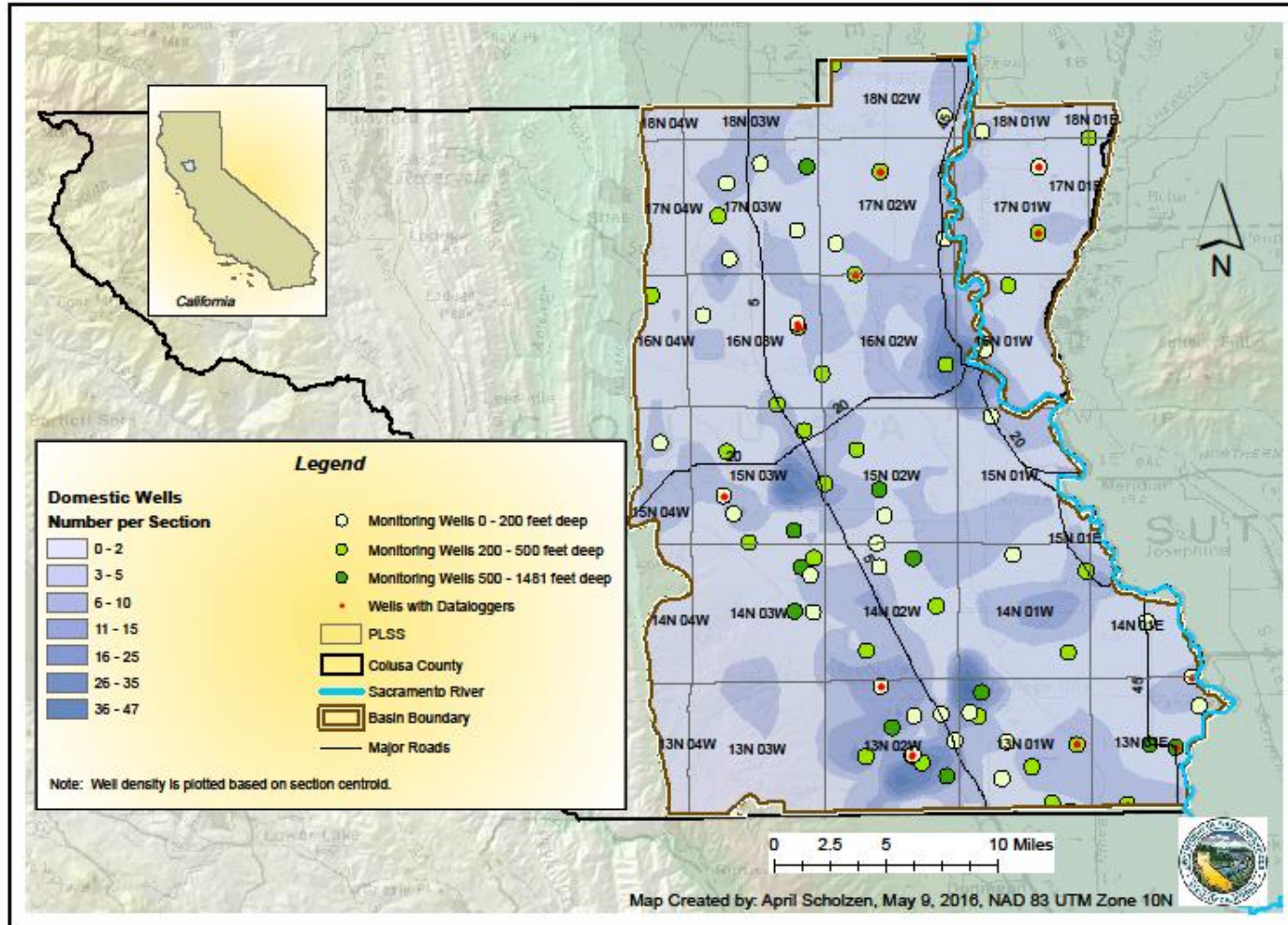
What's New?

COLUSA COUNTY IRRIGATION WELL DENSITY COMPARED TO CURRENT MONITORING GRID



What's New?

COLUSA COUNTY DOMESTIC WELL DENSITY COMPARED TO CURRENT MONITORING GRID



DWR Groundwater Information Center

Maps



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

The screenshot shows the website for the California Department of Water Resources Groundwater Information Center. The header includes the CA.GOV logo, the department name, and navigation links for HOME, NEWSROOM & EVENTS, ISSUES, and ABOUT US. A search bar is located in the top right corner. The main content area is titled "Groundwater Data Reports" and contains several sections: "Groundwater Data and related information can be reported in a variety of formats...", "This page provides access to PDF documents which report groundwater conditions...", "Figures from 'Public Update for Drought Response - April 30, 2014'" (with sub-sections for Figures 1-9, 10-18, and 19-27), "Statewide Reports" (with a sub-section for Groundwater Level Change Maps), "Reports and Data Organized by Regional Office" (with sub-sections for Northern, North Central, South Central, and Southern Regions), and "Download Geospatial Data". A right-hand sidebar lists various resources like "Groundwater Basics", "Groundwater Management", "Groundwater Well Information", "Groundwater Data Reports", and "Highlights". At the bottom right, there are social media icons for Facebook, Twitter, and YouTube.

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Search

DWR California

Groundwater Information Center

Groundwater Data Reports

Groundwater data and related information can be reported in a variety of formats, including maps, figures, and written reports.

This page provides access to PDF documents which report groundwater conditions in a variety of formats. Documents are organized by report type (for example, "Groundwater Level Change Maps") and by region. Statewide reports, or reports that cover large regions of the state are found on this page, whereas local reports are available at Region Office Reports and Data below. Please note that data reports and other information is being added to this page regularly.

Figures from "Public Update for Drought Response - April 30, 2014"

- + Figures 1 through 9
- + Figures 10 through 18
- + Figures 19 through 27

Statewide Reports

- + Groundwater Level Change Maps

Reports and Data Organized by Regional Office

Groundwater data collection, management, and reporting typically occurs at a regional level, and is conducted by staff at one of the four Department Region Offices.

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

Download Geospatial Data

Use the NEW Groundwater Information Center Interactive Map to view and download selected groundwater related GIS data.

Groundwater Information Center

- » Groundwater Basics
- » Groundwater Management
 - » Key Legislation
 - » Groundwater Management Plans
 - » Developing a Groundwater Management Plan
- » Groundwater Well Information
 - » Well Completion Reports
 - » Well Standards
 - » Well Inquiries
 - » Well Permitting Agencies
- » Groundwater Data Reports
 - » Groundwater Data and Monitoring
 - » CASGEM
 - » Water Data Library
- » Highlights
 - » Interactive Map Application (New)
 - » Drought Response – Groundwater, April 2014
 - » Groundwater Management Plans
 - » Drought Info
 - » B118 - "California's Groundwater"
- » Contacts

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Water Data Library

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- » Water Data Library Home
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- » Water Quality Data
- » Continuous Data
 - Surface water, groundwater and water quality
- » Historical Publications
- » Contact Information

DWR CLIENTS ONLY

- » Admin Login
- » Climate Data (Beta 1.1)
- » Climate Data (Access Prototype)
- » Water Agency Boundaries

Water Data Library

Use the map below to locate monitoring stations. You can find an area of interest if you zoom and pan the map. Quickly find an area searching for named features on a map such as the name of a city, park, landmark, lake, water feature, or zip code within California. Once at the area of interest, select the desired Site Type and click the "Refresh Map" button to show monitoring stations in the area. Additional searches by data type are possible by clicking the links on the left. For help on these and other ways to find your data [click here](#).

WDL STATION MAP

Location Search
To find monitoring stations for a specific area, enter the placename or zip code into the text box below

Site Type
Select the desired site type using the checkboxes

- Groundwater Level
- Water Quality
- Include Historic Data
- Continuous Data

= Multiple Stations at one Location
 = Cluster, showing number of stations

Cursor Coordinates (WGS84)
Lat: 38.5068, Long: -124.6476

0 15 30mi

Questions?

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