

DWR Update: Groundwater Conditions Colusa County and Beyond

May 12, 2015



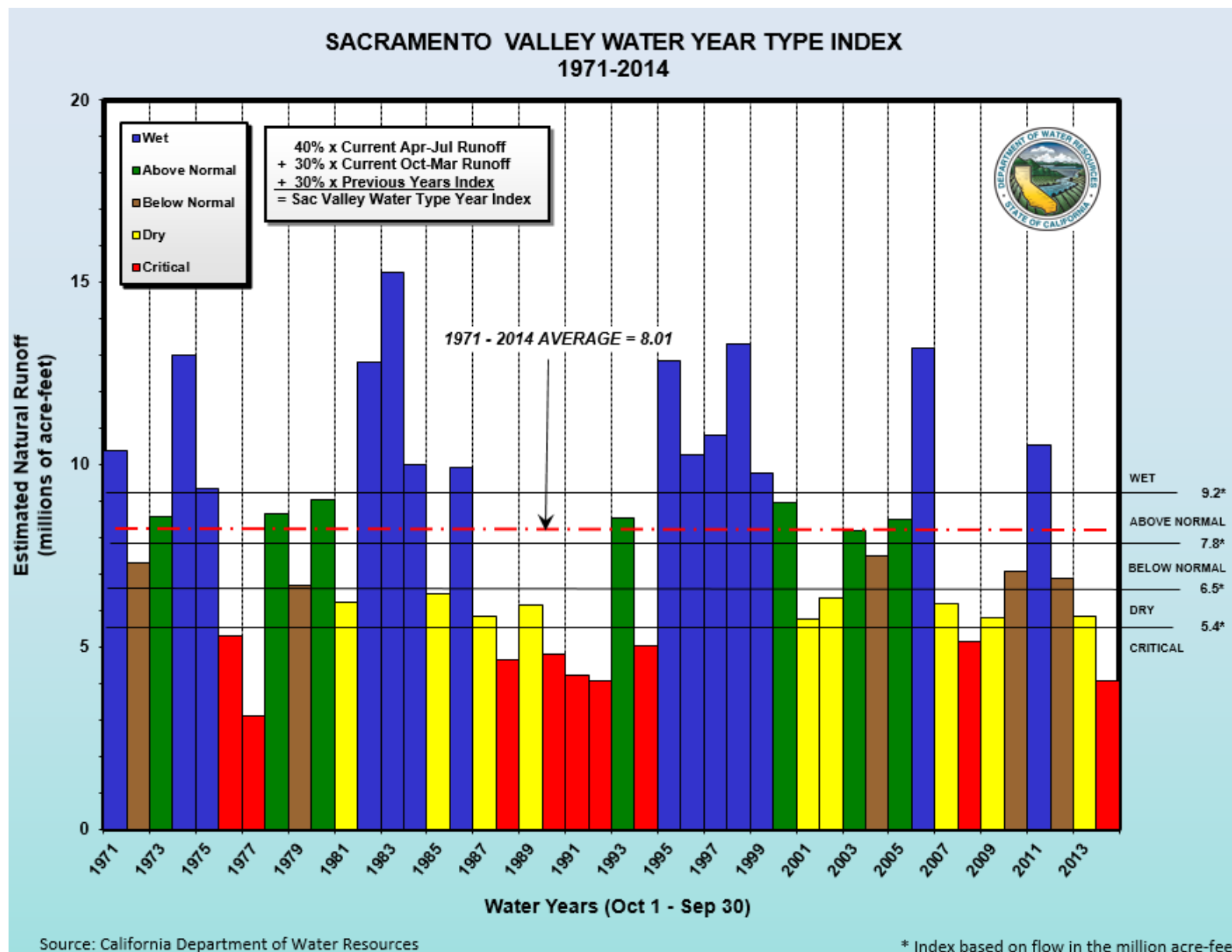
Roy Hull, Engineering Geologist
CA Department of Water Resources
Red Bluff



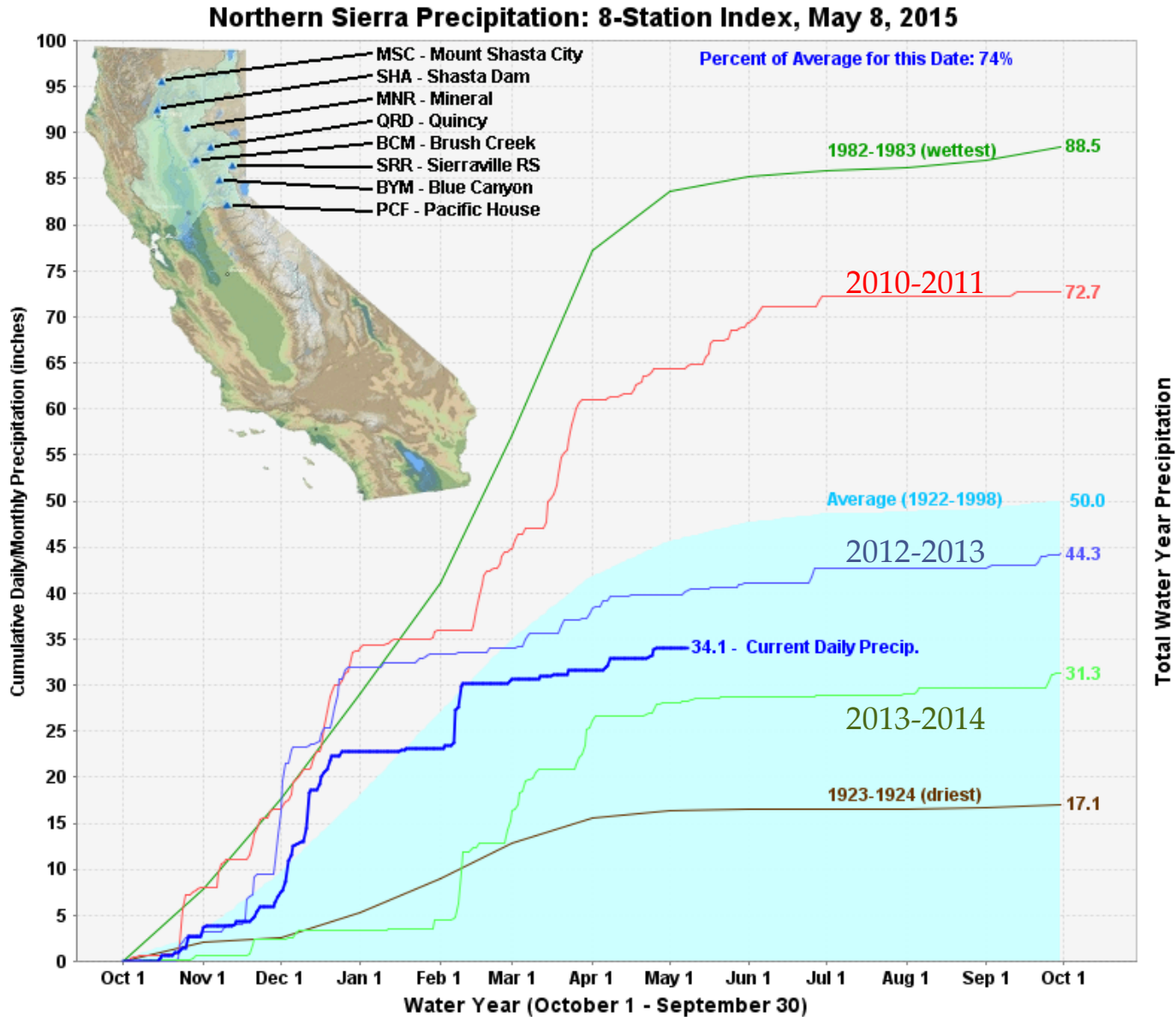
Agenda

- Water Year
- Spring 2015 GW change maps
 - Colusa County with select hydrographs
 - North Sacramento Valley
 - Statewide information
- DWR GW Information Center

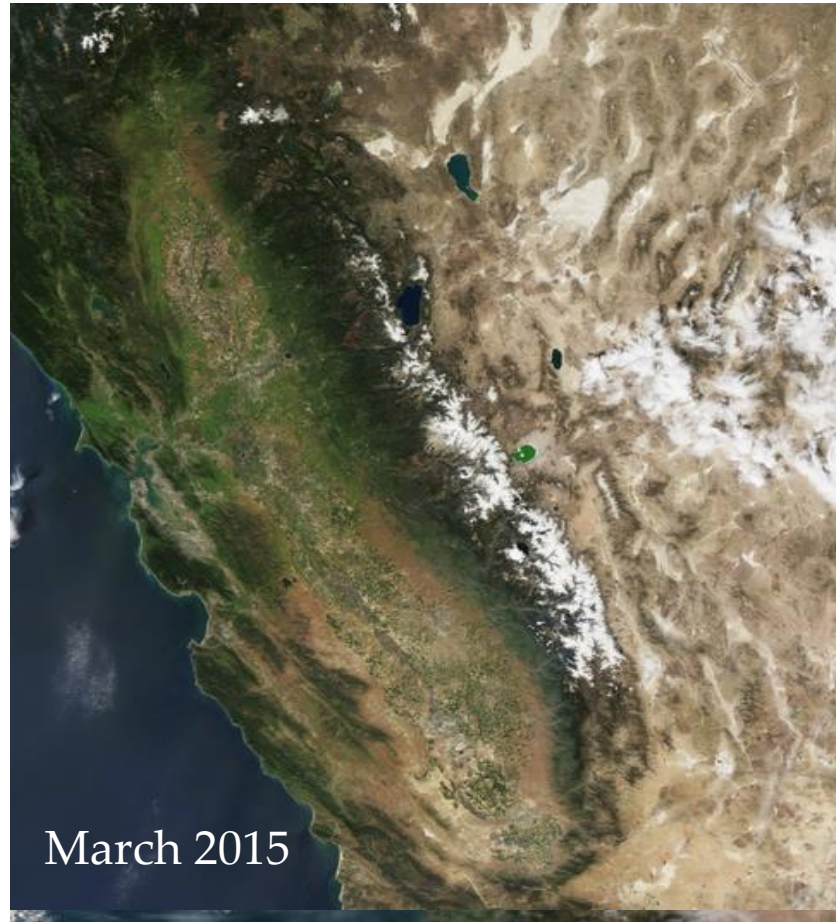
Water Year Index 1971-2014



Sacramento Valley Precipitation

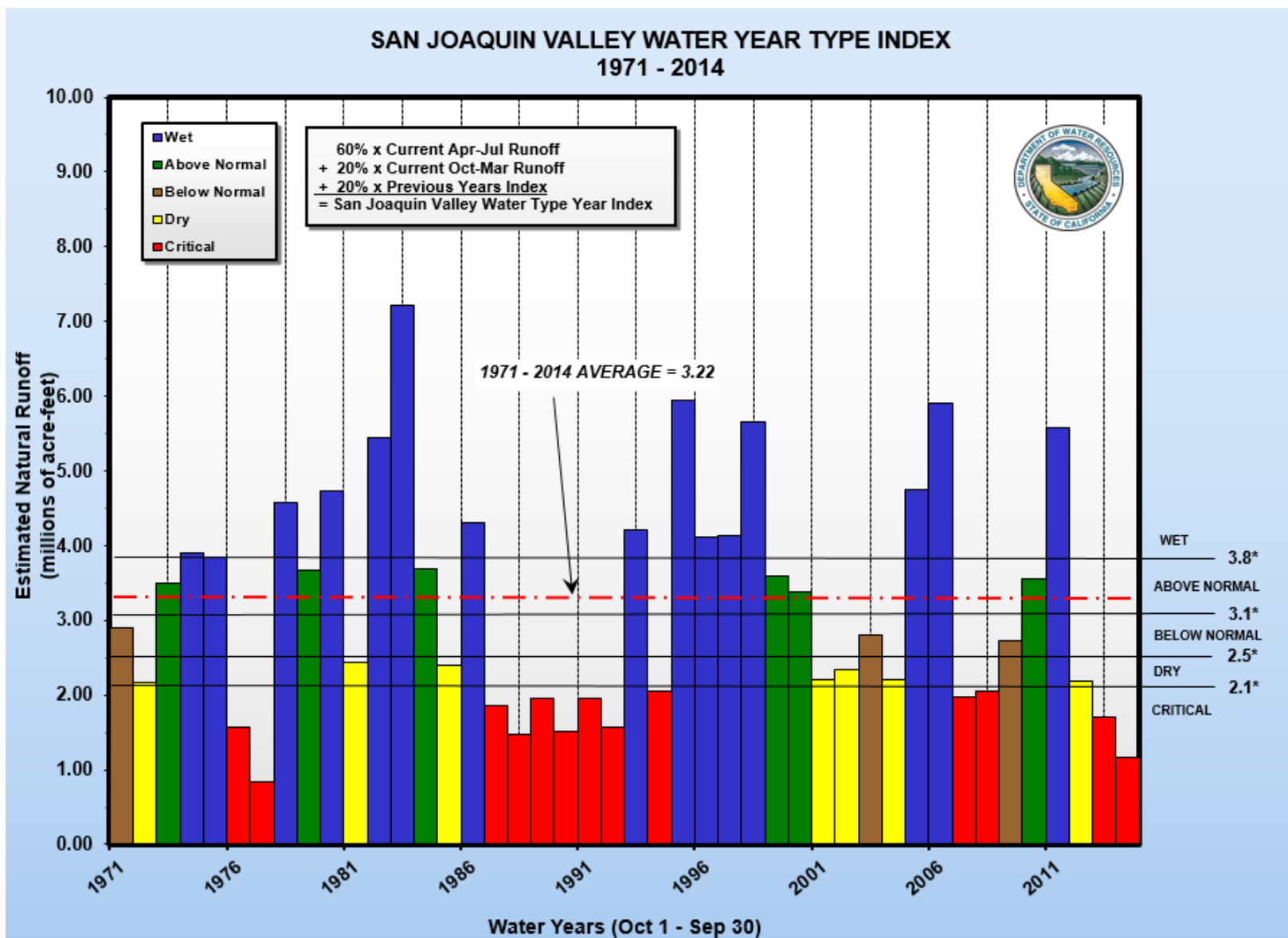


Snow Pack



Key for April – July runoff numbers

Water Year Index 1971-2014



Groundwater Change in Elevation Maps

Hydrographs

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Spring 2015

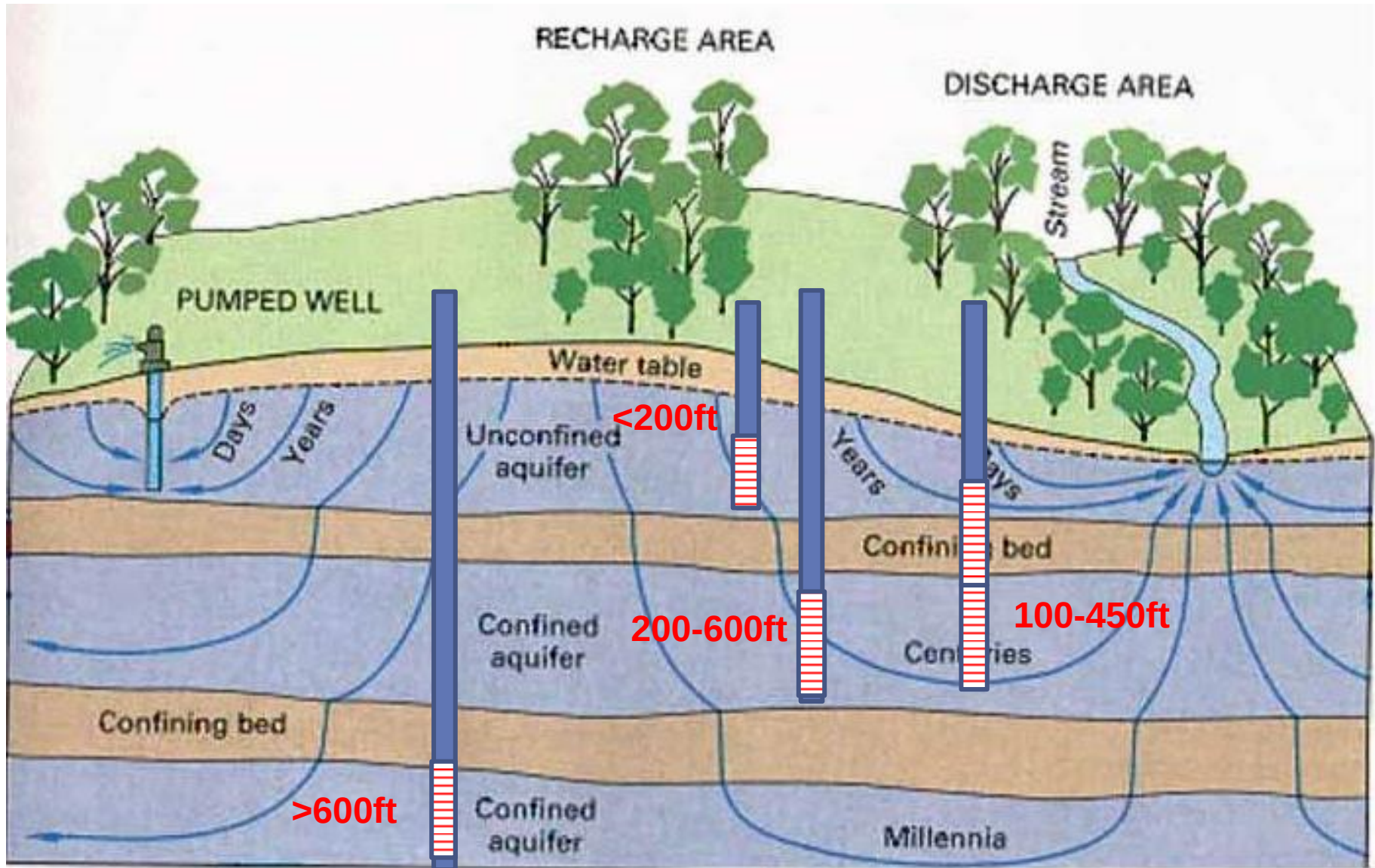
Groundwater Monitoring and Groundwater Elevation Change Maps

- Who monitors groundwater levels in Colusa County?
 - CA Department of Water Resources
 - Glenn Colusa Irrigation District
 - Reclamation District 108
 - US Bureau of Reclamation

Understanding GWL Change

- Precipitation Amount and Timing
 - Previous season - Too little, late in season, and lack of snow
 - Current season – Too little, early in season, and even less snow
- Land Use
 - Truck crops to orchards, new orchards
- Source
 - GW, SW or Mix
- Irrigation Methods and Timing
 - Flood or (micro) drip
- Timing of measurements - results could be lower or higher...

Groundwater level data are then grouped for analysis by well depth



Decoding Change Maps



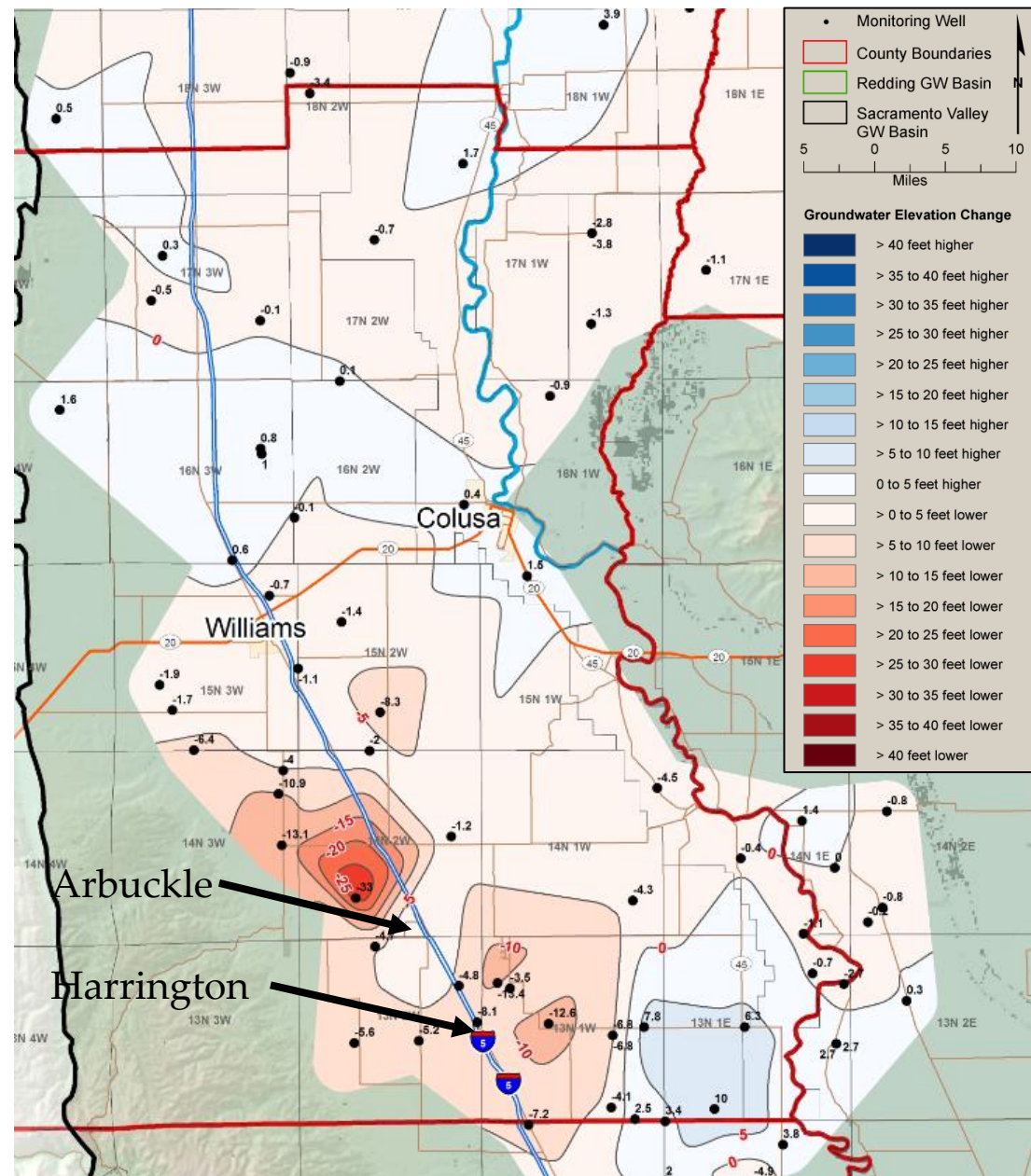
Groundwater Elevation Change Map Colusa County

Spring 2014 to 2015

Average:
100 to 450 feet
below ground surface

Colusa County - Sacramento Valley GW Basin

Maximum Increase GWL(ft)	10.0
Maximum Decrease GWE (ft)	-33.0
Average Change GWE (ft)	-3.0
Average Well Depth (ft)	290
Number of Wells Monitored	51



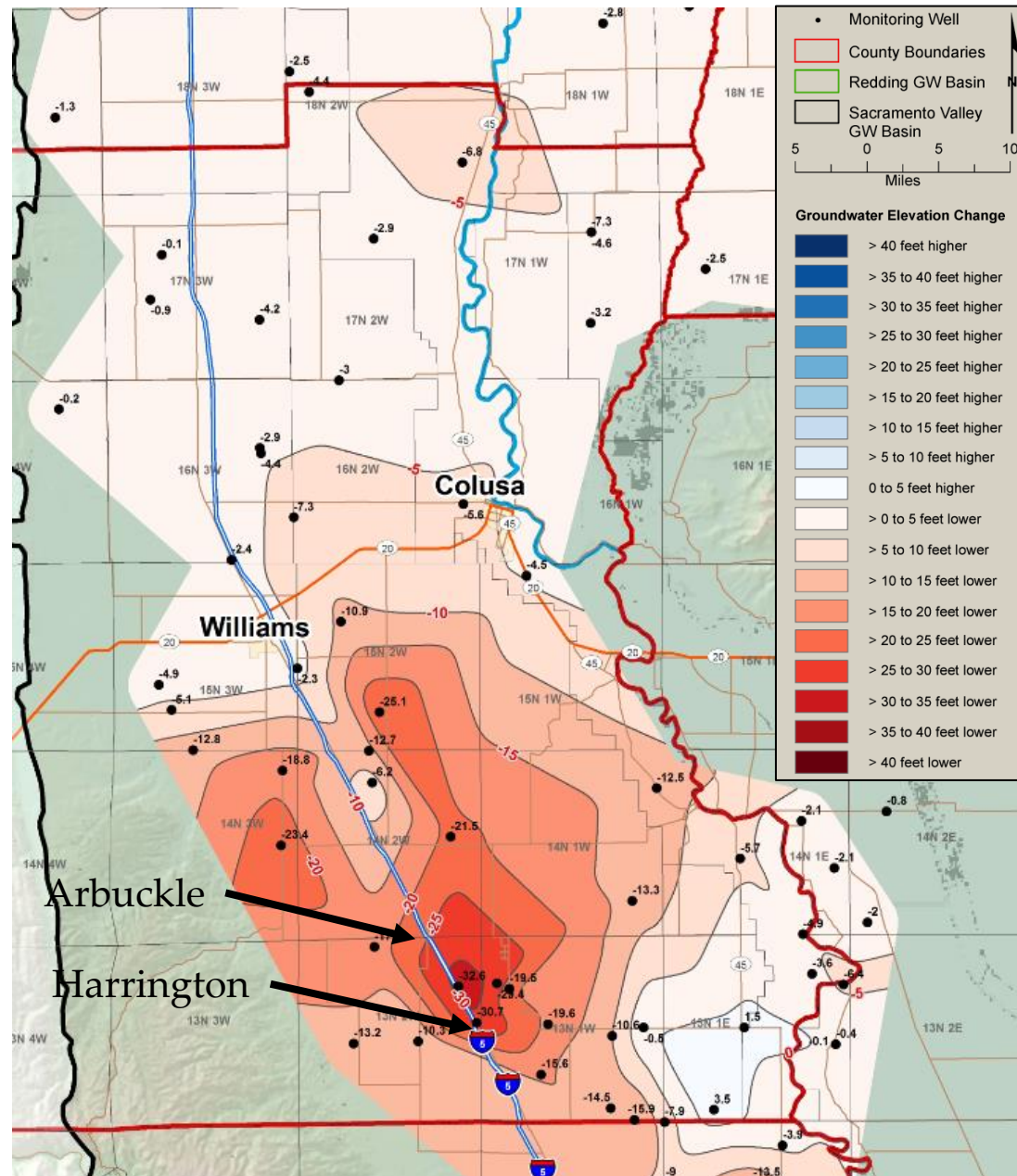
Groundwater Elevation Change Map Colusa County

Spring 2011 to 2015

Average:
100 to 450 feet
below ground surface

Colusa County - Sacramento Valley GW Basin

Maximum Increase GWL(ft)	3.5
Maximum Decrease GWE (ft)	-32.6
Average Change GWE (ft)	-9.8
Average Well Depth (ft)	288
Number of Wells Monitored	48



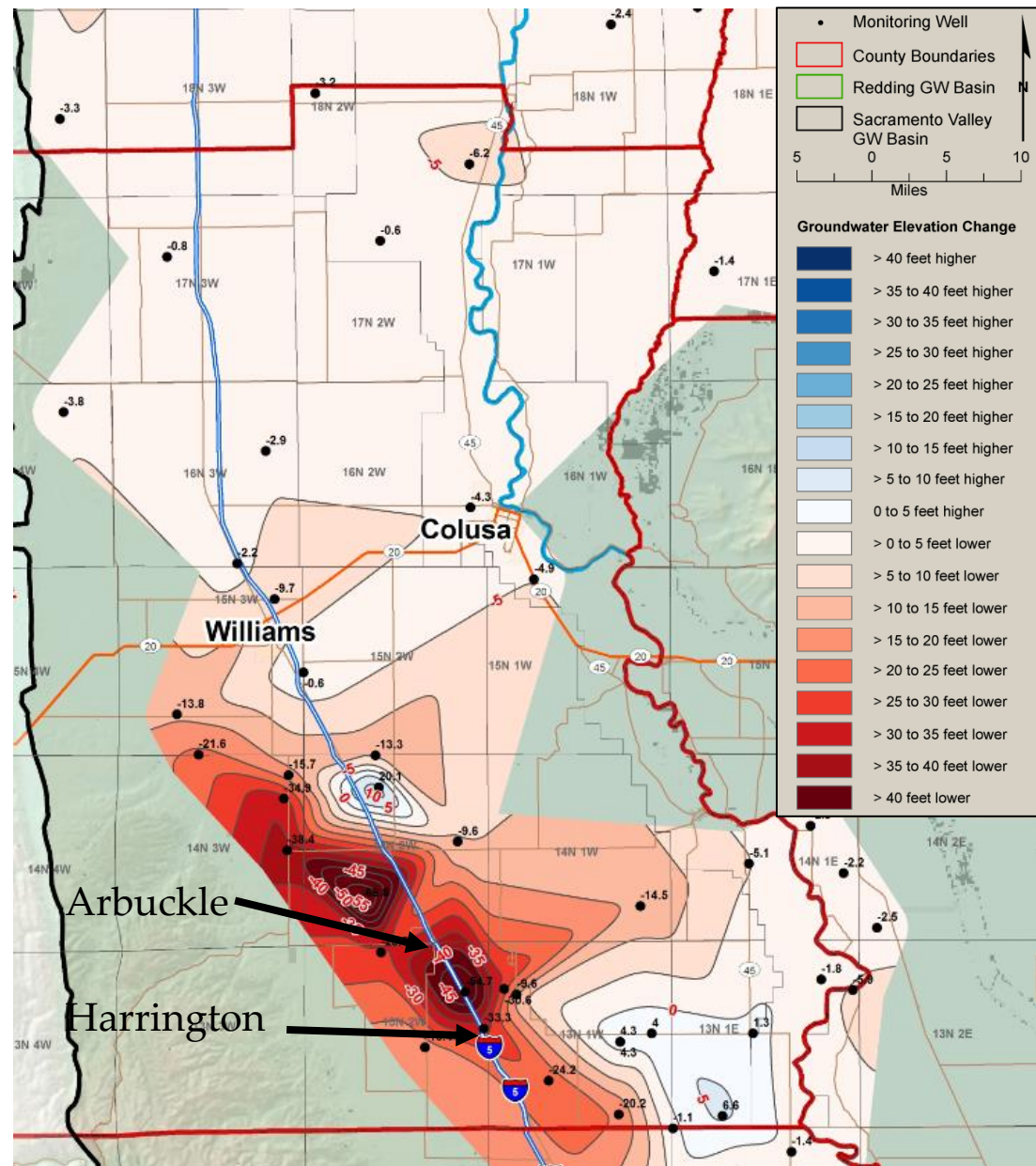
Groundwater Elevation Change Map Colusa County

Spring 2004 to 2015

Average:
100 to 450 feet
below ground surface

Colusa County - Sacramento Valley GW Basin

Maximum Increase GWL(ft)	20.1
Maximum Decrease GWE (ft)	-68.8
Average Change GWE (ft)	-12.6
Average Well Depth (ft)	276
Number of Wells Monitored	36

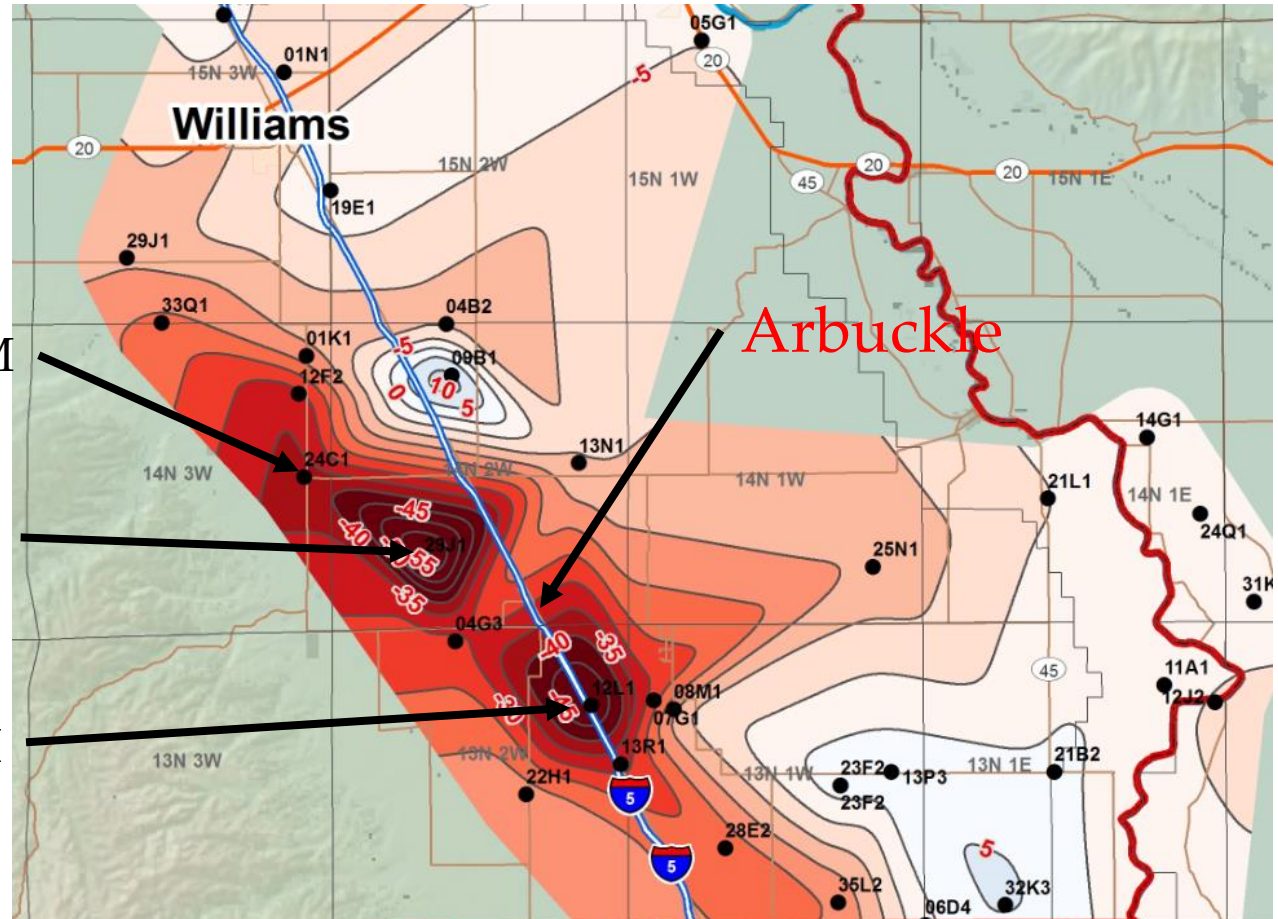


Hydrographs

#3 – 14N03W24C001M

#2 – 14N02W29J001M

#1 - 13N02W12L001M

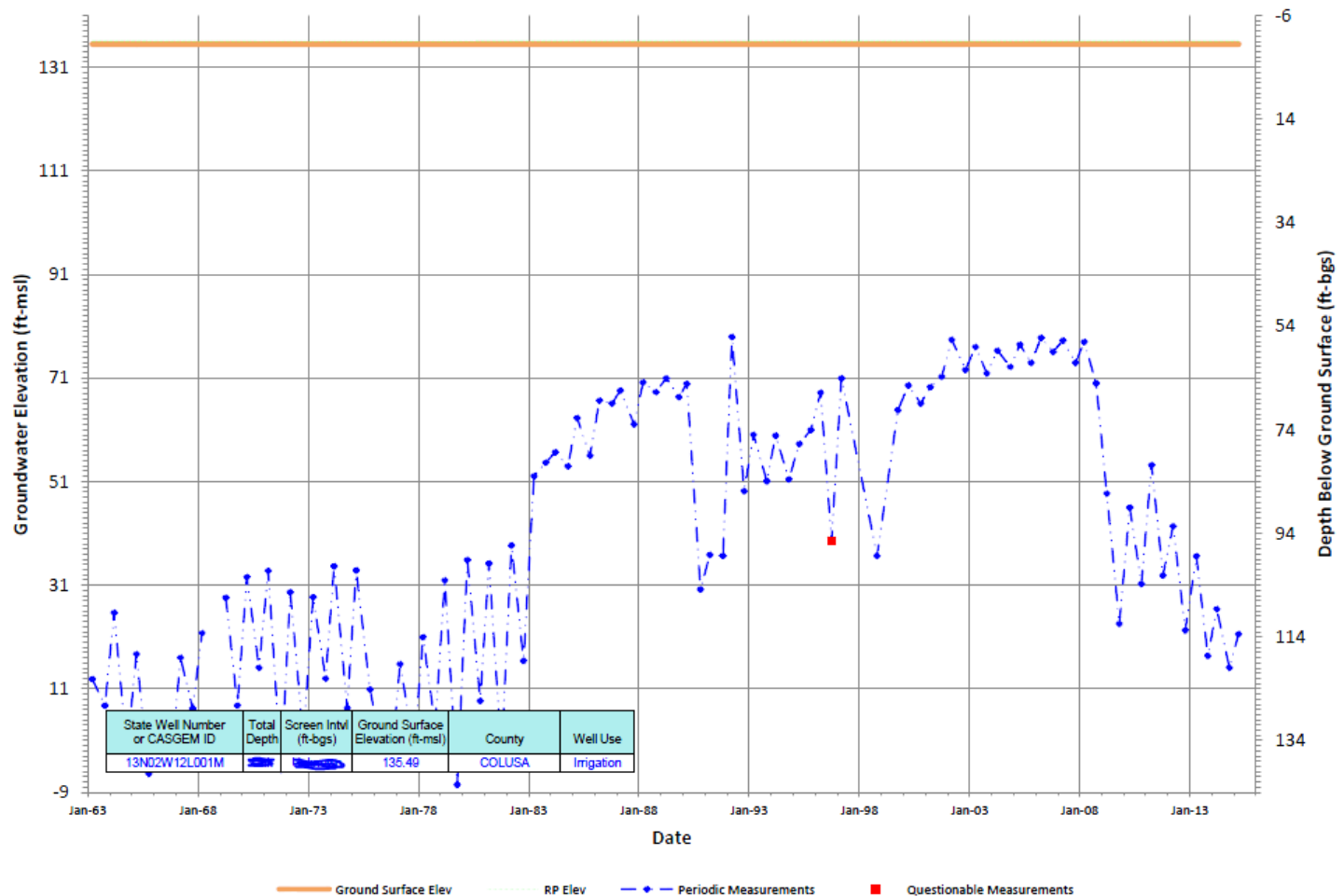


13N02W12L001M

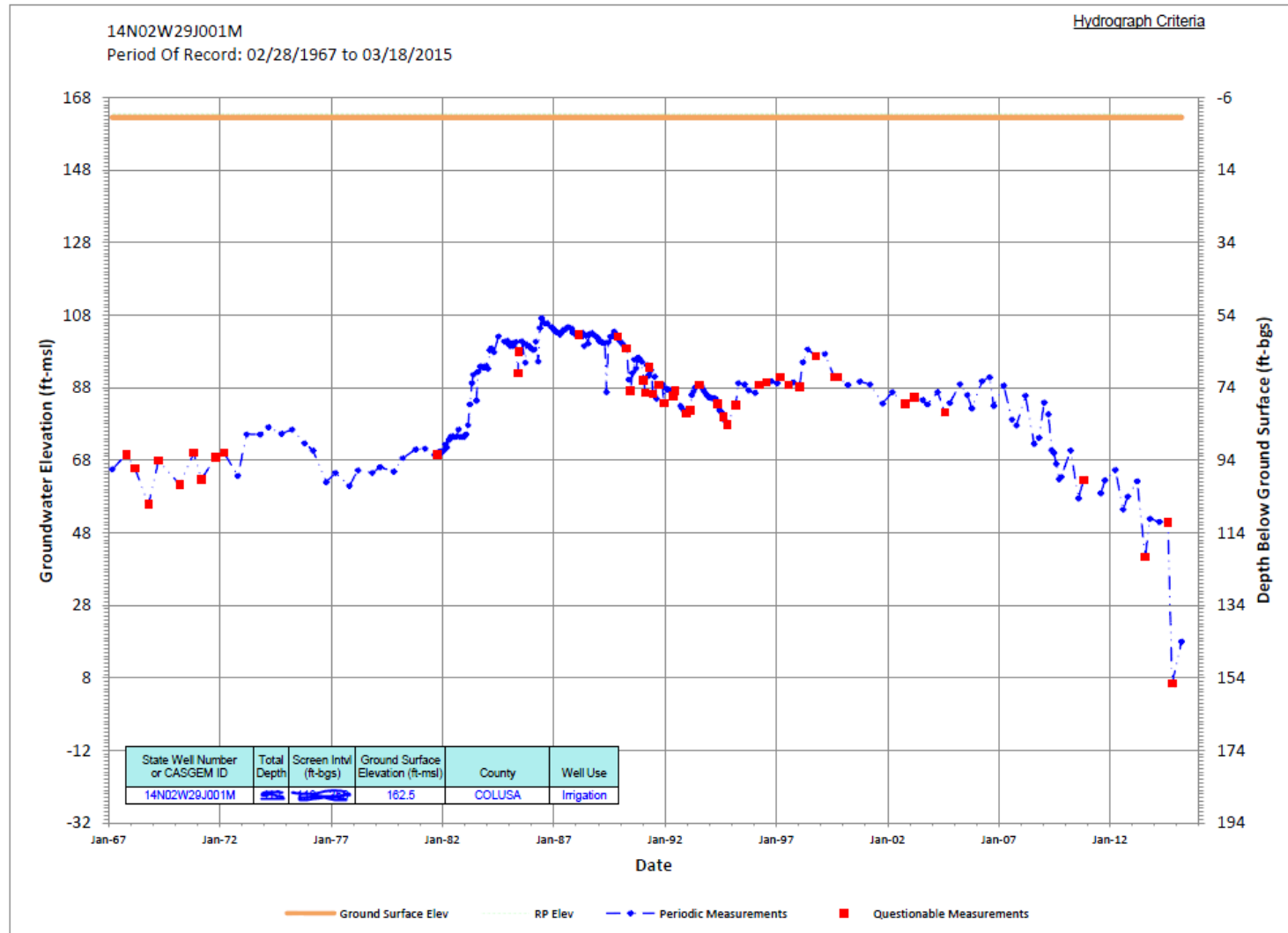
13N02W12L001M

Period Of Record: 03/13/1963 to 03/17/2015

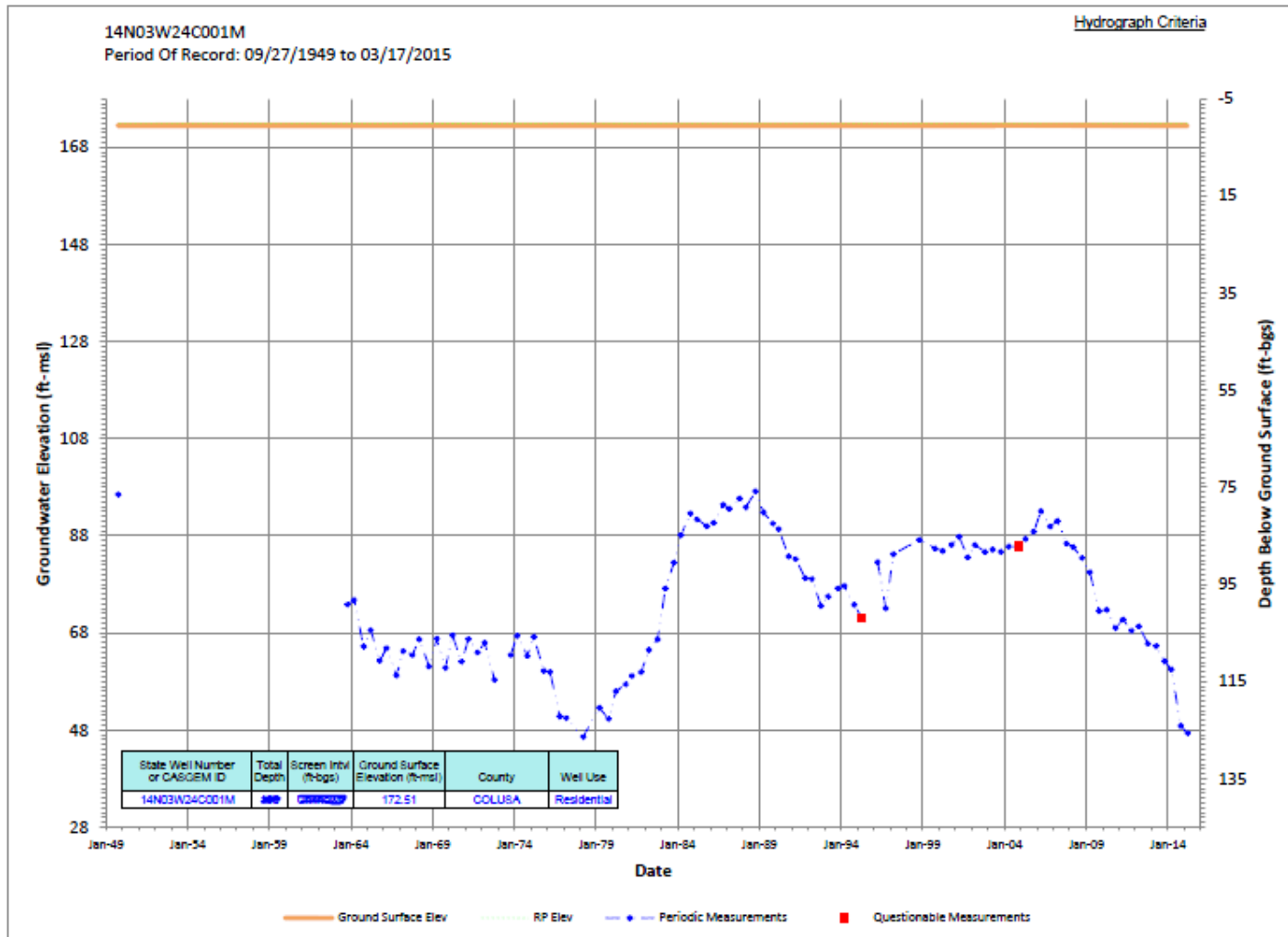
Hydrograph Criteria



14N02W29J001M



14N03W24C001M



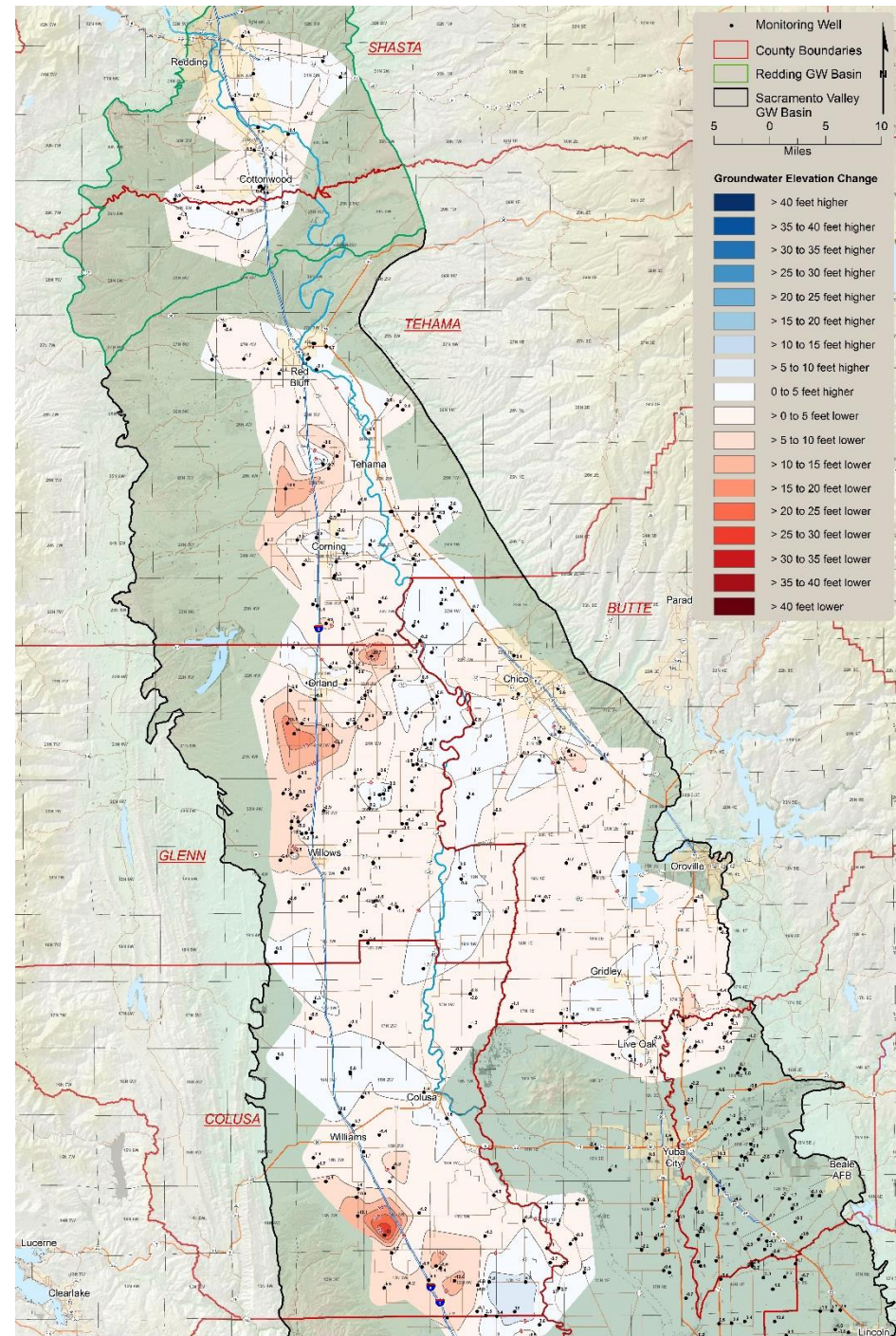
Groundwater Elevation Change Map Sacramento River Valley

Spring 2014 to 2015

Average:
100 to 450 feet
below ground surface

Summary Results for Spring 2014 to Spring 2015 Change in Groundwater Elevation

Maximum Increase GWE (ft)	10.0
Maximum Decrease GWE (ft)	-33.0
Average Change GWE (ft)	-1.9
Average Well Depth (ft)	268
Number of Wells Monitored	282



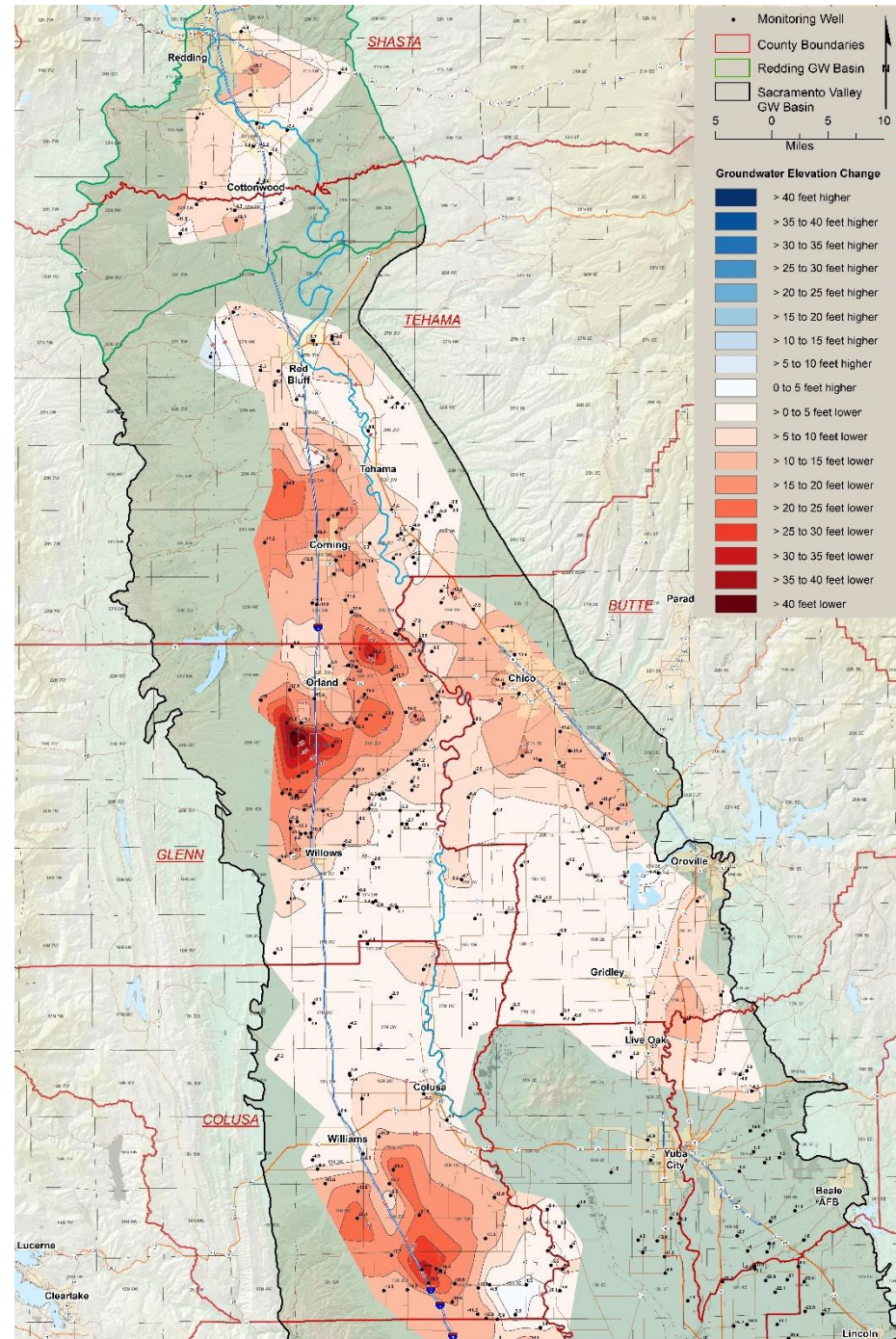
Groundwater Elevation Change Map Sacramento River Valley

Spring 2011 to 2015

Average:
100 to 450 feet
below ground surface

Summary Results for Spring 2011 to Spring 2015 Change in Groundwater Elevation

Maximum Increase GWE (ft)	8.1
Maximum Decrease GWE (ft)	-47.5
Average Change GWE (ft)	-9.3
Average Well Depth (ft)	264
Number of Wells Monitored	260



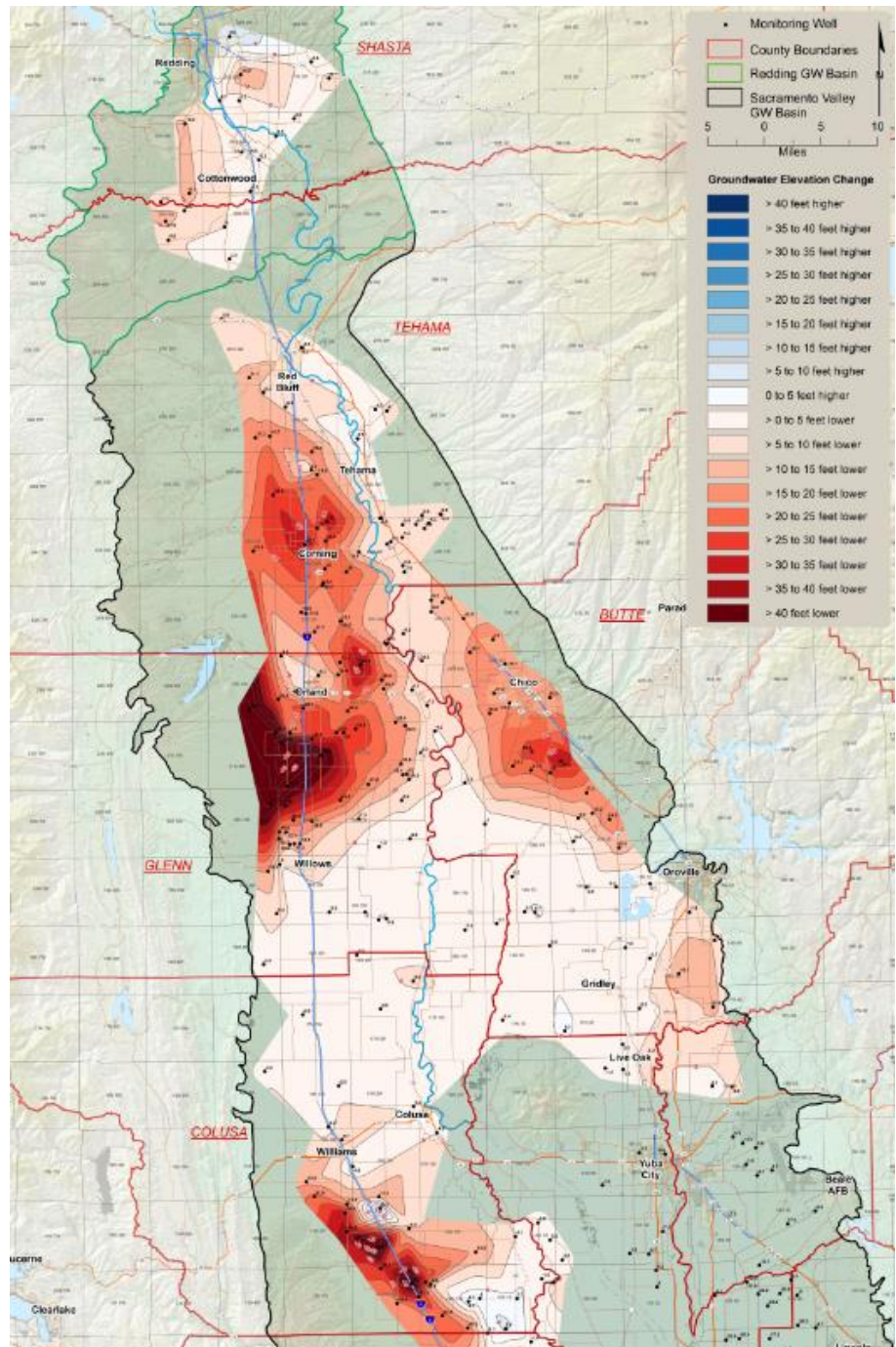
Groundwater Elevation Change Map Sacramento River Valley

Spring 2004 to 2015

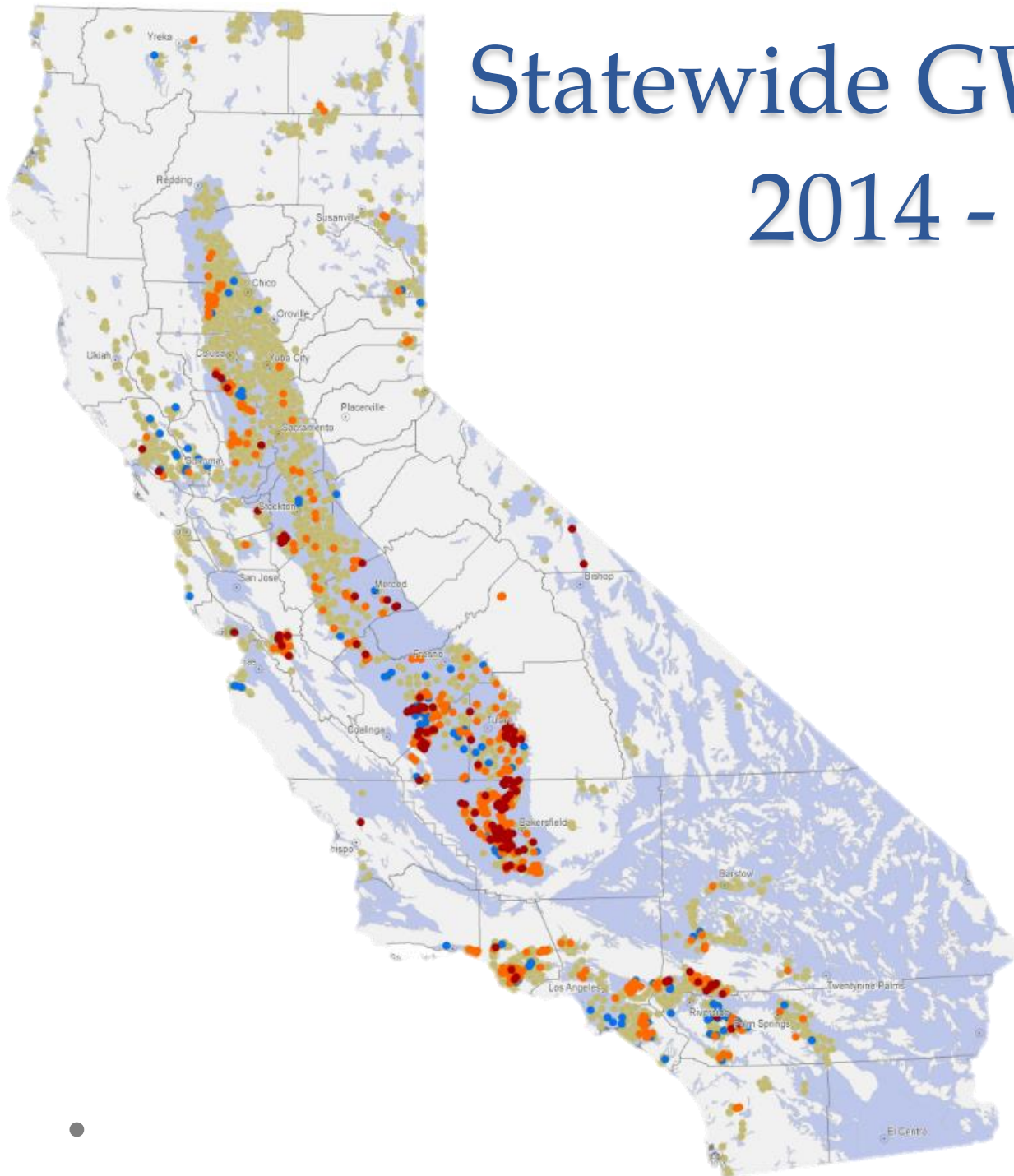
Average:
100 to 450 feet
below ground surface

Summary Results for Spring 2004 to Spring 2015 Change in Groundwater Elevation

Maximum Increase GWE (ft)	20.1
Maximum Decrease GWE (ft)	-73.6
Average Change GWE (ft)	-13.2
Average Well Depth (ft)	254
Number of Wells Monitored	201



Statewide GWL Change 2014 - 2015



Legend:

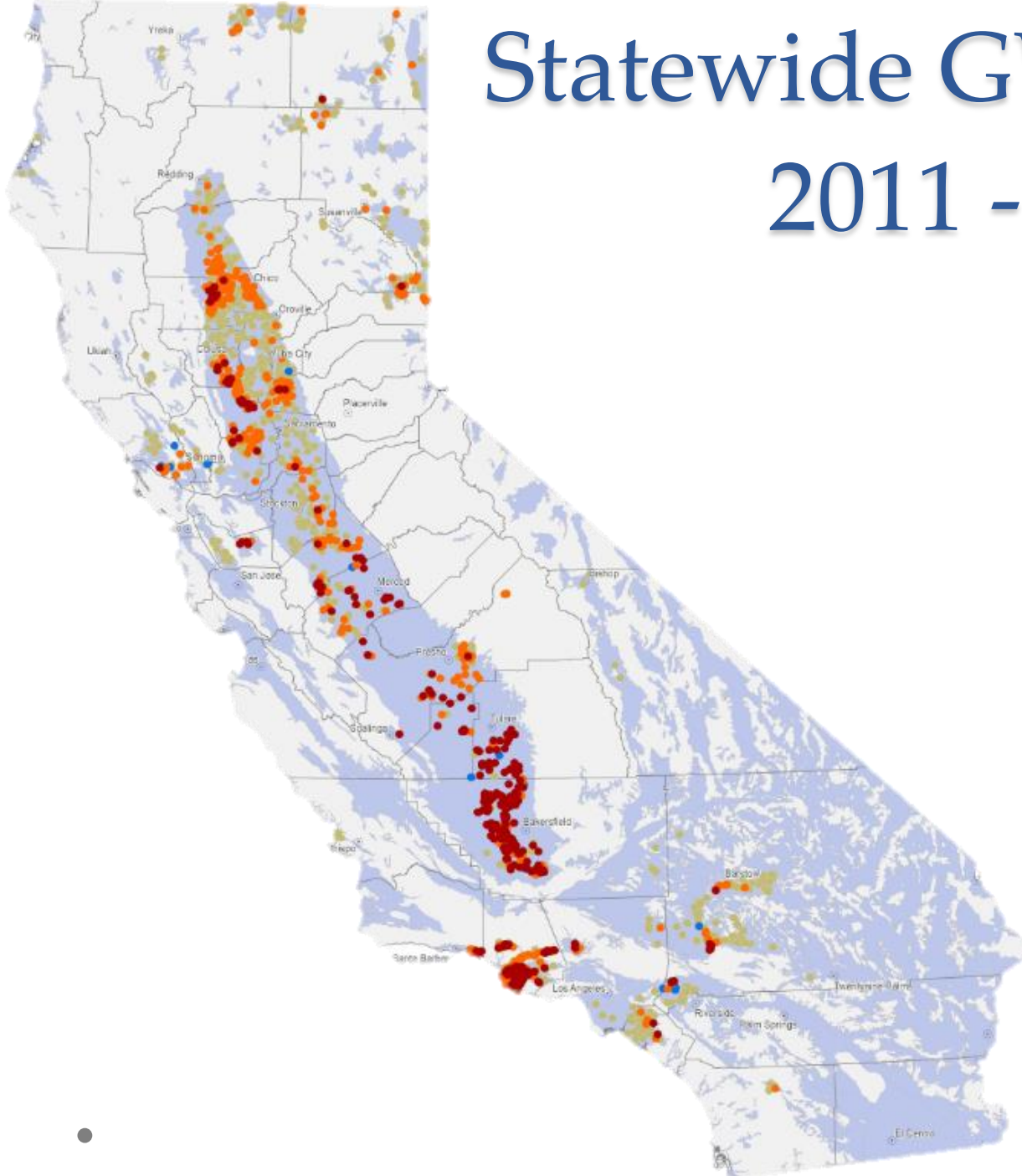
Groundwater Level Change

- > 10 ft increase
- +/- 10 ft change
- > 10 to 25 ft decrease
- > 25 ft decrease

- Groundwater Basin
- County Boundary

*Data is subject to change without notice

Statewide GWL Change 2011 - 2015



Legend:

Groundwater Level Change

- > 10 ft increase
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- Groundwater Basin
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DWR Groundwater Information Center

Maps



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

Groundwater Information Center

Maps and 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.

Statewide and Regional Maps

+ Groundwater Level Change Maps (click here to view)

Statewide and Regional Reports



Public Update for Drought Response - November 30, 2014
Groundwater Basins with Potential Water Shortages, Gaps in Groundwater Monitoring, Monitoring of Land Subsidence, and Agricultural Land Following

+ Selected Report Figures (click here to view)



Summary of Recent, Historical, and Estimated Potential for Future Land Subsidence in California - 2014



Geology of the Northern Sacramento Valley, California, June 2014



Public Update for Drought Response - April 30, 2014
Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring

+ Report Figures 1-27 (click here to view)

GROUNDWATER HOME

GROUNDWATER INFORMATION CENTER

- Groundwater Basics
- Maps and Reports
- Groundwater Management
 - Groundwater Well Information
 - DWR Well Inquiry Contacts
 - Local Permitting Agencies
- Monitoring and Data Collection
 - CASGEM
 - Water Data Library
- GIC Interactive Map Application
- Groundwater Contacts
- SUSTAINABLE GROUNDWATER MANAGEMENT
 - CASGEM
 - BULLETIN 113

Highlights

- Water Mgmt. Planning Tool
- Initial Basin Prioritization for SGM
- Public Update for Drought Response, November 2014
- Geology of the Northern Sacramento Valley



Thank-you! Questions?



Photo Credit: Sue Graue

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