2017 Sacramento Valley GPS Survey Project Fact Sheet

Background

- In 2008, DWR contracted a private consultant to establish a network of over 300 survey monuments, spaced about four miles apart, in the Sacramento Valley and partnered with 25 local, state, and federal agencies to take initial baseline GPS survey measurements at each location.
- The monument network spans 11 counties from Shasta County in the north, to Solano and Sacramento counties in the south.

Reasons for DWR Participation

- The understanding and monitoring of subsidence is an important part of sustainable groundwater management which is why the SGMP supported this survey effort as part of its technical assistance role.
- GSAs can utilize the survey results to support their GSP development.

What's New: The 2017 Resurvey

- In 2017, DWR resurveyed over 300 of the same monuments that were surveyed in 2008 to determine the change in land surface elevation over the nine-year period.
- The 2017 resurvey was led and funded by DWR in coordination with 18 local, state, and federal agencies and a private company.
- For the purposes of the 2017 resurvey, land surface elevation decreases greater than, or equal to, 0.17 feet (about 2 inches) are considered statistically significant.

Key Findings of the 2017 Resurvey

- Colusa County: The Arbuckle area experienced the most subsidence with a maximum change of -2.14 ft.
- Yolo County: The largest spatial extent of subsidence ranged from -0.3 to -1.1 feet at 31 monuments.
- Glenn County: Three monuments showed subsidence ranging from -0.44 to -0.59 feet.
- Sutter County: Five monuments displayed -0.20 to -0.36 feet of subsidence.
- The remainder of the Sacramento Valley showed little to no statistically significant land subsidence.

Groundwater Conditions Related to Subsidence

- During the 2017 resurvey, groundwater levels had recovered an average of seven feet from the severe drought of 2012-2016.
- During the drought, groundwater levels reached historic lows in many wells in the Sacramento Valley. Compared with 2011 pre-drought groundwater levels, maximum decreases were observed in Glenn and Colusa counties at 58 to 43 feet, respectively.

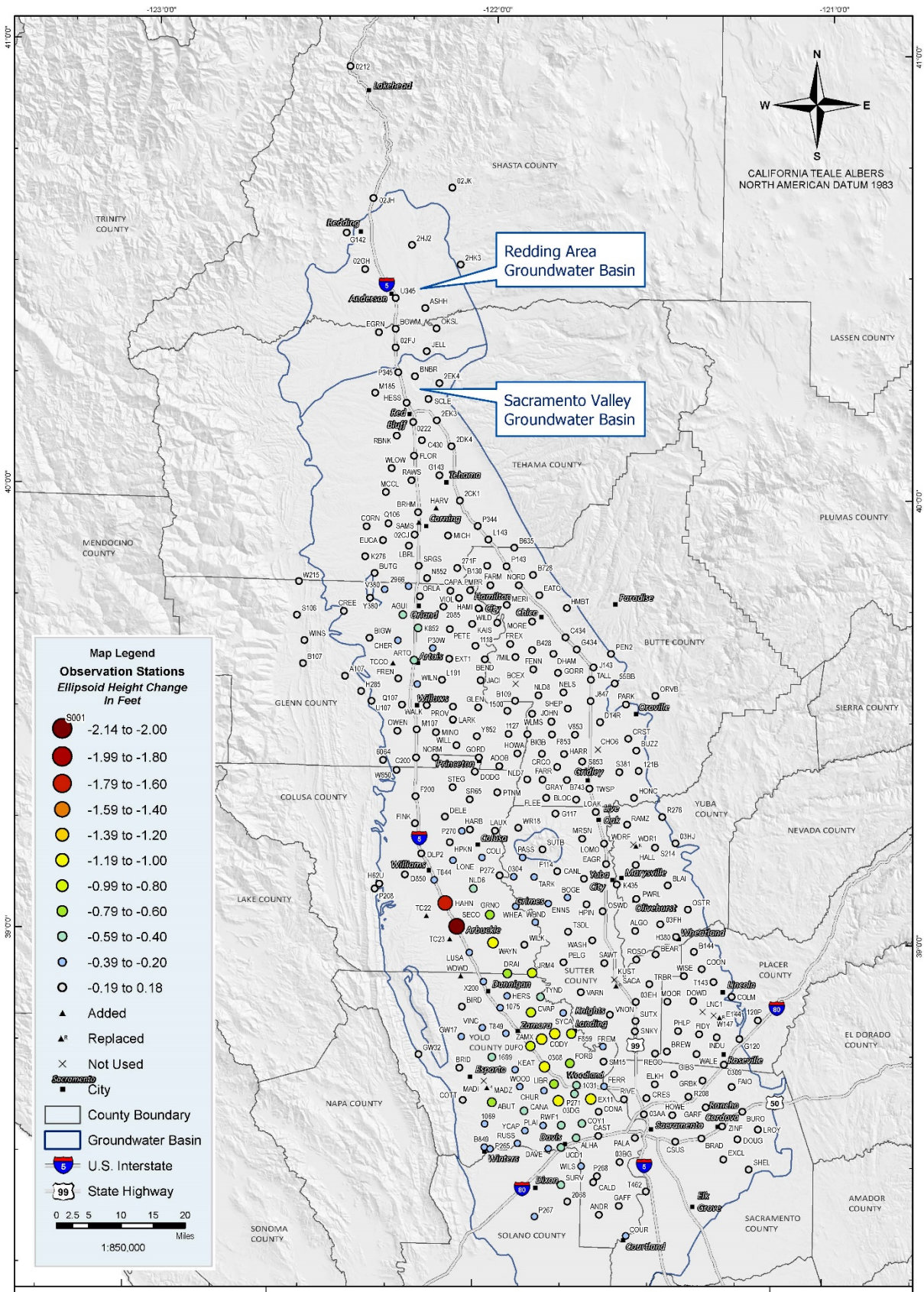
Recommendations for Continued Subsidence Monitoring

- DWR and Partners: Conduct GPS network resurveys at a more frequent interval such as every three to five years to better capture when changes occur.
- DWR: Integrate continuous GPS sites, groundwater levels, and InSAR data into the subsidence monitoring program.

DWR SGMP Assistance to Address Subsidence

The SGMP is providing technical, planning, and financial assistance that will help local agencies further investigate and address subsidence in the Sacramento Valley.

- Technical Support Services, which provide GSA's an opportunity to request DWR install monitoring sites.
- Facilitation Support Services, which help local agencies work through challenging water management situations.
- Proposition 1 – Sustainable Groundwater Planning Grants, which provides funding for developing Groundwater Sustainability Plans.



State of California
California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES
Division of
Integrated Regional Water Management
Northern Region Office

SACRAMENTO VALLEY SUBSIDENCE NETWORK

Ellipsoid Height Change In Feet
2008-2017