



Oregon

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MEMORANDUM

TO: Water Resources Commission

FROM: Ivan Gall, Groundwater Section Manager

SUBJECT: Agenda Item D, May 29, 2014
Water Resources Commission Meeting

Cooperative Groundwater Studies with the United States Geological Survey (USGS)

I. Background

The US Geological Survey (USGS) and the Oregon Water Resources Department (Department) have worked together for decades to characterize water resources in Oregon. Much of what we know about our water resources was derived by combining our technical expertise and data collection efforts, and jointly analyzing water resources data throughout the state. Since the late 1990s, major groundwater studies have been completed in the Willamette, Deschutes, and Klamath River basins (see attachment for report covers and abstracts). These peer-reviewed and published reports can be viewed on the web at http://or.water.usgs.gov/pubs_dir/online_list.html and are available free of charge from the USGS.

II. Discussion

Over the years, groundwater scientists at the Department and the USGS have studied basin-wide hydrogeology, and published the results and findings in peer-reviewed reports. Each basin study takes four to six years and costs several million dollars. The USGS, through its Water Resources Cooperative Program, matches state funds with federal funds, leveraging the necessary resources to complete each groundwater study. During the 2013-2015 biennium, the Department had \$375,000 general fund dollars to use in groundwater studies. During the 1990s, there were some biennia that had more than \$1,200,000 General Fund dollars allocated to groundwater studies.

Basins are selected for study when water management questions become very complex, or significant new groundwater use occurs. Water management professionals and groundwater users need detailed hydrogeology studies to evaluate water management and groundwater development options. Project hydrogeologists and hydrologists collect and analyze large amounts of complex data for each study. Hydrogeologists locate hundreds to thousands of wells, measure groundwater levels at hundreds of wells for several years, evaluate surface water and groundwater interaction, measure and estimate groundwater use, map subsurface geology, measure and estimate aquifer properties, and collect and analyze climatological data to estimate groundwater recharge rates.

Department hydrogeologists have worked with the USGS Portland office since the early 1990's, contributing data, analyses, and project direction on a daily basis, while helping to ensure that

study results provide necessary detail to assist with water management decisions. This is a unique arrangement, where state and federal groundwater scientists work with one another on a daily basis.

Each basin study report characterizes the hydrology and geology of a basin, and improves our understanding for making appropriate groundwater management decisions. Predictive groundwater simulation tools are built based on the hydrology and geology framework studies, helping us evaluate long-term trends and the possible impacts from changing climate. The predictive tools assist the Department with water management and allocation questions, but are not used to regulate individual water wells.

Conclusion

Groundwater studies improve the Department's understanding of the hydrology and geology of a basin, providing information that helps in managing water. As funding allows, the Department will continue to undertake these studies in key management areas around the state.

References:

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