



March 4, 2021
House Committee on Water
Representative Ken Helm, Chair

Informational Testimony on House Bill 2018
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Thank you for the opportunity to provide information related to House Bill 2018. The Department is not taking a position on the bill, and this testimony is provided for informational purposes.

In brief, HB 2018 instructs the Water Resources Department to enter into an agreement with the United States Geological Survey to produce and publish groundwater budgets for all major hydrologic basins in this state, contract to produce a report on statewide consumptive water use, establish a ground water level monitoring network, and measure progress in estimating and monitoring ground water levels and groundwater use. The Department has provided some feedback to the Representative Owens on the bill and potential changes that might ensure it meets the intended outcomes.

Groundwater Challenges

In some locations throughout the state, groundwater sources are no longer capable of sustaining additional development. More information is needed about how much surface water and groundwater we have, if additional allocations can be made, and how groundwater and surface water interact in each basin in order to help the Department, communities, and water users make informed decisions to effectively manage groundwater resources.

Understanding Groundwater Resources and Availability

Groundwater studies provide comprehensive descriptions of otherwise unseen processes of the hydrologic cycle. Basin studies can take approximately four to six years to complete and the Department currently has the capacity to conduct only one study at a time. Basin groundwater studies are the foundation of informed policy development and implementation, as they provide guidance on future allocation, management, and potential solutions for addressing water availability issues.

Essential components of a groundwater basin study include the collection and analysis of groundwater level data, geologic mapping, aquifer characterization, and development of a groundwater budget. Groundwater basin studies are vital to inform responsible management of the state's groundwater resources, as they provide critical analysis regarding groundwater flow directions and rates, as well as the spatial patterns of groundwater development and its impacts on the groundwater system. Further, numerical models developed and calibrated based on data and analysis from basin studies provides a tool to forecast the likely response of the groundwater system to future management options.

The Department received resources in 2019 to conduct two studies at a time; however, those positions have remained unfilled due to budget challenges and the August 2020 Special Session reductions. The Governor's Recommended Budget for the 2021-23 biennium proposes reductions of \$301k for groundwater studies, \$778k for observation wells, one NRS 2 groundwater hydrogeologist position, and would require \$909k in vacancy

savings, which may affect the ability to hire unfilled basin study positions. As such, the Department has allocated all projected groundwater investigation resources to fund the Walla Walla Basin Study over the next four years, and will not be able to make any additional investments into groundwater investigations during that time period if these reductions are taken.

Please see the Attachment 1, “*Background information on Groundwater Basin Studies,*” for more information.

House Bill 2018

HB 2018 addresses some of the components that contribute to larger groundwater basin studies: basin-wide groundwater budgets, consumptive use estimates, and groundwater level data collection. This could shorten the duration of basin studies by two to three years and would likely result in a re-prioritization of basin study work based on the new water budget information. It would also inform the Department on what basins may be fully appropriated and where new appropriations would impact existing users.

Groundwater Budgets

A water budget is an accounting of water stored within, and water exchanged among, the hydrologic components of a watershed. Water budgets provide a means of evaluating the availability and sustainability of a water supply, ultimately addressing the question “How much?”. Water budgets can vary in scale from global to local and can focus on specific components of the hydrologic cycle. HB 2018 focuses on developing groundwater budgets for all major hydrologic basins in this state.

Groundwater budgets quantify the amount of groundwater recharged to and discharged from a defined groundwater system. Examples of groundwater recharge include infiltration of water from precipitation, from losing reaches of surface water bodies, and from irrigation return flow. Examples of groundwater discharge include outflow to gaining reaches of surface water bodies, uptake of groundwater by deep rooted plants (phreatophytes), and pumping of groundwater from wells.

The most recent state-wide groundwater budget assessment for hydrologic basins in Oregon was conducted by the U.S. Geological Survey in 1968. Since 1968, there have been advancements in the collection and availability of data necessary to develop a groundwater budget, while the amount of groundwater development in the state has increased markedly since 1968.

Groundwater Level Monitoring Network

The Department maintains and collects water-level data from observation wells around the state. This information is used to track the long-term aquifer response to groundwater development and climate change. There are currently about 380 long-term state observation wells and about 870 miscellaneous and project wells monitored in Oregon each year. The data are quality control checked and entered into a database that is available through the Department’s website for access by the public and professionals who use the information to track and understand changing conditions. With increased funding by the legislature between 2015 and 2020, the Department was able to expand this network by drilling dedicated observation wells in basins where the Department is currently working with the USGS on cooperative groundwater studies. Funding for dedicated observation wells is currently proposed to be reduced to \$5,000 in the Governor’s Recommended Budget.

Open Evapotranspiration

Evapotranspiration (ET) is the process by which water is transferred from the land to the atmosphere. Water consumed via ET is one way that water leaves the water system; this includes evaporation from crops in irrigated fields. Since 85% of diverted water is used for crop irrigation, ET is a critical piece to developing a basin water budget. Accurate, low cost reporting of field-scale ET from irrigated agriculture is needed by the Department to support surface and groundwater use studies, develop historical groundwater pumpage estimates, and for basin water planning and management. Satellite-based remote sensing ET models are the only way to capture the field conditions over large areas and time periods. The Department currently has a contract with the Desert Research Institute (DRI) to develop agricultural field boundaries and ET estimates from irrigated agriculture. The Department provided informational testimony on these efforts to the House Water Committee on December 17, 2020. Additional funding is necessary in order to complete this work.