

Oregon Statewide Recharge Study

Update: September 2026 (2nd Ed.)

Description of the Study:

In 2021 (through [HB 2018](#)), the Oregon legislature directed OWRD to partner with the U.S. Geological Survey USGS on a Statewide Recharge Study to update groundwater recharge estimates and develop groundwater budgets statewide. OWRD and USGS have been working closely together since that time to develop tools and collect data that will improve groundwater budget information across the state. These investigations will be completed in 2028.

The recharge study has three major components:

- **Improving baseflow estimates** for streams across Oregon.
- **Conceptual groundwater budgets for major hydrologic basins in Oregon.**
- Developing the **Oregon Hydrologic Model**, a customization of the USGS' National Hydrologic Model (NHM).

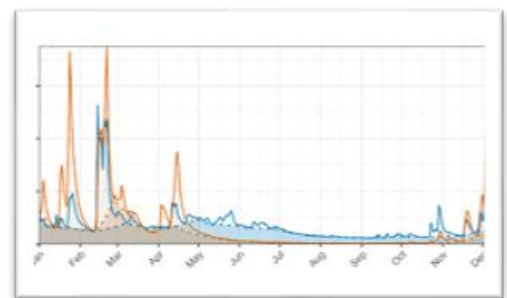
This update provides the original summary of the work in progress in general text, with significant status updates as of September 2026 in highlighted text boxes like this one. This summary will be updated twice annually until the project is complete.

The Work Underway:

1. Improving baseflow estimates:

The sustained flow between storms and during the dry season is called “baseflow.” Baseflow is typically considered to be from groundwater discharge to streams (as opposed to surface runoff). Baseflow can be used to better understand groundwater and to infer recharge to aquifers connected to the stream. Two data sets are contributing significantly to improving baseflow estimates statewide:

- **Stream gage data** - OWRD and other natural resource agencies manage stream gages that continuously measure the amount of water that flows in streams across the state. The USGS completed preliminary estimates of available baseflow from stream gage data statewide using a suite of methods that rely on the shape of the hydrograph to separate surface flow from baseflow. The results were published in 2025.
- **Specific conductance data** - Specific conductance quantifies how well water conducts electricity, which is directly related to the presence of dissolved ions such as salts and other inorganic compounds. The more ions present in the water, the higher the specific conductance. Water with higher specific conductance is an indication of higher amounts of groundwater (baseflow) than a stream with lower specific conductance and is another way to estimate baseflow.



Hydrograph comparing two streams in the Willamette Valley; 2025

September 2026 Update: Utilizing the nearly 10,000 specific conductance samples collected between 2021-2025, USGS is working to update and refine the initial statewide baseflow estimates published in 2025. For a summary of the initial baseflow data, see the Baseflow Fact Sheet below.

2. Conceptual Groundwater Budgets - USGS is developing partially quantified, conceptual groundwater budgets using estimates of groundwater budget components from previous studies, the newly developed baseflow estimates, remote-sensed datasets, and hydrogeologic knowledge of each basin. These conceptual water budgets will help OWRD communicate a more detailed understanding of its basins to residents of each basin and prioritize needs for potential future study.

September 2026 Update: USGS is finalizing a report on conceptual groundwater budgets currently titled “Groundwater Budget Synthesis for Oregon,” and expects to publish it in 2027.

3. The Oregon Hydrologic Model (OHM) – The USGS is working to develop an version of the Oregon Hydrologic Model (OHM) to estimate recharge in basins across the state. It is a customization of the [National Hydrologic Model](#) (NHM), a national-scale application of the Precipitation Runoff Modeling System (PRMS). PRMS uses daily precipitation, air temperature, and the hydrogeologic properties of the landscape to estimate surface runoff, streamflow, and groundwater discharge to streams, among other components of the hydrologic cycle.

September 2026 Update: A preliminary, uncalibrated version of the OHM has been completed. Next steps will include writing up the process to create the preliminary model, determining a scope for the next phase of model refinement and calibration.

Tools and Information Now Available:

- **New in 2026**, OWRD created a [Developing Components of a Water Budget](#) webpage to keep the public informed as information becomes available.
- USGS published a [data release](#) with initial estimates of baseflow in 2025.
- For more information about what baseflow is, how it varies across the state, and how the specific conductance data is being used to refine the initial baseflow estimates, OWRD developed a [Baseflow Fact Sheet](#).
- In 2024, the USGS developed an informational [storymap](#), which provides an overview of this developing work.



Mouth of the Pistol River, Curry County OR

For more information, please contact:

- Sue Parrish, Community Engagement Coordinator: sue.r.parrish@water.oregon.gov
- Laurel Stratton Garvin, Senior Hydrologist: laurel.e.stratton.garvin@water.oregon.gov