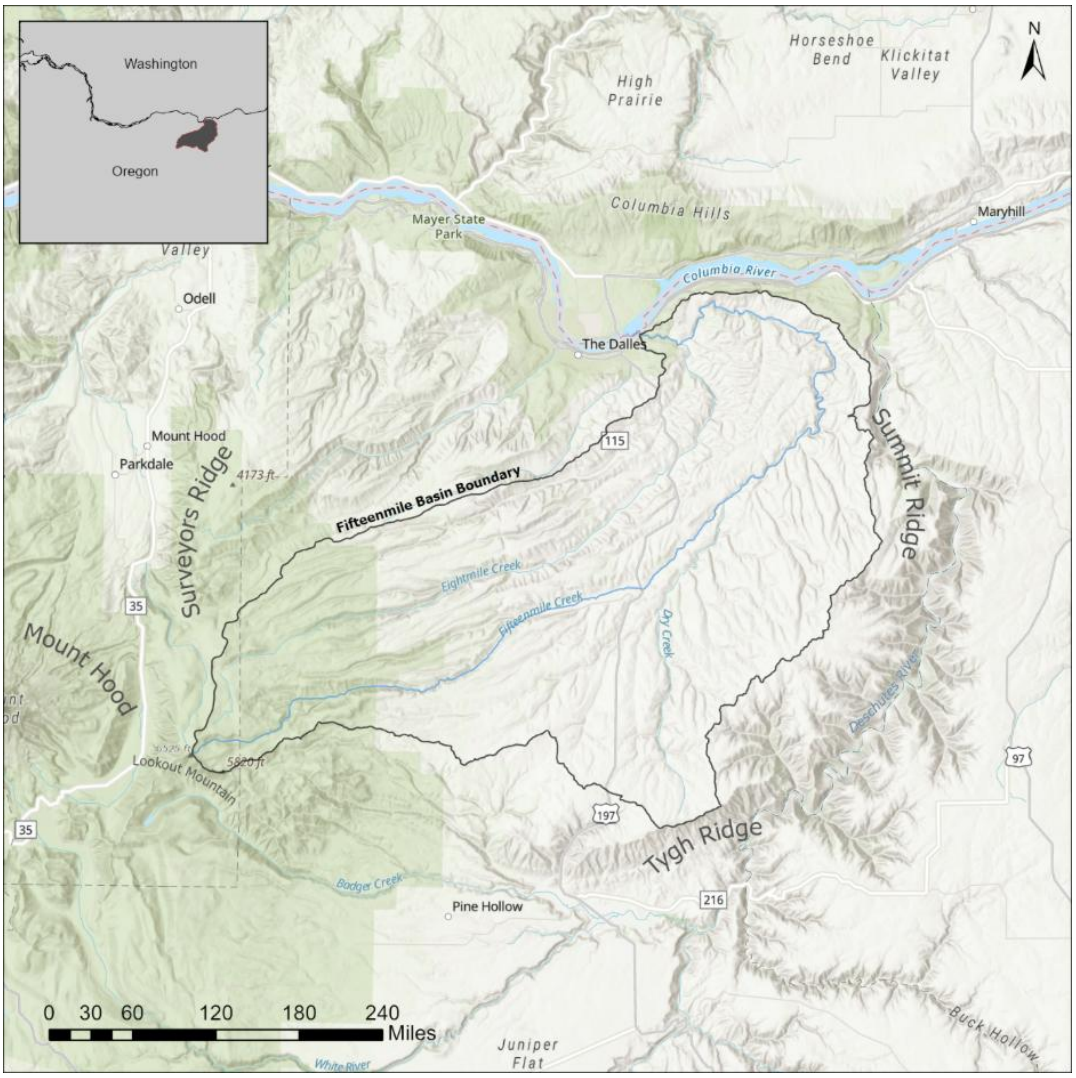
Fifteenmile Groundwater Study

Groundwater levels in the basalt aquifers of the Fifteenmile Creek watershed have been dropping since the 1990s and several wells now meet the state's definition of "excessive decline." Surface water in the basin is also over-allocated and there are signs that groundwater and surface water are connected, and may include contributions from groundwater pumping, commingling wells. In recent years, Fifteenmile Creek has had very low flows and has even dried in places. The exact causes are still unclear and may include groundwater pumping, commingling wells, reduced recharge from climate change, and higher water use by crops and riparian vegetation. **A comprehensive study is needed to understand the hydrology and support future water-management decisions.**

Map of the Fifteenmile study area



Oregon's Integrated Water Resource Strategy (IWRS) calls for more groundwater investigations and improved water-resource data collection. The 2017 & 2025 IWRS identified five priority areas for future groundwater basin studies. This work has begun in the other basins, including the Fifteenmile Creek subbasin. This study will help communities, water users, conservation groups, and natural-resource agencies plan for sustainable water use by providing essential information. It will give decision makers a scientific basis for future water-management and policy choices, improve understanding of groundwater movement and its connection to surface water, and contribute to broader hydrogeologic knowledge.

Four Phases of the Groundwater Study

A groundwater study examines how much groundwater is available, how it moves through an area, and how it connects with surface water. Completing one can take several years because it requires collecting data across multiple seasons and water-use conditions through 4 phases of work. Scientists need time to install and monitor wells, analyze complex hydrogeologic information, and build scientific models. This careful work ensures the results are reliable for future planning and water-management decisions.

2026 **2027** **2028** **2029** **2030** **2031**

PHASE 1 – Data compilation, initial hydrogeologic framework, monitoring and metering build-out

PHASE 2 – Complete framework, continue intensive data collection, begin budget and flow-system analyses

PHASE 3 – Develop and refine groundwater budgets and flow-system interpretation; evaluate causes of declines and low flows

PHASE 4 – Synthesis of all lines of evidence into integrated study findings; communication and policy support

Taken together, the study is intended to answer these key questions:

Photo by Bob Wood, OWRD

- How is groundwater moving through the aquifers, and where are the main recharge and discharge areas, including where (if) stream reaches are hydraulically connected to which aquifers?
- Are groundwater-level declines and streamflow losses consistent with estimated groundwater pumping stresses, commingling wells, riparian evaporation estimates, and (or) climate variability?
- Which parts of the groundwater system are most sensitive to changes in groundwater use or climate?
- How does riparian ET influence streamflow in losing reach(s)?

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