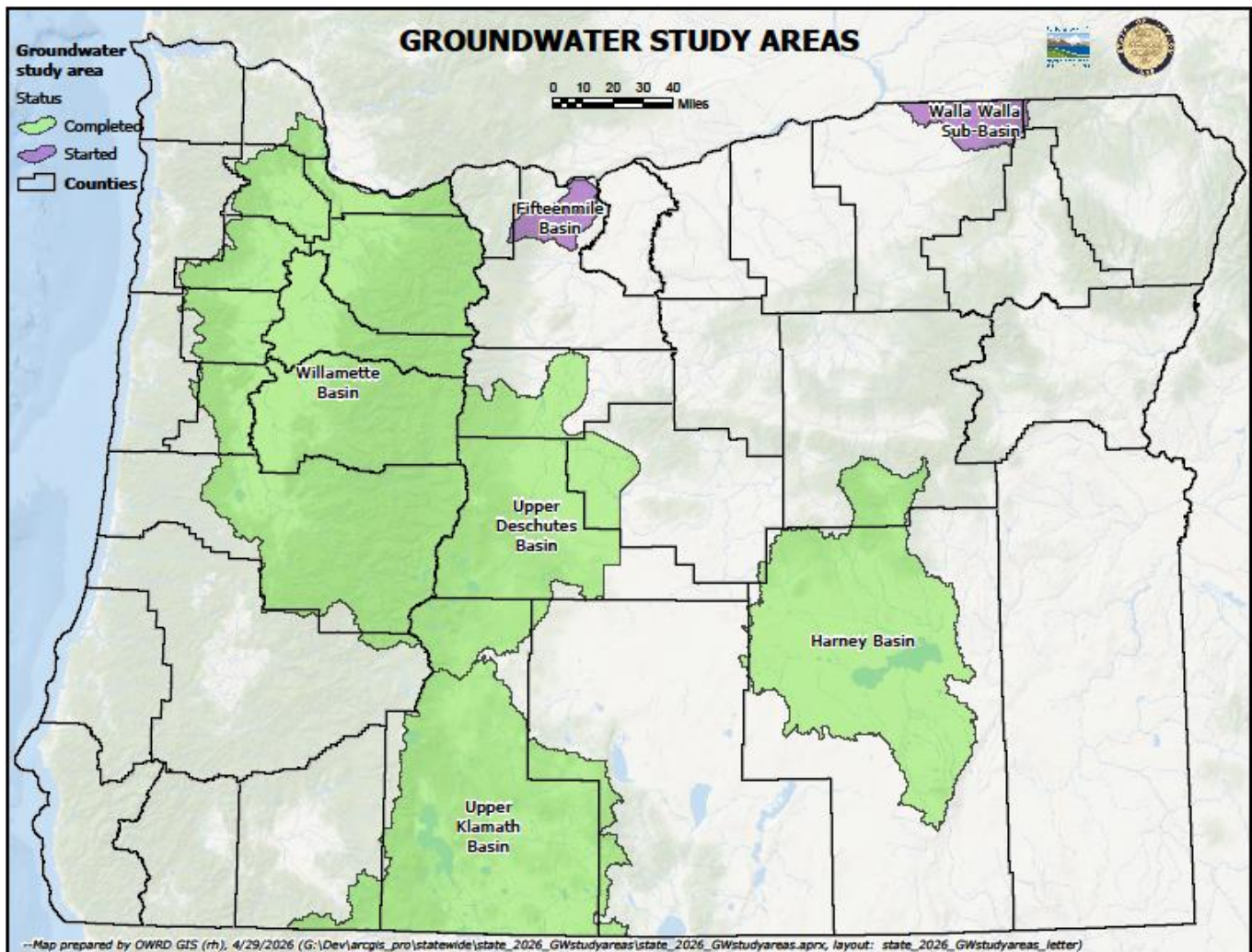


# Fifteenmile Watershed Groundwater Study and Community Engagement

**A groundwater basin study** is a scientific investigation of the presence and movement of groundwater in a specific area or basin, and its use by communities. These studies collect data on wells, aquifers, water levels, surface water quantity, and human use to better understand observed changes in groundwater within the context of the hydrogeologic framework, climate variability, and human actions. The study applies best available science to provide communities and water managers with information needed to understand water availability. Often used to help guide water management, these studies can inform why there are water shortages, protect ecosystems, and support sustainable community growth where and when possible.

Oregon's groundwater resources are showing signs of stress, and in many locations, aquifer systems are not being recharged at rates that can sustain existing or future water resource development. The State and communities have identified areas where groundwater levels are declining at unsustainable rates, and areas of groundwater and surface water interaction, and have conducted groundwater basin studies across the state. Groundwater studies support the Oregon Integrated Water Resources Strategy by providing the scientific data needed to understand local water availability, identify resource challenges, and guide sustainable water-management decisions across the state.

**Oregon has five completed groundwater studies and two ongoing groundwater studies across the state.**



Learn more about Groundwater Studies in Oregon here:  
[www.owrd.info/groundwater](http://www.owrd.info/groundwater)

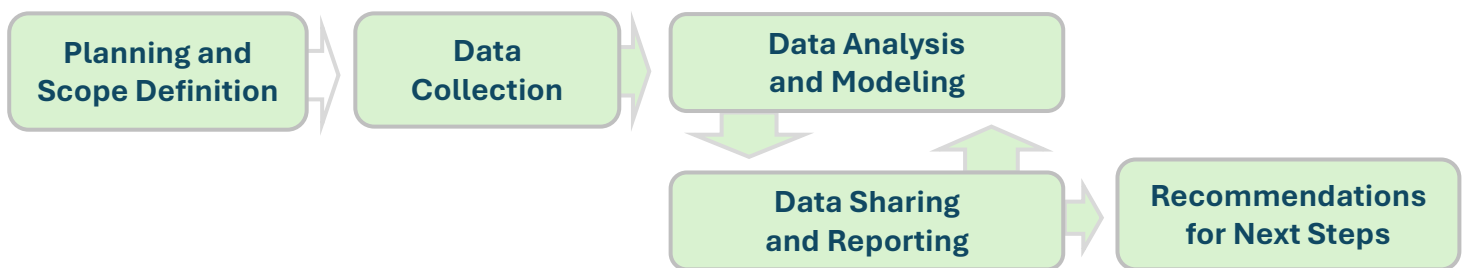


## Why is a Groundwater Basin Study Important to Communities?

The Oregon Water Resources Department (OWRD) monitors and manages groundwater and has a statutory charge to characterize groundwater resources in all areas of the state. OWRD evaluates groundwater and surface water resources to help define the overall groundwater budget, including groundwater recharge from precipitation infiltration, groundwater discharge to surface water and wells, and changes in groundwater storage. Groundwater Basin Studies develop a foundational understanding of surface and groundwater systems, and the results are published in peer-reviewed reports. Information obtained through studies are used by the Department to manage the State's increasingly limited groundwater resources and maximize the community and ecosystem needs for water in each basin.

## Groundwater Basin Studies typically have FIVE STEPS

*Groundwater studies tend to have FIVE STEPS which can vary in timeframe and scope based on the basin of study, state resources, and community needs.*



### (1) Planning and Scope Definition

*Define the study area, objectives, data needs, and key geologic and water resource concerns.*

The Department identifies the geographic boundaries of the study and clarifies what questions the project is intended to answer. Staff determine what data will be required and what existing information gaps might affect the study. Communities may provide input on study priorities, help identify data gaps, and offer feedback on preliminary results and how findings are communicated. This step sets priorities by outlining the key geologic and water resource issues most relevant to communities and resource managers. Community needs and past data collections help inform this process. At the end of this step the Department posts a study plan, often on their website, which may be updated over time.

### (2) Data Collection

Compile historic and new data on geology, groundwater levels, surface water, and water conditions.

The Department compiles existing information such as historic groundwater levels, well logs, geologic maps, and streamflow records to establish a baseline understanding. New data is gathered through seasonal field measurements, monitoring wells, or targeted data collections to fill critical knowledge gaps. This ensures the study is grounded in the most complete and accurate information available. Data include but are not limited to:

- Well water-level measurements – tracked via observation wells to assess groundwater levels over time
- Subsurface lithology – geological data from well logs, including soil and rock layers encountered during drilling
- Water-right information – legal and administrative context for groundwater usage
- Water-use estimates – quantification of groundwater extraction volumes for various uses
- Rock geochemistry – chemical composition of aquifer matrix material for contaminant transport and geochemical modeling
- Stream gage (baseflow) data – used in recharge studies to infer groundwater discharge to surface water
- Water specific conductance readings – indicates dissolved ion concentrations, aiding in estimating groundwater contribution to streams

### (3) Data Analysis And Modeling

Use collected data to understand aquifer levels, groundwater flow, recharge, and surface-water interactions; develop models to test scenarios as needed.

Technical staff evaluate groundwater conditions, including flow paths, recharge sources, and connections between groundwater and surface water. Analytical methods and modeling are used to help simulate current conditions and generate data for adaptive management. This step provides a scientific foundation for understanding how water systems respond to natural and human driven changes. Products include but are not limited to:

- **Hydrogeologic Framework**– Defines the aquifers, geologic layers, and structures that control groundwater storage and movement, providing the essential foundation for analyzing how the groundwater system behaves.
- **Water Budget Development**– Quantifies known groundwater inputs and outputs to show whether an aquifer is gaining or losing water, helping determine long-term sustainability and guide management decisions.
- **Flow-systems Evaluation**– Describes how and where groundwater moves through the aquifer and its connection to surface water, which is critical for predicting the effects of pumping and understanding resource vulnerability.

### (4) Data Sharing And Reporting

Summarize groundwater trends and identify overarching themes across data products.

The Department synthesizes findings into accessible reports, maps, and graphics that highlight groundwater trends and emerging patterns. These products aim to help decision-makers and communities clearly understand the status of local water resources. Transparency in sharing results ensures the study can support collaborative and informed water-management discussions.

### (5) Study Recommendations

Develop potential management actions and additional monitoring needs based on study reports.

Based on best available science, the Department may identify potential management actions that can help protect or improve groundwater conditions. Recommendations can include future data needs, monitoring enhancements, or resource management strategies tailored to the region. This phase connects scientific insights with practical steps for long term groundwater sustainability. This may include exploring needs for identifying areas of concern or designating groundwater administrative areas.

## Community Engagement in a Groundwater Study

Community engagement in a groundwater study encompasses a wide range of approaches and formats to share information, gather local knowledge, and foster two-way communication. These efforts help frame the study's purpose and relevance, while allowing community members to share observations that can improve the study's accuracy and relevance. Community engagement helps ensure the study reflects real-world conditions, thereby strengthening the quality of the findings and supporting more informed outcomes.

### Levels of Community Engagement Used by the Department during a Groundwater Study:

**INFORM:** OWRD provides clear information about water decisions, while the community's role is to receive and understand it.

**CONSULT:** OWRD seeks community feedback on issues or proposals, and the community offers input that may influence decisions.

**INVOLVE:** OWRD includes the community throughout the process to ensure their concerns are considered, and the community participates regularly in shaping options.

**COLLABORATE:** OWRD partners with the community to co-develop solutions, and the community shares responsibility for creating and evaluating those solutions.

## How can communities participate in the Fifteenmile Groundwater Study?

This table provides the general steps of a groundwater study and the various ways the Department and the community may interact during the study. Not every study will have each of these steps. Each study and community is different, and as such, each study will develop its own unique community engagement plan.

Steps in a Groundwater Study	Opportunities for Community Participation	OWRD Engagement
<p><b>PLANNING AND SCOPE DEFINITION:</b></p> <p>Define the study area, objectives, data needs, and key geologic and water resource concerns.</p>	<p>Share local knowledge, observations, and concerns (e.g., well issues, water shortages, land-use changes). Communities' voices provide context on study priorities.</p>	<p><b>INFORM:</b> Share project overviews, needs, and timelines through websites, handouts, and visuals (e.g., infographics/diagrams).</p> <p><b>CONSULT:</b> Host community meetings and/or offer surveys to gather additional local insight.</p>
<p><b>DATA COLLECTION:</b></p> <p>Compile historic and new data on geology, groundwater levels, surface water, and related water conditions.</p>	<p>Provide local data, such as well logs or water-use records, and volunteer wells for monitoring when possible. Communities' knowledge helps to identify data gaps.</p>	<p><b>INFORM:</b> Provide updates on data-collection activities through webinars and newsletters.</p> <p><b>INVOLVE:</b> Invite through one-on-one conversations, voluntary participation have staff monitor your well monitoring.</p>
<p><b>DATA ANALYSIS AND MODELING:</b></p> <p>Use collected data to understand aquifer levels, groundwater flow, recharge, and surface-water interactions; develop models to test scenarios as needed.</p>	<p>Offer local insights and questions that help refine interpretations and modeling assumptions. Communities' observations help validate model behavior and explain data patterns and outliers.</p>	<p><b>CONSULT:</b> Facilitate focused discussions (e.g., roundtables, focus groups) to gather feedback on study results and uncertainties.</p>
<p><b>DATA SHARING AND REPORTING:</b></p> <p>Summarize groundwater trends and identify overarching themes across data products.</p>	<p>Identify data presentations or findings that need clarification or additional detail to increase clarity. Communities' experiences give findings relevance to local needs and concerns.</p>	<p><b>INFORM:</b> Provide clear summaries of findings (e.g., maps, fact sheets, videos, jargon-free materials) for community review and awareness.</p> <p><b>CONSULT:</b> Host open houses and/or science symposiums to create two-way communications around data.</p>
<p><b>STUDY RECOMMENDATIONS:</b></p> <p>Develop potential management actions and additional monitoring needs based on study reports.</p>	<p>Share feedback on feasibility, impacts, and local practicality. Communities participate in conversations on how proposed actions affect real-world use.</p>	<p><b>INVOLVE:</b> Create spaces for discussions on the next steps, outreach needs, and local monitoring options through workshops and forums.</p> <p><b>COLLABORATE (situational):</b> Support community-led monitoring networks, voluntary water-use reductions, and other planning.</p>

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