

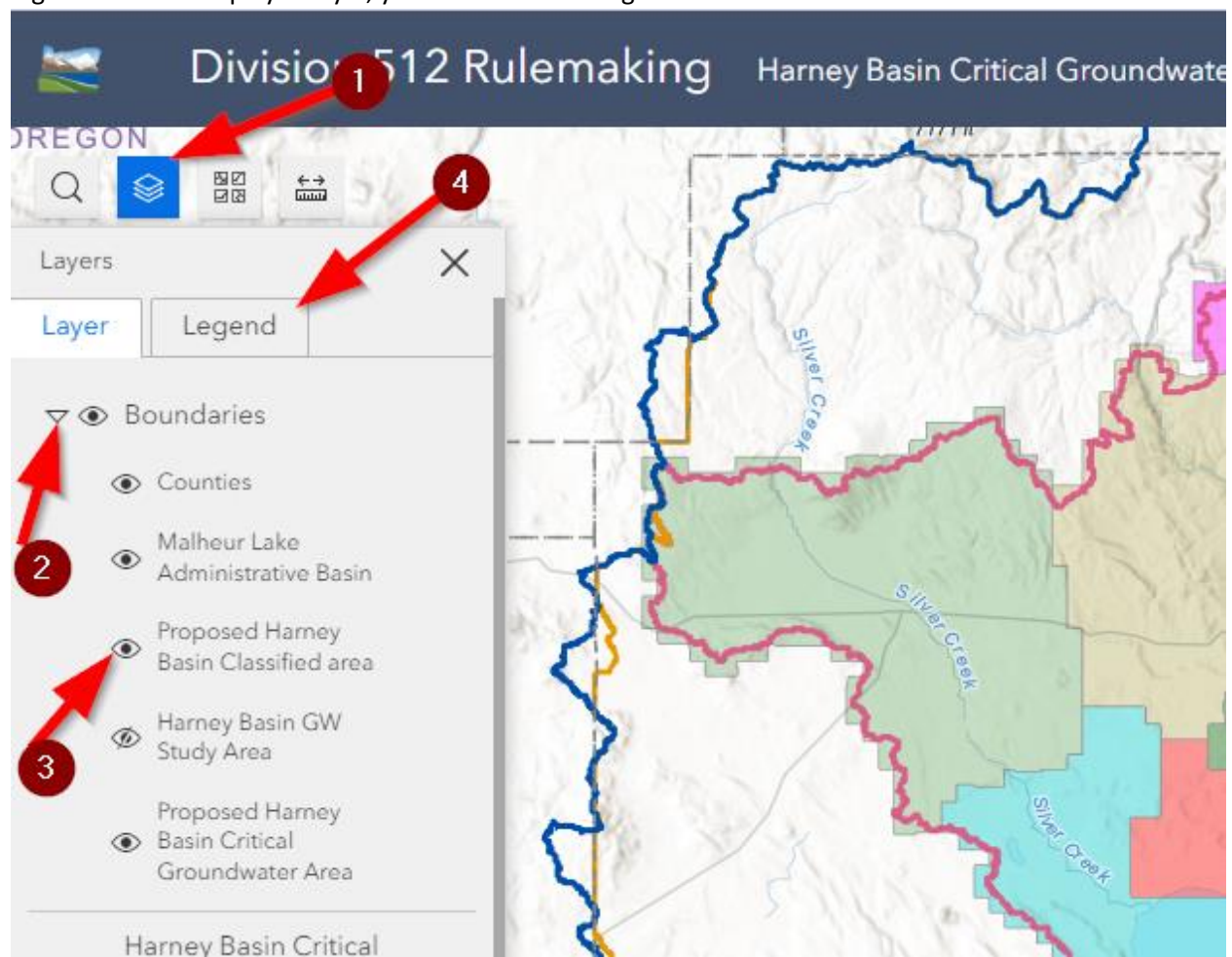
Explanation of Online Division 512 Rulemaking Map

This document is intended to provide context for the online [Division 512 Rulemaking Map](#). The purpose of this map is to provide user friendly access to geospatial data and information being used in the rulemaking process to the Rules Advisory Committee (RAC) and the general public.

The map contains many different layers of information. Please note that not all information published on the map is final. Some of the layers are still in draft form and are for informational purposes only. Background information for some layers can be found by following the links in the “For more information” box displayed when the map loads.

How to show/hide layers:

When accessing the map, a specific set of layers are shown by default. To change the layers that are shown, click on the layer icon in the top left corner of the map as noted as item 1 in the screenshot below. This will display the list of available layers and layer groups. You can expand layer groups to see all layers within a group by clicking the dropdown arrow noted as item 2 in the screenshot below. To show or hide a layer, toggle the eye icon on or off as noted as item 3 in the screenshot below. To see the legend for each displayed layer, you can select the Legend tab noted as item 4 in the screenshot below.



Below is the list of available layers in the map and an explanation of the data contained within each.

Boundaries

Boundaries is a layer group which contains multiple official boundaries.

- Counties – this layer displays Oregon County boundaries.
- Malheur Lake Administrative Basin – this layer displays the Oregon Water Resources Department Malheur Lake Administrative Basin boundary.
- Proposed Harney Basin Classified Area – this layer displays the proposed boundary for classification being discussed in the Division 512 RAC.
- Harney Basin GW Study area – this layer displays the boundary of the Harney Basin Groundwater Study area.
- Proposed Harney Basin Critical Groundwater Area – this layer displays the proposed boundary for the critical groundwater area designation being discussed in the Division 512 RAC. This boundary is the same as the Greater Harney Valley Groundwater Area of Concern (GHVGAC).

Harney Basin Critical Groundwater Area (Draft Subareas)

This layer displays the current draft proposed subarea boundaries being considered in the Division 512 rulemaking process. Please note that this layer shades public land survey sections. On the exterior boundary of the proposed critical groundwater area some shaded sections extend beyond the Proposed Harney Basin Critical Groundwater Area layer, and so the two layers should be enabled together to understand the proposed exterior boundary of the Critical Groundwater Area in relation to the subarea boundaries.

Groundwater Contour Maps (Gingerich et al, 2021)

This layer group contains three layers of groundwater level contours which were produced as part of the Harney Basin Groundwater Study:

1. Shallow groundwater levels uplands
2. Shallow groundwater levels lowlands
3. Deep groundwater levels lowlands

Groundwater level trends:

Groundwater level trends is a layer group which contains two layers:

1. Groundwater level change from highest (feet) – this layer depicts wells that were analyzed for their water level change from the highest recorded value to the most recently measured annual high value.
2. Groundwater rate of change (sen's slope, feet/year) – this layer depicts wells that had their water level record evaluated for rate of change which is displayed in feet per year. The rate of

decline for each well was estimated using a sen's slope estimator which is a statistical method for robustly fitting a line to a data set. Negative values represent a declining trend.

Geology (Boschmann, 2021)

The Geology layer group contains two layers that depict the geology within the Harney Basin and was produced during the Harney Basin Groundwater Study:

1. Faults
2. Map Units

Groundwater Information System sites with hydrographs

This layer displays all sites (wells) that are stored in the OWRD Groundwater Information System (GWIS) and when a point on the map is selected provides access to information about that well and a link to the public GWIS hydrograph. To view the hydrograph simply click on the "view" link in the row corresponding with "hydrograph_url" and you will be taken to the online hydrograph for that well.

Groundwater Use (ET Summaries by field, May to Sept Metric Total ET Minus GRIDMENT Precip Depth, in Feet)

This layer group displays data related to evapotranspiration (ET) by field and includes ET Field summaries for the years 1991, 1992, 1994, 2000, 2001, 2005, 2009, 2011, and 2014-2018. These layers show the satellite calculated consumptive water use by field (ET minus precipitation) for each of the listed years and is a helpful way of understanding how much groundwater was consumed through evaporation and transpiration.

Watershed boundaries (HUCs)

Watershed boundaries is a layer group containing the USGS Watershed boundaries at the Hydrologic Unit Code (HUC) 8, 10 and 12s scales.

Groundwater Monitoring

This layer group depicts the wells that were monitored as part of the OWRD water level monitoring work. There were three types of monitoring wells:

1. OWRD Recorder Wells – these wells were measured with continuous water level monitoring devices (transducers) which provide hourly or more frequent measurements.
2. Quarterly Monitoring Wells – these wells were measured manually by OWRD staff once per quarter.

3. Synoptic Wells (2018) – these wells were measured manually in early 2018 as part of the Harney Basin Groundwater Study

Well Report Locations

This layer group depicts the location of wells based on the well report and the intended type of use reported:

1. Irrigation well report locations – this layer displays irrigation wells.
2. Domestic well report locations – this layer displays domestic wells.
3. Municipal well report locations - this layer displays municipal wells.
4. Livestock well report locations - this layer displays livestock wells.
5. Other well report locations – this layer displays all other types of well reports.

Groundwater Ecology

This layer group contains two layers related to ecological features:

1. NHD springs – this layer displays springs listed in the USGS National Hydrography Dataset (NHD). This layer is helpful in understanding where documented spring discharge occurs.
2. Groundwater Evapotranspiration Area (Garcia et al., 2022) – this layer represents an area of the Harney Basin lowlands where phreatophytes grow and groundwater actively discharges through evapotranspiration.

Surface Hydrography

This layer group contains three layers related to surface water hydrography:

1. NHD Waterbody – Waterbodies such as lake/pond features are represented in NHD Waterbody. They portray the spatial geometry and the attributes of the feature. These water polygons may have NHD Flowline artificial paths drawn through them to allow the representation of water flow direction. Other NHD Waterbody features are swamp/marsh, reservoir, playa, estuary, and ice mass.
2. NHD Flowline –NHD Flowline is the fundamental flow network consisting predominantly of stream/river and artificial path vector features. It represents the spatial geometry, carries the attributes, and contains linear referencing measures for locating features or “events” on the network. Additional NHDFlowline features are canal/ditch, pipeline, connector, underground conduit, and coastline.
3. USA Wetlands – USA Wetlands – This layer is provided by the US Fish and Wildlife Service and provides information on the status, extent, characteristics and functions of wetlands, riparian, and deepwater habitats.