

Discover Groundwater Information

USING THE WATERSHED HEALTH ASSESSMENT FRAMEWORK TOOL

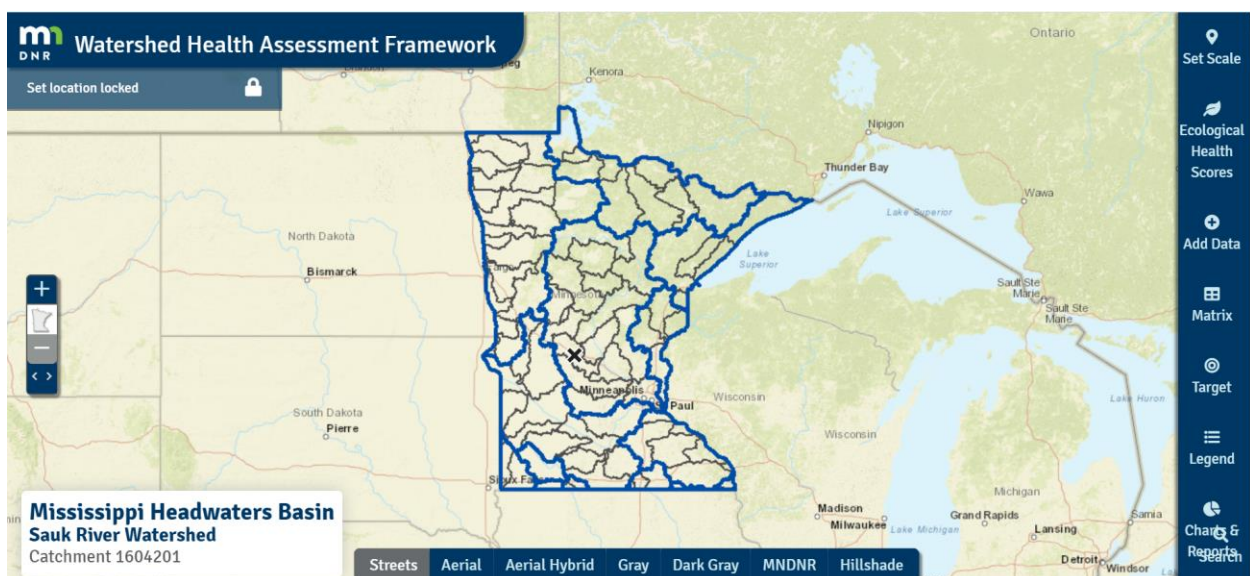
The Department of Natural Resources (DNR) now hosts groundwater and drinking water information in their [Watershed Health Assessment Framework \(WHAF\) tool](http://www.dnr.state.mn.us/whaf/index.html) (www.dnr.state.mn.us/whaf/index.html) which provides an organized approach for understanding natural resource conditions and challenges. Having access to geospatial information and data allows the user to make informed land management decisions that lead to groundwater protection.

Navigating WHAF to access groundwater information

Groundwater information in the WHAF tool is located under the 'GRAPS' (Groundwater Restoration and Protection Strategies) heading. Many of the same datasets that are available to create the GRAPS reports are available on WHAF to better inform statewide planning and project implementation.

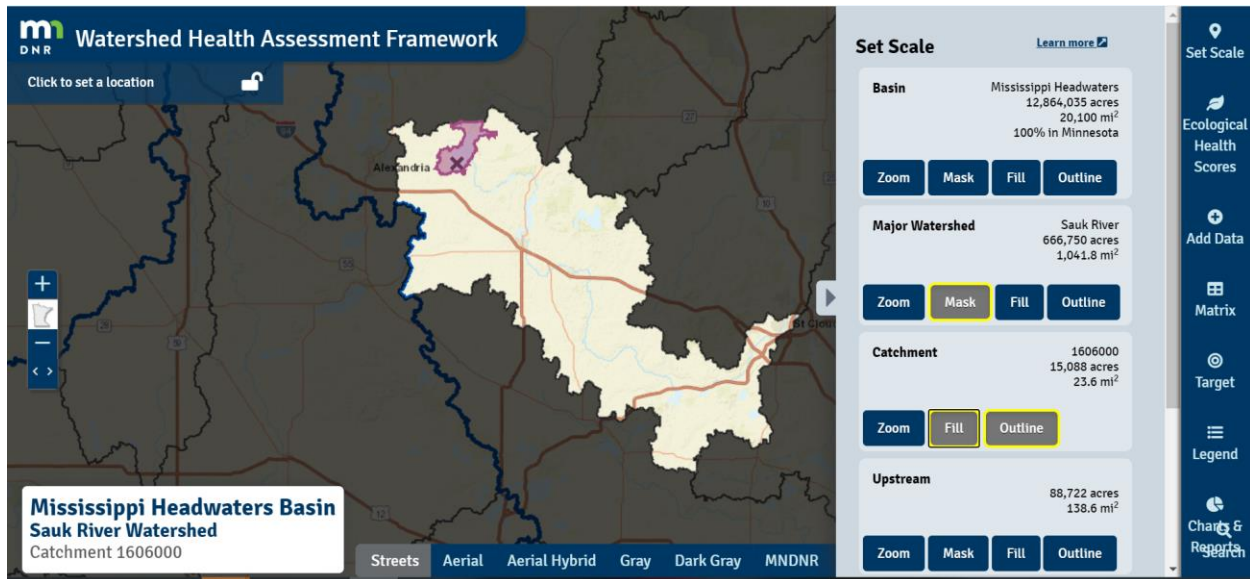
Getting Started

Open the WHAF tool [Interactive Map](https://arcgis.dnr.state.mn.us/ewr/whaf2/) (https://arcgis.dnr.state.mn.us/ewr/whaf2/). From this screen click on the watershed you want to explore. After selecting your watershed it will place an 'X' on the watershed and identify the location on the bottom left corner of the screen. To set the watershed of interest click on 'click to set location' at the top left of the screen. Once set it will state 'set location locked' with the lock symbol represented.



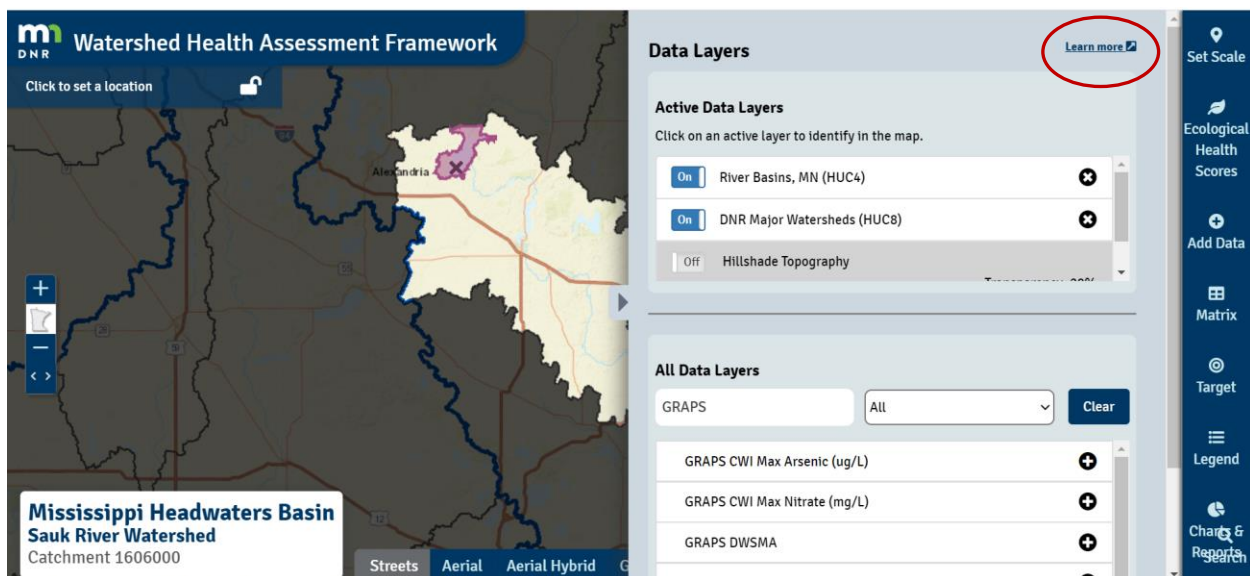
Set the Scale

Once the watershed location has been set, you must click on 'set scale' on the right panel. When you click on 'set scale' it pulls up a menu of options to choose from depending on how far you want to zoom into your location. The example below is zoomed in at the 'Major Watershed' scale, with a 'mask' background. You can also fill and/or outline the watershed depending on your preference. In addition to setting the 'major watershed' scale, the example has selected a 'catchment' or subwatershed scale that is filled and outlined. Please note the 'catchment' subwatershed number identified in the bottom left corner.



Add Groundwater Data

To access groundwater and drinking water information click on the 'Add Data' icon on the right panel. Under the 'All Data Layers' type in the word 'GRAPS' to populate the list of available data.



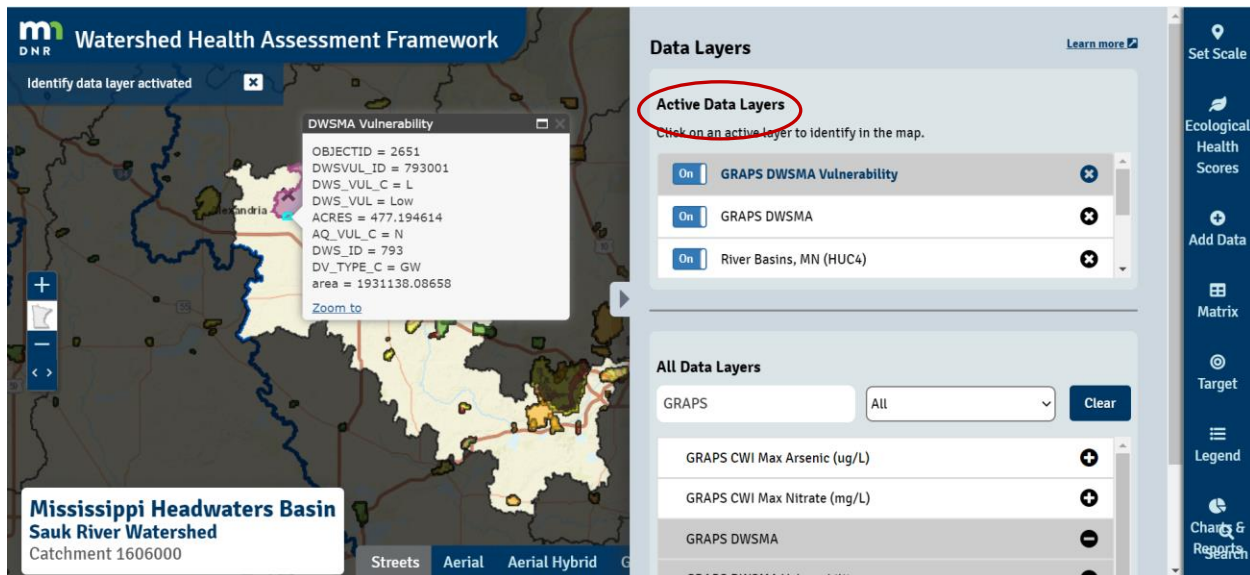
To learn more about each data source available simply click on the ‘*Learn more*’ hyperlink on the top right side of the page. This link is circled in red in the example above. Once you click on the link it will bring up the page below. Click on the letter ‘G’ to bring you to GRAPS data sources.

The screenshot shows the Minnesota Department of Natural Resources website. The header includes the DNR logo and navigation links: RECREATION, DESTINATIONS, NATURE, EDUCATION & SAFETY, LICENSES, PERMITS & REGULATIONS, EVENTS & SEASONS, and ABOUT DNR. A search bar is located in the top right. The breadcrumb trail reads: Home > Assistance > Natural resource planning > Regional and state tools > Watershed Health Assessment Framework (WHAF) > About >. The left sidebar contains links for Watershed Health Assessment Framework, Main page, Interactive map, Watershed reports, Health scores, Five components, and Key concepts. The main content area is titled 'GIS Data Sources' and includes an alphabetical index (A-Z). Under the 'A' section, there is a heading 'Altered Watercourses' with details: Data Owner: Minnesota Pollution Control Agency (MPCA), Definition: MPCA stream lines where streams are categorized based on the status of hydrologic alteration (channelized, ditched, or impounded), and Data Source: The source data and metadata are available for download through the Minnesota Geocommons website, with a red circle around the 'Learn more' link.

For the example below, ‘GRAPS DWSMA’ and ‘GRAPS DWSMA Vulnerability’ are shown.

The screenshot shows the Watershed Health Assessment Framework map interface. The map displays the Mississippi Headwaters Basin and Sauk River Watershed (Catchment 1606000). The map controls include a 'Set location locked' button, a lock icon, and map style options: Streets, Aerial, and Aerial Hybrid. The 'Data Layers' panel on the right shows 'Active Data Layers' and 'All Data Layers'. The 'Active Data Layers' section lists three layers: GRAPS DWSMA Vulnerability, GRAPS DWSMA, and River Basins, MN (HUC4), each with an 'On' toggle and a red 'X' icon. The 'All Data Layers' section lists five layers: GRAPS, GRAPS CWI Max Nitrate (mg/L), GRAPS DWSMA, GRAPS DWSMA Vulnerability, and GRAPS Water Wells per Section, each with a '+' icon. A 'Learn more' link is visible in the top right of the Data Layers panel. The right sidebar contains links for Set Scale, Ecological Health Scores, Add Data, Matrix, Target, Legend, and Change & Search.

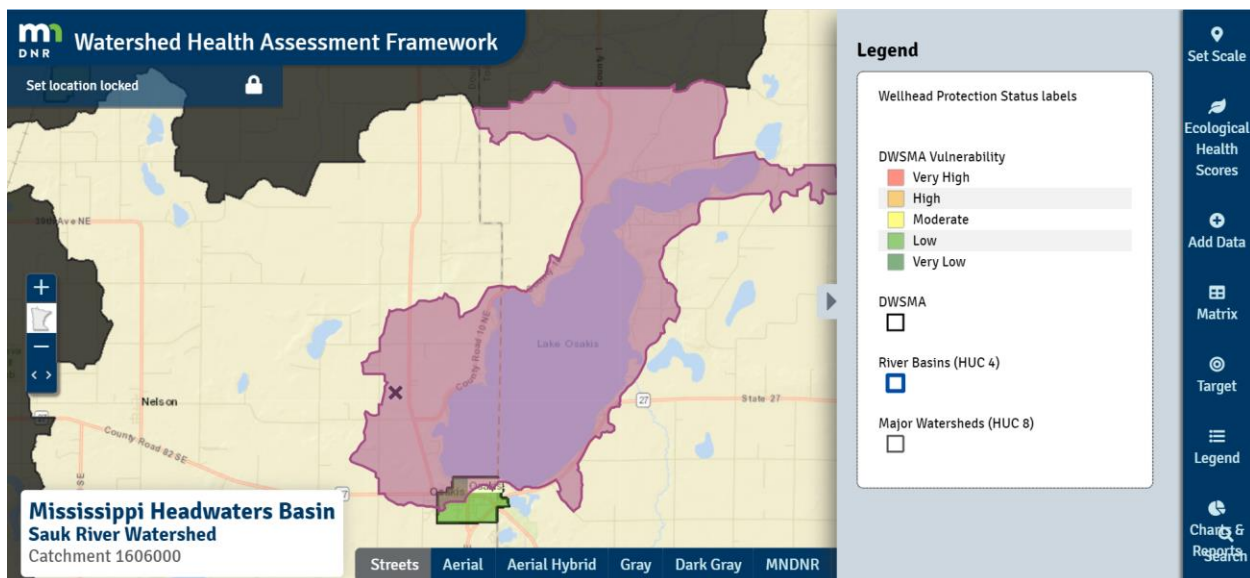
To get information about a feature, click the layer name under “Active Data Layers” after it has been added to the map. This will activate the “Identify” function for that layer. Click on a feature from that layer on the map to see details in a pop-up bubble. The *Active Data Layers* feature is circled in red in the example below.



Once the data has been selected, click on the arrow to hide data layers exposing the full extent of the map.

Adding a Legend

Now add the final touches to complete your map by adding a legend. Click on the 'Legend' icon on the right panel to show the data represented on the map. In the example below, the map is zoomed in to show the 'catchment' area with the DWSMA and its vulnerability represented.



It is important to note that the *WHAF* tool does not enable the user to print a map, therefore it is necessary to take a screenshot to share the map. You can capture a screenshot in Windows by using the keyboard shortcut Alt + Print Screen.

Useful Features

The WHAF tool has an abundance of useful features to help assess watershed conditions. Click on the 'Charts & Reports' tab on the bottom of the panel on the right side of the page to access a number of resources. Under this tab you can access three watershed reports (Report Card, Context Report, and Climate Summary), as well as the National Land Cover Database from 2001 to 2016, and the Cropland Data Layer from 2010 to 2018, along with Water Use Charts for various categories.

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