**DEPARTMENT OF HEALTH**

# 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 (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/). 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.



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## 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.
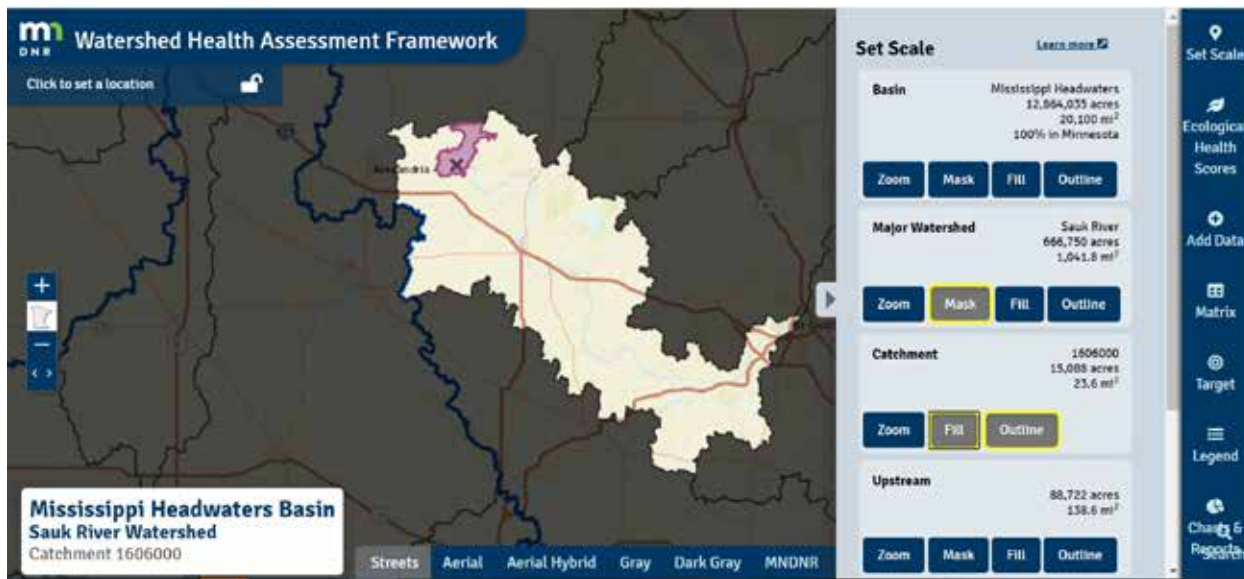


## Add Groundwater Data

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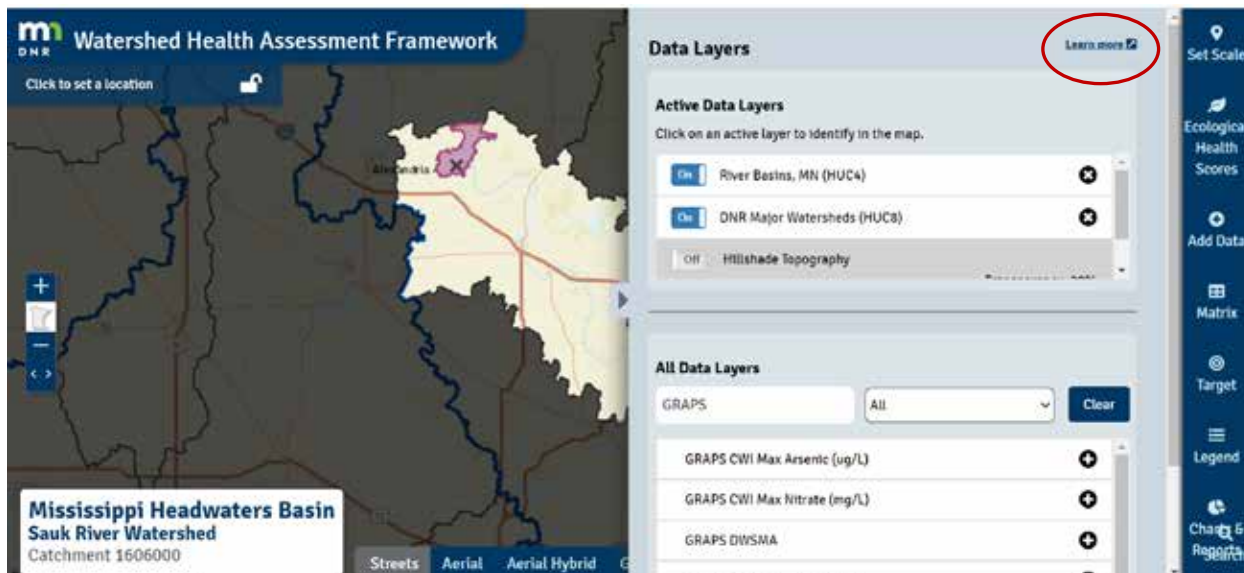
To learn more about each data source available simply click on the '*Learn more*' hyperlink on the top right side of the page. This link is circled in red in the example above. Once you click on the link it will bring up the page below. Click on the letter 'G' to bring you to GRAPS data sources.



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



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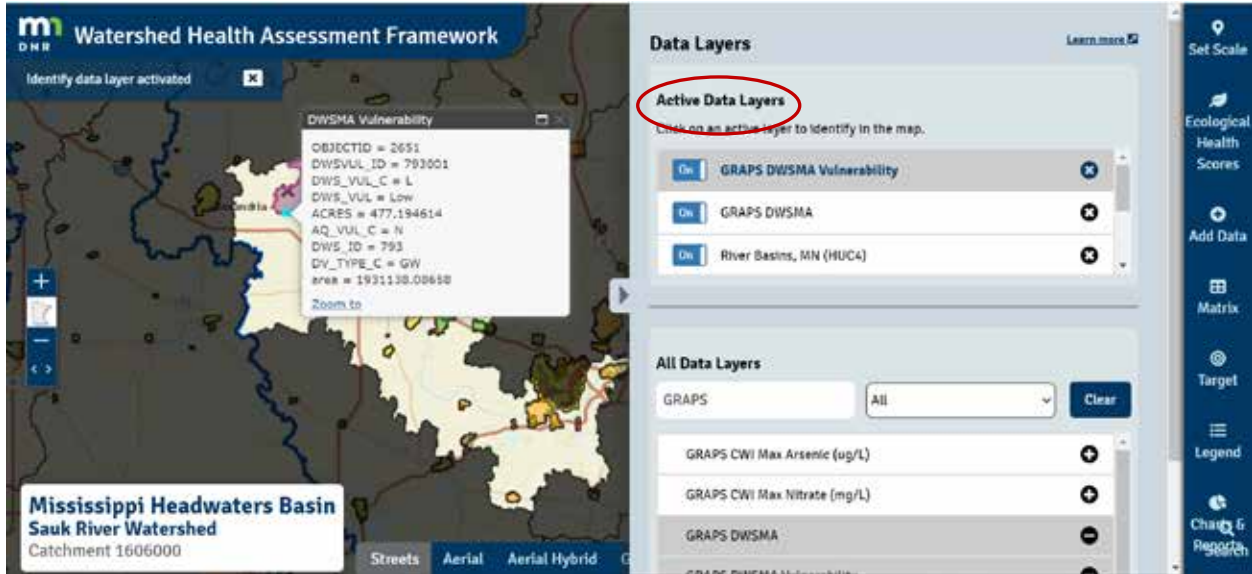
Once the data has been selected, click on the arrow button to hide data layers exposing the full extent of the map.

See "Using Groundwater Data to Target Protection Activities" page at the end of this document for additional data layers to consider.

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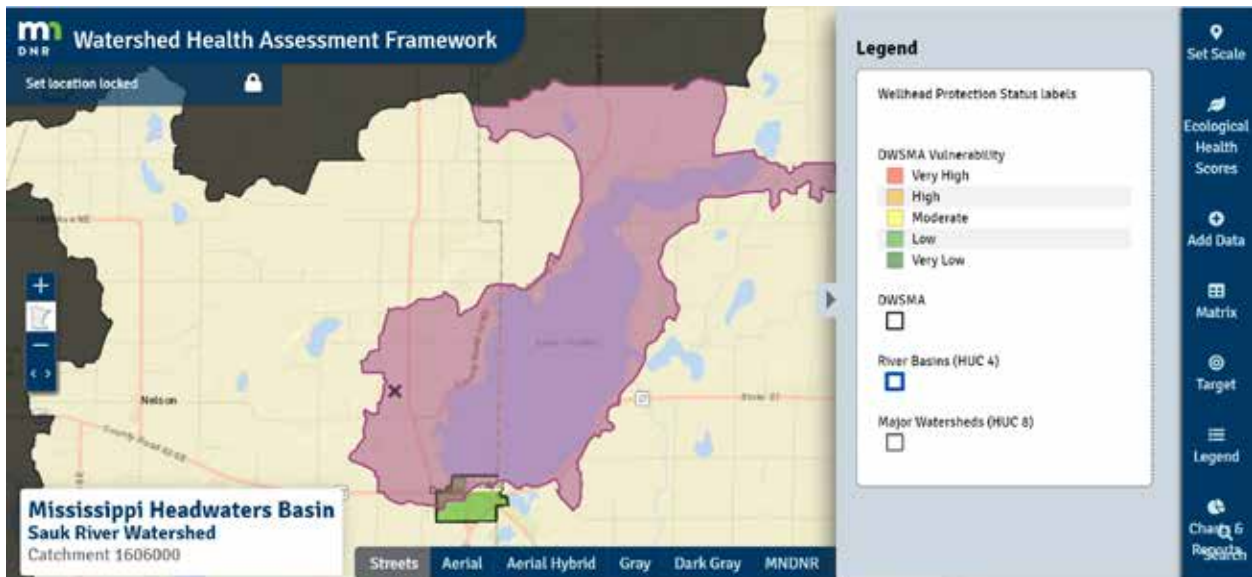
It is important to note that the *WHAF tool does not enable the user to print a map, therefore it is necessary to take a screenshot to share the map.* You can capture a screenshot in Windows by using the keyboard shortcut Alt + Print Screen.

## 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.

# Using Groundwater Data to Target Protection Activities

**Assess Risk**

- **Pollution Sensitivity of Near Surface Materials**
- **Geologic Sensitivity at Wells**
- **Drinking Water Supply Management Area (DWSMA) Vulnerability**
- **Primary Aquifers by Section**
- **Drinking Water Wells per Section**
- **Groundwater Protection Rule DWSMAs**
- **DWSMA SW Priority Areas A & B (St. Cloud, Minneapolis, St. Paul only)**
- MN Well Index (https://mnwellindex.web.health.state.mn.us/)

**Evaluate Land Use**

- Row crops (Crop Data Layer 2019 in WHAF)
- Irrigation
- Feedlots (in WHAF)
- Stormwater Runoff (MS4)
- Subsurface Sewage Treatment Systems (SSTS)
- Flood Zones (FEMA Q3 Floodways in WHAF)
- Protection areas (forested land, CRP, perennial establishment)

**Evaluate Data**

- **County Well Index Max Nitrate (mg/L)**
- **County Well Index Max Arsenic (ug/L)**
- **Township Testing Program Initial Nitrate Results**
- **Township Testing Program Final Nitrate Results**
- MDA Ambient Groundwater Quality Monitoring Program (www.mda.state.mn.us/pesticide-fertilizer/agricultural-chemical-monitoring-assessment)
- MPCA Ambient Groundwater Monitoring Program (https://www.pca.state.mn.us/water/groundwater-data)
- MNDNR Permitting and Reporting System (MPARS) (https://www.dnr.state.mn.us/mpars/index.html)

**Target**

- To protect groundwater, target areas of high pollution sensitivity/vulnerability, with the exception of well sealing.
- Well sealing is a priority regardless of groundwater sensitivity/vulnerability, especially in low vulnerable settings where an used well is the main pathway for contamination.

To view data sources highlighted in **green** in map form go to the Watershed Health Assessment Framework (WHAF) at https://www.dnr.state.mn.us/whaf/index.html.
- For WHAF data specific to the BWSR Drinking Water Sub-Grant, use the term 'GRAPS' (Groundwater Restoration and Protection Strategies) as a search filter.