

## Welcome to the Surface Water Data Viewer!

The Surface Water Data Viewer is a mapping tool for the State of Wisconsin. It provides interactive web mapping tools for a variety of datasets, including chemistry, physical, and biological data. The data managed in layers that can be turned on and off as needed. The following page shows the homepage of the Surface Water Data Viewer (SWDV) with many commonly used features labeled. Descriptions of the features are as follows:

**Toolbars:** There are a variety of toolbars with different themes to help complete tasks using the SWDV. The toolbars can be used to display the layers available to the map, add or remove shapes, text, or measurement features, identify points, print maps, and more!

**Search Bar:** Using the search bar, you can search monitoring stations by number, locations by keyword, and waterbodies by WBIC. Be careful when using the search bar, partial matches do not always appear in the results.

**Navigation Pane:** The navigation pane is where results will appear from searches, where you are able to select layers for the map, and features for printing. You will be able to refine the data that is shown here, if desired. You can hide the navigation pane by clicking the left-facing arrow at the top.

**Coordinates and Coordinate System:** The coordinates will display for any point moused-over on the map. Click the black triangle to select your preferred method for displaying lat/long (DD, DMS, DDM, Mercator). The right-most option in this pane allows you to manually manage the scale of the map. Click on the scale tool, and selected the desired scale at which you wish to view the map. Select **Go** to implement changes.

**Scale Bar:** The scale bar shows the current extent of the map.

**Whole State View:** This view describes what is being shown on the main map relative to the entire state. A blue rectangle will cover the region of the state being shown on the map. You can also navigate the map by moving the blue square around the state-view map. If you print a map, this whole state view will print in the corner as a reference. You can minimize this view by clicking the corner-facing arrow in the top left edge of the box.

**Show/Hide Toolbar:** Use this button to hide the toolbar for a larger view of the map. If you have hidden the toolbar, you can also use this button to show it again.



**Surface Water Data Viewer**

Maps & Data Basic Tools Locate & Identify Draw & Measure Additional Resources

Open Save Save as Upload Data Add Layers Print Export Share

Projects Data Maps

Home

Welcome to the Surface Water Data Viewer (SWDV), a Wisconsin DNR data delivery system that provides interactive web mapping tools for a wide variety of datasets including chemistry (water, sediment), physical, and biological (macroinvertebrate and fish) data.

**Toolbar**

- Click on the "Show Layers" button above to view map data in the Layers panel
- Use Pan, Zoom In/Out, and Previous/Next/Full Extent buttons to navigate around map
- Click anywhere on the map for information about features at that location
- Click the Print button to generate a custom map

**Map Layers**

- Click the plus sign (+) to expand the data content in the layers
- Turn a map layers on/off by clicking the checkbox next to the layer name
- If layers are gray in color, zoom in closer until text turns black for layer to turn 'on'

**Find Locations**

- To locate a specific feature, use tools from the Locate & Identify tab or enter text into the Search Box

Visit [DNR Maps and Aerial Photography](#) for additional maps and information

Home Layers

Navigation Pane

Scale Bar

Coordinates and Coordinate System

Search Bar

Show/Hide Toolbar

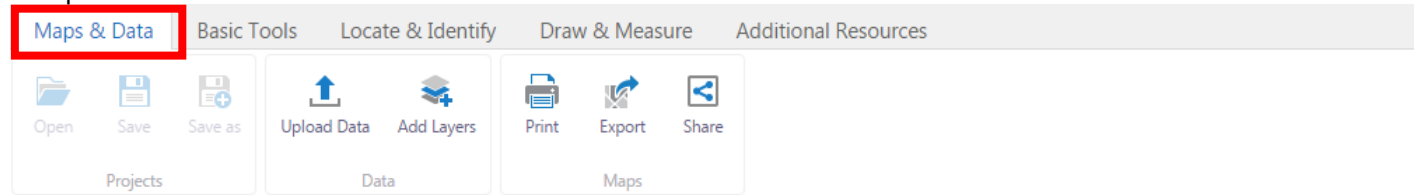
Whole-State View

WKID: 4326 Lat/Long Lat: 46.31686° N Lon: 84.02659° W Scale 1: 4,055,040

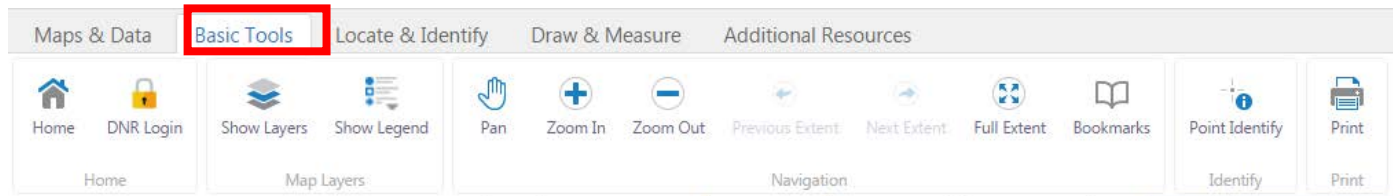
Terms of Use DNR Website SWIMS WATERS NHI Portal Comment

When using the Surface Water Data Viewer, there are a variety of Toolbars that can be applied. Toolbars give you the ability to plot points on the map, make drawings, label points, measure distances, etc. The most common Toolbars that you will use are:

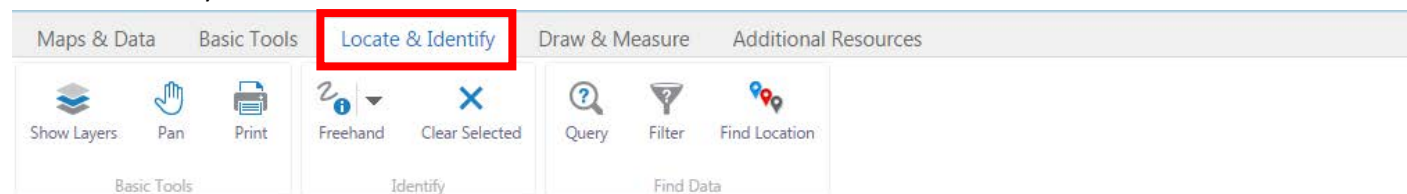
1. **Maps & Data**



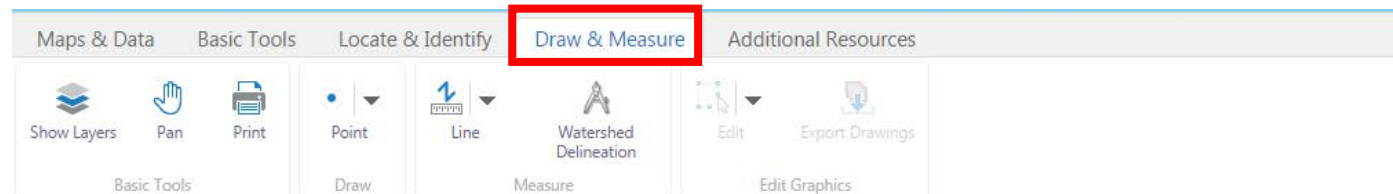
2. **Basic Tools**



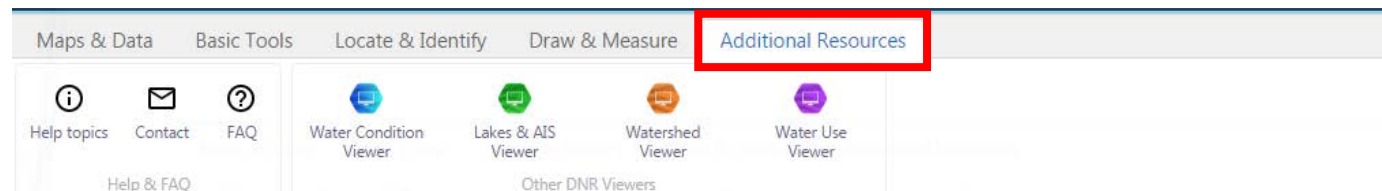
3. **Locate & Identify**



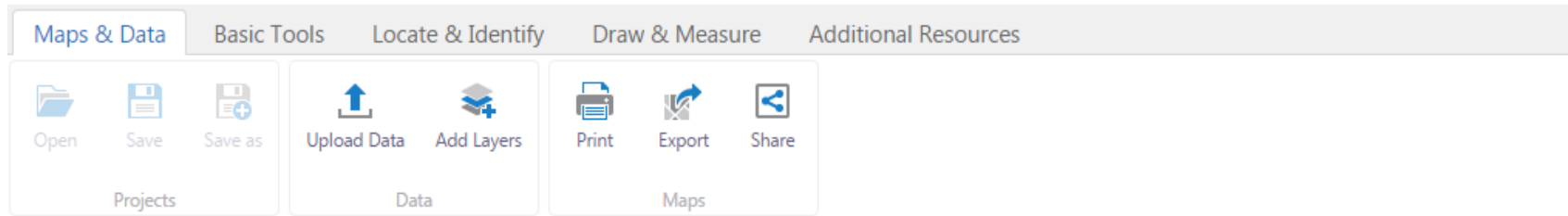
4. **Draw & Measure**



5. **Additional Resources**



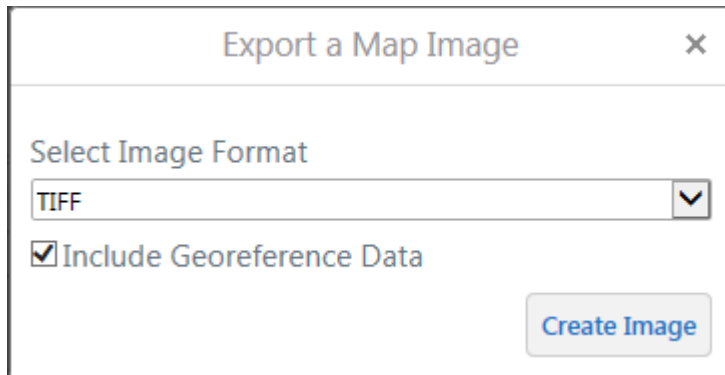
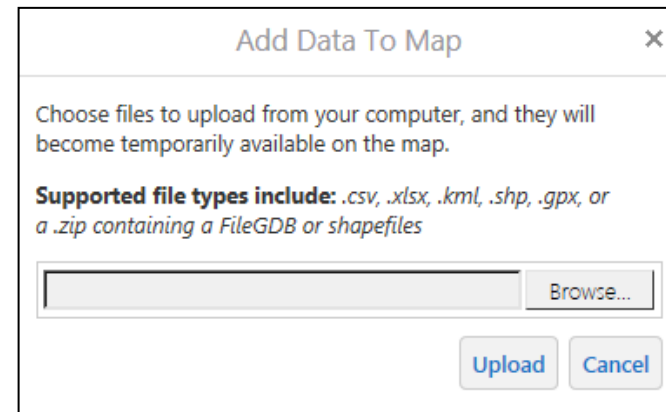
## The Maps & Data Toolbar



**Upload Data:** Use this tool to temporarily upload data from your computer to the map. Select the **Upload Data** tool. A dialogue box will appear. Use the **Browse** button to search for the file that you would like to upload. Once you have selected the file, select **Upload** to temporarily add the data to the map.

**Add Layers:** Use this tool to temporarily add layers from an outside valid map service to the Surface Water Data Viewer map.

**Print:** This tool will print the current extent of the map, including all plotted points and drawings within that extent. The printed map will also include the **Whole State View**.

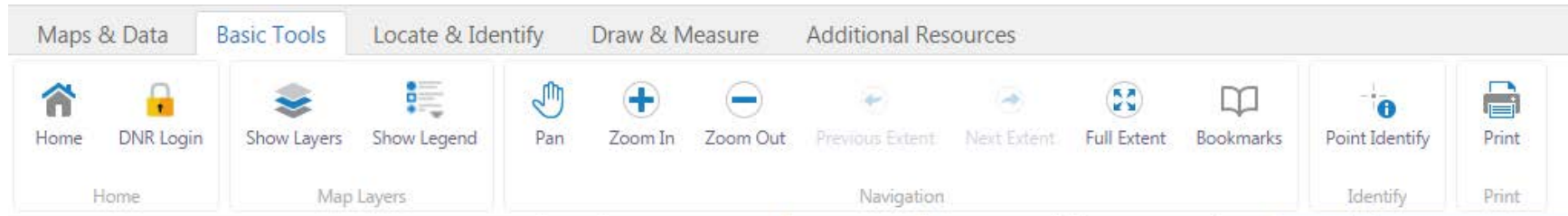


**Export:** This tool will export your current map to an image format. Formats include: BMP, JPEG, PNG, TIFF, GeoTIFF, and PDF. Select **Include Georeference Data** to download the spatial reference information embedded in the map. Checking this box will be helpful for maps downloaded for later use in other mapping applications.

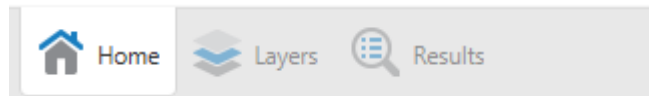
**Share:** Use this tool to share your map via email or social media platform such as Facebook or Twitter.



## The Basic Toolbar



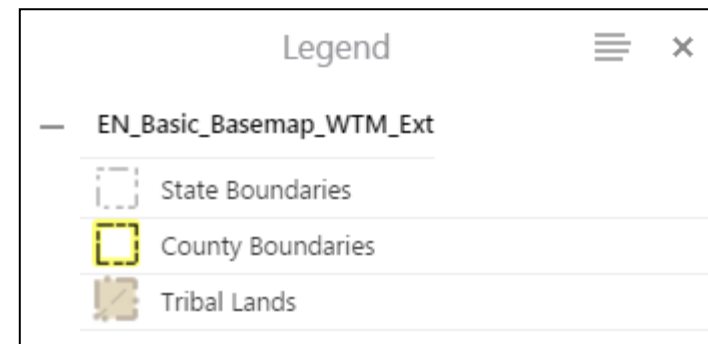
**Home:** The home button can be found in two places. The first is in the **Basic Tools Toolbar**. The second is in the ribbon at the bottom of the **Navigation Pane**.



Clicking on **Home** will open up the basic description of the SWDV in the **Navigation Pane**. If you have search results, don't worry, clicking **Home** does not lose your results. You can return to your results by clicking the **Results** tab in the bottom ribbon. **Home** does not change the view on the map.

**Show Layers:** This tool opens a list in the navigation pane of data layers that can be applied to the map. See the following page for a screenshot of the **Show Layers** pane. These layers can be turned on or off to apply different datasets to the map.

**Map Legend:** The **Map Legend** describes each of the features on the map. As more layers are added to the map, it will become more complicated and more features will be added to the legend. When a map is printed, the legend will print alongside it. The accompanying image shows the initial map legend before additional layers have been applied to the map.



This is the list of layers that will appear when the **Show Layers** tool is selected. Scroll down through the **Navigation Pane** to view all available layer categories. Select the **+** on a layer category to view available layers within that category.

Layers

All Available Layers

- +  Surface Water
- +  Watershed Boundaries
- +  Monitoring Sites & Data
- +  Boat Landings & Access
- +  Dams & Floodplains
- +  Clean Water Act Standards & Uses
- +  Assessments & Impairments
- +  Priority Navigable Waterways (PNW)
- +  Fisheries Management
- +  Grant Locations
- +  Permits & Determinations
- +  Sediment Inventory

Home Layers

**Monitoring Sites & Data** is a common layer category that you may use in the SWDV. Here is an expanded view of the layers within that category.

Layers

All Available Layers

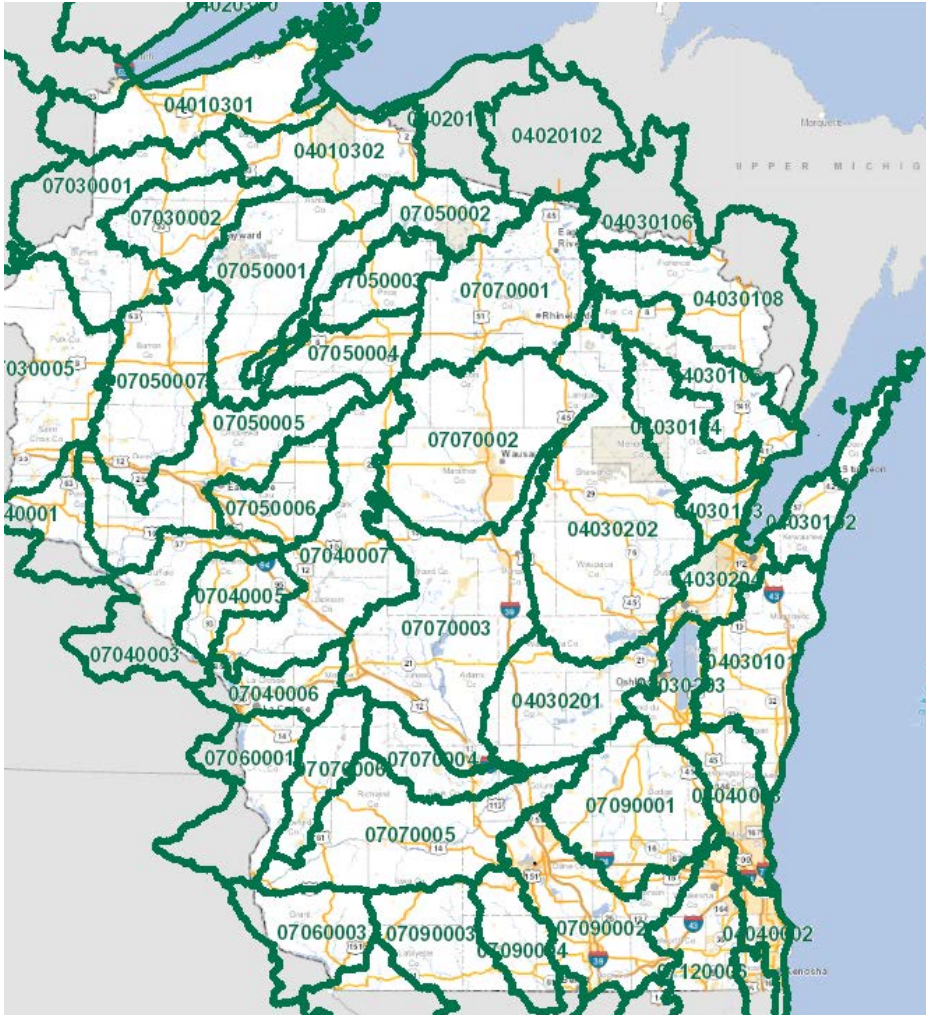
- +  Watershed Boundaries
- Monitoring Sites & Data
- Monitoring Station Points
- Monit. Station Pts w/ Data
  - Station Points with Historic Data
  - Station Points with Recent Data (10 years)
- +  Monit. Station Pts w/o Data
- +  Monitoring Station Lines
- +  Monitoring Station Areas
- +  FMDB Survey Sites
- Calculated Total Phosphorus (NR217) (2000-2014)
- Macroinvertebrate IBI 10-Yr

Home Layers



Looking at the list of layers that you can apply, the variety can get overwhelming! There are a few that you may use more often than others.

For Citizen-based Stream Monitoring projects, regions are separated by HUC (Hydrologic Unit Code) 8 – Subbasins. To view the HUC 8s in Wisconsin, scroll through the list of layers to **Watershed Boundaries**. Click on the + sign to expand. Select the checkbox for **Watershed Boundaries** as well as the **8-digit HUCs (Subbasins)** option.



It will take a few seconds for the map to populate with this layer information.

|                                     |                                    |   |
|-------------------------------------|------------------------------------|---|
| <input checked="" type="checkbox"/> | <b>Watershed Boundaries</b>        |   |
| <input type="checkbox"/>            | DNR Priority Watersheds            | > |
| <input type="checkbox"/>            | DNR Water Management Units         | > |
| <input type="checkbox"/>            | WHD-Plus Catchments                | > |
| <input type="checkbox"/>            | Great Lakes and Mississippi Basins | > |
| <input type="checkbox"/>            | 12-digit HUCs (Subwatersheds)      | > |
| <input type="checkbox"/>            | 10-digit HUCs (Watersheds)         | > |
| <input checked="" type="checkbox"/> | 8-digit HUCs (Subbasins)           | > |

You can use the **Point Identify** tool to learn more about each of these subbasins. You will learn more about the **Point Identify** tool in the following pages.

To turn off the **HUC 8** layer, uncheck the box(es).










Another interesting map layer is the **Great Lakes and Mississippi Basins** layer. This layer delineates the major basins into which the subwatersheds of Wisconsin drain.

To turn on this layer, navigate again to the line of text that reads **Watershed Boundaries** and click the + to expand.

Check the box for **Great Lakes and Mississippi Basins**. The map will take a few seconds to populate with the data layer.

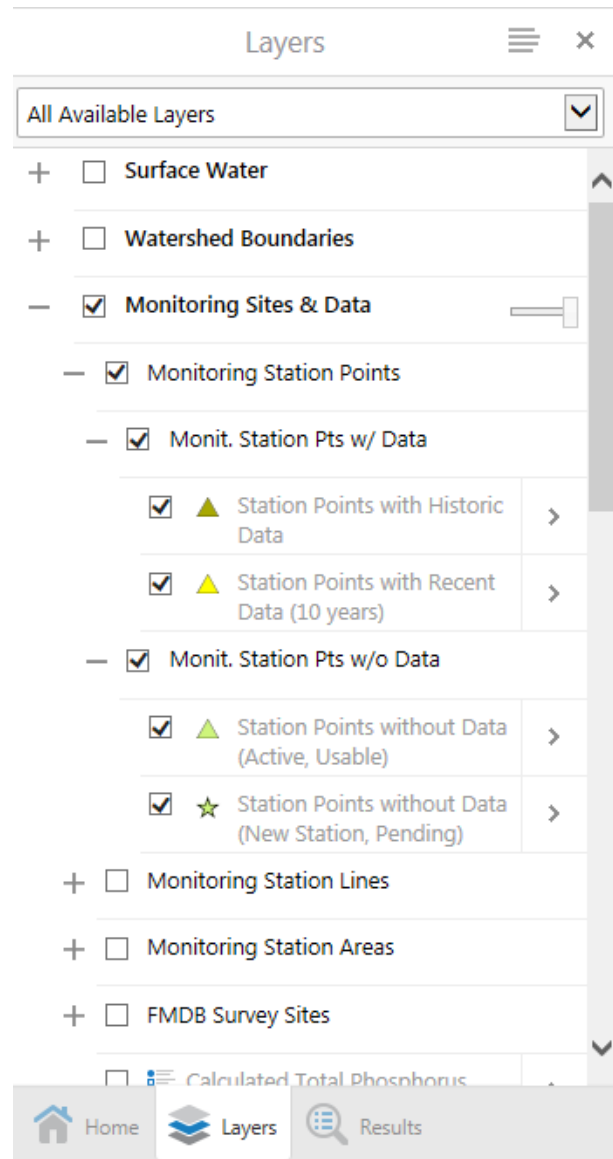


| — <input checked="" type="checkbox"/> <b>Watershed Boundaries</b>   |   |
|---|---|
| <input type="checkbox"/>             | DNR Priority Watersheds >                   |
| <input type="checkbox"/>             | DNR Water Management Units >                |
| <input type="checkbox"/>             | WHD-Plus Catchments >                       |
| <input checked="" type="checkbox"/>  | <b>Great Lakes and Mississippi Basins</b> > |
| <input type="checkbox"/>             | 12-digit HUCs (Subwatersheds) >             |
| <input type="checkbox"/>             | 10-digit HUCs (Watersheds) >                |
| <input type="checkbox"/>           | 8-digit HUCs (Subbasins) >                  |

You can use the **Point Identify** tool to learn more about each of these basins. You will learn more about the **Point Identify** tool in the following pages.

To turn off the **Great Lakes and Mississippi Basins** layer, uncheck the box(es).

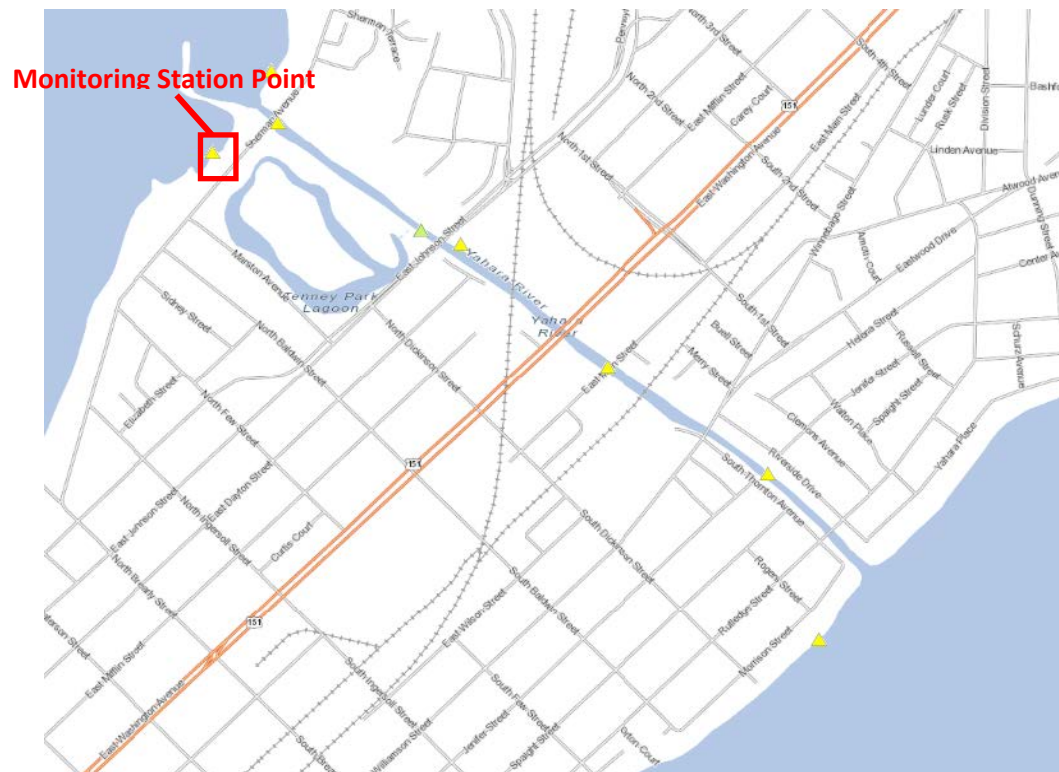
The most common map layer that you will likely use is the one that shows current and historic monitoring station points. This layer is very helpful when looking for monitoring data or if you are looking to set up a new monitoring location. In this section, you will see what the layer looks like, and how to turn it on and off. As you learn more about the toolbars, you will learn more about the features of this data layer.



To turn on this data layer, expand the text for **Monitoring Sites & Data**. To view all existing monitoring stations, check the boxes for

- **Monitoring Sites & Data**
- **Monitoring Station Points**
- **Monit. Station Pts w/ Data**
- **Monit. Station Pts w/o Data**

This layer contains a lot of data. It may take up to a minute or two to populate the map. Each time you zoom to a new extent of the map, it may have to reload all of the points. Be patient!



**Pan:** Use the pan tool to drag the map, or to move your view across the map without selecting features or zooming.

**Zoom In:** Use this tool to enlarge a selected location. This can also be done by clicking on the + symbol adjacent to the **Navigation Pane** on the map.



**Zoom Out:** Use this tool to view a broader extent of the map. This can also be done by clicking on the – symbol adjacent to the **Navigation Pane** on the map.

**Previous Extent:** Use this tool to return to the previous view of the map. For example, if you were zoomed in on Waukesha County, and then you panned west to Grant County, **Previous Extent** will return you to a view of Waukesha County.

**Next Extent:** After selecting **Previous Extent**, use this tool to return forward to the last extent viewed. Using the previous example, this tool would return you to the view of Grant County.

**Full Extent:** Full State will zoom the map out to view the entire state. Any layers you have applied to map will remain.

**Bookmarks:** Use this tool to bookmark the current map extent. After creating bookmarks, select the **Bookmarks** tool to return to your saved map extents.



**Point Identify:** Use the **Point Identify** tool to gather information about features on the map. Select the tool, then click on the feature. Information will appear in the Navigation pane to the left.

For example, given this extent on the map, you have already turned on the **Monitoring Station Points** layer.

To learn more about the selected monitoring station, click on the **Point Identify** tool.

Use the mouse to click on the yellow triangle representing the monitoring station.

Results Box

Identify Results (4)

- Yahara River (WBIC 798300)**  
River or Stream  
[Metadata](#) | [About the Water](#)
- Yahara River**
- Yahara River downstream Tenney locks at Sherman Ave (Station 10032544)**  
Monitoring Station [Metadata](#)  
[Link to Monitoring Data](#)
- Yahara River (WBIC 798300)**  
Lake or Open water  
[About the Water](#) | [Lake Page](#) | [Metadata](#)

Displaying 1 - 4 (Total: 4)

Page 1 of 1

Home Layers Identify Re...

0.4km  
0.3mi

Contains Tele Atlas North America, Inc, WIDNR, BCPL, WDOT, USFS,...

In the navigation pane to the left, a series of information appears. In this case, you are presented with the name of the monitoring station and the waterbody on which the station lies. The small map next to the name of the feature can be used to pan to the feature on the map. The results will also appear in the **Results Box** at the top of the map. The selected result in the **Results Box** will be marked on the map with a red marker icon. Use the left and right arrows to scroll to the result of your choice. The **Point Identify** tool can be used on any waterbody or map feature.

For more information about the monitoring station, click on the name of the station. Further information will appear in the **Navigation Pane**.

Yahara River downstream Tenney locks at Sherman Ave

Description

Monitoring Station [Metadata](#)  
[Link to Monitoring Data](#)

Details

SWIMS Station ID  
10032544

Primary Station Name  
Yahara River downstream Tenney locks at Sherman Ave

WBIC  
798300

Waterbody Name  
Yahara River

Station Type  
RIVER/STREAM

Station Status Code  
ACTIVE

Earliest Fieldwork Date  
02/12/2011

Latest Fieldwork Date  
10/26/2011

Fieldwork Code  
RECENT

Home Layers Yahara Rive...

List Symbol

Click on the **List Symbol** for further options regarding the identified point. The following options will appear:

**Show Expanded View:** Use this tool to open an expanded view of the feature details. This view will open as a pane in the bottom half of your screen.

Yahara River downstream Tenney locks at Sherman Ave (Station 10032544)

| Description   | Details                               |
|---|---------------------------------------|
| SWIMS Station ID<br>10032544  | Station Status Code<br>ACTIVE         |
| Primary Station Name<br>Yahara River downstream Tenney locks at Sherman Ave | Earliest Fieldwork Date<br>02/12/2011 |
| WBIC<br>798300  | Latest Fieldwork Date<br>10/26/2011   |
| Waterbody Name<br>Yahara River  | Fieldwork Code<br>RECENT              |
| Station Type<br>RIVER/STREAM  |                                       |

**Show Buffer Options:** Use this tool to identify nearby features within a desired buffer zone of the identified point.

**Zoom to Feature:** Use this tool to zoom to the selected feature on the map.

**Pan:** This tool will pan the map to your selected feature.

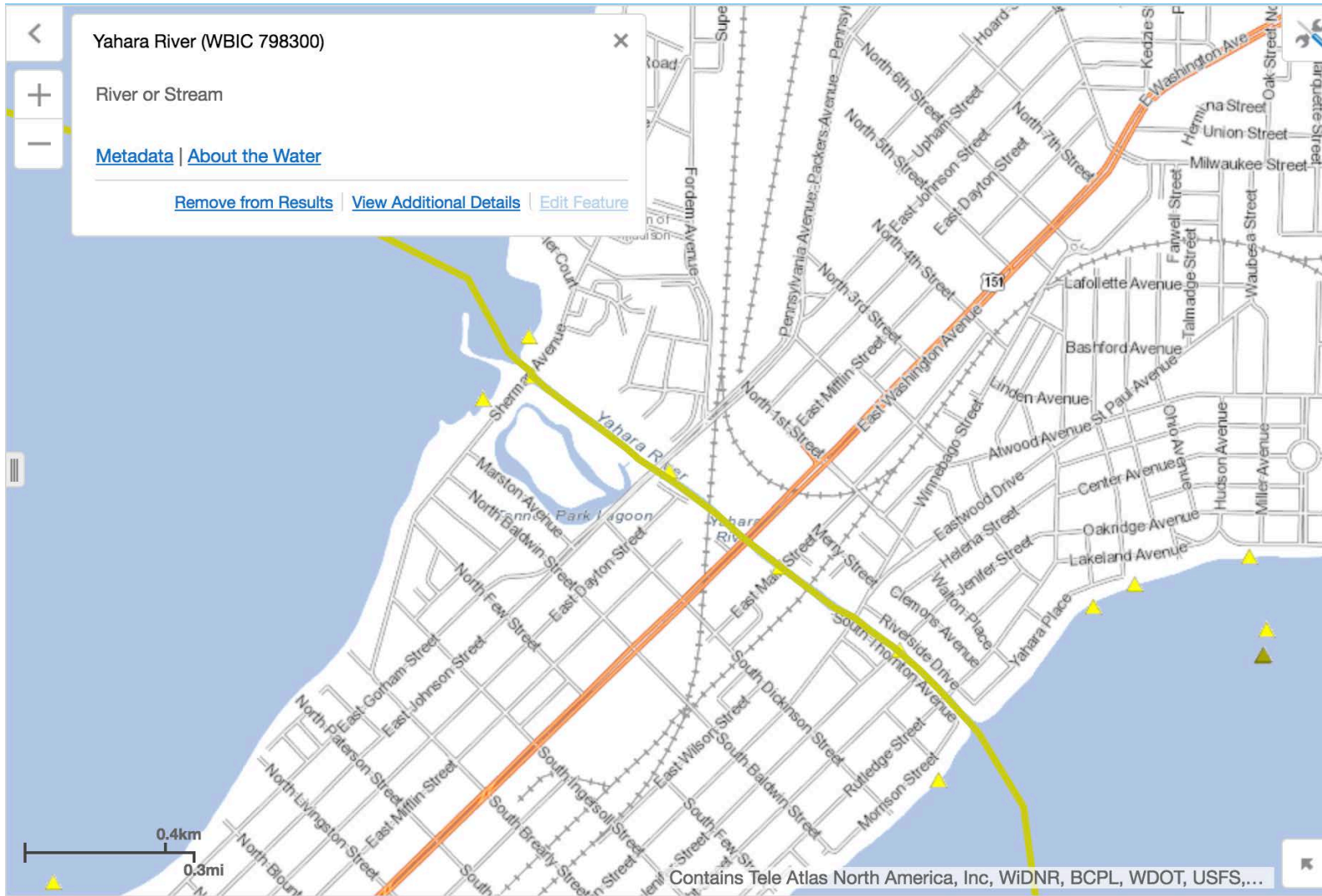
**Remove from Results:** This option will remove this feature from the current set of results. The feature will still show up in future result sets.



To access monitoring data from this station, click **Link to Monitoring Data**. A new tab will open in your browser through the SWIMS database, displaying a table of monitoring data for the selected site. This data can be sorted by parameter using the **Show specific parameter** dropdown menu.

| Monitoring Station   |                     |                                 |         |                  |            |                |              |
|--|---------------------|---------------------------------|---------|------------------|------------|----------------|--------------|
| Station ID 10032544  |                     |                                 |         |                  |            |                |              |
| Station Name Yahara River downstream Tenney locks at Sherman Ave |                     |                                 |         |                  |            |                |              |
| Show specific parameter: <Show All>                              |                     |                                 |         |                  |            |                |              |
| Sample Results   |                     |                                 |         |                  |            |                |              |
| Project  | Date/Time           | DNR Parameter                   | Species | Result           | Units      | Present/Absent | Lab Comments |
| Urban Road Salt Study - Madison Sites                            | 10/27/2011 01:05 PM | TEMPERATURE FIELD               |         | 11.9             | DEGREES C  |                |              |
| Urban Road Salt Study - Madison Sites                            | 10/27/2011 01:05 PM | AMBIENT AIR TEMPERATURE - FIELD |         | 10.5             | DEGREES C  |                |              |
| Urban Road Salt Study - Madison Sites                            | 10/27/2011 01:05 PM | CONDUCTIVITY FIELD              |         | 500              | uS/cm      |                |              |
| Urban Road Salt Study - Madison Sites                            | 10/27/2011 01:05 PM | Event Type                      |         | PRIMARY_SAMPLING | EVENT_TYPE |                |              |
| Urban Road Salt Study - Madison Sites                            | 10/27/2011 01:05 PM | Conductivity Meter Calibration  |         | YES              |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 10/27/2011 01:05 PM | Ice Covered Water               |         | No               |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 10/27/2011 01:05 PM | Chloride Grab Sample Taken?     |         | NO               |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 10/27/2011 01:05 PM | WATER LEVEL (VISUAL)            |         | LOW              |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 10/27/2011 01:05 PM | Weather                         |         | CLOUDY           |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | TEMPERATURE FIELD               |         | 14.3             | DEGREES C  |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | AMBIENT AIR TEMPERATURE - FIELD |         | 16.1             | DEGREES C  |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | CONDUCTIVITY FIELD              |         | 490              | uS/cm      |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | CHLORIDE DISS                   |         | 48.8             | MG/L       |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | Event Type                      |         | PRIMARY_SAMPLING | EVENT_TYPE |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | Conductivity Meter Calibration  |         | YES              |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | Ice Covered Water               |         | No               |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | Chloride Grab Sample Taken?     |         | YES              |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | Point or Outfall Number         |         | 49684220         |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | WATER LEVEL (VISUAL)            |         | NORMAL           |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/30/2011 01:55 PM | Weather                         |         | SUNNY            |            |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/01/2011 06:00 PM | TEMPERATURE FIELD               |         | 27.7             | DEGREES C  |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/01/2011 06:00 PM | AMBIENT AIR TEMPERATURE - FIELD |         | 30.3             | DEGREES C  |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/01/2011 06:00 PM | CONDUCTIVITY FIELD              |         | 440              | uS/cm      |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/01/2011 06:00 PM | Event Type                      |         | PRIMARY_SAMPLING | EVENT_TYPE |                |              |
| Urban Road Salt Study - Madison Sites                            | 09/01/2011 06:00 PM | Conductivity Meter Calibration  |         | YES              |            |                |              |

If you use the **Results Box** to select the waterbody, in this case the Yahara River, the entire body of water will be highlighted.





To learn more about the selected waterbody, click the link **About the Water**. You will be directed to a new page.

Business Licenses & Regulation Recreation Education Contact Join DNR Search or Keywords

Explore Water Waters Lakes Watersheds Basins Impaired Waters Projects Help

**Yahara River, Yahara River and Lake Mendota, Six Mile and Pheasant Branch Creeks Watershed (LR09, LR10)**  
**Yahara River (798300)**

[Return to Search](#) [Go to Watersheds](#)

**Size** 4.40 Miles  
**Segment** 42.71 - 47.11  
**Natural Community** [?](#) Cool-Warm Mainstem  
**Year Last Monitored** [?](#) 2016  
**General Condition** Poor



- Overview
- Conditions
- Goals
- Monitoring & Projects
- Ecosystem Challenges
- Fish & Habitat
- Photo Gallery
- Map Gallery

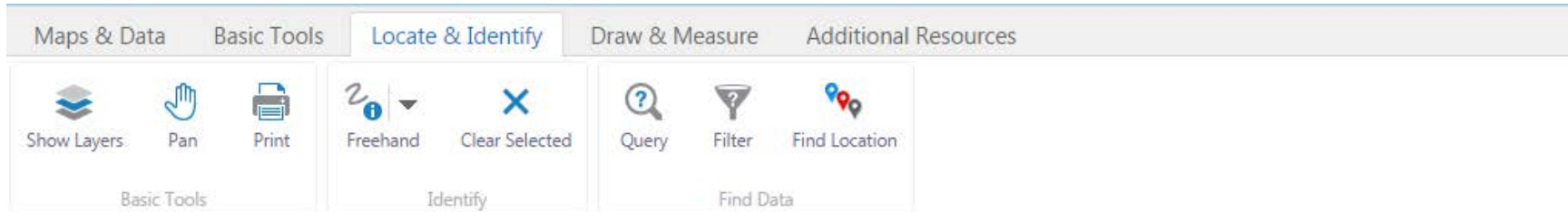
**Overview**

The Yahara River is a large tributary to the Rock River, draining over 1/3 of Dane County. The river is nearly 40 miles in length with 23 miles in the Yahara-Kegonsa watershed. The stretch of the Yahara River in this watershed flows from the dam at Lake Waubesa and ends at the river's confluence with the Rock River. The river is slow-moving in most areas with an average gradient of 3.6 feet/mile and a baseflow of 68.8 cfs as it passes through the largely agricultural landscape.

The section of the Yahara that flows south from Lake Kegonsa was added to the 303(d) list in 1996. The 303(d) listed waters are those waters, which have impairment that prohibit them from meeting their potential use. Environmental problems have impacted the level of flow, habitat, fish migration, turbidity, dissolved oxygen, and sedimentation on the Yahara River. Efforts have been made over the past 20 years to reduce non-point and point source pollution. Despite these efforts, however, the Yahara River continues to be on the 303 (d) list of impaired waters. Fishkills, usually due to low dissolved oxygen, also continue to be a problem in the Yahara River below Lake Monona. Although there is some point source pollution to the river, the greatest water quality problem in this stretch of the Yahara is from urban and rural non-point source pollution. Urban stormwater run-off carries sediment and pollutants to area surface waters. In addition, high development pressures in the region pose the threat of increasing construction site erosion. Since the majority of Dane

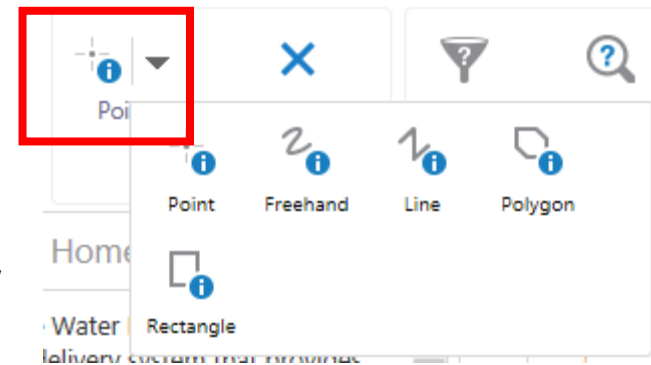
|   |                               |
|---|-------------------------------|
| <b>Counties</b>   | Dane                          |
| <b>Trout Water</b> <a href="#">?</a> <a href="#">?</a>                | No                            |
| <b>Outstanding or Exceptional</b> <a href="#">?</a> <a href="#">?</a> | No                            |
| <b>Impaired Water</b> <a href="#">?</a> <a href="#">?</a>             | No                            |
| <b>Fish and Aquatic Life</b>  |                               |
| <b>Current Use</b> <a href="#">?</a>                                  | FAL <a href="#">?</a>         |
| <b>Attainable Use</b> <a href="#">?</a>                               | FAL <a href="#">?</a>         |
| <b>Designated Use</b> <a href="#">?</a>                               | Default FAL <a href="#">?</a> |

## The Locate & Identify Toolbar

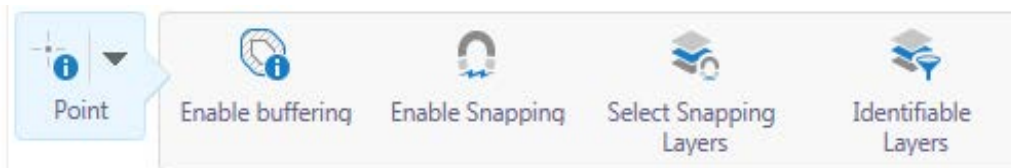


The **Locate & Identify Toolbar** contains a variety of tools to complete similar functions. In the same way that you can use the **Point Identify** tool in the **Basic Toolbar** to select a single point on which to gather more details, most of the tools in this toolbar will garner similar results.

To use the **Identify** tools, first select the **Identify** tool button. The **Identify** tool button is not named on the toolbar. Instead, it appears as whatever identification form you have selected. The basic tool is **Point**. The **Point** tool will be the default in the **Locate & Identify Toolbar** until changed by the user. From here, there are a variety of options for identification. Use the dropdown arrow to navigate these options. Each tool also has a series of accompanying options explained below.



**Point:** This tool functions the same as the **Point Identify** tool in the **Basic Toolbar**. This tool can be used to identify a single point on the map. Select the tool, and then select the desired location on the map. Any available, relevant information will appear in the results pane on the left side of the viewer.



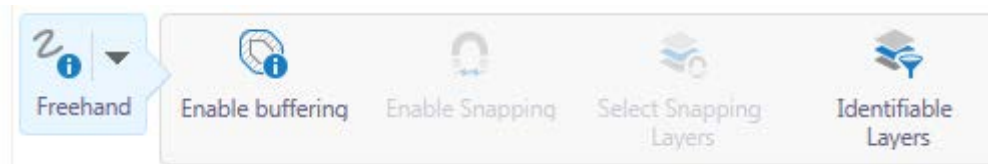
**Enable Buffering:** This tool appears as an option for each **Identify** tool type. If you select **Enable Buffering**, the **Buffer Options** will appear in the **Navigation Pane**. Enter the buffer distance, and the distance units. Click **Continue** to apply the buffer. This will add any results to the results pane within the buffer zone of your drawn feature.

**Enable Snapping:** Snapping accounts for inaccuracy in your identified location. If **Enable Snapping** is selected, the **Identify Tool** will snap the point identifier to a feature within the circular snapping tool. **Enable Snapping** is available on all **Identify** tools except **Rectangle**.

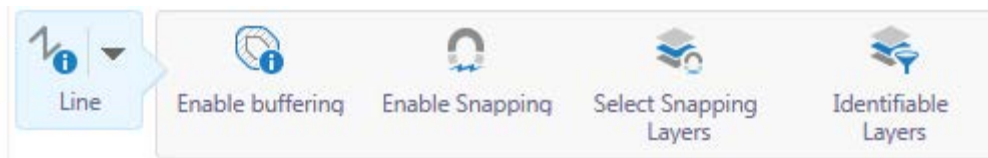
**Select Snapping Layers:** This tool will open a list of **Snappable Layers** in the **Navigation Pane**. Select the layers to which you want the **Enable Snapping** tool to snap. The snapping tool will only snap to selected layers. This tool is available on all **Identify** tools except **Rectangle**.

**Identifiable Layers:** This option will produce a list of **Identifiable Layers** in the **Navigation Pane**. Select the layers for which you would like results to appear when using **Identify** tools. This option is available on all **Identify** tool types.

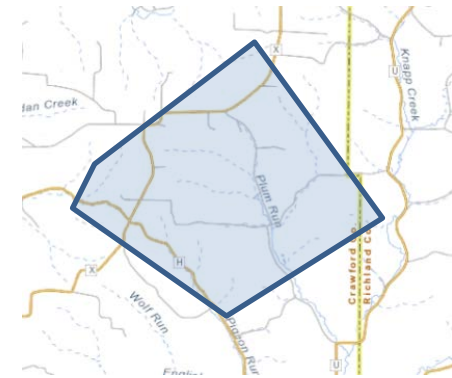
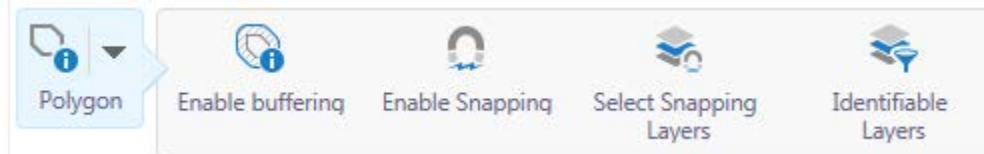
**Freehand:** Use this tool to freehand-draw a shape around a select area on the map. Any available, relevant information about features within the selected area (including, but not limited to monitoring station points, WBICs, municipality names, etc.) will appear in a list in the results pane on the left side of the viewer.



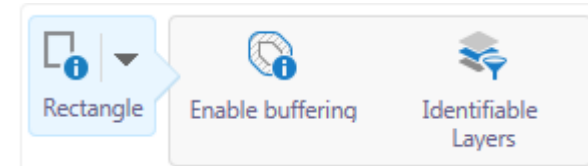
**Line:** Use this tool to draw a line or set of connected lines on the map. Relevant, available information about features through which the line passes will populate the results pane on the left side of the viewer. To begin drawing the line, click in the desired location on the map. To complete drawing the line, double click. To create adjoining lines, single click between line segments.



**Polygon:** Use this tool to draw a polygon around a desired location on the map. Relevant, available information about features within the drawn polygon will populate the results pane on the left side of the viewer. To draw the polygon, select a location for the starting vertex. Click on the map to place additional vertices. Double click to complete the polygon.



**Rectangle:** Use this tool to draw a rectangle around a desired location on the map. Relevant, available information about features within the rectangle will appear in the results pane on the left side of the viewer. To draw the rectangle, select a location for the starting vertex, and drag the mouse until the rectangle reaches the desired size.



Query ×

Data Source:

10-digit HUCs (Watersheds) ▼

HUC Name ▼

contains ▼

Add Another Condition

Spatial Filter:

None ▼

Search

**Clear Selected:** Use this tool to clear all **Identify** drawings from the map.

**Query:** Use this tool to perform an advanced search for a feature. Selecting **Query** will open a process in the **Navigation Pane**. Select the **Data Source** on which you would like to perform the **Query**. Conditions for the **Query** can then be changed for the **Data Source**. Select any of the conditions to provide a dropdown menu for **Query** options.

If necessary, **Add Another Condition**.

You can filter the search results spatially. Results can either be gathered from the entire map or from the current extent being viewed using the **Spatial Filter** dropdown menu.

Click **Search** to run the **Query**.

**Filter:** Use this tool to filter results. The conditions for this tool are similar to those in the the **Query** tool.

**Find Location:** Use this tool as a search feature to find specific features on the map. Selecting **Find Location** will generate a list of search options in the **Navigation Pane**. To find a location, select the feature radio button, and click **Find**.

### Find Location

- Assessment Unit
- City, Town, Village
- Coordinates - DD
- Coordinates - DMS
- Coordinates - WTM
- County
- Dam
- DNR Management Unit
- Floodplain Analysis
- Impaired Waters 303(d)
- Lakes and Open Waters
- Rivers and Streams
- SWIMS Station
- Township, Range, Section
- USGS Gage Station
- Watershed
- Waterway & Wetland Permits

Common **Find Location** options you may use could include:

**City, Town, Village:** Use this option to return results on a desired city, town, or village. Enter the location name into the **Name** search bar. Select **Find** to run the search.

#### Find City, Town, Village ×

Name \*

**Coordinates – DD:** Search for a location using decimal degrees. Enter the **Lat** and **Long** into the respective search bars. Select the desired **Zoom To** size, and click **Find**.

**Zoom To** will define the extent of the map returned when you click **Find**.

**Coordinates – DMS:** Search for a location using the degrees, minutes, seconds format. Enter the values for **Latitude** and **Longitude**. Select the desired **Zoom To** size, and click **Find**.

**Coordinates – WTM:** Search for a location using the Wisconsin Transverse Mercator projection. Enter the values for **X** and **Y**. Select the desired **Zoom To** size, and click **Find**.

#### Find Coordinates - DD ×

Lat \*

Long \*

Zoom To

|   |   |
|---|---|
| Size *  | Unit  |
| <input style="width: 40px;" type="text" value="1"/> | <input style="width: 40px;" type="text" value="Miles"/> ▼ |

**Rivers and Streams:** Search for a River or Stream with this tool. Use the **Search Type** dropdown to select the parameter by which you would like to perform the search: **Name** or **WBIC**. If the **Name** or **WBIC** is known, enter it into the **Value** field. Use the **County** dropdown to select your search region. Click **Find** to run the search.

**SWIMS Station:** Use this tool to search by SWIMS Station ID. The monitoring stations used for the WAV Program are **Points**. Select the appropriate **Search Type** from the dropdown menu, **SWIMS ID** or **Name**. Enter the **Value** into the search bar. Click **Find** to run the search and return results.

Find SWIMS Station
×

Station Shape

Search Type

Value \*

**Watershed:** Use this tool to locate a specific watershed on the map. Select the desired **Watershed** from the dropdown menu. Click **Find** to return results.

Find Watershed
×

Watershed \*

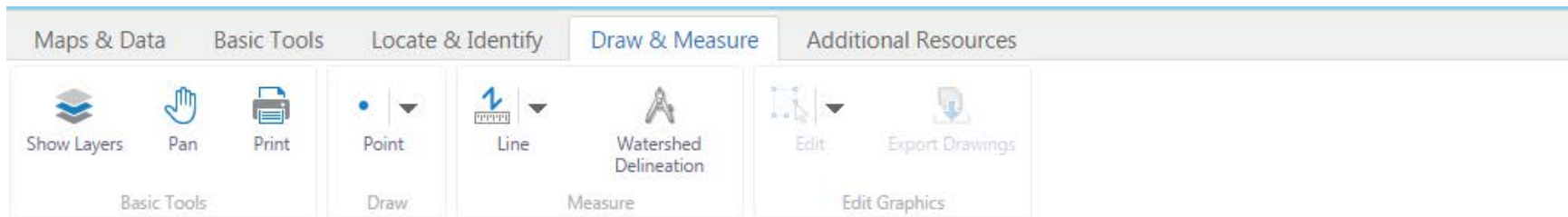
Find River
×

Search Type

Value

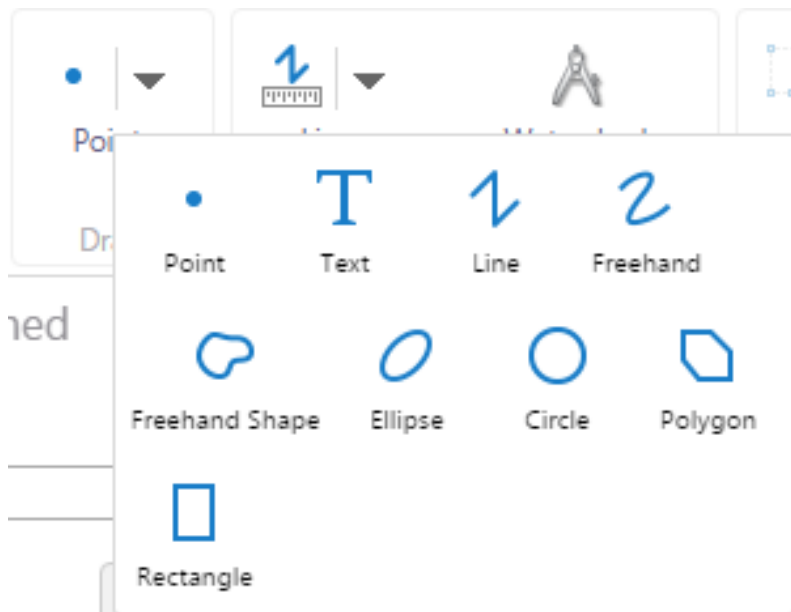
County

## The Draw & Measure Toolbar



The **Draw & Measure Toolbar** is an excellent tool for making your own custom maps. It is very helpful to show where individual monitoring sites are – you can type the names of the sites next to their identification points or color-code them! It is also useful if you need to perform calculations of area or distance on the map.

### Draw Tools



To use any of the drawing tools, first select the desired tool from the **Draw** tool options. Similar to the **Identify** tool, use the dropdown to select the desired tool. The tool options will change once one of the nine drawing tools has been selected. A new section will appear with options for the drawing that you will apply to the map.

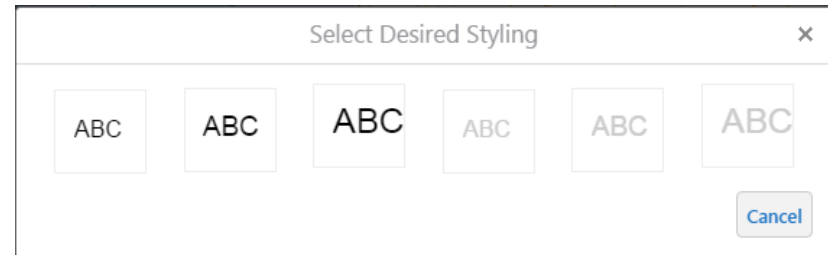
The **Drawing Options** for each tool include **Enable Snapping**, **Select Snapping Layers**, and **Styles**. The **Styles** will differ based on each tool selected.



### Point Styles



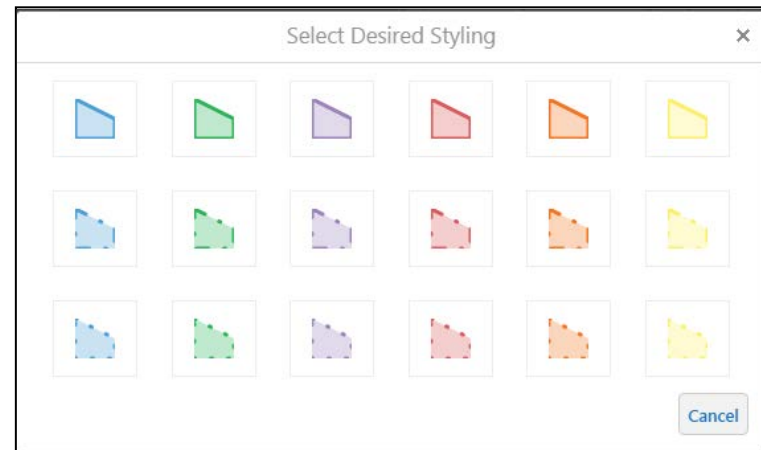
### Text Styles



### Line Styles, Freehand Styles



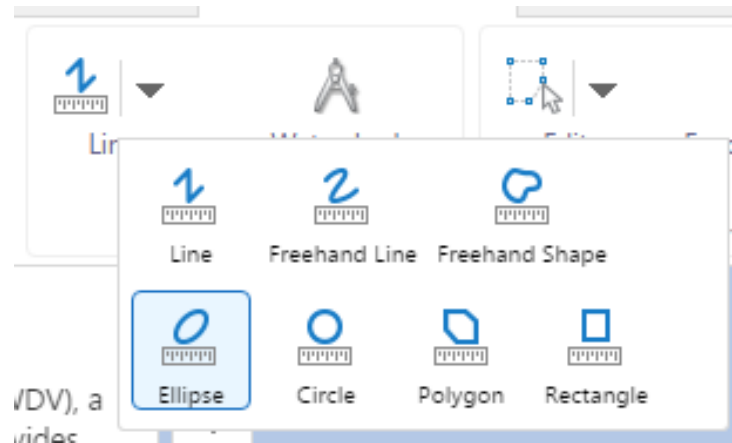
### Freehand Shape Styles, Ellipse Styles, Circle Styles, Polygon Styles, Rectangle Styles



See the following page for examples of the **Drawing Tools** as used on the map.

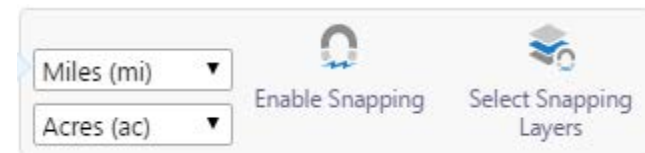


## Measure Tools



To use any of the measuring tools, first select the desired tool from the **Measure** tool options. Similar to the **Identify** tool, use the dropdown to select the desired tool. The tool options will change once one of the seven **Measure** tools has been selected. A new section will appear with options for the measurement that you will apply to the map.

The **Measuring Options** for each tool include **Distance Units**, **Area Units**, **Enable Snapping**, and **Select Snapping Layers**.

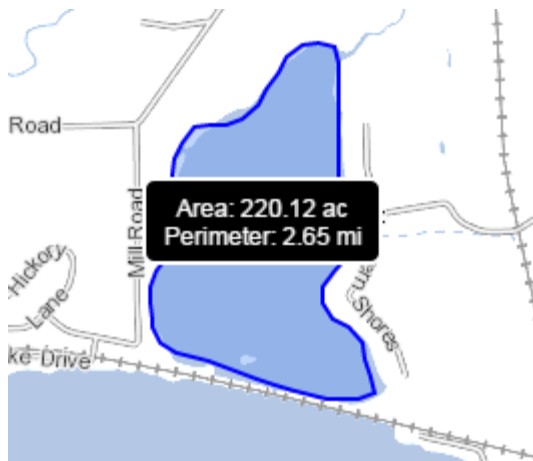


**Line:** Use this tool to find the distance between points on the map. To begin measuring, select the **Line** tool, then click on your starting location on the map. Click each subsequent location to measure a distance. Distances will appear on the map along the drawn measurement line. The **Total** displays the sum of the distances that you have measured. Similar to the **Line** tool in the **Draw Tools**, to complete a **Line** measurement, double click the mouse.

**Freehand Line:** Use this tool to find the distance between points on the map not connected by a straight line. Click and drag your mouse along the desired measurement path. The **Total** will display the traced distance of the **Freehand Line**.

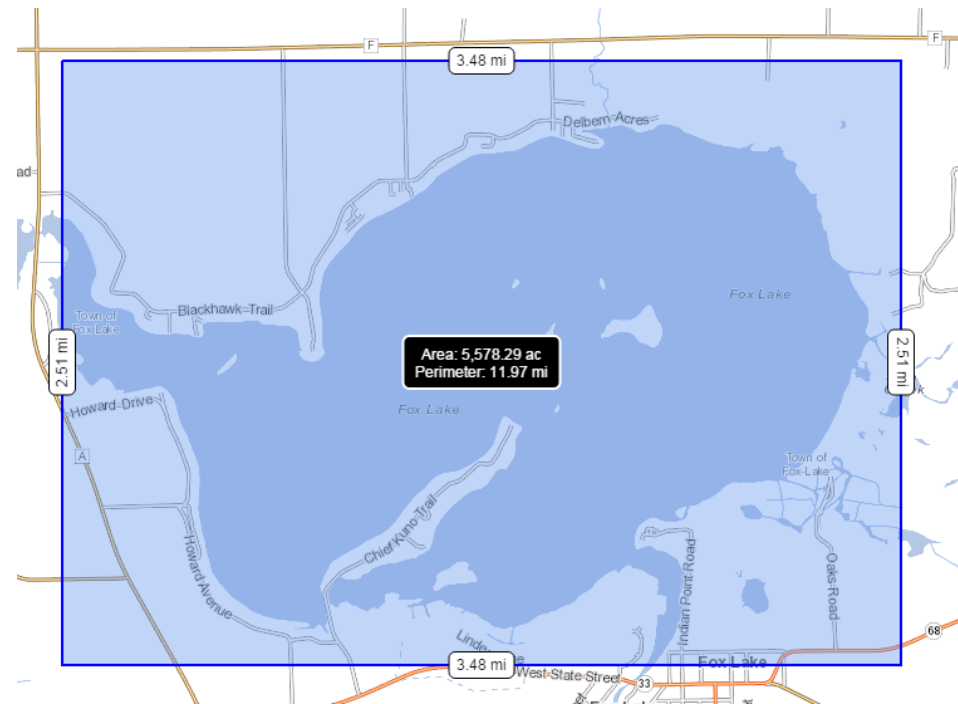
Use the following tools to find area over a specific region on the map. When using the area tools, **Freehand Shape**, **Ellipse**, **Circle**, **Polygon**, and **Rectangle** two types of information are generated: **Perimeter** and **Area**.

**Freehand Shape:** Similar to the **Freehand Line**, to use this tool, click and drag the mouse around the area to be measured. Release the mouse to complete the measurement.



The **Ellipse** and **Circle** tools work in the same way for measurements as they do for drawing. Draw the shape on the map over the location for which you would like to measure **Area** or **Perimeter**. The drawing will appear with measurement information upon release of the mouse.

**Rectangle:** Draw a **Rectangle** the same way that you would using the **Draw Tools**. When a **Rectangle** measurement is placed on the map, the length of each side of the rectangle will appear on the map as well as the total **Perimeter** and the **Area** of the shape.

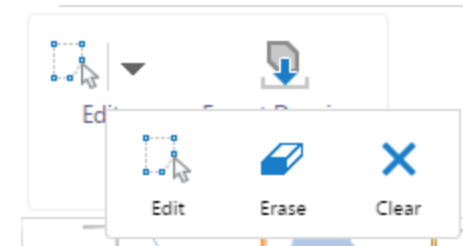


**Polygon:** Use this tool in the same way you would the polygon tool in the **Draw Tools**. Click on the map at the point you wish to place the starting vertex. Continue to place vertices by clicking on the map until you have drawn the desired area. Double click to complete the measurement. Lengths will generate on the map for each leg of the drawing.

## Edit Graphics

To make changes to the graphics added to the map from the **Draw Tools** or **Measure Tools**, use the **Edit Graphics** dropdown menu. There are three options for editing drawings and measurements made on the map:

**Edit:** Use this tool to edit a single feature created using the **Draw Tools** or **Measure Tools**. Editing works differently for each feature. Some features can be moved, resized, text added, angle changed, or a combination of the former. It is possible to change the **Style** of all drawings. To edit a feature, select **Edit** and then click on the drawn feature that you would like to change.



### Editing Text

Change Text ✕

Enter new text.

When editing **Text**, first make changes to the content of the **Text**. Select **OK** to move on to change the size, angle or location of the **Text**.



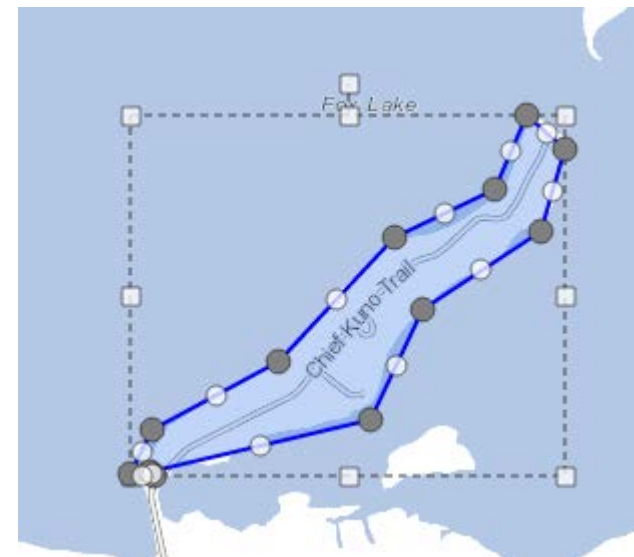
**Erase:** To erase a single feature created using the **Draw Tools** or **Measure Tools**, select **Erase**, and then click on the single feature that you would like to remove from the map.

**Clear:** Use this tool to clear all drawings on the map.

While most drawings created using the **Draw Tools** can be moved during editing, **Points** cannot. If you would like to move a **Point**, you must **Erase** the drawing and create a new one in the desired location.

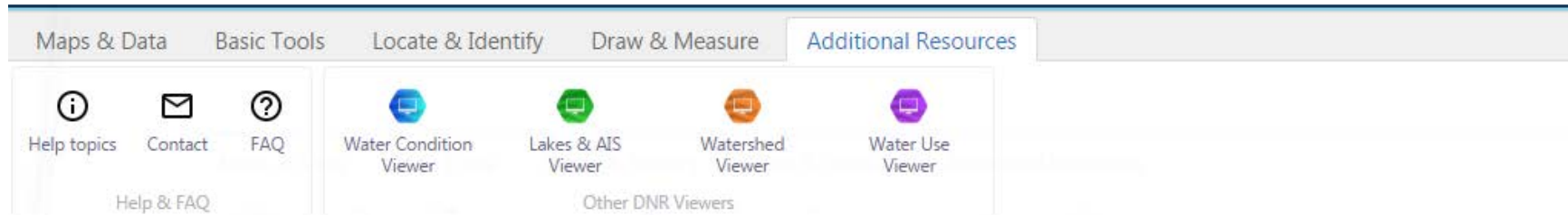
**Export Drawings:** Use this tool to export the drawings and measurements that you have created on the map as a shapefile for later use.

### Editing Drawings or Measurements





## The Additional Features Toolbar



**Help & FAQ Tools:** If you need to troubleshoot any issues with the Surface Water Data Viewer, or would like to learn more about the features of the viewer, you can toggle through the resources in the **Help & FAQ Tools**. If you encounter a problem with the Surface Water Data Viewer, use the **Contact** tool to send a message to the Surface Water Data Viewer Team.

### Other DNR Viewers

Use these tools to launch other DNR mapping applications.

**Water Condition Viewer:** The Water Condition Viewer is a mapping tool that focuses on water condition, monitoring, assessment and management data.

**Lakes and AIS Viewer:** The Lakes Condition Viewer allows users to search and map monitoring locations for lakes and aquatic invasive species (AIS)

**Watershed Viewer:** The Watershed Restoration Viewer is a mapping tool designed to help users view water quality improvement projects across the state.

**Water Use Viewer:** The Water Use Viewer is a mapping tool that allows the public to view the locations and volumes of high capacity wells and surface water withdrawals.



## Other Features

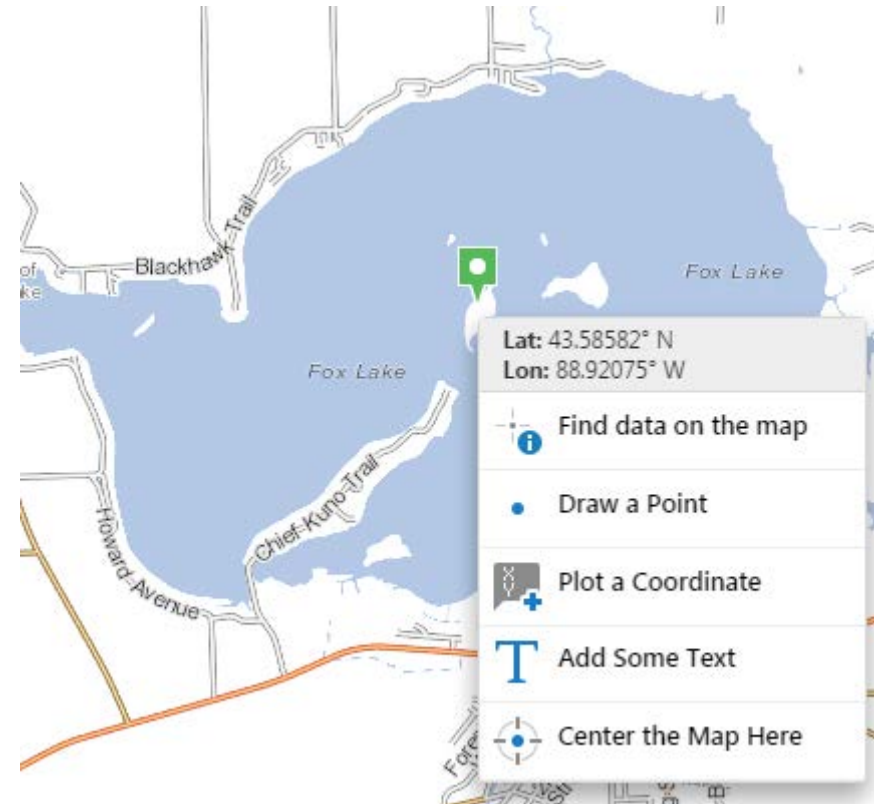
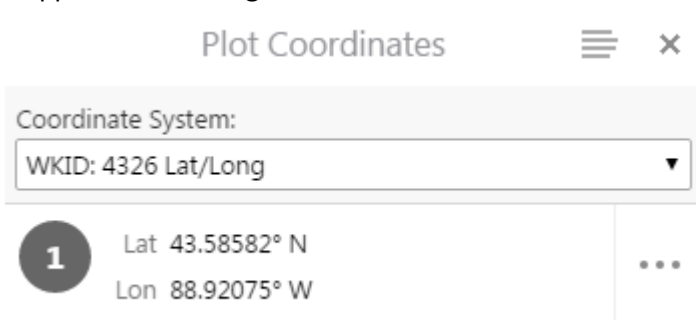
There are a few Surface Water Data Viewer features that are not housed in a **Toolbar** or **Navigation Pane**.

**Right Click:** Use this tool to generate a dropdown menu of options for the location selected on the map. **Right Click** a location to select. A small map marker will drop on the site.

**Find data on the map:** This tool works in a similar way to **Point Identify**. Selecting **Find data on the map** will return results for identifiable features at the selected location in the **Navigation Pane**.

**Draw Point:** Use this tool to draw a **Point** at the selected location. **Edit** this **Point** as you would any other **Point** drawn using the **Draw Tools**.

**Plot a Coordinate:** Use this tool to plot the coordinates of the selected location on the map. Plotted coordinates will appear in the **Navigation Pane**.

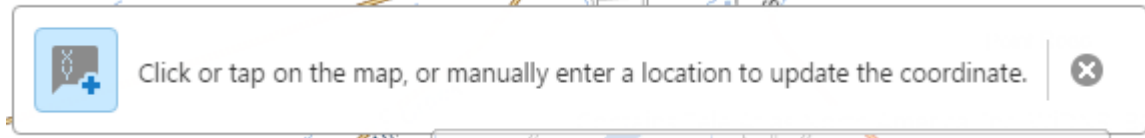


**Add Some Text:** Use this tool to add **Text** at the selected location. **Edit** this **Text** as you would any other **Text** created using the **Draw Tools**.

**Center the Map Here:** Use this tool to maintain the current extent of the map while panning to center the selected location on your screen.

**Help Text:** This tool will appear at the bottom of the screen when you use a map tool. The **Help Text** is meant to serve as a guide to using the features of the Surface Water Data Viewer. Here are some examples of **Help Text**.

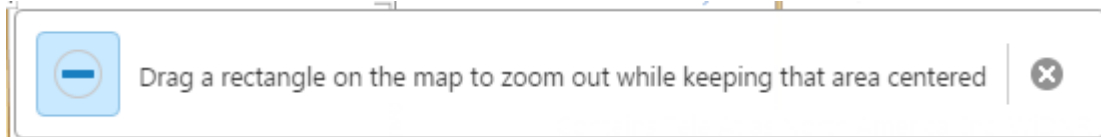
When editing in **Plot Coordinate**



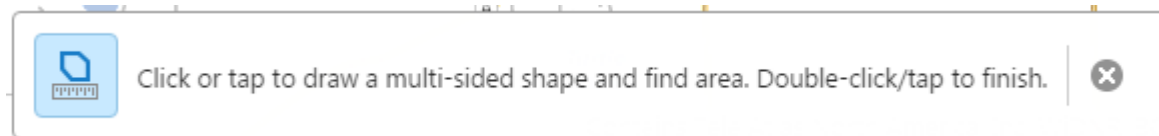
When creating a **Freehand Shape**



When using **Zoom Out**



When using **Polygon** to find **Area**



**Thank you for using the Water Action Volunteers' Guide to the Surface Water Data Viewer! If you have any further questions about using the viewer, do not hesitate to contact your WAV Coordinator.**