

WATERSHED RESOURCES REGISTRY USERS' MANUAL

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WATERSHED RESOURCES REGISTRY

USERS' MANUAL

This document provides a detailed and comprehensive background on how to use the WRR interactive mapping tools. The manual covers all primary functions of the WRR tools—interacting with the application, working with featured collections, finding opportunities for preservation or restoration, utilizing analytical widgets, running screening reports, and saving sessions.

For those very new to the Watershed Resources Registry (WRR) project, WRRs are state-specific interactive online mapping tools that host a series of original, consensus-based suitability analyses along with other publicly available datasets to aid professionals in environmental planning and regulatory work. They are created by EPA, USACE, US FWS and individual state departments of the environment, transportation, natural resources, and others. WRRs are championed by EPA Region 3, with technical and project support from Maryland Environmental Service (MES). At the heart of each WRR are four to eight suitability analyses designed to prioritize either the preservation or restoration of wetlands, riparian areas, terrestrial habitats and/or stormwater infrastructure. These analyses score areas on a scale of one to five stars based on potential benefits and value. WRRs, and their suitability analyses, are tailored specifically for each state by state and federal partners. As of this writing, WRRs exist for Delaware, Maryland, New Jersey, Pennsylvania, Puerto Rico, South Carolina, Virginia, and West Virginia.

All WRRs include an interactive online map that provides access to the results of the suitability analyses along with a large number of high-quality datasets. While providing access to the WRR suitability analyses, the interactive maps also provide an increasingly powerful mapping tool that can be adapted by a wide variety of working professionals to meet a wide variety of needs. WRRs now allow users to add external map services to a work session, run specialized screening reports, perform basic spatial analysis, and save work sessions in downloadable files. As such, WRRs are dynamic mapping tools with a host of internal features designed to be flexible and adaptable to individual user needs.

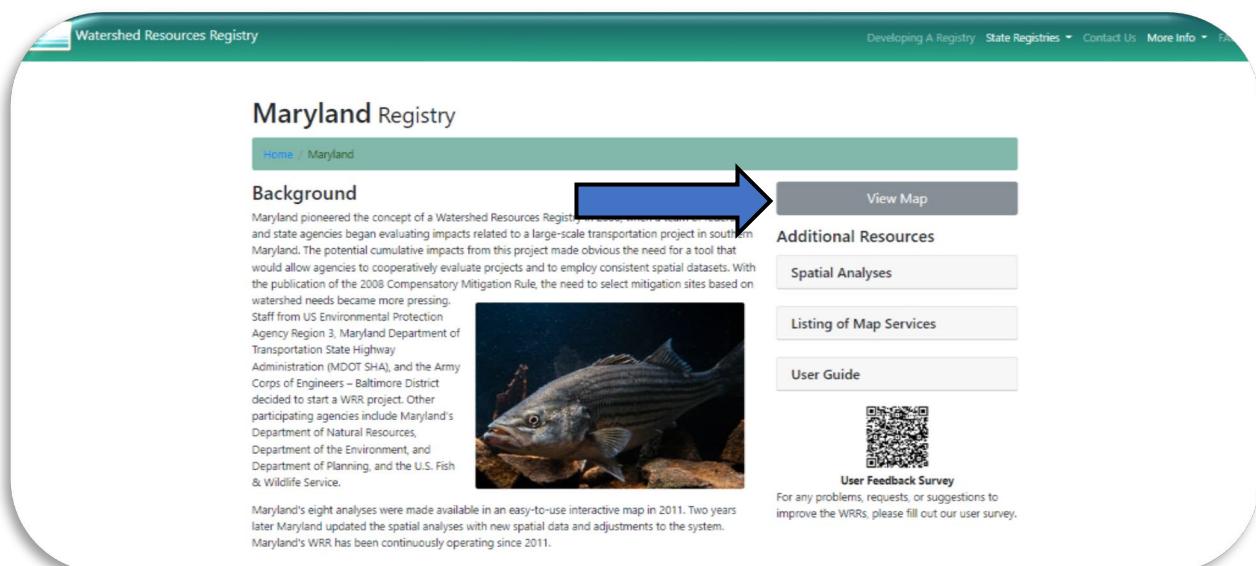
Accessing and Opening the WRR

All WRRs can be accessed by first navigating to the Watershed Resources Registry website at <https://watershedresourcesregistry.org/>. Once there, click the State Registries drop down menu in the upper right-hand corner and select your state of interest.



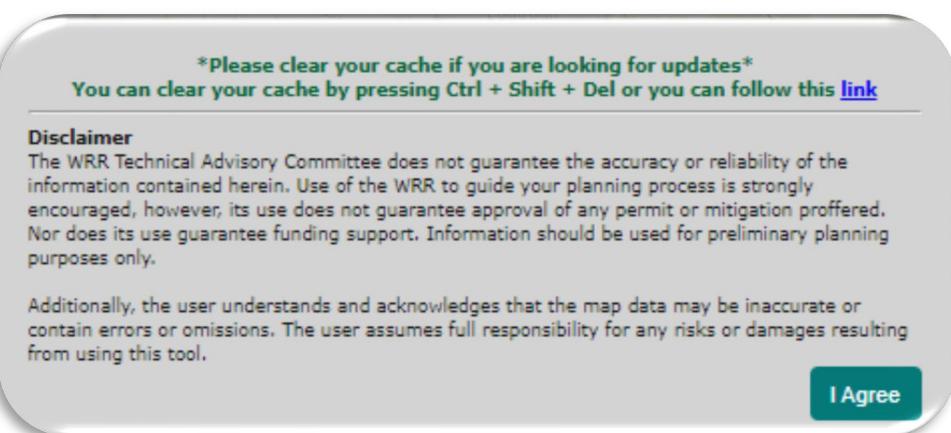
The screenshot shows the main landing page of the Watershed Resources Registry. At the top, there's a navigation bar with links for 'State Registries', 'Contact Us', 'More Info', and 'FAQ'. A large blue arrow points from the left towards the 'State Registries' link. Below the navigation is a banner featuring a scenic view of a bridge over a river. Underneath the banner, there's a 'Welcome' section with a brief introduction to the site and its purpose. To the right of the introduction is a 'Background' section containing text about the history of the WRR initiative, mentioning Maryland as a pioneer. On the far right, there's a sidebar titled 'Additional Resources' with links to 'Spatial Analyses', 'Listing of Map Services', and 'User Guide', along with a QR code and a 'User Feedback Survey' button.

You will be redirected to the state's individual web page. Click on the gray View Map button.

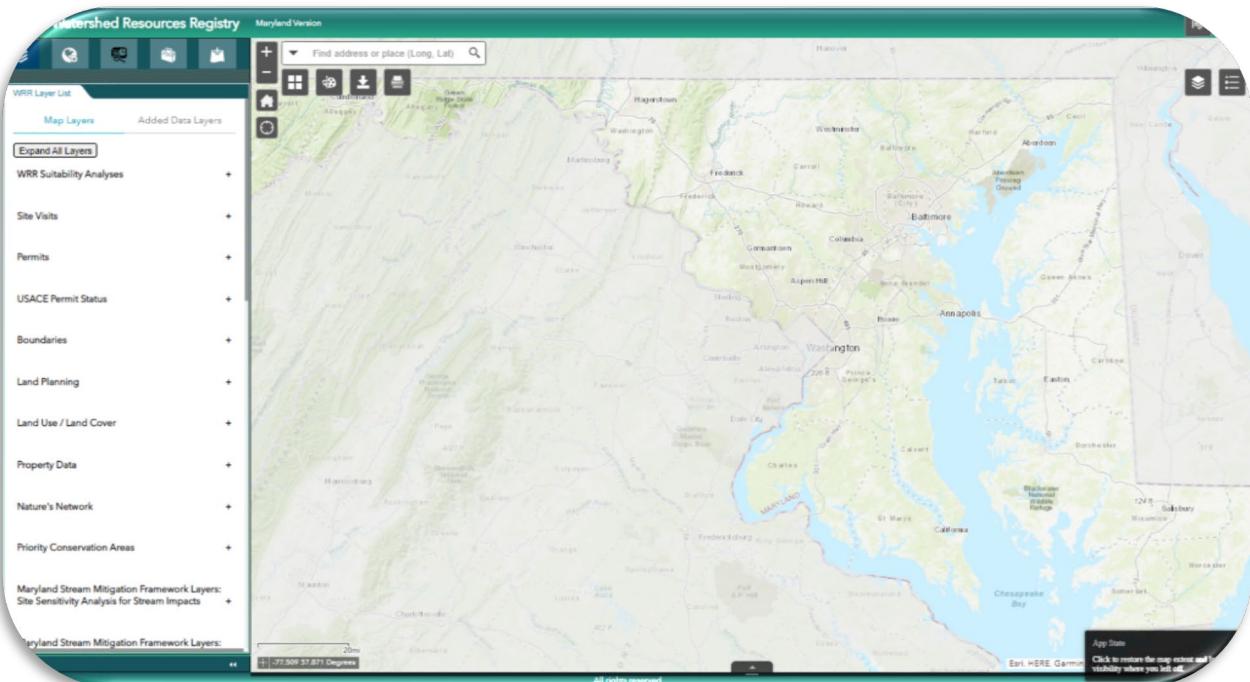


This screenshot shows the Maryland Registry page. At the top, it says 'Maryland Registry' and includes a 'Home / Maryland' link. A large blue arrow points from the left towards the 'View Map' button, which is located in a grey box on the right side of the page. The page content includes a 'Background' section with text about the Maryland WRR project, a large image of a striped bass, and a 'User Feedback Survey' section with a QR code. To the right of the main content area, there are three boxes labeled 'Spatial Analyses', 'Listing of Map Services', and 'User Guide'.

A disclaimer will appear on the screen. Click 'I Agree'.

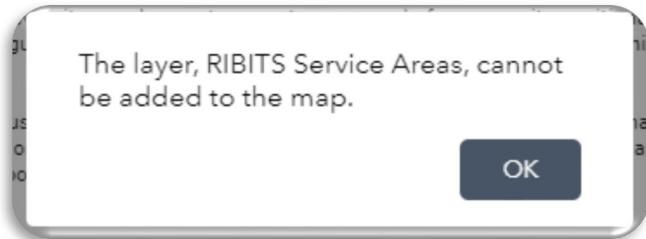


The fully loaded WRR should appear with an interactive map on the right and an expanded tool panel on the left as seen below.



Two Important Notes:

1. Sometimes a WRR cannot connect with certain map servers. When this occurs, a text box will appear listing all the data layers that could not be added to the map. Note the layer(s) name(s) since it may impact the work you are hoping to do and click ok. If this happens once or twice, it is most likely the result of a temporary server outage. If a layer regularly fails to load, please let someone on the WRR TAC know. Their names and emails are listed on the home page for your state.
2. If you ever open a WRR and find that the green tool panel is collapsed, as shown at the right, this is a sign that something is already not working correctly, and you may run into other glitches as you navigate the WRR. To correct this, clear your history or browsing cache and re-load the WRR.



Extra Tip!

We recommend using Google Chrome or Mozilla Firefox as your web browser for the best user experience.

Basic Guidelines

If you are new to the WRR, please feel free to play around! You will not break the program or your computer by clicking on things. If you get lost and/or are unsure how to undo an action, click on the Home widget (the one with the house icon) on the map. It will take you back to the original extent of the map.



Hovering your cursor over any button will bring up the name of the tool in question.

Throughout the tool, a '+' (plus sign) will expand a category and a '-' (minus sign) will collapse it.

Throughout the WRR, you will also encounter an ellipsis (three dots) next to various tools and layers. Clicking on these ellipses will open a drop-down menu with additional resources and features related to the tool or layer in question. When in doubt, click on these ellipses every chance you get.

If you run into issues with any feature, be it 'Reports', 'Analysis', 'Add Data', etc., we recommend clearing your history or browsing cache and re-loading the interactive map. This will solve a majority issues.

Extra Tip!

Clear your cache at least once a month to ensure that you are interacting with the most up-to-date version of your state's WRR.

On the Map

Upon opening a WRR, the interactive map will default to an extent that displays the entirety of the state in question. In the upper left-hand of the map, there are widgets that will allow you to navigate, modify, and capture the map.

Basic Navigation

In the upper left-hand corner of the map, there are + and – buttons that will allow you to zoom in and out on the map. You can also zoom in by double clicking on areas or features on the map.



The Search Bar

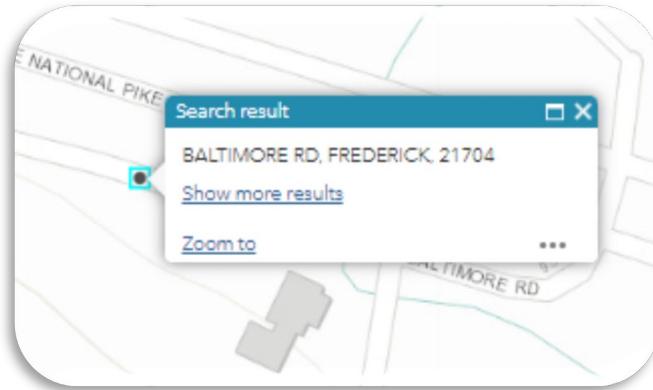
There is a default search bar in the upper left-hand corner of map that allows you to find an address or place. You can search for a location by entering a street address, longitude and latitude coordinates (e.g., -



77.1234, 38.1234), or the common name of feature or landmark (e.g., Burnham Run, The Liberty Bell, etc.).

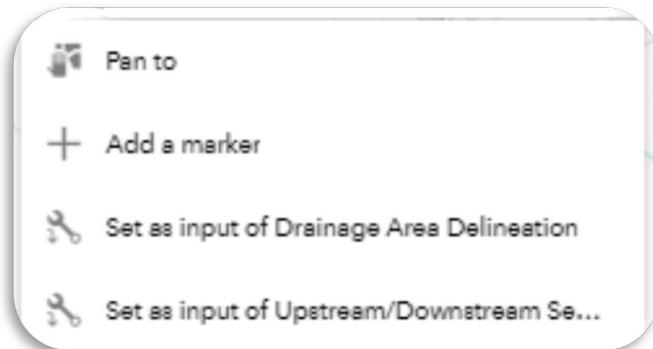
After typing in your desired location on the search bar, select the magnifying glass or hit enter. The map will navigate to the specified location, and a pop-up box will appear.

In the lower right-hand corner of the pop-up box, there is an ellipse. Click on this to see additional options.



'Add a marker' will allow you to save your location on the map until you close your browser or refresh.

The 'Set as input of Drainage Area Delineation' and 'Set as input of Upstream/Downstream Search' take the coordinates of your location and set them as the necessary input for those respective tools. For more information on how these tools work, look under the 'Analysis' section of this manual.



EXTRA TIP!

When entering longitude and latitude coordinates, the longitude value must be entered first and it must contain a negative '-' sign.

Home

The Home widget returns the map to its default extent. Any modifications you have made to the map (e.g., points, lines, text, data, AOIs, etc, will remain.)



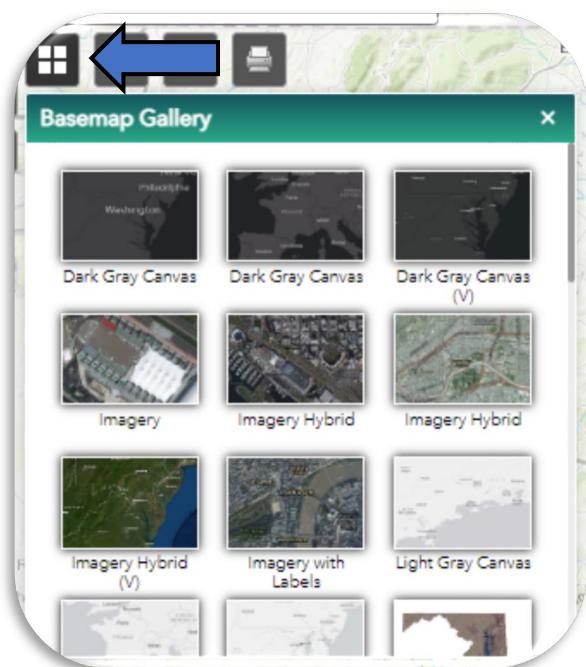
My Location

If your computer, tablet device, or cell phone is location-enabled, this tool will move the map to show your current physical location. This can be useful for finding yourself on the map if you are out in the field.



Basemap Gallery

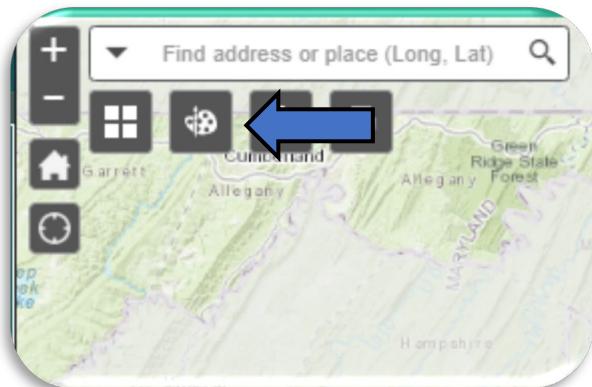
All WRRs come with a pre-loaded gallery of base maps. The widget for this can be found under the search bar. Some states have more robust galleries than others, but all WRRs will contain at least one aerial map, a terrain map, a road map, and a USGS 7.5" quad map.



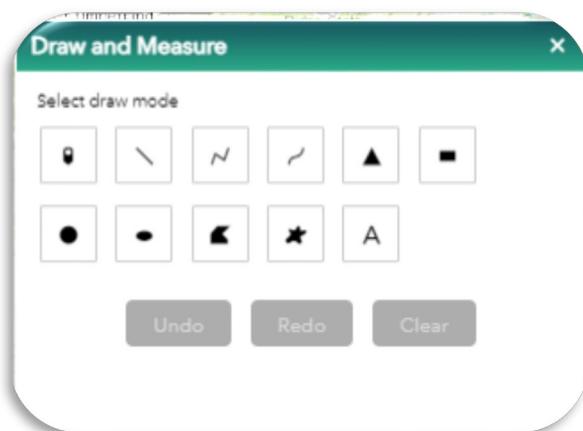
Draw and Measure Tool

The Draw and Measure Tool is available as a widget on the map. It allows you to visually modify the map with points, lines, shapes, and text. It ALSO allows you to measure the location, length, perimeter, and area of features on the map.

In the upper left-hand corner of the map, the widget with the paint brush icon is the Draw and Measure tool. Click on this widget.



A pop-up box will appear prompting you to select a 'draw mode'. There are 11 different modes you can select, but all 11 can be divided into four basic categories: point, lines, polygons, and text.



Creating Points on the Map

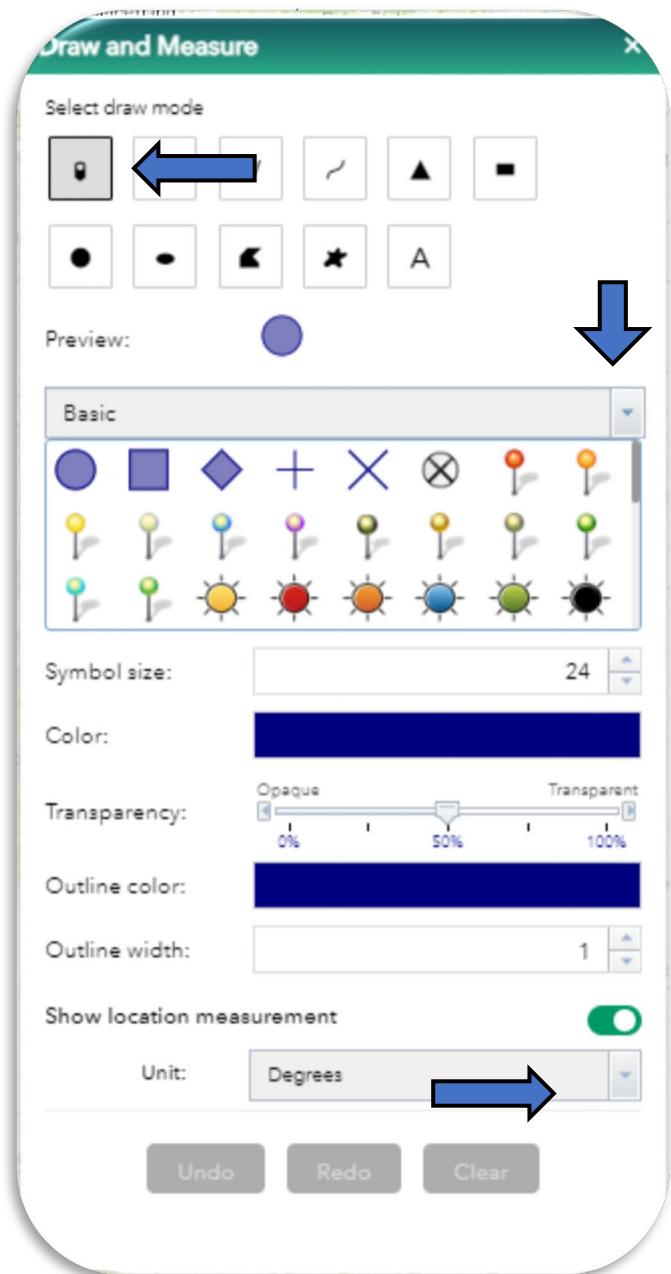
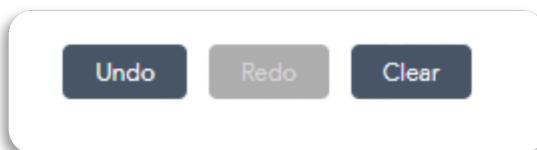
There is only one mode that will allow you to place points on the map. It is the far-left button. Select this.

The 'Preview' label will display the default point symbol. If you would like to change this symbol, scroll through the box of symbols, and click on the one you desire. ALSO, note the drop-down menu available for point classes. By default, the 'Basic' class will show, but there are 20 classes of point styles to choose from including: A-Z, Arrows, Points of Interest, Public Safety, and Transportation.

Next select the symbol size, color, transparency, outline color, and outline width. These must be selected before placing your point on the map. ***They cannot be changed retroactively.***

Click on the location on the map where you would like to place your point. By default, the location measurement is turned OFF. To see latitude and longitude coordinates, shift the slider ON, and then choose your desired measurement unit. ***This must be done BEFORE the point is dropped on the map.***

If you misplace your point, you cannot move or edit the point on the map. You will need to click the Undo button. This will erase the point on the map. As a rule, the Undo button can be pressed repeatedly to slowly undo a series of actions. The Clear button will erase everything ***that has been drawn on the map during your work session all at once. This is a critical difference.***



Drawing Lines on the Map

There are three line modes you can select: line, polyline, and freehand polyline.

The line tool allows you to draw a straight, single segment line on the map.

The polyline tool allows you to draw a multi-segment line with straight segments on the map.

The freehand polyline allows for the creation of a curved, twisting line that can cross itself without closing into a polygon.

The 'Preview' label will display the default line symbology. If you would like to change this symbol, scroll through the box of symbols, and click on the one you desire.

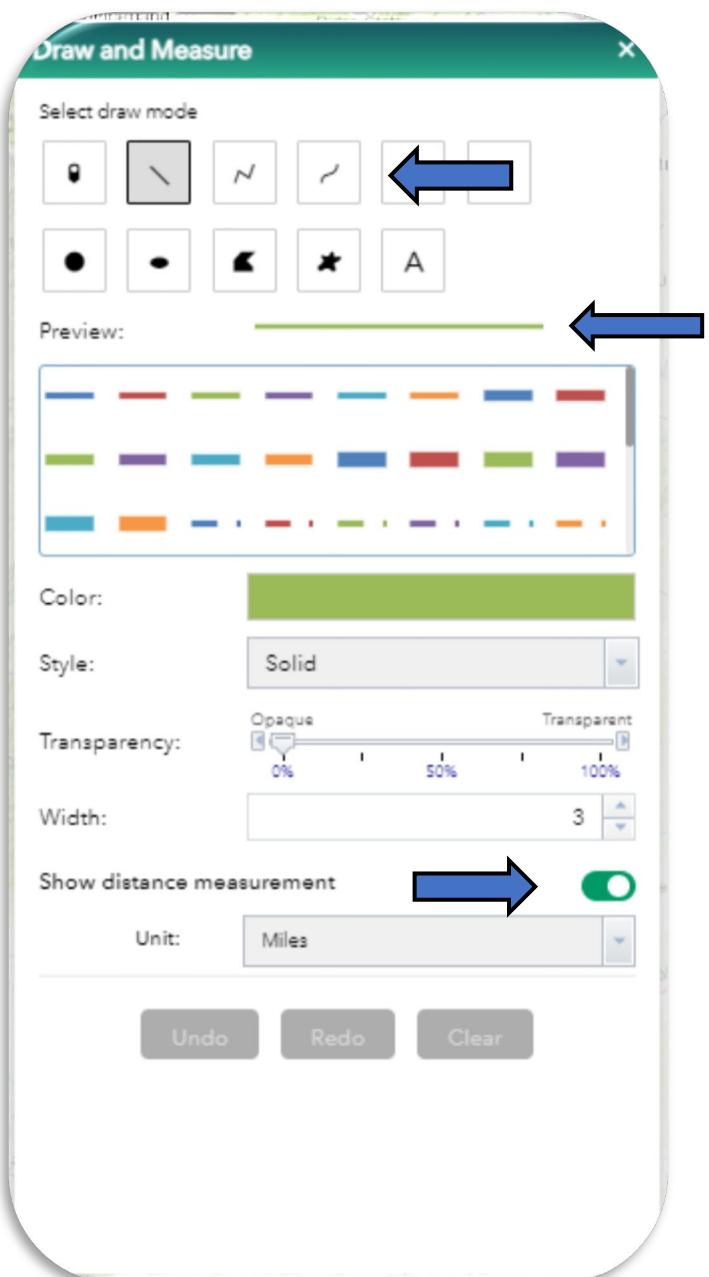
Next select the color, style, transparency, and width. These must be selected before placing your line on the map. ***They cannot be changed retroactively.***

Click on the beginning location on the map where you would like to start the line.

Instructions will appear in small text guiding you the process for how define the end point. By default, the distance measurement is turned OFF. To see line length, shift the slider ON, and then choose your desired measurement unit.

This must be done BEFORE the line is drawn.

If you misdraw your line, you cannot move or edit the line on the map. You will need to click the 'Undo' button. This will erase the line on the map. As a rule, the Undo button can be pressed repeatedly to slowly undo a series of actions. The Clear button will erase everything ***that has been drawn on the map during your work session all at once. This is a critical difference.***



Drawing Polygons on the Map

There are six polygon modes you can select: triangle, extent (rectangle), circle, ellipse, polygon, and freehand polygon.

The triangle, extent, circle, and ellipse modes allow you to draw defined shapes with different sizes.

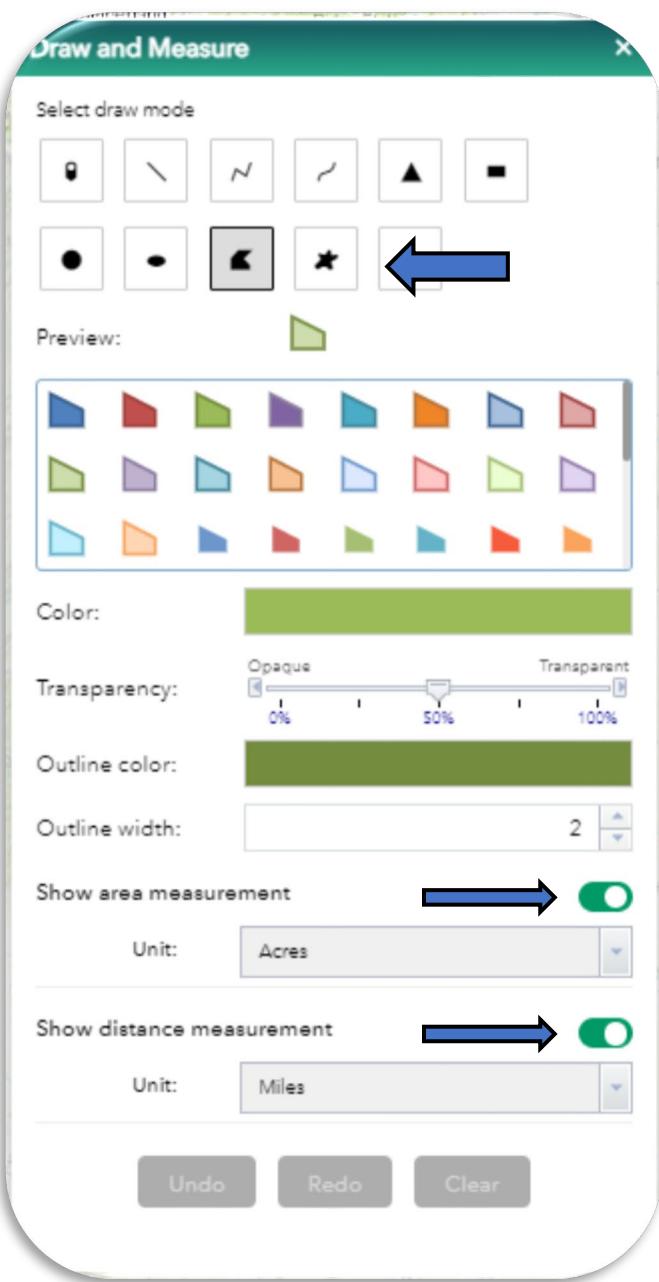
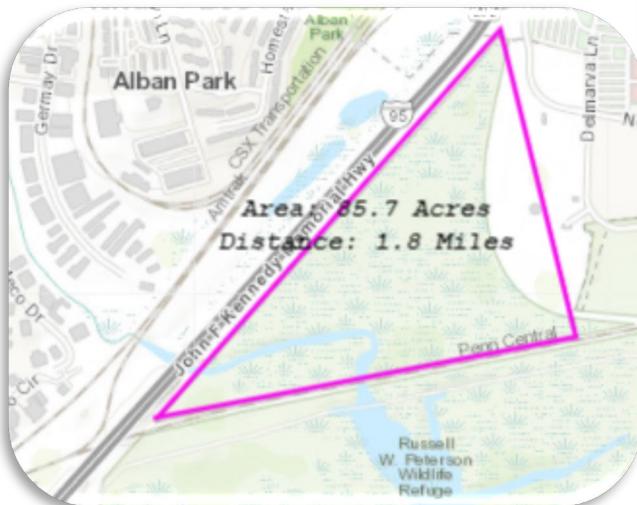
The polygon mode allows you to draw a multi-segment polygon with straight segments on the map.

The freehand polygon allows for the creation of a curved, twisting polygon.

The 'Preview' label will display the default polygon symbology. If you would like to change this symbol, scroll through the box of symbols, and click on the one you desire.

Next select the color, style, transparency, outline color and outline width. These must be selected before placing your polygon on the map. They cannot be changed retroactively.

Click on the beginning location on the map where you would like to start the polygon. Instructions will appear in small text guiding you the process for how define the end point. By default, the area and the distance measurements are turned OFF. To see either



measurement, shift the respective sliders ON, and then choose your desired measurement unit. The location of where these measurements appear on the map cannot be changed. **All of this must be done before the polygon is drawn.**

If you misdraw your polygon (or a segment of the polygon), you cannot move or edit the line on the map. You will need to click the 'Undo' button. This

will erase the polygon on the map. As a rule, the Undo button can be pressed repeatedly to slowly undo a series of actions. The Clear button will erase everything ***that has been drawn on the map during your work session all at once. This is a critical difference.***

Adding Text to the Map

There is only one mode that will allow you to add text to the map.

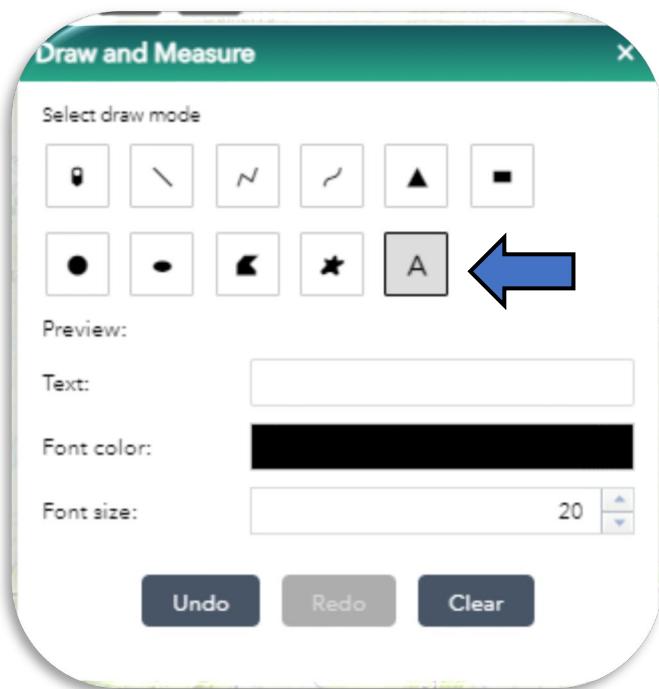
Type your desired text into the empty text box.

Next select the font color and font size. These must be selected before placing your text on the map. They cannot be changed retroactively.

Click on the location on the map where you would like to place your text.

If you misplace your text, you cannot move or edit it on the map. You will need to click the 'Undo' button. This will erase the text on the map. As a rule, the Undo button can be pressed repeatedly to slowly undo a series of actions. The Clear button will erase everything

that has been drawn on the map during your work session all at once. This is a critical difference.

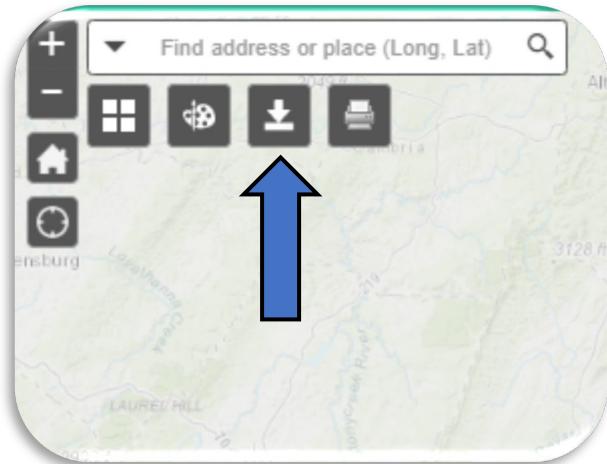


Save Sessions

The Save Sessions tool creates a deluxe bookmark within the WRR that will save the current map extent, the data layers turned on, and any modifications you've made to the map (i.e., placemarkers, polygons, text, etc). At any point as you navigate through the WRR, you can click on the 'Save Sessions' button underneath the search bar (see right) and save your current map view.

EXTRA TIP!

If the WRR is glitching and struggling to save multiple bookmarks, try clearing your history/emptying your cache and reloading



Once in the 'Save Sessions' panel, you should enter a name (e.g., ButlerCounty_PermitReview) in the text bar and click the 'Save Session' button. This will save the map exactly as it is occurring. If you have made modifications to the map via the Draw Tool or have an AOI turned on via screening report, all of these will also be embedded within the bookmark.

If you hover your cursor over a given saved session, different icons will appear that allow you to

- 'Load Map' – this will navigate the map to your bookmarked map extent
- 'Edit' – this allows you to edit the name of your bookmark
- 'Move up' and 'Move down' – this will allow you to rearrange the order of your bookmarks as they appear on the panel
- 'Delete' – this deletes your bookmark



Create a Save Session File

At the bottom of the 'Save Sessions' panel you will see two blue links that allow you to 'Load from file' and 'Save to file'. Saving to file will allow you to save a file to your desktop. Loading a file will allow you to upload a previously saved file from your computer. Saving or loading a file will save/load ***ALL the bookmarks you have created within a session.*** If you have created four bookmarks, you will only need to 'Save to file' one time.

Load a Save Session File

When you 'Load a file' from a previous session, modifications added to the map in your previous session will now appear on the map and you can continue to work with them.

It is also possible to email the file you have saved to a colleague. To do so, save the file to your computer. Then launch your email application, create a new email, and attach the file you just saved to this email.

The WRR allows for up to eight different bookmarks to be saved at a time. Also, WRRs retain bookmarks from previous sessions until you delete them or clear your browsing history.

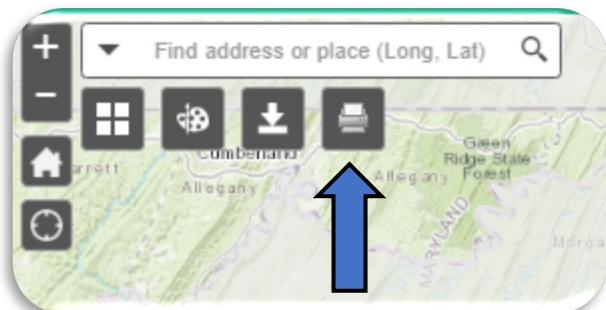


Print Map

The Print Map Tool in the WRR is available as a widget on the map. It allows you to print the map as it appears on your screen, including visible data layers and added symbology.

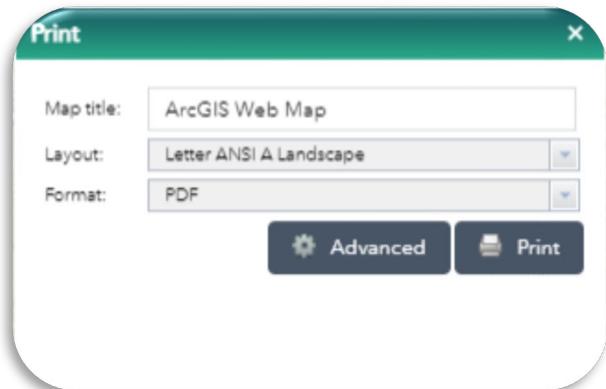
In the upper left-hand corner of the map, the widget with the printer icon is the Print Map tool. Select this widget.

A pop-up box will appear prompting you to select a layout and a format.

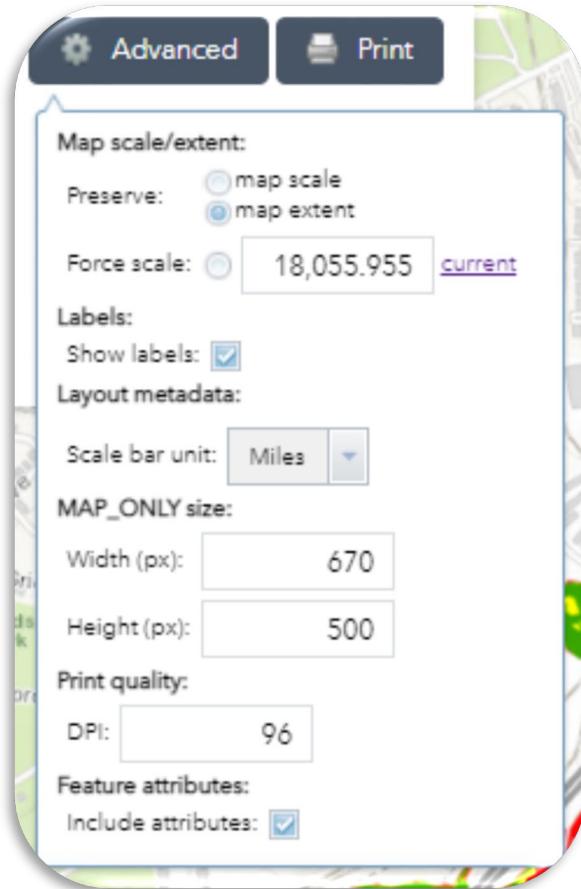


The default layout 'Letter ANSI A Landscape' will print the map on your screen including a title, scale, and legend. A text box will appear for a Map Title. Type in your desired title.

Click on the Advanced Button for additional modifications.

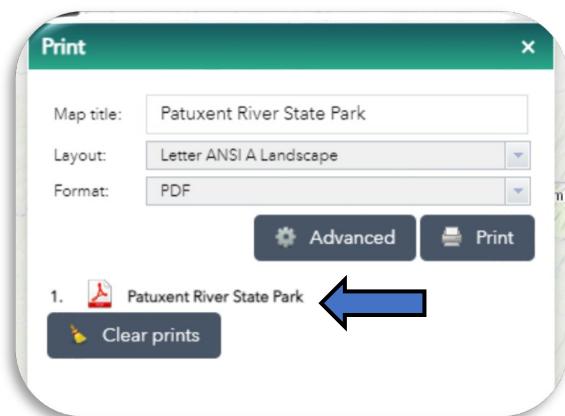


Once you have made your desired modifications to the Advanced panel, click on the Advanced button again to make the pop-up box disappear.

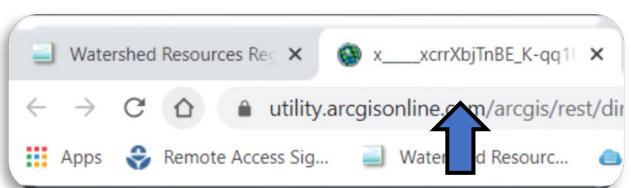


Click Print.

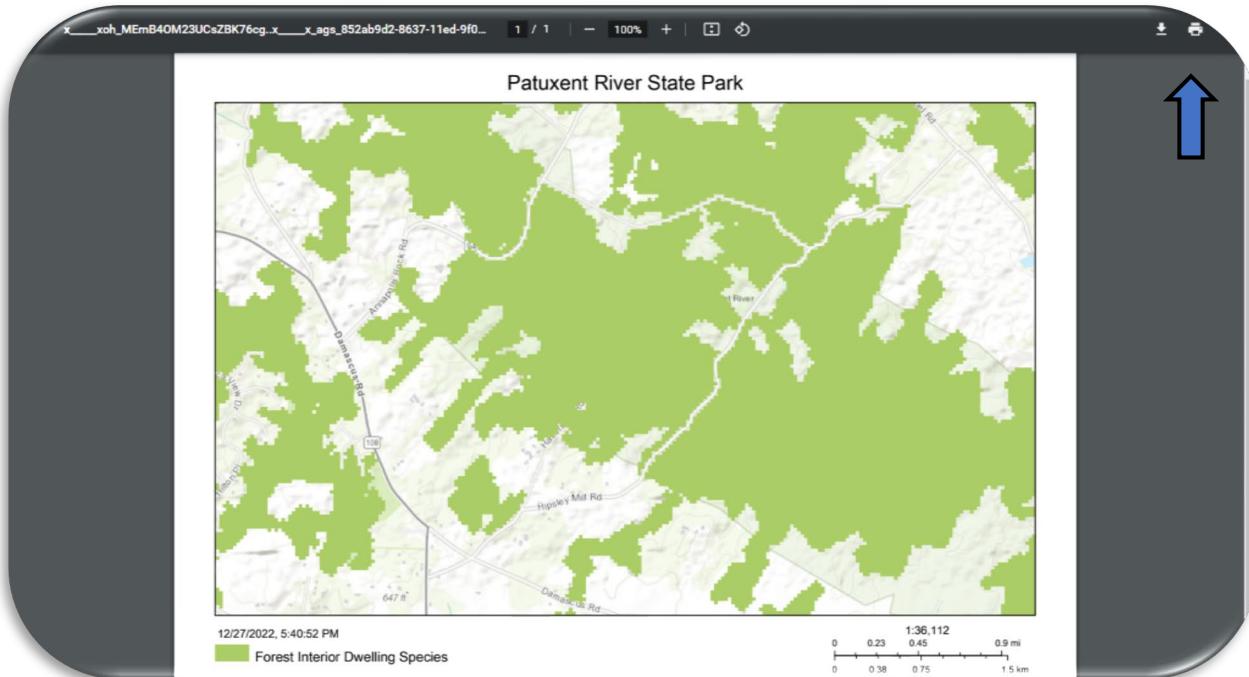
An pdf link will appear with the title of your map.
Select this.



A new tab will open on your screen with your map.



In the new tab, there will be a printer icon in the upper right-hand corner. Select this icon.



A pop-up box will appear.

Under the Destination field, select your desired printer or choose the option to 'Save as PDF' and save the document on your computer.



Exploring Data

WRRs are designed to be easy-to-use tools to explore, examine, and analyze data. The main tool panel on the left-hand side is designed to move you through the different methods of exploring data within WRRs. All these functions are explained more fully below, but the set-up of the main panel, from left to right, is as follows: **WRR Layer List** (all pre-loaded data layers, sorted into folders that can be added individually to the Active Layer List), **Featured Collections** (data layers packaged around a special topic or workflow that can be added in bulk to the Active Layer List), **Screening Reports** (reports, often paired with Featured Collections, that allow you to survey multiple data layers at once for an AOI), **Analysis** (a series of widgets that synthesize data on the map), and **Add Data** (tool that allows you to add external data to a work session).

There are two additional widgets, Active Layer List and Legend, that can be found on the right-hand side of the map itself. These will help you work with data layers once they appear on the map.

WRR Layer List

The WRR Layer List is the tool panel that contains all data layers for a WRR. This includes pre-loaded data layers that are available upon opening a WRR, and any that are added manually during a work session. The WRR Layer List will open by default when you first enter a WRR but can also be accessed by clicking the WRR Layer List tab on the teal tool bar. There are two tabs available in the WRR Layers List: Map Layers and Added Data Layers.



Map Layers

The ‘Map Layers’ tab contains all the pre-loaded data layers in a state’s WRR. Every state has a different collection of data layers available. These data layers are organized in folders by topic. These folders can individually be expanded using the ‘+’ (plus sign) and collapsed using the ‘-’ (minus sign). They can also be collectively managed by clicking on the grey ‘Expand All Folders’ button.

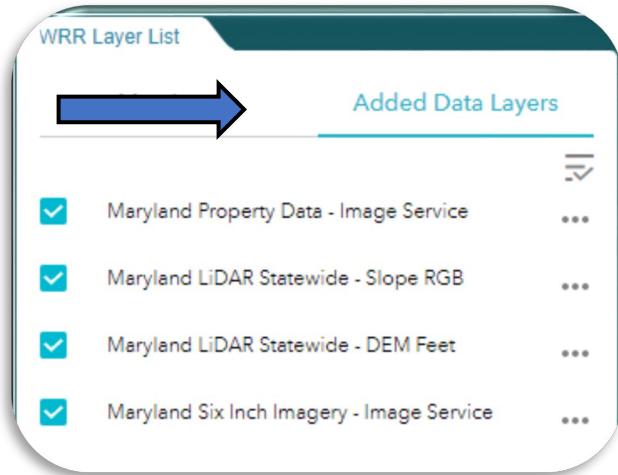
You can perform a key word search for a layer within the WRR Layer List by pressing ‘Ctrl’ + ‘F’ keys (or ‘Command’ + ‘F’ on Macs). A search bar will appear in the upper right-hand corner of Google Chrome (or in the lower left-hand corner for Mozilla Firefox), and you can do an exact word search query for a given layer. ***It is important to note, that you must first ‘Expand All Folders’ for the search to work correctly.*** This search function

will only search layers in the ‘Map Layers’ tab. If you would like to search any data layers you have added, you will need to be in the ‘Added Data Layers’ tab.

Clicking the ellipses to the right of any given layer will allow you to pull up related metadata, adjust a layer’s transparency, enable/disable pop-ups, or see attributes.

Added Data Layers

The ‘Added Data Layers’ tab contains all data layers that you may add during a given session. Data layers will also appear in this tab that correspond to any Find Opportunities, Drainage Area Delineation, and Upstream/Downstream Search queries you may run.



Extra Tip!

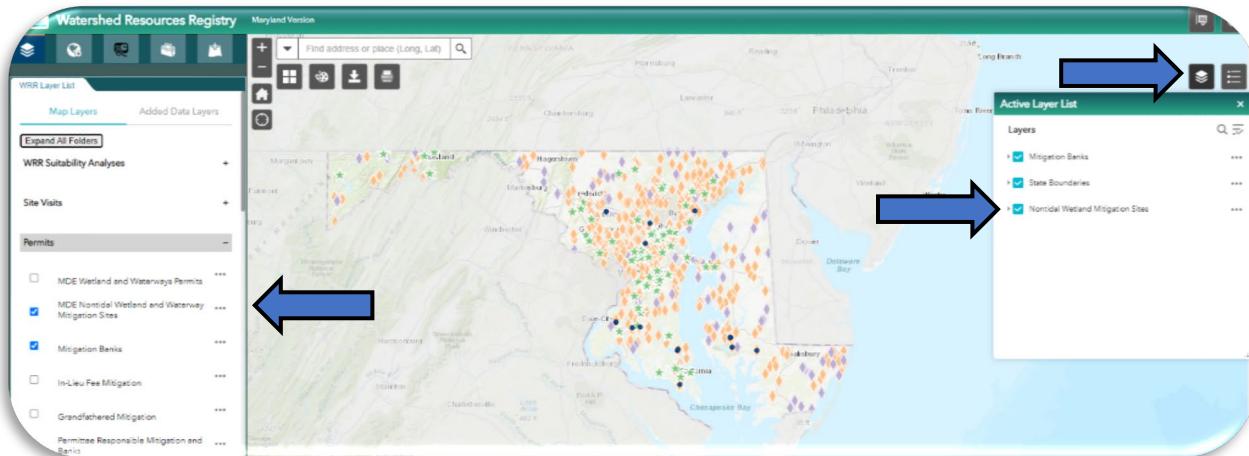
The Ctrl+ F search will find layers that match your search term EXACTLY. For example, if you type ‘water’ into the search bar, it will only select layers with the word ‘Water’ in the title (e.g., Mean Higher High Water, Groundwater Recharge Areas, 319 Watersheds, etc.). It will NOT find layers that include water data but are titled something else (e.g., Sea level rise).

Active Layer List

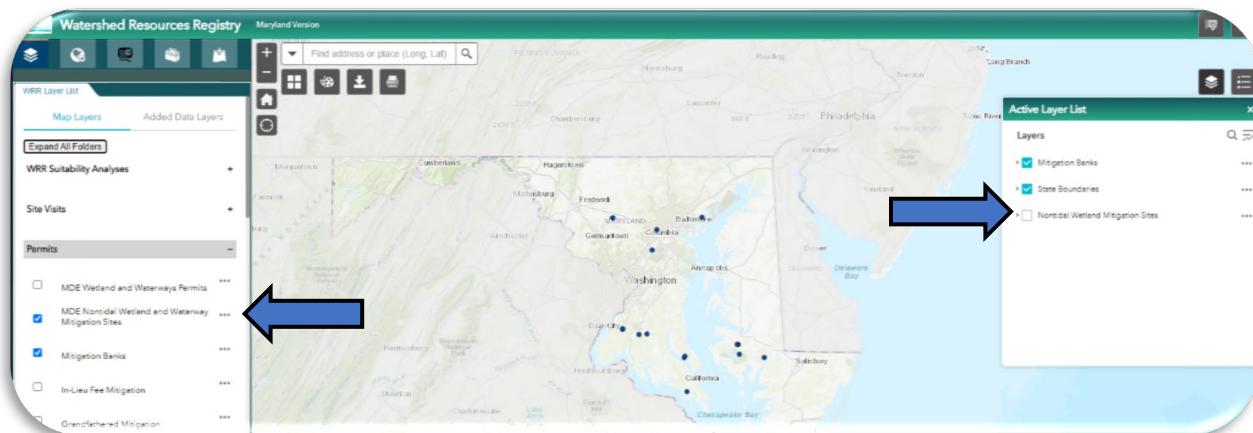
While the WRR Layer List is where all the pre-loaded data layers reside, the Active Layer List is where data layers appear when they have been turned on or ‘activated’. The widget for the Active Layer List can be found on the right-hand side of the map.



When you first turn a data layer on in the WRR Layer List, click on the Active Layer List widget on the right-hand side to open its panel - it will not open by itself. (The WRR Layer List and the Active Layer List have the same icon.)



If you turn a data layer off in the Active Layer List, it will remain in the Active Layer List, until you have deselected the layer in the WRR Layer List. This allows you self-select a much smaller number of data layers to work with, without having to continuously sort through the folders in the WRR Layer List.



Legend

The Legend widget can be found to the right of the Active Layer List widget. Symbology will appear in the legend for any data layers turned on in the Active Layer List. If a data



layer is turned on in the WRR Layer List, but is unchecked in the Active Layer List, it will not appear in the Legend.

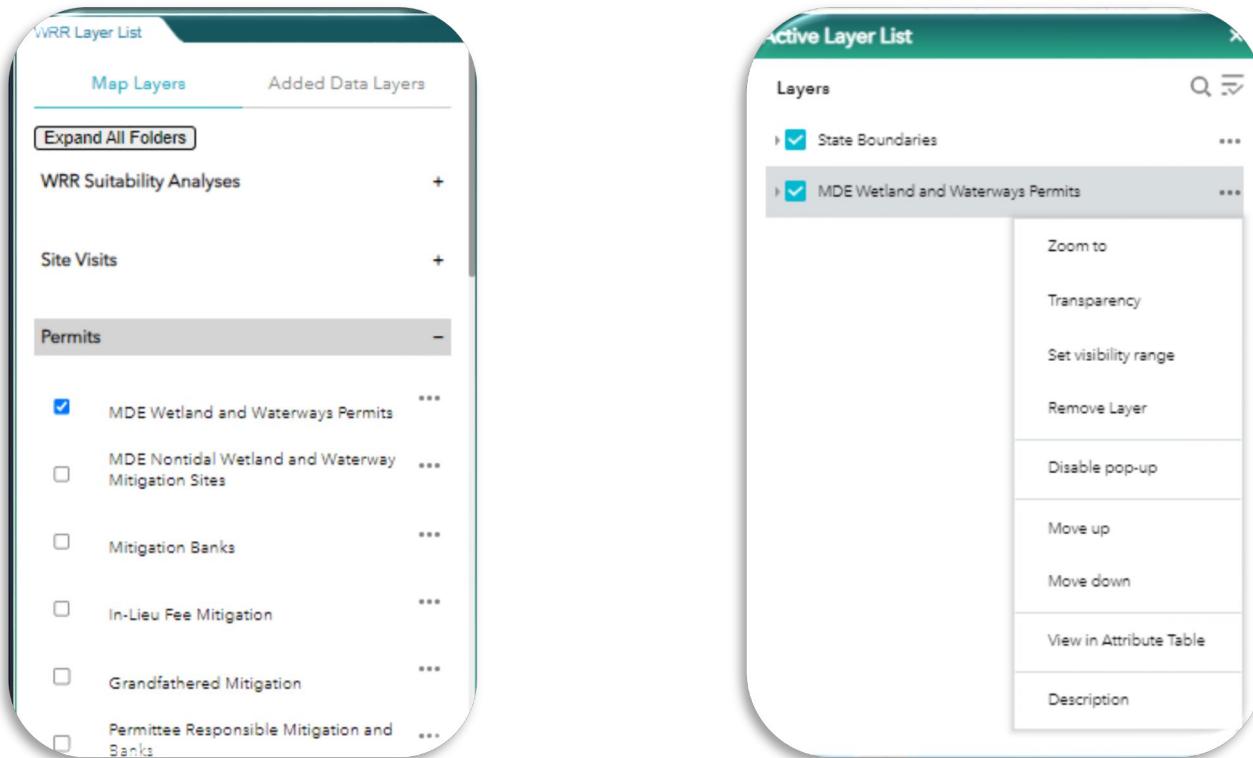
Attribute Table

The attribute table is tabular file of attributes attached to the mapped features within a data layer. In general, a row in an attribute table represents a mapped feature, and a column represents an attribute of that feature. Exploring a data layer's attribute table can give more information than what is readily visible on the map.

Accessing the Attribute Table via Layer List

There are three ways to look at a data layer's attribute table. They are via layer list drop-down, via pop-up drop-down, and via the black attribute table tab at the bottom of the map.

When you turn on a data layer in the WRR Layer List it will simultaneously appear in the Active Layer List. In each list, there is an ellipse to the right-hand side of the layer name.



Selecting the ellipse will open a drop-down menu. Generally, if a data layer has an attribute table, you'll see a 'View in Attribute Table' near the bottom of the list. Select this, and the attribute table will open.

MDE Wetland and Waterways Permits						
Project_name	Project_type	Latitude	Longitude	State_N	State_E	PermitStatus
BGE/ BynumRidge Rd	Utility Line	39.56	-76.36	210.439	454.696	Issued
David Nelson	Revetment	38.83	-76.54	129.592	440.063	Issued
CA Comm/ Breezy Point Park	Groins	38.62	-76.51	105.699	442.399	Issued
Frederick County Office of Highway Operations/ Fox Gap Road	Culvert	39.47	-77.61	200.765	347.601	Issued
Patrice Miller	Living Shoreline	38.81	-76.11	126.932	477.037	Issued

The attribute table that appears by default will be for all the features within that data layer that are visible in the current map extent. To access ALL the features in the data layer, turn off the 'Filter by map extent' button.



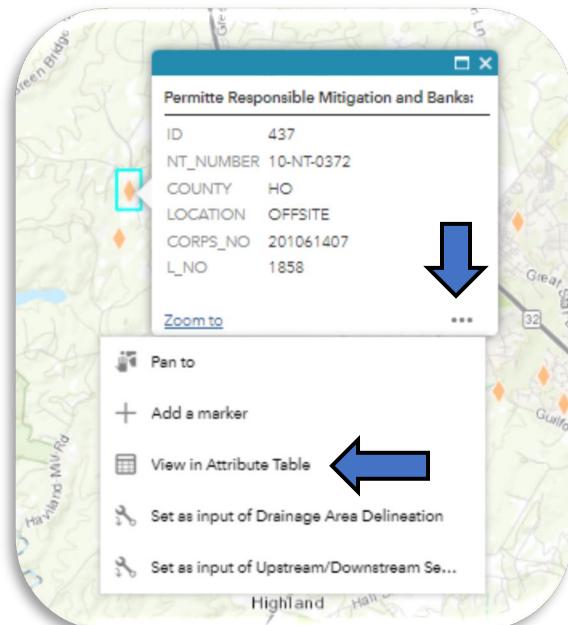
Accessing the Attribute Table via Pop-up

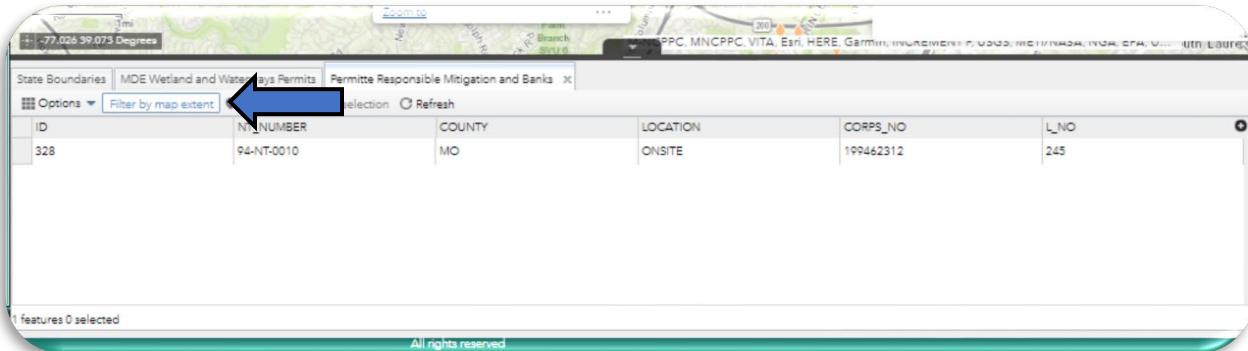
Another way to access the attribute table is via pop-up. After turning a data layer on, features will appear on the map. Selecting a mapped feature will open a pop-up.

In the lower right-hand corner of the pop-up, there is an ellipse. Selecting this will bring up a drop-down menu

The attribute table that opens will contain only the information for the singular feature you selected. To see the whole attribute table, turn off the 'Filter by map extent' button.

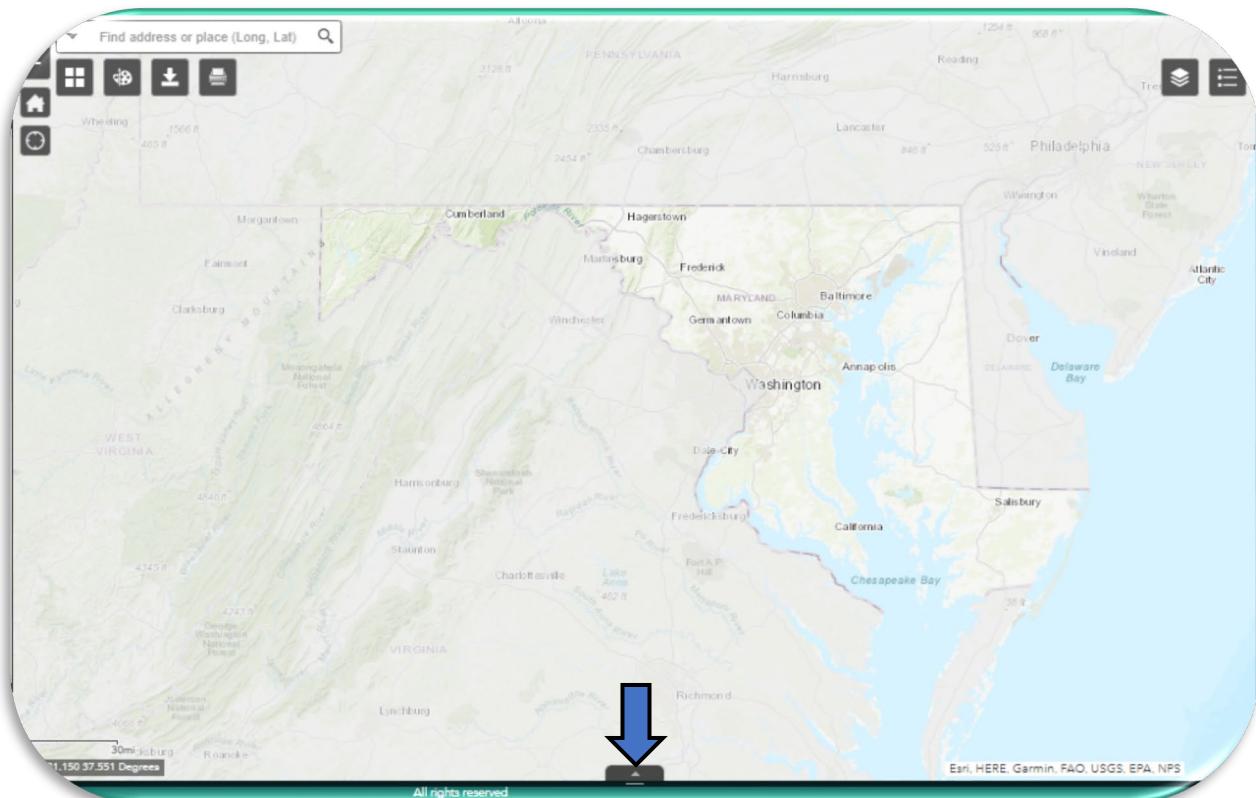
If you try this method and the attribute table that opens appears empty, click the map itself and drag it upward until the feature you selected appears visible. Release. The attribute information should now appear visible in the attribute table.





Accessing the Attribute Table via Attribute Tab

The last way to open the attribute table is via the black pop-up tab at the bottom of the map.

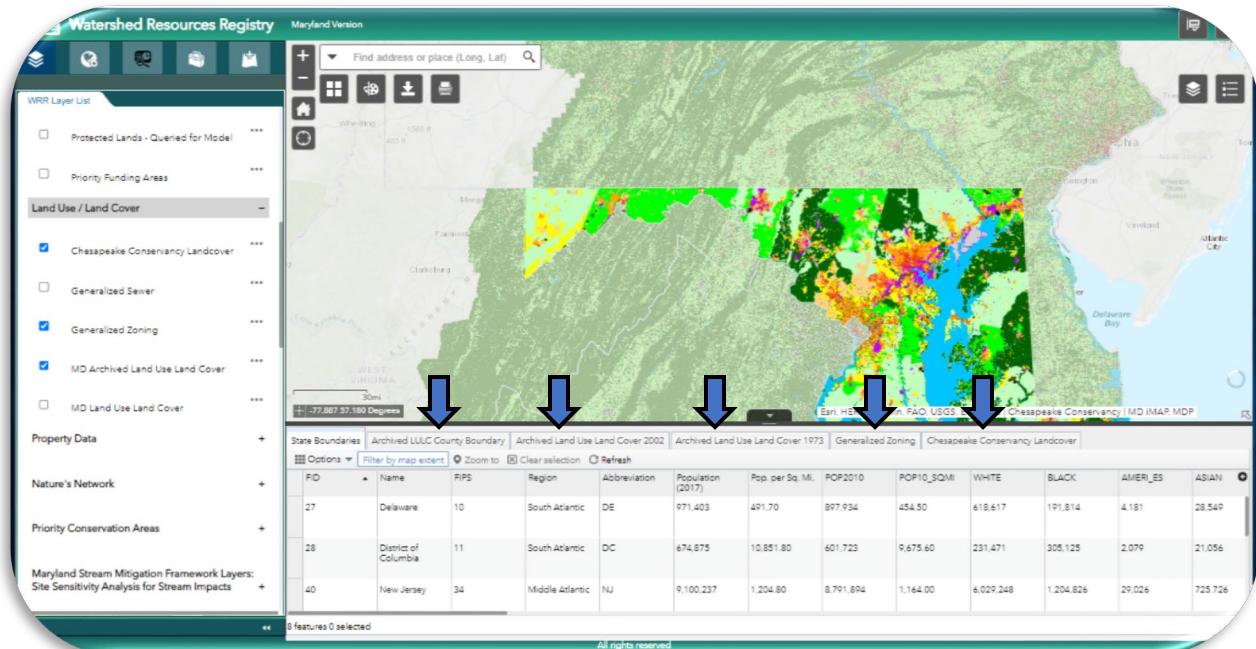


There are two main reasons to open the attribute table this way. One is that it allows you to open and close the attribute table easily while you are exploring data on the map.

Two, is that there are some data layers that do not have a 'View in Attribute Table' option in their drop-down menu. This does not always mean that there is not attribute information available. Opening the attribute via the black tab will allow you to access any existing attribute tables for these layers. **HOWEVER**, there are several things that must be true for you to see them.

To use this approach, you **MUST** have at least one data layer turned on AND you **MUST NOT** have opened the attribute table yet in your work session.

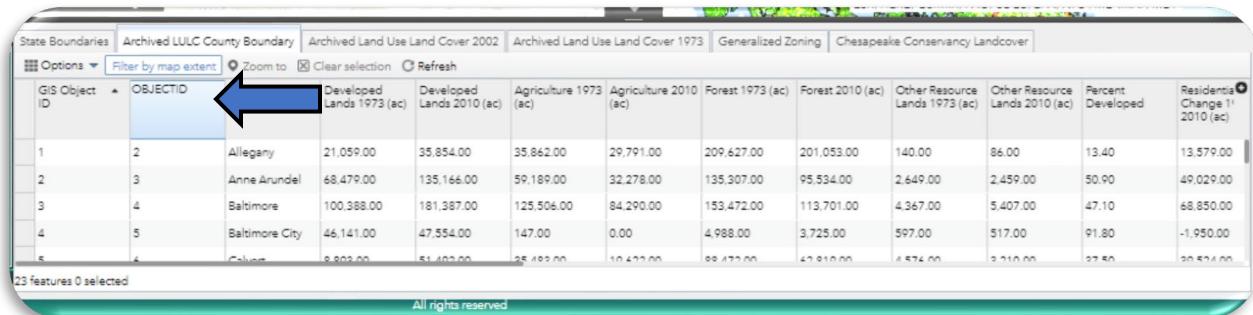
When you open the attribute table this way, you will see all the attribute tables for all the data layers you have turned on at the time. They will appear in different sheet tabs at the top.



Once you have opened the attribute table this way in a browsing session, it will cease updating automatically. This means that any data layers you turn off, will remain in attribute table. Any data layers you turn on will not appear in the attribute table UNLESS, you open them via the layer list or the pop-up drop-down menus. If, during a work session, you open the attribute table and then discover a data layer that doesn't include a 'View in attribute table' option, you'll need to refresh the website for this trick to work.

Basic Functionality within the Attribute Table

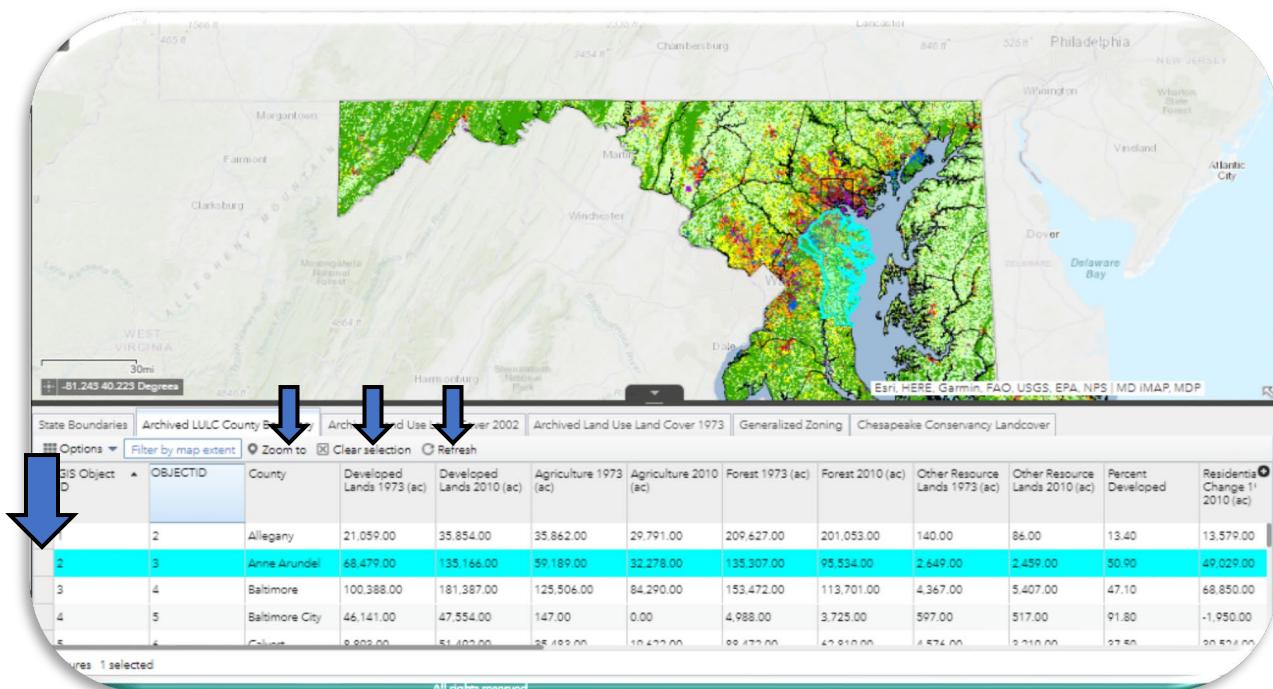
Once you have accessed the attribute table. For basic terminology. Columns run vertically, while rows run horizontally.



A screenshot of a web-based attribute table. The table has a header row with columns: GIS Object ID, OBJECTID, County, Developed Lands 1973 (ac), Developed Lands 2010 (ac), Agriculture 1973 (ac), Agriculture 2010, Forest 1973 (ac), Forest 2010 (ac), Other Resource Lands 1973 (ac), Other Resource Lands 2010 (ac), Percent Developed, and Resident Change 1' 2010 (ac). A blue arrow points to the 'Developed Lands 1973 (ac)' column header. The table contains several rows of data for different counties. At the bottom left, it says '23 features 0 selected'. At the bottom right, it says 'All rights reserved'.

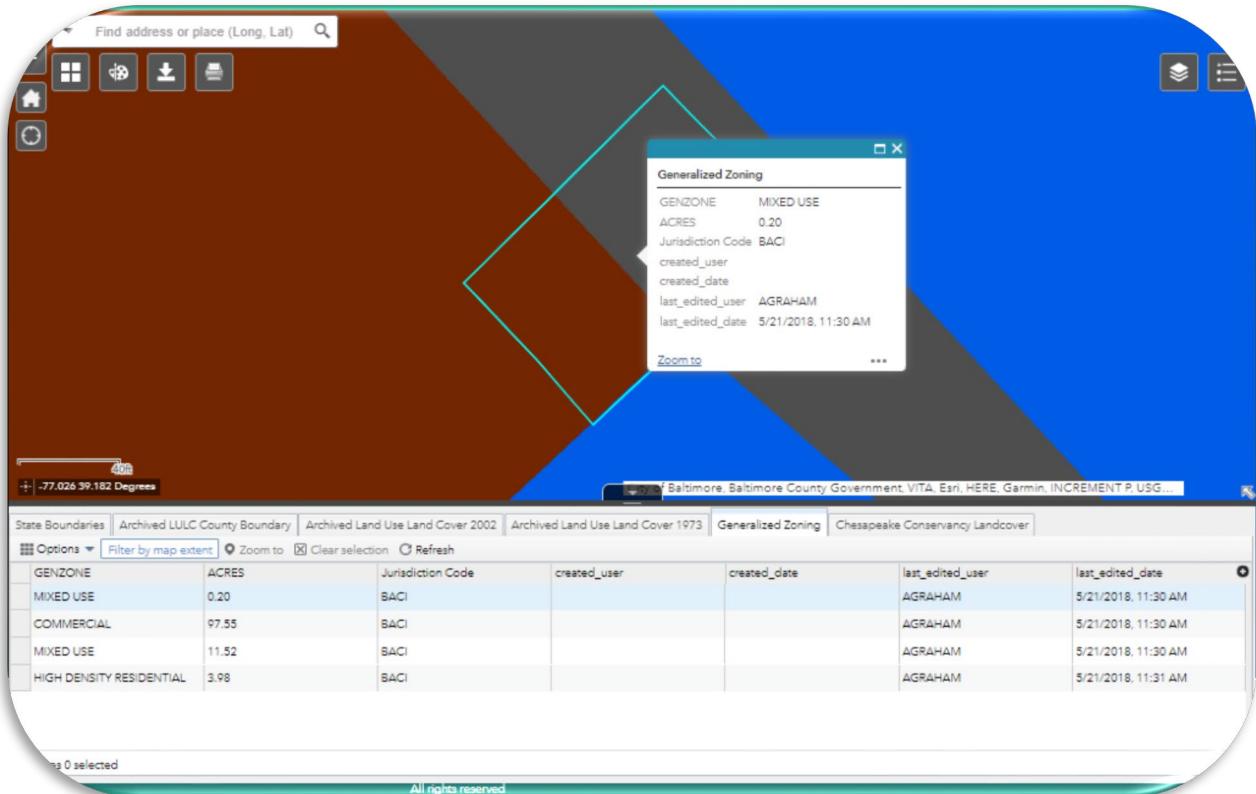
GIS Object ID	OBJECTID	County	Developed Lands 1973 (ac)	Developed Lands 2010 (ac)	Agriculture 1973 (ac)	Agriculture 2010	Forest 1973 (ac)	Forest 2010 (ac)	Other Resource Lands 1973 (ac)	Other Resource Lands 2010 (ac)	Percent Developed	Resident Change 1' 2010 (ac)
1	2	Allegany	21,059.00	35,854.00	35,862.00	29,791.00	209,627.00	201,053.00	140.00	86.00	13.40	13,579.00
2	3	Anne Arundel	68,479.00	135,166.00	59,189.00	32,278.00	135,307.00	95,534.00	2,649.00	2,459.00	50.90	49,029.00
3	4	Baltimore	100,388.00	181,387.00	125,506.00	84,290.00	153,472.00	113,701.00	4,367.00	5,407.00	47.10	68,850.00
4	5	Baltimore City	46,141.00	47,554.00	147.00	0.00	4,988.00	3,725.00	597.00	517.00	91.80	-1,950.00
5	6	Calvert	9,302.00	51,402.00	28,405.00	10,422.00	66,877.00	47,910.00	1,874.00	3,210.00	37.80	30,521.00

Selecting a column heading will allow you to sort the entire table by that category in ascending or descending order.



Selecting the left-most grey box in a row, will allow you to select an entire feature. That will feature will appear in light blue in the attribute table and on the map. The 'Zoom to' 'Clear Selection' and 'Refresh' buttons at the top of the table will turn black and can now be used. To select multiple features at one time, hold the 'ctrl' key down on your keyboard as you click.

Double-clicking on a cell within the attribute table will navigate the map to the site of that feature, and it will appear selected on the map with its corresponding pop-up. It will not, however, appear selected in the attribute table.

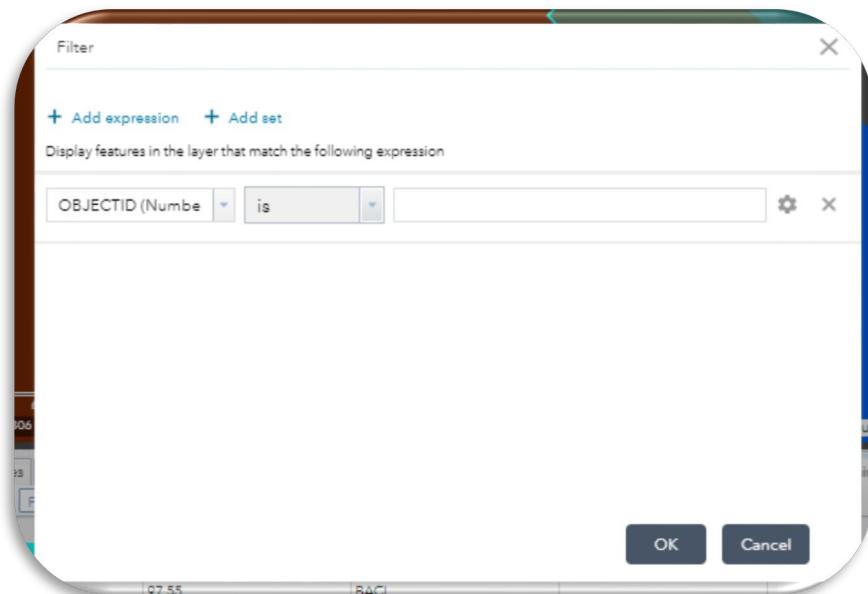


By default, whenever you open the attribute table, the 'Filter by map extent' button is turned on. This means that the only features you'll see in the attribute table correspond with the features you can see on your map. Turning this off means that ALL the features in the entire data layer will appear in the data layer. If you are having problems in the attribute table, before you refresh, trying turning this button off and on.

To the left of the 'Filter by map extent' button is an 'Options' drop-down menu. There is an option to 'Filter'. If you select this, a pop-up window will appear.

You can now add one or many expressions to filter the data in the attribute data.

If your filter returns no results, ensure that the 'Filter by map extent' button is turned off, before trying a different constraint.

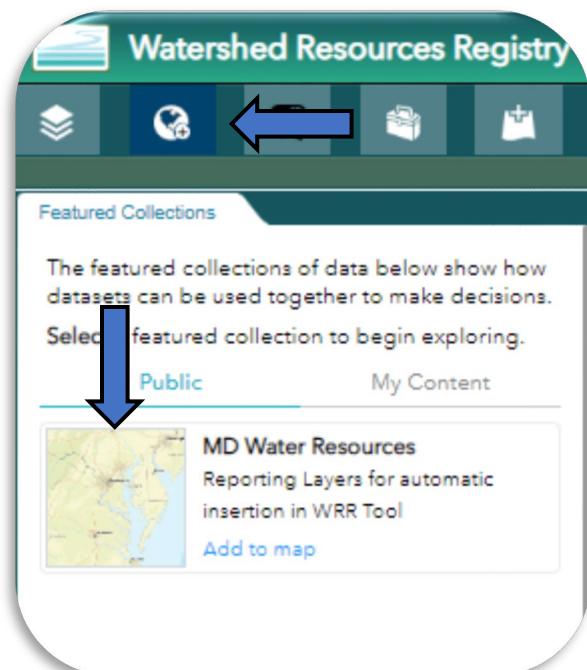


Featured Collections

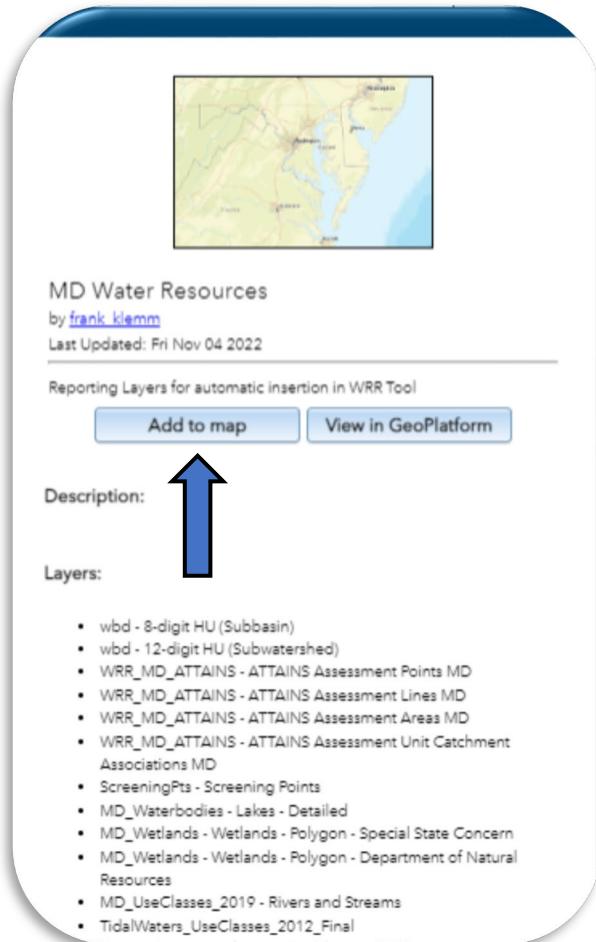
Featured Collections are groups of data layers packaged together around a common topic or workflow. These data layers can be added in bulk to the Active Layer List with the single click of a button, so that you do not need to sort through the various folders in the WRR Layer List.

The Featured Collections tab can be found on the main tool panel with the globe icon on it. Select this tab to see the available Featured Collections. All WRRs come with at least one.

To learn more about a Featured Collection and what data layers it contains, click on the image next to the title.



A new pop-up will appear. To add the Featured Collection to the Active layer list, either click the blue 'Add to map' button on the pop-up or click the blue 'Add to map' link on the main panel.



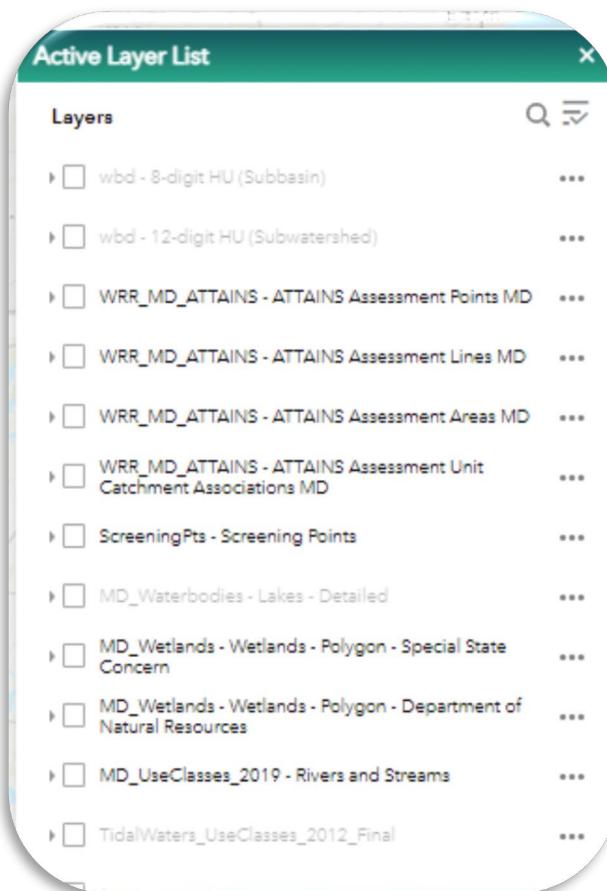
The Active Layer List will open and begin to populate with all relevant data layers. You may now explore these data layers at will.

Currently there is no way to remove a Featured Collection from the Active Layer List once it has been added except for refreshing the whole tool.

Extra Tip!

Featured Collections often have a matching Screening Report. The Screening Report allows you to define an AOI on your map and survey all the data layers in your Featured Collection instantly, creating a report that documents what features are and are not in your AOI.

The matching Featured Collection then allows you to play with that data on the map a get a sense of the spatial relationships between the data and your AOI. The Featured Collection can also be used to turn on multiple data layers that you would like to visually appear on the map of your Screening Report pdf.



Screening Reports

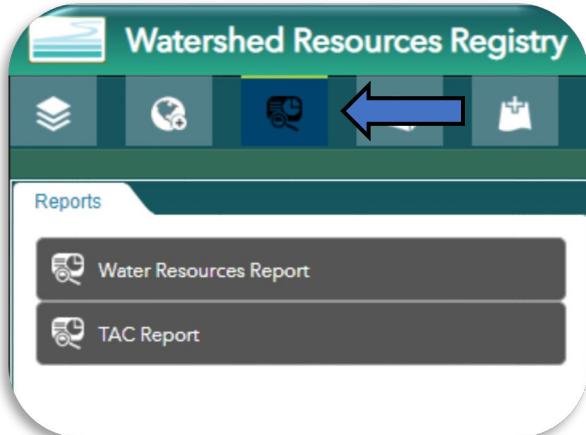
All WRRs contain a series of screening reports that allow you to survey and compile data about an Area of Interest (AOI) from multiple sources at once. The results from this survey are compiled in a pdf that can be easily saved and shared.

On the main tool panel, on the left-hand side of the screen, there are five tabs that appear across the top. The ‘Reports’ tab is the one directly in the center. Select this. (Note: If you hover your cursor over any widget in the WRR, the name of that widget will appear on screen)

A list of available screening reports in the below panel. All WRRs contain a TAC Report (i.e., a report created by that state’s Technical Advisory Committee) and a Water Resources Report (i.e., a report intended to survey the water resources in an area). Some states will have additional specialty reports tailored to the needs of groups or organizations working in that state.

Select the screening report you would like to run. A pop-up will appear. The name of your selected report will appear in the upper left-hand corner of the pop-up. Double check that this is your desired report.

To begin, you will first need to select a method for defining your AOI on the map. There are two tabs to choose from: Draw and Shapefile.

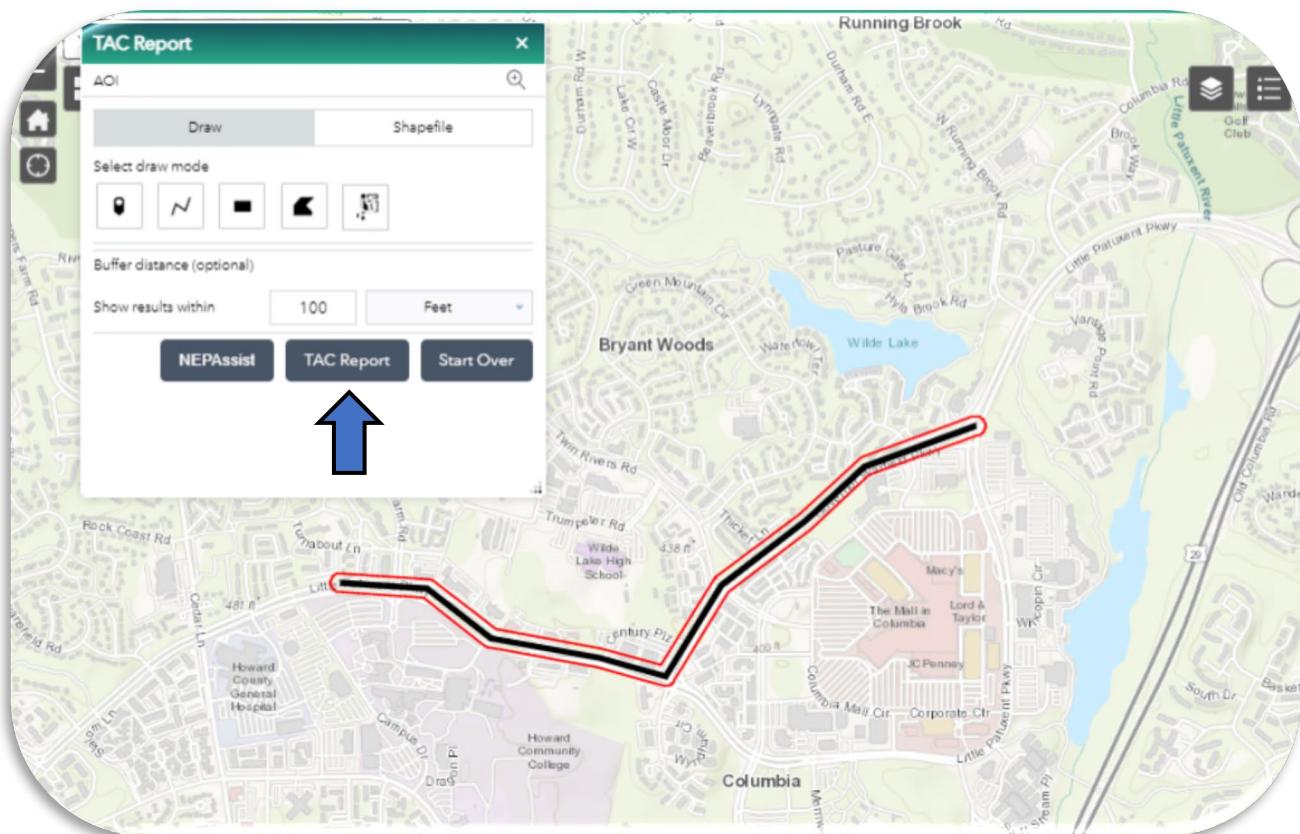


Select Area of Interest by Drawing

The 'Draw' tab will prompt you to select a draw mode: point, line, extent, polygon, and select by rectangle. Regardless of what mode you select, instructions for how to use the tool will appear near the cursor once you begin drawing on the map.

If you make a mistake or would like to redraw your AOI, click the Start Over button.

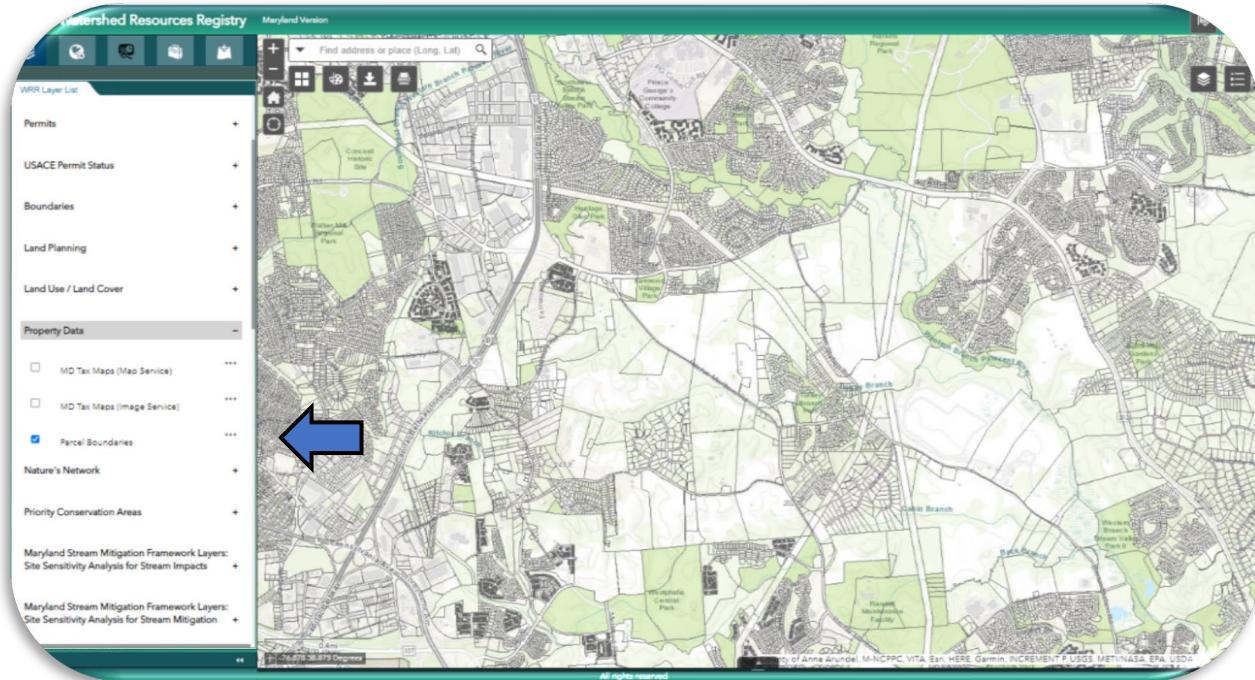
Once you have drawn your desired AOI on the map, it is possible to implement a buffer around the AOI. Input the desired buffer size into the text box and select the appropriate units from the drop-down menu. When everything fits your desired criteria, click the 'Report' Button at the bottom of the panel.



Select by Rectangle and Selectable Layers

The ‘Select by Rectangle’ is a specialized drawing tool within screening reports. It allows you to select a mapped polygon from a data layer and use it as your Area of Interest (AOI). The following example illustrates how you could select a parcel as your AOI.

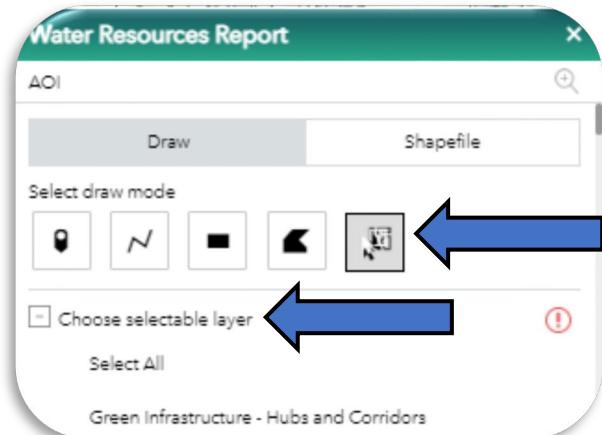
You must first turn on the relevant data layer in the WRR Layer List. In the image below, you can see the ‘Parcel Boundaries’ layer has been turned on.



Next, navigate to the ‘Reports’ panel, and select your desired report from the available list.



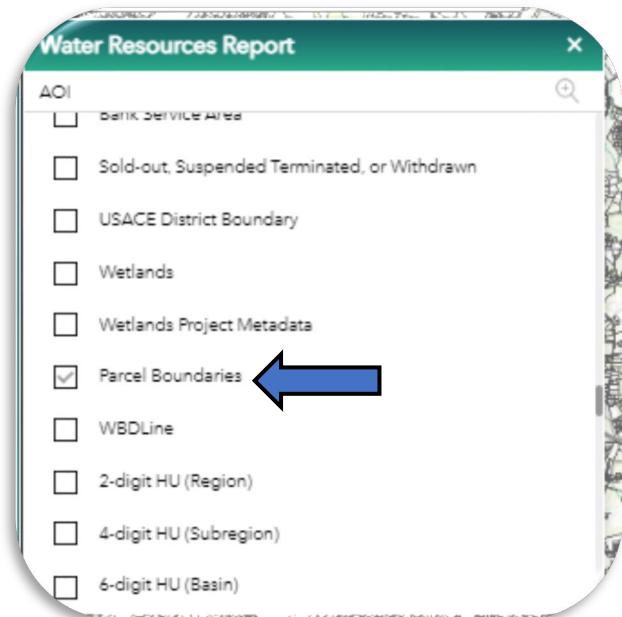
Select the Draw button and under 'Select Draw Mode', select the 'Select by Rectangle' button. Click the 'plus' sign to the left of the 'Choose selectable layer' option.



Now, find the corresponding layer in the expanded list of layers. Check the grey box next to it.

Extra Tip!

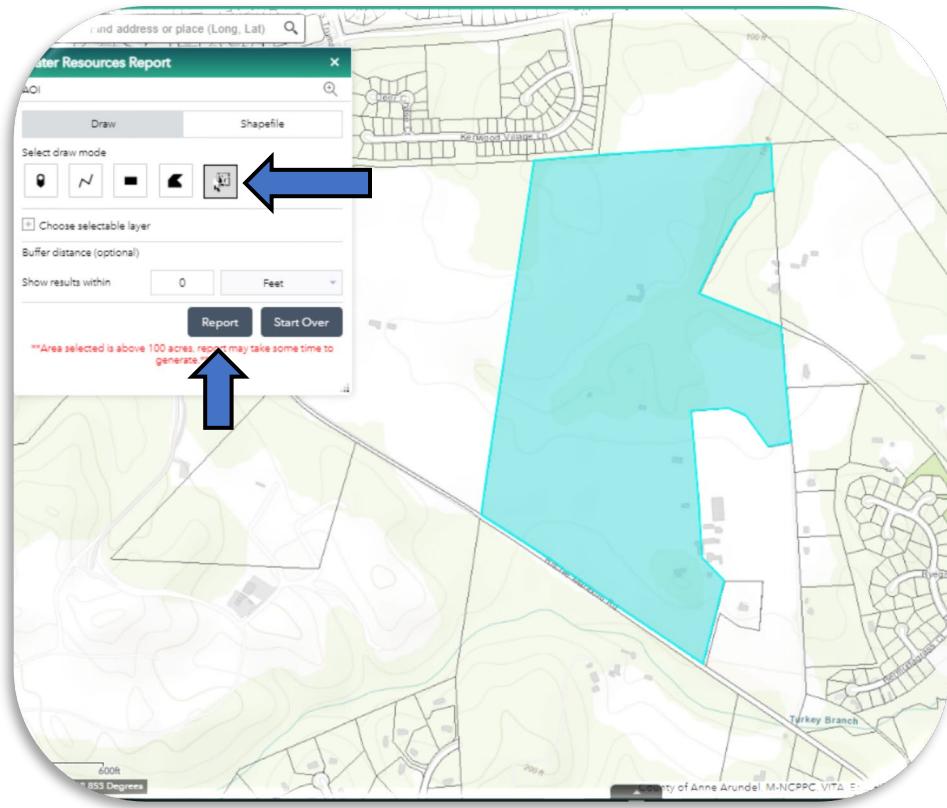
If you have added any data layers during your work session, those data layers will appear at the top of the list.



Navigate back up to the top of the panel. Minimize the 'Choose selectable layer' list and click on the 'Select by Rectangle' drawing tool. Draw a rectangle within the polygons that you would like to select on the map. Once you draw the rectangle, any polygons that intersect the rectangle you drew will be highlighted on the map.

In the image to the right, you can see that a parcel has been selected and is highlighted in blue.

You can now run a screening report on the entirety of the polygon(s) selected.



Extra Tip!

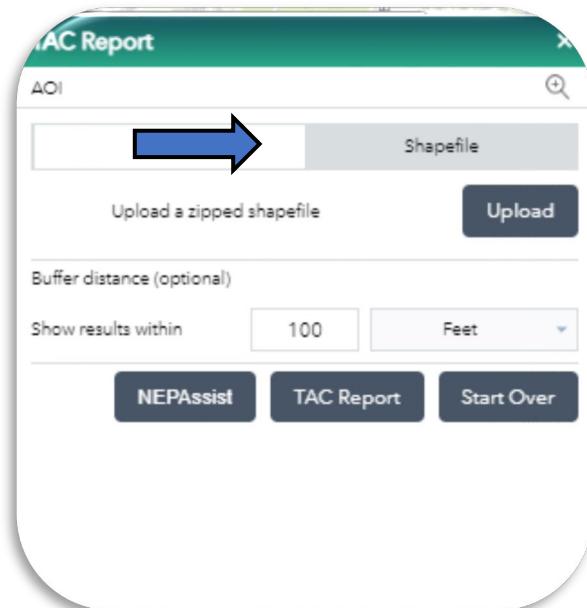
The Select by Rectangle tool will not allow you to run the NEPAssist Report. To run the NEPAssist Report for your desired AOI, roughly trace the outline of a polygon you're interested in.

Select Area of Interest by Uploading a Shapefile

The 'Shapefile' tab will prompt you to upload a zipped shapefile from your computer.

Extra Tip!

There is a difference between uploading a shapefile in the Add Data panel and in the Screening Report panel. If you upload a shapefile in the Add Data panel, a data layer will appear in the 'Active Layer List' and allow you to manipulate that data like any other layer. If you upload a shapefile in a Screening Report panel, you will not get a data layer pertaining to that data.

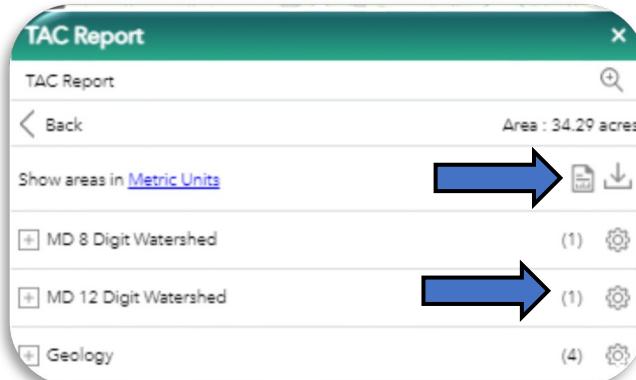


Running the Report

Once you click the report button, the panel will shift to display all the data layers that are included in this report.

As the report is running, a rotating circle will appear in the row for each data layer. When a given layer has finished, a number in parentheses (e.g. (1)) will appear in black.

When the entire report is finished running, the 'Create Report' icon in the upper right-hand corner will appear in black.



Each data layer within the report can be expanded (using the plus sign) to reveal more information about the site and the metric in question. Some layers (e.g. ATTAINS layers) contain hyperlinks that when selected will open up a new tool or resource in another tab.

The screenshot shows a list of environmental data layers. The 'ATTAINS Assessment Unit Catchment Associations MD' layer is expanded, revealing detailed information. A blue arrow points to the plus sign icon next to the layer name.

Layer	Count	Action
Liquid Natural Gas Import and Export Terminals	(0)	
Petroleum Product Pipelines	(0)	
ATTAINS Assessment Unit Catchment Associations MD	(2)	
ATTAINS Assessment Areas MD	(0)	

ATTAINS Assessment Unit Catchment Associations MD details:

Cycle Year:	2022
Assessment Unit Name:	Middle Patuxent River
Waterbody Report Link:	https://mywaterway.epa.gov/waterbody-report/MDE_EASP/MD-02131106/2022
IR Category:	1
Overall Status:	Fully Supporting
Is Assessed:	Y
Is Impaired:	N
Is Threatened:	N
On 303d List:	N
Has TMDL:	N

Area: 5.94 acres

Generating a Report

All the information that appears in a Report tab is available in a printable report, a downloadable pdf, or downloadable CSV file.

Printing A Report

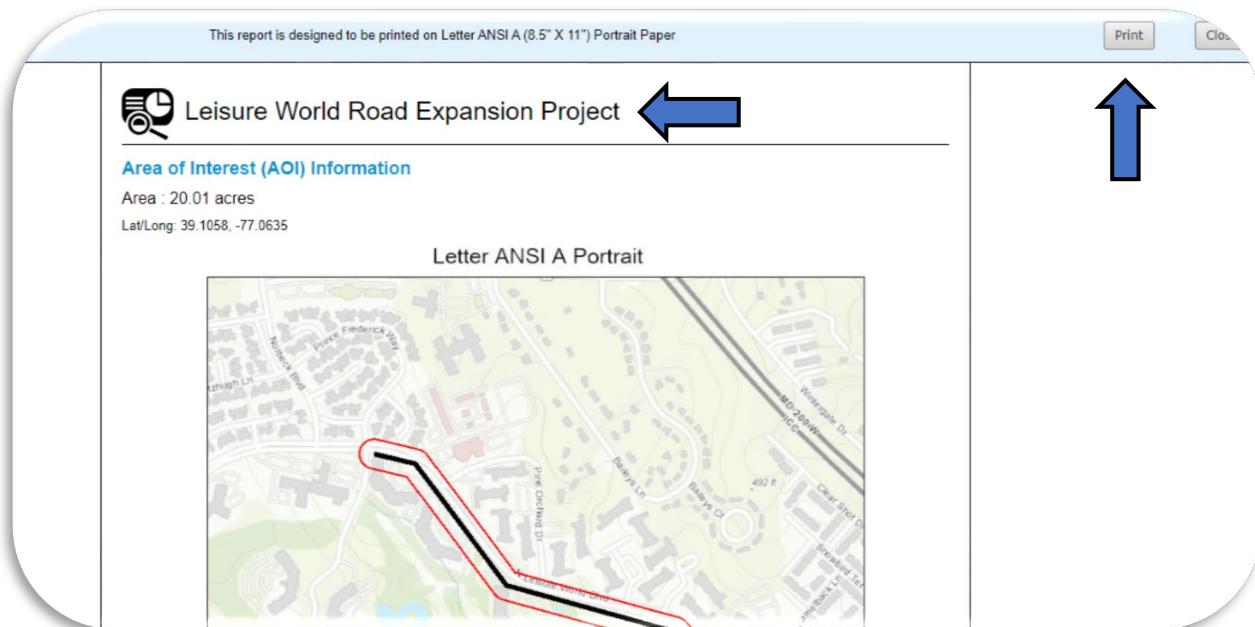
In the upper right-hand corner of any Screening Report, you will see a document icon. If you hover over it, it is entitled 'Create Report'. Click this icon.



A layout drop-down menu will appear. The default, Letter ANSI A Portrait is a standard 8.5" X 11" sheet of computer paper. Beneath the drop-down menu is a text box that will allow you to input a title for your report. Clicking the blue 'Print' button will bring up a preview of the document that you are printing. While in this preview mode, you can still edit the title of the report and add notes at the bottom. Click the gray 'Print' button again to print out a version of your screening report.

Extra Tip!

Screening Reports often have a matching Featured Collection. If you've run a Screening Report and would like to examine any of the spatial relationships on the map, navigate to the Featured Collections panel, select the Collection with the matching name, and add it to the Active Layer List.



Downloading a PDF

If you would like to save a report as a PDF rather than printing out a word document, click on the 'Create Report' icon.

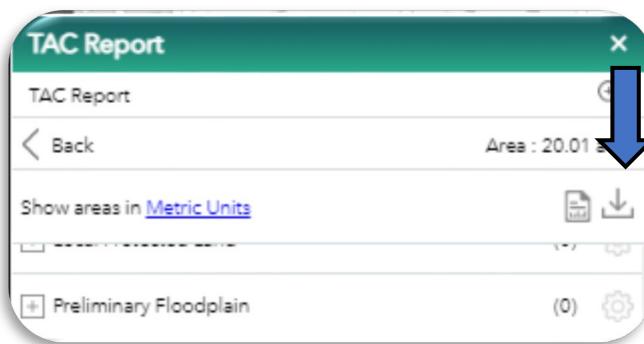
Click the blue 'Print' button to bring up the print preview. Click the grey 'Print' button. A Print Dialogue box will appear.

There is a drop-down menu labeled with 'Destination'. Click the drop-down menu and select 'Save as PDF'. Click the blue 'Save' button and save it to the desired location on your computer.



Downloading a CSV File

Next to the 'Create Report' button, there is a 'Download' button. A dialogue box will open prompting you to select a CSV file and then download. The attribute table for each individual layer in the WRR Report will download as a separate CSV file that can be opened in. (i.e., Wetland Preservation will download separately from Wetland Restoration, etc.).

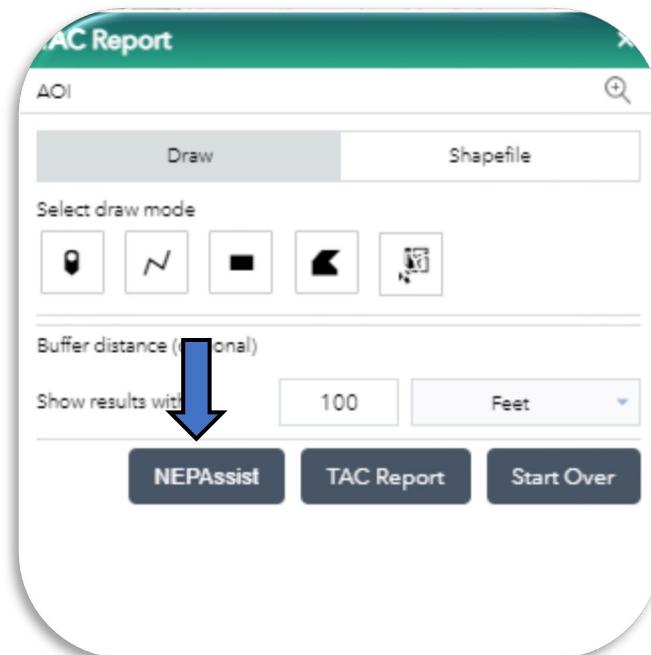


NEPAssist Tool

NEPAssist is a tool created by EPA that facilitates the environmental review process and project planning in relation to environmental considerations. The web-based application draws environmental data dynamically from EPA GIS databases and web services and provides immediate screening of environmental assessment indicators for a user-defined AOI. A suite of tools and features connected to NEPAssist can be accessed independently at

[https://www.epa.gov/nepa/nepassist.](https://www.epa.gov/nepa/nepassist)

Selected functions from the NEPAssist tool have been directly incorporated into the WRR interactive maps. This means that you can draw a polygon or other area of interest inside the WRR and then run both the NEPAssist tool and a WRR screening report on that same polygon.



Extra Tip!

The NEPAssist tool does not work if you have created your AOI by uploading a shapefile or by using the 'Select by Rectangle' tool. It will only work if you draw a point, polyline, or polygon.

Clicking on the NEPA Assist button (after creating an AOI) will open a new tab with National, State, Demographic reports. All these reports can be downloaded as an Excel spreadsheet or PDF.

This tool will work on AOI 500 sq. miles (320,000 acres) or less.

WRR Analysis

[Map](#)

Geographic coordinates:

LINE

(39.109034,-77.067373,39.108851,-77.066386,39.108102,-77.065657,39.106586,-77.064197,39.105721,-77.060142,39.105254,-77.059648,39.103506,-77.059627,39.103140,-77.060507,39.102607,-77.062438,39.102598,-77.062438)
with buffer 0.0189393939393939 miles

Note: The information in the following reports is based on publicly available databases and web services. The National Report uses nationally available datasets and the State Reports use datasets available through the EPA Regions. Click on the hyperlinked question to view the data source and associated metadata.

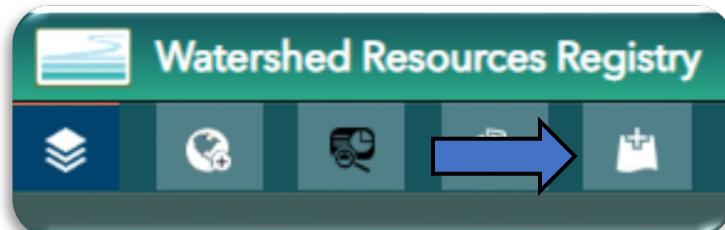
[National Report](#)

Length of digitized line	
Within 0.01893939393939 miles of an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	yes
Within 0.01893939393939 miles of an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	yes
Within 0.01893939393939 miles of a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within 0.01893939393939 miles of a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within 0.01893939393939 miles of a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no

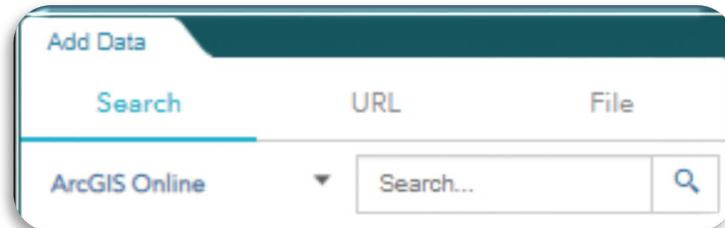
Adding Data

It is possible to add mapped data from outside sources into the WRR for a browsing session. This can be done via three different mechanisms: Search, URL, or Shapefile.

Start the process for adding data by clicking on the on the Add Data tab, shown at right on the teal tool panel.



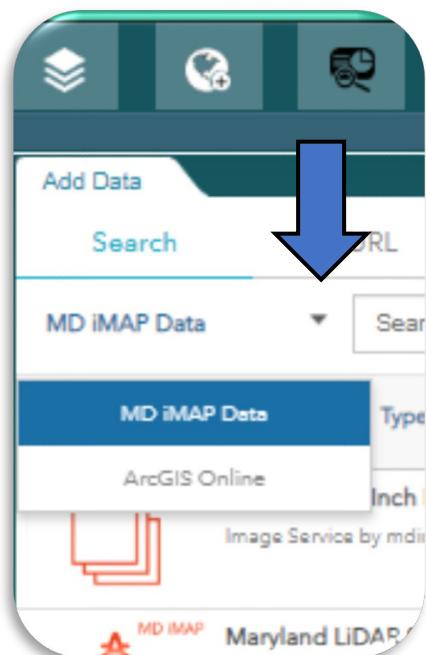
You should see three tabs at the top of the 'Add Data' panel: Search, URL, and File. These three tabs will allow you to add data to the WRR in three different ways.



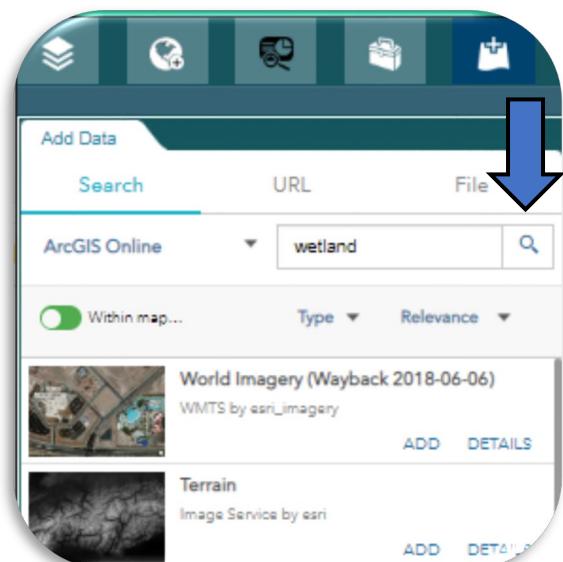
Add Data Via Search

All states are connected to the ArcGIS Online Data Portal. Some states are ALSO linked to individual state GIS data portals. To check and see if your state is connected to multiple data portals, check the drop-down menu below the search bar. If your state is connected to a statewide GIS portal, you'll have additional search options, as shown here for Delaware.

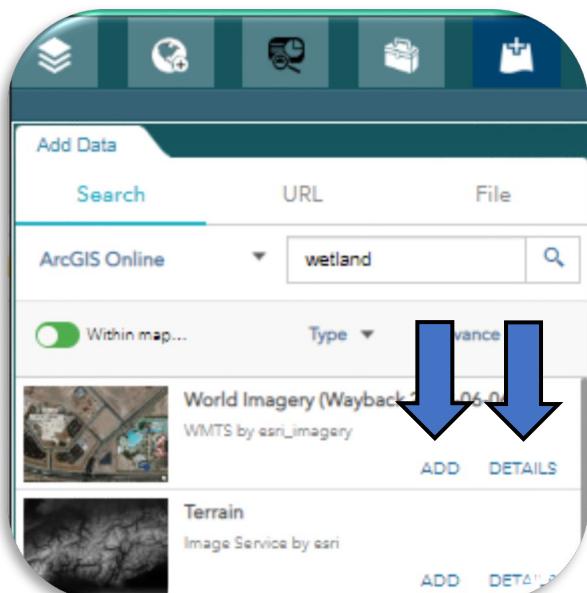
In general, if you have a state GIS dataset portal, that will be your best option for finding additional datasets. State datasets are generally more detailed, and often allow for more accuracy and precision than nationwide datasets.



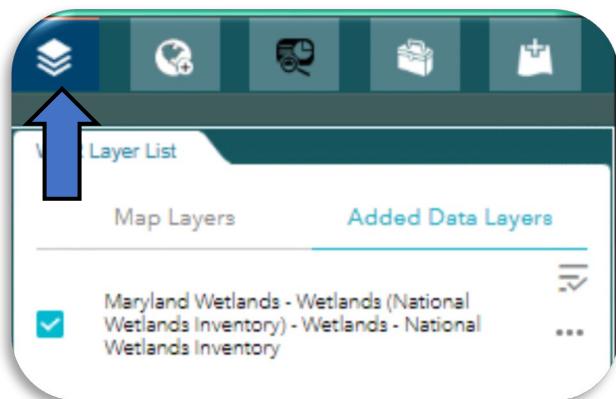
You can search for available datasets by typing keywords or topics into the search bar, sorting with the type or relevance drop-down menus, or scrolling through available list. Here is an example of a keyword search for wetlands.



More information about a layer can be found by clicking on the blue 'Details' link. This will open a new tab with additional information. Once you have identified a layer that you would like to add, click the blue 'Add' link. The word should transform to a blue 'Remove' link, and the dataset should appear visible in the map on the right.

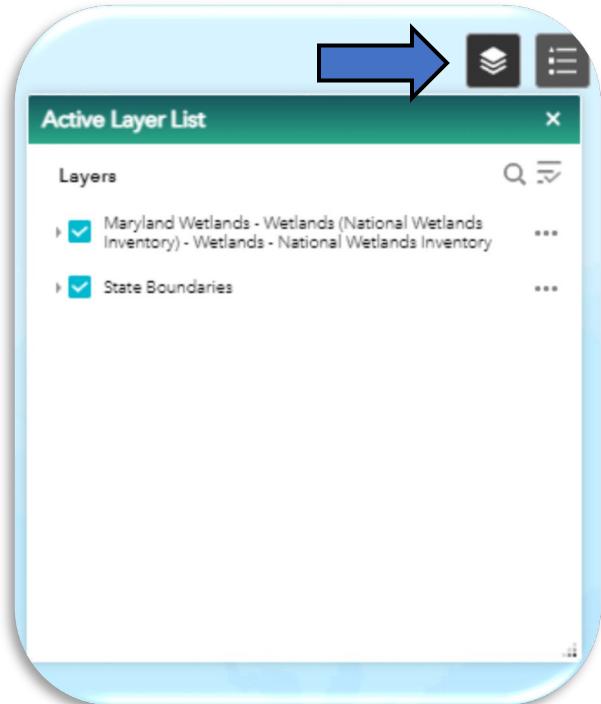


To view the data that you have just added on your map, click on the WRR Layer List tab. When the WRR Layer List opens, click on the 'Added Data Layers' tab. You should now see the data layer that you have just added.



You can also open the Active Layer List on the right-hand side of the map. Any added data layers will also appear there.

Checking or unchecking the box next to the layer in question will turn its visibility on and off within the map. For additional information or tools, click on the ellipses to the right of the layer name to zoom to the data, move the layer up and down, alter the transparency of the layer, or show item details.



Add Data Via URL

If you have a map service that you would like to add to the WRR during a browsing session, and it is not available in the search tab, it may be possible to add that data through a Uniform Resource Locator (URL).

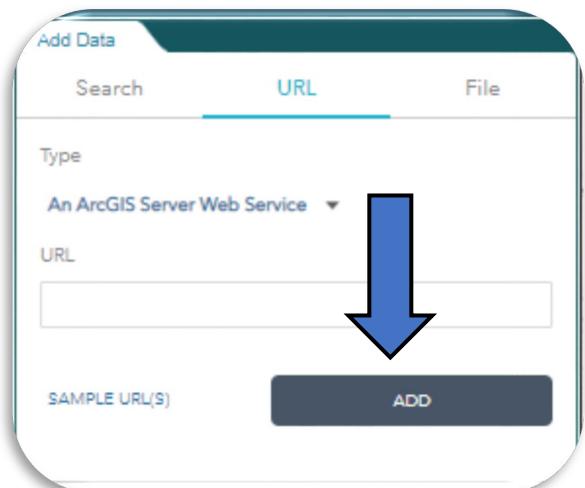
Open an entirely new tab on your browser and navigate to the data source in question. Many map services will have a specific URL listed within the Metadata that can be copied and pasted elsewhere. Copy that link. (You can also use the Ctrl + C (or Command + C on a Mac) keyboard shortcut.)

Navigate back to the browser tab where the WRR is open. In the Add Data panel, click on the URL tab and paste the URL in the text bar. (Or the Ctrl + V keyboard shortcut).

Click on the 'Add' Button. The data should appear on the map.

Click on the 'Active Layer List' on the right-hand side of the map to ensure that the Add was successful and the layer is visible. If the layer is not visible, delete the URL in the search bar, and try it a second time.

If there is an error with adding the map service, small gray text will appear in the lower left-hand corner of the panel, alerting you to the nature of the error.



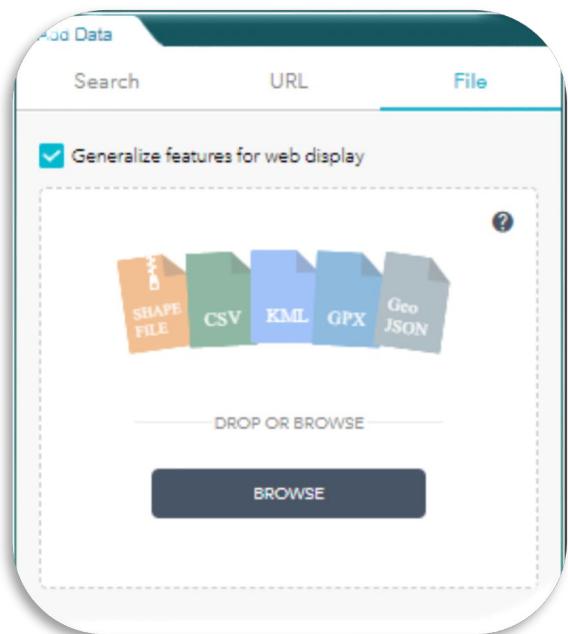
Add Data Via File

It is also possible to add data via a file upload. The WRR can support zipped Shapefiles, CSV, GPX, and Geo JSON files. Within these files, a maximum of 1000 features is allowed.

Navigate to the ‘File’ tab and click on the ‘Browse’ button. This will allow you select a saved file from your computer, DropBox, etc.

Once you have added the file in question, open the Active Layer List on the right-hand side of the map to ensure that it has been added.

If you experience difficulties with the Add Data tool, clear your browsing history, reload the WRR, and try again.



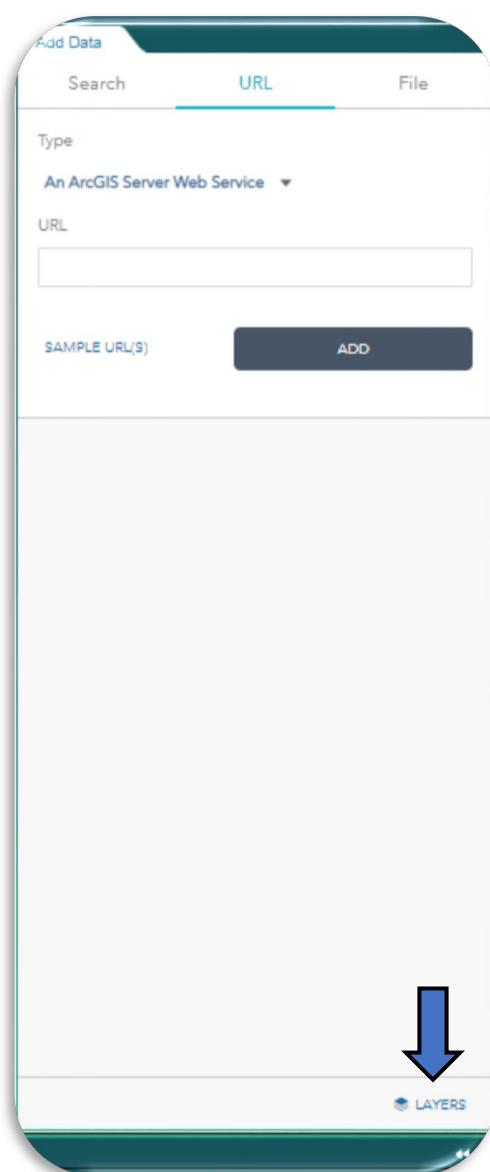
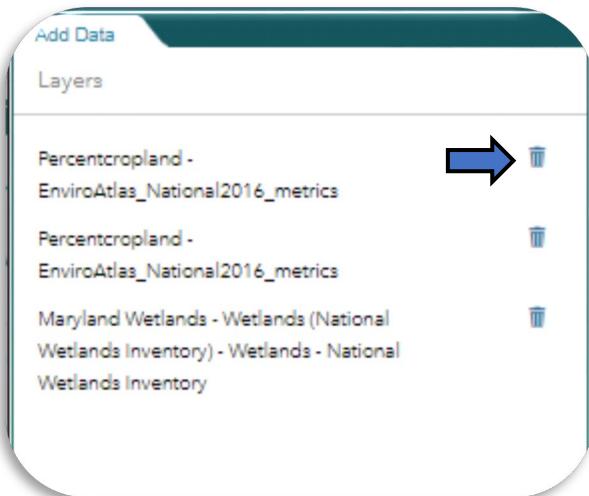
Remove Data

All external data that is added during a work session can be removed.

Navigate to the lower right-hand corner of the 'Add Data' panel and click on the blue 'Layers' link.

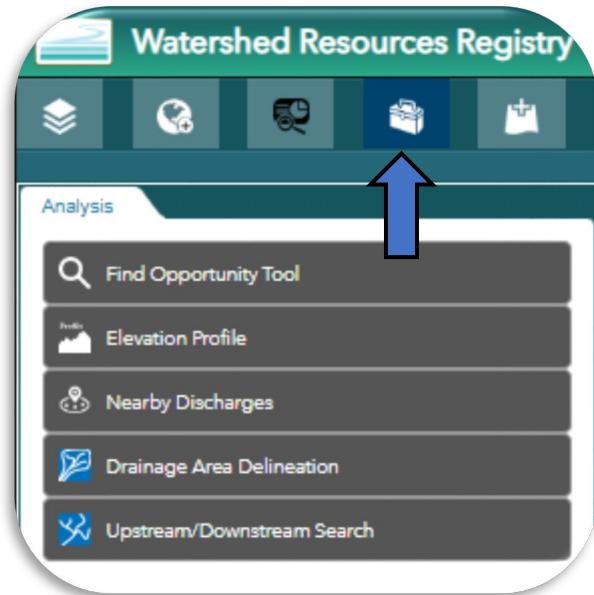
This will take you to a panel with a list of all the layers you have added in your session. Click on the blue Trash Can icon to remove a layer.

This will remove the data from the map and the WRR Layer List.



Analysis Widgets

On the main tool panel, the Analysis tab with a toolbox icon on it, contains a list of widgets to aid you in creating, examining, and extracting data from the basemaps and data layers.



Find Opportunity Tool

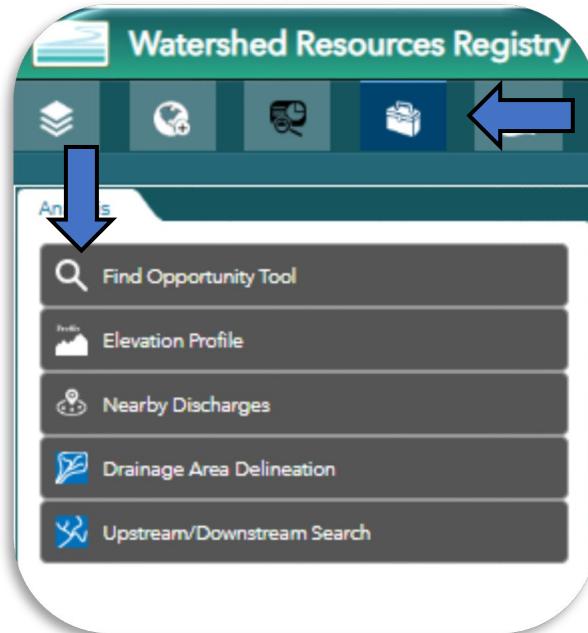
Each WRR includes four to eight spatial analyses designed to prioritize the preservation or restoration of wetlands, riparian areas, terrestrial habitats and/or stormwater infrastructure. The Find Opportunity Tool will allow you to quickly find opportunities in any given watershed, county or other geographic area that meet your needs.

Areas are scored from one to five stars, with a five-star area representing the best opportunities. When searching for preservation opportunities, please note that higher scores indicate higher quality/more pristine sites. The inverse is true for restoration opportunities; a higher score indicates a lower quality/more degraded site.

Accessing the Find Opportunity Tool

Navigate to the expanded tool panel on the left-hand side of the screen. Select the 'Analysis' tab. This is the one with a toolbox icon. A list of tools will appear in the main panel. Select the 'Find Opportunity Tool' button.

A dialogue box will open. Two tabs will appear at the top of the box: Find Opportunity and Find Visit Information. Make sure that the tab you desire is bolded in black, before entering the pertinent search information.



Find Opportunity Tab

Make sure the Find Opportunity tab is selected across the top. It will appear bold and underlined.

You can enter as many or as few restrictions as desired. The only information you must enter is the type of opportunity you're looking for (e.g., Wetland Restoration, Riparian Preservation, etc.).

If desired, click the drop-down menu for the county you're interested in. This will restrict candidate sites to that county only.

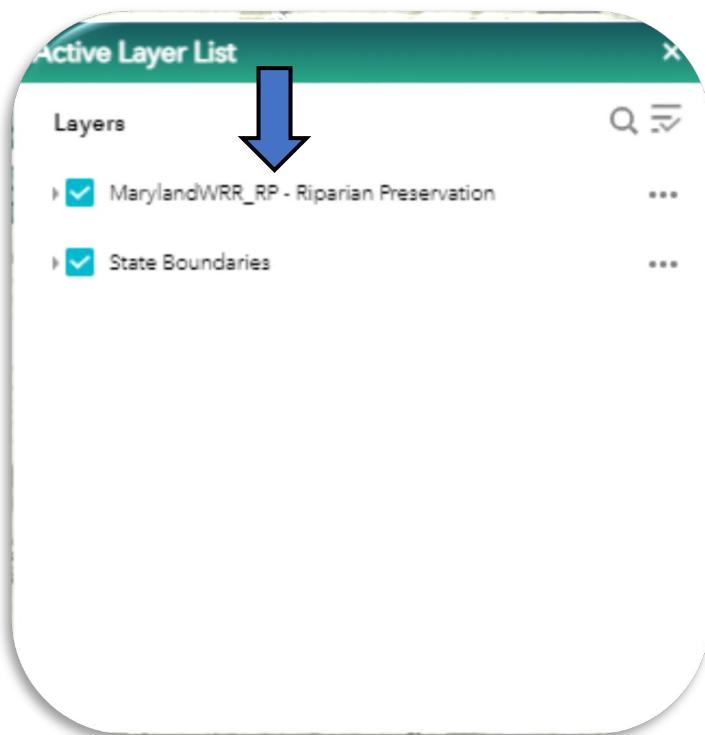
Next, there is a drop-down menu labelled Select a Watershed. Depending on the state you are working in, this could include HUC 12s, HUC 8s, and/or other watershed selections.

The Select a Watershed menu is dependent on the county search. If you select a county, only the watersheds that intersect that county will appear as options.

Select a score (number of stars) and score operator if so desired. The score operator will allow you to search for a range of scored opportunities (i.e., If you're looking for sites that are four or five stars, you could select '4 stars' and '>=' OR you could select '3 stars' and '>').

Once you have input all your desired search criteria, click the Search button.

The WRR map will find all the opportunities that meet the criteria you entered and will add a new layer to your map. This layer can be found on the 'Active Layer List' widget on the right-hand side of the map.



Extra Tip!

The Find Opportunity Tool only allows a single results layer at a time. The visible data layer will always reflect the most recent query constraints entered. If you run a new query (regardless of category), the data layer will update to reflect the new query's constraints.

In addition to adding a new layer to your map, an Attribute table will appear at the bottom of the window. This table shows all the opportunities in tabular form.

Shape	HUC Code	Score	County	Acres	OBJECTID_1	Federal 8 Digit Watershed	Federal 8 Digit Watershed Name	Maryland 8 Digit Watershed	Maryland 8 Digit Watershed Name
	020700030405	3.00	Allegany	0.22	8242	02070003	Cacapon-Town	02140510	Sideling Hill Creek
	020700030405	3.00	Allegany	1.07	8944	02070003	Cacapon-Town	02140510	Sideling Hill Creek
	020700030405	3.00	Allegany	0.22	9031	02070003	Cacapon-Town	02140510	Sideling Hill Creek
	020700030405	4.00	Allegany	0.22	9842	02070003	Cacapon-Town	02140510	Sideling Hill Creek
	020700030405	3.00	Allegany	20.49	10716	02070003	Cacapon-Town	02140510	Sideling Hill Creek
	020700030405	5.00	Allegany	0.67	10917	02070003	Cacapon-Town	02140510	Sideling Hill Creek
	020700030405	3.00	Allegany	0.22	11017	02070003	Cacapon-Town	02140510	Sideling Hill Creek

The solid black tab at the top of this table can be used to collapse, expand, or adjust the size of the table.

It may take a few moments for all the opportunities to load. Once they do, the total number of features identified will appear in the lower left-hand corner of the table. If the number of opportunities is too large, consider adding additional constraints to make your potential sites more manageable to sift through.

When working in the attribute table, be sure to note whether the 'Filter by map extent' is on or off. If the 'Filter by map extent' button is selected and you double click on a cell in the attribute table, the map will zoom to your selected site, and the features listed in the attribute table will be reduced only to those visible on the map. To return the original set of features, you will need to Turn off the 'Filter by Map Extent' button. If the 'Filter by map extent' is not selected and you double click on a cell in the attribute table, the map will zoom to the site, but the features listed will remain the same.

Shape	Score	County	Acres	HUC 12	OBJECTID_1
	5	New Castle	2.10353346402	020402050308	293
	5	New Castle	1.1119742166	020402050307	303
	5	New Castle	2.77316350193	020402050308	312
	5	New Castle	7.10116179614	020402050308	315

Click the heading of any column to sort via attribute. Double click any individual row within the attribute table to zoom to the location on the map that row represents.

Find Visit Tab

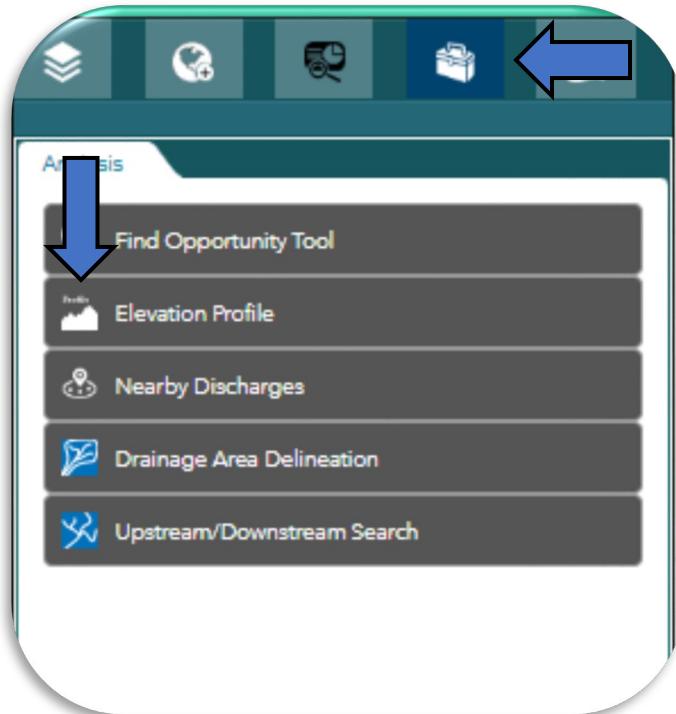
The Find Opportunity Tool also supports finding records of field visits that other WRR users may have recorded and added to the WRR.

The process for searching for Visit information is essentially equivalent to that of the Find Opportunity Search, with one exception. Visit information is information gathered from a past field visit. If you constrain your site visit search by date, make sure that your date range does not extend into the future.

Elevation Profile

The Elevation Profile tool creates an elevation profile graph based on a (poly)line drawn on the map. Elevation data is based on DEM data at 10-meter resolution from Esri's World Elevation datasets.

Navigate to the expanded tool panel on the left-hand side of the screen. Select the 'Analysis' tab. This is the one with a toolbox icon. A list of tools will appear in the main panel. Select the 'Elevation Profile' button.

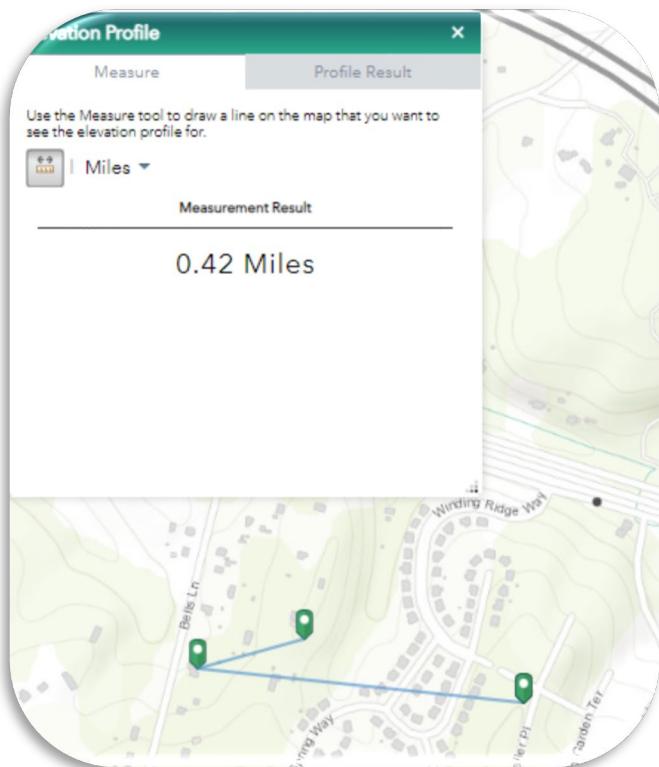


A new pop-up box will open.

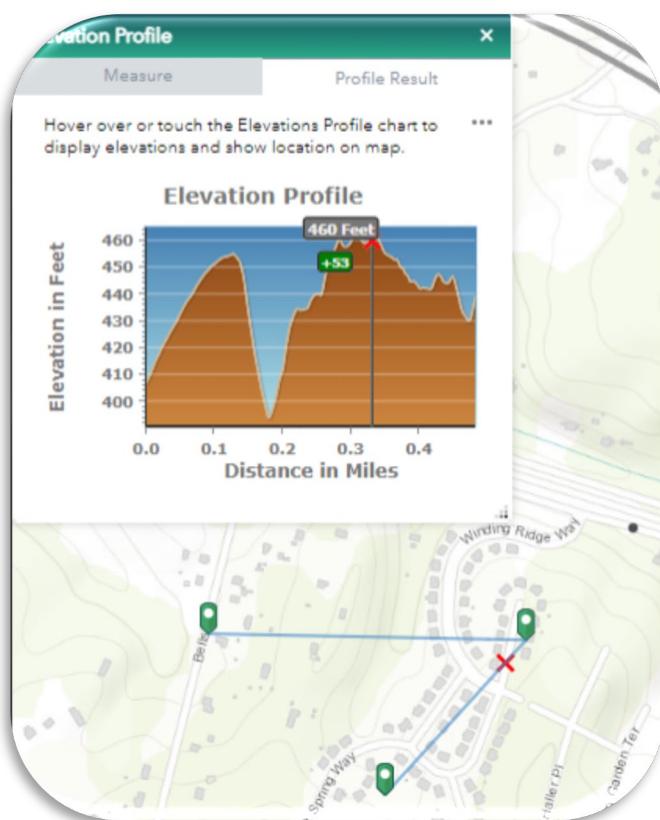
Click on the ruler icon to choose your desired unit of measurement.

Once you have selected your unit of measurement, click on the map to drop a point, and then drag your cursor along the map. A line will appear. As you draw, the length of your line will appear under 'Measurement Result'.

The Elevation Profile tool will allow you to draw a single line segment or a multi-segment line. Single click if you would like to create a vertex for your line, and double click when you would like to end your line.

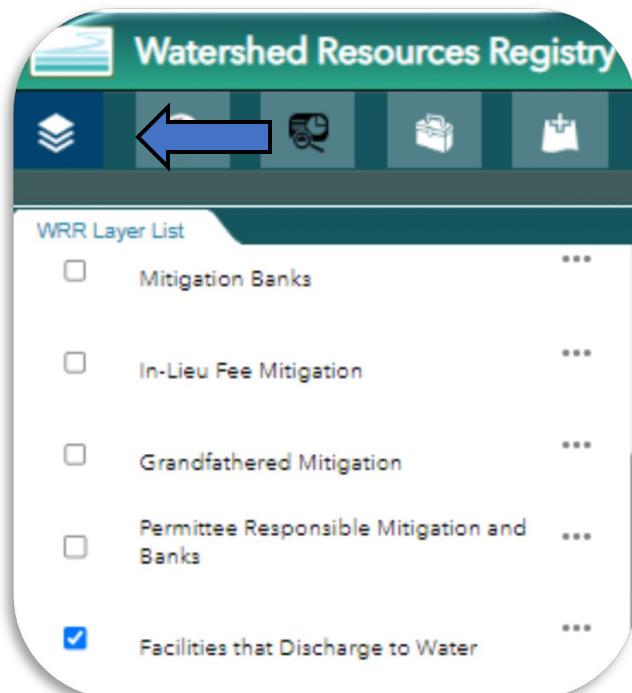


Once you finish drawing your line, the pop-up box will shift to the 'Profile Result' tab. An Elevation Profile graph will appear. As you drag your cursor along the graph, a red x will appear on the map.

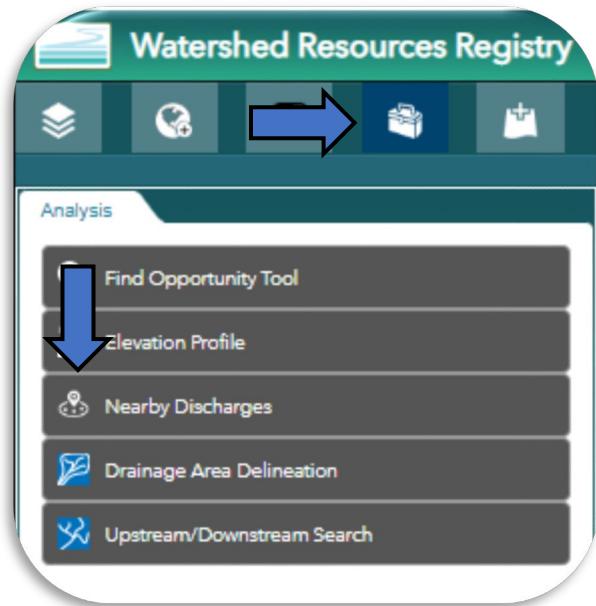


Nearby Discharges

The Nearby Discharges tool allows you to find all NPDES permitted facilities within a buffer of a defined location. To use this tool, you'll first need to turn on the 'Facilities that Discharge to Water' data layer in the WRR Layer List.



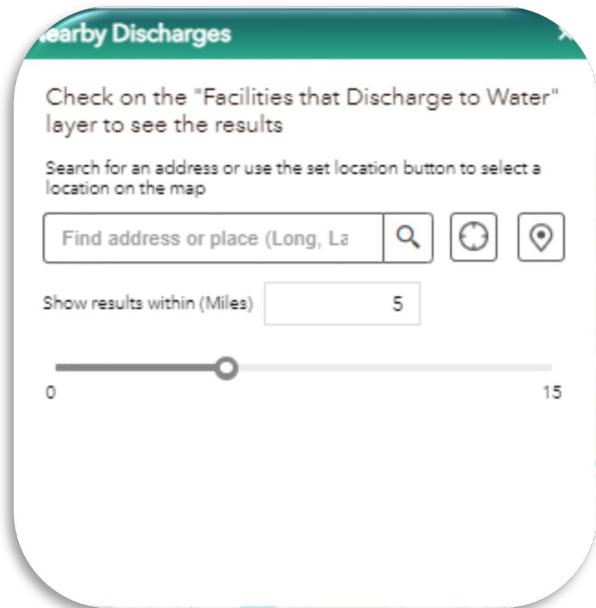
Once the data layer is turned on, navigate to the Analysis tab on top of the tool panel, and select the Nearby Discharges button from the list.



A pop-up box will appear.

Enter your desired location in the search bar, use the 'My Location' button to grab your current location, or use the 'Set Location' button to drop a point on the map manually.

By default, the buffer is set to 5 miles. This number can be changed at any point, by entering a new number in the text box or adjusting the slider below it. The map will immediately adjust to display the new buffered location.



Extra Tip!

Every WRR's folder organization is slightly different. Thus, the 'Facilities that Discharge to Water' layer is sorted into different folders for the different states. If you cannot find the Facilities layer, expand all the folders, and then hit the 'Ctrl' + 'F' keys. A search bar will appear. Type in 'Facilities' and the WRR Layer List will take you to the correct folder.

A list of facilities within the buffered area will appear in a list at the bottom pop-up box. At the top of the list, you'll see the total number of facilities in the list, and then an individual entry for each result listed from closest to furthest.

Select a facility of interest.

The screenshot shows a rounded rectangular pop-up window titled "Nearby Discharges". Inside, there's a message: "Check on the 'Facilities that Discharge to Water' layer to see the results". Below that is a search bar with "21629, Denton, Maryland" and icons for clear, search, location, and zoom. A slider is set to "5". A table lists facilities: "NPDES Permitted Facilities that Discharge to Water (21)", followed by five entries for "Facilities that Discharge to Surface Water" with distances: 0.56 mi, 1.68 mi, 1.76 mi, and 1.95 mi.

NPDES Permitted Facilities that Discharge to Water (21)	
Facilities that Discharge to Surface Water	0.56 mi
Facilities that Discharge to Surface Water	1.68 mi
Facilities that Discharge to Surface Water	1.76 mi
Facilities that Discharge to Surface Water	1.95 mi

The pop-up will shift to display more information about the facility. Detailed Facility Information can be found by clicking on the blue 'More info' link. This will open the facility's Detailed Facility Report in the EPA's ECHO (Enforcement and Compliance Online) database.

This screenshot shows the same "Nearby Discharges" pop-up, but the list has been expanded. It includes a back arrow, the title "NPDES Permitted Facilities that Discharge to Water", and tabs for "Information" and "Directions". A banner below says "Approximate Distance: 0.56 mi". Under "Facilities that Discharge to Surface Water", it shows details: NPDES Permit Number MDG010132, State MD, HUC12 020600050105, and a "Detailed Facility Information" link with a "More info" button.

Facilities that Discharge to Surface Water	
NPDES Permit Number	MDG010132
State	MD
HUC12	020600050105

The screenshot shows the EPA ECHO website interface. At the top, there's a navigation bar with links for Environmental Topics, Laws & Regulations, Report a Violation, About EPA, and a search bar labeled "Search EPA.gov". Below the navigation is the ECHO logo and a sub-header "Enforcement and Compliance History Online". A breadcrumb trail indicates the user is at "Home > Detailed Facility Report". The main content area is titled "Detailed Facility Report" and features a "Customize Report" section with tabs for Environmental Media (selected), Facility Summary, Facility/System Characteristics, Enforcement and Compliance, Environmental Conditions, Pollutants, and Community. Under "Environmental Media", "Display all statutes (default)" is selected. In the "Facility Summary" section, there's a map thumbnail, facility name "TUCKAHOE RIVER FARM POULTRY, LLC", address "8636 TUCKAHOE RD, DENTON, MD 21629", FRS ID "110070529496", EPA Region "03", and Latitude "38.84573". To the right, there's a "Related Reports" section with links to CWA Pollutant Loading Report (unchecked) and CWA Effluent Limit Exceedances Report (checked). A "View Envirofacts Reports" link is also present.

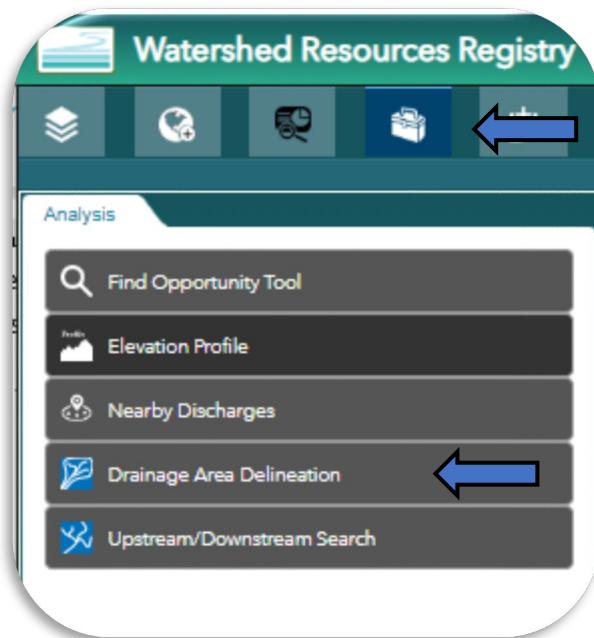
Closing out of the Nearby Facilities pop-up, will erase the buffer from the map. If you re-open the pop-up, you'll need to define your location anew.

Drainage Area Delineation

The Drainage Area Delineation tool is a geoprocessing tool designed to take any point on the map and identify both the primary waterbody it flows into along with the surrounding drainage basin that flows into the water source. The tool works with NHDPlusV2, a dataset built by combining the National Hydrography Dataset (NHD), the National Elevation Dataset (NED), and the Watershed Boundary Dataset (WBD). The tool works by taking a designated point and snapping it to the nearest NHDPlus flowline based on NHD flow direction data. The NHDPlus catchments that intersect with these flowlines are then subsequently highlighted.

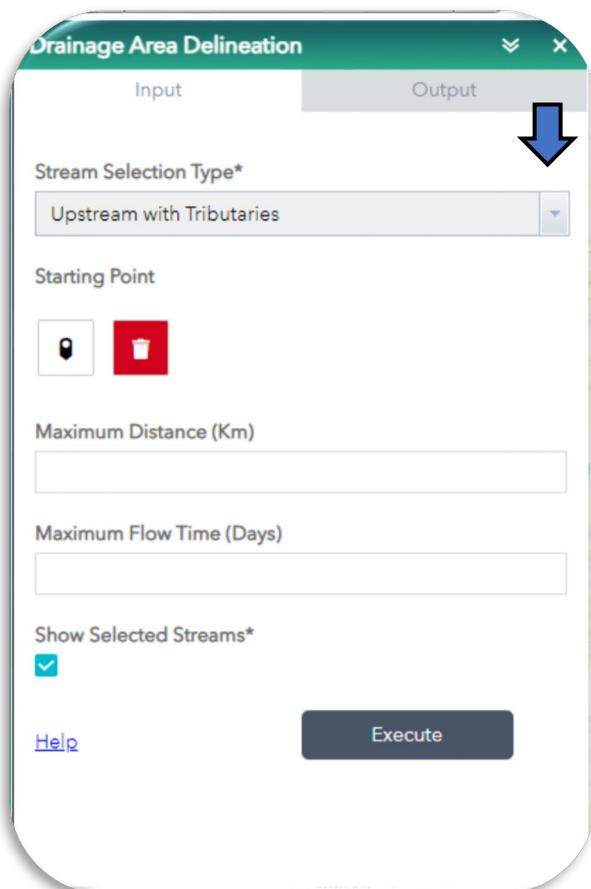
Accessing the Drainage Area Delineation Tool

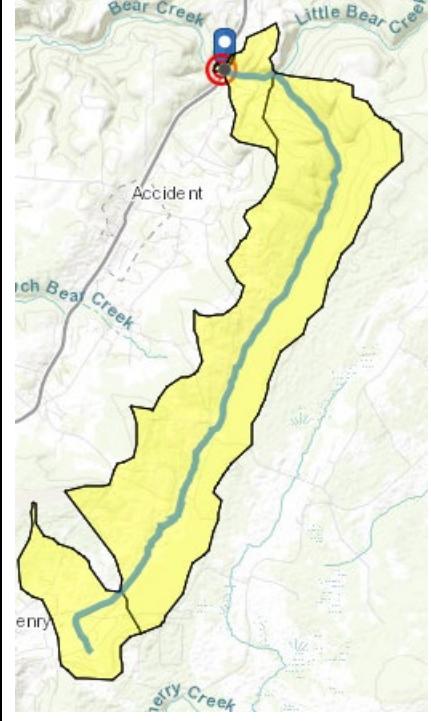
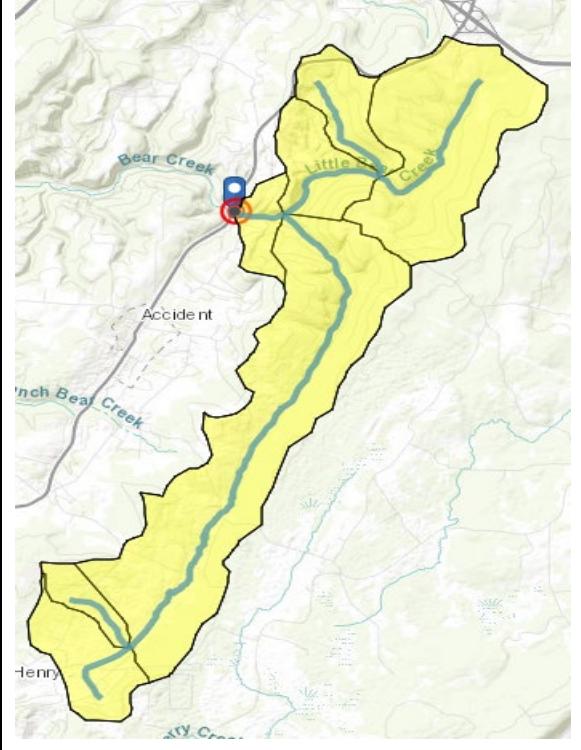
The Drainage Area Delineation tool can be found under the Analysis tab on the main tool panel

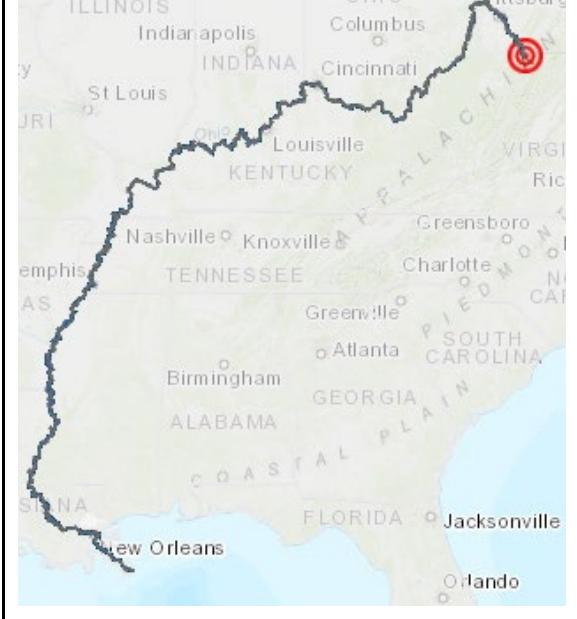
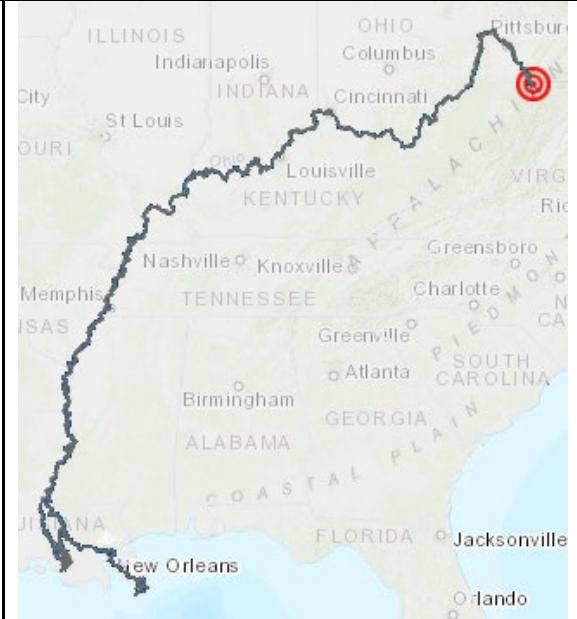


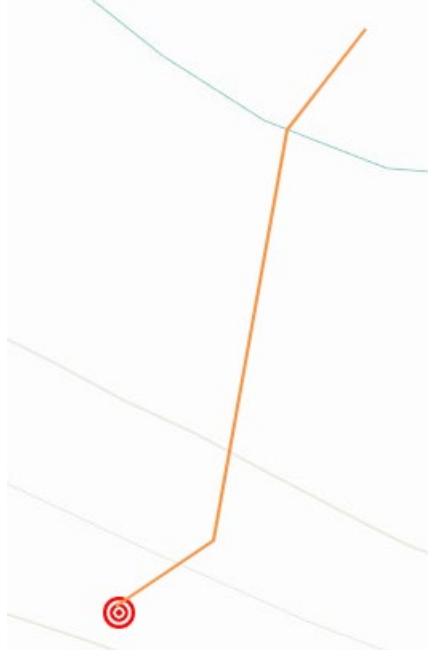
A new pop-up panel will appear with two tabs: Input and Output.

In the Input tab, you must first select the 'Stream Selection Type'. There are five options as outlined below (example area: MD WRR -79.29942, 39.65103):



Option	Description	Snapshot
Upstream Main Path Only	Highlights the main flowline upriver of the dropped point and all surrounding areas that drain DIRECTLY into that section of river.	
Upstream with Tributaries	Highlights the main flowline and connecting tributaries UP RIVER of the dropped point. All surrounding areas that drain DIRECTLY into the main flowline or its tributaries are highlighted.	

Downstream Main Path Only	<p>Highlights the main flowline DOWNSTREAM of the dropped point to its discharge point.</p> <p>Includes all surrounding areas that discharge DIRECTLY into that main flowline.</p>	
Downstream with Divergences	<p>Highlights the main flowline and connecting divergences DOWNRIVER of the dropped point. All surrounding areas that drain DIRECTLY into the main flowline or its divergences are highlighted.</p>	

Point to Point	Highlights the path from a point on the map to the nearest flowline.	
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Click on the 'Starting Point' button and drop a point onto your desired location on the map. This point **does not need** to be on a river/stream for the tool to work.

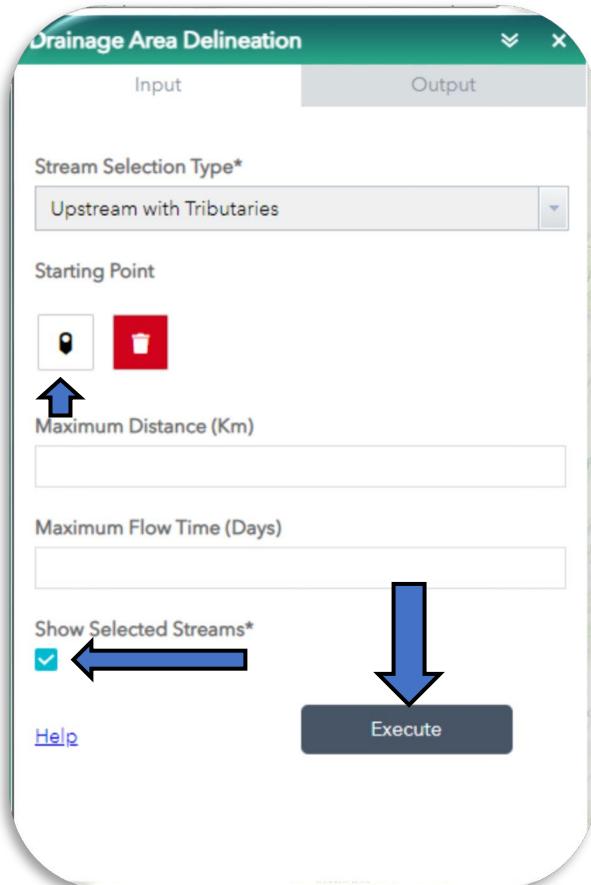
Enter in the desired maximum distance (in kilometers) into the text box. This is best used if you want to constrain your delineation to a small area. Otherwise leave it blank to ensure you capture the full upstream or downstream drainage area.

The Maximum Flow Time (Days) feature is not functional at this time and can be ignored.

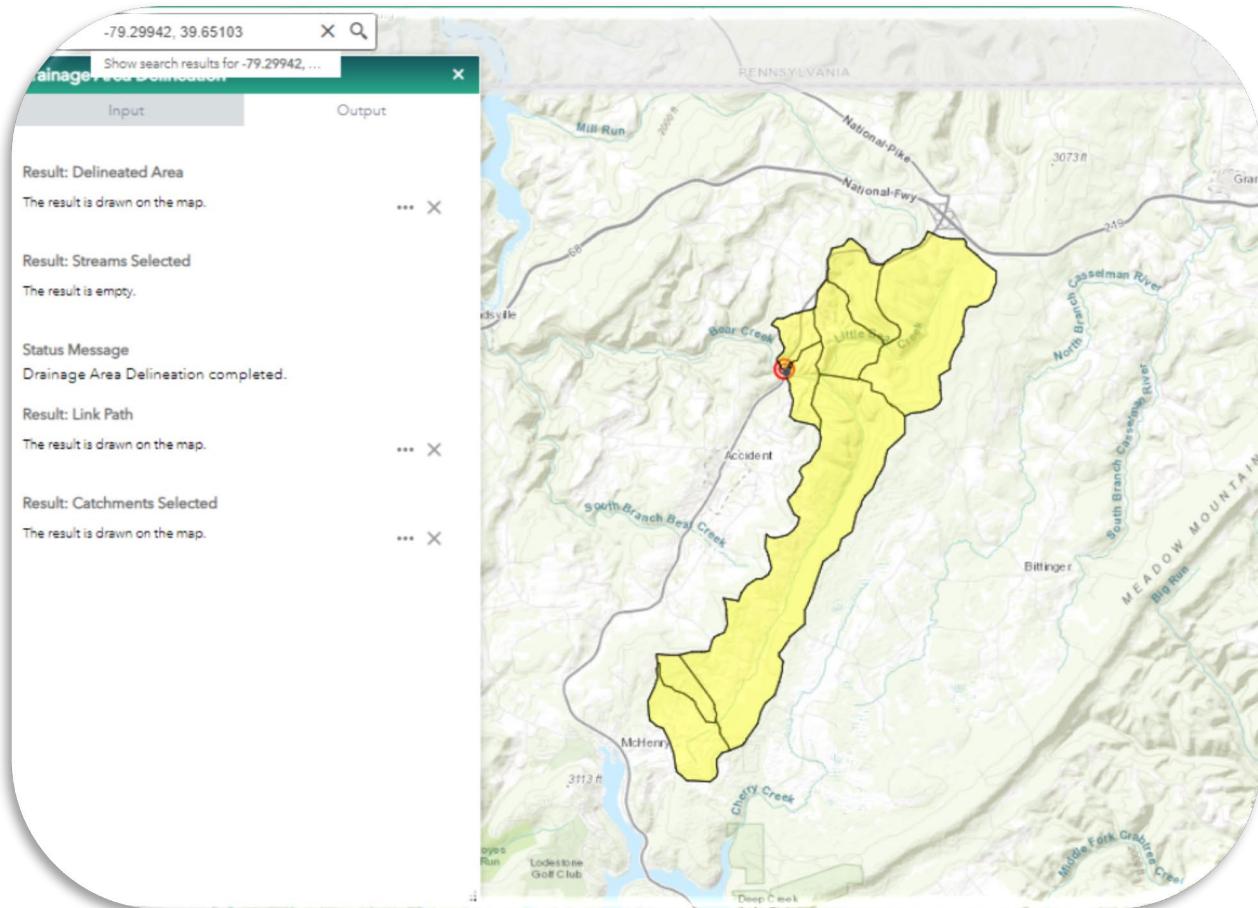
Currently, none of the Linked Data options work.

By default, the 'Show Selected Streams' should be checked. Ensure that this remains checked. The tool will not work correctly if it is unchecked. This also creates data layers that will appear in the Active Layer List and allow you to manipulate the flow path as a data layers.

Click the blue 'Execute' button. Give the map time to process this request. This tool can take a couple of minutes to work depending on the size of the drainage area.



When the tool has finished processing the tool panel will automatically shift to the Output tab. Clicking on the ellipses next to any of the results will give you access to pop-ups, statistics, and attribute tables.

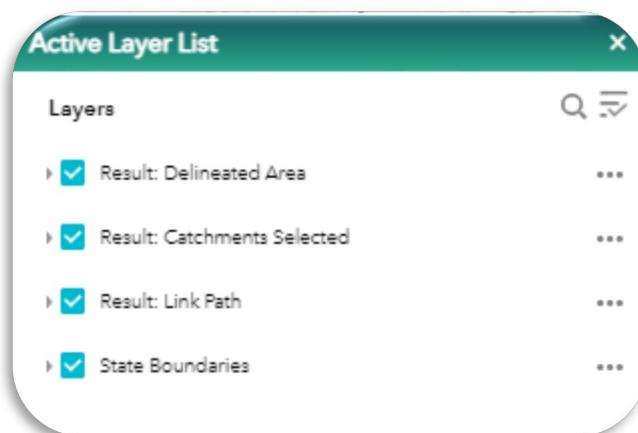


If you navigate to the Active Layer List, all the results will be available as data layers. These layers can be manipulated further and turned on and off as desired.

To reset this tool, navigate back to the Input tab on the Delineation pop-up. There is a red button with a trash can icon. Select this.



This will remove the point from the map. The results will remain. To remove the results from your map, uncheck the boxes on the Active Layer List.



If you run the Delineation tool again, the layers in the Active Layer List will update to reflect the most recent iteration.

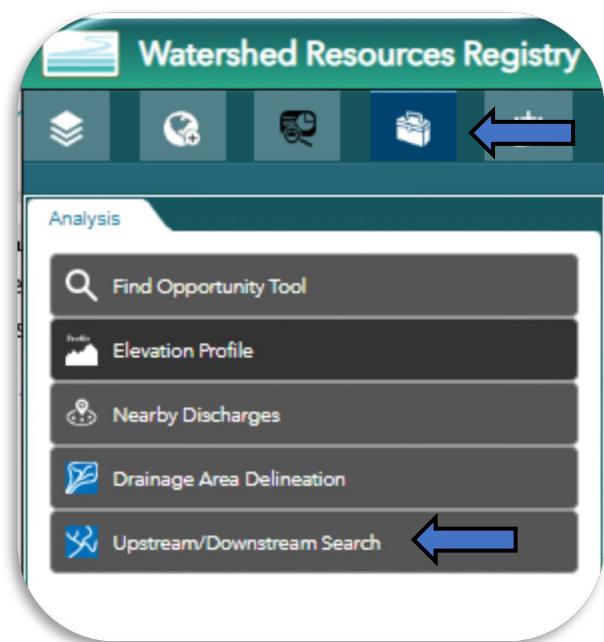
Upstream/Downstream Search

The Upstream/Downstream Search tool is a geoprocessing tool designed to take any point on the map and identify the flow of water to or from that point. The tool works by taking a user-designated point and snapping it to the nearest NHDPlus flowline based on NHDPlus flow direction data. Connecting NHDPlus flowlines, either upstream or downstream from the point are then identified on the map.

Accessing the Upstream/Downstream

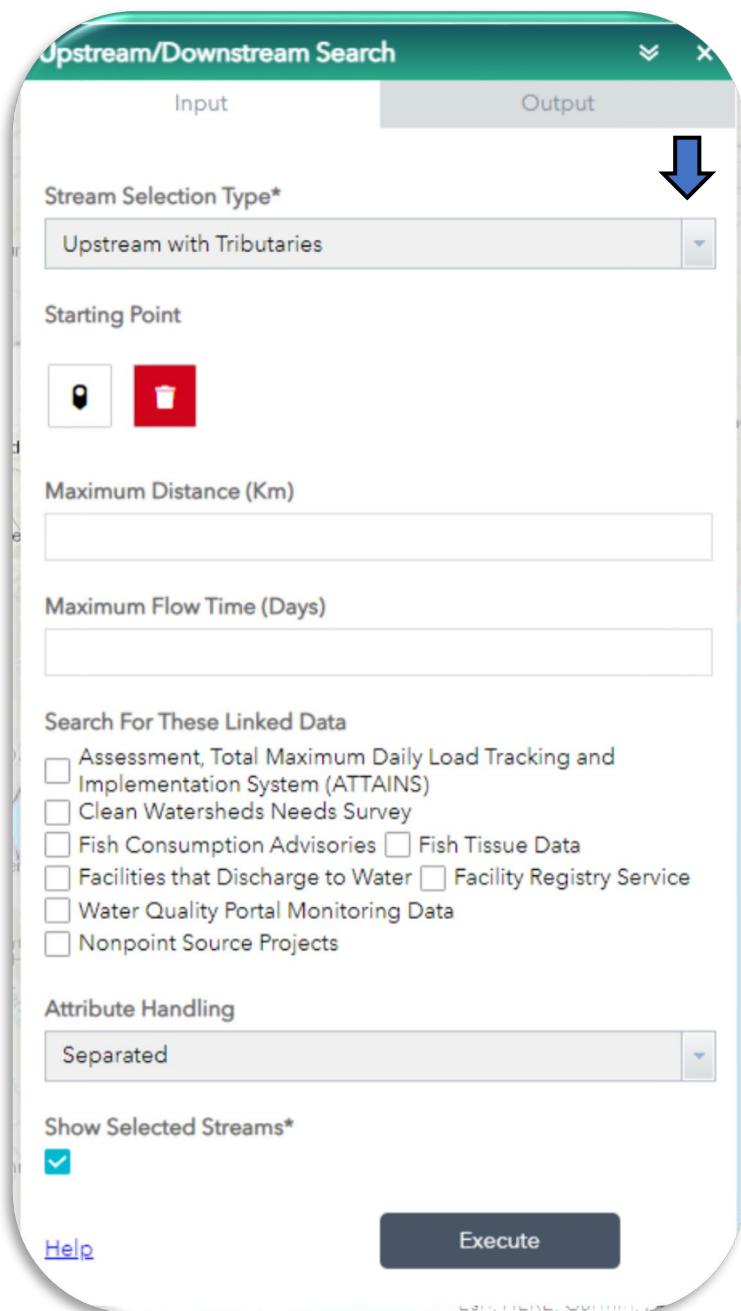
Search Tool

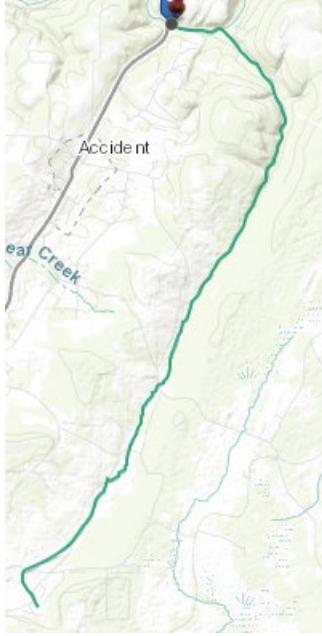
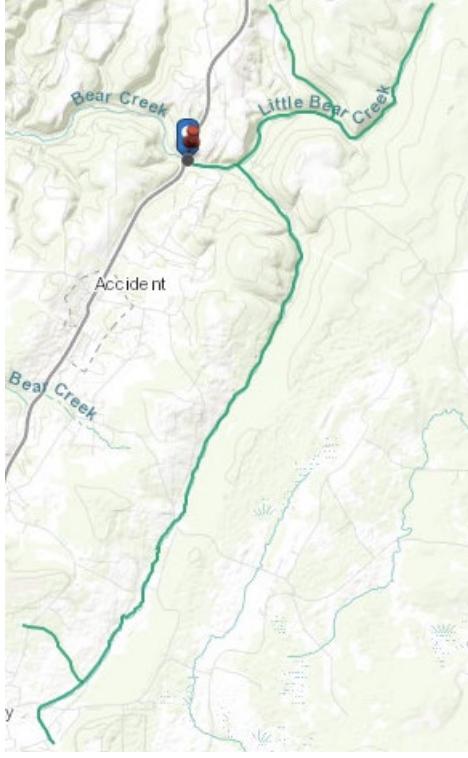
The Upstream/Downstream tool can be found under the Analysis tab on the main tool panel

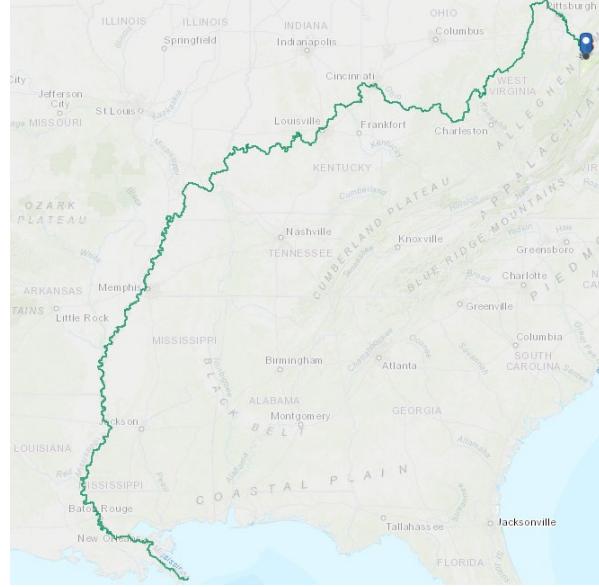
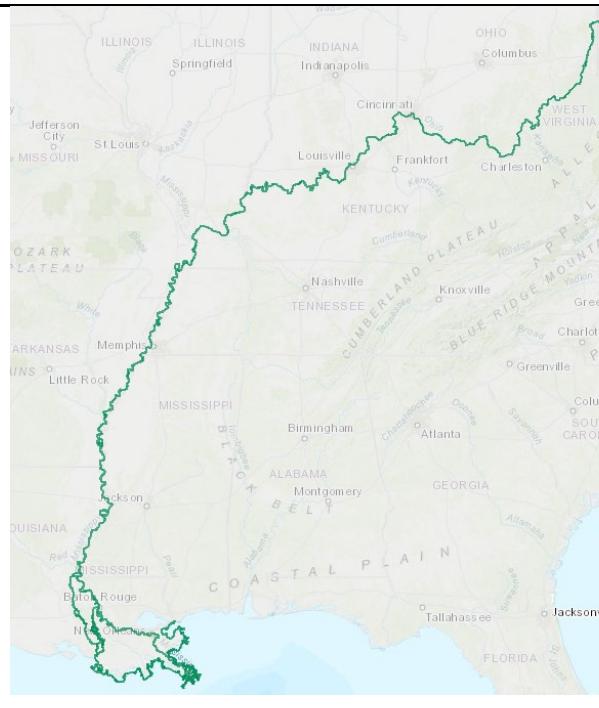


This will open a tool panel with two tabs: Input and Output.

In the Input tab, you must first select the 'Stream Selection Type'. There are four options as outlined below (example area: MD WRR -79.29942, 39.65103):



Option	Description	Snapshot
Upstream Main Path Only	Highlights the main flowline upriver of the dropped point	
Upstream with Tributaries	Highlights the main flowline and connecting tributaries UPRIVER of the dropped point.	

Downstream Main Path Only	<p>Highlights the main flowline DOWNSTREAM of the dropped point to its discharge point.</p>	
Downstream with Divergences	<p>Highlights the main flowline and connecting divergences DOWNRIVER of the dropped point.</p>	

Click on the 'Starting Point' button and drop a point onto your desired location on the map. This point does not need to be on a river/stream for the tool to work.

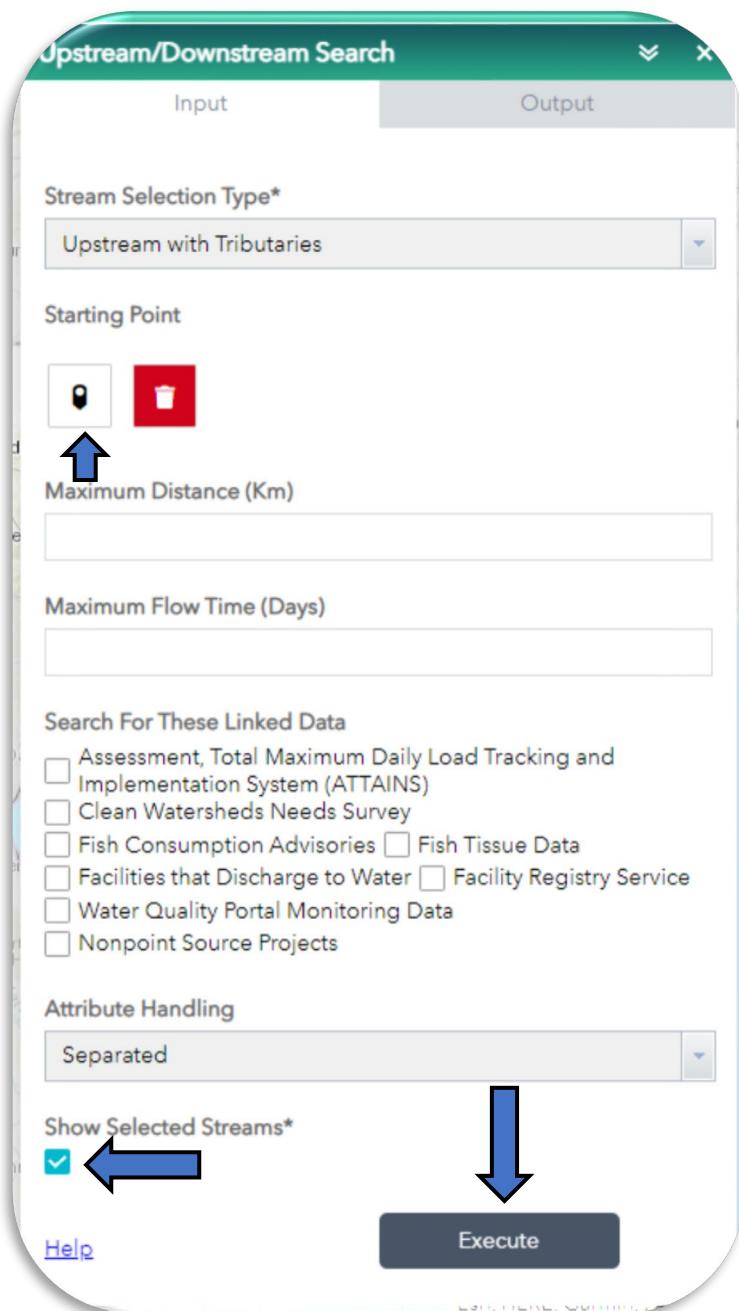
Enter in the desired maximum distance (in kilometers) into the text box. This is best used if you want to constrain your trace to a small area. Otherwise leave it blank to ensure you capture the full upstream or downstream water course.

The Maximum Flow Time (Days) feature is not functional at this time and can be ignored.

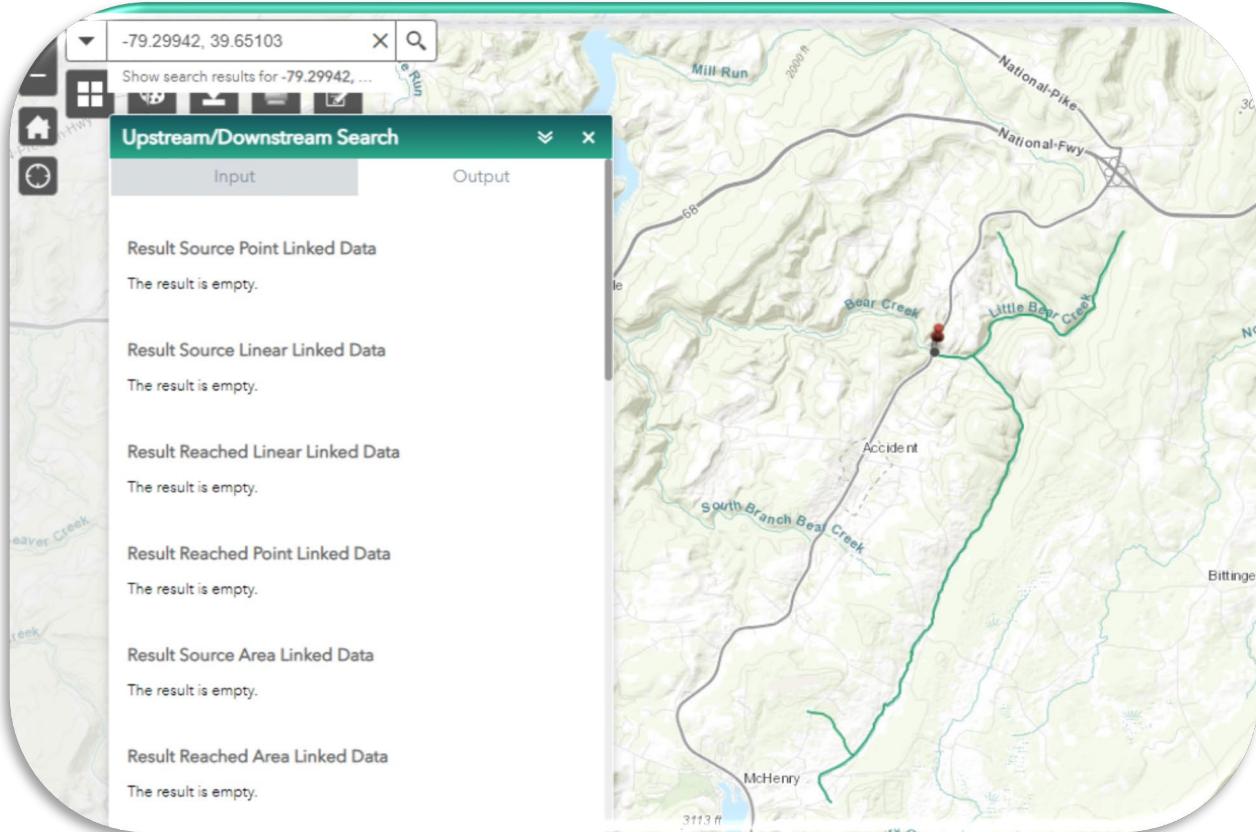
Currently, none of the Linked Data options work.

By default, the 'Show Selected Streams' should be checked. Ensure that this remains checked. The tool will not work correctly if it is unchecked.

Click the blue 'Execute' button. Give the map time to process this request. This tool can take a couple of minutes to work depending on the size of the trace.



When the tool has finished processing the tool panel will automatically shift to the Output tab. Most of the result fields will be empty.

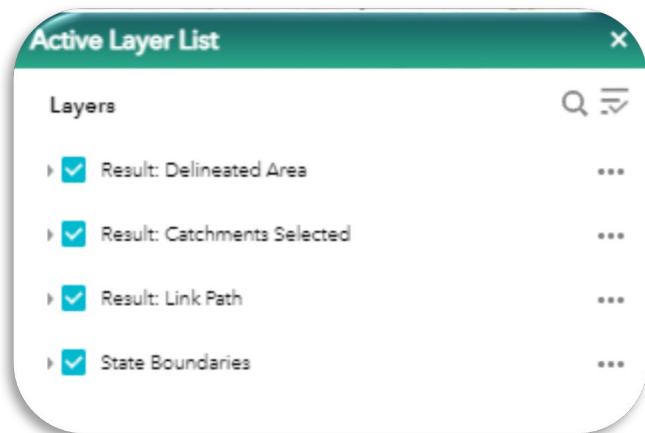


If you navigate to the Active Layer List, all the fields WITH results will be available as data layers. These layers can be manipulated further and turned on and off as desired.

To reset this tool, navigate back to the Input tab on the Delineation pop-up. There is a red button with a trash can icon. Select this.



This will remove the point from the map. The results will remain. To remove the results from your map, uncheck the boxes on the Active Layer List.



Additional Resources

In the upper right-hand corner of all WRRs, on the title bar, are additional resources to help connect you with other third-party tools or to troubleshoot tools within WRRS.



External Resources

The External Resources widget is a drop-down menu that includes links to other state and federal tools. Clicking on a tool in this list will open that tool in a new tab.

Each state has different state-specific tools highlighted at the top of this list, but all WRRs include the same federal tools listed at the bottom.

External Resources

State Tools

- Corps Stream Calculator
- Freshwater Network Chesapeake Region
- SAV Interactive Map
- MERLIN
- Maryland Coastal Atlas
- GreenPrint
- Maryland Shoreline Stabilization Mapper (MSSM)
- MDE EJ Screening Tool

Federal Tools

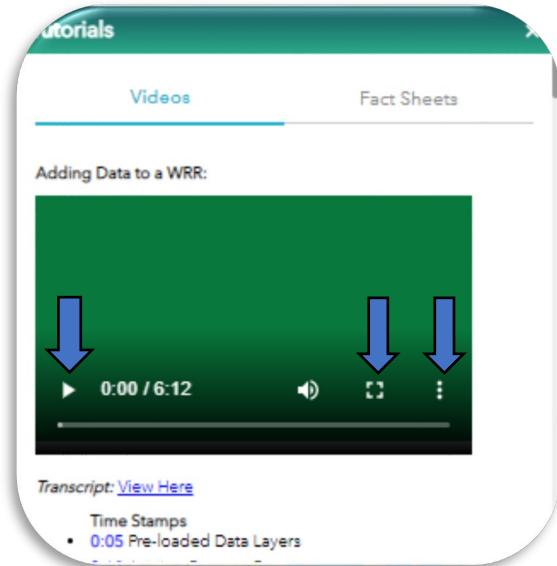
- Web Soil Survey
- EnviroAtlas
- EPA EJSscreen
- How's My Waterway

Tutorials

All WRRs come with a series of video and written guides to aid users as they work within a WRR and to help them troubleshoot any issues that may arise.

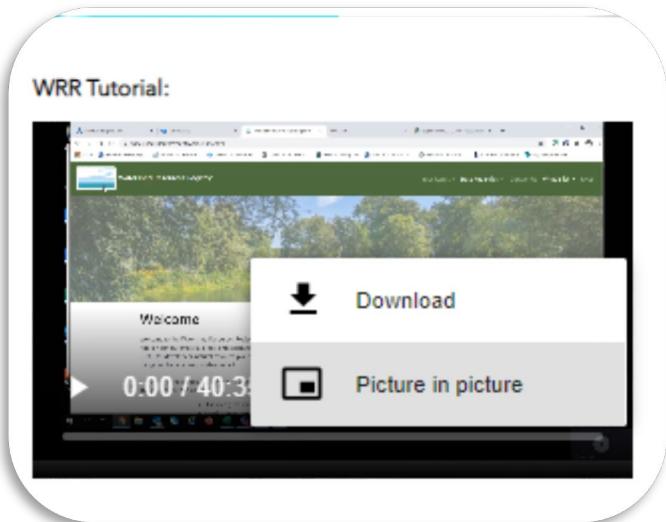


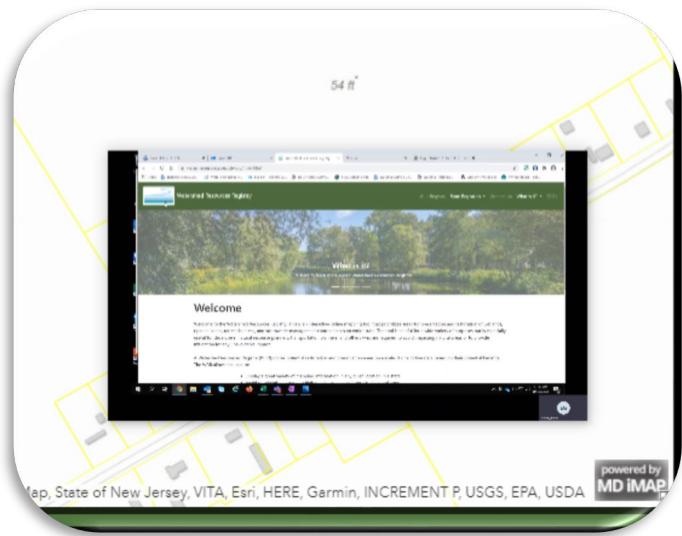
The Tutorial panel features two tabs: Videos and Fact Sheets.



Videos

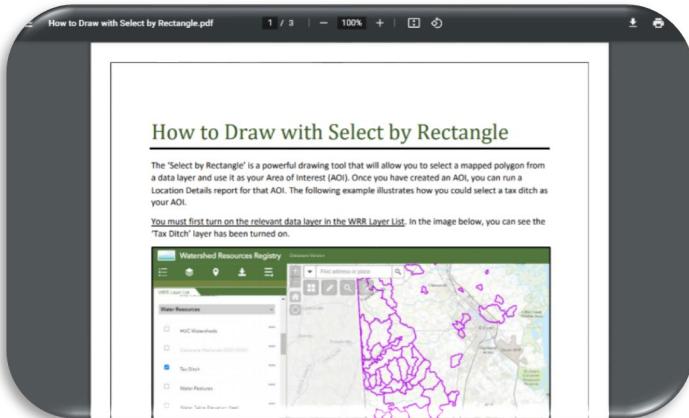
The Video tab hosts a series of short and long tutorial videos that breakdown how to use different features within WRRs. Videos can be played within the panel or made full screen. If you click on the vertical three dots, there is an option called, 'Picture in picture'. This feature will pop the video out of the tool panel and onto the map as a small, movable window. This will allow you navigate to other tool panels and work with other features on the map, while watching the video.





Fact Sheets

The Fact Sheet tab lists a series of hyperlinks. Clicking on these links will open a pdf in a new tab. These pdfs include written, step-by-step instructions for how to operate different tools and features within WRRs.



Tutorials

- Videos**
- Fact Sheets**

WRR User Manual: [View Here](#)

How to Draw with Select by Rectangle: [View Here](#)

How to Use Location Details: [View Here](#)

How to Use the Find Opportunity Tool: [View Here](#)

How to Add Data: [View Here](#)

How to Use Save Sessions: [View Here](#)

How to Use the Draw Tool: [View Here](#)