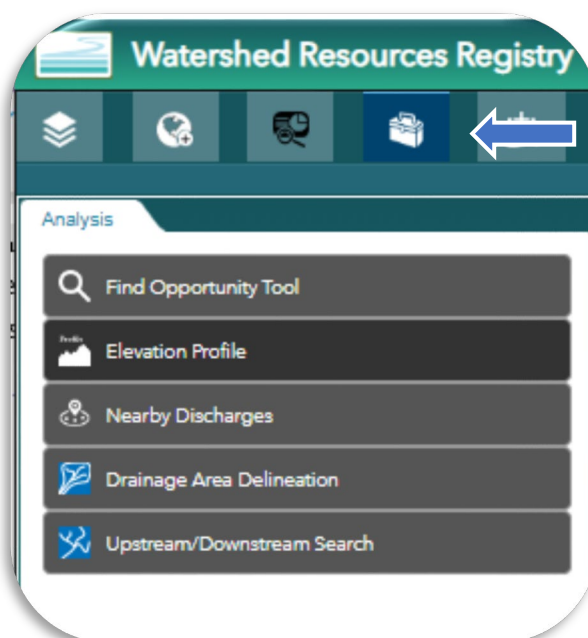
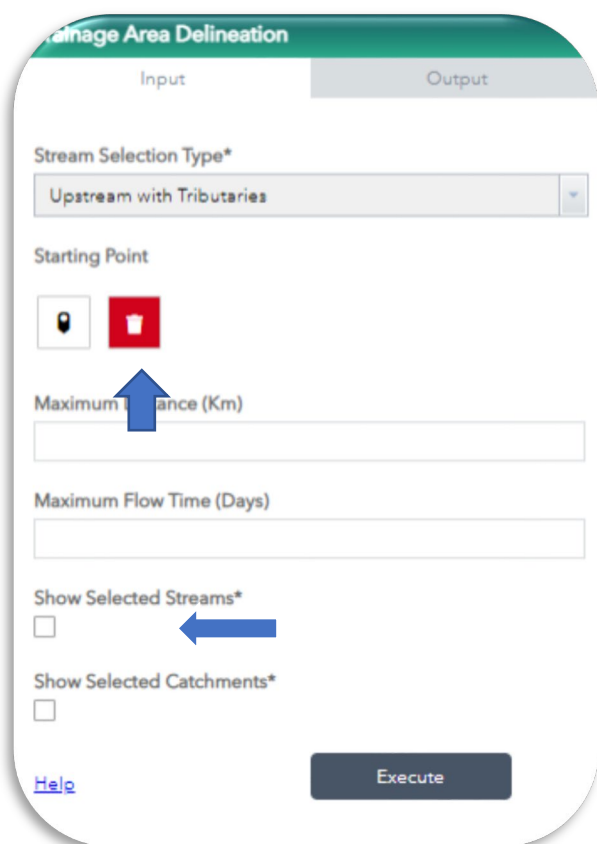


# How to Use the Drainage Area Delineation Tool

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.

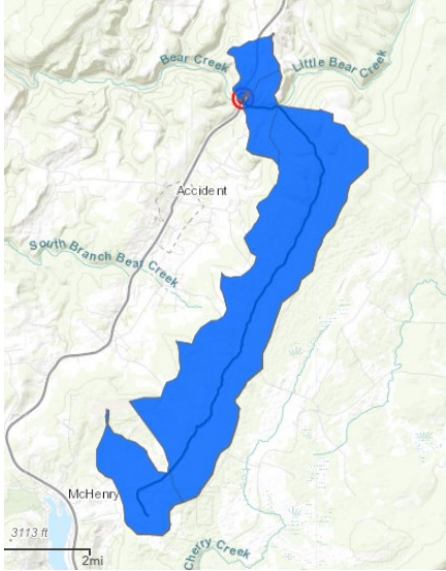
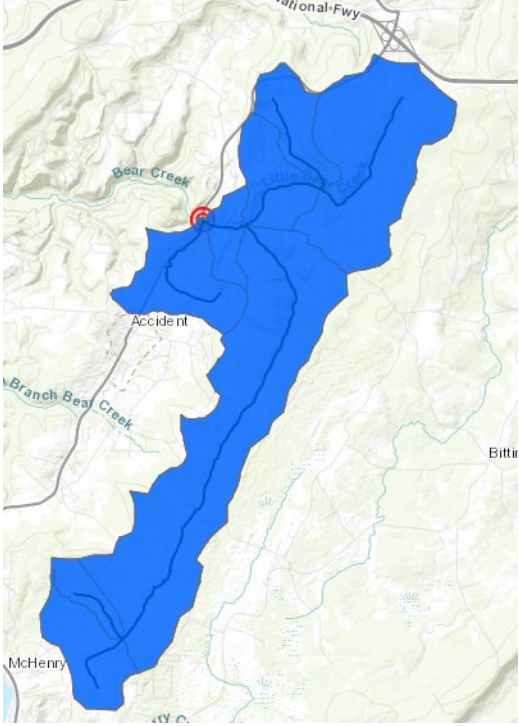
## Accessing the Drainage Area Delineation Tool

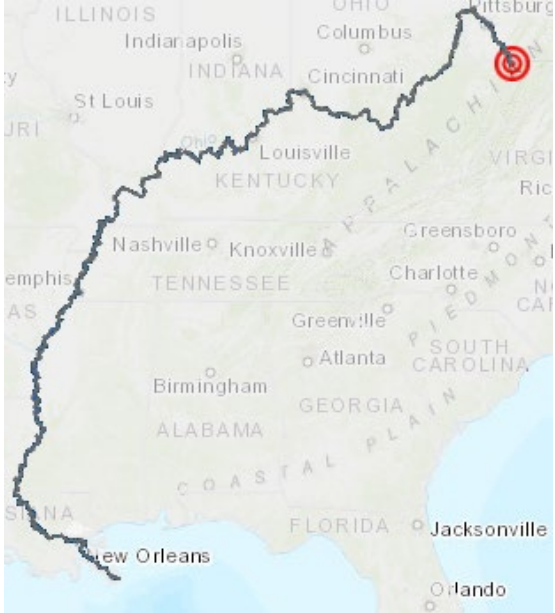
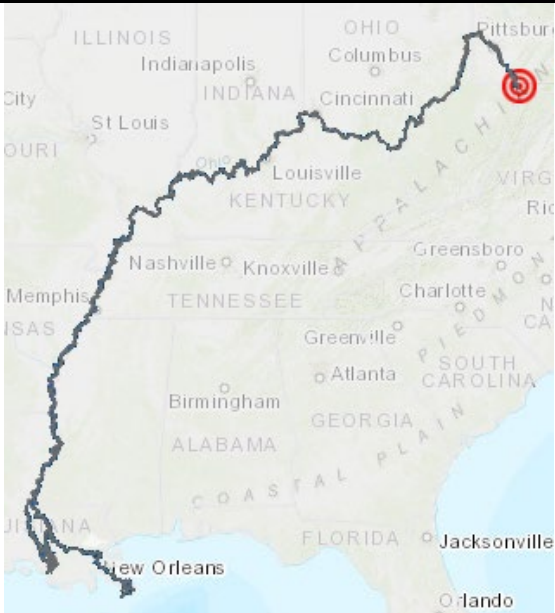
The Drainage Area Delineation tool can be found under the Analysis Widget on the main tool panel



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 surroundings areas that drain DIRECTLY into that section of river.	
Upstream with Tributaries	Highlights the main flowline and connecting tributaries UPRIVER of the dropped point. All surrounding areas that drain DIRECTLY into the main flowline or its tributaries are highlighted.	

<p>Downstream Main Path Only</p>	<p>Highlights the main flowline DOWNSTREAM of the dropped point to its discharge point. Includes all surrounding areas that discharge DIRECTLY into that main flowline.</p>	 <p>This map shows the Eastern United States, including parts of Illinois, Indiana, Ohio, Kentucky, Tennessee, Georgia, Alabama, Florida, and South Carolina. A thick black line represents the main flowline, starting from a red circle with a crosshair in West Virginia and extending southwards through the Appalachian region. The flowline passes through or near major cities like Pittsburgh, Cincinnati, Louisville, Nashville, Knoxville, Memphis, and New Orleans. The surrounding areas are shaded in light green, indicating the regions that discharge directly into the main flowline.</p>
<p>Downstream with Divergences</p>	<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>	 <p>This map is identical to the one above, showing the Eastern United States and the main flowline starting from a red circle with a crosshair in West Virginia. However, in this version, the highlighted areas (shaded in light green) include not only the main flowline but also the connecting divergences, providing a more comprehensive view of the drainage network downstream of the dropped point.</p>

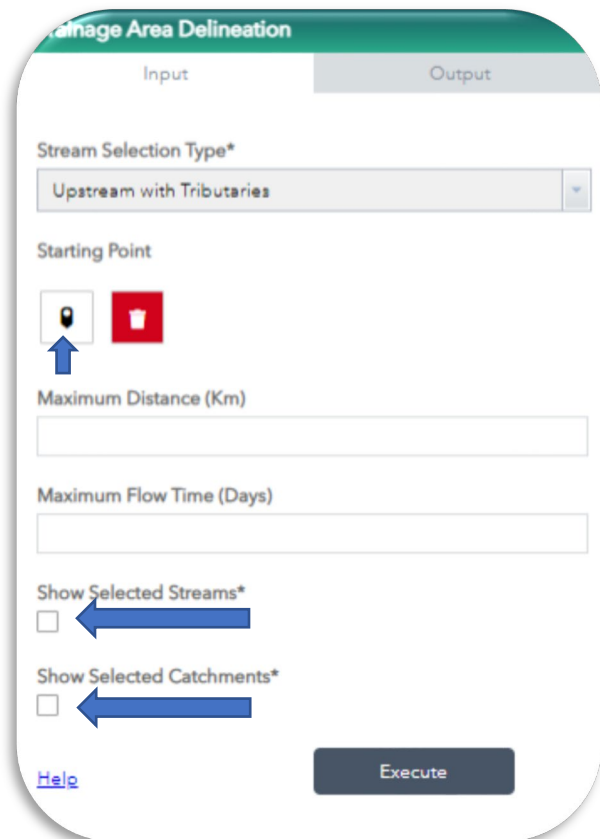
Click on the 'Starting Point' button and drop a point onto your desired location on the map. This point **does not need** to be on a river/stream for the tool to work.

Enter in the desired maximum distance (in kilometers) into the text box. This is best used if you want to constrain your 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.

We recommend checking the boxes next to the 'Show Selected Streams' and 'Show Selected Catchments'. This will create data layers that will appear in the Active Layer List and allow you to manipulate the flow path and delineation area as data layers.

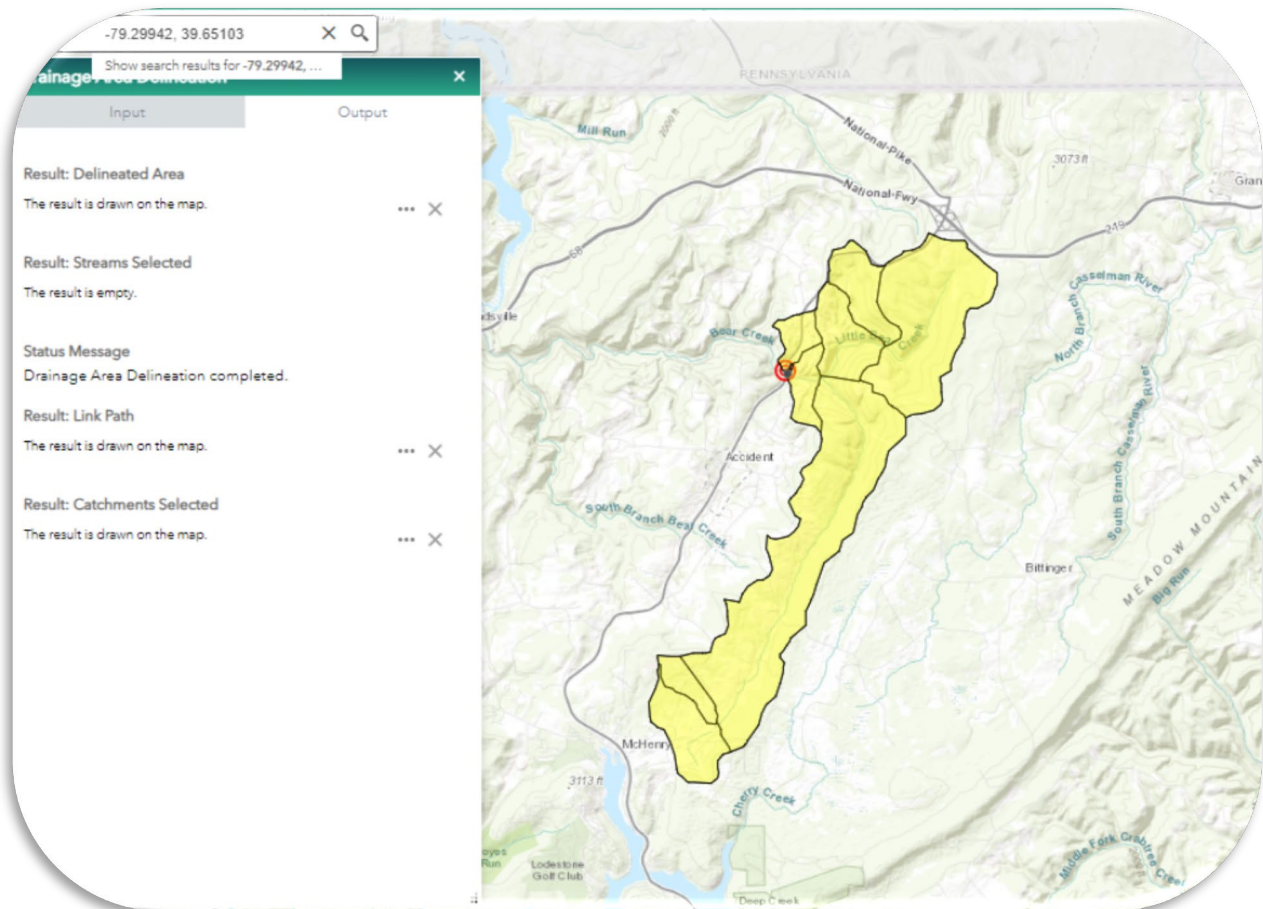
Click the blue 'Execute' button. Give the map time to process this request. This tool can take a couple of minutes to work depending on the size of the drainage area.



The screenshot shows the 'Drainage Area Delineation' tool interface. It has a green header with the title. Below the header are two tabs: 'Input' (active) and 'Output'. The 'Input' tab contains the following elements:

- Stream Selection Type\***: A dropdown menu with 'Upstream with Tributaries' selected.
- Starting Point**: A section with two icons: a black circle with a white dot (selected) and a red square with a white 'X'. A blue arrow points to the selected icon.
- Maximum Distance (Km)**: A text input field.
- Maximum Flow Time (Days)**: A text input field.
- Show Selected Streams\***: A checkbox with a blue arrow pointing to it.
- Show Selected Catchments\***: A checkbox with a blue arrow pointing to it.
- Help**: A blue link.
- Execute**: A blue button.

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.

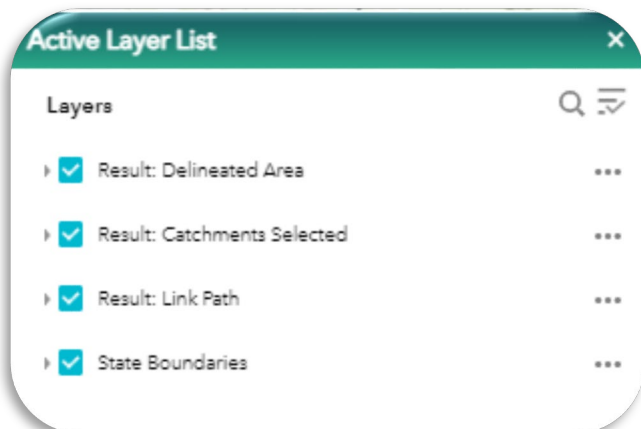


If you navigate to the Active Layer List, all of the results will be available as data layers. These layers can be manipulated further and turned on and off as desired.

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.