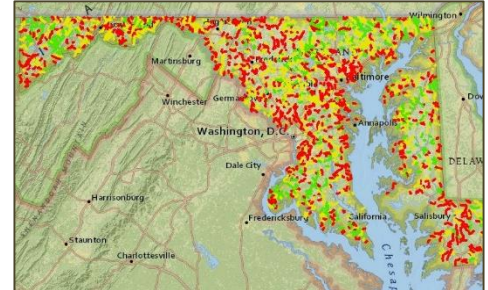


# FieldScope Map Inquiry: Streams and Land Use Near Your Campus

FieldScope is an online mapping program where students can analyze, interpret, and share environmental data about their schools' watershed or an adopted stream. You will be using the Maryland FieldScope to investigate the following features of your watershed:

- Rivers and Streams
- Land Cover
- Impervious Surfaces
- Impermeability
- Stream Health



## Directions

Let's start by learning how to use some of the features of FieldScope.

1. Go to <http://maryland.fieldscope.org/>
2. Click on **"Map Data."**
3. Click on **"Create Your Own Map."**
4. Select a Base Map.

*A base map is the bottom layer of your map. Other map layers featuring data about the area under investigation will be layered over the base map. FieldScope offers choices of base maps with different views, place names, color schemes, etc.*

- a. The *Topographic*, *National Geographic*, or *Street Map* options are good choices for this exercise.
  - b. Select a base map and click **"Next."**
5. Select Observation Data.

*"Select Observation Data" is where you can select the sources of data to include on your map. You are able to view stream data from the U.S. Geological Survey, Maryland Biological Stream Survey, and data from schools and watershed organizations.*

- a. We will not be looking at specific stream data at this time, so *deselect* the **"Participant Water Quality Data"** box.
- b. Click **"Next."**

6. Set Data Display.

*“Select Data Display” to modify how observation data is displayed on your map.*

- a. Do not make any changes.
- b. Click **“Next.”**

7. Select Map Layers.

*“Select Map Layers is where you select which map layers you want to view on your map. The layers provide additional information. **Only 2 layers can be selected at a time.** You may go back to the menu to switch the map layers any time.*

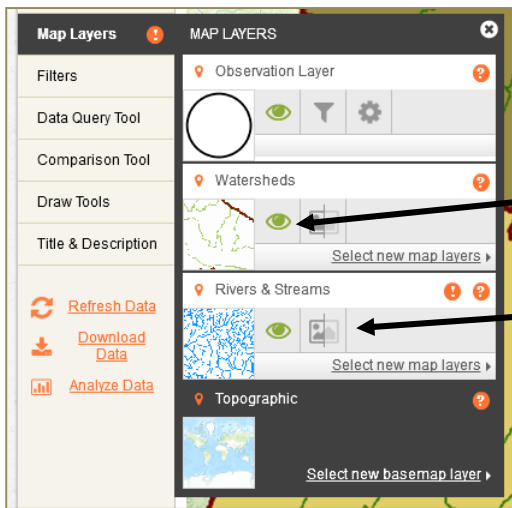
- a. Check the **“Watersheds”** box and the **“Rivers and Streams”** box to add the layers to your map.
- b. Click **“Next.”**

8. A pop-up will appear, click on **“No, Thanks. I want to explore on my own.”**

9. View Map.

- a. You will see your map with the selected layers shown.
- b. Before we look at the layers more specifically, let’s go over some tools you have.

10. Transparency and Layer Visibility.



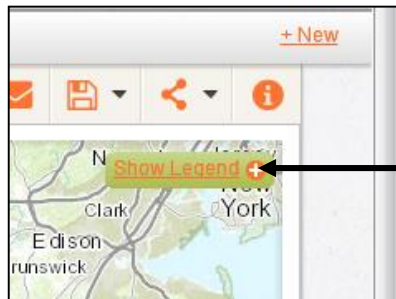
To view the selected layers more clearly, you can change the **transparency** and the **layer visibility** by clicking on the *Map Layers* tab on the left side.

**Layer Visibility** (the eye symbol) shows or hides the layer.

**Transparency** controls whether or not you can see through the layer. Zero % transparency means you cannot see through it; 100% transparency means you can completely see through it.

Adjust these features on the Watersheds and Rivers & Streams layers until you can see the outline on the watersheds, as well as the streams.

11. Legend.



In the top right corner of your map, click on **Show Legend** to view the legend.

12. Search and Zoom In (+) and Zoom Out (-).



At the bottom right corner, you will see a magnifying glass. You will use this to search for specific locations.

The Zoom In (+) and Zoom Out (-) buttons allow you to see a generalized map or specific details.

13. Now you ready to explore your watershed.

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### Watersheds and Rivers and Streams

*You will use the Watersheds and Rivers and Streams layers to learn what watershed your school is in and what streams are closest to your school.*

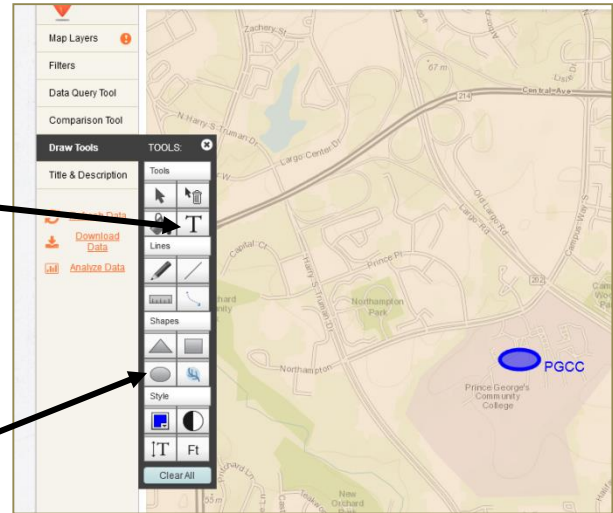
1. Adjust the **Transparency** settings to the **Watersheds layer** so you can see the map underneath.
2. Click the **Magnifying Glass** in the lower right corner and search for your school by entering the address. The location will appear as a red dot.
3. Zoom in (using the + button underneath the magnifying glass) until you can see your school's location.
4. In the following steps you will create a marker and label for your school. The marker and label will stay in position on your map when you search for other locations or zoom out.

a. On the left hand side, click on Draw Tools. You can tell what a tool does by hovering over it.

b. Click on the “Add Label Tool.”

c. Click where your school is on the map to create a label. Press enter to place the label. (If you want to move the label, use the arrow, or “select tool.”)

d. Click on one of the shapes to create your marker.



e. Click where your school is on the map to create the marker. The select tool can be used to adjust the marker, and the erase tool (garbage can) can be used for corrections.

f. When you have created your label, exit out of the Draw Tools by clicking the X.

5. To find what watershed you are in, click on your school’s location. A popup should appear.

a. What watershed are you in?

6. Make sure you are zoomed in enough to see what streams are in your watershed. Click on a stream to see the name.

a. What streams are closest to your school?

## Land Cover

*Now you will observe Land Cover on your map. This layer will show you the physical material on the surface of the earth, such as grass, asphalt, trees, bare ground, and water.*

7. Click “**Select Map Layers**” tab at the top of your screen.

8. Uncheck the “**Watersheds**” box and the “**Rivers and Streams**” box to remove the layers from your map.

9. Check the “**Land Cover**” box to add the layer to your map.
10. Click “**Next.**”
11. Adjust the **Transparency** settings accordingly, if needed.\*
12. What land covers do you observe within your watershed? (See the Legend.)

### Impervious Surfaces Layer

*Now you will observe Impervious Surfaces on your map. Impervious surfaces are areas cannot absorb or allow water to soak into the ground. This layer shows areas that are completely impervious to water versus those where at least some water soaks in.*

13. Click “**Select Map Layers.**”
14. Uncheck the “**Land Cover**” box to remove the layer from your map.
15. Check the “**Impervious Surfaces**” box to add the layer to your map, and click “**Next**” or “**View Map**” (at the top.)\*
16. Adjust the **Transparency** settings as needed.
17. Generally, where do you find the greatest amount of impervious surfaces?
  
18. How do you think the stream health is affected by the types of land cover and the amount of impervious surfaces in your watershed?

## Stream Health Layer

*Now you will observe Stream Health on your map. This layer shows the results of stream sampling done by the Maryland Department of Natural Resources.*

19. Click “**Select Map Layers.**”
20. Uncheck the “**Impervious Surfaces**” box to remove the layer from your map.
21. Check the “**Stream Health**” box to add the layer to your map. Go to your map.
22. Adjust the **Transparency** settings accordingly, if needed.
23. What do you observe? \*

\* A snapshot of your map can be taken by clicking on the “disc” on the upper right hand corner and selecting download.