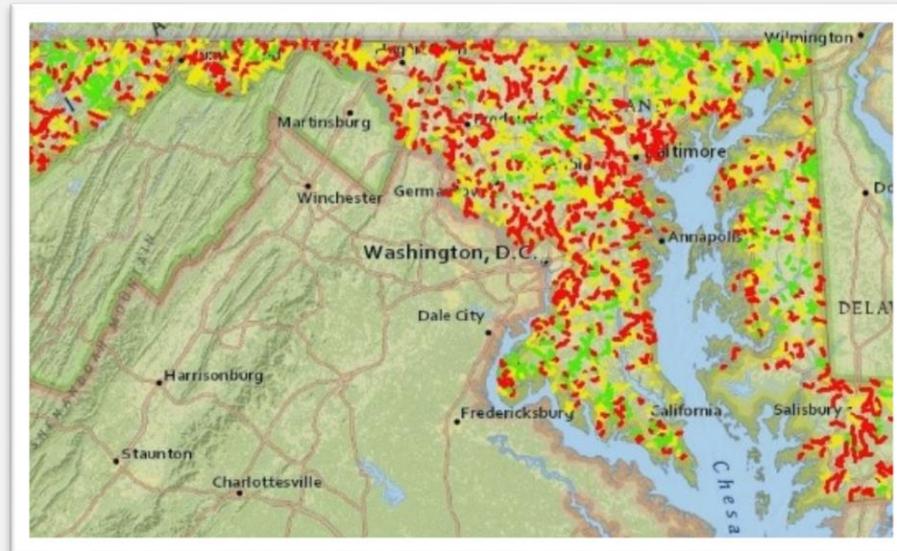


FieldScope Map Inquiry

Investigación cartográfica en FieldScope



Score Four: Students, Schools, Streams, and the Bay
Score Four: Estudiantes, Escuelas, Arroyos y la Bahía

Rebecca Wolf and Nguyen Le

Interstate Commission on the Potomac River Basin
Comisión Interestatal para la Cuenca del Río Potomac



How FieldScope Maps Can Support Your Watershed Inquiries

*De qué forma los mapas de
FieldScope pueden ayudar con tus
investigaciones de la cuenca*

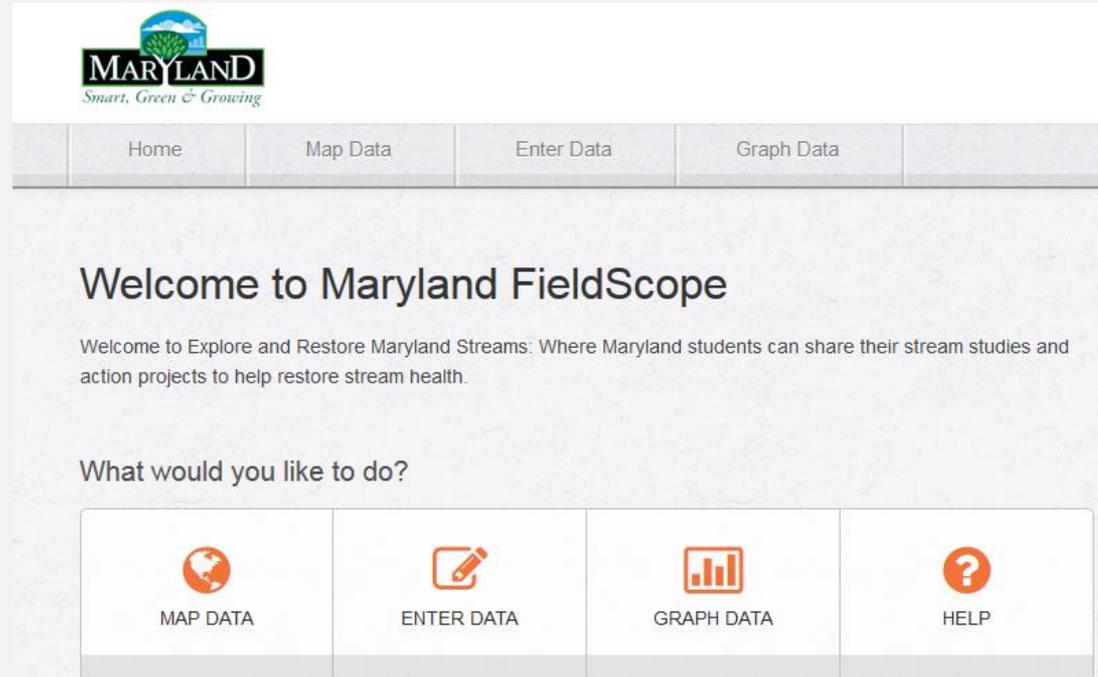


Maryland FieldScope

FieldScope de Maryland

FieldScope is an online mapping program where students can analyze, interpret, and share environmental data about their school's watershed or an adopted stream.

FieldScope es un programa de cartografía por internet donde los estudiantes pueden analizar, interpretar y compartir información medioambiental sobre la cuenca de su escuela o de un curso de agua adoptado.



The screenshot shows the Maryland FieldScope website. At the top left is the Maryland state logo with the text "MARYLAND Smart, Green & Growing". Below the logo is a navigation bar with four buttons: "Home", "Map Data", "Enter Data", and "Graph Data". The main content area features a large heading "Welcome to Maryland FieldScope" followed by a sub-heading "Welcome to Explore and Restore Maryland Streams: Where Maryland students can share their stream studies and action projects to help restore stream health." Below this is a question "What would you like to do?" and a row of four buttons: "MAP DATA" (with a globe icon), "ENTER DATA" (with a pencil icon), "GRAPH DATA" (with a bar chart icon), and "HELP" (with a question mark icon).

Outline of this PowerPoint:

Reseña de esta presentación de PowerPoint:

- **Introduction**

- **Introducción**

- Find out what you will be analyzing and learning from FieldScope.
Descubre qué analizarás y aprenderás con FieldScope.

- **FieldScope Map Inquiry Instructions:**

- **Instrucciones de consulta cartográfica en FieldScope:**

- *Part One: FieldScope Basics*
Parte uno: aspectos básicos de FieldScope
 - Learn how to use FieldScope and become familiar with tools you will need for this activity.
Aprende cómo usar FieldScope y familiarizarte con las herramientas que necesitarás para esta actividad.
- *Part Two: Explore Your Watershed*
Parte dos: explora tu Cuenca
 - Analyze and explore different data layers in your watershed.
Analiza y explora distintas capas de datos de tu cuenca.



- You can use FieldScope to analyze and explore the following features:

Puedes usar FieldScope para analizar y explorar las siguientes características:

- Watersheds
Cuencas
- Rivers and Streams
Ríos y arroyos
- Land Cover
Recubrimientos de suelo
- Impervious Surfaces
Superficies impermeables
- Impermeability
Impermeabilidad
- And more...
Y mucho más...

- You will create a map that consists of:

Crearás un mapa del siguiente tipo:

- A base map with roads and some geographic features
Un mapa base con carreteras y algunos accidentes geográficos
- **Data layers that go over the base map and show specific aspects of those areas**, such as land cover and impervious surfaces.

Capas de datos que van sobre el mapa de base y muestran aspectos específicos de esas zonas, tales como el recubrimiento del suelo y las superficies impermeables.

- You can save your map for later use.

Puedes guardar tu mapa para usarlo más adelante.



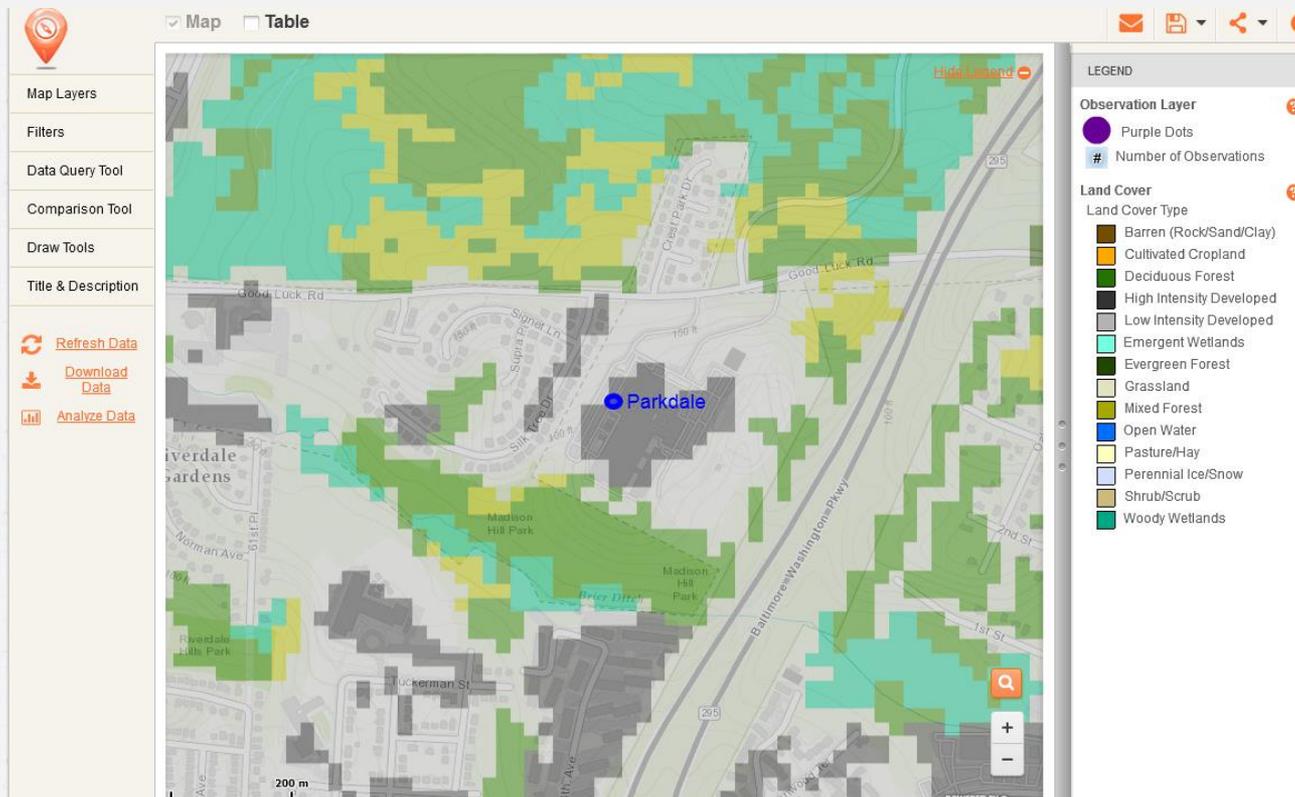
Example of a Data Layer

Ejemplo de capa de datos

This data layer shows the land cover around Parkdale High School in Riverdale, Maryland.

Esta capa de datos muestra el recubrimiento de suelo alrededor de Parkdale High School en Riverdale, Maryland.

- The base map shows houses and streets.
El mapa de base muestra casas y calles.
- The blocks of color show types of land cover.
Los bloques de color muestran tipos de recubrimiento de suelo.



1. Using the legend, name two types of land cover in this area.
Usando la leyenda, nombra dos tipos de recubrimiento de suelo en esta zona.
2. What land cover is not on this map?
¿Qué recubrimiento de suelo no está en este mapa?

FieldScope Map Inquiry Instructions
Investigación cartográfica en FieldScope Instrucciones

Part One: FieldScope Basics
Parte uno: aspectos básicos de FieldScope

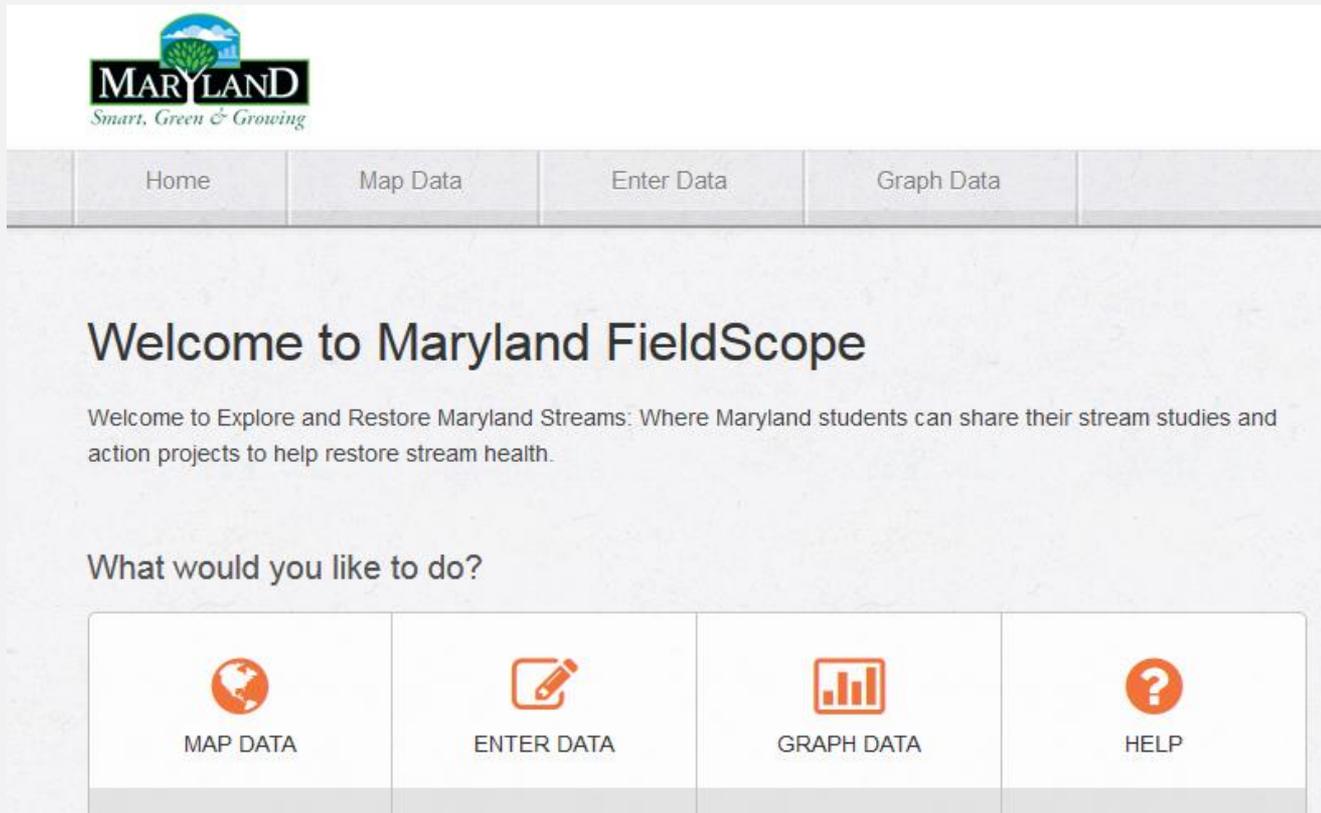
The following slides will familiarize you with FieldScope.
Las siguientes diapositivas te familiarizarán con FieldScope.



How We Get to FieldScope and What We See

Cómo llegamos a FieldScope y qué vemos

1. Go to:
Visita: <http://maryland.fieldscope.org/>

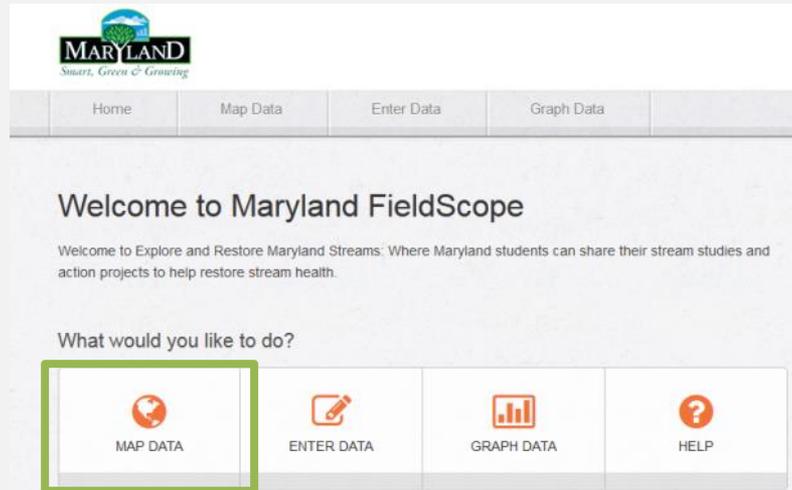


The screenshot shows the Maryland FieldScope website. At the top left is the Maryland logo with the tagline "Smart, Green & Growing". Below the logo is a navigation bar with buttons for "Home", "Map Data", "Enter Data", and "Graph Data". The main heading reads "Welcome to Maryland FieldScope". Below this is a paragraph: "Welcome to Explore and Restore Maryland Streams: Where Maryland students can share their stream studies and action projects to help restore stream health." Underneath is the question "What would you like to do?" followed by four large buttons: "MAP DATA" (with a globe icon), "ENTER DATA" (with a pencil icon), "GRAPH DATA" (with a bar chart icon), and "HELP" (with a question mark icon).

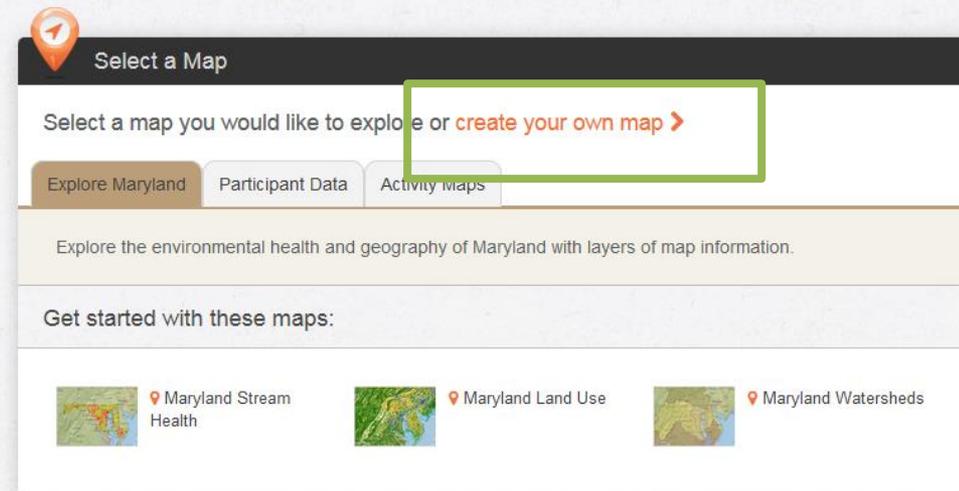
Starting Your Map: A Few Easy Steps

Cómo comenzar tu mapa: algunos pasos sencillos

2. Click on **"Map Data."**
Haz clic en **"Map Data"** (datos del mapa).



3. Click on **"Create Your Own Map."**
Haz clic en **"Create Your Own Map"** (crea tu propio mapa).



4. Selecting a Base Map. Selecciona un mapa de base.

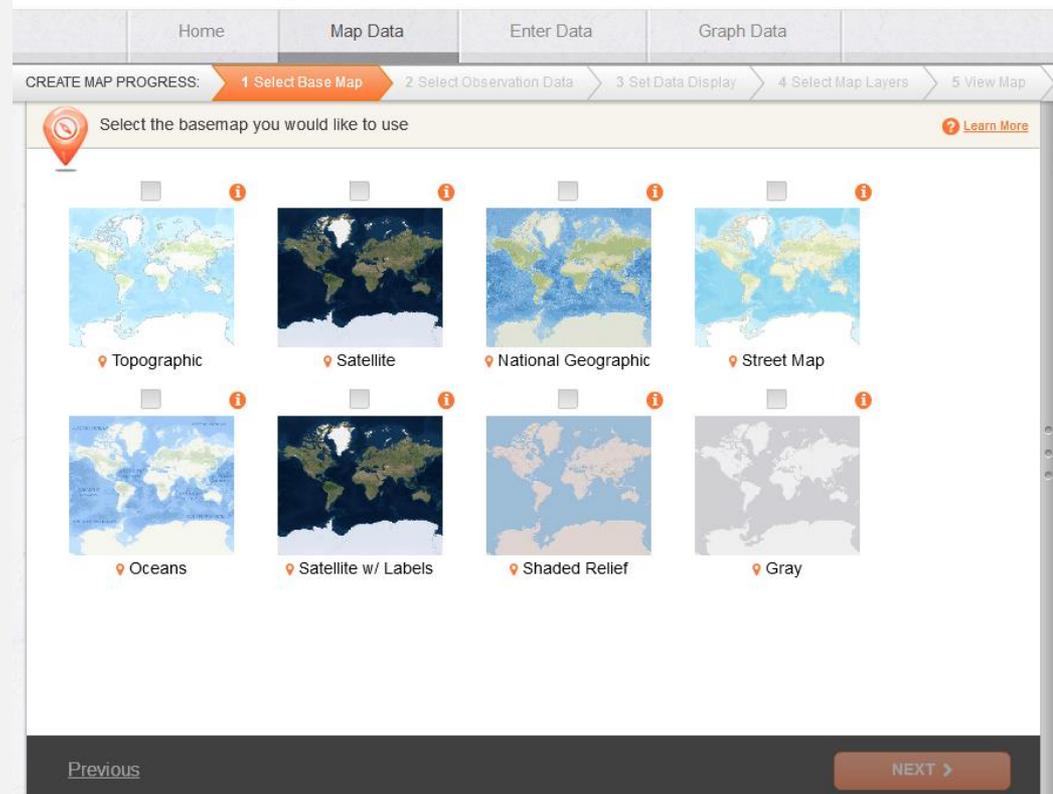
A base map is the bottom layer of your map. Other map layers with data will be displayed over the base map.

Un mapa de base es la capa inferior de tu mapa. Sobre el mapa de base, se mostrarán otras capas cartográficas con datos.

Learn more about different base maps on the following slides.

Obtén más información sobre los distintos mapas de base en las siguientes diapositivas.

Then, select your chosen base map and click “**Next.**” Luego, selecciona el mapa de base que elegiste y haz clic en “**Next**” (siguiente).



- Topographic base map
Mapa de base topográfico

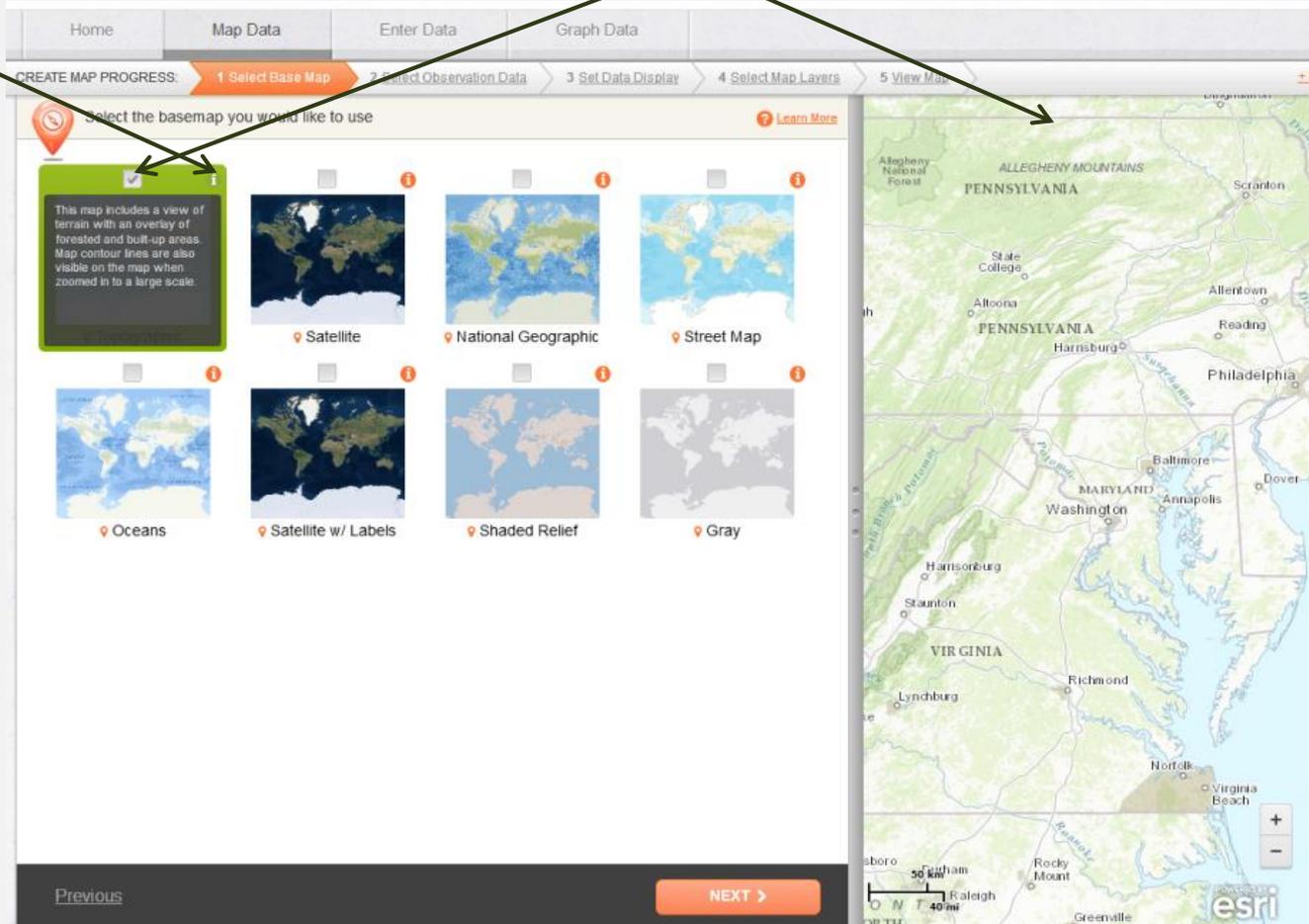
Checking the base map will show you a preview on the right side.
Al verificar el mapa de base, se mostrará una vista previa sobre el lado derecho.

Hovering over the Orange Info Icon will give you a description of the base map.

Al colocar el cursor sobre el ícono naranja de información, aparecerá una descripción del mapa de base.

"This map includes a view of terrain with an overlay of forested and built-up areas. Map contour lines are also visible on the map when zoomed in to a large scale."

"Este mapa incluye una vista de terreno con una capa de zonas forestadas y urbanizadas. Las líneas de contorno del mapa también son visibles en este al aumentar a una escala mayor."



- National Geographic base map
Mapa de base de National Geographic

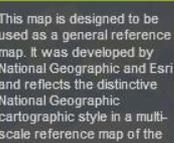
Home Map Data Enter Data Graph Data

CREATE MAP PROGRESS: 1 Select Base Map 2 Select Observation Data 3 Set Data Display 4 Select Map Layers 5 View Map + New

Select the basemap you would like to use [Learn More](#)


 Topographic


 Satellite



This map is designed to be used as a general reference map. It was developed by National Geographic and Esri and reflects the distinctive National Geographic cartographic style in a multi-scale reference map of the world.


 Street Map


 Oceans


 Satellite w/ Labels


 Shaded Relief


 Gray

[Previous](#) [NEXT >](#)



POWERED BY **esri**



- Street Map base map
Mapa de base de calles

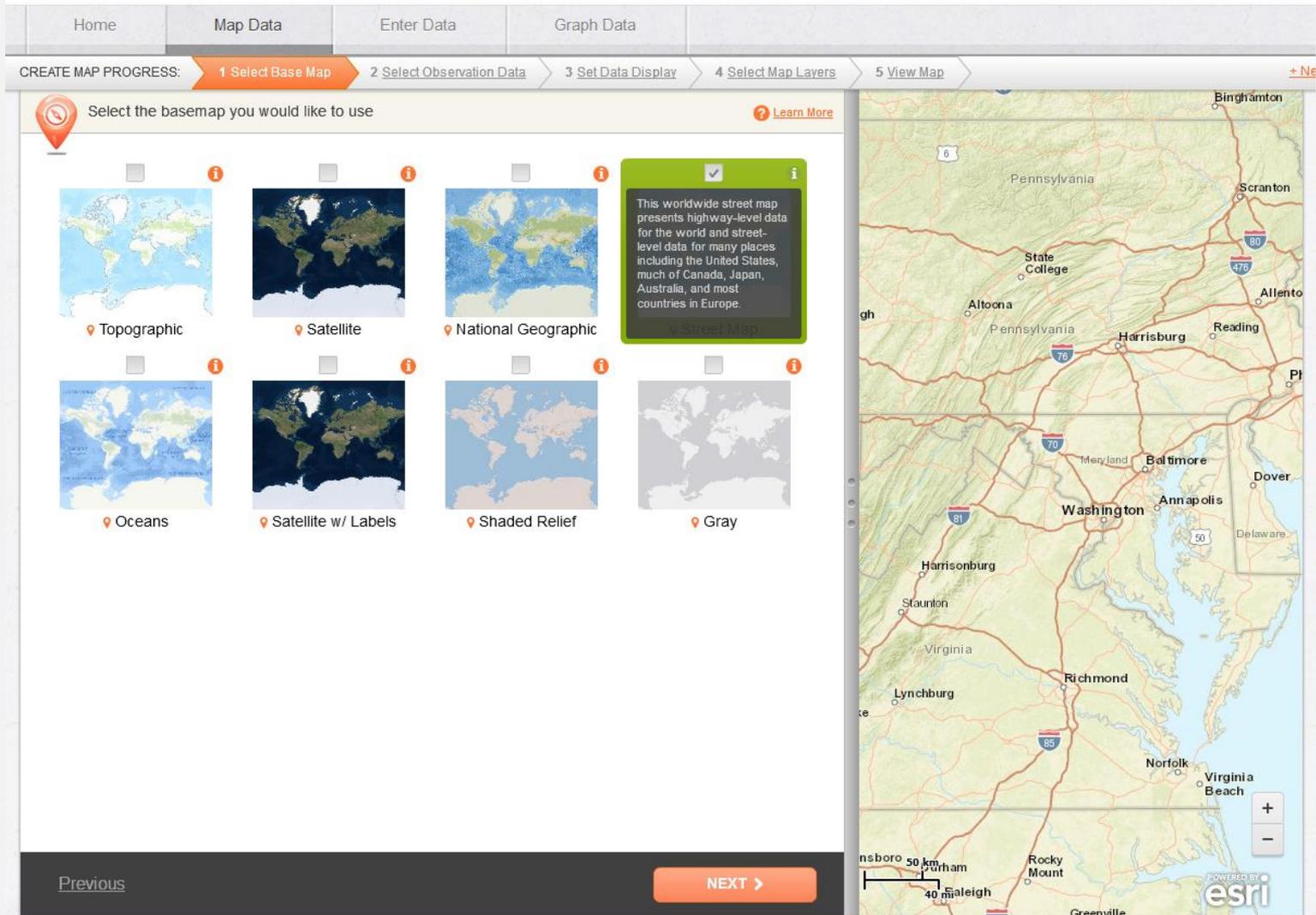
Home | Map Data | Enter Data | Graph Data

CREATE MAP PROGRESS: 1 Select Base Map | 2 Select Observation Data | 3 Set Data Display | 4 Select Map Layers | 5 View Map

Select the basemap you would like to use [Learn More](#)

- Topographic
- Satellite
- National Geographic
- Street Map
- Oceans
- Satellite w/ Labels
- Shaded Relief
- Gray

This worldwide street map presents highway-level data for the world and street-level data for many places including the United States, much of Canada, Japan, Australia, and most countries in Europe.



Previous [NEXT >](#)

esri

INTERSTATE ESTABLISHED BY ACT AND THE PORTLAND AND THE PORTLAND ESTABLISHED BY ACT

6. Setting Data Display. Configuración de la información en pantalla.

"Select Data Display" enables users to modify how observation data is displayed on a map.

"Select Data Display" permite que los usuarios modifiquen cómo se muestran los datos de observación en un mapa.

We will not make changes to this during our exercise.

No cambiaremos esto durante nuestro ejercicio.

Click "Next."

Haz clic en "Next" (siguiente).

The screenshot shows a web interface for setting data display options. The top navigation bar includes 'Home', 'Map Data', 'Enter Data', and 'Graph Data'. Below it, a progress bar indicates the current step is '3 Set Data Display', with previous steps '1 Select Base Map', '2 Select Observation Data', and '4 Select Map Layers', and a final step '5 View Map'. The main content area is titled 'Select how the data will be displayed on the map' and includes a 'Learn More' link. Under 'Observation Display Options', there are dropdowns for 'Display Observations Using:' and 'Combine By:', and radio buttons for 'Display CountAs:' (None, Number of Stations, Number of Observations). A checkbox for 'Display Observation Photos' is also present. The 'Displayed Variables' section shows a list of 'Available Variables' (Station ID, Latitude, Longitude, Observation ID, Day of Year) and a list of 'Selected Variables' (Station Name, Data Source, Observation Date). A 'Filter List' table is visible on the right, with columns for 'Active', 'Filter Name (double-click to edit)', and 'Delete'. The table is currently empty. At the bottom, there are 'Previous' and 'NEXT >' buttons.

7. Selecting Map Layers. Selección de capas cartográficas.

With "Select Map Layers" you can select which data layers you want to view on your map. **Up to 2 layers can be selected at a time.** You may go back to the menu to switch the map layers any time.

Con "Select Map Layers" (seleccionar capas cartográficas), puedes elegir los datos que quieres ver en tu mapa. **Se pueden seleccionar hasta dos capas a la vez.** Puedes regresar al menú para cambiar las capas en cualquier momento.

While learning to use tools, we will use one map layer.

Mientras estemos aprendiendo a usar las herramientas, utilizaremos una capa cartográfica.

Select **Watersheds**.

Selecciona "**Watersheds**" (cuencas).

Then, click "**Next.**"

Luego, haz clic en "**Next**" (siguiente).

Home Map Data Enter Data Graph Data

CREATE MAP PROGRESS: 1 Select Base Map 2 Select Observation Data 3 Set Data Display 4 Select Map Layers 5 View Map

Select up to two (2) layers to overlay onto the basemap

Boundaries

Add

County Boundaries

Shows county boundaries for the United States. Data source: Census Tiger File

Watersheds

The Chesapeake Bay has a watershed that contains a network of over 100,000 rivers and streams that trans...

Add

MBSS Catchments

This catchment data comes from the Maryland Department of Natural Resources. Periodic sampling of stre...

Physical Geography

Add

Elevation

Land elevation in the Chesapeake Bay watershed. Data source: Adapted for FieldScope ...

Rivers & Streams

Lines that describe the path of every named river and stream in the Chesapeake Bay watershed....

Add

Physiographic Provinces

Geographic regions with the same subsurface rock type or structural elements....

Maryland Environment

SELECTED LAYERS:

Clear

Top: Watersheds

Bottom: Select bottom layer

INCLUDED LAYERS:

Observation Layer

This data comes from schools, river keeper organizations, nature...

BASE MAP:

BASE MAP:

This map includes a view of terrain with an overlay of forested and built...

SELECTED MAP VIEW:

POWERED BY esri

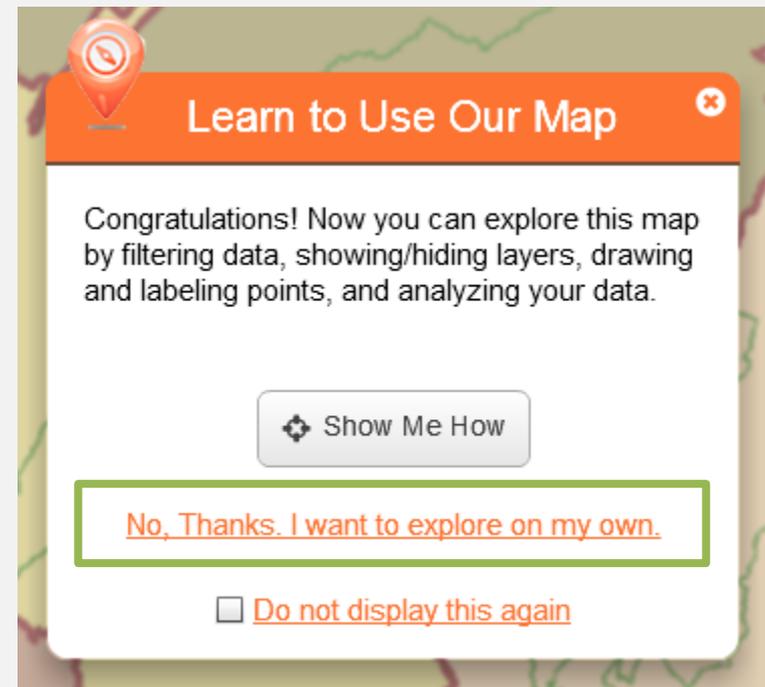
Previous NEXT >



A pop-up will appear.

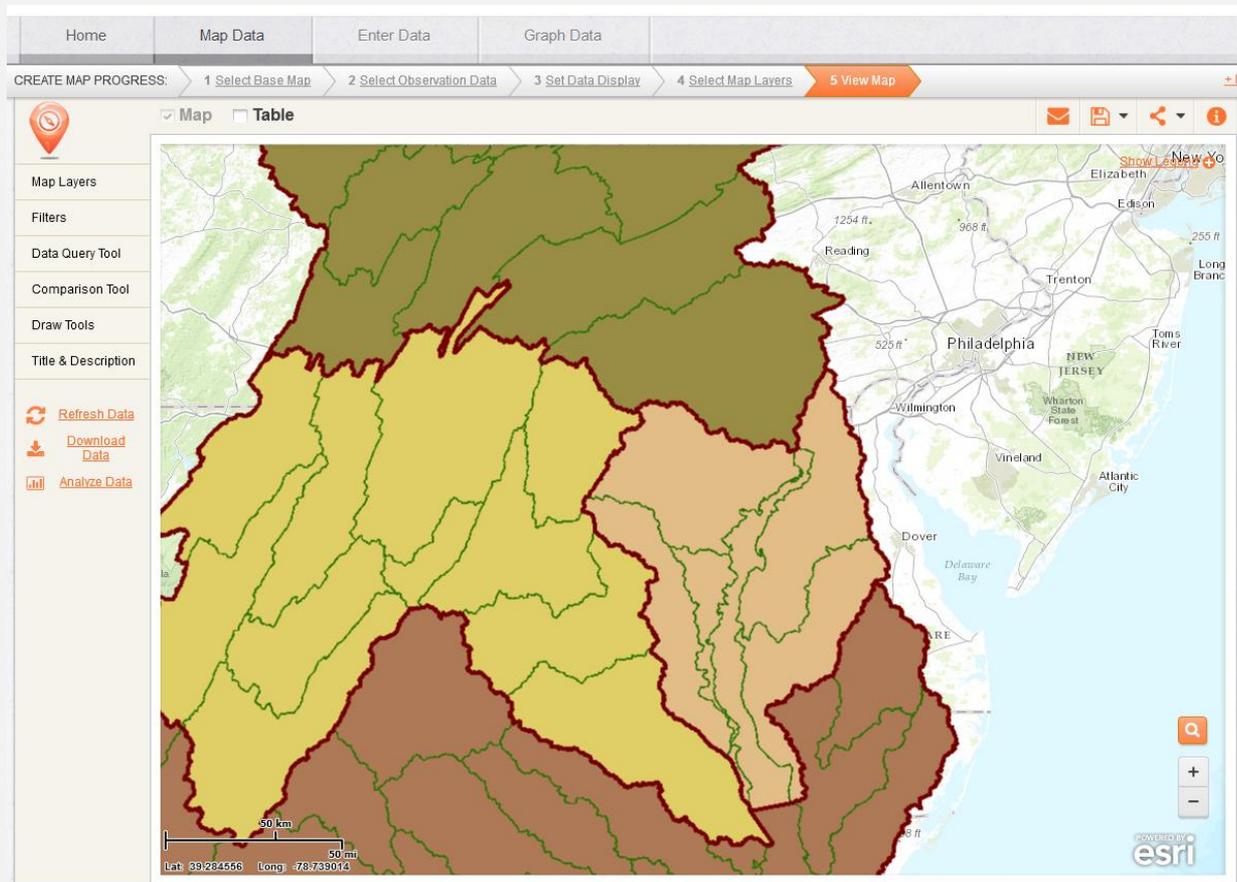
Aparecerá una ventana emergente.

- If you would like to watch a FieldScope Tutorial Video, then click on **“Show Me How.”**
Si quieres ver el video tutorial de FieldScope, haz clic en **“Show Me How”**.
- Otherwise, click on **“No, Thanks. I want to explore on my own.”**
De lo contrario, haz clic en **“No, Thanks. I want to explore on my own”** (No, gracias. Quiero investigar por mi cuenta).



8. Viewing Your Map. Cómo ver tu mapa.

Now, you will see your map. It should look similar to the example below.
Ahora verás tu mapa. Este debería verse parecido al del ejemplo a continuación.



What watershed is represented by this layer?

¿Qué cuenca está representada en esta capa?



Key FieldScope Tools

Herramientas fundamentales de FieldScope

Now that you have your map, you will use online tools to research the data layers. The following slides will introduce some key FieldScope tools that enable you to adjust the view and use the map for research.

Ahora que tienes tu mapa, utilizarás herramientas en internet para investigar las capas de datos. Las diapositivas a continuación presentarán algunas herramientas fundamentales de FieldScope que te permitirán ajustar la vista y el uso del mapa para investigar.

- Transparency
Transparencia
- Layer Visibility
Visibilidad de la capa
- Draw Tools
Herramientas de dibujo
- Legend
Leyenda
- Search
Búsqueda
- Zoom In / Zoom Out
Acercar / Alejar



Tabs on the Left Side

Pestañas en el lado izquierdo

On the left side are tabs that you can use to adjust various settings on your map.
En el lado izquierdo se encuentran pestañas que puedes utilizar para ajustar varias configuraciones en tu mapa.

The screenshot displays a web-based GIS application interface. At the top, there are navigation tabs: Home, Map Data, Enter Data, and Graph Data. Below these is a progress bar for 'CREATE MAP PROGRESS' with five steps: 1 Select Base Map, 2 Select Observation Data, 3 Set Data Display, 4 Select Map Layers, and 5 View Map (highlighted in orange). The main map area shows a topographic map of the Eastern United States, including parts of Pennsylvania, New Jersey, Maryland, Delaware, and Virginia. A left-hand navigation menu is visible, with a green box highlighting the 'Map Layers' tab. Other tabs in the menu include Filters, Data Query Tool, Comparison Tool, Draw Tools, and Title & Description. Below the menu are three buttons: Refresh Data, Download Data, and Analyze Data. The map includes a scale bar (0 to 100 km), coordinates (Lat: 38.114524, Long: -75.337074), and an Esri logo in the bottom right corner.

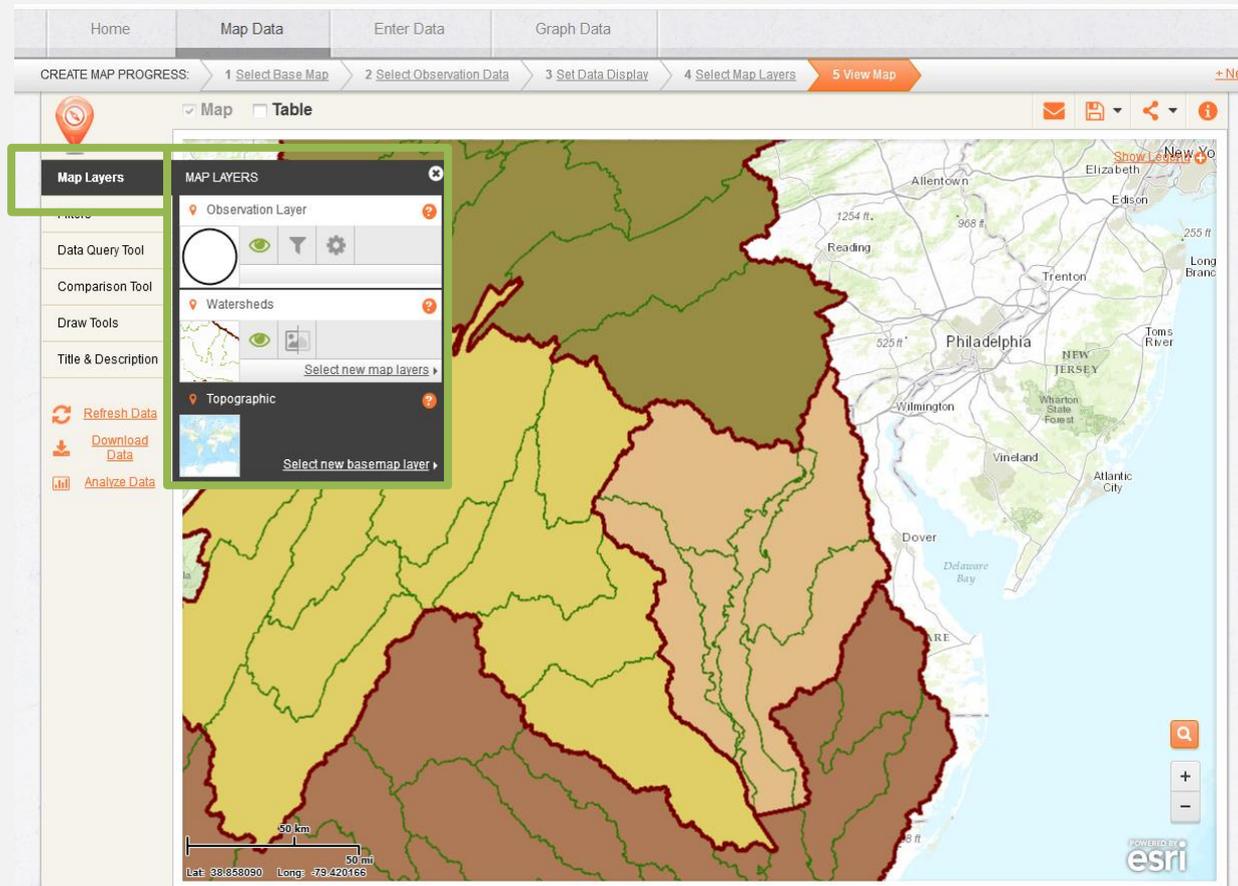


9. Using Map Layers Uso de las capas cartográficas

*The "Map Layers" tool allows you to adjust the visibility of your map layers.
La herramienta "Map Layers" (capas cartográficas) te permite ajustar la visibilidad de las capas cartográficas.*

Click on
"Map
Layers."

Haz clic en
"Map
Layers".

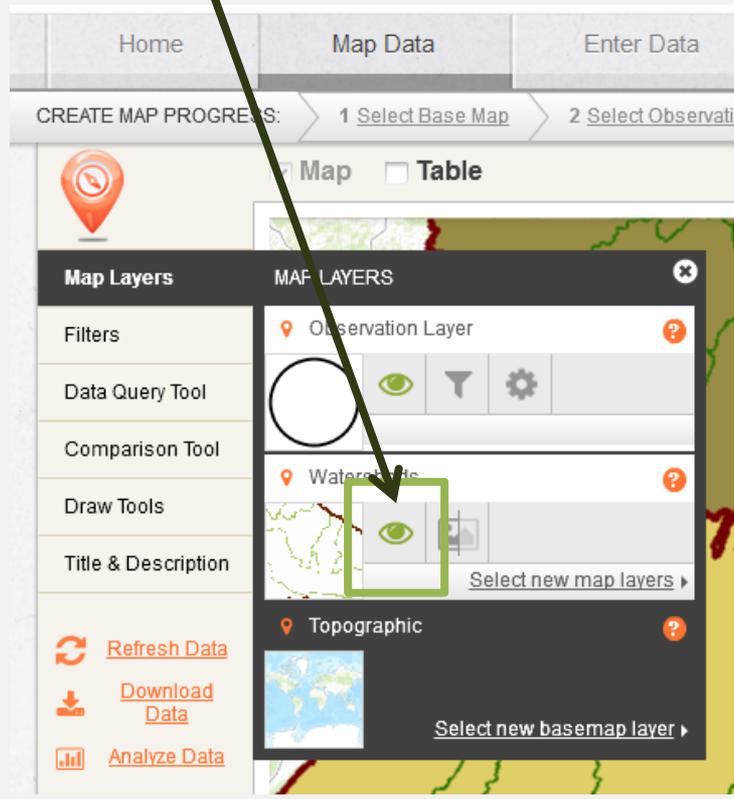


a. **Layer Visibility.**
Visibilidad de la capa

*Layer Visibility – the EYE – shows or hides the layer.
Visibilidad de la capa: el OJO muestra u oculta la capa.*

Click on the **eye, the visibility tool**, on the Watersheds layer. What happens?
Haz clic en el **ojo, la herramienta de visibilidad**, en la capa de la cuenca.
¿Qué sucede?

Make the Watersheds layer visible again, click on the **eye**.
Haz visible nuevamente la capa de las cuencas haciendo clic en el **ojo**.



b. Transparency Transparencia

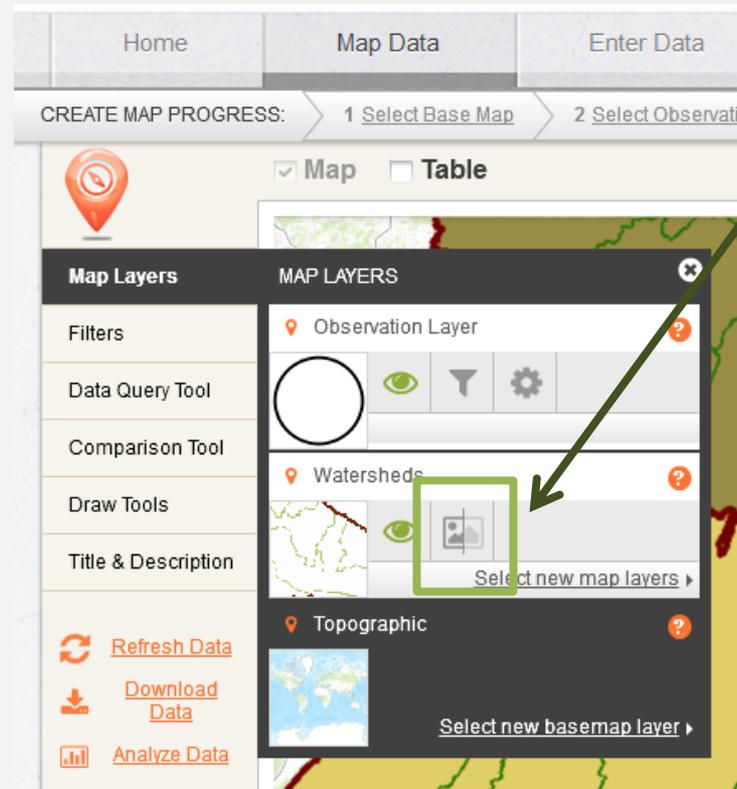
Click on the **transparency bar**. What happens when you slide the transparency bar to **100%**?

Haz clic en la **barra de transparencia**. ¿Qué sucede cuando deslizas la barra de transparencia al **100 %**?

Move the **transparency bar** until you can see the base map and the watersheds map. What percentage works for you?

Mueve la **barra de transparencia** hasta que puedas ver el mapa de base y el mapa de las cuencas. ¿Qué porcentaje funciona mejor para ti?

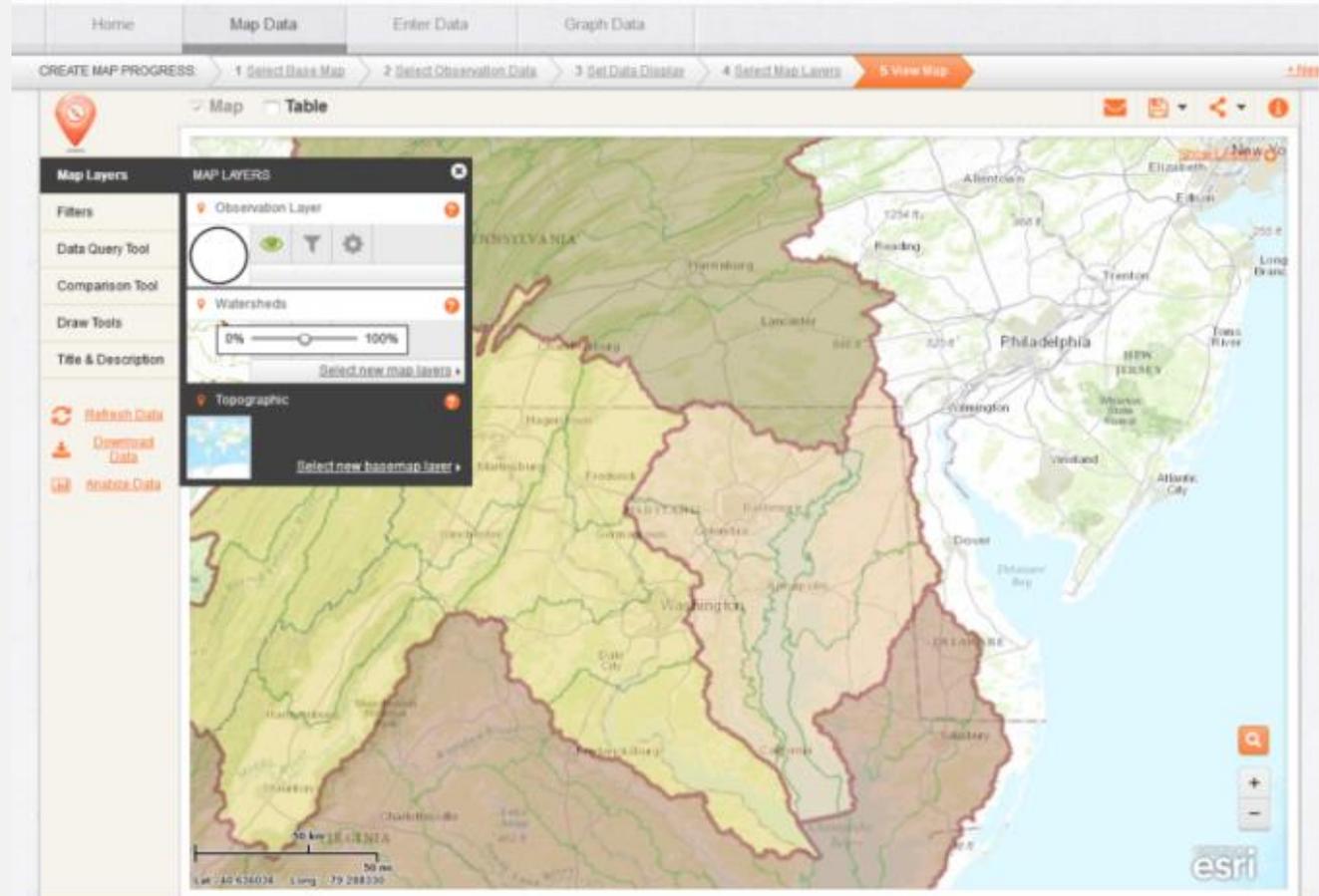
Transparency controls how much you can see through the layer. At 0% transparency, the layer is opaque. When new layers are added to a map, they initially are set to 0% transparency.
La transparencia controla cuánto puedes ver a través de la capa. Con una transparencia del 0 %, la capa es opaca. Cuando se añaden capas nuevas a un mapa, estas están configuradas inicialmente en un 0 % de transparencia.



Layers Revealed Capas mostradas

This is how the same map appears when the transparency of the Watersheds layer is set to **50%**. You can see both the base map and the Watersheds layer.

Así es cómo aparece el mismo mapa cuando la transparencia de la capa de las cuencas se establece en **50 %**. Puedes ver ambas, la capa del mapa de base y la de las cuencas.



10. Using Draw Tools.

Uso de las herramientas de dibujo.

The Draw Tools Box allows you to insert text, shapes, and lines on your map and to explore data more closely. El cuadro de herramientas de dibujo te permite insertar texto, formas y líneas en tu mapa y analizar datos en mayor detalle.

Click on “**Draw Tools.**”

Haz clic en “**Draw Tools**”
(herramientas de dibujo).

Hover over each tool to see what it does. Which tool can be used to measure distances on your map?

Coloca el cursor sobre cada herramienta para ver qué hace. ¿Qué herramienta se puede usar para medir distancias en tu mapa?

The screenshot displays a web-based GIS application interface. At the top, there are navigation tabs: Home, Map Data, Enter Data, Graph Data, and a highlighted View Map tab. Below the tabs is a progress bar with five steps: 1 Select Base Map, 2 Select Observation Data, 3 Set Data Display, 4 Select Map Layers, and 5 View Map (highlighted). The main map area shows a geographical view of Philadelphia and surrounding areas, with various colored regions representing watersheds. A 'Draw Tools' box is overlaid on the map, containing icons for selection, text, lines, shapes, and style. The legend on the right side of the map lists layers: Observation Layer (Purple Dots, Number of Observations), Watersheds (Small Watershed (HUC 10), Medium Watershed (HUC 8), Large Watershed (HUC 4)), and Chesapeake Bay (Lower Chesapeake, Potomac, Susquehanna, Upper Chesapeake). The map includes a scale bar (50 km, 40 mi) and coordinates (Lat: 39.378318, Long: -77.471168). The Esri logo is visible in the bottom right corner of the map area.



11. Using the Legend. Uso de la leyenda.

In the top right corner of your map, is a "Show Legend" link. A legend lists what the symbols and colors mean on your map.

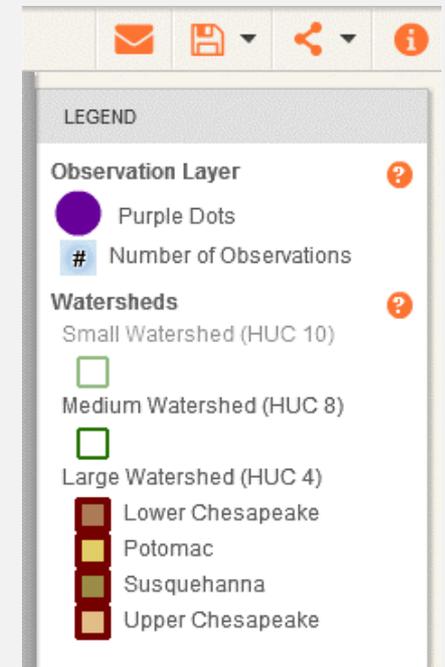
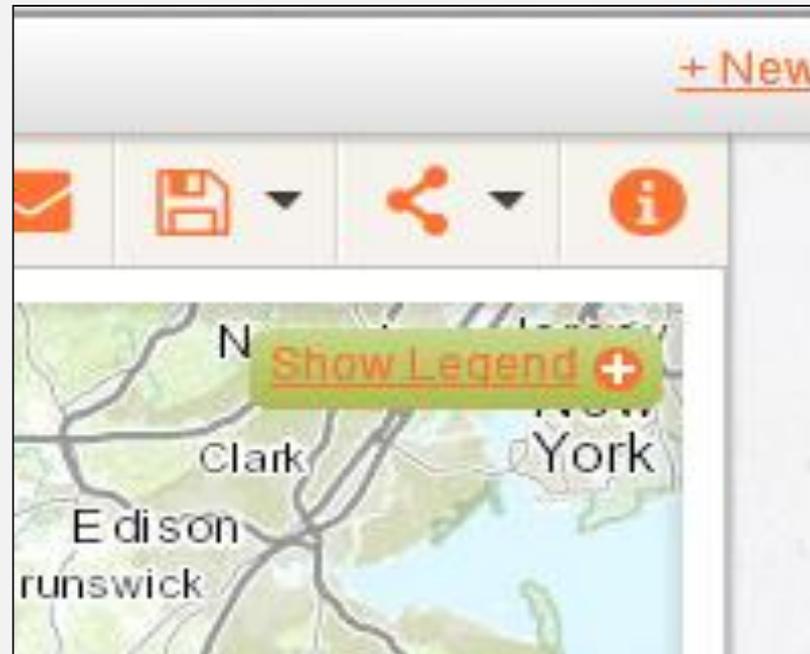
En el ángulo superior derecho de tu mapa hay un enlace "Show Legend" (mostrar leyenda). Una leyenda describe el significado de los símbolos y colores.

Click on "Show Legend."

Haz clic en "Show Legend".

Look at the legend.
What are the largest subwatersheds in the Chesapeake Bay Watershed?

Mira la leyenda. ¿Cuáles son las subcuencas más grandes en la cuenca de la bahía de Chesapeake?



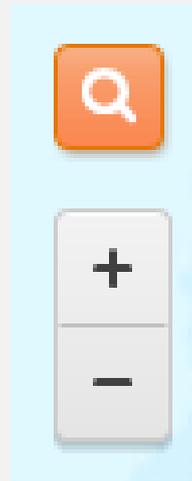
12. Using the Search and Zoom Features. Uso de las funciones de búsqueda y zoom.

Click on the **search tool** and enter the name of the city in which you live.

Haz clic en la **herramienta de búsqueda** e ingresa el nombre de la ciudad en que vives.

What happens when you close the search bar?

¿Qué sucede cuando cierras la barra de búsqueda?



You can search for a location by clicking on the search tool, the magnifying glass, at the bottom right of your screen. The zoom tool (+ and -) is below the search tool.

Puedes buscar una ubicación haciendo clic en la herramienta de búsqueda, la lupa, que aparece en la parte inferior derecha de tu pantalla. La herramienta de zoom (+ y -) se encuentra debajo de la herramienta de búsqueda.

FieldScope Map Inquiry Instructions

Investigación cartográfica en FieldScope Instrucciones

Part Two: Explore Your Watershed

Parte dos: explora tu cuenca

At this point, students can work on their own computers with their worksheets independently, or the class may choose to follow the instructions on this presentation.

A esta altura, los estudiantes pueden trabajar en sus propias computadoras con las hojas de trabajo de forma independiente, o bien la clase puede optar por seguir las instrucciones de esta presentación.



Explore Your Watershed

Explora tu cuenca

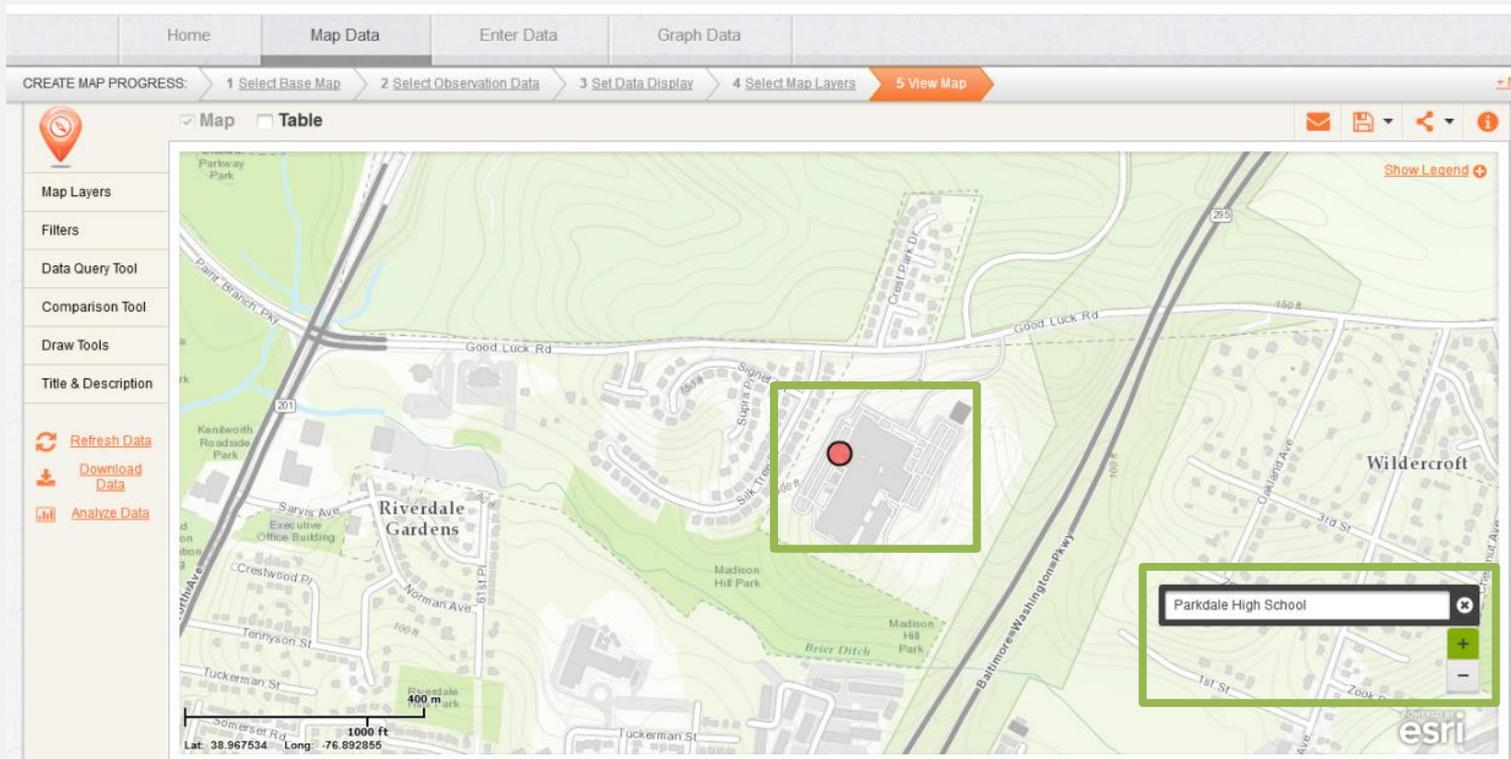
- The following slides will walk you through examining your local school watershed.
Las siguientes diapositivas te guiarán durante la evaluación de la cuenca de tu escuela local.
- We will locate your school and analyze the following:
Ubicaremos tu escuela y analizaremos lo siguiente:
 1. Locate your school
Ubica tu escuela
 2. Watersheds
Cuencas
 3. Rivers and streams
Ríos y arroyos
 4. Land cover
Recubrimientos de suelo
 5. Impervious surfaces
Superficies impermeables
 6. Impermeability
Impermeabilidad
 7. Stream health
Estado sanitario del curso de agua
- In the following example, we are using:
En el ejemplo a continuación, utilizamos:
 - The topographic base map
el mapa de base topográfico
 - Parkdale High School as an example location
Parkdale High School como ejemplo de ubicación



1. Locate Your School

Ubica tu escuela

- a. Use the search tool (magnifying glass) to locate your school. Put in the address or name of your school. The location will appear as a red dot. Keep the search tool open.
Utiliza la herramienta de búsqueda (lupa) para ubicar tu escuela. Ingresas la dirección o el nombre de tu escuela. La ubicación aparecerá como un punto rojo. Mantén la herramienta de búsqueda abierta.
- b. Zoom all the way into your campus.
Haz zoom hasta llegar a tu predio escolar.

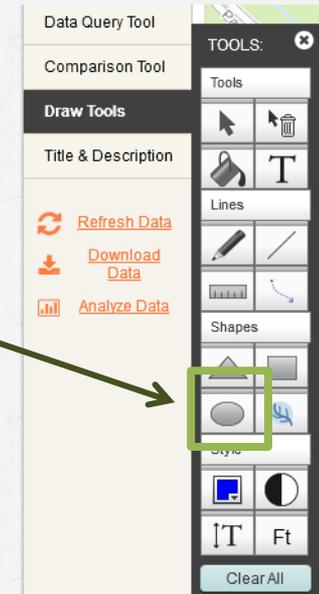


Creating a Marker and Label for Your School

Creación de un marcador y una etiqueta para tu escuela

Creating a Marker Crear un marcador

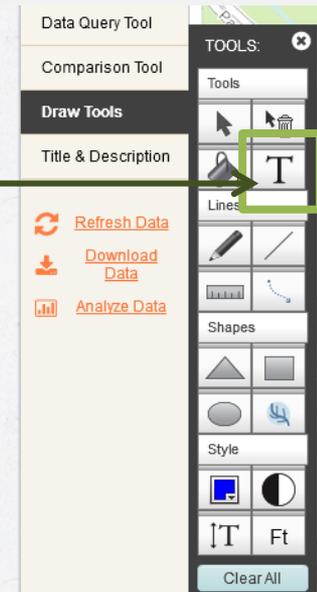
- Click on **Draw Tools** to open the tool box.
Haz clic en "**Draw Tools**" (herramientas de dibujo) para abrir el cuadro de herramientas.
- Click on the **Circle Tool**.
Haz clic en la herramienta de **círculo**.
- Press down on the map where you want the symbol and gently drag outwards to create a circle. Then let go.
Presiona en el mapa el lugar donde quieres poner el símbolo y arrástralo suavemente hacia afuera para crear un círculo. Luego suelta el símbolo.
- If you are unsatisfied with your shape or its location, use: The **Select Tool** to move it, or the **Erase Tool** to delete it.
Si no quedas satisfecho con tu forma o la ubicación, usa la **herramienta de seleccionar** para moverlo o la **herramienta de eliminar** para borrarlo.



Creating a Label

Crear una etiqueta

- Click on **Draw Tools** to open the tool box.
Haz clic en "**Draw Tools** " (herramientas de dibujo) para abrir el cuadro de herramientas.
- Click on the **Add Label Tool**.
Haz clic en la **herramienta para añadir una etiqueta**.
- Click where you want to place the text and type it in.
Haz clic donde quieras ubicar el texto y escribe.
- Close the draw and search tools. Zoom out to see the results.
Cierra el dibujo y las herramientas de búsqueda. Aleja la vista para ver los resultados.



Example Ejemplo

Home Map Data Enter Data Graph Data

CREATE MAP PROGRESS: 1 Select Base Map 2 Select Observation Data 3 Set Data Display 4 Select Map Layers 5 View Map + Ne

Map Table

Map Layers
Filters
Data Query Tool
Comparison Tool
Draw Tools
Title & Description

[Refresh Data](#)
[Download Data](#)
[Analyze Data](#)

1000 ft
400 m
Lat: 38.965749 Long: -76.895923

POWERED BY
esri



2. Locating Your Local Watershed

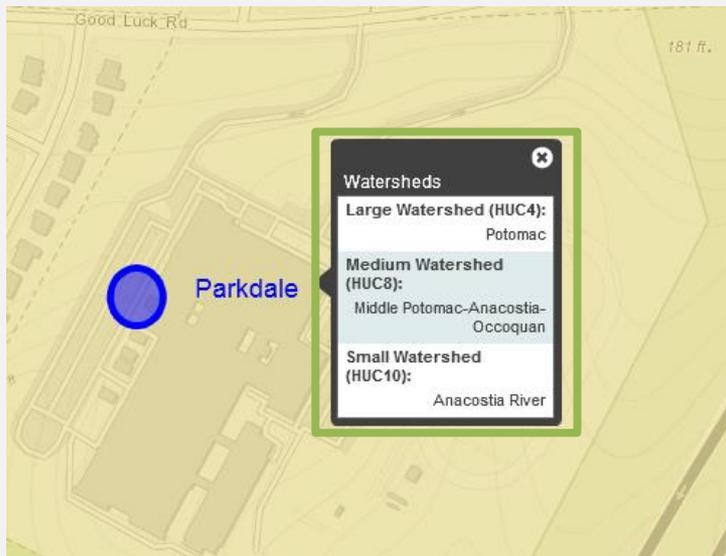
Ubicar tu cuenca local

The Watersheds layer should still be on your map.

La capa de las cuencas todavía debería estar en tu mapa.

The Chesapeake Bay Watershed consists of large and small watersheds. To learn in which large and small watersheds (subwatersheds) the school is located, click on the school's location. A pop-up will appear.

La cuenca de la bahía de Chesapeake está formada por cuencas grandes y pequeñas. Para saber en qué cuencas grandes y pequeñas (subcuencas) se encuentra la escuela, haz clic en la ubicación de esta. Aparecerá una ventana emergente.



In what small watershed is your school located?

¿En qué cuenca pequeña se encuentra tu escuela?

What does this tell you about where stormwater runoff from your campus eventually flows?

¿Qué te dice esto acerca del lugar hacia donde drena por último la escorrentía pluvial de tu predio escolar?



3. Viewing Nearby Rivers and Streams

Ver ríos y arroyos cercanos

To observe small, nearby waterways, you will add the “**Rivers and Streams**” layer to your map.

Para observar cursos de agua pequeños en los alrededores, añadirás la capa “**Rivers and Streams**” (ríos y arroyos) a tu mapa.

- Click on “**4 Select Map Layers**” on the top bar. Haz clic en “**4 Seleccionar las capas cartográficas**” en la barra superior.
- Check the “**Rivers and Streams**” box to add it to your map. Marca la casilla “**Rivers and Streams**” (ríos y arroyos) para añadirla a tu mapa.
- Click “**Next**” to view your map. Haz clic en “**Next**” (siguiente) para ver tu mapa.

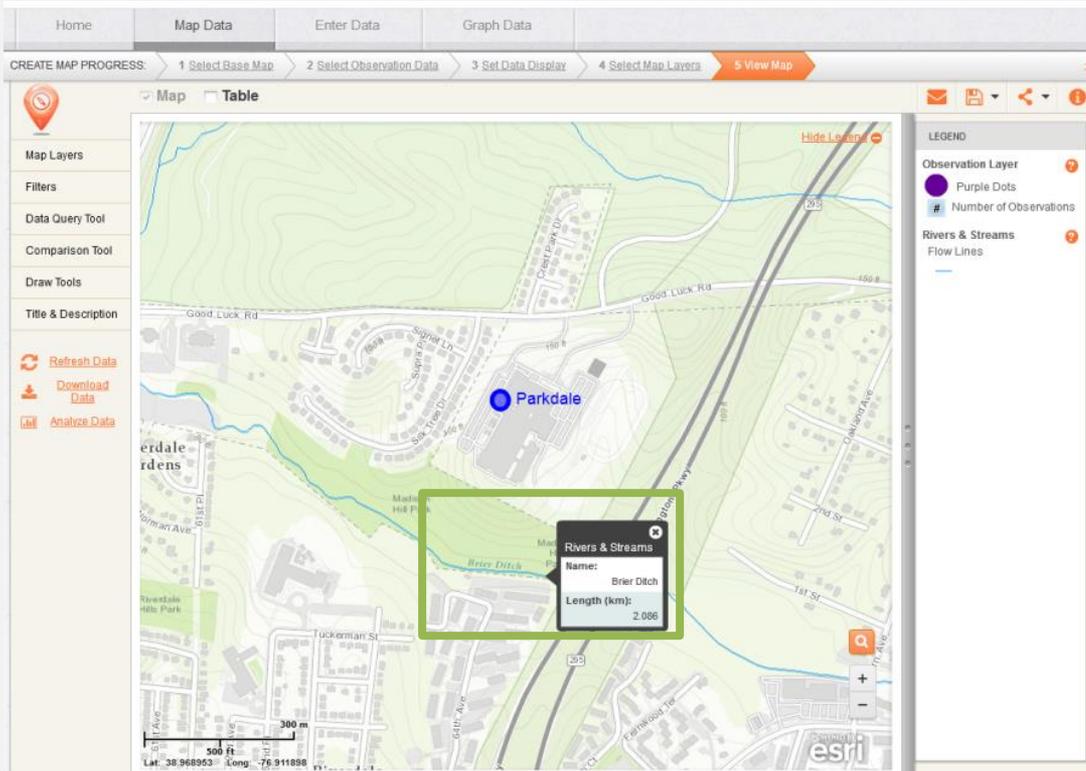
The screenshot shows the ArcGIS online interface during the '4 Select Map Layers' step. The top navigation bar includes 'Home', 'Map Data', 'Enter Data', 'Graph Data', and 'View Map'. The progress indicator shows '4 Select Map Layers' as the current step. The main area displays a list of layers under various categories: Boundaries, Physical Geography, and Maryland Environment. The 'Rivers and Streams' layer is highlighted with a green box and has a checkmark next to it. The 'SELECTED LAYERS' panel on the right shows the 'Rivers & Streams' layer selected. The 'BASE MAP' is also visible. A 'NEXT' button is located at the bottom right.

Make sure you are zoomed in enough to see what streams are in your watershed and around your school.

Asegúrate de hacer zoom para ver qué cursos de agua se encuentran en la cuenca y en los alrededores de la escuela.

Click on the stream that is nearest to your school to see more information.

Haz clic en el arroyo más cercano a tu escuela para ver más información.



1. Does the stream have a name? If so, what is it?
¿El curso de agua tiene un nombre? Si lo tiene, ¿cuál es?

2. Use the measure tool (Draw Tools Box) to measure how far the stream is from your campus. What did you get?

Utiliza la herramienta de medición (cuadro de herramientas de dibujo) para medir la distancia del curso de agua hasta tu predio escolar. ¿Qué resultado obtuviste?

3. One way to tell which direction the stream is flowing, is to find where it joins a larger stream or river. What river does your stream flow to?

Una forma de saber en qué dirección corre el curso de agua es encontrando dónde se une a un río o arroyo más grande. ¿Hacia qué río corre tu curso de agua?



4. Land Cover Layer

Capa de recubrimiento del suelo

Add the “**Land Cover**” layer to your map.

Añade la capa “**Land Cover**” (recubrimiento del suelo) a tu mapa.

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.

Ahora observarás el recubrimiento del suelo en tu mapa. Esta capa te muestra el material físico de la superficie de la tierra, tal como el césped, el asfalto, los árboles, el terreno pelado y el agua.

- Click on “**4 Select Map Layers**” on the top bar.
Haz clic en “**4 Select Map Layers**” (4 Seleccionar las capas cartográficas) en la barra superior.
- Uncheck the “**Watersheds**” box to remove it from your map.
Desmarca la casilla “**Watersheds**” para quitarla de tu mapa.
- Check the “**Land Cover**” box to add it to your map.
Marca la casilla “**Land Cover**” (recubrimiento del suelo) para añadirla a tu mapa.
- Click “**Next**” to view your map.
Haz clic en “**Next**” (siguiente) para ver tu mapa.

Home | Map Data | Enter Data | Graph Data

CREATE MAP PROGRESS: 1 Select Base Map | 2 Select Observation Data | 3 Set Data Display | **4 Select Map Layers** | 5 View Map

Select up to two (2) layers to overlay onto the basemap

Add Forest Buffers
Forested areas within 100 foot buffer of a stream or waterbody.

Add Sea-Level Affecting Marshes Model
In order to better understand the impacts sea level rise may have on Maryland's coastal marsh system, the...

Add Historical Shorelines
This data layer shows shoreline position at several points in time, dating from 1841 to 1998 covering the coast...

Add Hydrology
Water features for the State of Maryland.

Added Land Cover
The physical material at the surface of the earth (includes grass, asphalt, trees, bare ground, water)....

Add Impermeability
The percentage of land area that is unable to absorb rain fall.
Data source: MRLC National Land Cov...

Add Impervious Surfaces
Areas that are completely impervious to water versus those where at least some water soaks in....

Add Sea Level Rise Vulnerability
The purpose of this map service is to show inundation areas of Maryland's coastal counties in the event of sea l...

Add Stream Health
This map service contains data on the health of Maryland streams as well as stream sampling locations.

Add Stream Reaches
Stream reaches are portions of a stream selected for monitoring. This data layer represents the locations of...

SELECTED LAYERS:
Top: Land Cover
Bottom: Select bottom layer

INCLUDED LAYERS:
 Observation Layer
Participant Water Quality Data:
This data comes from schools, fi...

BASE MAP:
 BASE MAP:
This map includes a view of terrain with an overlay of forested and built...

SELECTED MAP VIEW:
POWERED BY esri

Previous | **Next** | Learn More



Adjust the transparency settings (Map layers, transparency tool) so that you can view land use, as well as the streams and base map.

Ajusta la configuración de la transparencia (capas cartográficas, herramienta de transparencia) de modo que puedas ver el uso del suelo, así como los cursos de agua y el mapa de base.

Show the legend, if it isn't showing. Hover over the question mark by Land Cover.

How recent is the data on this map?
Haz visible la leyenda si no se muestra. Coloca el cursor sobre el signo de pregunta sobre el signo de pregunta junto a "Land Cover". ¿Cuán recientes son los datos de este mapa?

Click on any location to see what the land cover type is.
What types of land cover are in the area surrounding the stream closest to your school?
Haz clic en cualquier ubicación para ver cuál es el tipo de recubrimiento de suelo. ¿Qué tipos de recubrimiento de suelo hay en la zona que rodea el curso de agua más cercano a tu escuela?

Home Map Data Enter Data Graph Data

CREATE MAP PROGRESS: 1 Select Base Map 2 Select Observation Data 3 Set Data Display 4 Select Map Layers 5 View Map

Map Layers
Filters
Data Query Tool
Comparison Tool
Draw Tools
Title & Description

Refresh Data
Download Data
Analyze Data

Map Map Table

Legend

Observation Layer

- Purple Circles
- Number of Observations

Rivers & Streams

- Flow Lines

Land Cover

Land Cover Type

- Barren (Rock/Sand/Clay)
- Cultivated Cropland
- Deciduous Forest
- High Intensity Developed
- Low Intensity Developed
- Emergent Wetlands
- Evergreen Forest
- Grassland
- Mixed Forest
- Open Water
- Pasture/Hay
- Perennial Ice/Snow
- Shrub/Scrub
- Woody Wetlands

Land Cover Class: Deciduous forest

esri



5. Impervious Surfaces Layer

Capa de superficie impermeable

To add the **Impervious Surfaces** layer to your map:

Para añadir la capa "**Impervious Surfaces**" (superficies impermeables) a tu mapa:

- Click on "**Select Map Layers.**"
Haz clic en "**Select Map Layers**" (seleccionar capas cartográficas).
- Uncheck the "**Rivers and Streams**" layer box to remove it from your map.
Desmarca la casilla de las capas "**Rivers and Streams**" (ríos y arroyos) para quitarla de tu mapa.
- Check the "**Impervious Surfaces**" layer box to add it to your map.
Marca la casilla "**Impervious Surfaces**" para añadirla a tu mapa.
- Click "**Next**" to view your map.
Haz clic en "**Next**" (siguiente) para ver tu mapa.
- Adjust the transparency settings, as needed.
Ajusta la configuración de transparencia, según sea necesario.

Now you will observe the **Impervious Surfaces** layer 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. You will be able to view areas that have been categorized as impervious and pervious.
Ahora observarás la capa de superficies impermeables en tu mapa. Las superficies impermeables son zonas que no absorben el agua o no permiten que esta penetre en el suelo. Esta capa muestra las zonas que son completamente impermeables al agua en comparación con aquellas en las que esta penetra al menos un poco. Podrás ver zonas que han sido categorizadas como impermeables y permeables.

The screenshot shows the ArcGIS web interface during the 'Select Map Layers' step. The progress bar at the top indicates the current step is '4 Select Map Layers'. The main area displays a grid of map layers with checkboxes. The 'Impervious Surfaces' layer is checked and highlighted with a green box. The 'Rivers and Streams' layer is unchecked. The 'Next' button is visible at the bottom right.

Home | Map Data | Enter Data | Graph Data

CREATE MAP PROGRESS: 1 Select Base Map 2 Select Observation Data 3 Set Data Display 4 Select Map Layers 5 View Map

Select up to two (2) layers to overlay onto the basemap

Hydrology: Water features for the State of Maryland.

Impermeability: The percentage of land area that is unable to absorb rainfall. Data source: MRLC National Land Cov...

Land Cover: The physical material at the surface of the earth (includes grass, asphalt, trees, bare ground, water)...

Impervious Surfaces: Areas that are completely impervious to water versus those where at least some water soaks in....

Sea Level Rise Vulnerability: The purpose of this map service is to show inundation areas of Maryland's coastal counties in the event of sea l...

Stream Health: This map service contains data on the health of Maryland streams as well as stream sampling locations.

Stream Reaches: Stream reaches are portions of a stream selected for monitoring. This data layer represents the locations of...

Water Quality Assessment: This data layer contains water quality information.

Watershed Health: This data layer rates the health of a watershed as good, fair, or poor.

Watersheds: This data layer shows Maryland watershed boundaries.

SELECTED MAP VIEW:

esri

Previous | NEXT >

Click on any location to see if the surface is categorized as impervious or pervious. If it is impervious, you will see a number 1 in the bottom right-hand corner of the information box. If it is pervious, you will see a 0.

Haz clic en cualquier ubicación para ver si la superficie está clasificada como permeable o impermeable. Si es impermeable, verás un número 1 en el ángulo inferior derecho de la casilla de información. Si es permeable, verás un 0.

Generally, where do you find the greatest amount of impervious surfaces?

Por lo general, ¿dónde encuentras la mayor cantidad de superficies impermeables?

How do you think the stream health is affected by the amount of impervious surfaces in your watershed?

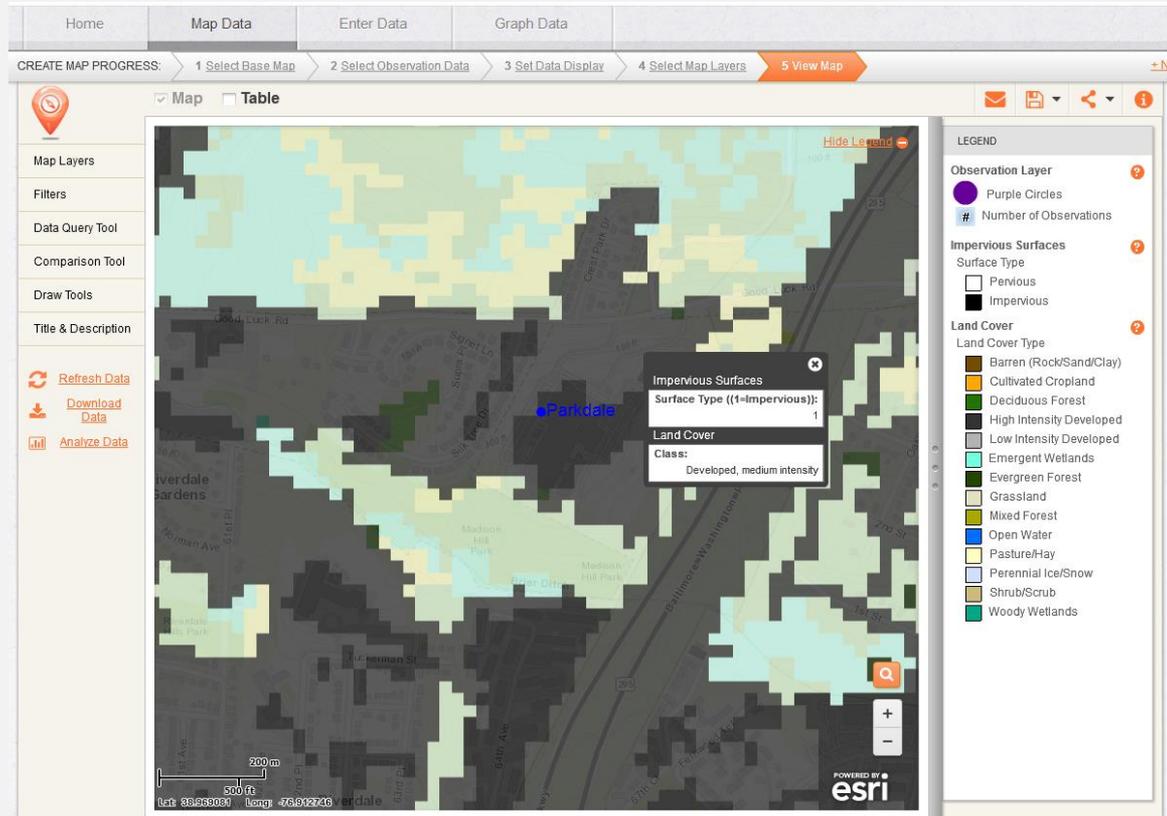
¿Cómo crees que el estado sanitario del curso de agua se ve afectado por la cantidad de superficies impermeables de tu cuenca?

What are possible ways your class could verify the impermeability of different areas of your campus (known as, "ground truthing")?

¿Cuáles son las formas posibles de que tu clase verifique la permeabilidad de las distintas zonas de tu predio escolar (conocido como "comprobación en el terreno")?

Why might it be necessary to "ground truth" the map data?

¿Por qué puede ser necesario "comprobar en el terreno" los datos del mapa?



6. Bringing It All Together

Integración de todos los elementos

Make a hypothesis about the health of the stream ecosystem nearest to your school.

Elabora una hipótesis acerca del estado sanitario del ecosistema del curso de agua más cercano a tu escuela.

Consider your map data and what you have learned about the relationships of different land uses to stream health. Make a hypothesis about the health of your stream, based on the types of land uses and land cover in the area draining to your stream.

Considera los datos de tu mapa y lo que has aprendido acerca de las relaciones de los distintos tipos de uso del suelo con el estado sanitario del curso de agua. Elabora una hipótesis acerca del estado sanitario de tu curso de agua en función de los tipos de uso del suelo y del recubrimiento del suelo en la zona que drena en tu curso de agua.

You could state that the stream health is good, fair, or poor, based on your reasons. Or you could pick a specific feature, such as the amount of erosion or aquatic life you expect in the stream.

Puedes afirmar que el estado sanitario del curso de agua es bueno, aceptable o deficiente en función de tus razones. O bien, podrías elegir una característica específica, tal como la cantidad de erosión o la vida acuática que esperas en el curso de agua.



7. Checking Your Hypothesis

Verificación de tu hipótesis

If you cannot test your stream quality, you can see if your hypothesis agrees with stream surveys that have been done by government and citizen organizations.

Si no puedes probar la calidad de tu curso de agua, puedes ver si tu hipótesis concuerda con los estudios de los cursos de agua efectuados por el gobierno y organizaciones ciudadanas.

If you are in Maryland, check your hypothesis by doing one or both of the following:

Si te encuentras en Maryland, verifica tu hipótesis haciendo una de las siguientes acciones o las dos:

7a. Observe Watershed Health on your FieldScope Map. This layer incorporates the results of stream and watershed surveys done by the Maryland Department of Natural Resources.

Observa el estado sanitario de la cuenca en tu mapa de FieldScope. Esta capa incorpora los resultados de estudios de cuencas y cursos de agua realizados por el Departamento de Recursos Naturales de Maryland.

7b. Check the health of your stream by going to a different website, hosted by the Maryland Department of Natural Resources.

Verifica el estado sanitario de tu curso de agua visitando un sitio web diferente auspiciado por el Departamento de Recursos Naturales de Maryland.



7a. Watershed Health Layer

Capa del estado sanitario de la cuenca

To add the “**Watershed Health**” layer to your map:

Para añadir la capa “**Watershed Health**” (estado sanitario de la cuenca) a tu mapa:

- Click on “**Select Map Layers**” on the top bar
Haz clic en “**Select Map Layers**” (seleccionar las capas cartográficas) en la barra superior.
- Uncheck the “**Impervious Surfaces**” box to remove it from your map.
Desmarca la casilla “**Impervious Surfaces**” (superficies impermeables) para quitarla de tu mapa.
- Check the “**Watershed Health**” box to add it to your map.
Marca la casilla “**Watershed Health**” (estado sanitario de la cuenca) para añadirla a tu mapa.
- Click “**Next**” to view your map.
Haz clic en “**Next**” (siguiente) para ver tu mapa.
- Adjust the transparency, as needed.
Ajusta la transparencia, según sea necesario.

The screenshot shows the ArcGIS online interface during the 'Select Map Layers' step. The top navigation bar includes 'Home', 'Map Data', 'Enter Data', 'Graph Data', and 'View Map'. The 'View Map' step is currently active. The main content area displays a list of layers to be added to the map. The 'Watershed Health' layer is highlighted with a green box, indicating it has been selected. The 'Impervious Surfaces' layer is unchecked, indicating it has been removed. The 'Next' button is visible at the bottom right.

SELECTED LAYERS:

- Watershed Health
- Land Cover

INCLUDED LAYERS:

- Observation Layer

BASE MAP:

- BASE MAP

SELECTED MAP VIEW:

POWERED BY esri

Previous NEXT >

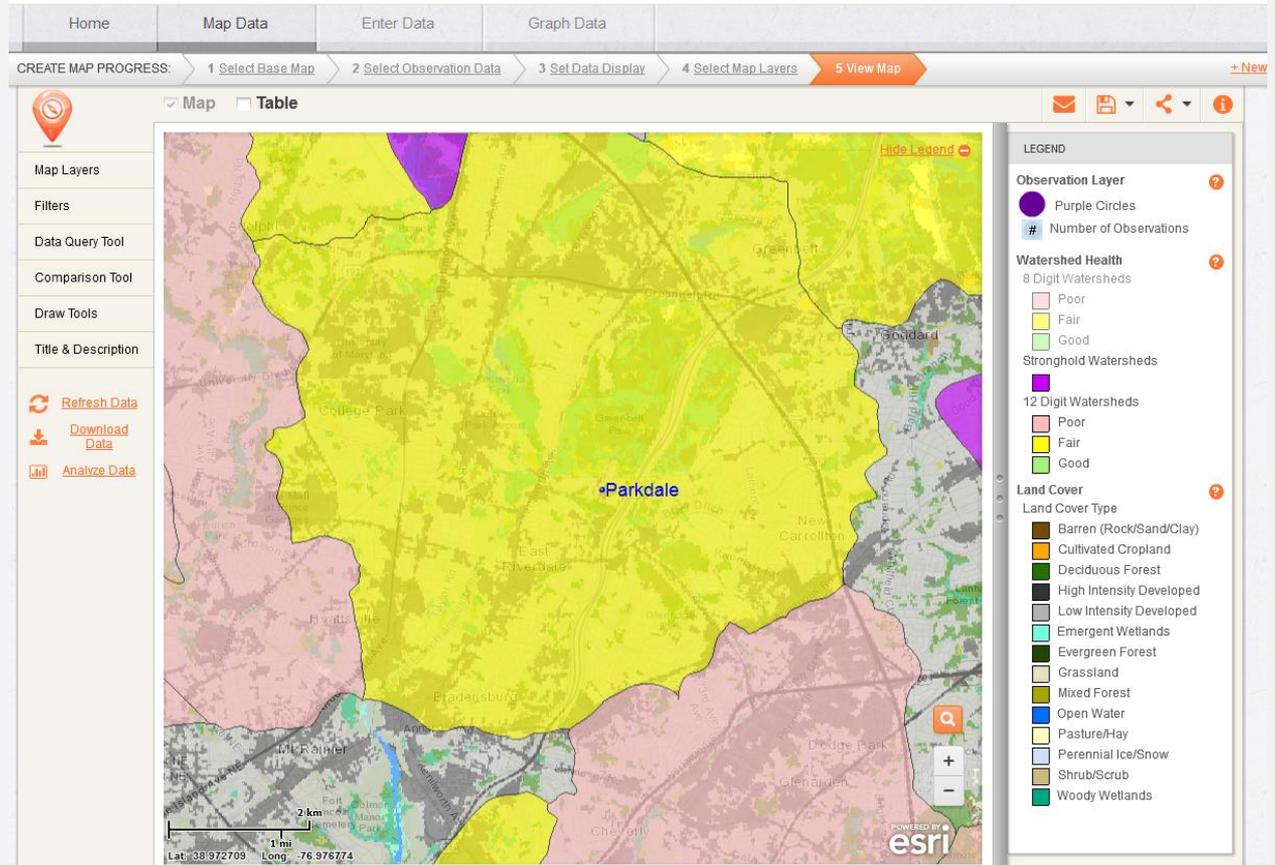


Match the color of your watershed with the colors on the legend. What is the health of your watershed?

Usa el mismo color de la leyenda para tu cuenca. ¿Cuál es el estado sanitario de tu cuenca?

Is it what you expected? If not, do you have ideas on why it is different?

¿Es lo que esperabas? Si no lo es, ¿se te ocurre alguna idea acerca de por qué es diferente?



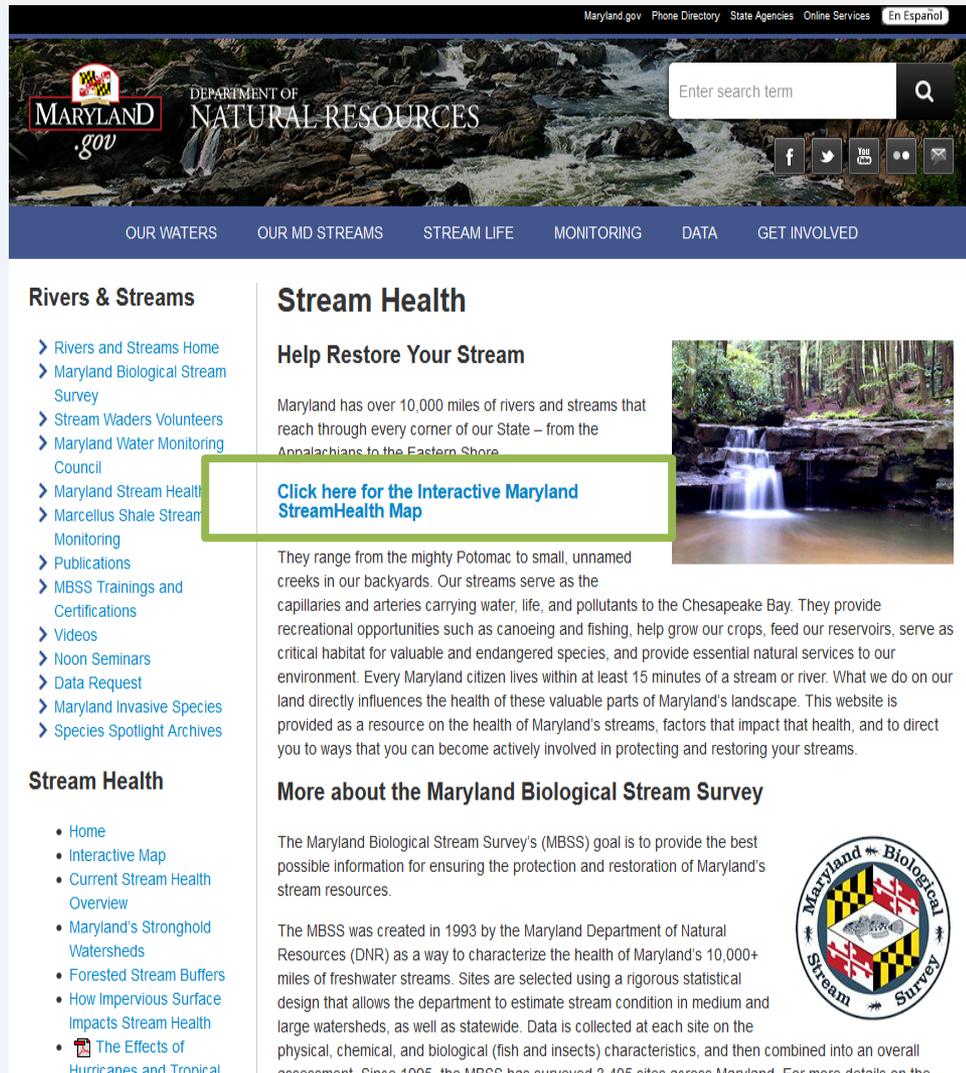
7b. Maryland DNR Stream Health

Estado sanitario de los cursos de agua del Depto. de Recursos Naturales de Maryland

- Go to: <http://dnr.maryland.gov/streams/Pages/streamhealth/default.aspx>
Visita:

- Click on “Click here for the Interactive Maryland Stream Health Map”

Haz clic en "Click here for the Interactive Maryland Stream Health Map" (haz clic aquí para acceder al mapa interactivo del estado sanitario de los cursos de agua de Maryland)



Maryland.gov Phone Directory State Agencies Online Services En Español

DEPARTMENT OF NATURAL RESOURCES

OUR WATERS OUR MD STREAMS STREAM LIFE MONITORING DATA GET INVOLVED

Rivers & Streams

- › Rivers and Streams Home
- › Maryland Biological Stream Survey
- › Stream Waders Volunteers
- › Maryland Water Monitoring Council
- › Maryland Stream Health
- › Marcellus Shale Stream Monitoring
- › Publications
- › MBSS Trainings and Certifications
- › Videos
- › Noon Seminars
- › Data Request
- › Maryland Invasive Species
- › Species Spotlight Archives

Stream Health

- Home
- Interactive Map
- Current Stream Health Overview
- Maryland's Stronghold Watersheds
- Forested Stream Buffers
- How Impervious Surface Impacts Stream Health
- The Effects of Hurricanes and Tropical

Stream Health

Help Restore Your Stream

Maryland has over 10,000 miles of rivers and streams that reach through every corner of our State – from the Appalachians to the Eastern Shore.

[Click here for the Interactive Maryland StreamHealth Map](#)

They range from the mighty Potomac to small, unnamed creeks in our backyards. Our streams serve as the capillaries and arteries carrying water, life, and pollutants to the Chesapeake Bay. They provide recreational opportunities such as canoeing and fishing, help grow our crops, feed our reservoirs, serve as critical habitat for valuable and endangered species, and provide essential natural services to our environment. Every Maryland citizen lives within at least 15 minutes of a stream or river. What we do on our land directly influences the health of these valuable parts of Maryland's landscape. This website is provided as a resource on the health of Maryland's streams, factors that impact that health, and to direct you to ways that you can become actively involved in protecting and restoring your streams.

More about the Maryland Biological Stream Survey

The Maryland Biological Stream Survey's (MBSS) goal is to provide the best possible information for ensuring the protection and restoration of Maryland's stream resources.

The MBSS was created in 1993 by the Maryland Department of Natural Resources (DNR) as a way to characterize the health of Maryland's 10,000+ miles of freshwater streams. Sites are selected using a rigorous statistical design that allows the department to estimate stream condition in medium and large watersheds, as well as statewide. Data is collected at each site on the physical, chemical, and biological (fish and insects) characteristics, and then combined into an overall assessment. Since 1995, the MBSS has surveyed 2,405 sites across Maryland. For more details on the



Enter the name of your stream or your school location in the search box.

Ingresa el nombre de tu curso de agua o la ubicación de tu escuela en el cuadro de búsqueda.

Streams that have been assessed are shown in colors or as triangles. Click on these symbols to learn more. It is possible that your stream has yet to be assessed.

Los cursos de agua ya evaluados se muestran en colores o como triángulos. Haz clic en estos símbolos para obtener más información. Es posible que tu curso de agua aún se encuentre pendiente de evaluación.

What is the health of your stream?

¿Cuál es el estado sanitario de tu curso de agua?

*Is it what you expected?
If not, do you have ideas on why it is different?*

¿Es lo que esperabas? Si no lo es, ¿se te ocurre alguna idea de por qué es diferente?

