



fieldscope

USER GUIDE

VERSION 1.0.1

APRIL 2019



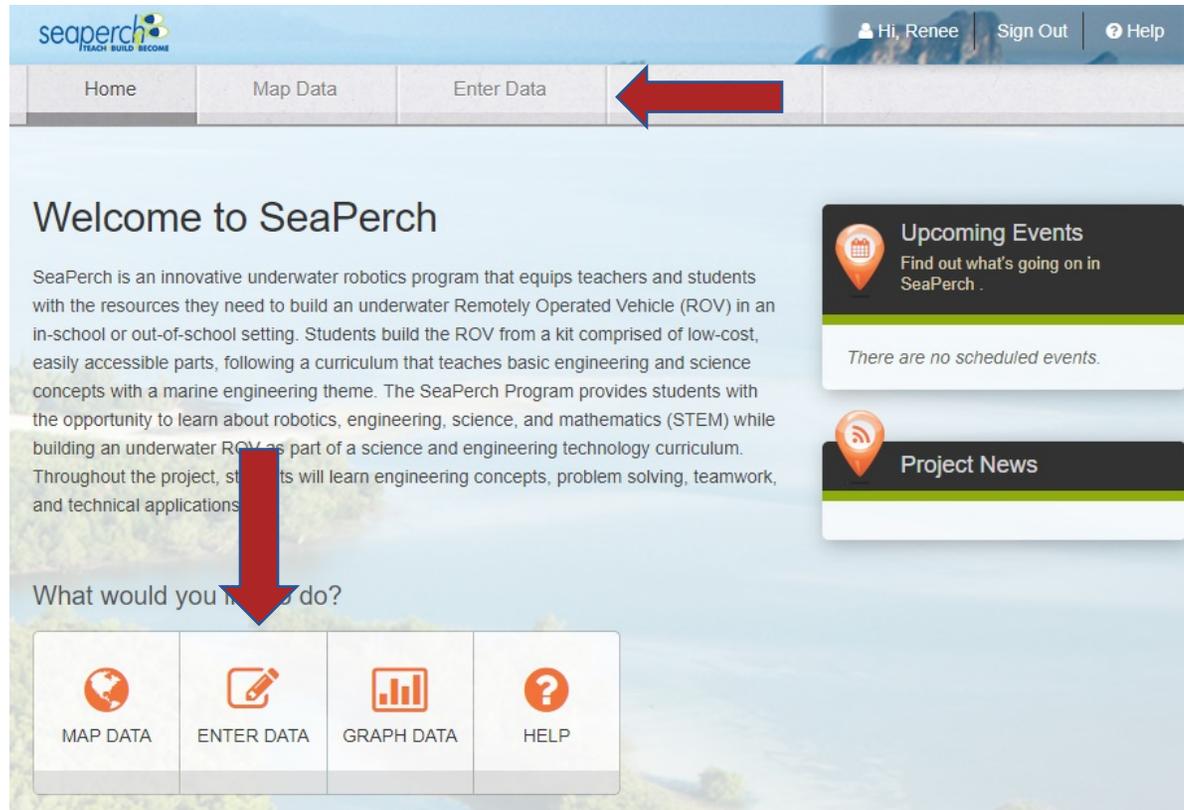
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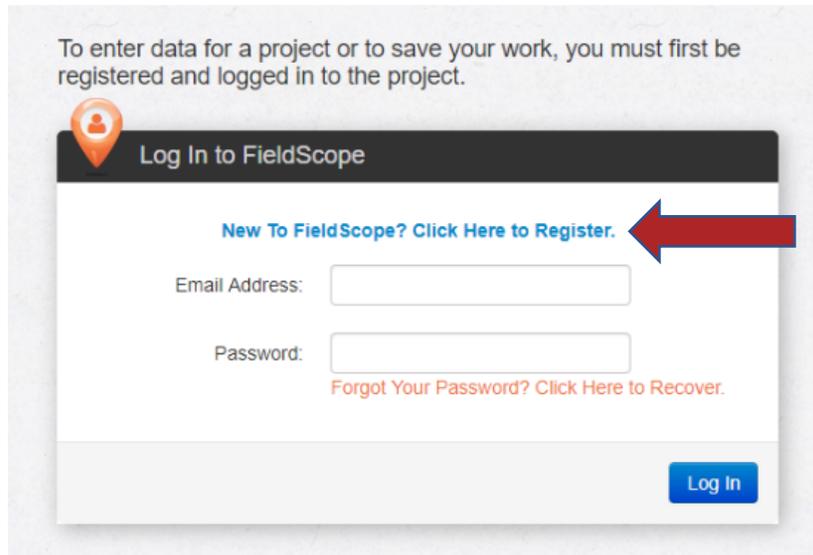
Use this illustrated guide to learn how to sign up for an account with FieldScope, add data from your SeaSense unit, and visualize and analyze it along with data from other SeaPerch/SeaSense users using maps and graphs.

1.0 Signing Up

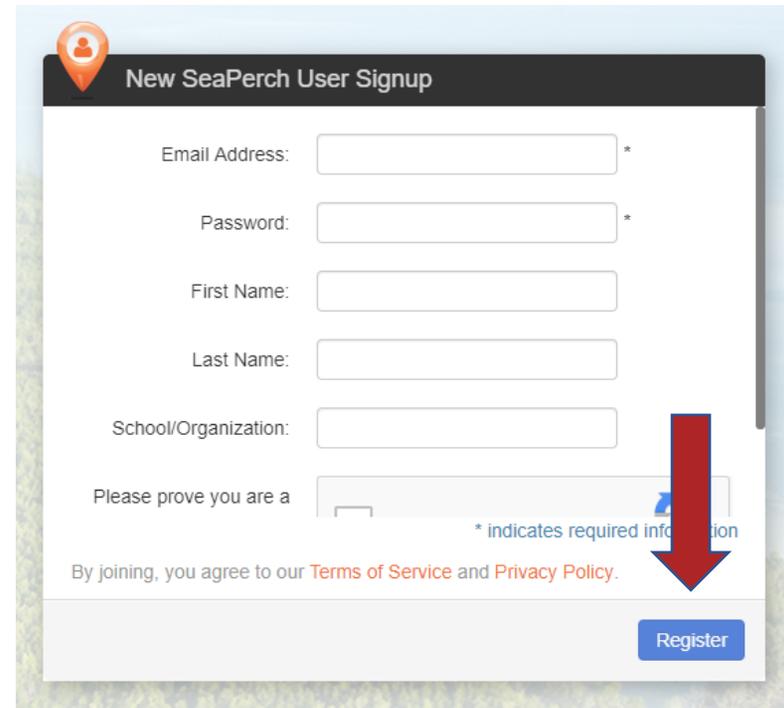
You can explore data that has already been added to a project in maps, tables, and graphs without signing in. However, if you would like to enter new data, edit data, or save the maps and graphs you create, you will need to set up an account. If you try to enter data without having an account:



You will be prompted to login to FieldScope. If you do not have a login, you may select "Click Here to Register:"

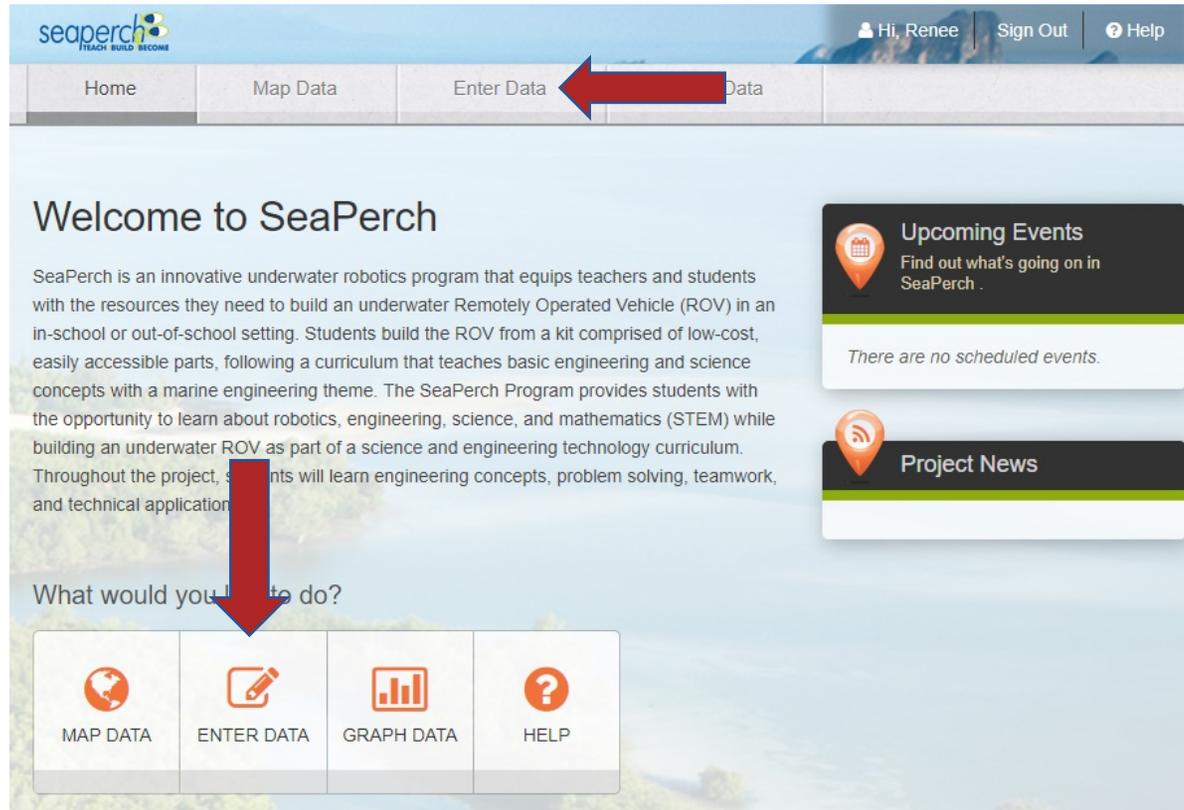


You will be prompted to enter your information. You may review the Terms of Service and Privacy Policy and select "Register" to proceed.

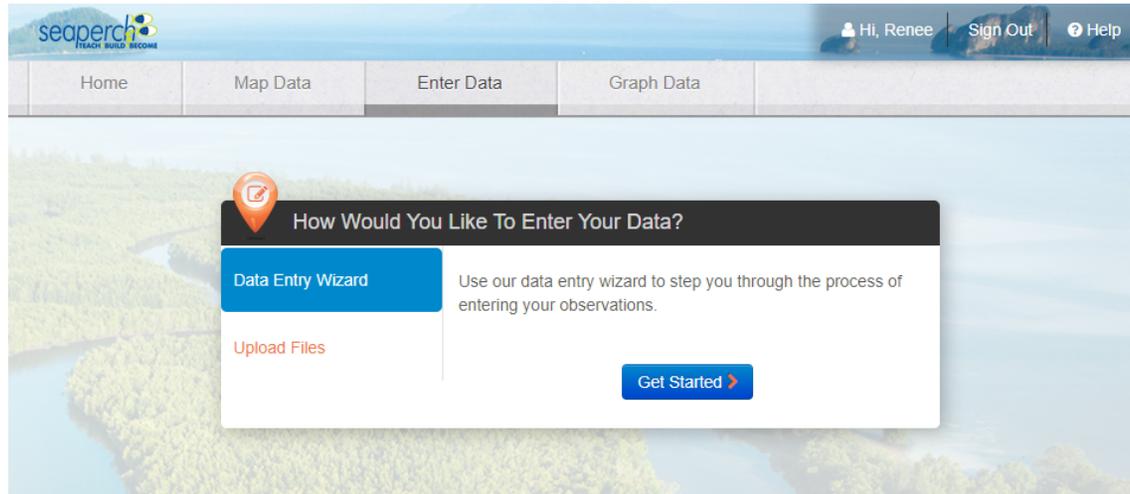


2.0 Entering Data

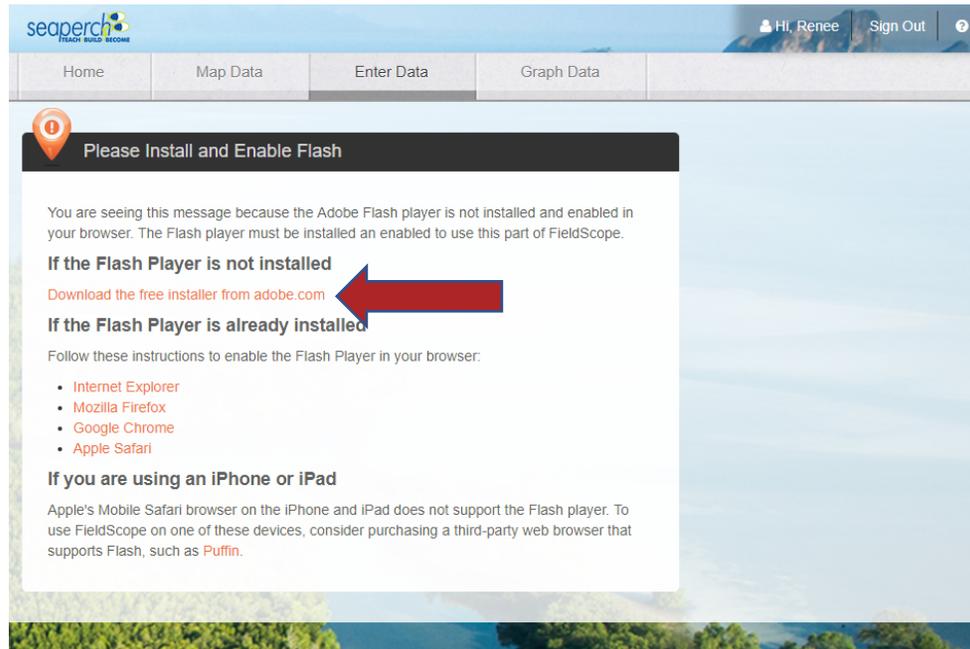
To enter data, select one of the two “Enter Data” buttons available on the main page.



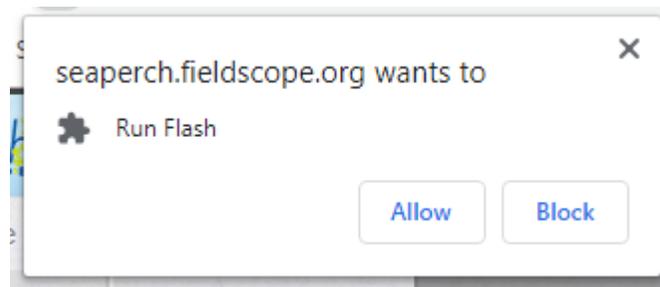
If you are not signed in already, you may be prompted to sign in. If you are taken to this screen, you can click on “Get Started” to begin the data entry process:



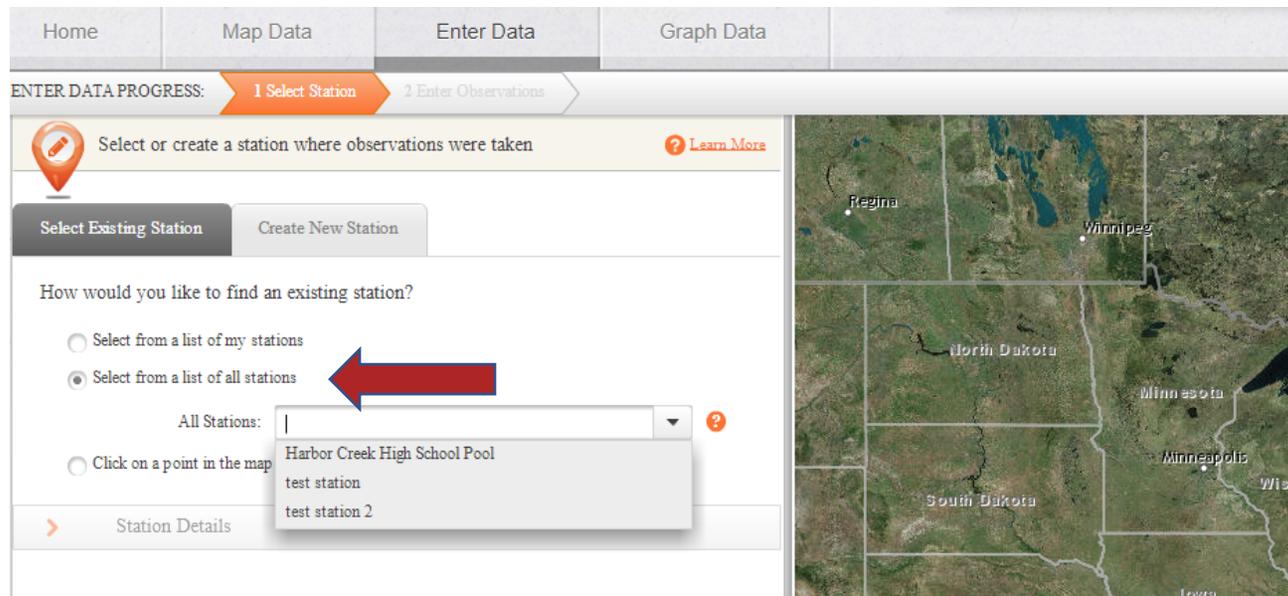
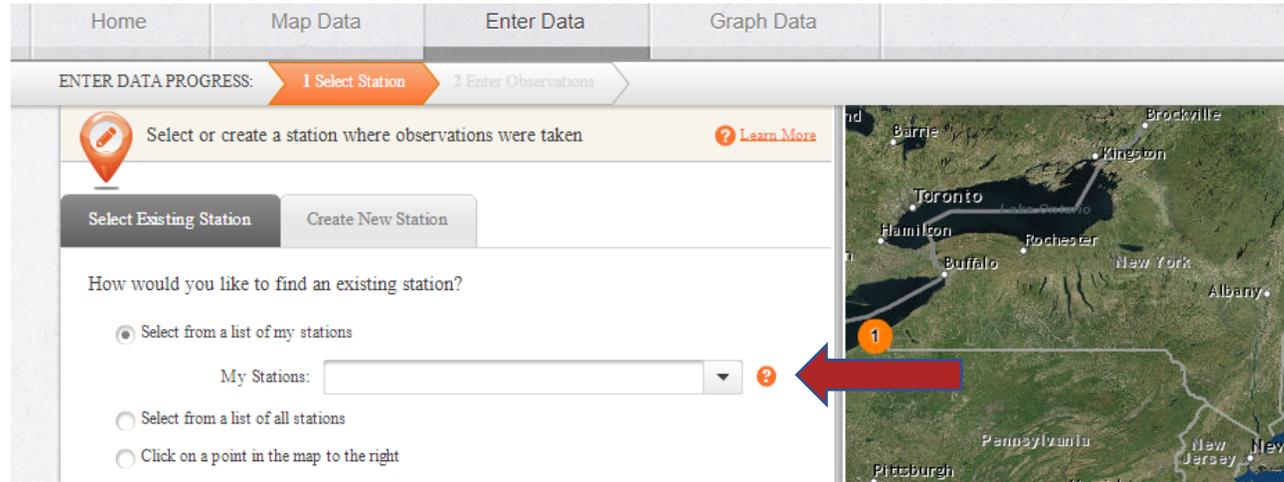
You may be prompted to install and enable Flash. Click on “Download the free installer from adobe.com” in order to proceed, even if you already have Flash installed on your computer. Most users already have Flash installed, so simply click this. Proceed to the next step in this document to see more on this.



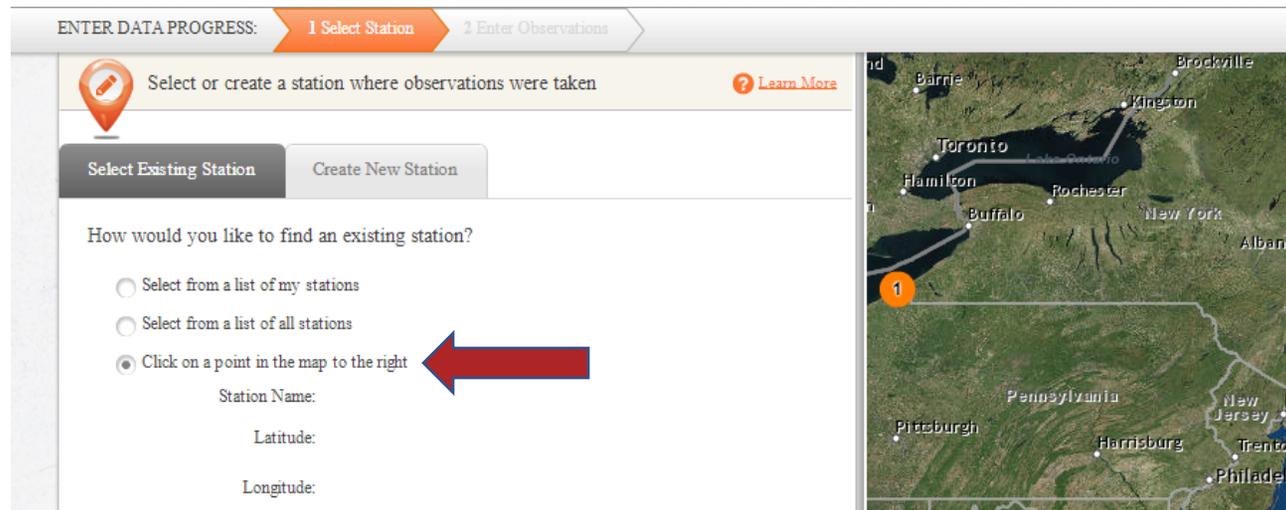
You will receive the following pop-up. Click “allow.” Now the Flash will load, as normal.



Now you can begin to enter your data. The screen below will appear. If you are uploading data to a location where you have uploaded data before, you can select it from the list of My Stations, or from a list of all stations (see the second option in the screenshot below).



Alternatively, you can select the option to “click a point in the map to the right” and simply select the existing circle on the map that you want to upload data to.



If you are uploading data at a location for the first time, select the “Create New Station” tab at the top of the observation section to generate a new station location. Give this new location a name in the Station Name field. Use the map to pan and zoom to the correct location, and then click on the map and the latitude and longitude fields will be populated. Your new station will appear on the map as a black dot. You may also use the “Enter GPS Coordinates” option to enter the latitude and longitude information manually.

The screenshot displays the 'Enter Data' section of the fieldscope application. At the top, there are navigation tabs: Home, Map Data, Enter Data (selected), and Graph Data. Below the tabs is a progress indicator showing '1 Select Station' and '2 Enter Observations'. The main heading is 'Select or create a station where observations were taken'. Two options are available: 'Select Existing Station' and 'Create New Station', with the latter circled in red. Under 'Create a new station:', there are two methods: 'Click on a point in the map to the right' (selected) and 'Enter GPS Coordinates'. The 'Name' field contains 'New Test Station'. The 'Latitude' is 39.330198 and 'Longitude' is -76.130362. A 'Photos' field with an 'Add Photo...' button is also present. The 'Survey Site Information' section includes dropdown menus for 'Land Use' and 'Water Body Type'. On the right, a satellite map shows a black dot representing the station location, with a red arrow pointing to it. Other map labels include Lancaster, Baltimore, and Wilmington.

You should also enter Survey Site Information, indicating the type of land the station is located on (Land Use) and the body of water at which your station is located (Water Body Type). Click on “Save Station” to move on.

Survey Site Information

Land Use:

Water Body Type:

Suburban

Urban

Other...

Survey Site Information

Land Use:

Water Body Type:

River/stream

Pond/lake

Wetland

Estuary

Marine offshore

Marine coastal/beach

Reservoir

Pool

Other

Once you have selected or created your station, click on “Enter Observations” in order to enter your data. When you are done, click on “Save” in the lower right-hand corner of the screen.


[? Learn More](#)

Observation Date: 2019-04-11 

Photos: Add Photo...

▼ Survey Conditions

Observation Time: : AM PM

Air Temperature: °F ▼

Precipitation During Visit: ▼

Precipitation in the last 48 hours: ▼

Weather Conditions: ▼

▼ SeaSense Data - ****Use "+" Sign to Add Data at Different Depths****

Depth: m ▼

Use "+" sign to add a new set of fields for your additional depth readings.

Absolute pressure : kPa ▼

Water temperature : °F ▼

Turbidity: NTU ▼

Specific Conductivity: mS/cm ▼ - +

[Previous](#)
[+ New Observation](#)
Save



The SeaSense Data section is where you will add data from your SeaSense spreadsheets. You should enter data for each of the 5 fields at for the following 3 depths:

1. Minimum depth
2. Median depth
3. Maximum depth

For each depth, click on the plus sign in order to see a new set of fields to enter the next set of SeaSense data from your median depth, and for the maximum depth. Add all of your data before you click on "Save." You can choose to enter the 5 values for more than 3 depth readings, if you choose.

▼ SeaSense Data - ****Use "+" Sign to Add Data at Different Depths****

Depth: m ▼

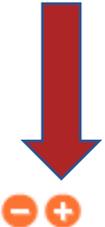
Use "+" sign to add a new set of fields for your additional depth readings.

Absolute pressure : kPa ▼

Water temperature : °F ▼

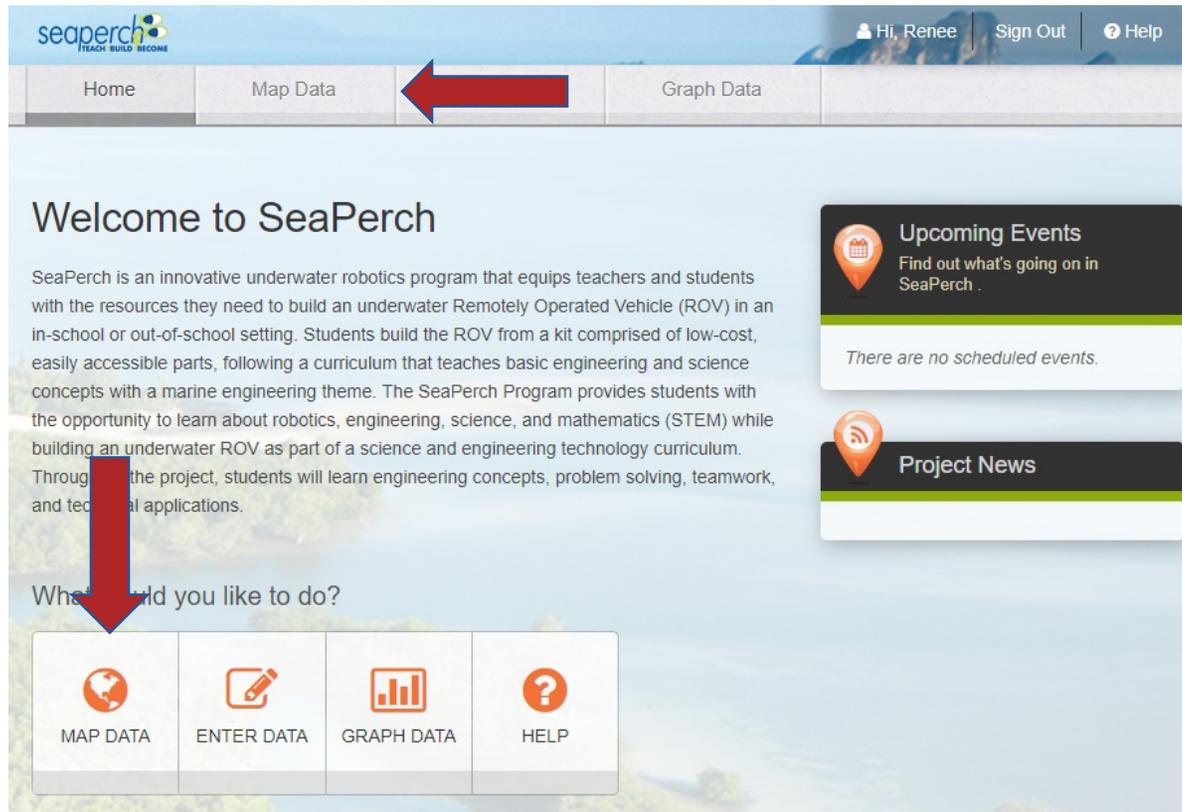
Turbidity: NTU ▼

Specific Conductivity: mS/cm ▼

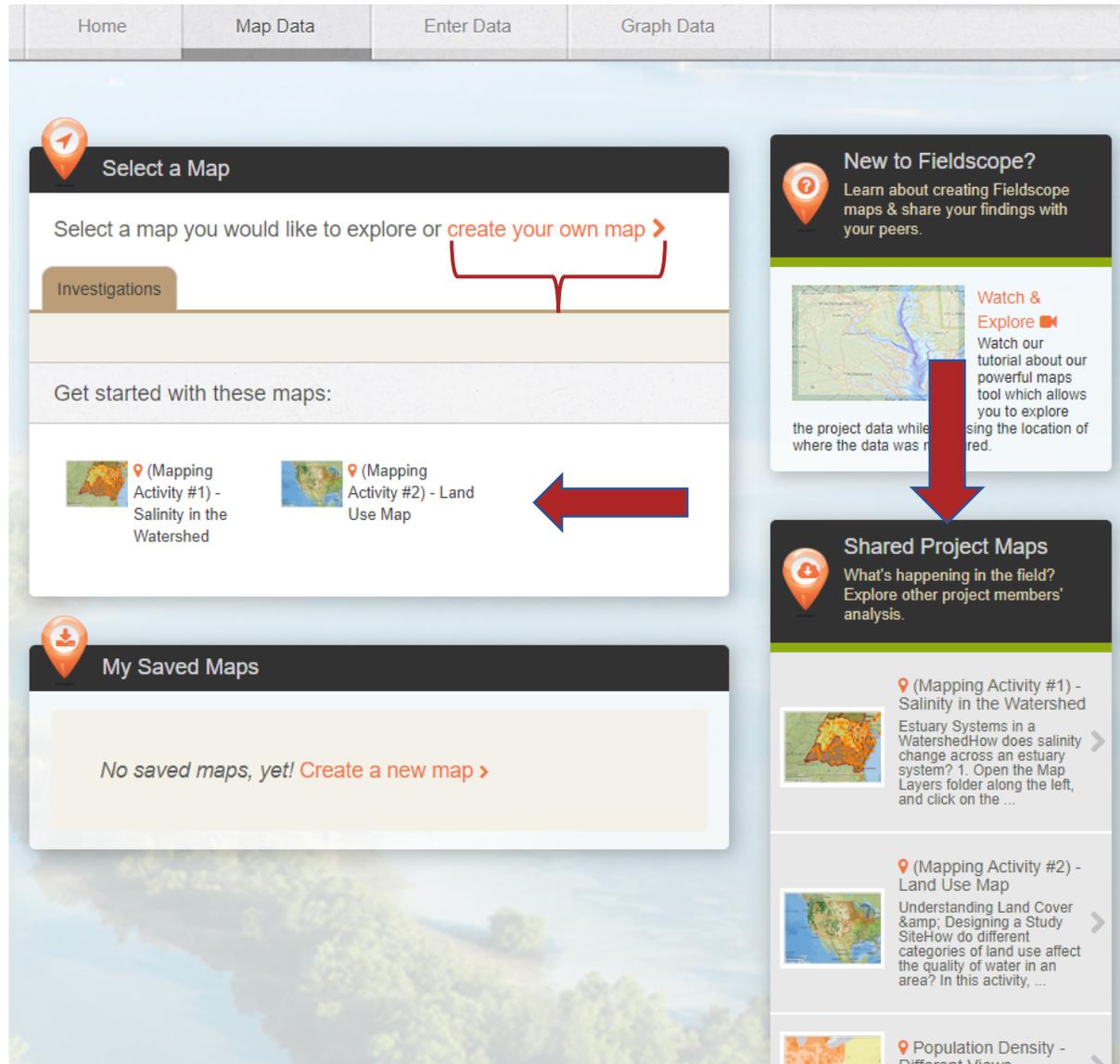


3.0 Mapping Data

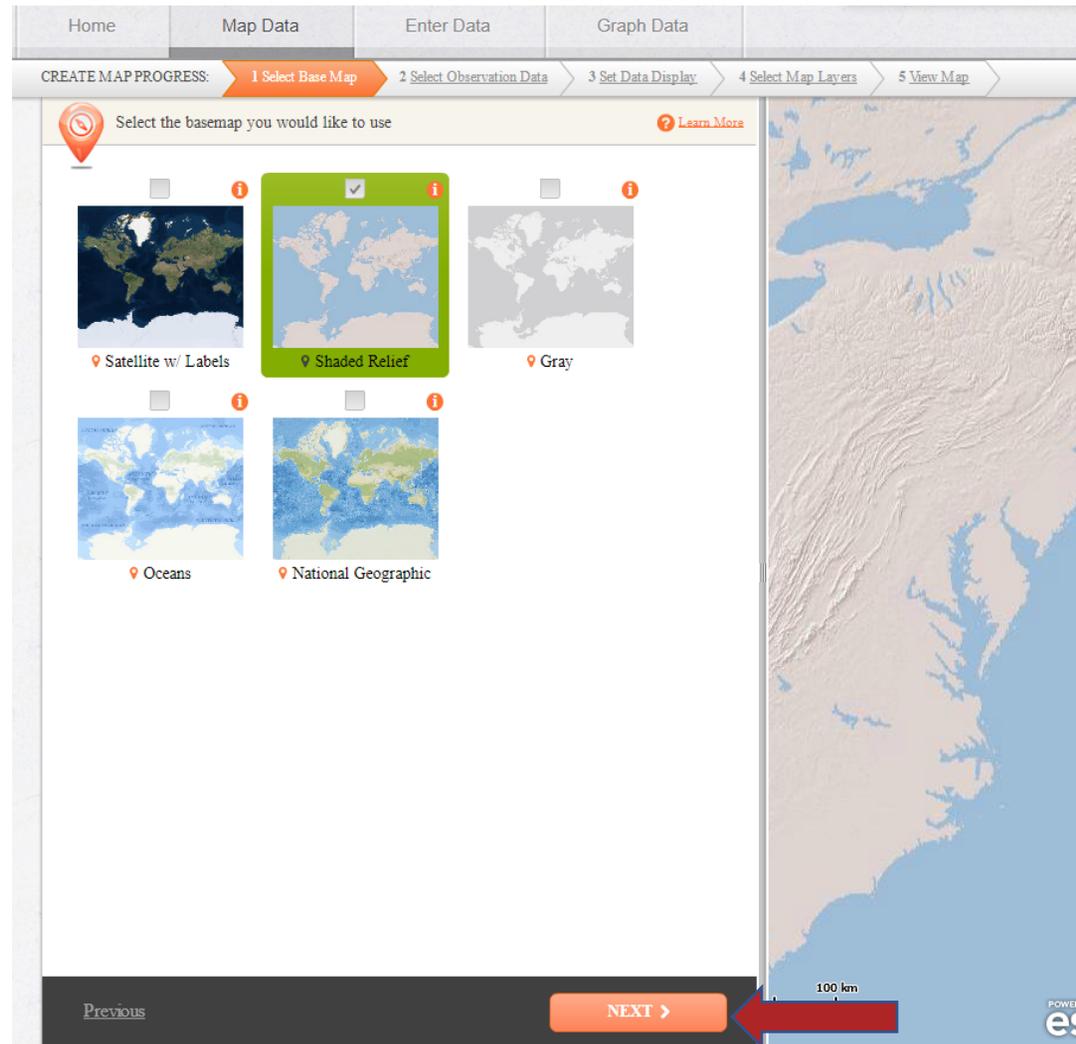
If you would like to view collected data in a map, click on one of the available “Map Data” buttons.



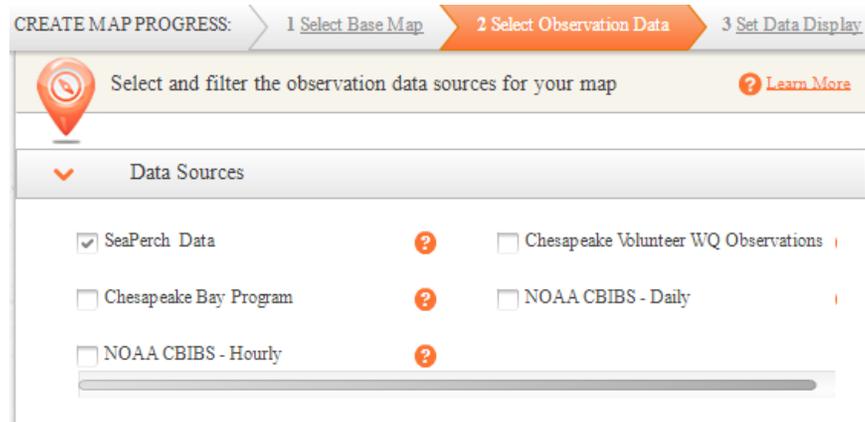
In the subsequent screen, you can click on “create your own map,” or utilize one of the premade maps in the center or right-hand side of your browser window.



As with entering data, you will be prompted to “Download the free installer from adobe.com.” Click on this in order to proceed, even if you already have Flash installed on your computer. Select the type of base map you would like, and then click on “next.”



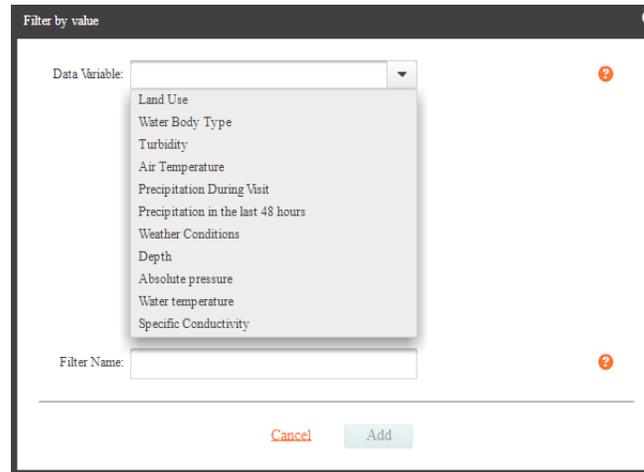
To do this, select which data source(s) to pull information from.



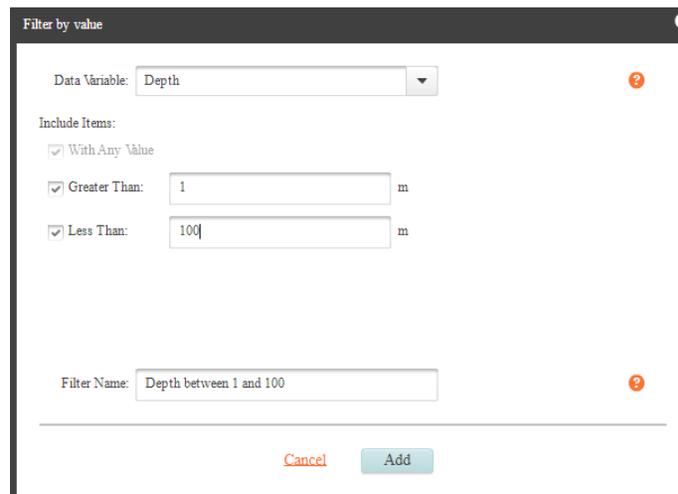
You may filter your map based on different parameters (value, area, date, observer).



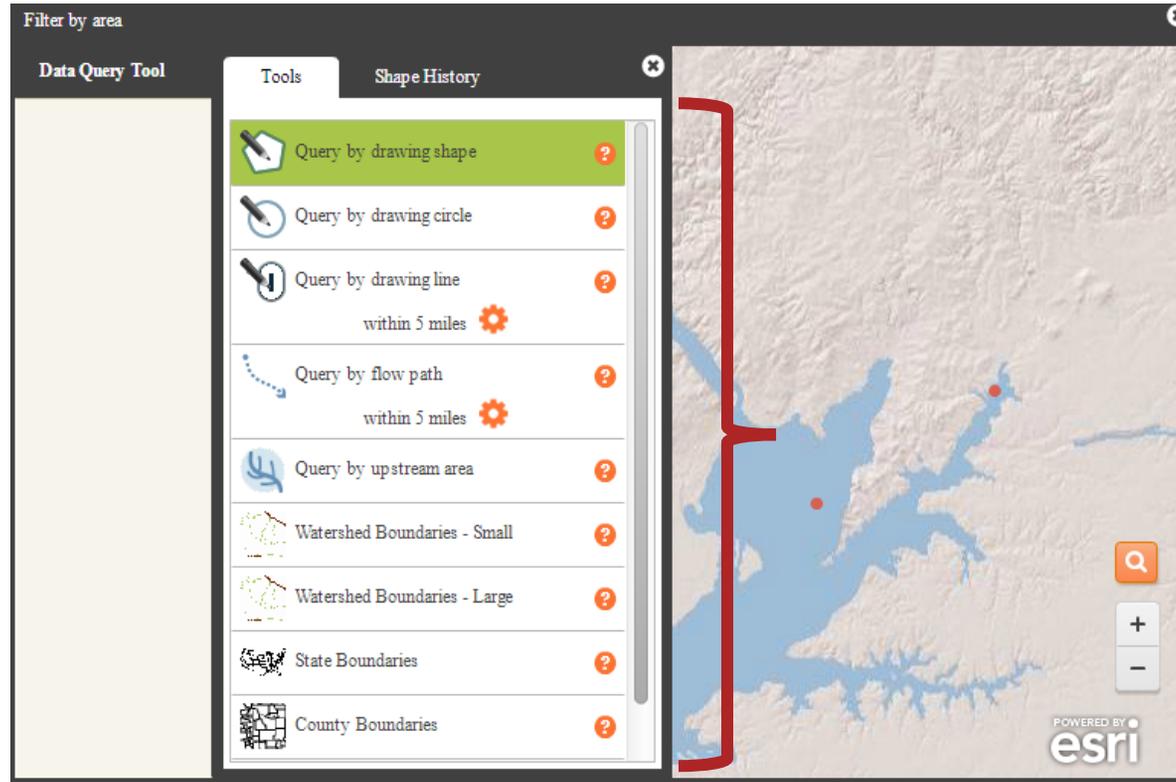
Filtering by value will prompt the following pop-up screen. You can use the drop-down box to filter based on what variable you would like to view:



You will be prompted to decide what levels of your selected variable to display. For instance, if you wanted to display depth, you could select levels between certain amounts, and only observations with data inside of those parameters would be displayed on your map. Click on “Add” when you have determined the data you want displayed:

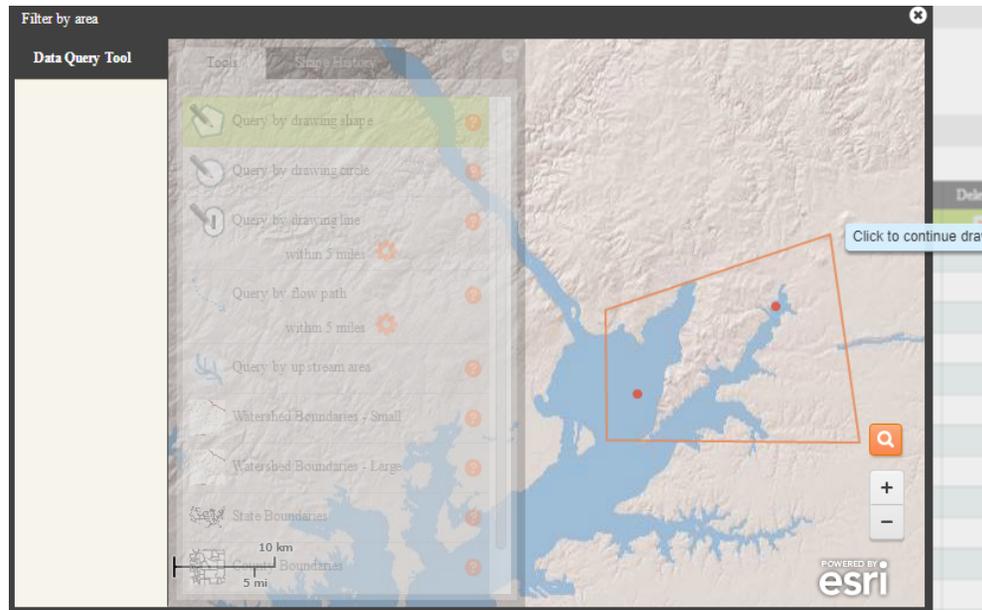


You can also filter your results by area, utilizing various drawing tools, or by watershed, state, county, or national physiographic province boundaries. If you need to Zoom in on the map, it is easier to find the general area you would like to view prior to selecting a drawing tool:

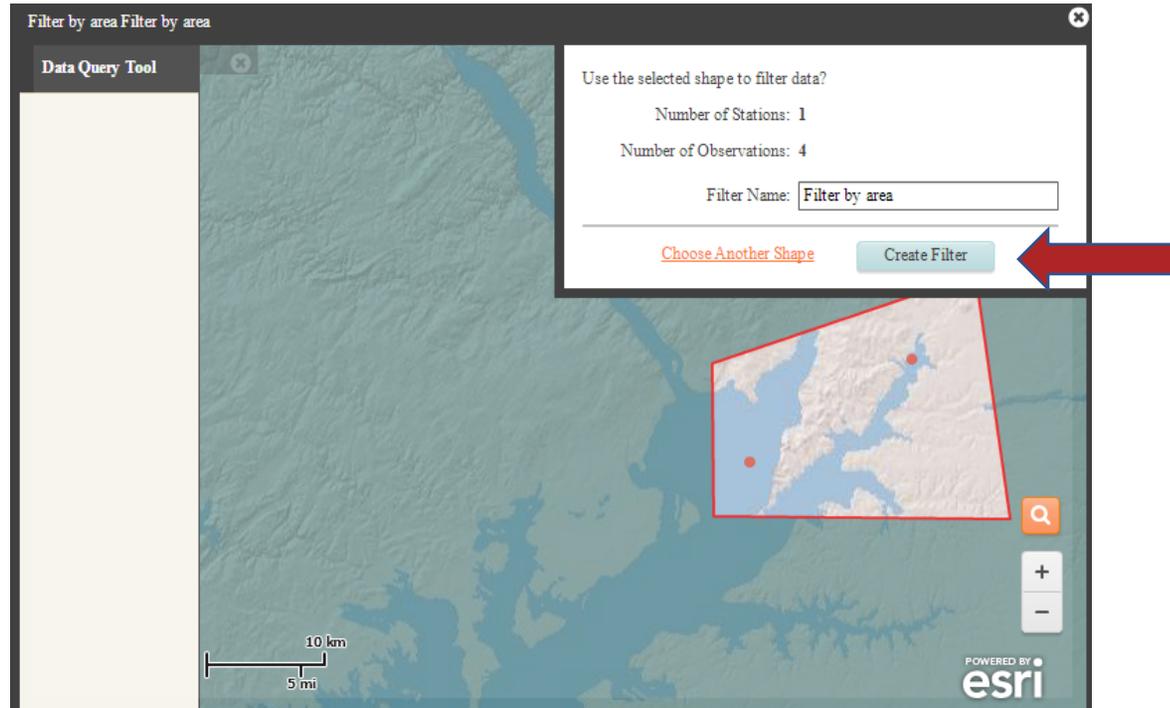


Drawing tools have different functionality:

- To draw a shape or a line, click on the map as you draw around the area you would like to query. When you are done, double-click your mouse to complete the shape.
- To draw a circle, click on the map in the place that you would like as the center of your shape. When you are done, lift up on the mouse button.



Once you are done creating your shape, you will receive the following view. You will see how many stations and observations are in the area you selected. You may name this filter or create another filter by clicking on “Choose Another Shape.” If you are satisfied with your area, click on “Create Filter.”



To further refine your search, you may also filter by date.

Filter by date

Include Items:

After: 2019-04-11 

Before: 2019-04-11

Filter Name: ?

[Cancel](#) [Add](#)

Finally, you may also filter your search by a particular observer (user, organization, or type).

Filter by observer

Filter By: ?

- User
- Organization
- User Type

Filter Name: ?

[Cancel](#) [Add](#)

You can choose how your data is displayed by using the dropdown menu. Again, select “Next” to move on.

The screenshot shows the '3 Set Data Display' step of the 'CREATE MAP' process. The main heading is 'Select how the data will be displayed on the map'. Under 'Observation Display Options', the 'Display Observations Using' dropdown is open, showing 'Orange Circles' as the selected option. Other options include 'Color by Salinity', 'Color by Water Temperature', 'Color by Dissolved Oxygen', 'Color by Nitrate', 'Color by Turbidity', 'Size by Conductivity', 'Color by Air Temperature', 'Size by Stream Depth', 'Size by Dissolved Oxygen', and 'Color by Relative Humidity'. A red arrow points to the 'Orange Circles' option. Below this, there are sections for 'Display Count As', 'Display Observation Photo', 'Display Observation Document', and 'Displayed Variables'. At the bottom, a 'Previous' button is on the left and a 'NEXT >' button is on the right, with a red arrow pointing to it.

You may also add a layer to your map.

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 [Learn More](#)

[+ Expand All](#) | [- Collapse All](#)

Map Layers

Add



Population Density
Population density is a measure of how many people are living in a certain area. This map shows the amount of people ...

Add



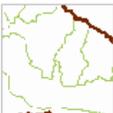
Impervious Surfaces
Areas that are completely impervious to water versus those where at least some water soaks in....

Add



Population Density
Population density in the United States in 2012. Population density is calculated by dividing the total population count ...

Added ✓



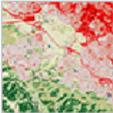
Chesapeake Bay Watersheds
The Chesapeake Bay has a watershed that contains a network of over 100,000 rivers and streams that transport water ...

Add



U.S. Watershed Boundaries
Watersheds are areas that drain to surface water bodies, including lakes, rivers, estuaries, wetlands, streams, and the sur...

Add



Land Cover
This layer shows different types of land cover, including built-up and natural areas. ...

SELECTED LAYERS:

Clear

Top: Chesapeake Bay Watersheds

Bottom: Select bottom layer

INCLUDED LAYERS:

Observation Layer
Chesapeake Volunteer WQ Observations:...

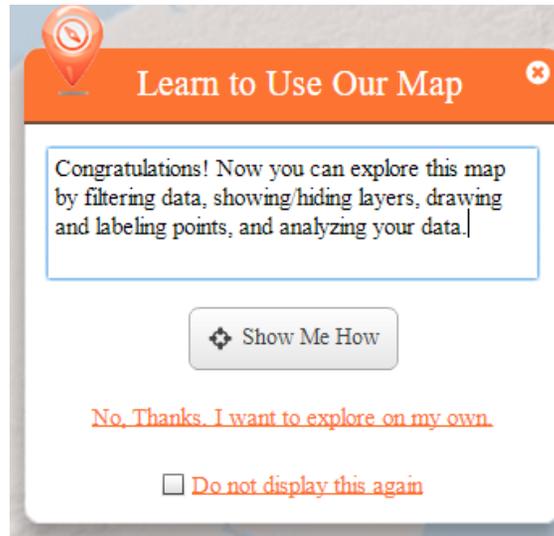
BASE MAP:

BASE MAP:
This map portrays surface elevation, or terrain, as shaded relief. No place name...

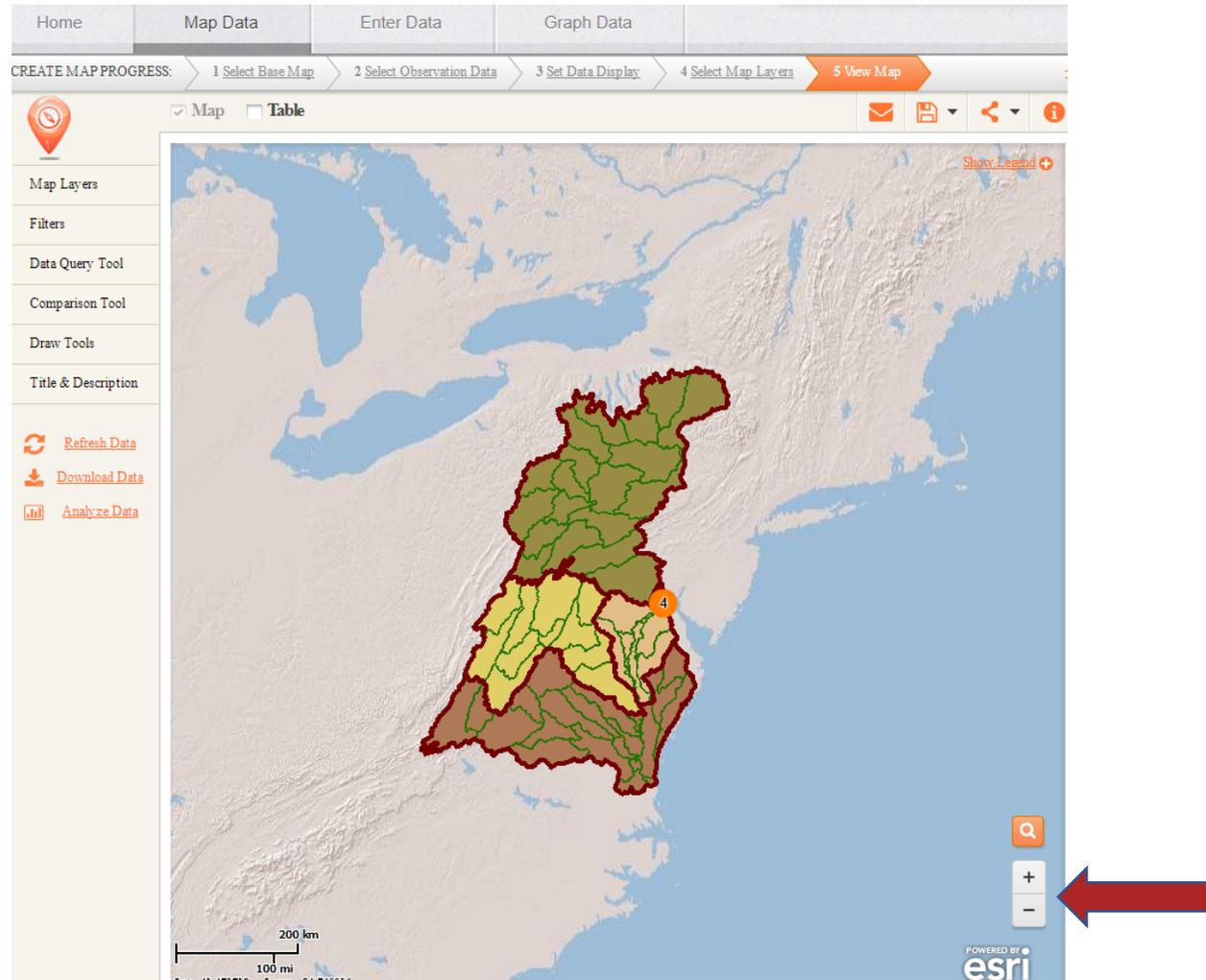
SELECTED MAP VIEW:

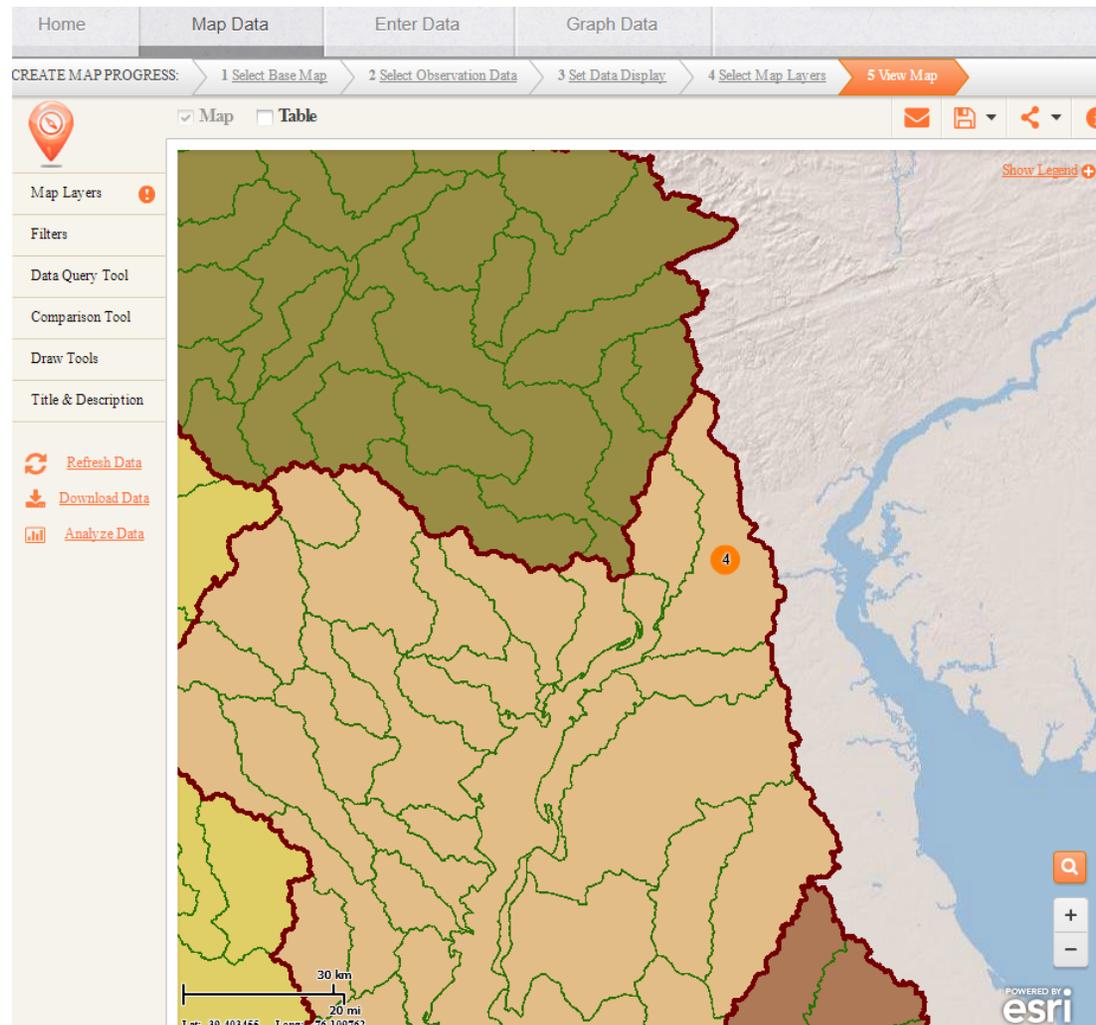


You will receive this box. If you would not like a demonstration, you may click, "No, thanks. I want to explore on my own."

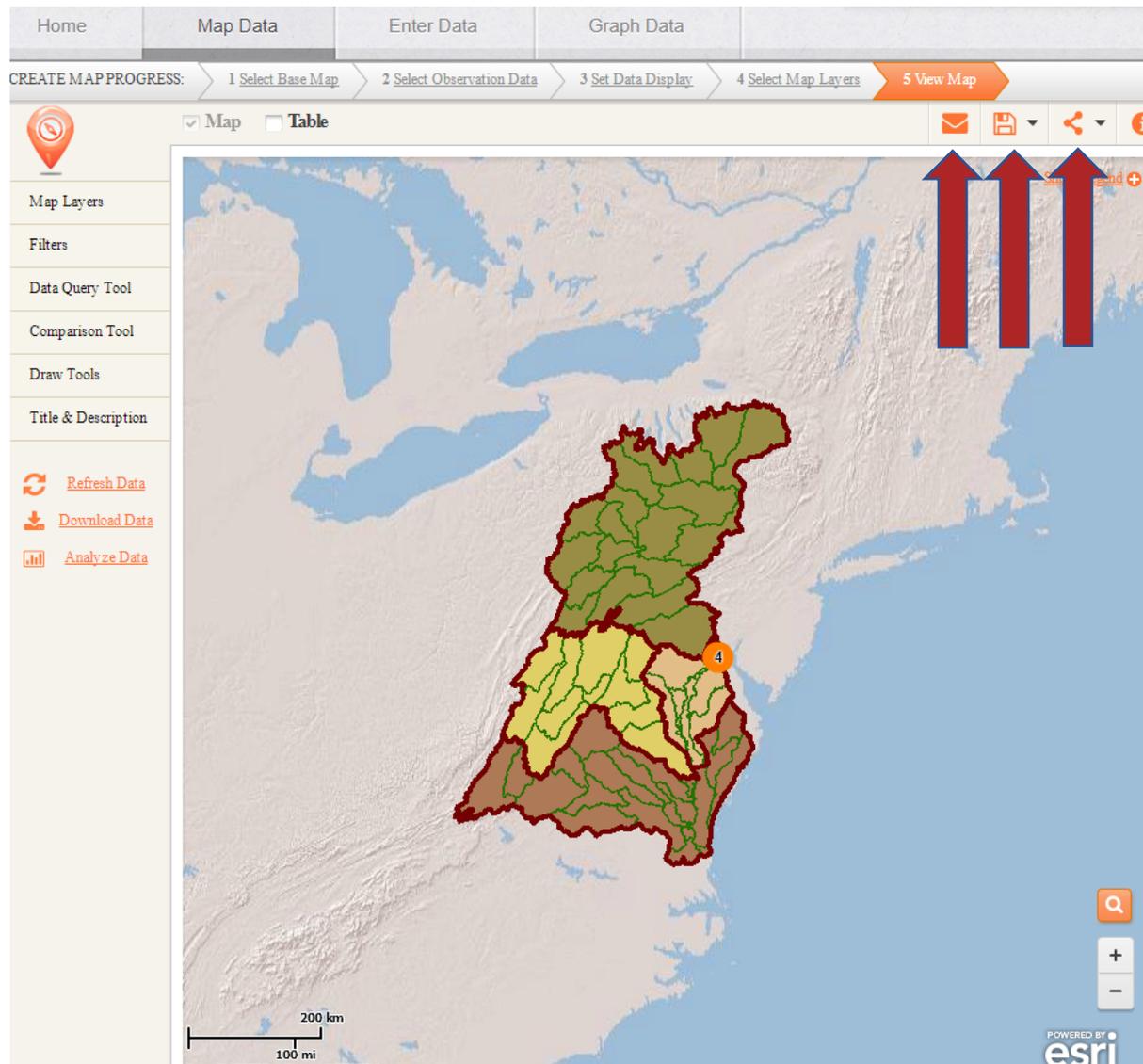


Your map will be generated. You can use the zoom in and out buttons or your mouse to zero in on the area you would like to view.



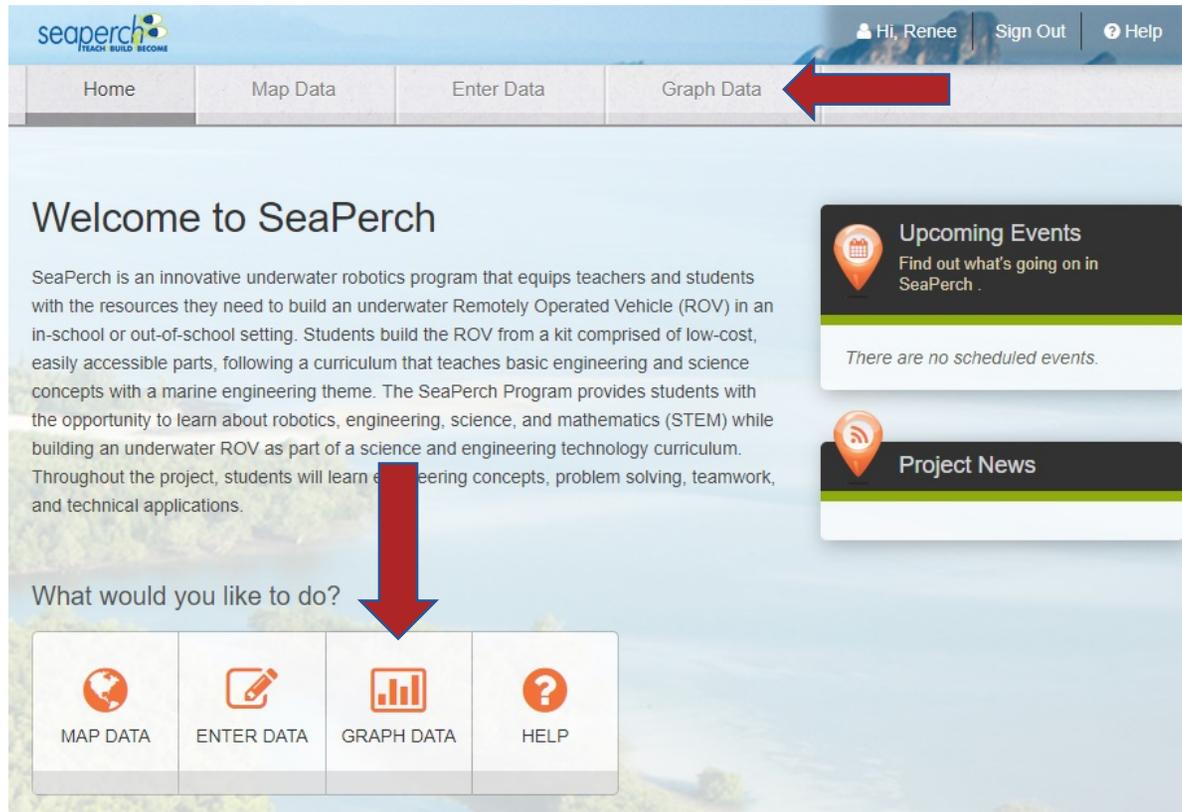


If you would like to save or share your map, you can use the buttons in the upper right-hand corner of your screen.



4.0 Graphing Data

To create a graph, start on the main page, where you can select either of the below “Graph Data” options.



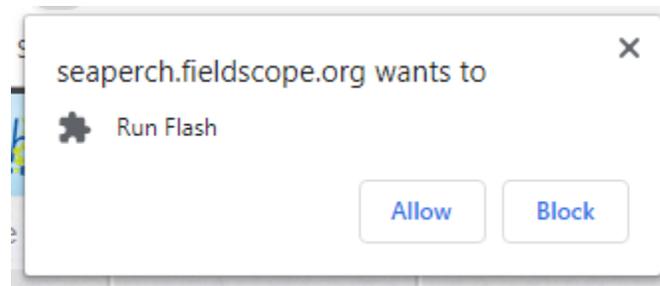
As with maps, you can choose to open a pre-made graph, or chose to create your own.

The screenshot displays the FieldScope web interface. At the top, there is a navigation bar with the 'seaperch' logo and the tagline 'TEACH BUILD BECOME'. The user is logged in as 'Hi, Renee' with options for 'Sign Out' and 'Help'. The main navigation menu includes 'Home', 'Map Data', 'Enter Data', and 'Graph Data'. The 'Graph Data' section is active, showing a 'Select a Graph' panel with a 'Create a graph using one of our examples or start from the beginning >' link. Below this are 'Exploring Big Data' and 'Get started with these graphs:' sections, each featuring three graph thumbnails: 'Dissolved Oxygen vs. Water Temperature', 'Conductivity - Upper Chesapeake Bay', and 'Conductivity - Lower Chesapeake Bay'. A 'My Saved Graphs' panel at the bottom left shows 'No saved graphs, yet! Create a new graph >'. On the right, a 'New to Fieldscope?' panel offers a 'Watch & Explore' tutorial. Below that is a 'Shared Project Graphs' panel listing various data series like 'Observations by Conductivity (µS/cm)', 'Dissolved Oxygen (mg/L) vs. Water Temperature (degC)', and 'Conductivity - Upper Chesapeake Bay'. Red arrows highlight the 'start from the beginning >' link and the 'Create a new graph >' link.

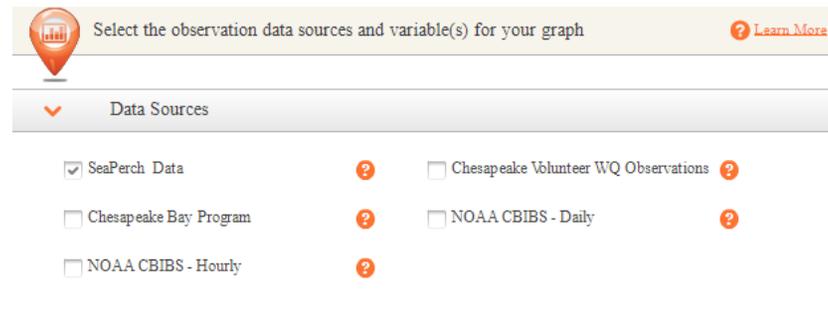
If you choose to create your own graph, clicking on “start from the beginning” will result in the following screen. As with entering data and maps, select “download the free installer from adobe.com.”



Once again, click “Allow” on the subsequent pop-up box:

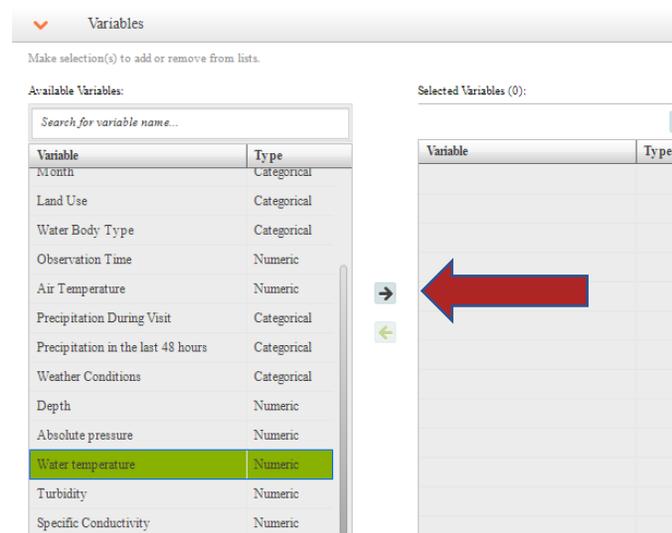


On the top half of the following screen, select the data sources you would like to use to create your graph.



On the bottom half of this screen, you can select the variables that you would like to explore in your graph. As you select the variables, the particular types of graphs that you may use to visualize that data will appear in black, rather than being greyed out (as seen below). If you select variables and all of the graphs become grey again, you have selected too many variables to visualize in graph format (the maximum is 3).

To select a variable for your map, highlight it in the variable list on the left and move it to the variable list on the right using the arrow button.



Once you have selected the graph you would like to make, you can click on “Next.”

Home | Map Data | Enter Data | Graph Data

CREATE GRAPH PROGRESS: 1 Select Variables | 2 Filter Data | 3 Define Axes and Labels | 4 View Graph

Select the observation data sources and variable(s) for your graph [Learn More](#)

Data Sources

- SeaPerch Data
- Chesapeake Bay Program
- NOAA CBIBS - Hourly
- Chesapeake Volunteer WQ Observations
- NOAA CBIBS - Daily

Variables

Make selection(s) to add or remove from lists.

Available Variables:

Variable	Type
Day of Year	Numeric
Month	Categorical
Land Use	Categorical
Water Body Type	Categorical
Observation Time	Numeric
Air Temperature	Numeric
Precipitation During Visit	Categorical
Precipitation in the last 48 hours	Categorical
Weather Conditions	Categorical
Depth	Numeric
Absolute pressure	Numeric
Turbidity	Numeric
Specific Conductivity	Numeric

Selected Variables (1):

Variable	Type
Water temperature	Numeric

AVAILABLE GRAPHS FOR SELECTED VARIABLES:

Scatter Plot
Displays two variables on an x,y axis
Select: 2 number based variables, 0-1 category variables
Graph Disabled: not enough numeric variables selected (minimum 2)

Histogram
Displays frequency of a variable in a bar chart
Select: 0-1 number based variables, 1-2 category variables

Time Series Plot
Displays one variables on an x axis (time) and a y axis
Select: 1-2 number based variables, 0 category variables

Range Comparison Plot
Displays ranges in a grid format
Select: 1 number based variables, 1-3 category variables
Graph Disabled: not enough categorical variables selected (minimum 1)

Previous **NEXT >**

Graph Options

- Scatter Plot
- Histogram
- Time Series Plot
- Range Comparison Plot



For this example, we're creating a graph of data about water temperature after April 11, 2019.

Filter by date

Include Items:

After: 2019-04-11 

Before: 2019-04-11

Filter Name: 

[Cancel](#)

Once you have all of your filters in place, click on “Next.” At this point, you can define what you would like the axes and labels of your map to be. You may also add a graph description.

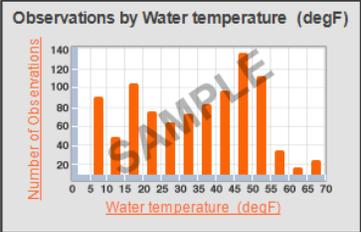
Home | Map Data | Enter Data | **Graph Data**

CREATE GRAPH PROGRESS: 1 Select Variables | 2 Filter Data | **3 Define Axes and Labels** | 4 View Graph

Verify the x and y-axis and graph labels [Learn More](#)

Graph Description:

Graph Title:



Y-axis label:

X-axis label:

X-axis variable:

GRAPH INFORMATION:

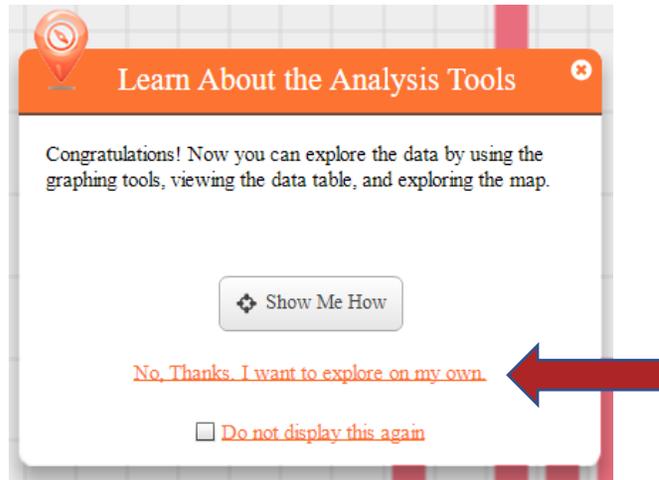
Graph Type: Histogram
 Number-based: Water temperature (degF)

DATA INFORMATION:

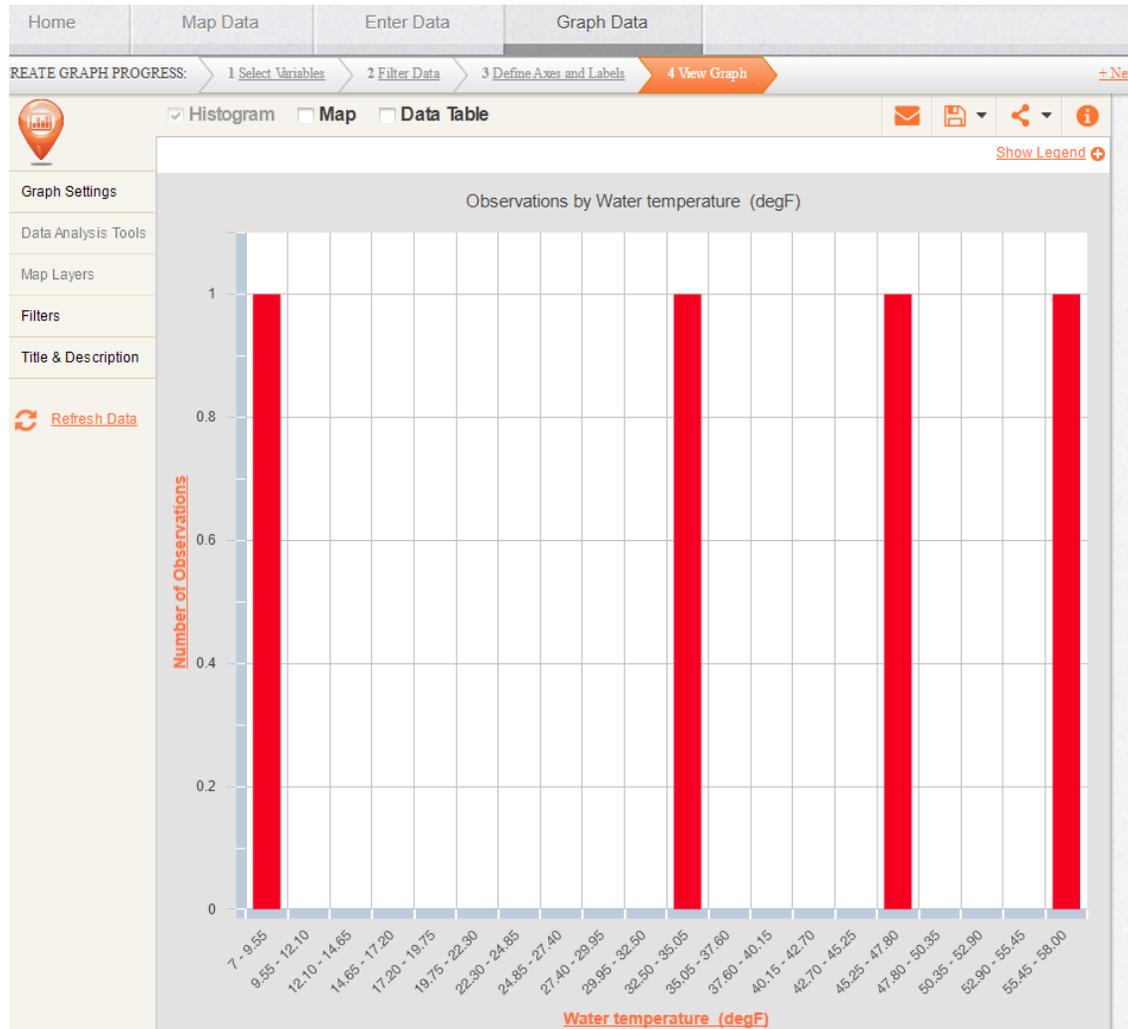
Number of Stations: 1
 Number of Observations: 4

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

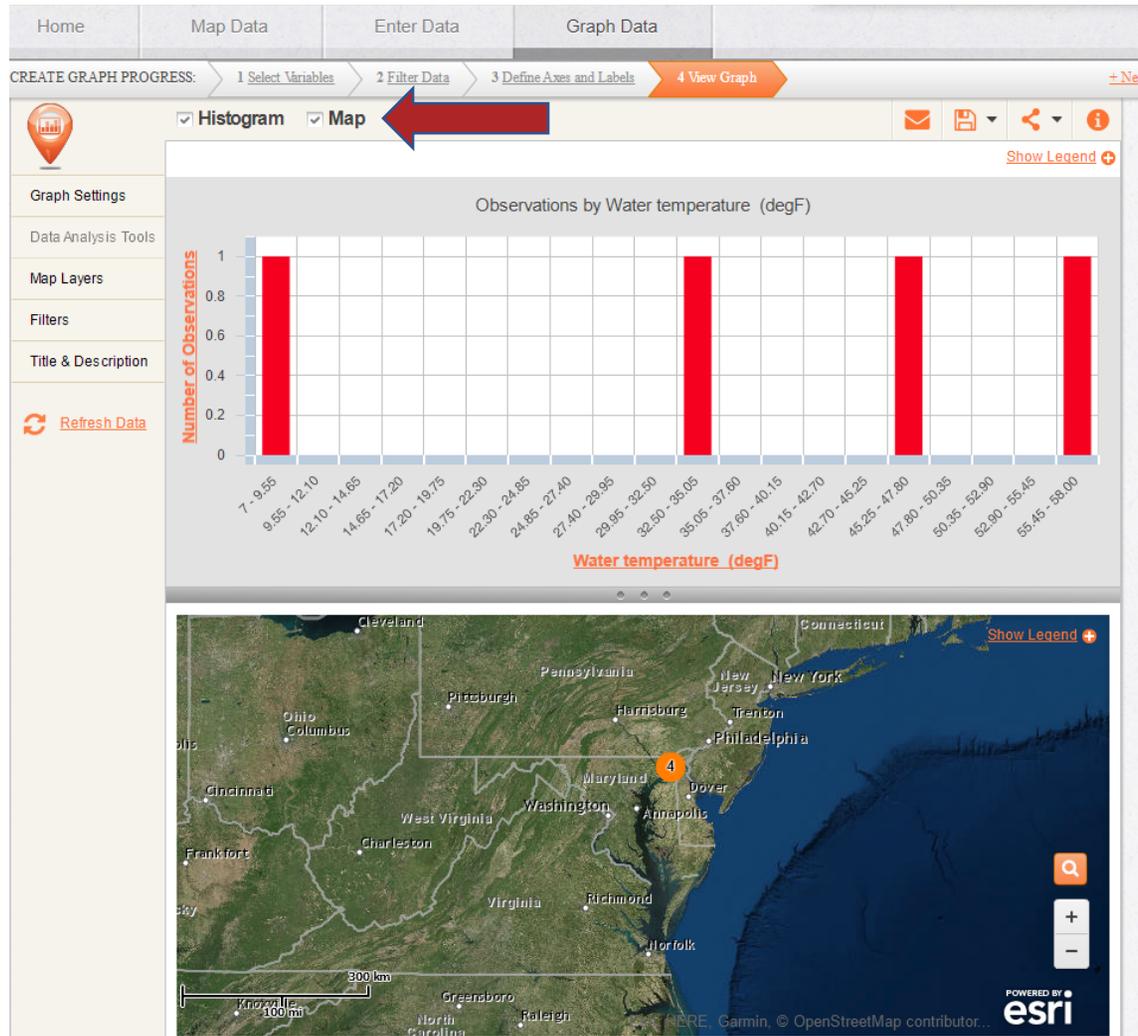
If you would not like to explore the graphing tool with assistance, you may click on “No, thanks. I want to explore on my own.”



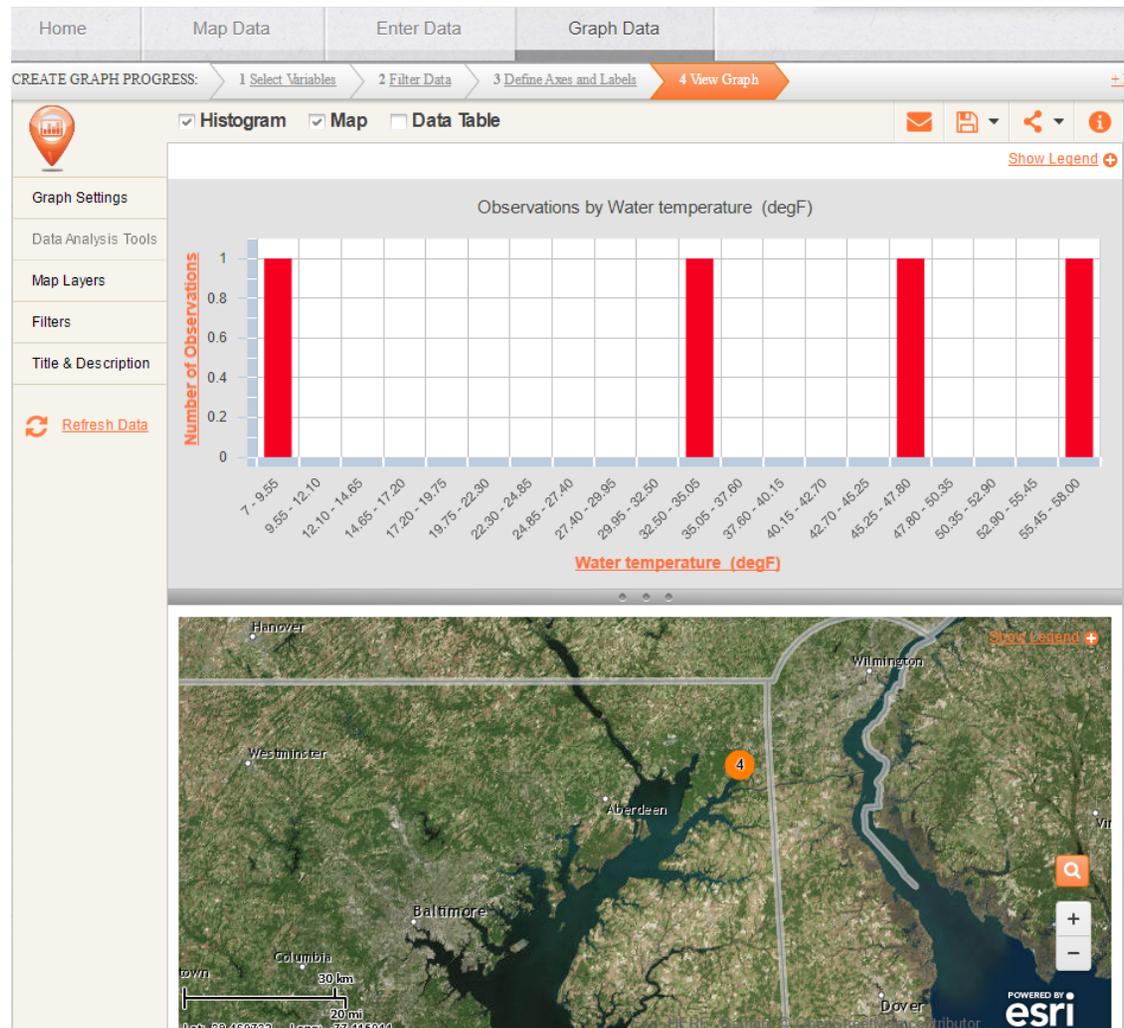
Your graph will be displayed.



If you would like to see where these observations were logged, you can check the “Map” box and a map of the associated observations will be displayed.



As with the FieldScope mapping function, you may also zoom in to the generated map to see individual data points more clearly.



To view the actual data associated with the map and graph, you may check the “Data Table” box.

The screenshot shows the fieldscope interface with the following components:

- Navigation:** Home, Map Data, Enter Data, Graph Data.
- Progress:** 1 Select Variables, 2 Filter Data, 3 Define Axes and Labels, 4 View Graph.
- Graph Settings:** Histogram (checked), Map (checked), Data Table (checked). A red arrow points to the 'Data Table' checkbox.
- Graph:** 'Observations by Water temperature (degF)'. The y-axis is 'Number of Observations' (0 to 1.0) and the x-axis is 'Water temperature (degF)' (7-8.56 to 59.36-60.59). The graph shows four red bars at approximately 7-8.56, 26.36-27.59, 47.16-48.39, and 59.36-60.59 degrees Fahrenheit, each with a height of 1.0.
- Map:** Satellite view of a coastal area with 'Aberdeen' and 'Aberlathie' labeled. A red circle with the number '4' is on the map. A 'Show Legend' button is visible.
- Data Table:** A table titled '4 Observations' with the following data:

Station Name	Data Source	Latitude (...)	Longitude (...)	Observation Date
test station 2	SeaPerch Data	39.570913	-75.850210	2019-04-11
test station 2	SeaPerch Data	39.570913	-75.850210	2019-04-11
test station 2	SeaPerch Data	39.570913	-75.850210	2019-04-11
test station 2	SeaPerch Data	39.570913	-75.850210	2019-04-11

If you would like to save or share your graph, use the buttons in the upper right-hand portion of the screen.

