Chesapeake Bay Program
Watershed Data Dashboard
Version 1.0

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Freshwater Rivers & Streams Module

Rivers & Streams Water Quality Section

DESCRIPTION

This section provides information on the amount of nutrients and sediment at the water quality monitoring stations throughout the watershed that are part of the Chesapeake Bay Program Non-tidal Water Quality Monitoring Program. Water quality monitoring data are provided as annual amounts (loads), loads normalized by watershed size (yields), and trends over time that account for stream flow (flow-normalized). Watershed size and land cover/land use is also provided for each monitoring station.

INTENDED USES

- Learn the status of nutrient and sediment levels in streams and rivers in your area of interest.
- Identify changes over time (trends) in nutrient and sediment levels in streams and rivers. Estimated trends can potentially identify changes in water quality due to management actions, or areas where more information is needed.
- Assess progress by determining if nutrient and sediment conditions are improving or degrading.
- Target or prioritize watersheds for restoration efforts.
- Understand important drivers of water quality such as watershed characteristics like size and land-cover/land-use. Larger watersheds typically have streams with higher amounts of nutrients and sediment. Land cover/land use is an important driver of water quality.

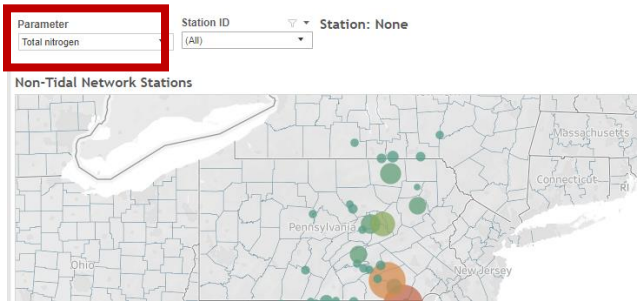
VIEWING THE TOOL

Depending on screen resolution, you may need to scroll vertically or horizontally to view the entire tool. Depending on browser, the scrollbars on the right and bottom may be difficult to see until you hover your mouse over them.

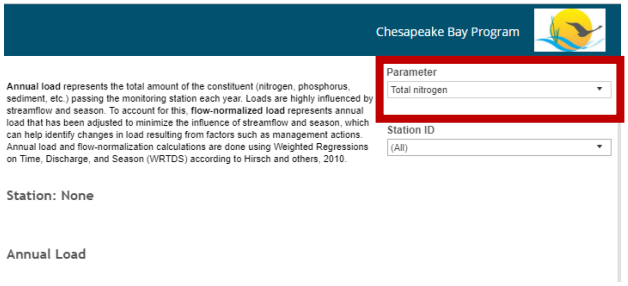
You may open the tool in its own window outside of the dashboard by clicking here. You may still need to scroll horizontally to view the entire tool. If you have opened the tool in its own window, you may need to scroll to the bottom of the tool to view the horizontal scrollbar.

HOW TO USE THE TOOL

Choose a parameter of interest from the drop-down menu. This menu is either above the map or at the top right depending on screen resolution.



OR



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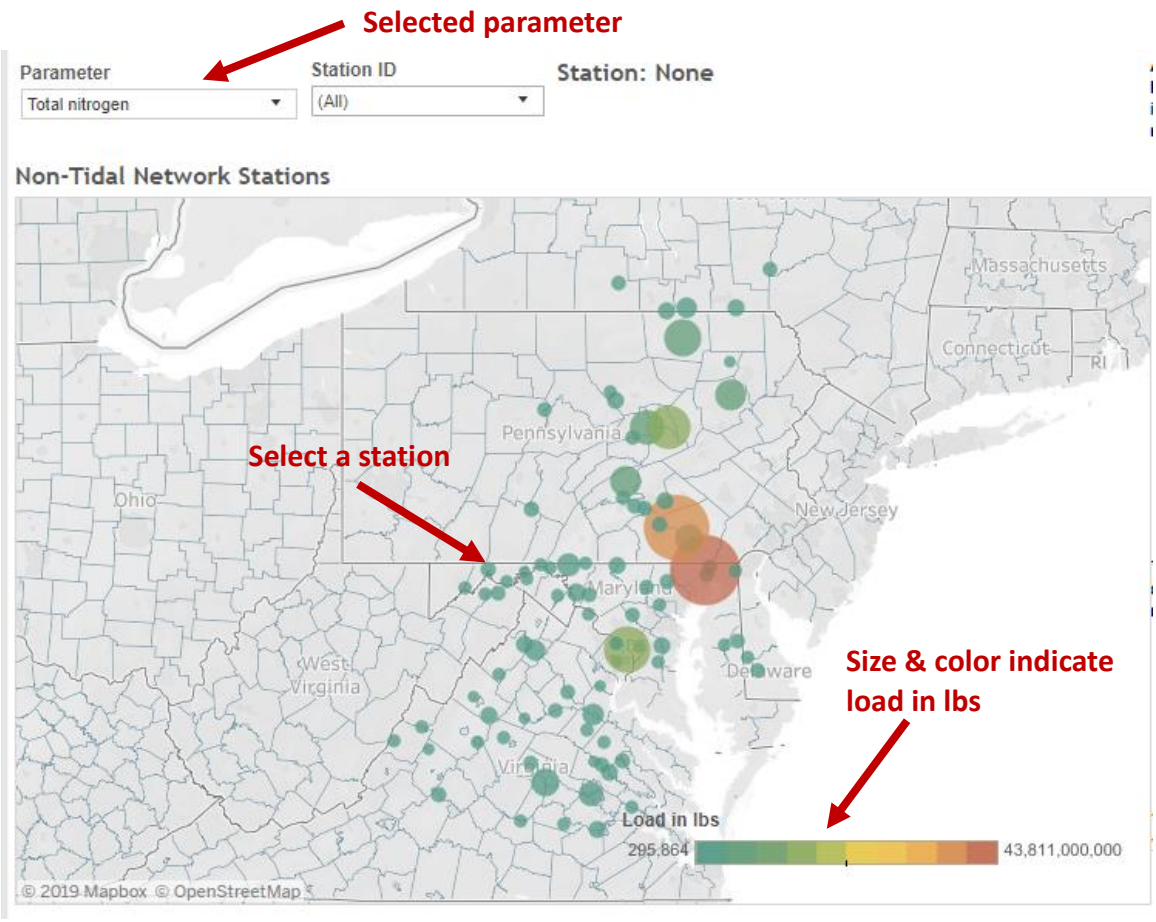
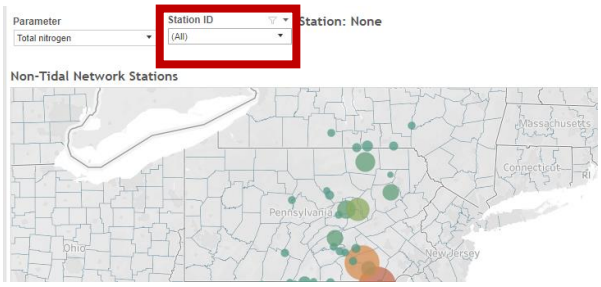
The main map displays all water quality monitoring stations. The color and size of the dots represent the quantity of annual load measured in pounds at that station for the parameter you have selected.



You can also select a station by using the drop-down Station ID menu. If you use this option, you will need to click on the station dot on the map to pull up content.



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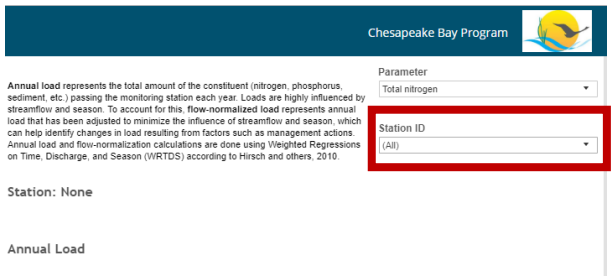

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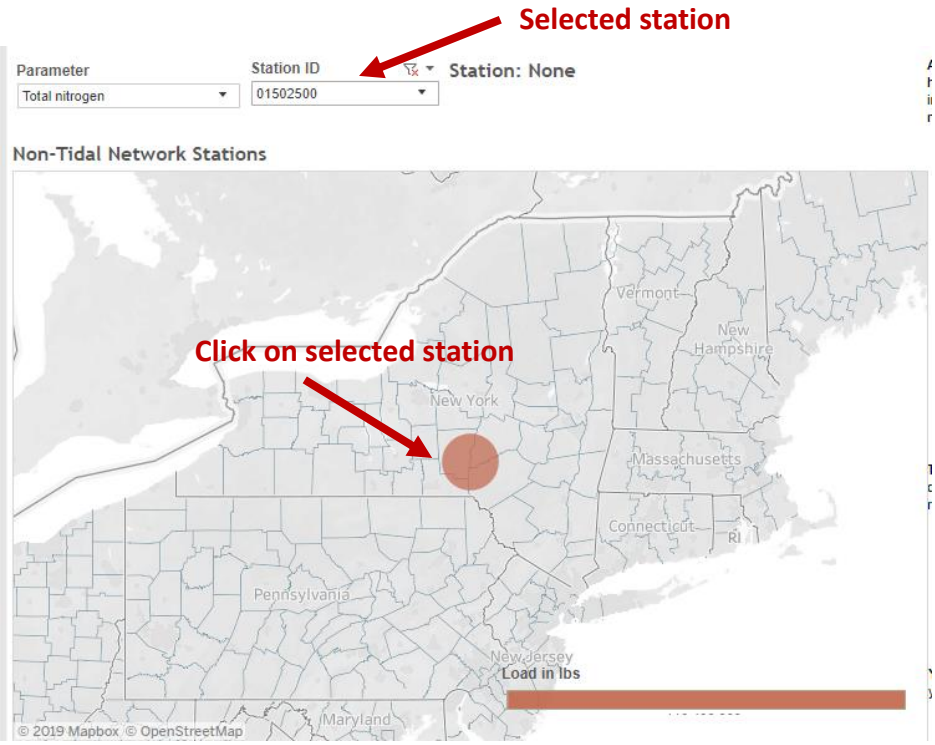
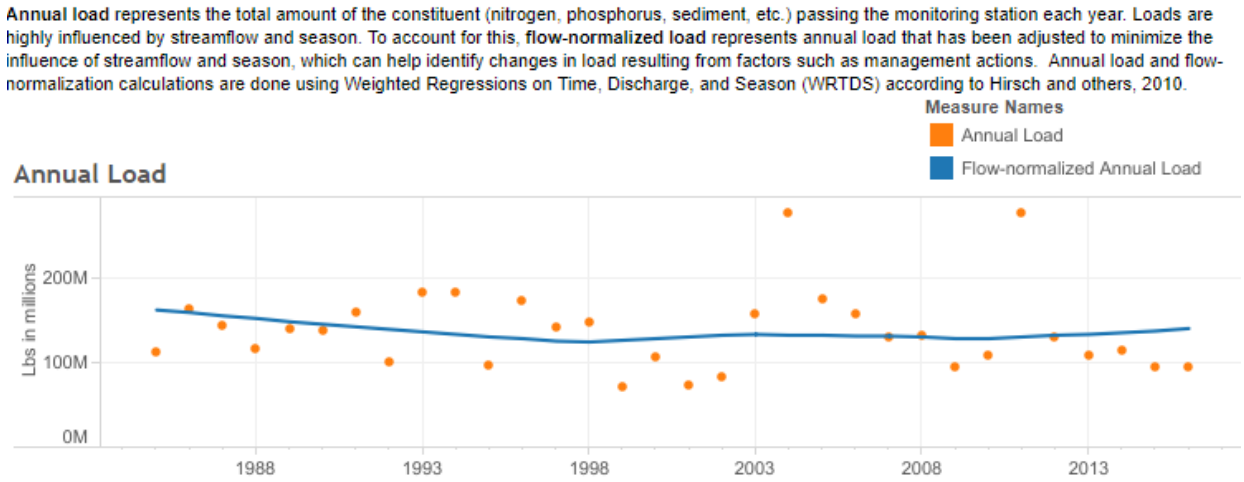


Once you have selected a station, the remainder of the tool will populate information about that particular station. The upper right panels provide information on **annual loads, long-term (if available) and short-term trends, and average 5-year and 10-year yields (lbs/acre).** The lower panels display a **map of the watershed** that drains to the monitoring station you have selected, and **land-cover information** for that particular watershed.

Annual loads: The upper graph represents annual amounts of the selected parameter (loads) over the entire time period the station has been actively monitored. Orange dots represent annual measured loads, and the blue line represents flow-normalized annual loads.



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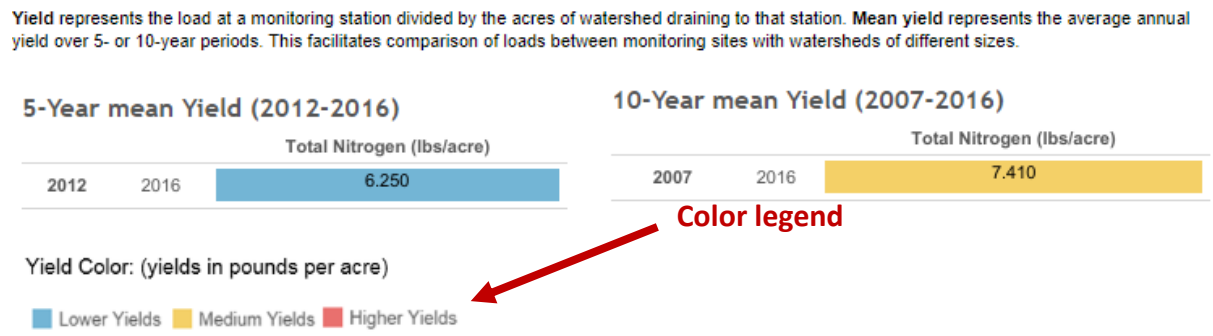
Trends: The trends section shows trends in flow-normalized loads over time generated for the station. If a station does not have enough years of data, no trends will be available. For stations with water quality records beginning prior to 1990, Long-Term trends are computed for the entire period of record. Short Term trends are computed for the most recent 10 years. For stations have records beginning after 1990, only the Short-Term trends are computed. Trends are calculated according to Hirsch and others, 2015. Green represents an improving trend, red a degrading rend, and white no trend.

Yields: This section provides the mean yields at the monitoring station. Yield represents the annual load per acre of watershed of the monitoring station selected. Mean yields represent the average annual yield over 5- or 10-year periods.The color represents high, medium or low yields compared to yields at all stations across the watershed.



Watershed map: The map on the lower left panel displays the watershed draining into the monitoring station you have selected. This watershed is also called a catchment.

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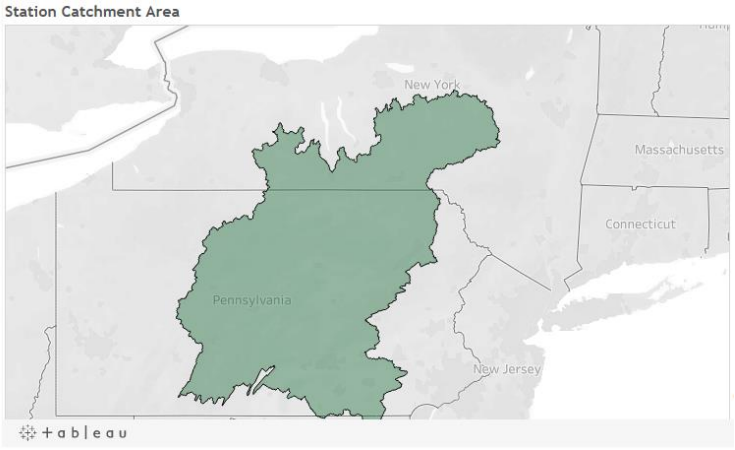

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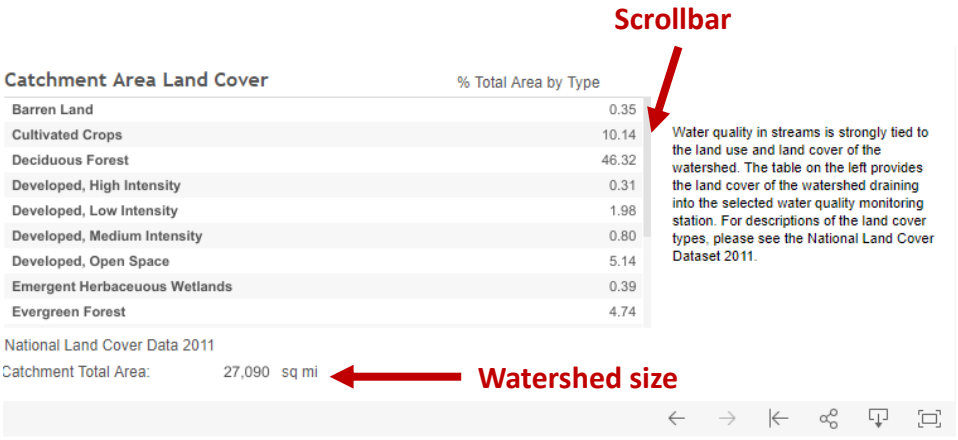
Land-cover information: The table in the bottom right panel provides information on the percent of different types of land covers within the watershed of the monitoring station you have selected. You may have to scroll within this table to view all land-cover types. The vertical scrollbar is on the right side of the table. The total size of the watershed is provided in square miles below the land-cover table.



KEY TERMS

Non-tidal: relating to freshwater rivers and streams in the watershed, as opposed to portions of rivers and streams closer to the Bay that are directly influenced by the tidal Chesapeake Bay waters.

Annual load: total amount of the parameter of interest (e.g. nitrogen, phosphorus, etc.) passing the monitoring station each year. Loads are highly influenced by the flow of water in the stream and the season. Annual loads are calculated using Weighted Regression on Time, Discharge and Season (WRTDS) according to Hirsch and others, 2010.

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Flow-normalized load: flow-normalized loads adjust annual loads to minimize the influence of streamflow and season, which can help identify changes in load resulting from factors such as management actions. Flow-normalized load represents the theoretical annual loads that would have been measured if the streamflow had been the same as the long-term average. Flow-normalized load calculations are done using Weighted Regression on Time, Discharge and Season (WRTDS) according to Hirsch and others, 2010.

Trend: changes in loads over time as determined by statistical methods. Trends can be calculated for long-term time periods over the entire history of the monitoring station, or over short-term periods within the last 10 years of the monitoring station's history.

Yield: load divided by the size of watershed of the monitoring station in acres.