

OBJECTIVE

Overview

Trend Results 2020

Sharing Results

- ScienceBase data release
- Online geonarrative
- USGS nontidal network webpage
- Chesapeake Bay watershed dashboard

Load and trend results have been computed through 2020

WHAT do we COMPUTE and SHARE?

- Loads and concentration:
Daily, Monthly, Annual; >5 years of data needed
- Per-acre loads (yields):
10-year average: 2011 - 2020
5-year average: 2016 - 2020
- Trends in flow-normalized loads and concentration:
Long-term: ~1985 - 2020
Short-term: 2011 - 2020



ScienceBase Catalog → USGS Data Release Products → Nitrogen, phosphorus, and s...

Nitrogen, phosphorus, and suspended-sediment loads and trends measured at the Chesapeake Bay Nontidal Network stations: Water years 1985-2020

View ▾

Dates

Publication Date : 2022-07-25
Start Date : 1984-10-01
End Date : 2020-09-30

Citation

Mason, C.A., Colgin, J.E., and Moyer, D.L., 2022, Nitrogen, phosphorus, and suspended-sediment loads and trends measured at the Chesapeake Bay Nontidal Network stations: Water years 1985-2020: U.S. Geological Survey data release, <https://doi.org/10.5066/P96H2BDO>.

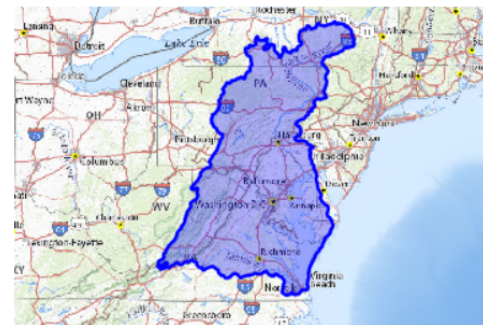
Summary

Nitrogen, phosphorus, and suspended-sediment loads, and changes in loads, in major rivers across the Chesapeake Bay watershed have been calculated using monitoring data from the Chesapeake Bay Nontidal Network (NTN) stations for the period 1985 through 2020. Nutrient and suspended-sediment loads and changes in loads were determined by applying a weighted regression approach called WRTDS (Weighted Regression on Time, Discharge, and Season). The load results represent the total mass of nitrogen, phosphorus, and suspended sediment that was exported from each of the NTN watersheds and were estimated using the WRTDS method with Kalman filtering. To determine the trend in loads, the annual load results are flow normalized to integrate out the year-to-year variability in river discharge. The trend in load is derived from the flow-normalized load timeseries and represents the change in load resulting from changes in sources, delays associated with storage or transport of historical inputs, and (or) implemented management actions. Four data tables are provided that describe nitrogen, phosphorus, and suspended-sediment conditions across the NTN: (1) Annual Loads, (2) Monthly Loads, (3) Trends in Annual Loads, and (4) Average Yield (mass per unit area). Additionally, essential WRTDS Input and Output files are provided.

Child Items (6) ▾


-  Chesapeake Bay Nontidal Network 1985-2020: Annual loads
-  Chesapeake Bay Nontidal Network 1985-2020: Average annual yields
-  Chesapeake Bay Nontidal Network 1985-2020: Monthly loads
-  Chesapeake Bay Nontidal Network 1985-2020: Short- and long-term trends
-  Chesapeake Bay Nontidal Network 1985-2020: WRTDS input data
-  Chesapeake Bay Nontidal Network 1985-2020: WRTDS output data

Map »



Spatial Services

ScienceBase WMS :

<https://www.sciencebase.gov/catalog> 

Communities

- USGS Data Release Products 

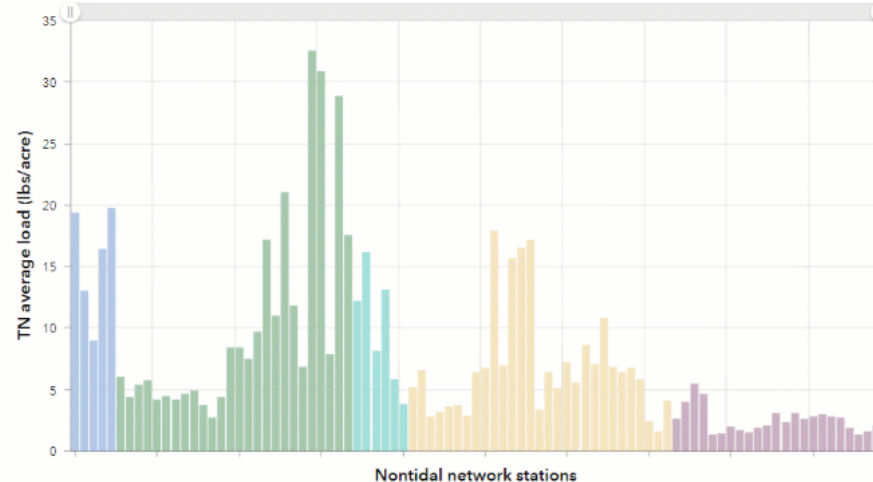
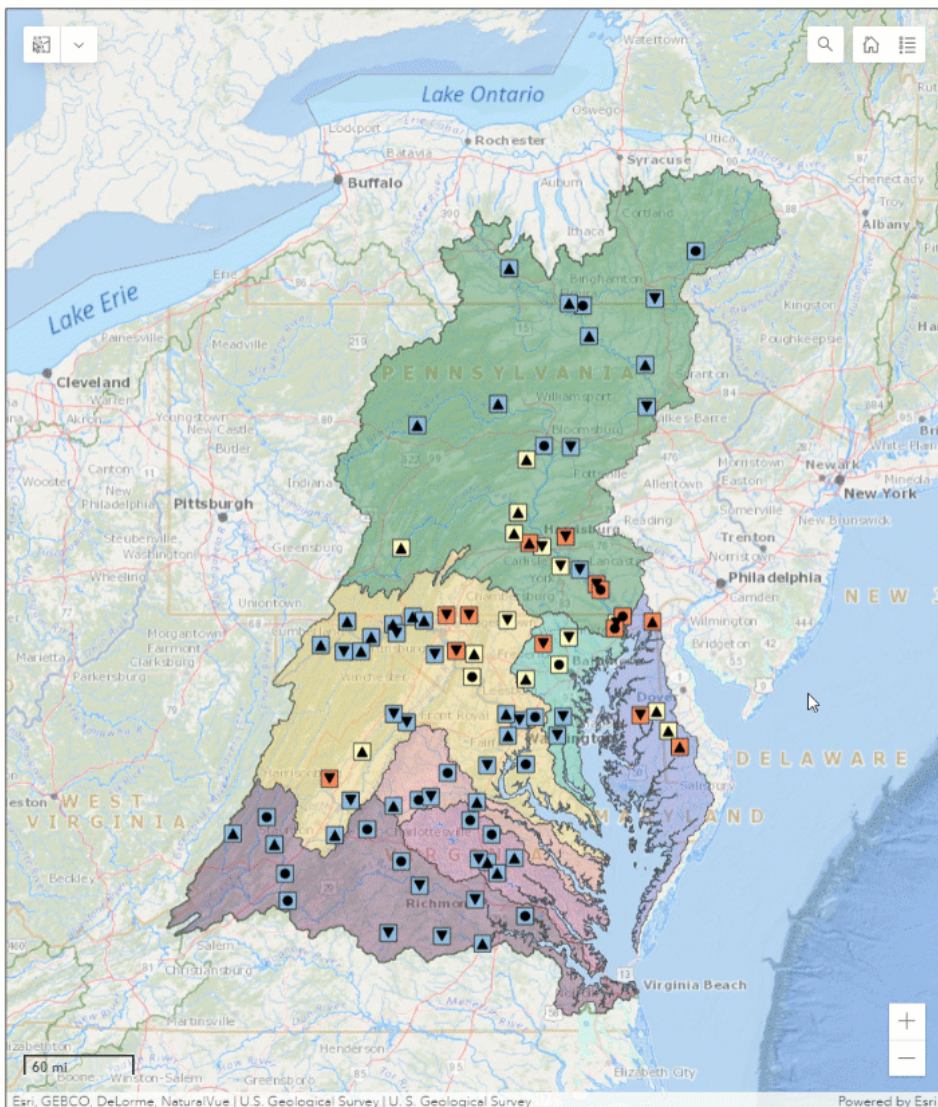
Tags

Harvest Set : USGS Science Data Catalog (SDC)
Theme : Kalman filtering, WRTDS, WRTDS-K, load analysis, nitrogen, nutrients, phosphorus, rivers, suspended sediment, trends, water quality, weighted regression
Place : Chesapeake Bay Watershed, Delaware, Maryland, New York, Pennsylvania, United States, Virginia, Washington DC, West Virginia
USGS Scientific Topic Keyword : Hydrology, Water Quality, Water Resources

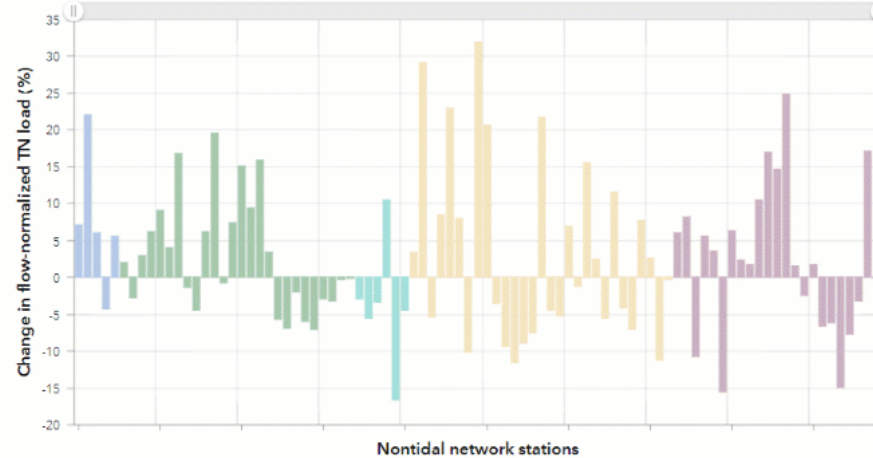
Interactive web page with data dashboards for TN, TP, and SS

va.water.usgs.gov/geonarratives/ntn

Graph tool Query tool



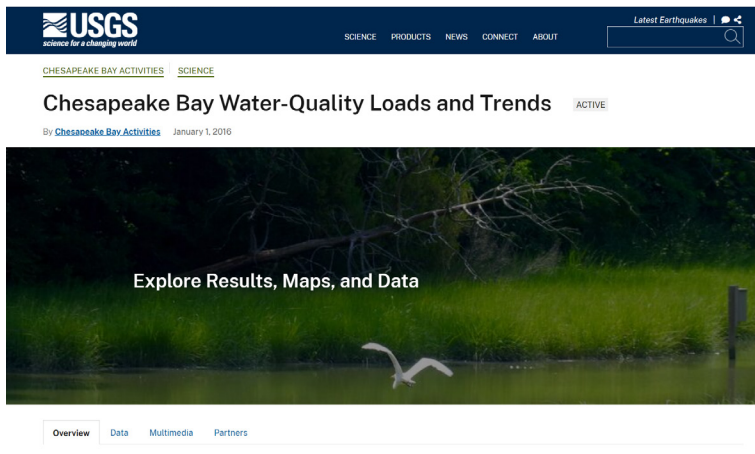
Total nitrogen (TN) average load from 2011 to 2020, in pounds per acre (lbs/acre).



Change in flow-normalized total nitrogen (TN) load from 2011 to 2020, in percent.

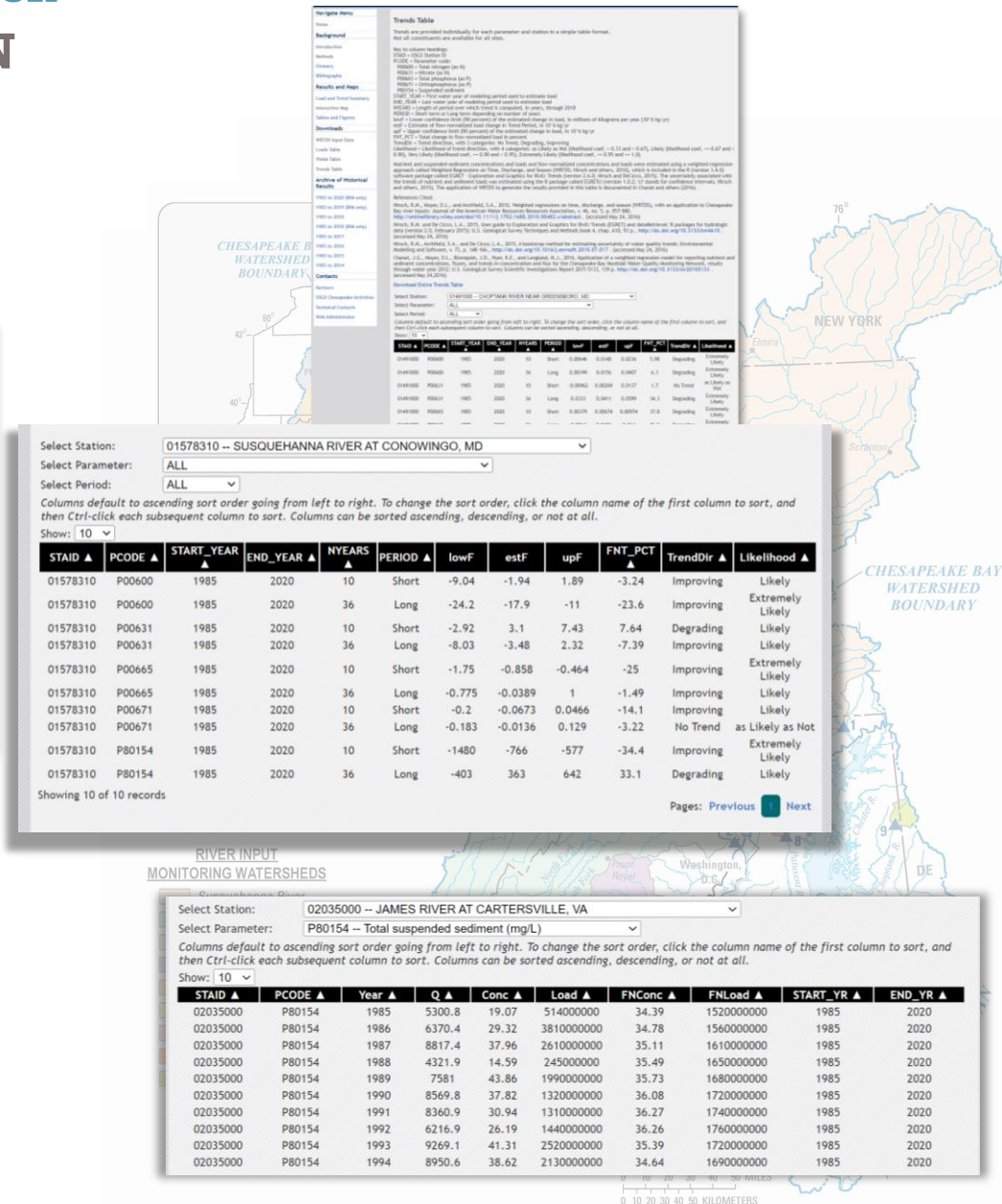
The monitoring webpage has been updated with 2020 RIM and NTN results and a new URL

usgs.gov/CB-wq-loads-trends



Secondary link is still active:
cbrim.er.usgs.gov

The websites contain load, yield, and trend results for Total Nitrogen, Nitrate/Nitrite, Total Phosphorus, Orthophosphate, and Suspended Sediment at individual monitoring stations.



The Chesapeake Bay Watershed Data Dashboard is currently being updated

gis.chesapeakebay.net/wip/dashboard

Chesapeake Bay Watershed Data Dashboard (Beta)

Need Help?



[Start Here!](#) [Rivers & Streams](#) [Tidal Waters](#) [Targeting Restoration](#) [Management Practices](#) [Land Policy & Conservation](#) [Prioritizing Other Benefits](#)

Get started here...

Water Quality Trends

[Separate window](#) - Open this section separately in its own window.

[Quick Guide](#) - Access more detailed information on water quality trends and how to use this tool.

This section displays water quality monitoring data for freshwater rivers and streams in the [Chesapeake Bay Program Non-tidal Monitoring Network](#).



Streams and rivers with high amounts of nutrients and sediment, especially relative to their size, are some of the most effective places to focus restoration efforts.



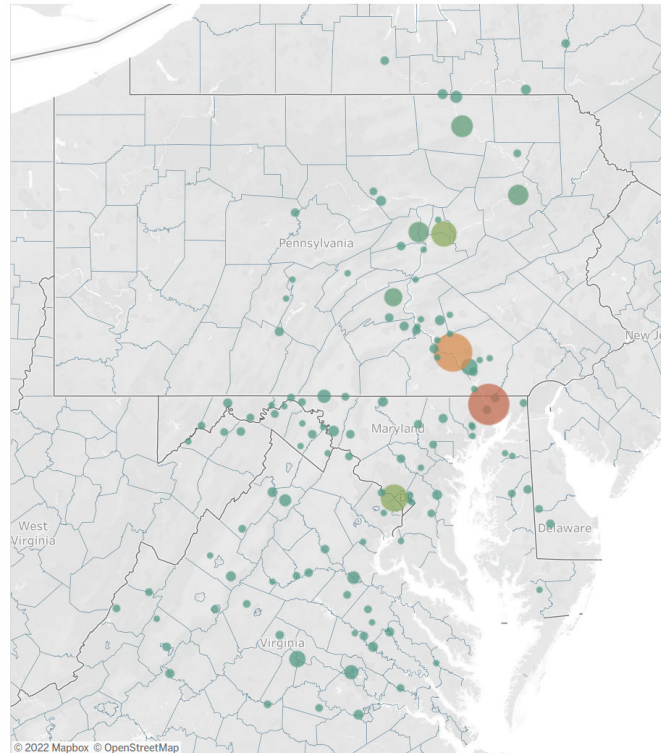
Watersheds with more developed, agricultural, and urban land tend to have higher nutrients and sediment levels in streams than more natural or forested watersheds.

Comparing Watersheds

River Contributions to Tidal Waters

Additional Resources

Non-Tidal Network Stations



Load in lbs
338,266 46,483,000,000

Station Catchment Area



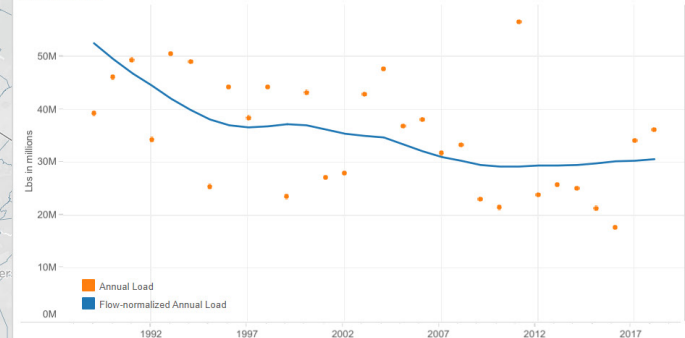
Station: 01536500

SUSQUEHANNA RIVER AT WILKES-BARRE, PA

Parameter: Total nitrogen

Station ID: (All)

Annual Load



Trends (Long Term)



5-Year mean Yield (2014-2018)



Yield Color: (yields in pounds per acre)

Lower Yields Medium Yields Higher Yields

Catchment Total Area (square miles):

9,960

Catchment Area Land Cover (NLCD 2016)

	% Total Area by Type
Barren Land	0.25
Cultivated Crops	3.73
Deciduous Forest	39.78
Developed, High Intensity	0.22
Developed, Low Intensity	1.33
Developed, Medium Intensity	0.63
Developed, Open Space	5.01
Forest, Herbaceous/Medium	0.60

Questions?

CITATION:

Mason, C.A., Colgin, J.E., and Moyer, D.L., 2022, Nitrogen, phosphorus, and suspended-sediment loads and trends measured at the Chesapeake Bay Nontidal Network stations: Water years 1985-2020: U.S. Geological Survey data release, <https://doi.org/10.5066/P96H2BDO>

SHARED RESOURCES:

[USGS NTN 2020 ScienceBase data release \(above citation\)](#)

[USGS NTN 2020 Interactive webpage](#)

[USGS NTN Loads and Trends website \(current and historic\)](#)

[Chesapeake Bay dashboard](#)