Chesapeake Bay Nontidal Network NITROGEN AND PHOSPHORUS LOADS AND TRENDS

AN UPDATE OF RESULTS: 2011 - 2020

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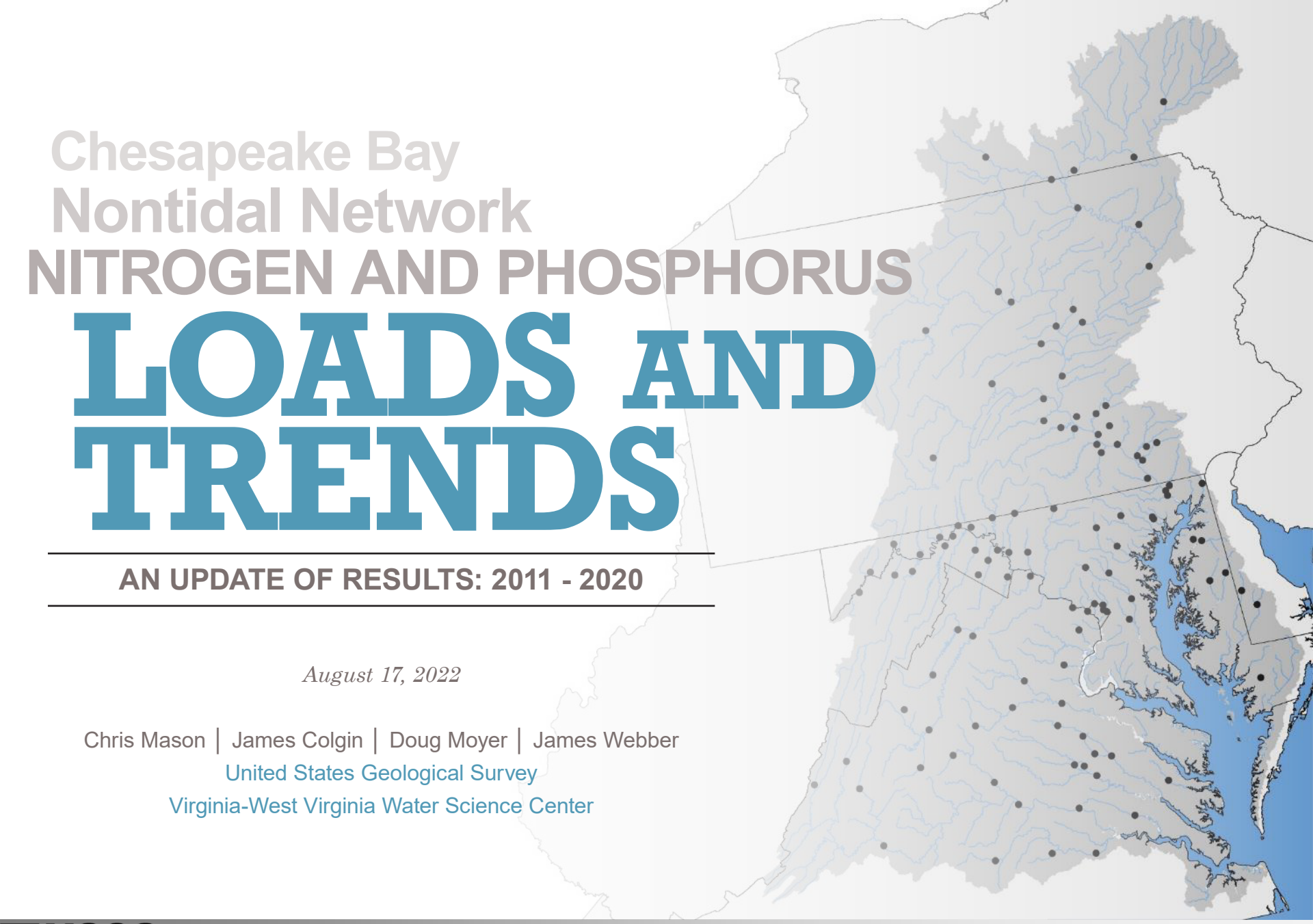

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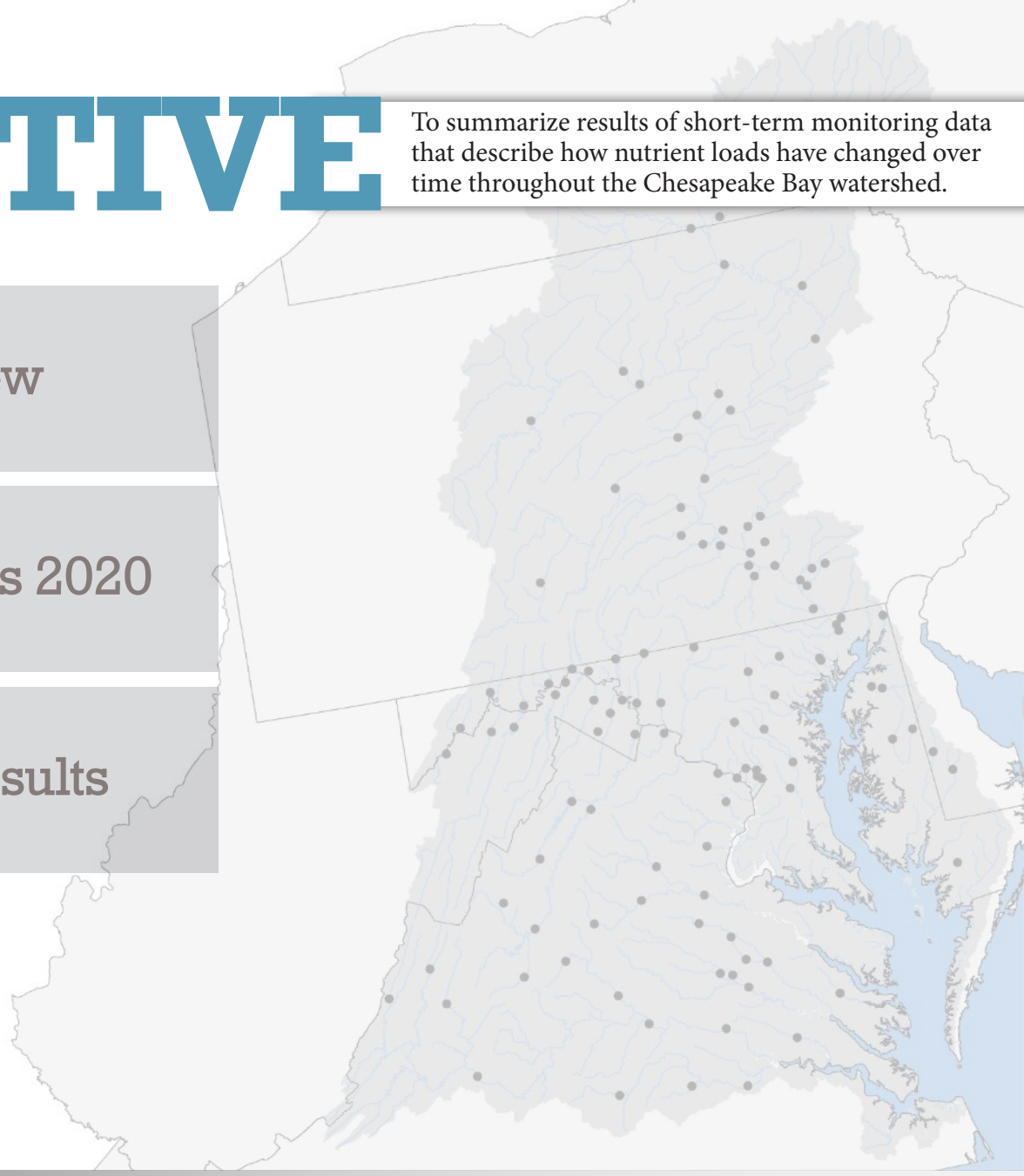
OBJECTIVE

To summarize results of short-term monitoring data that describe how nutrient loads have changed over time throughout the Chesapeake Bay watershed.

Outline

- Overview
- Trend Results 2020
- Sharing Results



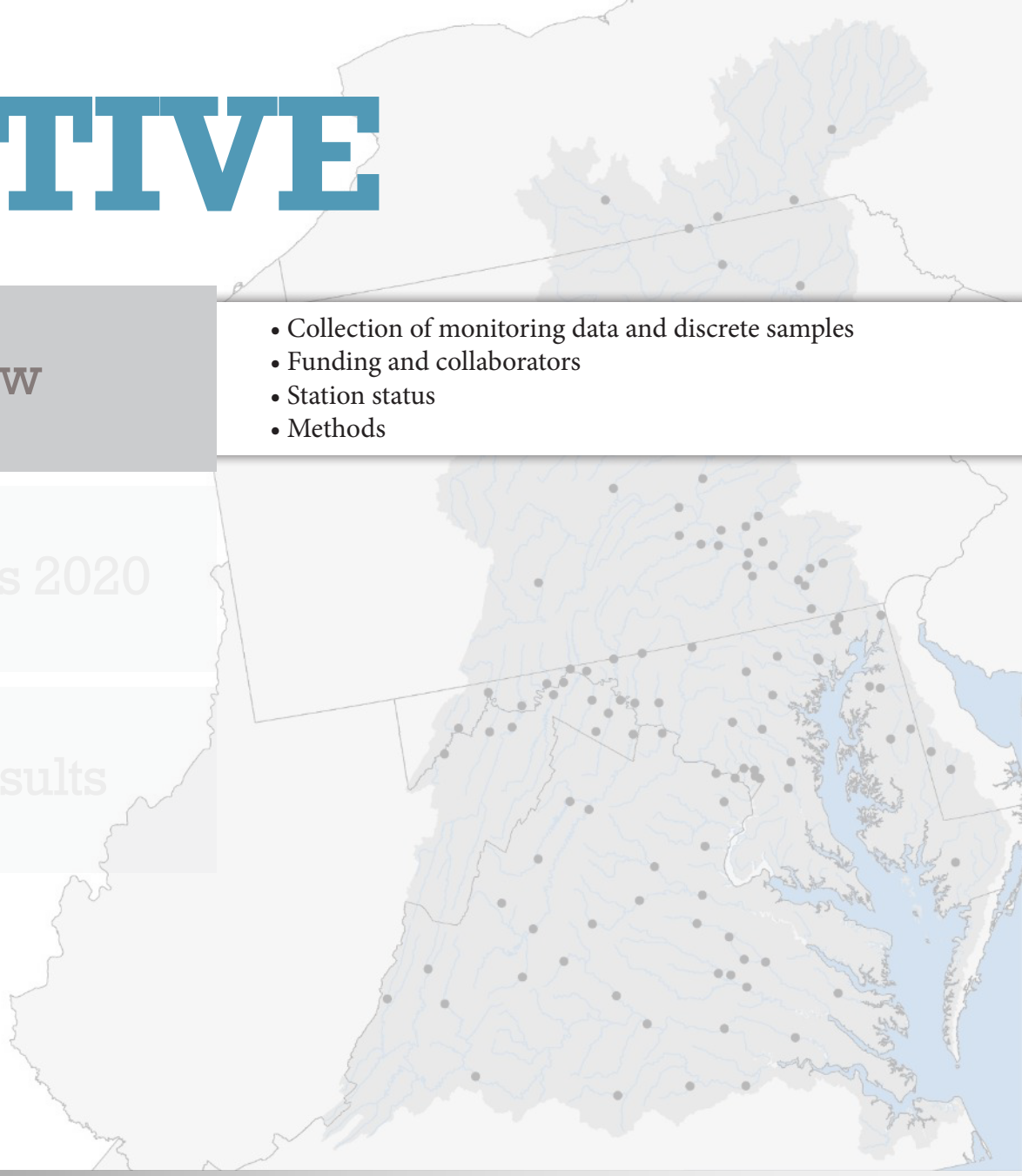
OBJECTIVE

Overview

- Collection of monitoring data and discrete samples
- Funding and collaborators
- Station status
- Methods

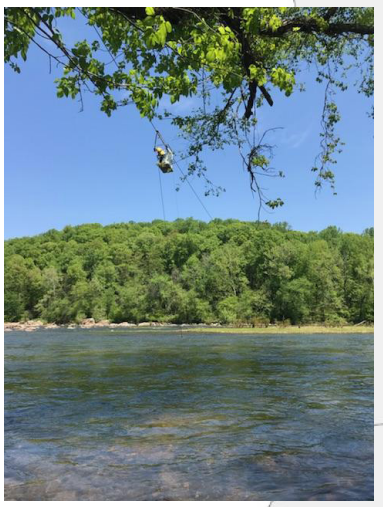
Trend Results 2020

Sharing Results

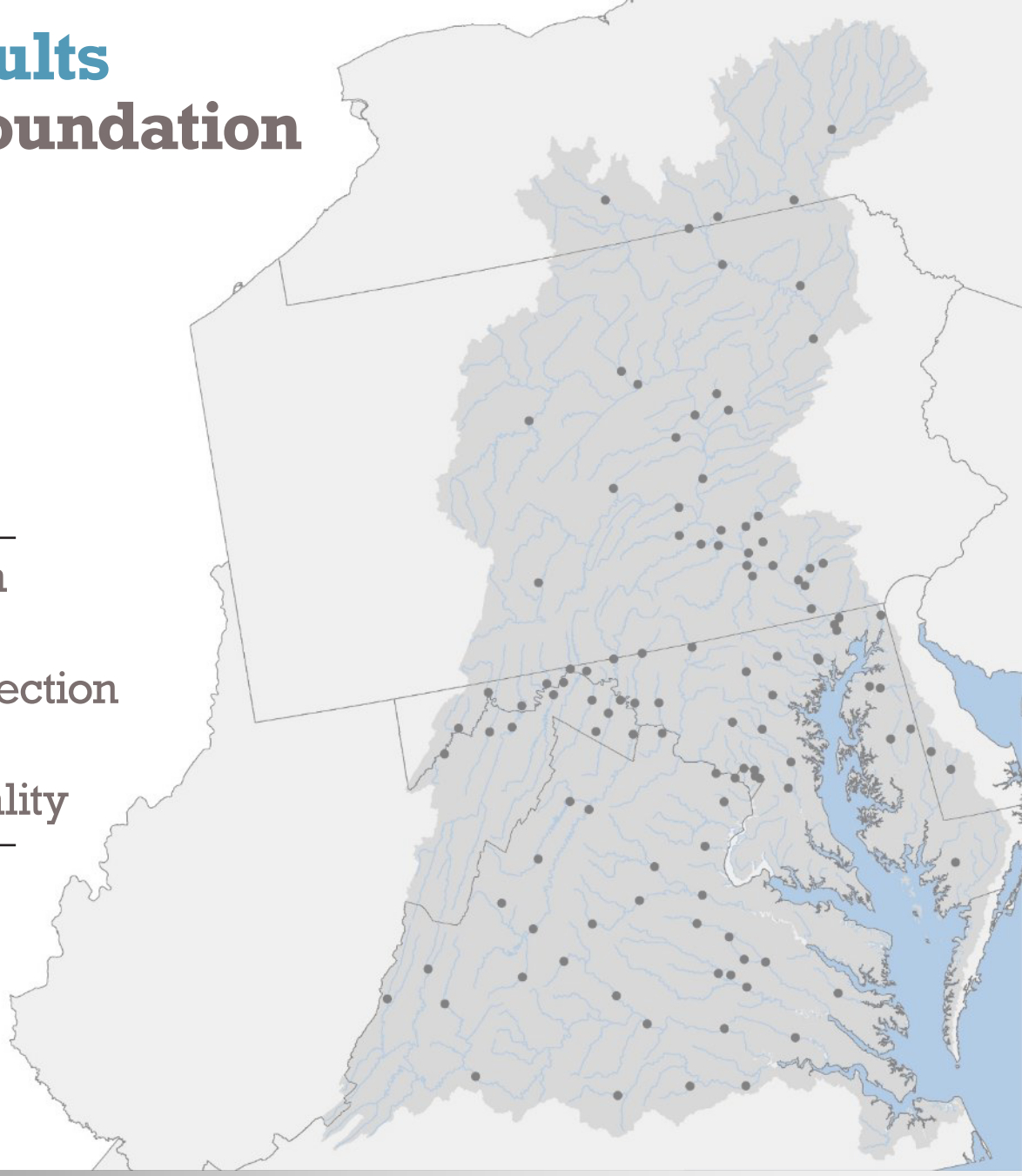


Load and trend results determined from foundation of monitoring data

Our load and trend analyses are based on water-quality and stream-discharge measurements made across the 123-station Nontidal Network.



Load and trend results determined from foundation of monitoring data



Monitoring would not be possible without the funding support provided by

EPA Chesapeake Bay Program
US Geological Survey
PA Dept of Environmental Protection
MD Dept of Natural Resources
VA Dept of Environmental Quality

Nontidal Network

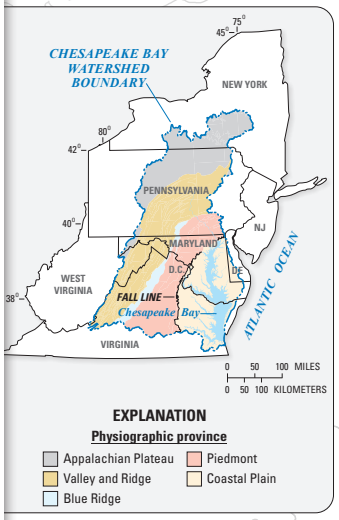
2020 status

EXPLANATION

- *Load-only Site*
- *Short-term Trend Site*
- *Long-term Trend Site*
- *RIM Site*

Major Basins

- *Eastern Shore*
- *Potomac*
- *Susquehanna*
- *Virginia*
- *Western Shore*



BASIN	n Stations	TN Loads	TN Short	TP Loads	TP Short
SUSQUEHANNA	42	42	26	42	26
EASTERN SHORE	8	8	5	8	5
WESTERN SHORE	10	10	6	10	6
POTOMAC	37	37	28	34	22
VIRGINIA	26	26	24	16	11

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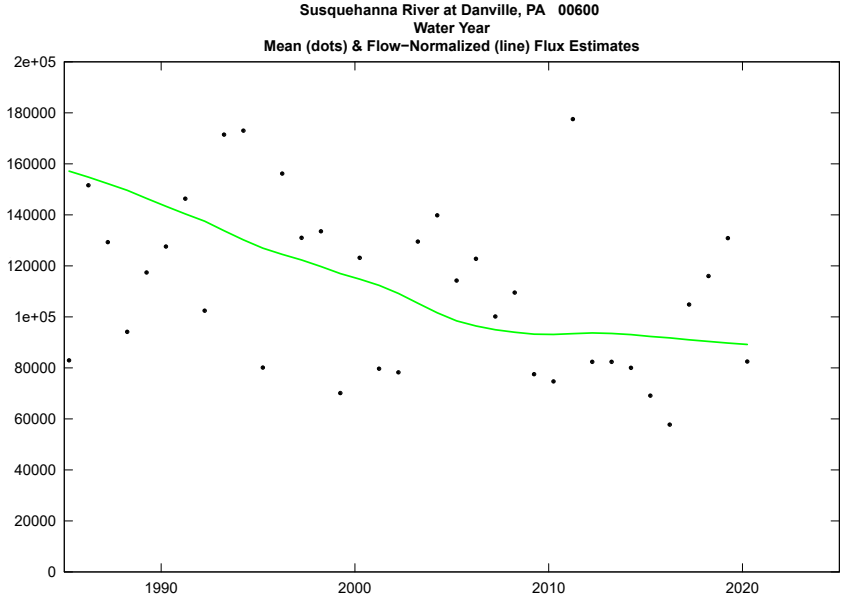
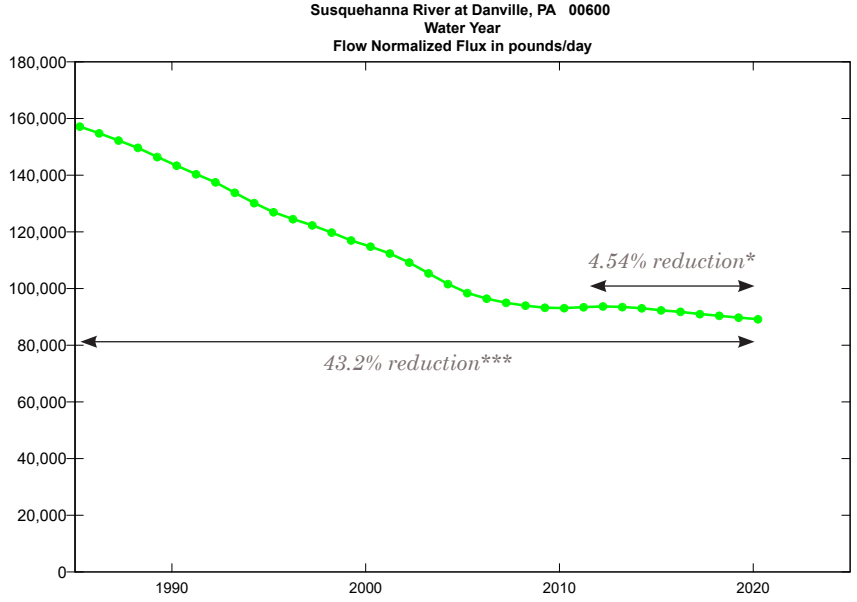
Load and trend results have been computed through 2020 to provide timely information available for decision making

Load is a measure of
the total amount of nutrients or sediment that is mobilized in a given timeperiod (monthly, annually, …). Important for understanding receiving water response

Flow-normalized loads result
by removing most of the hydrologic variability associated with loads. Important for understanding water-quality responses to watershed changes

A trend is reported when
the likelihood estimate of a trend existing is greater than 0.67 after at most 100 boostrap resamples and a 90% confidence interval





Monitoring data help strengthen decision making

- The nontidal monitoring network offers the most accurate representation of how water-quality conditions are changing in the Chesapeake Bay watershed
- These monitoring data inform the Chesapeake Bay Program's modeling tools, which are used to plan management activities and forecast responses
- The scientific community is currently working to understand:

  (1) *how modeled water-quality responses correspond with monitored results and*

  (2) *the drivers of observed water-quality changes over time, including the effect of management practices*

- These monitoring-based insights will help explain how and why water quality is changing in the Chesapeake Bay watershed, information that can help guide management activities