

1. Overview

This explanatory document is accompanied with the data folder “A3. *SRB_load_estimates_output*”, which contains concentration and loading estimates at the seven monitoring sites in the Susquehanna River Basin (SRB; **Figure 1**). These estimates have been extracted from the *.Rdata* files contained in the data folder “A2. *SRB_WRTDS_model_run/R runs*”, which were obtained using the WRTDS method (Hirsch *et al.*, 2010). The constituents covered include total nitrogen (TN), dissolved nitrogen (DN), total phosphorus (TP), dissolved phosphorus (DP), and suspended sediment (SS).

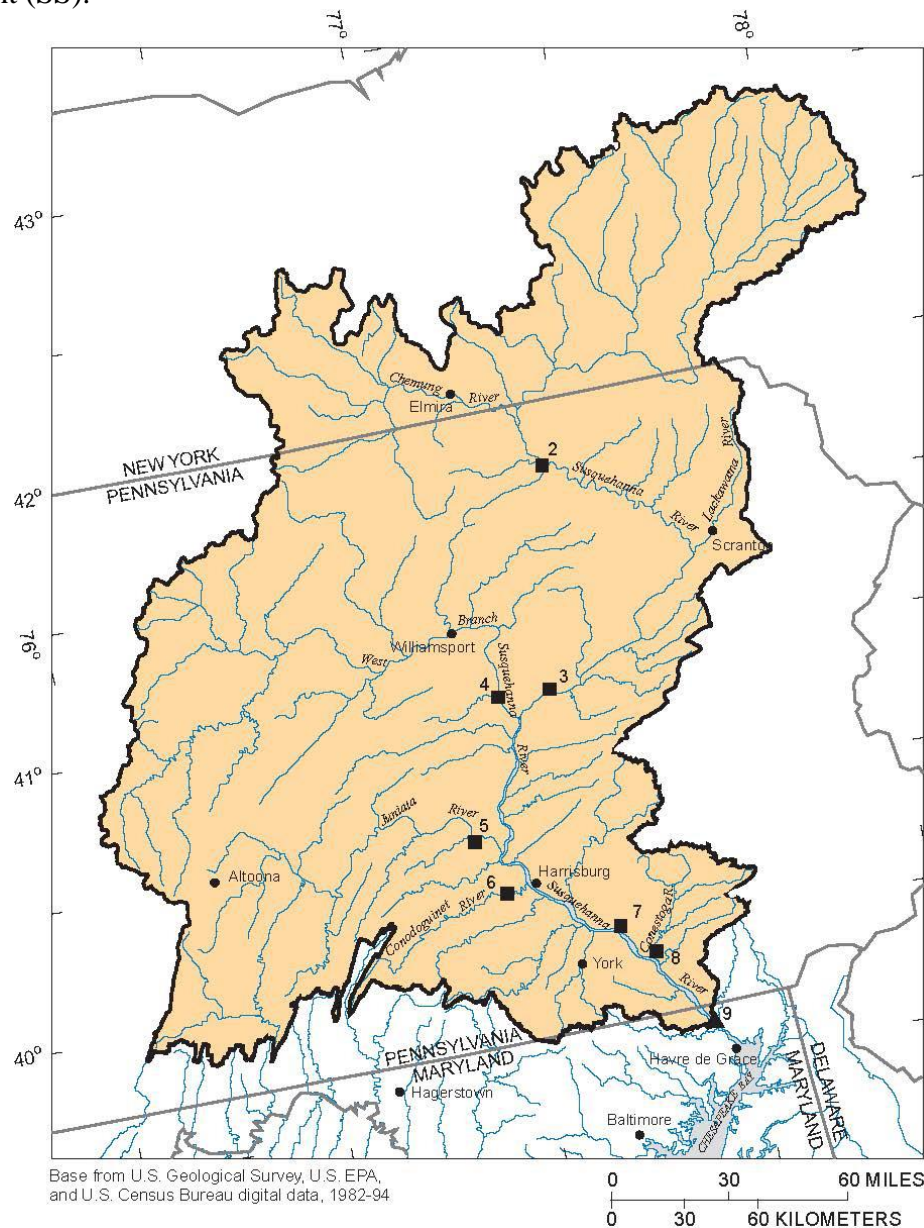


Figure 1. Monitoring sites for the sub-basins of the Susquehanna River. This figure was reproduced from Figure 6 in Sprague *et al.* (2000) with permission, with the original numbering of the monitoring sites. See Table 1 for site details.

2. Monitoring Stations and Abbreviations

Characteristics and abbreviations of the monitoring stations are summarized in **Table 1**. Among the stations, the Conowingo site has been managed by the U.S Geological Survey (USGS) River Input Monitoring (RIM) Program, while the other sites have been managed by the Susquehanna River Basin Commission (SRBC) Sediment and Nutrient Assessment Program (SNAP).

Table 1. Details of the monitoring stations, adapted from Table 8 in Sprague *et al.* (2000).

USGS station number	River and station name	Abbreviation	Drainage area (km ²)	Managed by	# on Fig.1
01531500	Susquehanna River at Towanda, PA	TOW	20,194	SRBC	#2
01540500	Susquehanna River at Danville, PA	DAN	29,008	SRBC	#3
01553500	West Branch Susquehanna River at Lewisburg, PA	LEW	17,765	SRBC	#4
01567000	Juniata River at Newport, PA	NEW	8,687	SRBC	#5
01576000	Susquehanna River at Marietta, PA	MAR	67,314	SRBC	#7
01576754	Conestoga River at Conestoga, PA	CONE	1,217	SRBC	#8
01578310	Susquehanna River near Conowingo, MD	CONO	70,189	USGS	#9

3. File Details

In total, this data folder contains 245 spreadsheet files, summarizing concentration and loading estimates for **FIVE** water-quality constituents at the **SEVEN** monitoring stations at **SEVEN** different temporal resolutions. The **FIVE** constituents are total nitrogen (TN), dissolved nitrogen (DN), total phosphorus (TP), dissolved phosphorus (DP), and suspended sediment (SS). The **SEVEN** temporal resolutions are daily average, monthly average, Jan-Mar seasonal average, Apr-Jun seasonal average, Jul-Sep seasonal average, Oct-Dec seasonal average, and Jan-Dec average (*i.e.*, annual average). All the spreadsheet files are named in the following standard format:

“river abbreviation”_“parameter abbreviation”_“temporal resolution”_“.csv”.

For example, “**MAR_DN_Jan-Mar_estimates.csv**” contains the WRTDS estimates for river “**MAR**” (Susquehanna River at Marietta, PA) for water-quality constituent “**DN**” (dissolved nitrogen) at the temporal resolution “**Jan-Mar**” (Jan-Mar averages).

In each spreadsheet file, there are six columns, corresponding to time (in years), **measured** flow discharges *Q* (in m³/s), true-condition concentration **estimates** (in mg/L), true-condition loading **estimates** (in kg/day), flow-normalized concentration **estimates** (in mg/L), and flow-normalized loading **estimates** (in kg/day), respectively. Results documented in these spreadsheet files correspond to the estimation periods from the beginning of monitoring (1980s) to early 2013.

4. References

- Hirsch, R. M., D. L. Moyer, and S. A. Archfield, 2010. Weighted regressions on time, discharge, and season (WRTDS), with an application to Chesapeake Bay river inputs, *J. Am. Water Resour. Assoc.*, 46(5), 857-880, doi: 10.1111/j.1752-1688.2010.00482.x.
- Sprague, L. A., M. J. Langland, S. E. Yochum, R. E. Edwards, J. D. Blomquist, S. W. Phillips, G. W. Shenk, and S. D. Preston, 2000. Factors affecting nutrient trends in major rivers of the Chesapeake Bay Watershed, *Water-Resources Investigations Report 00-4218*, 109 pp, U.S. Geological Survey, Richmond, VA.