

SAMPLE COLLECTION AND ANALYSIS

Samples were collected to measure nutrient and SS concentrations during various flows. Generally two samples were collected per month; one near the twelfth of the month for trend analysis and one during monthly baseflow conditions. Additionally, a minimum of five high flow events were sampled, targeting one per season. When possible a second high flow event was sampled in accordance with spring planting in the basin. During high flow sampling events, samples were collected daily during the rise and fall of the hydrograph. The goal was to gather a minimum of three samples on the rise and three samples on the fall with one sample as close to peak flow as possible. Sampling continued until flows returned to prestorm levels. All low flow and random samples were collected by hand with USGS depth integrating samplers. Multiple vertical samples were taken at each site and then composited so that a representative sample was attained. Winch operated depth-integrated samplers were used during high flow events to insure that the full water column was sampled.

Whole water samples were collected to be analyzed for TN species, TP species, TOC, and SS. Additionally, filtered samples were collected

to analyze for dissolved nitrogen (DN) and dissolved phosphorus (DP) species. All samples were delivered to the Pa. DEP Laboratory in Harrisburg to be analyzed the following workday. The parameters and laboratory methods used are listed in Table 3. SS samples were analyzed at SRBC.

PRECIPITATION

Precipitation data were obtained from long-term monitoring stations operated by the U.S. Department of Commerce. The data are published as Climatological Data—Pennsylvania, and as Climatological Data—New York by the National Oceanic and Atmospheric Administration (NOAA) at the National Climatic Data Center in Asheville, North Carolina. Quarterly and annual data from these sources were compiled across the subbasins of the Susquehanna River Basin and are reported in Table 4. Due to high rainfalls in the spring and fall, precipitation totals exceeded the long-term mean at all sites except Lewisburg for 2002.

Table 3. Water Quality Parameters, Laboratory Methods, and Detection Limits

Parameter	Laboratory	Methodology	Detection Limit (mg/l)	References
Ammonia (total)	Pa. DEP	Colorimetry	0.020	USEPA 350.1
Ammonia (dissolved)	Pa. DEP	Block Digest, Colorimetry	0.020	USEPA 350.1
Nitrogen (total)	Pa. DEP	Persulfate Digestion for TN	0.040	Standard Methods #4500-N _{org} -D
Nitrogen (dissolved)	Pa. DEP	Persulfate Digestion	0.040	Standard Methods #4500-N _{org} -D
Nitrite plus Nitrate (total)	Pa. DEP	Cd-reduction, Colorimetry	0.010	USEPA 353.2
Nitrite plus Nitrate (diss)	Pa. DEP	Cd-reduction, Colorimetry	0.010	USEPA 353.2
Orthophosphate (dissolved)	Pa. DEP	Colorimetry	0.002	USEPA 365.1
Phosphorus (dissolved)	Pa. DEP	Block Digest, Colorimetry	0.010	USEPA 365.1
Phosphorus (total)	Pa. DEP	Persulfate Digest, Colorimetry	0.010	USEPA 365.1
Organic Carbon (total)	Pa. DEP	Combustion/Oxidation	0.50	SM 5310D