

ANNUAL NUTRIENT AND SUSPENDED-SEDIMENT LOADS AND YIELDS

Loads and yields represent two methods for describing amounts of nutrient and SS within a basin. Loads refer to the actual amount of the constituent being transported in the water column past a given point over a specific duration of time and are expressed in pounds. Yields compare the transported load with the acreage of the watershed and are expressed in lbs/acre. This allows for easy watershed comparisons. This project reports loads and yields for the constituents listed in Table 6 as computed by the Minimum Variance Unbiased Estimator (MVUE) described by Cohn and others (1989). This estimator relates the constituent concentration to water discharge, seasonal effects, and long-term trends, and computes the best-fit regression equation. Daily loads of the constituents then were calculated from the daily mean water discharge records. The loads were reported along with the estimates of accuracy.

Identifying sites where the percentage of LTM for a constituent was different than the percentage of LTM for discharge may show potential areas where improvements or degradations have occurred for that particular

constituent. One item to note is that nutrients and SS increase with increased flow (Ott and others, 1991; Takita, 1996, 1998). This is especially significant during single high flow events.

Tables 7-19 show the loads and yields for the six Group A monitoring stations, as well as an associated error value. They also show the average annual concentration for each constituent. Comparisons have been made to the LTMs for all constituents. Figures 4A-6B show graphs of 2005 loads and yields versus LTMs. Statistics for the Group B sites are listed in Table 20 for summary statistics, Table 21 for average concentrations, and Table 22 for seasonal concentrations. Table 23 shows monthly loads for TN, TP, and SS and monthly flow for Group A sites.

Load values were rounded and expressed in one thousand pound increments causing some small variations when comparing monthly, seasonal, and annual loads among tables. Due to issues related to the model, LTM of loads for October at Danville and December at Conestoga were used in place of 2005 data. Additionally, SS loads for Conestoga were taken from USGS analysis due to the same model related issues.

Table 6. List of Analyzed Parameters, Abbreviations, and STORET Code

Parameter	Abbreviation	STORET Code
Total Nitrogen as N	TN	00600
Dissolved Nitrogen as N	DN	00602
Total Organic Nitrogen as N	TON	00605
Dissolved Organic Nitrogen as N	DON	00607
Total Ammonia as N	TNH ₃	00610
Dissolved Ammonia as N	DNH ₃	00608
Total Nitrate + Nitrite as N	TNOx	00630
Dissolved Nitrate + Nitrite as N	DNOx	00631
Total Phosphorus as P	TP	00665
Dissolved Phosphorus as P	DP	00666
Dissolved Orthophosphate as P	DOP	00671
Total Organic Carbon	TOC	00680
Suspended Sediment (fine)	SSF	70331
Suspended Sediment (sand)	SSS	70335
Suspended Sediment (total)	SS	80154

Table 7. Annual Water Discharges, Annual Loads, Yields, and Average Concentration of Total Nitrogen, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	27,893	97	6.13	1.07	1.25	5.59	5.78
Danville	18,839	115	40,468	91	6.47	1.09	1.38	5.64	6.19
Lewisburg	10,380	93	21,148	87	8.09	1.04	1.12	4.83	5.53
Newport	4,115	91	15,988	96	5.77	1.97	1.87	7.45	7.74
Marietta	40,999	105	138,790	104	7.18	1.72	1.73	8.34	7.00
Conestoga	774	115	11,816	112	5.53	7.75	7.96	39.28	36.00

Table 8. Annual Water Discharges and Annual Loads and Yields of Total Phosphorus, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	3,159	132	26.64	0.121	0.104	0.633	0.479
Danville	18,839	115	5,191	144	26.08	0.140	0.112	0.723	0.503
Lewisburg	10,380	93	1,248	94	31.44	0.061	0.061	0.285	0.303
Newport	4,115	91	489	57	23.68	0.060	0.095	0.228	0.396
Marietta	40,999	105	7,824	90	23.15	0.097	0.113	0.470	0.522
Conestoga	774	115	533	77	38.56	0.363	0.544	1.840	2.391

Table 9. Annual Water Discharges and Annual Loads and Yields of Total Suspended Sediment, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	5,173,852	153	60.85	198.6	146.5	1,036.8	677.9
Danville	18,839	115	4,427,656	144	47.91	119.4	95.4	616.6	429.0
Lewisburg	10,380	93	534,581	49	77.65	26.2	50.2	122.0	247.9
Newport	4,115	91	271,377	56	53.95	33.5	54.8	126.4	227.7
Marietta	40,999	105	5,542,226	80	51.12	68.7	90.3	333.2	417.7
Conestoga	774	115	285,570	71	26.6	187.4	302.9	949.4	1,331.1

Table 10. Annual Water Discharges and Annual Loads and Yields of Total Ammonia, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	1,711	117	25.06	0.066	0.063	0.343	0.293
Danville	18,839	115	2,737	94	26.04	0.074	0.090	0.381	0.407
Lewisburg	10,380	93	1,228	112	24.70	0.060	0.051	0.280	0.250
Newport	4,115	91	481	118	30.47	0.059	0.046	0.224	0.190
Marietta	40,999	105	7,349	143	28.87	0.091	0.067	0.442	0.310
Conestoga	774	115	205	74	41.85	0.134	0.208	0.680	0.915

Table 11. Annual Water Discharges and Annual Loads and Yields of Total NO_x Nitrogen, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	18,800	109	7.24	0.722	0.747	3.767	3.458
Danville	18,839	115	27,397	105	7.61	0.739	0.708	3.815	3.633
Lewisburg	10,380	93	17,505	112	7.23	0.857	0.724	3.995	3.575
Newport	4,115	91	14,228	112	5.63	1.756	1.432	6.628	5.946
Marietta	40,999	105	115,965	123	7.19	1.437	1.223	6.972	5.655
Conestoga	774	115	10,350	119	7.60	6.792	6.593	34.408	28.975

Table 12. Annual Water Discharges and Annual Loads and Yields of Total Organic Nitrogen, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	7,760	75	14.68	0.298	0.450	1.555	2.081
Danville	18,839	115	11,242	66	16.14	0.303	0.524	1.566	2.358
Lewisburg	10,380	93	3,730	48	23.95	0.183	0.358	0.851	1.769
Newport	4,115	91	1,995	47	21.72	0.246	0.472	0.929	1.961
Marietta	40,999	105	24,031	50	14.39	0.298	0.629	1.445	2.908
Conestoga	774	115	1,761	92	27.03	1.155	1.444	5.853	6.347

Table 13. Annual Water Discharges and Annual Loads and Yields of Dissolved Phosphorus, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	911	115	20.71	0.035	0.035	0.183	0.160
Danville	18,839	115	1,750	170	23.97	0.047	0.032	0.244	0.143
Lewisburg	10,380	93	496	99	22.18	0.024	0.023	0.113	0.114
Newport	4,115	91	217	50	19.73	0.027	0.049	0.101	0.202
Marietta	40,999	105	1,718	64	18.34	0.021	0.035	0.103	0.162
Conestoga	774	115	215	77	17.35	0.141	0.210	0.714	0.925

Table 14. Annual Water Discharges and Annual Loads and Yields of Dissolved Orthophosphate, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	655	154	24.59	0.025	0.019	0.131	0.086
Danville	18,839	115	1,215	243	26.93	0.033	0.016	0.169	0.070
Lewisburg	10,380	93	385	191	30.92	0.019	0.009	0.088	0.046
Newport	4,115	91	160	51	23.71	0.020	0.035	0.074	0.145
Marietta	40,999	105	1,180	67	23.42	0.015	0.023	0.071	0.105
Conestoga	774	115	135	57	19.77	0.089	0.179	0.449	0.787

Table 15. Annual Water Discharges and Annual Loads and Yields of Dissolved Ammonia, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	1,478	129	19.76	0.057	0.050	0.296	0.230
Danville	18,839	115	2,304	131	19.89	0.062	0.055	0.321	0.246
Lewisburg	10,380	93	1,075	103	18.00	0.053	0.048	0.245	0.238
Newport	4,115	91	383	92	19.86	1.824	1.801	6.884	7.480
Marietta	40,999	105	5,696	132	20.54	0.071	0.056	0.342	0.259
Conestoga	774	115	184	95	36.01	0.121	0.147	0.611	0.644

Table 16. Annual Water Discharges and Annual Loads and Yields of Dissolved Nitrogen, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	22,576	96	6.56	0.867	1.017	4.524	4.705
Danville	18,839	115	33,785	83	6.39	0.911	1.128	4.705	5.073
Lewisburg	10,380	93	18,869	84	7.13	0.923	1.039	4.306	5.130
Newport	4,115	91	14,778	92	5.17	1.824	1.801	6.884	7.480
Marietta	40,999	105	126,456	108	7.32	1.457	1.516	7.602	7.014
Conestoga	774	115	11,407	116	6.89	7.486	7.468	37.923	32.819

Table 17. Annual Water Discharges and Annual Loads and Yields of Dissolved NO_x Nitrogen, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	18,307	117	7.62	0.703	0.678	3.669	3.137
Danville	18,839	115	26,843	106	7.42	0.724	0.782	3.738	3.518
Lewisburg	10,380	93	17,410	106	7.19	0.852	0.761	3.973	3.757
Newport	4,115	91	13,985	105	5.63	1.726	1.496	6.515	6.213
Marietta	40,999	105	113,343	128	7.26	1.404	1.147	6.814	5.305
Conestoga	774	115	10,051	119	7.67	6.596	6.415	33.414	28.192

Table 18. Annual Water Discharges and Annual Loads and Yields of Dissolved Organic Nitrogen, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	4,204	56	17.07	0.161	0.323	0.843	1.493
Danville	18,839	115	6,074	58	13.92	0.164	0.327	0.846	1.470
Lewisburg	10,380	93	2,558	49	17.37	0.125	0.241	0.584	1.190
Newport	4,115	91	1,242	45	15.49	0.153	0.310	0.579	1.289
Marietta	40,999	105	14,602	41	19.16	0.181	0.464	0.878	2.147
Conestoga	774	115	1,700	145	24.43	1.115	0.887	5.650	3.896

Table 19. Annual Water Discharges and Annual Loads and Yields of Total Organic Carbon, Calendar Year 2005

Site	2005 Discharge cfs	Discharge % of LTM	2005 Load thousands of lbs	Load % of LTM	Prediction Error percent	2005 Ave. Conc. mg/l	LTM Conc. mg/l	2005 Yield lbs/ac/yr	LTM Yield lb/ac/yr
Towanda	13,230	112	89,076	108	5.44	3.420	3.574	17.851	16.538
Danville	18,839	115	121,878	110	4.87	3.286	3.419	16.973	15.379
Lewisburg	10,380	93	40,715	88	8.24	1.992	2.141	9.291	10.571
Newport	4,115	91	21,356	68	7.95	2.636	3.526	9.949	14.642
Marietta	40,999	105	220,018	90	6.51	2.726	3.174	13.227	14.680
Conestoga	774	115	6,456	82	11.24	4.237	5.946	21.462	26.133

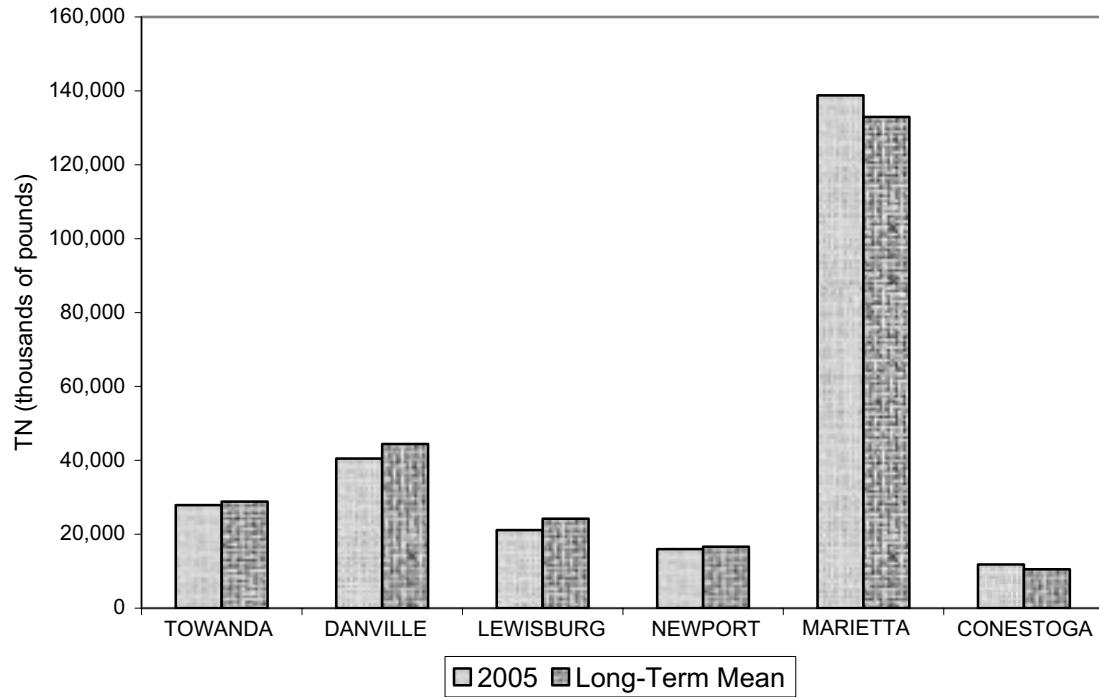


Figure 4A. *Annual Loads of Total Nitrogen (TN) at Towanda, Danville, Lewisburg, Newport, Marietta, and Conestoga, Pa., Calendar Year 2005*

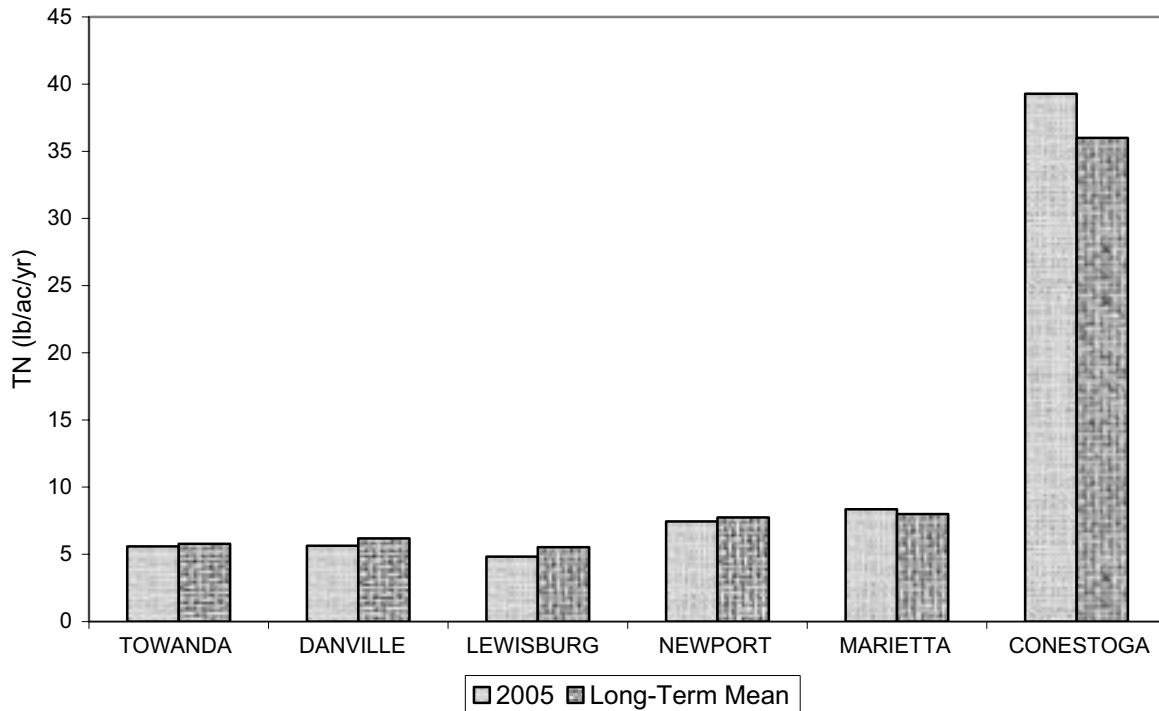


Figure 4B. *Total Nitrogen (TN) Yields at Towanda, Danville, Lewisburg, Newport, Marietta, and Conestoga, Pa., Calendar Year 2005*

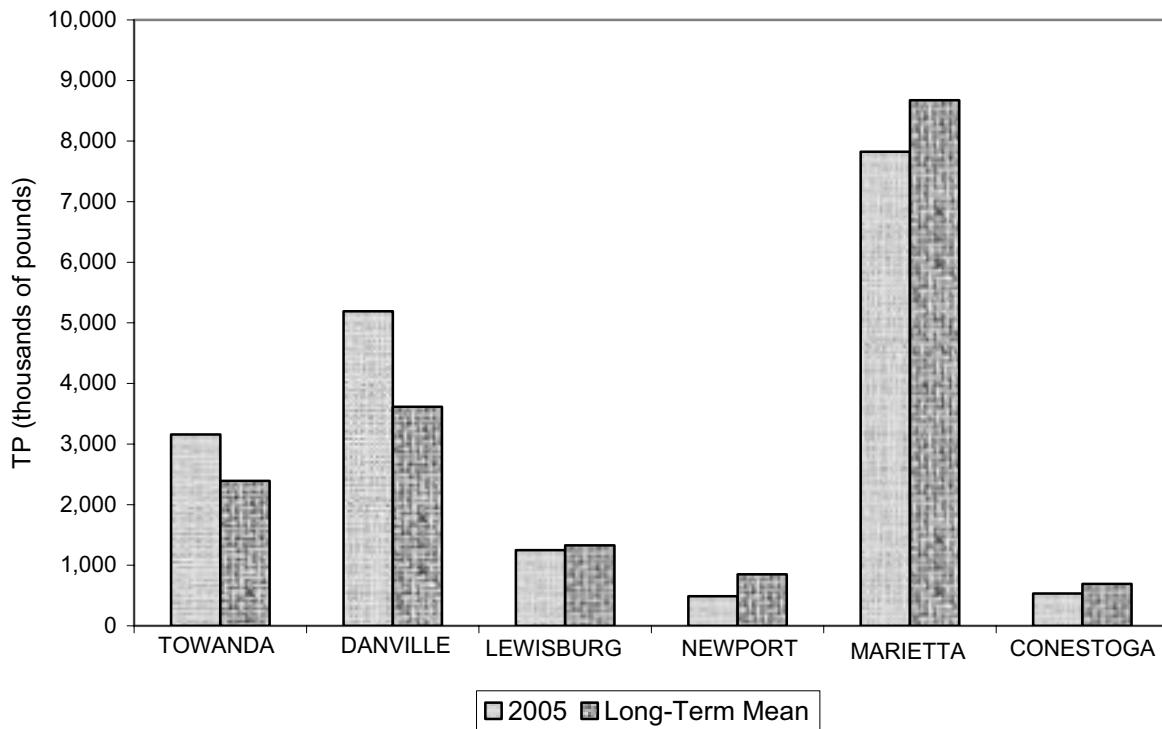


Figure 5A. *Annual Loads of Total Phosphorus (TP) at Towanda, Danville, Lewisburg, Newport, Marietta, and Conestoga, Pa., Calendar Year 2005*

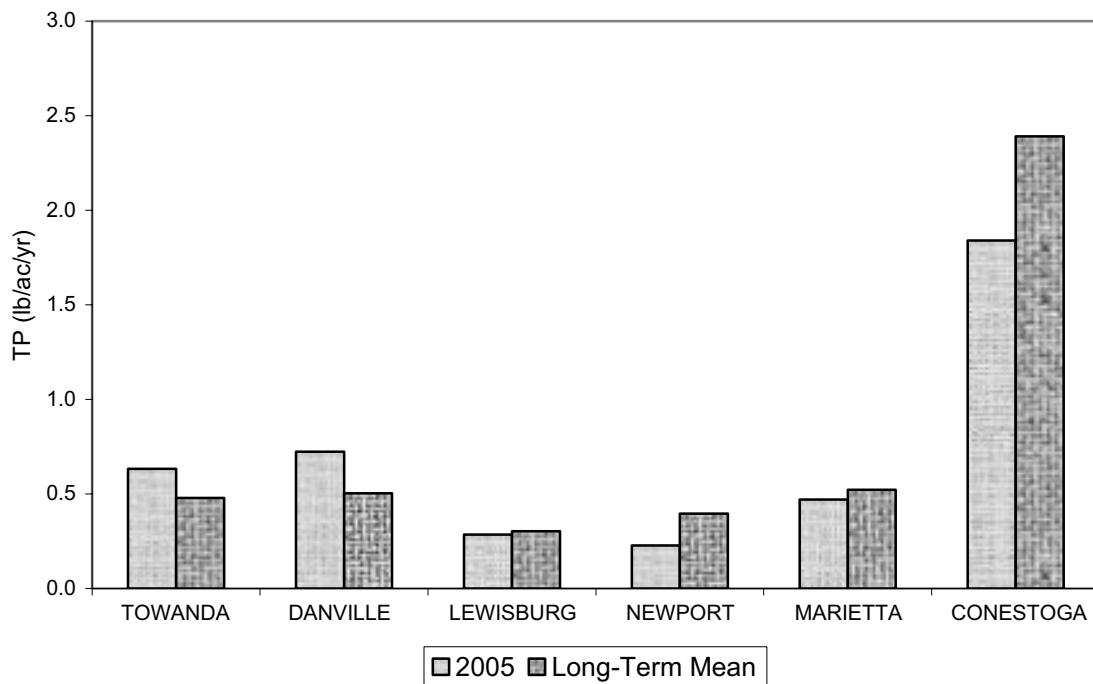


Figure 5B. *Total Phosphorus (TP) Yields at Towanda, Danville, Lewisburg, Newport, Marietta, and Conestoga, Pa., Calendar Year 2005*

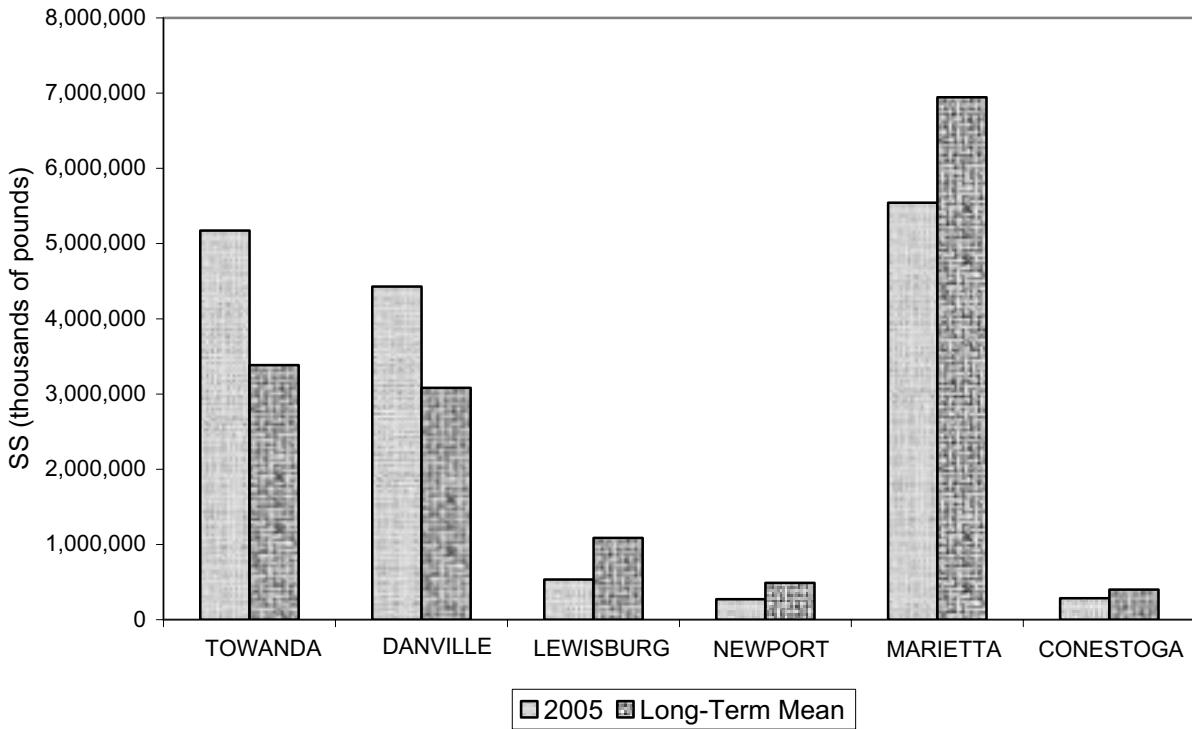


Figure 6A. Annual Loads of Suspended Sediment (SS) at Towanda, Danville, Lewisburg, Newport, Marietta, and Conestoga, Pa., Calendar Year 2005

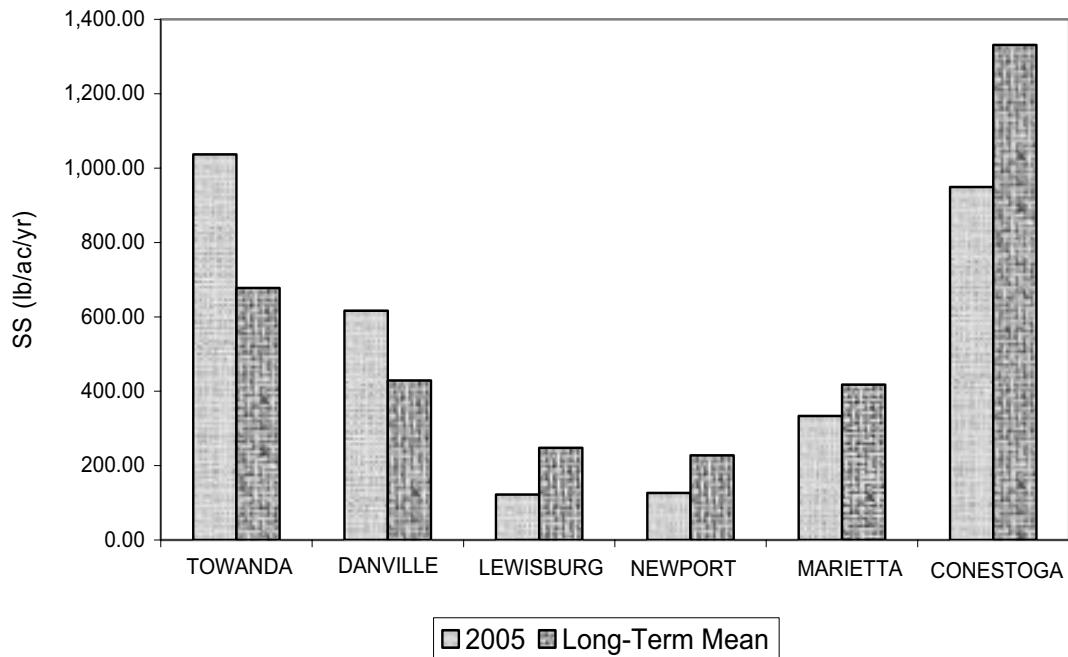


Figure 6B. Suspended Sediment (SS) Yields at Towanda, Danville, Lewisburg, Newport, Marietta, and Conestoga, Pa., Calendar Year 2005

Table 20. Enhanced Monitoring Station Concentration Summary Statistics Data from All 2005 Samples in mg/L

Station Location	Minimum Value			Maximum Value			Median Value			Mean Value			Standard Deviation		
	TN	TP	TSS	TN	TP	TSS	TN	TP	TSS	TN	TP	TSS	TN	TP	TSS
Rockdale	0.74	0.015	6	1.60	0.104	47	0.97	0.052	36	1.10	0.053	28	0.40	0.035	18
Campbell	0.89	0.028	4	2.13	0.110	88	1.47	0.054	11	1.43	0.067	28	0.49	0.039	40
Conklin	0.59	0.025	7	1.82	0.089	55	0.81	0.040	9	0.99	0.051	19	0.49	0.027	20
Richardsmere	3.39	0.059	-	7.45	1.118	-	6.02	0.570	-	5.39	0.515	-	1.75	0.450	-
Smithboro	0.78	0.265	6	1.76	0.294	335	1.00	0.071	14	1.06	0.086	49	0.28	0.071	88
Chemung	0.37	0.014	3	1.50	0.237	318	1.07	0.077	23	1.11	0.091	57	0.27	0.060	83
Wilkes-Barre	0.59	0.025	2	5.02	0.636	466	0.93	0.099	16	1.18	0.146	73	1.03	0.147	123
Karthaus	0.27	0.010	2	0.79	0.128	34	0.48	0.027	10	0.52	0.034	12	0.16	0.028	11
Castanea	1.02	0.022	2	2.14	0.111	50	1.60	0.061	10	1.57	0.063	15	0.33	0.023	16
Jersey Shore	0.43	0.010	2	1.01	0.072	88	0.72	0.045	6	0.68	0.043	16	0.18	0.020	24
Penns Creek	0.57	0.010	2	1.96	0.203	68	1.45	0.075	4	1.35	0.078	14	0.42	0.049	20
Saxton	1.98	0.010	2	3.60	0.412	728	2.28	0.023	10	2.38	0.060	92	0.42	0.101	203
Dromgold	1.04	0.010	2	2.65	0.322	300	1.91	0.034	4	1.89	0.072	34	0.47	0.090	76
Hogestown	3.53	0.010	2	5.54	0.270	312	4.49	0.036	2	4.42	0.062	45	0.57	0.067	89
Hershey	2.93	0.022	2	6.49	0.419	478	4.01	0.058	6	4.26	0.111	66	0.87	0.120	147
Manchester	1.86	0.020	2	3.86	0.798	752	2.58	0.146	10	2.72	0.204	91	0.50	0.189	215
Martic Forge	4.21	0.020	2	9.82	2.192	2064	8.14	0.136	18	7.77	0.471	300	1.62	0.723	652

Table 21. Enhanced Monitoring Station Average Concentration Data for 2005 Monthly Samples

Station Location	Flow cfs	Temp C°	Cond	pH	TN	DN	TNH ₄	DNH ₄	TNO _x	DNO _x	TP	DP	DOP	TOC	TSS mg/L
Average for Fall Only															
Rockdale	1,338	7.1	200	7.47	1.30	1.13	0.026	0.024	0.977	0.834	0.040	0.016	0.013	3.52	2.5
Campbell	434	-	339	7.60	1.54	1.39	0.036	0.035	1.134	1.094	0.057	0.020	0.013	4.22	-
Conklin	4,556	8.8	176	7.30	1.12	0.88	0.028	0.264	0.813	0.567	0.033	0.015	0.008	3.04	10
Richardsmere	-	9.8	216	7.38	5.84	5.81	0.070	0.080	5.510	5.460	0.239	0.216	0.188	4.60	-
Average for Entire Year															
Smithboro	10,663	-	-	-	1.13	0.83	0.047	0.043	0.592	0.565	0.076	0.018	0.011	3.42	39
Chemung	4,389	-	-	-	1.10	0.99	0.028	0.024	0.709	0.691	0.088	0.036	0.030	3.08	56
Wilkes-Barre	12,457	12.5	298	7.23	1.30	1.08	0.070	0.064	0.805	0.787	0.132	0.066	0.057	3.38	65
Karthaus	2,408	13.8	505	6.40	0.49	0.43	0.060	0.049	0.393	0.365	0.035	0.020	0.019	1.45	8
Castanea	-	11.9	332	7.52	1.72	1.70	0.050	0.037	1.586	1.574	0.063	0.043	0.038	1.89	9
Jersey Shore	7,455	13.8	281	7.14	0.72	0.65	0.040	0.037	0.590	0.585	0.043	0.033	0.030	1.49	8
Penns Creek	411	14.2	244	8.01	1.32	1.26	0.040	0.037	1.056	1.052	0.056	0.047	0.041	2.47	6
Saxton	705	16.8	286	7.70	2.27	2.16	0.040	0.033	1.980	1.968	0.019	0.012	0.011	2.42	6
Dromgold	217	15.0	206	7.43	1.75	1.69	0.040	0.043	1.516	1.489	0.027	0.016	0.014	2.24	6
Hogestown	492	-	366	7.66	4.65	4.60	0.045	0.043	4.425	4.335	0.026	0.018	0.016	2.42	-
Hershey	606	15.0	333	7.43	4.57	4.50	0.070	0.062	4.358	4.324	0.053	0.035	0.030	2.49	5
Manchester	537	16.8	263	7.70	2.66	2.62	0.050	0.051	2.346	2.308	0.113	0.091	0.084	4.57	7
Martic Forge	173	16.1	452	7.90	8.52	8.50	0.060	0.058	7.756	7.613	0.108	0.075	0.067	3.13	13

Table 22. Enhanced Monitoring Station Average Seasonal Concentration Data from 2005 Monthly Samples in mg/L

Station Location	Winter			Spring			Summer			Fall			Annual		
	TN	TP	TSS	TN	TP	TSS	TN	TP	TSS	TN	TP	TSS	TN	TP	TSS
Rockdale	-	-	-	-	-	-	-	-	-	1.30	0.040	25	1.3	0.040	25
Campbell	-	-	-	-	-	-	-	-	-	1.54	0.057	-	1.542	0.057	-
Conklin	-	-	-	-	-	-	-	-	-	1.12	0.033	10	1.118	0.033	10
Richardsmere	-	-	-	-	-	-	-	-	-	5.84	0.239	-	5.84	0.239	-
Smithboro	1.64	0.143	119	0.91	0.045	13	0.92	0.064	8	1.05	0.052	16	1.128	0.076	39
Chemung	1.10	0.129	136	1.08	0.047	12	1.03	0.113	21	1.18	0.064	-	1.096	0.088	56
Wilkes-Barre	1.09	0.079	11	2.48	0.264	161	0.73	0.098	-	0.90	0.088	23	1.3	0.132	65
Karthaus	0.70	0.028	17	0.45	0.031	8	0.33	0.020	5	0.48	0.061	3	0.49	0.035	8
Castanea	1.54	0.077	25	2.00	0.052	5	1.85	0.063	5	1.48	0.061	2	1.72	0.063	9
Jersey Shore	0.80	0.045	20	0.66	0.041	5	0.71	0.038	2	0.74	0.046	3	0.72	0.043	8
Penns Creek	1.73	0.046	15	1.52	0.072	4	0.61	0.058	2	1.41	0.042	2	1.32	0.056	6
Saxton	2.21	0.018	9	2.36	0.021	5	2.39	0.021	-	2.10	0.016	3	2.27	0.019	6
Dromgold	2.25	0.029	17	1.85	0.024	3	1.31	0.033	3	1.59	0.023	23	1.75	0.027	6
Hogestown	4.32	0.021	2	4.78	0.032	2	4.89	0.026	-	4.59	0.024	13	4.647	0.026	-
Hershey	4.20	0.038	3	4.31	0.058	4	5.30	0.065	-	4.49	0.049	7	4.57	0.053	5
Manchester	2.78	0.077	16	2.32	0.086	4	2.34	0.150	-	3.19	0.140	2	2.66	0.146	7
Martic Forge	9.20	0.111	23	8.93	0.084	13	7.38	0.138	9	8.60	0.099	9	8.52	0.108	13

Table 23. 2005 Monthly Flow in Cubic Feet per Second and Total Nitrogen, Total Phosphorus, and Suspended Sediment in Thousands of Pounds

Site	Parameter	January	February	March	April	May	June	July	August	September	October	November	December	Annual [#]
Towanda	Q	22,519	14,260	19,120	37,744	6,092	3,371	2,483	905	1,810	15,196	18,154	16,941	13,230
	TN	4,487	2,530	3,567	6,637	947	461	336	124	246	2,429	3,013	3,115	27,893
	TP	448	124	353	1,129	47	28	26	15	24	360	313	294	3,159
Danville	SS	525,605	47,554	551,426	3,016,368	11,806	5,217	4,550	1,444	4,298	442,632	282,675	280,377	5,173,852
	Q	36,313	21,025	26,945	54,717	8,578	4,813	3,675	1,591	2,374	18,534	21,280	25,952	18,839
	TN *	7,692	3,913	5,061	9,398	1,287	603	445	178	288	2,944	3,670	4,989	40,468
Lewisburg	TP *	974	248	644	1,892	79	42	38	18	29	179	405	669	5,191
	SS **	712,678	65,241	596,830	2,416,140	13,372	5,252	4,492	1,277	3,379	120,361	126,139	396,052	4,427,656
	Q	27,563	13,310	16,134	22,554	4,379	2,814	2,256	1,137	1,975	6,187	10,432	15,430	10,380
Newport	TN	5,133	2,196	2,716	3,456	684	420	351	204	325	1,039	1,796	2,830	21,148
	TP	362	87	146	234	21	14	12	8	13	51	104	197	1,248
	SS	172,943	19,633	66,220	134,705	2,407	1,226	1,001	426	1,289	9,362	34,355	90,975	534,581
Marietta	Q	10,931	5,593	9,299	7,588	2,029	1,615	1,295	912	833	1,747	2,332	4,929	4,115
	TN	4,120	1,770	2,907	2,266	519	383	313	213	197	585	794	1,921	15,988
	TP	141	37	108	71	13	12	11	8	7	16	22	43	489
Conestoga	SS	78,787	10,904	99,087	41,801	2,707	2,422	1,968	1,152	869	3,097	10,636	17,948	271,377
	Q	91,119	48,196	63,452	108,960	20,242	11,878	11,995	5,051	6,136	29,718	36,330	57,648	40,999
	TN	29,963	13,125	16,762	26,128	4,457	2,325	2,540	1,000	1,366	9,454	11,853	19,816	138,790
	TP	1,828	358	1,089	2,568	121	70	89	38	47	396	331	888	7,824
	SS	1,165,755	112,579	935,428	2,528,153	29,534	13,773	19,143	5,044	7,128	156,870	89,031	479,788	5,542,226
	Q	1,297	823	1,091	1,625	506	369	544	244	146	1,230	547	832	774
	TN **	1,766	1,053	1,407	1,908	667	460	685	318	185	1,400	767	1,047	11,816
	TP ***	57	21	49	86	13	10	19	7	4	198	14	72	533
	SS ***	29,752	22,983	58,757	30,577	42,729	24,226	42,557	13,547	46,397	13,406	18,487	30,449	285,570

Annual flow is average for the year; Annual loads are total for the year

* LTM values were used for Danville for October due to model related issues

** LTM values were used for Conestoga for December due to model related issues

*** Values for Suspended Sediment at Conestoga for 2005 were taken from USGS analysis due to model related issues