SEASONAL WATER DISCHARGES AND NUTRIENT AND SUSPENDED-SEDIMENT LOADS AND YIELDS

Seasonal loads for all parameters and all sites are listed in Table 22 for loads and Table 23 for percentages (high values in boldface type). Figures 7-16 show graphs of TN, TP, and SS for each season at each site. For the purposes of this project, January through March is winter, April through June is spring, July through September is summer, and October through December is fall. As a general note, nutrient and SS levels increase with increases in flow.

Table 22. Seasonal Mean Water Discharges and Loads of Nutrients and Suspended Sediment, Calendar Year 2004

Station	Season	Mean Water Discharge	Total Nitrogen as N	Dissolved Nitrogen as N	Total Ammonia as N	Dissolved Ammonia as N	Total Organic Nitrogen as N	Dissolved Organic Nitrogen as N	Total Nitrate Plus Nitrite as N	Dissolved Nitrate Plus Nitrite as N	Total Phosphorus as P	Dissolved Phosphorus as P	Dissolved Ortho-Phosphate as P	Total Organic Carbon	Suspended Sediment
		cfs	thousands of pounds												
Towanda	Winter	14,944	**8,592**	**8,065**	661	644	2,138	1,672	**9,214**	**9,245**	521	199	147	20,233	403,698
	Spring	14,456	6,994	6,350	372	409	2,039	1,530	6,638	6,633	412	159	112	21,297	228,474
	Summer	**18,218**	8,083	6,544	531	441	**3,782**	**2,325**	5,831	5,688	**1,680**	**321**	**212**	**46,618**	**4,383,707**
	Fall	13,729	7,550	6,909	**786**	**673**	1,816	1,383	8,505	8,419	619	250	166	23,453	394,007
Danville	Winter	20,984	**12,621**	**11,908**	687	770	3,142	2,459	11,029	**11,022**	864	322	246	27,851	434,979
	Spring	20,806	10,115	8,942	380	470	3,194	2,223	7,929	7,868	720	257	195	30,109	307,820
	Summer	**24,538**	10,887	8,380	187	200	**5,325**	**2,789**	3,384	3,304	**2,761**	**468**	312	**63,025**	**4,647,599**
	Fall	20,963	11,989	10,737	**829**	**812**	3,044	2,205	**11,098**	10,917	1,278	458	**313**	36,786	915,735
Lewisburg	Winter	17,166	**9,547**	**8,484**	**422**	**409**	2,355	**1,486**	**7,006**	**6,983**	492	165	107	15,747	159,800
	Spring	15,348	6,863	6,144	228	260	1,601	1,084	5,215	5,190	297	115	76	13,227	68,911
	Summer	**19,735**	8,927	6,988	248	276	**3,066**	1,303	5,917	5,807	**960**	**187**	**134**	**33,160**	**527,396**
	Fall	13,870	8,099	7,249	383	354	1,515	965	6,780	6,751	415	184	116	14,553	75,536
Newport	Winter	7,370	7,102	**6,624**	150	146	1,095	748	**6,004**	**5,983**	312	145	119	9,035	148,658
	Spring	6,949	5,958	5,428	139	137	1,039	644	4,909	4,881	314	136	107	8,808	151,902
	Summer	**7,403**	**7,175**	6,147	**247**	**197**	**1,493**	**780**	5,444	5,387	**673**	**234**	**205**	**14,636**	**804,887**
	Fall	5,725	6,374	6,064	146	139	653	527	5,913	5,891	275	157	123	7,957	77,383
Marietta	Winter	55,488	45,689	42,980	2,015	1,785	7,952	5,102	37,950	37,401	2,468	767	625	63,029	1,327,665
	Spring	54,564	36,505	33,107	1,133	1,140	6,709	4,122	29,225	28,716	2,086	702	528	64,652	985,534
	Summer	**63,222**	48,558	39,718	1,835	1,370	**11,865**	**6,410**	33,252	32,468	**8,520**	**1232**	**948**	**136,340**	**12,491,178**
	Fall	51,401	**48,720**	**45,430**	**2,239**	**1,818**	6,974	4,346	**42,508**	**41,743**	2,730	866	657	71,706	1,082,778
Conestoga	Winter	933	3,557	3,409	57	54	639	507	2,865	2,861	204	69	53	2,049	159,889
	Spring	837	3,026	2,958	32	31	417	364	2,704	2,665	128	58	53	1,763	42,488
	Summer	**1,551**	**5,029**	**4,706**	**103**	**89**	**820**	**548**	**4,395**	**4,292**	**647**	**201**	**200**	**4,589**	**336,089**
	Fall	888	3,505	3,500	48	45	418	384	3,145	3,126	145	85	78	1,895	32,608

Table 23. Seasonal Mean Water Discharge and Load Percentages of Nutrients and Suspended Sediment, Calendar year 2004

Station	Season	Mean Water Discharge	Total Nitrogen as N	Dissolved Nitrogen as N	Total Ammonia as N	Dissolved Ammonia as N	Total Organic Nitrogen as N	Dissolved Organic Nitrogen as N	Total Nitrate Plus Nitrite as N	Dissolved Nitrate Plus Nitrite as N	Total Phosphorus as P	Dissolved Phosphorus as P	Dissolved Ortho-Phosphate as P	Total Organic Carbon	Suspended Sediment
		cfs	thousands of pounds												
Towanda	Winter	24	**28**	**29**	28	30	22	24	**31**	**31**	16	21	23	18	7
	Spring	24	22	23	16	19	21	22	22	22	13	17	18	19	4
	Summer	**30**	26	23	23	20	**38**	**34**	19	19	**52**	**35**	**33**	**42**	**82**
	Fall	22	24	25	**33**	**31**	19	20	28	28	19	27	26	21	7
Danville	Winter	24	**28**	**30**	33	34	21	25	33	**33**	15	21	23	18	7
	Spring	24	22	22	18	21	22	23	24	24	13	17	18	19	5
	Summer	**28**	24	21	9	9	**36**	**29**	10	10	**49**	**32**	29	**40**	**73**
	Fall	24	26	27	**40**	**36**	21	23	**33**	33	23	30	**30**	23	15
Lewisburg	Winter	26	**28**	**30**	**33**	**32**	28	**31**	**28**	**29**	23	25	25	21	19
	Spring	23	21	21	18	20	19	22	21	21	14	18	18	17	8
	Summer	**30**	27	24	19	21	**35**	27	24	23	**44**	**29**	**30**	**43**	**64**
	Fall	21	24	25	30	27	18	20	27	27	19	28	27	19	9
Newport	Winter	27	27	**28**	22	24	26	28	**27**	**27**	20	22	21	22	13
	Spring	25	22	22	20	22	24	24	22	22	20	20	19	22	13
	Summer	**27**	**27**	25	**37**	**32**	**35**	**28**	24	24	**43**	**35**	**38**	**36**	**67**
	Fall	21	24	25	21	22	15	20	27	27	17	23	22	20	7
Marietta	Winter	25	25	26	**28**	29	24	26	27	27	16	22	23	19	8
	Spring	24	20	21	16	19	20	21	20	20	13	20	19	19	6
	Summer	**28**	27	25	25	22	**35**	**31**	23	23	**54**	**34**	**34**	**41**	**79**
	Fall	23	**28**	**28**	31	**30**	21	22	**30**	**30**	17	24	24	21	7
Conestoga	Winter	22	24	23	24	25	28	28	22	22	18	17	14	20	28
	Spring	20	20	20	13	14	18	20	21	21	11	14	14	17	7
	Summer	**37**	**33**	**33**	**43**	**40**	**36**	**31**	**33**	**33**	**58**	**48**	**52**	**45**	**59**
	Fall	21	23	24	20	21	18	21	24	24	13	21	20	18	6

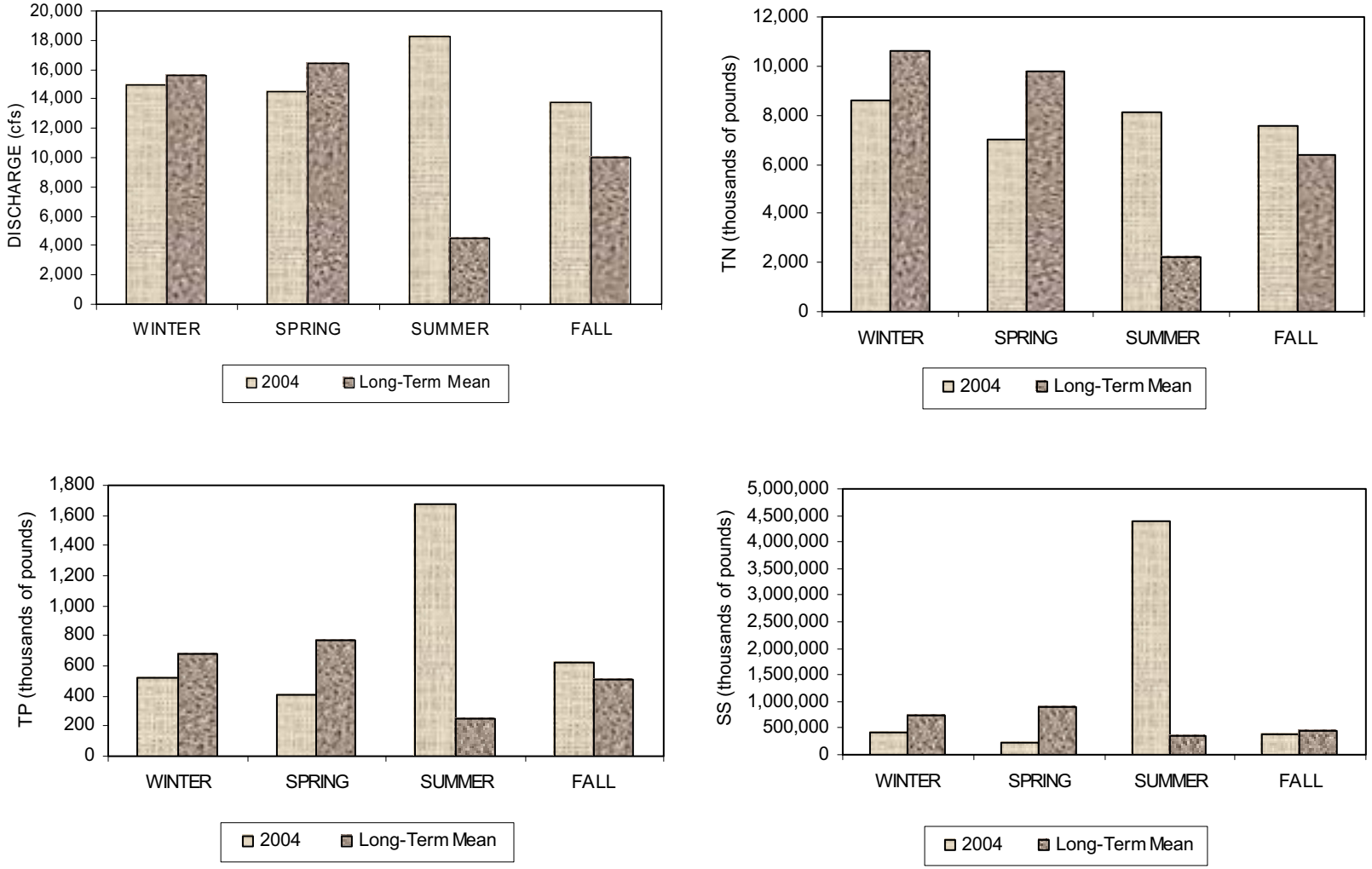

Figure 7. Seasonal Discharges and Loads of Total Nitrogen (TN), Total Phosphorus (TP), Suspended Sediment (SS) at Towanda, Pa., Calendar Year 2004

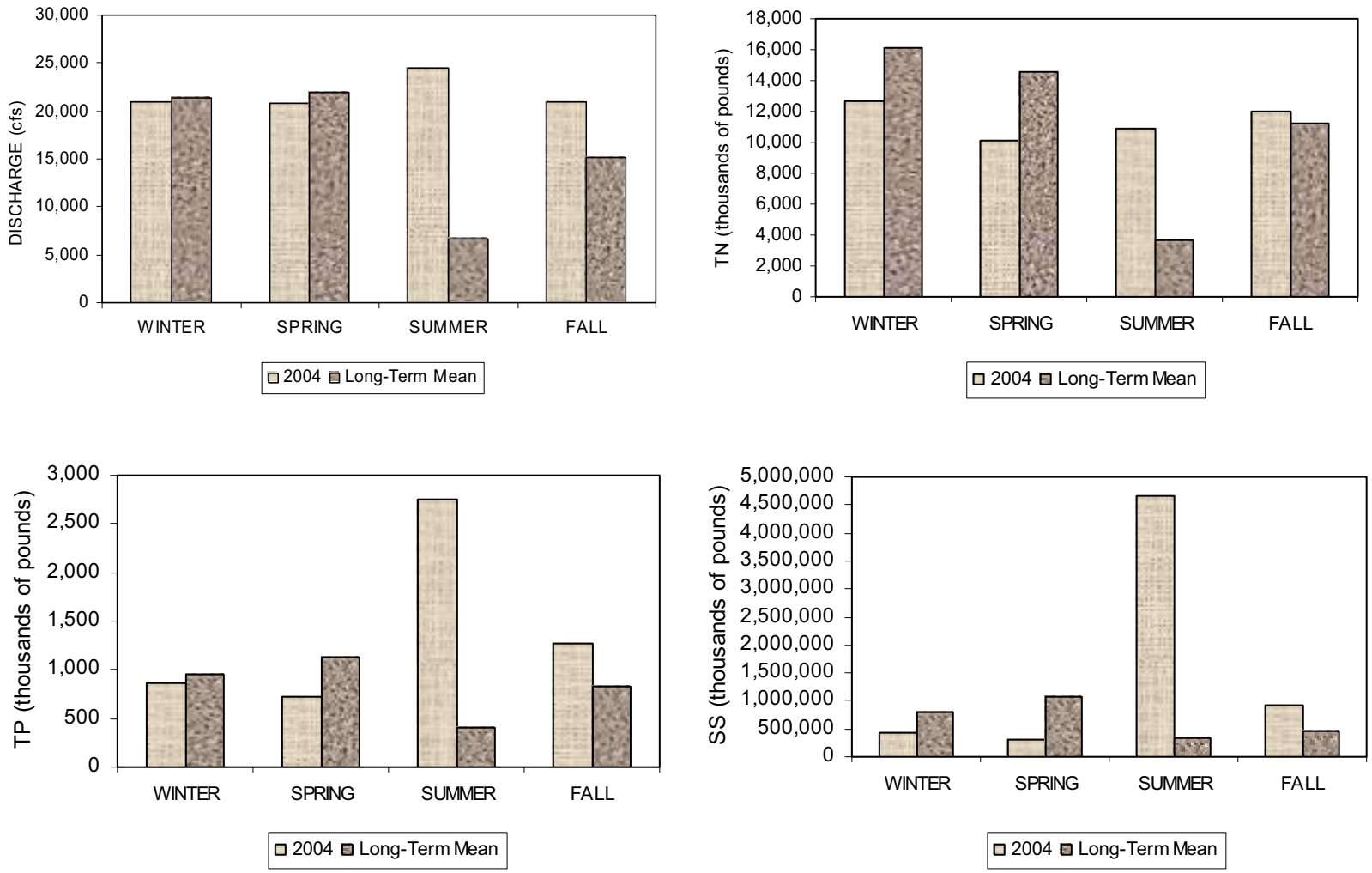

Figure 8. Seasonal Discharges and Loads of Total Nitrogen (TN), Total Phosphorus (TP), Suspended Sediment (SS) at Danville, Pa., Calendar Year 2004

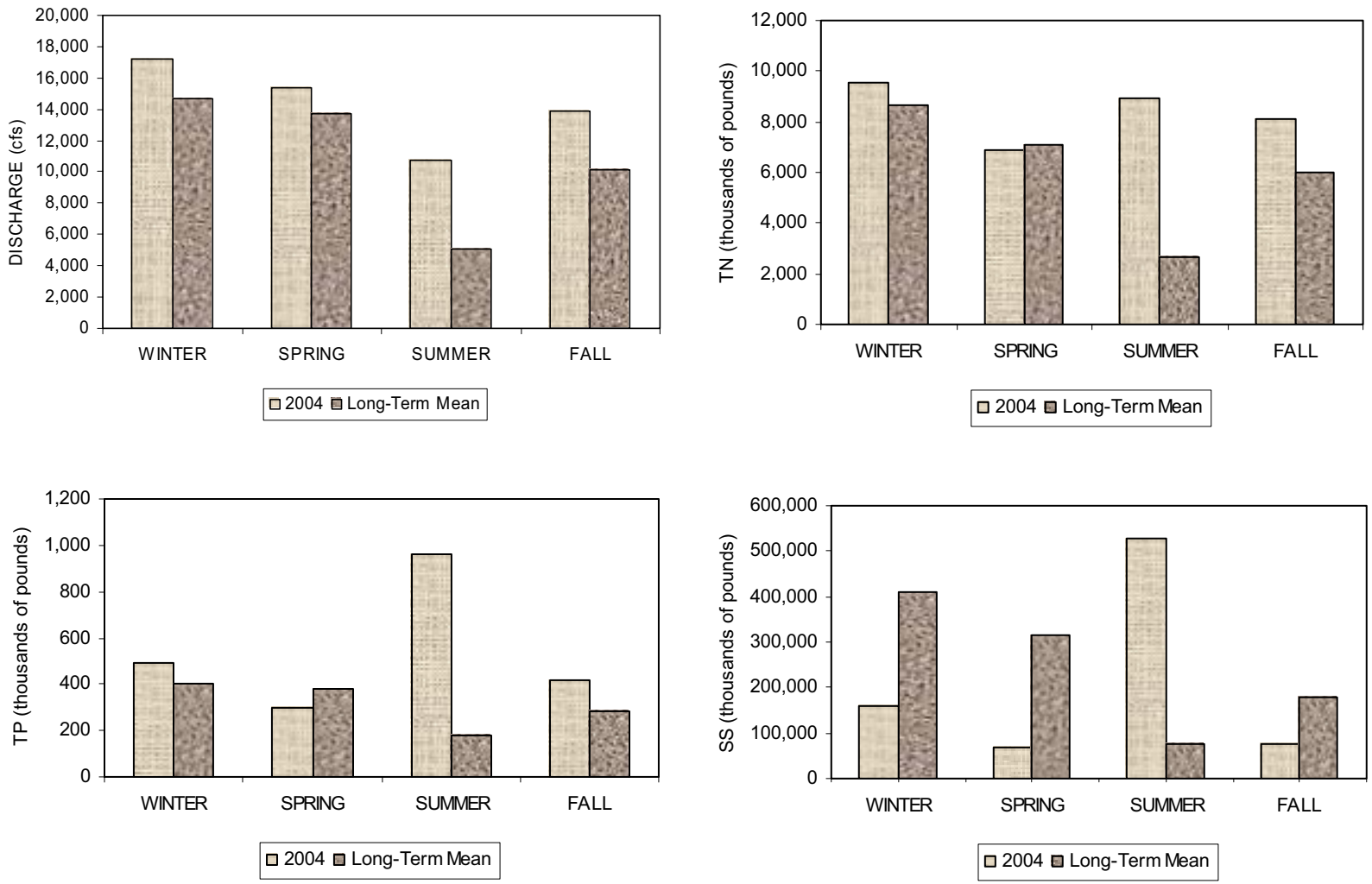

Figure 9. Seasonal Discharges and Loads of Total Nitrogen (TN), Total Phosphorus (TP), Suspended Sediment (SS) at Lewisburg, Pa., Calendar Year 2004

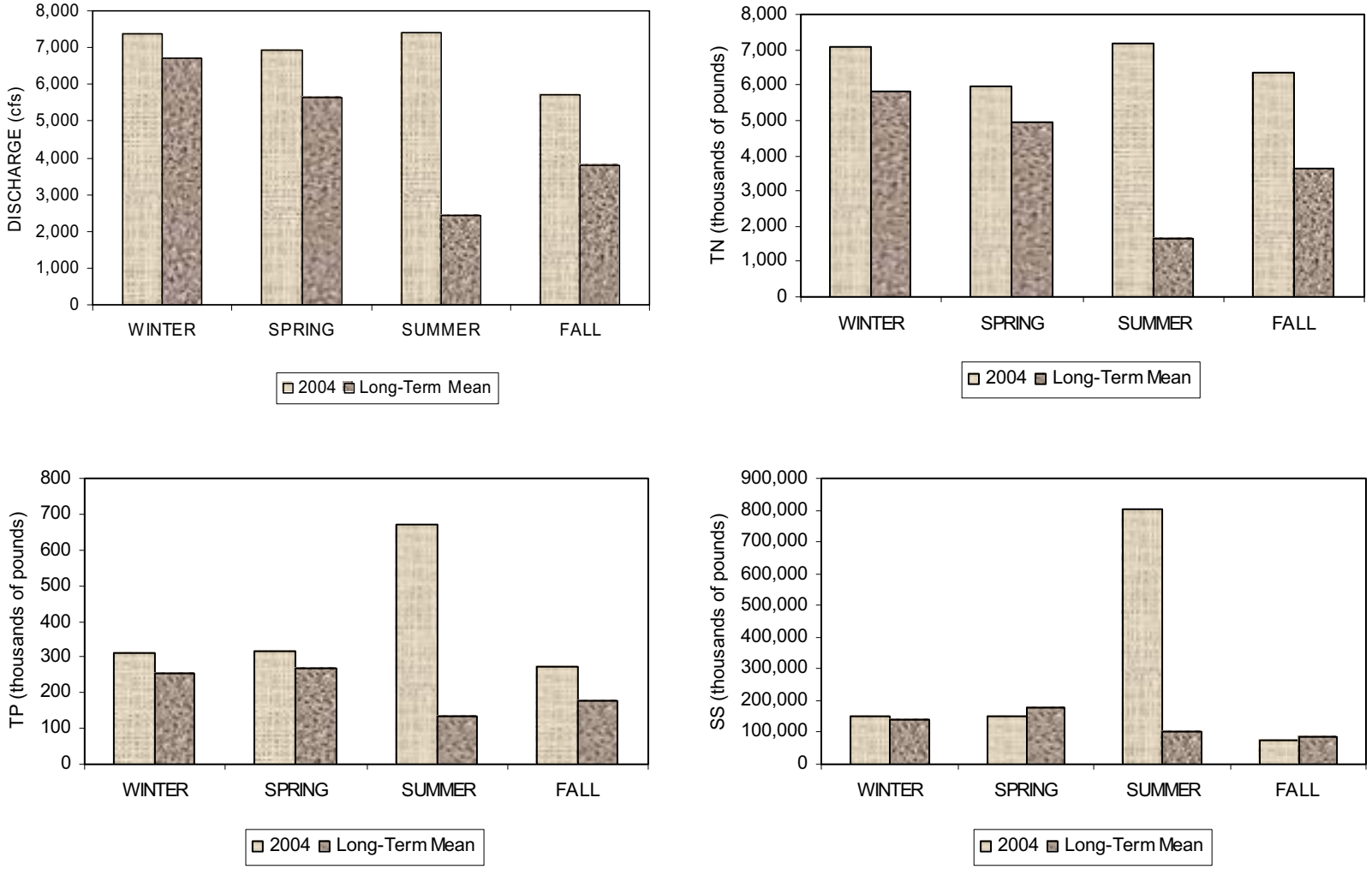

Figure 10. Seasonal Discharges and Loads of Total Nitrogen (TN), Total Phosphorus (TP), Suspended Sediment (SS) at Newport, Pa., Calendar Year 2004

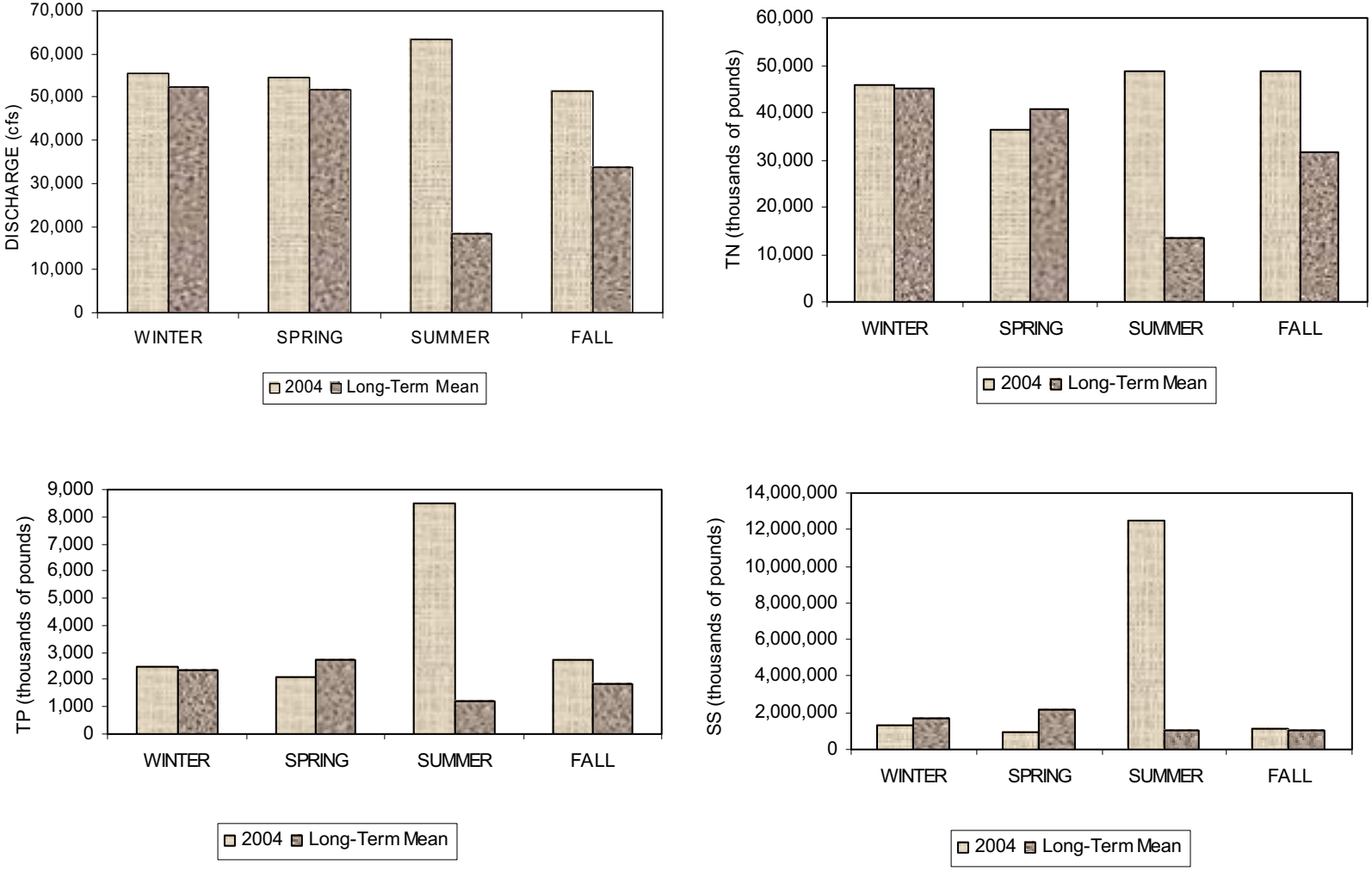

Figure 11. Seasonal Discharges and Loads of Total Nitrogen (TN), Total Phosphorus (TP), Suspended Sediment (SS) at Marietta, Pa., Calendar Year 2004

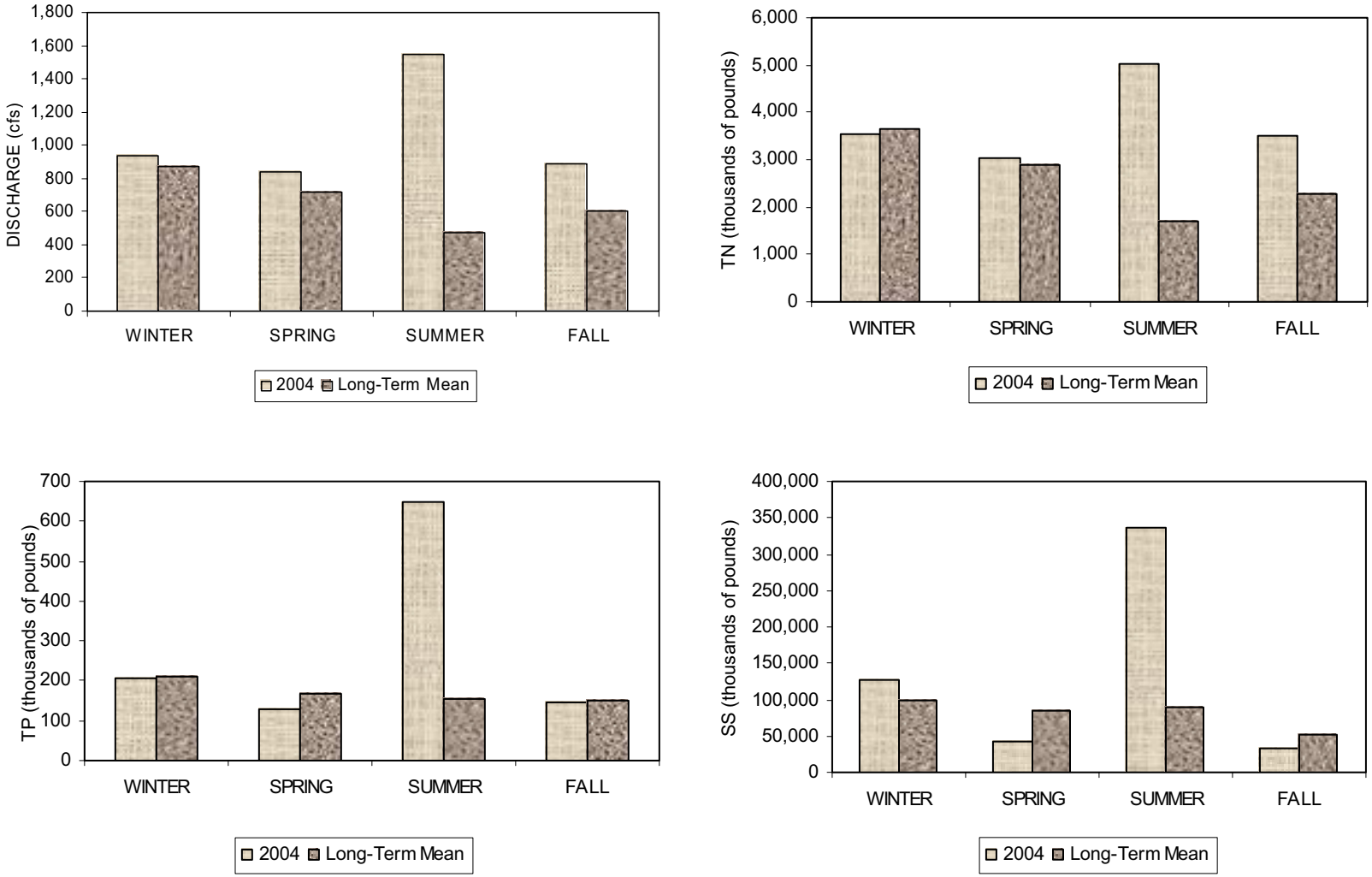

Figure 12. Seasonal Discharges and Loads of Total Nitrogen (TN), Total Phosphorus (TP), Suspended Sediment (SS) at Conestoga, Pa., Calendar Year 2004

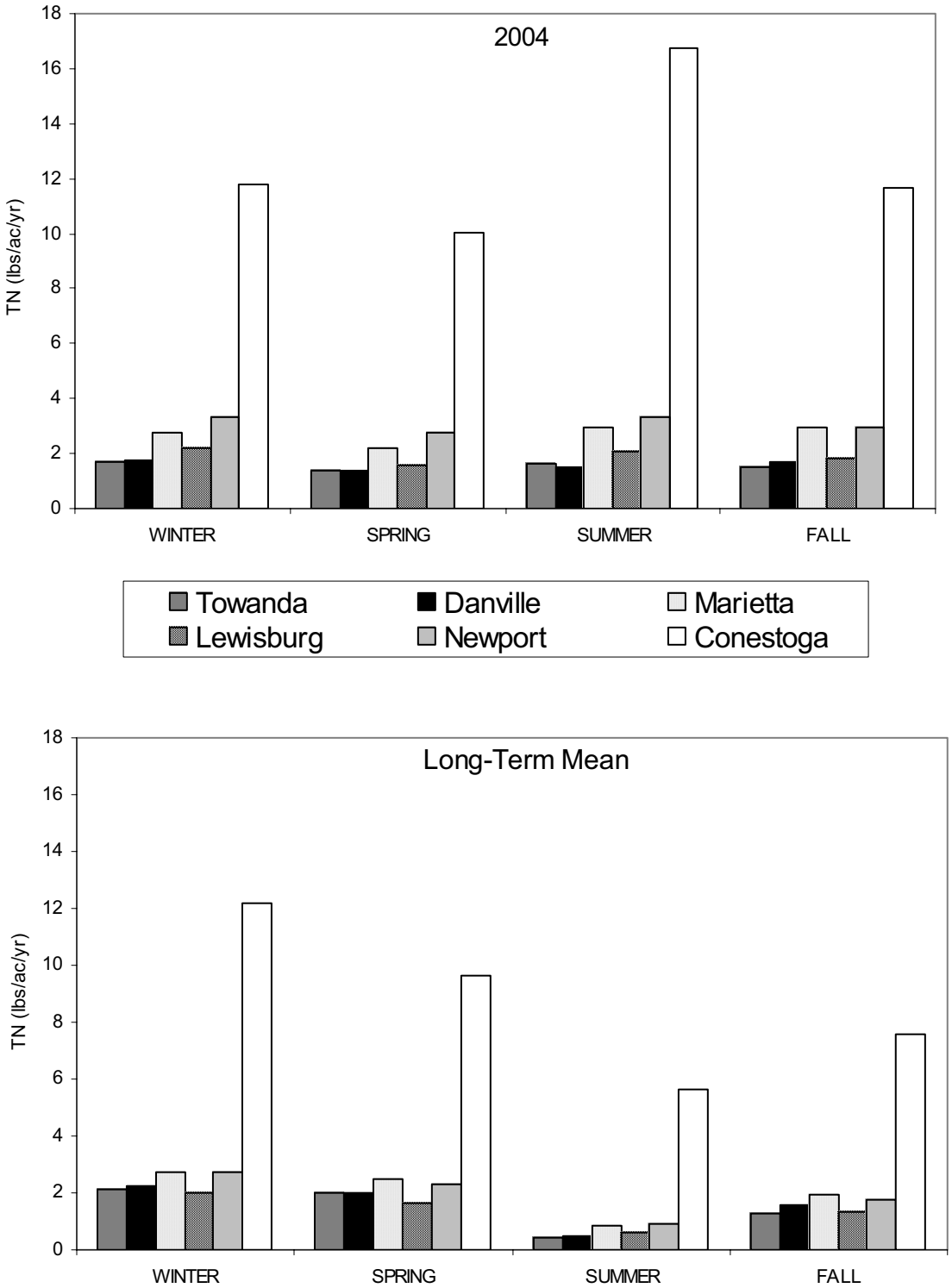

Figure 13. ***Comparison of Seasonal Yields of Total Nitrogen (TN) at Towanda, Danville, Marietta, Lewisburg, Newport, and Conestoga, Pa.***

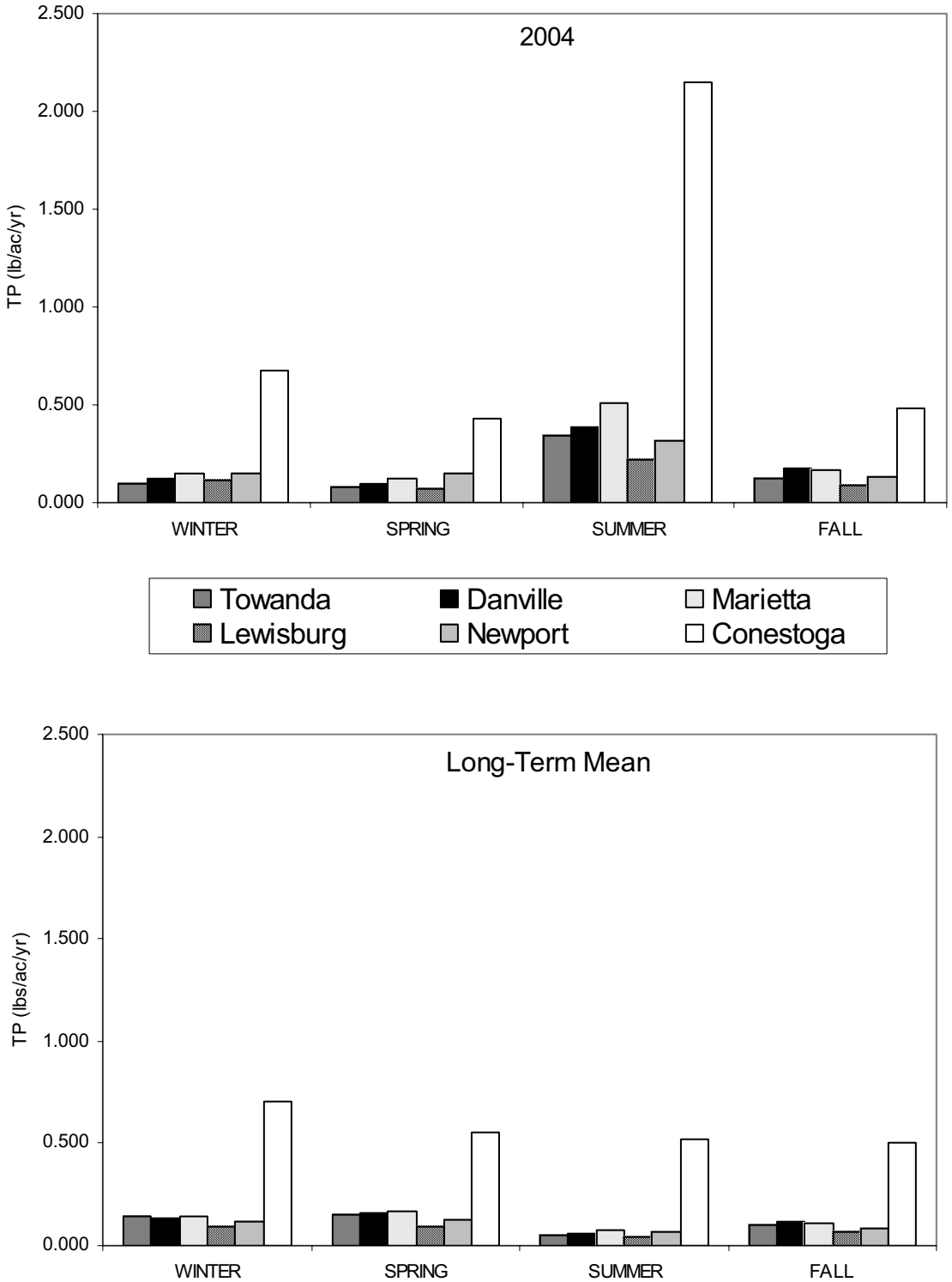

Figure 14. ***Comparison of Seasonal Yields of Total Phosphorus (TP) at Towanda, Danville, Marietta, Lewisburg, Newport, and Conestoga, Pa.***

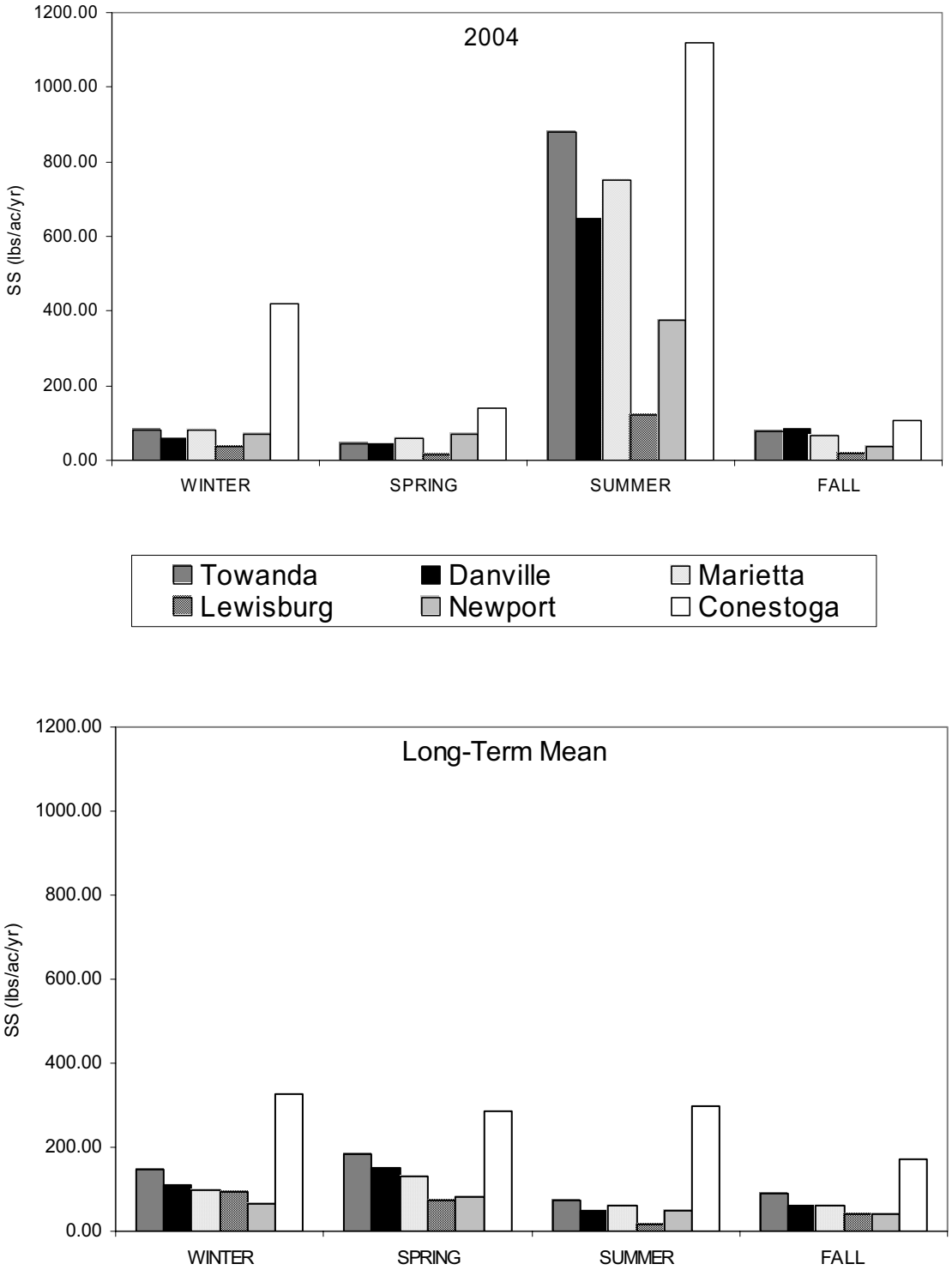

Figure 15. Comparison of Seasonal Yields of Suspended Sediment (SS) at Towanda, Danville, Marietta, Lewisburg, Newport, and Conestoga, Pa.

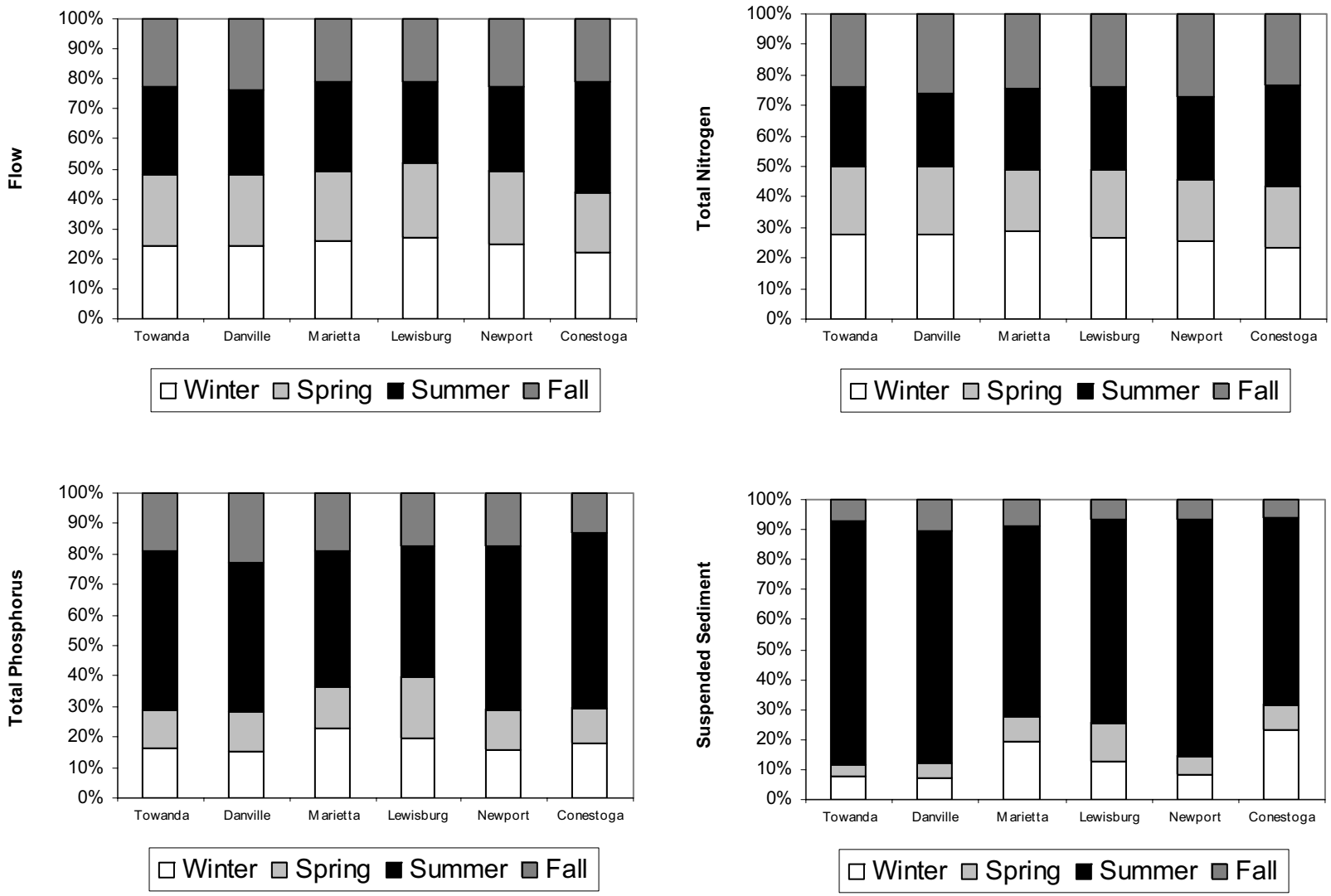

Figure 16. Seasonal Percent of Annual Load of Total Nitrogen, Total Phosphorus, and Suspended Sediment at Towanda, Danville, Marietta, Lewisburg, Newport, and Conestoga, Pa., Calendar Year 2004.