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UPDATE OF U.S. GREAT LAKES TRIBUTARY LOADINGS, 1979-80

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UPDATE OF U.S. GREAT LAKES TRIBUTARY LOADINGS, 1979-80"

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ABSTRACT. This report presents estimated annual loads to the Great Lakes from U.S. tributaries for Water Years 1979 and 1980. Total, monitored, and diffuse loads are tabulated for each of seven categories: total phosphorus, soluble orthophosphorus, suspended solids, chloride, total nitrogen, ammonia nitrogen, and nitrate (+ nitrite) nitrogen. This study updates two previous reports that give the load estimates for Water Years 1975-78.

1. INTRODUCTION

As part of the Pollution From Land Use Activities Reference Group (PLUARG) study, the Great Lakes Basin **Commission** produced a report entitled "United States Great Lakes Tributary Loadings" (**Sonzogni et al., 1978**), which gives annual U.S. Great Lakes tributary load estimates of total phosphorus, soluble orthophosphorus, suspended solids, chloride, **total** nitrogen, ammonia nitrogen, and nitrate (+ nitrite) nitrogen for Water Years 1975 and 1976. "Post-PLUARG Evaluation of Great Lakes Water Quality Management Studies and **Programs**" (Sullivan *et al.*, **1980**), produced by the Great Lakes Basin Commission for the U.S. Environmental Protection Agency, updated annual U.S. Great **Lakes** tributary load estimates of total phosphorus, soluble **orthophosphorus**, suspended solids, and chloride for Water Years 1977 and 1978.

The present study gives estimates of the annual Great Lakes loads from the **entire** U.S. **Great** Lakes Basin and from individual U.S. **hydrologic areas**, river basin groups, and lake basins for Water Years 1979 and ~~1980~~ **1980**. The **resultsshowtotal**, monitored, and diffuse loads for total phosphorus, soluble orthophosphorus, suspended solids, chloride, **total** nitrogen, ammonia nitrogen, and nitrate (+ nitrite) nitrogen.

These parameters include those selected in **previous** studies (**Sonzogni et al.**, 1978, and Sullivan *et al.*, 1980). Loads were estimated for all five Great Lakes.

2. METHODS

The total tributary load comprises diffuse and point-source loads from both monitored and unmonitored areas. Tributary loads from monitored areas were calculated with a ratio-estimator technique described in Dolan *et al.*

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(1981) and in a report by the International Joint **Commission** (1976). The method calculates an average daily tributary load at the mouth from concentration and flow data at an upstream gauging station and the" adjusts it to account for the variability of flow over an annual cycle. Diffuse loads from unmonitored areas were estimated from diffuse loads from monitored areas with similar basin characteristics.

Monitored point sources are those point sources discharged upstream from a gauging station and unmonitored point sources are those point sources discharged downstream from a gauging station. Municipal phosphorus loadings provided by the International Joint Commission (1982) were used to update point-source loading data. Where information was not available, loading data were extrapolated from data found in state records. **Instantaneous** concentration and flow data were obtained from the U.S. Environmental Protection Agency's STORET system. Mean daily and mean annual flow data were obtained from the U.S. Geological Survey.

Detailed descriptions and examples of the methods used in calculating total river mouth loads from monitored and unmonitored areas are presented in **Sonzogni** et al. (1978). Descriptions of the U.S. Great Lakes tributaries, their river basin group classifications, and maps of their drainage basins can be found in Hall et al. (1976).

3. RESULTS

Tables 1 and 2 present the U.S. Great Lakes Basin tributary loads, the percentage of the load obtained from monitored areas, and the percentage of the load obtained from diffuse sources for Water Years 1979 and 1980. Load estimates are presented for total phosphorus, soluble orthophosphorus, suspended solids, chloride, total nitrogen, ammonia nitrogen, and nitrate (+ nitrite) nitrogen. Table 1 displays the lake totals and the U.S. Great Lakes Basin totals. Table 2 lists the loads for individual hydrologic areas and river basin groups. Annual river mouth loads are in units of metric tons, and percentage monitored and percentage diffuse are in parts per hundred. All values have been rounded to two significant figures.

Table 1

U.S. GREAT LAKES TRIBUTARY LOADINGS, WY 1979-1980
(Metric Tons)

Lake		Total Phosphorus 1979			Total Phosphorus 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1	Lake Superior	960	58	84	730	58	84
2	Lake Michigan	3,300	82	66	2,900	78	64
3	Lake Huron	970	75	72	870	75	64
4	Lake Erie	3,800	83	67	6,600	90	82
5	Lake Ontario	1,400	75	52	2,400	65	74
	U.S. Total	10,000	79	67	13,000	80	76

Lake		Soluble Ortho P 1979			Soluble Ortho P 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1	Lake Superior	210	52	62	220	76	70
2	Lake Michigan	1,300	74	60	1,100	73	52
3	Lake Huron						52
4	Lake Erie	1,400	90	58	1,800	84	71
5	Lake Ontario	630	74	46	1,400	66	77
	U.S. Total	3,900	78	58	4,700	75	67

Lake		Suspended Solids 1979			Suspended Solids 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1	Lake Superior	1,200,000	68	100	420,000	82	99
2	Lake Michigan	630,000	82	94	590,000	82	94
3	Lake Huron	290,000	64	96	280,000	64	95
4	Lake Erie	3,200,000	86	99	3,300,000	93	99
5	Lake Ontario	1,000,000	84	97	620,000	70	95
	U.S. Total	6,400,000	81	98	5,200,000	87	98

Table 1

U.S. GREAT LAKES TRIBUTARY LOADINGS, WY 1979-1980
(Metric Tons)

Number	Lake Name	Chloride 1979			Chloride 1980		
		Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1	Lake Superior	83,000	29	50	67,000	25	40
2	Lake Michigan	790,000	74	77	670,000	76	73
3	Lake Huron	300,000	80	56	280,000	84	53
4	Lake Erie	700,000	89	79	700,000	88	79
5	Lake Ontario	1,300,000	91	57	1,300,000	88	56
	U.S. Total	3,200,000	84	67	3,000,000	84	64

Lake	Total Nitrogen 1979			Total Nitrogen 1980			
	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse	
1	Lake Superior	15,000	46	98	11,000	50	96
2	Lake Michigan	59,000	75	90	50,000	81	88
3	Lake Huron	23,000	67	89	23,000	64	89
4	Lake Erie	90,000	89	92	92,000	90	93
5	Lake Ontario	29,000	76	83	29,000	72	83
	U.S. Total	220,000	78	90	200,000	80	90

Lake	Ammonia Nitrogen 1979			Ammonia Nitrogen 1980			
	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse	
1	Lake Superior	620	34	77	590	42	75
2	Lake Michigan	4,500	76	44	4,400	74	44
3	Lake Huron	1,700	88	42	1,700	92	39
4	Lake Erie	4,200	87	46	4,000	90	40
5	Lake Ontario	3,600	69	41	4,400	60	56
	U.S. Total	15,000	77	45	15,000	75	47

Table 1
 U.S. GREAT LAKES TRIBUTARY LOADINGS, WY 1979-1980
 (Metric Tons)

Number	Lake Name	Nitrate (+Nitrite) Nitrogen 1979			Nitrate (+Nitrite) Nitrogen 1980		
		Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1	Lake Superior	3,400	38	96	1,500	46	94
2	Lake Michigan	23,000	76	91	23,000	89	92
3	Lake Huron	12,000	60	94	14,000	57	94
4	Lake Erie	67,000	89	97	68,000	90	97
5	Lake Ontario	14,000	76	89	11,000	74	87
	U.S. Total	120,000	81	95	120,000	84	95

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE SUPERIOR

Hydrologic Area		Total Phosphorus 1979			Total Phosphorus 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1.1.1	Superior Slope Complex	31	6.1	100	82	6.1	100
1.1.2	Saint Louis River	180	100	53	62	100	0
1.1.3	Apcstle Island Complex	300	34	100	59	34	100
				99			98
1.1.5	Montreal River Complex	124	183	56	9.2	100	17
	River Basin Group 1.1 Total	640	65	85	260	54	78
1.2.1	Porcupine Mountains Comp.	75	28	83	32	29	86
1.2.2	Gntonagon River	47	100	98	210	100	99
				92	54	0	95
1.2.4	Sturgeon Riversula Comp.	28	100	100	39	100	100
1.2.5	Huron Mountain Complex	77	0	96	83	0	44
1.2.6	Grand Marais Complex	29	0	87	25	0	95
1.2.7	Tahquamenon River	23	100	20	100	100	86
1.2.8	Sault Complex	0.3	0	100	5.3	0	100
	River Basin Group 1.2 Total	310	43	81	470	60	87

Table 2
HYDROLOGIC AREA LOADINGS, WY 1979-1980
(Metric Tons)

LAKE MICHIGAN

Hydrologic Area		Total Phosphorus 1979			Total Phosphorus 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
2.1.1	Merominee Complex	20		100		44	100
	Merominee River	37	44	77	18		88
2.1.2	Peshtigo River	32	100	98	100	100	99
	River				46		91
2.1.4	Oconto	61	100	57	47	35	100
2.1.5	Fox River Complex	590	100	152	390	100	30
2.1.7	Green Bay Complex	330	52	90	300	52	89
	River Basin Group 2.1 Total	1200	82	71	950	81	60
2.2.1	Chicago-Milwaukee Complex	280	42	73	340	42	77
2.3.1	Saint Joseph River	530	100	85	410	100	80
2.3.2	Black R. (S. Haven) Comp.	19	0	100	25	0	100
2.3.3	Kalamazoo River	220	100	6.3	210	100	0
2.3.4	Black R. (Ottawa Co.) Comp	16	0	30	19	0	36
2.3.5	Grand River	550	100	32	470	100	31
	River Basin Group 2.3 Total	1300	97	50	1,100	96	45
2.4.1	Muskegon River	93		85	61		77
2.4.2	Sable Complex	60	129	99	46	100	98
2.4.3	Manistee River	71	90	98	51	90	97
2.4.4	Traverse Complex	47	10	86	65	11	87
2.4.5	Saul Choix-Groscap Comp.	19					
2.4.6	Maristique River	50	100	100	405	100	100
2.4.7	Bay De Noc Complex	59	0	100	94	0	100
2.4.8	Escanaba River	47	100	100	75	100	100
	River Basin Group 2.4 Total	450	62	95	450	54	94

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE MURDN

Hydrologic Area		Total Phosphorus 1979			Total Phosphorus 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
3.1.1	Les Cheneaux Complex	130	23	100	150	23	100
3.1.2	Cheboygan River	39	100	100	40	100	100
3.1.3	Presque Isle Complex	14	0	100	9.8	0	100
3.1.4	Thunder Bay River	32	100	100	13	100	100
3.1.5	Au Sable-Alcona Complex	35	92	96	25	92	94
3.1.6	Rifle-Au Gres Complex	65	47	82	45	43	74
	River Basin Group 3.1 Total	320	52	96	280	46	95
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3.2.1	Kaskawlin Complex	19	0	53	14	0	94
3.2.2	Saginaw River	550	100	100	520	100	43
3.2.3	Thumb Complex	82	10		57	10	100
	River Basin Group 3.2 Total	650	80	60	590	89	49

Table 2

HYDROLOGIC AREA LOADINGS, WY 1979-1980
(Metric Tons)

LAKE ERIE

Hydrologic Area		Total Phosphorus 1979			Total Phosphorus 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
4.1.1	Black River	77	100	58	94	100	65
4.1.2	St. Clair Complex	18	53	48	40	44	76
4.1.3	Clinton River	69	100	6.1	130	100	44
4.1.4	Rouge Complex	100	55	88	150	55	89
4.1.5	Huron River	32	100	0	64	100	2.0
4.1.6	Suez Creek Complex	36	86	100	66	0	100
4.1.7	Raisin River	150	77	93	260	85	96
	River Basin Group 4.1 Total	480		66	810	76	75
4.2.1	Ottawa River	36	0	79	140	0	95
4.2.2	Maumee River	1000	100	75	3,800	100	93
4.2.3	Toussaint-Portage Comp.	180	66	79	160	69	76
4.2.4	Sandusky River	340	100	83	230	100	84
4.2.5	Huron-Vermilion Complex	380	65	87	120	66	59
	River Basin Group 4.2 Total	1900	88	79	4,400	95	91
4.3.1	Black-Rocky Complex	290	94	34	280	93	38
4.3.2	Cuyahoga River	410	100	20	520	100	46
4.3.3	Chagrin Complex	38	92	75	88	91	89
4.3.4	Grand River	140	100	94	140	100	94
4.3.5	Ashtabula-Conneaut Comp.	50	91	90	56	56	93
	River Basin Group 4.3 Total	930	97	42	1,100	95	56
4.4.1	Erie-Chautauqua Complex	130	0	90	70	0	86
4.4.2	Cattaraugus Creek	120	100	83	69	100	71
4.4.3	Tonawanda Complex	160	20	46	110	19	33
	River Basin Group 4.4 Total	410	37	71	250	36	59

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ONTARIO

Hydrologic Area		Total Phosphorus 1979			Total Phosphorus 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
5.1.1	Niagra-Orleans Complex	120	0	80	320	0	92
5.1.2	Genesee River	310	94	82	820	93	93
	River Basin Group 5.1 Total	430	67	81	1,100	67	93
5.2.1	Wayne-Cayuga Complex	27	0	92	140	0	98
5.2.2	Oswego River	480	100	4.2	490	100	13
5.2.3	Salmon Complex	150	15	97	300	15	98
	River Basin Group 5.2 Total	660	77	29	930	58	53
5.3.1	Black River	130	100	37	130	100	71
5.3.2	Perch Complex	19	0	100	18	0	100
5.3.3	Oswagatchie River	96	100	93	58	100	88
5.3.4	Grass-Raquette-St. Regis	83	54	48	100	45	42
	River Basin Group 5.3 Total	330	82	60	310	76	66

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE SUPERIOR

Hydrologic Area		Soluble Ortho P 1979			Soluble Ortho P 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1.1.1	superior Slope Complex	9.8	6.1	100	9.8	6.1	100
1.1.2	Saint Louis River	47	100	10	30	100	0
1.1.3	Apostle Island Complex	50	34	100	15	25	100
1.1.4	Bac River	13	100	95	19	100	97
1.1.5	Montreal River Complex	6.2	0	16	6.1	0	13
	River Basin Group 1.1 Total	130	62	61	80	67	55
				68			
1.2.1	Porcupine Mountains Comp.	5.3	23	95	4.8	21	63
	Ontonagon						98
1.2.2	Keweenaw River	16	100		34	100	93
1.2.4	Sturgeon River	4.2	100	100	12	100	100
1.2.5	Huron Mountain Complex	29	0	20	37	0	37
1.2.6	Grand Marais Complex	7.6	0	93	14	0	96
	Tahquamenon	6.4					86
1.2.7	River	1.6	100	78	11	100	100
1.2.8	River Basin Group Total	80	35	163	140.9	43	78

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE MICHIGAN

Hydrologic Area		Soluble Ortho P 1979			Soluble Ortho P 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
2.1.1	Merominee Complex	1.8	44	100	3.1	44	100
2.1.2	Merominee River	27	100	59	42	100	85
2.1.3	Peshtigo River	6.9	100	96	5.2	100	95
2.1.4	Oconto River	25	100	92	17	100	88
2.1.5	Suamico Complex	49	35	100	2.8	0	100
2.1.6	Fox River	180	100	20	170	100	21
2.1.7	Green Bay Complex	250	52	93	140	52	88
	River Basin Group 2.1 Total	540	72	88	380	81	50
2.2.1	Chicago-Milwaukee Complex	210	42	81	150	41	74
2.3.1	Saint Joseph River	140	100	72	69	100	42
2.3.2	Black R. (S. Haven) Comp.	7.6	0	100	2.2	0	100
2.3.3	Kalamazoo River	80	100	0	94	100	0
2.3.4	Black R. (Ottawa Co.) Comp	11	0	50	7.1	0	15
2.3.5	Grand River	160	100	0	190	100	13
	River Basin Group 2.3 Total	400	95	28	360	97	16
2.4.1	Muskegon River	39	100	83	18	100	61
2.4.2	Sable Complex	4.9	35	92	3.9	36	90
2.4.3	Manistee River	25	90	97	22	90	96
2.4.4	Traverse Complex	17	10	80	17	9.1	75
2.4.5	Seul Choix-Groscap Comp.	3.6	0	100	4.5	0	100
2.4.6	Manistique River	9.4	100	100	12	100	100
2.4.7	Bay De Noc Complex	19	0	100	56	0	100
2.4.8	Esscanaba River	15	100	100	44	100	100
	River Basin Group 2.4 Total	130	67	91	180	55	93

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)
 LAKE MURON

Hydrologic Area		Soluble Ortho P 1979			Soluble Ortho P 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
-----		48	23		58		
3.1.1	Les Cheneaux Complex	20	100	100	28	23	100
3.1.2	Cheboygan River			100	6.0	100	100
3.1.3	Presque Isle Complex	6.6	0	100	4.5	0	100
3.1.4	Thunder Bay River	14	100	100		100	100
3.1.5	Au Sable-Alcona Complex	19	92	63	11	92	93
		16	37		14		57
3.1.6	Rivière-Basines Group 3.1 Total	120	55	95	120	50	95
-----				91			
3.2.1	Kaukawlin Complex	4.3	0	35	2.4	0	83
	Saginaw	66	10				12
3.2.3	Thumb Complex	270	176	100	185	110	100
	River Basin Group 3.2 Total			52	190	87	25

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ERIE

Hydrologic Area		Soluble Ortho P 1979			Soluble Ortho P 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
4.1.1	Black River	29	100	43	21	100	22
4.1.2	St. Clair Complex	7.7	56	37	16	46	70
4.1.3	Clinton River	41	100	21	58	100	39
4.1.4	Rouge Complex Huron	36	52	82	82	56	90
4.1.5	Swan River	7.4	100	0	32	100	100
4.1.7	Raisin River Complex	42.7	87	187	130	85	96
	River Basin Group 4.1 Total	170	79	58	350	72	77
4.2.1	Ottawa River	17	0	78	25	0	85
4.2.2	Maumee River	490	100	74	680	100	82
4.2.3	Toussaint-Portage Comp.	44	73	57	47	73	58
4.2.4	Sandusky River	120	100	75	100	100	83
4.2.5	Huron-Vermilion Complex	69	63	64	79	66	69
	River Basin Group 4.2 Total	730	93	73	930	93	80
4.3.1	Black-Rocky Complex	120	96	20	140	93	39
4.3.2	Cuyahoga River	200	100	17	160	100	10
4.3.3	Chagrin Complex	30	91	84	25	92	80
4.3.4	Grand River	53	100	92	32	100	97
4.3.5	Ashtabula-Conneaut Comp.	31	91	92	37	56	95
	River Basin Group 4.3 Total	430	93	37	390	93	39
4.4.1	Erie-Chautauque Complex	14	0	53	60	0	92
4.4.2	Cattaraugus Creek	16	100	38	6.5	100	0
4.4.3	Tonawanda Complex	40	20	12	41	15	85
	River Basin Group 4.4 Total	70	34	26	110	12	84

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ONTARIO

Hydrologic Area		Soluble Ortho P 1979			Soluble Ortho P 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
5.1.1	Niagra-Orleans Complex	35	0	65	200	0	94
5.1.2	Genesee River	87	95	68	510	93	94
	River Basin Group 5.1 Total	120	68	67	710	67	94
5.2.1	Wayne-Cayuga Complex	6.6	0	83	48	0	98
5.2.2	Oswego River	230	100	1.0	290	100	26
5.2.3	Salmon Complex	100	15	98	170	15	99
	River Basin Group 5.2 Total	340	72	32	510	62	57
5.3.1	Black River	50	100	20	49	100	62
5.3.2	Perch Complex	12	0	100	7.7	0	100
5.3.3	Ossagatchie River	76	100	96	31	100	89
5.3.4	Grass-Raquette-St. Regis	29	48	26	60	48	50
	River Basin Group 5.3 Total	170	84	61	150	74	65

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE SUPERIOR

Hydrologic Area		Suspended Solids 1979			Suspended Solids 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1.1.1	Superior Slope Complex	12,000	6.1	100	15,000	6.1	100
1.1.2	Saint Louis River	210,000	100	100	8,000	100	100
1.1.3	Apstle Island Complex	480,000	34	100	36,000	34	100
1.1.4	Bad River	160,000	100	100	23,000	100	100
1.1.5	Montreal River Complex	3,600	80	98	590	82	89
	River Basin Group 1.1 Total	870,000	62	100	83,000	54	99
1.2.1	Porcupine Mountains Comp.	5,000	29	86	11,000	29	84
1.2.2	Cntonagon River	180,000	100	100	250,000	100	100
1.2.3	Keweenaw Peninsula Comp.	37,000	0	100	18,000	0	100
1.2.4	Sturgeon River	110,000	100	100	50,000	100	100
1.2.5	Huron Mountain Complex	7,200	0	96	4,700	0	94
1.2.6	Grand Marais Complex	8,500	0	100	5,500	0	99
1.2.7	Tahquamenon River	6,000	100	100	3,800	100	100
1.2.8	Sault Complex	1,900	0	100	1,200	0	100
	River Basin Group 1.2 Total	350,000	84	100	340,000	89	99

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE MICHIGAN

Hydrologic Area		Suspended Solids 1979			Suspended Solids 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
2.1.1	Menominee Complex	44,000	44	100	5,500	44	100
2.1.2	Menominee River	30,000	100	94	25,000	100	93
2.1.3	Peshigo River	4,600	100	96	23,000	100	99
	River			82			72
2.1.5	Suznico Complex	2,300	135	100	1,500	135	100
2.1.6	Fox River	89,000	100	89	65,000	100	85
2.1.7	Green Bay Complex	39,000	53	99	47,000	53	99
	River Basin Group 2.1 Total	220,000	80	94	170,000	85	92
2.2.1	Chicago-Milwaukee Complex	64,000	43	92	100,000	44	95
2.3.1	Saint Joseph River	120,000	100	92	100,000	100	94
2.3.2	Black R. (S. Haven) Comp.	7,200	0	95	6,300	0	99
2.3.3	Kalamazoo River	33,000	100	99	31,000	100	91
2.3.4	Black R. (Ottawa Co.) Comp	4,100	0	92	4,200	0	94
2.3.5	Grand River	93,000	100	94	100,000	100	95
	River Basin Group 2.3 Total	260,000	95	92	250,000	95	94
2.4.1	Muskegon River	30,000	100	99	25,000	100	99
2.4.2	Sable Complex	12,000	30	97	5,500	32	94
2.4.3	Manistee River	16,000	90	97	18,000	90	98
2.4.4	Traverse Complex	4,800	14	97	2,500	16	95
2.4.5	Soul Choix-Groscap Comp.	5,500	0	100	2,900	0	100
2.4.6	Manistique River	15,000	100	100	7,600	100	100
2.4.7	Bay De Noc Complex	7,400	0	100	4,500	0	100
2.4.8	Escanaba River	5,900	100	100	3,600	100	100
	River Basin Group 2.4 Total	96,000	72	100	69,000	78	99

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE HURON

Hydrologic Area		Suspended Solids 1979			Suspended Solids 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
3.1.1	Les Cheneaux Complex	74,000	23	100	90,000	23	100
3.1.2	Cheboygan River	7,300	100	99	7,000	100	99
3.1.3	Presque Isle Complex	2,700	0	100	1,800	0	100
3.1.4	Thunder Bay River	6,600	100	98	2,600	100	94
3.1.5	Au Sable-Alcona Complex	6,400	91	100	6,700	91	100
3.1.6	Rifle-Au Gres Complex	38,000	58	100	26,000	58	100
	River Basin Group 3.1 Total	140,000	44	100	130,000	39	100
3.2.1	Kaukawlin Complex	10,000	0	100	8,000	0	100
3.2.2	Saginaw River	120,000	100	90	120,000	100	90
3.2.3	Thumb Complex	19,000	10	100	15,000	10	100
	River Basin Group 3.2 Total	150,000	82	92	150,000	85	91

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ERIE

Hydrologic Area		Suspended Solids 1979			Suspended Solids 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
4.1.1	Black River	35,000	100	100	49,000	100	100
4.1.2	St. Clair Complex	12,000	36	100	20,000	36	100
4.1.3	Clinton River	14,000	100	82	41,000	100	94
4.1.4	Rouge Complex	20,000	61	100	14,000	61	100
4.1.5	Huron River	15,000	100	90	13,000	100	88
4.1.6	Swan Creek Complex	12,000	0	100	11,000	0	100
4.1.7	Raisin River	74,000	85	99	70,000	85	99
	River Basin Group 4.1 Total	180,000	79	97	220,000	82	98
4.2.1	Ottawa River	24,000	0	100	14,000	0	100
4.2.2	Maumee River	890,000	100	99	1,400,000	100	99
4.2.3	Toussaint-Portage Comp.	74,000	59	99	65,000	59	99
4.2.4	Sardusky River	470,000	100	100	530,000	100	100
4.2.5	Huron-Vermilion Complex	180,000	65	100	46,000	66	99
	River Basin Group 4.2 Total	1,600,000	93	99	2,000,000	97	100
4.3.1	Black-Rocky Complex	88,000	85	97	110,000	85	98
4.3.2	Cuyahoga River	450,000	100	98	320,000	100	97
4.3.3	Chegrin Complex	190,000	90	100	170,000	90	100
4.3.4	Grand River	88,000	100	100	190,000	100	100
4.3.5	Ashtabula-Conneaut Comp.	39,000	95	99	32,000	55	99
	River Basin Group 4.3 Total	850,000	96	99	830,000	94	99
4.4.1	Erie-Chautauque Complex	160,000	0	100	60,000	0	100
4.4.2	Cattaraugus Creek	210,000	100	100	110,000	100	99
4.4.3	Torawanda Complex	160,000	42	98	34,000	40	89
	River Basin Group 4.4 Total	530,000	52	99	200,000	60	98

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ONTARIO

Hydrologic Area		Suspended Solids 1979			Suspended Solids 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
5.1.1	Niagra-Orleans Complex	23,000	0	96	26,000	0	96
5.1.2	Genesee River	110,000	93	99	68,000	93	93
	River Basin Group 5.1 Total	730,000	90	99	93,000	68	94
5.2.1	Wayne-Cayuga Complex	11,000	0	100	19,000	0	100
	Oswego	179,000	105	86	156,000	115	94
5.2.3	Salmon Complex	179,000	105	100	156,000	115	100
	River Basin Group 5.2 Total	220,000	64	92	470,000	69	96
5.3.1	Black River	57,000	100	92	23,000	100	82
5.3.2	Perch Complex	8,600	0	100	3,900	0	100
5.3.3	Osaagatchie River	15,000	100	100	11,000	100	100
5.3.4	Rivers Basin Group 5.3 Total	43,000	66	95	58,000	66	98
	River Basin Group 5.2 St. Re Total	43,000	66	95	58,000	83	91

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE SUPERIOR

Hydrologic Area		Chloride 1979			Chloride 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1.1.1	Superior Slope Complex	4,800	6.1	100	4,600	6.1	100
1.1.2	Saint Louis River	12,000	100	64	6,400	100	31
1.1.3	Apocstle Island Complex	4,800	25	100	2,700	25	100
1.1.4	Bac River	2,000	100	98	1,600	100	98
1.1.5	Montreal River Complex	950	0	63	950	0	63
	River Basin Group 1.1 Total	25,000	63	81	16,000	55	70
1.2.1	Porcupine Mountains Comp.	37,000 *	1.9	5.1	35,000 **	2.0	6.0
1.2.2	Ontonagon River	3,100	100	98	3,800	100	99
1.2.3	Keweenaw Peninsula Comp.	4,300	0	100	2,500	0	100
1.2.4	Sturgeon River	2,600	100	100	1,400	100	100
1.2.5	Huron Mountain Complex	4,600	0	67	3,300	0	55
1.2.6	Grand Marais Complex	3,400	0	95	2,200	0	92
1.2.7	Tahquamenon River	2,300	100	96	1,500	100	95
1.2.8	Sault Complex	720	0	100	460	0	100
	River Basin Group 1.2 Total	58,000	15	36	50,000	15	31

* 35,000 MT from point source on the Mineral River, see Lang (1983).
 ** 33,000 MT from point source on the Mineral River, see Lang (1983).

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)
 LAKE MICHIGAN

Hydrologic Area		Chloride 1979			Chloride 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
2.1.1	Merominee Complex	2,400	44	100	1,500	44	100
2.1.2	Merominee River	11,000	100	82	10,000	100	80
2.1.3	Peshtigo River	6,500	0	84	3,900	0	74
2.1.4	Oconto River	4,800	0	98	2,600	0	96
2.1.5	Sueznico Complex	2,300	0	100	1,200	0	100
2.1.6	Fox River	80,000	100	79	44,000	100	62
2.1.7	Green Bay Complex	43,000	43	96	20,000	49	91
	River Basin Group 2.1 Total	150,000	74	86	83,000	77	74
2.2.1	Chicago-Milwaukee Complex	150,000	37	83	78,000	31	66
2.3.1	Saint Joseph River	83,000	100	72	92,000	100	75
2.3.2	Black R. (S. Haven) Comp.	6,400	0	92	6,300	0	100
2.3.3	Kalamazoo River	55,000	100	74	56,000	100	75
2.3.4	Black R. (Ottawa Co.) Comp.	6,300	0	79	6,100	0	79
2.3.5	Grand River	140,000	100	78	130,000	100	77
	River Basin Group 2.3 Total	290,000	96	76	290,000	96	76
2.4.1	Muskegon River	40,000	100	98	38,000	100	98
2.4.2	Sable Complex	46,000	29	99	42,000	29	99
2.4.3	Manistee River	61,000	98	2.0	66,000	99	4.9
2.4.4	Traverse Complex	15,000	16	95	19,000	15	96
2.4.5	Seul Choix-Groscap Comp.	1,700	0	100	1,000	0	100
2.4.6	Manistique River	4,500	100	100	2,700	100	100
2.4.7	Bay De Noc Complex	14,000	0	100	32,000	0	100
2.4.8	Esanaba River	11,000	100	100	25,000	100	100
	River Basin Group 2.4 Total	190,000	68	68	230,000	65	71

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE HURON

Hydrologic Area		Chloride 1979			Chloride 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
3.1.1	Les Cheneaux Complex	10,000	23	100	3,800	23	100
3.1.2	Cheboygan River	10,000	100	98	8,800	100	97
3.1.3	Presque Isle Complex	3,200	0	100	2,100	0	100
3.1.4	Thunder Bay River	7,400	100	88	3,700	100	76
3.1.5	Au Sable-Alcona Complex	9,100	91	99	8,400	91	99
3.1.6	Rifle-Au Gres Complex	19,000	57	98	16,000	57	98
	River Basin Group 3.1 Total	59,000	66	97	43,000	70	96
3.2.1	Kawkawlin Complex	5,400	0	99	5,000	0	99
3.2.2	Saginaw River	200,000	110	34	200,000	110	35
3.2.3	Thumb Complex	38,000	83	100	31,000	86	100
	River Basin Group 3.2 Total	240,000		46	240,000		45

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ERIE

Hydrologic Area		Chloride 1979			Chloride 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
4.1.1	Black River	8,500	100	97	15,000	100	98
4.1.2	St. Clair Complex	11,000	36	98	15,000	36	99
4.1.3	Clinton River	50,000	100	74	48,000	100	73
4.1.4	Rouge Complex	36,000	61	99	37,000	61	99
4.1.5	Huron River	26,000	100	68	33,000	100	75
4.1.6	Swan Creek Complex	5,800	0	100	8,500	0	100
4.1.7	Raisin River	23,000	88	80	32,000	87	86
	River Basin Group 4.1 Total	160,000	82	83	190,000	80	86
4.2.1	Ottawa River	4,000	0	97	3,000	0	96
4.2.2	Maumee River	140,000	100	73	120,000	100	67
4.2.3	Toussaint-Portage Comp.	18,000	65	82	20,000	65	84
4.2.4	Sandusky River	36,000	100	91	25,000	100	86
4.2.5	Huron-Vermilion Complex	13,000	60	87	21,000	62	92
	River Basin Group 4.2 Total	210,000	93	78	190,000	90	75
4.3.1	Black-Rocky Complex	20,000	95	36	24,000	93	45
4.3.2	Cuyahoga River	120,000	100	60	96,000	100	51
4.3.3	Chagrin Complex	50,000	90	97	25,000	90	94
4.3.4	Grand River	93,000	100	99	130,000	100	99
4.3.5	Ashtabula-Conneaut Comp.	10,000	89	83	8,700	49	80
	River Basin Group 4.3 Total	290,000	98	78	290,000	97	77
4.4.1	Erie-Chautauque Complex	13,000	0	90	11,000	0	88
4.4.2	Cattaraugus Creek	11,000	100	95	8,600	100	94
4.4.3	Torawanda Complex	20,000	37	73	16,000	35	66
	River Basin Group 4.4 Total	44,000	41	83	36,000	40	80

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ONTARIO

Hydrologic Area		Chloride 1979		Chloride 1980			
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
5.1.1	Niagra-Oreleans Complex	64,000	93	95	91,000	0	97
5.1.2	Genesee River	170,000		94	240,000	93	96
	River Basin Group 5.1 Total	230,000	67	94	330,000	67	96
5.2.1	Wayne-Cayuga Complex	37,000	0	100	38,000	0	100
5.2.2	Ossego River	1,000,000	100	46	910,000	100	39
5.2.3	Salmon Complex	8,600	15	97	10,000	15	98
	River Basin Group 5.2 Total	1,100,000	96	49	960,000	95	42
5.3.1	Black River	7,700	100	65	8,400	100	68
5.3.2	Perch Complex	1,600	0	100	1,600	0	100
5.3.3	Oseagatchie River	6,700	100	98	6,200	100	98
5.3.4	Grass-Raquette-St. Regis	8,300	61	78	8,800	61	79
	River Basin Group 5.3 Total	24,000	80	81	25,000	80	81

Table 2
 HYDROLOGIC PREP LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE SUPERIOR

Hydrologic Area		Total Nitrogen 1979			Total Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1.1.1	Superior Slope Complex	2,700	6.1	100	1,500	6.1	100
1.1.2	Saint Louis River	3,200	100	96	1,400	100	91
1.1.3	Apostle Island Complex	2,300	25	100	790	25	100
1.1.4	Bad River	800	100	100	1,200	100	100
1.1.5	Montreal River Complex	220	0	80	250	0	83
	River Basin Group 1.1 Total	9,200	51	98	5,100	55	97
1.2.1	Porcupine Mountains Comp.	670	31	92	800	31	93
1.2.2	Ontonagon River	830	100	100	1,300	100	100
1.2.3	Keweenaw Peninsula Comp.	1,100	0	100	840	0	100
1.2.4	Sturgeon River	550	100	100	480	100	100
1.2.5	Huron Mountain Complex	940	0	86	740	0	82
1.2.6	Grand Marais Complex	1,100	0	100	680	0	100
1.2.7	Tahquamenon River	760	100	99	490	100	98
1.2.8	Sault Complex	240	0	100	150	0	100
	River Basin Group 1.2 Total	6,200	38	97	5,500	46	96

Table 2
HYDROLOGIC AREA LOADINGS, WY 1979-1980
(Metric Tons)
LAKE MICHIGAN

Hydrologic Area		Total Nitrogen 1979			Total Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
2.1.1	Menominee Complex	630	44	100	450	44	100
2.1.2	Menominee River	2,800	100	98	2,300	100	98
2.1.3	Peshigo River	900	0	100	530	0	100
2.1.4	Ontonagon River	770	0	100	460	0	99
2.1.5	Suamico Complex	380	0	100	220	0	100
2.1.6	Fox River	8,100	100	86	3,700	100	70
2.1.7	Green Bay Complex	5,300	24	98	1,300	24	91
	River Basin Group 2.1 Total	19,000	66	93	9,000	73	86
2.2.1	Chicago-Milwaukee Complex	4,000	33	90	2,600	33	84
2.3.1	saint Joseph River	11,000	100	89	14,000	100	91
2.3.2	Black R. (S. Haven) Comp.	620	0	100	720	0	100
2.3.3	Kalamazoo River	3,600	100	76	3,100	100	77
2.3.4	Black R. (Ottawa CO., Comp)	560	0	63	590	0	65
2.3.5	Grand River	9,400	100	84	11,000	100	86
	River Basin Group 2.3 Total	25,000	95	85	29,000	95	86
2.4.1	Muskegon River	1,900	100	98	1,600	100	97
2.4.2	Sable Complex	1,400	28	98	1,200	28	98
2.4.3	Manistee River	1,100	90	97	1,100	90	97
2.4.4	Traverse Complex	1,500	16	95	1,900	15	96
2.4.5	Seul Choix-Groscap Comp.	600	0	100	440	0	100
2.4.6	Maristique River	1,600	100	100	1,100	100	100
2.4.7	Bay De Noc Complex	1,200	0	100	1,000	0	100
2.4.8	Esanaba River	920	100	100	790	100	100
	River Basin Group 2.4 Total	10,000	59	98	9,200	56	98

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE HURON

Hydrologic Area		Total Nitrogen 1979			Total nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
3.1.1	Les Cheneaux Complex	1,400	23	100	1,500	23	100
3.1.2	Cheboygan River	830	100	100	620	100	100
3.1.3	Presque Isle Complex	360	0	100	180	0	100
3.1.4	Thunder Bay River	960	100	100	340	100	100
3.1.5	Au Sable-Alcona Complex	670	91	100	580	91	100
3.1.6	Rifle-Au Gres Complex	1,300	57	98	770	57	97
	River Basin Group 3.1 Total	5,600	63	100	3,900	57	99
3.2.1	Kaukawlin Complex	540	0	91	460	0	90
3.2.2	Saginaw River	11,000	100	79	12,000	100	79
3.2.3	Thumb Complex	5,400	10	100	6,900	10	100
	River Basin Group 3.2 Total	17,000	68	86	19,000	65	87

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ERIE

Hydrologic Area		Total Nitrogen 1979			Total Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
4.1.1	Black River	1,600	100	99	1,400	100	98
4.1.2	St. Clair Complex	730	36	98	950	36	99
4.1.3	Clinton River	2,200	100	40	2,700	100	51
4.1.4	Rouge Complex	890	83	43	1,000	81	50
4.1.5	Huron River	1,100	100	62	1,300	100	69
4.1.6	Swan Creek Complex	660	0	100	900	0	100
4.1.7	Raisin River	4,500	87	89	6,000	86	92
	River Basin Group 4.1 Total	12,000	84	76	14,000	83	80
4.2.1	Ottawa River	1,500	0	99	1,500	0	99
4.2.2	Maumee River	40,000	100	97	40,000	100	97
4.2.3	Toussaint-Portage Comp.	3,500	60	96	3,800	60	96
4.2.4	Sandusky River	12,000	100	99	15,000	100	99
4.2.5	Huron-Vermilion Complex	7,400	66	97	5,200	67	96
	River Basin Group 4.2 Total	64,000	92	97	66,000	93	98
4.3.1	Black-Rocky Complex	2,900	79	83	2,400	77	80
4.3.2	Cuyahoga River	4,100	100	67	3,800	100	64
4.3.3	Chagrin Complex	490	90	96	450	90	96
4.3.4	Grand River	1,500	100	100	1,800	100	100
4.3.5	Ashtabula-Conneaut Comp.	620	94	96	530	54	96
	River Basin Group 4.3 Total	10,000	93	80	9,000	91	79
4.4.1	Erie-Chautauqua Complex	1,700	0	96	1,200	0	94
4.4.2	Cattaraugus Creek	1,500	100	98	1,000	100	97
4.4.3	Tonawanda Complex	1,500	41	93	1,000	40	89
	River Basin Group 4.4 Total	4,700	44	95	3,300	44	93

Table 2
HYDROLOGIC AREA LOADINGS, WY 1979-1980
(Metric Tons)

LAKE ONTARIO

Hydrologic Area		Total Nitrogen 1979			Total Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
5.1.1	Niagra-Orleans Complex	2,800	0	68	2,800	0	68
5.1.2	Genesee River	5,500	92	91	5,400	92	90
	River Basin Group 5.1 Total	8,300	60	83	8,200	60	83
5.2.1	Wayne-Cayuga Complex	780	0	97	720	0	97
5.2.2	Oswego River	9,400	100	66	8,400	100	62
5.2.3	Salmon Complex	1,500	15	99	2,900	15	100
	River Basin Group 5.2 Total	12,000	83	72	12,000	73	73
5.3.1	Black River	3,100	100	98	3,200	100	98
5.3.2	Perch Complex	710	0	100	620	0	100
5.3.3	Oswagatchie River	2,400	100	99	1,100	100	98
5.3.4	Grass-Raquette-St. Regis	2,800	65	95	2,900	65	95
	River Basin Group 5.3 Total	9,000	81	97	8,400	81	97

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE SUPERIOR

Hydrologic Area		Ammonia Nitrogen 1979			Ammonia Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1.1.1	Superior Slope Complex	66	6.1	100	44	6.1	100
1.1.2	Saint Louis River	170	100	28	62	25	33
1.1.3	Apostle Island Complex	26	25	100	36	100	100
1.1.4	8.6 River	23	100	100			100
1.1.5	Montreal River					0	12
	River Basin Group Complete Total	400	36	83	240	53	71
<hr/>					18	<hr/>	
1.2.1	Porcupine Mountains Comp.	16	19	58	51	19	57
1.2.2	Ontonagon River	31	100	98		100	99
1.2.3	Keweenaw Peninsula Comp.	30	0	96	57	0	98
1.2.4	Sturgeon River	16	100	100	31	100	100
1.2.5	Huron Mountain Complex	85	0	25	100	0	38
1.2.6	Grand Marais Complex	24	0	100	45	0	100
	Tahquamenon			80	10		88
1.2.8	Sault Complex River	25.3	100	100	350	100	100
	River Basin Group Total	230	31	60		35	78

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)
 LAKE MICHIGAN

Hydrologic Area		Ammonia Nitrogen 1979			Ammonia Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
2.1.1	Merominee Complex	8.6	44	100	26	44	100
2.1.2	Merominee River	53	100	57	77	100	71
2.1.3	Peshigo River	24	0	100	18	0	100
2.1.4	Oconto River	22	0	95	17	0	93
2.1.5	Suamico Complex	10	0	100	7.6	0	100
2.1.6	Fox River	760	100	41	500	100	12
2.1.7	Green Bay Complex	320	24	82	170	25	66
	River Basin Group 2.1 Total	1,200	74	56	820	77	36
2.2.1	Chicago-Milwaukee Complex	310	31	37	220	33	22
2.3.1	Saint Joseph River	770	100	24	920	100	36
2.3.2	Black R. (S. Haven) Comp.	14	0	100	16	0	100
2.3.3	Kalamazoo River	380	100	21	340	100	12
2.3.4	Black R. (Ottawa Co.) Comp	140	0	6.9	130	0	4.7
2.3.5	Grand River	900	100	22	860	100	19
	River Basin Group 2.3 Total	2,200	93	22	2,300	93	25
2.4.1	Muskegon River	73	100	70	73	100	70
2.4.2	Sable Complex	27	18	55	67	24	82
2.4.3	Manistee River	62	89	100	110	89	100
2.4.4	Traverse Complex	330	20	90	550	17	94
2.4.5	Seul Choix-Groscap Comp.	38	0	100	28	0	100
2.4.6	Manistique River	100	100	100	74	100	100
2.4.7	Bay De Noc Complex	71	0	100	130	0	100
2.4.8	Escanaba River	57	100	100	100	100	100
	River Basin Group 2.4 Total	760	47	91	1,100	40	94

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE MURON

Hydrologic Area		Ammonia Nitrogen 1979			Ammonia Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
3.1.1	Les Cheneaux Complex	61	23	100	47	23	100
3.1.2	Cheboygan River	23	100	100	63	100	100
3.1.3	Presque Isle Complex	11	0	100	15	0	100
3.1.4	Thunder Bay River	30	100	100	19	100	100
3.1.5	Au Sable-Alcona Complex	19	92	100	23	91	100
3.1.6	Rifle-Au Gres Complex	43	48	76	33	45	69
	River Basin Group 3.1 Total	190	56	95	200	64	95
3.2.1	Kaskawlin Complex	10	0	90	19 1,400	0 100	89
3.2.3	Thumba Complex	1,120	10	29	38	9.0	30
	River Basin Group 3.2 Total	1,500	192	97	1,500	96	91

Table 2
 HYDROLOGIC AREA LOADINGS, NY 1979-1980
 (Metric Tons)

LAKE ERIE

Hydrologic Area		Ammonia Nitrogen 1979			Ammonia Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
4.1.1	St. Clair River	30	44	63	61	38	92
4.1.3	Clinton Riverplex	100	100	40	92	100	82
4.1.4	Rouge Complex	170	87	13	250	99	0
4.1.5	Huron River	260	100	25	14	100	6.1
4.1.6	Swan tree Complex	25	83	112	170	95	100
4.1.7	Raisin River	120		21		94	4.6
	River Basin Group 4.1 Total	700	90		860		18
		31					
4.2.1	Ottawa River	1,200	0	56	21	0	70
4.2.2	Maumee River		71	47	890	100	53
4.2.3	Toussaint-Portage Comp.	130	100		140	78	50
	Sandusky River						51
4.2.4		230		64	170	194	17
4.2.5	River Basin Group 4.2 Total	2,000	90	68	1,300	96	44
4.3.1	Black-Rocky Complex	240	50	7.1	220	46	1.2
4.3.2	Cuyahoga River	790	100	21	1,200	100	48
4.3.3	Chagrin Complex	53	91	83	17	95	49
4.3.4	Grand River	130	100	98	120	100	98
4.3.5	Ashtabula-Conneaut Comp.	36	85	69	45	48	75
	River Basin Group 4.3 Total	1,200	89	30	1,600	91	46
4.4.1	Erie-Chautauqua Complex	91	0	61	120	0	69
4.4.2	Cattaraugus Creek	64	100	74	85	100	80
4.4.3	Tonawanda Complex	75	28	32	67	27	24
	River Basin Group 4.4 Total	230	37	55	270	38	61

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ONTARIO

Hydrologic Area		Ammonia Nitrogen 1979			Ammonia Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
5.1.1	Nizgra-Orleans Complex	800	0	33	970	0	45
5.1.2	Genesee River	900	90	74	1,400	91	82
	River Basin Group 5.1 Total	1,700	48	55	2,300	53	67
5.2.1	Wayne-Cayuga Complex	130	0	92	210	0	95
5.2.2	Oswego River	1,300	100	0	1,100	100	0
5.2.3	Salmon Complex	20	10	67	10	15	98
	River Basin Group 5.2 Total	1,400	89	10	1,700	66	36
5.3.1	Black River	140	100	80	110	100	75
5.3.2	Perch Complex	33	0	100	23	0	100
5.3.3	Oswagatchie River	150	100	91	100	100	87
5.3.4	Grass-Raquette-St. Regis	130	68	70	130	68	70
	River Basin Group 5.3 Total	500	83	83	360	82	78

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE SUPERIOR

Hydrologic Area		Nitrate (+Nitrite) Nitrogen 1979			Nitrate (+Nitrite) Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
1.1.1	Superior Slope Complex	1,300	6.1	100	260	6.1	100
1.1.2	Saint Louis River	610	100	92	230	100	80
1.1.3	Apostle Island Complex	350	25	100	140	25	100
1.1.4	Bad River	140	100	100	120	100	100
1.1.5	Montreal River Complex	43	0	61	39	0	57
	River Basin Group 1.1 Total	2,400	38	97	790	51	92
1.2.1	Porcupine Mountains Comp.	110	28	84	99	27	80
1.2.2	Ontonagon River	140	100	100	110	100	100
1.2.3	Keweenaw Peninsula Comp.	200	0	99	130	0	99
1.2.4	Sturgeon River	120	100	100	78	100	100
1.2.5	Huron Mountain Complex	170	0	85	98	0	97
1.2.6	Grand Marais Complex	140	0	100	100	0	100
1.2.7	Tahquamenon River	100	100	97	76	100	95
1.2.8	Sault Complex	32	0	100	23	0	100
	River Basin Group 1.2 Total	1,000	39	95	720	41	96

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)
 LAKE MICHIGAN

Hydrologic Area		Nitrate (+Nitrite) Nitrogen 1979			Nitrate (+Nitrite) Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
2.1.1	Merominee Complex	110	44	100	44	44	100
2.1.2	Merominee River	620	100	97	450	100	96
2.1.3	Peshigo River	170	0	100	67	0	100
2.1.4	Oconto River	140	0	99	58	0	98
2.1.5	Suezico Complex	70	0	100	28	0	100
2.1.6	Fox River	1,500	100	79	480	100	36
2.1.7	Green Bay Complex	2,900	23	98	470	24	90
	River Basin Group 2.1 Total	5,500	52	93	1,600	67	76
2.2.1	Chicago-Milwaukee Complex	1,900	33	90	1,100	32	83
2.3.1	Saint Joseph River	5,900	100	92	8,700	100	94
2.3.2	Black R. (S. Haven) Comp.	320	0	100	440	0	100
2.3.3	Kalamazoo River	1,500	100	84	1,700	100	85
2.3.4	Black R. (Cttawa Co.) Comp	200	0	82	260	0	86
2.3.5	Grand River	4,500	100	86	6,200	100	90
	River Basin Group 2.3 Total	12,000	96	89	17,000	96	92
2.4.1	Muskegon River	690	100	97	590	100	97
2.4.2	Sable Complex	100	28	97	340	28	99
2.4.3	Manistee River	420	90	98	460	90	98
2.4.4	Traverse Complex	560	15	95	640	15	95
2.4.5	Seul Choix-Groscap Comp.	110	0	100	55	0	100
2.4.6	Manistique River	290	100	100	170	100	100
2.4.7	Bay De Noc Complex	310	0	100	220	0	100
2.4.8	Escanaba River	240	100	100	180	100	100
	River Basin Group 2.4 Total	2,700	63	98	2,700	58	98

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE MURON

Hydrologic Area		Nitrate (+Nitrite) Nitrogen 1979			Nitrate (+Nitrite) Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
3.1.1	Les Cheneaux Complex	180	23	100	130	23	100
3.1.2	Cheboygan River	160	100	100	130	100	100
3.1.3	Presque Isle Complex	73	0	100	33	0	100
3.1.4	Thunder Bay River	200	100	100	46	100	100
3.1.5	Au Sable-Alcona Complex	130	91	100	130	91	100
3.1.6	Rifle-Au Gres Complex	560	57	98	260	56	97
	River Basin Group 3.1 Total	1,300	65	99	720	65	99
3.2.1	Kawkawlin Complex	280	0	93	250	0	93
3.2.2	Saginaw River	6,000	100	88	6,800	100	90
3.2.3	Thumb Complex	4,700	10	100	5,900	10	100
	River Basin Group 3.2 Total	11,000	59	93	13,000	57	94

Table 2
 HYDROLOGIC AREA LOADINGS, WY 1979-1980
 (Metric Tons)

LAKE ERIE

Hydrologic Area		Nitrate (+Nitrite) Nitrogen 1979			Nitrate (+Nitrite) Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
4.1.1	Black River	1,100	100	99	740	100	99
4.1.2	St. Clair Complex	480	36	99	520	36	99
4.1.3	Clinton River	1,500	100	67	2,000	100	74
4.1.4	Rouge Complex	430	61	99	400	62	98
4.1.5	Huron River	370	100	56	490	100	66
4.1.6	Swan Creek Complex	490	0	100	630	0	100
4.1.7	Raisin River	3,600	86	95	4,500	86	96
	River Basin Group 4.1 Total	8,000	82	89	9,300	81	90
4.2.1	Ottawa River	1,200	0	100	1,100	0	100
4.2.2	Maumee River	33,000	100	99	30,000	100	99
4.2.3	Toussaint-Portage Comp.	2,700	60	98	3,000	60	98
4.2.4	Sardusky River	9,600	100	99	14,000	100	99
4.2.5	Huron-Vermilion Complex	5,900	66	99	4,600	66	87
	River Basin Group 4.2 Total	52,000	92	99	53,000	93	99
4.3.1	Black-Rocky Complex	1,500	80	88	1,500	80	87
4.3.2	Cuyahoga River	1,800	100	70	1,700	100	68
4.3.3	Chagrin Complex	290	90	98	280	90	98
4.3.4	Grand River	570	100	100	710	100	100
4.3.5	Ashtabula-Conneaut Comp.	230	94	96	320	55	97
	River Basin Group 4.3 Total	4,400	92	83	4,500	90	83
4.4.1	Erie-Chautauqua Complex	970	0	97	760	0	95
4.4.2	Cattaraugus tree*	810	100	98	640	100	98
4.4.3	Torawanda Complex	900	41	95	680	41	94
	River Basin Group 4.4 Total	2,700	44	97	2,100	44	96

Table 2
 HYDROLOGIC AREA LOADINGS, NY 1979-1980
 (Metric Tons)
 LAKE ONTARIO

Hydrologic Area		Nitrate (+Nitrite) Nitrogen 1979			Nitrate (+Nitrite) Nitrogen 1980		
Number	Name	Total Load	Percent Monitored	Percent Diffuse	Total Load	Percent Monitored	Percent Diffuse
5.1.1	Niagra-Orleans Complex	1,200	0	77	940	0	70
5.1.2	Genesee River	2,600	92	92	1,900	92	90
	River Basin Group 5.1 Total	3,700	63	87	2,800	61	83
5.2.1	Wayne-Cayuga Complex	400	0	98	300	0	97
5.2.2	Oswego River	4,500	100	81	3,800	100	78
5.2.3	Salmon Complex	1,000	15	99	1,100	15	100
	River Basin Group 5.2 Total	5,900	79	85	5,200	76	83
5.3.1	Black River	1,900	100	99	1,200	100	98
5.3.2	Perch Complex	330	0	100	220	0	100
5.3.3	Oswagatchie River	690	100	98	510	100	98
5.3.4	Grass-Raquette-St. Regis	1,200	66	97	1,100	66	97
	River Basin Group 5.3 Total	4,100	82	98	3,100	81	98

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