Supporting Information "**B**" for

Long-term phosphorus mass-balance of Lake Erie (Canada-USA) reveals a major contribution of in-lake phosphorus loading.

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Table B1. Water budget ($m^3 s^{-1}$) for the St. Clair River (SCR) and Lake St. Clair (LSC) for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	St. Clair River (SCR)				Lake St. Clair (LSC)									
	SCR_ source	US_WR	CA_WR	SCR_out	SCR_in	US_WR	CA_WR	P	E	Huron WTP	CU	V	GR	Total_in
2003	4788.9	9.4	1.6	4800.0	4800.0	16.5	55.0	21.9	-31.9	7.0	0.0	5.9	0.5	4874.9
2004	4939.2	25.3	3.7	4968.3	4968.3	27.4	118.9	20.0	-30.0	7.0	0.0	-9.5	0.5	5102.6
2005	5002.1	23.7	4.2	5030.0	5030.0	24.7	105.7	22.4	-30.6	7.0	0.0	4.3	0.5	5164.0
2006	4907.3	23.8	4.8	4935.9	4935.9	28.5	104.6	31.2	-28.6	7.0	0.0	0.5	0.5	5079.5
2007	4774.1	25.0	4.6	4803.8	4803.8	29.5	124.9	26.4	-29.0	7.0	0.0	3.6	0.5	4966.7
2008	4747.5	22.2	4.7	4774.5	4774.5	29.6	116.8	23.0	-30.3	7.0	0.0	-6.7	0.5	4914.4
2009	5173.3	40.0	6.8	5220.1	5220.1	47.2	175.6	25.3	-29.9	7.0	0.0	-3.7	0.5	5442.2
2010	5126.6	13.1	2.6	5142.2	5142.2	25.0	69.3	32.6	-29.8	7.0	0.0	3.8	0.5	5250.5
2011	4802.9	27.9	5.3	4836.1	4836.1	36.3	151.9	27.3	-30.4	7.0	0.0	-6.5	0.5	5022.2
2012	4899.7	17.1	3.6	4920.3	4920.3	26.6	111.4	29.8	-31.5	7.0	0.0	15.9	0.5	5079.9
2013	4670.4	24.0	3.9	4698.3	4698.3	27.7	121.7	26.3	-29.0	7.0	0.0	-7.4	0.5	4845.2
2014	5045.8	17.9	4.7	5068.4	5068.4	28.3	147.1	29.1	-32.5	7.0	0.0	-12.0	0.5	5236.0
2015	5674.5	15.6	3.3	5693.3	5693.3	24.5	94.4	28.8	-32.6	7.0	0.0	-7.2	0.5	5808.8
2016	6036.1	22.5	3.5	6062.2	6062.2	23.9	94.6	30.0	-32.2	7.0	0.0	-0.8	0.5	6185.1
Aver.	5042.0	22.0	4.1	5068.1	5068.1	28.3	113.7	26.7	-30.6	7.0	0.0	-1.4	0.5	5212.3

Abbreviations:
US_WR, US watershed runoff;
CA_WR, Canadian watershed runoff;
P, over-lake precipitation;
E, over-lake evaporation;
CU, consumptive use,
V, change in water storage;
Huron WTP, water intake for Huron Water Treatment Plant (WTP);
GR, direct ground water discharge.

Table B2. Water budget ($m^3 s^{-1}$) for the Detroit River (DR) and Lake Erie Western Basin (WB) for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	Detroit River (DR)				Lake Erie Western Basin (WB)								
	DR_ in	US_WR	CA_WR	DR_out	DR_in	US_WR	CA_WR	P	E	CU	V	GR	WB_out
2003	4901.4	10.8	2.4	-4914.6	4914.6	251.2	2.3	74.3	-80.5	-2.8	4.7	1.5	-5165.2
2004	5128.1	16.0	5.4	-5149.6	5149.6	253.2	5.5	72.2	-92.4	-2.7	-19.4	1.5	-5367.5
2005	5184.5	15.3	5.4	-5205.2	5205.2	277.4	5.3	57.3	-81.5	-2.8	11.6	1.5	-5474.0
2006	5072.8	17.2	4.4	-5094.5	5094.5	263.9	4.1	92.5	-106.5	-2.7	-4.7	1.5	-5342.6
2007	4978.2	19.0	6.4	-5003.7	5003.7	363.3	6.2	102.4	-90.7	-2.9	9.5	1.5	-5392.9
2008	4938.8	18.7	6.5	-4964.1	4964.1	394.9	6.5	84.3	-93.8	-2.8	-6.2	1.5	-5348.5
2009	5358.4	20.3	6.7	-5385.4	5385.4	271.3	6.9	73.9	-89.7	-2.8	-11.4	1.5	-5635.1
2010	5198.7	14.6	3.5	-5216.9	5216.9	231.7	3.5	105.6	-96.2	-2.9	19.9	1.5	-5480.1
2011	5019.9	21.0	9.0	-5049.9	5049.9	330.3	9.3	77.3	-93.6	-3.0	-31.7	1.5	-5340.1
2012	5117.1	15.9	6.4	-5139.4	5139.4	308.4	6.4	87.6	-107.5	-6.6	42.4	1.5	-5471.5
2013	4808.1	16.1	4.4	-4828.7	4828.7	242.7	4.2	74.3	-90.2	-2.5	-23.5	1.5	-5035.2
2014	5228.9	18.3	5.4	-5252.6	5252.6	281.3	5.4	89.9	-81.3	-2.5	-18.8	1.5	-5528.1
2015	5833.1	16.6	4.6	-5854.3	5854.3	304.0	4.6	84.0	-83.8	-2.4	-15.7	1.5	-6146.5
2016	6204.6	18.3	4.4	-6227.3	6227.3	204.0	4.2	90.6	-95.6	-2.6	4.7	1.5	-6434.1
Aver.	5212.3	17.0	5.4	5234.7	5234.7	284.1	5.3	83.3	-91.7	-3.0	-2.8	1.5	-5511.5

Abbreviations:
US_WR, US watershed runoff;
CA_WR, Canadian watershed runoff;
P, over-lake precipitation;
E, over-lake evaporation;
CU, consumptive use,
V, change in water storage;
GR, direct ground water discharge.

Table B3. Water budget ($m^3 s^{-1}$) for the Central Basin (CB) of Lake Erie for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	Water inputs/outputs ($m^3 s^{-1}$) for the Central Basin (CB) of Lake Erie									
	WB_in	US_WR	CA_WR	P	E	CU	V	GR	Total_in	CB_out
2003	5165.2	206.2	16.5	365.0	-395.8	-13.7	22.9	7.2	5373.5	-5373.5
2004	5367.5	272.7	36.4	354.9	-454.0	-13.5	-95.1	7.2	5476.1	-5476.1
2005	5474.0	278.0	30.7	281.4	-400.4	-13.8	57.2	7.2	5714.3	-5714.3
2006	5342.6	206.8	30.9	454.3	-523.2	-13.2	-23.2	7.2	5482.2	-5482.2
2007	5392.9	286.1	38.1	503.1	-445.7	-14.3	46.6	7.2	5813.9	-5813.9
2008	5348.5	303.4	34.2	414.2	-460.8	-13.8	-30.2	7.2	5602.7	-5602.7
2009	5635.1	186.8	46.6	363.0	-440.7	-13.8	-56.0	7.2	5728.2	-5728.2
2010	5480.1	148.5	21.1	519.2	-472.9	-14.1	98.0	7.2	5787.1	-5787.1
2011	5340.1	312.5	46.2	379.9	-459.8	-14.6	-155.8	7.2	5455.7	-5455.7
2012	5471.5	241.8	35.3	430.4	-528.1	-32.7	208.2	7.2	5833.7	-5833.7
2013	5035.2	247.1	36.1	365.0	-443.3	-12.3	-115.6	7.2	5119.4	-5119.4
2014	5528.1	252.4	40.9	441.6	-399.4	-12.1	-92.3	7.2	5766.2	-5766.2
2015	6146.5	194.4	27.1	412.8	-412.0	-11.9	-77.1	7.2	6287.0	-6287.0
2016	6434.1	157.1	26.2	445.4	-469.9	-12.8	23.0	7.2	6610.3	-6610.3
Aver.	5511.5	235.25	33.31	409.3	-450.4	-14.8	-13.5	7.2	5717.9	-5717.9

Abbreviations:
US_WR, US watershed runoff;
CA_WR, Canadian watershed runoff;
P, over-lake precipitation;
E, over-lake evaporation;
CU, consumptive use,
V, change in water storage;
GR, direct ground water discharge.

Table B4. Water budget ($m^3 s^{-1}$) for the Eastern Basin (EB) of Lake Erie for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	Water inputs/outputs ($m^3 s^{-1}$) for the Eastern Basin (EB) of Lake Erie											
	CB_ in	US_WR	CA_WR	P	E	CU	V	GR	Total_in	Niagara	Welland	Total_out
2003	5373.5	107.6	66.2	141.0	-152.9	-5.3	8.8	2.8	5541.9	-5258.1	-200.3	-5458.4
2004	5476.1	159.7	140.5	137.1	-175.4	-5.2	-36.7	2.8	5698.8	-5576.6	-201.6	-5778.2
2005	5714.3	135.0	116.3	108.7	-154.7	-5.3	22.1	2.8	5939.2	-5786.7	-217.9	-6004.7
2006	5482.2	111.5	107.6	175.5	-202.1	-5.1	-9.0	2.8	5663.5	-5542.8	-176.8	-5719.6
2007	5813.9	143.3	119.7	194.4	-172.2	-5.5	18.0	2.8	6114.4	-5749.5	-175.5	-5925.0
2008	5602.7	124.3	119.0	160.0	-178.1	-5.3	-11.7	2.8	5813.7	-5643.3	-205.7	-5849.0
2009	5728.2	138.5	154.5	140.2	-170.3	-5.3	-21.6	2.8	5967.0	-5838.0	-197.5	-6035.5
2010	5787.1	100.9	89.9	200.6	-182.7	-5.4	37.9	2.8	6031.0	-5630.7	-183.0	-5813.8
2011	5455.7	144.9	125.4	146.8	-177.6	-5.7	-60.2	2.8	5632.0	-5704.7	-134.0	-5838.7
2012	5833.7	107.9	89.3	166.3	-204.0	-12.6	80.5	2.8	6063.8	-5943.4	-217.3	-6160.7
2013	5119.4	122.1	126.7	141.0	-171.3	-4.7	-44.7	2.8	5291.4	-5440.4	-169.6	-5610.0
2014	5766.2	130.3	203.3	170.6	-154.3	-4.7	-35.7	2.8	6078.6	-5775.2	-196.5	-5971.7
2015	6287.0	99.3	106.7	159.5	-159.2	-4.6	-29.8	2.8	6461.6	-6117.9	-225.7	-6343.6
2016	6610.3	82.8	97.9	172.1	-181.5	-5.0	8.9	2.8	6788.3	-6355.5	-221.6	-6577.1
Aver.	5717.9	122.0	118.8	158.1	-174.0	-5.7	-5.2	2.8	5934.7	-5740.2	194.50	5934.7

Abbreviations:
US_WR, US watershed runoff;
CA_WR, Canadian watershed runoff;
P, over-lake precipitation;
E, over-lake evaporation;
CU, consumptive use,
GR, direct ground water discharge.

Table B5. Observed segment-specific total phosphorus (TP; µg P L^{-1}) concentrations* for Lake St. Clair and Lake Erie.

Water Year	Lake St. Clair	Lake Erie								
		Western Basin (WB)			Central Basin (CB)			Eastern Basin (EB)		
	Mean	Spring (April)	Summer (August)	Mean	Spring (April)	Summer (August)	Mean	Spring (April)	Summer (August)	Mean
2003	17.3	36.5	10.7	23.6	18.4	6.6	12.5	8.7	5.2	6.9
2004	16.3	16.6	15.8	16.2	9.8	5.3	7.6	11.1	4.3	7.7
2005	16.2	17.5	15.3	16.4	15.1	5.9	10.5	8.2	3.7	6.0
2006	16.4	37.6	11.9	24.8	11.5	6.9	9.2	10.3	4.6	7.5
2007	16.2	22.7	12.6	17.7	18.4	7.6	13.0	14.1	4.7	9.4
2008	16.0	14.9	9.3	12.1	14.6	7.9	11.3	9.1	5.2	7.2
2009	17.4	55.8^	12.1	33.9	11.5	9.4	10.4	8.5	4.6	6.6
2010	15.4	13.1	16.2	14.6	12.9	10.0	11.4	10.0	4.1	7.0
2011	14.6	27.1	22.0	24.5	12.2	6.0	9.1	6.1	4.9	5.5
2012	14.6	7.3	33.5	20.4	8.4	11.2	9.8	10.0	4.3	7.1
2013	13.1	24.5	16.6	20.6	18.1	7.8	13.0	12.0	6.7	9.4
2014	12.1	9.7	19.5	14.6	7.9	6.9	7.4	9.4	5.4	7.4
2015	11.6	20.9	10.8	15.9	9.0	9.6	9.3	6.4	5.9	6.1
2016	12.1	19.2	13.7	16.4	14.6	7.6	11.1	10.8	5.7	8.3
Aver.	14.95	23.1	15.7	19.4	13.0	7.8	10.4	9.6	5.0	7.3

* For Lake St. Clair they were based on Lake St. Clair outflow concentration; and for Lake Erie they were calculated from the basin-specific offshore concentrations measured during spring (April) and summer (August) U.S. Environmental Protection Agency Great Lakes National Program Office (U.S. EPA GLNPO) water quality surveys (see Methods for more details).

^ The observed high concentration of TP in the water column during sampling in April 2009 was likely caused by wave-induced resuspension during a storm event at that time.

Table B6. Total phosphorus (TP) budget for the St. Clair River (SCR) for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	TP inputs/outputs for the St. Clair River (SCR) in Metric Tonnes per Annum (MTA)												
	Port Huron	Point Edward	Lake Huron Missing Load	Lake Huron Total Load	US_tri	US_dir	US_tot	CA_tri	CA_dir	CA_tot	Algonac	Port Lambton	SCR_out
2003	867.4	1849.7	1335.0	1699.3	75.0	56.9	36.9	334.6	58.3	34.3	1234.1	2307.0	-1770.5
2004	1016.3	1785.1	1287.5	1704.8	177.9	81.1	242.8	813.6	50.1	58.3	1481.7	2530.1	-2005.9
2005	1103.3	1647.0	1151.3	1868.4	121.6	57.9	155.1	713.2	81.3	49.1	1477.0	2668.3	-2072.6
2006	1090.4	1448.4	959.9	1676.1	143.1	49.6	183.9	598.7	60.6	50.3	1315.9	2504.7	-1910.3
2007	1000.5	1286.3	827.9	1533.8	145.9	47.2	152.6	740.0	50.7	53.5	1135.9	2343.9	-1739.9
2008	892.1	1191.6	783.0	1557.3	146.8	49.2	142.6	631.4	61.2	49.3	1096.5	2402.0	-1749.2
2009	1311.1	1147.3	860.9	1705.7	289.6	54.0	409.6	1023.0	68.1	62.2	1301.9	3053.2	-2177.6
2010	1079.8	1051.2	840.6	1999.4	114.0	38.8	75.2	314.6	47.0	30.7	1184.6	3025.9	-2105.2
2011	778.0	966.9	777.5	1638.0	211.3	63.9	252.2	790.2	55.4	46.6	1002.8	2870.9	-1936.8
2012	777.2	917.5	820.3	1924.6	132.3	51.6	73.6	581.2	52.6	37.4	981.0	3090.2	-2035.6
2013	553.2	865.6	791.1	1650.9	170.7	59.3	254.3	678.7	58.4	39.9	844.7	3045.8	-1945.2
2014	732.2	922.5	903.0	2034.7	159.7	84.4	99.7	837.8	56.4	43.1	938.6	3416.5	-2177.6
2015	1151.2	998.2	1084.7	2445.4	128.8	54.6	78.7	468.6	57.7	35.4	1141.4	3977.4	-2559.4
2016	1367.2	1011.4	1223.0	2633.0	126.1	62.6	131.0	462.9	58.3	32.2	1213.2	4379.2	-2796.2
Aver.	980.0	1220.6	762.0	1862.3	133.7	29.7	163.4	22.7	21.7	44.5	1167.8	2972.5	-2070.2

Abbreviations:
- US_tri, US tributary input;
- US_dir, US direct inputs from point sources,
- US_tot, total watershed input from the USA portion of lake watershed;
- CA_tri, Canadian tributary input;
- CA_dir, Canadian direct inputs from point sources,
- CA_tot, total watershed input from Canadian portion of lake watershed;
- AD, atmospheric total deposition;
- V, load associated with the change in lake storage;
- GR, direct ground water inputs;
- S, sedimentation;
- L, internal load.

Table B7. Total phosphorus (TP) budget for Lake St. Clair (LSC) for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	TP inputs/outputs for Lake St. Clair (LSC) in Metric Tonnes per Annum (MTA):														
	SCR_in	US_tri	US_dir	US_tot	CA_tri	CA_dir	CA_tot	AD	V	GR	Total In	S	Total In minus S	L	LSC_out
2003	1770.5	75.0	56.9	131.9	334.6	58.3	392.9	72.4	3.2	0.3	2371.2	-952.5	1418.7	1262.8	-2681.6
2004	2005.9	177.9	81.1	259.0	813.6	50.1	863.7	67.8	-4.8	0.3	3191.9	-896.8	2295.1	353.5	-2648.6
2005	2072.6	121.6	57.9	179.5	713.2	81.3	794.5	78.3	2.2	0.3	3127.3	-880.1	2247.3	398.8	-2646.0
2006	1910.3	143.1	49.6	192.7	598.7	60.6	659.3	153.5	0.2	0.3	2916.4	-891.2	2025.2	591.7	-2616.9
2007	1739.9	145.9	47.2	193.1	740.0	50.7	790.7	76.7	1.8	0.3	2802.5	-880.1	1922.4	623.1	-2545.5
2008	1749.2	146.8	49.2	196.0	631.4	61.2	692.6	16.6	-3.3	0.3	2651.5	-857.8	1793.7	698.8	-2492.4
2009	2177.6	289.6	54.0	343.6	1023.0	68.1	1091.1	59.4	-1.9	0.3	3670.1	-930.2	2739.9	203.8	-2943.7
2010	2105.2	114.0	38.8	152.8	314.6	47.0	361.7	32.2	1.8	0.3	2654.0	-824.4	1829.6	692.6	-2522.2
2011	1936.8	211.3	63.9	275.2	790.2	55.4	845.5	19.9	-2.9	0.3	3074.9	-785.4	2289.6	26.1	-2315.7
2012	2035.6	132.3	51.6	183.9	581.2	52.6	633.9	28.3	7.0	0.3	2889.0	-779.8	2109.2	255.7	-2364.9
2013	1945.2	170.7	59.3	230.0	678.7	58.4	737.1	52.1	-3.0	0.3	2961.9	-707.4	2254.5	-270.9	-1983.5
2014	2177.6	159.7	84.4	244.2	837.8	56.4	894.2	30.9	-4.5	0.3	3342.7	-657.3	2685.5	-691.6	-1993.8
2015	2559.4	128.8	54.6	183.4	468.6	57.7	526.4	20.0	-2.5	0.3	3287.0	-623.8	2663.1	-528.0	-2135.1
2016	2796.2	126.1	62.6	188.7	462.9	58.3	521.3	21.9	-0.3	0.3	3528.1	-629.4	2898.6	-531.7	-2367.0
Aver.	2070.2	153.1	57.9	211.0	642.0	58.3	700.4	52.1	-0.5	0.3	3033.5	-806.9	2226.6	220.3	-2446.9

Abbreviations:
- US_tri, US tributary input;
- US_dir, US direct inputs from point sources,
- US_tot, total watershed input from the USA portion of lake watershed;
- CA_tri, Canadian tributary input;
- CA_dir, Canadian direct inputs from point sources,
- CA_tot, total watershed input from Canadian portion of lake watershed;
- AD, atmospheric total deposition;
- V, load associated with the change in lake storage;
- GR, direct ground water inputs;
- CU, outputs associated with the consumptive water use;
- S, sedimentation;
- L, in-lake load.

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Table B8. Total phosphorus (TP) budget for the Detroit River (DR) for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	TP inputs/outputs for the Detroit River (DR) in Metric Tonnes per Annum (MTA):								
	LSC_in	US_tri	US_dir	US_GLWAP	US_tot	CA_tri	CA_dir	CA_tot	DR_out
2003	2681.6	25.9	59.7	588.0	673.6	8.6	25.6	34.2	-3389.4
2004	2648.6	8.3	101.0	632.0	741.3	26.2	30.0	56.2	-3446.1
2005	2646.0	33.8	64.9	618.3	717.0	20.0	39.5	59.5	-3422.6
2006	2616.9	33.6	84.8	633.9	752.2	15.9	34.0	49.9	-3419.1
2007	2545.5	39.6	86.2	630.0	755.8	21.4	34.3	55.7	-3357.0
2008	2492.4	42.1	85.7	671.8	799.7	19.3	31.6	50.9	-3343.0
2009	2943.7	38.1	105.9	598.9	742.9	19.7	20.1	39.8	-3726.3
2010	2522.2	39.1	73.1	599.5	711.7	6.0	21.3	27.2	-3261.2
2011	2315.7	61.0	86.8	471.9	619.7	22.2	20.3	42.5	-2977.8
2012	2364.9	42.0	77.4	367.9	487.3	12.4	17.0	29.4	-2881.6
2013	1983.5	33.3	72.6	323.2	429.1	9.7	18.9	28.6	-2441.2
2014	1993.8	38.9	95.3	313.4	447.6	12.8	18.3	31.1	-2472.5
2015	2135.1	25.8	73.8	336.4	436.1	8.8	22.7	31.5	-2602.7
2016	2367.0	18.8	81.1	330.6	430.5	10.5	25.5	36.0	-2833.5
Aver.	2446.9	34.3	82.0	508.3	624.6	15.2	25.7	40.9	-3112.4

Abbreviations:
- US_tri, US tributary input;
- US_dir, US direct inputs from point sources,
- US_tot, total watershed input from the USA portion of lake watershed;
- CA_tri, Canadian tributary input;
- CA_dir, Canadian direct inputs from point sources,
- CA_tot, total watershed input from Canadian portion of lake watershed;
- AD, atmospheric total deposition;
- V, load associated with the change in lake storage;
- GR, direct ground water inputs;
- CU, outputs associated with the consumptive water use;
- S, sedimentation;
- L, in-lake load.

Table B9. Total phosphorus (TP) budget for the Western Basin (WB) of Lake Erie for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	TP inputs/outputs for the Western Basin (WB) of Lake Erie in Metric Tonnes per Annum (MTA):													
	DR_in	US_tri	US_dir	CA_tri	CA_dir	AD	S	V	GR	CU	IB(a)	IB(d)	L	WB_out
2003	3389.4	2826.3	15.4	8.8	1.6	159.2	-3876.9	3.5	0.9	-2.1	-3845.9	-246.6	1566.3	-4092.5
2004	3446.1	2369.7	18.5	21.0	2.0	121.4	-2665.5	-9.9	0.9	-1.4	-2747.8	-191.8	-363.1	-2939.7
2005	3422.6	3245.9	18.8	20.1	2.6	66.0	-2692.8	6.0	0.9	-1.5	-2831.0	-130.5	-1127.1	-2961.5
2006	3419.1	2438.5	21.1	15.6	1.7	89.2	-4066.5	-3.7	0.9	-2.1	-4172.6	-344.8	2603.7	-4517.5
2007	3357.0	4157.1	19.0	23.4	2.9	235.2	-2904.8	5.3	0.9	-1.6	-3008.6	-103.0	-1782.8	-3111.6
2008	3343.0	4599.0	18.8	24.6	3.4	104.0	-1990.5	-2.4	0.9	-1.1	-2044.7	-19.1	-4036.1	-2063.8
2009	3726.3	2894.6	18.6	26.0	2.6	190.1	-5572.9	-12.2	0.9	-3.0	-6031.4	-519.8	5280.2	-6551.2
2010	3261.2	1891.2	16.8	13.3	4.0	105.6	-2404.0	9.2	0.9	-1.3	-2530.2	-71.3	-295.4	-2601.6
2011	2977.8	3813.7	16.9	35.2	4.3	123.3	-4026.6	-24.5	0.9	-2.3	-4129.7	-340.7	1551.6	-4470.4
2012	2881.6	3340.5	15.6	24.2	2.9	90.6	-3354.9	27.4	0.9	-4.3	-3525.4	-234.5	735.4	-3759.9
2013	2441.2	2296.4	15.7	15.9	2.6	130.3	-3380.4	-15.3	0.9	-1.6	-3269.0	-167.9	1931.1	-3436.9
2014	2472.5	2973.5	16.7	20.3	3.3	87.5	-2394.9	-8.6	0.9	-1.1	-2542.7	-159.5	-467.8	-2702.2
2015	2602.7	3188.1	16.7	17.6	3.3	101.0	-2607.8	-7.9	0.9	-1.2	-3078.5	-144.8	-90.1	-3223.3
2016	2833.5	1674.0	16.7	15.8	3.3	177.4	-2699.3	2.4	0.9	-1.4	-3335.6	-117.6	1429.8	-3453.2
Aver.	3112.4	2979.2	17.5	20.1	2.9	127.2	-3188.4	-2.2	0.9	-1.9	-3364	-199	495.4	-3563.2

Abbreviations:
- US_tri, US tributary input;
- US_dir, US direct inputs from point sources,
- CA_tri, Canadian tributary input;
- CA_dir, Canadian direct inputs from point sources,
- AD, atmospheric total deposition;
- S, sedimentation;
- V, load associated with the change in lake storage;
- GR, direct ground water inputs;
- CU, outputs associated with the consumptive water use;
- IB(a), inter-basin exchange due to advective-transport;
- IB(d), inter-basin exchange due to diffusive-transport;
- L, in-lake load.

Table B10. Total phosphorus (TP) budget for the Central Basin (CB) of Lake Erie for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	TP inputs/outputs for the Central Basin (CB) of Lake Erie in Metric Tonnes per Annum (MTA):													
	WB_in	US_tri	US_dir	CA_tri	CA_dir	AD	S	V	GR	CU	IB(d)	IB(a)	L	CB_out
2003	4092.5	1727.1	114.6	108.7	0.4	782.3	-6029.0	9.0	4.5	-5.4	-1096.7	-2110.3	2402.1	-3207.0
2004	2939.7	2396.7	151.9	293.8	0.5	596.5	-3656.4	-22.7	4.6	-3.2	29.2	-1304.2	-1426.3	-1275.1
2005	2961.5	2425.2	130.1	210.2	0.3	324.1	-5082.0	18.9	4.5	-4.6	-888.2	-1891.6	1791.5	-2779.8
2006	4517.5	1686.5	135.5	202.0	0.4	438.1	-4436.2	-6.7	4.5	-3.8	-328.4	-1584.2	-625.2	-1912.6
2007	3111.6	2833.4	142.8	306.8	0.4	1155.8	-6307.9	19.1	4.5	-5.9	-716.7	-2388.8	1844.8	-3105.6
2008	2063.8	2907.0	140.6	281.1	0.4	511.1	-5449.7	-10.8	4.6	-4.9	-801.2	-1988.9	2346.8	-2790.0
2009	6551.2	1663.2	145.4	500.4	0.4	934.0	-5044.3	-18.4	4.5	-4.5	-754.3	-1882.1	-2095.6	-2636.4
2010	2601.6	1121.9	123.2	113.4	0.4	519.1	-5525.2	35.3	4.5	-5.1	-871.5	-2082.8	3965.2	-2954.3
2011	4470.4	3345.0	141.1	394.9	0.5	605.9	-4409.3	-44.8	4.5	-4.2	-712.5	-1566.9	-2224.6	-2279.4
2012	3759.9	2240.7	133.9	261.4	0.3	445.0	-4755.5	64.7	4.6	-10.1	-537.7	-1807.1	199.9	-2344.8
2013	3436.9	2369.1	115.2	299.3	0.2	640.1	-6289.7	-47.4	4.5	-5.0	-709.3	-2097.4	2283.6	-2806.7
2014	2702.2	2444.7	131.8	344.4	0.4	429.8	-3566.5	-21.4	4.5	-2.8	6.6	-1339.6	-1134.0	-1333.0
2015	3223.3	1756.0	131.8	169.2	0.4	496.1	-4517.0	-22.7	4.5	-3.5	-637.9	-1849.8	1249.6	-2487.7
2016	3453.2	1111.6	131.8	146.3	0.4	859.6	-5382.4	8.1	4.6	-4.5	-556.5	-2317.6	2545.4	-2874.1
Aver.	3563.2	2144.9	133.6	259.4	0.4	624.1	-5032.2	-2.8	4.5	-4.8	-612.5	-1872.2	794.5	-2484.7

Abbreviations:
- US_tri, US watershed runoff input;
- US_dir, US direct inputs from point sources,
- CA_tri, Canadian watershed runoff input;
- CA_dir, Canadian direct inputs from point sources,
- AD, atmospheric total deposition;
- S, sedimentation;
- V, load associated with the change in lake storage;
- GR, direct ground water inputs;
- CU, outputs associated with the consumptive water use;
- IB(a), inter-basin exchange due to advective-transport;
- IB(d), inter-basin exchange due to diffusive-transport;
- L, in-lake load.

Table B11. Total phosphorus (TP) budget for the Eastern Basin (EB) of Lake Erie for water years (Oct. 1 to Sept. 30) from 2003 to 2016.

Water Year	TP inputs/outputs for the Eastern Basin (EB) of Lake Erie in Metric Tonnes per Annum (MTA):													
	CB_in	US_tri	US_dir	CA_tri	CA_dir	AD	S	V	GR	CU	Niagara River	Welland Canal	L	EB_out
2003	3207.0	508.7	68.4	243.1	10.5	302.3	-1376.7	1.9	1.8	-1.1	-3617.1	-137.8	789.1	-3754.9
2004	1275.1	1318.3	73.3	610.7	8.1	230.5	-1536.3	-8.9	1.8	-1.3	-4372.4	-158.0	2559.3	-4530.5
2005	2779.8	600.6	66.8	464.4	7.8	125.2	-1197.1	4.2	1.8	-1.0	-5157.7	-194.2	2499.5	-5351.9
2006	1912.6	639.7	67.1	386.8	10.5	169.3	-1496.4	-2.1	1.8	-1.2	-4736.1	-151.1	3199.1	-4887.1
2007	3105.6	1130.4	65.4	458.2	10.2	446.6	-1875.5	5.3	1.8	-1.6	-5685.5	-173.6	2512.8	-5859.1
2008	2790.0	727.9	64.8	535.3	8.7	197.5	-1436.5	-2.7	1.8	-1.2	-5385.3	-196.3	2696.0	-5581.6
2009	2636.4	1854.8	62.1	737.1	7.1	360.9	-1316.8	-4.5	1.8	-1.1	-5978.1	-202.2	1842.6	-6180.3
2010	2954.3	767.5	54.2	270.1	7.1	200.6	-1396.6	8.4	1.8	-1.2	-5410.8	-175.9	2720.7	-5586.7
2011	2279.4	1155.0	56.4	474.9	4.8	234.1	-1097.4	-10.4	1.8	-1.0	-5048.9	-118.6	2070.0	-5167.6
2012	2344.8	644.9	55.9	242.8	4.6	171.9	-1416.6	18.1	1.8	-2.8	-5637.7	-206.1	3778.5	-5843.8
2013	2806.7	1014.7	54.9	484.2	4.7	247.3	-1875.5	-13.2	1.8	-1.4	-3877.9	-120.9	1274.7	-3998.8
2014	1333.0	1257.5	56.7	869.8	5.6	166.1	-1476.4	-8.3	1.8	-1.1	-4069.8	-138.5	2003.7	-4208.3
2015	2487.7	917.8	56.7	277.5	5.6	191.7	-1217.1	-5.7	1.8	-0.9	-4324.7	-159.5	1769.2	-4484.2
2016	2874.1	514.9	56.7	297.3	5.6	327.5	-1656.0	2.3	1.8	-1.3	-4372.2	-152.4	2101.7	-4524.6
Aver.	2484.7	932.3	61.4	453.7	7.2	240.8	-1455.1	-1.1	2.7	-1.3	-4833.9	-163.2	2272.6	-4997.1

Abbreviations:
- US_tri, US tributary input;
- US_dir, US direct inputs from point sources,
- CA_tri, Canadian tributary input;
- CA_dir, Canadian direct inputs from point sources,
- AD, atmospheric total deposition;
- S, sedimentation;
- V, load associated with the change in lake storage;
- GR, direct ground water inputs;
- CU, outputs associated with the consumptive water use;
- L, in-lake load.