Tables

Table 1: Lake water budget for Wawasee and Syracuse lakes combined for 2011 (normal year), 2012 (drought year), and 2013 (normal year), including inflows and outflows. Irrigation outflow refers to residential and golf course irrigation systems pulling water directly from lake. Net groundwater (GW) flows vary from net inflow to lake (positive value) to net outflow from lake (negative value). All values in m^3.

		Inflows		Outflows			
Year	Month	Precipitation	Streams	Evaporation	Stream	Irrigation	Net GW
2011	Jan	448,115	135,964	0	3,571,572	0	3,381,814
	Feb	1,124,219	483,614	0	3,225,936	0	2,012,425
	Mar	1,002,363	2,518,693	589,625	3,353,578	0	816,469
	Apr	2,967,780	2,916,433	1,179,250	3,122,216	0	-1,582,747
	May	2,598,282	4,225,388	1,831,769	2,101,080	124,616	-2,766,206
	Jun	1,041,671	1,776,653	2,602,213	186,450	166,154	136,493
	Jul	1,320,761	177,400	3,180,045	192,665	166,154	2,040,703
	Aug	1,065,256	110,941	2,444,979	192,665	207,693	1,669,140
	Sep	2,468,564	90,415	1,591,988	186,450	0	-780,541
	Oct	1,808,184	494,694	1,092,772	575,591	0	548,450
	Nov	2,389,948	890,279	652,519	3,997,065	0	-996,572
	Dec	1,022,017	5,411,347	235,850	3,571,572	0	-1,837,298
2012	Jan	876,576	2,388,881	235,850	3,571,572	0	936,286
	Feb	628,934	1,518,310	235,850	3,341,148	0	1,429,754
	Mar	691,827	1,384,472	1,179,250	1,843,392	0	946,344
	Apr	467,769	619,987	1,957,556	0	0	475,478
	May	923,746	374,634	2,995,296	0	186,923	306,553
	Jun	577,833	100,171	3,262,593	0	249,231	862,213
	Jul	1,780,668	58,245	3,239,008	0	249,231	-716,603
	Aug	1,293,245	79,411	2,389,948	0	311,539	540,187
	Sep	825,475	60,341	1,658,812	0	0	1,955,961
	Oct	1,371,861	62,153	1,037,740	0	0	786,691
	Nov	172,957	66,066	707,550	0	0	862,850
	Dec	794,029	92,774	235,850	0	0	-256,631
2013	Jan	1,470,132	298,506	235,850	0	0	-349,823
	Feb	652,519	372,169	235,850	0	0	394,127
	Mar	518,870	758,388	1,179,250	160,561	0	456,875
	Apr	2,786,962	4,138,423	1,179,250	2,886,169	2,592	1,085,842
	May	1,151,735	1,425,634	2,016,518	4,226,637	134,390	3,011,534
	Jun	1,733,498	709,441	2,264,161	3,928,697	185,329	4,329,569
	Jul	2,303,469	378,801	2,275,953	857,479	184,267	635,430
	Aug	1,253,936	261,285	2,079,412	80,352	224,869	869,411
	Sep	1,238,213	71,122	1,784,599	3,240	15,271	493,776
	Oct	774,374	73,174	966,985	241	8,932	128,609
	Nov	1,092,772	132,661	707,550	5,184	0	-512,699
	Dec	959,124	379,737	117,925	2,678,400	0	1,063,143
2011	Total	19,257,160	19,231,822	15,401,011	24,276,840	664,617	2,642,129
2012	Total	10,404,920	6,805,445	19,135,304	8,756,112	996,925	8,129,083
2013	Total	15,935,605	8,999,341	15,043,305	14,826,960	755,651	11,605,793

Table 2: Watershed water budget for Wawasee and Syracuse lakes for 2011 (normal year), 2012 (drought year), and 2013 (normal year), including inflow and outflows. Evapotranspiration (ET) includes ET over land as well as evaporation over lake surfaces. Groundwater (GW) storage varied from net accumulation (positive value) to net loss (negative value) included for reference. Irrigation data included refers to current 17 major agricultural and industrial wells and hypothetical expansion of 20 new agricultural wells pumping at the maximum well rates observed in the watershed for reference. All values in m^3.

		Inflow	Outflows		GW	Irrigation	
Year	Month	Precipitation	ET	Stream	Storage	Current	Expansion
2011	Jan	2,864,835	551,284	3,571,572	-1,258,021	6,269	6,269
	Feb	7,187,218	763,317	3,225,936	3,197,966	6,288	6,288
	Mar	6,408,184	3,494,554	3,353,578	-439,948	5,558	5,558
	Apr	18,973,251	5,038,409	3,122,216	10,812,626	6,671	6,671
	May	16,611,019	7,811,346	2,101,080	6,698,593	8,010	8,010
	Jun	6,659,486	9,854,094	186,450	-3,381,059	66,572	1,113,049
	Jul	8,443,725	13,103,618	192,665	-4,852,558	400,083	4,062,752
	Aug	6,810,266	11,011,439	192,665	-4,393,838	376,174	3,908,033
	Sep	15,781,724	6,596,181	186,450	8,999,093	57,776	973,443
	Oct	11,559,862	3,573,708	575,591	7,410,563	8,642	8,642
	Nov	15,279,121	2,433,684	3,997,065	8,848,372	6,587	6,587
	Dec	6,533,835	1,274,843	3,571,572	1,687,420	7,132	7,132
2012	Jan	5,604,020	1,402,062	3,571,572	630,386	4,528	4,528
	Feb	4,020,821	1,868,533	3,341,148	-1,188,860	4,449	4,449
	Mar	4,422,904	3,787,418	1,843,392	-1,207,907	5,085	5,085
	Apr	2,990,486	6,474,127	0	-3,483,641	7,712	7,712
	May	5,905,581	8,826,617	0	-2,921,036	116,403	116,403
	Jun	3,694,130	9,899,676	0	-6,205,546	474,873	3,343,903
	Jul	11,383,951	11,784,379	0	-400,428	450,083	3,379,673
	Aug	8,267,814	8,899,686	0	-631,871	231,522	2,434,392
	Sep	5,277,328	5,115,179	0	162,149	71,693	881,683
	Oct	8,770,417	2,924,978	0	5,845,439	22,085	22,085
	Nov	1,105,726	2,107,066	0	-1,001,340	6,379	6,379
	Dec	5,076,287	1,126,420	0	3,949,867	5,815	5,815

		Inflow	Outflows		GW	Irrigation	
Year	Month	Precipitation	ET	Stream	Storage	Current	Expansion
2013	Jan	9,398,670	782,241	0	8,616,430	7,250	7,250
	Feb	4,171,602	1,000,282	0	3,171,320	6,133	6,133
	Mar	3,317,178	4,081,626	160,561	-925,009	6,989	6,989
	Apr	17,817,265	5,045,686	2,886,169	9,885,409	14,188	14,188
	May	7,363,129	8,002,504	4,226,637	-4,866,011	22,443	22,443
	Jun	11,082,389	9,522,508	3,928,697	-2,368,815	126,771	1,300,121
	Jul	14,726,259	12,189,227	857,479	1,679,552	274,762	1,448,112
	Aug	8,016,513	10,646,816	80,352	-2,710,655	363,906	1,930,896
	Sep	7,915,992	6,783,099	3,240	1,129,653	168,475	1,992,845
	Oct	4,950,636	3,439,931	241	1,510,464	24,409	24,409
	Nov	6,986,177	2,492,083	5,184	4,488,911	10,728	10,728
	Dec	6,131,753	1,158,860	2,678,400	2,294,493	5,917	5,917
2011	Total	123,112,527	65,506,479	24,276,840	33,329,208	955,763	10,112,435
2012	Total	66,519,465	64,216,141	8,756,112	-6,452,788	1,400,627	10,212,107
2013	Total	101,877,563	65,144,862	14,826,960	21,905,741	1,031,971	6,770,031

Figures

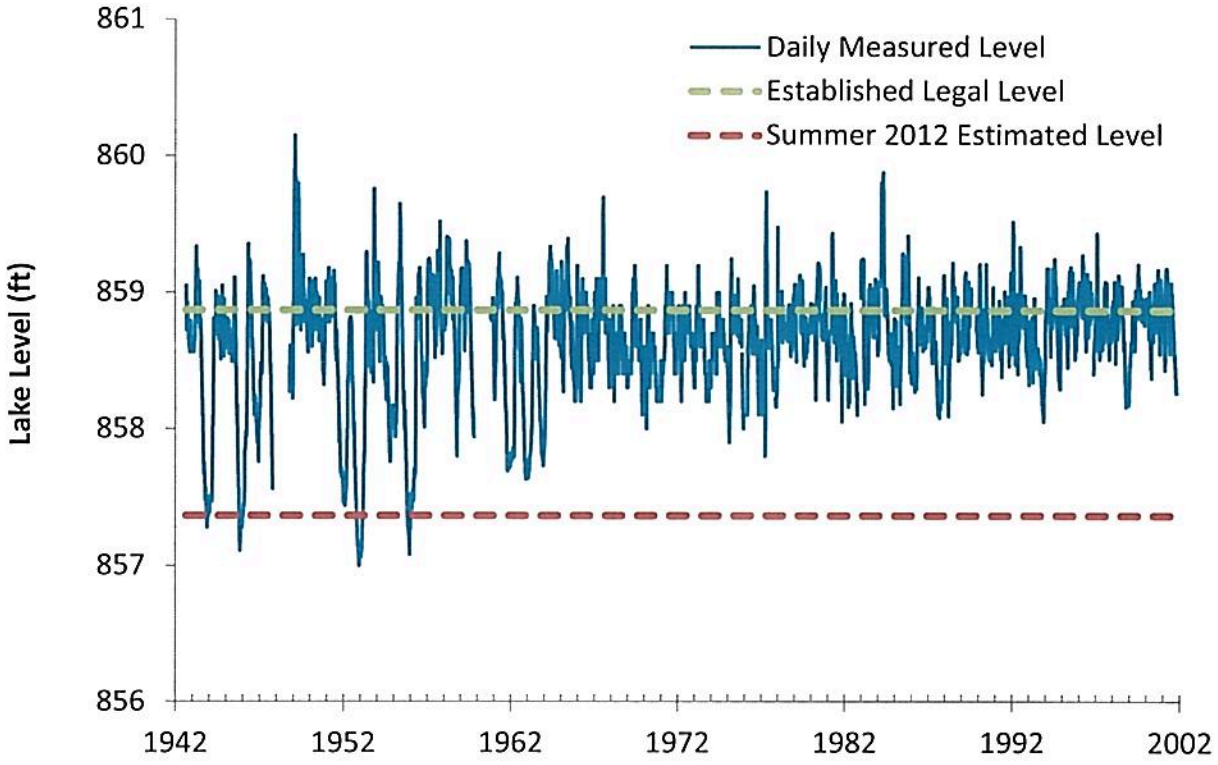

Figure 1: Daily water levels (measured in feet above sea level) for Wawasee and Syracuse lakes over period of record from 1943 to 2002. Reference lines of court-established legal level and low water mark during summer of 2012 included. Data was provided by USGS.

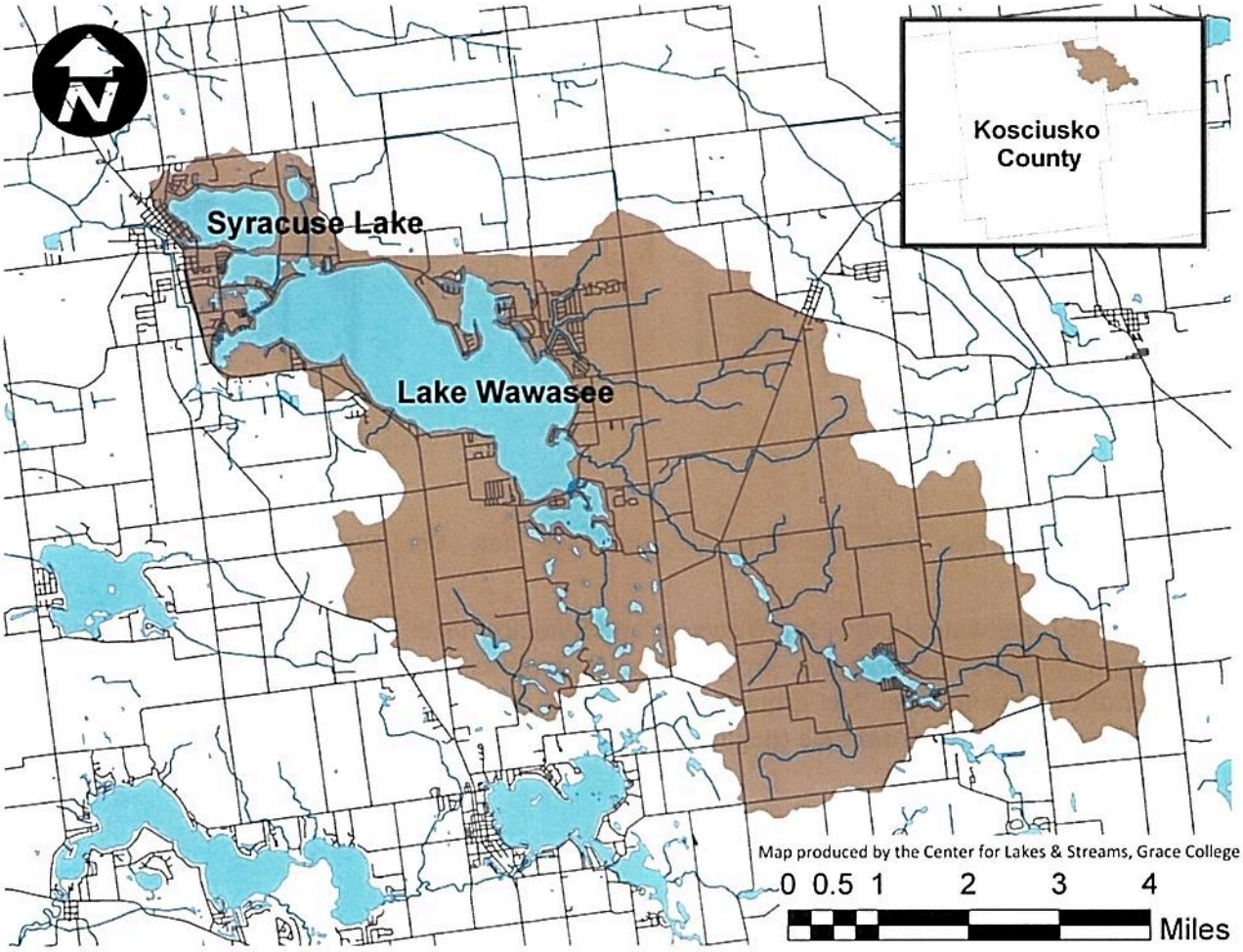

Figure 2: Watershed area for Wawasee and Syracuse. Map inset shows location of watershed in relationship to Kosciusko County boundary.

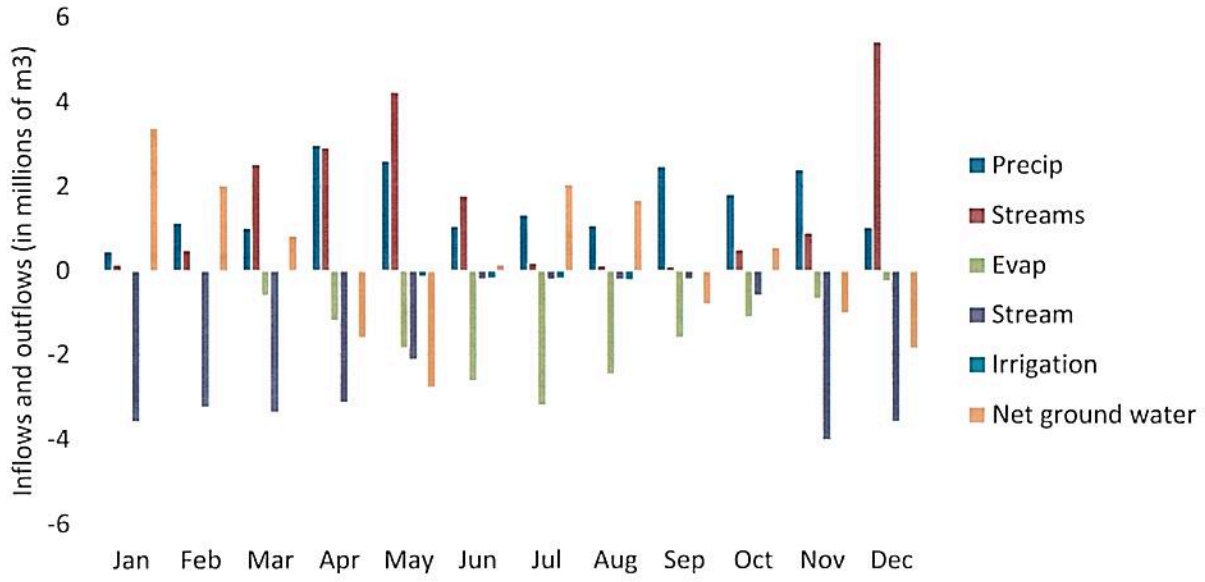

Figure 3: Lake water budget for Wawasee and Syracuse lakes combined for 2011 (normal year), including inflows and outflows. Irrigation outflow refers to residential irrigation systems pulling water directly from lake. Net groundwater (GW) flows vary from net inflow to lake (positive value) to net outflow from lake (negative value). All values in millions of m^3.

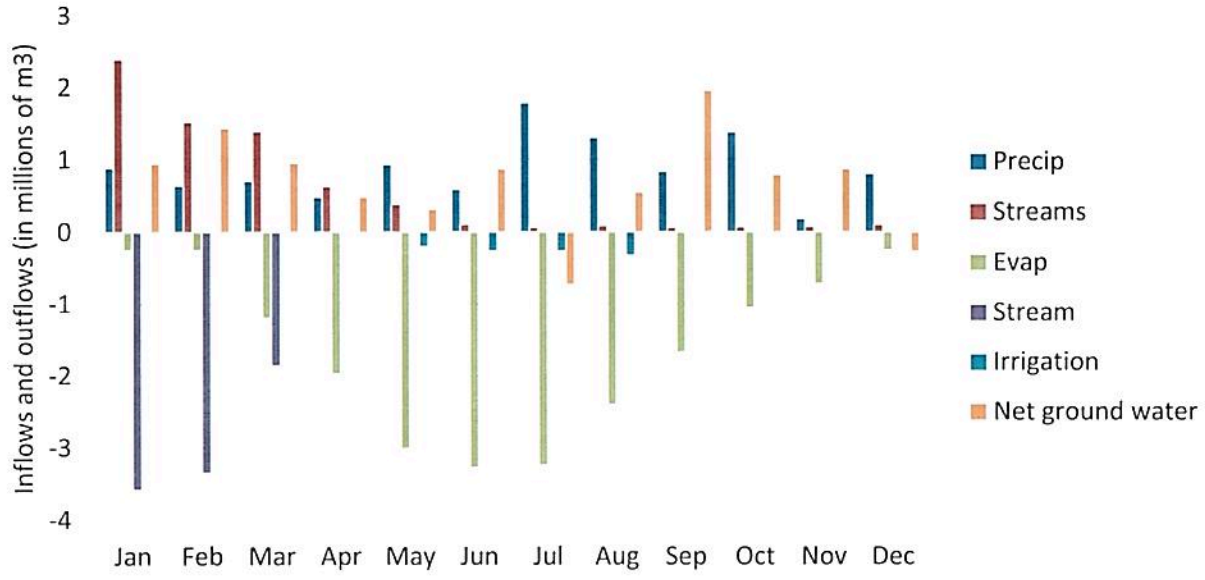

Figure 4: Lake water budget for Wawasee and Syracuse lakes combined for 2012 (drought year), including inflows and outflows. Irrigation outflow refers to residential irrigation systems pulling water directly from lake. Net groundwater (GW) flows vary from net inflow to lake (positive value) to net outflow from lake (negative value). All values in millions of m^3.

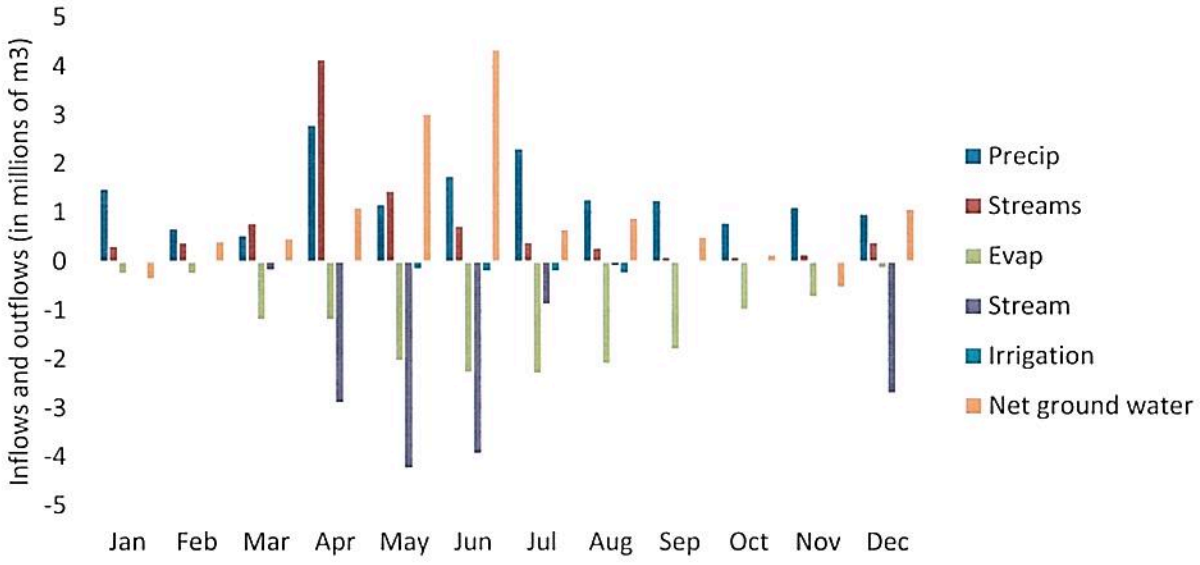

Figure 5: Lake water budget for Wawasee and Syracuse lakes combined for 2013 (average year), including inflows and outflows. Irrigation outflow refers to residential and golf course irrigation systems pulling water directly from lake. Net groundwater (GW) flows vary from net inflow to lake (positive value) to net outflow from lake (negative value). All values in millions of m^3.

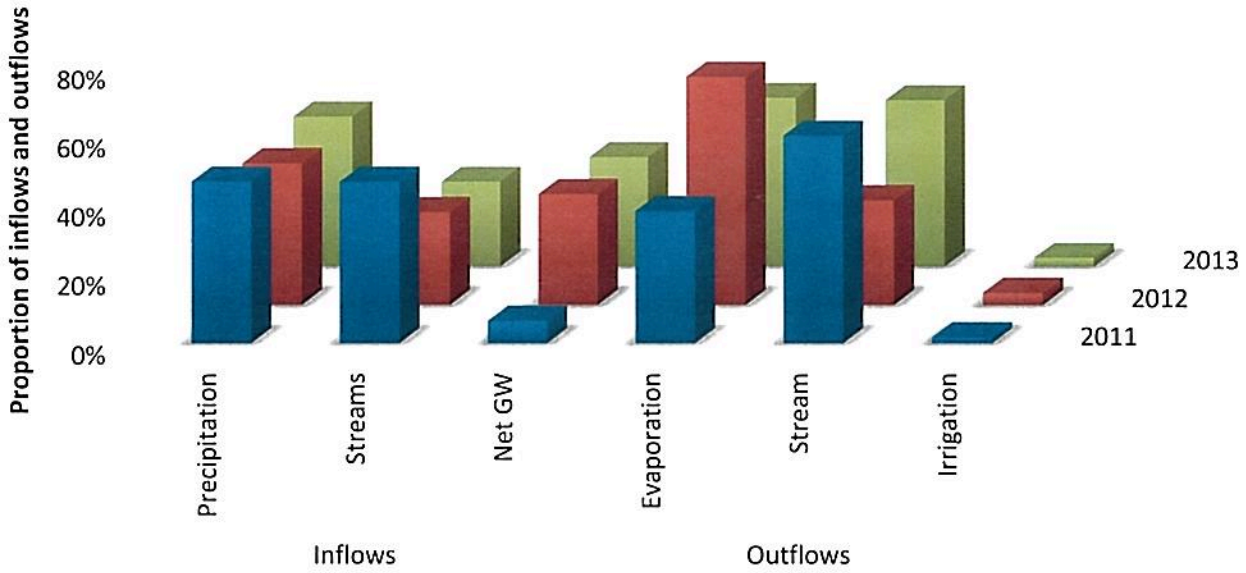

Figure 6: Percentages of inflows and outflows for annual lake water budget for Wawasee and Syracuse lakes combined for 2011 (normal year), 2012 (drought year), and 2013 (normal year). Irrigation outflow refers to residential and golf course irrigation systems pulling water directly from lake. Groundwater was a net inflow over the entirety of all years.

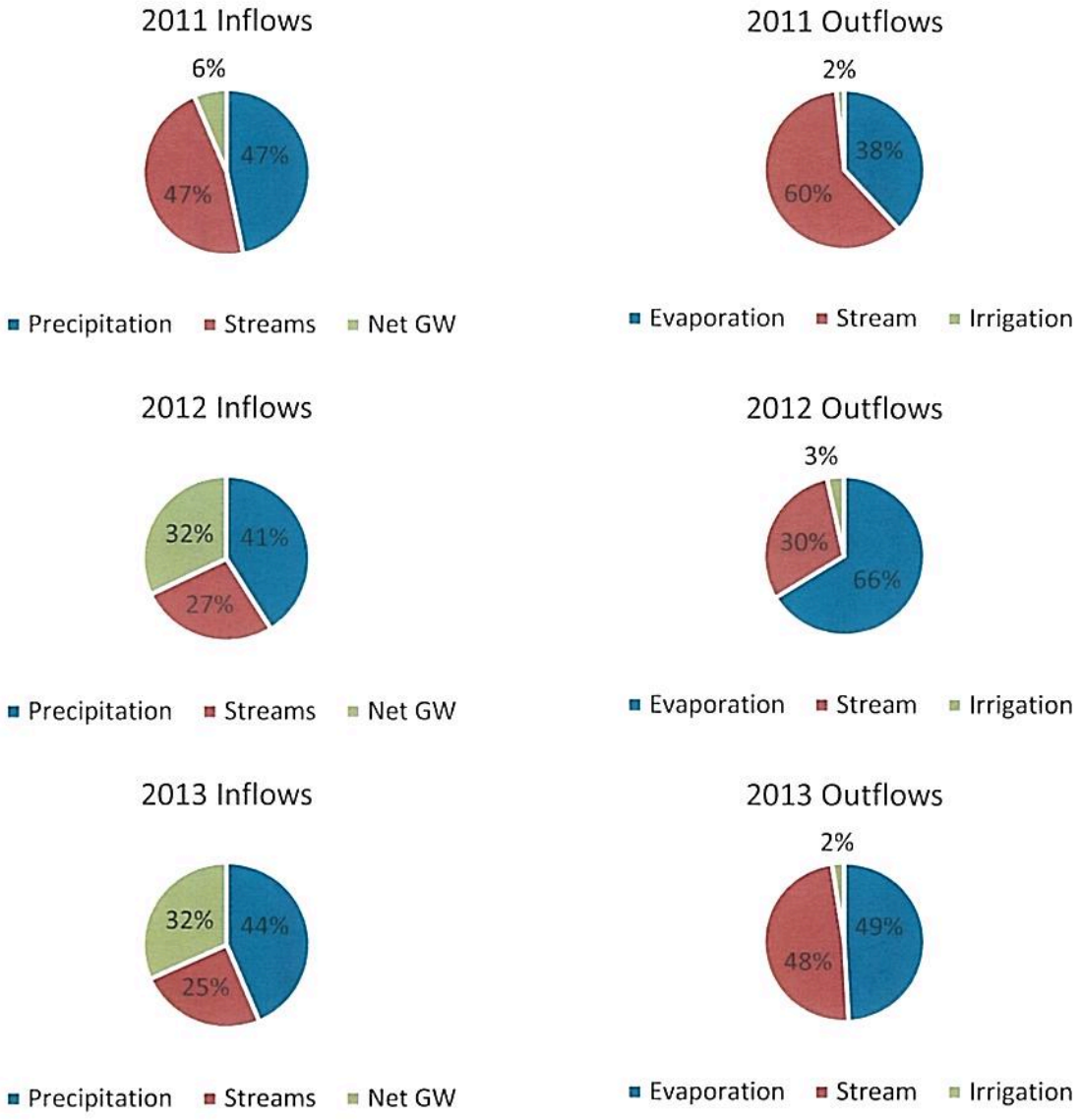

Figure 7: Percentages of inflows and outflows for annual lake water budget for Wawasee and Syracuse lakes combined for 2011 (normal year), 2012 (drought year), and 2013 (normal year). Irrigation outflow refers to residential and golf course irrigation systems pulling water directly from lake. Groundwater (GW) was a net inflow over the entirety of all years studied.

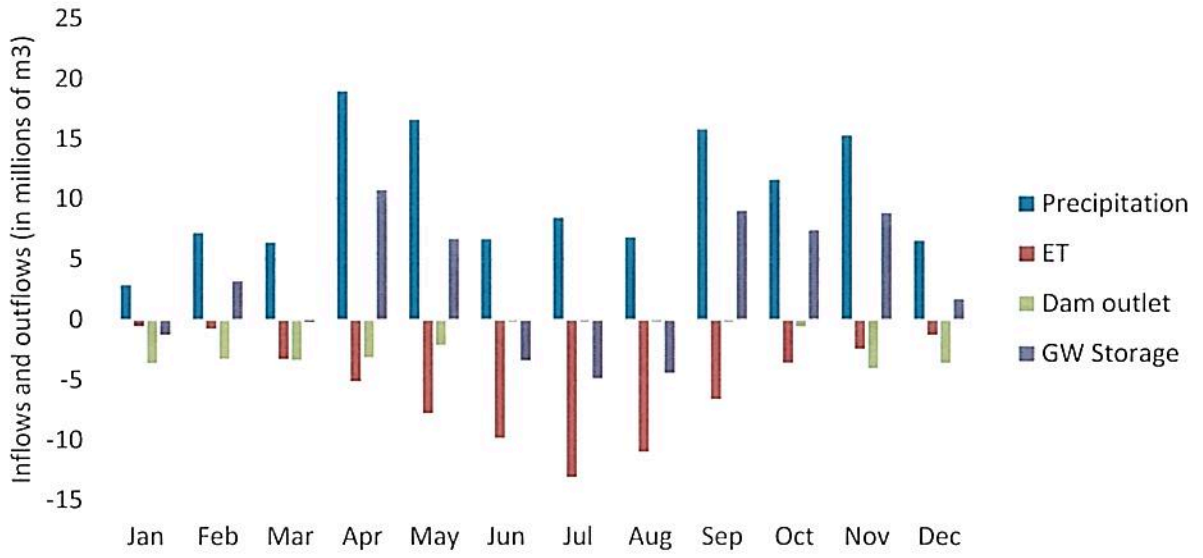

Figure 8: Watershed water budget for Wawasee and Syracuse lakes for 2011 (normal year), including inflows and outflows. Evapotranspiration (ET) includes ET over land as well as evaporation over lake surfaces. Groundwater (GW) storage varied from net accumulation (positive value) to net loss (negative value) included for reference. All values in millions of m^3.

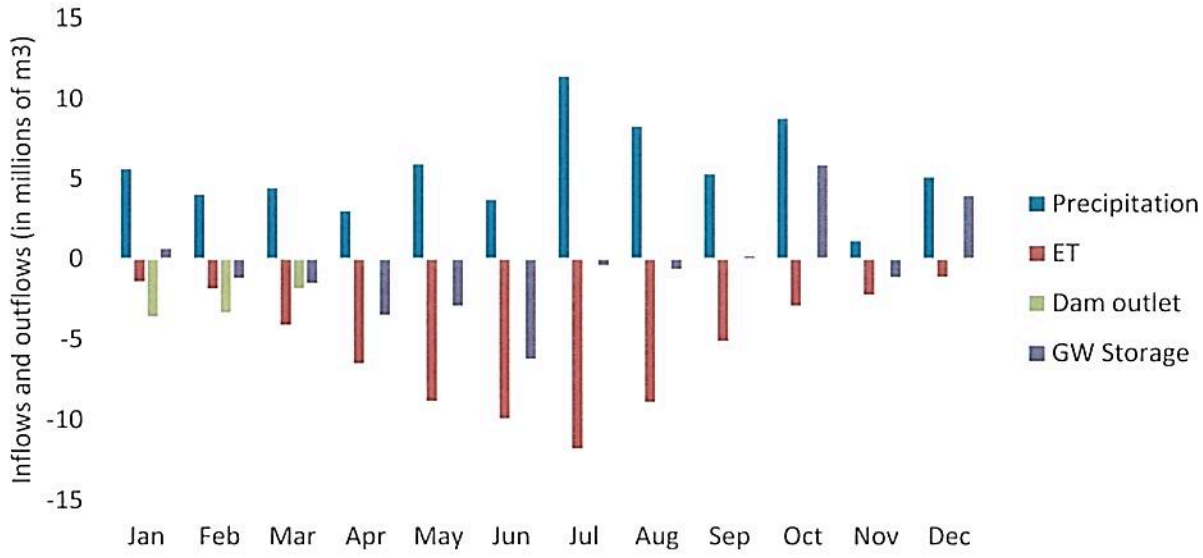

Figure 9: Watershed water budget for Wawasee and Syracuse lakes for 2012 (drought year), including inflows and outflows. Evapotranspiration (ET) includes ET over land as well as evaporation over lake surfaces. Groundwater (GW) storage varied from net accumulation (positive value) to net loss (negative value) included for reference. All values in millions of m^3.

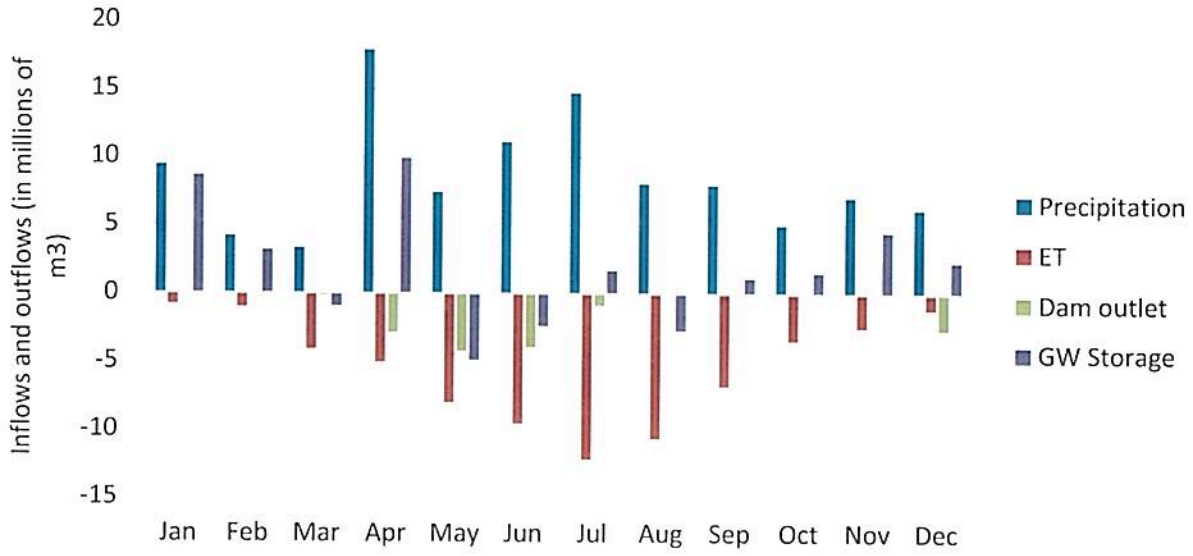

Figure 10: Watershed water budget for Wawasee and Syracuse lakes for 2013 (normal year), including inflows and outflows. Evapotranspiration (ET) includes ET over land as well as evaporation over lake surfaces. Groundwater (GW) storage varied from net accumulation (positive value) to net loss (negative value) included for reference. All values in millions of m^3.