

Lake Lacawac, Bruce R. Hargreaves, Lehigh University (brho@lehigh.edu/~brho) 41°22.5'N 75°17.3'W elevation 428m  
 18 May 2013, 4:30-6:43pm EDT: platform moved to lake center 3Nov 2012: platform move to dock by 12N  
 The water level sensor (referenced to dock) settles for several days after moving platform to lake center and thus underestimates water level during this period.  
 Dec11: Tw12 appears to be falling (drifting upward); need to check or replace when possible.

H310 sensor depth & Lake level are based on differential pressure sensor with ca 0.1mm resolution & vertical position referenced to bottom of lake.  
 Sensor PSIG converted to depth using density of water at 40C (1.43321 psim)  
 Lake level is referenced also to lower frame of dock at SE corner (2003-May2005)  
 (Actual water level at dock varies seasonally with density of water column and hourly from precip, runoff, evaporation, seepage & outflow. Outflow also varies with status of beaver dam).

rain sum (in.) Aug-Sep2011>> 13.39		5280 f/mile		1609.3 m/mile		Std pressure at sea level = 1 atm = 760 mm Hg = 29.92" Hg = 1013.2 mbars		Std pressure at 428m elevation = 724 mm Hg, 29.61 in. Hg, (965.2 mbars)																						
Tair avg F	Tair max F	Tair min F	Rain-in	WS-nph	WS Max-nph	WS-min	WS Max	WDIR-deg	Barom-mb	Sum Rad W/m2	Sum PAR uMmols/2	Tw 0.1m F	Tw 0.5m F	Tw 1m F	Tw 2m F	Tw 3m F	Tw 4m F	Tw 5m F	Tw 6m F	Tw 8m F	Tw 10m F	Tw 12m F	H310 z (m)	Lakelevel-mm (40C)	cumul. rain-mm	Batt min-V	RH% CR10 enc	RH% MUX enc		
Month sum	avg Tw	15.2	19.1	27.2	9.6	77.1	67.7	1.5	10.6	242.2	967.0	567107846	1176	23.7	23.5	23.3	22.9	22.2	19.9	13.4	9.6	6.5	5.9	5.9	11.2	49.8	67.7	12.6	47.0	38.2
month	(All)																													

Data		Tair avg		Tair Min		R-Hair-%		Rain-		WS Max		WDIR-deg		Barom-mb		Sum PAR		Sum Rad J/m2 Mol/m2		Tw 0.1m		Tw 0.5m		Tw 1m		Tw 2m		Tw 3m		Tw 4m		Tw 5m		Tw 6m		Tw 8m		Tw H310-C		Tw 12m		H310 depth-m (40C)		Lakelevel-cumul. rain-mm (40C)		Batt min-V		RH% CR10 enc		RH% MUX enc	
ND 100%	8/1/2013	213	18.7	19.4	18.1	89.7	1.4	1.9	7.7	198	966.0	8848803	19.3	24.12	24.08	24.14	23.92	23.11	17.44	12.64	9.22	6.37	5.8	5.71	11.3	84.3	1.400	12.6	43.1	35.1																					
ND 100%	8/2/2013	214	18.9	23.9	14.1	75.7	1.1	1.8	7.4	254	966.0	22296893	46.1	24.08	23.96	23.79	23.46	23.09	17.52	12.67	9.23	6.33	5.8	5.73	11.3	81.1	1.500	12.6	44.4	35.1																					
ND 100%	8/3/2013	215	19.3	23.6	16.7	74.1	1.3	1.6	6.9	261	966.0	16167135	33.7	23.85	23.80	23.81	23.42	22.83	17.59	12.71	9.24	6.40	5.8	5.74	11.3	76.0	3.800	12.6	43.6	36.1																					
ND 100%	8/4/2013	216	18.7	20.4	19.0	73.2	0.1	2.2	8.8	287	966.0	23525245	48.2	23.52	23.49	23.51	23.32	22.75	17.72	12.71	9.29	6.41	5.8	5.73	11.3	70.4	4.700	12.6	44.1	34.8																					
ND 100%	8/5/2013	217	16.0	20.5	10.9	66.9	0.0	1.9	7.7	298	966.0	27117333	53.2	23.20	23.17	23.15	22.79	22.45	17.93	12.75	9.30	6.43	5.8	5.73	11.3	63.5	4.700	12.6	43.2	32.8																					
ND 100%	8/6/2013	218	16.7	21.8	9.6	73.8	0.0	1.2	5.1	202	966.0	17676042	36.3	23.26	23.11	23.02	22.70	22.27	18.11	12.80	9.31	6.43	5.8	5.75	11.2	57.3	4.700	12.6	43.2	31.9																					
ND 100%	8/7/2013	219	18.5	20.6	16.7	88.8	0.4	2.0	7.9	181	966.0	62020411	13.2	22.70	22.67	22.73	22.51	22.25	18.22	12.78	9.32	6.37	5.8	5.75	11.2	52.7	5.100	12.6	44.7	34.8																					
ND 100%	8/8/2013	220	22.2	25.5	19.4	83.2	0.0	1.9	6.6	208	966.0	15502729	33.0	22.94	22.78	22.70	22.29	22.08	18.27	12.84	9.33	6.42	5.9	5.78	11.2	49.4	5.100	12.6	45.9	35.9																					
ND 100%	8/9/2013	221	22.3	26.1	20.4	89.3	34.5	1.7	9.2	235	966.0	12786720	27.7	23.63	23.54	23.38	22.48	22.07	18.63	13.00	9.45	6.45	5.9	5.84	11.3	73.3	39.600	12.6	47.4	46.9																					
ND 100%	8/10/2013	222	19.9	23.8	16.4	74.3	0.1	2.2	8.8	287	966.0	23138696	48.0	23.71	23.67	23.68	22.85	22.13	19.39	13.42	9.51	6.49	5.9	5.86	11.2	56.6	50.700	12.6	47.8	40.9																					
ND 100%	8/11/2013	223	17.6	22.9	11.7	73.8	0.0	1.1	5.5	251	966.0	18929744	39.2	23.64	23.56	23.44	23.07	22.23	18.71	13.11	9.52	6.49	5.9	5.82	11.3	73.7	39.700	12.6	46.4	36.2																					
ND 100%	8/12/2013	224	19.6	24.7	14.2	70.0	0.1	1.1	5.2	233	966.0	23758233	49.4	24.17	23.70	23.44	23.05	22.27	18.73	13.19	9.51	6.47	5.70	5.83	11.3	68.3	39.800	12.6	46.2	35.4																					
ND 100%	8/13/2013	225	19.8	23.5	17.4	85.2	10.9	1.4	10.6	238	966.0	12841522	26.8	24.12	23.97	23.84	23.20	22.33	18.80	13.25	9.59	6.50	5.9	5.87	11.3	67.9	50.700	12.6	47.8	43.1																					
ND 100%	8/14/2013	226	14.7	17.7	11.3	69.4	0.0	2.9	10.3	309	965.2	19262512	39.3	23.01	22.99	23.02	22.85	22.46	18.93	13.34	9.65	6.54	5.9	5.85	11.3	69.4	50.700	12.6	49.3	42.0																					
ND 100%	8/15/2013	227	14.8	20.1	9.7	70.6	0.0	1.7	6.5	282	968.7	22705754	46.0	22.37	22.32	22.31	21.98	21.73	19.23	13.33	9.59	6.53	5.9	5.85	11.2	62.1	50.700	12.7	47.4	37.9																					
ND 100%	8/16/2013	228	16.3	22.3	10.0	70.9	0.0	1.0	4.4	242	970.5	22446785	45.9	22.83	22.34	22.07	21.79	21.53	19.36	13.42	9.64	6.51	5.9	5.86	11.2	56.6	50.700	12.6	47.0	36.9																					
ND 100%	8/17/2013	229	17.4	23.2	10.7	73.2	0.0	0.9	4.5	194	973.7	24328774	49.6	23.30	22.82	22.26	21.89	21.52	19.38	13.45	9.68	6.55	5.9	5.86	11.2	51.7	50.700	12.6	47.4	37.0																					
ND 100%	8/18/2013	230	17.5	21.2	14.1	82.2	0.0	0.7	2.7	210	973.0	9647515	20.7	22.99	22.81	22.59	22.07	21.61	19.34	13.51	9.67	6.55	5.9	5.86	11.2	47.4	50.700	12.6	47.9	37.7																					
ND 100%	8/19/2013	231	18.5	23.2	14.8	79.0	0.0	1.2	5.6	264	968.8	16936015	35.6	22.72	22.58	22.42	22.07	21.62	19.33	13.56	9.71	6.54	5.9	5.86	11.2	43.9	50.700	12.6	48.4	37.4																					
ND 100%	8/20/2013	232	20.4	25.7	16.2	76.9	0.0	1.3	4.8	286	969.5	23100765	47.1	23.34	23.11	22.61	22.18	21.70	19.37	13.61	9.72	6.56	5.9	5.87	11.2	40.2	50.700	12.6	48.9	37.4																					
ND 100%	8/21/2013	233	20.6	27.0	13.8	72.1	0.1	1.1	5.1	260	970.4	23812287	48.4	24.20	23.60	23.14	22.42	21.77	19.38	13.67	9.74	6.58	6.0	5.88	11.2	36.1	50.800	12.6	49.0	36.6																					
ND 100%	8/22/2013	234	21.5	26.2	18.8	80.7	3.8	1.3	7.2	249	964.9	16376835	34.5	24.65	24.32	23.74	22.69	21.86	19.37	13.80	9.76	6.60	6.0	5.90	11.2	35.2	54.700	12.6	49.6	41.6																					
ND 100%	8/23/2013	235	19.9	23.0	15.8	69.0	0.0	2.4	8.7	267	965.3	20094911	41.0	24.11	23.67	23.09	22.58	21.90	19.44	13.89	9.86	6.65	6.0	5.91	11.2	32.2	54.700	12.6	50.2	45.4																					
ND 100%	8/24/2013	236	16.9	23.2	11.1	68.6	0.0	1.1	5.2	187	973.6	16192551	52.7	23.91	23.81	23.49	23.13	22.03	19.41	13.90	9.79	6.67	6.0	5.91	11.2	26.6	54.700	12.6	49.6	37.9																					
ND 100%	8/25/2013	237	17.4	24.4	10.0	67.6	0.0	1.3	5.9	247	975.4	22252937	45.7	23.72	23.63	23.43	23.06	22.11	19.44	13.95	9.86	6.66	6.0	5.92	11.2	21.7	54.700	12.6	49.0	36.8																					
ND 100%	8/26/2013	238	20.7	25.2	17.6	73.0	9.2	2.0	7.2	245	968.1	12517128	26.7	23.34	23.31	23.31	23.02	22.27	19.48	14.04	9.86	6.63	6.0	5.92	11.2	18.3	63.900	12.6	49.2	38.6																					
ND 100%	8/27/2013	239	21.6	25.6	18.8	81.2	0.0	1.8	6.0	274	962.3	19221152	40.4	23.85	23.67	23.45	23.08	22.45	19.51	14.14	9.92	6.65	6.0	5.97	11.2	23.7	63.900	12.6	51.2	43.5																					
ND 100%	8/28/2013	240	20.2	22.7	17.6	91.2	2.5	1.0	5.4	205	961.7	9811421	21.1	24.03	23.91	23.89	23.25	22.46	19.61	14.20	9.94	6.65	6.0	5.97	11.2	22.3	66.400	12.6	51.6	44.2																					
ND 100%	8/29/2013	241	20.5	23.4	17.9	87.4	1.3	1.0	5.8	137	964.8	19419471	20.1	24.37	23.95	23.88	23.44	22.48	19.65	14.28	10.00	6.60	6.00	6.00	11.2	22.2	67.000	12.6	53.2	45.4																					
ND 100%	8/30/2013	242	22.3	27.2	19.0	78.3	0.0	1.4	5.8	251	963.4	21795650	45.5	24.83	24.63	24.25	23.64	22.51	19.65	14.34	10.02	6.69	6.0	6.00	11.2	20.4	67.700	12.6	52.9	41.9																					
ND 100%	8/31/2013	243	23.5	26.9	20.7	80.3	0.0	1.7	6.0	223	959.7	13757519	29.1	25.05	24.95	24.71	23.91	22.58	19.72	14.38	10.02	6.70	6.0	6.01	11.2	16.9	67.700	12.6	52.3	41.4																					

Lake water & energy budget daily summary from hourly data (negative values: loss from lake; runoff & seepage term is residual after adjusting lake level change for all others)

Ratio of lake watershed to lake area	2.617658	Runoff & seepage as % of watershed area precip	6%											
Grand sum avg	19.07	23.66	23.49	23.33	22.87	22.21	18.90	1.4	567107846	-80772	-72.5	67.7	10.7	-111.9</