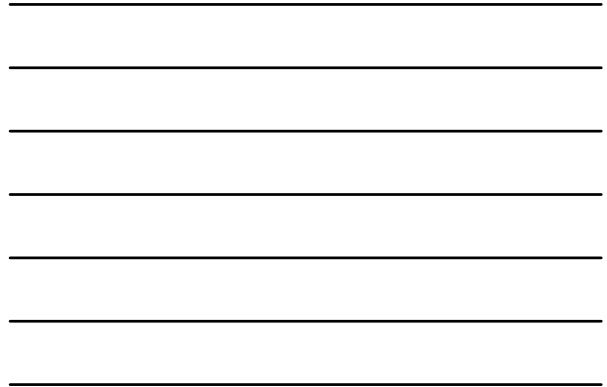


PROVISIONAL USGS Outlet Data (H. Zajd, 2005)

04240503 ONONDAGA LAKE OUTLET NEAR LIVERPOOL
DISCHARGE, CUBIC FEET PER SECOND

2004 Water Year

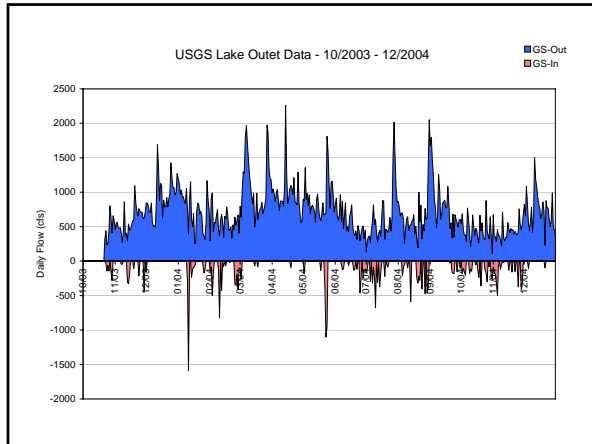
Day	October 2003			November 2003			December 2003		
	Mean Outflow	Mean Inflow	Daily Mean	Mean Outflow	Mean Inflow	Daily Mean	Mean Outflow	Mean Inflow	Daily Mean
1	.....	.....	.....	659	0	659	846	-162	686
2	.....	.....	.....	543	0	543	839	0	839
3	.....	.....	.....	563	0	563	815	0	815
4	.....	.....	.....	485	0	485	712	0	712
5	.....	.....	.....	478	0	478	705	0	705
6	.....	.....	.....	484	0	484	843	0	843
7	.....	.....	.....	411	-44	406	572	0	572
8	.....	.....	.....	275	-44	268	507	0	507
9	.....	.....	.....	417	0	417	512	0	512
10	.....	.....	.....	860	0	860	492	0	492
11	.....	.....	.....	364	0	364	938	0	938
12	.....	.....	.....	486	0	486	1491	0	1491
13	.....	.....	.....	291	-303	117	1339	0	1339
14	.....	.....	.....	539	-327	439	881	0	881
15	.....	.....	.....	492	-184	386	1129	0	1129
16	.....	.....	.....	467	0	467	1101	0	1101
17	.....	.....	.....	525	0	525	629	0	629
18	.....	.....	.....	581	0	581	885	0	885
19	.....	.....	.....	597	-111	575	786	0	786
20	.....	.....	.....	1095	0	1095	784	0	784
21	.....	.....	.....	842	0	842	921	0	921
22	310	0	310	728	0	728	781	0	781
23	441	-28	427	652	0	652	897	0	897
24	237	-144	177	761	-214	741	982	0	982
25	271	-65	215	722	0	722	1426	0	1426
26	432	-146	348	712	0	712	1205	0	1205
27	804	0	804	713	0	713	1065	0	1065
28	628	-156	595	619	0	619	1068	0	1068
29	411	-282	331	628	-434	606	958	0	958
30	659	0	659	699	0	699	997	0	997
31	599	0	599	.....	.....	.....	1273	0	1273

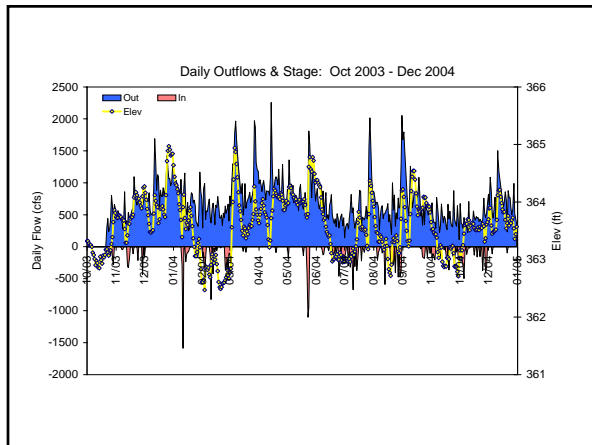


PROVISIONAL USGS Outlet Data (H. Zajd, 2005)

Day	July 2004			August 2004			September 2004		
	Mean Outflow	Mean Inflow	Daily Mean	Mean Outflow	Mean Inflow	Daily Mean	Mean Outflow	Mean Inflow	Daily Mean
1	140	-167	83	863	0	863	1675	0	1675
2	300	-98	287	785	0	785	1796	0	1796
3	350	0	350	654	0	654	1469	0	1469
4	364	0	364	697	0	697	1229	0	1229
5	276	-297	133	692	-212	579	894	0	894
6	441	0	441	602	-95	505	758	0	758
7	585	-318	528	260	-49	228	486	0	486
8	816	-91	760	478	0	478	658	0	658
9	531	-242	443	607	0	607	1281	0	1281
10	609	-674	462	641	-99	603	1039	0	1039
11	414	0	414	440	0	440	698	0	698
12	288	-309	120	509	0	509	698	0	698
13	397	0	397	520	-569	243	844	0	844
14	447	-373	412	570	0	570	862	0	862
15	309	-197	301	592	0	592	879	0	879
16	645	0	645	673	0	673	769	0	769
17	882	0	882	392	0	392	800	0	800
18	865	0	865	502	0	502	1084	0	1084
19	318	-221	279	310	-244	298	813	0	813
20	462	0	462	191	-320	-43	478	-30	462
21	443	-43	438	999	-218	809	556	0	556
22	420	-87	414	574	-279	432	337	-159	275
23	477	0	477	808	0	808	681	-176	453
24	633	0	633	322	-404	201	347	-183	303
25	436	0	436	530	0	530	672	0	672
26	616	0	616	437	0	437	598	0	598
27	1565	0	1565	762	-475	698	569	-154	418
28	2016	0	2016	605	0	605	497	0	497
29	1458	0	1458	627	-465	513	600	0	600
30	1044	0	1044	1300	-383	1229	607	-104	585
31	856	0	856	2053	0	2053	.....	.....	.....







Water Balance Algorithm

Total Inflow = Measured Inflow + Estimated Inflow

Estimated Inflow = Measured Trib Inflow x (DA_U / DA_G)

DA_U / DA_G = Ungauged/Gauged Drainage Area = 0.068

Precip Volume = Area x Measured Precip (Hancock Airport)

Evap Volume = Area x Monthly Evap (Regional Mean)

Volume Increase = Area x (Elev_T - Elev_{T-1})

Outflow* = Total Inflow + Precip - Evap - Volume Increase

*5-Day Rolling Average

Lake Water Budgets

TERM	cfs-days		Percent of Total Inflow	
	2003	2004	2003	2004
METRO	38,973	39,435	17.8%	17.3%
BYPASS	892	979	0.4%	0.4%
NINEMILE	68,270	72,740	31.2%	31.9%
ONONDAGA	74,809	78,812	34.2%	34.6%
HARBOR	4,820	4,901	2.2%	2.2%
LEY	18,432	17,732	8.4%	7.8%
EAST FLUME	259	467	0.1%	0.2%
TRIBSA	694	763	0.3%	0.3%
UNGAUGED	11,329	11,864	5.2%	5.2%
TOTAL INFLOW	218,479	227,691	100.0%	100.0%
PRECIP	4,551	5,237	2.1%	2.3%
EVAP	3,618	3,621	1.7%	1.6%
VOLUME INCREASE	1,442	-1,850	0.7%	-0.8%
OUTFLOW	217,970	231,158	99.8%	101.5%
NET	0	0		

Potential Sources of Error in Lake Water Budgets

Measured Inflows

Estimated Inflows

- Drainage Areas
- Differences in Runoff Coef (Gauged vs. Ungauged)
- Springs
- Other Sources/Sinks

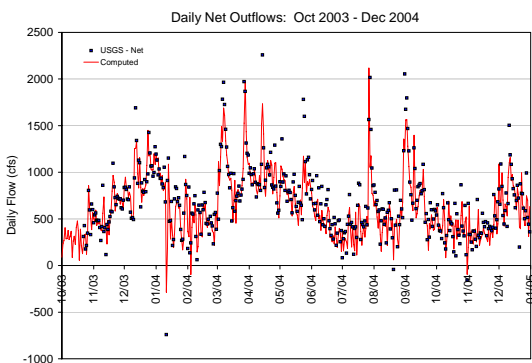
Evaporation (Regional Mean)

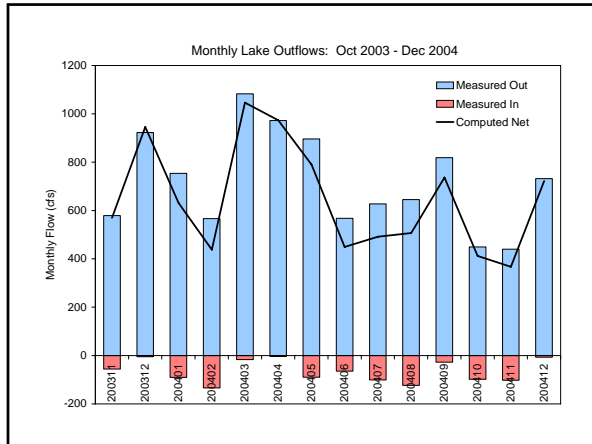
Spatial Variations in Precip (Airport vs. Lake)

Snow Accumulation & Ice Cover

Variations in Lake Surface Elevation

- Wind Setup
- Calculation Uses Daily Mean Elev
- Theoretically, Should Use Midnight Elev





Measured & Computed Mean Outflows

Period: October 22, 2003 - December 31, 2004

	<u>CFS</u>	<u>% DIFF*</u>
USGS - Gross Outflow	714	10.1%
USGS - Reverse Flow	-66	-110.1%
USGS - Mean Outflow	690	6.4%
USGS - Net Outflow	648	0.0%
Computed from Water Budget	645	-0.4%

* % Diff = Percent Difference from USGS Net Outflow

USGS Net = Gross Outflow - Reverse Flow
 USGS Mean = ??
