

CSLAP 2014 Lake Water Quality Summary: Melody Lake

General Lake Information

Location	Town of Willet
County	Cortland
Basin	Susquehanna River
Size	15.5 hectares (38.3 acres)
Lake Origins	Augmented by 22' x 120' Dam (1902)
Watershed Area	425 hectares (1050 acres)
Retention Time	0.2 years
Mean Depth	2.1 meters
Sounding Depth	4.7 meters
Public Access?	no
Major Tributaries	no named tribs
Lake Tributary To...	Turner Brook to Willet Creek to Otselic River to Tioughnioga River to Susquehanna River
WQ Classification	C (non-contact recreation = boating, angling)
Lake Outlet Latitude	42.469
Lake Outlet Longitude	-75.878
Sampling Years	1987-1991, 1994, 1997-2014
2014 Samplers	Bob Rosati
Main Contact	Bob Rosati

Lake Map



Background

Melody Lake is a 38 acre, class C lake found in the Town of Willet in Cortland County, in central New York State. The lake was first sampled as part of CSLAP in 1987.

It is one of five CSLAP lakes among the more than 15 lakes found in Cortland County, and one of 24 CSLAP lakes among the more than 120 lakes and ponds in the Susquehanna River drainage basin.

Lake Uses

Melody Lake is a Class C lake; this means that the best intended use for the lake is for non-contact recreation, including fishing and boating, aquatic life, and aesthetics. The lake is used by lake residents for swimming, low power boating and other recreation via shoreline properties; the public does not have access to the lake.

It is not known whether Melody Lake has been stocked through any state fisheries stocking programs, or if any private stocking has occurred.

General statewide fishing regulations are applicable in Melody Lake.

Historical Water Quality Data

CSLAP sampling was conducted on Melody Lake from 1987 to 1991, 1994, and 1997 to 2014. The CSLAP reports for each of the past several years can be found on the NYSFOLA website at <http://nysfola.mylaketown.com>. The most recent CSLAP report and scorecard for Melody Lake can also be found on the NYSDEC web page at <http://www.dec.ny.gov/lands/77876.html>.

Melody Lake was not sampled as part of any of the major New York State water quality monitoring programs. It is not known if the lake was sampled in support of any fisheries management or other lake management activities conducted by state or local government. The Cortland County SWCD conducts DO profiles of the lake each year, and found DO depletion in the last meter of the lake in late summer of 2014.

There are no RIBS monitoring sites on or near Melody Lake, and none of the unnamed tributaries or the outlet (Turner Brook) has been sampled through any statewide monitoring programs.

Lake Association and Management History

Melody Lake is served by the Melody Lake Association, which serves 85 families. Although the lake was formed in the late 1800s, the lake association was formed in 1962. The lake association developed a lake management plan and State of the Lake report as part of the NYSFOLA small lake management program in 2002. Some of the lake management actions conducted by the lake association and supported as part of the plan include:

- Grass carp stocking to reduce the impacts from nuisance weeds
- Requiring buffer zones at shoreline of all association-owned property
- Installing sediment controls at inlet
- Setting up routine septic maintenance (inspection and pumpout) program
- Discouraging dumping compost in ditches
- Evaluating use of lake drawdown
- Public education within the lake residential community and local schools

The Melody Lake Association maintains a website at <http://www.stny.info/melodylake/>.

Summary of 2014 CSLAP Sampling Results

Evaluation of 2014 Annual Results Relative to 1987-2013

The summer (mid-June through mid-September) average readings are compared to historical averages for all CSLAP sampling seasons in the “Lake Condition Summary” table, and are compared to individual historical CSLAP sampling seasons in the “Long Term Data Plots – Melody Lake” section in Appendix C.

Evaluation of Eutrophication Indicators

Each of the trophic indicators (water clarity, algae levels, and phosphorus readings) was close to normal, and none of these indicators has exhibited any significant changes. However, water clarity readings have decreased slightly over the last two decades, perhaps due to an increase in phosphorus readings since the late 1990s. Algae levels have not changed in the long term, although these readings appear to increase in four year cycles and then decrease. The reason for either the lack of a long-term change or these four year cycles is not known, but it is likely that the rise in phosphorus readings contributed to the drop in water clarity. Therefore management of phosphorus sources to the lake may be needed to improve water clarity.

Lake productivity steadily increases during the summer—water clarity decreases due to increasing nutrient and algae levels. This seasonal pattern also occurred in 2014.

The lake can continue to be characterized as *eutrophic*, or highly productive, based on water clarity, total phosphorus, and chlorophyll *a* readings (all indicative of *eutrophic* lakes). The trophic state indices (TSI) evaluation suggests that these indicators are “internally” consistent—each of these indicators can be predicted from the other indicators. This further indicates that increasing water clarity will require decreases in algae and phosphorus readings. Overall trophic conditions are summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Potable Water Indicators

Algae levels are high enough to render the lake susceptible to taste and odor compounds or elevated DBP (disinfection by product) compounds that could affect the potability of the water, but the lake is not used for drinking water. Hypolimnetic phosphorus and ammonia readings are similar to those measured at the lake surface, as expected given the weak thermal stratification in the lake. Potable water conditions, at least as measurable through CSLAP, are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Limnological Indicators

Conductivity readings were higher than normal, and deepwater ammonia was lower than usual in 2014, but no long-term changes in either indicator has occurred. pH readings have increased somewhat over the last 15 years, although these readings are still well within the acceptable range for most aquatic organisms. This might be related to a rise in algae levels in some years. It is likely that the small changes in each of the other limnological indicators (NO_x, surface NH₄, color and calcium) have been within the normal range of variability in the lake. Overall limnological conditions are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Biological Condition

Macrophyte surveys conducted through CSLAP and the recent DEC biomonitoring study showed a small number of aquatic plants, and at least two exotic plant species (*Myriophyllum spicatum*, Eurasian watermilfoil; and *Lythrum salicaria*, purple loosestrife) have been found in the lake. Sampling by The Nature Conservancy in 2014 also found *Nitellopsis obtusa* (starry stonewort, an exotic macroalga) in two locations, and Chinese mystery snail throughout the lake. The modified floristic quality index (FQI) data indicate that the quality of the aquatic plant community is “fair,” and there is some evidence that the aquatic plant population has changed significantly since the grass carp stocking (as discussed below). It is not known if the Chinese mystery snail has affected lake ecology. The composition of the fish community in the lake has not been reported.

Zooplankton surveys have not been conducted through CSLAP at Melody Lake. The fluoroprobe screening samples analyzed by SUNY ESF indicated a low percentage of open water blue green algae when overall algae levels were low, and an increasing percentage of diatoms and green algae levels when open water algae levels rise. Shoreline blue green algae levels were highly elevated in 2013, but much lower in 2014, and a microscopic analysis of the 2013 samples showed *Microcystis*, *Woronichina*, *Anabaena*, and *Aphanizomenon*. All but the *Woronichina* are often associated with toxin production, and algal toxin levels in the blooms in 2013 were moderately high. However, all readings have been below the WHO criteria associated with unsafe swimming.

Biological conditions in the lake are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Lake Perception

Aquatic plant coverage was less extensive than normal in the last few years, and has decreased over the last 10-15 years. This is in response to the grass carp stocking. Water quality and recreational assessments were slightly less favorable over the last decade, consistent with higher algae levels and lower water clarity over the same period. Lake perception steadily degrades during the summer, a seasonal pattern consistent with seasonal increases in lake productivity and aquatic plant coverage (at least through late summer). This pattern was also observed in the last three years, although plant coverage was again low throughout the summer. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Water temperature readings in the summer index period were slightly higher than normal in 2014, and water temperatures have increased slightly over the last twenty years. It is not known if this is an indication of local climate change or represents normal variability.

Evaluation of Algal Toxins

Algal toxin levels can vary significantly within blooms and from shoreline to lake, and the absence of toxins in a sample does not indicate safe swimming conditions. Phycocyanin readings were occasionally above the levels indicating susceptibility for harmful algal blooms (HABs) in recent years. This was consistent with fluoroprobe blue green algae levels that were occasionally elevated, and shoreline blooms at times show highly elevated blue green algae levels. However, most open water samples are dominated by other (diatoms and green) algae. An analysis of algae samples indicated open water and bloom microcystin readings low enough to support safe

swimming, although lake residents are advised to avoid contact with algal blooms or discolored water.

Lake Condition Summary

Category	Indicator	Min	87-14 Avg	Max	2014 Avg	Classification	2014 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	0.65	1.93	3.50	1.88	Eutrophic	Within Normal Range	Decreasing?
	Chlorophyll <i>a</i>	0.40	12.50	106.00	9.24	Eutrophic	Within Normal Range	No Change
	Total Phosphorus	0.004	0.021	0.069	0.023	Eutrophic	Within Normal Range	Increasing?
Potable Water Indicators	Hypolimnetic Ammonia	0.01	0.06	0.20	0.03	Close to Surface NH ₄ Readings	Lower Than Normal	Not known
	Hypolimnetic Arsenic							Not known
	Hypolimnetic Iron							Not known
	Hypolimnetic Manganese							Not known
Limnological Indicators	Hypolimnetic Phosphorus	0.014	0.026	0.064	0.030	Close to Surface TP Readings	Within Normal Range	Not known
	Nitrate + Nitrite	0.00	0.02	0.37	0.01	Low NO _x	Within Normal Range	No Change
	Ammonia	0.00	0.05	0.27	0.03	Low Ammonia	Within Normal Range	No Change
	Total Nitrogen	0.10	0.54	1.01	0.47	Intermediate Total Nitrogen	Within Normal Range	No Change
	pH	6.32	7.47	9.15	7.63	Circumneutral	Within Normal Range	No Change
	Specific Conductance	38	82	195	93	Softwater	Higher than Normal	No Change
	True Color	2	25	76	25	Intermediate Color	Within Normal Range	No Change
	Calcium	6.8	9.1	12.3	8.6	Not Susceptible to Zebra Mussels	Within Normal Range	No Change
Lake Perception	WQ Assessment	1	2.2	4	2.4	Not Quite Crystal Clear	Within Normal Range	No Change
	Aquatic Plant Coverage	1	1.8	4	1.3	Subsurface Plant Growth	Within Normal Range	Highly Decreasing
	Recreational Assessment	1	2.4	5	2.5	Excellent	Within Normal Range	No Change
Biological Condition	Phytoplankton					Open water-low blue green algae biomass; Shoreline-high blue green algae in bloom	Not known	Not known
	Macrophytes					Fair quality of aquatic plant community	Not known	Not known
	Zooplankton					Not measured through CSLAP	Not known	Not known
	Macroinvertebrates					2009 data not yet analyzed	Not known	Not known
	Fish					Not reported	Not known	Not known
	Invasive Species					Chinese mystery snail, Eurasian watermilfoil, starry stonewort, purple loosestrife	Not known	Not known
Local Climate Change	Air Temperature	3	22.0	34	21.8		Within Normal Range	No Change
	Water Temperature	9	22.6	29	23.5		Within Normal Range	Increasing Slightly

Category	Indicator	Min	87-14 Avg	Max	2014 Avg	Classification	2014 Change?	Long-term Change?
Harmful Algal Blooms	Open Water Phycocyanin	1	34	170	9	Most readings indicate low risk of BGA	Not known	Not known
	Open Water FP Chl.a	1	7	27	4	Few readings indicate high algae levels	Not known	Not known
	Open Water FP BG Chl.a	0	1	7	1	No readings indicate high BGA levels	Not known	Not known
	Open Water Microcystis	0.0	0.2	0.5	<0.30	Mostly undetectable open water MC-LR	Not known	Not known
	Open Water Anatoxin a	<DL	<DL	<DL	<DL	Open water Anatoxin-a consistently not detectable	Not known	Not known
	Shoreline Phycocyanin	251120	251120	251120		All readings indicate high risk of BGA	Not known	Not known
	Shoreline FP Chl.a	11	796	2165	11	Most readings indicate high algae levels	Not known	Not known
	Shoreline FP BG Chl.a	5	626	1704	5	Most readings indicate high BGA levels	Not known	Not known
	Shoreline Microcystis	0.8	3.5	11.3	<DL	At times measurable shoreline bloom MC-LR	Not known	Not known
	Shoreline Anatoxin a	<DL	<DL	<DL	<DL	Shoreline bloom Anatoxin-a consistently not detectable	Not known	Not known

Evaluation of Lake Condition Impacts to Lake Uses

The 2008 NYSDEC Priority Waterbody Listings (PWL) for the Susquehanna River drainage basin indicated that *recreation is stressed* in Melody Lake due to excessive algae and weeds. The PWL listing for Melody Lake is listed in Appendix B.

Potable Water (Drinking Water)

The CSLAP dataset at Melody Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, is inadequate to evaluate the use of the lake for potable water, and the lake is not used for this purpose. Any "unofficial" use would be threatened by excessive algae and the risk of cyanobacterial blooms.

Contact Recreation (Swimming)

The CSLAP dataset at Melody Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that swimming and contact recreation may be *impaired* by excessive algae, poor water clarity, and shoreline harmful algal blooms, although these impacts may have been lower in 2014. Additional information about bacterial levels is needed to evaluate the safety of the water for swimming.

Non-Contact Recreation (Boating and Fishing)

The CSLAP dataset on Melody Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that non-contact recreation is supported, although this use was *threatened* by excessive weeds (Eurasian watermilfoil) prior to the grass carp stocking.

Aquatic Life

The CSLAP dataset on Melody Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life may be *threatened* by the presence of Eurasian watermilfoil and the lack of overall plant structure. However, additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

Aesthetics

The CSLAP dataset on Melody Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics may be *threatened* by algal blooms, with *stressed* conditions possible near actual blooms.

Fish Consumption

There are no fish consumption advisories posted for Melody Lake.

Additional Comments and Recommendations

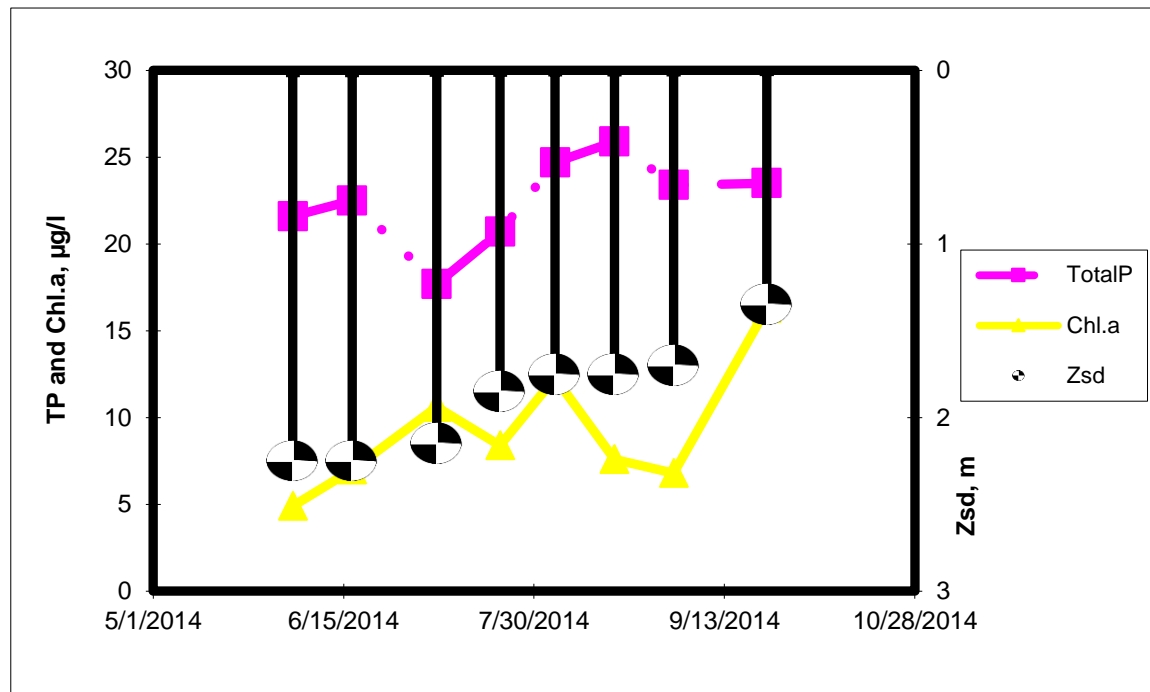
The continued evaluation of the 2009 lake biomonitoring survey results and the floristic quality index will help to determine if aquatic life in the lake has been compromised by excessive nutrients or other stressors. Lake residents should continue to report (and avoid exposure to) any shoreline blooms. The rise in phosphorus levels, perhaps contributing to the drop in water clarity, should continue to be evaluated.

Aquatic Plant IDs-2014

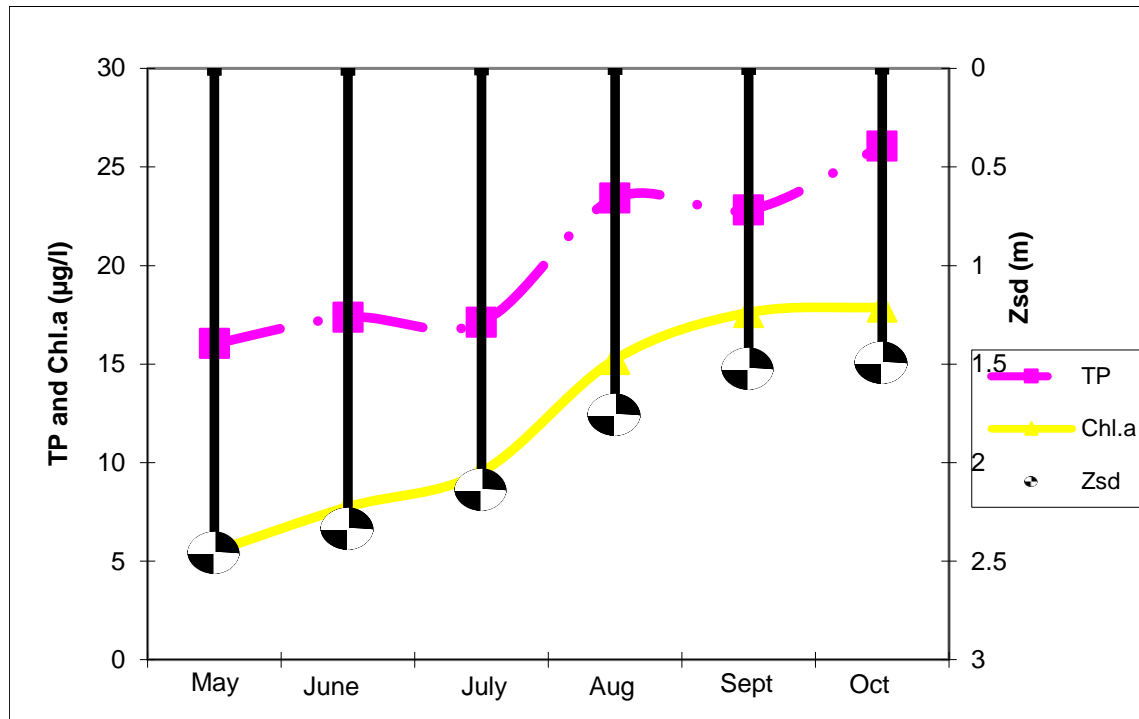
The following aquatic plants were submitted for identification in 2014:

<u>Common name</u>	<u>Scientific Name</u>	<u>Status</u>
Aquatic moss	<i>Fontinalis</i> sp	native
Snail seed pondweed	<i>Potamogeton bicupulatus</i>	native
Filamentous algae	none	native?

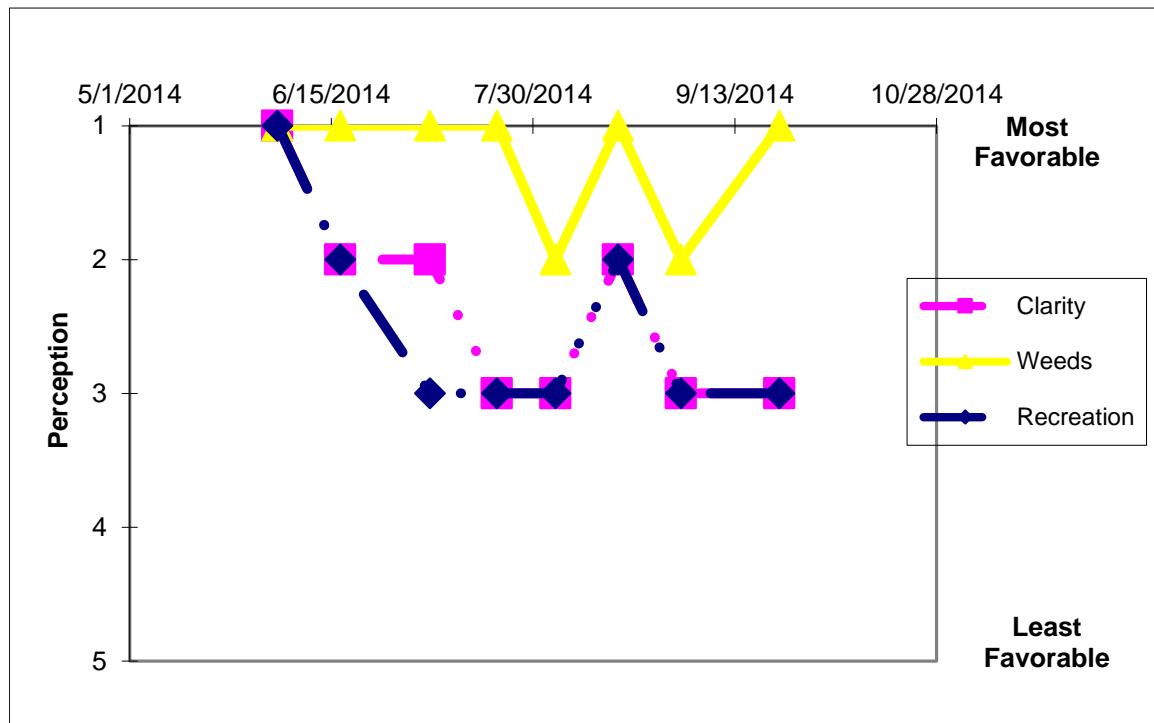
Time Series: Trophic Indicators, 2014



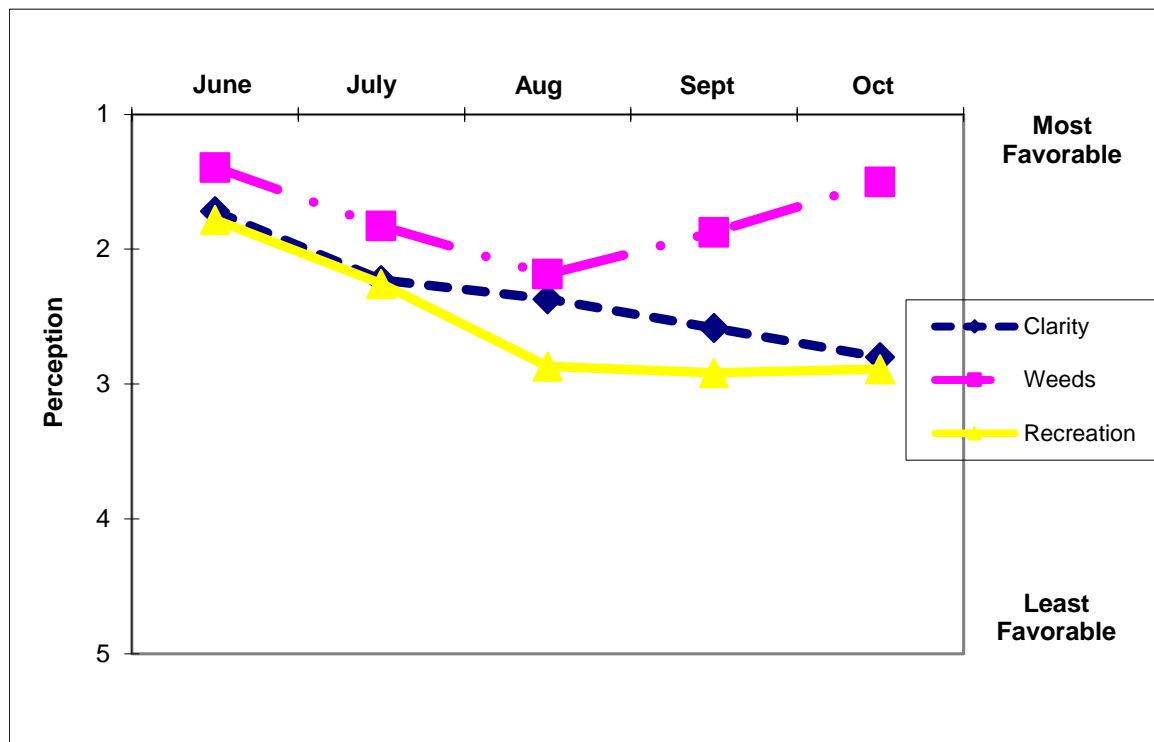
Time Series: Trophic Indicators, Typical Year (1987-2014)



Time Series: Lake Perception Indicators, 2014



Time Series: Lake Perception Indicators, Typical Year (1987-2014)



Appendix A- CSLAP Water Quality Sampling Results for Melody Lake

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
31	Melody L	6/12/1987	3.0	1.50	1.5	0.023	0.01				22	7.75	62		17.70
31	Melody L	6/21/1987	2.5	1.30	1.5	0.034	0.01				23	7.32	71		15.30
31	Melody L	6/28/1987	2.5	1.30	1.5	0.039	0.01				24	6.70	77		34.00
31	Melody L	7/5/1987	2.5	1.50	1.5	0.044	0.01				23	6.80	76		
31	Melody L	7/12/1987	2.5	1.35	1.5	0.029	0.01				21	6.92	77		23.70
31	Melody L	7/19/1987	2.5	1.05	1.5	0.015	0.01				23	6.92	76		27.40
31	Melody L	7/26/1987	2.5	1.35	1.5	0.030	0.01				26	7.25	77		18.60
31	Melody L	8/3/1987	2.5	1.00	1.5	0.039	0.01				23	6.97	74		32.60
31	Melody L	8/9/1987	2.8	1.35	1.5	0.040	0.01				23	6.98	76		25.90
31	Melody L	8/16/1987	2.5	0.75	1.5	0.069	0.01				23				106.00
31	Melody L	8/23/1987	2.5	0.65	1.5	0.048	0.01				24	6.89	74		
31	Melody L	8/30/1987	2.5	0.95	1.5	0.044	0.01				20	7.24	71		
31	Melody L	9/13/1987	2.8	1.20	1.5	0.036	0.02					7.19	76		
31	Melody L	9/20/1987	2.9	1.00	1.5	0.031	0.02					6.79	82		
31	Melody L	9/27/1987	3.3	1.20	1.5	0.016	0.01					6.89	82		
31	Melody L	10/4/1987	3.5	1.60	1.5	0.027	0.01					7.24	81		0.40
31	Melody L	6/17/1988	4.5	2.88	1.5	0.020	0.01				19	7.70	94		5.18
31	Melody L	6/26/1988	4.0	2.00	1.5	0.016					18	7.58	88		8.73
31	Melody L	7/3/1988	3.0	1.35	1.5	0.019					16	7.60	98		12.00
31	Melody L	7/10/1988	4.3	2.35	1.5	0.014					15	7.83	93		4.29
31	Melody L	7/17/1988	4.5	3.10	1.5	0.017	0.01				15	7.61	89		5.55
31	Melody L	7/24/1988	4.5	3.00	1.5	0.016					16	7.79	91		6.29
31	Melody L	7/29/1988	4.5	2.75	1.5	0.014	0.01				15				6.44
31	Melody L	8/7/1988	4.5	2.00	1.5	0.013	0.03				16	8.24	87		15.60
31	Melody L	8/14/1988	2.3	2.30	1.5	0.016					10	7.41	87		10.40
31	Melody L	8/21/1988	2.5	2.55	1.5	0.020					22	7.74	97		8.26
31	Melody L	8/28/1988	4.5	1.45	1.5	0.025	0.01				18	7.60	97		16.30
31	Melody L	9/4/1988	4.5	1.35	1.5	0.025	0.01				15	7.58	94		15.50
31	Melody L	9/11/1988	4.5	1.40	1.5	0.022	0.01				14	7.07	95		15.50
31	Melody L	9/18/1988	4.5	1.60	1.5	0.021	0.01				12	7.54	95		14.20
31	Melody L	9/25/1988	4.5	2.00	1.5	0.020	0.01				14	7.90	100		13.40
31	Melody L	7/2/1989	4.5	2.60	1.5	0.017					26	6.88	83		8.50
31	Melody L	7/9/1989	4.5	2.45	1.5	0.015					22	7.47	82		7.79
31	Melody L	7/16/1989	4.5	2.25	1.5	0.016					25	7.21	80		6.16
31	Melody L	7/23/1989	4.5	1.80	1.5	0.018					25	7.39	81		7.98
31	Melody L	7/26/1989			1.5	0.021	0.01				23	7.29	84		6.73
31	Melody L	7/30/1989	4.3	1.65	1.5	0.024	0.01				17	7.71	85		7.03
31	Melody L	8/5/1989	4.3	1.25	1.5	0.018					17	7.54	85		9.75
31	Melody L	8/13/1989	4.3	1.35	1.5	0.017					20	7.58	86		11.30
31	Melody L	8/20/1989	4.5	1.30	1.5	0.029					15	7.85	86		14.20
31	Melody L	8/27/1989	4.5	1.35	1.5	0.018	0.01				15	7.77	89		11.60
31	Melody L	9/4/1989	4.5	0.90	1.5	0.022					17	7.45	89		19.20
31	Melody L	9/10/1989	4.3	1.00	1.5	0.022					17	7.66	89		22.20
31	Melody L	9/17/1989	4.4	1.05	1.5	0.019					17	7.59	90		15.90
31	Melody L	9/24/1989	4.5	1.05	1.5	0.026	0.03				22	7.51	91		18.40
31	Melody L	7/8/1990	4.5	1.70	1.5	0.017	0.01				15	7.39	82		12.90
31	Melody L	7/15/1990	4.5	1.50	1.5	0.017					18	6.99	82		8.32
31	Melody L	7/29/1990	4.5	1.55	1.5	0.012	0.01				15	7.93	83		5.78
31	Melody L	8/12/1990	4.5	1.35	1.5	0.015					13	7.85	84		11.20
31	Melody L	8/26/1990	4.5	1.90	1.5	0.021	0.01				14	6.61	38		32.50
31	Melody L	9/9/1990	4.5	1.25	1.5	0.016					16	7.49	52		12.70
31	Melody L	9/23/1990	4.5	1.30	1.5	0.019	0.01				15	7.42	86		22.60
31	Melody L	6/16/1991	4.5	1.70	1.5	0.016	0.01				24	6.99	75		12.60
31	Melody L	6/30/1991	4.5	1.95	1.5	0.013					17	7.75	77		7.03
31	Melody L	7/14/1991	4.2	1.55	1.5	0.021	0.01				13	7.13	79		9.58
31	Melody L	7/28/1991	4.2	1.20	1.5	0.014					15	7.61	79		17.20
31	Melody L	8/11/1991	4.2	0.95	1.5	0.020					17	7.42	81		22.70
31	Melody L	8/25/1991	4.2	1.35	1.5	0.014	0.01				15	7.44	83		9.95
31	Melody L	9/15/1991	4.3	1.40	1.5	0.021					12	7.75	85		29.00
31	Melody L	9/22/1991	4.3	1.30	1.5	0.022	0.01				6	7.66	86		26.20
31	Melody L	6/18/1994	4.3	2.95											
31	Melody L	7/3/1994	4.3	2.50											
31	Melody L	7/18/1994	4.3	2.80											

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
31	Melody L	7/31/1994	4.3	2.80											
31	Melody L	8/14/1994	4.3	2.80											
31	Melody L	8/28/1994	4.3	2.60											
31	Melody L	6/1/1997	4.8	2.35	1.5	0.018	0.04				20	7.06	77		12.40
31	Melody L	6/15/1997	4.2	3.05	1.5	0.011	0.01				15	7.46	78		4.14
31	Melody L	6/29/1997	4.4	3.00	1.5	0.010	0.01				15	7.62	81		4.14
31	Melody L	7/13/1997		2.33	1.5	0.024	0.01				15	6.84	84		5.73
31	Melody L	7/27/1997	4.3	2.65		0.014	0.01				15	6.43	89		7.14
31	Melody L	8/10/1997	4.2	2.53	1.5	0.011	0.01				14	7.71	87		5.94
31	Melody L	8/24/1997	4.2	1.65	1.5	0.016	0.01				12	7.56	87		14.40
31	Melody L	9/8/1997	4.1	1.95	1.5	0.017	0.01				15	7.69	88		9.98
31	Melody L	5/30/1998	4.2	2.38	1.5	0.010	0.01				16	7.70	76		1.58
31	Melody L	6/15/1998	4.3	2.73	1.5	0.020	0.01				19	7.74	74		8.59
31	Melody L	6/28/1998	4.3	2.05	1.5		0.01				14	7.74	77		5.65
31	Melody L	7/12/1998	4.4	1.90	1.5		0.01				25	7.68	74		6.27
31	Melody L	7/26/1998	4.3	2.35	1.5		0.01				24	7.58	77		4.41
31	Melody L	8/8/1998	4.3	2.30	1.5		0.01				24	7.60	78		4.14
31	Melody L	8/23/1998	4.3	2.10	1.5						25	7.40	79		6.60
31	Melody L	9/7/1998	4.2	1.80	1.5	0.018					24	7.47	82		20.30
31	Melody L	5/31/1999	4.5	2.88	1.5	0.015	0.01				16	7.43	87		4.98
31	Melody L	6/13/1999	4.4	2.60	1.5	0.013	0.01				16	6.61	88		4.32
31	Melody L	6/29/1999	4.3	3.20	1.5	0.014	0.01				11	7.63	88		3.20
31	Melody L	7/11/1999	4.5	2.30	1.5	0.016	0.01				17	6.77	89		17.50
31	Melody L	7/26/1999	4.4	2.48	1.5	0.014	0.01				12	8.43	88		7.15
31	Melody L	8/7/1999	4.3	1.60	1.5	0.022	0.01				2	7.61	93		4.03
31	Melody L	8/22/1999	4.2	1.90	1.5	0.019	0.01				18	8.00	95		12.60
31	Melody L	9/5/1999	4.2	2.15	1.5	0.014	0.01				17	7.82	96		5.85
31	Melody L	5/29/2000	4.1	1.90	1.5	0.018	0.01				35	7.41	69		4.45
31	Melody L	6/12/2000	4.0	1.90	1.5	0.016	0.01				31	7.80	70		5.65
31	Melody L	6/25/2000	4.0	1.90	1.5	0.014	0.01				37	7.94	74		5.40
31	Melody L	7/10/2000	4.3	2.00	1.5	0.015	0.01				37	7.77	77		9.95
31	Melody L	7/23/2000	4.0	1.90	1.5	0.021	0.01				34	6.64	75		18.40
31	Melody L	8/7/2000	4.0	2.20	1.5	0.017	0.01				33	7.02	79		8.35
31	Melody L	8/20/2000	3.9	1.90	1.5	0.017	0.01				34	7.40	80		7.50
31	Melody L	9/9/2000	4.1	2.30	1.5	0.021	0.01				30	6.66	84		7.30
31	Melody L	6/12/2001	4.2	2.55	1.5	0.014	0.01				17	7.36			7.30
31	Melody L	6/24/2001	4.2	1.60	1.5	0.028	0.37				30	6.83	72		14.10
31	Melody L	7/9/2001	3.9	2.10	1.5	0.017	0.20				26	7.07	76		17.60
31	Melody L	7/23/2001	3.9	2.10	1.5	0.015	0.07				22	7.43	77		7.50
31	Melody L	8/6/2001	3.9	2.90	1.5	0.011	0.01				17	6.64	78		3.15
31	Melody L	8/25/2001	3.6	1.90	1.5	0.014	0.01				27	7.18	82		
31	Melody L	9/9/2001	3.5	2.30	1.5	0.016	0.01				37	7.51	84		9.12
31	Melody L	9/23/2001	3.5	2.40	1.5	0.020	0.01				26	6.44	84		10.28
31	Melody L	05/21/02	4.1	2.00	1.5	0.020	0.01	0.02	0.55	59.56	42	7.19	82		14.84
31	Melody L	06/03/02	3.8	2.30	1.5	0.010	0.00	0.03	0.56	127.08	28	7.72	84		4.93
31	Melody L	06/16/02	4.1	1.70	1.5	0.031	0.05	0.02	0.62	45.05	47	7.11	71		8.01
31	Melody L	07/02/02	4.6	2.60		0.019	0.00	0.03	0.48	55.91	52	7.63	73		8.28
31	Melody L	07/13/02	4.3	3.20	1.5	0.015	0.01	0.04	0.49	71.13	39	7.30	78		2.43
31	Melody L	07/29/02	4.3	3.50	1.5	0.006	0.00	0.04	0.65	242.77	24	7.57	78		0.51
31	Melody L	08/12/02	4.1	3.05	1.5	0.016	0.00	0.02	0.55	74.48	30	7.69	84		2.19
31	Melody L	08/25/02	4.0	2.90	1.5	0.013			0.57	94.57	41	7.38	85		0.95
31	Melody L	5/27/2003	4.1	2.90	1.5	0.009	0.02	0.03	0.68	164.64	17	7.5	77.0	7.6	6.0
31	Melody L	6/8/2003	4.1	3.10	1.5	0.011	0.00	0.02	0.31	60.98	5	7.0	195.0		3.5
31	Melody L	6/22/2003	4.5	3.00	1.5	0.009	0.00	0.00	0.43	99.15	13	7.4	78.9		10.4
31	Melody L	7/6/2003	4.0	2.80	1.5		0.01	0.02	0.30		16	7.5	84.5		
31	Melody L	7/20/2003	4.0	3.00	1.5	0.015	0.00	0.03	0.47	69.32	22	7.7	88.8	8.6	6.4
31	Melody L	8/3/2003	4.0	2.50	1.5	0.013	0.00		0.27	43.93	25	6.8	84.4		7.1
31	Melody L	8/17/2003	4.0	3.00	1.5	0.012	0.00	0.01	0.34	61.67	24	7.5	83.1		6.1
31	Melody L	9/6/2003	4.2	2.70	1.5	0.017	0.02	0.06			37	7.1	91.3		9.8
31	Melody L	6/15/2004	4.4	2.40	1.5	0.004	0.01	0.01	0.50	307.82	32	7.1	79.2		0.6
31	Melody L	6/29/2004	4.3	2.40	1.5	0.016	0.01	0.02	0.27	36.00	30	6.8	87.2		2.9
31	Melody L	7/13/2004	4.0	2.30	1.5	0.015	0.01	0.01	0.11	15.28	24	6.9	83.2		3.1
31	Melody L	8/2/2004	4.4	2.30	1.5	0.021	0.01	0.01	0.51	52.51	26	6.8	69.3		6.1
31	Melody L	8/16/2004	4.3	2.30	1.5	0.017	0.01	0.06	0.45	56.82	49	7.4	71	9.7	9.2
31	Melody L	8/31/2004	4.3	1.80	1.5	0.023	0.01	0.01	0.63	59.23	50	7.4	68.5		24.5
31	Melody L	9/21/2004	4.1	1.70	1.5	0.028	0.04	0.13	0.65	51.95	68	7.2	63.8		16.4

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
31	Melody L	10/24/2004	2.9	1.60	1.5	0.027	0.01	0.04	0.40	33.05	57	7	52.9		
31	Melody L	7/9/2005	3.6	1.70	1.5	0.014	0.04	0.01	0.36	54.32	9	8.39	61	7.6	12.7
31	Melody L	7/18/2005	3.3	1.90	1.5	0.018	0.03	0.01	0.41	50.04	23	7.20	68		8.4
31	Melody L	8/9/2005	2.3	1.30	1.5	0.033	0.02	0.01	0.31	20.44	12	7.36	78		11.1
31	Melody L	8/29/2005	2.4	1.30	1.5	0.063	0.01	0.01	0.42	14.57	42	6.81	67		11.4
31	Melody L	9/9/2005	2.3	1.70	1.5	0.028	0.03	0.01	0.26	20.33	33	7.03	74	8.7	12.0
31	Melody L	9/20/2005	2.4	1.20	1.5	0.036	0.02	0.01	0.10	5.87	23	8.08	114		13.6
31	Melody L	10/9/2005	2.7	1.10	1.5	0.009	0.03	0.04	0.38	89.04	20	7.09	42		27.6
31	Melody L	10/23/05	3.4	1.30	1.5	0.032	0.01	0.01	0.27	18.63	32	7.27	81		26.8
31	Melody L	5/30/2006	4.4	2.90	1.5	0.022	0.02	0.03	0.44	44.08	26	7.5	87	7.4	2.72
31	Melody L	6/13/2006	4.2	3.20	1.5	0.020	0.06	0.08	0.63	69.92	21	7.1	80		4.43
31	Melody L	6/25/2006	4.3	2.60	1.5	0.015	0.03	0.02	0.74	106.32	25	7.3			4.92
31	Melody L	7/10/2006	4.2	2.30	1.5	0.016	0.01	0.01	0.56	78.99	41	8.1	68		3.81
31	Melody L	7/23/2006	4.3	2.20	1.5	0.019	0.01	0.02	0.77	90.54	46	8.1	58	7.6	7.55
31	Melody L	8/7/2006	4.2	2.30	1.5	0.016	0.02	0.03	0.83	113.53	39	8.4	73		3.55
31	Melody L	8/20/2006	4.2	2.20	1.5	0.020	0.01	0.02	1.01	113.55	29	7.2	72		7.02
31	Melody L	9/4/2006	4.2	1.60	1.5	0.021			0.63	66.09	62	6.9	63		5.20
31	Melody L	7/7/2007	4.1	2.20	1.5	0.019	0.01	0.02	0.49	57.38	9	8.37	74	11.9	8.71
31	Melody L	8/7/2007	3.8	1.80	1.5	0.019	0.01	0.01	0.66	77.48	12	8.78	71		13.98
31	Melody L	8/26/2007	3.9	2.00	1.5	0.018	0.01	0.05	0.76	91.67	26	8.38	80		9.17
31	Melody L	9/4/2007	3.9	1.90	1.5	0.015	0.01	0.02	0.75	113.93	23	7.32	72		7.89
31	Melody L	9/11/2007	4.1	1.90	1.5	0.019	0.05	0.04	0.75	86.87	25	7.44	79	9.8	16.08
31	Melody L	10/2/2007	3.9	1.90	1.5	0.022	0.01	0.18	0.80	79.98	16	7.73	85		15.68
31	Melody L	10/9/2007	4.0	1.80	1.5	0.026	0.02	0.09	0.74	61.36	13	7.99	88		16.22
31	Melody L	10/18/2007	4.8	1.30	1.5	0.022	0.03	0.09	0.80	80.11	14	7.83	89		12.50
31	Melody L	6/9/2008	4.1	2.80	1.5	0.015	0.01	0.02	0.67	97.04	12	7.30	77	6.8	5.51
31	Melody L	6/29/2008	3.9	2.80	1.5	0.014	0.00	0.03	0.34	53.65	9	7.68	83		4.33
31	Melody L	7/11/2008	3.8	2.40	1.5	0.019	0.02	0.02	0.29	33.44	13	8.32	72		8.40
31	Melody L	7/26/2008	3.8	1.75	1.5	0.015			0.71	106.14	15	8.06	51		10.36
31	Melody L	8/12/2008	4.2	1.45	1.5	0.023	0.07	0.08	0.50	48.01	20	7.76	86	9.1	17.29
31	Melody L	8/24/2008	3.7	1.95	1.5	0.023	0.00	0.02			16	7.53	76		9.56
31	Melody L	9/5/2008	3.8	1.70	1.5	0.019	0.00	0.01	0.50	57.36	13	8.40	85		23.20
31	Melody L	9/20/2008	3.6	1.35	1.5	0.030	0.01	0.10	0.59	42.69	11	8.11	71		45.28
31	Melody L	06/17/2009	4.1	2.25	1.5	0.021	0.01	0.01	0.44	46.16	46	8.11	69	8.5	13.16
31	Melody L	06/29/2009	3.8	2.35	1.5	0.017	0.01	0.01	0.33	43.87	29	6.87	80		4.94
31	Melody L	07/21/2009	3.8	2.35	1.5	0.017	0.02	0.03	0.38	49.89	30	6.77	125		5.34
31	Melody L	08/11/2009	4.3	0.90	1.5	0.038	0.06	0.08	0.50	29.12	76	6.32	54		8.50
31	Melody L	08/21/2009	4.0	2.05	1.5	0.026	0.01	0.06	0.49	42.04	52	7.76	54	9.6	8.30
31	Melody L	09/11/2009	3.8	1.45	1.5	0.024	0.01	0.02	0.65	58.82	73	7.09	56		31.30
31	Melody L	09/24/2009	3.8	1.33	1.5	0.030	0.03	0.07	0.70	51.46	57	7.92	65		36.70
31	Melody L	10/19/2009	4.0	1.25	1.5	0.029	0.03	0.01	0.56	42.19	68	7.21	73		56.40
31	Melody L	10/19/2009													
31	Melody L	5/16/2010	3.8	2.25	1.5	0.018	0.07	0.04			30	8.10	93	9.2	3.90
31	Melody L	6/7/2010	4.2	2.75	1.5	0.023	0.02	0.03			18	8.01	95		5.10
31	Melody L	6/22/2010	4.2	2.65	1.5	0.017	0.01	0.03	0.62	80.67	31	7.75	94		5.50
31	Melody L	7/6/2010	4.2	2.15	1.5	0.017	0.01	0.27	0.42	54.93	44	7.92	93		5.10
31	Melody L	7/26/2010	4.0	1.55	1.5	0.028	0.01	0.03	0.75	58.59	19	8.22	96	12.3	27.50
31	Melody L	8/4/2010													
31	Melody L	8/23/2010	4.1	1.15	1.5	0.040	0.03	0.11	0.81	44.16	14	7.50	104		38.70
31	Melody L	9/20/2010	3.8	1.55	1.5	0.034	0.10	0.21	0.76	49.13	19	7.48	105		14.50
31	Melody L	10/10/2010	4.4	1.75	1.5	0.030	0.09	0.18	0.75	55.67	47	6.76	93		4.40
31	Melody L	6/13/2011	4.1	2.15	1.5	0.016	0.03	0.06	0.38	51.51	31	7.12	78	8.5	9.10
31	Melody L	6/28/2011	4.0	2.05	1.5	0.019	0.02	0.04	0.58	66.00	26	8.12	82		6.70
31	Melody L	7/19/2011	4.1	1.45	1.5	0.017	0.02	0.02	0.65	83.37	19	7.74	83		11.60
31	Melody L	8/6/2011	3.9	1.23	1.5	0.023	0.01	0.05	0.74	69.87	20	8.00	87		18.40
31	Melody L	8/6/2011	grab	bloom											
31	Melody L	8/6/2011	grab	bloom											
31	Melody L	8/29/2011	4.2	1.05	1.5	0.028	0.03	0.09	0.64	50.99	24	6.80	95	10.7	15.10
31	Melody L	9/13/2011	4.4	1.25	1.5	0.022	0.03	0.03	0.62	63.03	49	7.24	66		17.90
31	Melody L	9/27/2011	4.0	1.48	1.5	0.026	0.01	0.02	0.66	56.68	40	7.62	66		8.70
31	Melody L	10/2/2011	3.8	1.25	1.5	0.030	0.02	0.10	0.65	47.30	54	7.55	65		10.60
31	Melody L	6/12/2012	4.2	2.45	1.5	0.019	0.01	0.01	0.35	41.65	25	7.50	80	8.5	6.40
31	Melody L	6/25/2012	4.2	2.05	1.5	0.017	0.01	0.04	0.41	53.69	24	7.26	79		6.20
31	Melody L	7/17/2012	3.7	1.83	1.5	0.017	0.01	0.03	0.40	51.25	20	7.38	86		6.90
31	Melody L	8/6/2012	3.6	1.28	1.5	0.022	0.01	0.01	0.53	53.55	20	8.66	86		21.30
31	Melody L	8/20/2012	3.7	1.08	1.5	0.031	0.01	0.06	0.64	46.00	16	7.55	87	11.3	28.20

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
31	Melody L	9/3/2012	3.6	1.53	1.5	0.026	0.01	0.04	0.57	47.35	18	7.25	89		13.10
31	Melody L	9/16/2012	3.7	1.60	1.5	0.031	0.02	0.05	0.44	31.51	17	6.85	92		16.80
31	Melody L	10/8/2012	3.7	1.58	1.5	0.033	0.04	0.24	0.64	42.73	24	6.88	89		8.30
31	Melody L	6/15/2013	4.1	1.68	1.5	0.023	0.04	0.24	0.64	42.73		8.33	83		10.20
31	Melody L	6/29/2013	4.1	2.08	1.5	0.016	0.01	0.03	0.47	44.96	25	8.02	89		6.10
31	Melody L	7/15/2013	3.8	2.18	1.5	0.020			0.47	62.83	25	7.39	85		6.70
31	Melody L	7/29/2013	4.0	1.73	1.5	0.020	0.03	0.03	0.53	57.37	31	7.57	82		
31	Melody L	8/12/2013	4.0	1.38	1.5	0.028			0.65	69.75	36	7.93	80		23.90
31	Melody L	8/25/2013	3.7	0.83	1.5	0.031	0.14	0.11	0.55	43.84	35	9.15	81		35.40
31	Melody L	9/15/2013	4.2	0.88	1.5	0.008			0.68	47.67	55	7.34	75		35.30
31	Melody L	9/20/2013	grab	bloom			0.01	0.12	0.62	164.33					
31	Melody L	10/1/2013	grab	bloom											
31	Melody L	9/27/2013	4.1	0.80	1.5	0.030			0.63	46.66	37	7.94	79		34.90
31	Melody L	6/3/2014	4.0	2.25	1.5	0.022	0.01	0.04	0.40	40.74	27	7.24	102	8.0	4.90
31	Melody L	6/17/2014	3.8	2.25	1.5	0.023			0.43	41.65	22	7.37	90		7.00
31	Melody L	7/7/2014	3.9	2.15	1.5	0.018	0.01	0.04	0.46	57.67	23	8.19	94		10.60
31	Melody L	7/22/2014	4.1	1.85	1.5	0.021			0.49	52.18	21	7.80	99		8.40
31	Melody L	7/22/2014													
31	Melody L	8/4/2014	3.8	1.75	1.5	0.025	0.02	0.03	0.48	43.11	11	8.00	99	9.2	12.30
31	Melody L	8/18/2014	3.9	1.75	1.5	0.026			0.52	44.08	24	7.58	95		7.60
31	Melody L	9/1/2014	4.0	1.70	1.5	0.023	0.01	0.01	0.42	39.02	37	7.25	80		6.80
31	Melody L	9/23/2014	4.1	1.35	1.5	0.024			0.53	49.71	35	7.64	87		16.30
LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4							NO2
31	Melody L	06/17/2009			3.0	0.018		0.01							
31	Melody L	06/29/2009			3.0	0.014		0.01							
31	Melody L	07/21/2009			3.0	0.021		0.02							
31	Melody L	08/11/2009			3.0	0.048		0.01							
31	Melody L	08/21/2009			3.0	0.034		0.07							
31	Melody L	09/11/2009			3.0	0.023		0.02							
31	Melody L	09/24/2009			3.0	0.023		0.01							
31	Melody L	10/19/2009			3.0	0.028		0.01							
31	Melody L	5/16/2010	3.8			0.019		0.20							
31	Melody L	6/7/2010	4.2			0.029		0.04							
31	Melody L	6/22/2010	4.2			0.023		0.02							
31	Melody L	7/6/2010	4.2			0.023		0.02							
31	Melody L	7/26/2010	4.0			0.025		0.03							
31	Melody L	8/23/2010	4.1			0.036		0.15							
31	Melody L	9/20/2010	3.8			0.027		0.16							
31	Melody L	10/10/2010	4.4			0.029		0.19							
31	Melody L	6/13/2011	4.1		3.0	0.016		0.05							0.01
31	Melody L	6/28/2011	4.0		3.0	0.027		0.06							0.01
31	Melody L	7/19/2011	4.1		3.0	0.023		0.02							0.01
31	Melody L	8/6/2011	3.9		3.0	0.025		0.06							0.01
31	Melody L	8/29/2011	4.2		3.0	0.028		0.12							0.01
31	Melody L	9/13/2011	4.4		3.0	0.022		0.10							0.01
31	Melody L	9/27/2011	4.0		3.0			0.06							0.01
31	Melody L	10/2/2011	3.8		3.0	0.030		0.10							0.01
31	Melody L	6/12/2012			2.7	0.026		0.02							0.00
31	Melody L	6/25/2012			2.7	0.025		0.06							0.00
31	Melody L	7/17/2012			2.2	0.017		0.05							0.00
31	Melody L	8/6/2012			2.0	0.023		0.01							0.00
31	Melody L	8/20/2012			2.2	0.027		0.02							0.00
31	Melody L	9/3/2012			2.1	0.025		0.14							0.00
31	Melody L	9/16/2012			2.2	0.030		0.06							0.00
31	Melody L	10/8/2012			2.2	0.031		0.17							0.00
31	Melody L	6/15/2013			2.6	0.018		0.02							
31	Melody L	6/29/2013			2.5	0.023									
31	Melody L	7/15/2013			2.3	0.022		0.03							
31	Melody L	7/29/2013			2.5	0.022									
31	Melody L	8/12/2013			2.5	0.031		0.03							
31	Melody L	8/25/2013			2.2	0.030									
31	Melody L	9/15/2013			2.7	0.014		0.12							
31	Melody L	9/27/2013			2.6	0.029									
31	Melody L	6/3/2014			2.5	0.037		0.03							
31	Melody L	6/17/2014			2.3	0.031									

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4							NO2
31	Melody L	7/7/2014			2.4	0.017		0.04							
31	Melody L	7/22/2014			2.6	0.021									
31	Melody L	8/4/2014			2.3	0.026		0.03							
31	Melody L	8/18/2014			2.4	0.022									
31	Melody L	9/1/2014			2.5	0.025		0.02							
31	Melody L	9/23/2014			2.6	0.064									
31.1	Melody L-trib	06/08/03				0.022									
31.1	Melody L-trib	07/06/03				0.029									
31.1	Melody L-trib	6/28/2004				0.038									
31.1	Melody L-trib	7/13/2004				0.038									
31.1	Melody L-trib	8/2/2004				0.029									
31.1	Melody L-trib	8/16/2004				0.024									
31.1	Melody L-trib	7/9/05				0.040									
31.1	Melody L-trib	8/30/05				0.028									
31.1	Melody L-trib	9/20/05				0.035									

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QE	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB form	Shore HAB
31	Melody L	6/12/1987	epi	17	19																
31	Melody L	6/21/1987	epi	22	24																
31	Melody L	6/28/1987	epi	18	22																
31	Melody L	7/5/1987	epi	21	23																
31	Melody L	7/12/1987	epi	26	25																
31	Melody L	7/19/1987	epi	28	24																
31	Melody L	7/26/1987	epi	20	25																
31	Melody L	8/3/1987	epi	22	24																
31	Melody L	8/9/1987	epi	17	23																
31	Melody L	8/16/1987	epi	25	22																
31	Melody L	8/23/1987	epi	15	21																
31	Melody L	8/30/1987	epi	13	17																
31	Melody L	9/13/1987	epi	17	20																
31	Melody L	9/20/1987	epi	11	15																
31	Melody L	9/27/1987	epi	11	14																
31	Melody L	10/4/1987	epi	3	11																
31	Melody L	6/17/1988	epi	24	22																
31	Melody L	6/26/1988	epi	15	23																
31	Melody L	7/3/1988	epi	24	18																
31	Melody L	7/10/1988	epi	28	26																
31	Melody L	7/17/1988	epi	26	25																
31	Melody L	7/24/1988	epi	24	24																
31	Melody L	7/29/1988	epi	30	25																
31	Melody L	8/7/1988	epi	22	26																
31	Melody L	8/14/1988	epi	30	26																
31	Melody L	8/21/1988	epi	20	24																
31	Melody L	8/28/1988	epi	25	23																
31	Melody L	9/4/1988	epi	16	19																
31	Melody L	9/11/1988	epi	15	19																
31	Melody L	9/18/1988	epi	20	17																
31	Melody L	9/25/1988	epi	15	16																
31	Melody L	7/2/1989	epi	34	23																
31	Melody L	7/9/1989	epi	32	25																
31	Melody L	7/16/1989	epi	20	23																
31	Melody L	7/23/1989	epi	22	25																
31	Melody L	7/30/1989	epi	22	23																
31	Melody L	8/5/1989	epi	26	24																
31	Melody L	8/13/1989	epi	23	21																
31	Melody L	8/20/1989	epi	19	22																
31	Melody L	8/27/1989	epi	21	23																
31	Melody L	9/4/1989	epi	14	20																
31	Melody L	9/10/1989	epi	25	21																
31	Melody L	9/17/1989	epi	18	16																
31	Melody L	9/24/1989	epi	7	15																
31	Melody L	7/8/1990	epi	21	22																

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QE	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB-form	Shore HAB
31	Melody L	7/15/1990	epi	25	22															
31	Melody L	7/29/1990	epi	28	27															
31	Melody L	8/12/1990	epi	22	23															
31	Melody L	8/26/1990	epi	19	21															
31	Melody L	9/9/1990	epi	15	20															
31	Melody L	9/23/1990	epi	11	15															
31	Melody L	6/16/1991	epi	24	22															
31	Melody L	6/30/1991	epi	22	25															
31	Melody L	7/14/1991	epi	22	27															
31	Melody L	7/28/1991	epi	30	25															
31	Melody L	8/11/1991	epi	21	21															
31	Melody L	8/25/1991	epi	23	24															
31	Melody L	9/15/1991	epi	20	20															
31	Melody L	9/22/1991	epi	12	17															
31	Melody L	6/18/1994	epi			2	3	3	2											
31	Melody L	7/3/1994	epi			3	3	3	2											
31	Melody L	7/18/1994	epi			3	3	3	2											
31	Melody L	7/31/1994	epi			3	3	3	3											
31	Melody L	8/14/1994	epi			3	3	3	3											
31	Melody L	8/28/1994	epi			3	3	3	3											
31	Melody L	6/1/1997	epi	19	18	1	1	2	5											
31	Melody L	6/15/1997	epi	25	25		2	2	1											
31	Melody L	6/29/1997	epi	29	27	2	2	1												
31	Melody L	7/13/1997	epi	32	26	2	1	2												
31	Melody L	7/27/1997	epi	29	26	2	3	2												
31	Melody L	8/10/1997	epi	29	26	2	3	3	2											
31	Melody L	8/24/1997	epi	23	22	2	3	3	2											
31	Melody L	9/8/1997	epi	18	21	2	4	4	2											
31	Melody L	5/30/1998	epi	25	25	2	2	2	25											
31	Melody L	6/15/1998	epi	19	20	1	1	1												
31	Melody L	6/28/1998	epi	32	27	2	1	2	5											
31	Melody L	7/12/1998	epi	21	24	2	2	2												
31	Melody L	7/26/1998	epi	25	25	2	2	2	2											
31	Melody L	8/8/1998	epi	27	26	2	3	3	2											
31	Melody L	8/23/1998	epi	28	25	2	3	3	2											
31	Melody L	9/7/1998	epi	17	23	2	3	3	25											
31	Melody L	5/31/1999	epi	32	23	2	2	2												
31	Melody L	6/13/1999	epi	27	24	2	2		25											
31	Melody L	6/29/1999	epi	29	26	2	2	2												
31	Melody L	7/11/1999	epi	22	25	2	1	1												
31	Melody L	7/26/1999	epi	27	27	1	2	2												
31	Melody L	8/7/1999	epi	27	25	2	3	2	2											
31	Melody L	8/22/1999	epi	26	23	2	3	2												
31	Melody L	9/5/1999	epi	27	26	2	3	2												
31	Melody L	5/29/2000	epi	20	18	2	2	2												
31	Melody L	6/12/2000	epi	22	23	2	2	2												
31	Melody L	6/25/2000	epi	32	25	2	2	2	2											
31	Melody L	7/10/2000	epi	25	23	2	3	3	2											
31	Melody L	7/23/2000	epi	25	21	2	2	2	2											
31	Melody L	8/7/2000	epi	31	24	2	2	3	2											
31	Melody L	8/20/2000	epi	19	22	2	3	2	5											
31	Melody L	9/9/2000	epi	25	22	3	3	2												
31	Melody L	6/12/2001	epi	25	23	2	1	2												
31	Melody L	6/24/2001	epi	26	21	3	1	3	1											
31	Melody L	7/9/2001	epi	25	23	2	1	1												
31	Melody L	7/23/2001	epi	28	27	2	2	2												
31	Melody L	8/6/2001	epi		28	2	3	3	2											
31	Melody L	8/25/2001	epi	29	25	2	3	2	2											
31	Melody L	9/9/2001	epi	26	24	2	3	3	2											
31	Melody L	9/23/2001	epi	23	21	2	3	3	2											
31	Melody L	05/21/02	epi	16	12	2	1		5											

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB-form	Shore HAB
31	Melody L	06/03/02	epi	20	21	2	2	2	5											
31	Melody L	06/16/02	epi	18	19	3	3	2	12											
31	Melody L	07/02/02	epi	28	25	3	3	3	28											
31	Melody L	07/13/02	epi	28	25	2	4	3	2											
31	Melody L	07/29/02	epi	28	26	2	3	3	2											
31	Melody L	08/12/02	epi	29	26	1	3	3	2											
31	Melody L	08/25/02	epi	26	25	2	3	3	2											
31	Melody L	5/27/2003	epi	16	19	1	1	1												
31	Melody L	6/8/2003	epi	22	20	1	1	1	5											
31	Melody L	6/22/2003	epi	21	20	2	1	2	58											
31	Melody L	7/6/2003	epi	25	28	2	2	2	8											
31	Melody L	7/20/2003	epi	21	24	2	2	2	2											
31	Melody L	8/3/2003	epi	29	25	2	3	3	2											
31	Melody L	8/17/2003	epi	20	25	2	4	4	2											
31	Melody L	9/6/2003	epi	18	21															
31	Melody L	6/15/2004	epi	26	24	1	1	1	0											
31	Melody L	6/29/2004	epi	18	22	2	2	2	0											
31	Melody L	7/13/2004	epi	21	24	2	2	2	0											
31	Melody L	8/2/2004	epi	23	24	2	3	3	2											
31	Melody L	8/16/2004	epi	19	22	2	3	3	2											
31	Melody L	8/31/2004	epi	22	23	3	3	3	25											
31	Melody L	9/21/2004	epi	17	19	3	3	3	2											
31	Melody L	10/24/2004	epi	10	10	3	3		28											
31	Melody L	7/9/2005	epi	20	24	3	1	3	58											
31	Melody L	7/18/2005	epi	30	27	3	2	3	18											
31	Melody L	8/9/2005	epi	23	27	2	2	3	18											
31	Melody L	8/29/2005	epi	25	24	3	2	4	148											
31	Melody L	9/9/2005	epi	22	23	3	2	4	148											
31	Melody L	9/20/2005	epi	24	23	3	2	4	48											
31	Melody L	10/9/2005	epi	14	16	3	2	4	158											
31	Melody L	10/23/05	epi	8	12	2	1	2	5											
31	Melody L	5/30/2006	epi	21	20	1	1	1	0											
31	Melody L	6/13/2006	epi	16	18	2	2	2	0											
31	Melody L	6/25/2006	epi	21	26															
31	Melody L	7/10/2006	epi	27	25	1	2	2	5											
31	Melody L	7/23/2006	epi	23	26	2	2	2	5											
31	Melody L	8/7/2006	epi	28	28	3	2	2	8											
31	Melody L	8/20/2006	epi	27	25	2	2	2	2											
31	Melody L	9/4/2006	epi	17	20															
31	Melody L	7/7/2007	epi	26	25	2	1	2	0											
31	Melody L	8/7/2007	epi	26	27	3	2	3	138											
31	Melody L	8/26/2007	epi	20	25	2	2	2	5											
31	Melody L	9/4/2007	epi	24	25	2	2	2	0											
31	Melody L	9/11/2007	epi	22	24	2	2	2	58											
31	Melody L	10/2/2007	epi	18	20	2	2	2	0											
31	Melody L	10/9/2007	epi	23	22	3	2	3	35											
31	Melody L	10/18/2007	epi	20	18	4	1	4	134											
31	Melody L	6/9/2008	epi	30	25	1	1	2	0											
31	Melody L	6/29/2008	epi	23	25	2	1	1	8											
31	Melody L	7/11/2008	epi	20	25	2	1	2	8											
31	Melody L	7/26/2008	epi	22	26	2	1	1	8											
31	Melody L	8/12/2008	epi	21	24	2	1	1	8											
31	Melody L	8/24/2008	epi	27	25	2	1	2	0											
31	Melody L	9/5/2008	epi	27	25	3	2	2	3											
31	Melody L	9/20/2008	epi	23	20	3	1	2	0											
31	Melody L	06/17/2009	epi	16	23	1	1	1	0											
31	Melody L	06/29/2009	epi	20	24	1	1	1	0											
31	Melody L	07/21/2009	epi	19	23	2	1	2	6											
31	Melody L	08/11/2009	epi	20	23	3	1	5	14568					0.01						
31	Melody L	08/21/2009	epi	24	26	2	1	1	0											
31	Melody L	09/11/2009	epi	18	20	3	1	2	5			82.1		0.02						

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB-form	Shore HAB
31	Melody L	09/24/2009	epi	17	20	2	1	2	0			74.18								
31	Melody L	10/19/2009	epi	8	9	3	1	2	8					0.01						
31	Melody L	10/19/2009	epi											2.31						
31	Melody L	5/16/2010	epi	19	18	1	1	1	0	0	0									
31	Melody L	6/7/2010	epi	22	23	1	1	2	5	0	0									
31	Melody L	6/22/2010	epi	23	25	1	1	1	5	0	0									
31	Melody L	7/6/2010	epi	28	27	3	1	2	0	46										
31	Melody L	7/26/2010	epi	23	27	3	1	3	1	6	6									
31	Melody L	8/4/2010	bloom									251120		0.83						
31	Melody L	8/23/2010	epi	20	24	3	1	4	158	6	46	160.00		0.02						
31	Melody L	9/20/2010	epi	17	19	2	1	2	5	0	0	170.00		0.05						
31	Melody L	10/10/2010	epi	17	15	2	1	3	5	0	0	73.00		0.04						
31	Melody L	6/13/2011	epi	15	21	2	1	2	5	0	0	14.80	7.00							
31	Melody L	6/28/2011	epi	25	25	2	1	2	0	0	0	24.00	6.10							
31	Melody L	7/19/2011	epi	31	29	2	1	1	8	0	0	29.30	5.54							
31	Melody L	8/6/2011	epi	21	26	3	1	4	134	6	2	87.60	11.00	0.54	<0.5	<0.1				
31	Melody L	8/6/2011	Bloom											6.34	<8	<0.4			ab	
31	Melody L	8/6/2011	Bloom											3.35	<0.5	<0.1				
31	Melody L	8/6/2011	Epi											0.24						
31	Melody L	8/6/2011	bloom											3.57						
31	Melody L	8/29/2011	epi	16	23	3	1	4	138	0	0	50.10	9.20							
31	Melody L	9/13/2011	epi	25	20	3	1	4	1	0	0	40.40	8.70							
31	Melody L	9/13/2011	DOH											0.02						
31	Melody L	9/27/2011	epi	19	21	2	1	3	156	0	0	101.90	12.20							
31	Melody L	10/2/2011	epi		17	3	1	2	5	0	0	94.10	8.60							
31	Melody L	10/2/2011	DOH											0.03						
31	Melody L	6/12/2012	epi	18	23	1	1	1	5	0	0	5.60	0.70	<0.30	<0.417		1.00	0.32	I	
31	Melody L	6/25/2012	epi	19	26	2	1	2	5	0	0	6.60	1.10	<0.30	<0.428		1.75	1.06	I	
31	Melody L	7/17/2012	epi	24	28	3	1	3	18	47	47	8.30	1.10	<0.30	<0.328		3.50	0.90	F	
31	Melody L	8/6/2012	epi	23	27	3	1	3	148	4	4	9.00	1.70	<0.30	<0.330		11.34	6.84	F	
31	Melody L	8/20/2012	epi	20	24	3	1	4	148	467	467	37.60	2.00	<0.30	<0.551		7.63	3.78	F	
31	Melody L	9/3/2012	epi	19	25	3	1	4	14	46	46	15.50	2.60	<0.30	<0.725		7.43	1.20	F	
31	Melody L	9/16/2012	epi	19	22	3	1	4	145	4	4	16.90	2.10	<0.30	<3.299		4.24	1.63	F	
31	Melody L	10/8/2012	epi	8	15	3	1	4	15	4	4	25.00	1.20	<0.30	<3.205		7.07	4.67	F	
31	Melody L	6/15/2013	epi	21	21	2	1	2	5	0	0	6.40	10.40	<0.30	<0.440				I	I
31	Melody L	6/29/2013	epi	21	25	2	1	3	5	0	0	6.80	3.20	<0.30	<0.650		2.70	0.00	I	I
31	Melody L	7/15/2013	epi	31	28	2	2	2	0	0	0	6.20	3.90	<0.30	<0.910		4.00	0.10	I	I
31	Melody L	7/29/2013	epi	22	25	2	1	2	0	0	0	18.30	5.00	<0.30	<0.380		6.50	2.10	I	I
31	Melody L	8/12/2013	epi	25	24	3	1	3	1	0	0	24.00	7.00	<0.30	<0.380		14.00	2.20	I	I
31	Melody L	8/25/2013	epi	25	24	3	1	3	14	0	0	45.10	17.70	<0.30	<0.570		16.20	3.80	I	I
31	Melody L	9/15/2013	epi	15	20	3	1	3	14	6	0	11.90	25.30	<0.30	<0.100		20.50	0.00	F	fi
31	Melody L	9/20/2013	bloom											11.28	<38.260		2165	1704		a
31	Melody L	10/1/2013	bloom											<0.60	<21.210		211.00	169.40		c
31	Melody L	9/27/2013	epi	18	19	3	1	4	134	46	46	10.20	30.80	<0.30	<0.050		27.20	0.00	D	D
31	Melody L	6/3/2014	epi	25	24	1	1	1	0	0	0	0.50	1.10	<1.83	<0.17	<0.001	0.82	0.18	I	
31	Melody L	6/17/2014	epi	21	24	2	1	2	0	0	0	2.90	0.70	<0.53	<0.08	<0.002	2.94	0.00	I	
31	Melody L	7/7/2014	epi	23	25	2	1	3	46	7	0	14.40	0.60	<0.40	<0.48	<0.001	4.71	2.08	I	
31	Melody L	7/22/2014	epi	28	27	3	1	3	1	6	6	9.80	1.00	<0.39	<0.24	<0.002	4.53	0.44	I	C
31	Melody L	7/22/2014	epi											<0.78	<0.06	<0.002	11.22	5.19		
31	Melody L	8/4/2014	epi	24	26	3	2	3	1	0	0	9.60	1.60	<0.33	<0.01	<0.002	6.81	0.41	I	I
31	Melody L	8/18/2014	epi	19	22	2	1	2	0	6	0	7.40	1.00	<0.42	<0.10	<0.002	4.35	0.18	I	I
31	Melody L	9/1/2014	epi	24	23	3	2	3	0	0	0	10.30	0.70	<0.64	<0.16	<0.002	3.78	0.55	I	I
31	Melody L	9/23/2014	epi	10	17	3	1	3	1	0	0	13.30	1.20	<0.49	<0.12	<0.001	7.68	0.53	I	I
31	Melody L	06/17/2009	hypo		20															
31	Melody L	06/29/2009	hypo		22															
31	Melody L	07/21/2009	hypo		22															
31	Melody L	08/11/2009	hypo		21															
31	Melody L	08/21/2009	hypo		24															
31	Melody L	09/11/2009	hypo		19															
31	Melody L	09/24/2009	hypo		19															
31	Melody L	10/19/2009	hypo		9															

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB-form	Shore HAB
31	Melody L	6/13/2011	hypo		20															
31	Melody L	6/28/2011	hypo		24															
31	Melody L	7/19/2011	hypo		26															
31	Melody L	8/6/2011	hypo		25															
31	Melody L	8/29/2011	hypo		23															
31	Melody L	9/13/2011	hypo		20															
31	Melody L	9/27/2011	hypo		20															
31	Melody L	10/2/2011	hypo		17															
31	Melody L	6/12/2012	hypo		20															
31	Melody L	6/25/2012	hypo		21															
31	Melody L	7/17/2012	hypo		28															
31	Melody L	8/6/2012	hypo		27															
31	Melody L	8/20/2012	hypo		24															
31	Melody L	9/3/2012	hypo		25															
31	Melody L	9/16/2012	hypo		21															
31	Melody L	10/8/2012	hypo		15															
31	Melody L	6/15/2013	hypo		21															
31	Melody L	6/29/2013	hypo		24															
31	Melody L	7/15/2013	hypo		27															
31	Melody L	7/29/2013	hypo		25															
31	Melody L	8/12/2013	hypo		24															
31	Melody L	8/25/2013	hypo		24															
31	Melody L	9/15/2013	hypo		20															
31	Melody L	9/27/2013	hypo		17															
31	Melody L	6/3/2014	hypo		23															
31	Melody L	6/17/2014	hypo		23															
31	Melody L	7/7/2014	hypo		25															
31	Melody L	7/22/2014	hypo		26															
31	Melody L	8/4/2014	hypo		25															
31	Melody L	8/18/2014	hypo		21															
31	Melody L	9/1/2014	hypo		22															
31	Melody L	9/23/2014	hypo		17															

Legend Information

<i>Indicator</i>	<i>Description</i>	<i>Detection Limit</i>	<i>Standard (S) / Criteria (C)</i>
General Information			
Lnum	lake number (unique to CSLAP)		
Lname	name of lake (as it appears in the Gazetteer of NYS Lakes)		
Date	sampling date		
Field Parameters			
Zbot	lake depth at sampling point, meters (m)		
Zsd	Secchi disk transparency or clarity	0.1m	1.2m (C)
Zsamp	water sample depth (m) (epi = epilimnion or surface; bot = bottom)	0.1m	none
Tair	air temperature (C)	-10C	none
TH20	water temperature (C)	-10C	none
Laboratory Parameters			
Tot.P	total phosphorus (mg/l)	0.003 mg/l	0.020 mg/l (C)
NOx	nitrate + nitrite (mg/l)	0.01 mg/l	10 mg/l NO3 (S), 2 mg/l NO2 (S)
NH4	total ammonia (mg/l)	0.01 mg/l	2 mg/l NH4 (S)
TN	total nitrogen (mg/l)	0.01 mg/l	none
TN/TP	nitrogen to phosphorus (molar) ratio, = (TKN + NOx)*2.2/TP		none
TCOLOR	true (filtered) color (ptu, platinum color units)	1 ptu	none
pH	powers of hydrogen (S.U., standard pH units)	0.1 S.U.	6.5, 8.5 S.U. (S)
Cond25	specific conductance, corrected to 25C (umho/cm)	1 umho/cm	none
Ca	calcium (mg/l)	1 mg/l	none
Chl.a	chlorophyll a (ug/l)	0.01 ug/l	none
Fe	iron (mg/l)	0.1 mg/l	1.0 mg/l (S)
Mn	manganese (mg/l)	0.01 mg/l	0.3 mg/l (S)
As	arsenic (ug/l)	1 ug/l	10 ug/l (S)
AQ-PC	Phycocyanin (aquafior) (unitless)	1 unit	none
AQ-Chl	Chlorophyll a (aquafior) (ug/l)	1 ug/l	none
MC-LR	Microcystis-LR (ug/l)	0.01 ug/l	1 ug/l potable (C) 20 ug/l swimming (C)
Ana	Anatoxin-a (ug/l)	variable	none
Cyl	Cylindrospermopsin (ug/l)	0.1 ug/l	none
FP-Chl, FP-BG	Fluoroprobe total chlorophyll, fluoroprobe blue-green chlorophyll (ug/l)	0.1 ug/l	none
Lake Assessment			
QA	water quality assessment; 1 = crystal clear, 2 = not quite crystal clear, 3 = definite algae greenness, 4 = high algae levels, 5 = severely high algae levels		
QB	aquatic plant assessment; 1 = no plants visible, 2 = plants below surface, 3 = plants at surface, 4 = plants dense at surface, 5 = surface plant coverage		
QC	recreational assessment; 1 = could not be nicer, 2 = excellent, 3 = slightly impaired, 4 = substantially impaired, 5 = lake not usable		
QD	reasons for recreational assessment; 1 = poor water clarity, 2 = excessive weeds, 3 = too much algae, 4 = lake looks bad, 5 = poor weather, 6 = litter/surface debris, 7 = too many lake users, 8 = other		
QF, QG	Health and safety issues today (QF) and past week (QG); 0 = none, 1 = taste/odor, 2 = GI illness humans/animals, 3 = swimmers itch, 4 = algae blooms, 5 = dead fish, 6 = unusual animals, 7 = other		
HAB form, Shore HAB	HAB evaluation; A = spilled paint, B = pea soup, C = streaks, D = green dots, E = bubbling scum, F = green/brown tint, G = duckweed, H = other, I = no bloom		

Appendix B: Priority Waterbody Listing for Melody Lake

Ellis/Melody Lake (0602-0053)

MinorImpacts

Waterbody Location Information

Revised: 07/06/2009

Water Index No:	SR- 44-14-27-23-P39	Drain Basin:	Susquehanna River
Hydro Unit Code:	02050102/070	Str Class:	C
Waterbody Type:	Lake (Eutrophic)	Reg/County:	7/Cortland Co. (12)
Waterbody Size:	40.8 Acres	Quad Map:	WILLET (L-17-1)
Seg Description:	entire lake		

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Recreation	Stressed	Suspected

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH (algal blooms, vegetation), Nutrients (phosphorus)
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: AGRICULTURE
Possible: ---

Resolution/Management Information

Issue Resolvability:	1 (Needs Verification/Study (see STATUS))	
Verification Status:	3 (Cause Identified, Source Unknown)	
Lead Agency/Office:	ext/WQCC	Resolution Potential: Medium
TMDL/303d Status:	n/a	

Further Details

Overview

Recreational uses (swimming, fishing, boating) in Ellis Pond/Melody Lake are known to experience impacts from excessive algal and weed growth. Elevated nutrient levels may contribute to the plant growth. Sampling from 1980s and 1990s and continuing through the present indicate a trend toward improving water quality. In more recent years impacts have been primarily related to weeds.

Water Quality Sampling

Ellis Pond/Melody Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) from 1987 through 1991 and from 1997 and continuing through 2006. An Interpretive Summary report of the findings of this sampling was published in 2007. These data indicate that the lake continues to be best characterized as mesotrophic, or moderately productive. Phosphorus levels in the lake occasionally exceed the state guidance values indicating impacted/stressed recreational uses but exceedences appear to be less frequent. Corresponding transparency measurements only rarely fail to exceed the recommended minimum for swimming beaches. Measurements of pH fall within the state water quality range of 6.5 to 8.5. The lake water is weakly colored, but color does not limit water transparency. (DEC/DOW, BWAM/CSLAP, March 2007)

Recreational Assessment

Public perception of the lake and its uses is also evaluated as part of the CSLAP program. This assessment indicates recreational suitability of the lake to be increasingly favorable. The recreational suitability of the lake during more recent sampling is described most frequently as "excellent." The lake itself is most often described as "not quite crystal clear" or as having "definite algal greenness," an assessment that is consistent measured water quality characteristics. Assessments have noted that aquatic plants do not grow to the lake surface in more recent sampling years. Aquatic plants are dominated by a mix of native species and non-native Eurasian milfoil and have been cited as impacting recreational uses. (DEC/DOW, BWAM/CSLAP, March 2007)

Lake Uses

This lake waterbody is designated class C, suitable for use as general recreation and aquatic life support, but not as a public water supply or public bathing beach. Water quality monitoring by NYSDEC focuses primarily on support of general recreation and aquatic life. Samples to evaluate the bacteriological condition and bathing use of the lake or to evaluate contamination from organic compounds, metals or other inorganic pollutants have not been collected as part of the CSLAP monitoring program. Monitoring to assess potable water supply and public bathing use is generally the responsibility of state and/or local health departments.

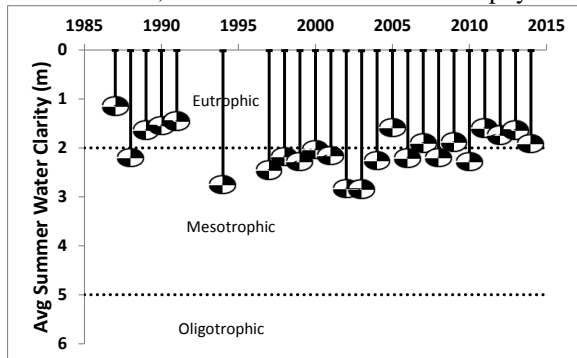
Segment Description

This segment includes the total area of the lake.

Appendix C- Long Term Trends: Melody Lake

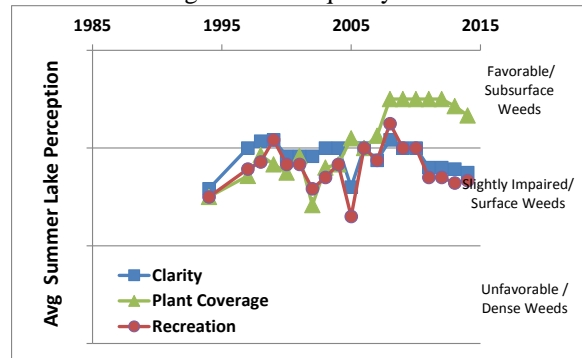
Long Term Trends: Water Clarity

- Slight decrease mid-90s to present
- Most readings typical of *mesoeutrophic* lakes, consistent with TP and chlorophyll *a*



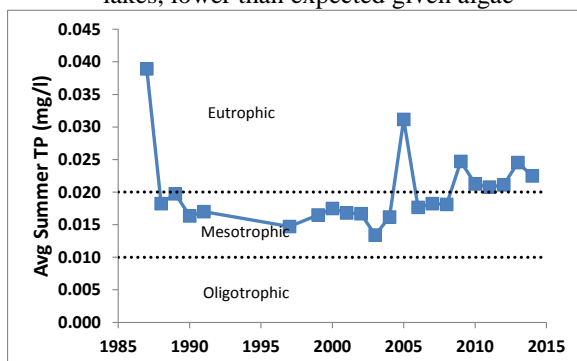
Long Term Trends: Lake Perception

- Significantly less plant growth due to carp
- Recreational perception more closely linked to changes in water quality than weeds



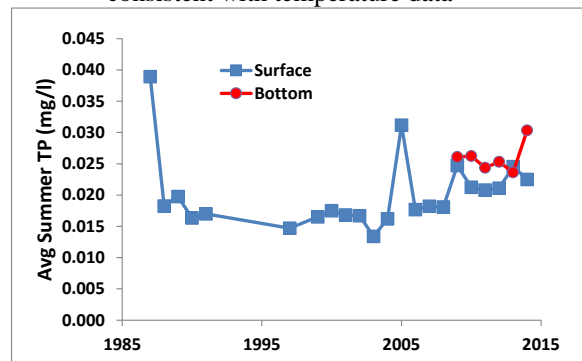
Long Term Trends: Phosphorus

- TP high since mid-1990s
- Most readings typical of *mesoeutrophic* lakes, lower than expected given algae



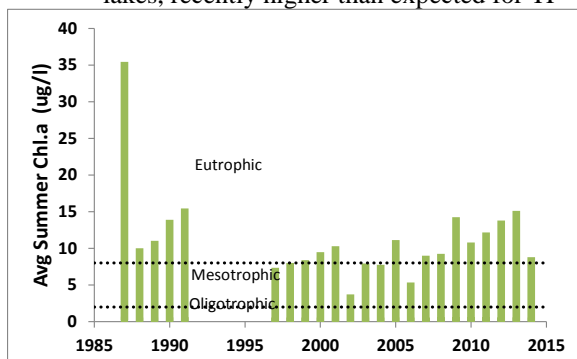
Long Term Trends: Bottom Phosphorus

- Deepwater TP similar to surface TP
- Indicates weak thermal stratification, consistent with temperature data



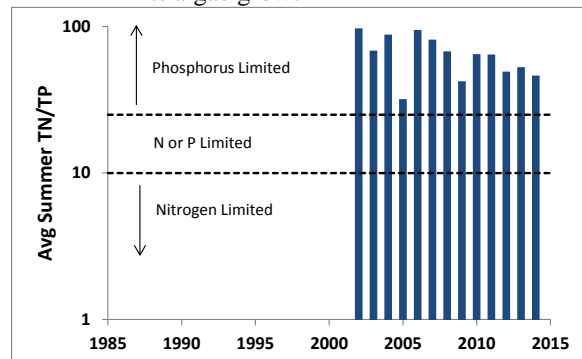
Long Term Trends: Chlorophyll *a*

- Algae seems to rise in 4yr increments
- Most readings typical of *mesoeutrophic* lakes, recently higher than expected for TP



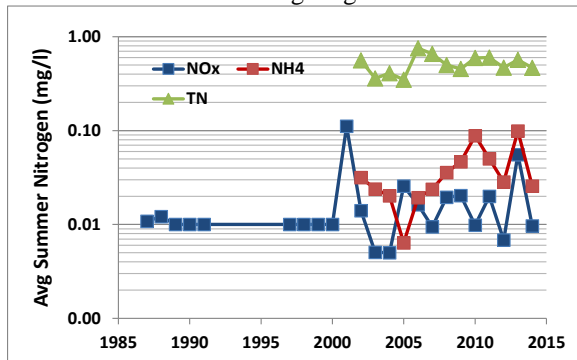
Long Term Trends: N:P Ratio

- Some decrease since mid-2000s
- Most readings (still) indicate phosphorus limits algae growth



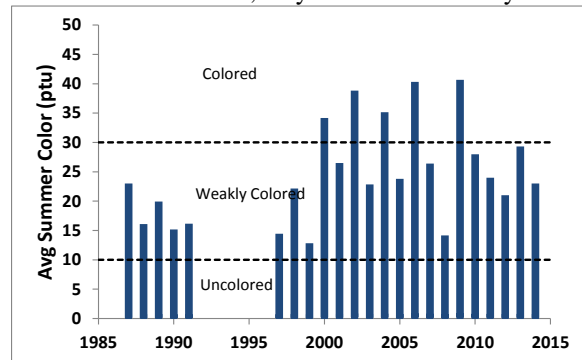
Long Term Trends: Nitrogen

- Increasing ammonia levels?
- Occasionally elevated total nitrogen readings consistent with high algae levels



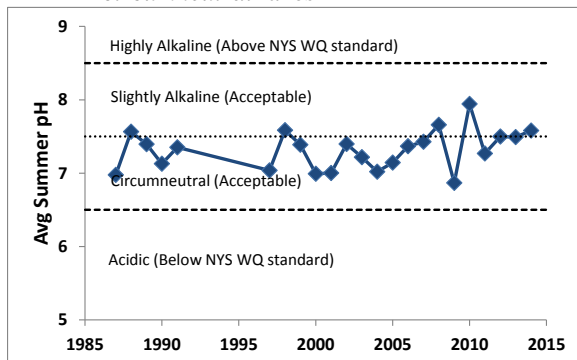
Long Term Trends: Color

- No clear trends though slight rise after 2002
- Most readings typical of *weakly colored* to *colored* lakes, may affect water clarity



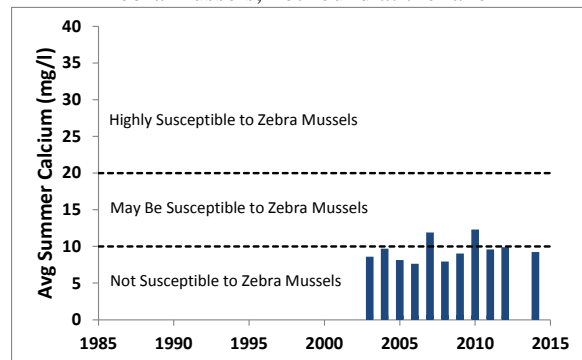
Long Term Trends: pH

- Slight rise since early 2000s
- Most readings typical of *slightly alkaline* to *circumneutral* lakes



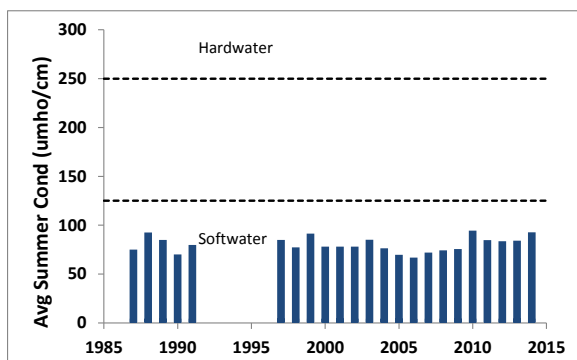
Long Term Trends: Calcium

- No trends apparent
- Data indicates little to no susceptibility to zebra mussels, not found at the lake



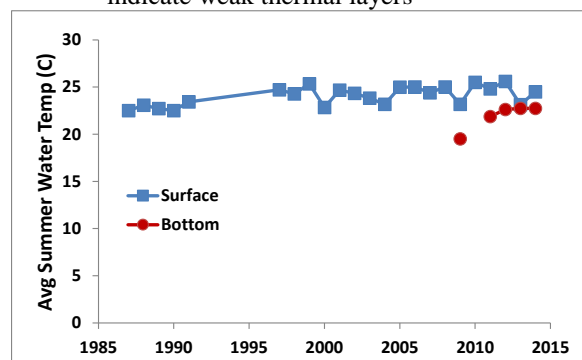
Long Term Trends: Conductivity

- No trends apparent
- Most readings typical of *softwater* lakes



Long Term Trends: Water Temperature

- Surface and deep temperatures increasing
- Only slightly lower deepwater temperatures indicate weak thermal layers



Appendix D:

Algae Testing Results from SUNY ESF Study

Most algae are harmless, naturally present, and an important part of the food web. However excessive algae growth can cause health, recreational, and aesthetic problems. Some algae can produce toxins that can be harmful to people and animals. High quantities of these algae are called harmful algal blooms (HABs). CSLAP lakes have been sampled for a variety of HAB indicators since 2008. This was completed on selected lakes as part of a NYS DOH study from 2008-2010. In 2011, enhanced sampling on all CSLAP lakes was initiated through an EPA-funded project that has continued through the current sampling season. This study has evaluated a number of HAB indicators as follows:

- Algae types - blue green, green, diatoms, and "other"
- Algae densities
- Microscopic analysis of bloom samples
- Algal toxin analysis

Some of these results are reported in other portions of these reports. This appendix the seasonal change in blue green algae, other algae types, and the primary algal toxin (microcystin-LR, a liver toxin). Analysis was completed on open water samples and, for some lakes, shoreline samples that were collected when visual evidence of blooms were apparent. Results are compared to the DEC criteria of 30 ug/l blue green chlorophyll a and 20 ug/l microcystin-LR (based on the World Health Organization (WHO) threshold for unsafe swimming conditions) and the WHO provisional criteria for long-term protection of treated water supplies (= 1 ug/l microcystin-LR). The data for algae types are drawn from a high end fluorometer used by SUNY ESF. While these results are useful for timely approximation of lake conditions, they are not as accurate as the total chlorophyll results measured as a regular part of CSLAP since 1986 in all open water samples. Therefore these results are used judiciously in the assessment of sampled waterbodies.

Two separate samples are evaluated. A sample is taken at the CSLAP sample point at the deepest point of the lake at every sample session. In addition, shoreline samples can be taken when a bloom is visible. It should be noted that shoreline conditions can vary significantly over time and from one location to another. The shoreline bloom sampling results summarized below are not collected as routinely as open water samples, and therefore represent snapshots in time. It is assumed that sampling results showing high blue green algae and/or toxin levels indicate that algae blooms may be common and/or widespread on these lakes. However, the absence of elevated blue green algae and toxin levels does not assure the lack of shoreline blooms on these lakes. Elevated open water readings may indicate a higher likelihood of shoreline blooms, but in some lakes, these shoreline blooms have not been (well) documented.

The results from these samples are summarized within the CSLAP report for the lake.

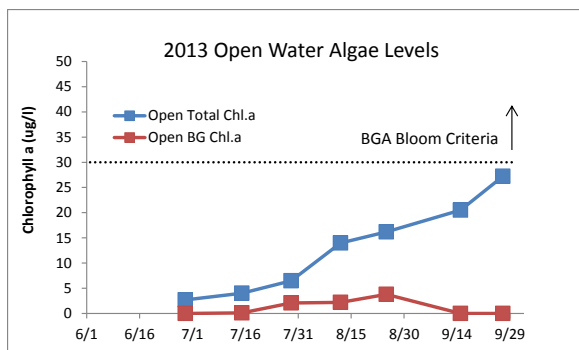


Figure D1:
2013 Open Water Total and BGA Chl.a

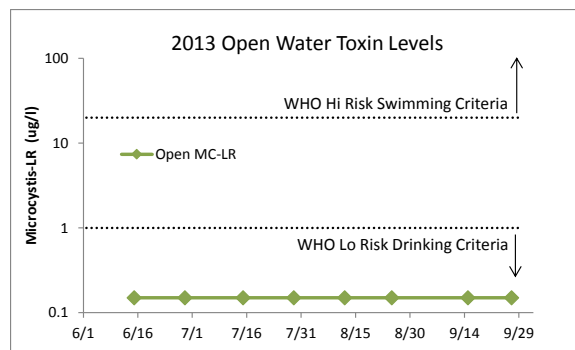


Figure D2:
2013 Open Water Microcystin-LR

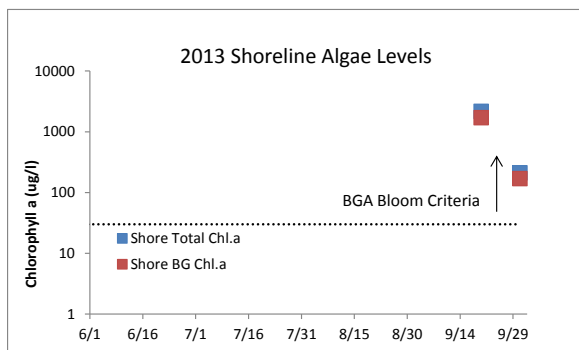


Figure D3:
2013 Shoreline Total and BGA Chl.a

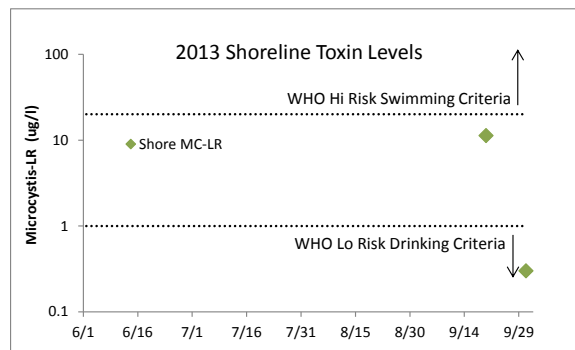


Figure D4:
2013 Shoreline Microcystin-LR

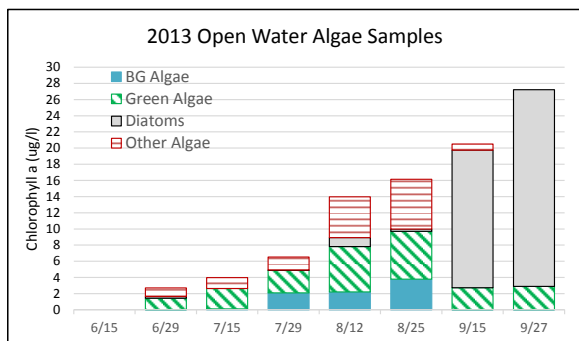


Figure D5:
2013 Open Water Algae Types

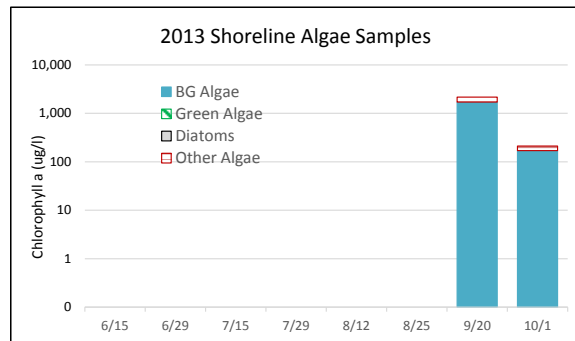


Figure D6:
2013 Shoreline Algae Types

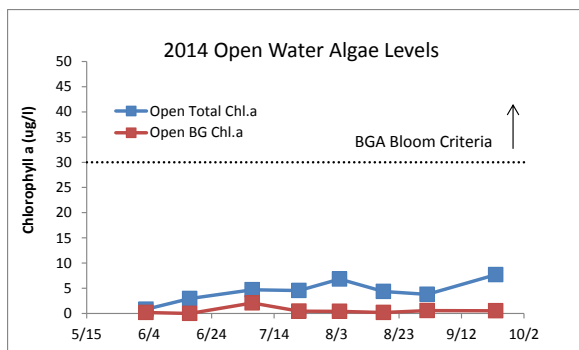


Figure D7:
2014 Open Water Total and BGA Chl.a

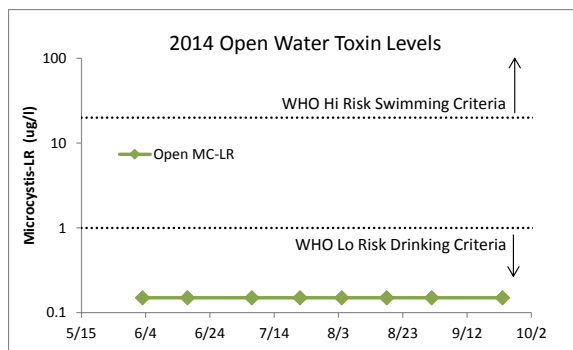


Figure D8:
2014 Open Water Microcystin-LR

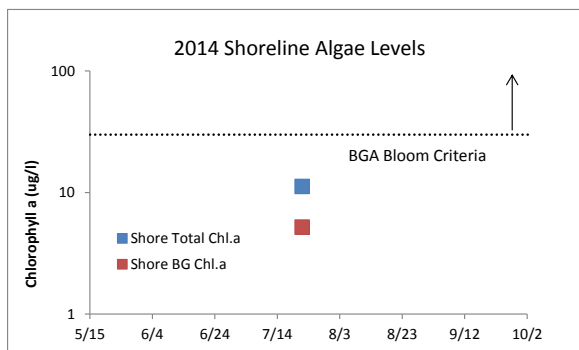


Figure D9:
2014 Shoreline Total and BGA Chl.a

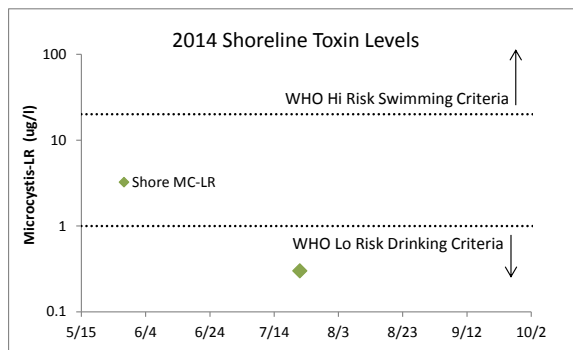


Figure D10:
2014 Shoreline Microcystin-LR

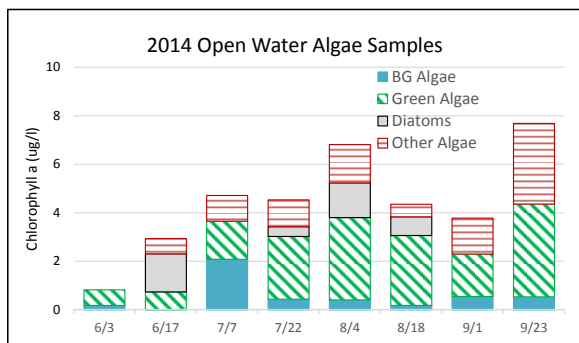


Figure D11:
2014 Open Water Algae Types

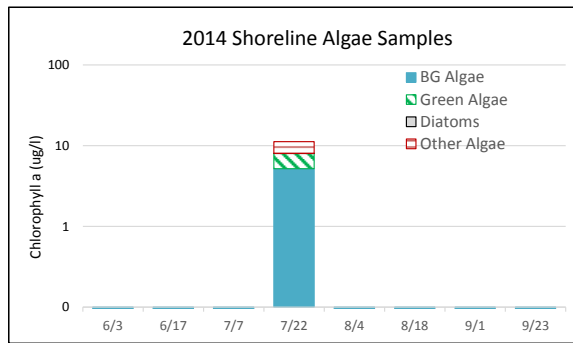


Figure D12:
2014 Shoreline Algae Types

Appendix E: AIS Species in Cortland County

The table below shows the invasive aquatic plants and animals that have been documented in Cortland County, as cited in either the iMapInvasives database (<http://www.imapinvasives.org/>) or in the NYSDEC Division of Water database. These databases may include some, but not all, non-native plants or animals that have not been identified as “Prohibited and Regulated Invasive Species” in New York state regulations (6 NYCRR Part 575; http://www.dec.ny.gov/docs/lands_forests_pdf/islist.pdf).

This list is not complete, but instead represents only those species that have been reported and verified within the county. If any additional aquatic invasive species (AIS) are known or suspected in these or other waterbodies in the county, this information should be reported through iMap invasives or by contacting NYSDEC at dowinfo@dec.ny.gov.

Aquatic Invasive Species – Cortland County			
Waterbody	Kingdom	Common name	Scientific name
Cincinnatus Lake	Plant	Water chestnut	<i>Trapa natans</i>
Ellis Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Goodale Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Melody Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Melody Lake	Plant	Starry stonewort	<i>Nitellopsis obtusa</i>
Melody Lake	Animal	Chinese mystery snail	<i>Bellamya chinensi</i>
Otselic River near Landers Corners	Animal	Asian clam	<i>Corbicula fluminea</i>
Skaneateles Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Skaneateles Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Solon Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Tully Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Tully Lake	Plant	Starry stonewort	<i>Nitellopsis obtusa</i>
Tully Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Upper Little York Lake	Animal	Zebra mussel	<i>Dreissena polymorpha</i>
Upper Little York Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Upper Little York Lake	Plant	Starry stonewort	<i>Nitellopsis obtusa</i>
Upper Little York Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
West Branch Tioughnioga River	Animal	Zebra mussel	<i>Dreissena polymorpha</i>

Appendix F: Watershed and Land Use Map for Melody Lake

This watershed and land use map was developed using USGS StreamStats and ESRI ArcGIS using the 2006 land use satellite imagery. The actual watershed map and present land uses within this watershed may be slightly different due to the age of the underlying data and some limits to the use of these tools in some geographic regions and under varying flow conditions. However, these maps are intended to show the approximate extent of the lake drainage basin and the major land uses found within the boundaries of the basin.