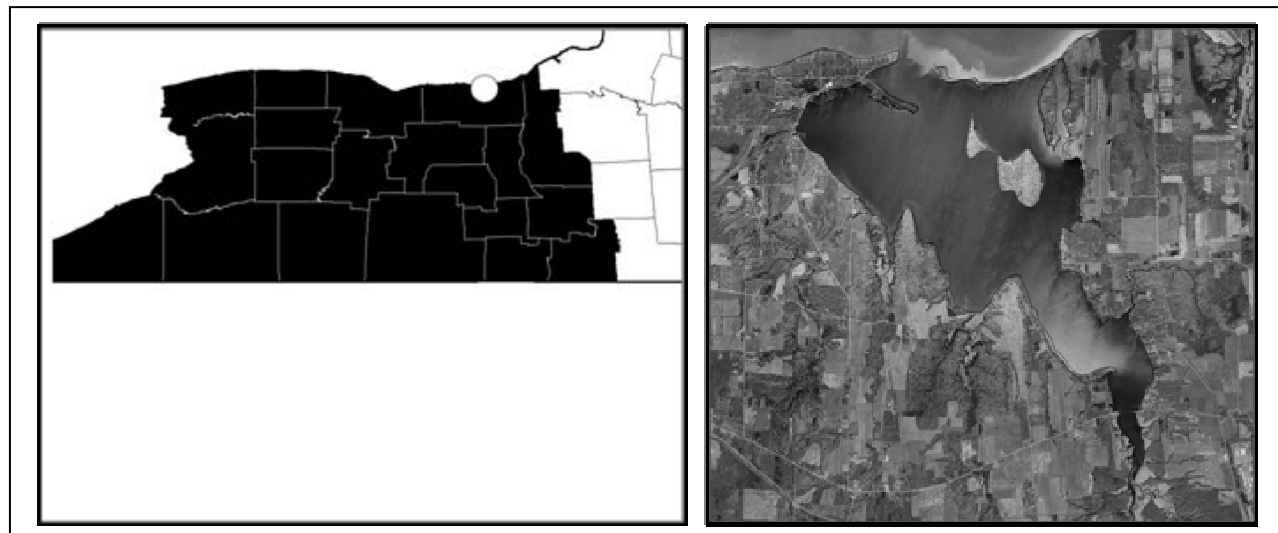


CSLAP 2013 Lake Water Quality Summary: Sodus Bay

General Lake Information

Location	Town of Sodus Point
County	Wayne
Basin	Lake Ontario
Size	1358.9 hectares (3356 acres)
Lake Origins	Embayment of Lake Ontario
Watershed Area	192500 hectares (474500 acres)
Retention Time	1.1 years
Mean Depth	3.9 meters
Sounding Depth	14 meters
Public Access?	Multiple public access points
Major Tributaries	Sodus Creek, First Creek, Second Creek, and unnamed tributaries
Lake Tributary To...	Lake Ontario
WQ Classification	B (contact recreation = swimming)
Lake Outlet Latitude	43.273828
Lake Outlet Longitude	-76.973482
Sampling Years	1988-1991, 2001-2005, 2013
2013 Samplers	Al Fagan
Main Contact	Al Fagan

Lake Map



Background

Sodus Bay is a 3356 acre embayment to Lake Ontario found in the town of Sodus Point in Wayne County north of the Finger Lakes region of New York State. It was first sampled as part of CSLAP in 1988.

It is one of three CSLAP lakes among the more than 20 lakes found in Wayne County, and one of 10 CSLAP lakes among the more than 80 lakes and ponds in the Lake Ontario (direct) drainage basin.

Lake Uses

Sodus Bay is a Class B lake; this means that the best intended use for the lake is for contact recreation—swimming and bathing, non-contact recreation—boating and fishing; aesthetics and aquatic life. The public can access the lake through a State-owned concrete ramp with parking for 20 cars/trailers is operated by the Village of Sodus Point, and a concrete ramp at the US Coast Guard Auxiliary facility, also in Sodus Point. The lake supports a wide variety of recreational activities.

Sodus Bay is stocked by the state of New York. Since 2003, the stocking policy has called for biannual plantings of fingerling walleyes; it was stocked annually prior to 2003. It is not known if private stocking also occurs.

General statewide fishing regulations are applicable in Sodus Bay. In addition, the Lake Ontario fishing regulations also apply; they can be found at <http://www.dec.ny.gov/outdoor/31423.html>.

There are no lake-specific fish consumption advisories on Sodus Bay, although the advisories for Lake Ontario (http://www.health.ny.gov/environmental/outdoors/fish/health_advisories/regional/finger_lakes.htm) apply given the ability of fish to move into the Bay.

Historical Water Quality Data

CSLAP sampling was conducted on Sodus Bay from 1988-1991, 2001-2005, and in 2013. The CSLAP reports for previous years can be found on the NYSFOLA website at <http://nysfola.mylaketown.com>. The most recent CSLAP report and scorecard for Sodus Bay can also be found on the NYSDEC web page at <http://www.dec.ny.gov/lands/87235.html>.

Sodus Bay, and its associated cyanobacterial blooms, has been sampled by SUNY ESF in previous years, and as part of a three year grant in recent years. Princeton Hydro conducted a study of the lake in 2007. SUNY Brockport is evaluating phosphorus loading to the lake. These results will continue to be evaluated against the CSLAP dataset for Sodus Bay.

Sodus Creek has been sampled by the NYSDEC, and the results have been summarized in the Lake Ontario PWL (http://www.dec.ny.gov/docs/water_pdf/pwllont07.pdf).

Lake Association and Management History

(Great) Sodus Bay is served by Save Our Sodus, which maintains a website at <http://www.saveoursodus.com/>. SOS is actively involved in reporting on activities in and around Sodus Bay, including harmful algal bloom research and findings, dredging proposals,

invasive species, water level, wetlands restoration, and other water quality and Bay-related issues.

Several mechanical harvesters are operated annually by the Wayne County Soil and Water Conservation District to control the excessive vegetation, particularly exotic plant species (Eurasian watermilfoil, water chestnut, and curly-leafed pondweed).

Summary of 2013 CSLAP Sampling Results

Evaluation of 2013 Annual and Monthly Results Relative to 2006-2012

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 – Sodus Bay” section in Appendix D.

Evaluation of Eutrophication Indicators

Each of the trophic indicators (water clarity, chlorophyll *a*, and phosphorus) was close to normal in 2013, despite lower than expected water clarity in mid summer and higher than expected phosphorus levels in late summer. Water clarity readings have increased slightly since the late 1980s, although phosphorus and algae levels have not experienced similar long-term changes. Lake productivity typically increases substantially over the course of the summer, as manifested in increasing nutrient and algae levels leading to decreasing water clarity, and decreases slightly in the fall. This was generally apparent in 2013, although seasonal changes were at times offset by some sample to sample variability.

Although shoreline blooms are common in Sodus Bay, no significant blooms were reported in 2013.

The lake can be characterized as *mesoeutrophic*, or moderately to highly productive, based on chlorophyll *a*, total phosphorus (both are normally typical of *mesotrophic* lakes), and Secchi disk transparency readings (usually typical of *mesotrophic* lakes). The trophic state indices (TSI) evaluation in 2013 suggests that each of these trophic readings were “internally” consistent- that is, water clarity readings can be predicted from the algae levels, which in turn are typical of other lakes with similar phosphorus readings. Overall trophic conditions are summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Potable Water Indicators

Algae levels are at times 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. Potable water conditions, at least as measurable through CSLAP, are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Limnological Indicators

Ammonia readings in 2013 were higher than in the period from 2002 to 2005. It is not yet known if these higher readings are more typical of present conditions in the lake, or if any long-term changes have occurred. Color readings were slightly higher than normal in 2013, and these readings have been consistently higher since 2002, when CSLAP samples were first analyzed by the present laboratory. It is likely that the higher color readings represent a lab phenomenon, not an actual change in color (based in part of water clarity readings, which have been higher in recent years). None of the other trophic indicators (NO_x, total nitrogen, pH, and conductivity) has exhibited any clear long-term trends, and each of these indicators was close to normal in 2013. Overall limnological conditions are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Biological Condition

It is not known if zooplankton or macroinvertebrate studies have been conducted at the lake. Fisheries surveys have been conducted by NYSDEC and showed that the stocked fingerlings survive and grow to produce a good adult walleye population and potentially reproduce. Good northern pike and yellow perch fishing through the ice exists when safe ice develops. In most years, the early spring fishing for yellow perch, brown bullhead, and white perch can be outstanding. Northern pike, chain pickerel, largemouth bass, smallmouth bass, sunfish, and yellow perch can be caught during the open water season.

Invasive species in the lake include zebra mussels, quagga mussels, common carp, and freshwater drum.

The 2013 fluoroprobe data indicates low open water (near center of lake) algae levels, and a small amount of blue green algae within the algal community. The shoreline bloom sample collected in late August showed very high blue green algae levels dominated by *Microcystis* and *Woronichina*, a former a toxin producing blue green algae (although these did not appear to produce toxins at that time). All of the other shoreline samples collected by SOS in cooperation with SUNY ESF found low total algae and low blue green algae levels. This is not typical for Sodus Bay; continuing sampling will indicate whether the much lower algae levels represent (new) normal conditions.

Macrophyte (aquatic plant) sampling in 1990 found a large number of native and invasive plant species—the latter includes Eurasian watermilfoil (*Myriophyllum spicatum*), water chestnut (*Trapa natans*), and curly-leafed pondweed (*Potamogeton crispus*). Sampling from other programs found variable leaf watermilfoil (*Myriophyllum heterophyllum*) and European frogbit (*Hydrocharis morsus-ranae*), two invasive species, in the lake. The modified floristic quality index (FQI) data indicate “fair” aquatic plant diversity, primarily due to the presence of several invasive species.

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

Evaluation of Lake Perception

Recreational assessments were more favorable than normal in 2013, consistent with higher than normal water clarity but inconsistent with close to normal water quality assessments and coverage of aquatic plants. These assessments typically degrade slightly during the summer, consistent with the seasonal changes in water quality conditions (seasonally increasing lake productivity), but these trends were not apparent in 2013. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Air and water temperature readings were close to normal in 2013 (relative to readings prior to 2005), although these readings have increased since the late 1980s. It is not yet known if these readings indicate local climate change or if these changes can be evaluated through CSLAP.

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 and fluoroprobe algae levels in 2013 were below the levels indicating susceptibility for harmful (blue green) algal blooms (HABs) in the main body of the lake and in nearly all of the shoreline samples collected in 2013, despite high blue green algae levels in the shoreline bloom from late August. Open water and shoreline algal toxin levels were at or below detection levels and below the safe swimming threshold. However, the lake normally exhibits significant shoreline blooms, and lake residents and pets should continue to avoid directed exposure to any surface scums or heavily discolored water along the lake shoreline.

Lake Condition Summary

Category	Indicator	Min	Overall Avg	Max	2013 Avg	Classification	2013 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	0.95	2.19	5.45	2.23	Mesotrophic	Within Normal Range	Increasing Slightly
	Chlorophyll <i>a</i>	0.30	12.96	85.80	8.26	Eutrophic	Within Normal Range	No Change
	Total Phosphorus	0.010	0.027	0.057	0.031	Eutrophic	Within Normal Range	No Change
Potable Water Indicators	Hypolimnetic Ammonia	0.01	0.08	0.45	0.19	Close to Surface NH4 Readings	Higher than Normal	Not known
	Hypolimnetic Arsenic							
	Hypolimnetic Iron							
	Hypolimnetic Manganese							
Limnological Indicators	Hypolimnetic Phosphorus	0.007	0.040	0.215	0.071	Close to Surface TP Readings	Higher than Normal	Not known
	Nitrate + Nitrite	0.00	0.03	0.21	0.01	Low NOx	Within Normal Range	No Change
	Ammonia	0.00	0.03	0.20	0.06	Low Ammonia	Higher than Normal	No Change
	Total Nitrogen	0.07	0.49	1.53	0.52	Low Total Nitrogen	Within Normal Range	No Change
	pH	6.70	8.17	9.03	8.23	Alkaline	Within Normal Range	No Change
	Specific Conductance	190	292	333	305	Hardwater	Within Normal Range	No Change
	True Color	2	10	38	16	Uncolored	Higher than Normal	Increasing Slightly
	Calcium	5.5	26.6	38.7		Highly Susceptible to Zebra Mussels		No Change
Lake Perception	WQ Assessment	1	2.1	5	2.3	Not Quite Crystal Clear	Within Normal Range	No Change
	Aquatic Plant Coverage	1	2.9	4	2.9	Surface Plant Growth	Within Normal Range	No Change
	Recreational Assessment	1	2.6	4	1.9	Slightly Impaired	More Favorable Than Normal	Highly Improving
Biological Condition	Phytoplankton					Open water-low blue green algae biomass	Not known	Not known
	Macrophytes					Fair quality of the aquatic plant community	Not known	Not known
	Zooplankton					Not measured through CSLAP	Not known	Not known
	Macroinvertebrates					Not measured through CSLAP	Not known	Not known
	Fish					Good quality coolwater fishery	Not known	Not known
	Invasive Species					Zebra mussels, quagga mussels, common carp, freshwater drum, Eurasian watermilfoil; water chestnut; variable leaf watermilfoil, curly leafed pondweed	Not known	Not known
Local Climate Change	Air Temperature	5	21.3	31	22.9		Within Normal Range	Increasing Significantly
	Water Temperature	7	21.6	28	22.4		Within Normal Range	Increasing Slightly

Category	Indicator	Min	Overall Avg	Max	2013 Avg	Classification	2013 Change?	Long-term Change?
Harmful Algal Blooms	Open Water Phycocyanin	4	9	17	9	No readings indicate high risk of BGA	Not known	Not known
	Open Water FP Chl.a	1	6	20	6	Few readings indicate high algae levels	Not known	Not known
	Open Water FP BG Chl.a	0	0	2	0	No readings indicate high BGA levels	Not known	Not known
	Open Water Microcystis	0.5	0.3	0.7	0.3	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					No shoreline blooms sampled for PC	Not known	Not known
	Screening FP Chl.a	0.4	104.4	13038	104.4	Most readings indicate high algae levels	Not known	Not known
	Screening FP BG Chl.a	0.0	98.2	13038	98.2	Most readings indicate high BGA levels	Not known	Not known
	Shoreline Microcystis	<DL	<DL	<DL	<0.60	Shoreline bloom MC-LR consistently not detectable	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

Sodus Bay is cited on the 2007 Lake Ontario drainage basin Priority Waterbody List (PWL) as having public bathing, fish consumption and aesthetics cited as *stressed* due to excessive algae and weeds, and pesticides and heavy metals (in the Lake Ontario fish). The PWL listing for the lake can be found in Appendix C.

Potable Water (Drinking Water)

The CSLAP dataset at Sodus Bay, 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. The occasionally elevated algae levels would impact any "unofficial" potable water use.

Contact Recreation (Swimming)

The CSLAP dataset at Sodus Bay, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that swimming and contact recreation has historically been *impaired* due to excessive algae, but only lesser impacts were apparent in 2013 and most CSLAP sampling seasons (despite the shoreline blooms). 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 Sodus Bay, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that non-contact recreation should be fully supported, although this use may be *threatened* by excessive (surface) weed growth associated with native or exotic plants.

Aquatic Life

The CSLAP dataset on Sodus Bay, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life may be *stressed* by invasive species (particularly zebra and quagga mussels) and shoreline blooms. Additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

Aesthetics

The CSLAP dataset on Sodus Bay, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics may be *stressed* by shoreline algae blooms, although additional data may be needed to verify that these blooms will be apparent in future years.

Fish Consumption

There are no specific fish consumption advisories posted for Sodus Bay, but there are several Lake Ontario advisories that are relevant to Sodus Bay, given the migration of fish between the Bay and the main lake.

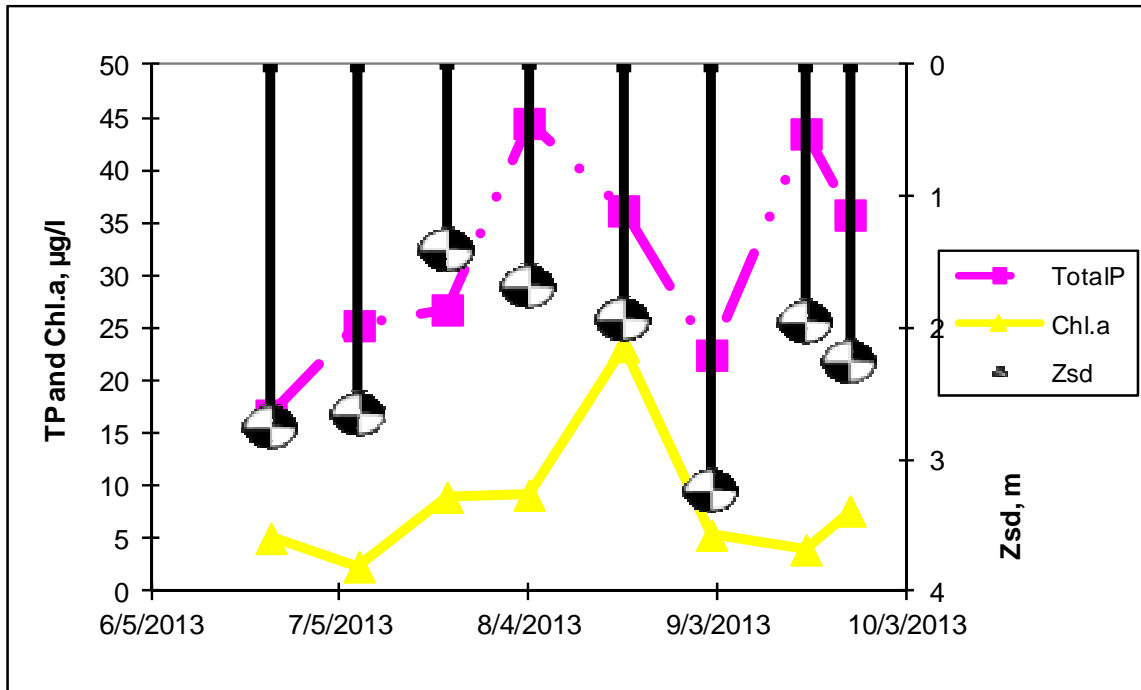
Additional Comments and Recommendations

Additional data will help to determine if the conditions measured and reported in 2013 are typical for Sodus Bay, particularly as related to harmful algae blooms. Lake residents are advised to continue to report and avoid direct exposure with any surface scums or heavily discolored water.

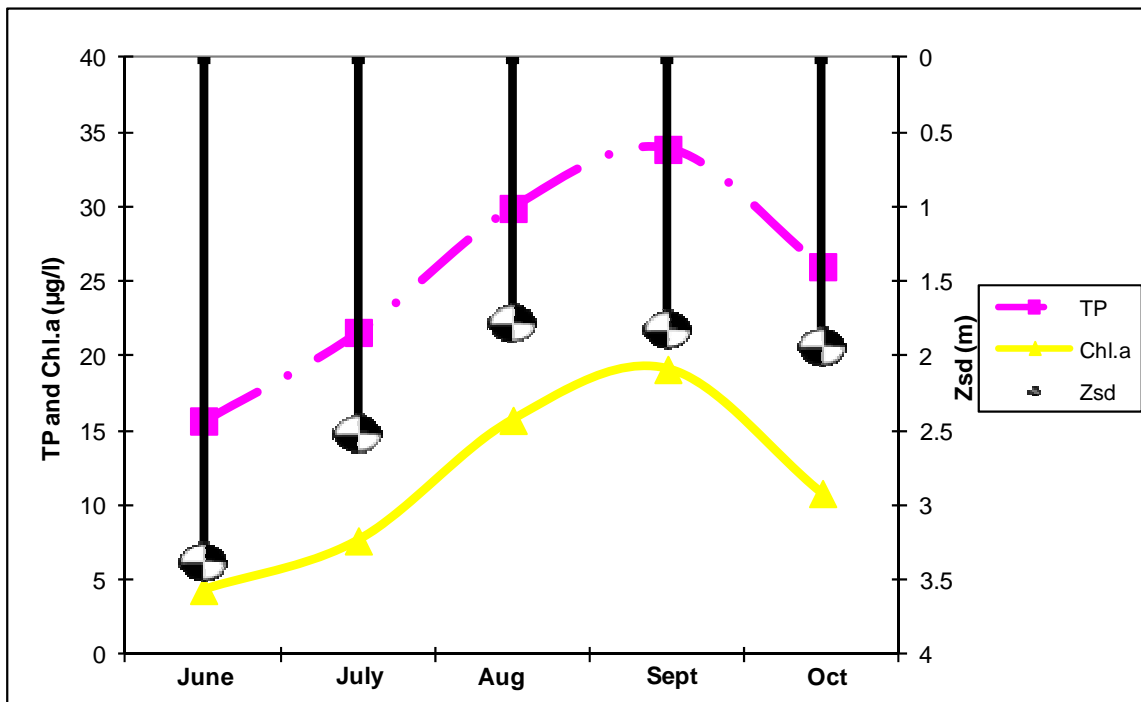
Aquatic Plant IDs-2013

None submitted for identification in 2013.

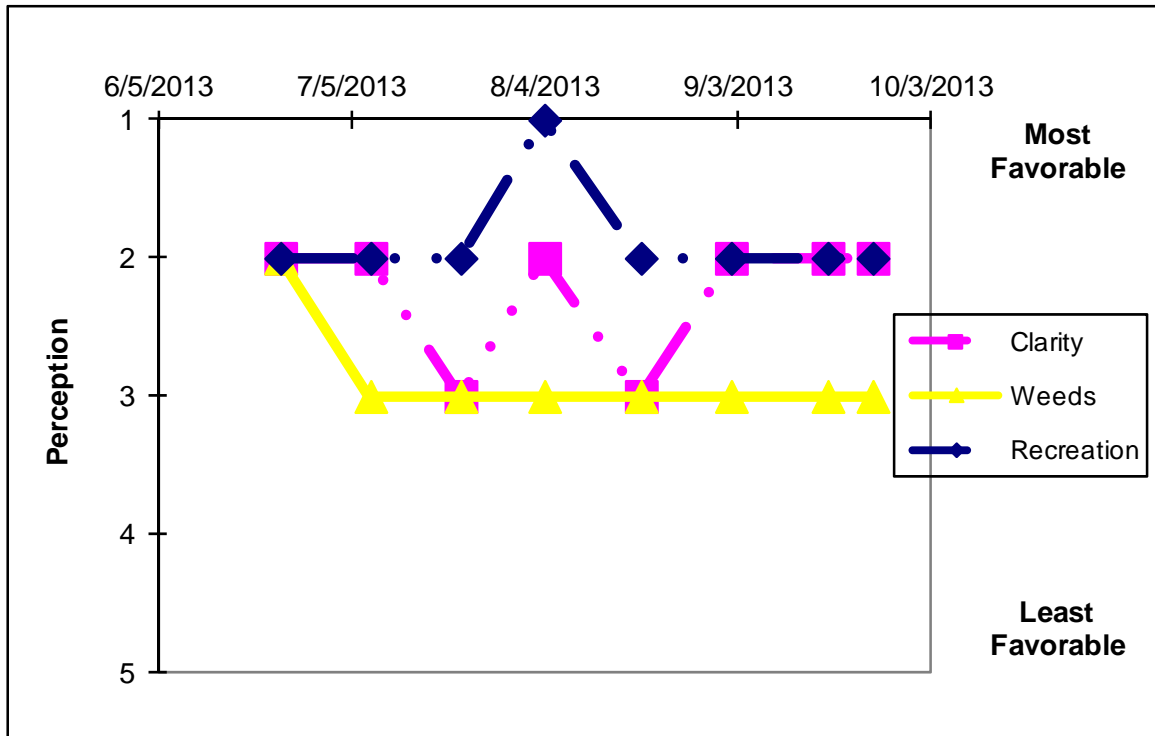
Time Series: Trophic Indicators, 2013



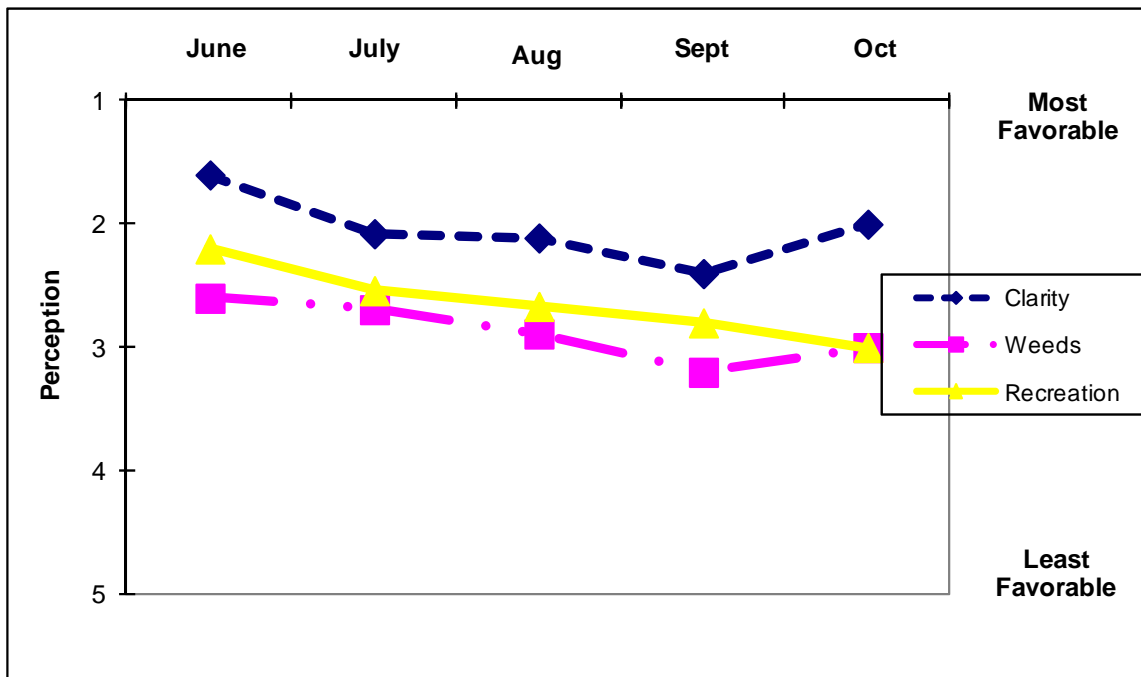
Time Series: Trophic Indicators, Typical Year (1988-2013)



Time Series: Lake Perception Indicators, 2013



Time Series: Lake Perception Indicators, Typical Year (1988-2013)



Appendix A- CSLAP Water Quality Sampling Results for Sodus Bay

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
49	Sodus B	7/15/1988	12.2	2.26	1.5	0.021	0.01				6	8.56	319		8.97
49	Sodus B	7/21/1988	11.9	1.83	1.5	0.019	0.01				2	8.38	311		11.10
49	Sodus B	7/28/1988	12.2	1.90	1.5	0.025	0.01				6	8.70	295		8.97
49	Sodus B	8/4/1988	12.0	1.60	1.5	0.024	0.01				4	8.47	277		4.51
49	Sodus B	8/11/1988	12.5	1.89	1.5	0.027	0.01				3	8.18	294		10.40
49	Sodus B	8/18/1988	11.0	1.34	1.5	0.052	0.01				7	8.30	295		20.00
49	Sodus B	8/25/1988	12.7	1.28	1.5	0.057	0.01				3	8.33	296		18.50
49	Sodus B	9/2/1988	11.9	1.60	1.5	0.038	0.01				6	8.34	298		15.60
49	Sodus B	9/8/1988	11.9	1.30	1.5	0.032	0.03					8.24	292		42.20
49	Sodus B	9/16/1988	13.1	1.31	1.5		0.01				3	8.12	292		15.30
49	Sodus B	9/22/1988	12.5	1.36	1.5	0.047	0.01				7	8.40	305		20.00
49	Sodus B	9/29/1988	12.2	1.25	1.5	0.037	0.03				7	8.30	306		17.80
49	Sodus B	10/6/1988	11.0	1.23	1.5	0.034	0.01				7	8.22	306		12.00
49	Sodus B	10/19/1988	12.5	1.43	1.5	0.030	0.01				6	8.40	308		13.90
49	Sodus B	10/27/1988	12.8	1.46	1.5	0.025	0.07				5	7.70	311		6.57
49	Sodus B	6/22/1989	13.1	2.47	1.5	0.028	0.06				6	8.11	333		6.53
49	Sodus B	7/6/1989	12.5	2.73	1.5	0.019					10	8.39	330		6.10
49	Sodus B	7/20/1989	12.8	1.84	1.5	0.031					10	8.24	310		9.63
49	Sodus B	8/3/1989	12.5	1.71	1.5	0.024	0.01				5	8.20	310		11.10
49	Sodus B	8/17/1989	12.5	1.46	1.5	0.017					5	8.36	311		9.61
49	Sodus B	8/31/1989	12.2	1.08	1.5	0.028					7	8.32	314		14.20
49	Sodus B	9/14/1989	12.2	1.37	1.5	0.025	0.01				6	8.41	314		20.40
49	Sodus B	9/28/1989	12.2	0.95	1.5	0.025					2	8.02	316		18.50
49	Sodus B	7/6/1990	12.5	2.20	1.5	0.023	0.02				8	8.23	321		14.60
49	Sodus B	7/20/1990	12.2	1.77	1.5	0.020					8	8.69	310		13.90
49	Sodus B	8/1/1990	12.2	1.30	1.5	0.029	0.01				8	8.06	297		22.60
49	Sodus B	8/16/1990	13.1	1.28	1.5	0.026	0.01				5	8.30	286		23.90
49	Sodus B	8/30/1990	12.8	1.01	1.5	0.053					4	7.91	295		33.80
49	Sodus B	9/13/1990	13.1	1.28	1.5	0.026						8.12	291		85.80
49	Sodus B	9/27/1990	12.5	1.17	1.5	0.033	0.01				8	8.12	300		38.90
49	Sodus B	7/21/1991	11.1	0.99	1.5	0.022	0.01				3	8.36	204		4.14
49	Sodus B	7/28/1991	12.2	1.59	1.5	0.024	0.01				6	8.29	264		8.28
49	Sodus B	8/4/1991	12.1	1.69	1.5	0.025	0.01				6	8.34	269		12.60
49	Sodus B	8/11/1991	12.8	1.49	1.5	0.035	0.01				6	8.35	290		13.20
49	Sodus B	8/18/1991	11.7	1.48	1.5	0.022					2	8.37	279		16.40
49	Sodus B	8/25/1991	12.7	1.33	1.5	0.038	0.01				2	8.33	286		26.70
49	Sodus B	9/8/1991	11.0	1.19	1.5	0.022					8	8.31	275		12.50
49	Sodus B	9/22/1991	12.2	1.19	1.5	0.032	0.01				7	8.29	190		2.06
49	Sodus B	6/6/2001	14.1	3.00	1.5	0.012	0.13				2	7.87	314		3.65
49	Sodus B	6/13/2001	14.1	5.45	1.5	0.011	0.08				4	7.94	312		3.26
49	Sodus B	6/26/2001	14.1	3.15	1.5	0.015	0.01				3	8.71	296		4.66
49	Sodus B	7/10/2001	14.0	3.70	1.5	0.019	0.01				3	8.25	274		5.75
49	Sodus B	7/24/2001	14.0	4.15	1.5	0.022	0.01				4	7.97	296		
49	Sodus B	8/7/2001	13.9	3.90	1.5	0.014	0.01				3	9.03	283		0.95
49	Sodus B	8/21/2001	14.0	2.05	1.5	0.024	0.01				2	8.56	282		19.40
49	Sodus B	9/12/2001	14.0	2.50	1.5	0.026	0.01				8	6.80	288		15.36
49	Sodus B	06/19/02	14.1	2.90	1.5	0.022	0.11	0.12	0.84	37.90	13	8.35	318	8.71	10.41
49	Sodus B	07/01/02		3.80	1.5	0.015	0.08	0.05	0.42	27.91	8	7.49	317		2.55
49	Sodus B	07/16/02	14.1	2.10	1.5	0.019	0.00	0.04	0.36	19.27	7	8.83	307		9.27
49	Sodus B	07/30/02	13.5	2.35	1.5	0.029	0.01	0.02	0.54	18.75	13	8.69	285		2.53
49	Sodus B	08/06/02	14.0	2.10	1.5	0.029	0.02	0.02	0.57	19.35	5	8.63	299	5.45	17.01
49	Sodus B	08/27/02	12.9	1.95	1.5	0.023			1.53	30.80	18	8.31	286		10.61
49	Sodus B	09/16/02	13.5	2.38	1.5		0.03	0.01	0.55						
49	Sodus B	09/22/02	13.5	1.60	1.5	0.039	0.04	0.06	0.50	12.91	38	8.38	282		12.65
49	Sodus B	7/1/2003		2.55	1.5	0.022	0.05	0.01	0.40	18.30	12	8.54	328	37.0	5.920
49	Sodus B	7/14/2003	14.0	2.75	1.5	0.028	0.00	0.04	0.44	15.63	17	8.66	310		7.999
49	Sodus B	7/22/2003	14.0	2.80	1.5	0.027	0.00	0.03	0.16	5.82		8.60	300		6.764
49	Sodus B	8/12/2003	14.0	2.15	1.5	0.030	0.05	0.01	0.40	13.42	3	8.93	291		29.940
49	Sodus B	9/3/2003	14.0	2.05	1.5	0.057	0.00	0.00	0.56	9.82	9	8.04	295	34.0	20.440
49	Sodus B	9/10/2003	14.0	2.75	1.5	0.048	0.03	0.01	0.75	15.61	11	8.37	300		7.897
49	Sodus B	9/24/2003		2.55	1.5	0.031	0.05	0.01	0.96	30.51	5	8.14	288		14.410

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
Skipper's Marina	Sodus B	5/14/2013													
Skipper's Marina	Sodus B	5/25/2013													
Skipper's Marina	Sodus B	5/29/2013													
Skipper's Marina	Sodus B	6/6/2013													
Skipper's Marina	Sodus B	6/12/2013													
Skipper's Marina	Sodus B	6/19/2013													
Skipper's Marina	Sodus B	6/26/2013													
Skipper's Marina	Sodus B	7/1/2013													
Skipper's Marina	Sodus B	7/10/2013													
Skipper's Marina	Sodus B	7/17/2013													
Skipper's Marina	Sodus B	7/24/2013													
Skipper's Marina	Sodus B	7/31/2013													
Skipper's Marina	Sodus B	8/7/2013													
Skipper's Marina	Sodus B	8/14/2013													
Skipper's Marina	Sodus B	8/28/2013													
Skipper's Marina	Sodus B	9/5/2013													
Sodus Creek East	Sodus B	3/20/2013													
Sodus Creek East	Sodus B	4/6/2013													
Sodus Creek East	Sodus B	4/10/2013													
Sodus Creek East	Sodus B	4/17/2013													
Sodus Creek East	Sodus B	4/24/2013													
Sodus Creek East	Sodus B	5/1/2013													
Sodus Creek East	Sodus B	5/8/2013													
Sodus Creek East	Sodus B	5/14/2013													
Sodus Creek East	Sodus B	5/25/2013													
Sodus Creek East	Sodus B	5/29/2013													
Sodus Creek East	Sodus B	6/6/2013													
Sodus Creek East	Sodus B	6/12/2013													
Sodus Creek East	Sodus B	6/19/2013													
Sodus Creek East	Sodus B	6/26/2013													
Sodus Creek East	Sodus B	7/1/2013													
Sodus Creek East	Sodus B	7/10/2013													
Sodus Creek East	Sodus B	7/17/2013													
Sodus Creek East	Sodus B	7/24/2013													
Sodus Creek East	Sodus B	7/31/2013													
Sodus Creek East	Sodus B	8/7/2013													
Sodus Creek East	Sodus B	8/22/2013													
Sodus Creek East	Sodus B	8/14/2013													
49	Sodus B	6/24/2013	13.4	2.75	1.5	0.017	0.02	0.04	0.81	106.33	19	7.96	298		5.1
49	Sodus B	7/8/2013	13.6	2.65	1.5	0.025			0.44	37.85	35	8.11	301		2.4
49	Sodus B	7/22/2013	13.4	1.40	1.5	0.027	0.01	0.01	0.38	31.52	8	8.72	287		9.0
49	Sodus B	8/4/2013	13.5	1.68	1.5	0.045			0.62	30.42	6	8.15	313		9.2
49	Sodus B	8/19/2013	12.6	1.93	1.5	0.036	0.01	0.02	0.43	26.01	10	8.43	310		23.3
49	Sodus B	9/2/2013	13.1	3.23	1.5	0.023			0.46	44.54	22	8.41	302		5.4
49	Sodus B	9/17/2013	13.2	1.95	1.5	0.044	0.02	0.20	0.53	26.68	13	7.92	315		4.0
49	Sodus B	9/24/2013	13.1	2.25	1.5	0.036			0.52	31.83	18	8.11	314		7.7
49	Sodus B	06/19/02	14.1		12.0	0.014	0.27	0.27	0.88	62.61					
49	Sodus B	07/01/02			12.0	0.011	0.20	0.09	0.61	56.79					
49	Sodus B	07/16/02	14.1		12.0	0.021	0.13	0.12	0.60	27.95					
49	Sodus B	07/30/02	13.5		12.0		0.08	0.11	0.49						
49	Sodus B	08/06/02	14.0		12.0	0.042	0.07	0.19							
49	Sodus B	08/27/02	12.9		12.0	0.050			0.77	33.61					
49	Sodus B	09/16/02	13.5		12.0		0.07	0.05	0.63						
49	Sodus B	09/22/02	13.5		12.0	0.048	0.18	0.09	0.62	12.88					
49	Sodus B	7/1/2003				0.020	0.24	0.04	0.42	20.80					
49	Sodus B	7/14/2003				0.022	0.22	0.07	0.37	17.19					
49	Sodus B	7/22/2003				0.017	0.13	0.04	0.36	20.92					
49	Sodus B	8/12/2003				0.093	0.02	0.17	0.32	3.43					
49	Sodus B	9/3/2003				0.215	0.00	0.15	0.79	3.68					
49	Sodus B	9/10/2003				0.043	0.01	0.01	0.87	20.35					
49	Sodus B	9/24/2003				0.024	0.19	0.03	0.31	13.00					
49	Sodus B	10/8/2003				0.022	0.06	0.01	0.21	9.38					
49	Sodus B	6/15/2004				0.007	0.01	0.01	0.24	34.18					
49	Sodus B	6/29/2004				0.007	0.14	0.04	0.34	47.11					

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cylin	FP-Chl	FP-BG	HAB form	Shore HAB
49	Sodus B	6/26/2001	epi	26	24															
49	Sodus B	7/10/2001	epi	28	23	2	3	3	23											
49	Sodus B	7/24/2001	epi	30	27	2	3	3	2											
49	Sodus B	8/7/2001	epi	31	28	2	3	3	2											
49	Sodus B	8/21/2001	epi	27	24	2	3	3	235											
49	Sodus B	9/12/2001	epi	24	23	5	4	4	234											
49	Sodus B	06/19/02	epi	20	20	1	2	2	68											
49	Sodus B	07/01/02	epi	30	28															
49	Sodus B	07/16/02	epi	24	25	2	3	3	2											
49	Sodus B	07/30/02	epi	26	25.8	2	3	3	25											
49	Sodus B	08/06/02	epi	23	24.7	2	3	3	2											
49	Sodus B	08/27/02	epi	21	24.0	2	3	4	235											
49	Sodus B	09/16/02	epi	21	21.5	2	3	3	2											
49	Sodus B	09/22/02	epi	25	23	3	4	4	2											
49	Sodus B	7/1/2003	epi	24	24	2	1	2												
49	Sodus B	7/14/2003	epi	27	24	2	2	3												
49	Sodus B	7/22/2003	epi	26	24	2	3	3	25											
49	Sodus B	8/12/2003	epi	27	26	2	3	3												
49	Sodus B	9/3/2003	epi	21	23	2	3	3	25											
49	Sodus B	9/10/2003		24	22	2	3	3	2											
49	Sodus B	9/24/2003	epi	21	20	2	3	3	2											
49	Sodus B	10/8/2003	epi	15																
49	Sodus B	6/15/2004	epi	24	22	1	3	2	0											
49	Sodus B	6/29/2004	epi	18	20	2	3	2	0											
49	Sodus B	7/13/2004	epi	26	24	2	3	3	5											
49	Sodus B	7/28/2004	epi	24	24	2	3	2	25											
49	Sodus B	8/10/2004	epi	26	24	2	2	2	2											
49	Sodus B	8/28/2004	epi	27	25	2	3	3	3											
49	Sodus B	9/22/2004	epi	26	23	2	3	2	2											
49	Sodus B	10/13/2004	epi	17	16	2	3	3	2											
49	Sodus B	6/27/2005	epi	29	26	2	3	3	23											
49	Sodus B	7/11/2005	epi	31	26	2	2	2	0											
49	Sodus B	7/26/2005	epi	29	27	2	3	2	2											
49	13-49-B1	7/8/2013	bloom														17.8	0.0		
49	13-49-B2	8/27/2013	bloom														13038	13038		
49	Arney's Marina	5/1/2013	shore														3.2	0.0		
49	Arney's Marina	5/8/2013	shore														4.8	0.0		
49	Arney's Marina	5/14/2013	shore														3.2	0.0		
49	Arney's Marina	5/25/2013	shore														10.7	0.0		
49	Arney's Marina	5/29/2013	shore														6.3	0.0		
49	Arney's Marina	6/6/2013	shore														6.7	0.0		
49	Arney's Marina	6/12/2013	shore														5.4	0.0		
49	Arney's Marina	6/19/2013	shore														13.4	0.0		
49	Arney's Marina	6/26/2013	shore														4.0	0.0		
49	Arney's Marina	7/1/2013	shore														5.2	1.4		
49	Arney's Marina	7/10/2013	shore														10.8	0.0		
49	Arney's Marina	7/17/2013	shore														14.2	0.0		
49	Arney's Marina	7/24/2013	shore														22.1	0.0		
49	Arney's Marina	7/31/2013	shore														7.7	0.0		
49	Arney's Marina	8/7/2013	shore														7.2	0.2		
49	Arney's Marina	8/14/2013	shore														9.0	0.0		
49	Arney's Marina	8/22/2013	shore														3.1	0.0		
49	Arney's Marina	9/5/2013	shore																	
49	Dogwood Lane	5/1/2013	shore														2.9	0.0		
49	Dogwood Lane	5/8/2013	shore														4.0	0.0		
49	Dogwood Lane	5/14/2013	shore														6.2	0.0		
49	Dogwood Lane	5/25/2013	shore														4.7	0.0		
49	Dogwood Lane	5/29/2013	shore														2.4	0.0		
49	Dogwood Lane	6/6/2013	shore														5.2	0.0		

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cylin	FP-Chl	FP-BG	HAB form	Shore HAB
49	Dogwood Lane	6/12/2013	shore														3.4	0.0		
49	Dogwood Lane	6/19/2013	shore														3.6	0.0		
49	Dogwood Lane	6/26/2013	shore														5.5	0.8		
49	Dogwood Lane	7/1/2013	shore														2.8	0.3		
49	Dogwood Lane	7/10/2013	shore														6.5	0.0		
49	Dogwood Lane	7/17/2013	shore														12.4	0.0		
49	Dogwood Lane	7/24/2013	shore														14.6	0.0		
49	Dogwood Lane	7/31/2013	shore														4.6	0.0		
49	Dogwood Lane	8/7/2013	shore														5.1	0.7		
49	Dogwood Lane	8/14/2013	shore														9.0	0.6		
49	Dogwood Lane	8/22/2013	shore														2.8	1.3		
49	Dogwood Lane	8/28/2013	shore														3.9	1.0		
49	Dogwood Lane	9/5/2013	shore																	
49	Emerald Point Road	5/1/2013	shore														2.3	0.0		
49	Emerald Point Road	5/8/2013	shore														15.8	0.0		
49	Emerald Point Road	5/14/2013	shore														6.1	0.0		
49	Emerald Point Road	5/25/2013	shore														10.8	0.0		
49	Emerald Point Road	5/29/2013	shore														4.1	0.0		
49	Emerald Point Road	6/6/2013	shore														6.0	0.0		
49	Emerald Point Road	6/12/2013	shore														7.2	0.0		
49	Emerald Point Road	6/19/2013	shore														11.8	0.0		
49	Emerald Point Road	6/26/2013	shore														3.4	0.0		
49	Emerald Point Road	7/1/2013	shore														3.2	0.3		
49	Emerald Point Road	7/10/2013	shore														10.0	0.2		
49	Emerald Point Road	7/17/2013	shore														16.5	0.0		
49	Emerald Point Road	7/24/2013	shore														16.1	0.0		
49	Emerald Point Road	7/31/2013	shore														7.0	0.0		
49	Emerald Point Road	8/7/2013	shore														9.0	0.0		
49	Emerald Point Road	8/14/2013	shore														9.1	0.0		
49	Emerald Point Road	8/22/2013	shore														3.4	0.0		
49	Emerald Point Road	9/5/2013	shore																	
49	Katlynn Marina	5/1/2013	shore														2.3	0.0		
49	Katlynn Marina	5/8/2013	shore														5.4	0.0		
49	Katlynn Marina	5/14/2013	shore														6.8	0.0		
49	Katlynn Marina	5/25/2013	shore														5.5	0.0		
49	Katlynn Marina	5/29/2013	shore														3.1	0.0		
49	Katlynn Marina	6/6/2013	shore														6.4	0.0		
49	Katlynn Marina	6/12/2013	shore														0.9	0.0		
49	Katlynn Marina	6/19/2013	shore														2.6	0.1		
49	Katlynn Marina	6/26/2013	shore														6.5	0.1		
49	Katlynn Marina	7/1/2013	shore														2.4	0.0		
49	Katlynn Marina	7/10/2013	shore														9.6	0.1		
49	Katlynn Marina	7/17/2013	shore														22.1	0.0		
49	Katlynn Marina	7/24/2013	shore														14.8	0.0		
49	Katlynn Marina	7/31/2013	shore														10.4	2.7		
49	Katlynn Marina	8/7/2013	shore														6.7	0.0		
49	Katlynn Marina	8/14/2013	shore														5.9	0.0		
49	Katlynn Marina	8/22/2013	shore														4.7	0.0		
49	Katlynn Marina	8/28/2013	shore														9.7	0.0		
49	Katlynn Marina	9/5/2013	shore																	
49	NE LeRoy Island	8/27/2013	shore														1372.5	1372.5		
49	Oak Park Marina	5/1/2013	shore														4.5	0.0		
49	Oak Park Marina	5/8/2013	shore														4.0	0.0		
49	Oak Park Marina	5/14/2013	shore														4.7	0.0		
49	Oak Park Marina	5/25/2013	shore														7.6	0.0		
49	Oak Park Marina	5/29/2013	shore														3.7	0.0		
49	Oak Park Marina	6/6/2013	shore														6.7	0.0		
49	Oak Park Marina	6/12/2013	shore														7.2	0.0		
49	Oak Park Marina	6/19/2013	shore														5.5	0.2		

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cylin	FP-Chl	FP-BG	HAB form	Shore HAB
49	Oak Park Marina	6/26/2013	shore														12.3	4.3		
49	Oak Park Marina	7/1/2013	shore														24.1	0.0		
49	Oak Park Marina	7/10/2013	shore														8.9	0.0		
49	Oak Park Marina	7/17/2013	shore														10.5	0.0		
49	Oak Park Marina	7/24/2013	shore														25.7	0.0		
49	Oak Park Marina	7/31/2013	shore														10.0	0.4		
49	Oak Park Marina	8/7/2013	shore														8.8	0.8		
49	Oak Park Marina	8/14/2013	shore														14.8	0.7		
49	Oak Park Marina	8/28/2013	shore														15.0	2.3		
49	Oak Park Marina	9/5/2013	shore																	
49	Public Beach Pier	5/1/2013	shore														2.3	0.0		
49	Public Beach Pier	5/8/2013	shore														3.8	0.0		
49	Public Beach Pier	5/14/2013	shore														4.5	0.0		
49	Public Beach Pier	5/25/2013	shore														3.5	0.0		
49	Public Beach Pier	5/29/2013	shore														3.4	0.0		
49	Public Beach Pier	6/6/2013	shore														5.1	0.0		
49	Public Beach Pier	6/12/2013	shore														5.5	0.0		
49	Public Beach Pier	6/19/2013	shore														8.2	0.0		
49	Public Beach Pier	6/26/2013	shore														4.9	0.0		
49	Public Beach Pier	7/1/2013	shore														4.9	0.0		
49	Public Beach Pier	7/10/2013	shore														8.7	0.0		
49	Public Beach Pier	7/17/2013	shore														14.3	0.0		
49	Public Beach Pier	7/24/2013	shore														9.4	0.0		
49	Public Beach Pier	7/31/2013	shore														5.5	0.2		
49	Public Beach Pier	8/7/2013	shore														5.6	0.6		
49	Public Beach Pier	8/14/2013	shore														5.0	0.0		
49	Public Beach Pier	8/22/2013	shore														2.1	0.2		
49	Public Beach Pier	8/28/2013	shore														1.8	0.2		
49	Public Beach Pier	9/5/2013	shore																	
49	Skipper's Marina	5/1/2013	shore														4.3	0.0		
49	Skipper's Marina	5/8/2013	shore														3.8	0.0		
49	Skipper's Marina	5/14/2013	shore														7.0	0.0		
49	Skipper's Marina	5/25/2013	shore														6.4	0.0		
49	Skipper's Marina	5/29/2013	shore														3.4	0.0		
49	Skipper's Marina	6/6/2013	shore														6.5	0.1		
49	Skipper's Marina	6/12/2013	shore														5.1	0.0		
49	Skipper's Marina	6/19/2013	shore														1.5	0.0		
49	Skipper's Marina	6/26/2013	shore														2.5	0.9		
49	Skipper's Marina	7/1/2013	shore														1.1	0.3		
49	Skipper's Marina	7/10/2013	shore														2.6	0.3		
49	Skipper's Marina	7/17/2013	shore														7.9	0.0		
49	Skipper's Marina	7/24/2013	shore														8.8	0.0		
49	Skipper's Marina	7/31/2013	shore														2.8	0.4		
49	Skipper's Marina	8/7/2013	shore														4.2	0.6		
49	Skipper's Marina	8/14/2013	shore														8.9	4.8		
49	Skipper's Marina	8/28/2013	shore														3.7	0.8		
49	Skipper's Marina	9/5/2013	shore																	
49	Sodus Creek East	3/20/2013	shore														5.6	0.0		
49	Sodus Creek East	4/6/2013	shore														2.0	0.0		
49	Sodus Creek East	4/10/2013	shore														4.6	0.2		
49	Sodus Creek East	4/17/2013	shore														12.0	0.0		
49	Sodus Creek East	4/24/2013	shore														1.2	0.0		
49	Sodus Creek East	5/1/2013	shore														0.9	0.0		
49	Sodus Creek East	5/8/2013	shore														0.7	0.0		
49	Sodus Creek East	5/14/2013	shore														0.8	0.0		
49	Sodus Creek East	5/25/2013	shore														1.5	0.0		
49	Sodus Creek East	5/29/2013	shore														7.7	1.4		
49	Sodus Creek East	6/6/2013	shore														3.5	0.4		
49	Sodus Creek East	6/12/2013	shore														3.1	0.0		

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 to 0.6 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- Monthly Evaluation of Sodus Bay, 2006-2013

June Data

	2006	2007	2008	2009	2010	2011	2012	2013
Zsd								NORMAL
TP								NORMAL
Chl.a								NORMAL
NOx								NORMAL
NH4								NORMAL
TN								NORMAL
pH								NORMAL
SpCond								NORMAL
Color								NORMAL
Ca								
QA								NORMAL
QB								NORMAL
QC								NORMAL
TH20								NORMAL

High = average monthly reading > 90th percentile reading for lake, 2000-2010

Low = average monthly reading < 10th percentile reading for lake, 2000-2010

Normal = average monthly reading between 10th and 90th percentile reading for lake, 2000-2010

July Data

	2006	2007	2008	2009	2010	2011	2012	2013
Zsd								LOW
TP								NORMAL
Chl.a								NORMAL
NOx								
NH4								
TN								NORMAL
pH								NORMAL
SpCond								NORMAL
Color								NORMAL
Ca								
QA								HIGH
QB								NORMAL
QC								NORMAL
TH20								NORMAL

High = average monthly reading > 90th percentile reading for lake, 2000-2010

Low = average monthly reading < 10th percentile reading for lake, 2000-2010

Normal = average monthly reading between 10th and 90th percentile reading for lake, 2000-2010

August Data

	2006	2007	2008	2009	2010	2011	2012	2013
Zsd								LOW
TP								HIGH
Chl.a								NORMAL
NOx								
NH4								NORMAL
TN								NORMAL
pH								NORMAL
SpCond								NORMAL
Color								NORMAL
Ca								
QA								HIGH
QB								NORMAL
QC								LOW
TH20								NORMAL

High = average monthly reading > 90th percentile reading for lake, 2000-2010

Low = average monthly reading < 10th percentile reading for lake, 2000-2010

Normal = average monthly reading between 10th and 90th percentile reading for lake, 2000-2010

September Data

	2006	2007	2008	2009	2010	2011	2012	2013
Zsd								NORMAL
TP								HIGH
Chl.a								NORMAL
NOx								NORMAL
NH4								HIGH
TN								NORMAL
pH								NORMAL
SpCond								NORMAL
Color								NORMAL
Ca								
QA								NORMAL
QB								NORMAL
QC								NORMAL
TH20								NORMAL

High = average monthly reading > 90th percentile reading for lake, 2000-2010

Low = average monthly reading < 10th percentile reading for lake, 2000-2010

Normal = average monthly reading between 10th and 90th percentile reading for lake, 2000-2010

Appendix C: Priority Waterbody Listing for Sodus Bay

Sodus Bay (0302-0020)

MinorImpacts

Waterbody Location Information

Revised: 05/16/2007

Water Index No:	Ont 84/P96	Drain Basin:	Lake Ontario
Hydro Unit Code:	04140101/050	Str Class:	B
Waterbody Type:	Lake	Reg/County:	Irondequoit/Ninemile
Waterbody Size:	3356.9 Acres	Quad Map:	8/Wayne Co. (59)
Seg Description:	entire bay		SODUS POINT (H-13-4)

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

Use(s) Impacted	Severity	Problem Documentation
Public Bathing	Stressed	Possible
Fish Consumption	Stressed	Known
Recreation	Stressed	Suspected

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH, PRIORITY ORGANICS (PCBs, dioxin), PESTICIDES (mirex), PROBLEM SPECIES (Eurasian milfoil)
Suspected: - - -
Possible: Silt/Sediment

Source(s) of Pollutant(s)

Known: HABITAT MODIFICATION
Suspected: Other Source (migratory fish species), Tox/Contam. Sediment
Possible: Agriculture

Resolution/Management Information

Issue Resolvability:	1 (Needs Verification/Study (see STATUS))	
Verification Status:	4 (Source Identified, Strategy Needed)	
Lead Agency/Office:	ext/WQCC	Resolution Potential: Medium
TMDL/303d Status:	n/a	

Further Details

Recreational uses in Sodus Bay are thought to experience minor impacts/threats due to invasive and other aquatic weed growth. Fish consumption is also restricted as a result of a health advisory for Lake Ontario that extends to tribes up to the first impassable barrier.

Sodus Bay has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 1988 through 1991 and again from 2001 continuing through the present. An Interpretive Summary report of the findings of this sampling was published in 2006. These data indicate that the bay continues to be best characterized as mesotrophic, or moderately productive. These current conditions represent an improvement relative to readings from the late 1980s to early 1990s. Improved conditions have been recorded since 2001 when CSLAP sampling resumed on the bay, but may have dated back to closer to 1991, when CSLAP monitoring was ceased. With at least five years of data indicating lower productivity, it is reasonable to assume that this now represents the normal state of Sodus Bay. The bay becomes more productive (lower clarity, higher nutrient and algae levels) as the summer progresses, suggesting that the

nutrient-enriched deepwaters may mix with the surface waters during the summer and after fall turnover, occasionally triggering greater algae growth. Phosphorus levels in the bay rarely (only once in the past two years) exceed the state guidance values indicating impacted/stressed recreational uses. This is in contrast to sampling from 1988 through 1991 when exceedences were found in 90% of samples collected. Higher clarity and fewer algal blooms have also accompanied that changes over the last five years. The relative contributions from zebra mussels in the bay and from active management in the watershed are not yet known. Measurements of pH typically fall within the state water quality range of 6.5 to 8.5; occasional high readings are not thought to have any ecological impacts. (DEC/DOW, BWAM/CSLAP, March 2006)

Public perception of the bay and its uses are also evaluated as part of the CSLAP program. This assessment indicates recreational suitability of the bay to be generally favorable. The recreational suitability of the bay described as "excellent" to "slightly impacted." The bay itself is most often described as "not quite crystal clear." The recreational assessment is mostly consistent with bay conditions but slightly lower than for other similar lakes/bays. The reduced perception of the bay is likely related to aquatic plant growth. Assessments have noted that aquatic plants regularly grow to the surface. Since 1990 when aquatic plants were dominated by native species, invasive exotic plants (Eurasian water milfoil) have been found in the lake, and have increased in density and coverage since its introduction. Perhaps not coincidentally, "excessive weed growth" has been more frequently cited as impacting water quality and recreational uses. (DEC/DOW, BWAM/CSLAP, Marc 2006)

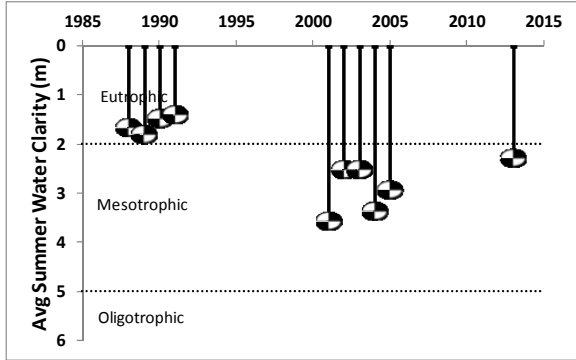
This waterbody is designated class B, suitable for use as a public bathing beach, general recreation and aquatic life support, but not as a water supply. Water quality monitoring by NYSDEC focuses primarily on support of general recreation and aquatic life. Samples to evaluate the bacteriological condition and bathing use of the lake/bay 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.

Fish consumption advisories for Lake Ontario (and all tribs to the first barrier) also applies to this tributary water. A NYSDOH health advisory recommends eating no American eel, channel catfish, carp, chinook salmon, larger lake trout (over 25") or larger brown trout (over 20"). The advisory also recommends that consumption of white sucker, rainbow trout, smaller lake and brown trout, and larger coho salmon (over 25") be limited to no more than one meal per month. White perch is limited to one meal per month East of Point Breeze, and eat none west of the point. The fish consumption advisories are a result of PCB, mirex and dioxin contamination of lake sediments. (2006-07 NYS-DOH Health Advisories)

Appendix D- Long Term Trends: Sodus Bay

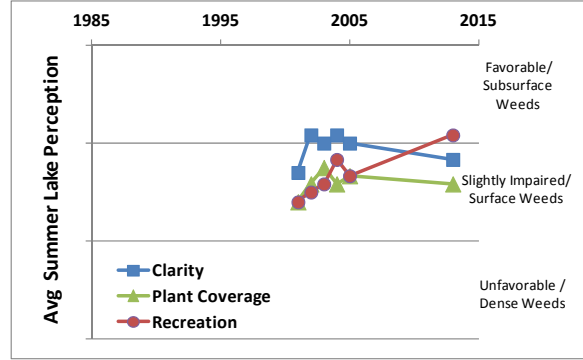
Long Term Trends: Water Clarity

- Increasing? Readings higher in recent years
- Most readings typical of *mesoeutrophic* lakes, consistent with algae and TP levels



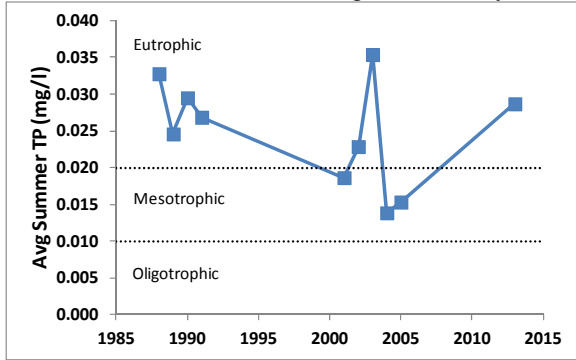
Long Term Trends: Lake Perception

- No clear trends; recreation better in 2013
- Recreational perception probably linked to changes in water quality and weeds



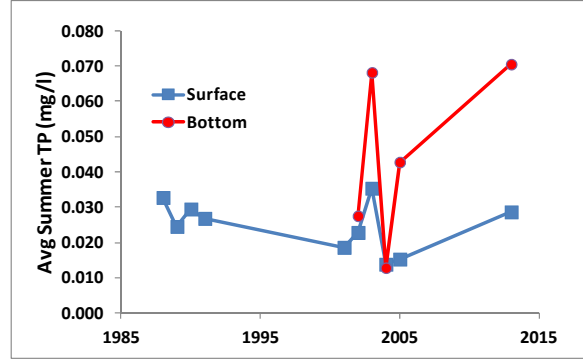
Long Term Trends: Phosphorus

- No trends apparent; higher variable
- Most readings typical of *mesoeutrophic* lakes, consistent with algae and clarity



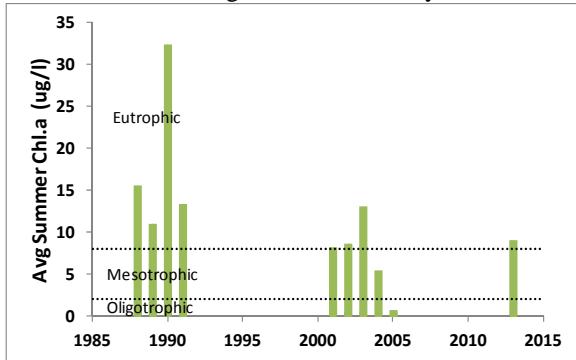
Long Term Trends: Bottom Phosphorus

- Deepwater TP at times higher than surface
- Elevated deepwater TP may indicate internal nutrient cycling from bottom sediments



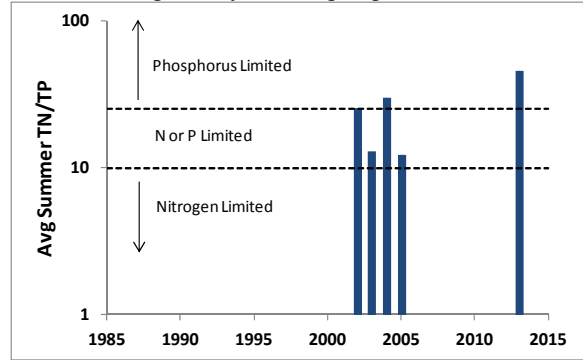
Long Term Trends: Chlorophyll a

- Lower in recent years; may be part of trend
- Most readings typical of *mesoeutrophic* lakes, in range of TP and clarity levels



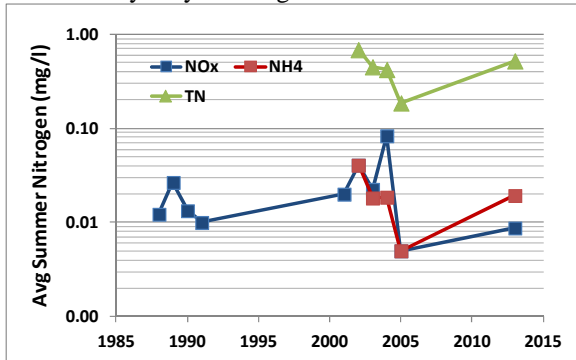
Long Term Trends: N:P Ratio

- No trends apparent
- Most readings indicate phosphorus or nitrogen may limit algae growth



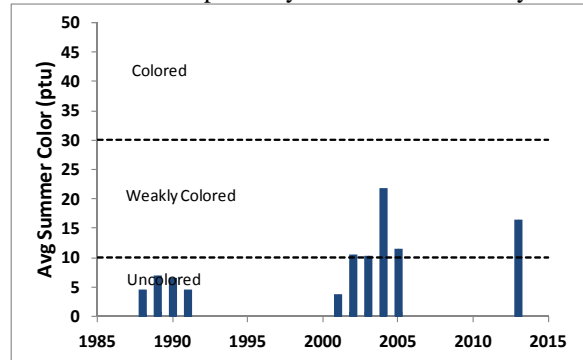
Long Term Trends: Nitrogen

- No clear trends in nitrogen readings
- Overall nitrogen levels at times low, and may vary with algae levels



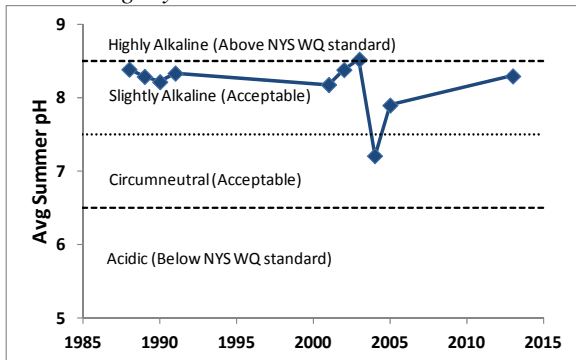
Long Term Trends: Color

- Slightly higher since 2002 lab change?
- Color readings indicative of *weakly colored* lakes but probably little effect on clarity



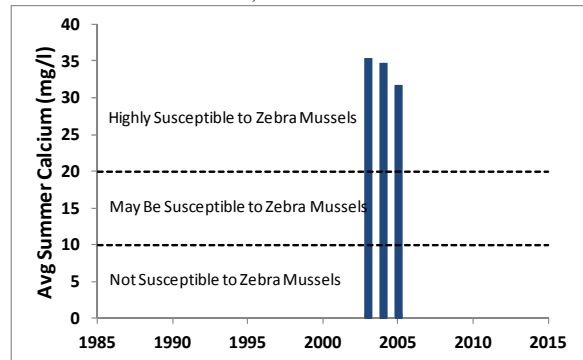
Long Term Trends: pH

- No clear trends
- Usually stable pH readings indicative of *slightly alkaline* conditions



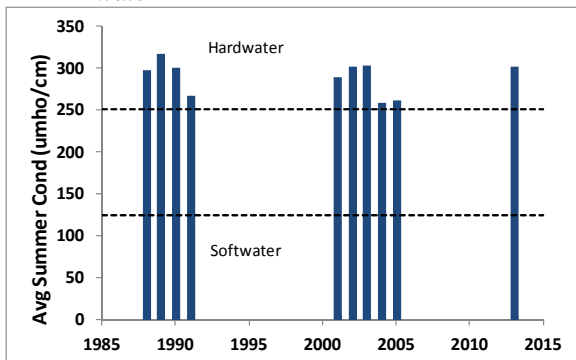
Long Term Trends: Calcium

- No 2013 data
- Readings indicate high susceptibility to zebra mussels, which are found in lake



Long Term Trends: Conductivity

- No trends apparent
- Most readings typical of lakes with *soft water*



Long Term Trends: Water Temperature

- No trends apparent
- No deepwater temperature data; likely similar to surface T in most shallow lakes

