



Volunteer Lake Assessment Program Individual Lake Reports

EASTMAN POND, GRANTHAM, NH

MORPHOMETRIC DATA

TROPIC CLASSIFICATION

KNOWN EXOTIC SPECIES

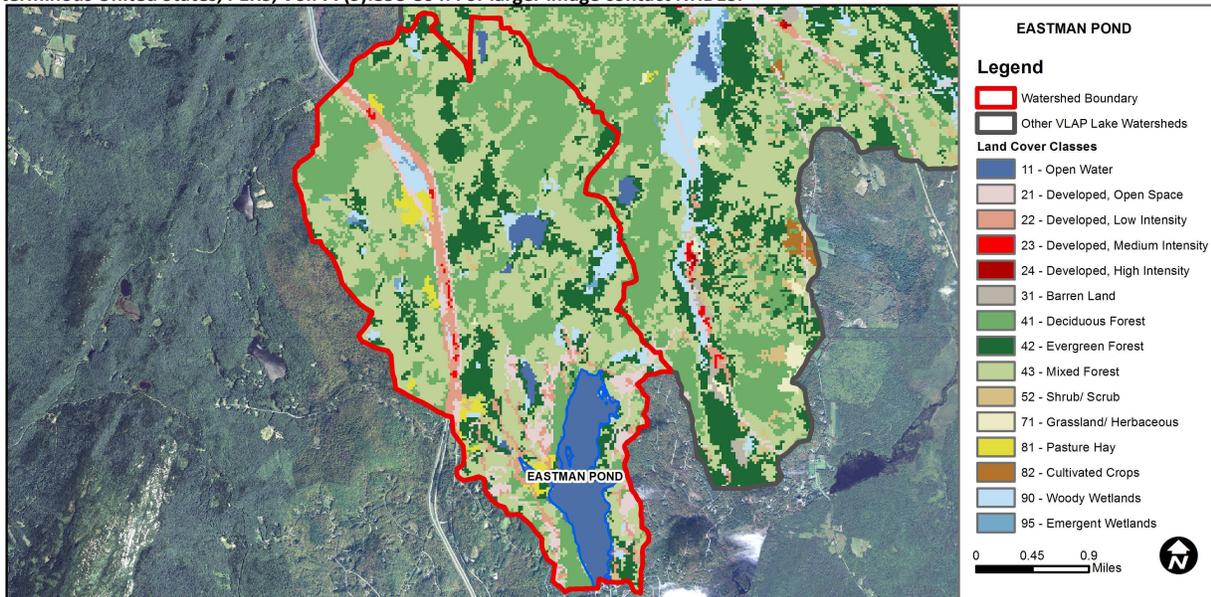
Watershed Area (Ac.):	4,907	Max. Depth (m):	9.2	Flushing Rate (yr ⁻¹):	2.1	Year	Trophic class	
Surface Area (Ac.):	335	Mean Depth (m):	3	P Retention Coef:	0.61	1999	MESOTROPIC	
Shore Length (m):	4,000	Volume (m ³):	4,066,500	Elevation (ft):	1095	2009	MESOTROPIC	

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	7.93	Barren Land	0.03	Grassland/Herbaceous	0.07
Developed-Open Space	5.02	Deciduous Forest	25.34	Pasture Hay	1.85
Developed-Low Intensity	4.45	Evergreen Forest	13.13	Cultivated Crops	0.01
Developed-Medium Intensity	0.22	Mixed Forest	37.64	Woody Wetlands	3
Developed-High Intensity	0	Shrub-Scrub	1.01	Emergent Wetlands	0.28



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

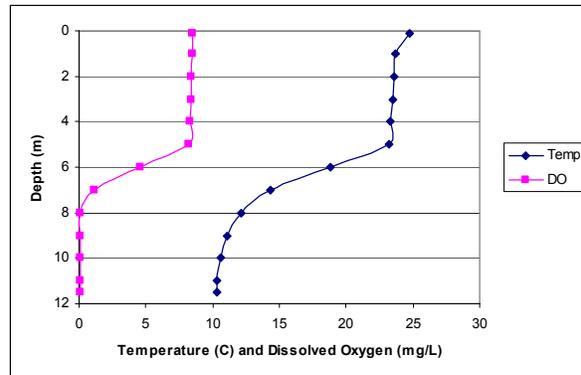
EASTMAN POND, GRANTHAM, NH

2012 DATA SUMMARY

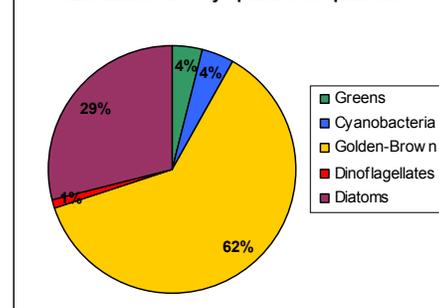
OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1, 2 and Historical Deep Spot Data Graphic)

- ♣ **CHLOROPHYLL-A:** Chlorophyll decreased to normal levels after a spike in 2011. Historical trend analysis indicates a significantly improving (decreasing) chlorophyll level since monitoring began. We hope to see this continue!
- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride levels continue to be elevated. Additional monitoring has revealed natural contributions to elevated conductivity as well. However, chloride at several stations is high, and exceeds the state standard for chronic contamination in Tamari Brook.
- ♣ **E. COLI:** Average E. coli were levels relatively low. One sample at S. Cove Inner Harbor Beach exceeded the state standard in July, however subsequent sampling revealed levels had decreased.
- ♣ **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low in 2012 possibly due to lack of tributary flow and stormwater runoff. Tributary phosphorus levels were average in 2012. Stoney Bk. at Robin Ln. experienced elevated phosphorus in September likely due to sediment/organic material in the sample.
- ♣ **TRANSPARENCY:** Lake transparency increased slightly in 2012 and historical trend analysis indicates transparency tends to fluctuate from year to year.
- ♣ **TURBIDITY:** Turbidity was elevated in the hypolimnion (lower water layer), Mill Pond Bk., Stoney Bk. at Robin Ln., Stoney Bk. and Tamari Bk. in 2012. Low tributary flow likely contributed to elevated turbidity.
- ♣ **pH:** pH decreased to undesirable levels in the metalimnion (middle water layer) and hypolimnion (lower water layer) and is low in Northeast and Stroing Brooks.
- ♣ **RECOMMENDED ACTIONS:** Continue chloride monitoring at tributaries and deep spot to identify chronic chloride problems. Identify any potential impact from water softener systems. Continue education/outreach on salt application in the watershed. Identify potential residential stormwater loading issues and utilize DES' "Homeowner's Guide to Stormwater Management" to reduce stormwater runoff.

Dissolved Oxygen & Temperature Profile



Eastman Pond Phytoplankton Population



Station Name	Table 1. 2012 Average Water Quality Data for EASTMAN POND								
	Alk. mg/l	Chlor-a ug/l	Cl- mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m	Turb. ntu	pH
Eastman Brook Outlet			42	185.4	39	9	NVS VS	1.37	6.85
Epilimnion	11.8	3.2	37	165.4		8	3.09 3.33	1.28	6.75
Hypolimnion				168.6		11		4.39	6.36
Metalimnion			34	161.1		8		1.3	6.28
Mill Pond Brook			84	283.0		12		3.64	6.9
Northeast Brook			51	300.0		19		0.79	5.91
Stoney Bk At Robin Lane			52	361.3		21		2.18	6.93
Stoney Brook			92	530.0		9		3.14	7.04
Stroing Brook			16	115.8		16		0.91	6.13
Tamari Brook			310	828.0		5		2.71	6.78

Table 2. 2012 Avg. Cl- & EC Data for Select Stns.

Station Name	Cl- mg/l	E. Coli #/100ml
Anderson Pond	5	
East Cove Beach		0
East Lake Beach		1
North Cove Beach		3
North Cove East Brook	110	
North Cove West Brook	170	
Northeast Brook Upstream	24	
S Cover Inner Harbor Bch		32
South Cove		10
South Cove Beach		2
West Cove A Beach		0
West Cove B Beach		2
West Cove C Lagoon	39	

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

- Chloride:** < 230 mg/L (chronic)
- E. coli:** > 88 cts/100 mL – public beach
- E. coli:** > 406 cts/100 mL – surface waters
- Turbidity:** > 10 NTU above natural level
- pH:** 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

- Alkalinity:** 4.9 mg/L
- Chlorophyll-a:** 4.58 mg/m³
- Conductivity:** 40.0 uS/cm
- Chloride:** 4 mg/L
- Total Phosphorus:** 12 ug/L
- Transparency:** 3.2 m
- pH:** 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Improving	Data significantly decreasing.
Transparency	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:
 Sara Steiner
 PO Box 95
 Concord, NH 03302-0095
 (603) 271-2658
 sara.steiner@des.nh.gov



**Historical Deep Spot
Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data**

