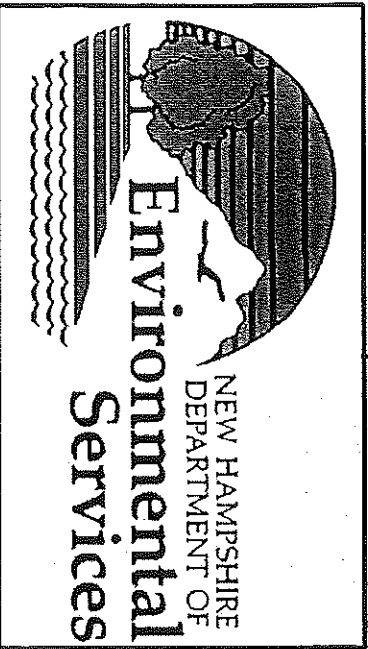
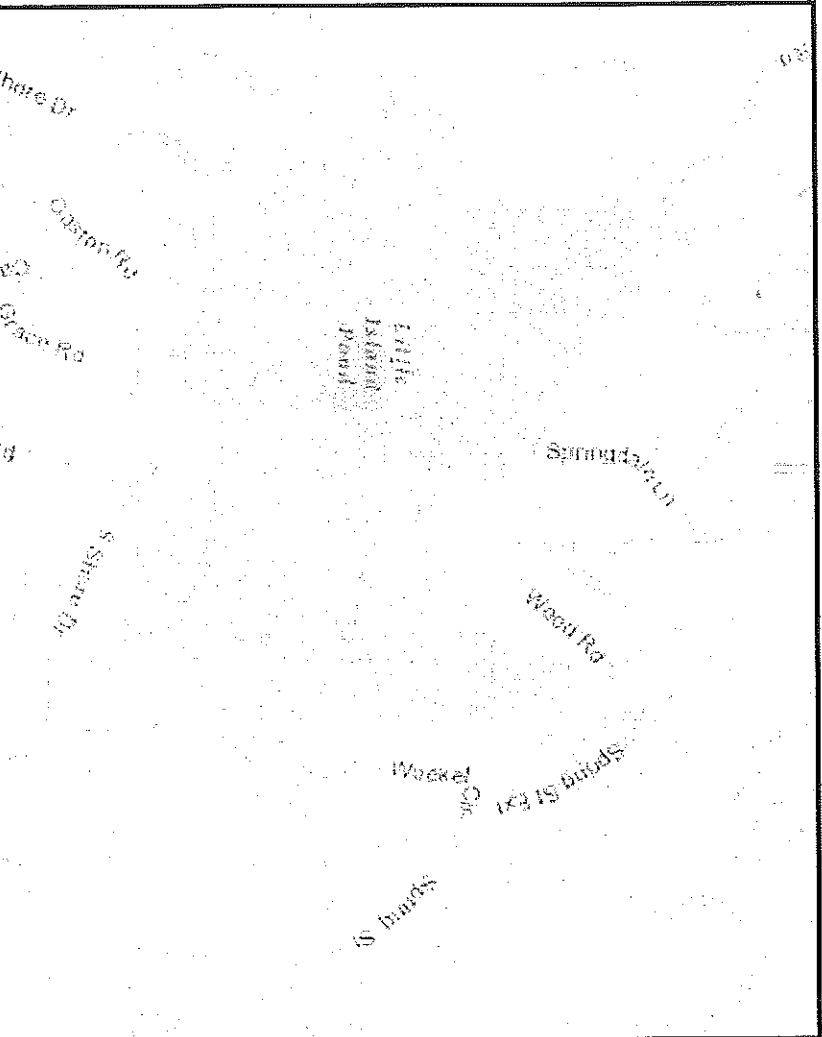
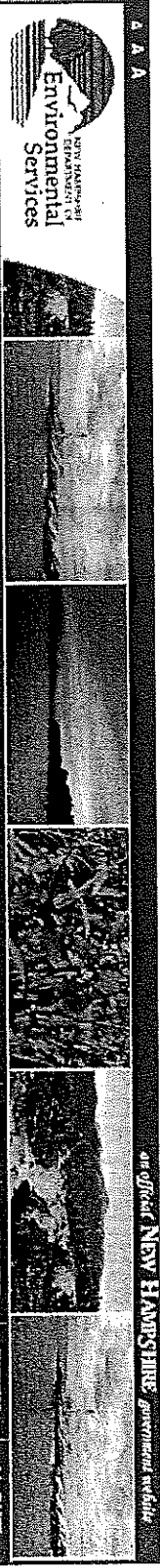


Little Island Pond, Pelham, NH



David Neils
Director, Jody Connor Limnology
Center
david.neils@des.nh.gov
(603) 271-8865

<http://des.nh.gov/onestop/gis.htm>



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DES Home > [OneStop Data and Information](#) >
GIS at NHDES

Welcome to the New Hampshire Department of Environmental Services' gateway to GIS (geographic) data. Easy access to quality geographic data and mapping tools is supported by the efforts of NHDES staff and the NHDES GIS Team.

GIS data is available for viewing and download in the new [OneStop Data Mapper](#), developed and hosted by NHDES and [NH GRANT](#). Please [click here](#) for a list of GIS data available. Additional data may be available by contacting [NHDES GIS at \[des@des.nh.gov\]\(mailto:gis@des.nh.gov\)](#).

[View GIS Maps](#)
 The NHDES OneStop Data Mapper displays OneStop data in a single, easy-to-use mapping tool.



[NHDES OneStop Data Mapper](#)

Additional NHDES GIS data can be viewed in program-specific interactive maps:
[NHDES AKGIS Online Maps](#)

- 2014 Surface Water Quality Assessment Viewer
- 2012 Surface Water Quality Assessment Viewer
- NHDES Designated Rivers Web Map
- NHDES Lake Information Mapper
- Priority Project Areas: NHDES Watershed Assistance Grants
- Seal Bay Estuary Sediment
- NHDES Alteration of Terrain (Data)

[Beach Advisories](#)
[Large Groundwater Withdrawal Permit Monitoring](#)

Related GIS Links

- [NH GRANT](#) - Hosts New Hampshire GIS data and interactive maps.
- [NH Coastal Viewer](#) - A map showing resources and hazards in New Hampshire's coastal watersheds.
- [OneStop Data Mapper User Guide](#)
- [OneStop Data Mapper FAQs](#)
- [OneStop Data Mapper Tools Quick List](#)

Contact NHDES GIS
 For GIS assistance, please email gis@des.nh.gov or call (603) 271-2972.

Lake
 Information
 Mapper

search this site

- DES Department**
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 - > Air Resources Division
 - > Waste Management Div.
 - > Water Division
 - > Boards and Committees

- Quick Links**
- > Administrative Rules
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 - > Certification/Training
 - > Directions to DES
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 - > Emergency Phone #s
 - > Employment Opportunities
 - > File Review
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 - > Geographic Information
 - > Grants/Loans
 - > Laboratory Services
 - > Lake Level Data
 - > Legislative Activity
 - > Permits
 - > Publications/Fact Sheets
 - > Public Info/Help
 - > Requests for Proposals
 - > Telephone Directory

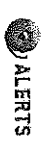
- How Do I...**
- > become a volunteer?
 - > get my water tested?
 - > lodge a complaint?
 - > report a hazardous spill?
 - > report a violation?
 - > reduce air pollution?



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 Drinking Water Advisory



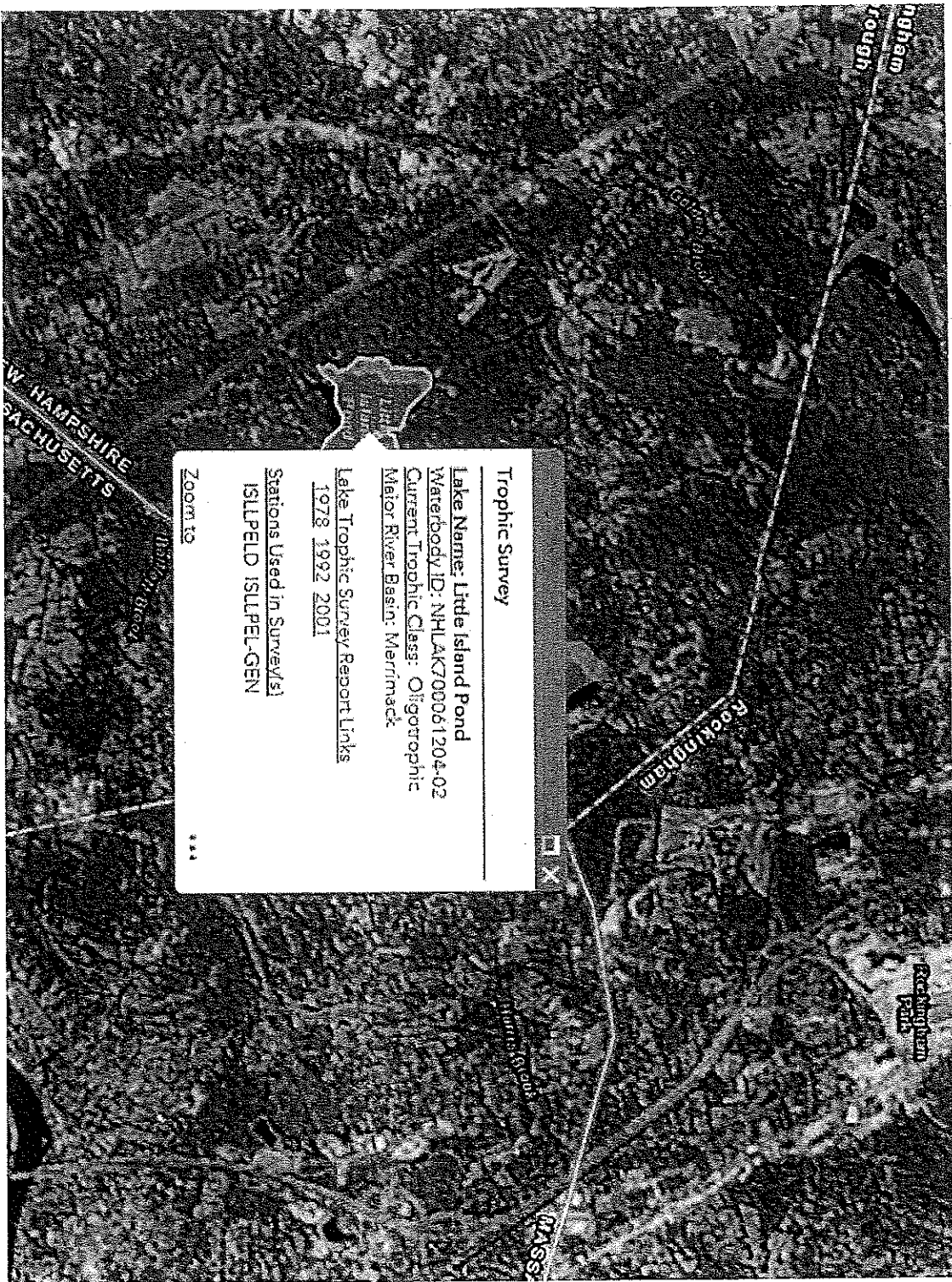
Lake Information Mapper

This interactive map allows the user to access water quality information of individual waterbodies around New Hampshire. By zooming in and clicking on a waterbody of interest, the user has access to historic and current Lake Trophic Survey reports, the most recent Volunteer Lake Assessment Program (VLAP) reports, and information on known invasive aquatic species.

For additional information, contact Kristen Nelson or dial (603) 271-1152.



OK



Trophic Survey

Lake Name: Little Island Pond

Waterbody ID: NHLAK700061204-02

Current Trophic Class: Oligotrophic

Major River Basin: Merrimack

Lake Trophic Survey Report Links

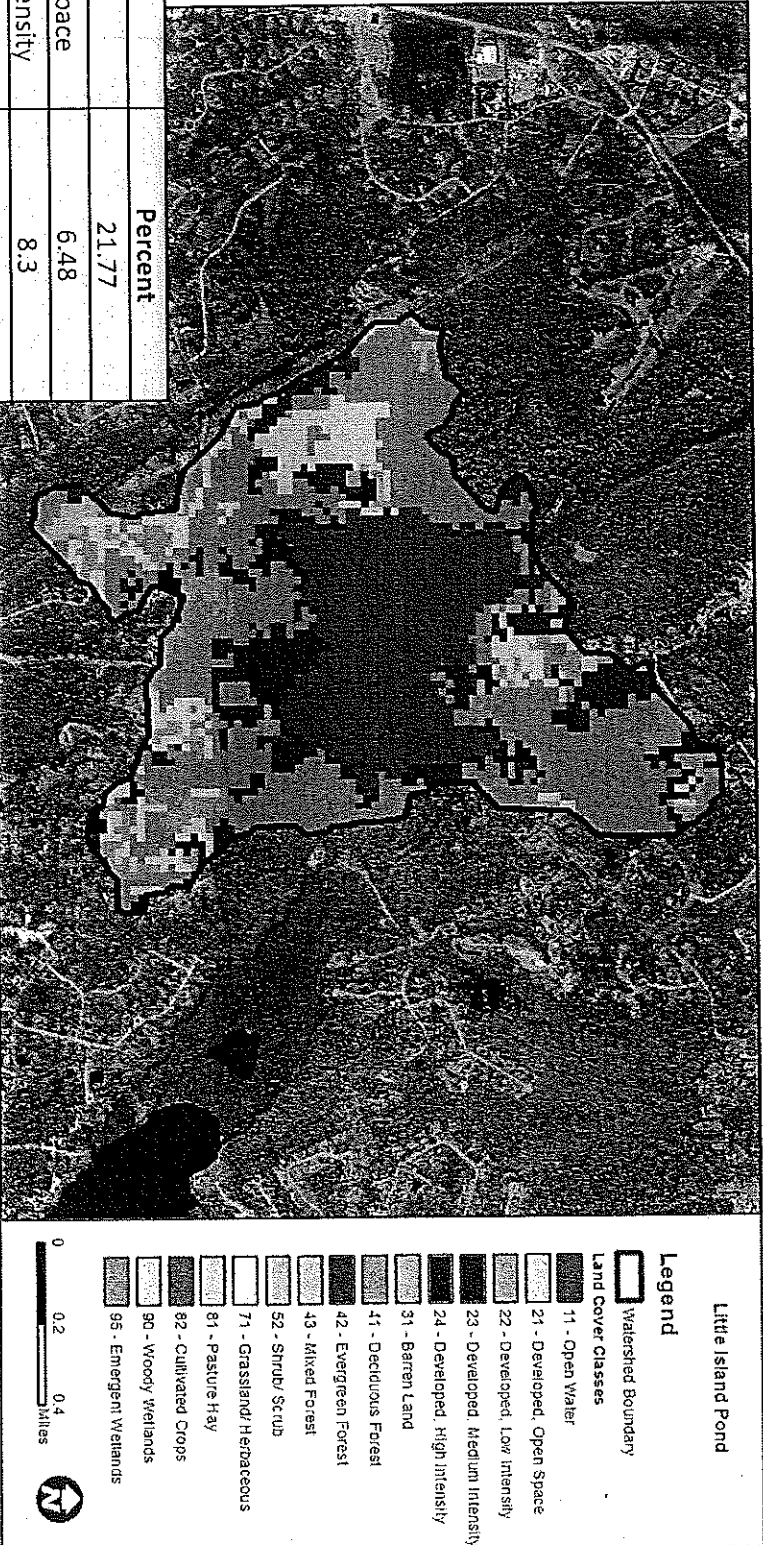
1978 1992 2001

Stations Used in Survey(s)

ISLPELD ISLPEL-GEN

Zoom to

Little Island Pond Watershed Landuse



Category	Percent
Open Water	21.77
Developed, Open Space	6.48
Developed, Low Intensity	8.3
Developed, Medium Intensity	1.82
Deciduous Forest	39.51
Evergreen Forest	16.29
Mixed Forest	0.7
Shrub/Scrub	0.84
Pasture Hay	0.2
Wood Wetlands	3.83
Emergent Wetlands	0.47

Basic Lake Characters

Lake Area	63 ha (156 ac)
Maximum Depth	16 m (52 ft)
Mean Depth	5 m (16 ft)
Flushing Rate	0.40 x / yr
Lake Type	Natural raised by dam
Years Sampled	1978, 1992, 2001 (LTSP), 2007 (VLAP)
Classification	Oligotrophic
Public Boat Access	None
Beaches	Camp Runels (private)
Invasive Plants	None known

Important Water Quality Indicators

Parameter	NHDES benchmark	L. Island Pond (2007)
Chlorophyll a	3.3 ug/L	6.29
Total Phosphorus	8 ug/L	11 ug/L
Dissolved Oxygen	>75% Sat., 5 mg/L	97.6%, 8.50 mg/L
pH	>6.5 - <8.0	6.37
Sp. Conductivity	None	133 umhos

Last Sampled in 2007 as part of VLAP

Volunteer Opportunities

VLAP – Volunteers collect water samples monthly and submit them to DES for analysis. Standard water quality measures include pH, dissolved oxygen, secchi disc, specific conductivity, total phosphorus (\$).

- Basic water sampling equipment provided
- 175 lakes/pond have current active groups
- Annual reports are generated

Weedwatchers – Volunteers complete monthly surveys of aquatic vegetation.

Training is provided by DES staff on how to identify plants and conduct surveys.


- Minimal equipment required
- Samples can be submitted to DES for identification
- No annual report but is efficient method for early detection

NH DES Fact Sheets

<http://des.nh.gov/organization/commissioner/pip/factsheets/bb/index.htm>

[Office of the Commissioner > Programs/Bureaus/Units > Public Information and Permitting Unit > Fact Sheets >](#)

Lake Biology Fact Sheets

All documents have been saved in Adobe Acrobat Reader  format.

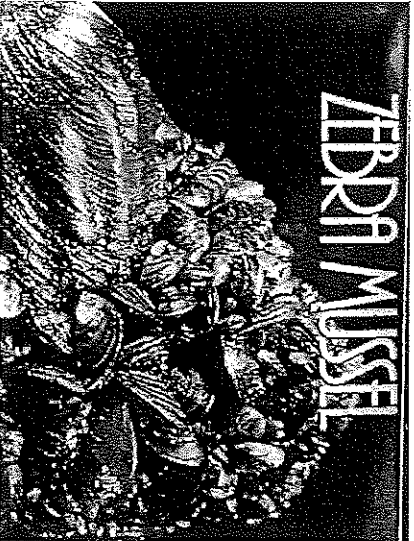
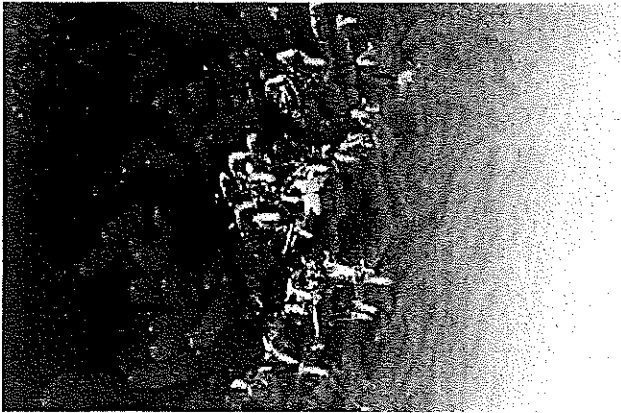
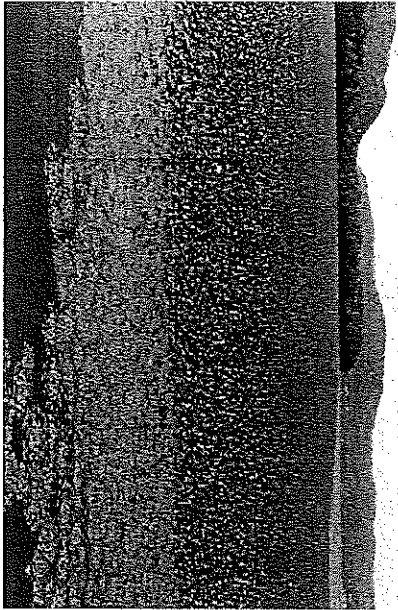
- ❑ [WD-88-1 Water Milfoil](#)
- ❑ [WD-88-2 Swimmers' Itch](#)
- ❑ [WD-88-3 Lake Eutrophication](#)
- ❑ [WD-88-4 Weed Watchers](#)
- ❑ [WD-88-5 Lake Foam](#)
- ❑ [WD-88-6 Algae](#)
- ❑ [WD-88-8 Acid Rain](#)
- ❑ [WD-88-9 Lake Protection: Tips, Some Do's and Don'ts For Maintaining Healthy Lakes](#)
- ❑ [WD-88-11 Septic Systems and Your Lake's Water Quality](#)
- ❑ [WD-88-12 Lake Drawdown for Weed Control](#)
- ❑ [WD-88-13 Water Sampling Protocol for Public Beach Inspectors](#)
- ❑ [WD-88-14 Bacteria in Surface Waters](#)
- ❑ [WD-88-15 Sand Dumping-Beach Construction](#)
- ❑ [WD-88-16 DES's Lake Survey Program](#)
- ❑ [WD-88-17 Zebra Mussels](#)
- ❑ [WD-88-18 Tox Bacteria in Surface Waters](#)
- ❑ [WD-88-19 Pressure Treated Wood: Can It Be Used in NH's Waters?](#)
- ❑ [WD-88-20 Phosphorus in Lakes](#)
- ❑ [WD-88-21 Mercury in the Environment](#)
- ❑ [WD-88-22 Dug Ponds](#)
- ❑ [WD-88-23 Vacabile milfoil -- *Myriophyllum heterophyllum \(Michx\)*](#)
- ❑ [WD-88-24 Wanted! Eurasian Milfoil](#)
- ❑ [WD-88-25 Wanted! Fanwort](#)
- ❑ [WD-88-26 New Hampshire Volunteer Lake Assessment Program](#)
- ❑ [WD-88-27 Laymen's Guide for Measuring a Lake's Trophic State](#)
- ❑ [WD-88-28 Interactive Lake Ecology Program](#)
- ❑ [WD-88-29 Nutrient Exotic Aquatic Milfoil: Current Locations](#)
- ❑ [WD-88-38 The DES Boat Inspection Program](#)
- ❑ [WD-88-39 Cleaned Up Winter Storm Damage in Shoreland Areas](#)
- ❑ [WD-88-40 Law Prohibits Exotic Aquatic Weeds](#)
- ❑ [WD-88-41 NH's Public Swimming Facilities Inspection Program](#)
- ❑ [WD-88-42 Pleistena Piscoda](#)
- ❑ [WD-88-43 Water Chestnut \(*Trapeziformis*\) Discovered in New Hampshire Waters](#)
- ❑ [WD-88-44 Aquatic Plants and Their Role in Lake Ecology](#)
- ❑ [WD-88-45 Purple Loosestrife: An Exotic Menace](#)
- ❑ [WD-88-46 DES From Survey Program](#)
- ❑ [WD-88-47 Fecal Accidents -- A Protocol for Public Bathing Facilities](#)
- ❑ [WD-88-48 New Hampshire's Public Beach Inspection Program](#)

Simple things you can do to protect Little Island Pond

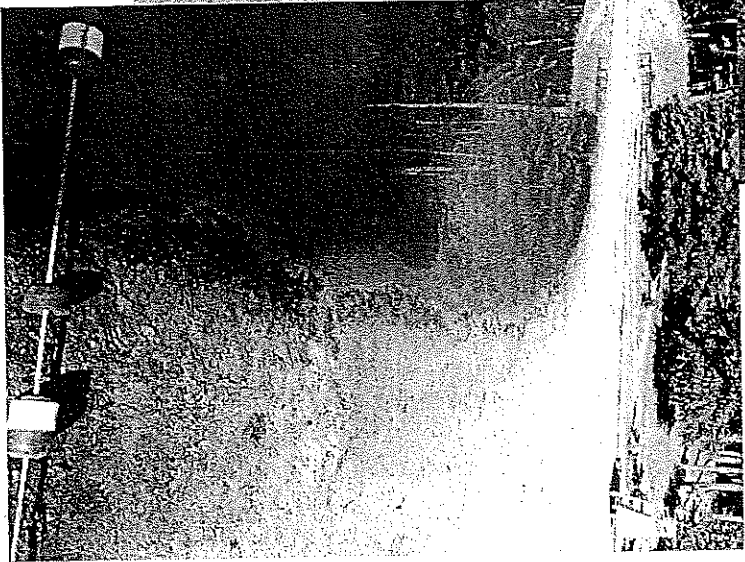
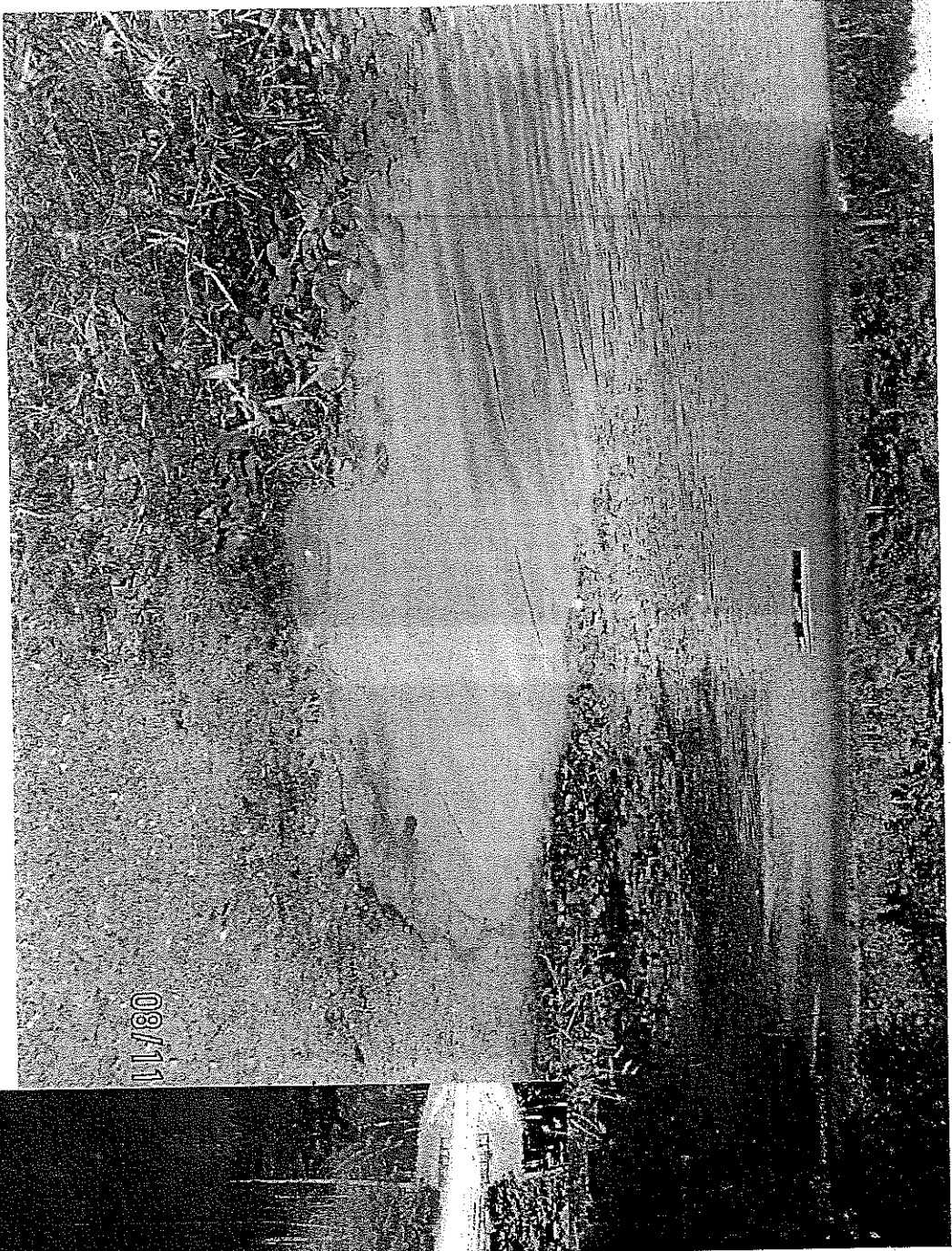
- Minimize impervious surfaces (<10% is ideal; 20% with engineered stormwater management).
- Maintain a natural vegetative buffer (requirement of SWQPA)
- Eliminate fertilizer use or use only low phosphate fertilizers (requirement SWQPA).
- Use native plants to re-vegetate (http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wrap_native_plantings.pdf).
- Install rain gardens or barrels to control storm water (<http://soaknh.org/>).
- Go only headway speed when <150' from shore.
- Minimize salt use on driveways in winter months (<http://des.nh.gov/organization/divisions/water/wmb/was/salt-reduction-initiative/index.htm>).
- Complete annual septic system pumpout and regularly inspect are around leach field.

Threats to NH Waters

Exotics



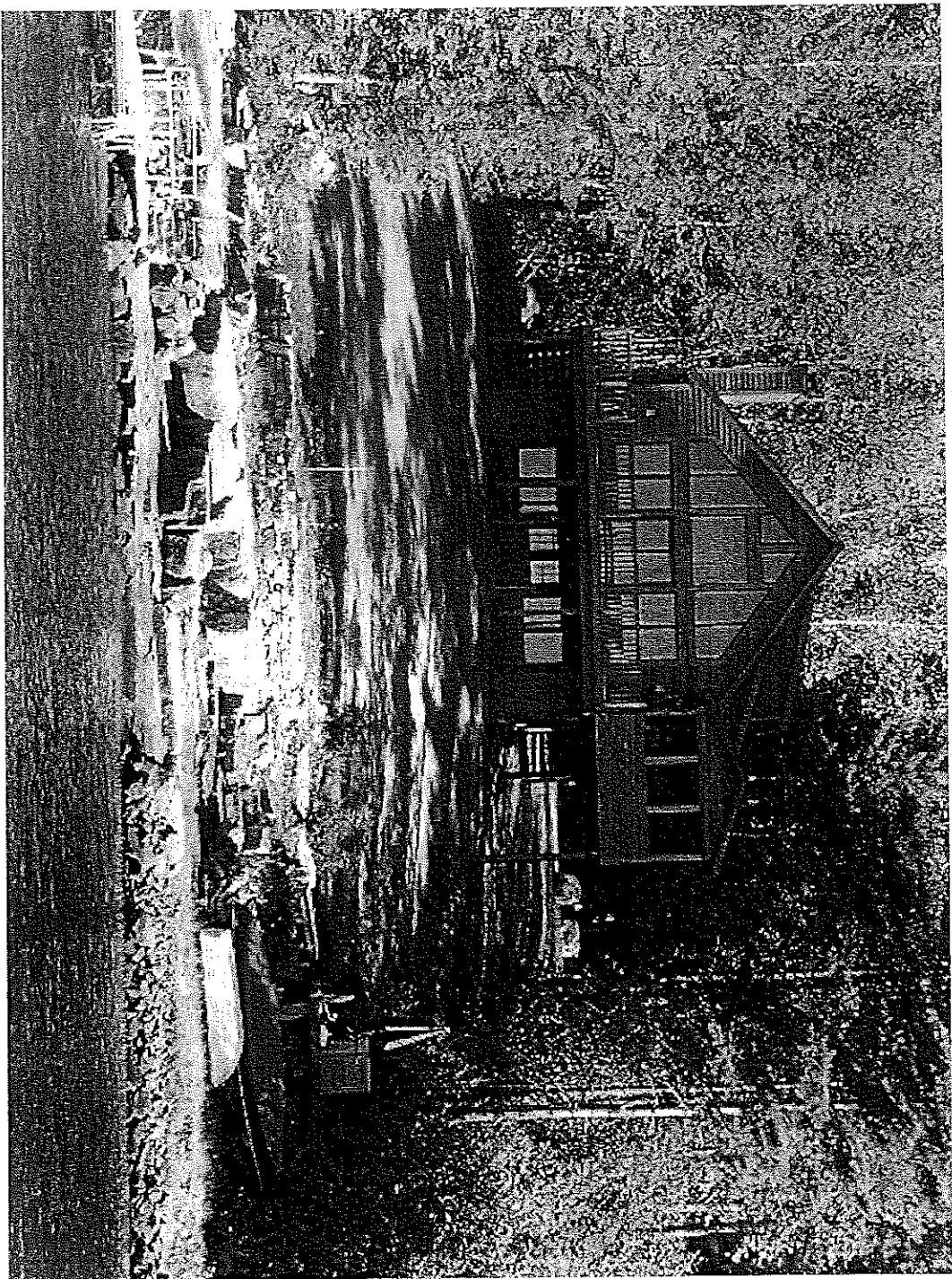
Cyanobacteria

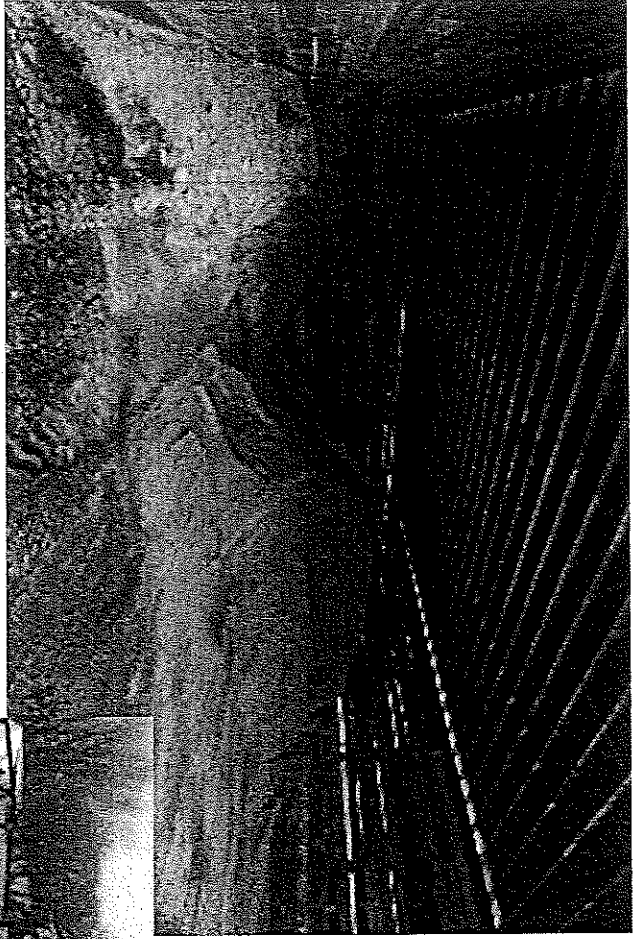
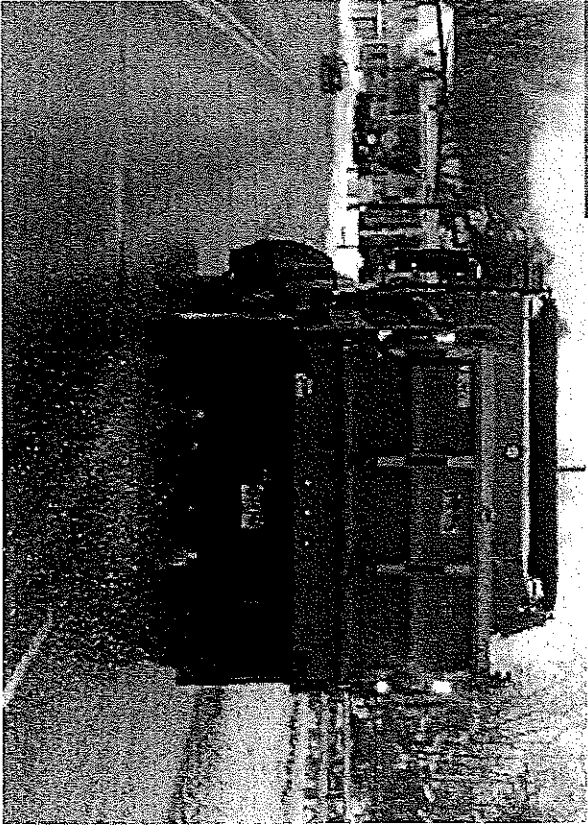


Stormwater



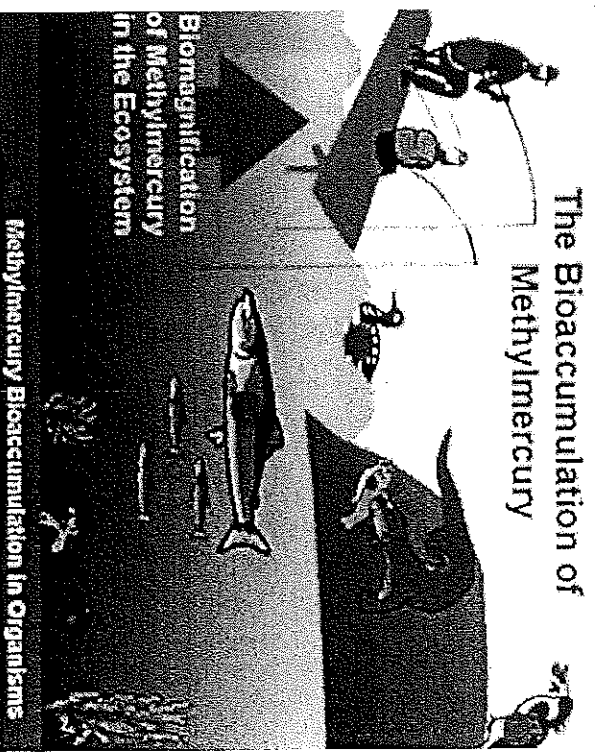
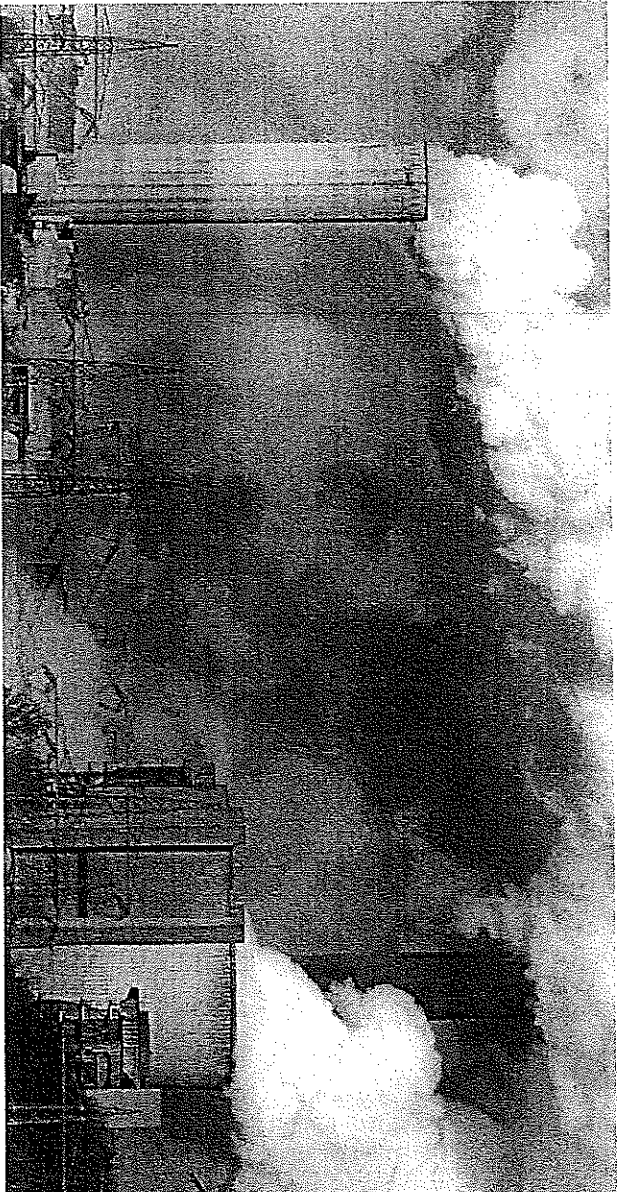
Lakefront Development

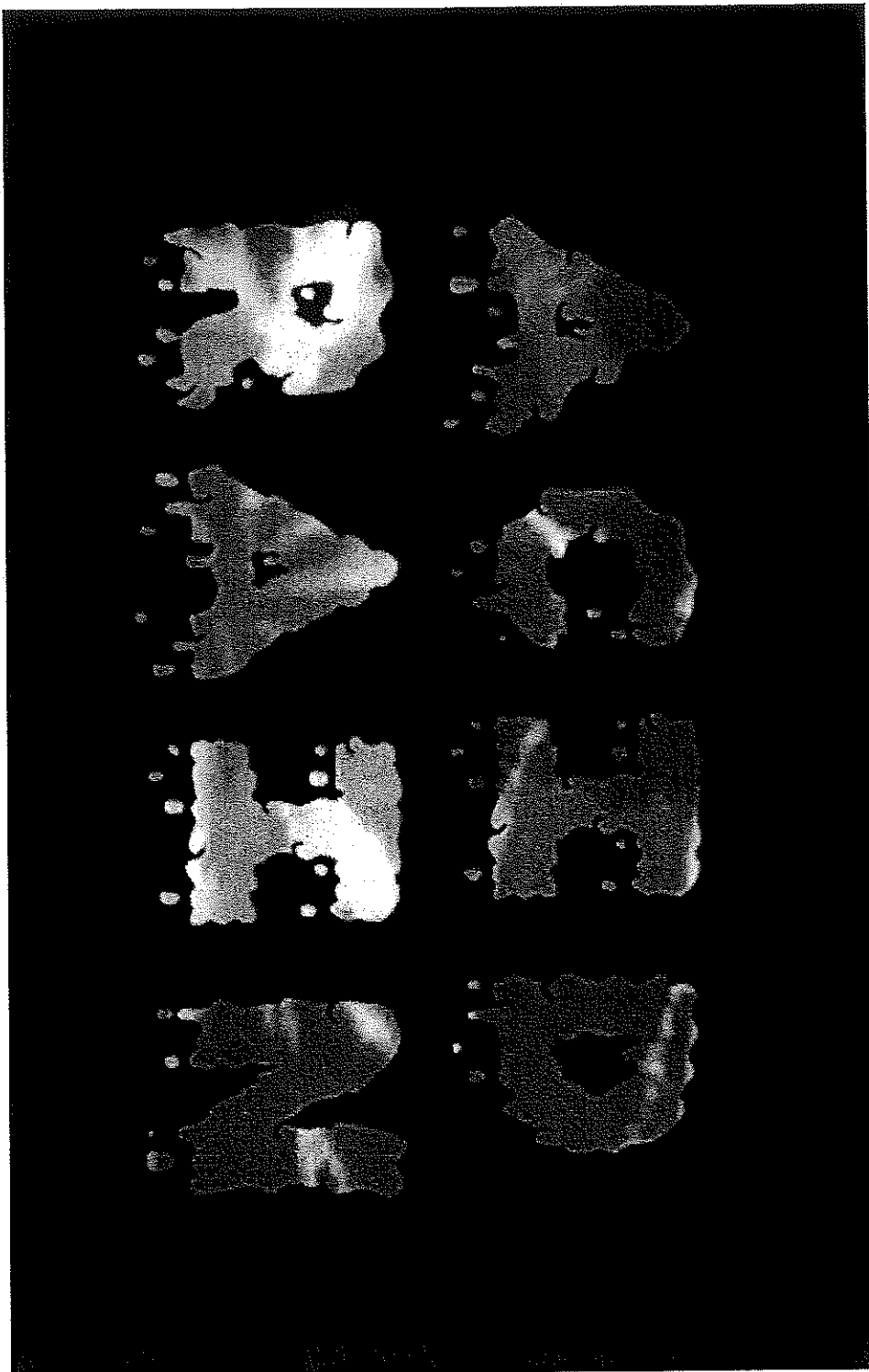




Salt

Mercury in Fish





DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: ISLAND POND, LITTLE	Lake Area (ha):	62.73
Town: PELHAM	Maximum depth (m):	15.5
County: Hillsborough	Mean depth (m):	5.2
River Basin: Merrimack	Volume (m ³):	3248500
Latitude: 42°43'39" N	Relative depth:	1.7
Longitude: 71°17'21" W	Shore configuration:	1.00
Elevation (ft): 145	Areal water load (m/yr):	2.09
Shore length (m): 2600	Flushing rate (yr ⁻¹):	0.40
Watershed area (ha): 284.9	P retention coeff.:	0.80
% watershed ponded: 0.0	Lake type:	natural w/dam

BIOLOGICAL:

3 July 2001

DOM. PHYTOPLANKTON (% TOTAL)	#1	ANACYSTIS 35%
	#2	MALLOMONAS 20%
	#3	ANABAENA 10%
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		
DOM. ZOOPLANKTON (% TOTAL)	#1	COLLOTHECA 34%
	#2	NAUPLIUS LARVA 21%
	#3	VORTICELLA 19%
ROTIFERS/LITER		69
MICROCRUSTACEA/LITER		46
ZOOPLANKTON ABUNDANCE (#/L)		150
VASCULAR PLANT ABUNDANCE		Scattered
SECCHI DISK TRANSPARENCY (m)		3.5
BOTTOM DISSOLVED OXYGEN (mg/L)		4.8
BACTERIA (E. coli, #/100 ml)	#1	
	#2	
	#3	

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 6.6
Hypolimnion volume (m³): 317500
Anoxic volume (m³): None

CHEMICAL:

Lake: ISLAND POND, LITTLE
Town: PELHAM

3 July 2001

DEPTH (m)		2.0	6.0	12.0
pH (units)		7.2	6.7	6.3
A.N.C. (Alkalinity)		8.6	8.8	8.5
NITRATE NITROGEN		< 0.05		0.12
TOTAL KJELDAHL NITROGEN		0.40	0.50	0.30
TOTAL PHOSPHORUS		0.006	0.010	0.008
CONDUCTIVITY ($\mu\text{mhos}/\text{cm}$)		133.5	134.4	133.1
APPARENT COLOR (cpu)		15	15	20
MAGNESIUM		1.22		
CALCIUM		5.7		
SODIUM		15.6		
POTASSIUM		1.22		
CHLORIDE		26		28
SULFATE		8		8
TN : TP		67		53
CALCITE SATURATION INDEX		2.4		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2001

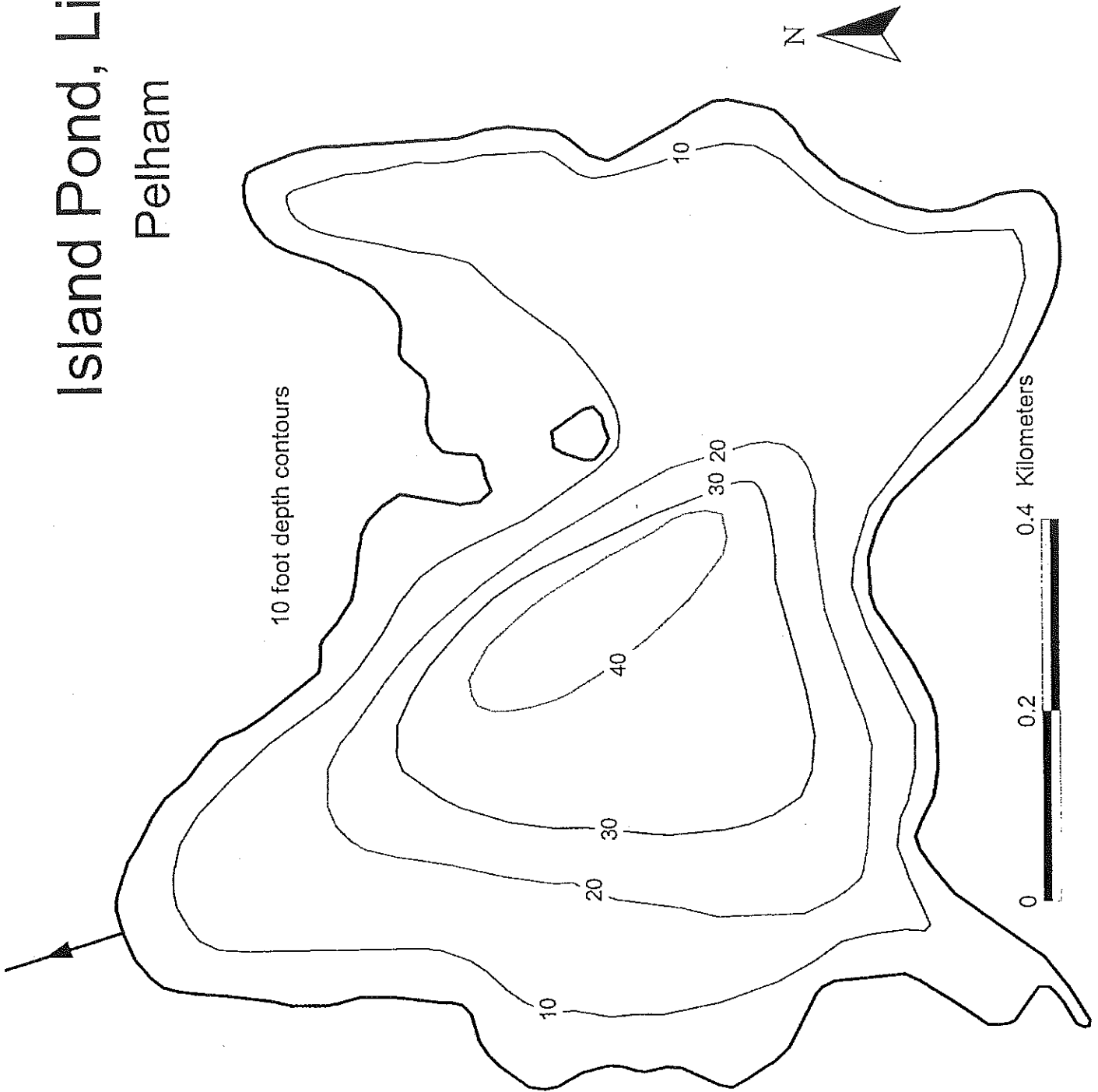
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
0	2	1	1	4	Oligo.

COMMENTS:

1. Previously surveyed in 1978 and 1992.
2. No winter samples were collected because of thin ice.
3. Densely developed shoreline except for the northeast corner, which had a Girl Scout Camp.
4. The boat launch was very rough. The road to the launch site was marked with a sign saying "No Access", but reportedly the site is public and protected by easement. No parking was available.
5. Moderately elevated sodium, chloride and conductivity values suggest some road salt runoff.
6. No chlorophyll sample was analyzed for 2001. Chlorophyll was conservatively estimated to be between 4 and 6 mg/m³ for trophic classification purposes (chlorophyll was less than 4 in both 1978 and 1992).

Island Pond, Little Pelham

Pelham



FIELD DATA SHEET

LAKE: ISLAND POND, LITTLE
DATE: 07/03/2001TOWN: PELHAM
WEATHER: Sunny & breezy; mild chop

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	24.2	6.4	76 %
1.0	24.1	8.5	101 %
2.0	24.1	8.7	103 %
3.0	24.0	8.4	99 %
4.0	23.5	8.3	97 %
5.0	20.0	8.2	90 %
6.0	19.9	8.2	88 %
7.0	12.2	8.4	78 %
8.0	9.2	7.1	62 %
9.0	8.1	6.9	58 %
10.0	7.7	7.0	59 %
11.0	7.4	5.7	47 %
12.0	7.3	5.0	41 %
13.0	7.3	4.7	39 %
13.5	7.4	4.6	39 %

SECCHI DISK (m): 3.5
BOTTOM DEPTH (m): 14.3
TIME: 1145

COMMENTS:

*Dissolved oxygen values are in mg/L

AQUATIC PLANT SURVEY

LAKE: ISLAND POND, LITTLE

TOWN: PELHAM

DATE: 07/03/2001

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
N	Nymphaea	White water lily	Scattered
e	Eleocharis	Spike rush	Scattered
b	Scirpus	Bulrush	Sparse
P	Pontederia cordata	Pickerelweed	Sparse
E	Eriocaulon septangulare	Pipewort	Scattered
D	Decodon verticillatus	Swamp loosestrife	Sparse
O	Cephalanthus occidentalis	Buttonbush	Sparse
d	Dulichium arundinaceum	Three-way sedge	Sparse
Y	Nuphar	Yellow water lily	Sparse
U	Utricularia	Bladderwort	Sparse
T	Typha	Cattail	Sparse
C	Cyperaceae	Non-flowering sedge	Sparse
OVERALL ABUNDANCE:			Scattered
<u>GENERAL OBSERVATIONS:</u>			
1. Clumps of filamentous algae were present in several locations around the pond but are not depicted on the plant map.			



RSA 483-B
Shoreland Water Quality Protection Act (SWQPA)
A Summary of the Standards

A STATE SHORELAND PERMIT is required for most new construction¹, excavation² and filling³ activities within the Protected Shoreland. (See definitions below) Forest management not associated with shoreland development or land conversion, and conducted in compliance with RSA 227-J:9 and agricultural activities and operations defined in RSA 21:34-a and governed by RSA 430 are exempt from the provisions of the SWQPA. Impacts that receive a wetlands permit under RSA 482-A, e.g., beaches, docks and shoreline retaining walls do not require a shoreland permit. A complete list of activities that *do not* require a shoreland permit can be found on the [Shoreland Program Page](#) by visiting www.des.nh.gov.

250 feet from Reference Line — THE PROTECTED SHORELAND:

Impervious Area⁶ Limitation. Best management practices recommend no greater than 30% of the area of a lot within the protected shoreland be composed of impervious area⁶. If one wishes to exceed this recommendation, a stormwater management system must be designed and installed by a professional engineer and, if any waterfront buffer grid segment does not meet the minimum required 50 point tree and sapling point score, each deficient grid segment must be planted with additional vegetation so that it at least achieves the minimum required point score. All projects that propose to exceed 20% impervious area of the lot within the protected shoreland must implement a stormwater management plan to infiltrate increased stormwater from development.

Other Restrictions/ Notes:

- No establishment/expansion of salt storage yards, auto junk yards, solid waste and hazardous waste facilities.
- Setback requirements for all new septic systems are determined by soil characteristics.
 - 75 feet for rivers and areas where there is no restrictive layer within 18 inches and where the soil down gradient is not porous sand and gravel (perc>2 min.).
 - 100 feet for soils with a restrictive layer within 18 inches of the natural soil surface.
 - 125 feet where the soil down gradient of the leachfield is porous sand and gravel (perc rate equal to or faster than 2min/in.).
- In accordance with RSA 485-A, when selling developed waterfront property, a *Site Assessment Study* is required for all properties with on-site septic that are contiguous to or within 200 feet of waterbodies jurisdiction under the SWQPA. For more information relative to site assessments, contact the NH Subsurface Systems Bureau at (603) 271-3711.
- In accordance with RSA 485-A:17, an Alteration of Terrain Permit is required for any project that proposes to disturb more than 50,000 sq ft of contiguous terrain if any portion of the project is within the protected shoreland or disturbs an area having a grade of 25% or greater within 50 feet of any surface water.

Within 50 feet to 150 feet from Reference Line — NATURAL WOODLAND BUFFER LIMITATIONS:

- At least 25 percent of the area between 50 feet and 150 feet from the reference line must be maintained in an unaltered state⁵. (see Vegetation Maintenance within the Protected Shoreland FACT SHEET)

50 feet from Reference Line — WATERFRONT BUFFER

- All primary structures must be set back at least 50 feet from the reference line⁴. Towns may maintain or enact greater setbacks.
- Within 50 feet from the reference line⁴, a vegetative buffer must be maintained. Within the waterfront buffer, tree coverage is managed with a 50 x 50 foot grid and point system. Trees and saplings may be removed provided the sum point score of the remaining trees and saplings within the affected grid segment is at least 50 points. (see Vegetation Maintenance within the Protected Shoreland FACT SHEET)
- No ground cover shall be removed except for a footpath to the water that does not exceed 6 feet in width and does not concentrate stormwater or contribute to erosion.
- Ground cover must remain intact. No cutting or removal of vegetation below 3 feet in height (excluding previously existing lawns and landscaped areas). Stumps, roots, and rocks must remain intact within the ground. Stumps of legally removed trees may be ground flush to the ground.
- Pesticide and herbicide applications can be applied by a licensed applicator only.
- Only low phosphorus, slow release nitrogen fertilizer can be applied beyond 25 feet of the reference line.

¹CONSTRUCTION”- Erecting, reconstructing or altering any structure(s) that result in an increase in impervious area.

²EXCAVATION” - To dig, remove, or form a cavity or hole within the ground with mechanized equipment.

³FILL” - To place or deposit materials such as rocks, soil, gravel, sand or other such materials.

⁴REFERENCE LINE”- The reference line is the point from where all setbacks are determined. For *coastal waters* it is the highest observable tide line; for *rivers* it is the ordinary high water mark and for *lakes and ponds* it is the surface elevation listed on the Consolidated List of Waterbodies subject to the SWQPA.

⁵UNALTERED STATE” - native vegetation allowed to grow without cutting, limbing, trimming, pruning, mowing, or other similar activities except as needed for renewal or to maintain or improve plant health.

⁶IMPERVIOUS AREA” - means any modified surface that cannot effectively absorb or infiltrate water. Examples of impervious surfaces include, but are not limited to, roofs, and unless designed to effectively absorb or infiltrate water, decks, patios, and paved, gravel, or crushed stone driveways, parking areas, and walkways.

ENVIRONMENTAL Fact Sheet



29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WD-BB-26

2011

New Hampshire Volunteer Lake Assessment Program

Do you live near a lake or pond? Do you wonder why the water can be clear one week and then green or brown the next week? Do you wonder why slimy green stuff grows on the rocks in the lake or pond one year and why there is no slime at all the next year? Are you interested in finding out how healthy the lake or pond is and what you can do to protect it? If you answered "yes" to any of these questions, then you may be interested in joining the New Hampshire Department of Environmental Services Volunteer Lake Assessment Program.

What is VLAP?

The New Hampshire Volunteer Lake Assessment Program (VLAP) was initiated in 1985 in response to an expressed desire of lake associations to be involved in lake protection and watershed management. There are more than 900 lakes and ponds in New Hampshire, and with only 10 DES biologists, it was evident that the only way to gather trend data from lakes and ponds was through trained volunteers. VLAP is a cooperative program between volunteer monitors and the DES, which leads to local awareness of land use and human practices that may be detrimental to lake quality and also empowers communities in their decision-making regarding lake management issues. Approximately 500 volunteers from 154 lakes and ponds located throughout the state presently participate in VLAP.



Why is Volunteer Lake Monitoring Important?

Volunteer monitors typically choose the lake or pond that they live by to monitor, and their efforts supplement the environmental monitoring efforts of DES. By sampling a lake or pond several times each year over a period of years, the volunteer monitors help to develop a comprehensive data set from which long term water quality trends can be discerned. In addition to sampling a lake or pond itself, the volunteer monitors are trained to sample the streams that flow into the lake or pond, and also to survey the surrounding watershed.

Routine volunteer monitoring results in early detection of water quality changes, allowing DES to trace potential problems to their source before the quality of the lake or pond is severely impacted. Over time, baseline data is used to determine long-term trends in lake water quality. This data is invaluable, serving as a community planning resource, in maintaining federal lakes funding, and in DES's mission to protect New Hampshire's lakes and ponds. If a negative water quality trend in a lake or pond is revealed through VLAP monitoring, then the waterbody and its watershed may be eligible for more intensive study through the New Hampshire Clean Lakes Program.

Regardless of an individual's or group's motivation for joining VLAP—whether it is to improve community planning decisions, to do their part in protecting the local environment, or to protect their own investment in property adjacent to a lake or pond—the end result is the same: VLAP volunteer monitors play an integral role in protecting the quality of New Hampshire's lakes and ponds!



How does VLAP work?

VLAP is a cooperative effort between volunteer monitors and DES.

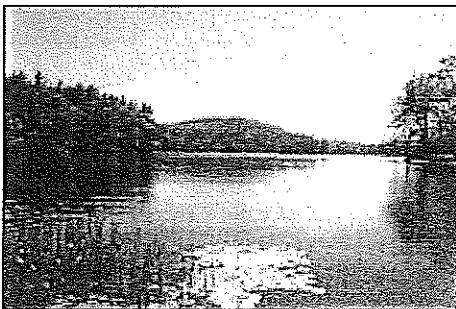
The Role of DES

- Teach principles of lake ecology to volunteers
- Provide sampling equipment to volunteers
- Train volunteer monitors how to collect samples
- Conduct an annual visit to each lake or pond
- Analyze samples in the laboratory
- Interpret and publish data in annual reports
- Provide an annual newsletter
- Provide technical/educational materials
- Provide notification of workshop opportunities
- Investigate water quality complaints
- Assist lake associations to address concerns
- Incorporate data collected by volunteer monitors into state water quality reports

The Role of the Volunteer Monitor

- Notify laboratory of sampling dates in advance
- Schedule equipment and bottle pick-up
- Contact DES to schedule annual biologist visit
- Collect water samples at least once per month during the summer (typically June - August)
- Deliver collected water samples to the laboratory within 24 hours of sample collection
- Provide minimal financial support for sample analysis
- Report on potential water quality violations to DES when necessary
- Pass on water quality information to associations, community, and town officials

A DES biologist conducts an annual visit to each participating lake or pond to meet with volunteers to answer questions, provide training, and to collect additional samples. Volunteer monitors are encouraged to sample at least two additional times during the summer (typically June - August) on their own. Volunteer monitors can arrange to pick up sample bottles and equipment from the DES Limnology Center in Concord or at the Lake Sunapee Protective Association-Colby Sawyer College VLAP Satellite Laboratory in New London.



Associated Volunteer Opportunities

In addition to routine sampling of lakes and ponds during the summer, many volunteer monitors participate in associated DES programs. These volunteer opportunities include the following:

- Clean Lakes Program
- Weed Watchers Program
- Mercury in Fish Study
- Adopt-a-Beach Program

How can I get involved?

The Volunteer Lake Assessment Program could not be a success without the dedication of volunteer monitors who realize how important New Hampshire's lakes and ponds are to the beauty, economy, and ecological health of the state. Lake associations or individuals interested in learning more about VLAP or other DES volunteer programs, should contact:

Sara Steiner
VLAP Coordinator
sara.steiner@des.nh.gov
(603) 271-2658
www.des.nh.gov/organization/divisions/water/wmb/vlap/index.htm

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BB-4

1999

Weed Watchers An Association to Halt the Spread of Exotic Aquatic Plants

Milfoil (*Myriophyllum heterophyllum*, *Myriophyllum spicatum*) and fanwort (*Cabomba caroliniana*) are exotic aquatic plants that have become economic and recreational nuisances in some of New Hampshire's lakes and ponds. Dense stands of these plants inhabit shoreline areas frequented by water based recreationalists. Exotic plants can create the following problems:

- Displacement of beneficial wildlife.
- Reduction of aesthetic quality of lakes.
- Devaluation of waterfront property.
- Littering of beaches with plant fragments.
- Makes swimming difficult and dangerous.
- Snags fish lines and stunts fish life.
- Becomes tangled in outboard motor propellers.
- Chokes boat traffic lanes.
- Requires substantial funds for managing.

The spread of these plants to other uninfected waterbodies by transient boat traffic has increased over the last few years. If accidentally introduced into a lake, they grow at explosive rates. Many times new infestations are not discovered by state biologists until the weeds become a nuisance requiring expensive control methods. Once fully established, they are virtually impossible to eradicate. Therefore, education, vigilance, and early detection are key components in keeping these non-native nuisance weeds in check.

"Weed Watchers", a volunteer association dedicated to monitoring the lakes and ponds for the presence of exotic weeds, was formed by the NH Department of Environmental Services in 1988. Volunteers are given a special "Weed Watchers Kit" which contains the following:

- Photographs of exotic plants.
- Detailed drawings of the plants.
- An information bulletin on exotics.
- A list of lakes known to have exotic plants, including a map.
- Recommendations on how to conduct a plant survey.
- A complete set of fact sheets and pamphlets on exotics in NH.

The Weed Watchers Kit can be sent to you at no expense. Any individual wishing to participate in the "Weed Watchers" program should contact the Exotic Species Coordinator at:

Department of Environmental Services
Biology Bureau
29 Hazen Drive
PO Box 95
Concord, New Hampshire 03302-0095
(603)271-3503

What does a Weed Watcher provide?

All that weed watching involves is a small amount of time during the summer months. Volunteers survey their waterbody once a month from June through August. To survey, volunteers slowly boat around the perimeter of that waterbody and any islands it may contain. Using the materials provided in the Weed Watchers Kit, volunteers will then look for any species that are of suspicion and send them to DES. After a trip or two around the waterbody, volunteers will have a good knowledge of its plant community and will immediately notice even the most subtle changes.

What happens if a Weed Watcher finds an exotic plant in a waterbody?

In most cases, volunteers will be instructed to send a plant specimen through the mail or deliver the specimen in person. Please try to collect a portion of the suspect plant when it is in flower. This may be the only way to precisely identify the plant. If the plant is an exotic, a biologist will visit the site to determine the extent of the problem and to formulate a plan of action to control the nuisance infestation.



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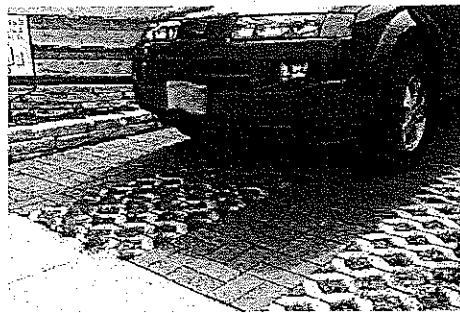
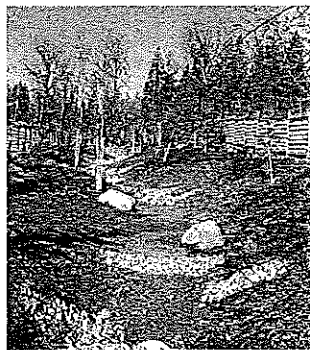
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2010

Lake Protection Tips Some Do's and Don'ts for Maintaining Healthy Lakes

Watershed runoff is one of the greatest water quality concerns to our lakes and ponds. Runoff research shows that any activity that increases runoff into lakes produces negative impacts to water quality. Lakes and ponds naturally exist at lower elevations in the landscape. Rain or snowmelt “runs” downhill, transporting contaminants on the land to our lakes and ponds. Reducing the flow of the runoff will lessen pollutants to our lakes. Listed below are activities that lake residents and others can do to help slow the flow and reduce pollutants from the watershed.

All lake residents should employ low impact development (LID) techniques. LID can be employed by everyone, everywhere. They work by slowing runoff flow, spreading it out, and allowing it to soak into the ground. LID techniques include rain gardens, rain barrels, vegetated rooftops, and the use of permeable pavement.



Homeowners need to control runoff on their property with the use of best management practices, such as maintaining a buffer zone of natural vegetation along the shore. Use native plantings to re-vegetate bare areas. All roads and paths leading to the lake should be curved to reduce erosion.

Septic systems should be maintained properly. A system should be designed to handle the load it receives. The size of a system should be increased as the size of a family grows. Septic tanks should be pumped every three to five years. Check leach field for soft wet areas or septic smells and replace faulty systems.

Do not bathe, shampoo, or wash boats, pets, or other objects in the lake.

Check all home cleansing products to make sure they say "phosphate free." Home cleansing products containing phosphorus have been banned in New Hampshire through RSA 485-A:55.

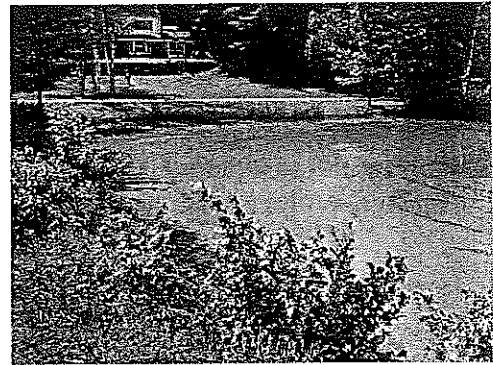
Do not use fertilizer within 30 feet of a lake. From 30 feet to 250 feet, use low phosphate, slow release nitrogen fertilizer on vegetated areas only.

Do not burn brush or leaves on the ice or near the shore; the nutrients remain behind to runoff into the lake. Do not dump leaves or grass clippings in or near the lake. They also add nutrients to the water.

Do not urinate or defecate in the lake, and don't allow pets to do the same. Cows, horses, or other groups of animals should not be housed near the lake where phosphorus from waste products runoff to the lake.

Do not feed ducks or other aquatic organisms; there is plenty of natural food available. Nutrients produced from unnatural food outside the lake's watershed, will be added to the lake through the organism's feces. Discouraging waterfowl populations can also reduce the risk of swimmers' itch in specific lake areas.

Do not use powerful outboard motors in shallow areas. The nutrient-laden bottom sediments can be churned into the overlying water to support increased algae and cyanobacteria growth (shown here), increased turbidity and decreased transparency.



For More Information

For information about lake protection and native plantings, contact the DES Limnology Center at (603) 271-4793 or visit www.des.nh.gov . Information on maintaining septic systems is available from the DES Subsurface Bureau at (603) 271-3501 or visit www.des.nh.gov . For more on low impact development and best management practices for runoff control, visit www.des.nh.gov or www.epa.gov .

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BB-5

2001

Lake Foam

Lakeshore property owners sometimes become concerned about lake foaming. However, most foam observed in lakes and streams is a product of nature; foam is not necessarily an indicator of pollution. Small trout streams, for example, often have naturally occurring pools of foam where fish will hide.

What causes the foaming of surface waters on lakes?

The foaming of surface waters on lakes is not a new phenomenon. It is a natural process that has been going on for a long time. Foam is created when the surface tension of water (attraction of surface molecules for each other) is reduced and the air is mixed in, forming bubbles. Man-made agents can also reduce surface tension.

All lakes contain organic matter, such as algae and plants, and when these decompose they release cellular products (surfactant) into the water, which lessens the surface tension. When the wind blows, the waves on the lake agitate this surface agent, thus transforming it into sudsy white foam. Currents and boats also mix air with the organic compounds present in the lake to produce foam.

In the late 1950s and early 1960s, many communities experienced tremendous foam problems in lakes, rivers, sewage treatment plants, and even in drinking water from contaminated wells. This foam was caused by synthetic laundry detergents that were highly resistant to chemical breakdown, and only slowly degradable (broken down by bacteria). By law, the sudsing agent of all detergents now on the market must be biodegradable. This means that they quickly lose their ability to cause foaming and are unable to produce the long-lasting foam found along many shores.

Where is lake foam found and what its like?

The foam will frequently form parallel streaks in the open water, caused by wind-induced surface currents. It will also collect in large quantities on windward shores, coves, or in eddies. Natural foam has a somewhat earthy fishy aroma and may have an off-white, tan, or brown color. Detergent foam in contrast will have a noticeable perfume smell, and is usually whiter in color.