

OBSERVATIONS & RECOMMENDATIONS

After reviewing data collected from **Otter Pond, Sunapee**, the program coordinators have made the following observations and recommendations.

Thank you for your continued hard work sampling the pond this year! Your monitoring group sampled the deep spot **five** times this year and has done so for many years! As you know, conducting multiple sampling events each year enables DES to more accurately detect water quality changes. Keep up the good work!

We encourage your monitoring group to continue utilizing the Colby Sawyer College Water Quality Laboratory in New London. This laboratory was established to serve the large number of lakes/ponds in the greater Lake Sunapee region of the state. This laboratory is inspected by DES and operates under a DES approved quality assurance plan. We encourage your monitoring group to utilize this laboratory next summer for all sampling events, except for the annual DES biologist visit. To find out more about the Colby Sawyer College Water Quality Laboratory, and/or to schedule dates to pick up bottles and equipment, please call Bonnie Lewis, laboratory manager, at (603) 526-3486.

Since your pond is located in the Lake Sunapee Watershed, we are providing an update detailing the activities of The Sunapee Area Watershed Coalition (SAWC). SAWC was organized in January, 2005, to promote local efforts to protect water quality, raise community awareness of important watershed issues, formulate clear guidelines for responsible, long-term stewardship of water resources, and encourage cooperation among Sunapee watershed towns to manage and protect water resources for the common benefit of the area communities.

SAWC is made up of representatives from each watershed town (Goshen, Newbury, New London, Springfield, Sunapee and Sutton), the Lake Sunapee Protective Association, Colby Sawyer College, Upper Valley Lake Sunapee Regional Planning Commission, several lake and pond associations and interested watershed residents. The inter-town Coalition was formed to develop a long-term watershed management plan for the Lake Sunapee watershed. When completed, it will be one two watershed management plans developed under the NH Department of

Environmental Services “watershed approach.” It is anticipated that the Watershed Plan with its recommendations, will be accepted by the towns into their Master Plans. Protection and enhancement of watershed resources will result as recommendations are implemented during future years.

In 2007, a mid-year report was issued and distributed and progress reports were presented to several watershed towns. A SAWC subcommittee (Watershed Advisory Committee) has been working throughout 2007 specifically on the Watershed Management Plan with Granite State Rural Water Association. The members of this subcommittee have toured important sites in the watershed, including stormwater BMP sites, a NHDOT salt storage barn, a managed forest, a problematic grandfathered housing subdivision, and a municipal drinking water plant. They have met with engineering experts, drinking water supply operators and highway maintenance officials. Major water quality threats have been prioritized and in early 2008, SAWC will have a series of recommendations and a Watershed Management Plan draft. The draft will then be reviewed and a final version approved by town boards. In 2008, SAWC is also planning to have a demonstration project relative to the pilot grant.

For more information, contact June Fichter, Executive Director of the Lake Sunapee Protective Association at 763-2210.

FIGURE INTERPRETATION

- **Figure 1 and Table 1:** Figure 1 in Appendix A shows the historical and current year chlorophyll-a concentration in the water column. Table 1 in Appendix B lists the maximum, minimum, and mean concentration for each sampling year that the pond has been monitored through VLAP.

Chlorophyll-a, a pigment found in plants, is an indicator of the algal abundance. Algae are typically microscopic plants that are naturally occurring in lake ecosystems and contain chlorophyll-a. The chlorophyll-a concentration measured in the water gives biologists an estimation of the algal concentration or lake productivity. **The median summer chlorophyll-a concentration for New Hampshire’s lakes and ponds is 4.58 mg/m³.**

The current year data (the top graph) show that the chlorophyll-a concentration **increased** from **May** to **June** and **June** to **July**, then **decreased** from **July** to **August**, and **increased** again from **August** to **September**.

The historical data (the bottom graph) show that the **2007** chlorophyll-a mean is **less than** the state and similar lake medians. For more information on the similar lake median, refer to Appendix F.

Overall, the statistical analysis of the historical data shows that the chlorophyll-a concentration has **significantly increased** (meaning **worsened**) on average by **approximately 1.32 percent** per year during the sampling period **1986 to 2007**. Please refer to Appendix E for the statistical analysis explanation and data print-out.

While algae are naturally present in all lakes/ponds, an excessive or increasing amount of any type is not welcomed. In freshwater lakes/ponds, phosphorus is the nutrient that algae typically depend upon for growth in New Hampshire lakes. Algal concentrations may increase as non-point sources of phosphorus from the watershed increase, or as in-lake phosphorus sources increase. Therefore, it is extremely important for volunteer monitors to continually educate all watershed residents about management practices that can be implemented to minimize phosphorus loading to surface waters.

- **Figure 2 and Tables 3a and 3b:** Figure 2 in Appendix A shows the historical and current year data for transparency with and without the use of a viewscope. Table 3a in Appendix B lists the maximum, minimum and mean transparency data without the use of a viewscope and Table 3b lists the maximum, minimum and mean transparency data with the use of a viewscope for each year that the pond has been monitored through VLAP.

Volunteer monitors use the Secchi disk, a 20 cm disk with alternating black and white quadrants, to measure how far a person can see into the water. Transparency, a measure of water clarity, can be affected by the amount of algae and sediment in the water, as well as the natural color of the water. **The median summer transparency for New Hampshire's lakes and ponds is 3.2 meters.**

The current year data (the top graph) show that the non-viewscope in-lake transparency **increased slightly** from **May** through **July**, **increased** from **July** to **August**, and then **decreased** from **August** to **September**.

It is important to note that as the chlorophyll concentration **decreased** from **July** to **August**, the transparency **increased**, and as the chlorophyll **increased** from **August** to **September**, the transparency **decreased**. We typically expect this **inverse** relationship in lakes. As the amount of algal cells in the water **increases**, the depth to which one can see into the water column typically **decreases**, and vice-versa.

The historical data (the bottom graph) show that the **2007** mean non-viewscope transparency is ***slightly greater than*** the state median and is ***greater than*** the similar lake median. Please refer to Appendix F for more information about the similar lake median.

The current year data (the top graph) show that the viewscope in-lake transparency ***increased*** from **May** to **June**, ***decreased*** from **June** to **July**, and then ***increased*** again from **July** to **August**. The transparency measured with the viewscope was generally ***greater than*** the transparency measured without the viewscope this summer. As discussed previously, a comparison of the transparency readings taken with and without the use of a viewscope shows that the viewscope typically increases the depth to which the Secchi disk can be seen into the lake, particularly on sunny and windy days. We recommend that your group measure Secchi disk transparency with and without the viewscope on each sampling event.

It is important to note that viewscope transparency data are not compared to a New Hampshire median or similar lake median. This is because lake transparency with the use of a viewscope has not been historically measured by DES. At some point in the future, the New Hampshire and similar lake medians for viewscope transparency will be calculated and added to the appropriate graphs.

Overall, the statistical analysis of the historical data shows that the non-viewscope transparency has ***significantly decreased*** (meaning ***worsened***) on average by ***approximately 1.173 percent*** per year during the sampling period **1986** to **2007**. Please refer to Appendix E for the statistical analysis explanation and data print-out.

Since the viewscope has only been used for two years to measure the transparency of the pond, it is not possible to determine historical trends for viewscope transparency. We recommend that your group continue to measure the transparency with and without the use of the viewscope on each sampling event. Ultimately, we would like all monitoring groups to use a viewscope to take Secchi disk readings as the use of the viewscope results in less variability in transparency readings between monitors and sampling events. At some point in the future, when we have sufficient data to determine a statistical relationship between transparency readings collected with and without the use of a viewscope, it may only be necessary to collect transparency readings with the use of a viewscope.

- **Figure 3 and Table 8:** The graphs in Figure 3 in Appendix A show the amount of epilimnetic (upper layer) phosphorus and hypolimnetic (lower layer) phosphorus; the inset graphs show current year data.

Table 8 in Appendix B lists the annual maximum, minimum, and median concentration for each deep spot layer and each tributary since the pond has been sampled through VLAP.

Phosphorus is typically the limiting nutrient for vascular plant and algae growth in New Hampshire's lakes and ponds. Excessive phosphorus in a lake/pond can lead to increased plant and algal growth over time. **The median summer total phosphorus concentration in the epilimnion (upper layer) of New Hampshire's lakes and ponds is 12 ug/L. The median summer phosphorus concentration in the hypolimnion (lower layer) is 14 ug/L.**

The current year data for the epilimnion (the top inset graph) show that the phosphorus concentration *decreased* from **May** to **June**, increased from **June** to **July**, *increased* again from **July** to **August**, and then *remained stable* from **August** to **September**.

The historical data show that the **2007** mean epilimnetic phosphorus concentration is *much less than* the state and similar lake medians. Refer to Appendix F for more information about the similar lake median.

The current year data for the hypolimnion (the bottom inset graph) show that the phosphorus concentration *increased* from **May** to **June**, *decreased* from **June** to **July**, *increased* from **July** to **August**, and then *decreased* from **August** to **September**.

The historical data show that the **2007** mean hypolimnetic phosphorus concentration is *much less than* the state and similar lake medians. Please refer to Appendix F for more information about the similar lake median.

Overall, the statistical analysis of the historical data shows that the phosphorus concentration in the epilimnion (upper layer) and the hypolimnion (lower layer) has *not significantly changed* (either *increased* or *decreased*) since monitoring began. Specifically, the epilimnetic and hypolimnetic phosphorus concentration has remained *relatively stable, ranging between approximately 6.0 and 14.0 ug/L*, which is *less than* the state median, since **1986**. Please refer to Appendix E for the statistical analysis explanation and data print-out.

TABLE INTERPRETATION

➤ **Table 2: Phytoplankton**

Table 2 in Appendix B lists the current and historical phytoplankton and/or cyanobacteria observed in the pond. Specifically, this table

lists the three most dominant phytoplankton and/or cyanobacteria observed in the sample and their relative abundance in the sample.

The dominant phytoplankton species observed in the **August** sample were ***Chryso-sphaerella* (Golden-Browns)**, ***Synedra* (Diatoms)**, and ***Anabaena* (Cyanobacteria)**.

Phytoplankton populations undergo a natural succession during the growing season. Please refer to the “Biological Monitoring Parameters” section of this report for a more detailed explanation regarding seasonal plankton succession. Diatoms and golden-brown algae populations are typical in New Hampshire’s less productive lakes and ponds.

➤ **Table 2: Cyanobacteria**

A **small amount** of the cyanobacterium ***Anabaena*** was observed in the August plankton sample. ***This cyanobacteria, if present in large amounts, can be toxic to livestock, wildlife, pets, and humans.*** Please refer to the “Biological Monitoring Parameters” section of this report for a more detailed explanation regarding cyanobacteria.

Cyanobacteria can reach nuisance levels when phosphorus loading from the watershed to surface waters is increased and favorable environmental conditions occur, such as a period of sunny, warm weather.

The presence of cyanobacteria serves as a reminder of the pond’s delicate balance. Watershed residents should continue to act proactively to reduce nutrient loading to the pond by eliminating fertilizer use on lawns, keeping the pond shoreline natural, re-vegetating cleared areas within the watershed, and properly maintaining septic systems and roads.

In addition, residents should also observe the pond in September and October during the time of fall turnover (lake mixing) to document any algal blooms that may occur. Cyanobacteria have the ability to regulate their depth in the water column by producing or releasing gas from vesicles. However, occasionally lake mixing can affect their buoyancy and cause them to rise to the surface and bloom. Wind and currents tend to “pile” cyanobacteria into scums that accumulate in one section of the pond. If a fall bloom occurs, please collect a sample in any clean jar or bottle and contact the VLAP Coordinator.

➤ **Table 4: pH**

Table 4 in Appendix B presents the in-lake and tributary current year and historical pH data.

pH is measured on a logarithmic scale of 0 (acidic) to 14 (basic). pH is important to the survival and reproduction of fish and other aquatic life. A pH below 6.0 typically limits the growth and reproduction of fish. A pH between 6.0 and 7.0 is ideal for fish. The median pH value for the epilimnion (upper layer) in New Hampshire's lakes and ponds is **6.6**, which indicates that the state surface waters are slightly acidic. For a more detailed explanation regarding pH, please refer to the "Chemical Monitoring Parameters" section of this report.

The mean pH at the deep spot this year ranged from **6.36** in the hypolimnion to **6.47** in the epilimnion, which means that the water is **slightly acidic**.

It is important to point out that the hypolimnetic (lower layer) pH was **lower (more acidic)** than in the epilimnion (upper layer). This increase in acidity near the pond bottom is likely due to the decomposition of organic matter and the release of acidic by-products into the water column.

Due to the state's abundance of granite bedrock in the state and acid deposition received from snowmelt, rainfall, and atmospheric particulates, there is little that can be feasibly done to effectively increase pond pH.

➤ **Table 5: Acid Neutralizing Capacity**

Table 5 in Appendix B presents the current year and historical epilimnetic ANC for each year the pond has been monitored through VLAP.

Buffering capacity (ANC) describes the ability of a solution to resist changes in pH by neutralizing the acidic input. The median ANC value for New Hampshire's lakes and ponds is **4.8 mg/L**, which indicates that many lakes and ponds in the state are at least "moderately vulnerable" to acidic inputs. For a more detailed explanation about ANC, please refer to the "Chemical Monitoring Parameters" section of this report.

The mean acid neutralizing capacity (ANC) of the epilimnion (upper layer) was **6.1 mg/L**, which is **slightly greater than** the state median. In addition, this indicates that the pond is **moderately vulnerable** to acidic inputs.

➤ **Table 6: Conductivity**

Table 6 in Appendix B presents the current and historical conductivity values for tributaries and in-lake data. Conductivity is the numerical expression of the ability of water to carry an electric current, which is determined by the number of negatively charged ions from metals, salts, and minerals in the water column. The median conductivity value for New Hampshire's lakes and ponds is **38.4 uMhos/cm**. For a more detailed explanation, please refer to the "Chemical Monitoring Parameters" section of this report.

The mean annual epilimnetic conductivity at the deep spot this year was **104.02 uMhos/cm**, which is ***much greater than*** the state median.

The conductivity continued to remain ***much greater than*** the state median in the pond and tributaries this year. Typically, elevated conductivity indicates the influence of pollutant sources associated with human activities. These sources include failed or marginally functioning septic systems, agricultural runoff, and road runoff, which contains road salt during the spring snow-melt. New development in the watershed can alter runoff patterns and expose new soil and bedrock areas, which could also contribute to increasing conductivity. In addition, natural sources, such as iron and manganese deposits in bedrock, can influence conductivity.

We recommend that your monitoring group conduct stream surveys and rain event sampling along the tributaries with ***elevated*** conductivity so that we can determine what may be causing the increases.

For a detailed explanation on how to conduct rain event sampling and stream surveys, please refer to the 2002 VLAP Annual Report special topic article, which is posted on the VLAP website at http://www.des.nh.gov/wmb/vlap/2002/documents/Appndxd_monitoring.pdf, or contact the VLAP Coordinator.

We also recommend that your monitoring group conduct a shoreline conductivity survey of the lake and the tributaries with ***elevated*** conductivity to help identify the sources of conductivity.

To learn how to conduct a shoreline or tributary conductivity survey, please refer to the 2004 special topic article, which is posted on the VLAP website at www.des.nh.gov/wmb/vlap/2004/documents/Appendix_D.pdf or contact the VLAP Coordinator.

It is possible that de-icing materials applied to nearby roadways during the winter months may be influencing the conductivity in the

pond. The most commonly used de-icing material in New Hampshire is salt (sodium chloride).

Therefore, we recommend that the **epilimnion** and the **tributaries** be sampled for chloride next year. This additional sampling may help us identify what areas of the watershed are contributing to the increasing in-lake conductivity.

Please note that the DES Limnology Center in Concord will be able to conduct chloride analyses, free of charge, beginning in 2008. As a reminder, it is best to conduct chloride sampling in the spring as the snow is melting and during rain events.

➤ **Table 8: Total Phosphorus**

Table 8 in Appendix B presents the current year and historical total phosphorus data for in-lake and tributary stations. Phosphorus is the nutrient that limits the algae's ability to grow and reproduce. Please refer to the "Chemical Monitoring Parameters" section of this report for a more detailed explanation.

The phosphorus concentration in the **tributaries** was **relatively low** this year, which is good news. However, we recommend that your monitoring group sample the major tributaries to the pond during snow-melt and periodically during rainstorms to determine if the phosphorus concentration is **elevated** in the tributaries during these times. Typically, the majority of nutrient loading to a pond occurs in the spring during snow-melt and during intense rainstorms that cause soil erosion and surface runoff and within the watershed.

For a detailed explanation on how to conduct rain event sampling and stream surveys, please refer to the 2002 VLAP Annual Report special topic article, which is posted on the VLAP website at http://www.des.nh.gov/wmb/vlap/2002/documents/Appndxd_monitoring.pdf, or contact the VLAP Coordinator.

➤ **Table 9 and Table 10: Dissolved Oxygen and Temperature Data**

Table 9 in Appendix B shows the dissolved oxygen/temperature profile(s) collected during **2007**. Table 10 in Appendix B shows the historical and current year dissolved oxygen concentration in the hypolimnion (lower layer). The presence of sufficient amounts of dissolved oxygen in the water column is vital to fish and amphibians and bottom-dwelling organisms. Please refer to the "Chemical Monitoring Parameters" section of this report for a more detailed explanation.

The dissolved oxygen concentration was **much lower in the**

hypolimnion (lower layer) than in the epilimnion (upper layer) at the deep spot on the **August** sampling event. As stratified ponds age, and as the summer progresses, oxygen typically becomes **depleted** in the hypolimnion by the process of decomposition. Specifically, the reduction of hypolimnetic oxygen is primarily a result of biological organisms using oxygen to break down organic matter, both in the water column and particularly at the bottom of the pond where the water meets the sediment. When hypolimnetic oxygen concentration is depleted to less than 1 mg/L, **as it was on the annual biologist visit this year and on many previous annual visits**, the phosphorus that is normally bound up in the sediment may be re-released into the water column, a process referred to as **internal phosphorus loading**.

Low hypolimnetic oxygen levels are a sign of the pond's **aging** and **declining** health. This year the DES biologist collected the dissolved oxygen profile in **August**. We recommend that the annual biologist visit for the **2008** sampling year be scheduled during **July** so that we can determine if oxygen is depleted in the hypolimnion **earlier** in the sampling year.

➤ **Table 11: Turbidity**

Table 11 in Appendix B lists the current year and historical data for in-lake and tributary turbidity. Turbidity in the water is caused by suspended matter, such as clay, silt, and algae. Water clarity is strongly influenced by turbidity. Please refer to the "Other Monitoring Parameters" section of this report for a more detailed explanation.

The tributary and deep spot turbidity was **relatively low** this year, which is good news.

However, we recommend that your group sample the pond and any surface water runoff areas during significant rain events to determine if stormwater runoff contributes turbidity and phosphorus to the pond.

For a detailed explanation on how to conduct rain event sampling, please refer to the 2002 VLAP Annual Report special topic article, which is posted on the VLAP website at http://www.des.nh.gov/wmb/vlap/2002/documents/Appndxd_monitoring.pdf, or contact the VLAP Coordinator.

➤ **Table 12: Bacteria (*E.coli*)**

Table 12 in Appendix B lists the current year and historical data for bacteria (*E.coli*) testing. *E. coli* is a normal bacterium found in the large intestine of humans and other warm-blooded animals. *E.coli* is

used as an indicator organism because it is easily cultured and its presence in the water, in defined amounts, indicates that sewage **may** be present. If sewage is present in the water, potentially harmful disease-causing organisms **may** also be present.

The *E. coli* concentration was **very low** at each station sampled on the **August** sampling event. Specifically, each result was **16 counts or less**, which is ***much less than*** the state standard of 406 counts per 100 mL for recreational surface waters that are not designated public beaches and 88 counts per 100 mL for surface waters that are designated public beaches.

➤ **Table 13: Chloride**

Table 13 in Appendix B lists the current year and the historical data for chloride sampling. The chloride ion (Cl⁻) is found naturally in some surfacewaters and groundwaters and in high concentrations in seawater. Research has shown that elevated chloride levels can be toxic to freshwater aquatic life. In order to protect freshwater aquatic life in New Hampshire, the state has adopted **acute and chronic** chloride criteria of **860 and 230 mg/L** respectively. The chloride content in New Hampshire lakes is naturally low, generally less than 2 mg/L in surface waters located in remote areas away from habitation. Higher values are generally associated with salted highways and, to a lesser extent, with septic inputs. Please refer to the “Chemical Monitoring Parameters” section of this report for a more detailed explanation.

Chloride sampling was **not** conducted during **2007**.

➤ **Table 14: Current Year Biological and Chemical Raw Data**

Table 14 in Appendix B lists the most current sampling year results. Since the maximum, minimum, and annual mean values for each parameter are not shown on this table, this table displays the current year “raw,” meaning unprocessed, data. The results are sorted by station, depth, and then parameter.

➤ **Table 15: Station Table**

As of the spring of 2004, all historical and current year VLAP data are included in the DES Environmental Monitoring Database (EMD). To facilitate the transfer of VLAP data into the EMD, a new station identification system had to be developed. While volunteer monitoring groups can still use the sampling station names that they have used in the past and are most familiar with, an EMD station name also exists for each VLAP sampling location. Table 15 in Appendix B identifies what EMD station name corresponds to the

station names you have used in the past and will continue to use in the future.

DATA QUALITY ASSURANCE AND CONTROL

Annual Assessment Audit:

During the annual visit to your pond, the biologist conducted a sampling procedures assessment audit for your monitoring group. Specifically, the biologist observed the performance of your monitoring group and completed an assessment audit sheet to document the volunteer monitors' ability to follow the proper field sampling procedures, as outlined in the VLAP Monitor's Field Manual. This assessment is used to identify any aspects of sample collection in which volunteer monitors failed to follow proper procedures, and also provides an opportunity for the biologist to retrain the volunteer monitors as necessary. This will ultimately ensure samples that the volunteer monitors collect are truly representative of actual lake and tributary conditions.

Overall, your monitoring group did an **excellent** job collecting samples on the annual biologist visit this year! Specifically, the members of your monitoring group followed the proper field sampling procedures and there was no need for the biologist to provide additional training. Keep up the good work!

Sample Receipt Checklist:

Each time your monitoring group dropped off samples at the laboratory this summer, the laboratory staff completed a sample receipt checklist to assess and document if your group followed proper sampling techniques when collecting the samples. The purpose of the sample receipt checklist is to minimize, and hopefully eliminate, improper sampling techniques.

Overall, the sample receipt checklist showed that your monitoring group did an **excellent** job when collecting samples and submitting them to the laboratory this year! Specifically, the members of your monitoring group followed the proper field sampling procedures and there was no need for the laboratory staff to contact your group with questions, and no samples were rejected for analysis.

USEFUL RESOURCES

Acid Deposition Impacting New Hampshire's Ecosystems, DES fact sheet ARD-32, (603) 271-2975 or www.des.nh.gov/factsheets/ard/ard-32.htm.

Best Management Practices to Control Nonpoint Source Pollution: A Guide for Citizens and Town Officials, DES Booklet WD-03-42, (603) 271-2975.

Best Management Practices for Well Drilling Operations, DES fact sheet WD-WSEB-21-4, (603) 271-2975 or www.des.nh.gov/factsheets/ws/ws-21-4.htm.

Biodegradable Soaps and Water Quality, DES fact sheet BB-54, (603) 271-2975 or www.des.nh.gov/factsheets/bb/bb-54.htm.

Canada Geese Facts and Management Options, DES fact sheet BB-53, (603) 271-2975 or www.des.nh.gov/factsheets/bb/bb-53.htm.

Cyanobacteria in New Hampshire Waters Potential Dangers of Blue-Green Algae Blooms, DES fact sheet WMB-10, (603) 271-2975 or www.des.nh.gov/factsheets/wmb/wmb-10.htm.

Erosion Control for Construction in the Protected Shoreland Buffer Zone, DES fact sheet WD-SP-1, (603) 271-2975 or www.des.nh.gov/factsheets/sp/sp-1.htm.

Freshwater Jellyfish In New Hampshire, DES fact sheet WD-BB-5, (603) 271-2975 or www.des.nh.gov/factsheets/bb/bb-51/htm.

Impacts of Development Upon Stormwater Runoff, DES fact sheet WD-WQE-7, (603) 271-2975 or www.des.nh.gov/factsheets/wqe/wqe-7.htm.

IPM: An Alternative to Pesticides, DES fact sheet WD-SP-3, (603) 271-2975 or www.des.nh.gov/factsheets/sp/sp-3.htm.

Iron Bacteria in Surface Water, DES fact sheet WD-BB-18, (603) 271-2975 or www.des.nh.gov/factsheets/bb/bb-18.htm.

Lake Foam, DES fact sheet WD-BB-4, (603) 271-2975 or www.des.nh.gov/factsheets/bb/bb-5.htm.

Lake Protection Tips: Some Do's and Don'ts for Maintaining Healthy Lakes, DES fact sheet WD-BB-9, (603) 271-2975 or www.des.nh.gov/factsheets/bb/bb-9.htm.

Low Impact Development Hydrologic Analysis. Manual prepared by Prince George's County, Maryland, Department of Environmental Resources. July 1999. To access this document, visit www.epa.gov/owow/nps/lid_hydr.pdf or call the EPA Water Resource Center at (202) 566-1736.

Low Impact Development: Taking Steps to Protect New Hampshire's Surface Waters, DES fact sheet WD-WMB-16, (603) 271-2975 or www.des.nh.gov/factsheets/wmb/wmb-17.htm.

Proper Lawn Care In the Protected Shoreland, The Comprehensive Shoreland Protection Act, DES fact sheet WD-SP-2, (603) 271-2975 or www.des.nh.gov/factsheets/sp/sp-2.htm.

Road Salt and Water Quality, DES fact sheet WD-WMB-4, (603) 271-2975 or www.des.nh.gov/factsheets/wmb/wmb-4.htm.

Sand Dumping - Beach Construction, DES fact sheet WD-BB-15, (603) 271-2975 or www.des.nh.gov/factsheets/bb/bb-15.htm.

Shorelands Under the Jurisdiction of the Comprehensive Shoreland Protection Act, DES fact sheet SP-4, (603) 271-2975 or www.des.nh.gov/factsheets/sp/sp-4.htm.

Soil Erosion and Sediment Control on Construction Sites, DES fact sheet WQE-6, (603) 271-2975 or www.des.nh.gov/factsheets/wqe/wqe-6.htm.

Swimmers Itch, DES fact sheet WD-BB-2, (603) 271-2975 or www.des.nh.gov/factsheets/bb/bb-2.htm.

Through the Looking Glass: A Field Guide to Aquatic Plants, North American Lake Management Society, 1988, (608) 233-2836 or www.nalms.org.

Weed Watchers: An Association to Halt the Spread of Exotic Aquatic Plants, DES fact sheet WD-BB-4, (603) 271-2975 or www.des.nh.gov/factsheets/bb/bb-4.htm.

Watershed Districts and Ordinances, DES fact sheet WD-WMB-16, (603) 271-2975 or www.des.nh.gov/factsheets/wmb/wmb-16.htm.