

## EXECUTIVE SUMMARY

Thank you for your continued hard work sampling **Otternick Pond, Hudson** 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 great work!

Volunteers from your pond participated in the Lake Host™ Program this year. The Lake Host™ Program is funded through DES and Federal grants. The program was developed in 2002 by NH LAKES and NHDES to educate and prevent boaters from spreading exotic aquatic plants to lakes and ponds in New Hampshire. Since then, the number of participating lakes and ponds and volunteers has doubled, the number of boats inspected has tripled, and the number of “saves” (exotic plants discovered) has increased from four in 2002 to a total of 224 in 2008. The program is invaluable in educating boaters and protecting NH’s waterbodies from exotic aquatic plant infestations, thereby preventing recreational hazards, property value decline, aquatic ecosystem decline, aesthetic issues, and saving costly remediation efforts. Lake Host™ staff made **one** “save” at your pond and discovered the following aquatic vegetation leaving your pond in 2008:

Fanwort (exotic)

Great work! We encourage volunteers to continue participating in the Lake Host™ Program to protect the future of your pond.



# OBSERVATIONS & RECOMMENDATIONS

## DEEP SPOT

### ➤ **Chlorophyll-a**

Chlorophyll-a, a pigment found in plants, is an indicator of algal or cyanobacteria abundance. Algae are typically microscopic plants that are naturally found in the lake ecosystem. The measurement of chlorophyll-a in the water gives biologists an estimation of the algal concentration or lake productivity. Table 14 in Appendix A lists the current year chlorophyll-a data.

Figure 1 depicts the historical and current year chlorophyll-a concentration in the water column.

**The median summer chlorophyll-a concentration for New Hampshire's lakes and ponds is 4.58 mg/m<sup>3</sup>.**

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

Chlorophyll-a concentrations reached **59.72 mg/m<sup>3</sup>** in late **July**. The chlorophyll remained elevated through September. These **elevated** concentrations indicate an algal bloom had occurred in the pond. Please observe the pond during the summer months and reports any algal blooms or surface scums to the VLAP Coordinator.

Please note that data from the **7/1/2008** sampling event were used to represent the **June** chlorophyll-a concentration.

The historical data (the bottom graph) show that the **2008** chlorophyll-a mean is **much greater than** the state median and similar lake medians. For more information on the similar lake median, refer to Appendix D.

Overall, visual inspection of the historical data trend line (the bottom graph) shows an **increasing** (based on the 2008 data) in-lake chlorophyll-a trend since monitoring began. Specifically the mean chlorophyll concentration has **worsened** since **2005**.

Please keep in mind that this trend is based on only **four** years of data. After 10 consecutive years of sample collection, we will be able to conduct a statistical analysis of the historical data to objectively determine if there has been a significant change in the annual mean transparency since monitoring began.

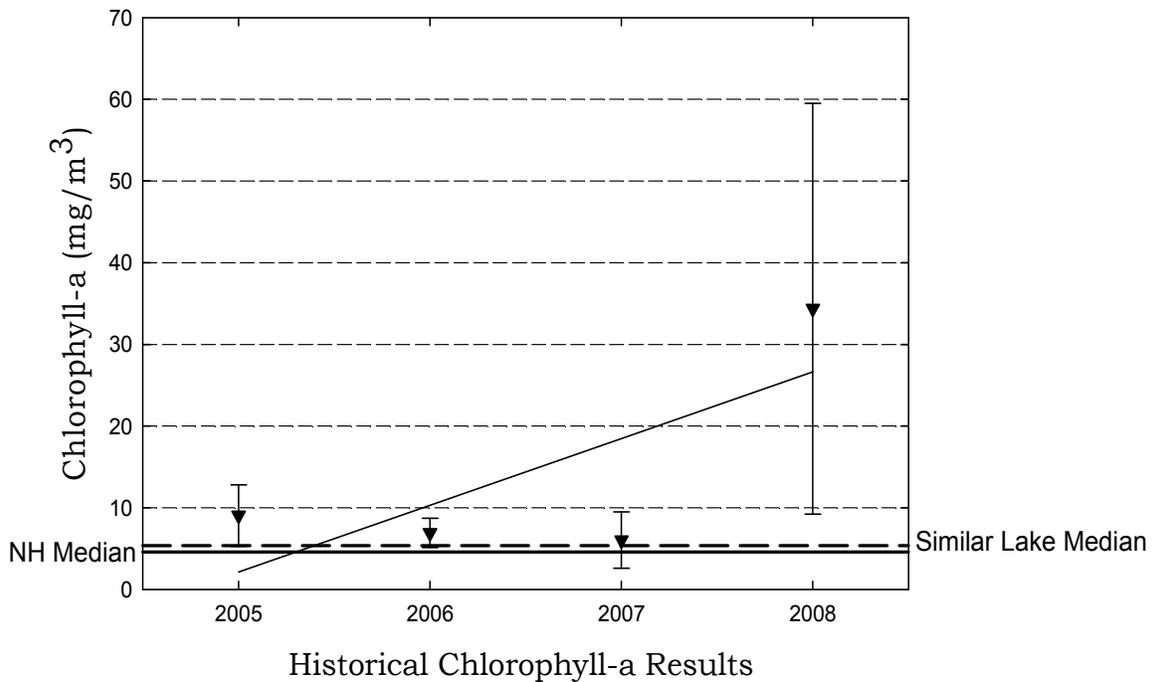
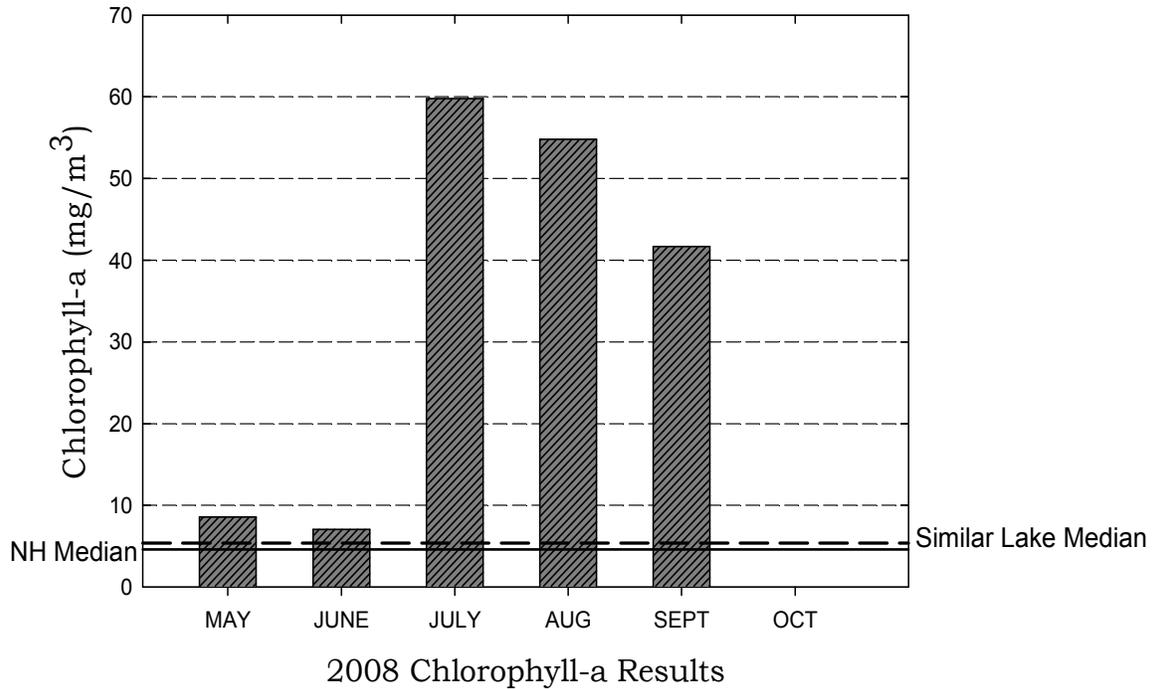
2008

While algae are naturally present in all waterbodies, an excessive or increasing amount of any type is not welcomed. Phosphorus is the nutrient that algae typically depend upon for growth in New Hampshire lakes and ponds. Algal concentrations increase as nonpoint sources of phosphorus from the watershed increase, or as in-lake phosphorus sources increase. Increased Chlorophyll-a concentrations can also affect water clarity, causing Secchi-disk transparency to decrease (worsen) and turbidity to increase (worsen).

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.

# Otternick Pond, Hudson

**Figure 1.** Monthly and Historical Chlorophyll-a Results



### ➤ **Phytoplankton and Cyanobacteria**

Table 1 lists the phytoplankton (algae) and/or cyanobacteria observed in the pond in **2008**. Specifically, this table lists the three most dominant phytoplankton and/or cyanobacteria observed and their relative dominance in the sample.

**Table 1. Dominant Phytoplankton/Cyanobacteria (July 2008)**

<b>Division</b>	<b>Genus</b>	<b>% Dominance</b>
Pyrrophyta	Ceratium	81.9
Cyanophyta	Coelosphaerium	4.8
Cyanophyta	Oscillatoria	3.8

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.

A small amount of the cyanobacterium ***Oscillatoria*** was observed in the **July** 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.

➤ **Secchi Disk Transparency**

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. Table 14 in Appendix A lists the current year transparency data. **The median summer transparency for New Hampshire's lakes and ponds is 3.2 meters.**

Figure 2 depicts the historical and current year transparency *with and without* the use of a viewscope.

The current year *non-viewscope* in-lake transparency **increased slightly** from **May** to **June**, **remained stable** from **June** to **July**, and then **decreased** from **July** to **September**.

The transparency was not measured with a viewscope in 2008. We apologize for the inconvenience.

Please note that data from the **7/1/2008** sampling event were used to represent the **June** transparency.

The historical data (the bottom graph) show that the **2008** mean non-viewscope transparency is **less than** the state and similar lake medians, and was the lowest mean transparency recorded since monitoring began. Please refer to Appendix D for more information about the similar lake median.

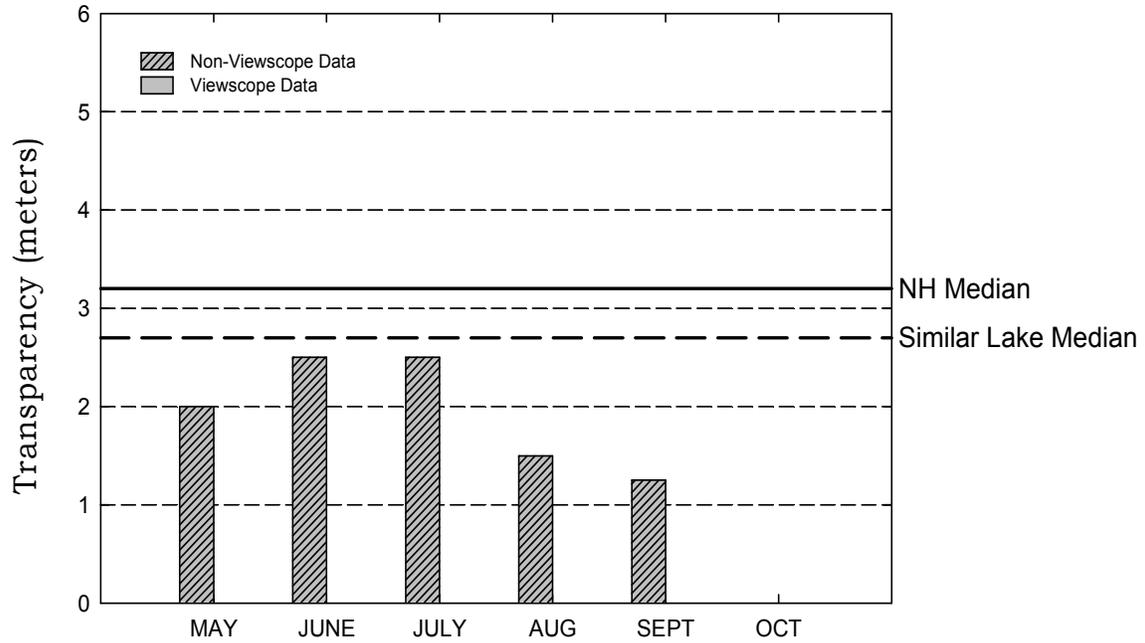
Visual inspection of the historical data trend line (the bottom graph) shows a **relatively stable** trend. Specifically, the transparency has **remained relatively stable ranging between 1.95 and 2.60 meters** since monitoring began in **2005**.

Please keep in mind that this trend is based on only **four** years of data. After 10 consecutive years of sample collection, we will be able to conduct a statistical analysis of the historical data to objectively determine if there has been a significant change in the annual mean transparency since monitoring began.

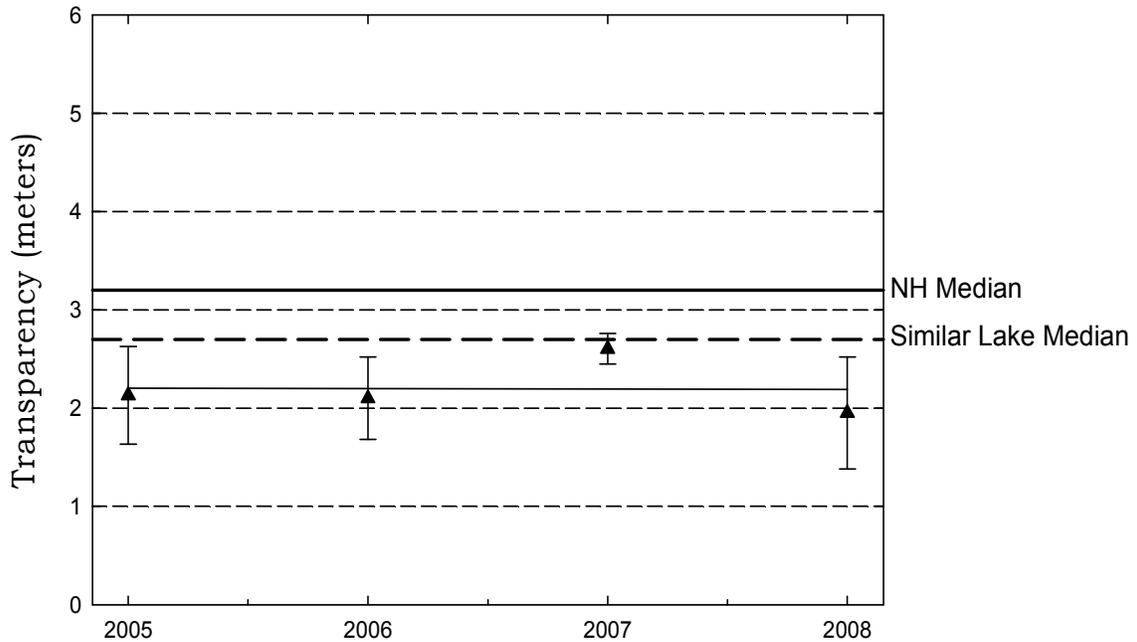
Typically, high intensity rainfall causes sediment-laden stormwater runoff to flow into surface waters, thus increasing turbidity and decreasing clarity. Efforts should continually be made to stabilize stream banks, pond shorelines, disturbed soils within the watershed, and especially dirt roads located immediately adjacent to the edge of tributaries and the pond. Guides to best management practices that can be implemented to reduce, and possibly even eliminate, nonpoint source pollutants, are available from DES upon request.

# Otternick Pond, Hudson

**Figure 2.** Monthly and Historical Transparency Results



2008 Transparency Viewscope and Non-Viewscope Results



Historical Transparency Non-Viewscope Results

### ➤ **Total Phosphorus**

Phosphorus is typically the limiting nutrient for vascular plant and algae growth in New Hampshire's lakes and ponds. Excessive phosphorus in a pond can lead to increased plant and algal growth over time. Table 14 in Appendix A lists the current year total phosphorus data for in-lake and tributary stations. **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 graphs in Figure 3 depict the historical amount of epilimnetic (upper layer) and hypolimnetic (lower layer) total phosphorus concentrations; the inset graphs depict current year total phosphorus data.

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

Please note that data from the **7/1/2008** sampling event were used to represent the **June** total phosphorus concentration.

The **elevated** epilimnetic phosphorus concentrations measured on the **7/28/2008** and **9/29/2008** sampling events may have been due to phosphorus-enriched stormwater runoff that flowed into the surface layer of the pond. Weather records indicate that approximately **1.0 inch** of rainfall was measured **24-72 hours** prior to the July sampling event, and approximately **4.0 inches** of rainfall was measured 24 hours prior to the September sampling event.

The historical data show that the **2008** mean epilimnetic phosphorus concentration is **much greater than** the state and similar lake medians. Refer to Appendix D for more information about the similar lake median.

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

The hypolimnetic (lower layer) turbidity sample was **elevated** on the **August** sampling event (**8.8 NTUs**). This suggests that the pond bottom may have been disturbed by the anchor or by the Kemmerer Bottle while sampling and/or that the pond bottom is covered by an easily disturbed thick organic layer of sediment. When the pond bottom is disturbed, phosphorus rich sediment is released into the water column. When collecting the hypolimnion sample, make sure that there is no sediment in the Kemmerer Bottle before filling the sample bottles.

2008

The historical data show that the **2008** mean hypolimnetic phosphorus concentration is ***much greater than*** the state and similar lake medians. Please refer to Appendix D for more information about the similar lake median.

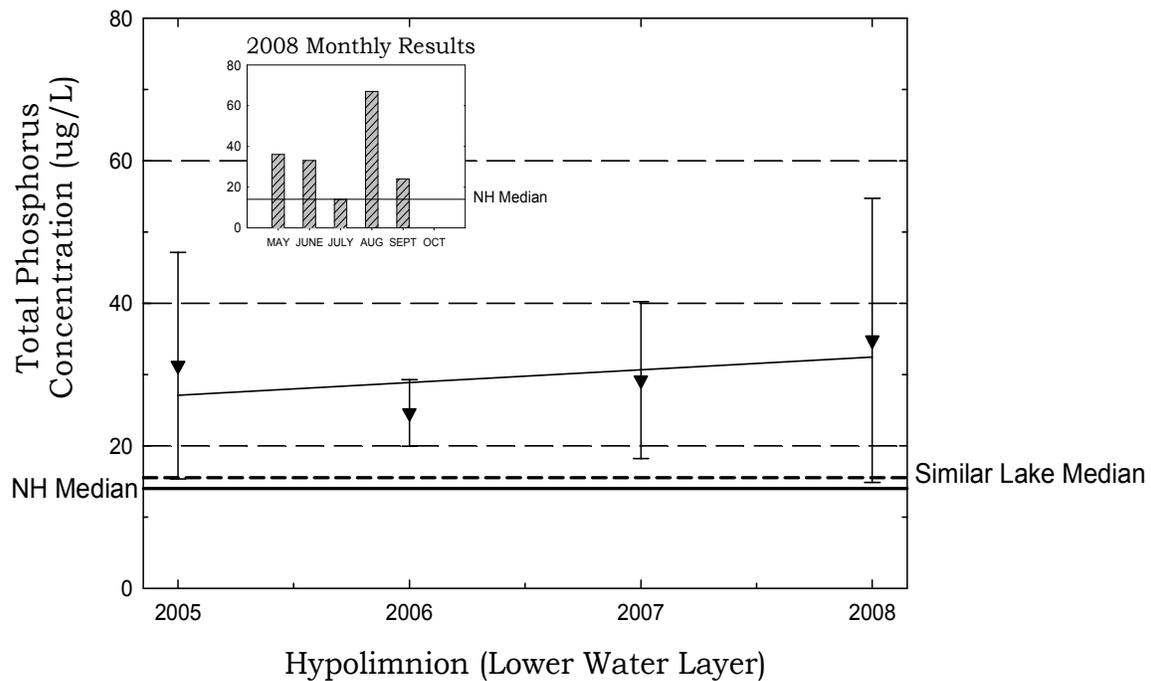
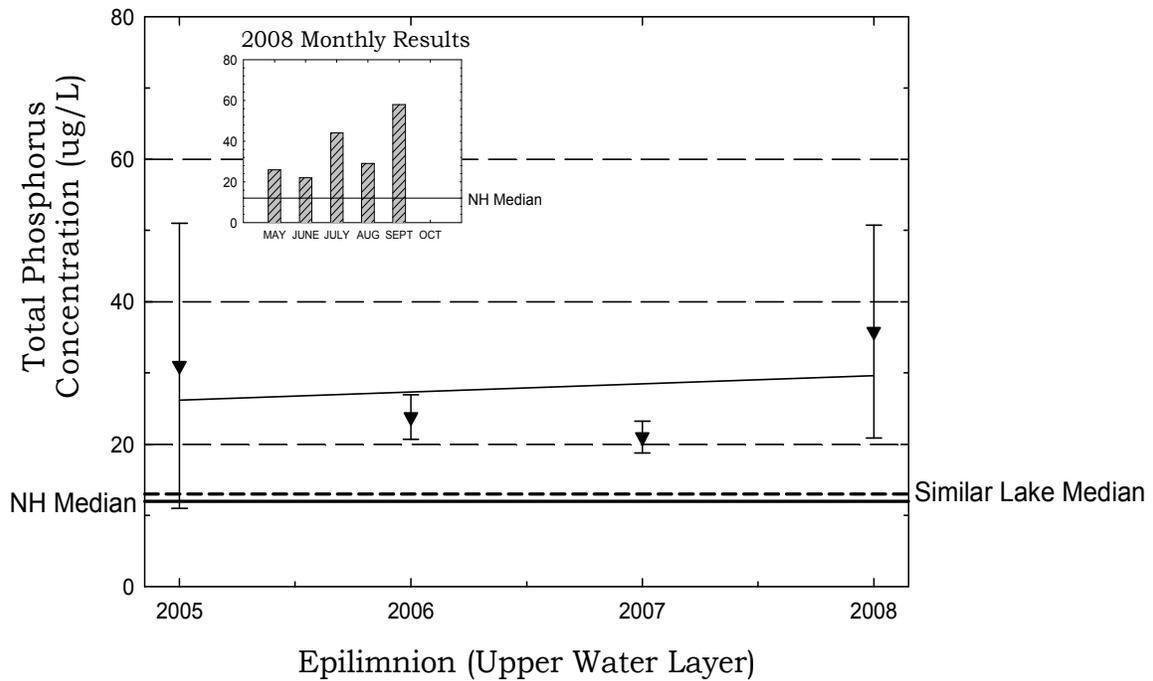
Overall, visual inspection of the historical data trend line for the epilimnion and hypolimnion shows a ***slightly increasing yet variable*** phosphorus trend since monitoring began. Specifically the mean annual epilimnetic and hypolimnetic phosphorus concentration has ***worsened*** since monitoring began in **2005**.

As discussed previously, after 10 consecutive years of sample collection, we will be able to conduct a statistical analysis of the historical data to objectively determine if there has been a significant change in the annual mean phosphorus concentration since monitoring began.

One of the most important approaches to reducing phosphorus loading to a waterbody is to continually educate watershed residents about the watershed sources of phosphorus and how excessive phosphorus loading can negatively affect the ecology and the recreational, economical, and ecological value of lakes and ponds.

# Otternick Pond, Hudson

**Figure 3.** Monthly and Historical Total Phosphorus Data



## ➤ pH

Table 14 in Appendix A presents the current year pH data for the in-lake stations.

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 pH at the deep spot this year ranged from **6.33 to 7.32** in the epilimnion and from **6.17 to 7.12** in the hypolimnion, which means that the water is **slightly acidic**.

It is important to point out that the hypolimnetic (lower layer) pH was generally **lower (more acidic)** than in the epilimnion (upper layer). This increase in acidity near the 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 and acid deposition received from snowmelt, rainfall, and atmospheric particulates, there is little that can be feasibly done to effectively increase pond pH. The pH at the deep spot, however, is sufficient to support aquatic life.

## ➤ Acid Neutralizing Capacity (ANC)

Table 14 in Appendix A presents the current year epilimnetic ANC for the deep spot.

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 **4.9 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 acid neutralizing capacity (ANC) of the epilimnion (upper layer) ranged from **27.4 mg/L to 33.6 mg/L**. This indicates that the pond is **not vulnerable** to acidic inputs.

## ➤ **Conductivity**

Table 14 in Appendix A presents the current conductivity data for in-lake stations.

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 **40.0 uMhos/cm**. For a more detailed explanation, please refer to the "Chemical Monitoring Parameters" section of this report.

The conductivity in the pond remained ***much greater than*** the state median in 2008. Typically, increasing 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 a shoreline conductivity survey of the pond and 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 <http://www.des.nh.gov/organization/divisions/water/wmb/vlap/categories/publications.htm>, 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. In New Hampshire, the most commonly used de-icing material is salt (sodium chloride).

*A limited amount of chloride sampling was conducted during **2008**. Please refer to the chloride discussion for more information.*

Therefore, we recommend that the **epilimnion** (upper layer) 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 is able to conduct chloride analyses, free of charge. As a reminder, it is best to conduct chloride sampling in the spring as the snow is melting and during rain events.*

## ➤ **Dissolved Oxygen and Temperature**

Table 9 in Appendix A depicts the dissolved oxygen/temperature profile(s)

collected during **2008**.

The presence of sufficient amounts of dissolved oxygen in the water column is vital to fish and amphibians and also to 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 **7/1/2008** 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, 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***.

The ***low*** hypolimnetic oxygen level is a sign of the ***pond’s aging*** and ***declining*** health. This year the DES biologist collected the dissolved oxygen profile in **July**. We recommend that the annual biologist visit for the **2009** sampling year be scheduled during **August** so that we can determine if oxygen is depleted in the hypolimnion ***later*** in the sampling year.

### ➤ **Turbidity**

Table 14 in Appendix A presents the current year data for in-lake 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 turbidity of the epilimnion (upper layer) sample was ***slightly elevated (2.66 and 2.25 NTUs)*** on the **August** and **September** sampling events. The abnormally wet conditions this summer likely led to increased stormwater runoff entering the pond. Stormwater runoff can carry particulate matter and deposits it in the pond causing turbid conditions. Or, an algal bloom had occurred in the lake.

As discussed previously, the hypolimnetic (lower layer) turbidity was ***elevated (8.8 NTUs)*** on the **August** sampling event. In addition, the hypolimnetic turbidity has been elevated on many sampling events during previous sampling years. This suggests that the pond bottom may have been disturbed by the anchor or by the Kemmerer Bottle while sampling and/or that the lake bottom is covered by an easily disturbed thick organic layer of sediment. When the pond bottom is disturbed, phosphorus rich sediment is released into the water

column. When collecting the hypolimnion sample, make sure that there is no sediment in the Kemmerer Bottle before filling the sample bottles.

## TRIBUTARY SAMPLING

### ➤ **Total Phosphorus**

Table 14 in Appendix A presents the current year total phosphorus data for tributary stations. Please refer to the “Chemical Monitoring Parameters” section of the report for a detailed explanation of total phosphorus.

The phosphorus concentrations in **Glover and Benson Inlets** were *slightly elevated* throughout the season. It is likely that watershed wetland systems were releasing phosphorus-enriched water into the lake from tributaries that drain the wetland areas. Also, rain events typically carry phosphorus laden watershed runoff to tributaries. Phosphorus sources in the watershed can include agricultural runoff, failing or marginal septic systems, stormwater runoff, road runoff, and watershed development.

The phosphorus concentration in the **Outlet** sample on the **August** sampling event was *elevated (37 ug/L)*, and the turbidity was also *slightly elevated (2.03 NTUs)*. Elevated turbidity levels are most often a result of sediment and/or organic material present in the sample. These materials typically contain attached phosphorus and when present in elevated amounts contribute to elevated tributary phosphorus levels.

### ➤ **pH**

Table 14 in Appendix A presents the current year pH data for the tributary stations. Please refer to the “Chemical Monitoring Parameters” section of this report for a more detailed explanation of pH.

The pH of the tributary stations ranged from **6.35 to 9.19 (> 6)** and is sufficient to support aquatic life.

The pH of the **Benson Inlet** appears to be slightly basic or alkaline (pH > 7). This may naturally occur as a result of calcium rich bedrock. As carbon rich water percolates through the soil it can dissolve limestone in rock formations causing a natural increase in pH.

The pH of the **Outlet** appears to be slightly basic or alkaline (pH > 7). This may be a result of photosynthetic by-products released as a result of abundant aquatic plant and algal growth.

### ➤ **Conductivity**

Table 14 in Appendix A presents the current conductivity data for the tributary stations. Please refer to the “Chemical Monitoring Parameters” section of the report for a more detailed explanation of conductivity.

The tributaries have experienced elevated conductivity levels since monitoring began. We recommend that your monitoring group conduct a conductivity survey of tributaries with **elevated** conductivity and along the shoreline of the pond to help identify the sources of conductivity. As previously mentioned increasing conductivity typically indicates the influence of pollutant sources associated with human activities.

We recommend that your monitoring group conduct stream surveys and rain event sampling along the tributaries with **elevated** conductivity so that we can determine potential sources to the lake.

*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/organization/divisions/water/wmb/vlap/categories/publications.htm>, or contact the VLAP Coordinator.*

### ➤ **Turbidity**

Table 14 in Appendix A presents the current year turbidity data for the tributary stations. Please refer to the “Other Monitoring Parameters” section of the report for a more detailed explanation of turbidity.

Overall, tributary turbidity levels **increased** during the **2008** sampling season. This is likely the result of stormwater runoff from significant rain events throughout the season. Rainfall creates runoff that washes sediment and organic materials into tributaries causing turbid water conditions. Eventually, the suspended solids settle out once the flow is reduced or the tributary flow enters the lake.

### ➤ **Bacteria (*E. coli*)**

Table 14 in Appendix A lists the current year 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. Please refer to the “Other Monitoring Parameters” section of the report for a more detailed explanation.

Bacteria sampling was not conducted this year. If residents are concerned about sources of bacteria such as failing septic systems, animal waste, or waterfowl waste, it is best to conduct *E. coli* testing when the water table is high, when beach use is heavy, or immediately after rain events.

## ➤ Chlorides

Table 14 in Appendix A lists the current year data for chloride sampling. The chloride ion (Cl<sup>-</sup>) is found naturally in some surface waters 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.

The **epilimnion** was sampled for chloride throughout the season. The results were **54, 63, 52, 71, and 42 mg/L**, which are **slightly less than** the state acute chloride criteria and **much less than** the state chronic chloride criteria. However, this concentration is **greater than** what we would normally expect to measure in undisturbed New Hampshire surface waters.

**Benson Inlet** was sampled for chloride throughout the season. The results were **79, 87, 56, 64, and 46 mg/L**, which are **slightly less than** the state acute chloride criteria and **much less than** the state chronic chloride criteria.

**Glover Inlet** was sampled for chloride throughout the season. The results were **44, 54, 27, 46, and 25 mg/L**, which are **much less than** the state acute and chronic chloride criteria.

The **Outlet** was sampled for chloride throughout the season. The results were **54, 66, 48, 66, and 43 mg/L**, which are **slightly less than** the state acute chloride criteria and **much less than** the state chronic chloride criteria.

The **Boat Launch** was sampled for chloride on the **7/1/2008** sampling event. The result was **65 mg/L**, which is **slightly less than** the state acute chloride criteria and **much less than** the state chronic chloride criteria.

We recommend that your monitoring group continue to conduct chloride sampling in the epilimnion at the deep spot, particularly in the spring during snow-melt and rain events during the summer. This will establish a baseline of data that will assist your monitoring group and DES to determine lake quality trends in the future.

*Please note that chloride analyses can be run free of charge at the DES Limnology Center. Please contact the VLAP Coordinator if you are interested in chloride monitoring.*

## 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 while sampling and filled-out 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 that the samples 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 a **very good** job when collecting samples this year! Specifically, the members of your monitoring group followed the majority of the proper field sampling procedures when collecting and submitting samples to the laboratory. However, the laboratory did identify a few aspects of sample collection that your group could improve upon, as follows:

- **Sample labeling:** Please label your samples with a waterproof pen preferably by using a black permanent before sampling. ***Please label your sample bottles with the Lake Name, station name, station depth, date, and time samples were collected.*** Check to make sure that the ink does not wash off the bottle when exposed to water. If your association has made its own sample bottle labels, please fold over one corner of each label before placing it on a sample bottle so that the label will not become permanently attached to the bottle. In addition, please make sure that the labels will stick to the bottles when they are wet.

## **USEFUL RESOURCES**

*Best Management Practices to Control Nonpoint Source Pollution: A Guide for Citizens and Town Officials*, DES Booklet WD-03-42, (603) 271-2975 or [www.des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-03-42.pdf](http://www.des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-03-42.pdf).

*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/organization/commissioner/pip/factsheets/wmb/documents/wmb-10.pdf](http://www.des.nh.gov/organization/commissioner/pip/factsheets/wmb/documents/wmb-10.pdf).

*Impacts of Development Upon Stormwater Runoff*, DES fact sheet WD-WQE-7, (603) 271-2975 or [www.des.nh.gov/organization/commissioner/pip/factsheets/aot/documents/wqe-7.pdf](http://www.des.nh.gov/organization/commissioner/pip/factsheets/aot/documents/wqe-7.pdf).

*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/organization/commissioner/pip/factsheets/bb/documents/bb-9.pdf](http://www.des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-9.pdf).

*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/organization/commissioner/pip/factsheets/sp/documents/sp-2.pdf](http://www.des.nh.gov/organization/commissioner/pip/factsheets/sp/documents/sp-2.pdf).

*Road Salt and Water Quality*, DES fact sheet WD-WMB-4, (603) 271-2975 or [www.des.nh.gov/organization/commissioner/pip/factsheets/wmb/documents/wmb-4.pdf](http://www.des.nh.gov/organization/commissioner/pip/factsheets/wmb/documents/wmb-4.pdf).

*Shorelands Under the Jurisdiction of the Comprehensive Shoreland Protection Act*, DES fact sheet SP-4, (603) 271-2975 or [www.des.nh.gov/organization/commissioner/pip/factsheets/sp/documents/sp-4.pdf](http://www.des.nh.gov/organization/commissioner/pip/factsheets/sp/documents/sp-4.pdf).

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