



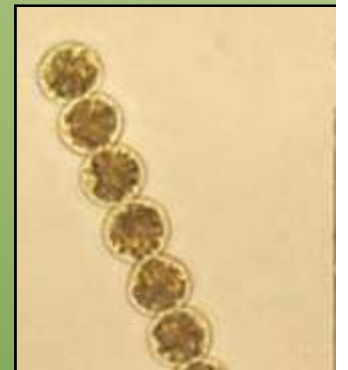
State of New Hampshire and Cyanobacteria

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Beach Program Coordinator

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NH DES Response

Presentations

Workshops

Handouts

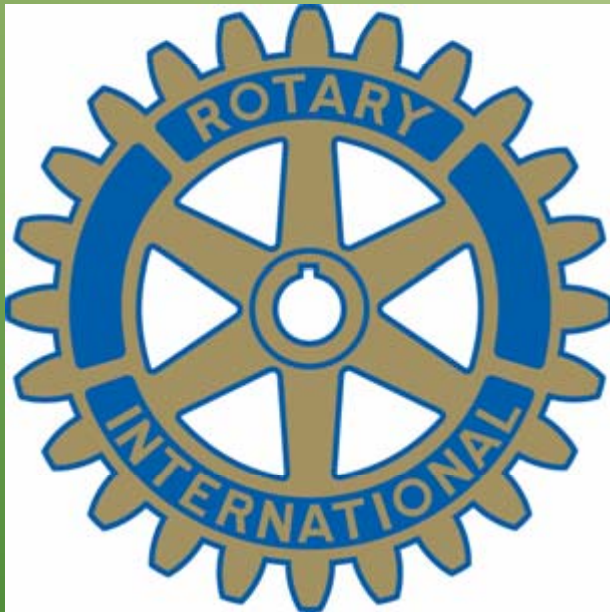
Sampling

Identification

Advisories
Warnings

Analysis

Presentations



Concord Rotary Club

Poster at NEAEB conf.



Eastman Lake Assoc.

In the future: Realtors

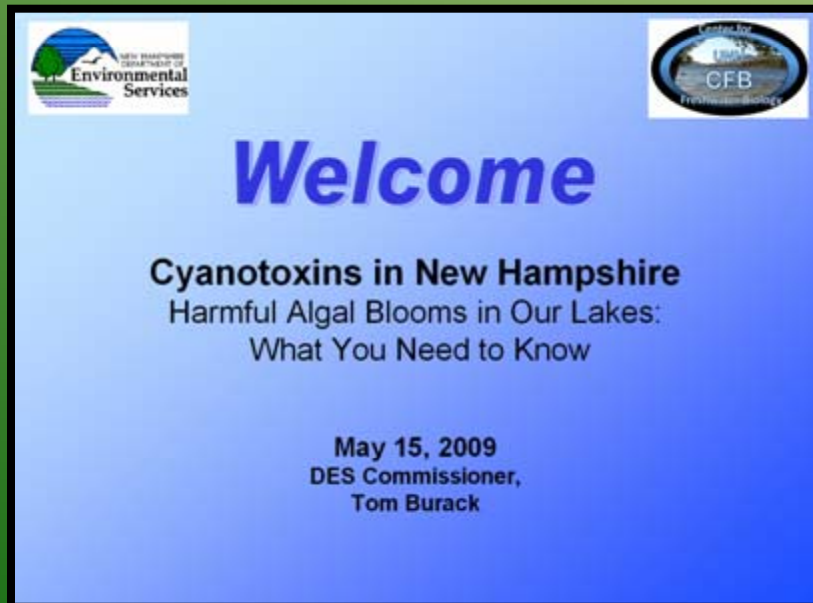
2009 Workshops

May 15: 56 attendees

Veterinarians, Health Officers, Beach Managers

July 1: 85 attendees

Lake Residents, Town Officials, Media



Handouts

ENVIRONMENTAL Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3500 • www.des.nh.gov

WD-WMB-10 2009

Potential Dangers of Cyanobacteria in New Hampshire Waters

What are Cyanobacteria?
Cyanobacteria are bacteria that photosynthesize. Many species of cyanobacteria grow in colonies to form surface water "blooms." Blooms are usually blue-green in color and consist of thousands of individual cells.

Cyanobacteria are some of the earliest inhabitants of our waters, and naturally occur in all of our lakes, often in relatively low numbers. However, research indicates that cyanobacteria abundance increases as lake nutrients increase. As part of the aquatic food web, they can be eaten by various grazers in the lake ecosystem, such as zooplankton and mussels.

Although most often seen when floating near the surface, many cyanobacteria species spend a portion of their life cycle on the lake bottom during the winter months. Increased water temperature and light in the spring promote the upward movement of cyanobacteria through the water column toward the surface where blooms or scums are formed. These scums are often observed in mid to late summer and sometimes well into the fall.

Why are Cyanobacteria a Concern?
Some cyanobacteria produce toxins that adversely affect livestock, domestic animals, and humans. According to the World Health Organization (WHO), toxic cyanobacteria are found worldwide in both inland and coastal waters. The first reports of toxic cyanobacteria in New Hampshire occurred in the 1960s and 1970s. During the summer of 1999, several dogs died after ingesting toxic cyanobacteria from a bloom in Lake Champlain. The WHO has documented acute impacts to humans from cyanobacteria from the US and around the world as far back as 1931. While most human health impacts have resulted from ingestion of contaminated drinking water, cases of illnesses have also been attributed to swimming in cyanobacteria infested waters.

The possible effects of cyanobacteria on the "health" of New Hampshire lakes and their natural inhabitants, such as fish and other aquatic life, are under study at this time. The Center for Freshwater Biology (CFB) at the University of New Hampshire is currently examining the potential impacts of these toxins upon the lake food web. The potential human health hazards via exposure through drinking water and/or during recreational water activities are also a concern to the CFB and the state.

Factsheet







IF YOU OBSERVE A CYANOBACTERIA BLOOM...

**DO NOT DRINK THE WATER!
DO NOT WADE OR SWIM IN THE WATER!
KEEP PETS AND LIVESTOCK OUT OF THE WATER!**


1. CALL NHDES TO REPORT A SCUM: (603) 419-9229.
2. Take a picture and estimate the area covered by the bloom.
3. Collect a sample of the scum:
 - a. Use a clean plastic ziplock bag or jar.
 - b. Place it on ice until it can be delivered.
 - c. Note the specific location where the sample was collected.
 - d. Wash your hands.
4. Deliver the sample to DES Limnology in Concord, NH and provide the staff with your contact information and phone number.
5. A DES Limnologist will identify the cyanobacteria and provide you with the results.
6. If the identified cyanobacteria are a concern, a public advisory will be posted for the lake and necessary.



What might a Cyanobacteria Bloom look like?



For information about recreational exposure to cyanobacteria, please visit our website:
<http://des.nh.gov/organization/divisions/water/wmb/beaches/index.htm>



Bloom Info Card



Sampling

Citizens call or bring us samples

2009: 84 inspections
June 3 to November 25

486 beach inspections
173 Volunteer Monitor Lake staff visits
150 other lake visits each summer

HOW TO COLLECT A CYANOBACTERIA SAMPLE:

1. CALL NHDES TO REPORT A SCUM: (603) 419-9229.
2. Take a picture. Estimate area covered by the bloom.
3. Collect a sample of the scum:
 - a. Use a clean plastic zip lock bag or bottle.
 - b. Place it on ice until it can be delivered to DES.
 - c. Note the specific sample location.
 - d. Wash your hands.
4. Deliver the sample to DES Limnology Center in Concord, NH and provide the staff with your name and phone number.
5. A DES Limnologist will identify the sample and notify you with the results.
6. If the identified cyanobacteria are a species of concern, DES will post an advisory for the lake and/or beach, as necessary.

If you collect a sample on Friday afternoon or over the weekend, it needs to be refrigerated until you can deliver it to the DES on Monday. Limnology Center opens at 8 a.m.

➔ **At NO cost!**





Lake Monomonac, Rindge



Bow Lake, Northwood

Examples of bloom

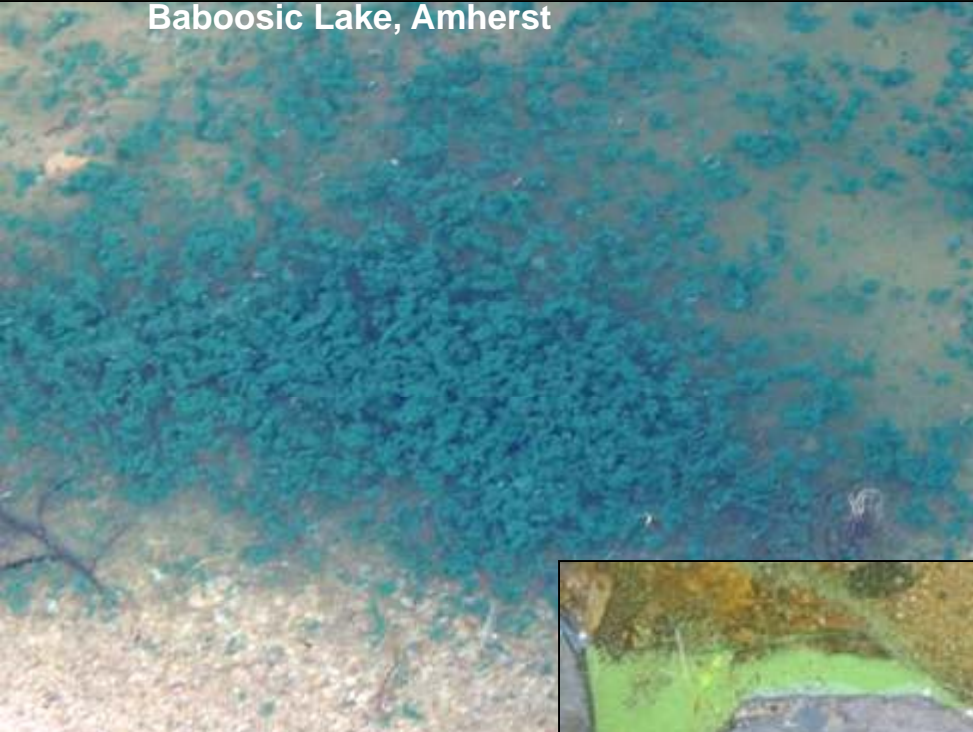


Showell Pond, Sandown



March's Pond, New Durham

Baboosic Lake, Amherst



Robinson Pond, Hudson



Halfmoon Pond, Kingston



Samples with >50% toxin-producing cyanobacteria

Beach Advisory issued
-Manager contacted
-Signs posted

OR

Lake Warning if no beach or bloom far from a beach
-Reporting individuals contacted

NOTICE

THIS BEACH AREA MAY NOT BE SUITABLE FOR SWIMMING DUE TO HIGH LEVELS OF POTENTIALLY TOXIC CYANOBACTERIA

Per Commissioner

NH Department of Environmental Services

Please:

- Do not wade or swim in water containing visible blue-green or greenish scums!
- Do not drink the water or let children drink the water!
- Do not let pets or livestock into the water!

Exposure to blue-green algal scums may cause various symptoms, including nausea, vomiting, diarrhea, mild fever and general malaise. Anyone who comes in contact with an algal scum should rinse off with freshwater.

For more information contact:
NHDES-Biology Section
29 Hazen Drive
Concord, NH 03301
603-271-3503 or 603-271-3414
beaches@des.nh.gov



http://des.nh.gov

an official NH



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Welcome!

New Hampshire Department of Environmental Services



[Beach Advisory](#)
[Drinking Water Advisory](#)

DES News

[more news](#)

- May 12, 2009
Municipal Officials, Interest Groups Express Concerns About The Future Of Water Resources In New Hampshire
 Concord, N.H. – The impact of development on water quality in the Granite State tops the list of concerns voiced in a series of public meetings being held across the state by the New Hampshire Department of Environmental Services. [more...](#)
- May 8, 2009
Lawn Watering A Costly Use Of Precious Drinking Water
 Concord, N.H. – The New Hampshire Department of Environmental Services wants to encourage residents to be water wise by adopting proven water conservation practices that will reduce water losses, waste, or use. [more...](#)
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DES And NH Association Of Natural Resource Scientists Sign Partnership Agreement
Agreement Signed As Part Of DES Partners Program
 Concord, NH – The New Hampshire Department of Environmental Services and NH Association of Natural Resource Scientists (NHANRS) today signed a partnership agreement [more...](#)

What's New

- NH **DES's American Recovery And Reinvestment Act Resources**
- DES/UNH Workshop - Cyanotoxins In New Hampshire's Lakes (May 15)**
- Title V Operating Permit For PSNH Merrimack Station**
- Aquatic Resource Mitigation Funds For Merrimack River Watershed Request For Proposals**





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[Divisions](#) > [Water Division](#) > [Programs/Bureaus/Units](#) > [Beach Inspection Program](#) >

Current Advisories

Monday, June 8, 2009

A Cyanobacteria Warning has been issued for the following waterbodies:

- Goose Pond, Canaan, NH
- Lake Monomonac, Ridge, NH and Winchendon, MA

Water samples taken from these lakes had a majority of cyanobacteria cells. Cyanobacteria will aggregate in a blue-green scum on the surface of the water and the wind can blow the scum to shore. Sometimes these scums resemble paint chips or bright green balls floating in the water. Beach and lake users should be on the lookout for cyanobacteria scums. If you notice anything resembling cyanobacteria, please refrain from wading, swimming, or drinking the water. Keep all pets out of the water and contact DES immediately. Please call DES to report a cyanobacteria bloom at (603) 419-9229.

There are currently no advisories posted at the beaches in the state of New Hampshire.



http://des.nh.gov



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Join the New Hampshire Department of Environmental Services E-Mail Mailing List

Want to get the latest news about New Hampshire's Environment?

Just sign up below to receive press releases and newsletters from DES programs.

We will never share your contact information with anyone, and you can unsubscribe or change your settings at any time.

[NH State web site privacy policy](#)

Required fields are marked with * below.

E-mail Address *

First name *

Last name *

Company

Please check all that apply:



- Press Releases (announcements by DES)
- Press Advisories (upcoming event or meeting announcement)
- Environmental News (Main DES newsletter)
- Beach Advisories
- The Critical Edge (Quarterly newsletter from the Shoreland Protection Pr
- GreenWorks (Ideas for a Cleaner Environment)
- Meanderings (annual newsletter from the DES Rivers Management and Pr



Twitter.com/NHDES_Beaches



NHDES_Beaches

Cyanobacteria Lake Warnings:
Goose Pond, Canaan & Harvey Lake,
Northwood. Bloom varies around
lake. Report scums to
beaches@des.nh.gov

about 8 hours ago from web

Jenness, North Beach & North Hampton State Beaches, Northside
Park, Sawyer & Bass were all clean yesterday. Good water for
swimming!

3:17 PM Jun 5th from web

Samples from Wednesday @ Bass, Cable, Hampton, New Castle,
Sawyer, Seabrook Harbor & TB all clean. 6/4/9 results at 5 pm

12:59 PM Jun 5th from web

Cyanobacteria Lake Warning--Monomonac, Rindge. No bloom in
some areas & some coves are blue-green. Report scums to
beaches@des.nh.gov

10:38 AM Jun 4th from web

Pirate's Cove, Cable, Foss, New Castle, Jenness & Wallis Sands
SP sampled yesterday--ALL samples well below stds. More clean
beach water!

4:21 PM Jun 3rd from web

Hampton SP & Harbor, Seabrook Harbor & TB, Pirate's Cove &
Sun Valley were sampled yesterday--ALL samples well below stds.
YEAH-Clean Water!

Name NH Beach Inspector

Location New Hampshire
Beaches

Web <http://www2.des.s...>

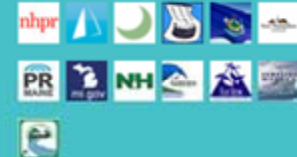
Bio For safe swimming, we
sampling coastal &
freshwater beaches to monitor
bacteria

13 102
following followers

Updates 18

Favorites

Following



RSS feed of NHDES_Beaches's
updates

Advisory & Warning Removal

**Sampled weekly
until < 50%**

Manager contacted

Web posting removed

Twitter updated

Email sent

NOTICE

THIS BEACH AREA MAY NOT
BE SUITABLE FOR SWIMMING
DUE TO HIGH LEVELS OF
**POTENTIALLY TOXIC
CYANOBACTERIA**

Per Commissioner

NH Department of Environmental Services

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How to Respond: To a bloom sighting... To a bloom exposure...



Wash your hands!

Below: "People wade through blue-green algae at Qingdao, the host city for sailing events at the 2008 Olympic Games, in eastern China's Shandong province."

Do not drink the water!



Keep pets out of the water!



Do not wade or swim in the water!

Lakes with blooms in past 5 yrs:

TOWN	LAKE
Belmont, Laconia, Sanbornton	Lake Winnisquam
Dover, Somersworth	Willand Pond
Franklin	Webster Lake
Hanover	Storrs Pond
Henniker	Keyser Pond
Hopkinton	Hopkinton Lake
Kingston	Great Pond
↓	Greenwood Pond
↓	Halfmoon Pond

TOWN	LAKE
Laconia	Opechee Bay
Littleton	Partridge Lake
Nashua	Harris Pond, Pennichuck Water Works
Northwood	Bow Lake
↓	Harvey Lake
New Durham	March's Pond
Sanbornton	Hunkins Pond
Stoddard	Granite Lake
Tuftonboro	Mirror Lake

Analysis



Samples frozen/thawed
3xs



Filter samples
(22 μ m membrane)



Samples ready
for analysis



Envirologix
Tube kit

Pond, Town	Sample Date	Result PPB	Result PPB if outside range of standards
Cobbett's Pond, Windham	8/14/09	19.41	>2.5
Country Pond, Newton	8/10/09	24.87	>2.5
Downing Pond, New Dunham	8/25/09	0.17	
Dublin Lake, Dublin	7/10/09	0.07	<0.1
Eastman Pond, Grantham	10/21/09	2.51	>2.5

Results



It's QUESTION TIME!!