



New Hampshire's Cyanobacteria Plan: A Statewide Strategy

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Presented By:

David Neils, Chief Aquatic Biologist

Director, Jody Connor Limnology Center | Watershed Management Bureau



What is Cyanobacteria & Why is it a Problem?

Cyano Facts:

- Formerly known as “Blue-Green Algae.”
- Photosynthetic bacteria, they are not actually algae.
- Inhabitants of Earth for over 3.5 billion years.
- Thousands of species and hundreds of **toxins**.
- Ubiquitous in the environment and globally.
- Thrive when excess nutrients are available.

Toxicity affects:

- Respiratory system irritation/Sore throat.
- Skin rash.
- Vomiting/Diarrhea/Abdominal Pain.
- Fever/Headache.
- Tingling, burning, numbness sensation.
- Acute neurological system failure.
- Liver/kidney damage (ingestion/long term exposure).
- Potential to cause neurodegenerative diseases such as ALS (Long term exposure).

Connection to Use of Public Waters

Restricted Boating Opportunities



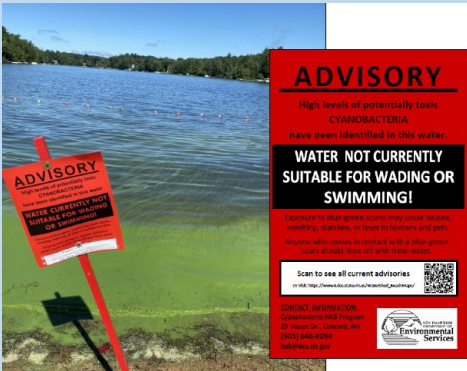
Lake Residents



Boats Docked at Marinas



Boaters Using Public Launches



Cyanobacteria Warnings (advisories): Issued when cyanobacteria density exceeds that considered safe for recreational use.

Warnings can last from a few to over 100 days depending on bloom severity.

Purpose of Strategy

In 2022, HB 1066 required NHDES to develop a plan by November 2023.

Goals of Plan:

- Prevent the increase of, and eventually control, cyanobacteria blooms in New Hampshire's waterbodies.
- Reduce the risks of cyanobacteria blooms to humans, pets and livestock.
- Better understand the causes of cyanobacteria blooms and develop methods to monitor their occurrence.

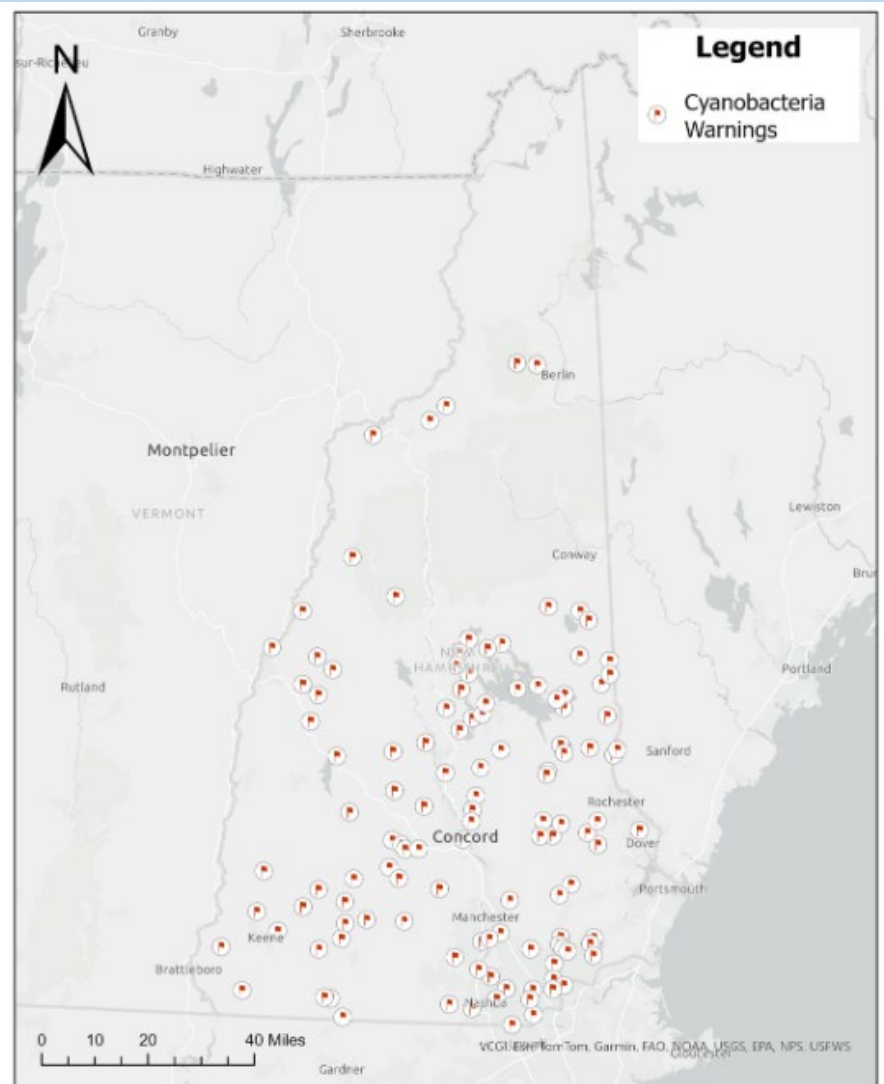
Assistance to Complete Plan

Cyanobacteria Plan Advisory Committee: 17-member committee with diverse backgrounds and assistance to provide NHDES assistance in identifying and prioritizing issues and action items. Five in-person meetings were held to receive input.

Financial Support: \$30,000 funded two studies to inform plan

- 1) Public Survey** - ~700 respondents asked about awareness and concerns related to cyanobacteria. 96% of respondents expressed concern about cyanobacteria. Concerns were focused on health risks, recreational use, and property values.
- 2) Cyanotoxin prevalence study** – 245 blooms samples from 2022 were tested for toxicity. 68% of samples had detectable levels of microcystins, 20% of samples exceeded safe drinking water guidelines, and 11% exceeded safe recreational use guidelines

Cyanobacteria in New Hampshire's Inland Surface Waters



New Hampshire Cyanobacteria Bloom Warnings
(2004-2023)

- From 2004 to 2023, cyanobacteria warnings have been issued for 122 waterbodies and have occurred statewide.
- There are currently 94 waterbodies impaired for cyanobacteria in New Hampshire, according to the 2020/2022 integrated report.
- Some waterbodies bloom every year, others occur only occasionally, and each year blooms occur on waterbodies where they were not previously reported.

Cyanobacteria in New Hampshire's Inland Surface Waters (con't)



- Bloom warnings have increased over time.
- 69 warnings in 2023.
- Blooms last 25-days on average; some only a few days; others over 100-days.
- Earliest bloom date is May 18, latest is December 7; most occur in summer months.

Summary of NH's Statewide Cyanobacteria Plan Strategies

To develop the policies and practices to reduce, control, and prevent nutrient inputs that cause cyanobacteria blooms.

1

To advance education and outreach efforts that allow individuals who recreate or use surface waters to assess the cyanobacteria risks and respond accordingly.

2

Establish policies and procedures for prevention, early detection and response, and treatment of cyanobacteria blooms and cyanotoxins in surface waters that serve as public drinking water supplies to minimize risks to customers.

4

Enhance cyanobacteria monitoring to track when and where blooms occur and clearly communicate current conditions to the public.

3

Strategy 1: Reduce nutrient inputs through implementation of policies and practices



Stormwater accounts for 50% of water quality impairments in NH.

Stormwater has a high concentration of nutrients.

Priorities for nutrient input reduction strategy

- Identification of state and local policies aimed to control nutrients, especially with respect to stormwater.
- Identify ways to increase capacity and financial support for watershed and in-lake management efforts.
- Develop laws, rules and guidance that define the permitting requirements for in-lake management activities designed to remediate cyanobacteria.

Example policies to reduce nutrient inputs

- Stormwater utilities.
- Municipal overlay districts.
- Requirement to perform regular septic system inspections.
- Complete a review of related state regulations.

Strategy 2: Increase education and outreach to promote cyanobacteria awareness



Bloom identification and avoidance awareness is key to avoid health risks

“When in Doubt, Stay out”

Education and outreach priorities:

- Promote self-risk assessment messaging and techniques.
- Produce cyanobacteria informational materials related professional disciplines and consumer groups.

Example actions:

- More informational signage at public access points.
- Production of updated and expanded outreach materials.
- Increase awareness and interaction with professional disciplines (Vets/Doctors/On-water professionals).
- Strengthen/expand on partnerships with local organizations.

Strategy 3: Enhance cyanobacteria monitoring and communication of bloom occurrences



Cyanobacteria monitoring is response-based

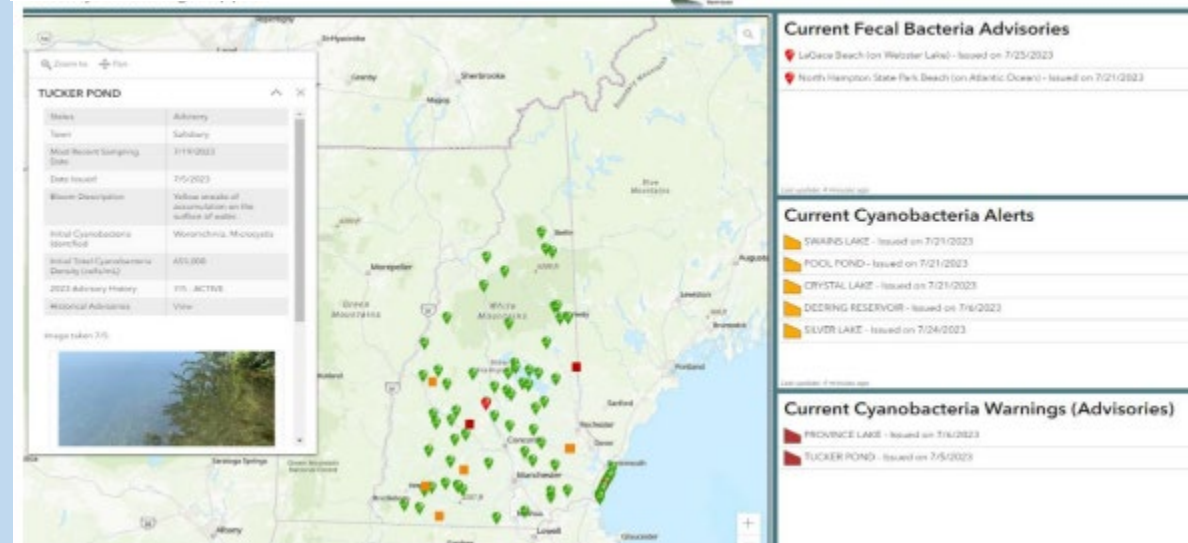
In 2023, NHDES processed over 800 cyanobacteria samples.

Sample evaluation is focused on cell counts, but toxicity testing is completed in winter.

Priorities for bloom monitoring and communication

- Enhance of cyanobacteria monitoring, sample submission and processing efficiency.
- Develop and implement advanced bloom reporting and notification tools.

NHDES Healthy Swimming Mapper



Strategy 4 - Establish policies and procedures to prevent, detect and respond to blooms in drinking water supplies.



Arlington Mill Pond, Salem

Priorities for drinking water supplies:

- Develop cyanobacteria action plans for public water suppliers.

Action plans should include:

- Bloom prevention efforts (i.e., watershed planning, nutrient load reduction).
- Risk monitoring to anticipate and track bloom occurrence.
- Bloom response protocols (If a bloom occurs, what actions does the water supplier take).

37 surface waters serve as public water supplies in NH.

12 have had documented cyanobacteria blooms.

Public Focus of the Plan

Actions aimed at minimizing and preventing blooms which leads to less restrictions and improve recreational use on impacted waterbodies.

Prevention & Mitigation of Cyanobacteria Blooms through Nutrient Reduction

Increasing Awareness of Cyanobacteria through Education and Outreach on Blooms to Understand & Avoid Risks

Focuses on providing the resources necessary to assist the public on identifying a bloom and conducting a self-assessment risk analysis.

Goal is to increase public health protection by ensuring blooms in surface water supplies are identified, responded to, and avoided.

Minimize Bloom Risks in Drinking Water Supplies through Bloom Prevention, Early Detection, and Response

Enhance cyanobacteria monitoring to track when and where blooms occur and clearly communicate current conditions to the public.

Focused on improving the methods and techniques to detect & track blooms to better inform the public.

The Plan is a Call to Action!

- Not exclusive to NHDES – meant for all stakeholders and interest groups.
- Describes specific “tactics” with measurable milestones to track progress.
- Infographics add examples to demonstrate certain tactics.
- An appendix lists over 200 ideas generated during the Cyanobacteria Advisory Committee meetings and plan development.



It's up to all of us - NHDES, state and federal resource agencies, stakeholders, non-profit lake/river organizations, conservation commissions, and the public – to work together to implement the most meaningful actions to achieve the plan goal as directed:

Prevention & Control of Cyanobacteria Blooms

2024 Legislative Actions

HB1143: Controlling cyanobacteria blooms under the NH Clean Lakes Program (RSA 487) – expands program to include cyanobacteria and projects to control phosphorus loads.

HB1103: Modification of the Shoreland Protection Act for the purposes of enforcement of unlawful activities (RSA 483-B:18) – removes language that has previously hampered NHDES in pursuing enforcement actions.

HB1113: Strengthens assessment requirements for shoreland septic systems upon waterfront property sale (RSA 485-A:29) – requires septic system designer evaluation if septic system not registered or more than 20 years old. If system “fails” must report to state and local health officer.

HB1293: Prohibiting use of certain fertilizers containing phosphorus (RSA 431:4-b) – place limits on the locations, timing, and rate that fertilizers can be applied. Requires signage at point of sale noting potential “threats” to water.

HB1229: Shoreland real estate transfer (RSA 483-B) - acknowledgement of the minimal standards required by the Shoreland Protection Act upon transfer of shoreland property.

SB394: Adds an additional \$1 million to the Cyanobacteria Mitigation Fund (RSA 485-A:61) – Enhances funding available for projects to reduce nutrient loading in control of cyanobacteria blooms.

NEW! – Cyanobacteria Mitigation Fund (CMF)

What

- Established \$1 million fund in 2023 State Budget HB2.
- Provide grants and loans to assist with the cost of reducing the occurrence of chronic and extended cyanobacteria blooms that the department considers a threat to the long-term health of waterbodies.

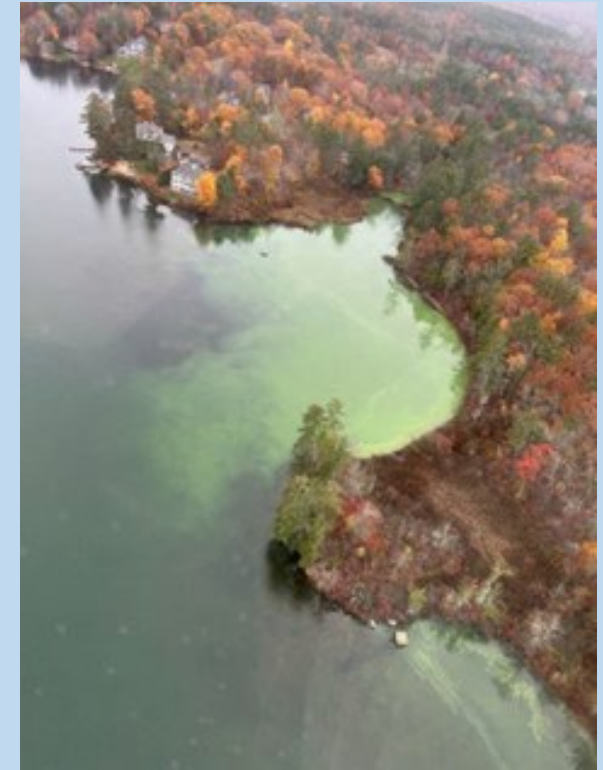
Why

- Growing number of waterbodies impaired for recreational use due to cyanobacteria blooms.
- Funds watershed projects specifically focused on reducing and controlling nutrient pollution that propose to achieve a water quality target that is expected to reduce the likelihood or occurrence of chronic and extended blooms.

How

- Interim rules adopted – NH Admin. Rules Env-Wq 2300.
- Fund “shovel ready” projects that significantly reduce external or internal nutrient loads to the waterbody.

Questions



David Neils, Chief Aquatic Biologist
Director, Jody Connor Limnology Center | Watershed Management Bureau
David.E.Neils@des.nh.gov