

presented by Shane Bradt, UNH Cooperative Extension
July 25, 2016

NORTHEAST CYANOBACTERIA MONITORING PROGRAM

THREE COORDINATED MONITORING PROJECTS TO LOCATE AND UNDERSTAND
HARMFUL CYANOBACTERIA IN NORTHEAST STATES



#Northeast Cyanobacteria Monitoring Program

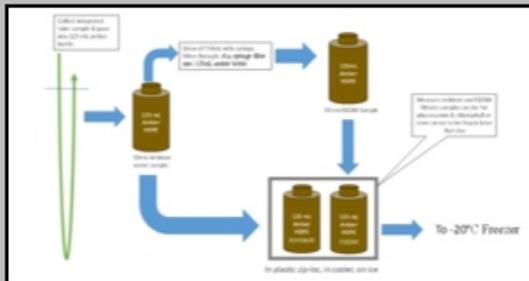
Connecticut Dept. of Energy and Environmental Protection Chris Bellucci, Guy Hoffman, Tracy Lizotte
Maine Department of Environmental Protection Linda Bacon
Charles River Watershed Association Bryan Dore
Massachusetts Department of Environmental Protection Joanie Beskenis, George Zoto
Massachusetts Department of Public Health Mike Celona
Concord New Hampshire Water Works Pat Myers, Marco Phillipon
Lebanon New Hampshire Water Works Jim Angers
Manchester New Hampshire Water Works Kristin Conte, David Miller, John O'Neil, Cheryl Wood
Meredith New Hampshire Water Works Dan Leonard
New Hampshire Department of Environmental Services Sonya Carlson, David Neils, Paul Susca
New Hampshire Lakes Lay Monitoring Program Shane Bradt, Bob Craycraft
Pennichuck New Hampshire Water Works Chris Countie, Matt Day
Rochester New Hampshire Water Works Tim Green, Ian Rohrbacher
University of New Hampshire Center For Freshwater Biology James Haney, Amanda Murby
New York Department of Environmental Conservation Scott Kisbaugh
New York State Department of Health Eric Weigart
Rhode Island Department of Environmental Management Jane Sawyers, Brian Zalewsky
University of Rhode Island Watershed Watch Partnership Linda Green, Elizabeth Herron
Lake Champlain Basin Monitoring Program Eric Howe
Vermont Department of Environmental Conservation Angela Shambaugh
Comprehensive Environmental, Inc. David Cote, Natalie Knocki, Eileen Pannetier
Eastern Analytical, Inc. Kitty Lane
New England Interstate Water Pollution Control Com. Susannah King, Dan Peckham, Kimberly Roth
Penobscot Nation Angie Reed
USEPA Atlantic Ecology Division Jeff Hollister, Bryan Milstead, Hal Walker
USEPA Region 1 Laboratory Tom Faber, Diane Switzer, Katrina Kipp, Hilary Snook
USEPA Region 1 Toby Stover
United States Geological Survey Joe Ayotte, Marcus Waldron

Connecticut | Maine | Massachusetts | New Hampshire | New York | Rhode Island | Vermont | No/Multi

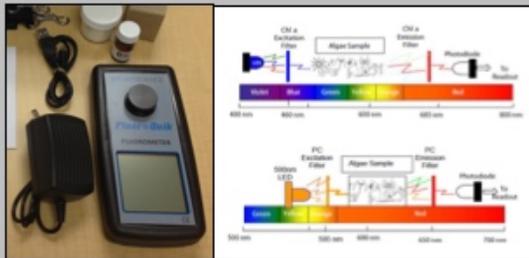
3-prong approach to monitoring cyanobacteria in New England

CYANO MONITORING

lake water is collected to examine long-term & seasonal patterns of cyanobacteria



collected from shore or boat



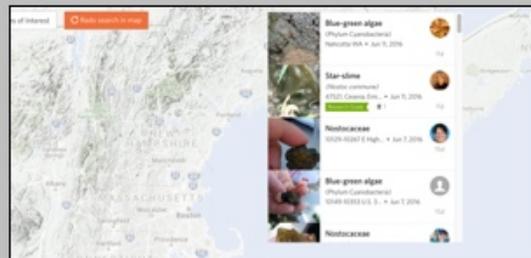
analyzed for phycocyanin and chlorophyll

BLOOMWATCH APP

the bloomWatch App is used to photograph blooms and lake conditions



additional info is documented



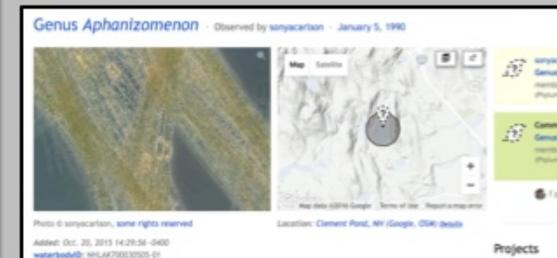
picture & details sent to database and relevant state authorities

CYANOSCOPE

cyanobacteria are collected, concentrated and viewed under a microscope



cyanos are ID'ed using the "Dirty Dozen" key



pictures and identification submitted and shared for confirmation and analysis

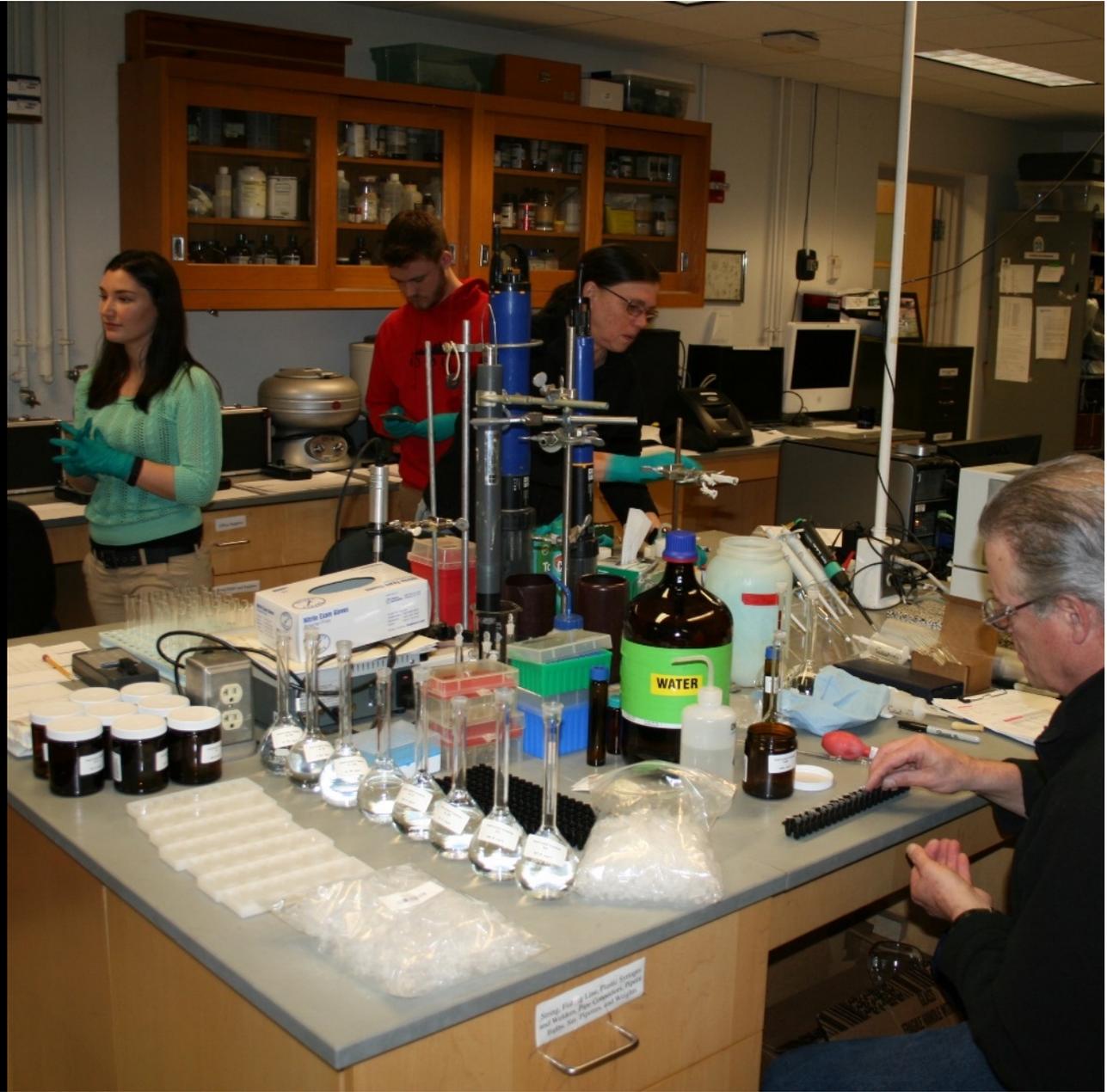
<http://monitor.cyanos.org>



CYANOMONITORING

PROFESSIONALS AND TRAINED CITIZEN SCIENTISTS MONITORING FRESHWATERS FOR CYANOBACTERIA

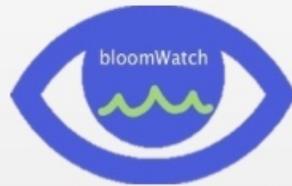




<http://bloomwatchapp.org>

PROJECT OVERVIEW: BLOOMWATCH APP

Help track cyanobacteria blooms using your smartphone



Are you seeing a normally-clear lake that has suddenly turned the color of pea soup or a blue-green paint spill? It may be a bloom of cyanobacteria, which have the potential to produce toxins that affect humans, pets, and our ecosystems.

State and local officials can't be watching every lake at all times. With you and your smartphone helping us out, we want to improve our ability to understand where, how, and when these organisms may be proliferating and causing issues.

APPLE PHONE USERS:
LINK TO APP STORE COMING
SOON!

ANDROID PHONE USERS:
LINK TO APP STORE COMING
SOON!



iOS and Google Play
(coming soon)

AT&T Wi-Fi 12:44 PM 38%

bloomWatch!

Does lake/pond have public access for boating, fishing, or bathing?

Yes

Weather conditions:

Overcast

Surface conditions:

Choppy

Bloom size or extent:

Smaller than a sedan

Introduction [Information](#) Photo Capture Submit

Back to TestFlight 12:38 PM 38%

bloomWatch!

Photo 1: Attempt to capture the areal extent of the bloom, (lake/pond wide, along the shoreline, etc.). If additional description is necessary, enter it in the box below.



Describe Photo 1

Latitude: Longitude:

Latitude Phot... Longitude Ph...

Introduction [Information](#) [Photo Capture](#) Submit

bloomWatch

7

members

3

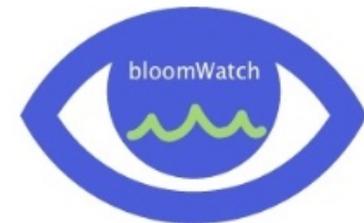
observations

3

locations

36

measurements



Project Manager: Jasper Hobbs

Description: Help track cyanobacteria blooms using your smartphone!

Are you seeing a normally-clear lake that has suddenly turned the color of pea soup or a blue-green paint spill? It may be a bloom of cyanobacteria, which has the potential to produce toxins that affect humans, pets, and our ecosystems.

State and local officials can't be watching every lake at all times. With you and your smartphone helping us out, we want to improve our ability to understand where, how, and when these blooms are appearing and are causing issues.

Submit data for bloomWatch using our app, which connects directly to this CitSci.org webpage! Download the app from our project website when it goes live (app currently under development, check back in early summer 2016): <http://cyanos.org/bloomwatch#Project-Overview>.

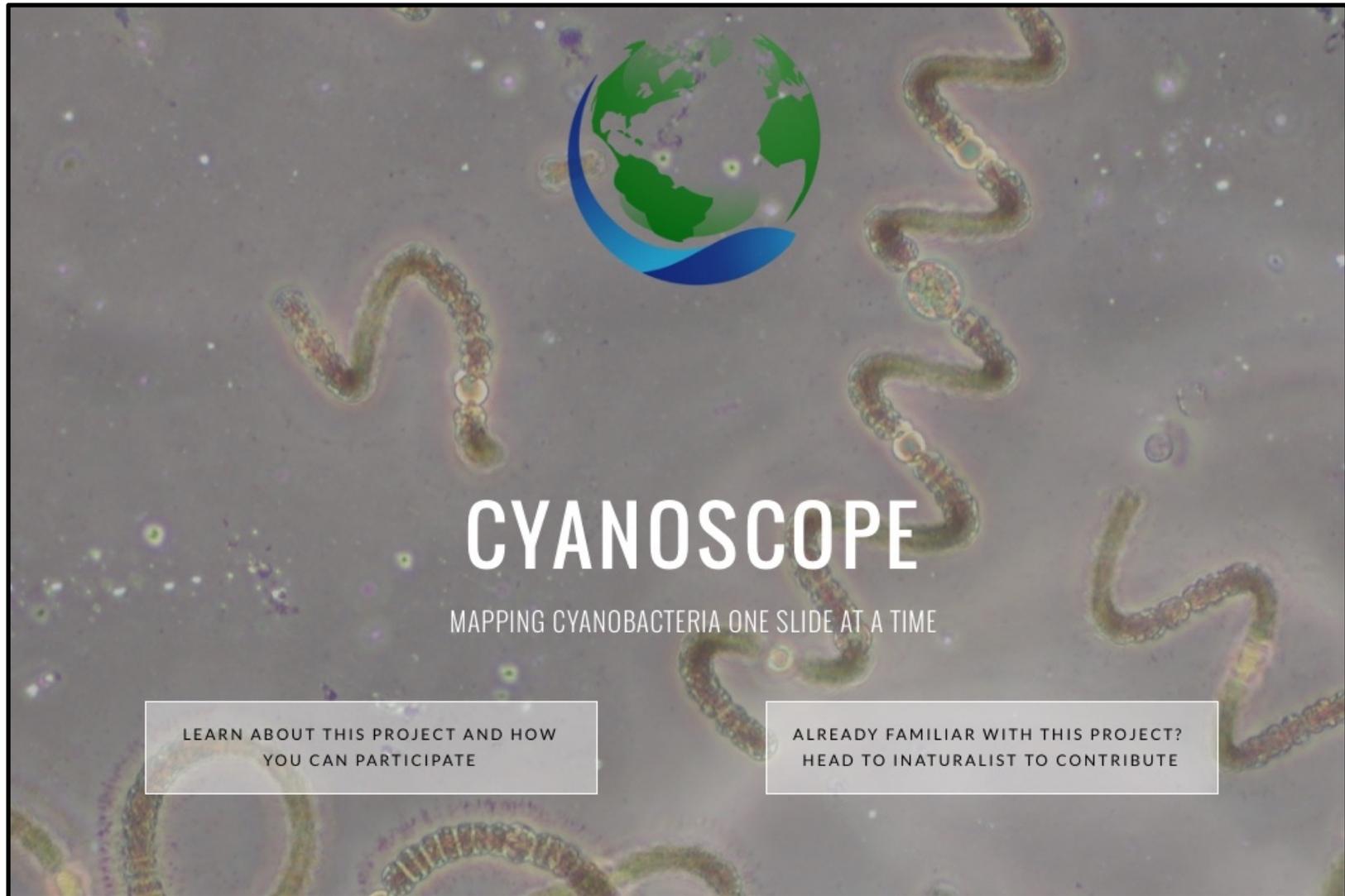


Project Details



Team Members

<http://cyanoscope.org>

A microscopic view of cyanobacteria, showing several long, wavy, filamentous structures with distinct segments and internal structures. A green and blue globe logo is positioned in the upper center of the image.

CYANOSCOPE

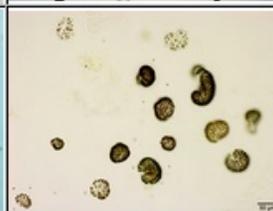
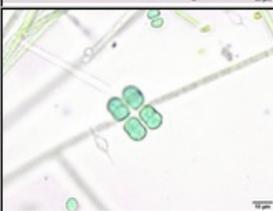
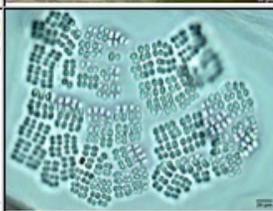
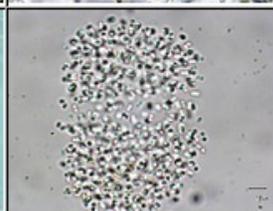
MAPPING CYANOBACTERIA ONE SLIDE AT A TIME

LEARN ABOUT THIS PROJECT AND HOW YOU CAN PARTICIPATE

ALREADY FAMILIAR WITH THIS PROJECT? HEAD TO INATURALIST TO CONTRIBUTE



Toxic Cyanobacteria of New England "The Dirty Dozen"

| Purpose & Background |  | Genus List |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

University of New Hampshire, Center for Freshwater Biology: cfb.unh.edu

Please contact [Amund Merby](mailto:Amund.Merby) for questions or comments



cyanoScope

MAPPING CYANOBACTERIA ONE SLIDE AT A TIME

ADD OBSERVATIONS

cyanoScope

Stats

| Totals | Most Observations | Most Species | Most Observed Species |
|------------------------------|-------------------------------|-------------------------|-----------------------------------|
| 102 Observations > | williamsid 37 observations | karsina 4 species | Gloeocapsa 6 observations |
| 17 Species > | richfema 10 observations | williamsid 1 species | Microcystis 2 observations |
| 19 People > | karsina 8 observations | richfema 1 species | Oscillatoria 2 observations |
| | whmresearch 9 observations | | Diatoms 2 observations |
| | marje 7 observations | | Cocciaphpectrum 2 observations |

Members

40 members

View all members >

Export observations

atom / KML / CSV

About

What is cyanoScope?

cyanoScope uses modern technologies and social media platforms to learn more about cyanobacteria.

By participating you will be helping scientists and water resource managers gain information on the occurrence and timing of cyanobacteria in lakes, ponds, and reservoirs.

The Process:

- Collect
- Collect a water sample from your favorite lake or pond as ...more >

iNaturalist.org

Observations Species Projects Places Guides People

Observations

Species

Location

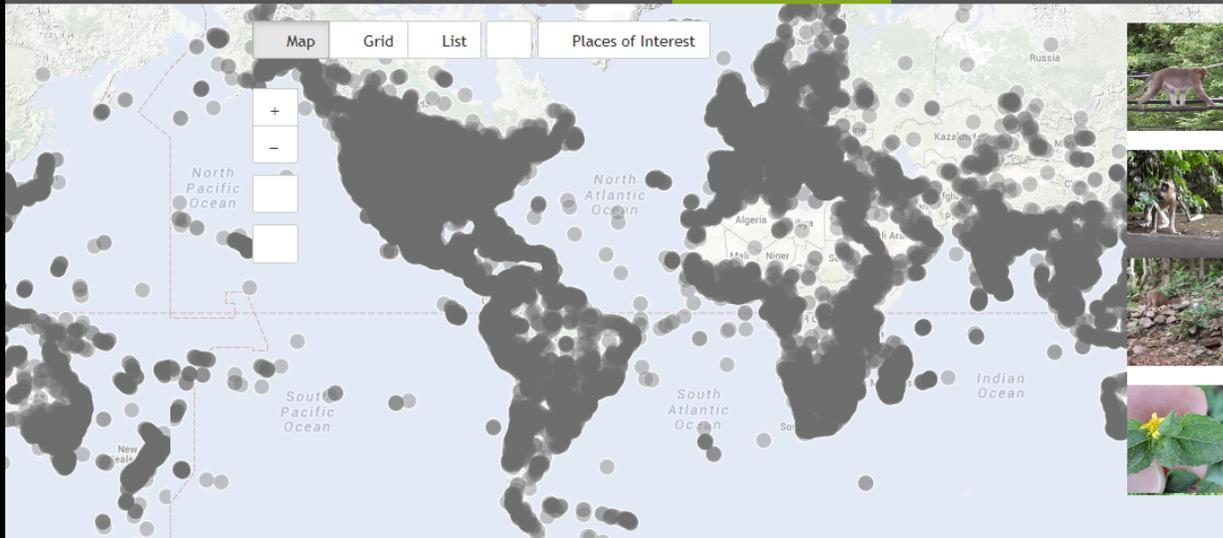
The World

2,500,490
OBSERVATIONS

89,001
SPECIES

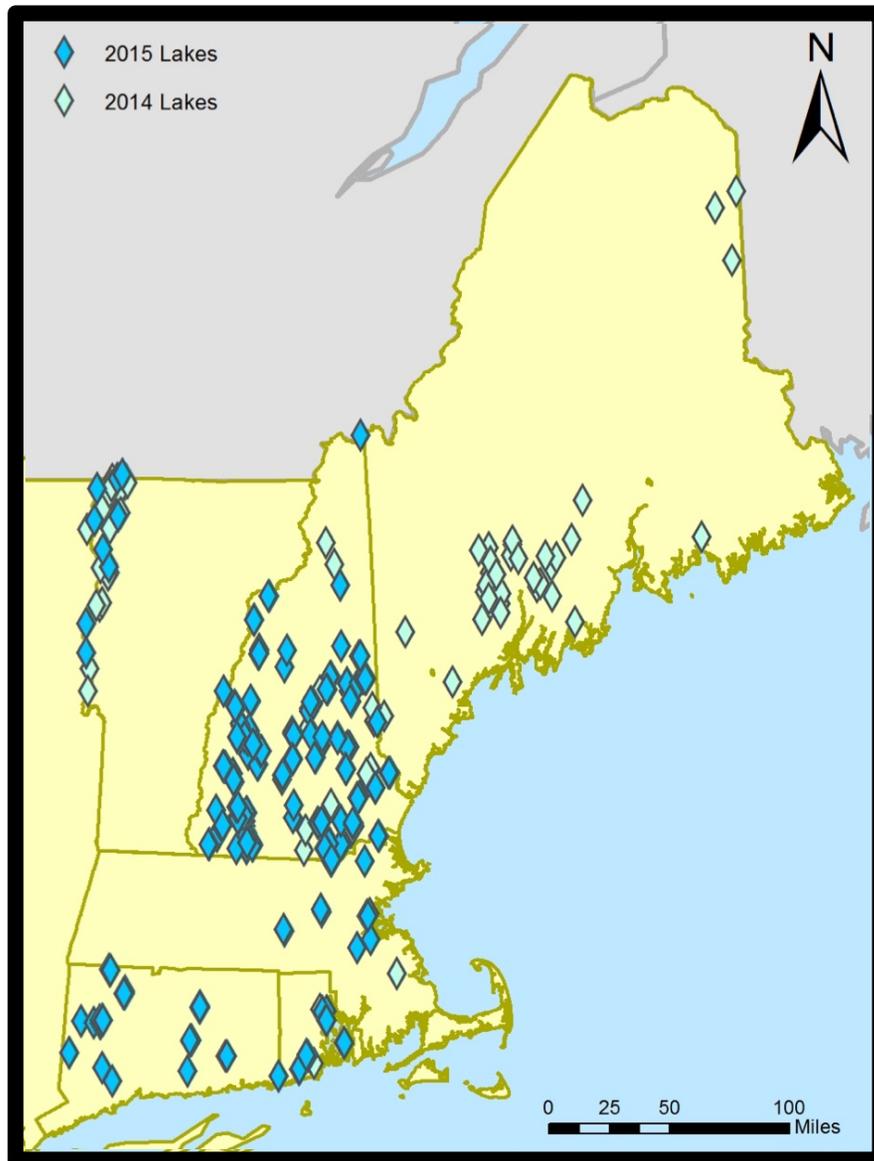
11,199
IDENTIFIERS

Map Grid List Places of Interest



Straggler daisy
(*Calypotcarpus vialis*)
Tyre Park, Arlingt... • Jul 9, 2016

18m





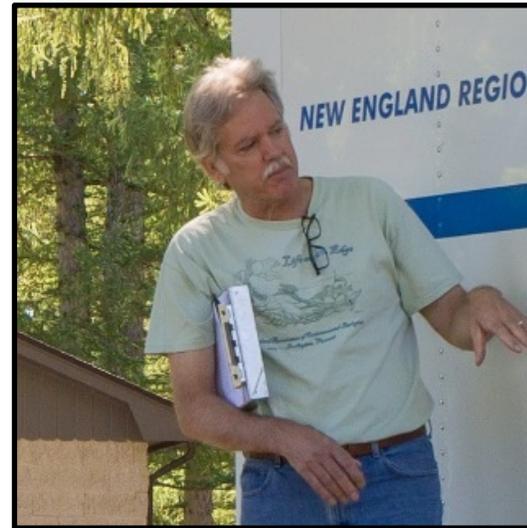


Northeast Cyanobacteria Monitoring Program

<http://cyanos.org>



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