

# Summer 2019 **Cyanobacteria** *LakeLine* Introduction

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The organisms known as cyanobacteria are millions of years old. They can be found in every environment – from the poles to the equator, from deserts to rainforests, on dry land or in lakes and wetlands. Scientists recognize the critical ecological role these organisms have in the natural world and hope to utilize cyanobacteria as future sources of biofuels, pharmaceuticals, and other products. Yet, there is a downside to their success. Increasing nutrient levels in surface waters and the warming climate are supporting ideal conditions for intense cyanobacteria growth. For reasons not yet clearly understood, cyanobacteria may also produce potent toxins harmful to people, pets and wildlife. Each year, the presence of blooms impacts drinking water, recreation and health in waters around the world. In this issue, you will learn how satellites and citizen monitors

support cyanobacteria response, how you can harness the power of satellites to learn about cyanobacteria conditions on your lake, and also be introduced to bottom-dwelling cyanobacteria.

Bridget O’Brien, Lori Fisher, Heather Campbell, and I discuss the long-term cyanobacteria monitoring effort on Lake Champlain, entering its 18<sup>th</sup> year this summer. This project utilizes citizen volunteers and a visual protocol to provide data supporting cyanobacteria risk assessment across a large highly diverse lake that is both a state and international boundary.

Margaret Spoo-Chupka, Jade Young, and Rich Fadness will take you below the surface to learn about bottom-dwelling, or benthic, cyanobacteria. Outreach and communication about cyanobacteria is currently focused almost exclusively on surface blooms. As the authors explain, benthic cyanobacteria are very common

and lake managers should be aware that they also may produce harmful toxins.

Blake A. Schaeffer, Robyn N. Conmy, Mike Galvin, John M. Johnston, Darryl J. Keith, and Erin Urquhart have developed an Android-based app that will bring that same cyanobacteria sensing technology to your phone. The app goes live in early summer 2019. In their article, the authors will tell you how to customize it for your location so you can get information about cyanobacteria before you reach the lake.

Randy Turner and Pete Kauhanen have created the California Satellite Analysis Tool that allows residents to quickly learn about cyanobacteria abundance on larger lakes, how abundance changes over time, and water quality parameters that may influence that change. In their article, they’ll introduce you to this online tool and the remote sensing technology that supports it. 🌐



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