Two screenshots from the CyAN app. The top image shows an example of how users can drop location pins in water bodies and how the pins change color depending on user settings. The bottom image shows how viewing satellite data is easy and fast, so users can see where cyanobacterial HABs are occurring in water bodies.

CyAN app download and additional information:

epa.gov/water-research/CyANapp

Cyanobacteria Assessment Network App (CyAN app)
Tool to help users make faster decisions related to algal blooms

Cyanobacterial harmful algal blooms (HABs), which can appear in water bodies across the country during warm weather months, are an indicator of poor water quality and can potentially cause serious environmental concerns, including human and aquatic health effects. When cyanobacterial HABs occur in recreational waters or source waters used for drinking, the toxins that may be released can cause respiratory or skin irritation and even illness in humans, domestic animals, and wildlife.

Historically, monitoring these blooms has been labor intensive and limited due to cost, time, and logistical constraints. The U.S. Environmental Protection Agency (EPA) developed the Cyanobacteria Assessment Network mobile application (CyAN app) to help local and state water quality managers make faster and better-informed management decisions related to cyanobacterial blooms. It provides an easy-to-use and customizable interface for accessing algal bloom satellite data for over 2,000 of the largest lakes and reservoirs in the United States.

Availability and Platform
The CyAN app is free and available for download on Google Play™. It is designed for use on Android™ devices and is compatible with versions 4.2-8.0 (API levels 18-26). It is currently being developed as a web-based app, which will be compatible with most devices.

Capabilities
The CyAN app is designed to inform decisions regarding recreational and drinking water safety by providing water quality managers with a user-friendly platform that reduces the complexities associated with accessing satellite data. This allows for fast and efficient initial assessments across water bodies that are roughly one square kilometer or greater. The primary satellite sensor collecting data is the European Space Agency's Copernicus Sentinel-3 Ocean and Land Colour Instrument.

Users can view cyanobacteria concentrations on a national-scale or can zoom in to see data for a specific lake or reservoir. Because states and localities may address HABs differently, the CyAN app allows users to set their own thresholds for cyanobacteria concentrations. Multiple water bodies can also be compared at once, allowing for better-informed decisions based on recent changes at specific locations.

Applications
The CyAN app uses satellite data to map the location of cyanobacterial harmful blooms in fresh and coastal waters across the United States. It provides an easy to use, customizable interface to scan water bodies for changes in cyanobacteria occurrence without requiring computer programming expertise. The CyAN app can be used to quickly inform decisions regarding recreational and drinking water safety.

Lake managers, for example, can use the app on a weekly basis to monitor lakes in their region. At a quick glance of their mobile devices, they can pinpoint potential problem areas and focus their attention and resources there. The data might prompt them to manually collect water samples from certain lakes for more information or issue a public advisory that closes local shores to recreation.

Research Collaboration

The research that led to the development of the CyAN app was conducted in collaboration with the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, and the U.S. Geological Survey. To provide data for the app, EPA is continuing research and collaboration efforts with these agencies through the CyAN Project (epa.gov/cyanoproject).