CyAN App: Cyanobacteria Assessment Network Mobile Application

New Tool for the Early Detection of Algal Blooms in U.S. Freshwater Systems

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Impact of CyAN

Supporting the environmental management and use of U.S. waters, protecting human health, conserving money and resources using satellite data records.

Schaeffer et al. Eos
Article URL
Sentinel-3A Satellite Remote Sensing

Ocean and Land Colour Instrument (OLCI)
- Revisit: 2-3 day
- Spatial resolution: 300m
- Surface water measures

Video Source: European Space Agency
Known Issues with Satellite Remote Sensing

- Mixed pixels, drought/flood dynamics
- Ice and snow
- Provisional data may have errors
- Test QA flags now applied for mixed pixels and snow/ice
Initial Chlorophyll Validation

Seegers et al. In Prep.

~4,500 match-ups across 26 states

Bottle Samples
Initial Cyanobacteria Validation

Clark et al. 2015. Ecological Indicators. doi.org/10.1016/j.ecolind.2017.04.046


Satellite results represent what is seen in the field.
Can I use the CyAN App for My Lake?

The CyAN app provides access to cyanobacterial bloom satellite data for over 2,000 of the largest lakes and reservoirs across the United States.

Weekly Data

Behind the Scenes

50,000 cell/mL

200,000 cell/mL

Sunday  Monday  Tuesday  Wednesday  Thursday  Friday  Saturday

Weekly composite

200,000 cell/mL
Mobile App Overview
Is the App Up-to-Date?

*Only reports when cyanobacteria is detected.*

Weekly composites

July 20
July 13
July 6
June 29
June 22
June 15
June 8
June 1

- Cyanobacteria
- Below detect
- No data
Step-by-Step Training
Single point location example
Cyanobacteria Assessment Network (CyAN)

This experimental mobile application provides provisional satellite derived measures of cyanobacteria, which may contain errors and should be considered a research level tool. Users should refer to the app help menu for more details. The focus of this application is to provide cyanobacteria measures for larger lakes and reservoirs within the continental US. Data products are 7-day maximum cyanobacteria measures updated weekly.

Click here to learn more about using this application

Don't show this screen again
Provo Bay – 2
40°11'37"N, 111°41'51"W
Counts of cyanobacteria

2,831,392 cells/mL
1,451,007 cells/mL since 06/15/19

Add Note
Mark Location
Select to Compare
View Latest Image
Remove
Provo Bay
40°11'37"N, 111°41'51"W
Counts of cyanobacteria

2,831,392 cells/mL
1,451,007 cells/mL since 06/15/19

Add Note
Mark Location
Select to Compare

Bay Baby Bat
Modify Graph Color Configuration

- Low
  - From: 10,000
  - To: 109,000

- Medium
  - From: 110,000
  - To: 299,000

- High
  - From: 300,000
  - To: 1,000,000

- Very High
  - Higher than: 1,001,000

- Alert when higher than
  - Threshold: 1,000,000

Reload Data
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<thead>
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<th>Level</th>
<th>From</th>
<th>To</th>
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<tr>
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</tr>
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Alert when higher than 1,000,000

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Alert when higher than 1,000,000
<table>
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<th>Location Name</th>
<th>Max adjacent cells</th>
<th>Date</th>
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<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goshen Valley</td>
<td>178,648 cells/mL</td>
<td>04/27/19</td>
<td>145,535 cells/mL</td>
<td>05/04/19</td>
</tr>
<tr>
<td>Provo Bay</td>
<td>2,831,392 cells/mL</td>
<td>06/15/19</td>
<td>1,451,007 cells/mL</td>
<td>06/29/19</td>
</tr>
</tbody>
</table>
Location Goshen Valley -- 2
2 of 2

Overview  Imagery  Chart

Satellite: OLCI  Product: Daily

145,535 cells/mL since 04/27/19
(Max: 346,736, Valid: 8)
Location Goshen Valley -- 2

Overview

Imagery

Chart

Satellite:OLCI

Product:Daily

↑ 145,535 cells/mL since 04/27/19
(Max: 346,736, Valid: 8)

Notes (0)
View the country in minutes
Lake Okeechobee – 1
26°57'40"N, 80°47'25"W
Counts of cyanobacteria

139,315 cells/mL 49,483 cells/mL since 06/22/19

Add Note
Mark Location
Select to Compare
View Latest Image
Remove
Elba Point – 2
40°56'35"N, 74°38'5"W
Counts of cyanobacteria

94,623 cells/mL

Add Note
Mark Location
Select to Compare
View Latest Image
Remove

Tap to mark or select a location

Hide All
OLCI - Weekly
Google Map