

CyAN App User's Guide

ANDROID APPLICATION MANUAL

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Contents

Getting Started	3
Replacing Old Version with Newest Version	3
Downloading the Cyano Android App Installation File	4
1. Familiarizing Yourself	5
a. Home Screen Navigation	5
b. Marker Options Menu	6
Markers	7
2. How to Mark a Location	7
a. Option 1: Using “Mark Location” button	7
b. Option 2: Using “Geographic Coordinates” tab	8
3. How to Adjust the Symbology of Your Markers	9
4. How to Unmark a Location	11
5. How to Remove a Marked or Selected Location	12
My Location Tab	14
6. How to View My List of Marked Locations	14
7. How to Access a Location’s Imagery	16
a. Option 1: Using “View Latest Image” button	16
b. Option 2: Using “Overview” within the “My Location” tab	17
c. Option 3: Using “Imagery” within the “My Location” tab	18
8. How to Download a Locations Imagery	20
a. Option 1: Using “Overview” within the “My Location” tab	20
b. Option 2: Using “Imagery” within the “My Location” tab	22
c. Finding Downloaded File on Android (specific for EPA Samsung phones)	23
d. Sharing Downloaded PNG Files	25
9. How to Access a Location’s Blooming Chart	26
a. Viewing My Locations: Blooming Chart	26
Compare Tab	27
10. How to Compare Two or More Locations	27

a. Adding Locations to the “Compare” Tab.....	27
b. Comparing Locations: Statistics	29
c. Comparing Locations: Blooming Charts	30
d. Comparing Locations: Map	31
Notifications	32
11. How to View and Sort My App Notifications	32
Search	33
12. How to Search a Location	33
Help	34
13. How to Find Help with Using the CyAN App.....	34
a. Finding help <i>inside</i> the CyAN App	34
b. Finding help <i>outside</i> the CyAN App.....	34
FAQ	35
What is the difference between a <i>selected/unmarked</i> location and a <i>marked</i> location?	35
Why are selected/unmarked locations (unchecked pins) useful?	35
The pin location I selected is an “Unknown Location”?	35
Why is my data is reloading slow?	35
What does “(Max:...)” and “(Valid cells:...)” indicate when comparing locations?	35
What is OLCI?	35
When I switch from OLCI- Daily to OLCI-Weekly and vice-versa my pins disappear?	36
References	36

Getting Started

Replacing Old Version with Newest Version

IMPORTANT: If you have already installed a previous version of the app, you must delete it before proceeding with installing a new version of the app.



Step 1—Go to your Apps and find the Cyano App.

Step 2—Long press on the EPA icon.

Step 3—Move the EPA icon to App Info near the top of the phone and let go.

Step 4—A prompt appears where you can then select "Uninstall". Please follow these steps to Uninstall. Because "Removing" an app is not the same as "Uninstalling" it for Android.

Downloading the Cyano Android App Installation File

Step 1—Download the Android install file to your Android device by clicking here:

<https://drive.google.com/file/d/1S7g3zSa1A45RQBjvWQNYJog4ST0hfU/view?usp=sharing>.

Follow the on-screen prompts to install the app.

1. Familiarizing Yourself

a. Home Screen Navigation

The screenshot shows the EPA mobile app interface. At the top is the EPA logo. Below it is a navigation bar with icons for 'My Location', 'Compare', 'Notifications' (with a red badge showing '3'), and 'Geographic Coordinates'. The main area is a map of the United States with several location pins, each displaying a number (e.g., 213,796, 22,908, 173,780, 12,302, 1,047,128, 50,118, 36,307, 31,622, 1,483,254, 48,197). At the bottom is another navigation bar with icons for 'Hide All', 'OLCI - Weekly', and 'Google Map'. A zoom control with '+' and '-' buttons is visible on the right side of the map.

My Location—allows user to view list of marked locations.

Compare—allows user to compare 2 or more locations.

Notifications—allows user to receive updates about new data availability, system outages, app version upgrades, issues with data access, etc.

Hide all—allows user to “hide” selected/marked locations to view map without any pins/markers, tap on this icon again to return markers.

OLCI Weekly/Daily—allows user to place markers for daily data and/or place markers for weekly data. Note: cannot view daily data markers and weekly data markers simultaneously.

Help icon—allows user to view on-board help.

Search icon—allows user to search for a location.

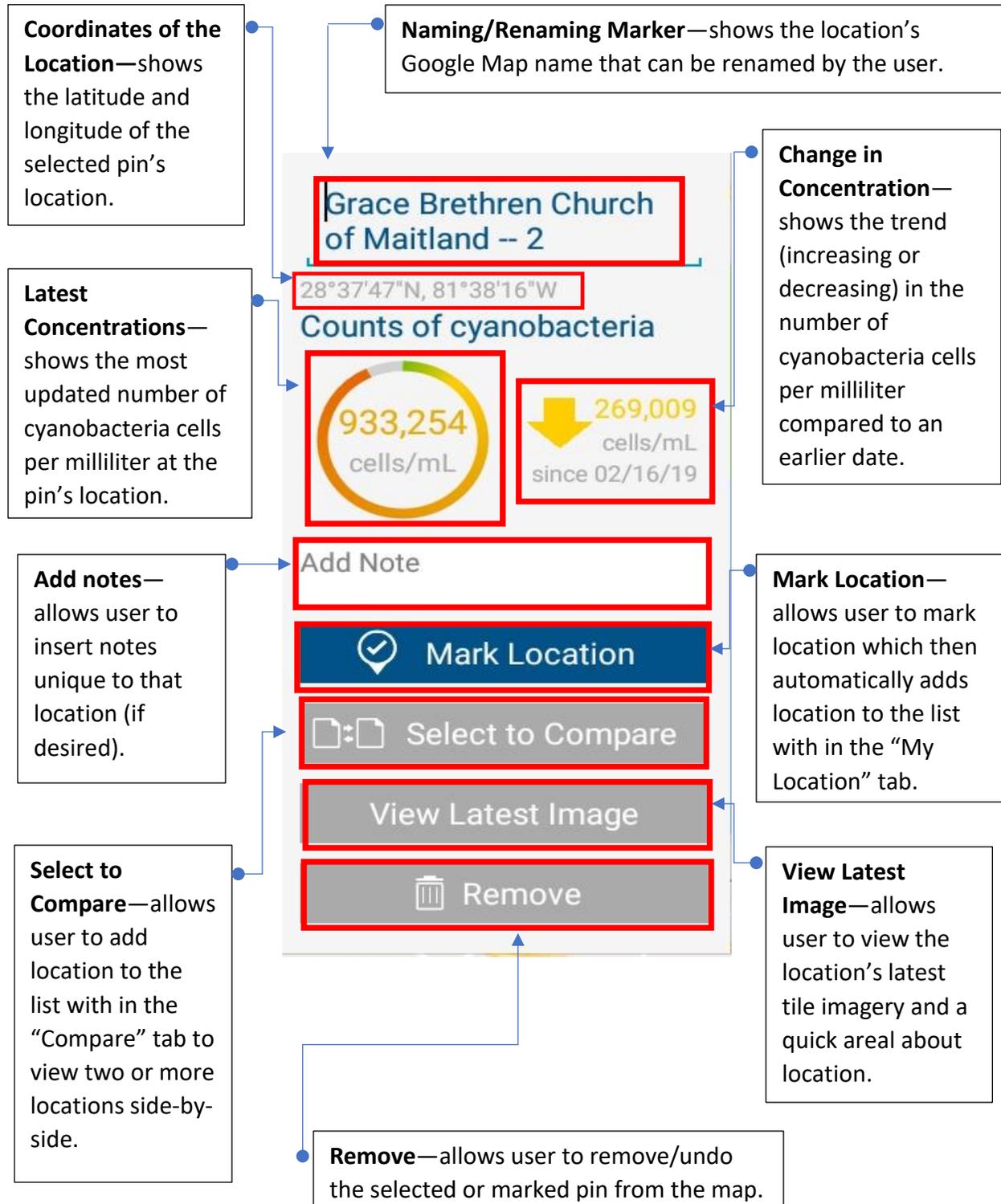
Gear icon—allows user to adjust the symbology of pins/markers.

Geographic Coordinates—allows user to enter the coordinates of desired locations to add to map.

Zoom in/out—allows user to make the map view look larger or smaller on screen, can also pinch the screen to zoom in/out, or double-tap screen to zoom in.

Google Maps/Google Earth—allows user to set the base map to be either Google Maps or Google Earth.

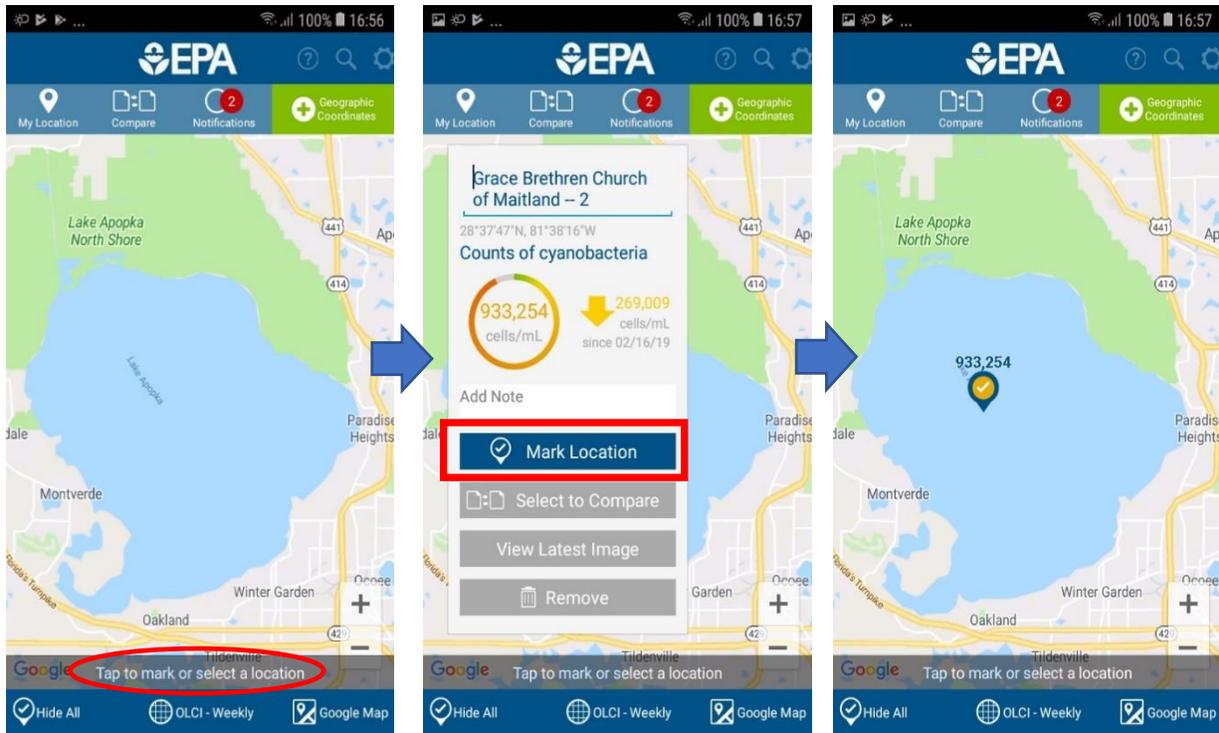
b. Marker Options Menu



Markers

2. How to Mark a Location

a. Option 1: Using “Mark Location” button

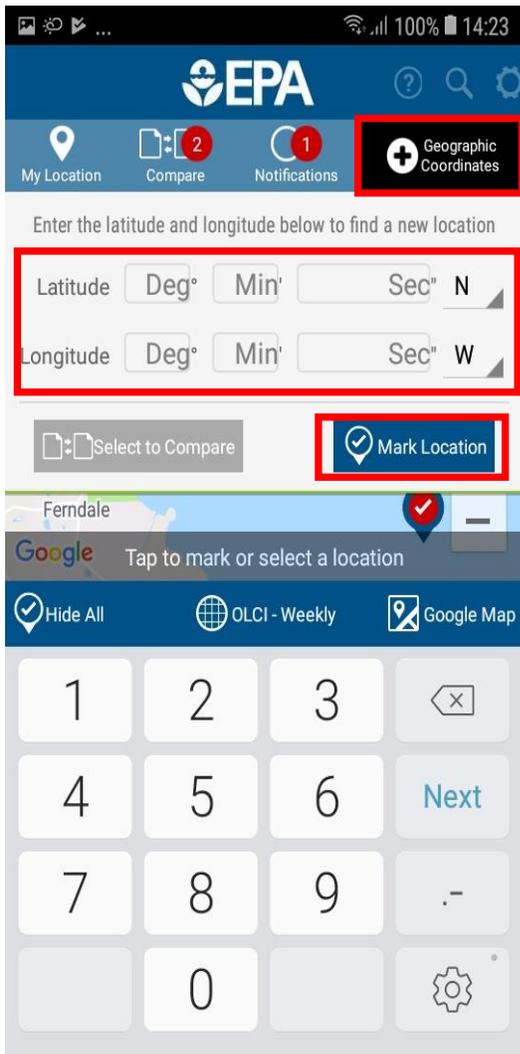


Step 1—Tap on screen at the desired location on map.

Step 2—The marker menu will appear on your screen. Rename location and add notes if needed, then select the “Mark Location” button.

Step 3—The location has been marked.

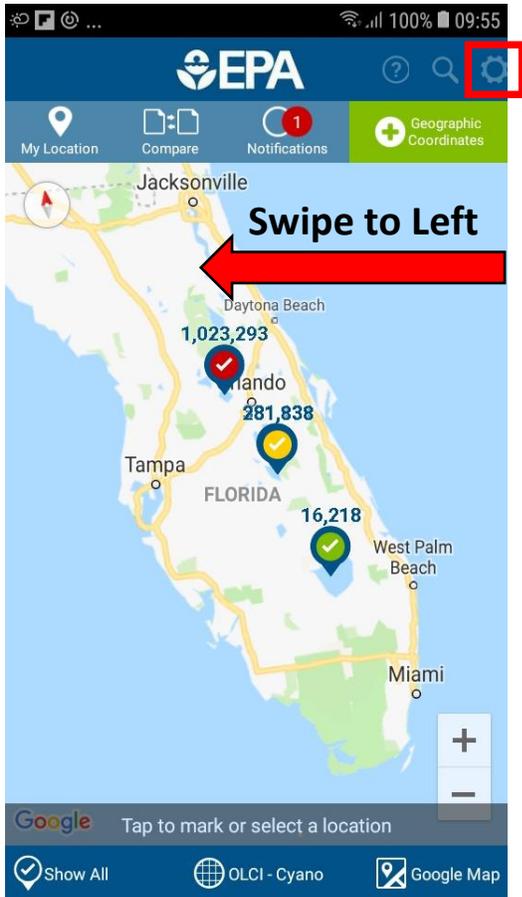
b. Option 2: Using “Geographic Coordinates” tab



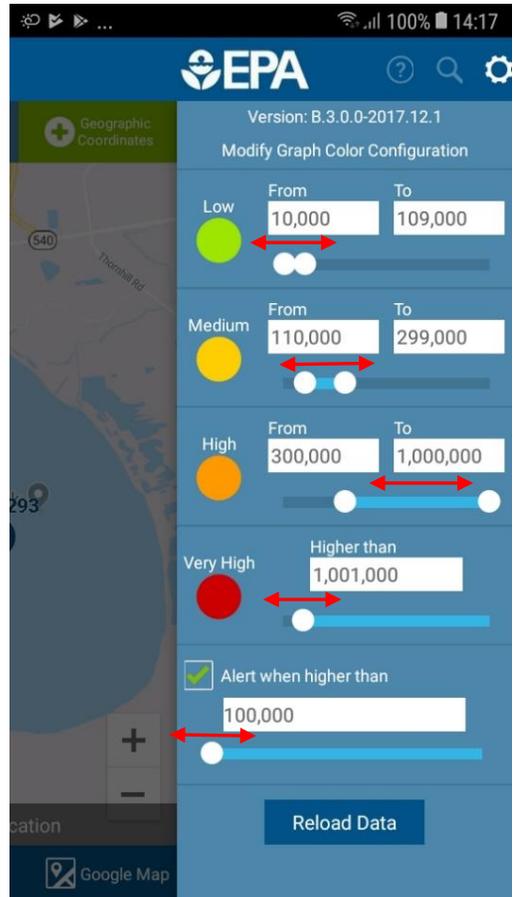
- **Step 1**—Select “Geographic Coordinates” to add a marker.
- **Step 2**—Fill in the latitude and longitude coordinates of the location you to mark.
- **Step 3**—Select “Mark Location” to mark and add location to the map.

3. How to Adjust the Symbology of Your Markers

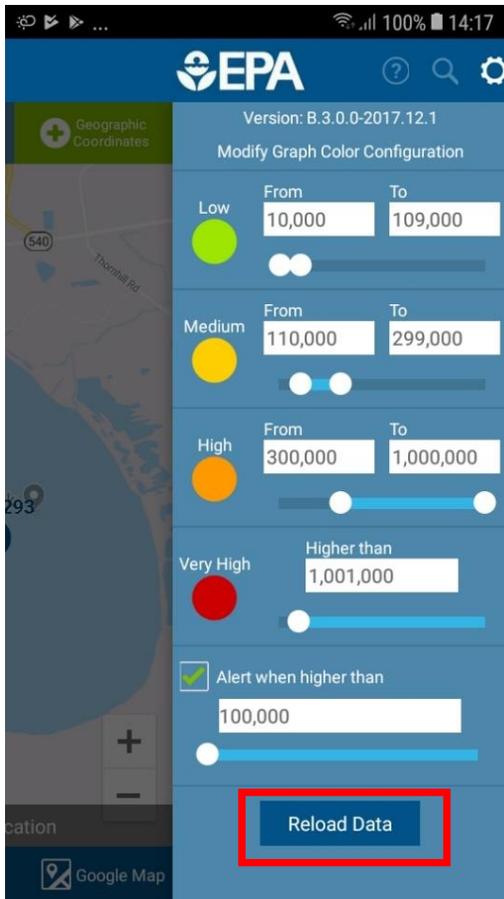
You can change the default color coded values [WHO thresholds] that represent the latest cyanobacteria levels of the markers you have added:



Step 1—Select Gear icon on top
OR swipe left from right of
screen

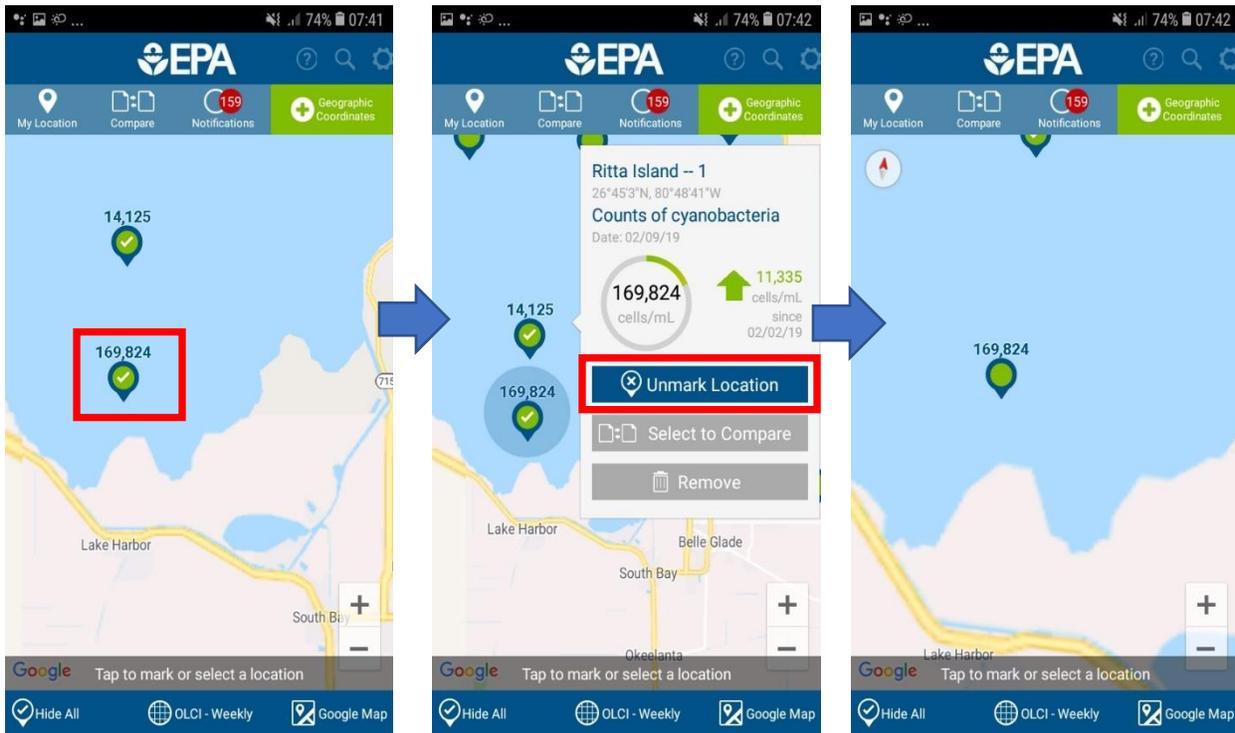


Step 2—Slide the color bars left
or right to change the default
values of cyan to values you've
selected



Step 3—Use “Reload Data” button weekly to have latest cyano levels shown.

4. How to Unmark a Location

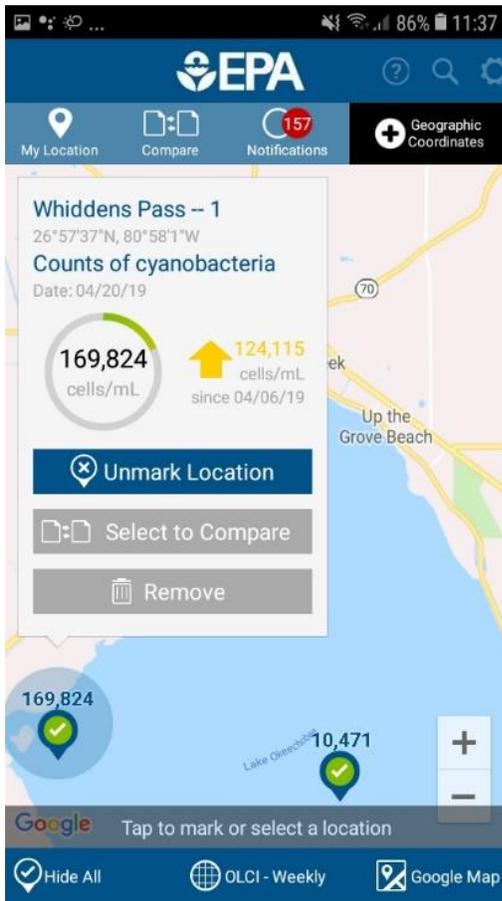


Step 1—Select a marked location/checked pin.

Step 2—The marker menu will appear on your screen. Select the “Unmark Location” button.

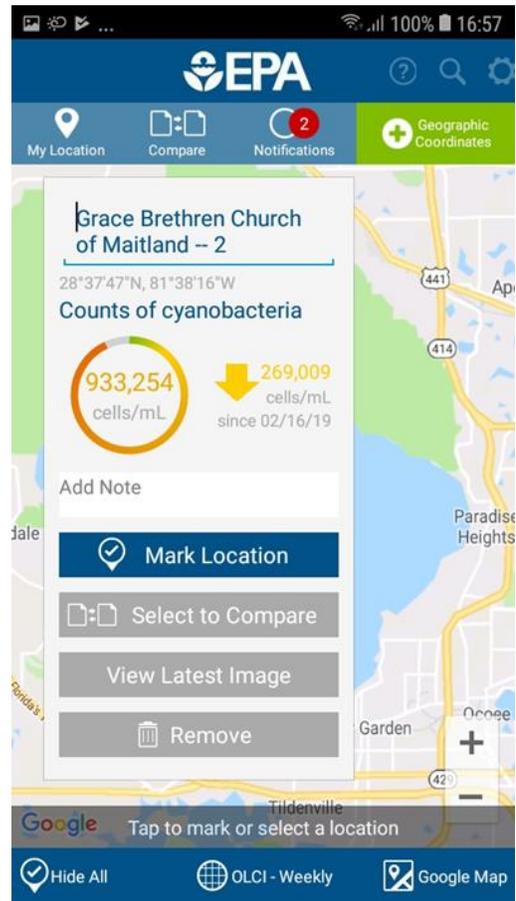
Step 3—The location has been unmarked.

5. How to Remove a Marked or Selected Location

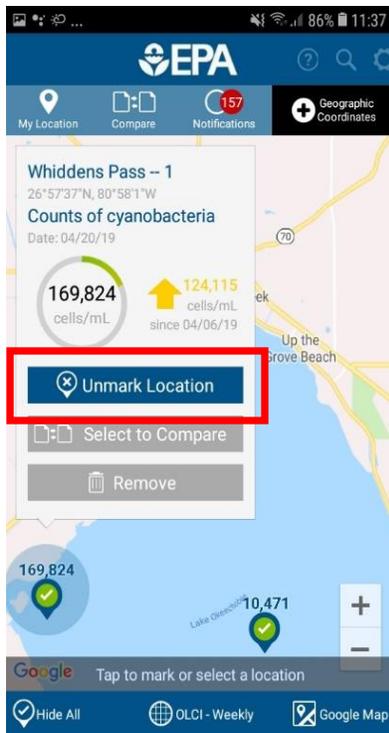


Step 1—Select a marked location/checked pin. The marker menu will appear.

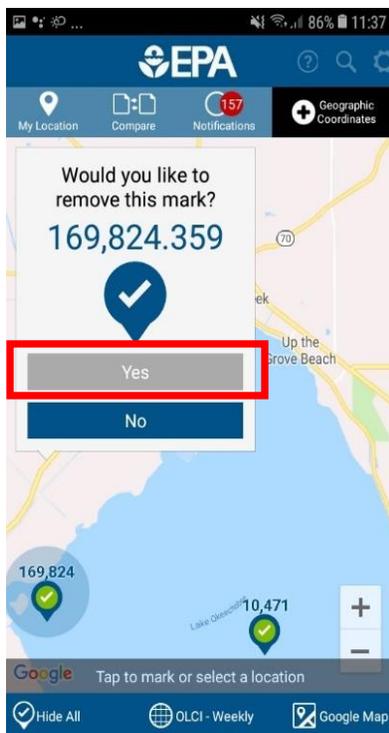
OR



Step 1—Select an unmarked location/unchecked pin. The marker menu will appear.



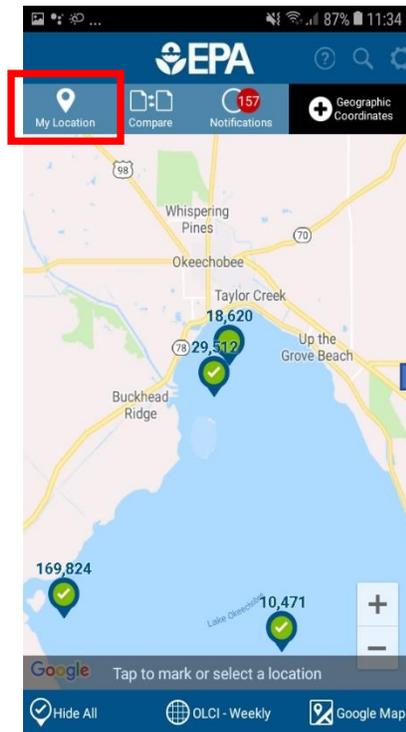
Step 2—Select the “Remove” Button on the marker menu.



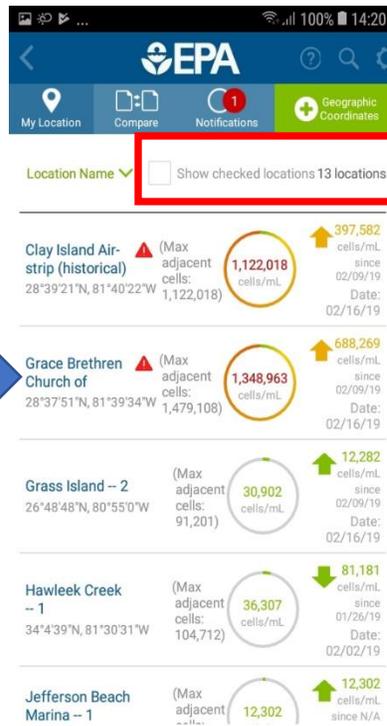
Step 3—Select “Yes” to remove selected or marked pin from the map (or select “No” to cancel).

My Location Tab

6. How to View My List of Marked Locations



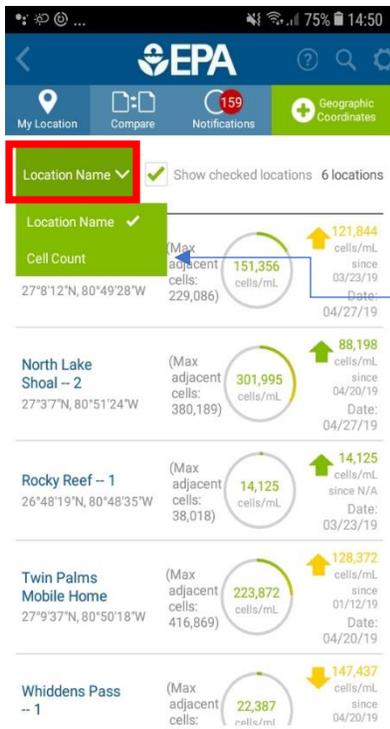
Step 1—Select the “My Location” tab.



Step 2—You can now view your list of marked locations.



Step 3 (Optional)—Check box to show only marked locations/checked pins on map and “My Location” list.



• **Step 4 (Optional)**—Select the drop-down menu to sort the list by location name OR cyano value.

7. How to Access a Location's Imagery

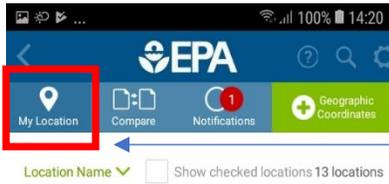
a. Option 1: Using "View Latest Image" button



Step 1— Select an unmarked location/unchecked pin. The marker menu will appear.

Step 2—Select the "View Latest Image" button.

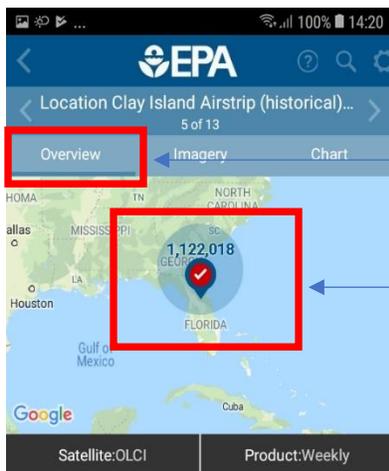
b. Option 2: Using “Overview” within the “My Location” tab



• **Step 1**—Select the “My Location” tab at the home screen.



• **Step 2**—Select a listed entry to access the location’s related imagery.

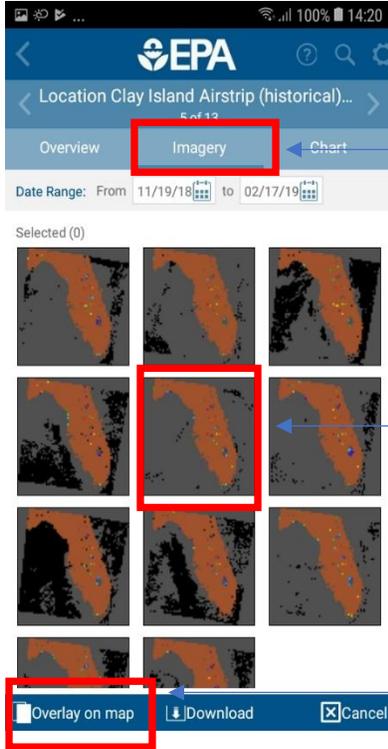


• **Step 3**—Select the “Overview” tab.

• **Step 4**—Tap the marker to overlay the latest imagery on the base map. You can pan/zoom and adjust image opacity from the resultant screen.

• **Step 5 (Optional)**—Select “Notes” button to add any comments/notes about location.

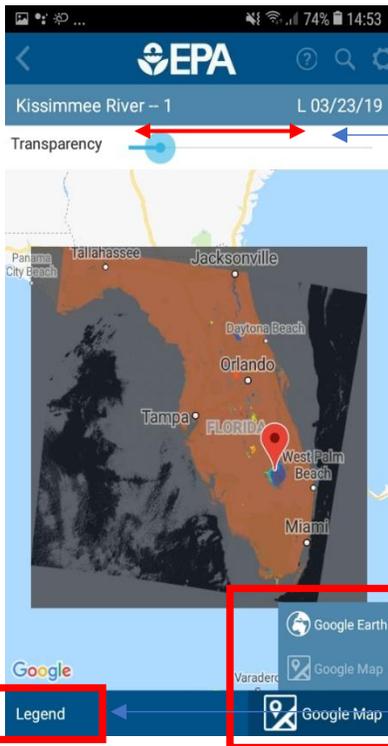
c. Option 3: Using “Imagery” within the “My Location” tab



• **Step 1**—Select the “Imagery” within “My Location” tab

• **Step 2**—Select image to overlay

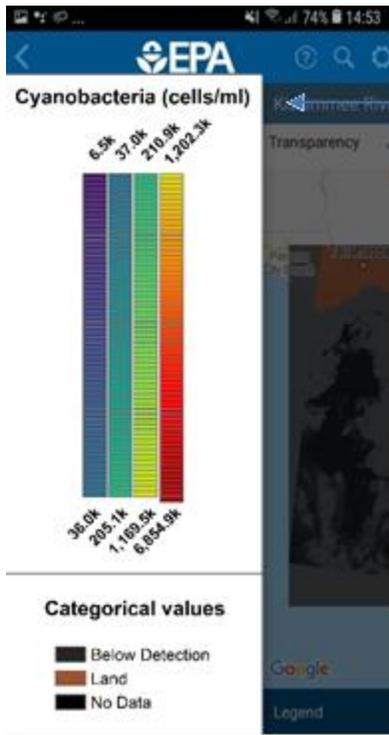
• **Step 3**—Select “Overlay on map”



• **Step 4 (Optional)**—Slide the dial left or right on the “Transparency” slider to adjust the opacity of the image and make the base map more visible.

• **Step 5 (Optional)**—Change the base map from Google Map to Google Earth.

• **Step 6**—Swipe right or select “Legend” to view the image legend.

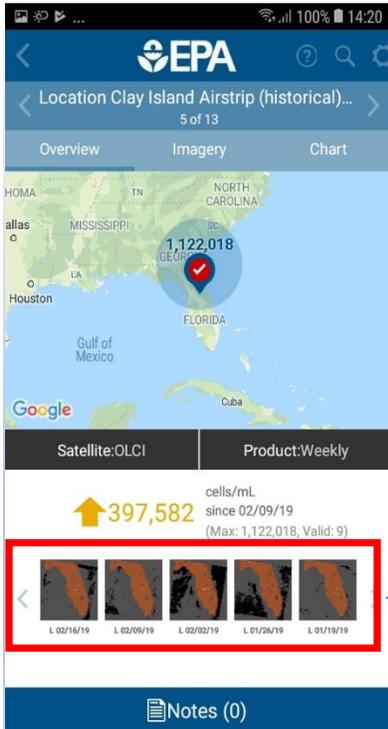


Legend—OLCI data V1 image and color ramp for CyAN app imagery.

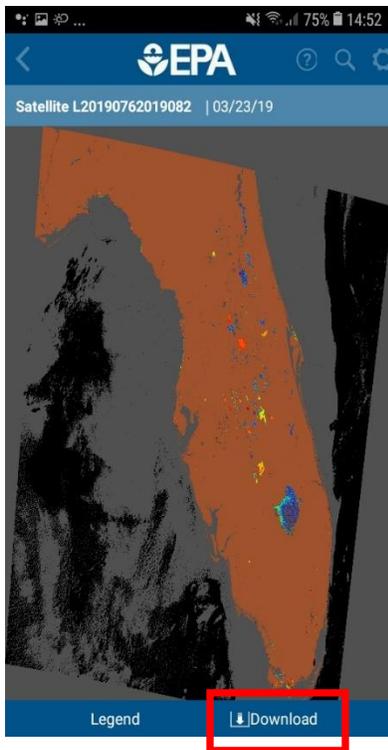
Step 7—Swipe left to leave the legend go back to imagery.

8. How to Download a Locations Imagery

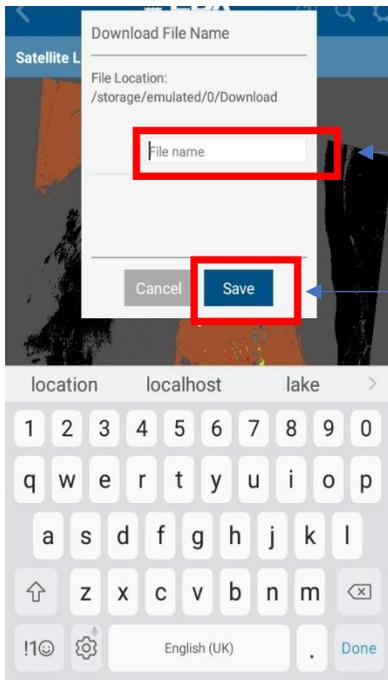
a. Option 1: Using “Overview” within the “My Location” tab



• **Step 1**— This is a date-oriented list of images that have a cyano response at the location. Select one of the thumbnail images to view the image selected. Note: that the image is not overlain on the base map and the location marker is not shown but pan/zoom is available.



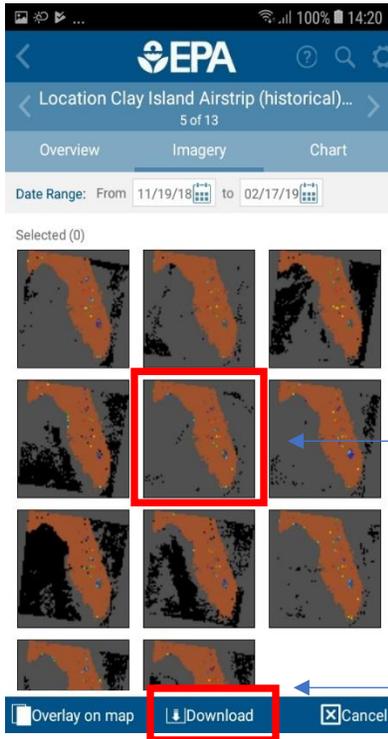
Step 2—Select “Download”



• **Step 3**—Type a file name with the file extension. We recommend using .PNG to identify the file as an image.

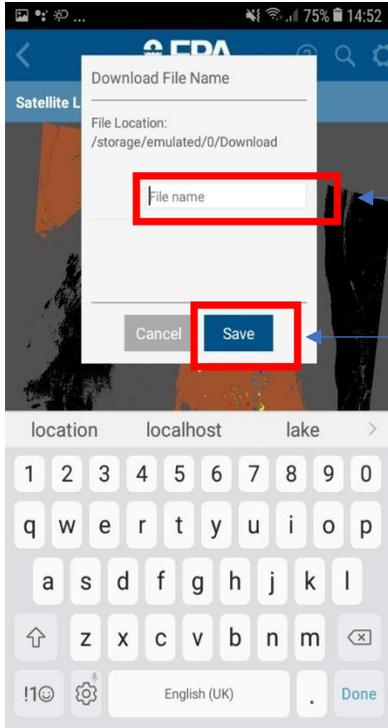
• **Step 4**—Select “Save”

b. Option 2: Using “Imagery” within the “My Location” tab



• **Step 1**—Select the image to download.

• **Step 2**—Select “Download”



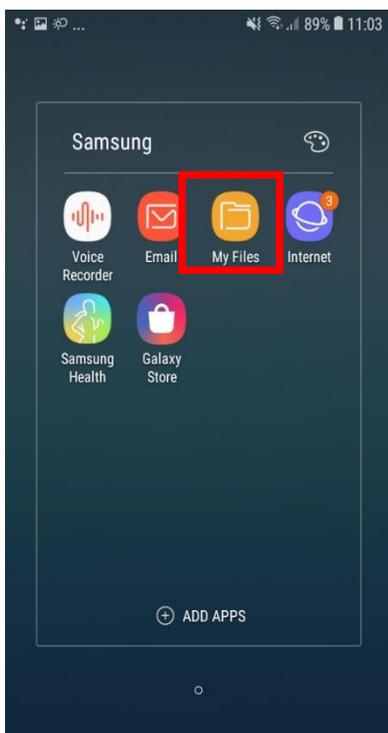
• **Step 3**—Type a file name with the file extension. We recommend using .PNG to identify the file as an image.

• **Step 4**—Select “Save”

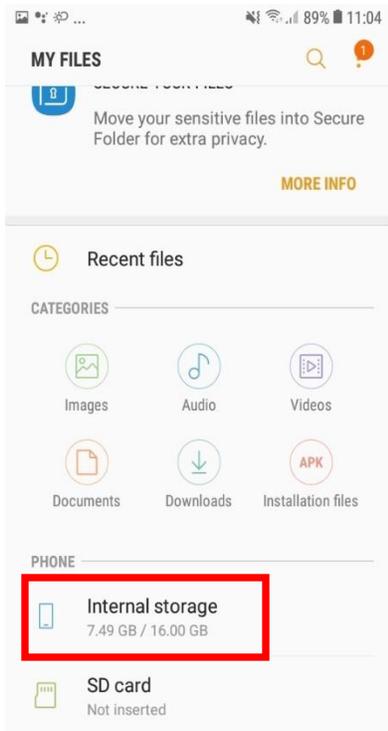
c. Finding Downloaded File on Android (specific for EPA Samsung phones)



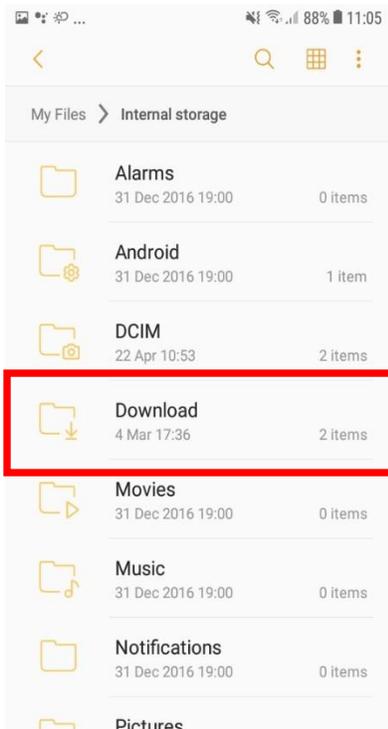
Step 1--Go to your Apps screen and find Samsung apps



Step 2--Select "My Files"



Step 3—Select “Internal storage”



Step 4—Select “Download”

d. Sharing Downloaded PNG Files

Step 1—All downloaded files from the app will be located here. You can select the file for transfer.

Step 2—Select the Share Icon

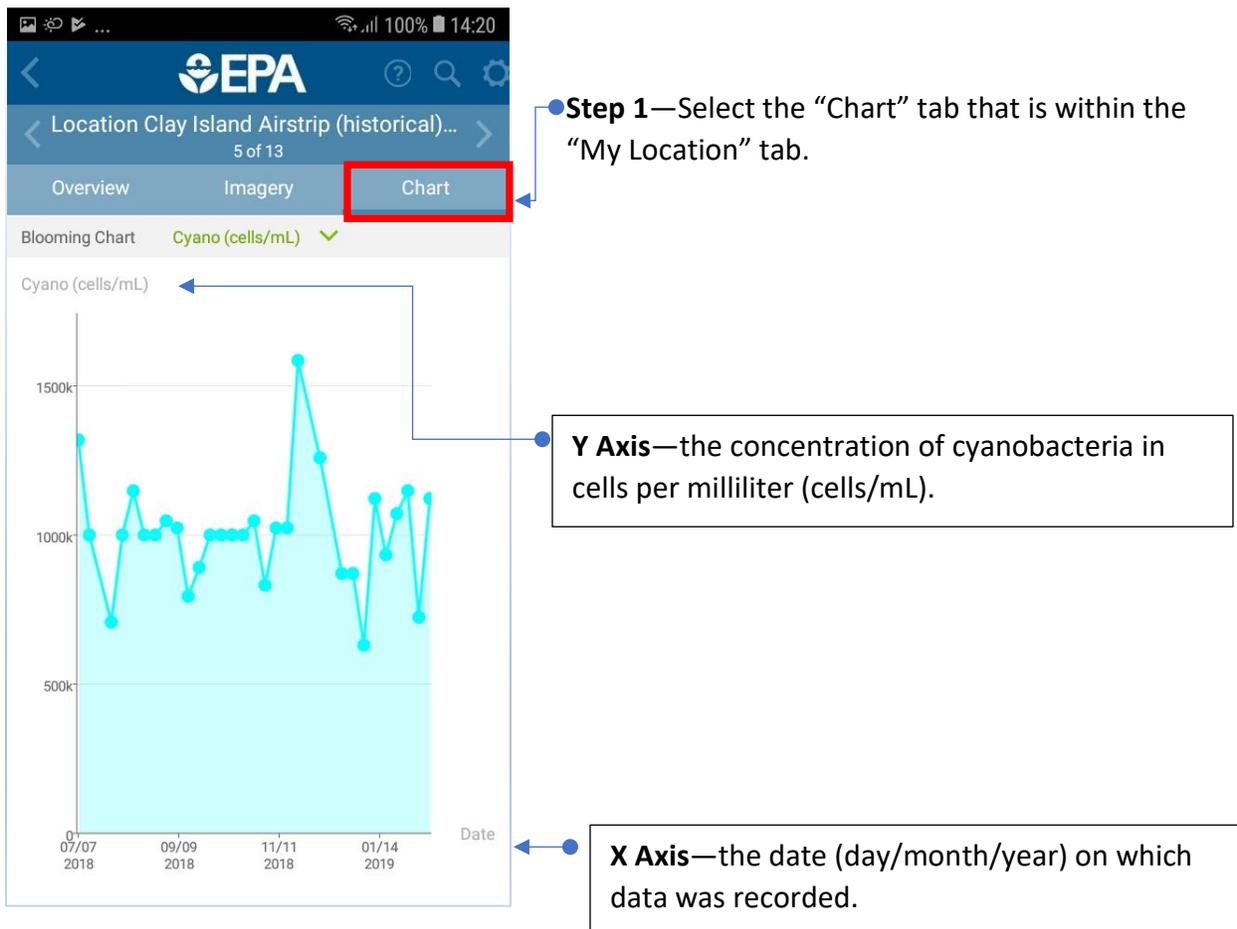
Step 3—Select an option for sharing the PNG file.

9. How to Access a Location’s Blooming Chart

a. Viewing My Locations: Blooming Chart

You can view location’s cyanobacteria concentrations in a chart by using the “Chart” tab. The chart shows a time-series plot of cyano levels through time. The entire record stored online of cyano level at the location is shown.

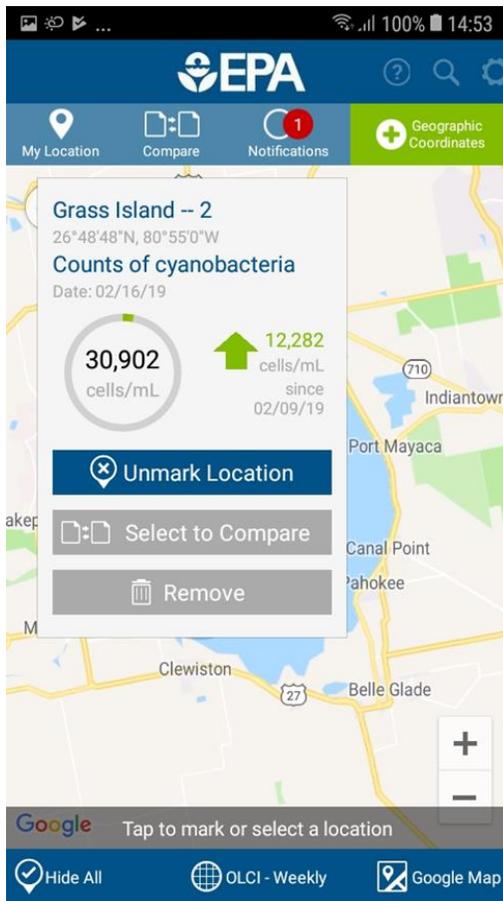
Note: The plot appears continuous through time but it likely is not; non-detects (i.e.; below detection level) and missing detects (e.g., clouds) are not stored nor shown.



Compare Tab

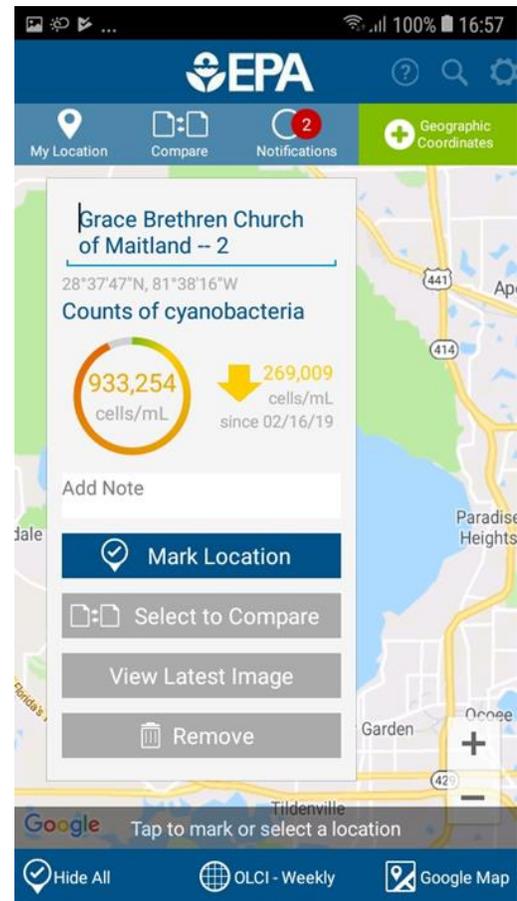
10. How to Compare Two or More Locations

a. Adding Locations to the “Compare” Tab

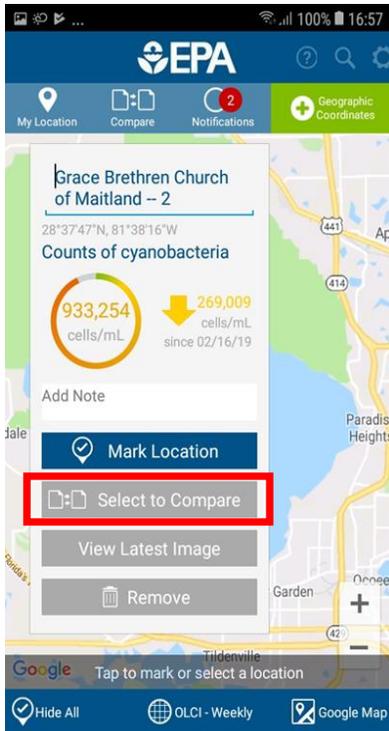


Step 1—Select a marked location/checked pin. The marker menu will appear.

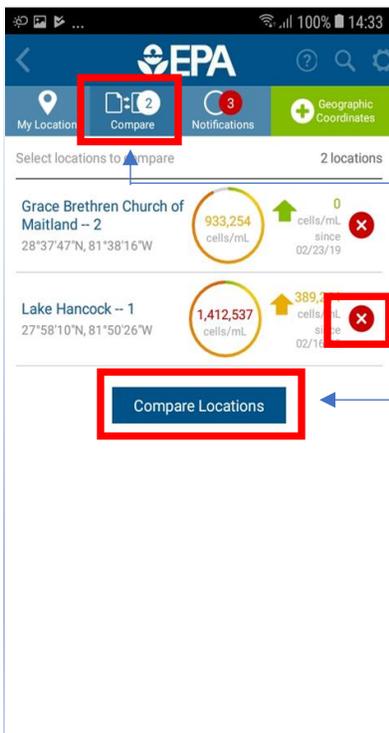
OR



Step 1—Select an unmarked location/unchecked pin. The marker menu will appear.



Step 2—Select the “Select to Compare” button on the marker menu to add location to the list with in the “Compare” tab.

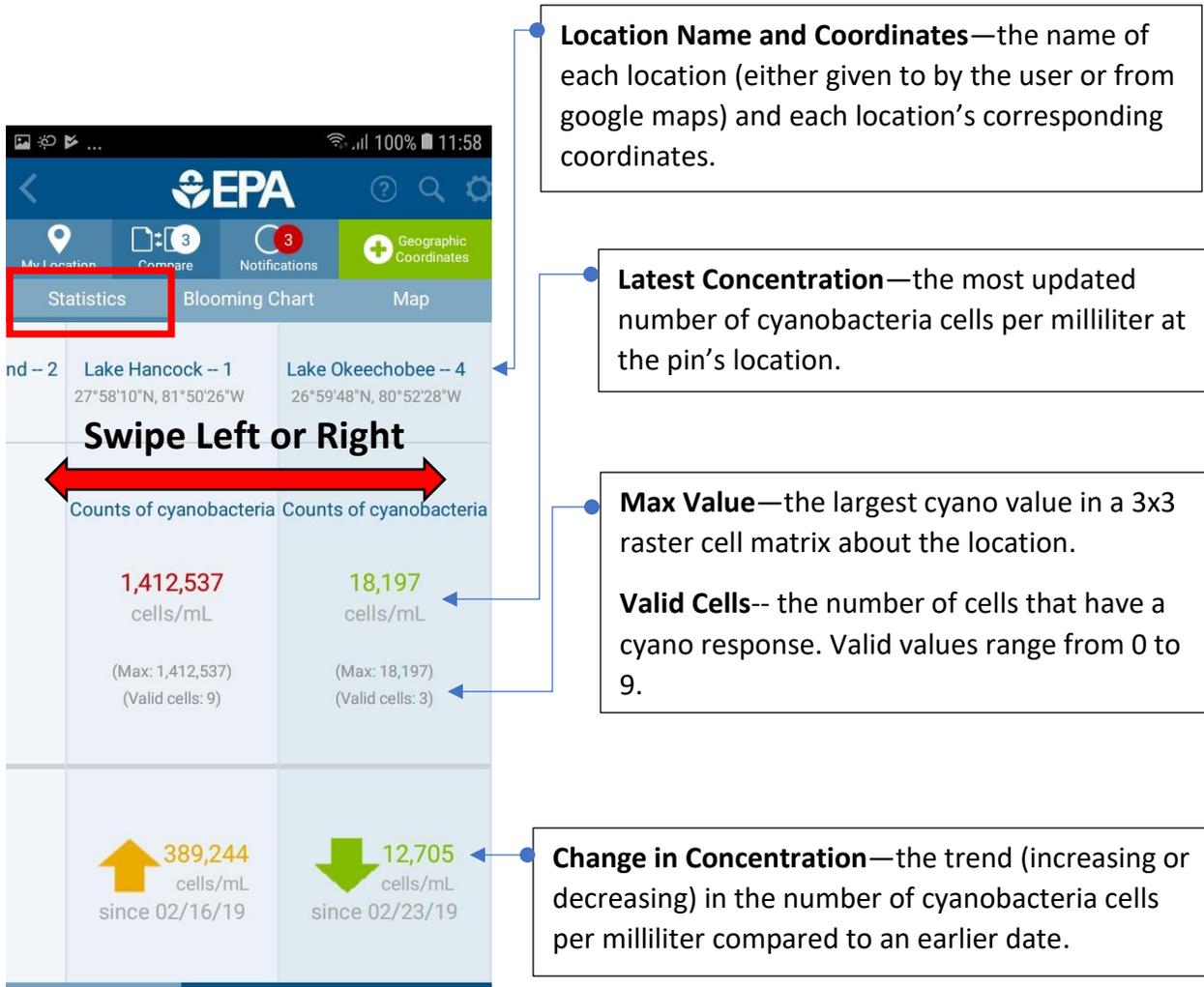


Step 3—Select the “Compare” tab to view the list of selected locations for comparing.

Step 4 (Optional)—Select the “x” to remove a location from the list.

Step 5—Select the “Compare Locations” button to view the listed locations side-by-side.

b. Comparing Locations: Statistics



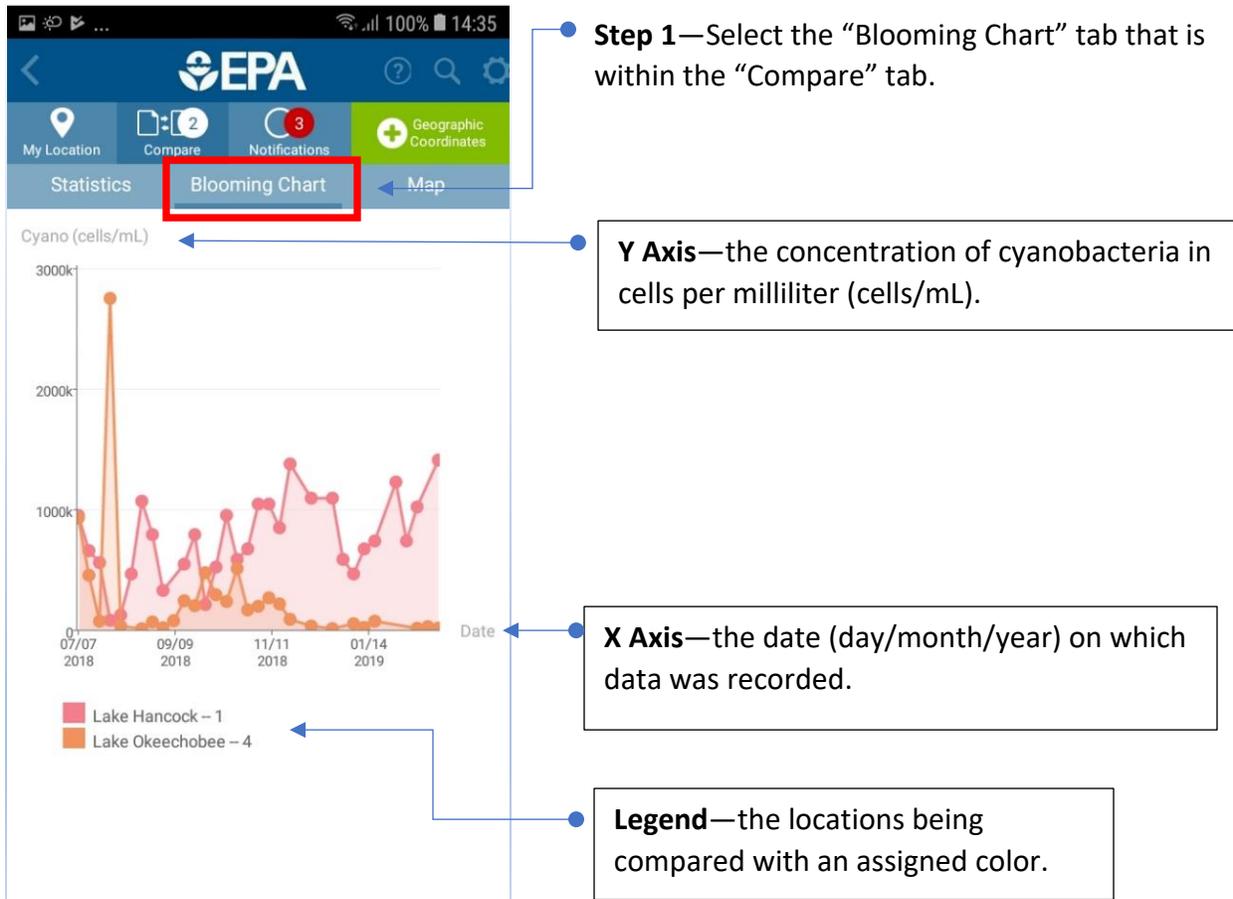
Step 1—Select the “Statistics” tab that is within the “Compare” tab.

Step 2—Swipe left or right to view columns containing information about each location being compared.

c. Comparing Locations: Blooming Charts

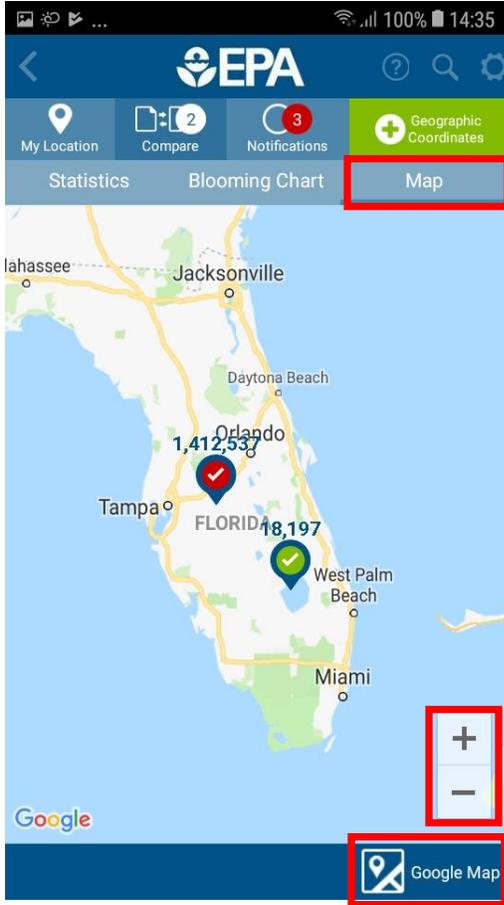
You can compare two or more location's cyanobacteria concentrations in a chart by using the "Blooming Chart" tab. Like the blooming chart in "My Location", the chart shows a time-series plot of cyano levels through time. The entire record stored online of cyano level at the location is shown.

Note: The plot appears continuous through time but it likely is not; non-detects (i.e.; below detection level) and missing detects (e.g., clouds) are not stored nor shown.



d. Comparing Locations: Map

You can view a map that shows only the locations you've chosen to compare. **Note:** You cannot add/remove markers from the map nor access location imagery from here.

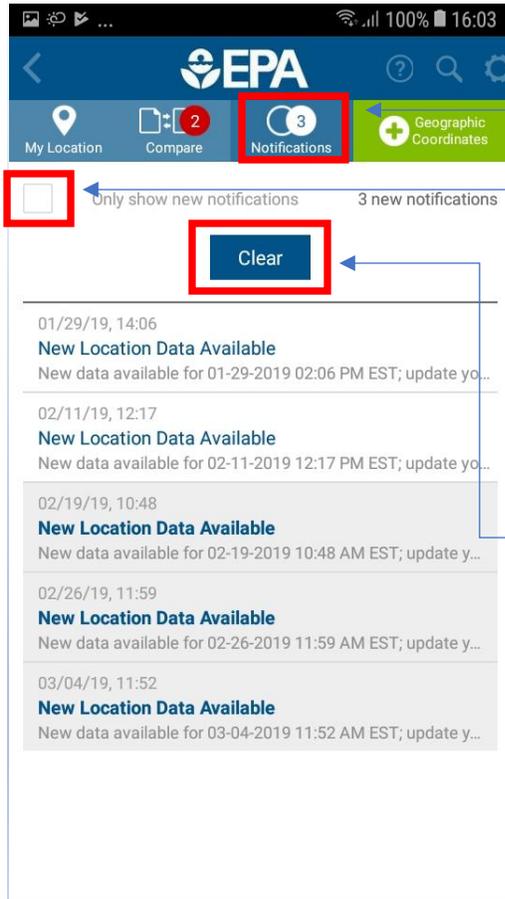


Step 1—Select the “Map” tab that is within the “Compare” tab.

Step 2 (Optional)—Zoom In/Out or change the base map from Google Maps to Google

Notifications

11. How to View and Sort My App Notifications



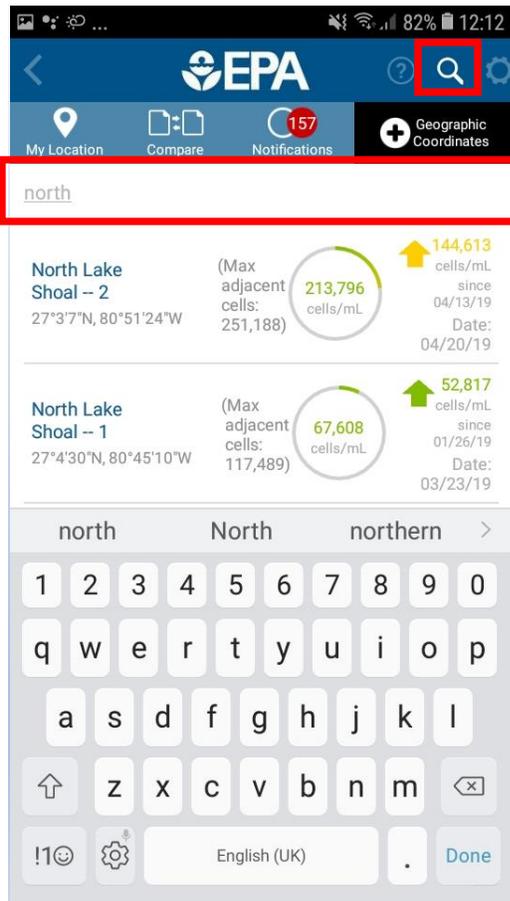
● **Step 1**—Select the “Notifications” Tab when a number pop-up is indicating that you have new notifications.

● **Step 2 (Optional)**—Check the box to allow you to see only new/unread notification messages.

● **Step 3 (Optional)**—Select the “Clear” button to remove all messages from the notifications tab.

Search

12. How to Search a Location



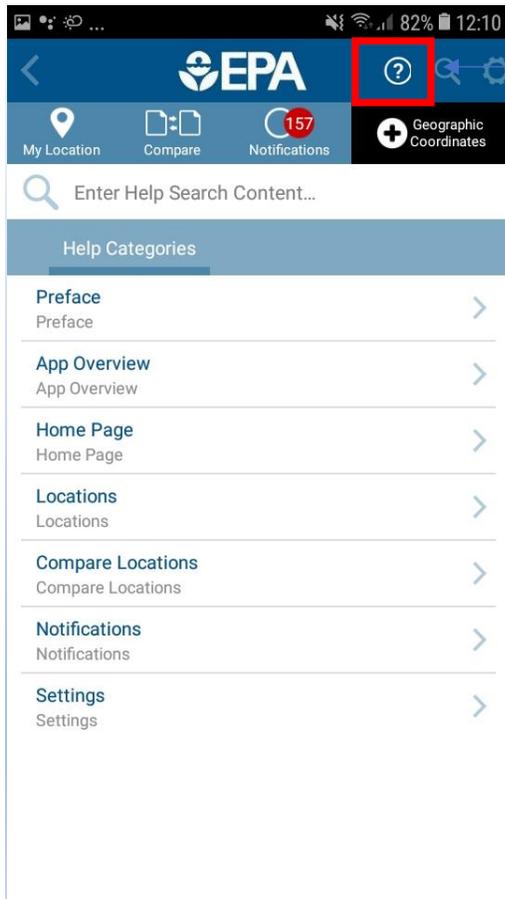
• **Step 1**—Select the “Search” icon.

• **Step 2**—Start typing in the search the name of the desired location and the location will begin to appear of the top of the list.

Help

13. How to Find Help with Using the CyAN App

a. Finding help *inside* the CyAN App



- **Step 1**—Select the Help icon to access more information about the CyAN app’s features and how to use them.

b. Finding help *outside* the CyAN App

eMail comments and concerns about app usage to:

CyAN@epa.gov

Visit the EPA CyAN project page for further information here:

<https://www.epa.gov/water-research/cyanobacteria-assessment-network-cyan>

FAQ

What is the difference between a *selected/unmarked* location and a *marked* location?

Answer—Selected locations are the pins that are *unchecked*. These unchecked pins indicate that these locations have not been marked. A marked location will appear on the map as a *checked* pin.

Why are *selected/unmarked* locations (unchecked pins) useful?

Answer—Having unmarked locations are useful to two main purposes:

- 1) You can differentiate between your priority locations and your non-priority locations by keeping your non-priority locations unmarked and then control whether they appear in the “My Location” list using the “show checked locations” checkbox.
- 2) Only selecting an unmarked location allows you to access the “view latest image” function.

The pin location I selected is an “Unknown Location”?

Answer—If you mark a location that has no satellite data in the current archive, the CyAN app will return “Unknown Location” and no count information. This is typical in areas extremely close to shore or lakes smaller than can be resolved by the satellite.

Why is my data is reloading slow?

Answer—Reloading data will be dependent on (1) the speed of your wireless connection, (2) the number of pins you use, and (3) the number of satellite data records we host on the servers. Initial test suggests <30 seconds with 1 pin and ~1 minute with 20 pins.

What does “(Max:...)” and “(Valid cells:...)” indicate when comparing locations?

Answer—The Max and Valid cell count are an attempt to provide a small areal view of the cyano conditions about the location raster cell. Max is the largest cyano value in a 300mx300m raster cell matrix about the location and Valid is the number of cells that have a cyano response. Depending on the location in the waterbody and the conditions under which it was detected Valid values range from 0 to 9.

What is OLCI?

Answer— OLCI (Ocean and Land Colour Instrument) is a sensing instrument on ESA’s Sentinel-3 satellite that is used to detect cyanobacteria in waterbodies. Each Sentinel-3 satellite tile is a Geo-referenced TIFF formatted raster file containing 2000x2000 = 4000000 cells. Each pixel cell represents a 300mx300m area.

When I switch from OLCI- Daily to OLCI-Weekly and vice-versa my pins disappear?

Answer—OLCI weekly/daily data are separate data products the CyAN app is capable of handling. The two categories of data are handled completely separately. Your markers for weekly data do not show if you've selected "Daily"; and vice-versa. Daily data is a snapshot of cyanobacteria at the time of detection, weekly data is a composite of daily maximums.

References

Blake A. Schaeffer, Sean W. Bailey, Robyn N. Conmy, Michael Galvin, Amber R. Ignatius, John M. Johnston, Darryl J. Keith, Ross S. Lunetta, Rajbir Parmar, Richard P. Stumpf, Erin A. Urquhart, P. Jeremy Werdell, Kurt Wolfe ; *Mobile device application for monitoring cyanobacteria harmful algal blooms using Sentinel-3 satellite Ocean and Land Colour Instruments.*; Environmental Modelling & Software Volume 109, November 2018, Pages 93-103