



EPA Tools & Resources Training Webinar

CyAN App: Cyanobacteria Assessment Network Mobile Application

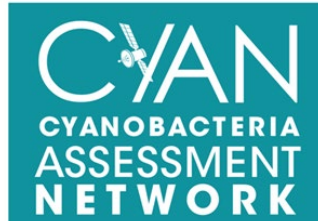
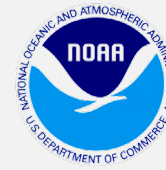
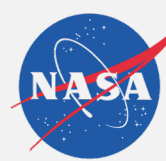
*Tool for the Early Detection of Algal Blooms
in US Freshwater Systems*



Presenters: Blake Schaeffer, John Johnston and Darryl Keith
US EPA Office of Research and Development (ORD)

May 13, 2020

Partnership

The logo for the Cyanobacteria Assessment Network (CyAN). It features the word "CYAN" in large white letters on a teal square background, with "CYANOBACTERIA ASSESSMENT NETWORK" in smaller white letters below it. The entire logo is set against a circular background with a water-like texture.

CYAN
CYANOBACTERIA
ASSESSMENT
NETWORK

epa.gov/cyanoproject

CyAN is a multi-agency (NASA, NOAA, USGS and EPA) effort that supports environmental management and public use of US lakes and reservoirs by providing a capability of **detecting and quantifying algal blooms** using satellite data records and disseminating this information through a mobile application developed and hosted by EPA.

- CyAN App provides water quality managers with a user-friendly tool that reduces the complexities associated with accessing satellite data to allow **fast, efficient, initial assessments** across lakes and drinking water reservoirs.
- Data from the Ocean and Land Colour Instruments (OLCI) sensor onboard the European Space Agency Copernicus Sentinel-3 satellite are used in **near real-time** to make initial water quality assessments and quickly alert managers to potential problems and emerging threats related to cyanobacteria.

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

Video Source: [European Space Agency](#)



Ocean and Land Colour Instrument (OLCI)

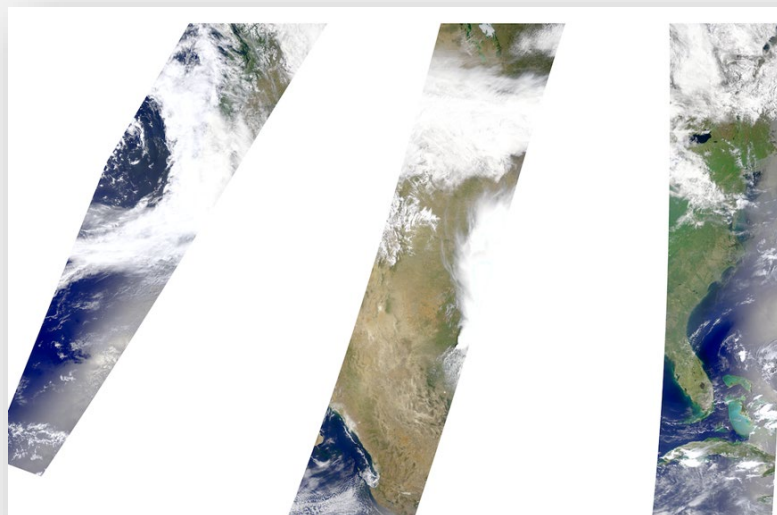
- Revisit: 2-3 day
- Spatial resolution: 300m
- Surface water measures



EUMETSAT



European Space Agency





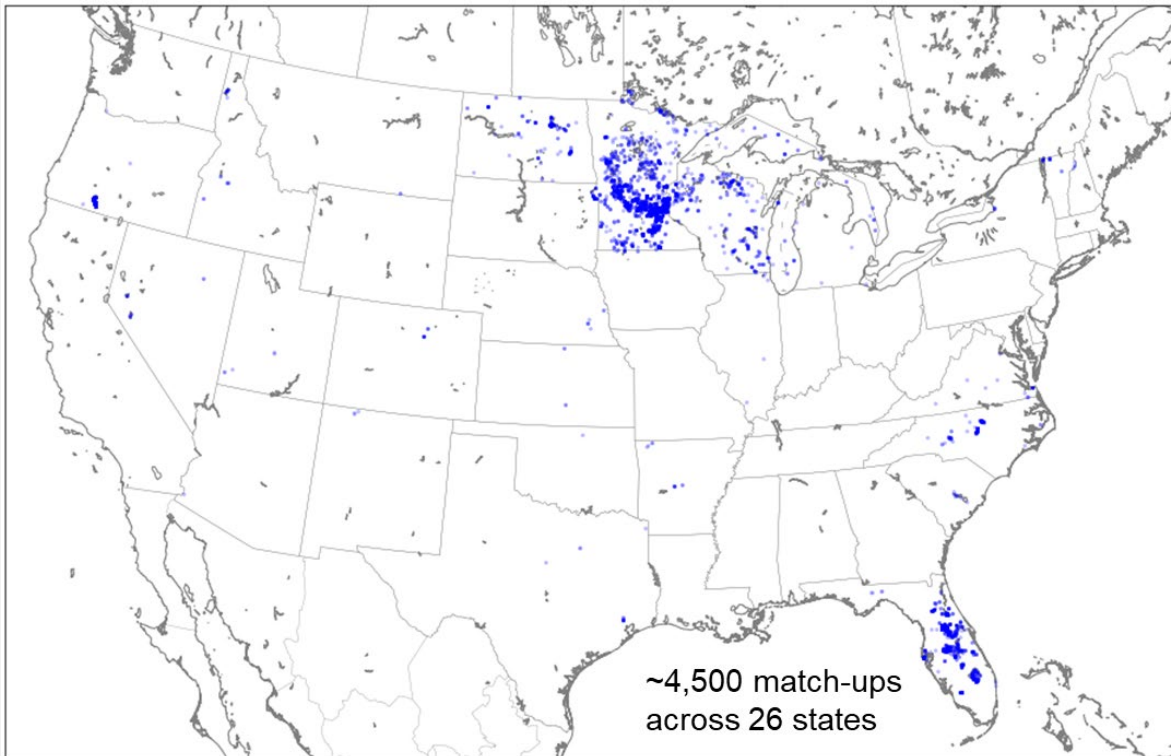
Known Issues with Satellite Remote Sensing

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

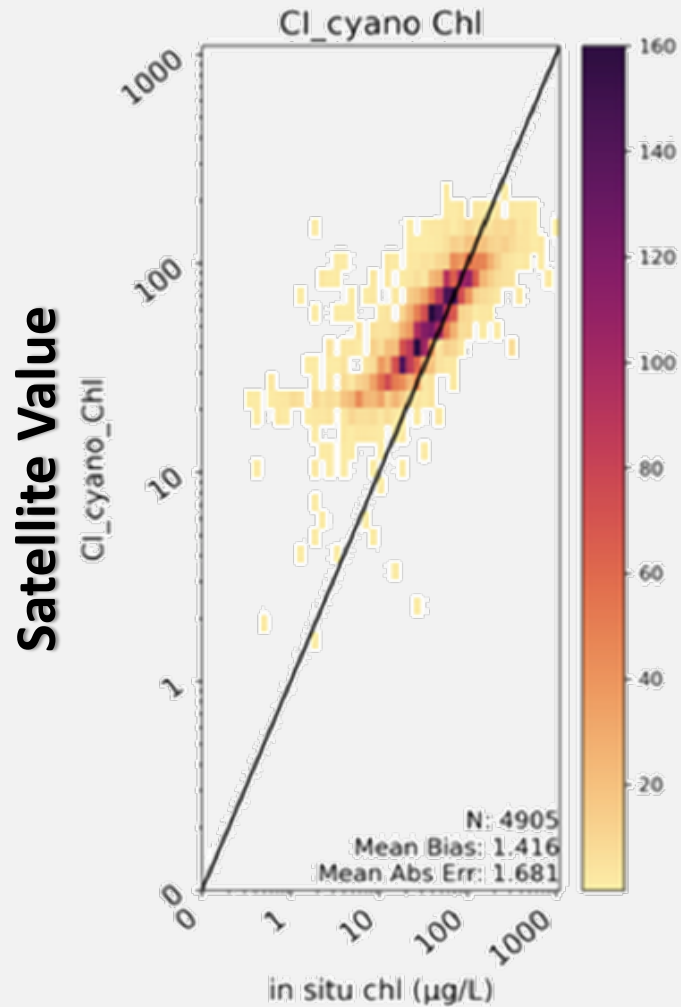




Initial Chlorophyll Validation

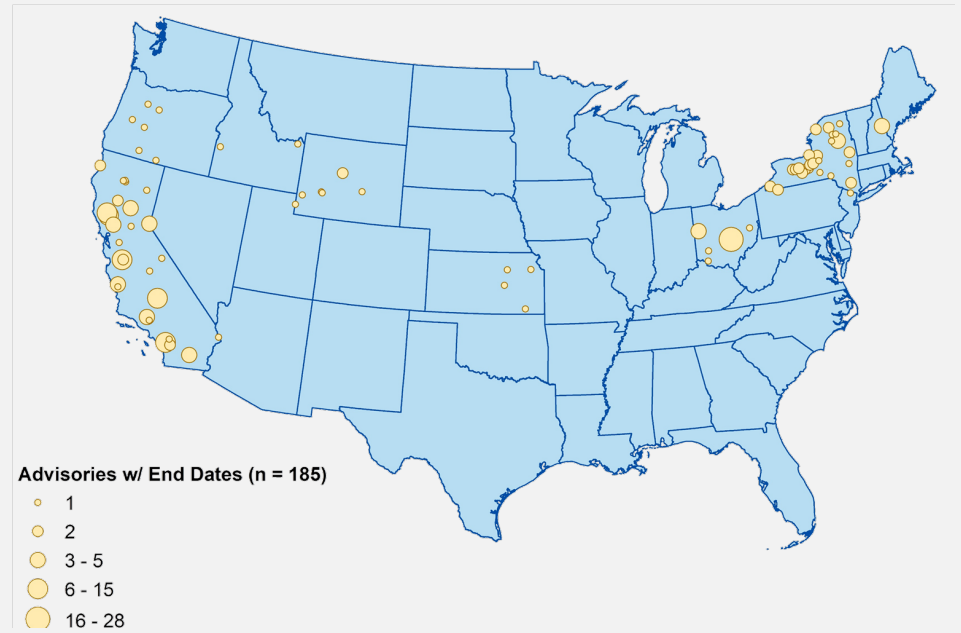
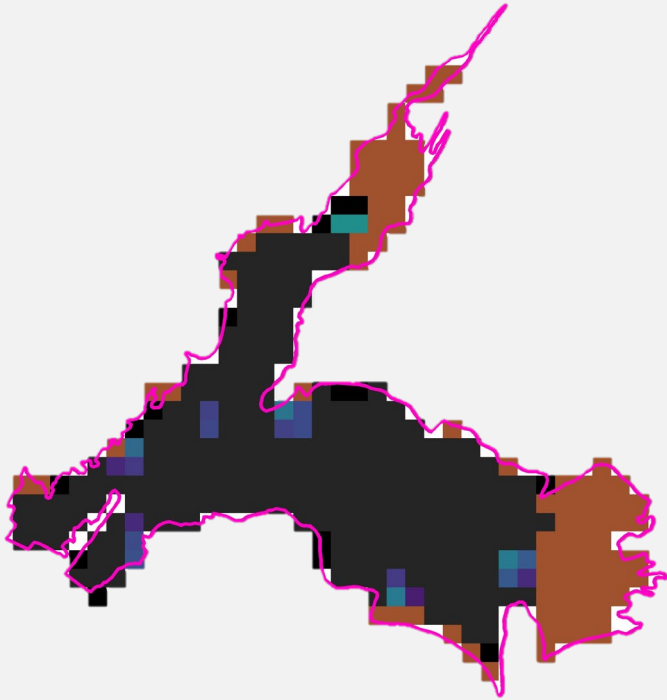


Seegers et al. In Prep.



Bottle Samples

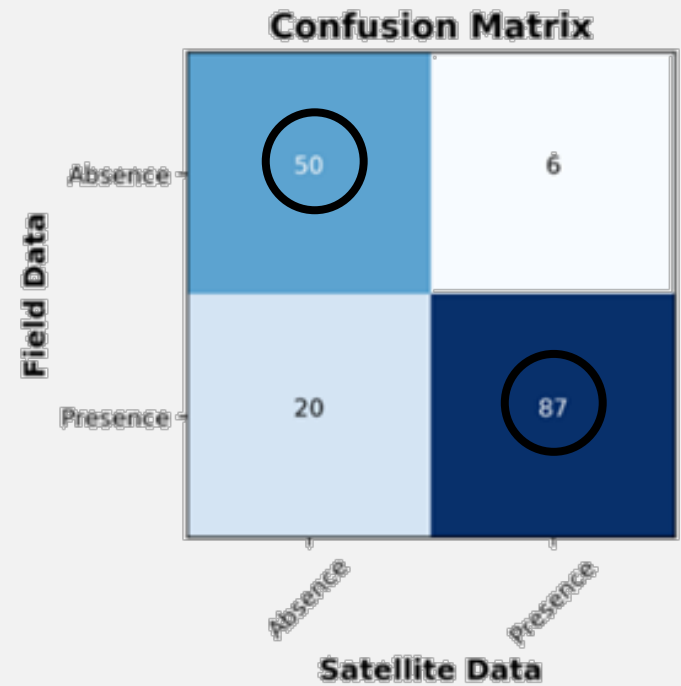
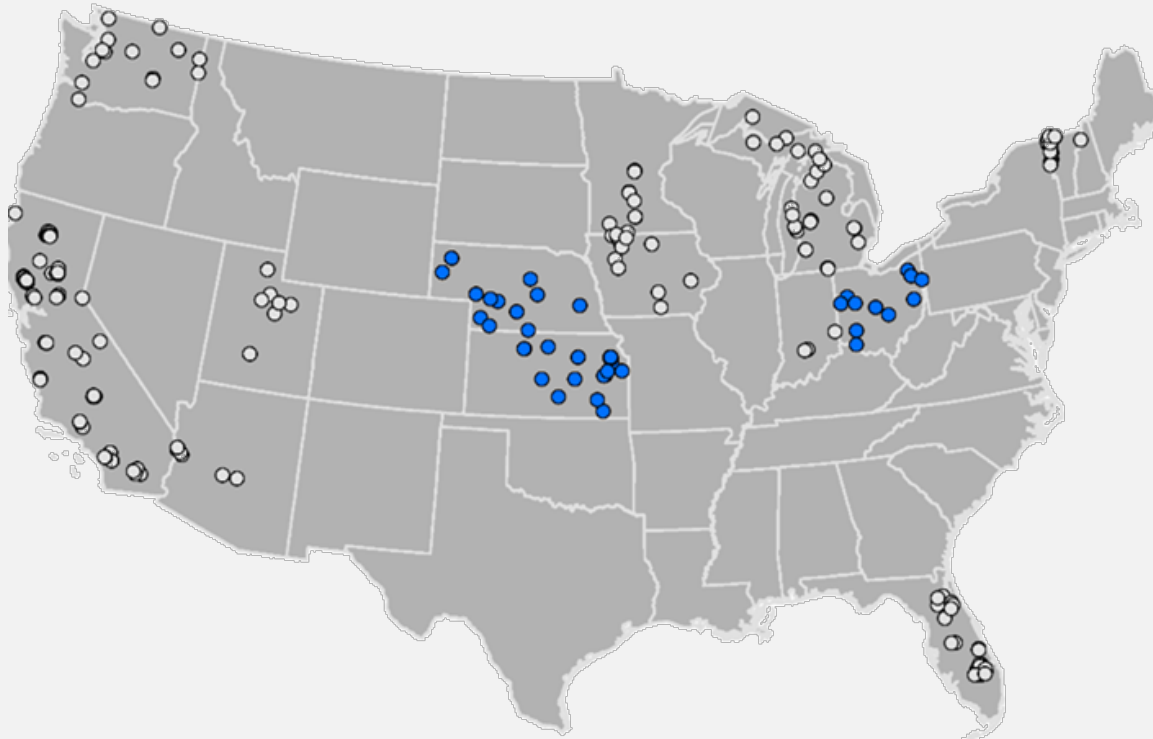
State Health Advisory Validation



Health Advisory Validation

		Health Advisory	
		Advisory Period	One Week After Advisory Period
CyAN Index	Bloom	Cyanobacteria Detected = 83%	Insignificant Reduction in Cyanobacteria = 30%
	No Bloom	No Cyanobacteria Detected = 17%	Significant Reduction in Cyanobacteria = 70%

Toxin Health Advisory Validation





Clark et al. 2015.
Ecological Indicators.

doi.org/10.1016/j.eacolind.2017.04.046

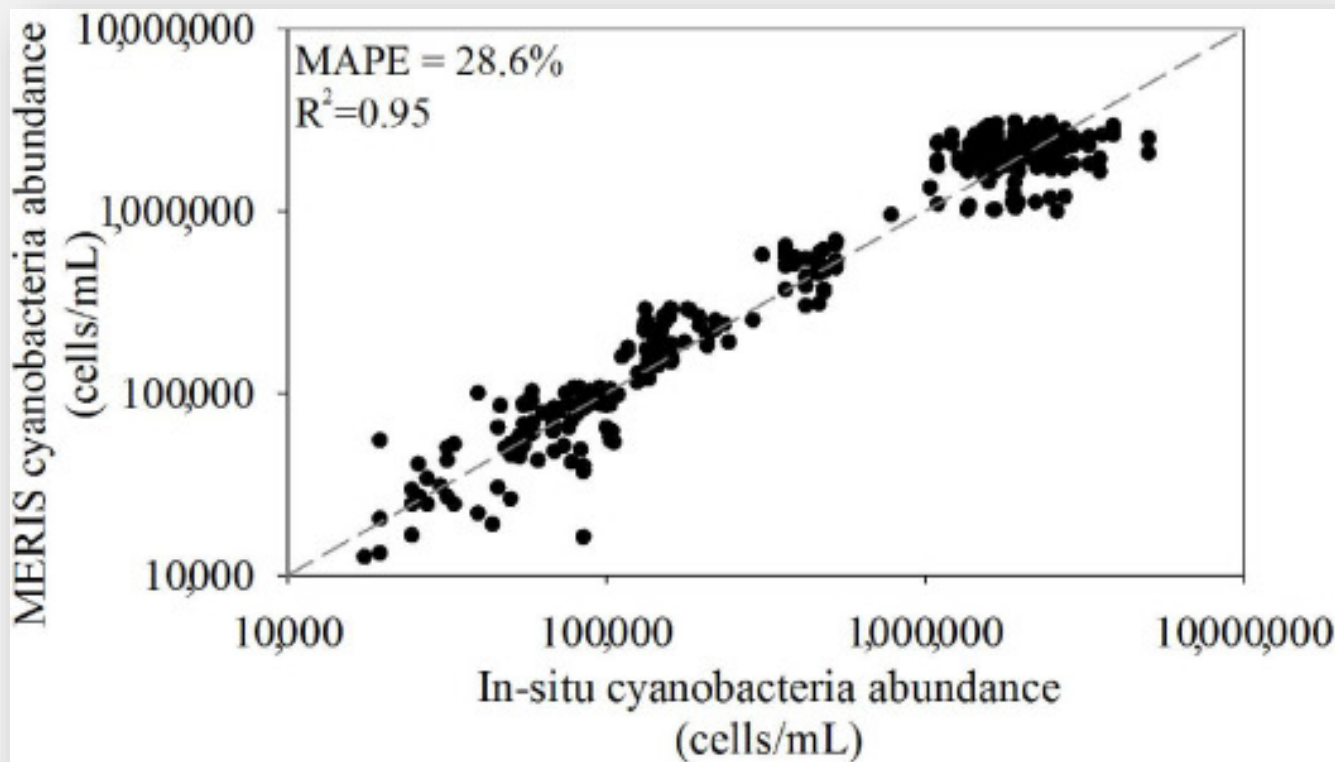


Lunetta et al. 2015.
Remote Sensing of Environment.

doi.org/10.1016/j.rse.2014.06.008

Initial Cyanobacteria Validation

Satellite Value



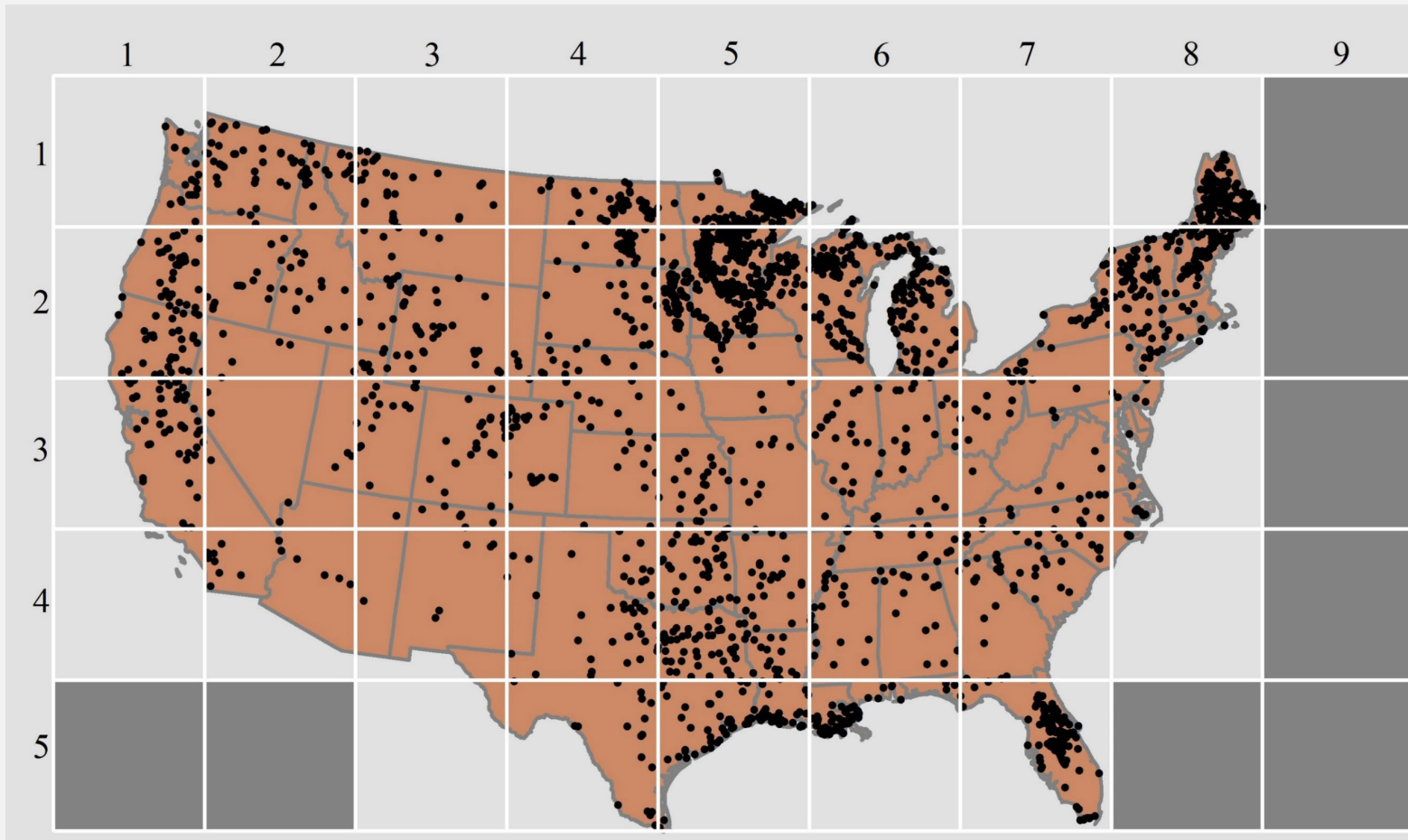
Bottle Samples

Satellite results represent what is seen in the field.



Can I use the CyAN App for my lake?

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



Schaeffer et al 2018.
Environmental
Modelling & Software.
doi.org/10.1016/j.envsoft.2018.08.015



Weekly Data *Behind the Scenes*

50,000
cell/mL

200,000
cell/mL



Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

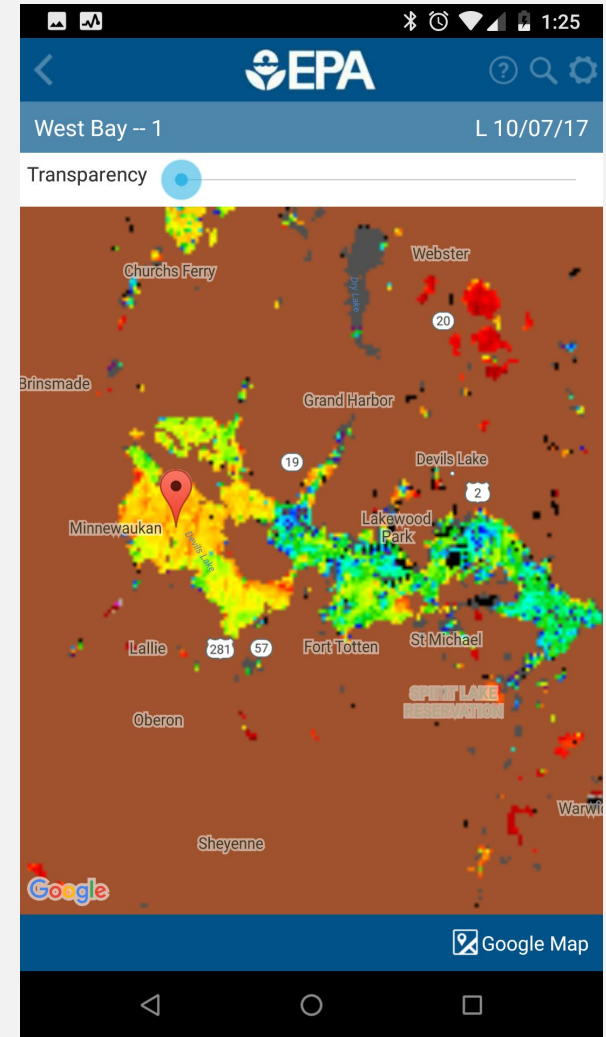
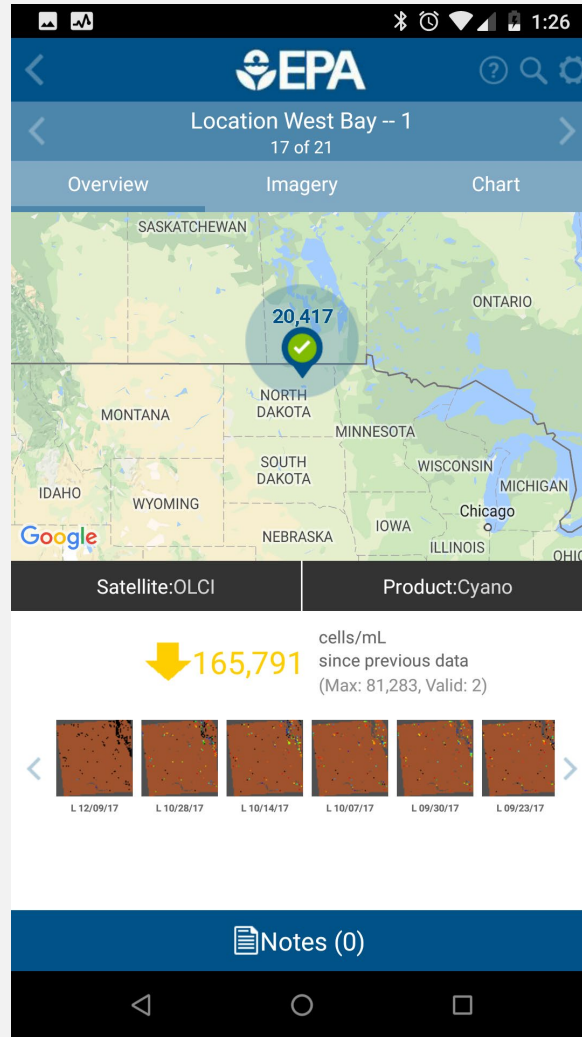
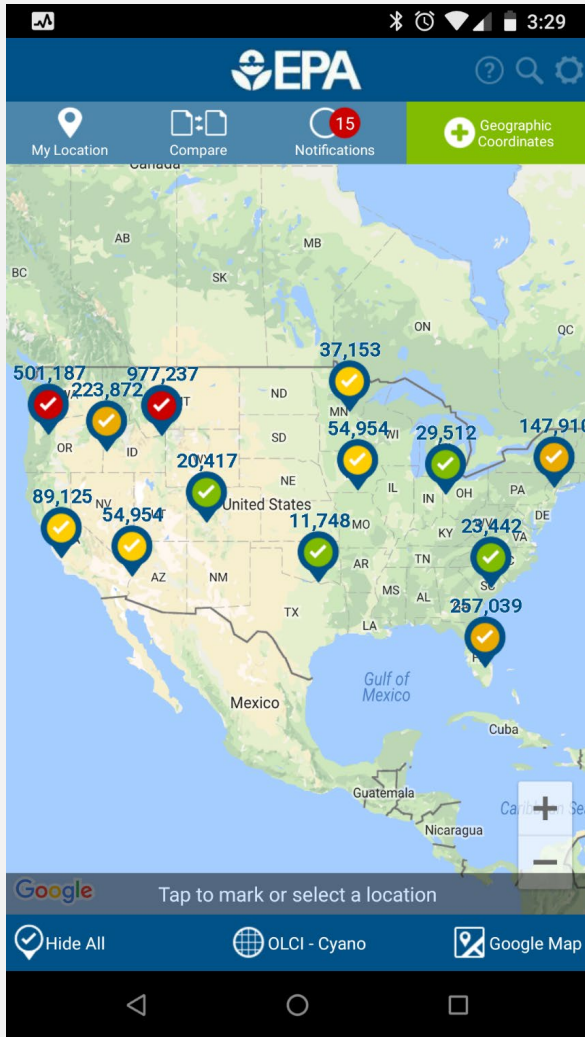
Saturday

Weekly composite



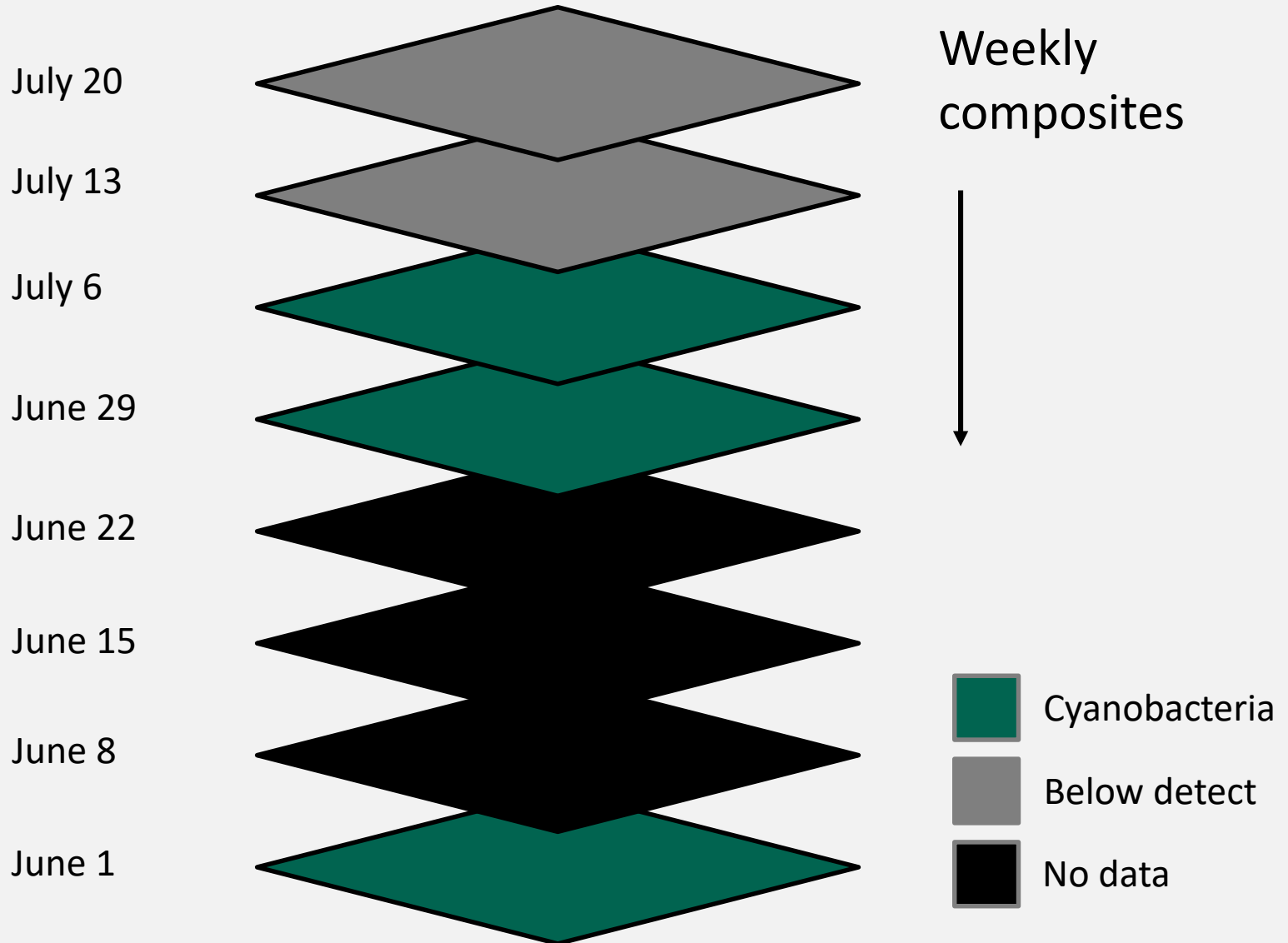
200,000
cell/mL

Mobile App Overview



Is the App Up-to-Date?

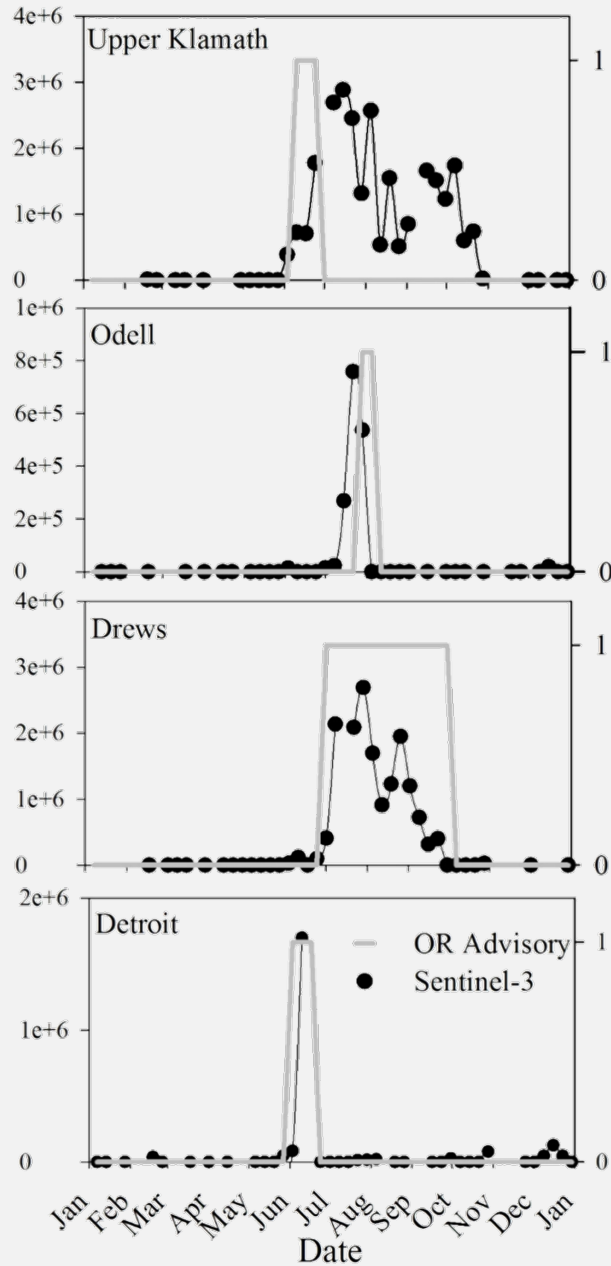
Only reports when cyanobacteria is detected.



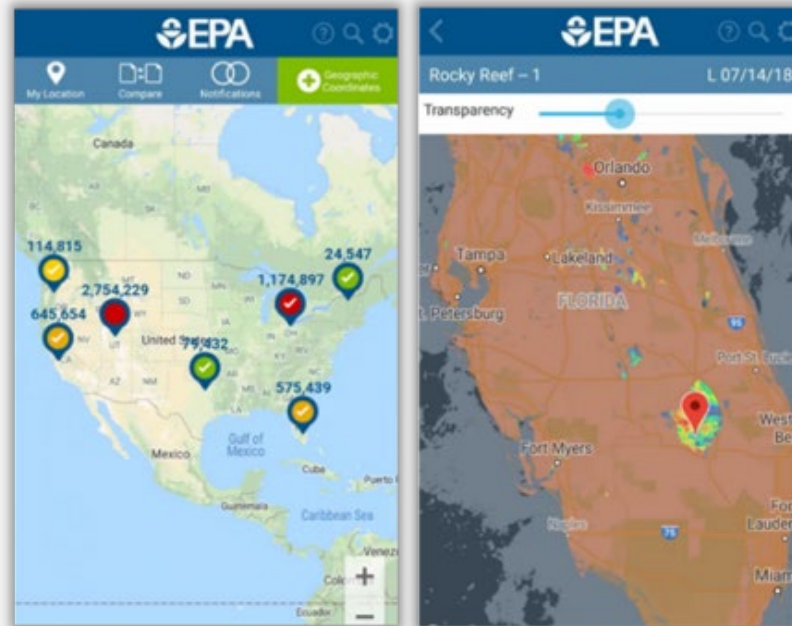


Sentinel-3 cyanoHAB

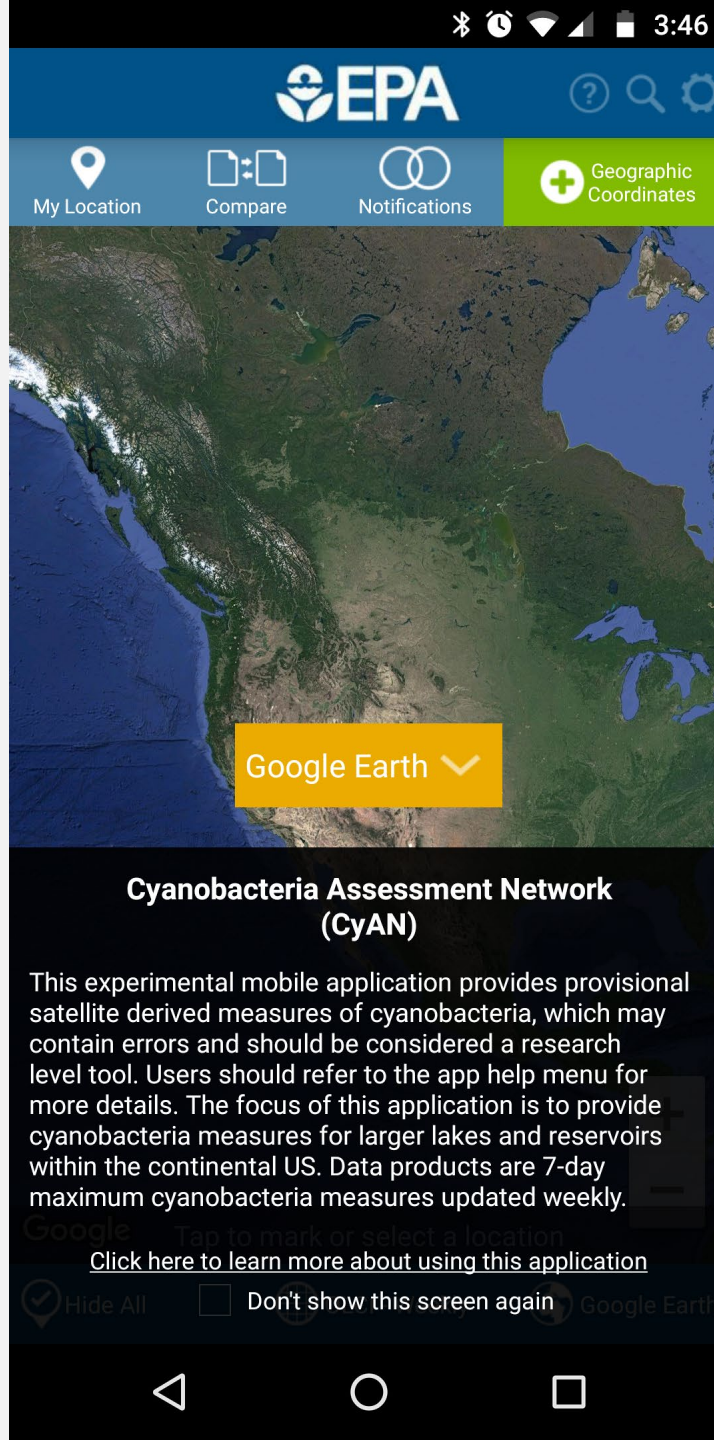
(cells mL⁻¹)

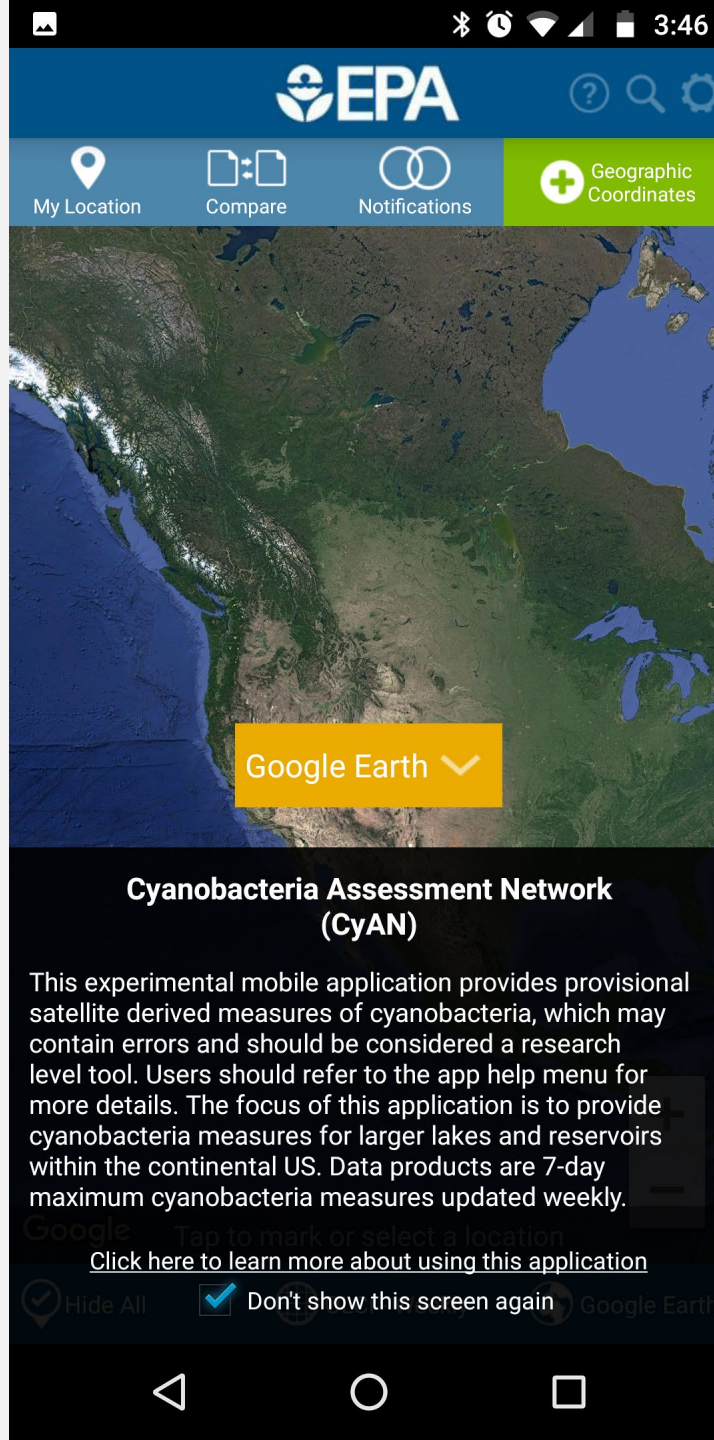


Step-by-Step Training



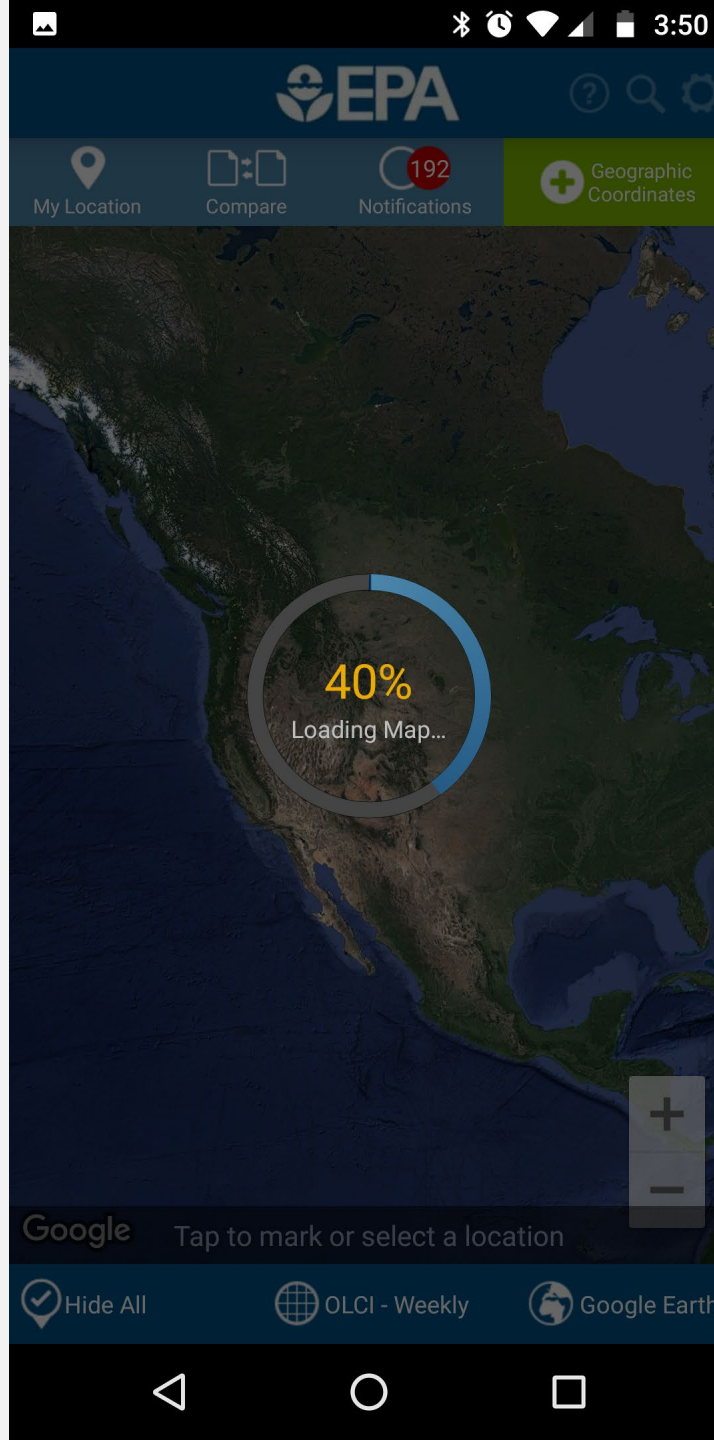
Single point location example



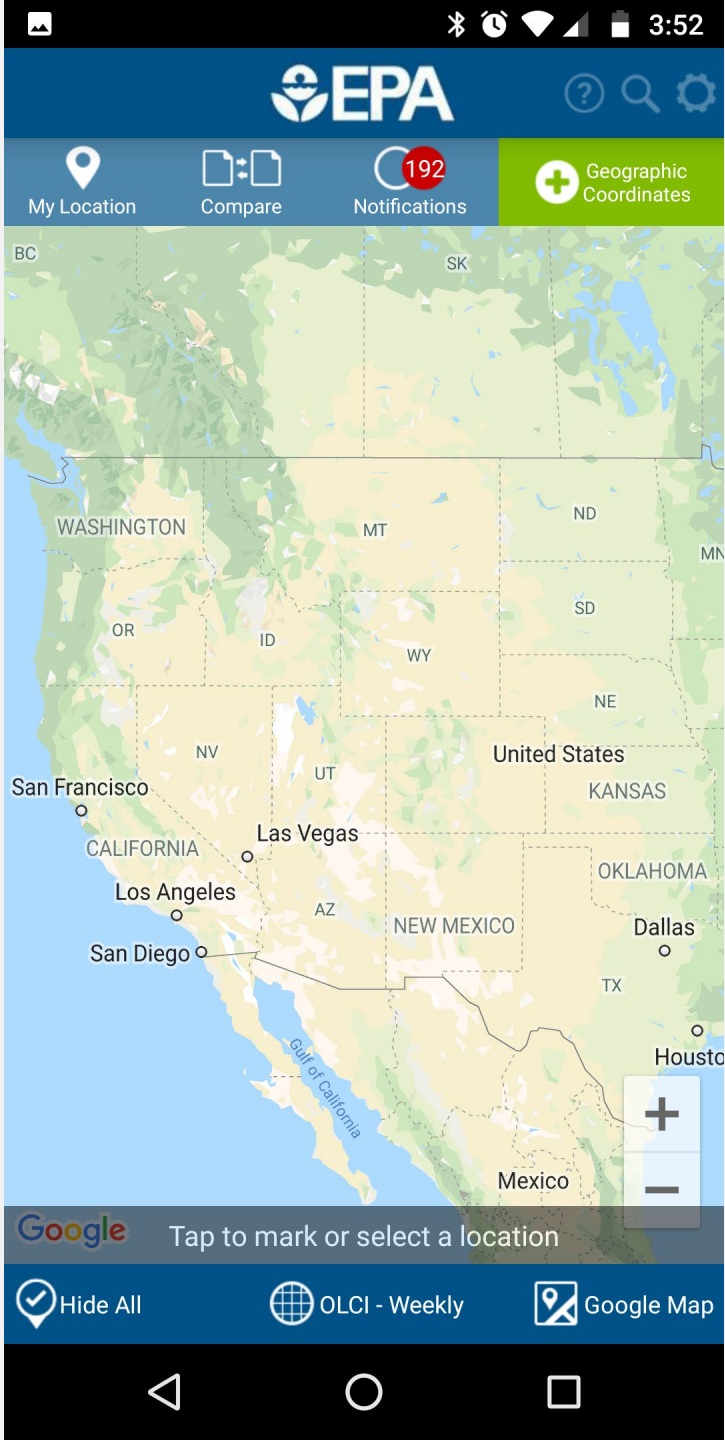




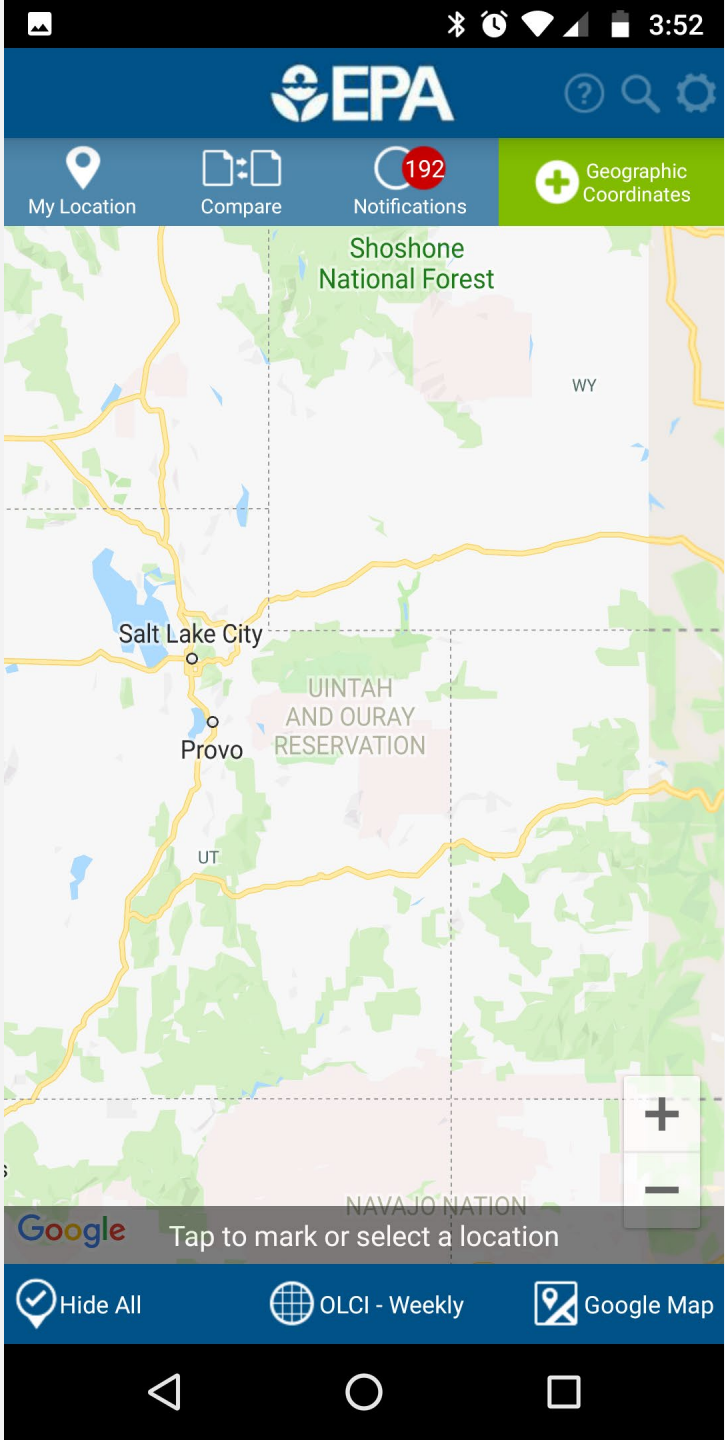




The screenshot displays the EPA mobile application interface. At the top, the EPA logo is centered, with a search icon and a settings gear icon to its right. Below the logo is a navigation bar with four items: 'My Location' (location pin icon), 'Compare' (two document icons), 'Notifications' (bell icon with a red '192' badge), and 'Geographic Coordinates' (plus sign icon). The main content area is a map of North America, showing the United States, Canada, and Mexico. State abbreviations are visible across the map. A zoom control panel is located in the bottom right corner of the map area, featuring a plus sign for zooming in and a minus sign for zooming out. At the bottom of the screen, there is a Google search bar with the text 'Tap to mark or select a location'. Below the search bar are three buttons: 'Hide All' (checkmark icon), 'OLCI - Weekly' (globe icon), and 'Google Map' (location pin icon). The very bottom of the screen shows the standard Android navigation bar with back, home, and recent apps buttons.









The screenshot displays the EPA mobile application interface. At the top, the EPA logo is centered, with a search icon and a settings icon to its right. Below the logo is a navigation bar with four buttons: "My Location" (location pin icon), "Compare" (two document icons), "Notifications" (bell icon with a red "192" badge), and "Geographic Coordinates" (plus sign icon). The main area is a map of Utah, showing cities like Logan, Rock Springs, Evanston, Lake City, Sandy, Provo, Price, Moab, Grand Junction, and Vernal. Key geographical features include Ashley National Forest and the Uintah and Ouray Reservation. A "Zoom In" button (plus sign) is visible in the bottom right of the map area. At the bottom of the map, the Google logo is present with the text "Tap to mark or select a location". Below the map is a dark blue bar with three buttons: "Hide All" (location pin icon), "OLCI - Weekly" (globe icon), and "Google Map" (location pin icon). The bottom of the screen shows the standard Android navigation bar with back, home, and recent apps buttons.

3:52

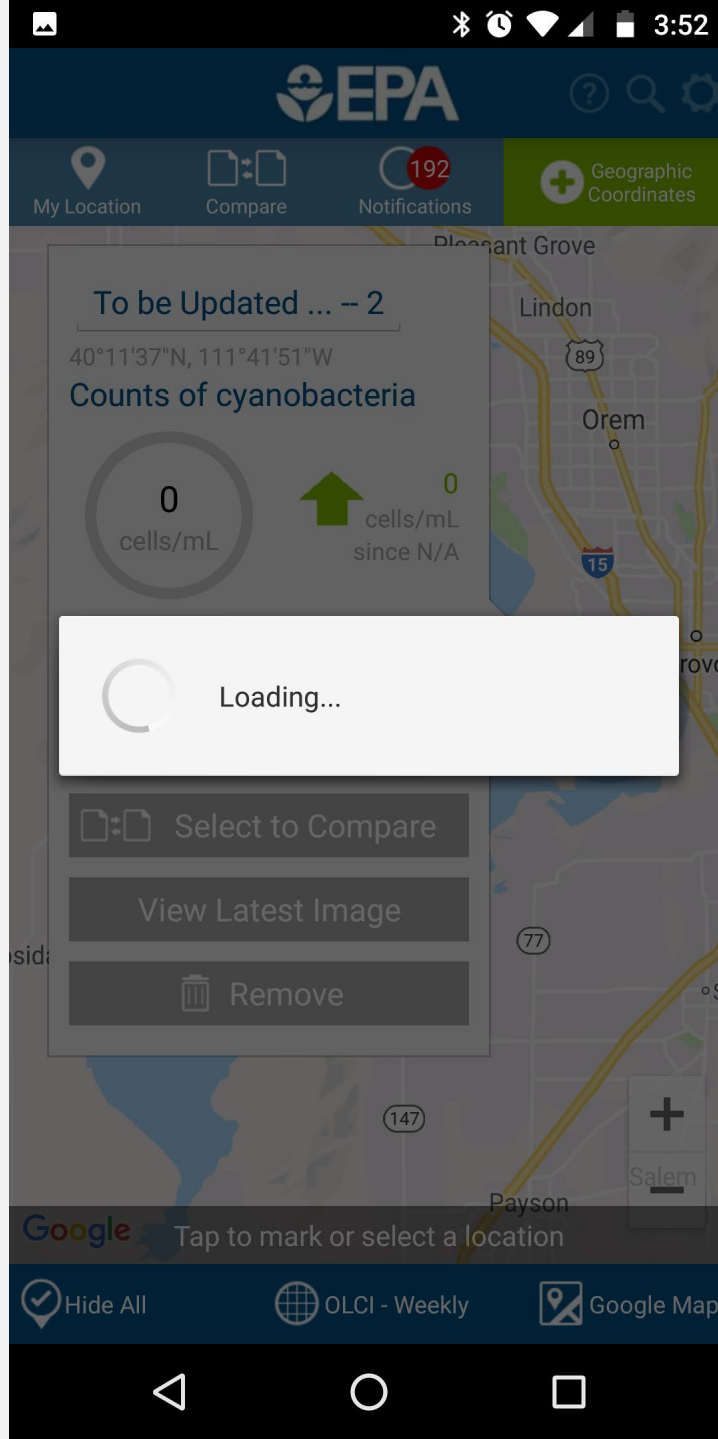
 EPA

My Location Compare Notifications 192 Geographic Coordinates

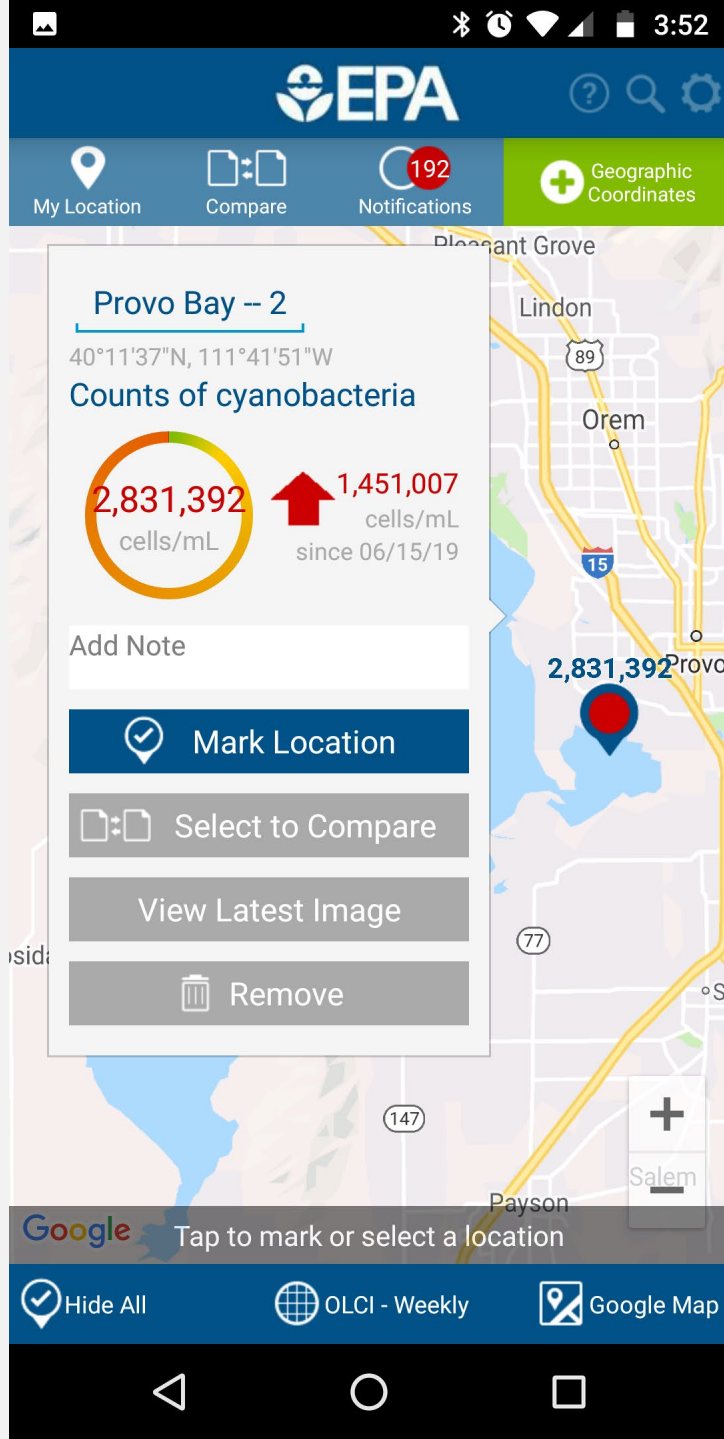


Google Tap to mark or select a location

Hide All OLCI - Weekly Google Map




The screenshot shows the EPA mobile application interface. At the top, there is a dark blue header with the EPA logo and navigation icons for 'My Location', 'Compare', 'Notifications' (with a red badge showing '192'), and 'Geographic Coordinates'. Below the header is a map of the region around Orem, Utah, with labels for Pleasant Grove, Lindon, Orem, and Payson. A data overlay is positioned over the map, displaying the title 'To be Updated ... - 2' and coordinates '40°11'37"N, 111°41'51"W'. The main data point is '0 cells/mL', accompanied by a green upward-pointing arrow and the text '0 cells/mL since N/A'. A white dialog box with a circular loading spinner and the text 'Loading...' is centered over the map. Below the dialog, a menu is visible with three options: 'Select to Compare', 'View Latest Image', and 'Remove'. At the bottom of the screen, there is a dark blue footer with icons for 'Hide All', 'OLCI - Weekly', and 'Google Map'.




EPA ? 🔍 ⚙️


My Location Compare Notifications **192** Geographic Coordinates

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

Google Tap to mark or select a location


 Hide All  OLCI - Weekly  Google Map





3:53


    

Provo Bay -- 2 L 07/06/19


Transparency 




Legend  Google Map

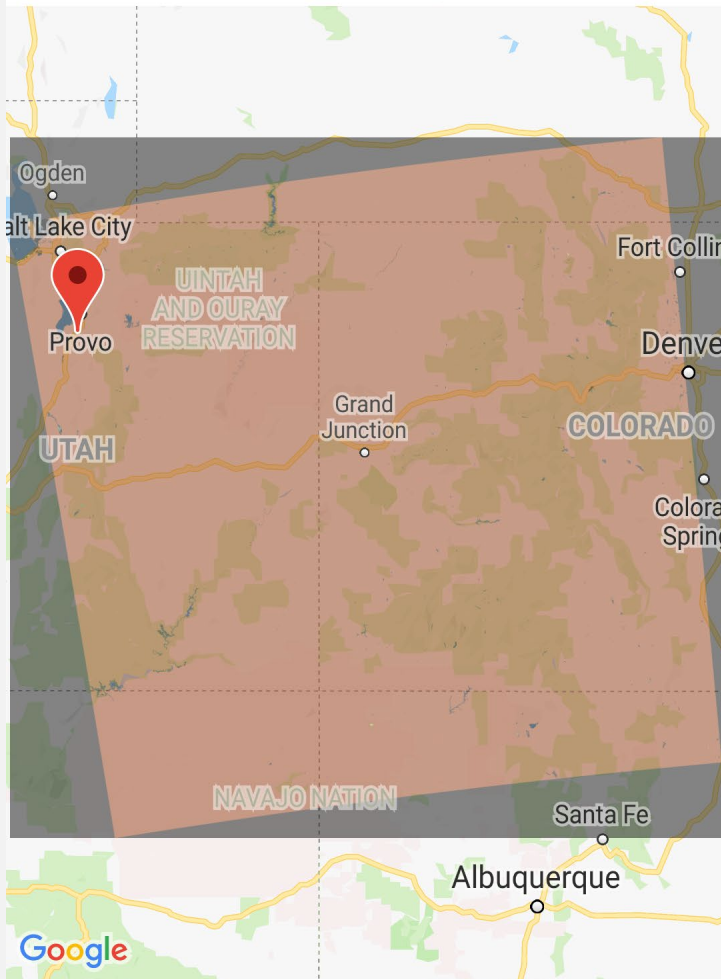


3:53

 EPA

Provo Bay -- 2 L 07/06/19


Transparency 

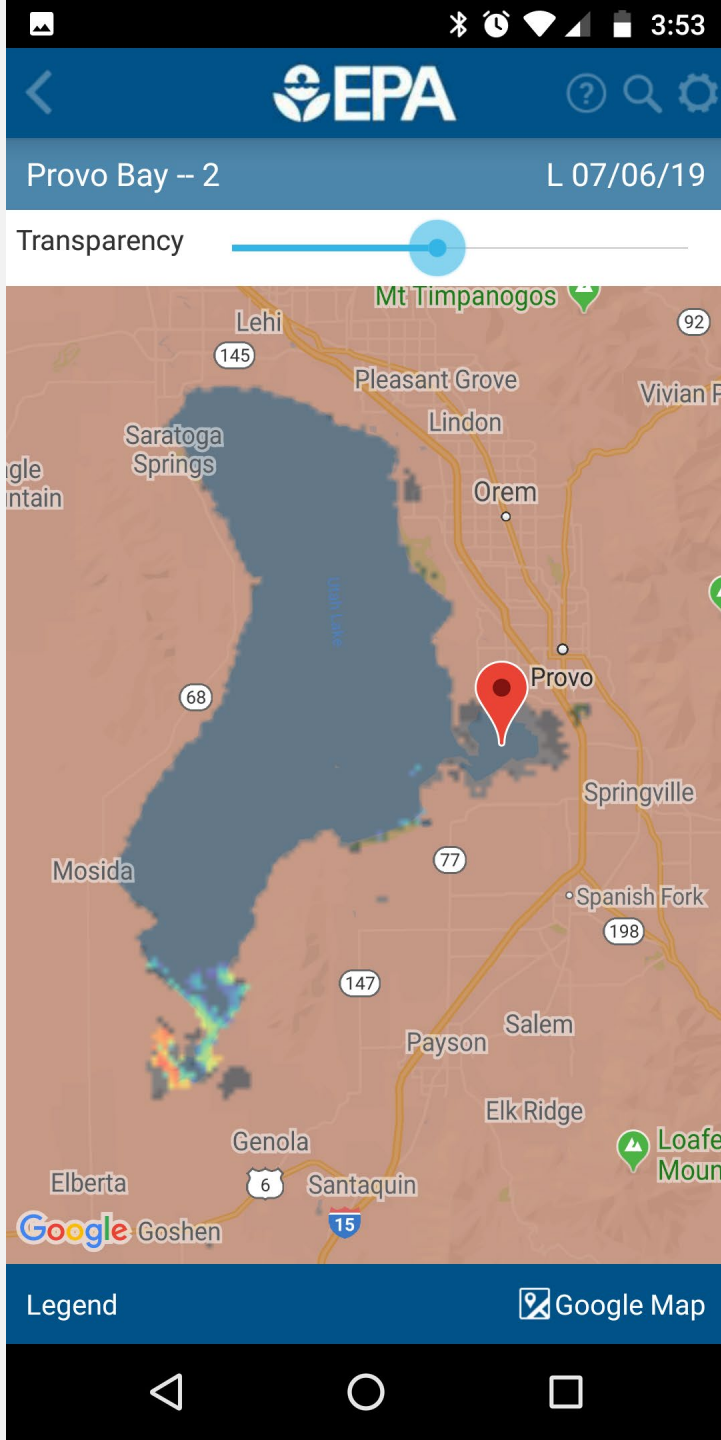


Ogden
Salt Lake City
Provo
Fort Collins
Denver
Grand Junction
Colorado Springs
Santa Fe
Albuquerque

UTAH
COLORADO
UNTAH AND OURAY RESERVATION
NAVAJO NATION

Google

Legend  Google Map



View the country in minutes

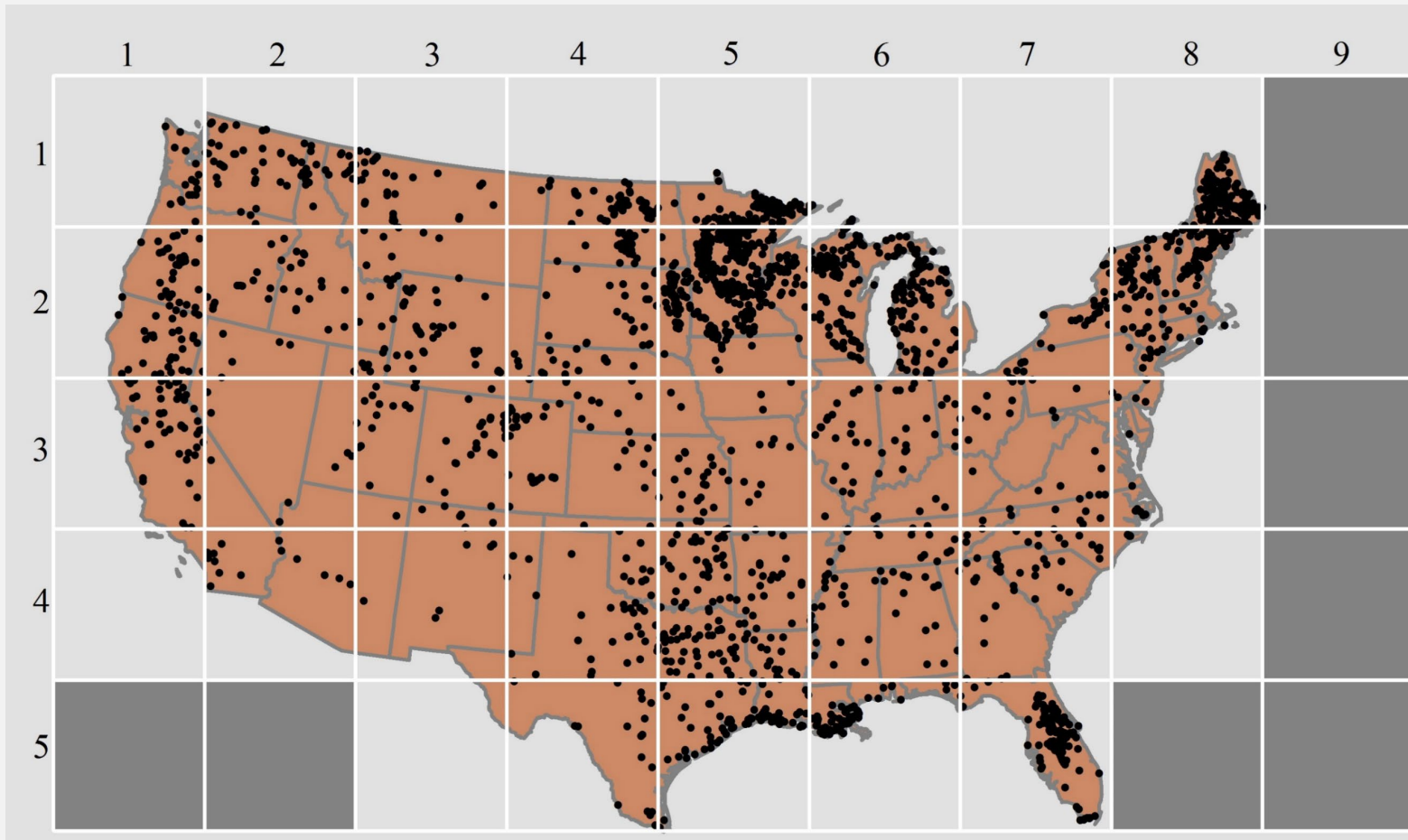


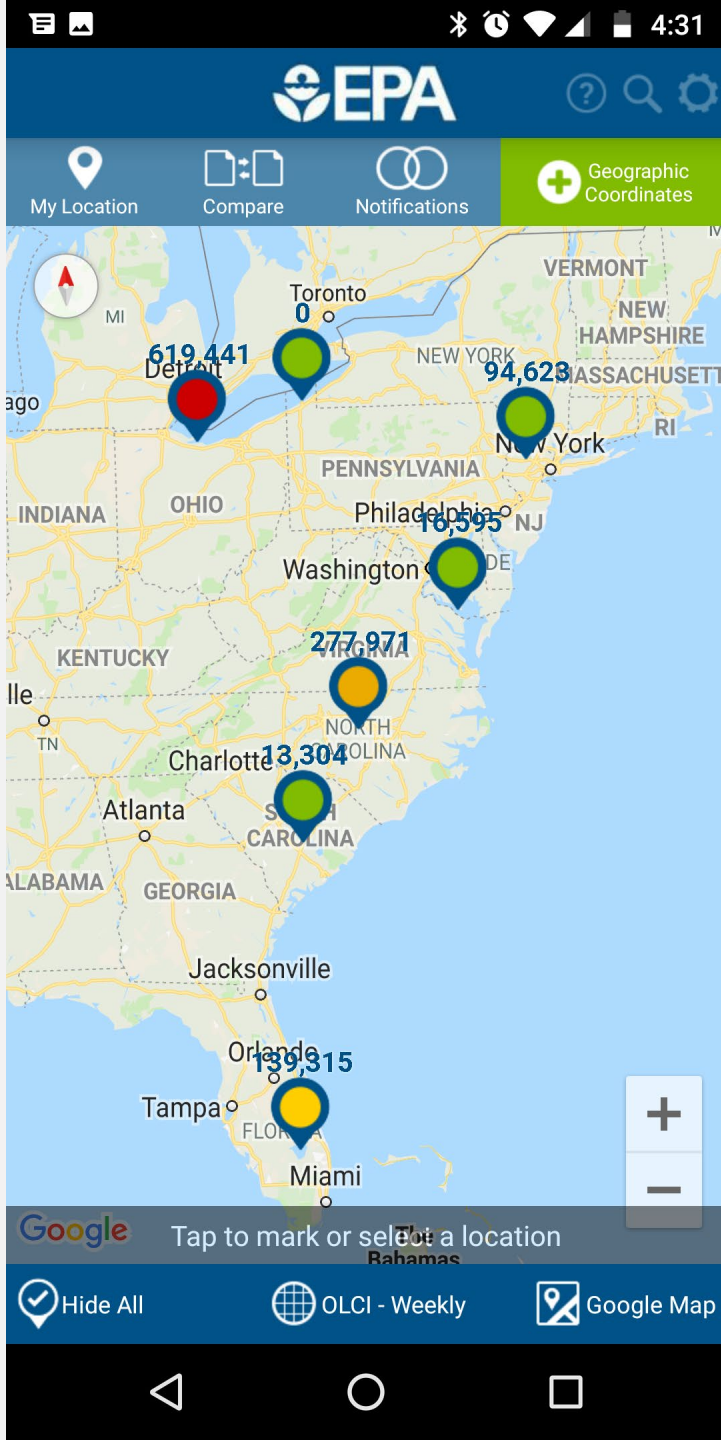
Can I use the CyAN App for my lake?

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



Schaeffer et al 2018.
Environmental
Modelling & Software.
doi.org/10.1016/j.envsoft.2018.08.015





The screenshot shows the EPA mobile application interface. At the top, there is a blue header with the EPA logo and navigation icons for 'My Location', 'Compare', 'Notifications', and 'Geographic Coordinates'. The main content area displays a map with a popup window for 'Lake Okeechobee -- 1'. The popup provides the following information:


- Coordinates: 26°57'40"N, 80°47'25"W
- Section: Counts of cyanobacteria
- Current reading: 139,315 cells/mL (represented by a circular gauge)
- Change: 49,483 cells/mL decrease since 06/22/19 (indicated by a green downward arrow)
- Buttons: 'Add Note', 'Mark Location', 'Select to Compare', 'View Latest Image', and 'Remove'

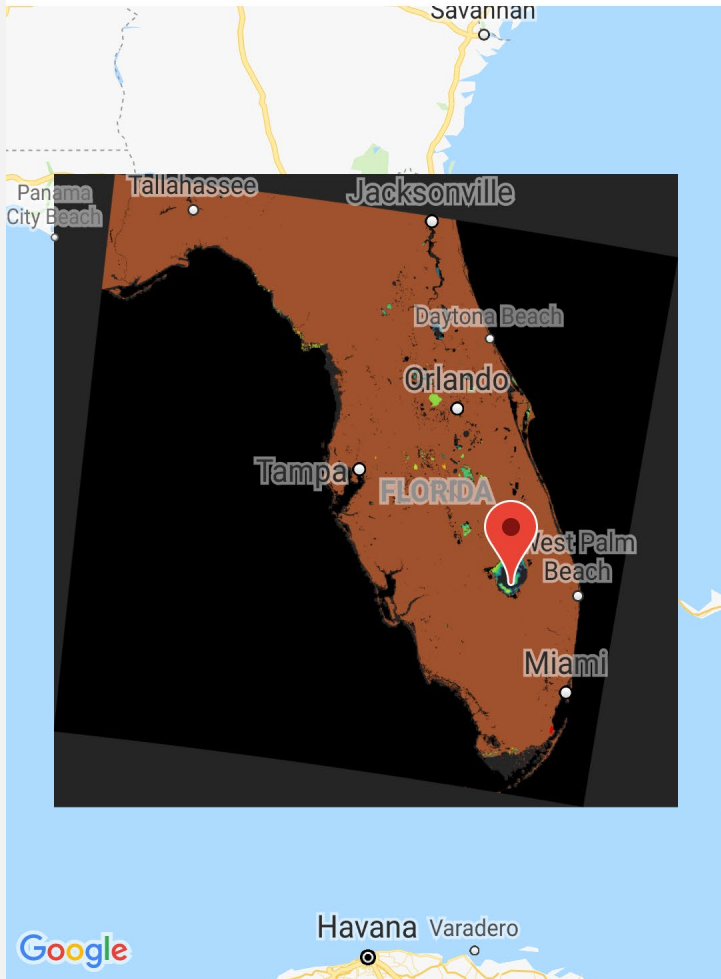
Below the popup, a map shows a yellow location pin over Florida with the number 139,315. At the bottom of the screen, there is a Google search bar with the text 'Tap to mark or select a location' and a bottom navigation bar with icons for 'Hide All', 'OLCI - Weekly', and 'Google Map'.

☰ ☒ * 🔔 📶 🔋 4:31


< **EPA** ? 🔍 ⚙️

Lake Okeechobee -- 1 L 07/06/19

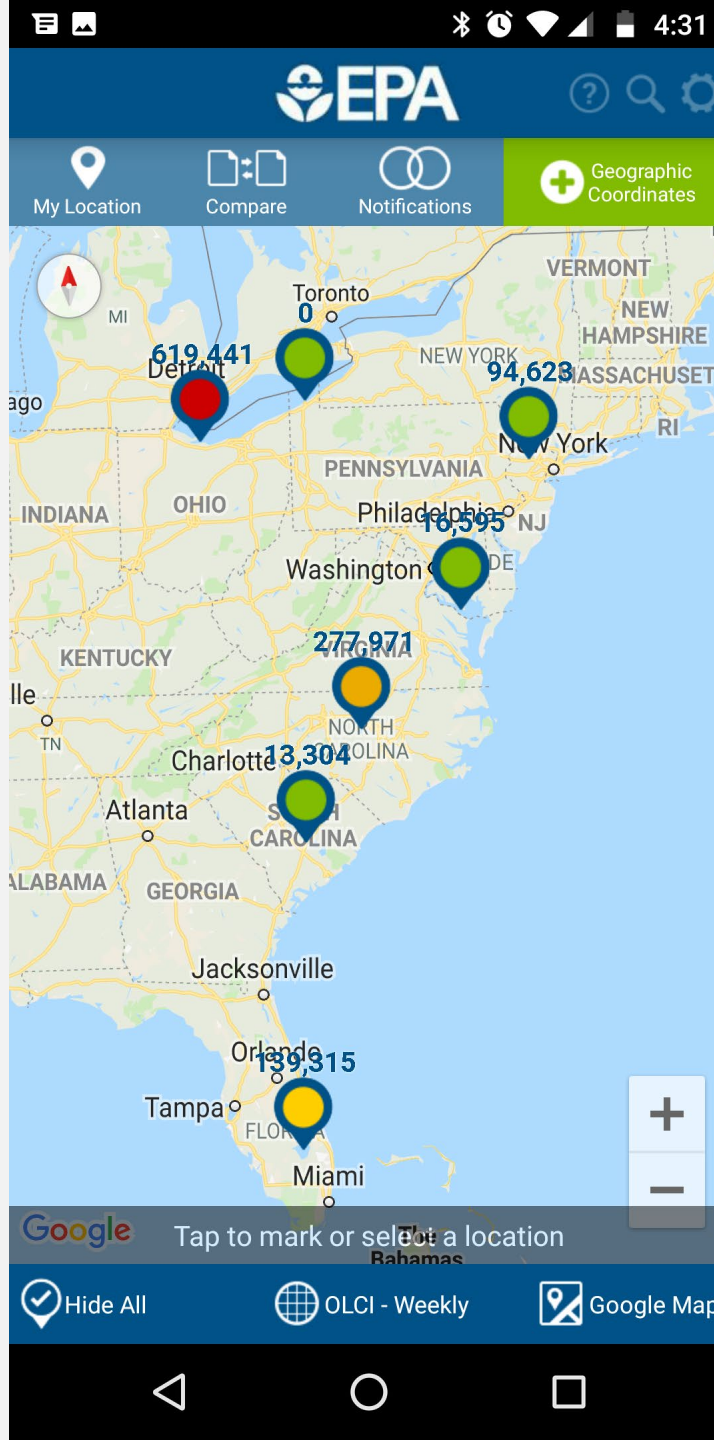
Transparency 



Google Havana Varadero

Legend  Google Map

◀ ○ ◻

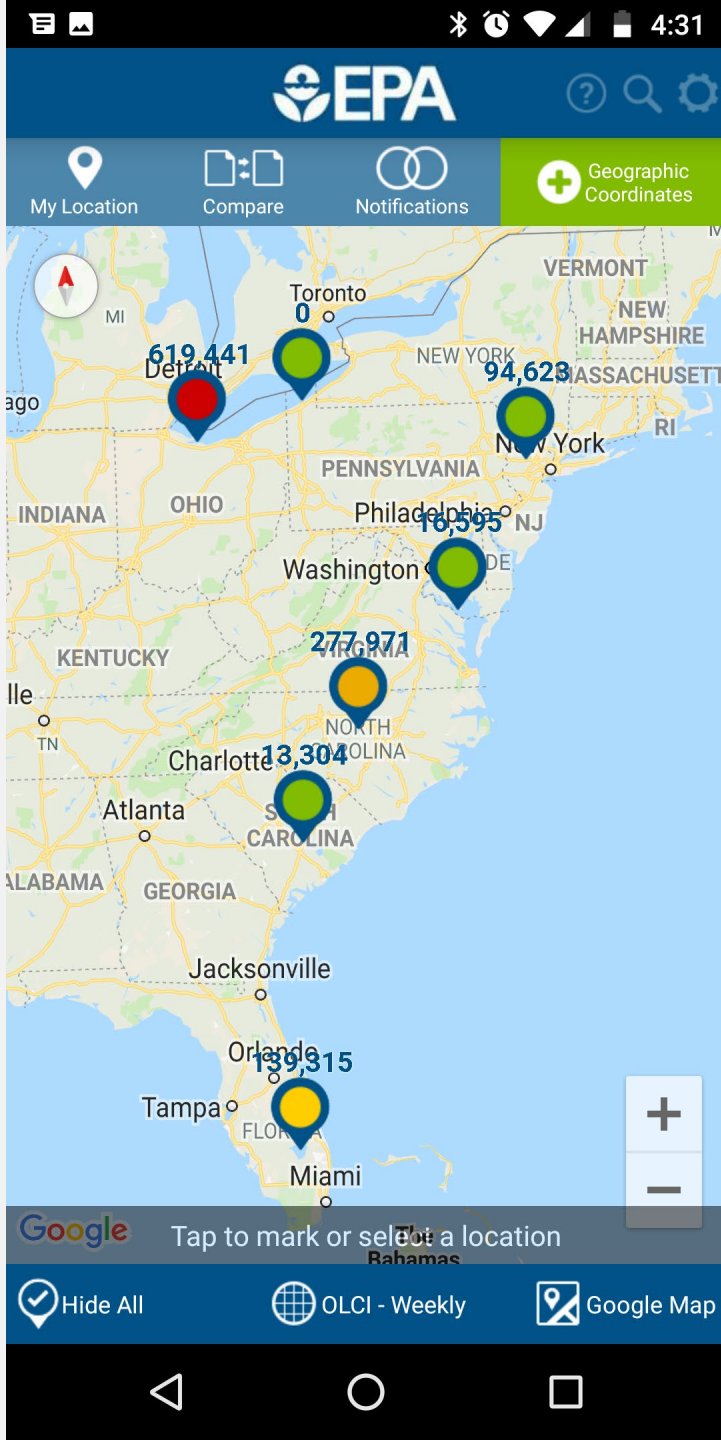


The screenshot displays the EPA mobile application interface. At the top, the EPA logo is centered, with navigation icons for 'My Location', 'Compare', 'Notifications', and 'Geographic Coordinates' (highlighted in green). Below the navigation bar is a map of the United States with a location marker. A data popup window is open over the map, displaying the following information:


- Location:** New Hope Creek -- 1
- Coordinates:** 35°48'30"N, 78°59'52"W
- Current Count:** 277,971 cells/mL (represented by a circular gauge)
- Change:** 149,738 cells/mL increase since 06/29/19 (represented by an upward arrow)
- Actions:** Add Note, Mark Location, Select to Compare, View Latest Image, Remove

At the bottom of the screen, there is a Google logo and the text 'Tap to mark or select a location'. Below this are three buttons: 'Hide All', 'OLCI - Weekly', and 'Google Map'. The bottom of the screen shows the standard Android navigation bar.

The screenshot displays the EPA mobile application interface. At the top, the status bar shows the time as 4:31 and various system icons. Below this is a dark blue header with the EPA logo and navigation icons (back, search, settings). The main content area features a title bar with "New Hope Creek -- 1" and a date "L 07/06/19". A "Transparency" slider is positioned below the title bar. The map area is divided into two sections: a top section showing a detailed view of the Lake Erie region with labels for Toledo and Cleveland, and a larger bottom section showing a regional map of the Eastern United States. This regional map highlights several states: OHIO, WEST VIRGINIA, VIRGINIA, and NORTH CAROLINA. Major cities like Columbus, Pittsburgh, Washington, Richmond, Roanoke, Greensboro, Asheville, and Charlotte are marked. A red location pin is placed on the map in North Carolina, near Greensboro. The bottom of the screen includes a "Legend" button and a "Google Map" button, along with the standard Android navigation bar.




4:31

 ? 🔍 ⚙️


My Location Compare Notifications **Geographic Coordinates**


Saint Marys River -- 1
38°6'22"N, 76°26'56"W

Counts of cyanobacteria


16,595 cells/mL  **16,595** cells/mL since N/A

Add Note




 **Mark Location**

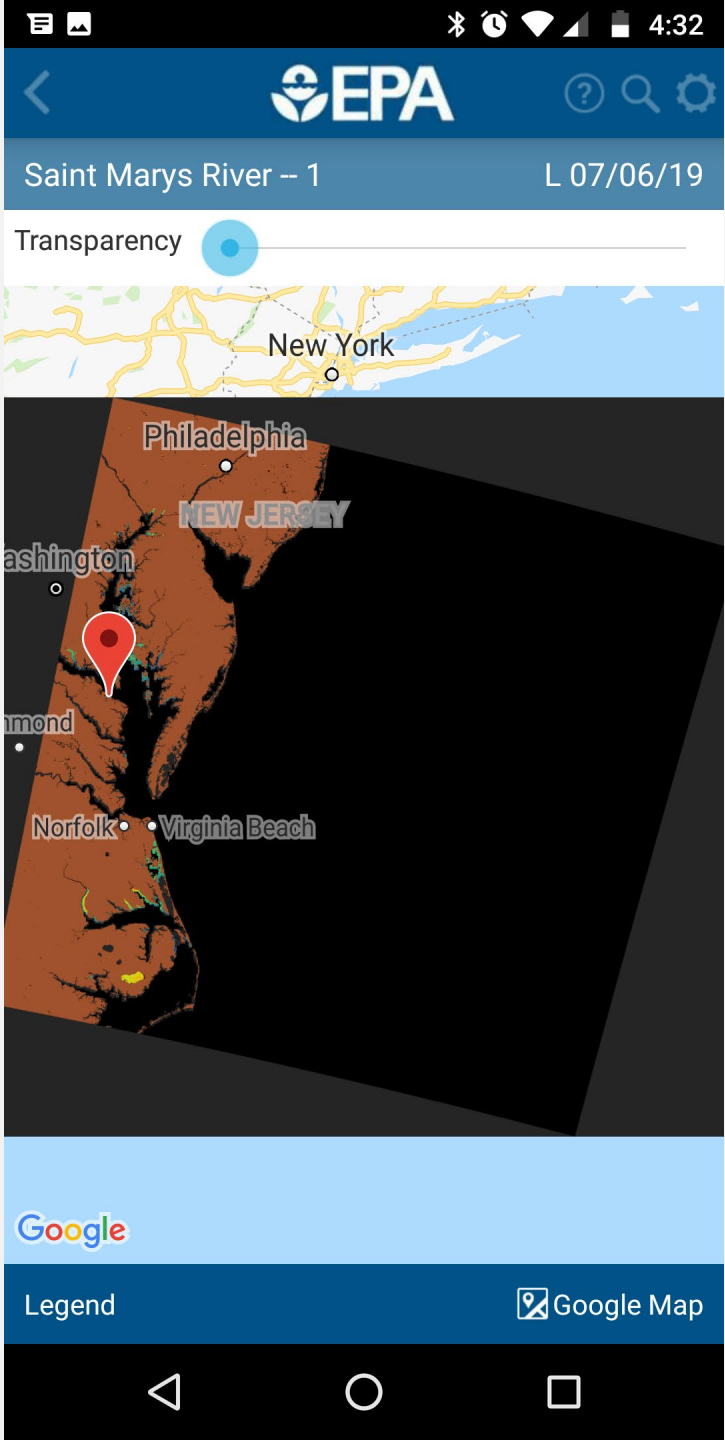
 Select to Compare

View Latest Image

 Remove


Google Tap to mark or select a location

 Hide All  OLCI - Weekly  Google Map





4:32

 EPA

My Location Compare Notifications Geographic Coordinates


Elba Point -- 2
40°56'35"N, 74°38'5"W


Counts of cyanobacteria

94,623 cells/mL


69,813 cells/mL
since 06/29/19

Add Note

 **Mark Location**

 **Select to Compare**

View Latest Image




 **Remove**

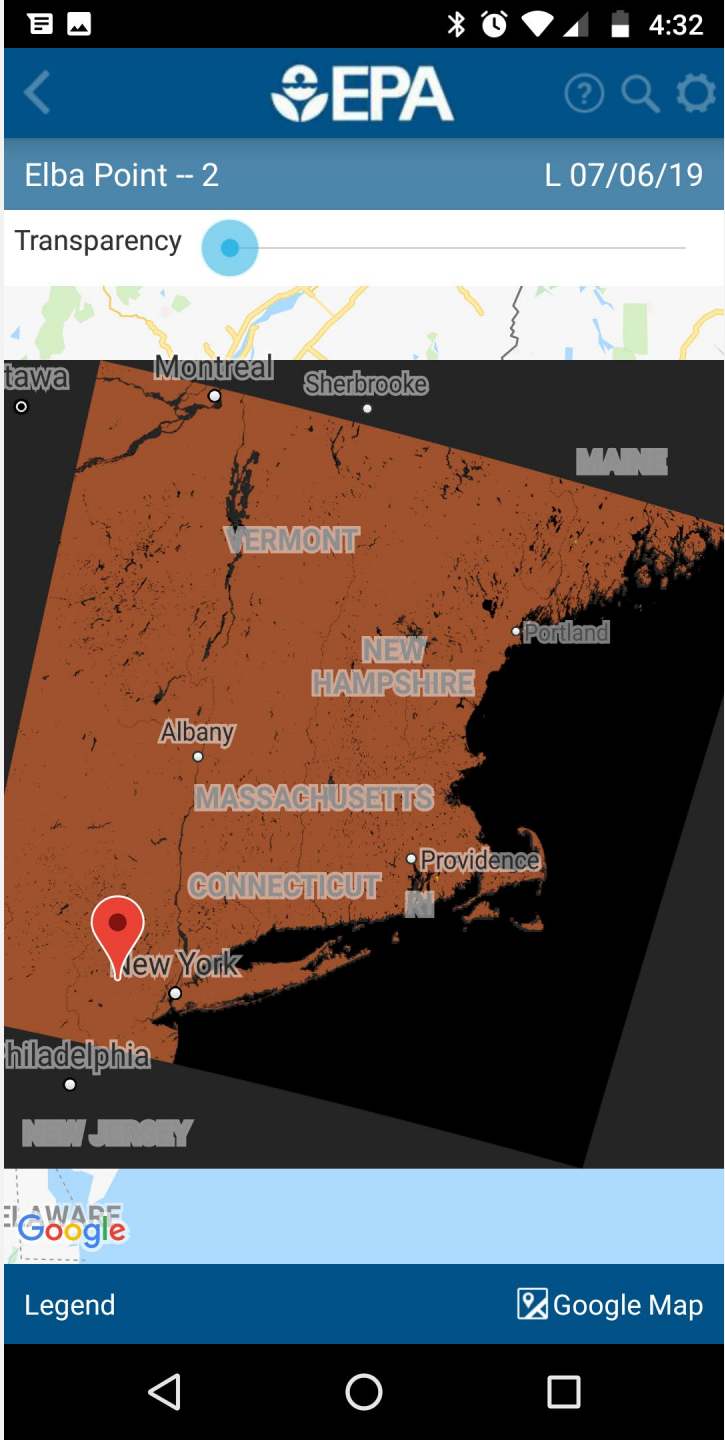
619,441
Detroit

139,315
Tampa

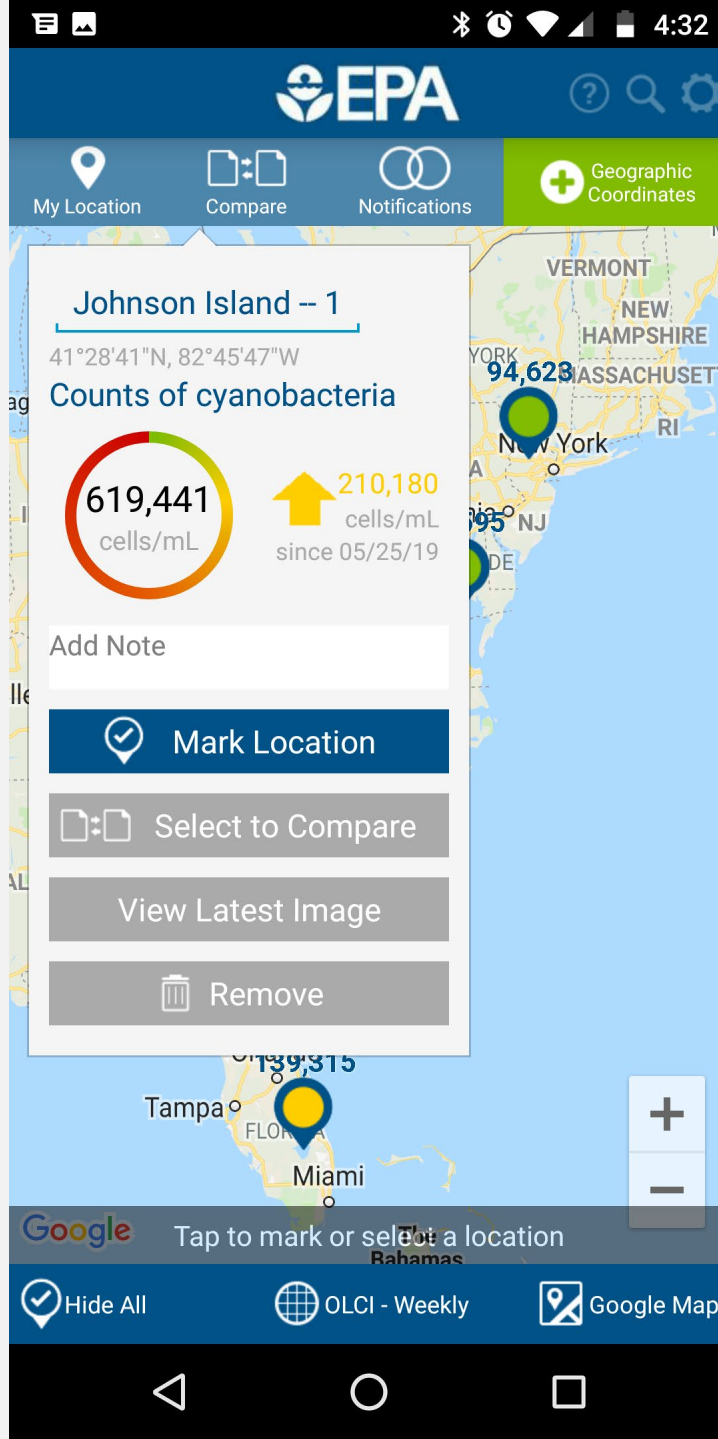
MI INDIANA OHIO KENTUCKY TN ALABAMA GEORGIA FLORIDA

Tap to mark or select a location

 Hide All  OLCI - Weekly  Google Map







The screenshot shows the EPA mobile application interface. At the top, there is a blue header with the EPA logo and navigation icons. Below the header is a menu bar with icons for 'My Location', 'Compare', 'Notifications', and 'Geographic Coordinates'. The main content area displays a map with a data point for 'Johnson Island -- 1'. A white information card is overlaid on the map, showing the location's coordinates (41°28'41"N, 82°45'47"W) and the cyanobacteria count of 619,441 cells/mL. A yellow arrow indicates an increase from 210,180 cells/mL since 05/25/19. The card also includes an 'Add Note' field and several action buttons: 'Mark Location', 'Select to Compare', 'View Latest Image', and 'Remove'. The map background shows parts of New York, Vermont, New Hampshire, Massachusetts, New Jersey, and Florida. At the bottom, there is a Google logo and a prompt to 'Tap to mark or select a location', along with icons for 'Hide All', 'OLCI - Weekly', and 'Google Map'.

Johnson Island -- 1
41°28'41"N, 82°45'47"W
Counts of cyanobacteria

619,441 cells/mL
↑ 210,180 cells/mL since 05/25/19

Add Note

Mark Location

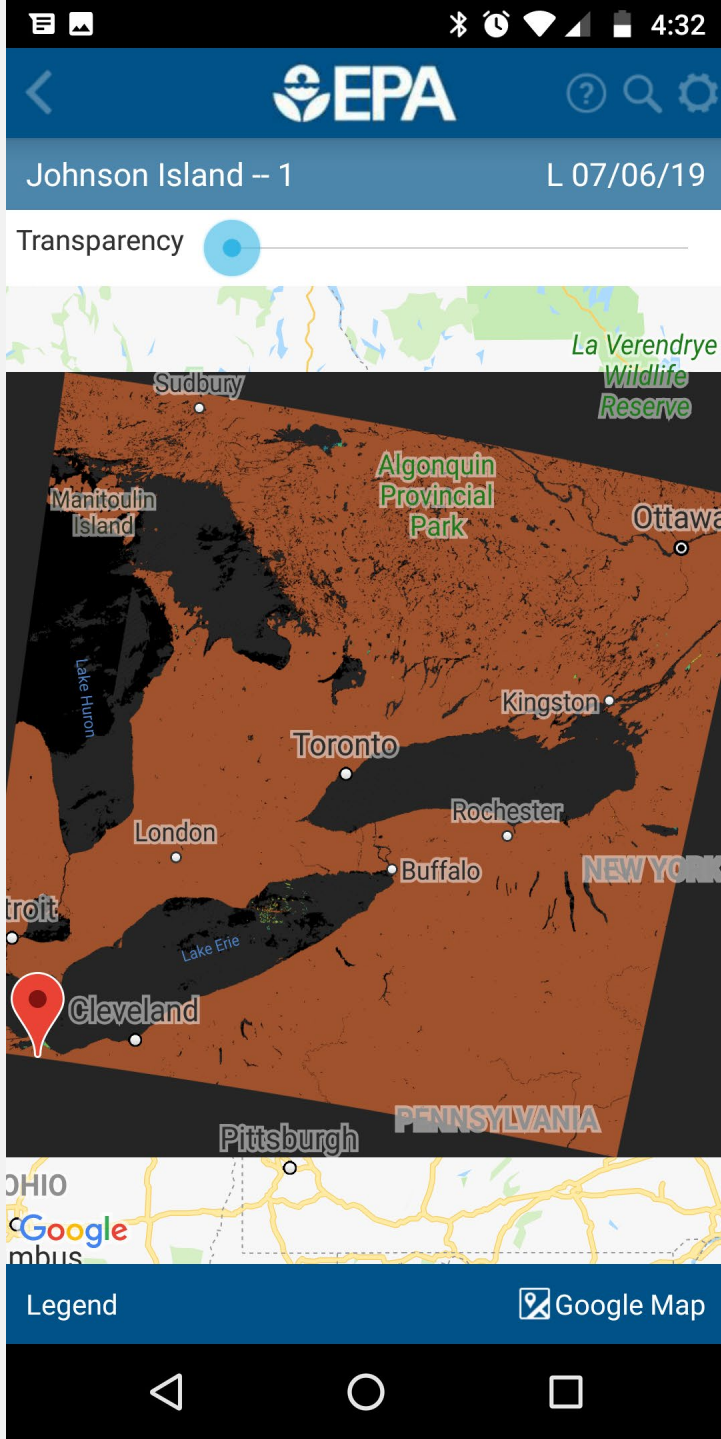
Select to Compare

View Latest Image

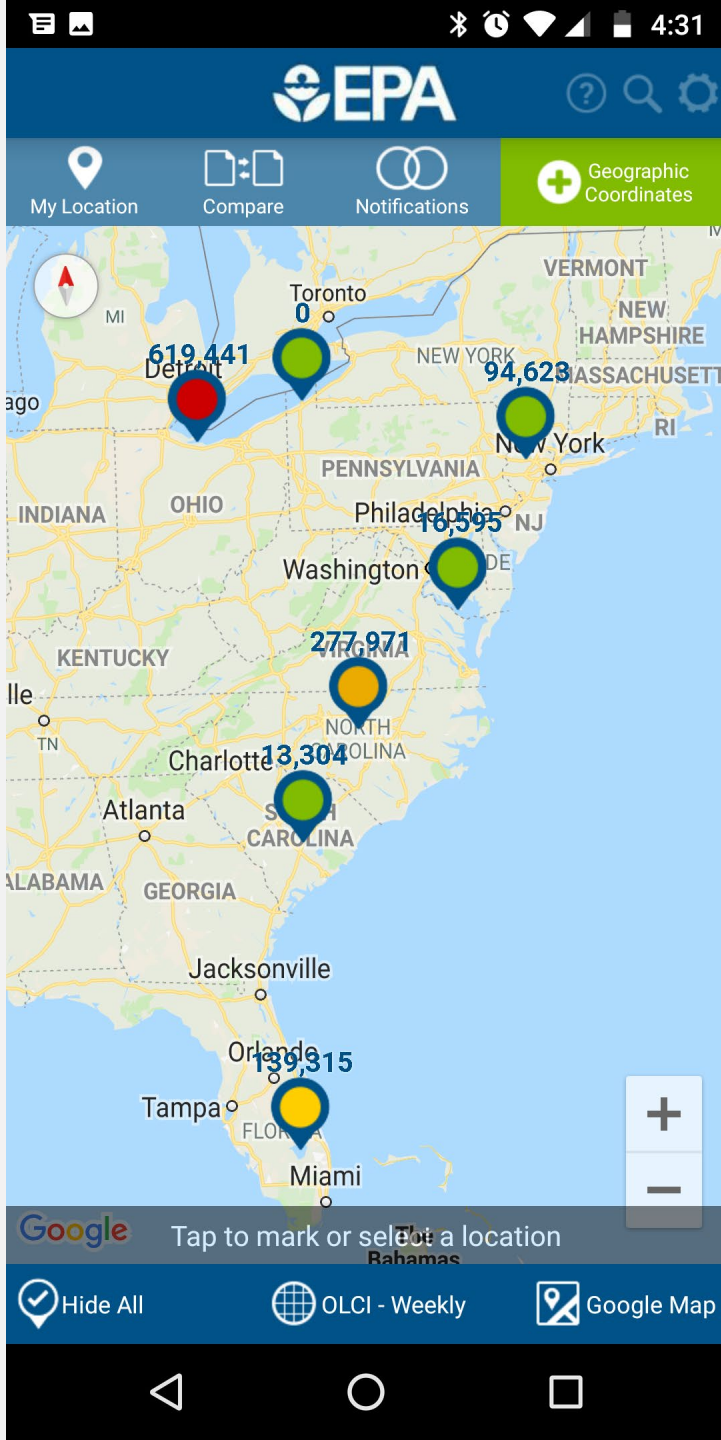
Remove


Tap to mark or select a location

Hide All OLCI - Weekly Google Map



The image shows a mobile application interface for the EPA. At the top, the EPA logo is displayed in the center, with a back arrow on the left and search, help, and settings icons on the right. Below the logo, the text "Johnson Island -- 1" is on the left and "L 07/06/19" is on the right. A "Transparency" slider is positioned below the text, with a blue dot indicating the current level. The main content area features a map of the Great Lakes region. A large, semi-transparent brown overlay covers most of the map, with a red location pin icon placed over Cleveland, Ohio. Labels for various locations and parks are visible: Sudbury, La Verendrye Wildlife Reserve, Manitoulin Island, Algonquin Provincial Park, Ottawa, Kingston, Toronto, Rochester, London, Buffalo, NEW YORK, Cleveland, Lake Huron, Lake Erie, and PITTSYLVANIA. At the bottom of the map area, "OHIO" and "Google" are partially visible. A blue bar at the very bottom contains the text "Legend" on the left and "Google Map" with a location pin icon on the right. The Android navigation bar is visible at the bottom of the screen.



 EPA

Version: R.1.0.1

Geographic Coordinates

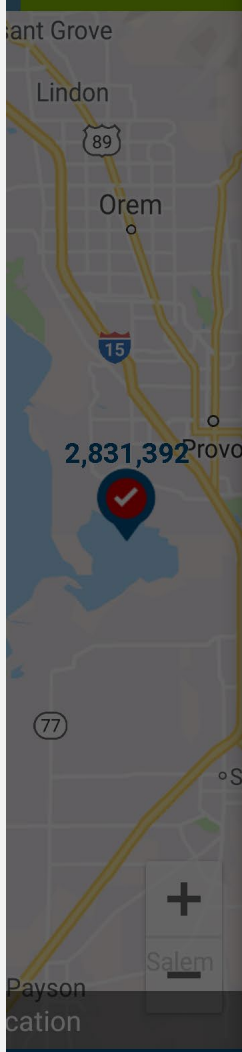
Modify Graph Color Configuration


Category	From	To
Low	10,000	109,000
Medium	110,000	299,000
High	300,000	1,000,000
Very High	Higher than 1,001,000	

Alert when higher than 1,000,000

[Reload Data](#)

Google Map







 EPA ? 🔍 ⚙️

Version: R.1.0.1

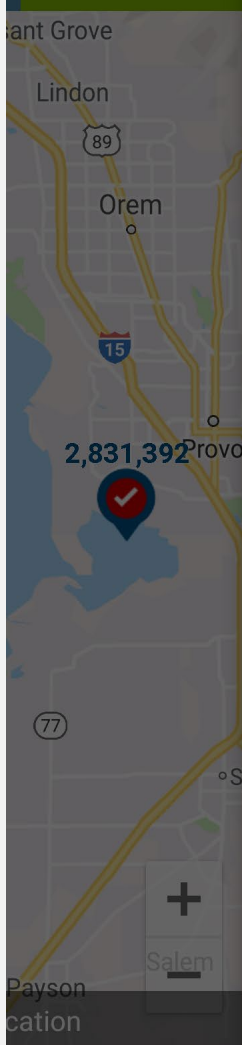
Geographic Coordinates +


Modify Graph Color Configuration


Level	From	To
Low 	<input type="text" value="10,000"/>	<input type="text" value="109,000"/>
Medium 	<input type="text" value="110,000"/>	<input type="text" value="299,000"/>
High 	<input type="text" value="300,000"/>	<input type="text" value="1,000,000"/>
Very High 	<input type="text" value="Higher than 1,001,000"/>	

Alert when higher than

[Reload Data](#)

 +
Salem
Payson
cation





 Google Map

 EPA ? 🔍 ⚙️

Version: R.1.0.1

Geographic Coordinates

Modify Graph Color Configuration

Category	From	To
Low 	10,000	109,000
Medium 	110,000	299,000
High 	300,000	501,000
Very High 	Higher than 502,000	

Alert when higher than 1,000,000

[Reload Data](#)

Google Map

ant Grove
London
89
Orem
15
2,831,392 Provo
77
Payson
Salem
cation

EPA


My Location Compare Notifications **192** Geographic Coordinates

Pleasant Grove
Lindon
Saratoga Springs
Orem
2,831,392 Provo
Utah Lake
178,648
Payson
Salem

Google Tap to mark or select a location

Hide All OLCI - Weekly Google Map

3:57

 EPA

My Location Compare Notifications 192 Geographic Coordinates

Location Name Show checked locations 2 locations

Goshen Valley
-- 2
40°4'54"N, 111°53'35"W

(Max adjacent cells: 346,736)

178,648 cells/mL

↑ 145,535 cells/mL since 04/27/19
Date: 05/04/19


Provo Bay
40°11'37"N, 111°41'51"W

(Max adjacent cells: 2,831,392)

2,831,392 cells/mL


↑ 1,451,007 cells/mL since 06/15/19
Date: 06/29/19

3:59

 EPA


Location Goshen Valley -- 2
2 of 2

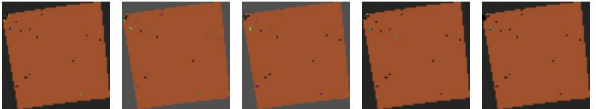
Overview Imagery Chart




United States

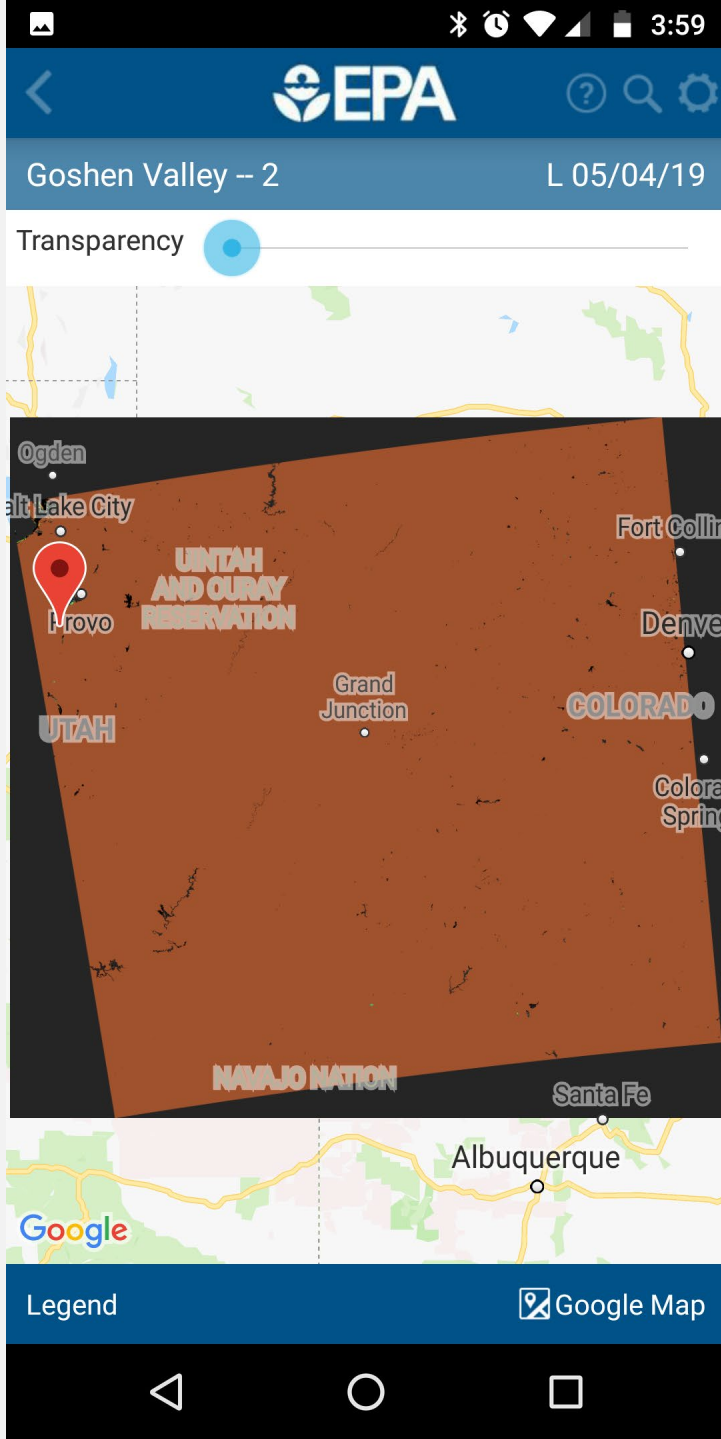
Satellite:OLCI Product:Daily

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

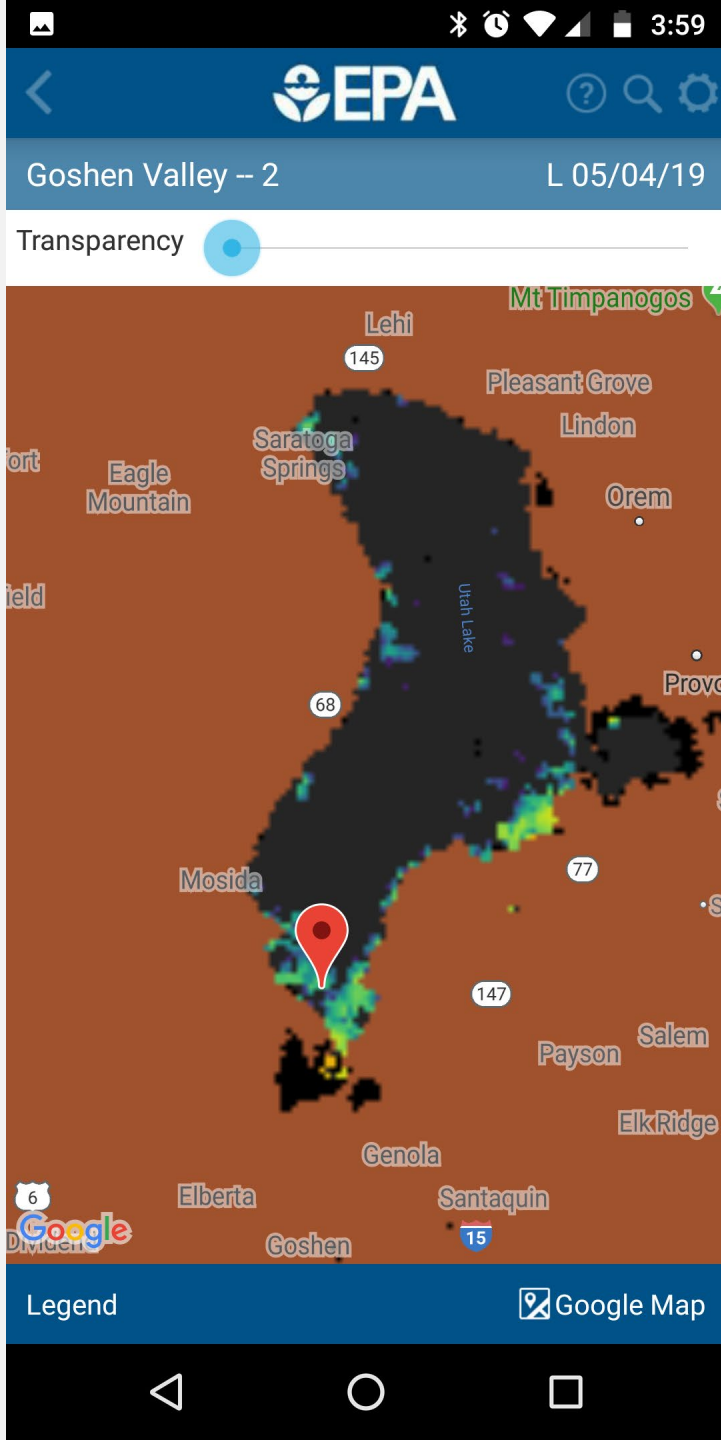


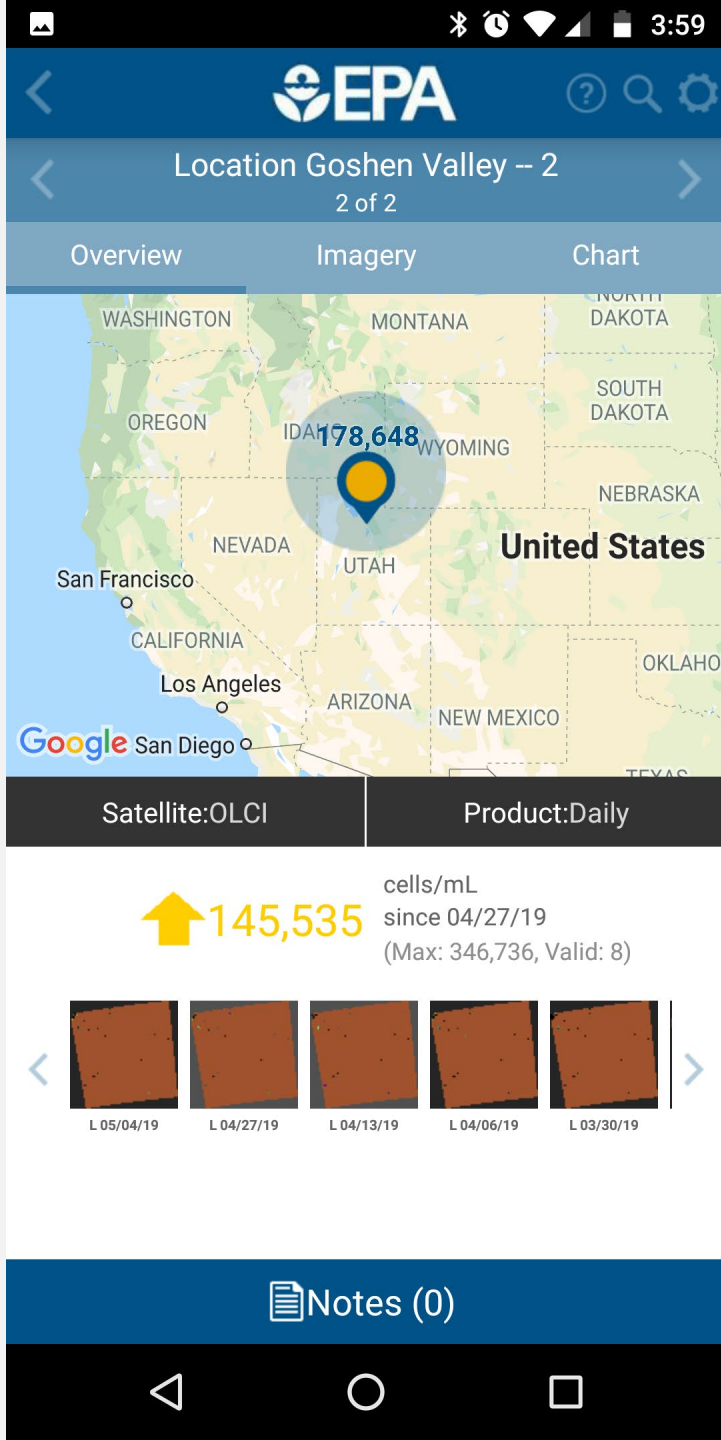
L 05/04/19 L 04/27/19 L 04/13/19 L 04/06/19 L 03/30/19

 Notes (0)

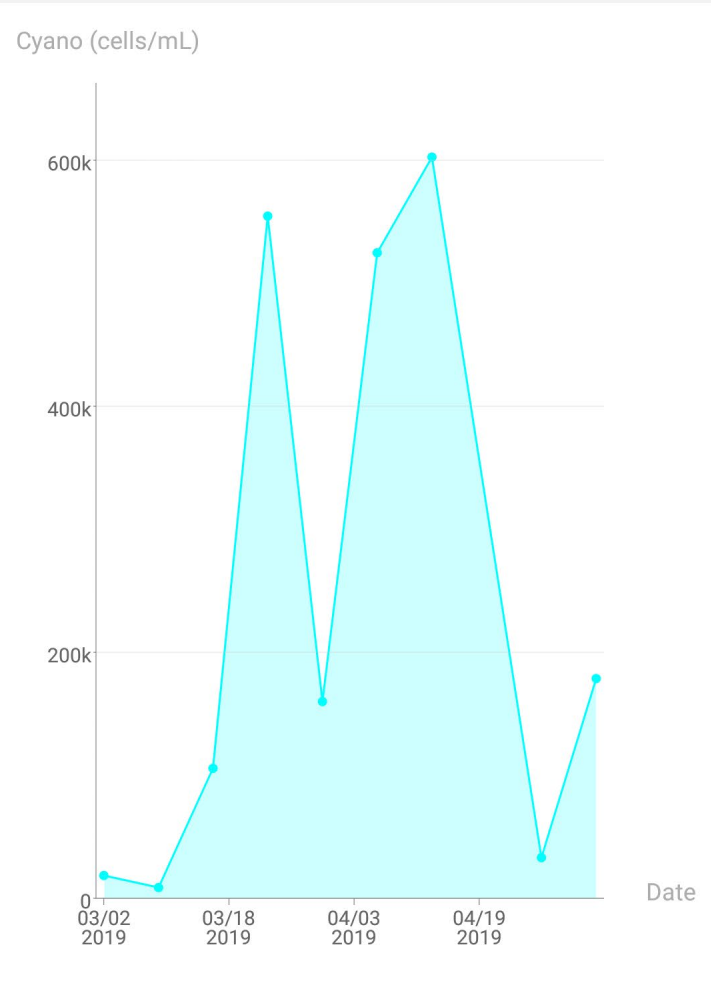


The image shows a mobile application interface for the EPA. At the top, there is a dark blue header with the EPA logo and the text "Goshen Valley -- 2" on the left and "L 05/04/19" on the right. Below the header is a "Transparency" slider control with a blue dot. The main content area is a map showing a large brown shaded region. A red location pin is placed on the map near Provo, Utah. The map includes labels for "Ogden", "Salt Lake City", "Provo", "UTAH", "UNTAH AND CURRY RESERVATION", "Grand Junction", "COLORADO", "Fort Collins", "Denver", "Santa Fe", "Albuquerque", and "NAVAJO NATION". At the bottom of the map area, there is a "Legend" button and a "Google Map" button with a location pin icon. The bottom of the screen shows the Android navigation bar with back, home, and recent apps buttons.





Blooming Chart **Cyano (cells/mL)** ▼



Specific GPS location

4:04

 EPA

My Location Compare Notifications Geographic Coordinates



Map showing Utah Lake and surrounding areas. Locations marked with population data:


- Provo: 2,831,392
- Utah Lake: 178,648





Other locations shown: Pleasant Grove, Lindon, Orem, Payson, Salem, Saratoga Springs, Sidona.

Google Tap to mark or select a location

Hide All OLCI - Weekly Google Map

4:14



 ? 🔍 ⚙️

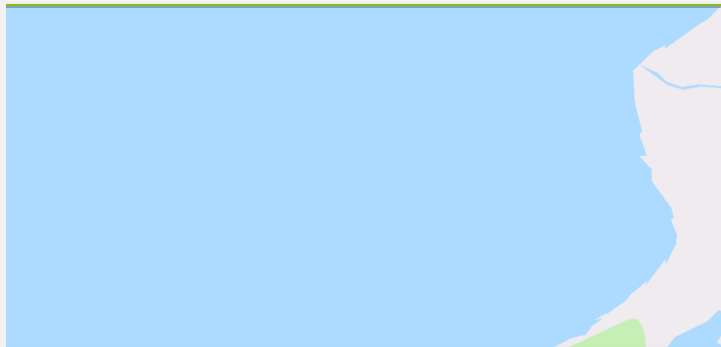
 My Location  Compare  Notifications  Geographic Coordinates

Enter the latitude and longitude below to find a new location

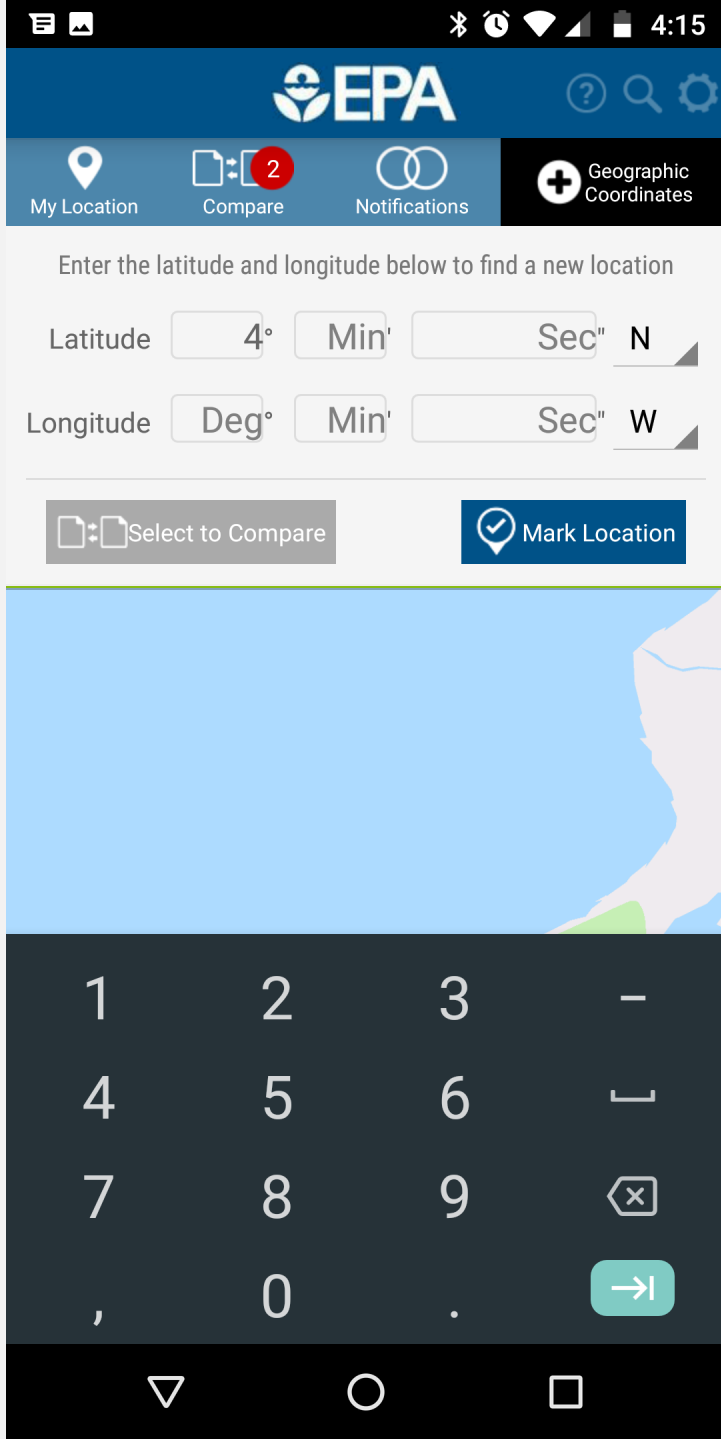
Latitude N

Longitude W

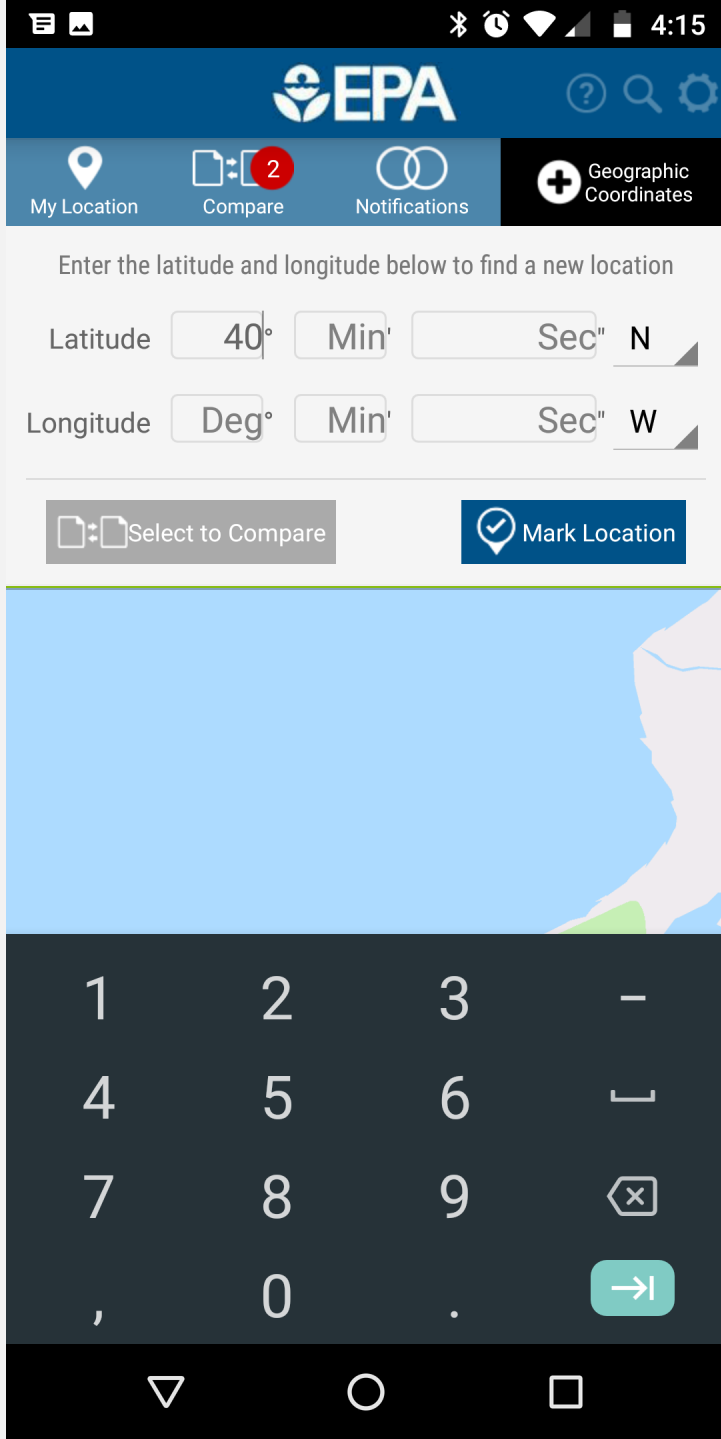
 Select to Compare  Mark Location



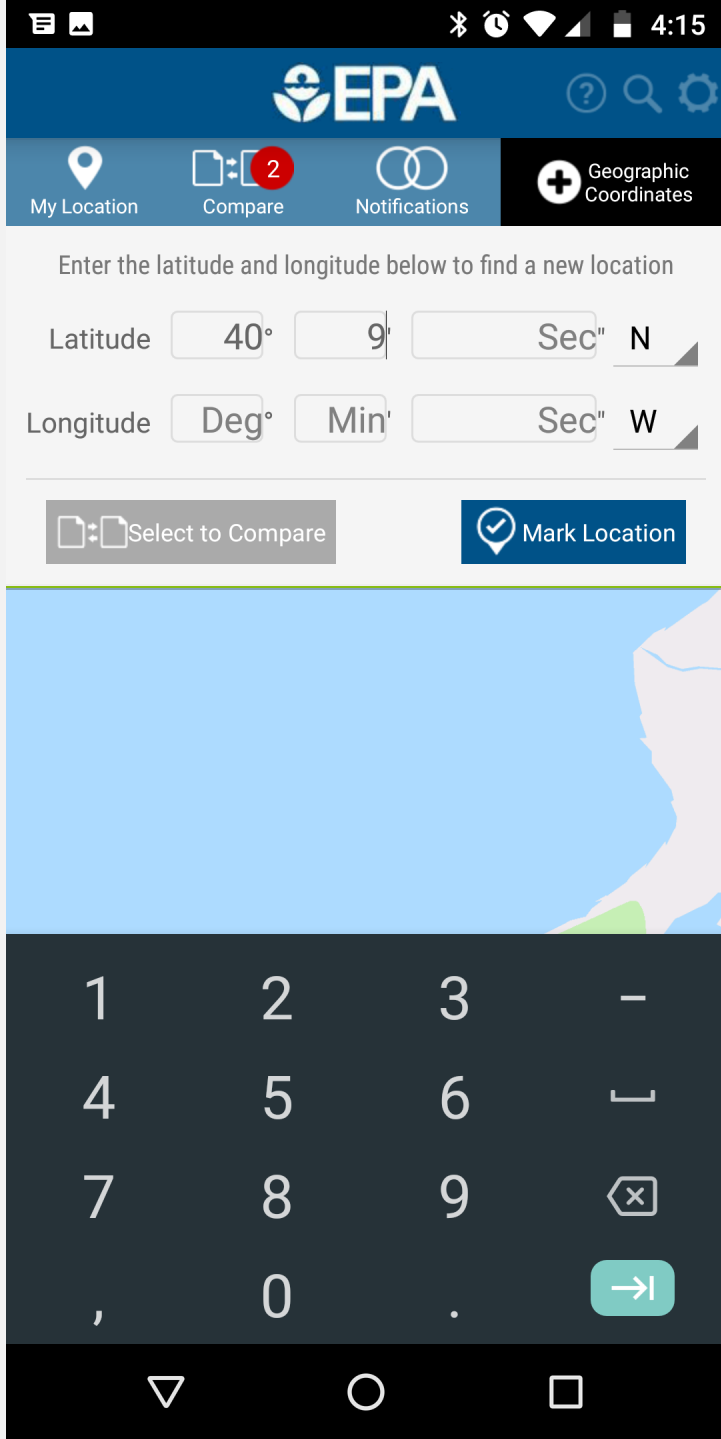
1 2 3 -
4 5 6 -
7 8 9 ×
, 0 . →



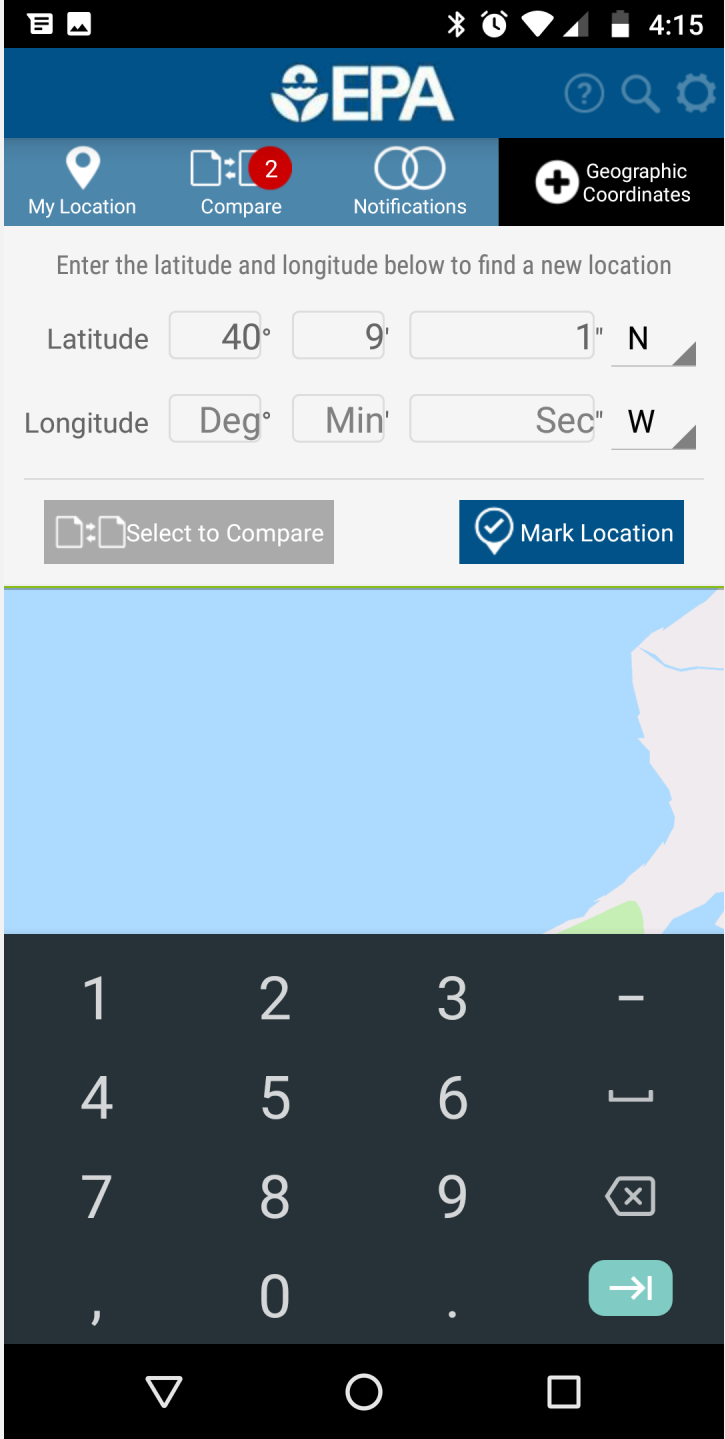
The image shows a mobile application interface for finding a location. At the top, there is a dark blue header with the EPA logo and the text "EPA". To the right of the logo are three icons: a question mark, a magnifying glass, and a gear. Below the header is a navigation bar with four items: "My Location" (location pin icon), "Compare" (two overlapping squares icon with a red circle containing the number "2"), "Notifications" (two overlapping circles icon), and "Geographic Coordinates" (plus sign in a circle icon). Below the navigation bar, there is a text prompt: "Enter the latitude and longitude below to find a new location". This is followed by two rows of input fields. The first row is for Latitude, with fields for "4°", "Min'", "Sec'", and a dropdown menu currently set to "N". The second row is for Longitude, with fields for "Deg°", "Min'", "Sec'", and a dropdown menu currently set to "W". Below the input fields are two buttons: "Select to Compare" (grey button with a square and plus icon) and "Mark Location" (dark blue button with a location pin icon and a checkmark). Below the buttons is a map showing a coastline. At the bottom of the screen is a dark grey numeric keypad with buttons for digits 1-9, 0, a decimal point, a comma, a minus sign, a right bracket, a backspace icon, and a right arrow icon. The very bottom of the screen shows the Android navigation bar with back, home, and recent apps icons.



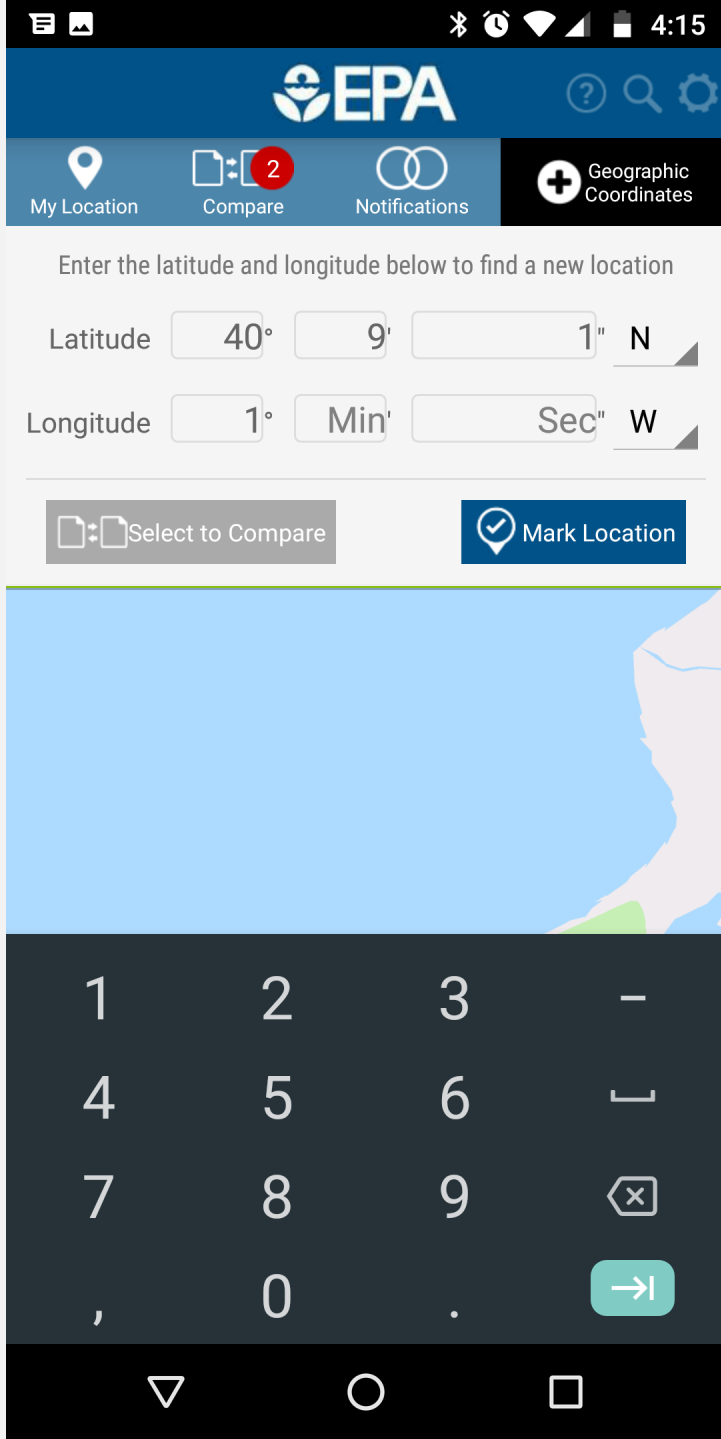
The screenshot shows the EPA mobile application interface. At the top, there is a dark blue header with the EPA logo and navigation icons (help, search, settings). Below the header is a secondary navigation bar with icons for 'My Location', 'Compare' (with a red notification badge showing '2'), 'Notifications', and 'Geographic Coordinates'. The main content area contains a text prompt: 'Enter the latitude and longitude below to find a new location'. This is followed by two rows of input fields: 'Latitude' with fields for '40°', 'Min'', 'Sec"', and 'N'; and 'Longitude' with fields for 'Deg°', 'Min'', 'Sec"', and 'W'. Below the input fields are two buttons: a grey 'Select to Compare' button and a blue 'Mark Location' button. A map is partially visible below the buttons, showing a coastline. At the bottom of the screen is a dark grey numeric keypad with digits 1-9, 0, a decimal point, a comma, and a right arrow button.



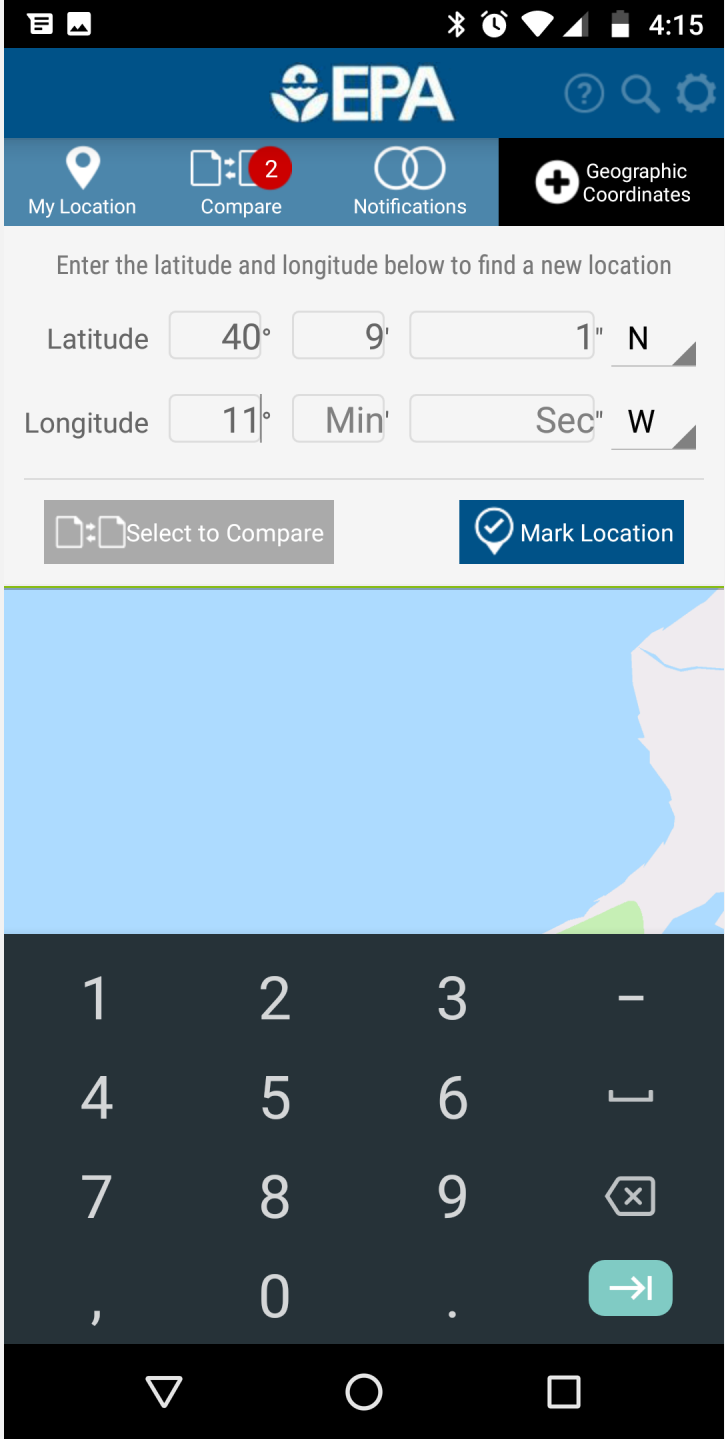
The screenshot shows the EPA mobile application interface. At the top, there is a dark blue header with the EPA logo and navigation icons (help, search, settings). Below the header is a secondary navigation bar with icons for 'My Location', 'Compare' (with a red notification badge showing '2'), 'Notifications', and 'Geographic Coordinates'. The main content area contains a text prompt: 'Enter the latitude and longitude below to find a new location'. This is followed by two rows of input fields for latitude and longitude, each with degree, minute, and second sub-fields and a directional indicator (N or W). Below the input fields are two buttons: 'Select to Compare' and 'Mark Location'. A map is partially visible at the bottom of the screen, showing a coastline. A numeric keypad is overlaid at the bottom of the screen, with a green arrow button on the right.



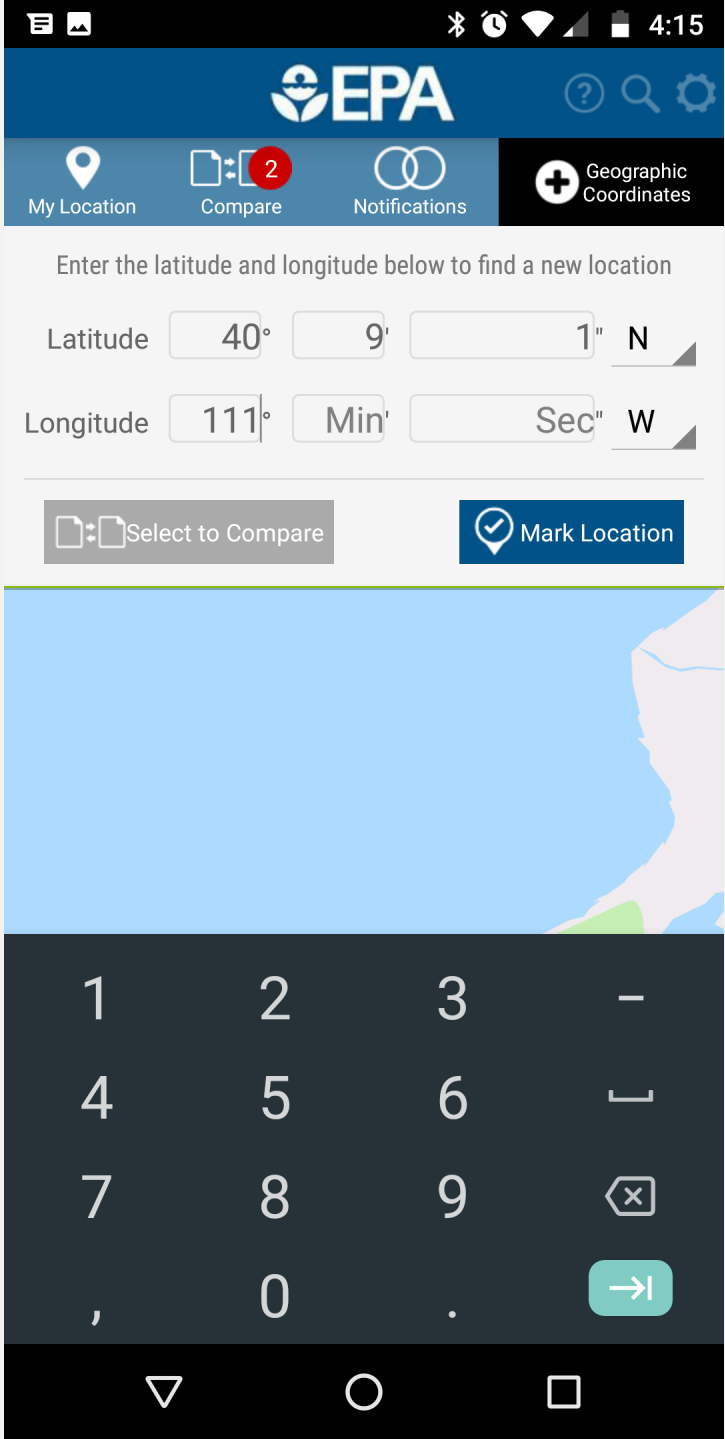
The screenshot shows the EPA mobile application interface. At the top, there is a dark blue header with the EPA logo and navigation icons (help, search, settings). Below the header is a secondary navigation bar with icons for 'My Location', 'Compare' (with a red notification badge showing '2'), 'Notifications', and 'Geographic Coordinates'. The main content area contains a text prompt: 'Enter the latitude and longitude below to find a new location'. Below this are two rows of input fields. The first row is for 'Latitude' with fields for degrees (40), minutes (9), and seconds (1), followed by a dropdown menu set to 'N'. The second row is for 'Longitude' with fields for degrees (Deg), minutes (Min), and seconds (Sec), followed by a dropdown menu set to 'W'. Below the input fields are two buttons: a grey 'Select to Compare' button and a blue 'Mark Location' button. The bottom portion of the screen is occupied by a dark grey numeric keypad with digits 1-9, 0, a decimal point, a comma, and a right arrow button. The very bottom of the screen shows the standard Android navigation bar with back, home, and recent apps icons.



The screenshot shows the EPA mobile application interface. At the top, there is a dark blue header with the EPA logo and navigation icons (help, search, settings). Below the header is a secondary navigation bar with icons for 'My Location', 'Compare' (with a red notification badge showing '2'), 'Notifications', and 'Geographic Coordinates'. The main content area contains a text prompt: 'Enter the latitude and longitude below to find a new location'. Below this are two rows of input fields for latitude and longitude, each with degree, minute, and second boxes and a directional indicator (N or W). At the bottom of the input area are two buttons: 'Select to Compare' and 'Mark Location'. A large map area is partially visible below the input fields. At the very bottom, a numeric keypad is displayed, including digits 1-9, 0, a decimal point, a comma, and a right arrow button.








The screenshot shows the EPA mobile application interface. At the top, there is a dark blue header with the EPA logo and navigation icons (help, search, settings). Below the header is a secondary navigation bar with icons for 'My Location', 'Compare' (with a red notification badge showing '2'), 'Notifications', and 'Geographic Coordinates'. The main content area contains a text prompt: 'Enter the latitude and longitude below to find a new location'. Below this are two rows of input fields: 'Latitude' with values '40°', '9'', and '1" N', and 'Longitude' with values '11°', 'Min'', and 'Sec" W'. At the bottom of the input section are two buttons: 'Select to Compare' and 'Mark Location'. Below the buttons is a map showing a coastal area. At the very bottom is a numeric keypad with digits 1-9, 0, a decimal point, a comma, and a right arrow button.



The screenshot shows the EPA mobile application interface. At the top, there is a dark blue header with the EPA logo and navigation icons (help, search, settings). Below the header is a secondary navigation bar with icons for 'My Location', 'Compare' (with a red notification badge showing '2'), 'Notifications', and 'Geographic Coordinates'. The main content area contains a text prompt: 'Enter the latitude and longitude below to find a new location'. Below this are two rows of input fields: 'Latitude' with values '40°', '9'', and '1" N', and 'Longitude' with values '111°', 'Min'', and 'Sec" W'. At the bottom of the input section are two buttons: 'Select to Compare' and 'Mark Location'. Below the buttons is a map showing a coastal area. At the very bottom is a numeric keypad with digits 1-9, 0, a decimal point, a comma, and a right arrow button.

☰ 📶 🔔 📶 🔋 4:15



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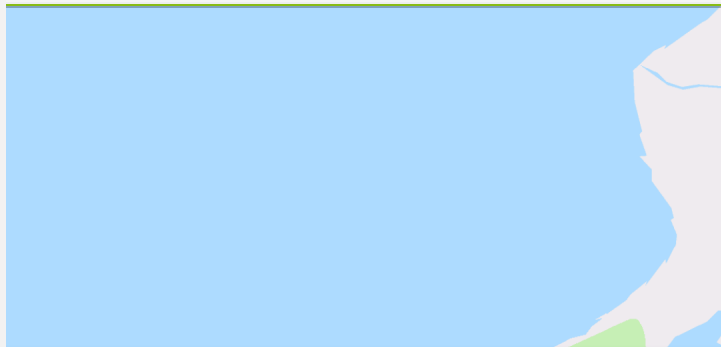
 My Location  Compare  Notifications  Geographic Coordinates

Enter the latitude and longitude below to find a new location

Latitude ° ' " N

Longitude ° ' " W


 Select to Compare  Mark Location







1 2 3 -
4 5 6 -
7 8 9 ×
, 0 . →

▽ ○ □

☰ 📶 🔔 📶 🔋 4:15



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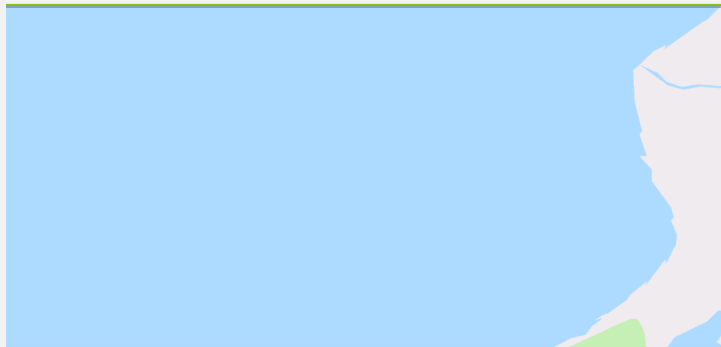
 My Location  Compare  Notifications  Geographic Coordinates

Enter the latitude and longitude below to find a new location

Latitude ° ' " N

Longitude ° ' " W


 Select to Compare  Mark Location







1 2 3 -
4 5 6 -
7 8 9 ×
, 0 . →

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☰ 📶 🔔 📶 🔋 4:15



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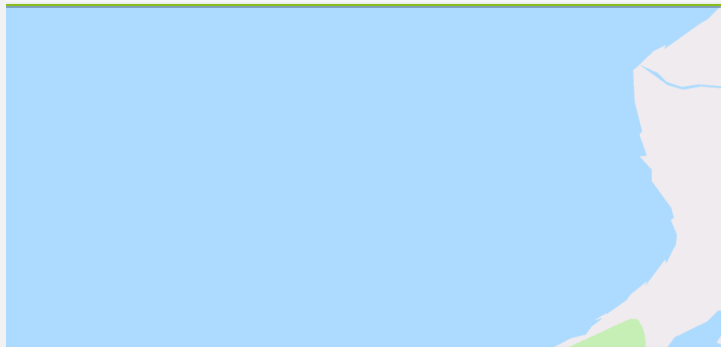
 My Location  Compare  Notifications  Geographic Coordinates

Enter the latitude and longitude below to find a new location

Latitude ° ' " N

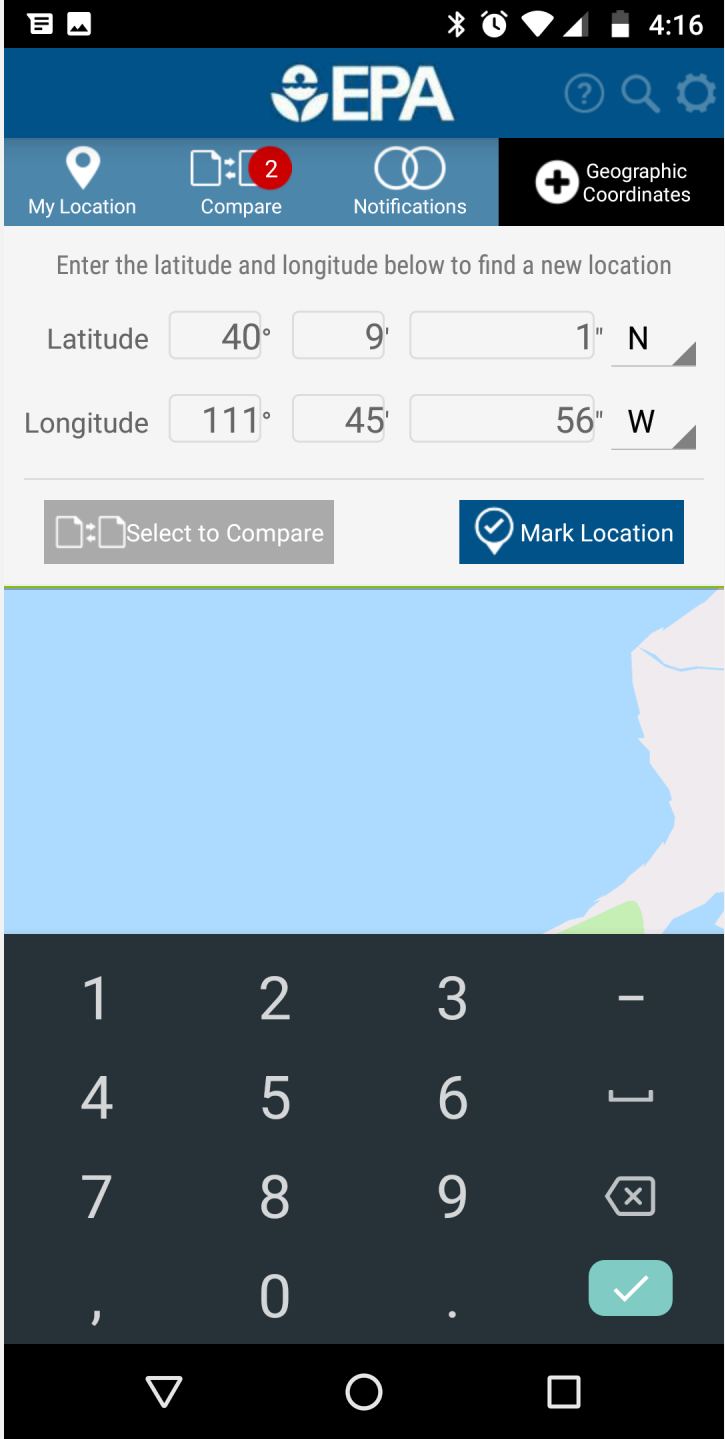
Longitude ° ' " W

 Select to Compare  Mark Location



1 2 3 -
4 5 6 -
7 8 9 ×
, 0 . ✓

▽ ○ □



The screenshot shows the EPA mobile application interface. At the top, there is a dark blue header with the EPA logo and navigation icons (help, search, settings). Below the header is a secondary navigation bar with icons for 'My Location', 'Compare' (with a red notification badge showing '2'), 'Notifications', and 'Geographic Coordinates'. The main content area contains a text prompt: 'Enter the latitude and longitude below to find a new location'. Below this are two rows of input fields for latitude and longitude. The latitude is set to 40° 9' 1" N, and the longitude is set to 111° 45' 56" W. At the bottom of the input area are two buttons: 'Select to Compare' and 'Mark Location'. Below the input area is a map showing a coastal region. At the very bottom is a numeric keypad with digits 1-9, 0, a decimal point, a comma, and a checkmark button.

4:16

EPA

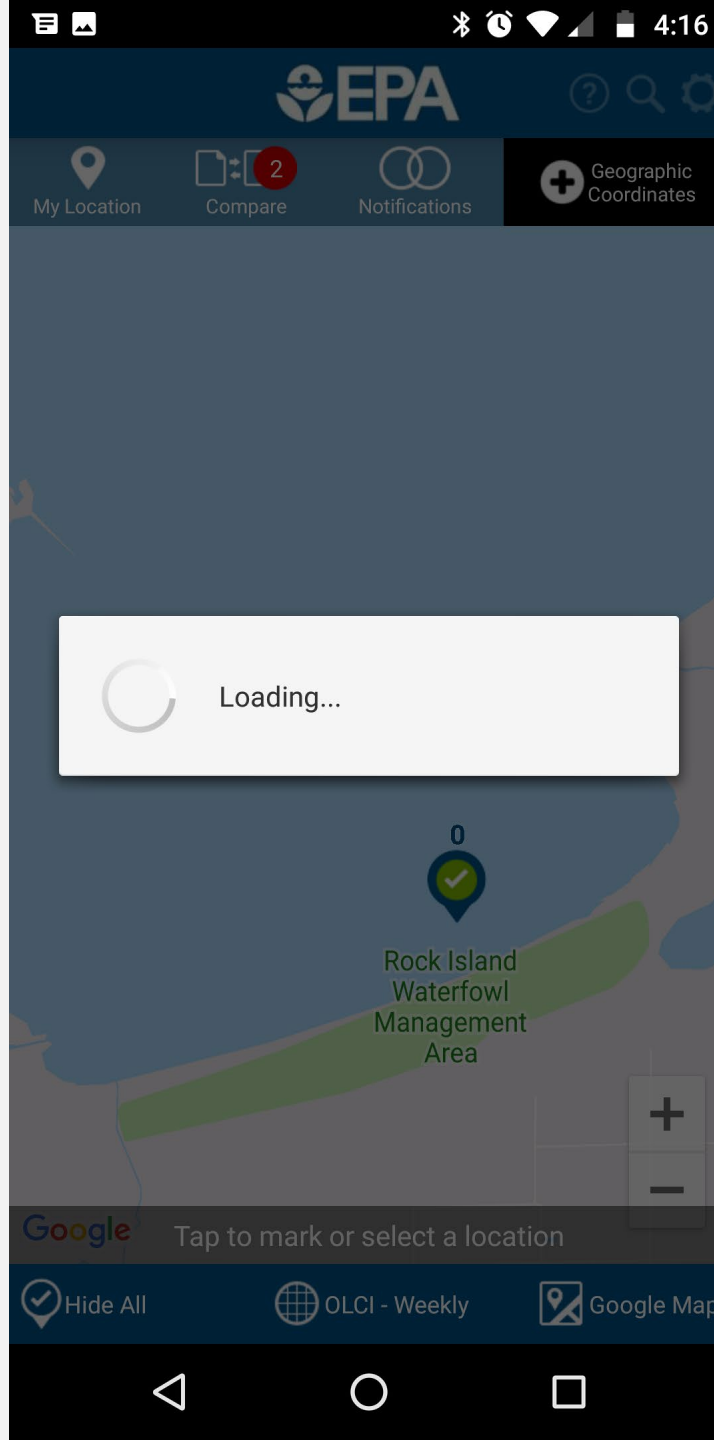
My Location Compare Notifications Geographic Coordinates

Enter the latitude and longitude below to find a new location

Latitude 40° 9' 1" N

Longitude 111° 45' 56" W


Select to Compare Mark Location





Recreation area

4:16


 EPA

My Location Compare Notifications Geographic Coordinates

To be Updated ... -- 14

40°9'21"N, 111°45'13"W

Counts of cyanobacteria

0 cells/mL  0 cells/mL since N/A

Loading...

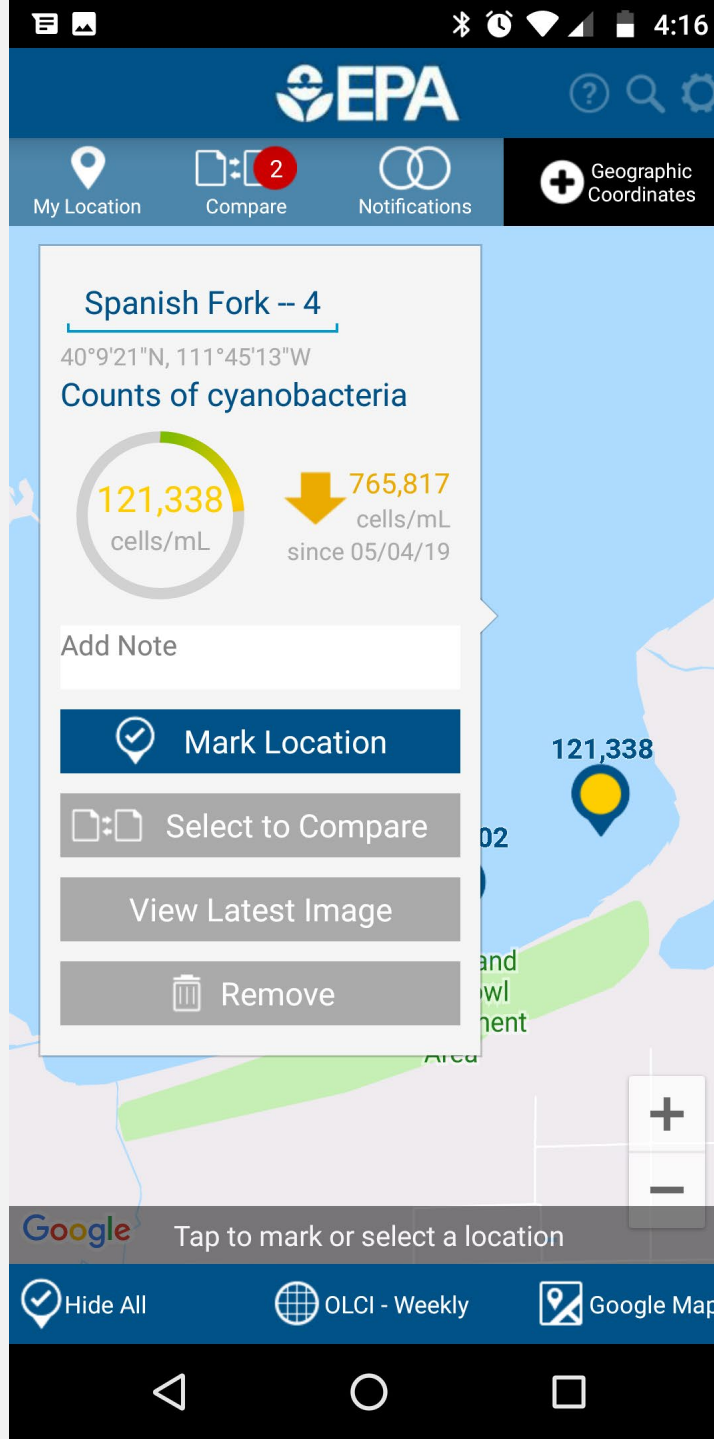
Select to Compare

View Latest Image

Remove

Google Tap to mark or select a location

Hide All OLCI - Weekly Google Map



Spanish Fork -- 4
40°9'21"N, 111°45'13"W
Counts of cyanobacteria

121,338 cells/mL
↓ **765,817** cells/mL
since 05/04/19

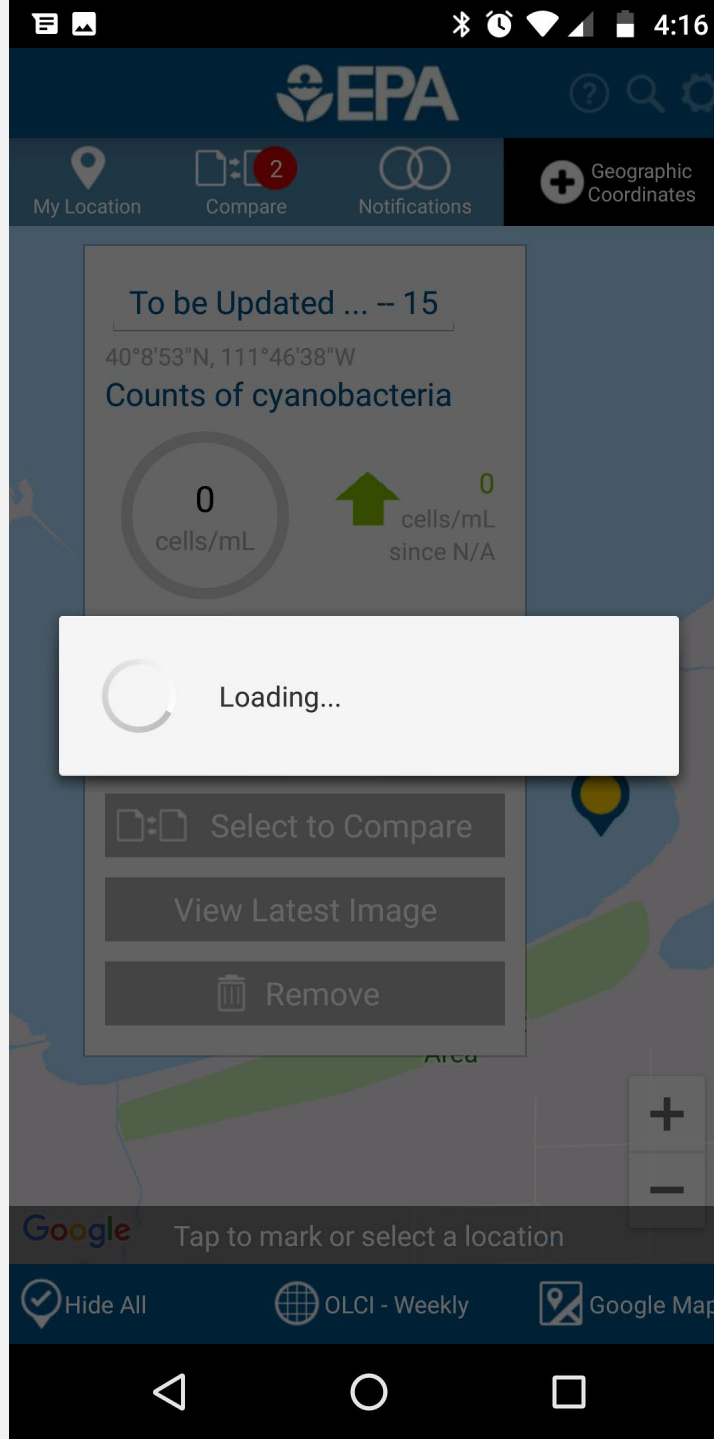
Add Note

- Mark Location
- Select to Compare
- View Latest Image
- Remove

121,338


Google Tap to mark or select a location

Hide All OLCI - Weekly Google Map




The screenshot shows the EPA mobile application interface. At the top, there is a dark blue header with the EPA logo and navigation icons for 'My Location', 'Compare' (with a red notification badge showing '2'), 'Notifications', and 'Geographic Coordinates'. Below the header, a data card is displayed with the title 'To be Updated ... - 15' and coordinates '40°8'53"N, 111°46'38"W'. The card shows 'Counts of cyanobacteria' with a circular gauge displaying '0 cells/mL' and a green arrow pointing up next to '0 cells/mL since N/A'. A white loading dialog box with a circular progress indicator and the text 'Loading...' is centered over the card. Below the card, a menu is visible with three options: 'Select to Compare', 'View Latest Image', and 'Remove'. At the bottom of the screen, there is a Google Maps search bar with the text 'Tap to mark or select a location' and navigation controls for zooming in (+) and out (-). The bottom navigation bar includes 'Hide All', 'OLCI - Weekly', and 'Google Map'.


4:16

 EPA


My Location Compare Notifications Geographic Coordinates


Benjamin Slough -- 4
40°8'53"N, 111°46'38"W
Counts of cyanobacteria

 **711,213**
cells/mL


 **491,050**
cells/mL
since 04/27/19

Add Note

 **Mark Location**




 Select to Compare

View Latest Image

 Remove

121,338

Google Tap to mark or select a location

 Hide All  OLCI - Weekly  Google Map

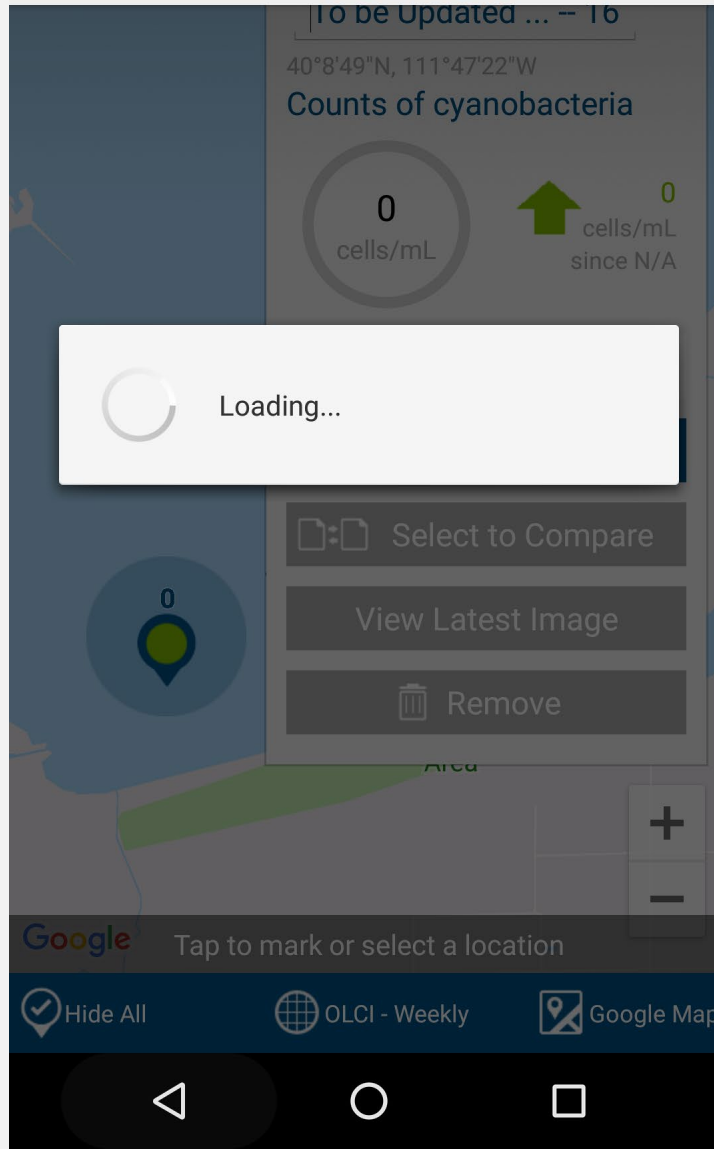
Messages • now ▾

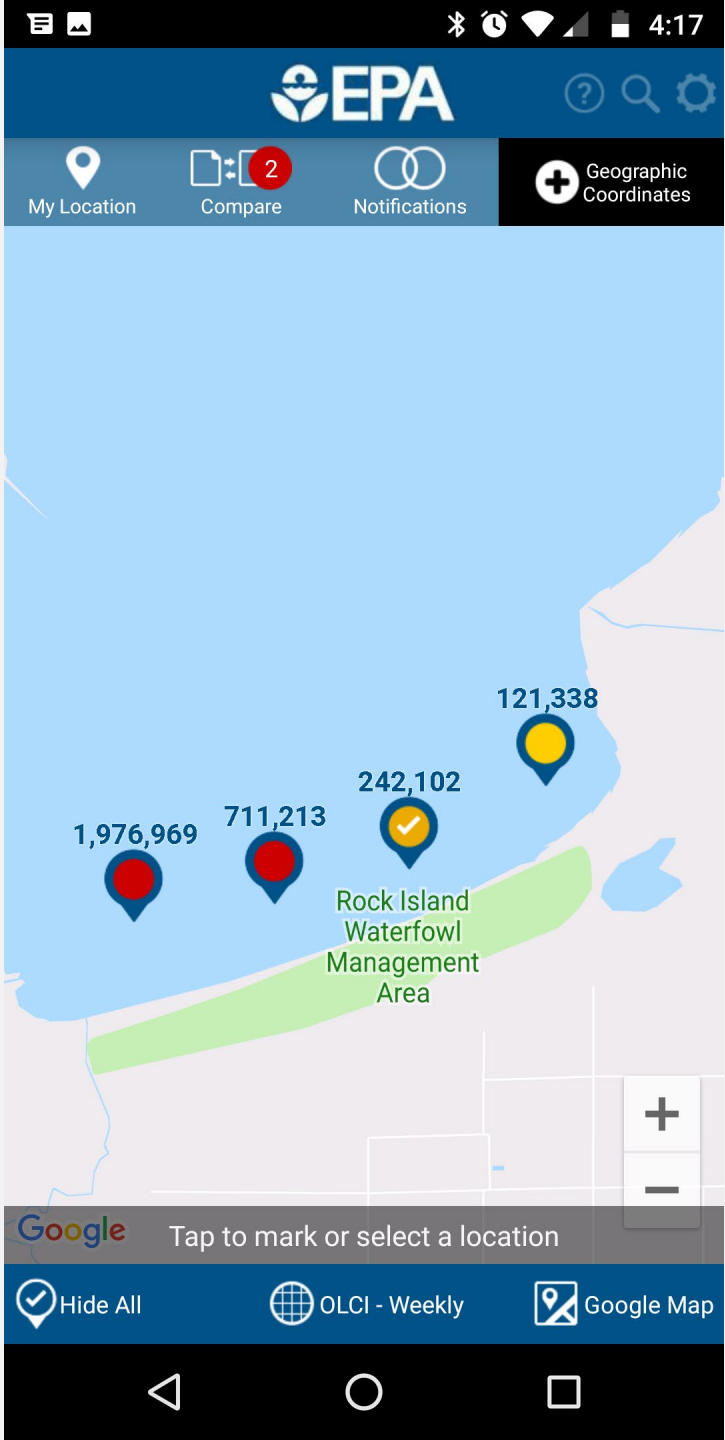
Kelly, Yoomi
Yoomi Hi,..



MARK AS READ

REPLY







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