Monitoring Water Quality for Aquaculture using NASA Remote Sensing Observations

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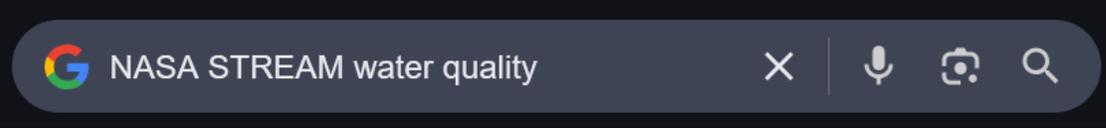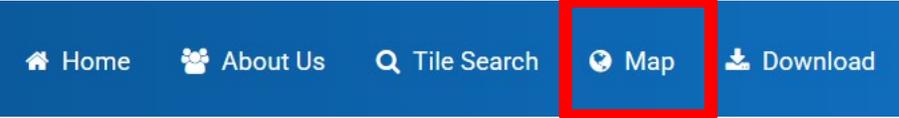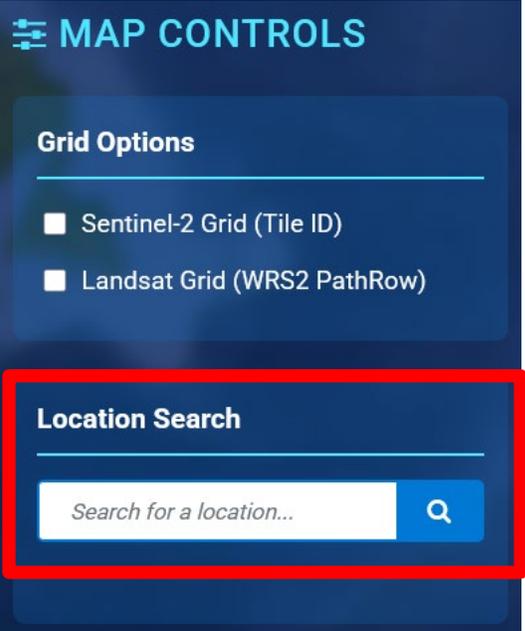
March 23, 2026

Exercise Steps for STREAM
William Wainwright (SSAI, NASA GSFC)

Interactive Map & Search

1. Visit STREAM (https://ladsweb.modaps.eosdis.nasa.gov/stream/) in **desktop mode.**
2. Access the **map page** by clicking the globe icon in the top navigation bar.
3. Locate **Lake Champlain** by typing in the **location search bar** on the right-hand side.
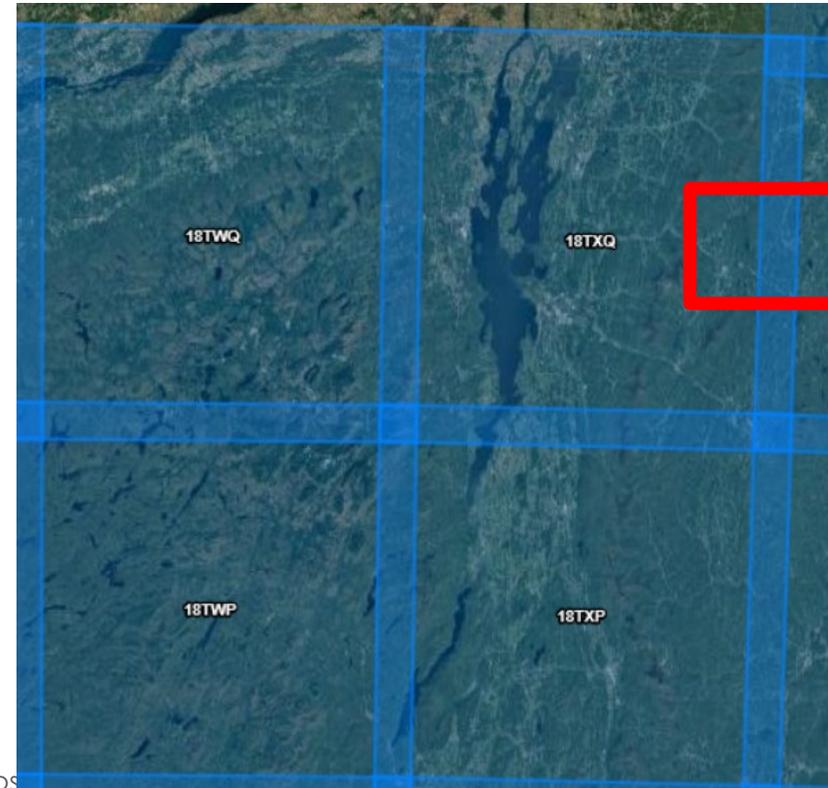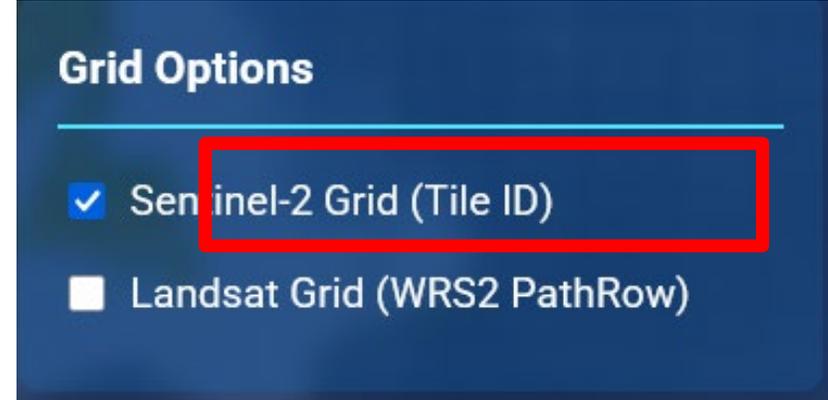

1.
2.
3.

Interactive Map & Search

4. Enable the **Sentinel-2 satellite grid** to show the tile IDs for that satellite.

5. Click anywhere on or in the **18TXQ grid square** to see available data.

   i. You may need to zoom out to see the grid.

6. Scroll down or Ctrl-F search and **Select 2024-07-30 - 212** from the results to see the available data for that date.
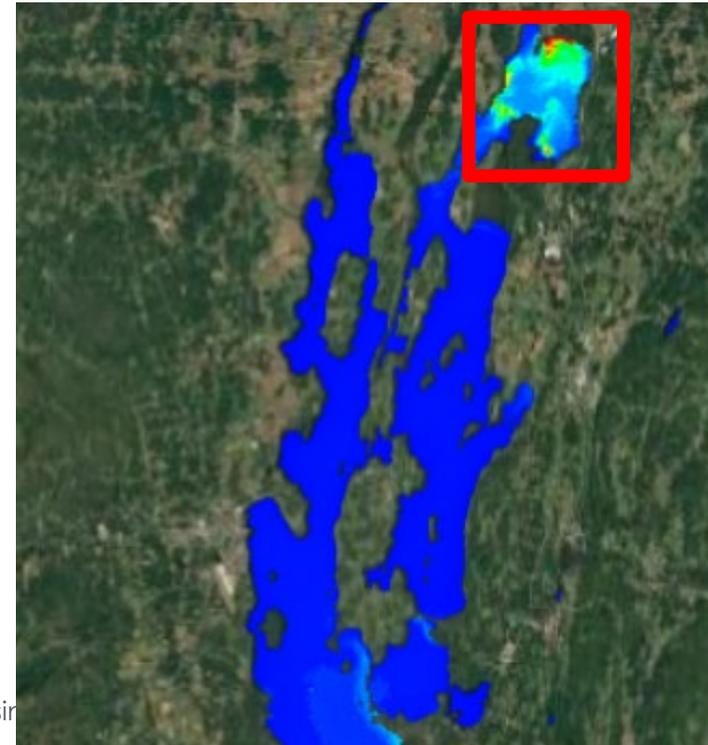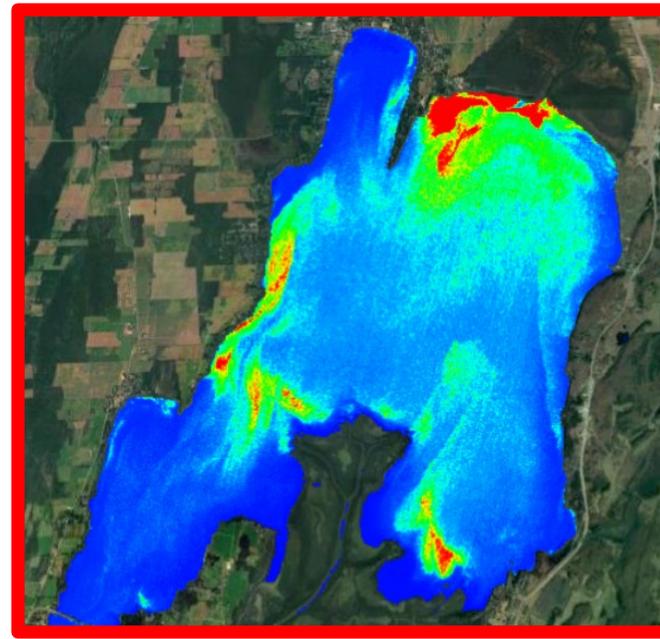
Interactive Map & Search

7. Click on the **Map Link** icon in the row corresponding to the **Chlorophyll-a** data.

8. You will be taken back to the map with the **layer pre-loaded.**

   i. While the map will be focused on the tile you selected to get here, data from all tiles observed on that date will appear mosaicked together.

Map Link	File Name (Click to Download)	Product Type	Size
🌐	📄 S2B_MSIL1C_20240730T153809_N0511_R011_T18TXQ_20240730T191829_Chla_AQV202405.TIF	Chlorophyll-a	120593719
🌐	📄 S2B_MSIL1C_20240730T153809_N0511_R011_T18TXQ_20240730T191829_TSS_AQV202405.TIF	Total Suspended Solids (TSS)	120593719
🌐	📄 S2B_MSIL1C_20240730T153809_N0511_R011_T18TXQ_20240730T191829_Zsd_AQV202405.TIF	Secchi Depth (Transparency)	120593719

Map Link

Interactive Map & Search

9. Zoom into the Northern region of Lake Champlain, around **Missisquoi Bay.**

10. In the right-hand panel, scroll down to **Active Layers.**

    i. This will show you a live readout of the **Chlorophyll-a concentration** as you hover over water pixels.

    ii. The lower left of the map features a **scale-bar** whose units can be changed at the bottom of the right-hand panel.

Questions

- What area of Lake Champlain has the highest Chlorophyll-a concentration?

- How Many Sentinel-2 Grid tiles does Lake Champlain span? What are the IDs of these tiles?

- What's the approximate width of the Missisquoi Bay (the region highlighted in the previous slide)?

Map Layers

1. Layers can have their **color** grading and **opacity adjusted individually** by expanding their options under **Active Layers.**

2. You can add additional layers by selecting satellite, product, and date before selecting **Add Layer.**

    i. Try adding additional Sentinel-2 Chlorophyll-a layers for **August 4th and 7th** to see how the HAB develops.
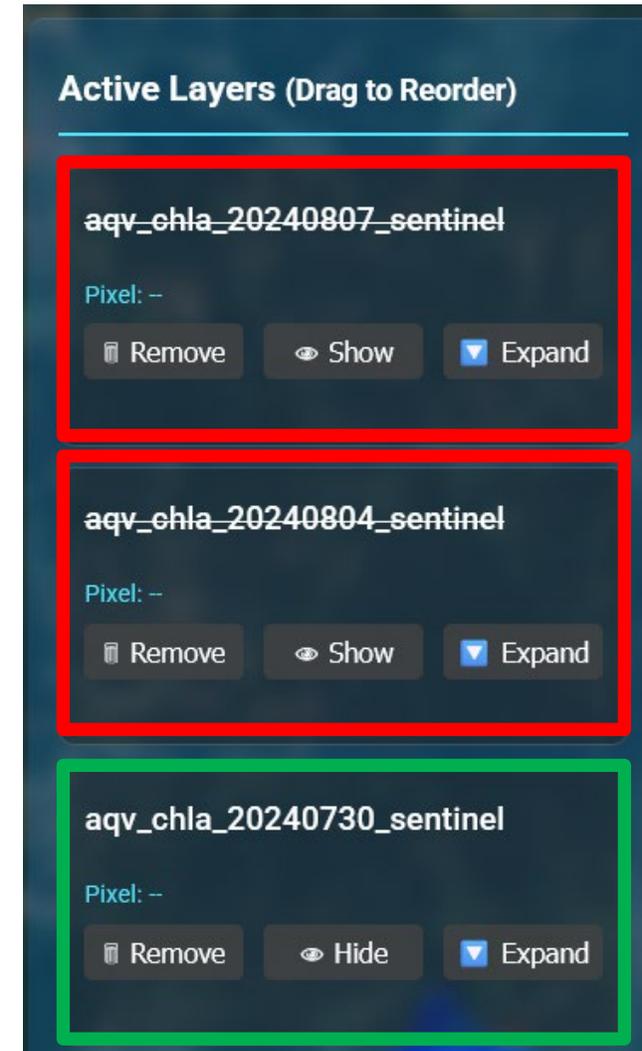
Map Layers

3. Layers can be **re-ordered by dragging and dropping** their entry in the Active Layers menu.
   i. The **topmost** layer is the visible layer.
   ii. You can quickly compare layers visually by **hiding and unhiding** them.
4. The **URL** is automatically updated with your changes – bookmark or share your view!

Questions

- Between the three layers (July 30, Aug 4, and Aug 7), which date features the highest Chlorophyll-a concentration in Missisquoi Bay?

- On August 4th and 7th, parts of the bay show irregularly shaped holes where Chlorophyll-a is missing. What causes these holes?

- Hide or remove the Chlorophyll-a layers for the 3 dates and add new layers for Total Suspended Solids (TSS) over the same dates. How does the TSS change over the same timeframe?