

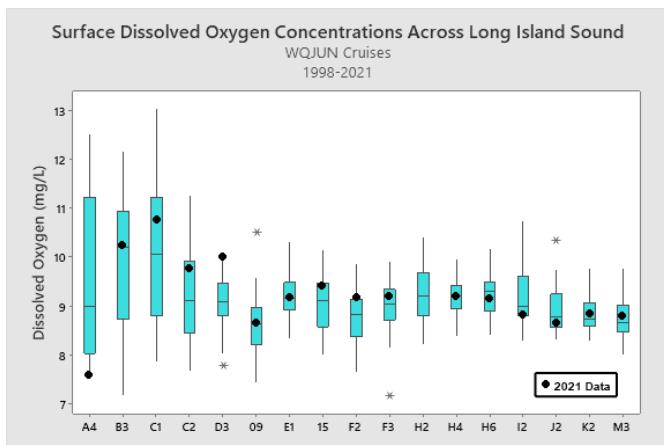
## Long Island Sound Water Quality Monitoring Program

<https://portal.ct.gov/DEEP/Water/LIS-Monitoring/LIS-Water-Quality-and-Hypoxia-Monitoring-Program-Overview>

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# WQJUN21 Hypoxia Summary

*Dissolved Oxygen Concentrations Still Above 6 mg/L*



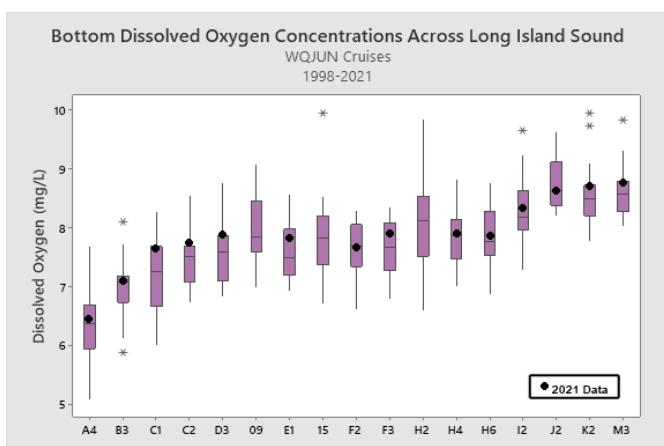
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The Connecticut Department of Energy and Environmental Protection conducted our WQJUN21 survey June 3rd through June 9th, 2021 aboard the R/V John Dempsey. Dissolved oxygen concentrations in the bottom waters of Long Island Sound remained well above 6 mg/L through the survey. The lowest concentration measured during the survey was 6.44 mg/L at Station A4 and the highest was 8.76 mg/L measured at Station M3. Of the 24 bottom waters measurements recorded at Station A4 between 1998 and 2021, the median concentration was 6.38 mg/L with a range of 5.08 to 7.69 mg/L. The mean was 6.33 mg/L.

Leading up to the WQJUN21 survey, A4 had concentrations of 10.31 mg/L in April and 9.00 mg/L in May.

Preliminary data from this survey and prior 2021 cruises are available in [Excel spreadsheet format](#).



# Sampling Schedule



CT DEEP conducted our regular monthly water quality sampling from January through June.

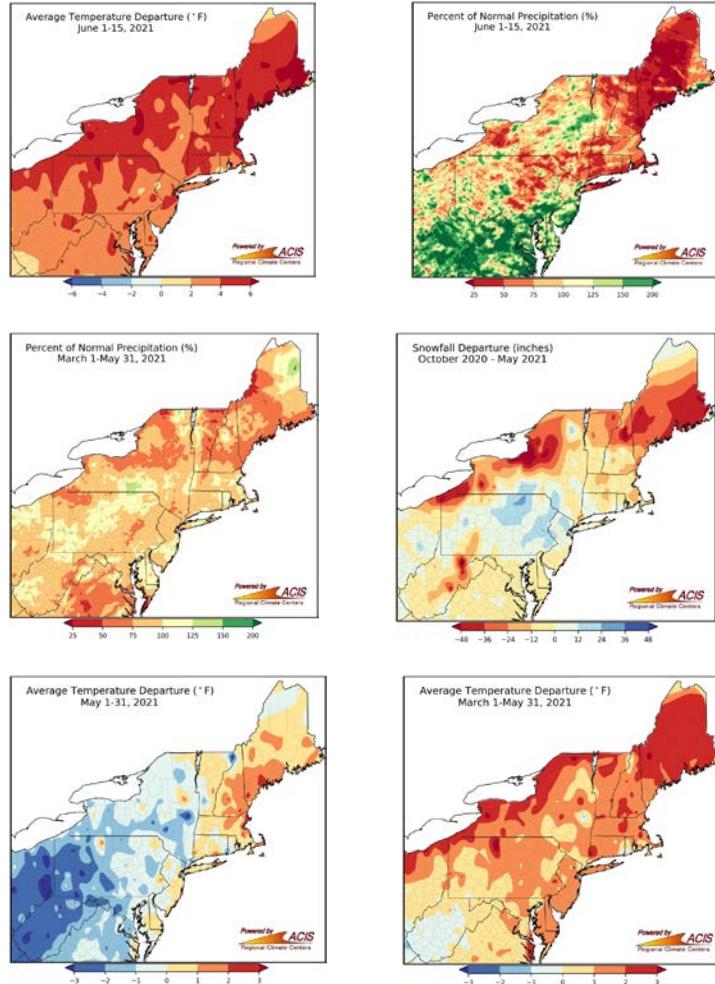
**The next survey is planned for 6/21/21 (HYJUN21).**

The [schedule](#) for the remainder of 2021 is shown to the left and available on our website.

The trawl survey was conducted during May as slated and continues through June.

# Weather

Spring has finally ended, and with it we open summer with our WQJUN21 survey. Leading up to WQJUN21, temperatures in May varied across the region from below normal in Hartford to 0.8° above normal at JFK. Precipitation was above normal across the region with the climate sites report 4-5 inches of rain falling in May. The beginning to the middle of June has seen average temperatures of 69.8°F at Bridgeport. This is an increase of 2.5°F from the normal average of 67.3°F. With this new average, it ranks it the 5<sup>th</sup> warmest June reported (for Bridgeport). June also contained days that set daily maximums and high minimum temperature records across the Northeast region. In contrast to May, June 1-15, was dry with Bridgeport recording 0.89 inches of rainfall; 43% of the normal level of 2.07 inches. It was the 6<sup>th</sup> driest June 1-15 for Islip (0.36 inches). As summer begins, the NOAA Climate Prediction Center indicates that temperatures will fluctuate slightly by the end of June. Weather information can be viewed on the Northeast Regional Climate Center's website <http://www.nrcc.cornell.edu/>.

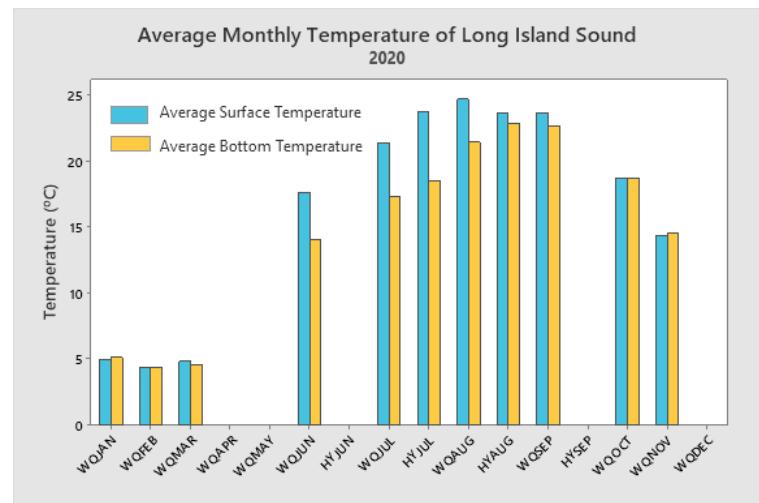
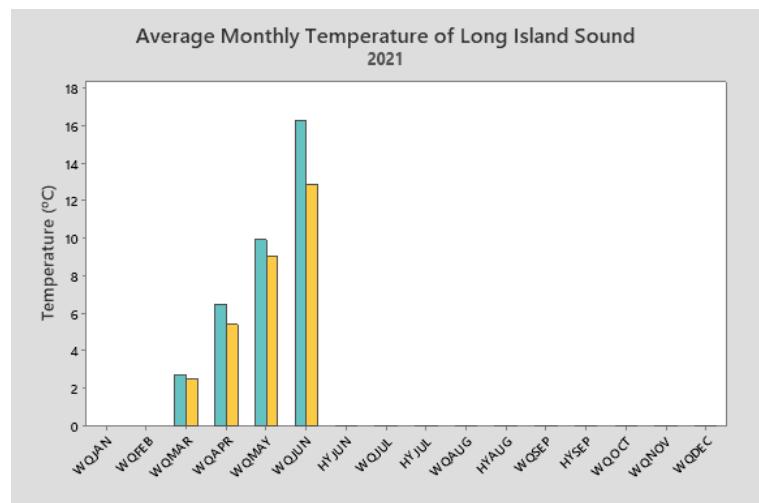
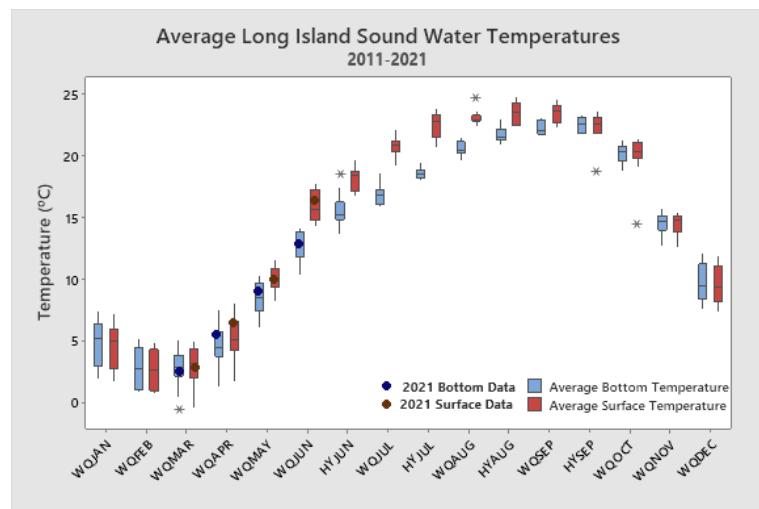


# Temperature

Bottom and surface water temperatures have begun to rise with a  $6.3^{\circ}\text{C}$  increase of average temperatures from WQMAY21 to WQJUN21. The maximum surface water temperature during the WQJUN21 survey occurred at Stations H4 ( $18.76^{\circ}\text{C}$ ) while the maximum bottom water temperature occurred at Station 15 ( $14.95^{\circ}\text{C}$ ).

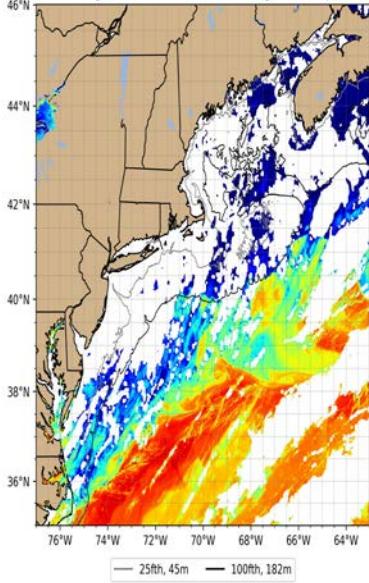
The average surface and bottom water temperature for WQJUN were lower in 2021 than in 2020.

Stratification is intensifying with WQJUN21  $\Delta T$ 's ranging from  $0.19^{\circ}\text{C}$  at Station M3 to  $6.14^{\circ}\text{C}$  at Station H4.  $\Delta T$ 's averaged  $3.37^{\circ}\text{C}$  during the WQJUN21 survey, an increase of  $2.50^{\circ}\text{C}$  from the WQMAY21  $\Delta T$  average ( $0.87^{\circ}\text{C}$ ).

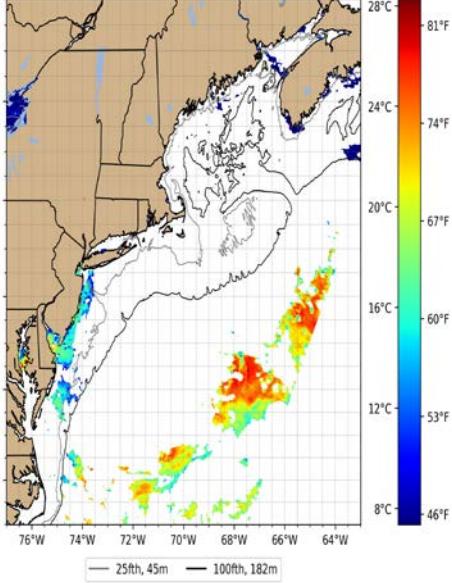


# Sea Surface Temperature

NOAA-18 Sea Surface Temperature: June 01 2021 1428 GMT  
Rutgers Center for Ocean Observing Leadership



NOAA-18 Sea Surface Temperature: June 03 2021 1545 GMT  
Rutgers Center for Ocean Observing Leadership

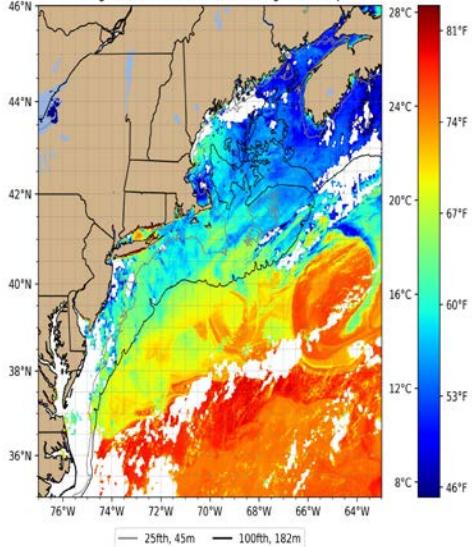


Sea Surface temperature data from Rutgers University IMCU Coastal Ocean Conservation Lab illustrates how currents and fronts impact water temperatures in the Sound and offshore.

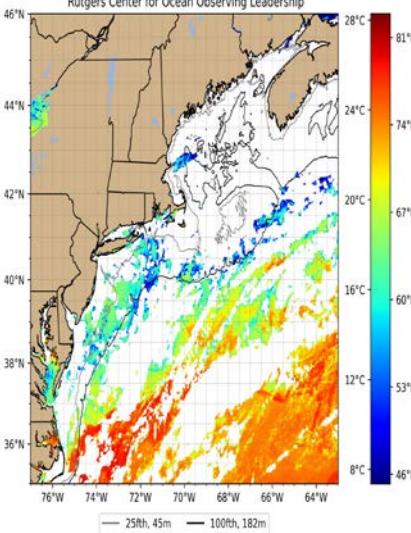
In the first image, taken on June 1<sup>st</sup>, the waters in Long Island Sound are around 12°C (53.6°F).

The three other images (left) show water from the South Atlantic pushing upward toward LIS. By June 8<sup>th</sup>, temperatures in the Sound increased to between 20-24°C (68-75°F).

NOAA-18 Sea Surface Temperature: June 08 2021 1445 GMT  
Rutgers Center for Ocean Observing Leadership



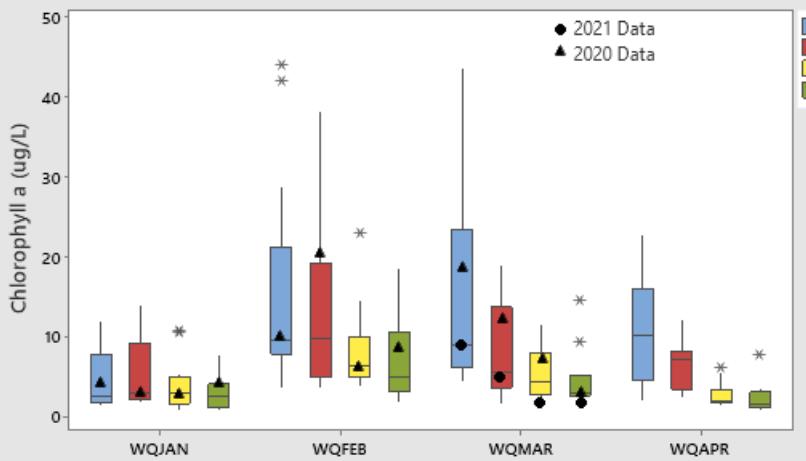
NOAA-19 Sea Surface Temperature: June 09 2021 1157 GMT  
Rutgers Center for Ocean Observing Leadership



More information about sea surface temperature can be found on the Rutgers University Satellite Imagery website [Sea Surface Temperature - IMCS Coastal Ocean Observation Lab \(rutgers.edu\)](http:// Sea Surface Temperature - IMCS Coastal Ocean Observation Lab (rutgers.edu))

# Chlorophyll a

Surface Chlorophyll a Data from Four Stations in Long Island Sound  
2009-2021



2012 and 2013 FEB, MAR, and APR data were removed due to a calibration error.  
Due to COVID, no sampling occurred in April 2020, January 2021, February 2021.  
Data from April 2021 not yet available.

The concentration of chlorophyll a is a measure used to estimate the quantity of phytoplankton biomass suspended in surface waters. Spring chlorophyll a levels generally peak during February and March, predominately increasing from east to west. Historically high levels of chlorophyll a in the Western Sound during this time have been linked to summertime hypoxia conditions.

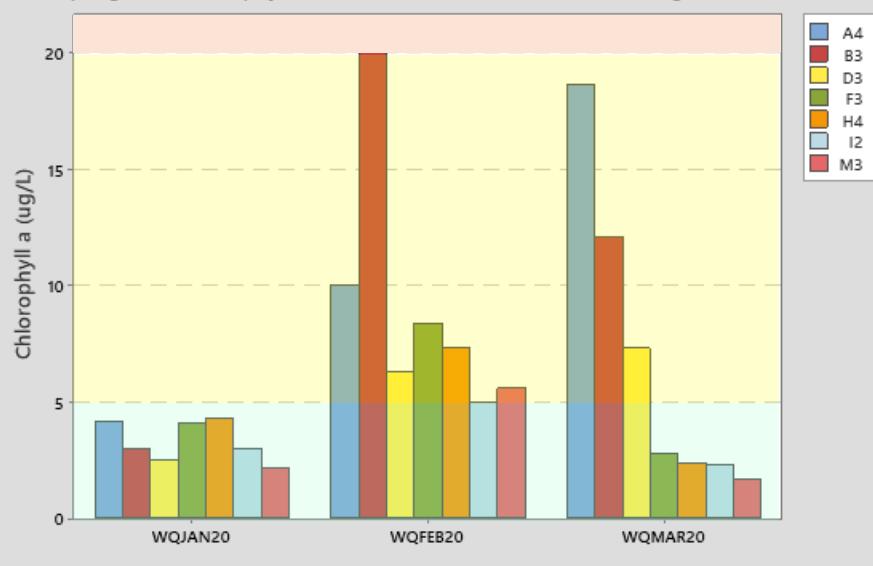
Data depicted to the left are from 2020 and 2021. The 2020 bloom occurred on time.

January and February phytoplankton sampling did not occur in 2021 due to COVID.

January 2020 chlorophyll a concentrations were a close to average, while February concentrations varied. B3 and F3 were above average but A4 and D3 were about average. March concentrations in 2020 were above average. In 2021, March concentrations were on par with measurements over the past ten years.

Using thresholds established by the National Coastal Condition Assessment, 2020 spring chlorophyll a concentrations were generally fair (5 to 20 ug/L) to good (<5 ug/L).

Spring 2020 Chlorophyll a Data from Seven Stations Across Long Island Sound



# Seasonals

My name is **Carlos Berrios** and I am from The Bronx, NY but came down here when I was 14 years old. I currently live in Hartford, CT. I am thrilled to be joining the CT DEEP water monitoring team as a seasonal employee. I am currently attending Southern Connecticut State University, earning a bachelor's degree in Environmental Systems and Sustainability with a concentration in coastal marine systems and minoring in Marine Science. I will be graduating early in the fall and I am excited to get into the workforce to gain experience and form connections with different people. I am a very outgoing person that loves to try new things and get out into the world. I will be a first-generation graduate in my family and take a lot of pride in that title. My love for the environment and marine animals started when I was a little boy, growing up I would have aquariums filled with fishes and a room filled with plants. I always had a special connection with the environment and water that I used to call myself the male Moana! That's a little Disney for you! I am over the moon excited to gain this experience and the funny thing is when I graduate, my dream goal and job were to get into the DEEP because I always had a passion for it since freshman year in high school doing fish restock in Keney Park with Doris Johnson. I've been in this feeling for about 7 years going on 8 next year. Yes, you read right  $\frac{1}{2}$  years, despite my age I started learning and working in this field when I was just a freshman in my trade high school Prince Technical High School, taking Bio-science Environmental Technology. I knew what I wanted to do at a very young age and was highly determined to get to where I want to be in life. If I'm not working, you can catch me watching Grey's Anatomy or just hanging out with my family. I have a very creative nature and I love to create and paint. I also have a passion for traveling because I love seeing new things and experiences different cultures around the world. I think I wrote more than a brief paragraph! This brain just keeps going. With that being said, I am thrilled and excited to meet all of you amazing people!



Hello everyone, my name is **Jordan Davis** and I am extremely happy to be working with the Long Island Sound Water Quality Monitoring team as one of the new seasonals. I am from Watertown, Connecticut and graduated from the University of Connecticut with a B.S. degree in marine science. This is my first time working with DEEP and I could not be any happier and lucky to have such an experience. I look forward to working with and learning from all the different people at DEEP. As I was earning my degree, I wanted to conduct any work that would help benefit the environment we all live in, and I am happy to be taking another step toward that goal! My hope is that I can conduct work that focuses on environmental conservation and possibly community outreach to help others understand the importance of the world around us.

In my free time I love doing outdoor activities such as volleyball (my favorite sport to play currently), frisbee (was on the ultimate frisbee team in HS), flag football, and finding new trails to explore. I also love to play video games and watch movies (Aliens by Ridley Scott is my favorite). I am also a huge superhero fan with Batman being my favorite superhero.

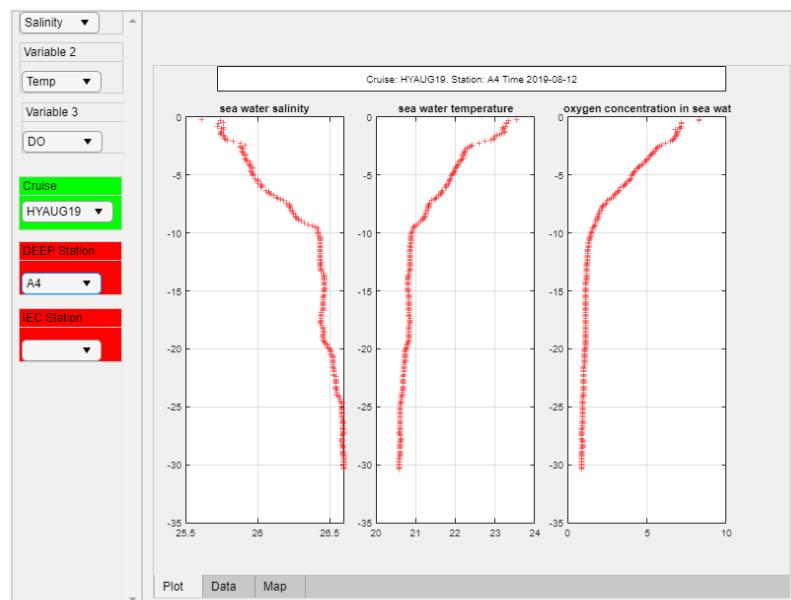


# New Tools

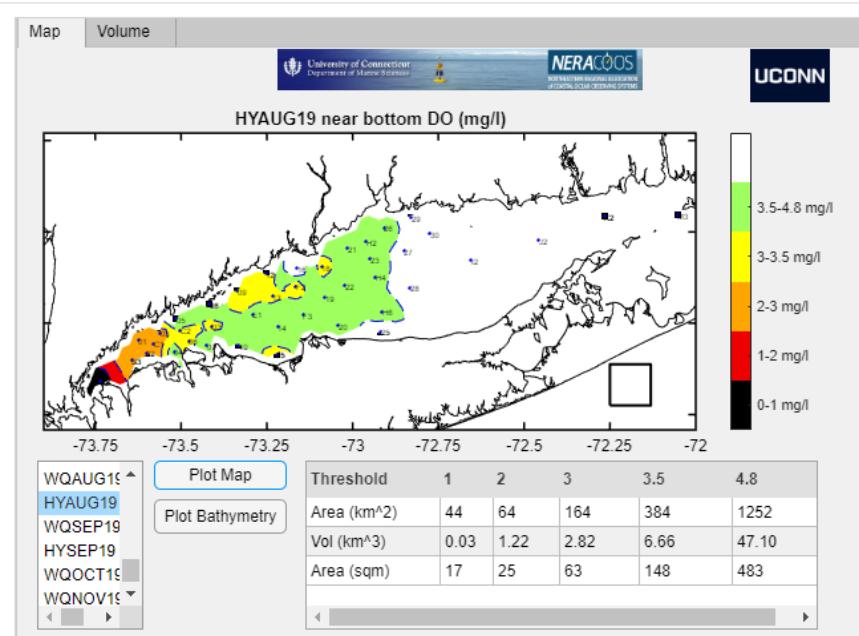
## New Tools Provide Area/Volume Estimates and Access to CT DEEP and IEC data

As part of a project to estimate the volume of Long Island Sound experiencing hypoxic conditions utilizing CT DEEP and IEC cruise data, researchers at the University of Connecticut have developed two new tools for the Long Island Sound Stakeholder Community. Both are available online: <http://merlin.dms.uconn.edu:9988/webapps/home/>. The final project report is available upon request.

The first allows interested parties to query and download CT DEEP, IEC, and LISICOS Buoy data through the UCONN ERDDAP. Station data can even be displayed as vertical profiles and maps.



The second allows users to view hypoxic area maps, as well as hypoxic area and volume calculations. It's important to note that the area calculations will differ slightly from CT DEEP reported areas due to differences in the 5m isobath location. Currently data are available from 1991-2019. Data from 2020 and 2021 should be incorporated soon.





Connecticut Department of  
**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

