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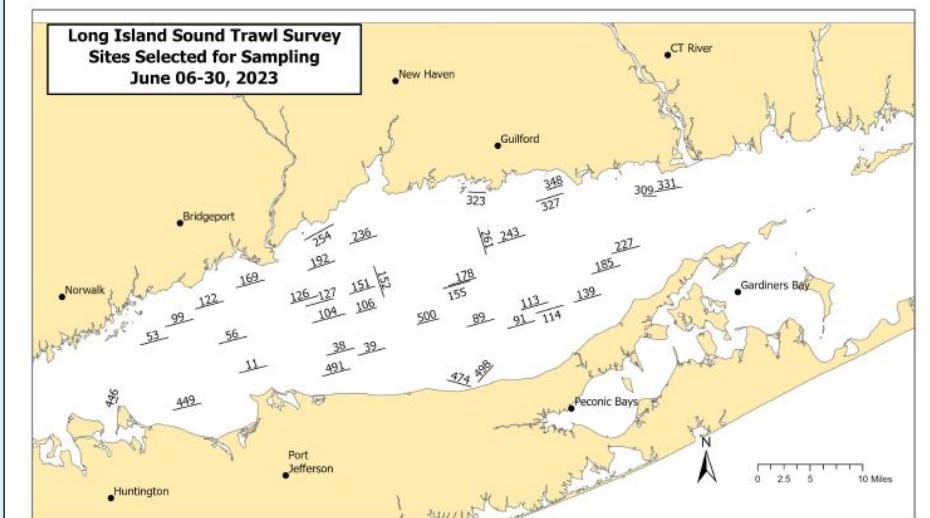
Long Island Sound Water Quality Monitoring Program

July 11, 2023



Dempsey Update

After completing the June water quality survey 31 May - 2 June, the Dempsey is now underway for the June trawl survey. 40 sites will be sampled beginning in the east and progressing west. David Ellis, trawl survey biologist, reports the first northern kingfish and spot of the season were caught last week (6/5-6/9). Northern sea robin catches are also increasing.



2023 Sampling Schedule

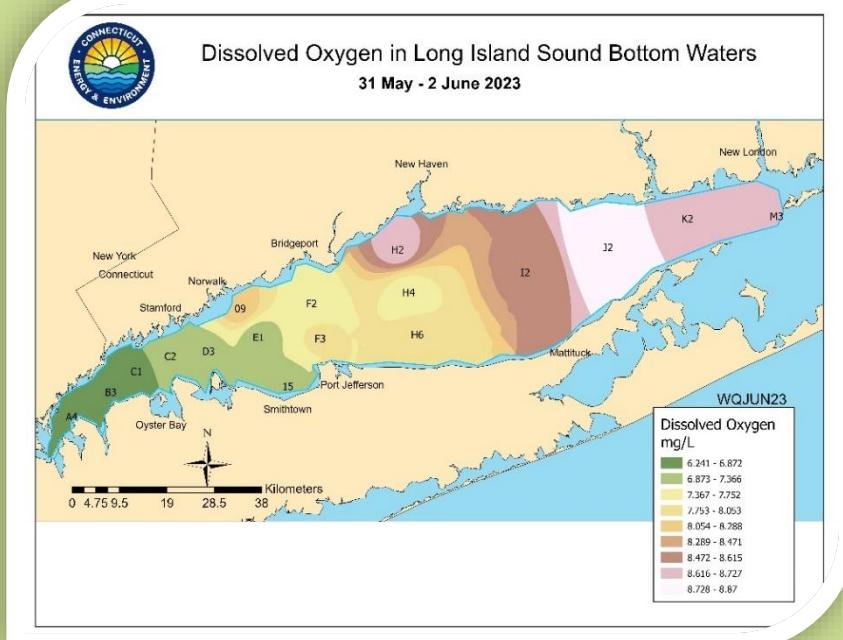
The 2023 Long Island Sound Sampling began on 3 January 2023. All scheduled cruises except for CHFEB23 and WQMAR23 (maintenance issues) were completed as scheduled. The next survey is HYJUN23, scheduled during the week of 19 June. Click the link to learn more about the program and our sampling schedule: [Long Island Sound Water Quality and Hypoxia Monitoring Program Overview \(ct.gov\)](#)

Dissolved Oxygen Summary

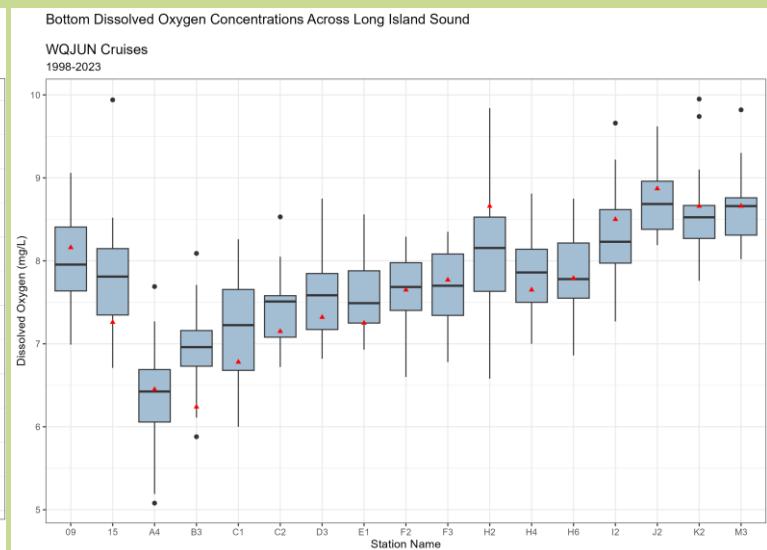
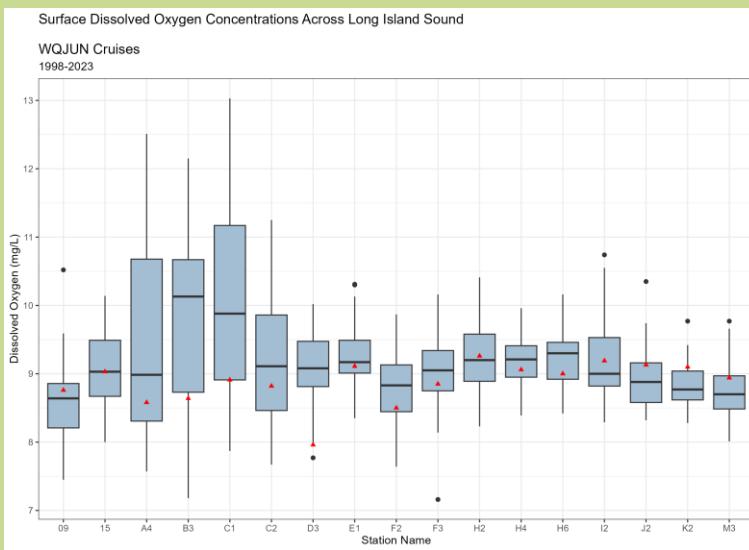
Dissolved oxygen (DO) concentrations in the bottom waters of Long Island Sound remained well above 6 mg/L through the June Water Quality Survey. The lowest concentration measured during the survey was 6.24 mg/L at Station B3 and the highest was 8.87 mg/L measured at Station J2. These are very similar to WQJUN22 data.

Station A4 is usually one of the first stations to exhibit hypoxia, defined as DO below 3.0 mg/L, and therefore, is the focus of much of our reporting. During the WQJUN23 survey, DO in the bottom water at Station A4 was 6.45 mg/L. Of the 25 bottom waters measurements recorded at Station A4 between 1998 and 2022, the median concentration was 6.41 mg/L with a range of 5.08 to 7.69 mg/L. The mean was 6.363 mg/L.

Leading up to the WQJUN23 survey, A4 had concentrations of 9.77 mg/L in April and 8.35 mg/L in May.



Preliminary data from this survey and prior 2023 cruises are available in Excel spreadsheet format [as well as on the UCONN ERDDAP site.](#)



Temperature Data Summary

Bottom and surface water temperatures have begun to rise with a 5.21°C increase of average surface temperatures and a 3.38°C increase of average bottom temperatures from WQMAY23 to WQJUN23.

The maximum surface water temperature during the WQJUN23 survey occurred at Station H4 (17.79°C) while the maximum bottom water temperature occurred at Station 09 (15.76°C).

The average surface and bottom water temperature for WQJUN were higher in 2023 than in 2022.

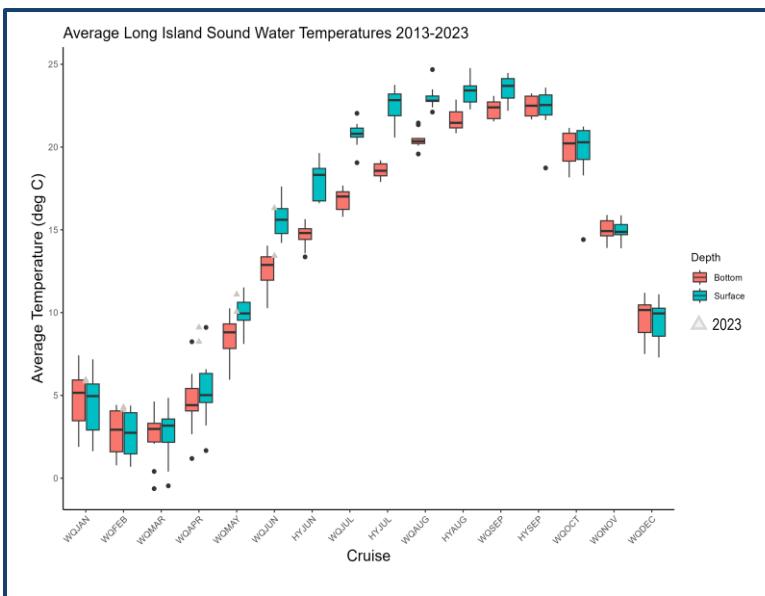
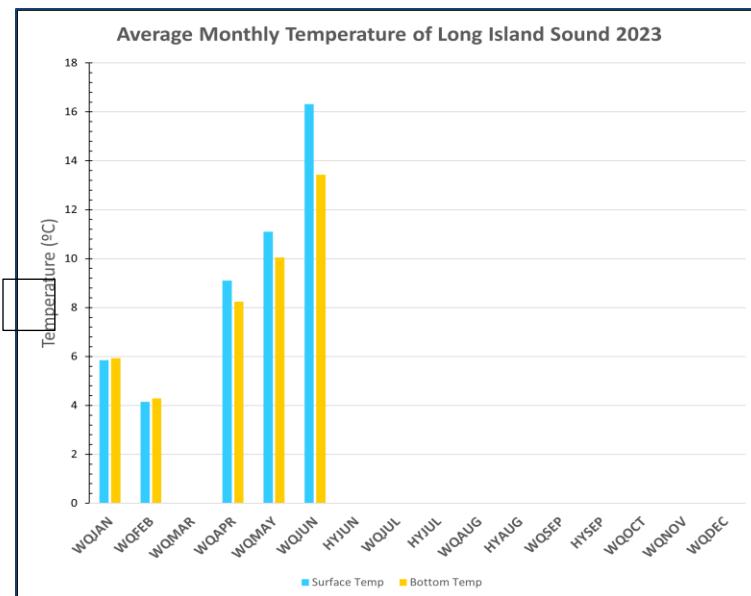
Delta T (ΔT)

ΔT 's averaged 2.88°C during the WQJUN23 survey, an increase of 1.84 from the WQMAY23 ΔT average (1.04°C).

The greatest temperature difference between the surface and bottom waters during the WQJUN23 survey was 5.87°C , measured at Station E1. The smallest temperature difference was 0.34°C at Station M3.

Delta T (ΔT) is the difference between the surface and bottom water temperature. Differences in water temperature contribute to stratification and exacerbate hypoxic conditions. In general, the shallower coastal stations tended to have the smallest temperature differences, as they are more susceptible to mixing, weather, and anthropogenic influences (human caused Influences). The greater the delta T, the greater the potential for hypoxia to be more severe.

In June, DEEP's hypoxia monitoring cruises began. The DEEP's monitoring program records water temperatures and salinity during its hypoxia monitoring cruises to help estimate the extent of favorable conditions for the onset and ending of hypoxia. Water temperature plays a major role in the timing and severity of the summer hypoxia event. Water temperature differences in the western Sound during the summer months are particularly influential in contributing to the difference in dissolved oxygen content between surface and bottom waters.



Note: WQMAY23 survey could not be completed due to maintenance

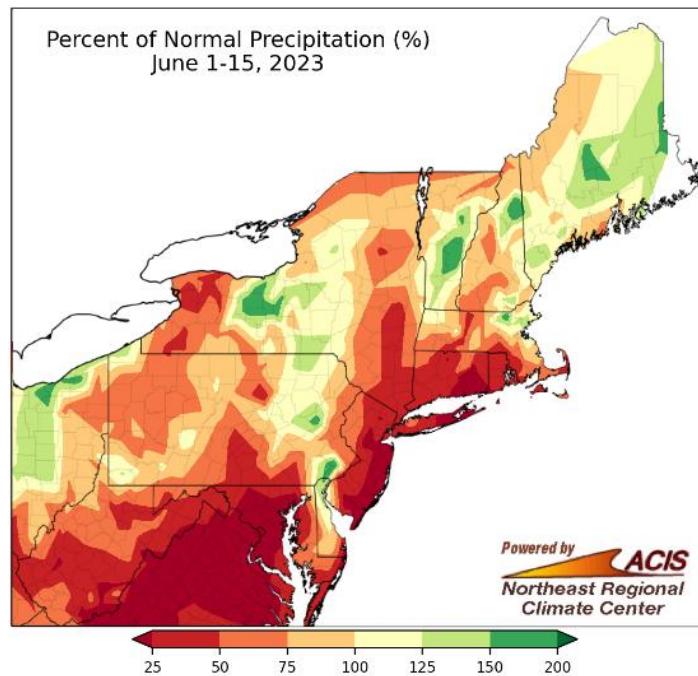
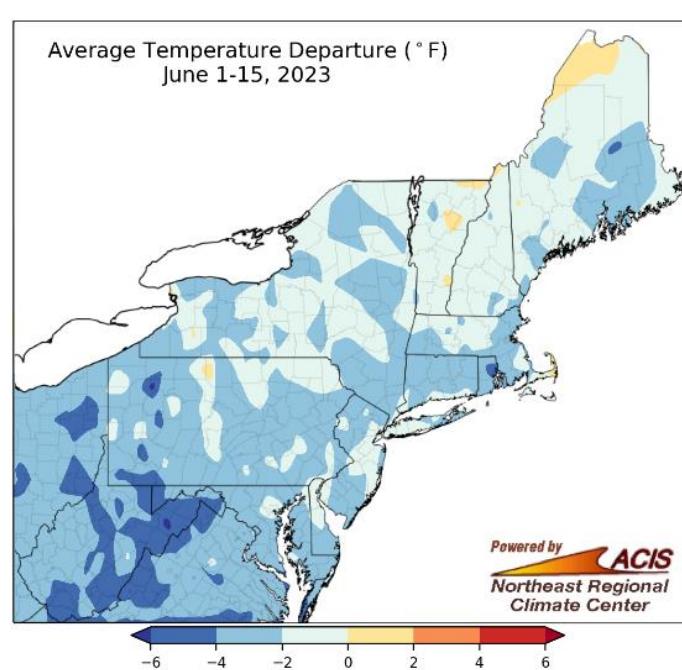
Weather

June started on a cool note for much of the Northeast including ten major climate sites that had one of their 20 coolest early June periods. Early June had average temperatures range from more than 6°F below normal to near normal. Cooler temperatures were attributed to a stalled low-pressure system funneling winds from the north. This weather system also steered smoke from the Quebec wildfires into the Northeast. No major climate sites saw measurable snow and precipitation ranged from less than 25% of normal to 200% more than normal. The data recorded is from June 1st- 15th, 2023. Data for the latter half of June will be accessible on the Northeast Regional Climate Center website five days after the start of the new month.

Hartford, CT had a 2.1°F departure from normal temperature of 66.6°F. The average temperature from June 1st to June 15th was 64.5°F with 22% normal precipitation at 0.49 inches. Hartford, CT was ranked 13th among the 20 driest sites in the Northeast.

Bridgeport, CT had a below average temperature of 64.5°F with a 2.7°F departure from normal temperature of 67.2°F. Bridgeport, CT was ranked 15th among the 20 coolest sites in the Northeast. Precipitation was 39% of normal with an average of 0.80 inches compared to a normal 2.07 inches.

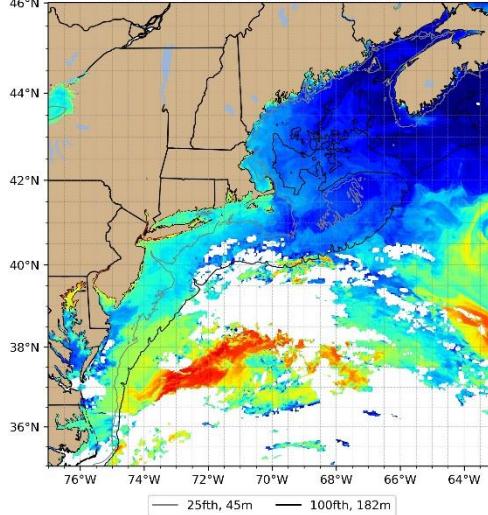
Islip, NY also had below average temperature. There was a 1.8°F departure from a normal temperature of 66.7°F, with the average temperature in Islip, NY at 64.9°F. For precipitation Islip, NY ranked 16th driest with 40% of normal precipitation at 0.90 inches. Normal precipitation was 2.25 inches.



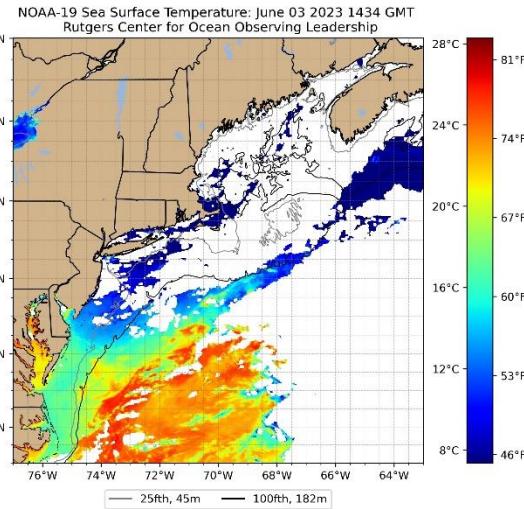
All data and images were from the Northeast Regional Climate Center's website. Please visit <http://www.nrcc.cornell.edu/> for more information.

Sea Surface Temperature

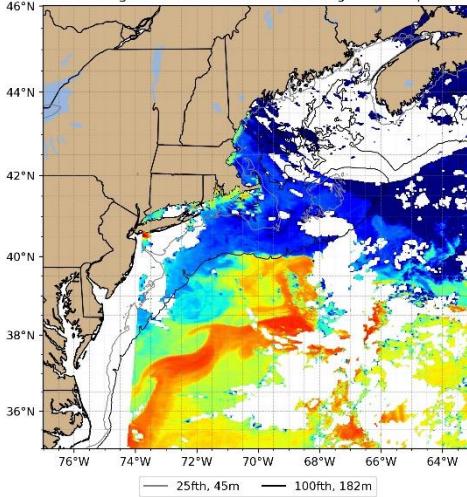
NOAA-19 Sea Surface Temperature: June 01 2023 1318 GMT
Rutgers Center for Ocean Observing Leadership



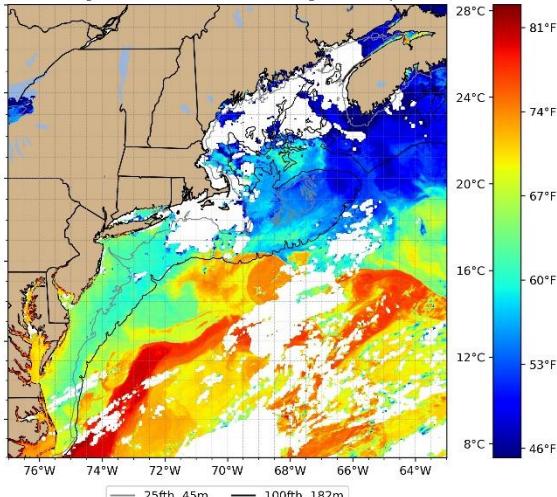
NOAA-19 Sea Surface Temperature: June 03 2023 1434 GMT



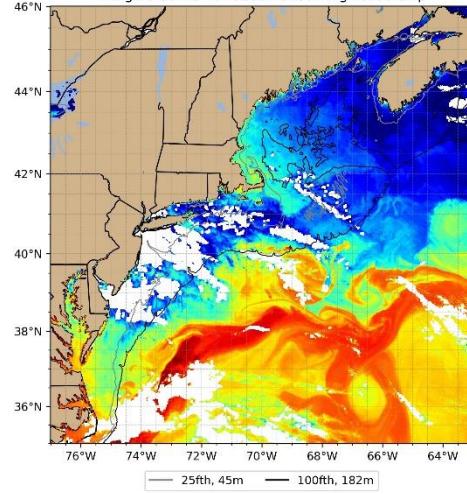
NOAA-18 Sea Surface Temperature: June 06 2023 1439 GMT
Rutgers Center for Ocean Observing Leadership



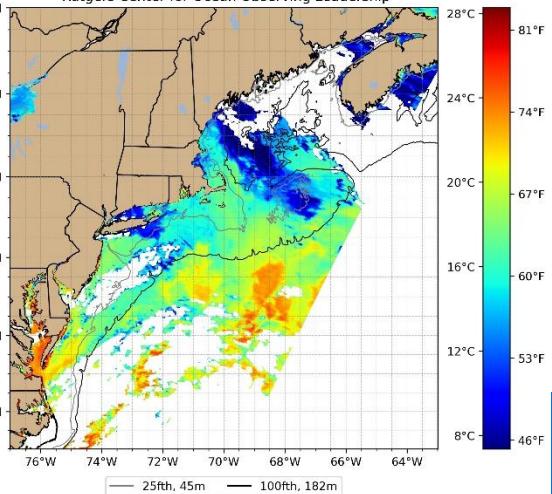
NOAA-18 Sea Surface Temperature: June 09 2023 1543 GMT
Rutgers Center for Ocean Observing Leadership



NOAA-18 Sea Surface Temperature: June 11 2023 1518 GMT
Rutgers Center for Ocean Observing Leadership



NOAA-18 Sea Surface Temperature: June 13 2023 1635 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 1st, the waters in Long Island Sound are around 16°C-20°C (60.8°F-68°F).

The five other images (left) show a stalled cold system in the north as well as warm water from the South Atlantic pushing upward toward LIS. By June 3rd, temperatures in the Sound decreased to between 8-12°C (46.4-53.6°F).

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))

Secchi Disk Depths

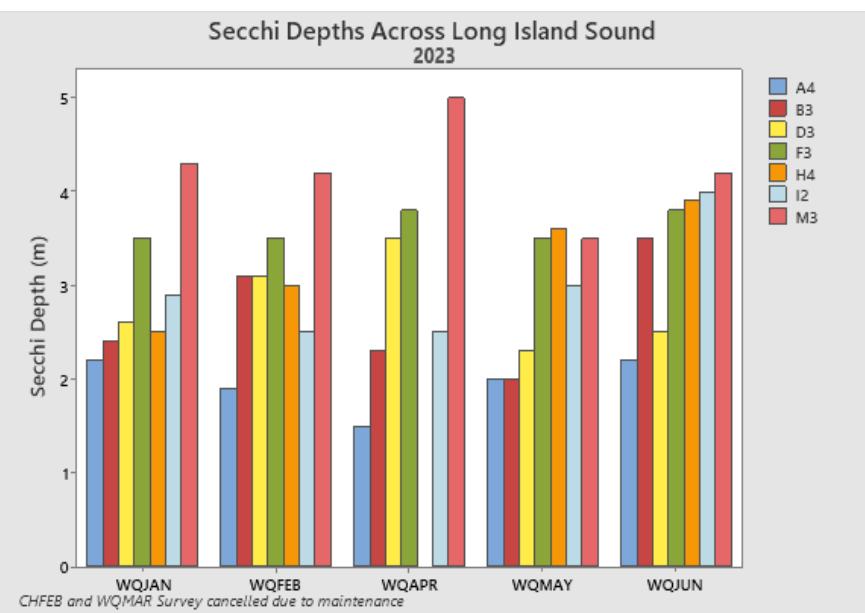


To assess the water clarity across Long Island Sound, Secchi disks are used at each station. The black and white disk is lowered into the water column until such a depth is reached that the black and the white quarters can no longer be differentiated. This is called the Secchi depth.

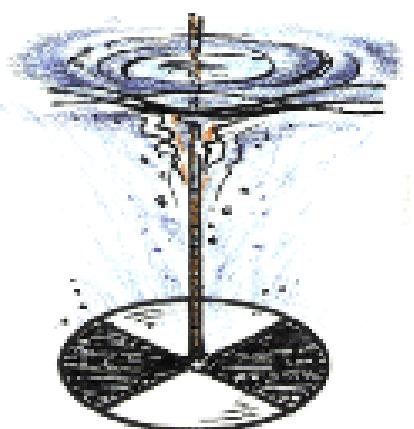
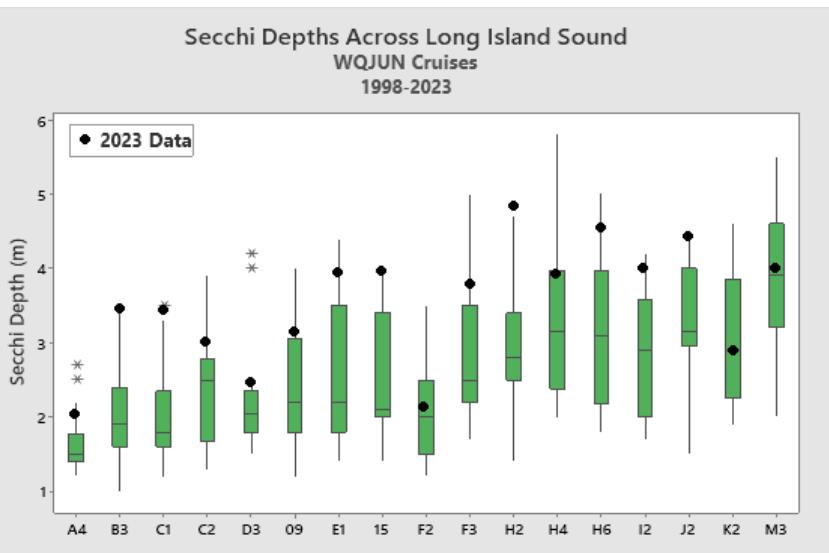
The Long Island Sound Report Card developed by Save the Sound utilizes the following water clarity depths thresholds:

1. >2.28 m (A- to A+; 90-100)
2. 2.12 to <2.28 (B- to B+; 80-89)
3. 1.95 to <2.12 (C- to C+; 70-79)
4. 1.8 to <1.95 (D- to D+; 60-69)
5. 0 to <1.8 (F; <60)

Secchi depths were taken at 17 stations during the WQJUN23 survey; these depths ranged from 2.2 meters (Stations A4 and F2) to 4.7 meters (Station H2).



In Report Card terms, 15 stations were in the A- range (>2.28m), 2 stations were in the B- range (2.12-2.28), no stations were in the C- range (1.95-<2.12m), no stations were in the D- range (1.8 to <1.95m), and no stations failed (<1.8m).



Meet Our New Seasonals!

Hello! My name is Jenny Ofray and I'll be joining the Long Island Sound Water Quality Monitoring team as a seasonal resource assistant. I am from East Hartford, CT and graduated from UConn with a B.A. in Environmental Studies in 2022. I am passionate about the intersections of climate change impacts, mental health, and environmental justice. My focus now is expanding on skills I built during an independent study on local and municipal environmental policy.

I am excited to contribute to the team and our community's efforts in protecting Long Island Sound! Outside of work, I volunteer as membership coordinator with a local climate lobbying group. My hobbies include reading and writing, traveling to parks and festivals with friends, painting and making digital collages.



Hello!

My name is Rachel Ranelli and I will be working as a seasonal on the Long Island Sound Water Quality Monitoring project in 2023. I have recently graduated from Franklin Pierce University with a B.S. in Environmental Science. During school I worked as an intern for my university's Institute for Climate Action, where I planned events and projects to help make students aware of climate change and reduce the university's carbon footprint. Last summer, I was the planning intern for the Monadnock Region Natural History Conference hosted by the Harris Center for Conservation Education. When I'm not working, I enjoy hiking, biking, kayaking, reading, and crafting.

I look forward to meeting everyone and working with you all this summer!

For more information on the Long Island Sound Water Quality Monitoring Program please visit:
<https://portal.ct.gov/DEEP-LISWater>

Or contact us:
Katie.obrien-clayton@ct.gov
79 Elm Street
Hartford, CT 06106
(860) 424-3176

