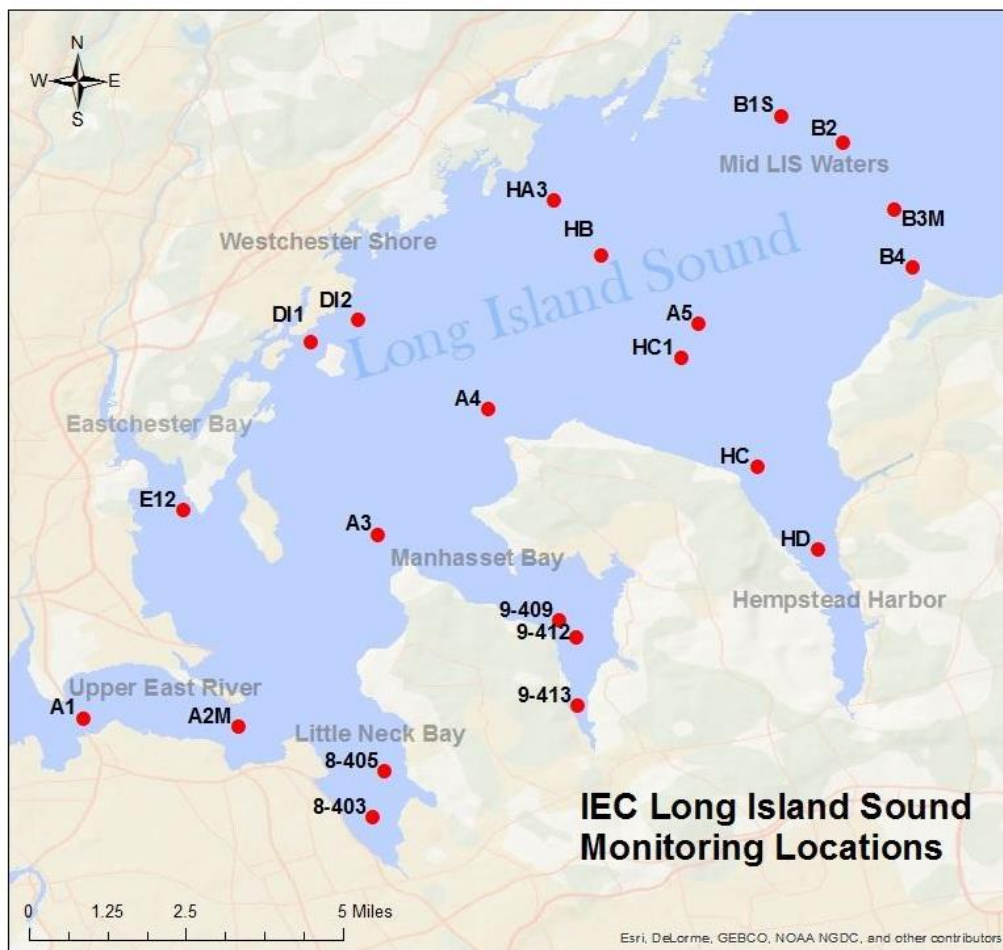




**Interstate
Environmental
Commission**
NY · NJ · CT

Western Long Island Sound Monitoring 2022 Summer Survey Bi-Weekly Summary Surveys #11 & 12

Survey Dates: September 9, 2022 & September 15, 2022



STATION	LATITUDE DD	LONGITUDE DD
E-12	40.8487	-73.8045
A1	40.8013	-73.8268
A2M	40.7992	-73.7913
8-403	40.7778	-73.7608
8-405	40.7888	-73.7582
A3	40.8433	-73.7590
9-409	40.8240	-73.7175
9-412	40.8200	-73.7135
9-413	40.8041	-73.7133
A4	40.8725	-73.7343
A5	40.8923	-73.6853
B1S	40.9403	-73.6667
B2	40.9343	-73.6520
B3M	40.9187	-73.6403
B4	40.9054	-73.6360
DI1	40.8883	-73.7748
DI2	40.8930	-73.7642
H-A3	40.9207	-73.7187
H-B	40.9080	-73.7090
H-C	40.8590	-73.6717
H-C1	40.8853	-73.6903
H-D	40.8402	-73.6572

As part of the Long Island Sound Study's ongoing water quality monitoring program, IEC started its 32nd consecutive summer of weekly ambient monitoring surveys in western Long Island Sound and the upper East River on Tuesday, June 28th, 2022.

Throughout summer 2022, IEC staff will perform 12 weekly surveys to each of 22 stations in the far western Long Island Sound to assess seasonal hypoxic conditions. Hypoxia occurs when dissolved oxygen ("DO") concentrations become low. Marine organisms need oxygen to live and low oxygen concentrations can have serious consequences for a marine ecosystem.

The 12 surveys include weekly *in situ* measurements of water temperature, salinity, dissolved oxygen, pH, and Secchi disk depth. This summer, the additional *in situ* parameter of turbidity was included as an intercomparison with Secchi disk depth. Measurements at each station are taken half a meter below the surface, at mid-depth, and half a meter above the bottom.

Interstate Environmental
Commission
www.iec-nynjct.org
710 Parkside Ave.
Brooklyn, NY 11226
kyap@iec-nynjct.org

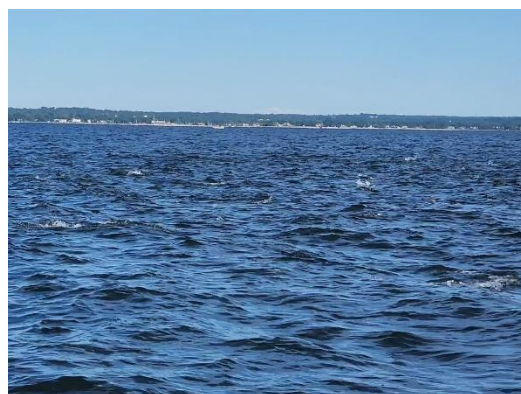
Biweekly surveys will include collection of additional samples for parameters relevant to hypoxia at 11 of the 22 stations (stations listed in **bold** on table, upper right). These samples will be analyzed for nutrients, Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), and chlorophyll *a*, in addition to the suite of *in situ* parameters listed above.

Nutrient parameters that will be analyzed include Ammonia, Nitrate+Nitrite, Particulate Nitrogen, Orthophosphate/DIP, Total Dissolved Phosphorus, Particulate Phosphorus, Dissolved Organic Carbon, Particulate Carbon, Dissolved Silica, and Biogenic Silica.

Proposed 2022 Summer Schedule		
Date	Survey Number	Parameters
6/28/2022	1	<i>In situ</i> parameters only
7/6/2022	2	<i>In situ</i> , nutrients, chlorophyll <i>a</i> , BOD, TSS
7/12/2022	3	<i>In situ</i> parameters only
7/19/2022	4	<i>In situ</i> , nutrients, chlorophyll <i>a</i> , BOD, TSS
7/26/2022	5	<i>In situ</i> parameters only
8/2/2022	6	<i>In situ</i> , nutrients, chlorophyll <i>a</i> , BOD, TSS
8/12/2022	7	<i>In situ</i> parameters only
8/16/2021	8	<i>In situ</i> , nutrients, chlorophyll <i>a</i> , BOD, TSS
8/23/2022	9	<i>In situ</i> parameters only
8/30/2022	10	<i>In situ</i> , nutrients, chlorophyll <i>a</i> , BOD, TSS
9/9/2022	11	<i>In situ</i> parameters only
9/15/2022	12	<i>In situ</i> , nutrients, chlorophyll <i>a</i> , BOD, TSS



Sunrise at Little Neck Bay



Large splashes in water during a “bluefish blitz” near Hempstead Harbor. Large schools of bluefish attack bunker fish near the surface, churning the water like a washing machine. They feed voraciously on their prey, eating almost anything they can catch and swallow.

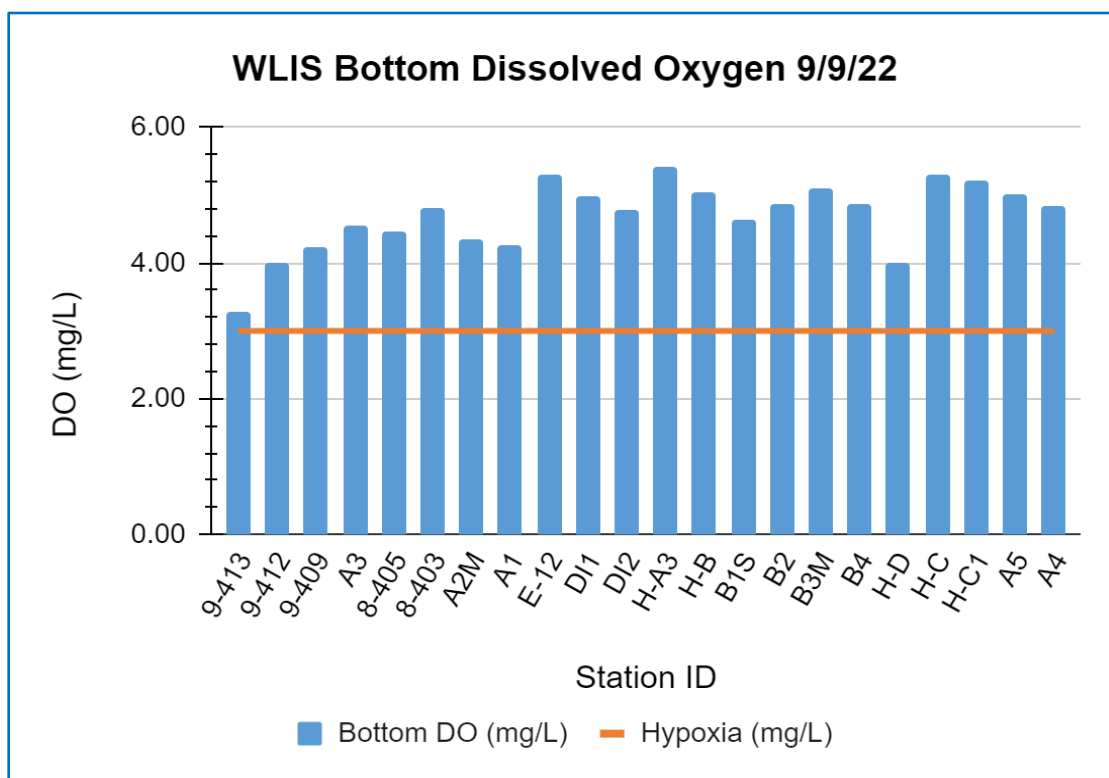
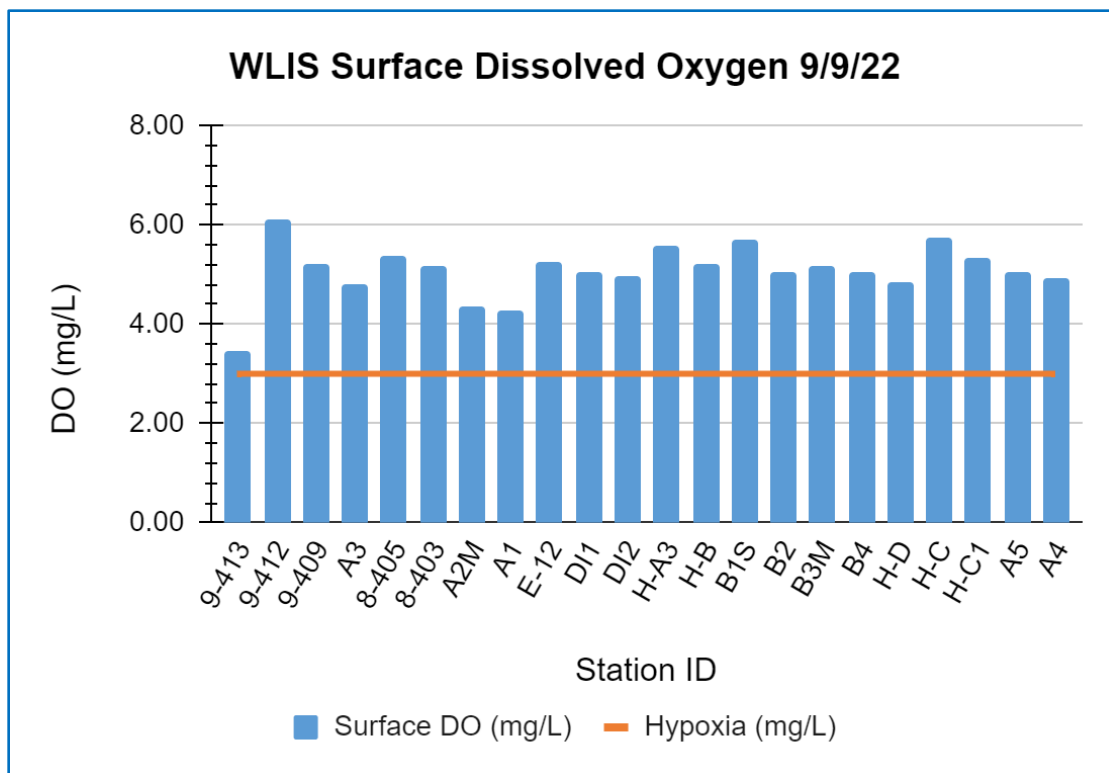
SURVEY #1 AT A GLANCE 09/09/2022

Hypoxia (DO < 3.00 mg/L)	No stations exhibited hypoxia! 😊
Lowest surface DO concentration	3.28 mg/L (Station 9-413 in Manhasset Bay)
Lowest bottom DO concentration	3.47 mg/L (Station 9-413 in Manhasset Bay)
Average surface DO concentration	5.08 mg/L
Average bottom DO concentration	4.69 mg/L
Average surface water temperature	23.25 °C
Average bottom water temperature	23.33 °C
Average water column ΔT	-0.08 °C
Average surface salinity	27.65 ppt
Average bottom salinity	27.85 ppt
Lowest surface pH	6.94 (Station 9-413 in Manhasset Bay)
Lowest bottom pH	6.96 (Station 9-413 in Manhasset Bay)
Average surface pH	7.40
Average bottom pH	7.37

Survey #11 Narrative Summary

This survey began at 06:53 and ended at 10:27, with the last low tide at 05:18 and 05:36 at New Rochelle, NY and Kings Point, NY, respectively. The skies were clear and with no cloud cover (0%) across all stations. The weather was windy with average wind speed at 13 mph, and the average air temperature was 66 °F. We experienced very rough waves that reached a maximum 3 ft tall. The weather station at LaGuardia Airport reported no precipitation for both the 24- and 48-hour period prior to the start of the survey. Secchi disk measurements ranged from 2.5 ft in Manhasset Bay to 7.5 ft in the Mid-LIS Waters.

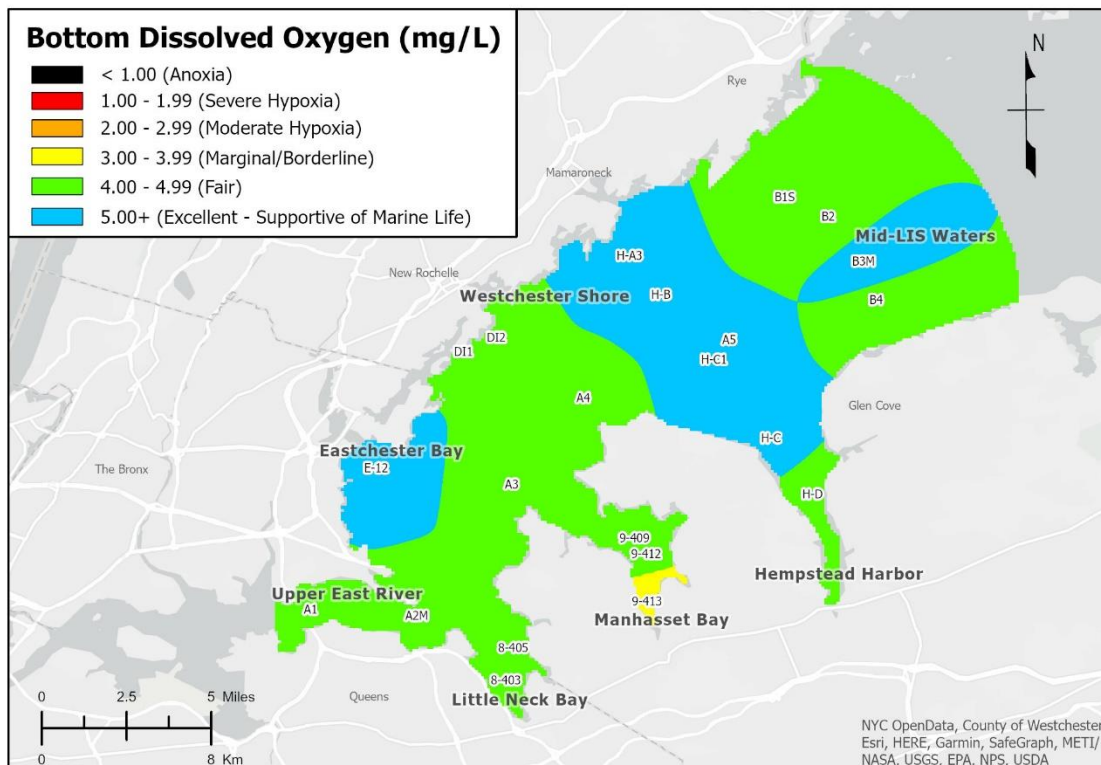
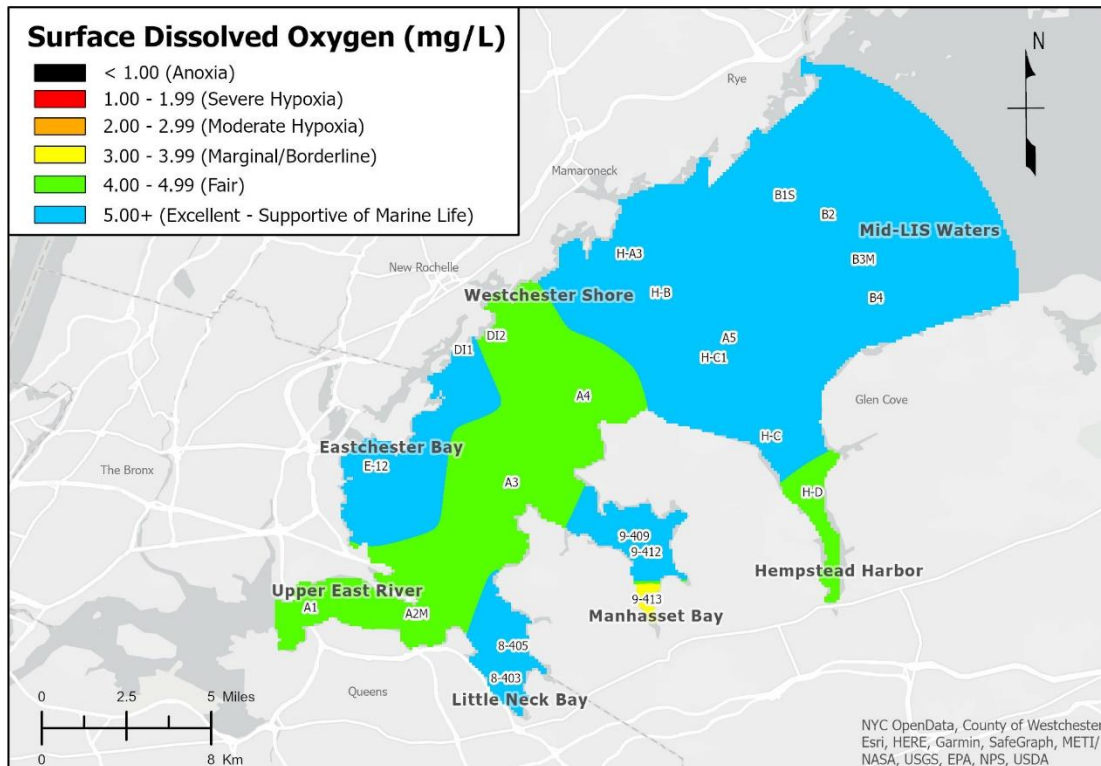
No stations exhibited hypoxia during this survey. This may be due to the rough waves causing substantial mixing and oxygen diffusion throughout the water column. This may also explain the small difference between average surface and bottom temperatures. **In addition, both bottom and surface pH at station 9-413 in Manhasset Bay was slightly acidic (pH < 7).**



The Long Island Sound Study defines hypoxia as DO values which are below a concentration of 3.00 mg/L.

Interstate Environmental Commission Ambient Water Quality Monitoring of the Western Long Island Sound

Weekly Survey #11: September 9, 2022



IDW Interpolation, Power 10

Map by: Kimarie Yap

Map made: 01/23/23

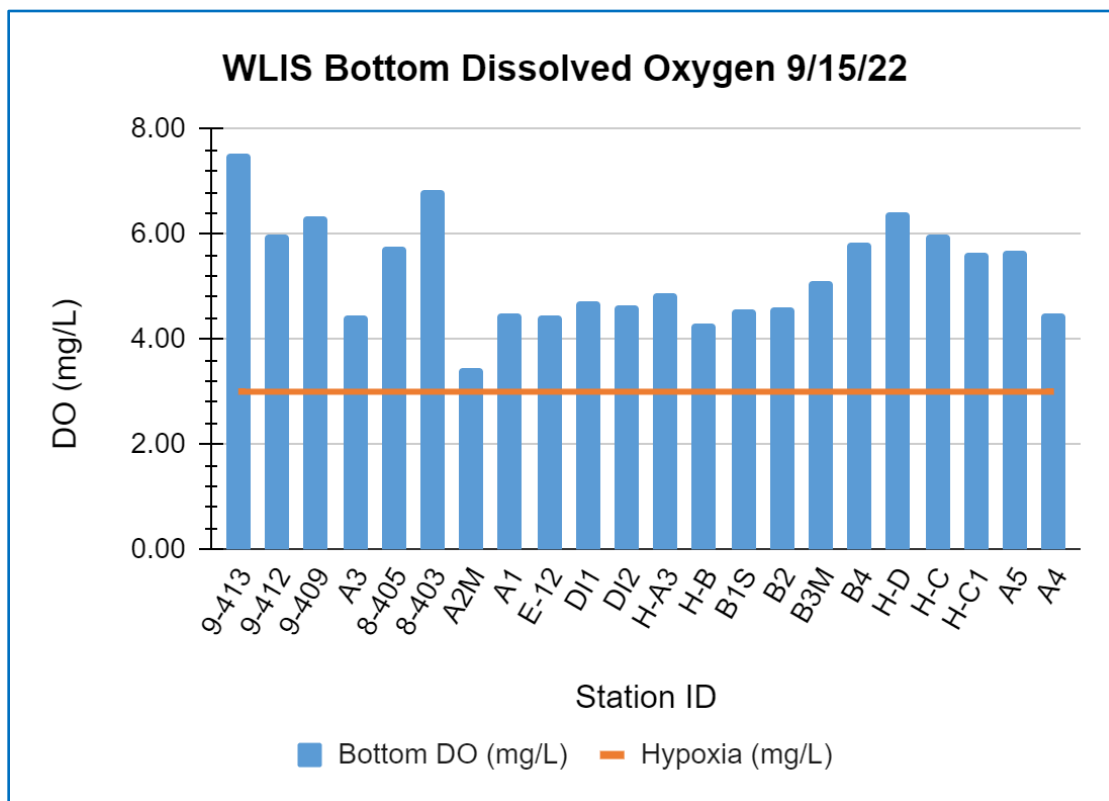
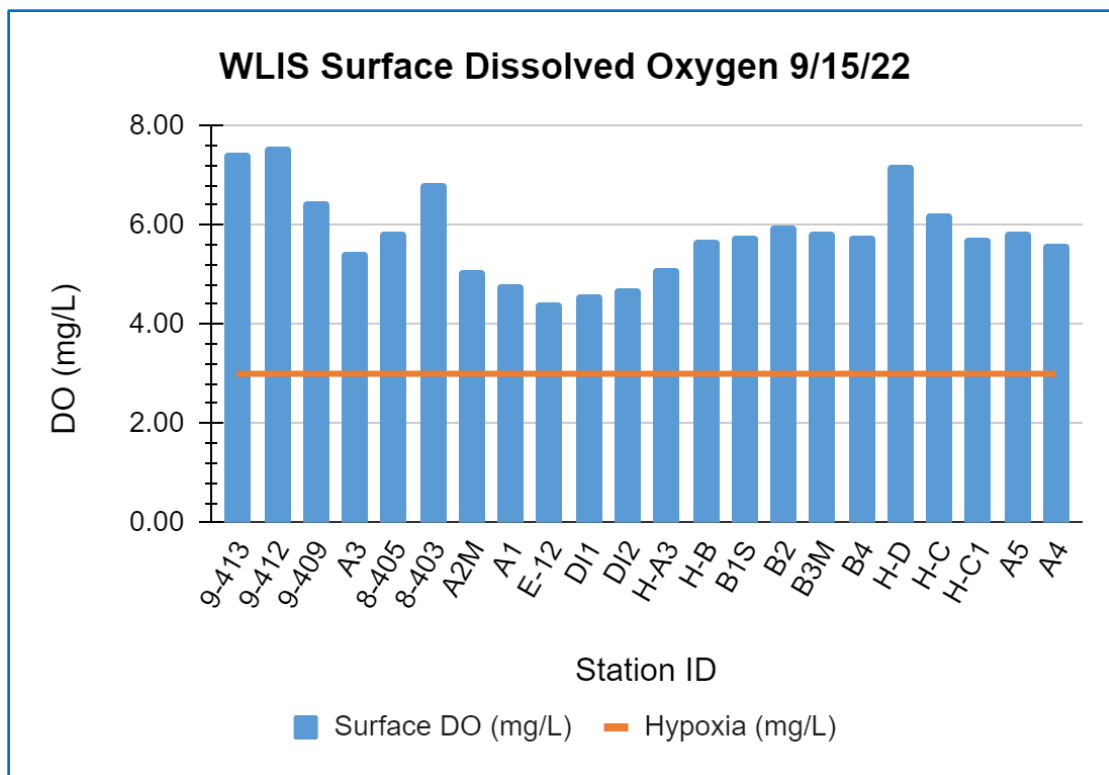
SURVEY # 12 AT A GLANCE 09/15/2022

Hypoxia (DO < 3.00 mg/L)	No stations exhibited hypoxia! 😊
Lowest surface DO concentration	4.45 mg/L (Station E-12 in Eastchester Bay)
Lowest bottom DO concentration	3.45 mg/L (Station A2M in the Upper East River)
Average surface DO concentration	5.83 mg/L
Average bottom DO concentration	5.28 mg/L
Average surface water temperature	23.04 °C
Average bottom water temperature	23.12 °C
Average water column ΔT	-0.07 °C
Average surface salinity	27.15 ppt
Average bottom salinity	27.45 ppt
Lowest surface pH	7.35 (Station E-12 in Eastchester Bay)
Lowest bottom pH	7.34 (Station E-12 in Eastchester Bay)
Average surface pH	7.52
Average bottom pH	7.48

Survey #12 Narrative Summary

The survey began at 06:50 and ended at 10:00, with the last low tide at 09:19 and 09:37 at New Rochelle, NY and Kings Point, NY, respectively. The weather conditions were windy with clear skies, and cloud cover measured approximately 0 to 30% across all stations. The average air temperature was 65 °F and wind speeds were 12-20 mph. We experienced rough waves again during this survey, which reached a maximum 3 ft tall. The weather station at LaGuardia Airport reported 0" and 0.82" of precipitation, respectively, for the 24- and 48-hour period prior to the start of the survey. Secchi disk measurements ranged from 1.5 ft in Manhasset Bay to 7.0 ft at the Westchester Shoreline and in Mid-LIS waters.

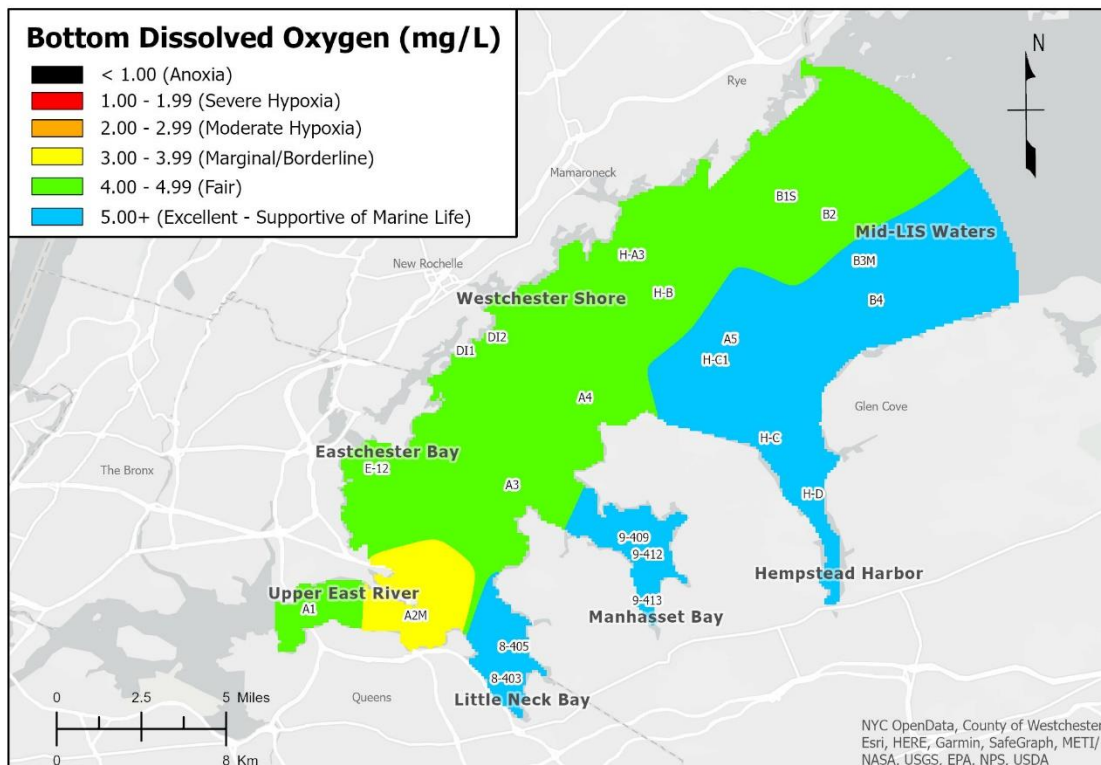
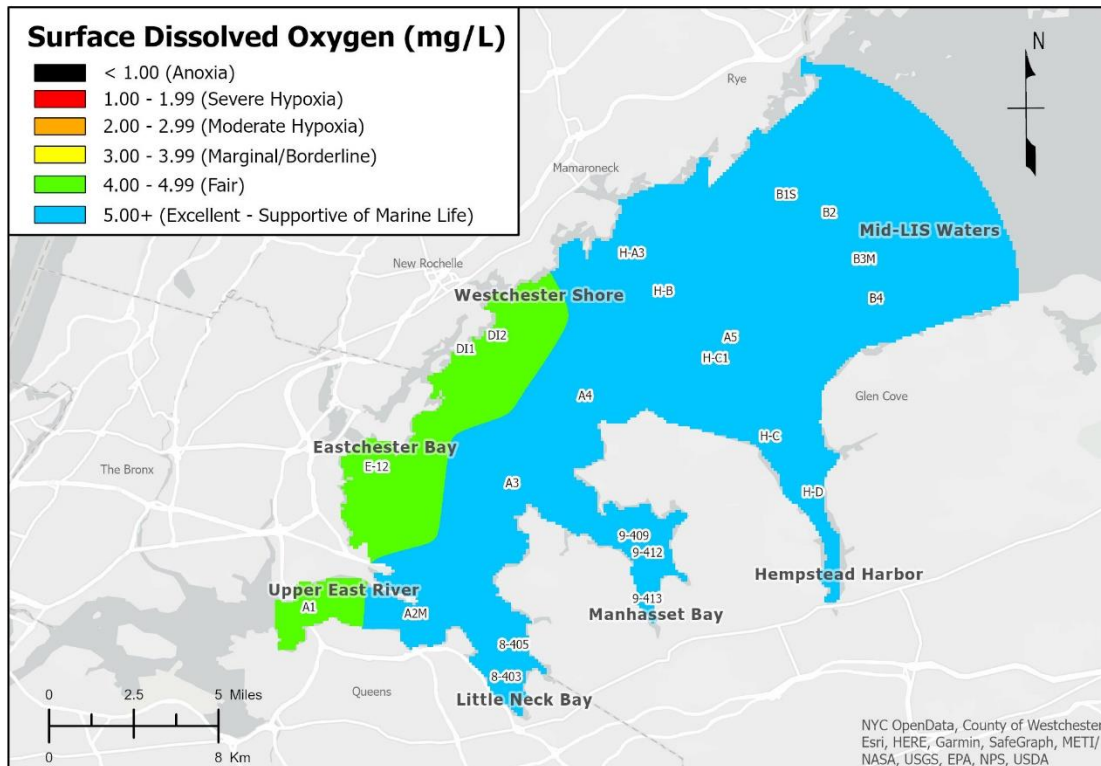
No stations exhibited hypoxia during this survey. This may be due to the heavy winds causing mixing and oxygen diffusion throughout the water column. This may also be the cause of the small difference between surface and bottom temperatures.



The Long Island Sound Study defines hypoxia as DO values which are below a concentration of 3.00 mg/L.

Interstate Environmental Commission Ambient Water Quality Monitoring of the Western Long Island Sound

Weekly Survey #12: September 15, 2022



IDW Interpolation, Power 10

Map by: Kimarie Yap

Map made: 01/23/23