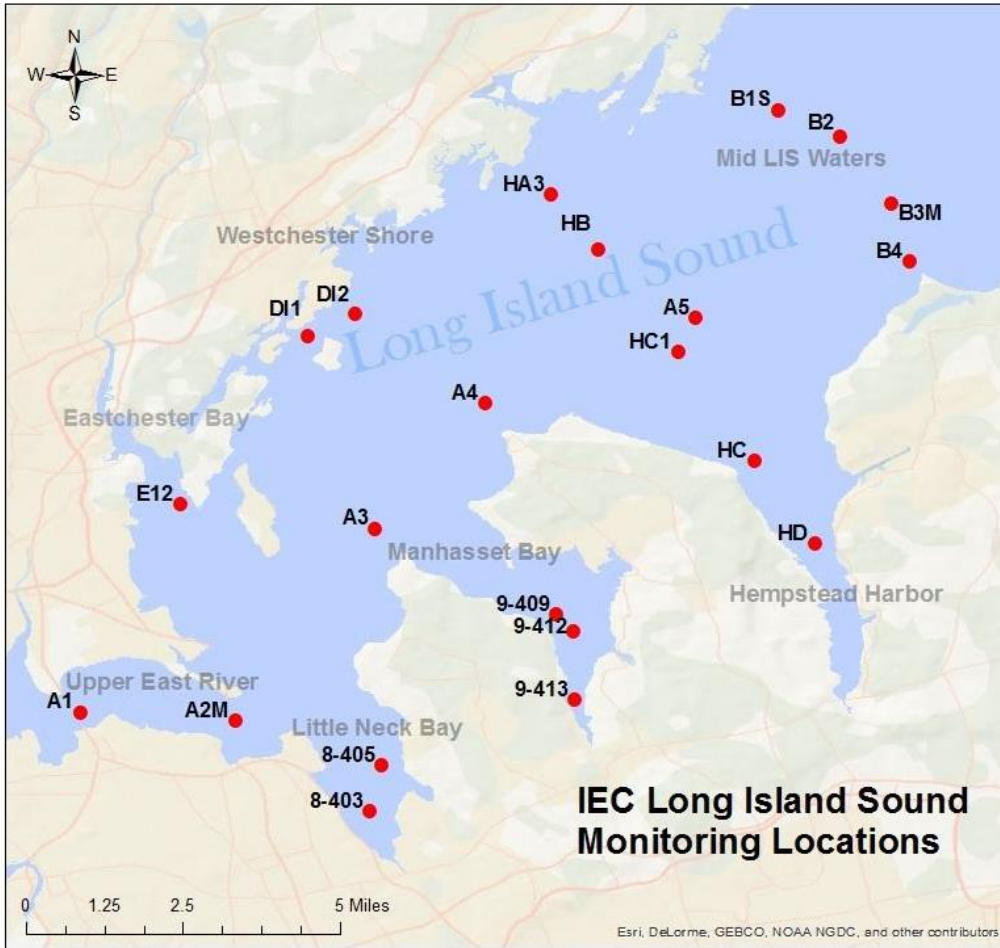




**Western Long Island Sound Monitoring  
2022 Summer Survey Bi-Weekly Summary  
Surveys #3 & #4  
Survey Dates: July 12, 2022 & July 19, 2022**



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

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

<b>Proposed 2022 Summer Schedule</b>		
<b>Date</b>	<b>Survey Number</b>	<b>Parameters</b>
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
<b>7/26/2022</b>	<b>5</b>	<b><i>In situ</i> parameters only</b>
<b>8/2/2022</b>	<b>6</b>	<b><i>In situ</i>, nutrients, chlorophyll <i>a</i>, BOD, TSS</b>
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
8/24/2022	9	<i>In situ</i> parameters only
8/30/2022	10	<i>In situ</i> , nutrients, chlorophyll <i>a</i> , BOD, TSS
9/7/2022	11	<i>In situ</i> parameters only
9/13/2022	12	<i>In situ</i> , nutrients, chlorophyll <i>a</i> , BOD, TSS



Valeria Izeppi, IEC intern



Blue Heron in Little Neck Bay

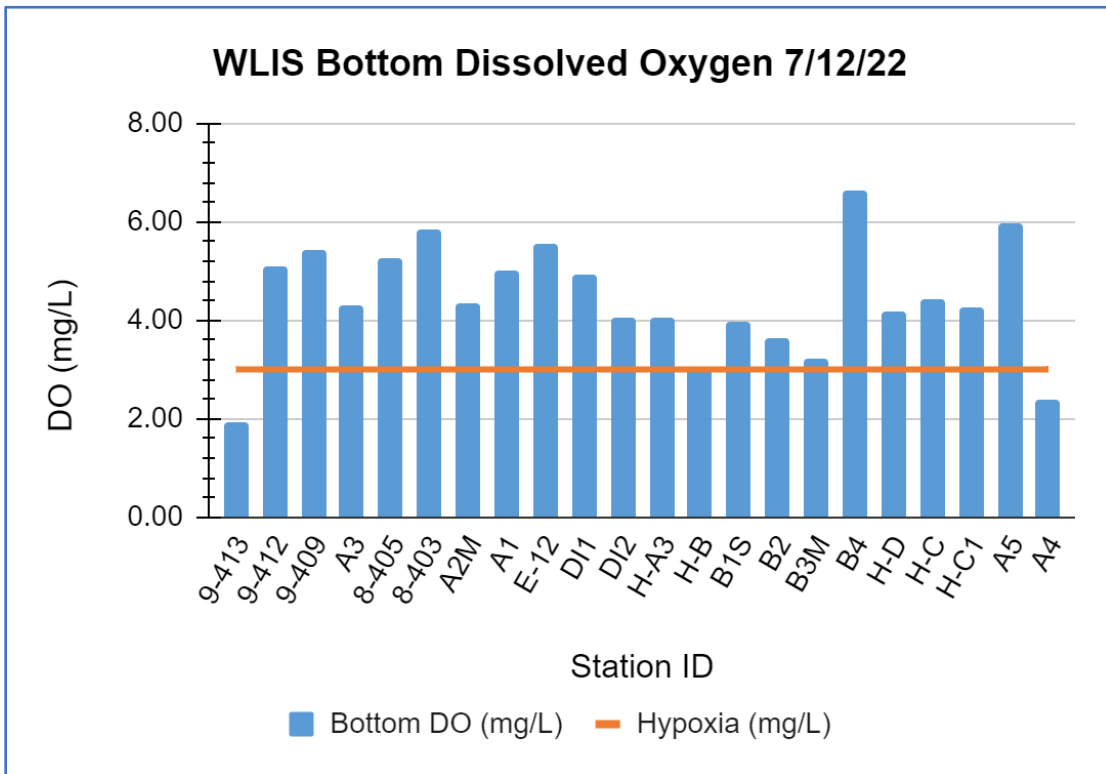
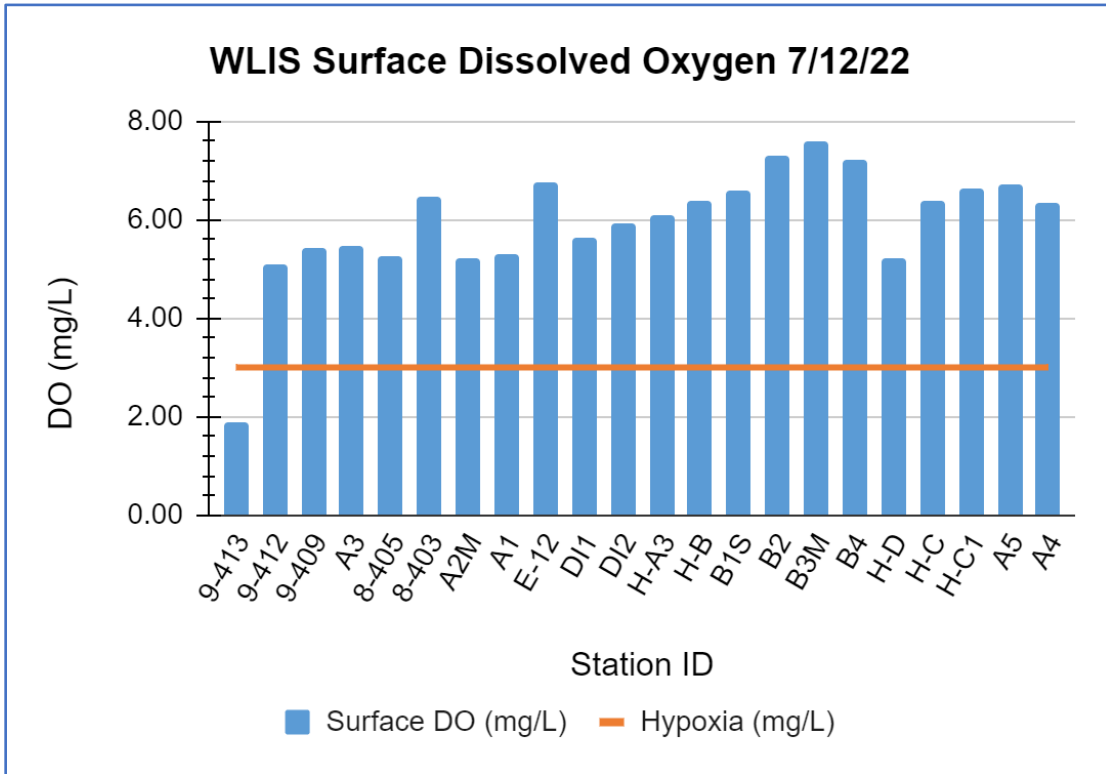
## SURVEY # 3 AT A GLANCE 07/12/2022

<b>Hypoxia (DO &lt; 3.00 mg/L)</b>	<p><b>One station was hypoxic at surface depth:</b> Manhasset Bay – 9-413</p> <p><b>Two stations were hypoxic at bottom depth:</b> Manhasset Bay – 9-413 Mid-LIS Waters – A4</p>
<b>Lowest surface DO concentration</b>	1.88 mg/L (Station 9-413 in Manhasset Bay)
<b>Lowest bottom DO concentration</b>	1.93 mg/L (Station 9-413 in Manhasset Bay)
<b>Average surface DO concentration</b>	5.95 mg/L
<b>Average bottom DO concentration</b>	4.43 mg/L
<b>Average surface water temperature</b>	20.70 °C
<b>Average bottom water temperature</b>	19.41 °C
<b>Average water column ΔT</b>	1.29 °C
<b>Average surface salinity</b>	25.23 ppt
<b>Average bottom salinity</b>	26.55 ppt
<b>Lowest surface pH</b>	6.97 (Station 9-413 in Manhasset Bay)
<b>Lowest bottom pH</b>	6.99 (Station 9-413 in Manhasset Bay)
<b>Average surface pH</b>	7.59
<b>Average bottom pH</b>	7.43

### Survey #3 Narrative Summary

This survey began at 05:51 and ended at 09:13, with low tide at 04:44 and 05:02 at New Rochelle, NY and Kings Point, NY, respectively. There were few clouds throughout the survey with percent cloud cover ranging from approximately 0 to 40% across all stations. The average air temperature was 77 °F and wind speed ranged 7-14 mph during the survey. The weather station at LaGuardia Airport reported 0" of precipitation for both 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 6.5 ft in the Mid-LIS waters.

**Station 9-413 in inner Manhasset Bay exhibited hypoxia (DO < 3 mg/L) at both surface and bottom depths. In addition, the pH at station 9-413 was slightly acidic (pH < 7). Station A4 in the Mid-LIS waters exhibited hypoxia at bottom depth only.**



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

## SURVEY # 4 AT A GLANCE 07/19/2022

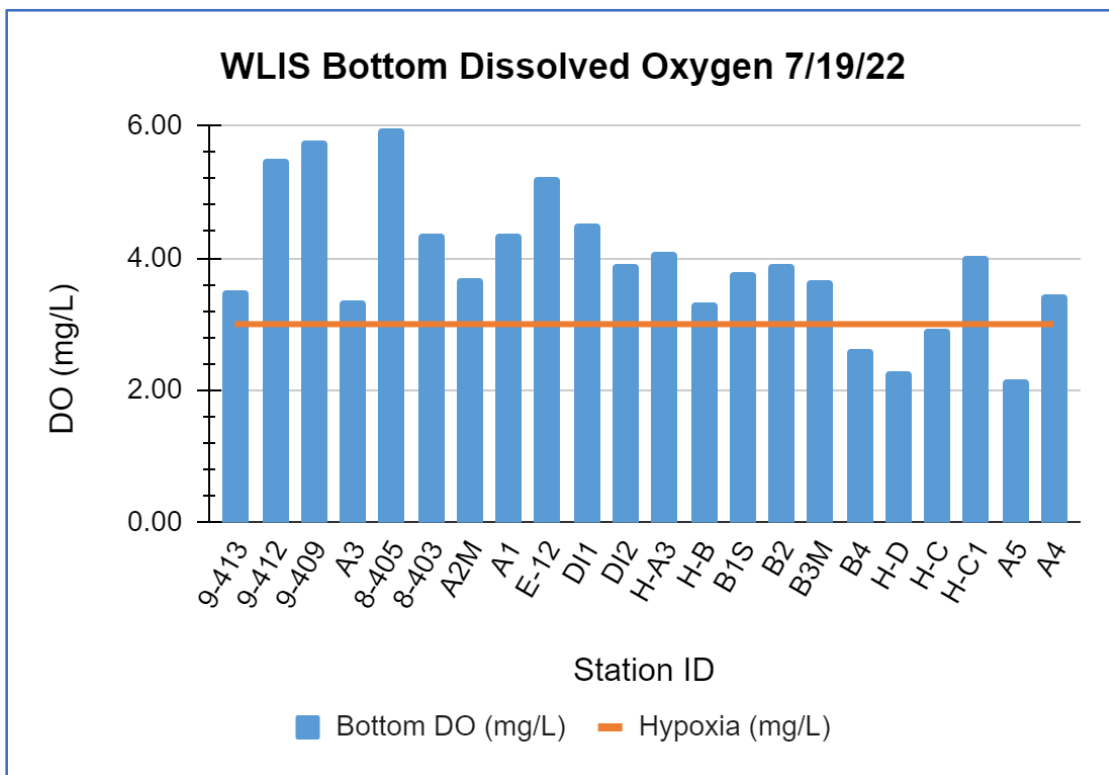
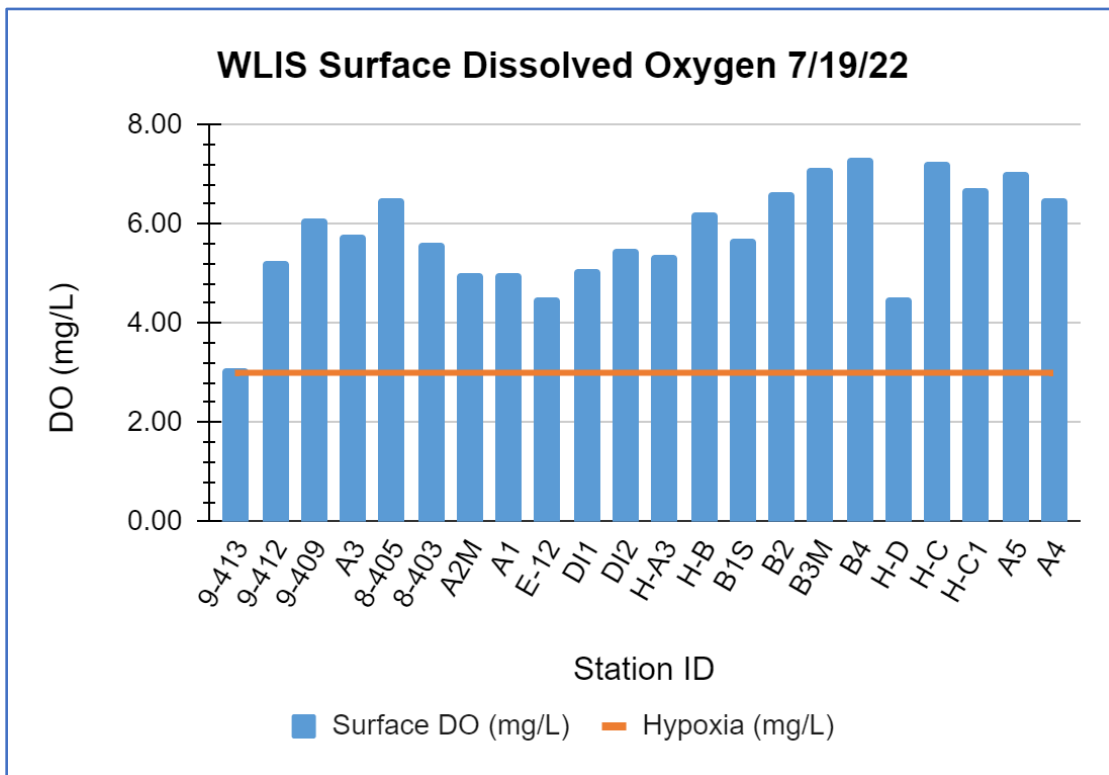
<b>Hypoxia (DO &lt; 3.00 mg/L)</b>	<b>Four stations exhibited hypoxia at bottom depths:</b> Mid-LIS Waters – A5 and B4 Hempstead Harbor – H-C and H-D
<b>Lowest surface DO concentration</b>	3.10 mg/L (Station 9-413 in Manhasset Bay)
<b>Lowest bottom DO concentration</b>	2.16 mg/L (Station A5 in Mid-LIS Waters)
<b>Average surface DO concentration</b>	5.82 mg/L
<b>Average bottom DO concentration</b>	3.93 mg/L
<b>Average surface water temperature</b>	22.12 °C
<b>Average bottom water temperature</b>	20.53 °C
<b>Average water column ΔT</b>	1.59 °C
<b>Average surface salinity</b>	26.14 ppt
<b>Average bottom salinity</b>	26.83 ppt
<b>Lowest surface pH</b>	7.17 (Station 9-413 in Manhasset Bay)
<b>Lowest bottom pH</b>	7.20 (Station 9-413 in Manhasset Bay)
<b>Average surface pH</b>	7.62
<b>Average bottom pH</b>	7.41

### Survey #4 Narrative Summary

The survey began at 05:44 and ended at 09:05, with high tide at 04:30 and 04:23 at New Rochelle, NY and Kings Point, NY, respectively. The weather was partly cloudy throughout the survey, average air temperature was 79 °F, and percent cloud cover measured approximately 0 to 70% across all stations. The weather station at LaGuardia Airport reported 0.10" and 0.34" of precipitation for the 24- and 48-hour period prior to the start of the survey, respectively. Secchi disk measurements ranged from 3.0 ft in Little Neck Bay to 6.5 ft in the Mid-LIS waters, along the Westchester Shoreline, and in Hempstead Harbor.

**There was an estimated 10 million gallon sewage discharge event by a Mamaroneck wastewater treatment plant into the Long Island Sound due to weather conditions. The discharge was partially treated with disinfection and started 7/18/22 at 4PM (Source: NY Alert). Stations H-A3 and H-B were closest to this area.**

**Four stations exhibited hypoxia (DO < 3 mg/L) at bottom depths – H-C and H-D in Hempstead Harbor and A5 and B4 in the Mid-LIS Waters. No stations exhibited hypoxia at surface depth.**



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