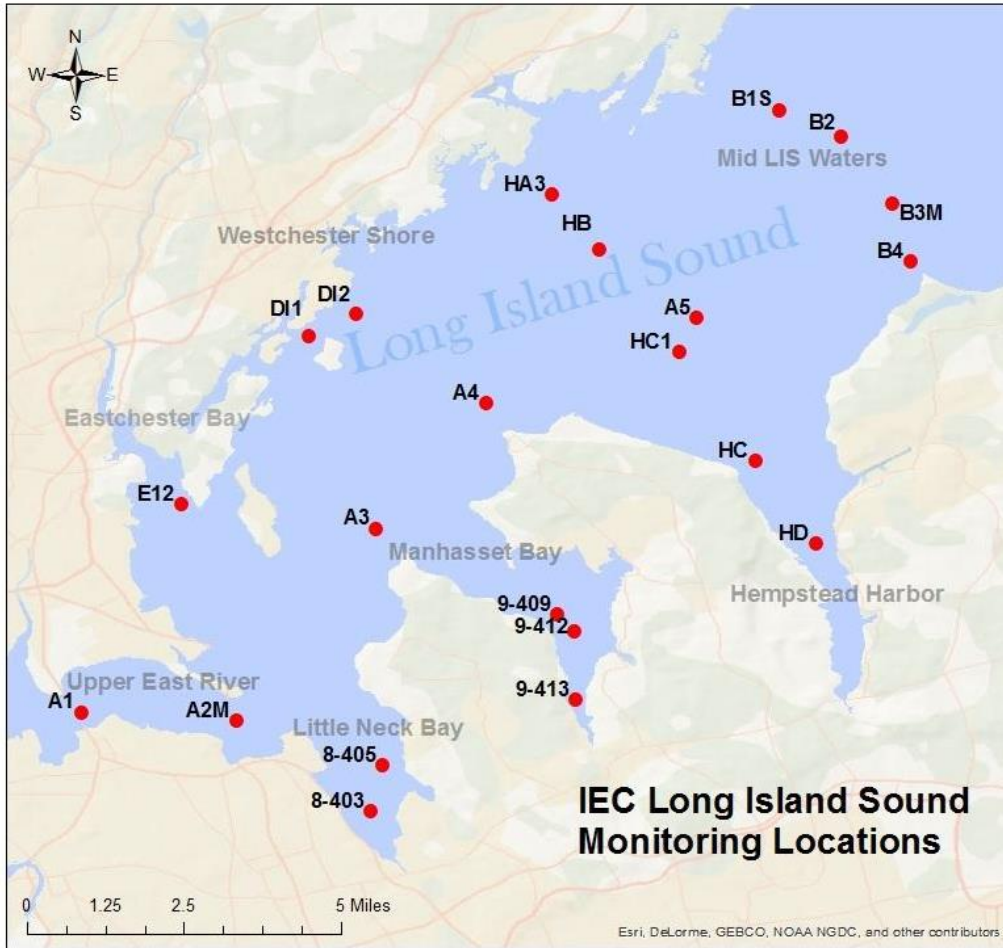




**Western Long Island Sound Monitoring
2021 Summer Survey Bi-Weekly Summary
Surveys #11 & #12**

Survey Dates: September 10, 2021 & September 14, 2021



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 31st consecutive summer of weekly ambient monitoring surveys in western Long Island Sound and the upper East River on Thursday, July 1, 2021

Throughout summer 2021, 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. Measurements at each station are taken half a meter below the surface, at mid-depth, and half a meter above the bottom. 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.

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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 2021 Summer Schedule		
Date	Survey Number	Parameters
7/1/2021	1	<i>In situ</i> parameters only
7/7/2021	2	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
7/13/2021	3	<i>In situ</i> parameters only
7/22/2021	4	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
7/27/2021	5	<i>In situ</i> parameters only
8/3/2021	6	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
8/10/2021	7	<i>In situ</i> parameters only
8/17/2021	8	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
8/25/2021	9	<i>In situ</i> parameters only
8/31/2021	10	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
9/10/2021	11	<i>In situ</i> parameters only
9/14/2021	12	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS

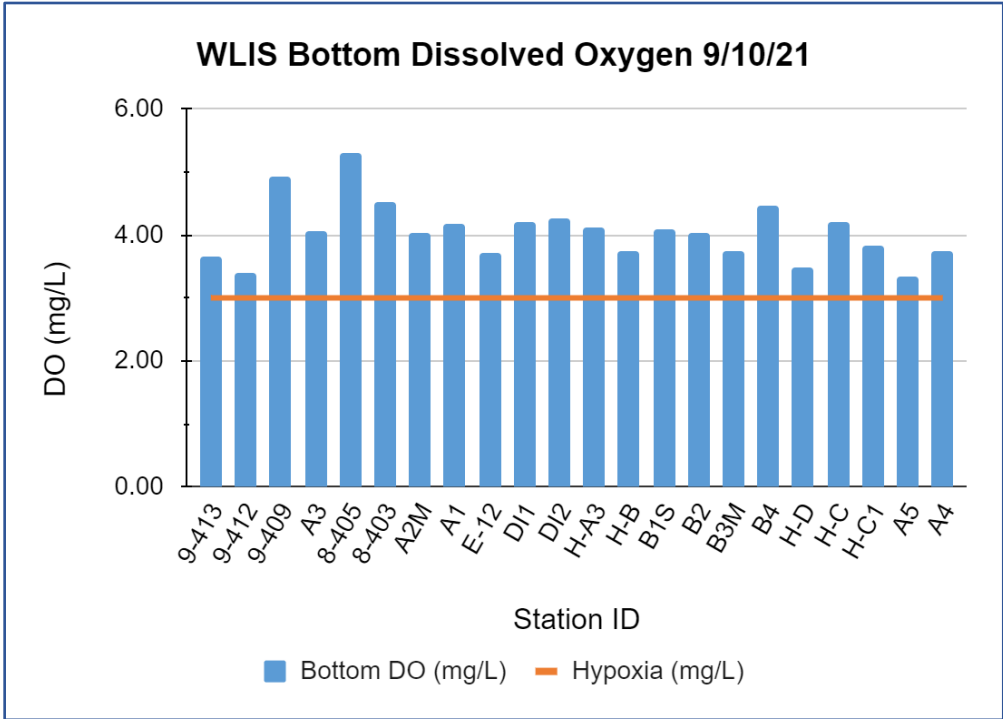
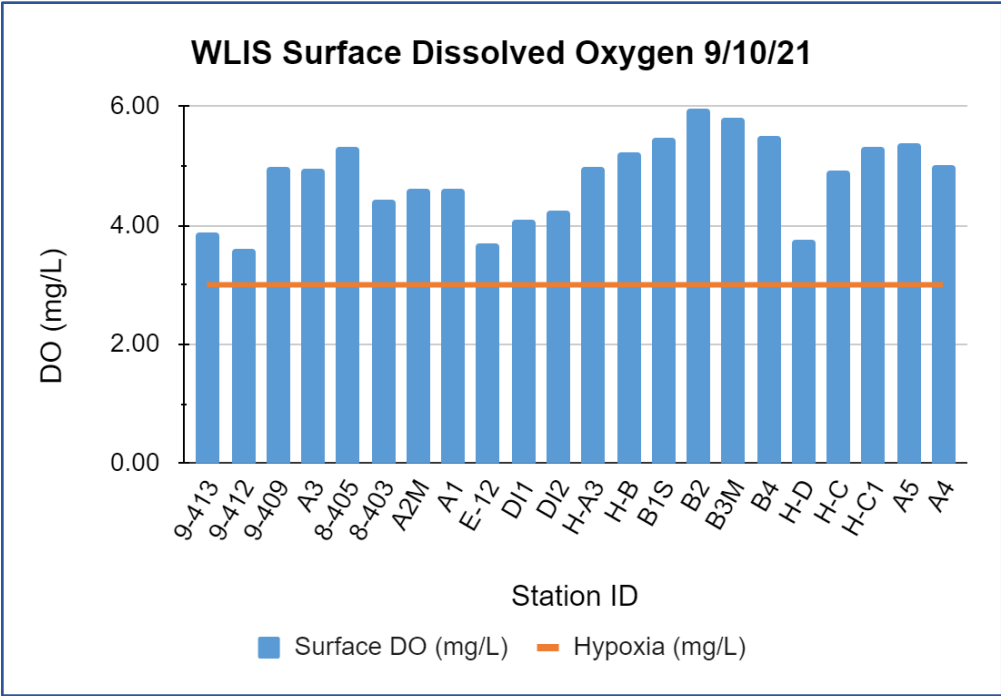


SURVEY #11 AT A GLANCE 09/10/2021

Hypoxia (DO <3.00 mg/L)	<i>No stations exhibited hypoxia!</i> 😊
Lowest surface DO concentration	3.60 mg/L (Station 9-412 in Manhasset Bay)
Lowest bottom DO concentration	3.33 mg/L (Station A5 in the Mid-LIS waters)
Average surface DO concentration	4.81 mg/L
Average bottom DO concentration	4.05 mg/L
Average surface water temperature	22.80 °C
Average bottom water temperature	22.82 °C
Average water column ΔT	0.02 °C
Average surface salinity	25.34 ppt
Average bottom salinity	25.91 ppt

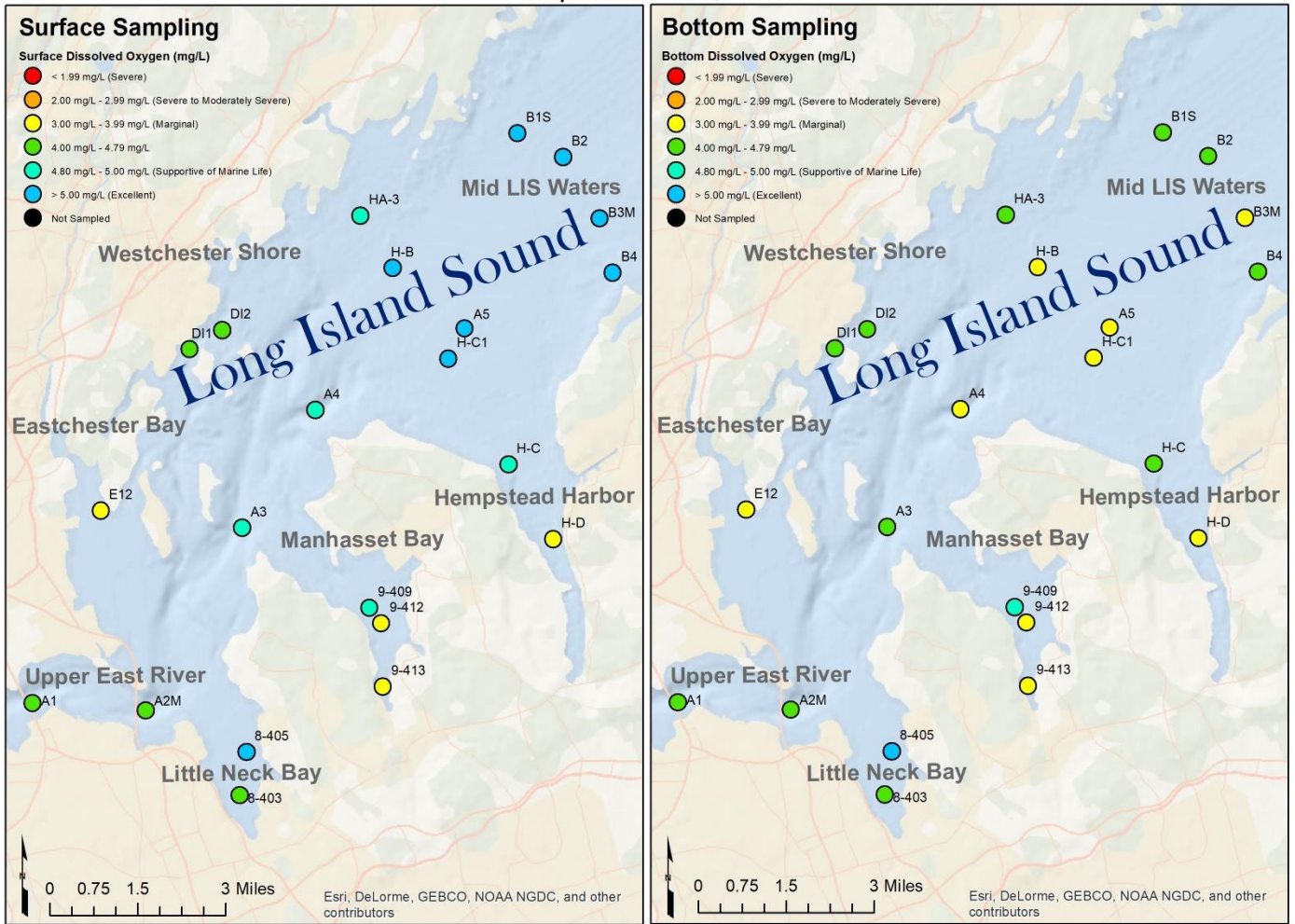
Survey #11 Narrative Summary

The 11th weekly summer survey took place on Friday, September 10th, 2021, which was over a week after **Hurricane Ida** became a post-tropical cyclone as it hit the Northeastern US and New England on September 1st, 2021 ([Source: NOAA National Hurricane Center](#)). The survey began at 06:08 and ended at 10:41, with low tide at 08:07 and 07:49 at Kings Point, NY and New Rochelle, NY, respectively. Cloud cover was estimated to be 0 to 5% across all stations. The weather station at LaGuardia Airport reported 0.19 and 0.29 inches of precipitation for the 24 and 48-hour period prior to the start of the survey, respectively, and no precipitation occurred during the survey. Secchi disk measurements ranged from 2.5 ft in Little Neck Bay to 7.0 ft in the Mid-LIS waters. The weather conditions were very windy with clear skies, and we experienced rough waters that reached a maximum of 2 ft waves. These weather and sea conditions caused substantial mixing throughout the water column, which may have been a large contributing factor to why ***we did not observe hypoxic conditions during this weekly survey***. This may also explain the small difference in 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 Western Long Island Sound Sampling
September 10, 2021

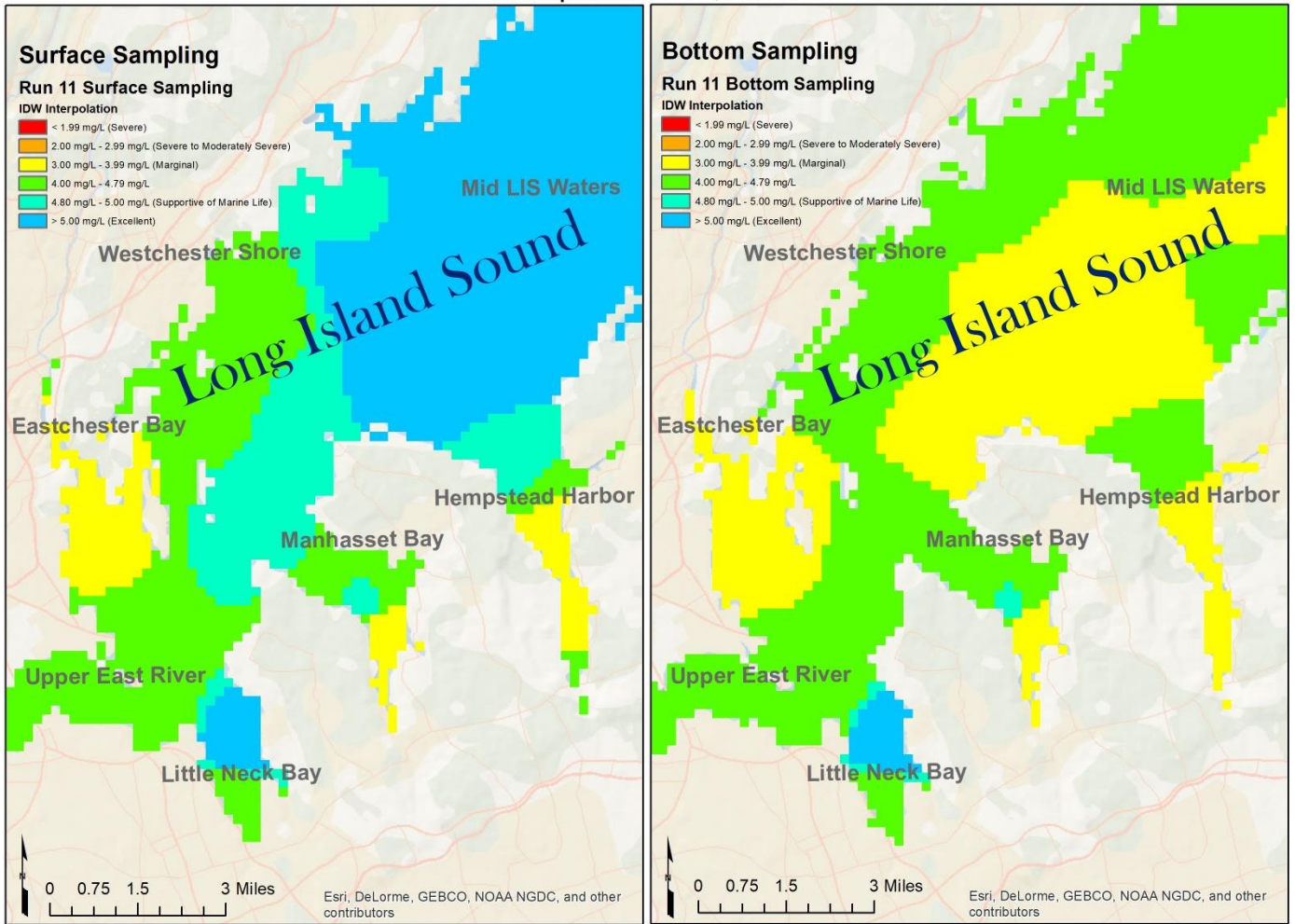


Map by: Jessica Bonamusa

Interstate Environmental Commission

Map Made: 9/20/21

Interstate Environmental Commission Western Long Island Sound Sampling
September 10, 2021



Map by: Jessica Bonamusa

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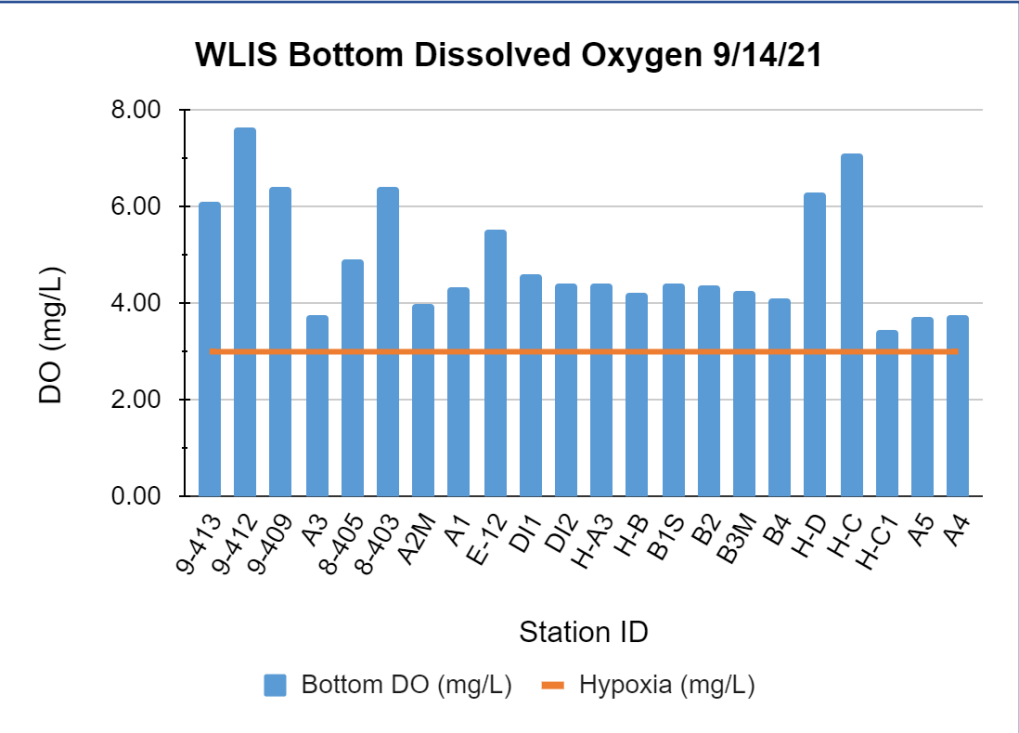
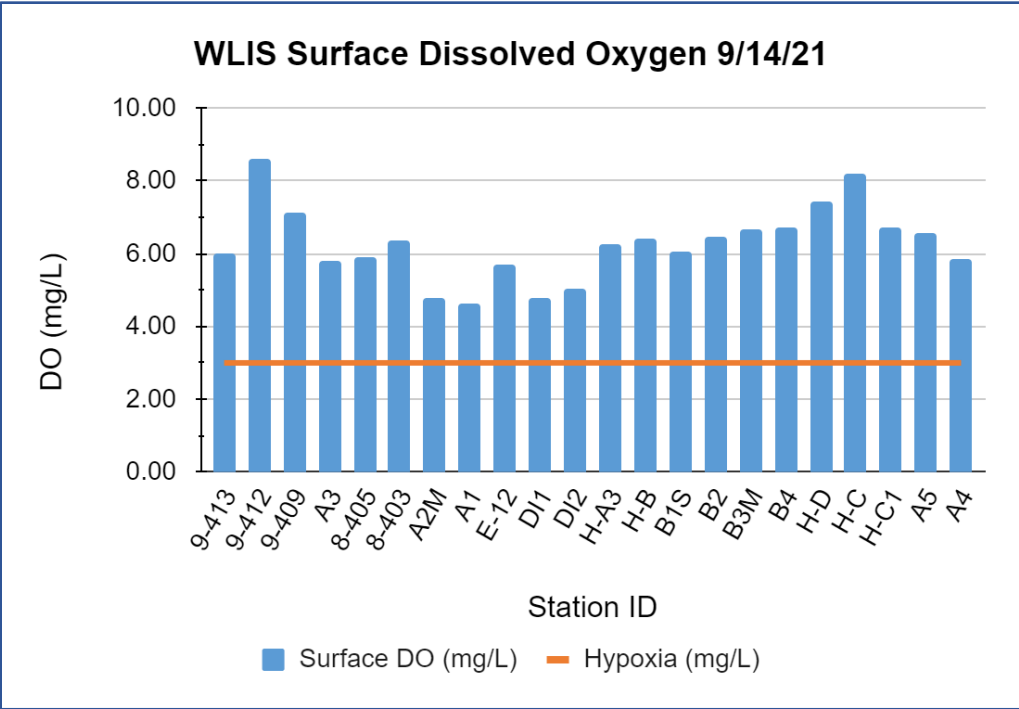
Map Made: 9/20/21

SURVEY #12 AT A GLANCE 09/14/2021

Hypoxia (DO <3.00 mg/L)	<i>No stations exhibited hypoxia!</i> 😊
Lowest surface DO concentration	4.61 mg/L (Station A1 in Upper East River)
Lowest bottom DO concentration	3.46 mg/L (Station H-C1 in the Mid-LIS waters)
Average surface DO concentration	4.81 mg/L
Average bottom DO concentration	4.05 mg/L
Average surface water temperature	23.04 °C
Average bottom water temperature	22.94 °C
Average water column ΔT	0.09 °C
Average surface salinity	25.72 ppt
Average bottom salinity	26.45 ppt

Survey #12 Narrative Summary

Weekly summer survey #12, the last weekly survey of the season, took place on Tuesday, September 14th, 2021. The survey began at 06:06 and ended at 09:36, and high tide occurred at 05:44 and 05:28 at Kings Point, NY and New Rochelle, NY, respectively. The weather was partly cloudy throughout the survey, and percent cloud cover was estimated to be 0 to 80% across all stations. The weather station at LaGuardia Airport reported 0.03 inches of precipitation for the 48-hour period prior to the start of the survey, and no precipitation occurred during the survey. Secchi disk measurements ranged from 1.5 ft Manhasset Bay to 8.5 ft in the Mid-LIS waters. ***No stations exhibited hypoxia during this weekly survey.*** However, we did observe **many dead bunker (Menhaden) fish in Manhasset Bay**, specifically around station 9-409 and the Manhasset Bay marina.



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

Interstate Environmental Commission Western Long Island Sound Sampling
September 14, 2021



Map by: Jessica Bonamusa



Interstate Environmental Commission

Map Made: 9/20/21

Interstate Environmental Commission Western Long Island Sound Sampling
September 14, 2021

