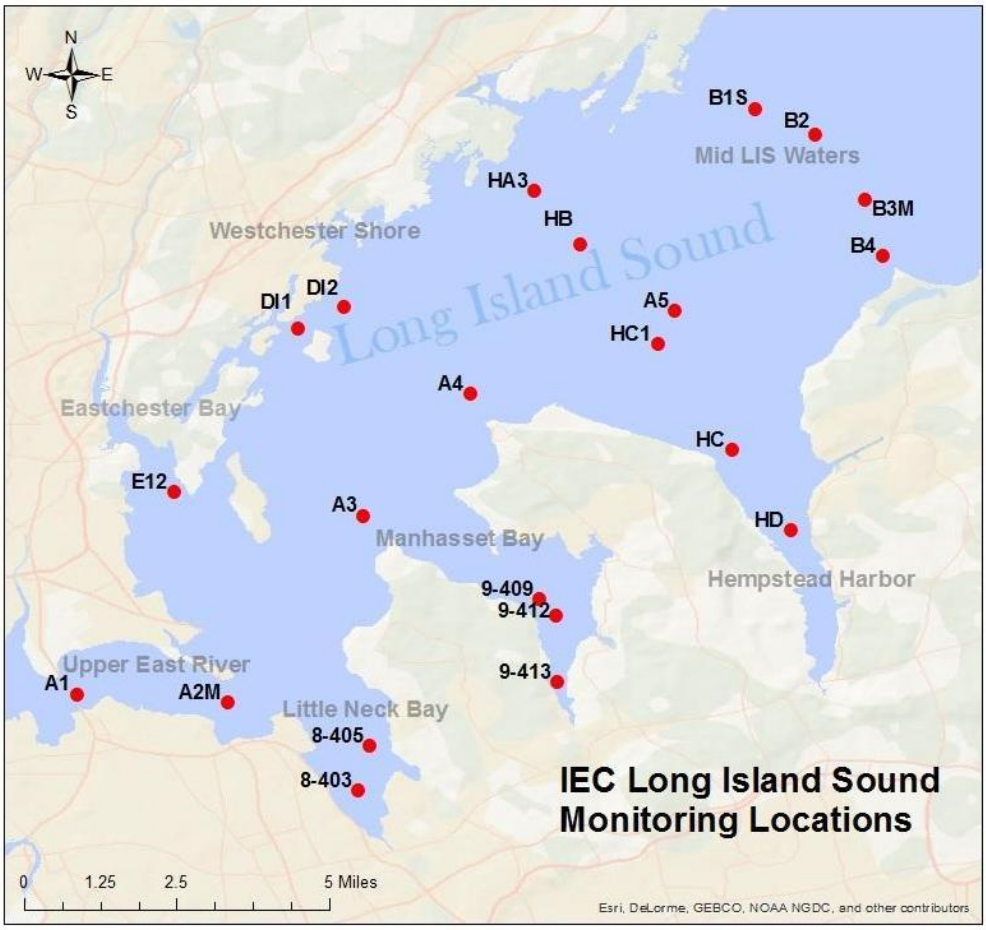
Western Long Island Sound Monitoring
2025 Summer Survey Biweekly Summary
Surveys #3 & #4
Survey Dates: July 8, 2025 & July 18, 2025



STATION	LATITUDE	LONDITUDE
8-403	40.7778	-73.7608
8-405	40.7888	-73.7582
9-409	40.8240	-73.7175
9-412	40.8200	-73.7135
9-413	40.8041	-73.7133
A1	40.8013	-73.8045
A2M	40.7992	-73.7913
A3	40.8433	-73.7590
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
E-12	40.8487	-73.8045
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

Table 1. List of IEC Western Long Island Sound sampling station coordinates in decimal degrees

As a part of the Long Island Sound Partnership's ongoing water quality monitoring program, IEC started its 35th consecutive summer of weekly ambient monitoring surveys in western Long Island Sound and the upper East River on Tuesday, June 24th, 2025.

Interstate Environmental Commission
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Throughout the summer of 2025, IEC staff will perform 12 weekly surveys at each of the 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.

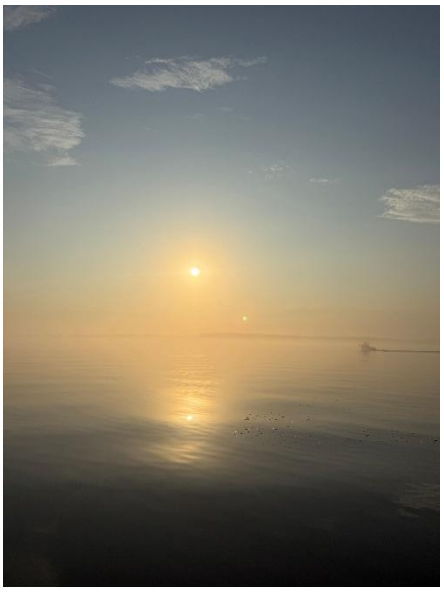
The 12 surveys include weekly *in situ* measurements of water temperature, salinity, dissolved oxygen, pH, turbidity, and Secchi disk depth. Measurements at each station are taken half a meter below the surface, at mid-depth, and half a meter above the bottom.

Biweekly surveys will include collection of additional samples for parameters relevant to hypoxia at 11 of the 22 stations (stations listed in **bold** in Table 1). 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, Total Dissolved Nitrogen, Orthophosphate/DIP, Total Dissolved Phosphorus, Particulate Phosphorus, Dissolved Organic Carbon, Particulate Carbon, Dissolved Silica, and Biogenic Silica.

In October 2022, IEC also began collecting dissolved inorganic carbon (DIC) and Total Alkalinity samples to monitor coastal acidification. In aquatic ecosystems, **DIC** acts as a source of carbon for photosynthesis and has a function in controlling the pH. Increased atmospheric CO_2 gas may lead to coastal acidification, which can pose a significant threat to marine life, including calcifying organisms like corals and shellfish that make hard shells and skeletons by combining calcium and carbonate from seawater. **Total Alkalinity** is the capacity of water to resist (buffer against) a change in pH when acidity is added. As CO_2 from the atmosphere and from decay of algal blooms increases in LIS, Total Alkalinity guards against pH changes and coastal acidification.

Proposed 2025 Summer Schedule		
Date	**Survey Number**	**Parameters**
06/24/2025	**1**	***In situ,* nutrients, chlorophyll a, BOD, TSS, Total Alkalinity**
07/01/2025	**2**	***In situ* parameters only**
07/08/2025	**3**	***In situ,* nutrients, chlorophyll a, BOD, TSS, Total Alkalinity**
07/18/2025	**4**	***In situ* parameters only**
07/22/2025	5	*In situ,* nutrients, chlorophyll a, BOD, TSS, Total Alkalinity
07/29/2025	6	*In situ* parameters only
08/05/2025	7	*In situ,* nutrients, chlorophyll a, BOD, TSS, Total Alkalinity
08/12/2025	8	*In situ* parameters only
08/19/2025	9	*In situ,* nutrients, chlorophyll a, BOD, TSS, Total Alkalinity
08/26/2025	10	*In situ* parameters only
09/03/2025	11	*In situ,* nutrients, chlorophyll a, BOD, TSS, Total Alkalinity
09/09/2025	12	*In situ* parameters only



Dense fog at A3 during Survey #3

Osprey at its nest near DI1 during Survey #4

SURVEY #3 AT A GLANCE 07/08/2025

Hypoxia (DO < 3.00 mg/L)	**1 station exhibited hypoxia at surface depth:** Manhasset Bay – 9-413 **3 stations exhibited hypoxia at bottom depth:** Manhasset Bay – 9-413 Hempstead Harbor – H-C, H-D
Lowest surface DO concentration	0.96 mg/L (Station 9-413 in Manhasset Bay)
Lowest bottom DO concentration	0.95 mg/L (Station 9-413 in Manhasset Bay)
Average surface DO concentration	6.71 mg/L
Average bottom DO concentration	4.02 mg/L
Average surface water temperature	22.20 ℃
Average bottom water temperature	18.63 ℃
Average water column ΔT (Surface-Bottom)	3.57 ℃
Average surface salinity	25.34 ppt
Average bottom salinity	26.06 ppt
Lowest surface pH	6.98 S.U. (Station 9-413 in Manhasset Bay)
Lowest bottom pH	6.99 S.U. (Station 9-413 in Manhasset Bay)
Average surface pH	7.66 S.U.
Average bottom pH	7.37 S.U.

Survey #3 Narrative Summary

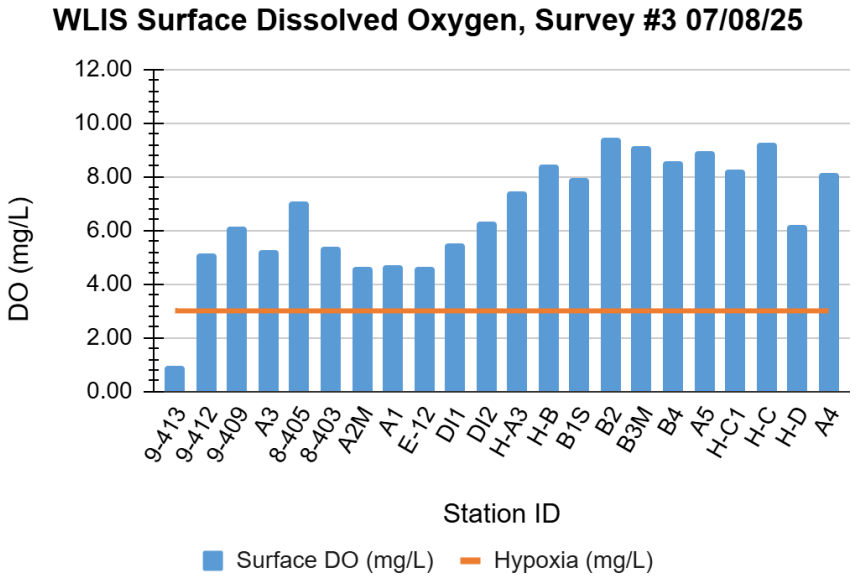
This survey began at 06:04 and ended at 10:46 with the most recent low tide at 04:47 and 05:05 at New Rochelle, NY and Kings Point, NY, respectively. The weather conditions were partly cloudy, with cloud coverage varying between 0% and 80% throughout the survey. Air temperatures increased from 78°F to 90°F. The National Weather Service observations from LaGuardia Airport reported a total of 0.00" of precipitation during the 24- and 48-hour periods prior to the start of the survey. Secchi disk measurements ranged from 0.5 meters to 1.25 meters.

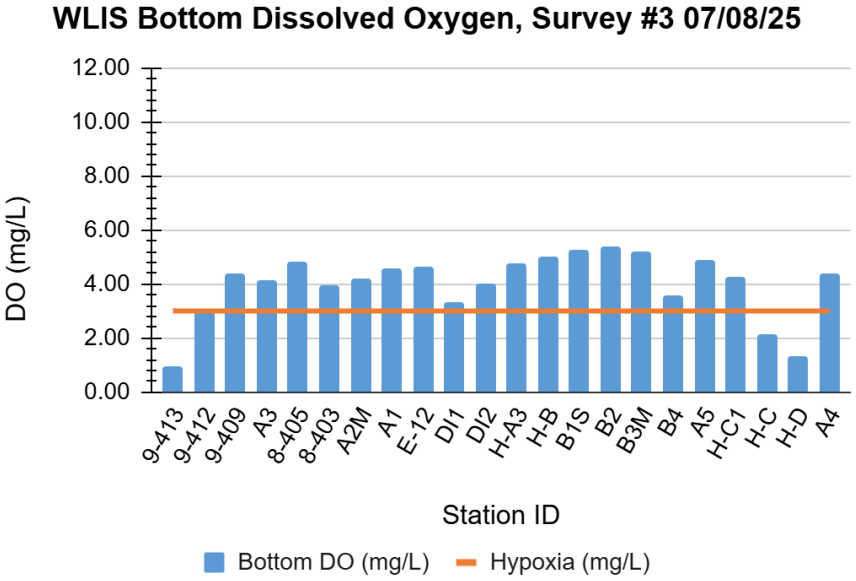
One station exhibited hypoxia at surface depth and three stations exhibited hypoxia at bottom depth. In comparison, there was also one station at surface depth and two stations at bottom depth that exhibited hypoxia during Survey #3 in 2024. **Average surface and bottom DO were *lower* during this survey compared to Survey #3 in 2024.** Average Surface DO: 6.71 mg/L in 2025 vs 7.23 mg/L in 2024. Average Bottom DO: 4.02 mg/L in 2025 vs 4.21 mg/L in 2024.

Average surface and bottom water temperatures were *lower* compared to the averages for Survey #3 in 2024. Average Surface Temperature: 22.20 ℃ in 2025 vs 23.17 ℃ in 2024. Average Bottom Temperature: 18.63 ℃ in 2025 vs 19.62 ℃ in 2024.

Average surface and bottom salinity were *higher* compared to the averages for Survey #3 in 2024. Average Surface Salinity: 25.34 ppt in 2025 vs 24.93 ppt in 2024. Average Bottom Salinity: 26.06 ppt in 2025 vs 25.40 ppt in 2024.

Average surface pH was *lower* compared to Survey #3 in 2024, while average bottom pH was *higher*. Average Surface pH: 7.66 in 2025 vs 7.68 in 2024. Average Bottom pH: 7.37 in 2025 vs 7.34 in 2024.

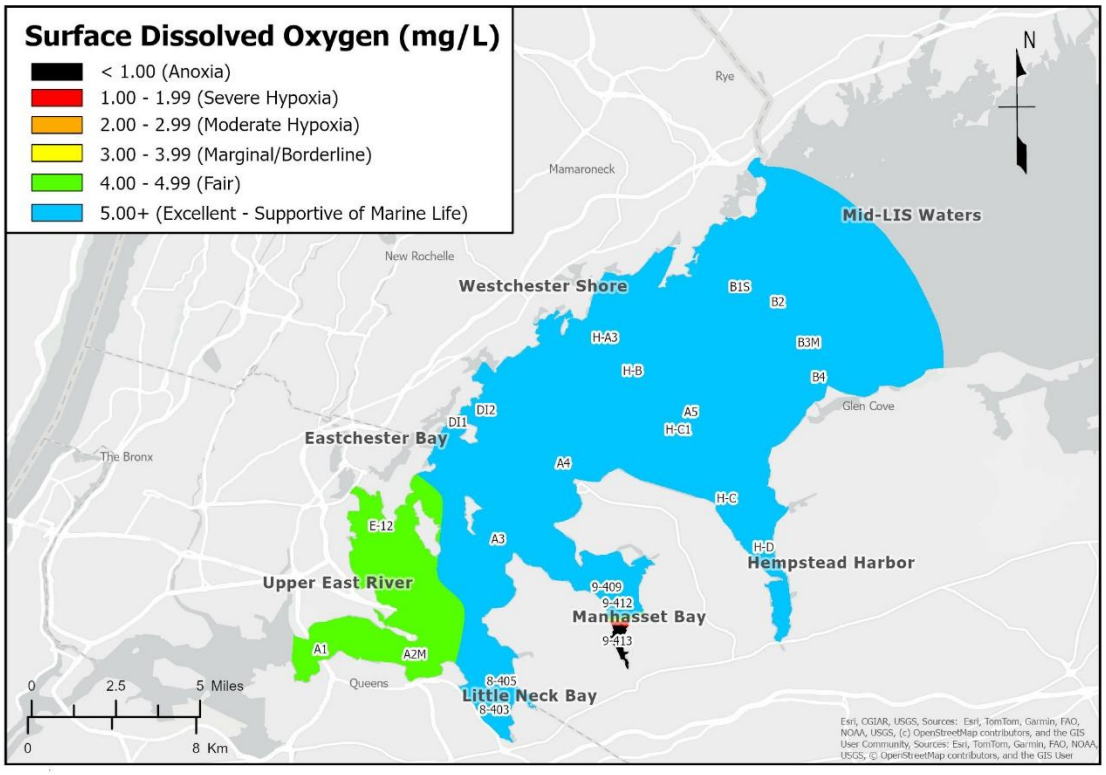


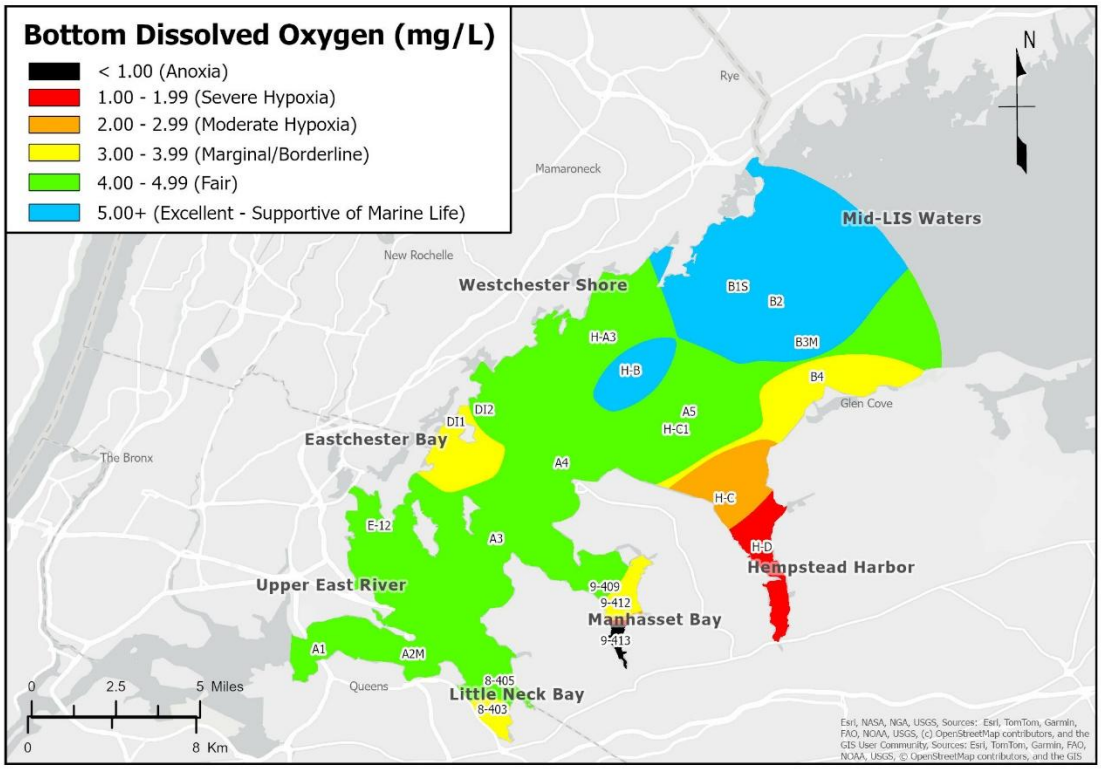


The Long Island Sound Partnership defines hypoxia as DO values which are below a concentration of 3.00 mg/L.

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

Weekly Survey #3: July 8, 2025





IDW Interpolation, Power 10 | Map by: Samantha Wilder | Map made: 09/25/2025

SURVEY #4 AT A GLANCE 07/18/2025

Hypoxia (DO < 3.00 mg/L)	**No stations exhibited hypoxia at surface depths** **5 stations exhibited hypoxia at bottom depth:** Westchester Shoreline – DI1 Mid-LIS Waters – A2M, A3, B4, H-C1
Lowest surface DO concentration	3.42 mg/L (Station DI-1 on the Westchester Shoreline)
Lowest bottom DO concentration	2.52 mg/L (Station H-C1 in Mid-LIS Waters)
Average surface DO concentration	5.25 mg/L
Average bottom DO concentration	3.85 mg/L
Average surface water temperature	22.87 ℃
Average bottom water temperature	20.69 ℃
Average water column ΔT (Surface-Bottom)	2.18 ℃
Average surface salinity	25.46 ppt
Average bottom salinity	25.95 ppt
Lowest surface pH	7.24 S.U. (Station 9-413 in Manhasset Bay)
Lowest bottom pH	7.13 S.U. (Station 9-413 in Manhasset Bay)
Average surface pH	7.53 S.U.
Average bottom pH	7.38 S.U.

Survey #4 Narrative Summary

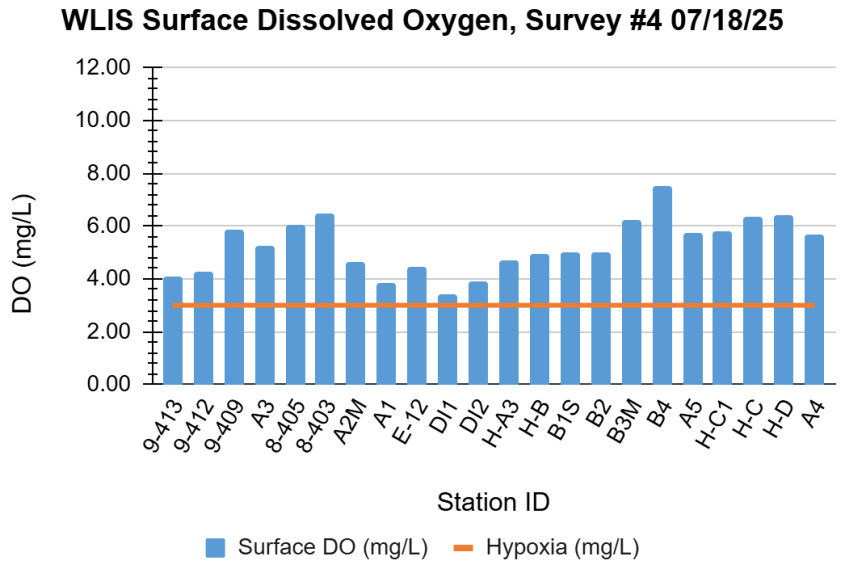
The survey began at 06:00 and ended at 10:25, with the most recent high tide at 05:05 and 05:21 at New Rochelle, NY and Kings Point, NY, respectively. The weather conditions were mostly cloudy with cloud coverage varying between 25% and 90% throughout the survey. The average air temperature was 76 °F. The weather station at LaGuardia Airport reported a total of 0.00” of precipitation for both the 24- and 48-hour periods prior to the start of the survey. Secchi disk measurements ranged from 0.5 meters to 2.0 meters.

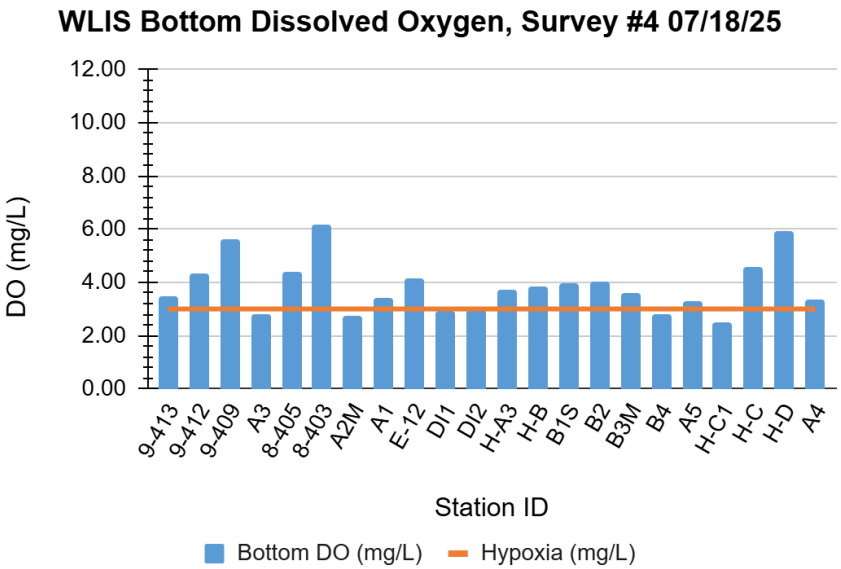
No stations exhibited hypoxia at surface depth and five stations were hypoxic at bottom depth. During Survey #4 in 2024, there were no hypoxic stations at surface depth, but 12 stations were hypoxic at bottom depth. **Average surface DO was *lower* and average bottom DO was *higher* this year compared to Survey #4 in 2024.** Average Surface DO: 5.25 mg/L in 2025 vs 6.97 mg/L in 2024. Average Bottom DO: 3.85 mg/L in 2025 vs 2.61 mg/L in 2024.

Average water temperatures were *lower* at surface depths and *higher* at bottom depths compared to Survey #4 in 2024. Average Surface Temperature: 22.87 ℃ in 2025 vs 23.05 ℃ in 2024. Average Bottom Temperature: 20.69 ℃ in 2025 vs 18.84 ℃ in 2024.

Average salinity was *higher* at surface depth and *lower* at bottom depth during this survey compared to Survey #4 in 2024. Average Surface Salinity: 25.46 ppt in 2025 vs 25.13 ppt in 2024. Average Bottom Salinity: 25.95 ppt in 2025 vs 26.12 ppt in 2024.

Average pH was *lower* at surface depth and *higher* at bottom depth during this survey compared to Survey #4 in 2024. Average Surface pH: 7.53 in 2025 vs 7.66 in 2024. Average Bottom pH: 7.38 in 2025 vs 7.23 in 2024.





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

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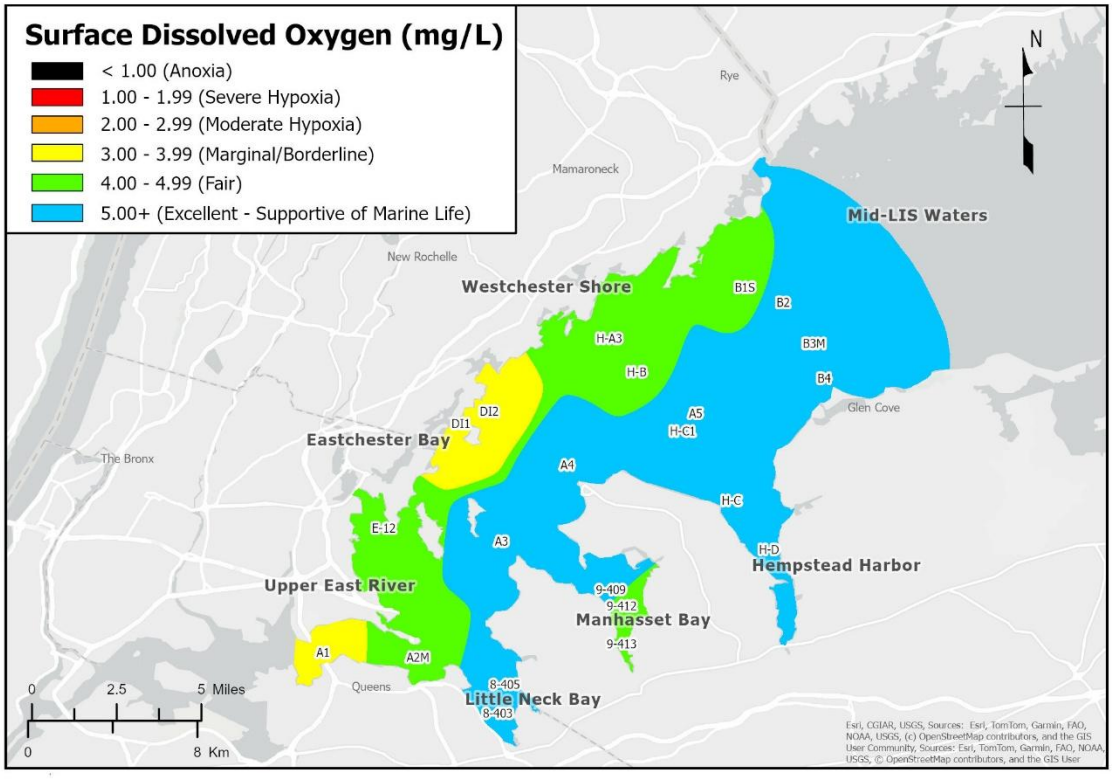
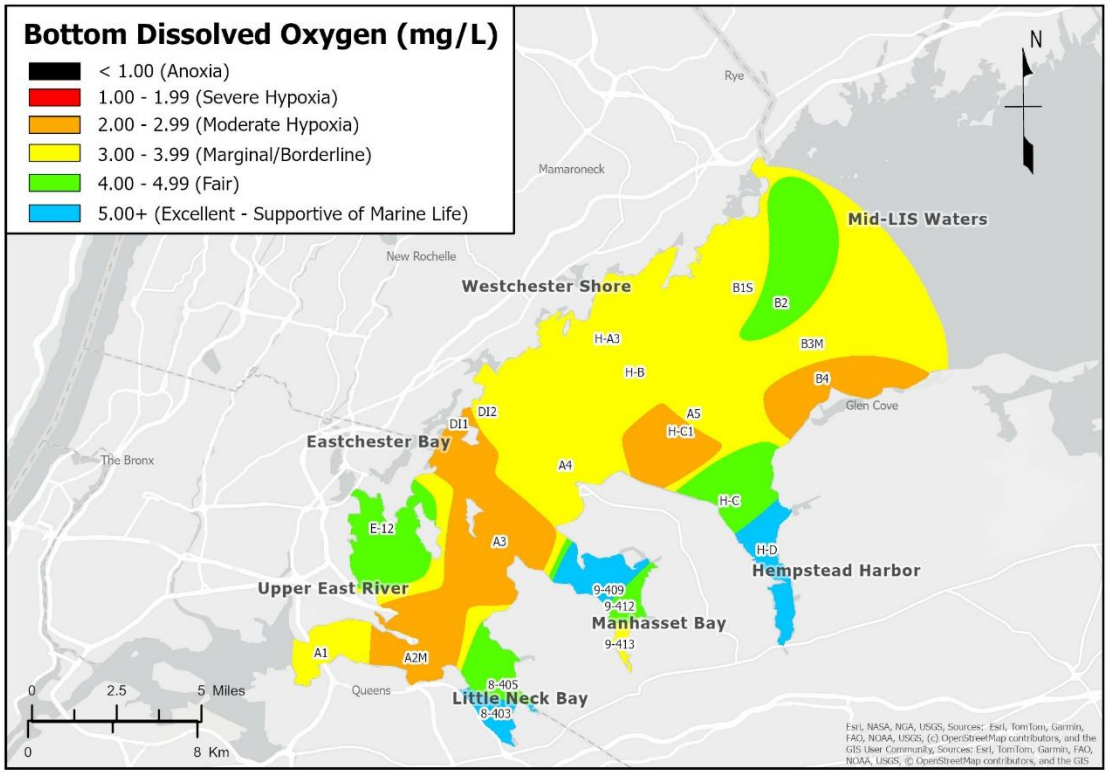
Weekly Survey #4: July 18, 2025





IDW Interpolation, Power 10 | Map by: Samantha Wilder | Map made: 09/25/2025