

**August 2018**

**Ambient Water Quality Monitoring in the Western Long Island Sound**

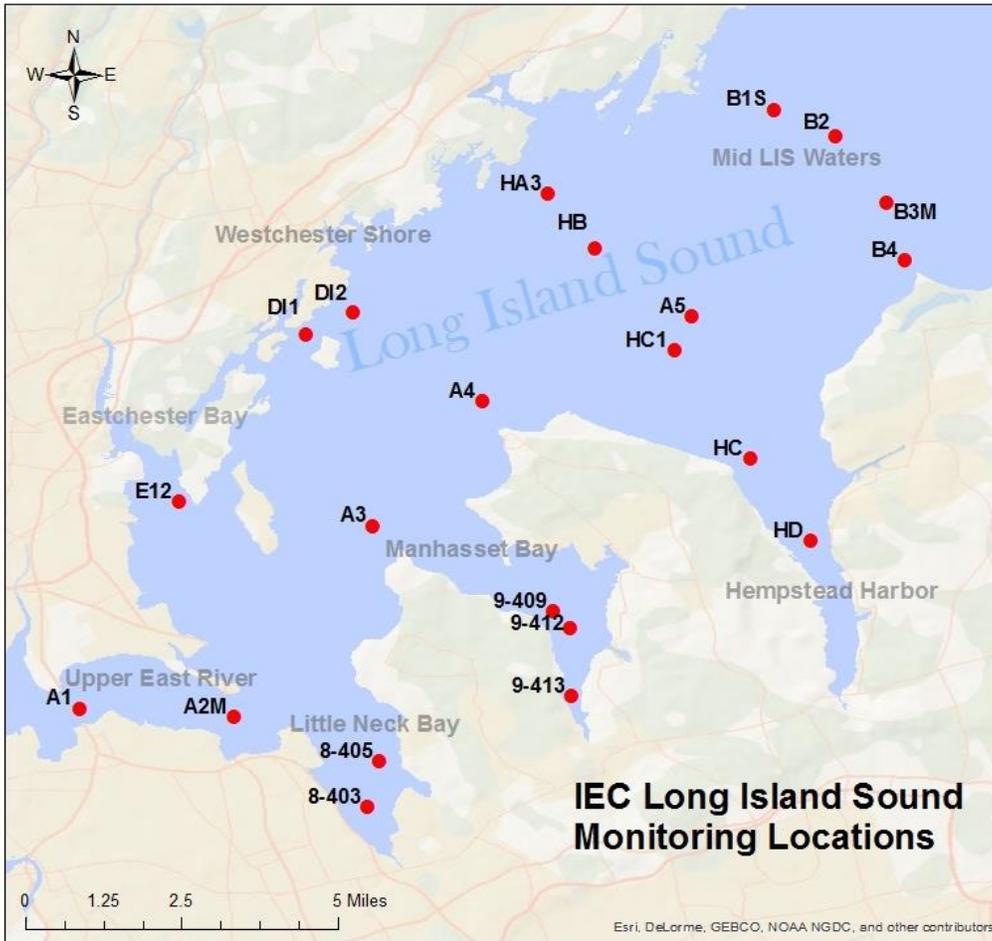
SURVEY 7: 8/7/2018

INVESTIGATION NUMBER: 17816

Steven Weber



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



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 its ongoing water pollution abatement program, NEIWPCC (IEC District) has started its 28th consecutive summer ambient monitoring survey in western Long Island Sound and the upper East River on Tuesday, June 26th.

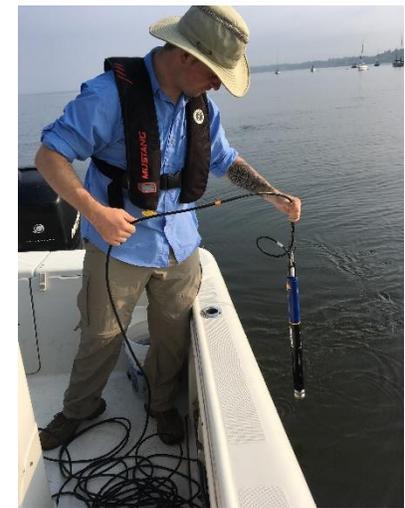
During the summer 2018, IEC staff will perform 12 weekly surveys each summer of 22 stations in the far western Long Island Sound. The 12 surveys will include weekly *in situ* measurements of water temperature, salinity, dissolved oxygen, pH, and Secchi disk depth. Measurements at each station will be taken one meter below the surface, at mid-depth, and one meter above the bottom. 6 of the 12 surveys will include collection of additional samples for parameters relevant to hypoxia at 11 of the 22 stations (station in **bold**). 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.

The specific 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.

NEIWPCC -IEC District  
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Date	Survey Number	Parameters
6/26/18	Long Island Sound 1	<i>In situ</i>
7/3/18	Long Island Sound 2 and Nutrients	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
7/10/18	Long Island Sound 3	<i>In situ</i>
7/17/18	Long Island Sound 4 and Nutrients	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
7/24/18	Long Island Sound 5	<i>In situ</i>
7/31/18	Long Island Sound 6 and Nutrients	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
8/7/18	Long Island Sound 7	<i>In situ</i>
8/14/18	Long Island Sound 8 and Nutrients	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
8/21/18	Long Island Sound 9	<i>In situ</i>
8/28/18	Long Island Sound 10 and Nutrients	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS
9/4/18	Long Island Sound 11	<i>In situ</i>
9/11/18	Long Island Sound 12 and Nutrients	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS



This summer, 12 surveys are scheduled between late June and mid-September and include sample collection for nutrients, chlorophyll *a*, biochemical oxygen demand (BOD), and total suspended solids (TSS) analysis.

Samples for chlorophyll *a* and TSS will be collected at each station during 6 of the 12 surveys (every other week starting 7/3/2018). Samples for nutrient and BOD analysis will be collected at 11 of the 22 stations during 6 of the 12 surveys (every other week starting 7/3/2018), which includes both embayment and open water locations.

### SURVEY # 7 AT A GLANCE

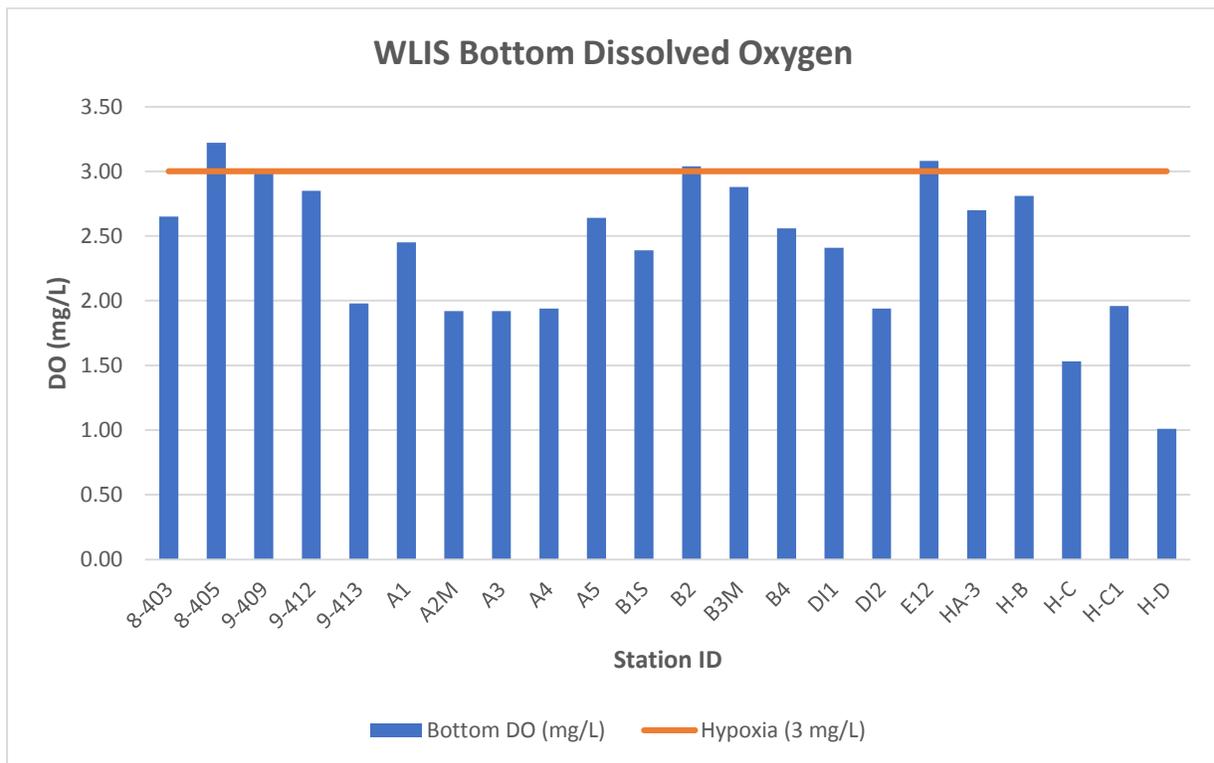
<b>Hypoxia (DO &lt;3.00 mg/L)</b>	Eighteen sites exhibited hypoxic conditions. (See Note A)
<b>Lowest Surface DO concentration</b>	3.17 mg/L
<b>Lowest bottom DO concentration</b>	1.01 mg/L
<b>Average surface DO concentration</b>	7.77 mg/L
<b>Average bottom DO concentration</b>	2.46 mg/L

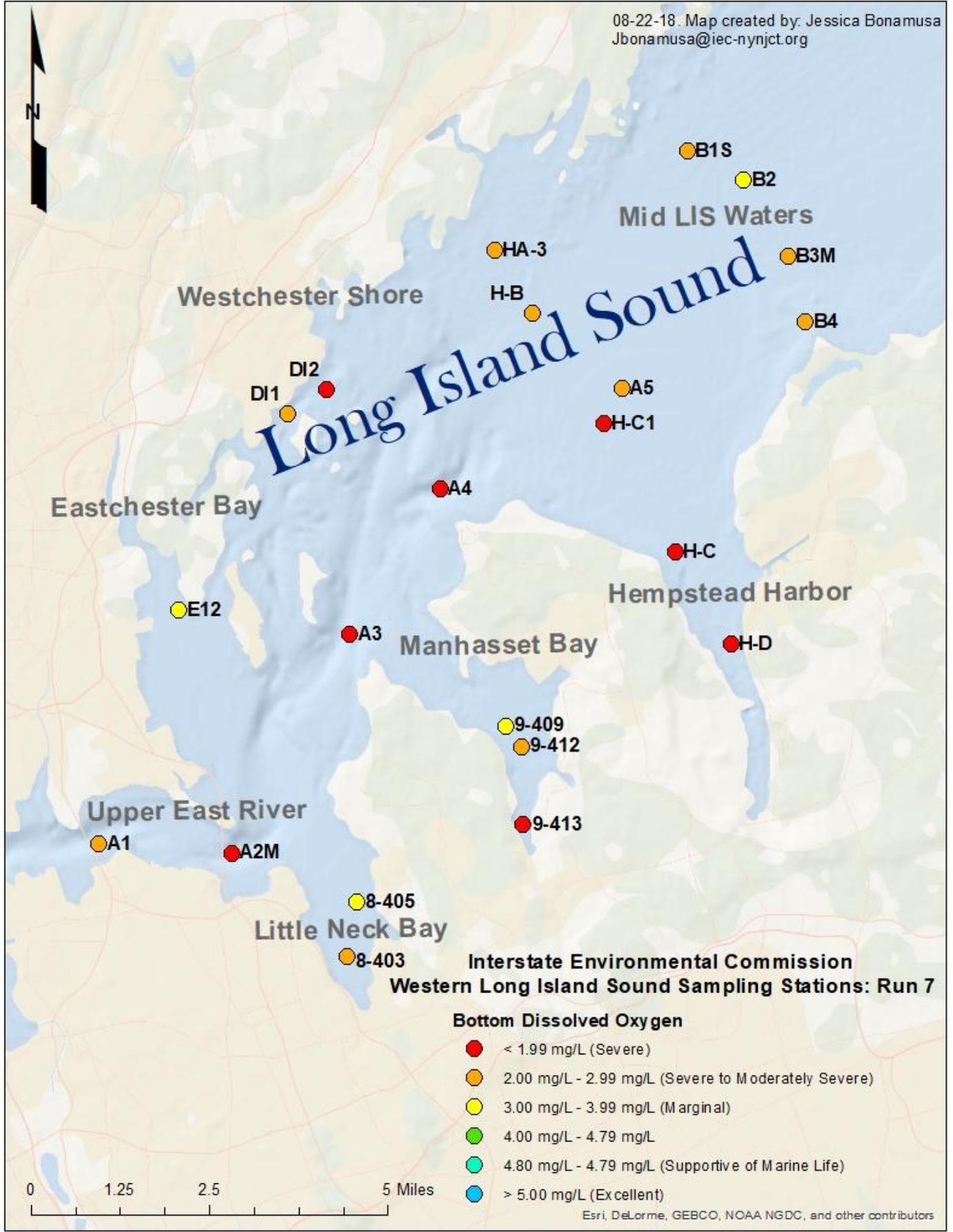
<b>Average surface water temperature</b>	24.36 °C
<b>Average bottom water temperature</b>	21.39 °C
<b>Average water column ΔT</b>	2.97 °C
<b>Average surface salinity</b>	26.85 ppt
<b>Average bottom salinity</b>	27.83 ppt

**\*\*NOTE A\*\*** Eighteen sites (9-413, 9-412, A3, 8-403, A2M, A1, DI1, DI2, H-A3, H-B, B1S, B3M, B4, H-D, H-C, H-C1, A5, A4) were found to be hypoxic at bottom depth. Eleven of these sites (9-413, A3, A2M, DI2, H-A3, H-B, B1S, B3M, B4, A4, B3M) also exhibited hypoxia at the middle of the water column. No sites exhibited hypoxia at the surface.

Atmospheric temperatures during the time of the survey ranged between 22.22°C and 26.67°C. The weather conditions were cloudy. The survey started at 06:03 and ended at 10:13, with low tide at 08:32 and high tide at 01:47 as per NOAA Tide at New Rochelle.

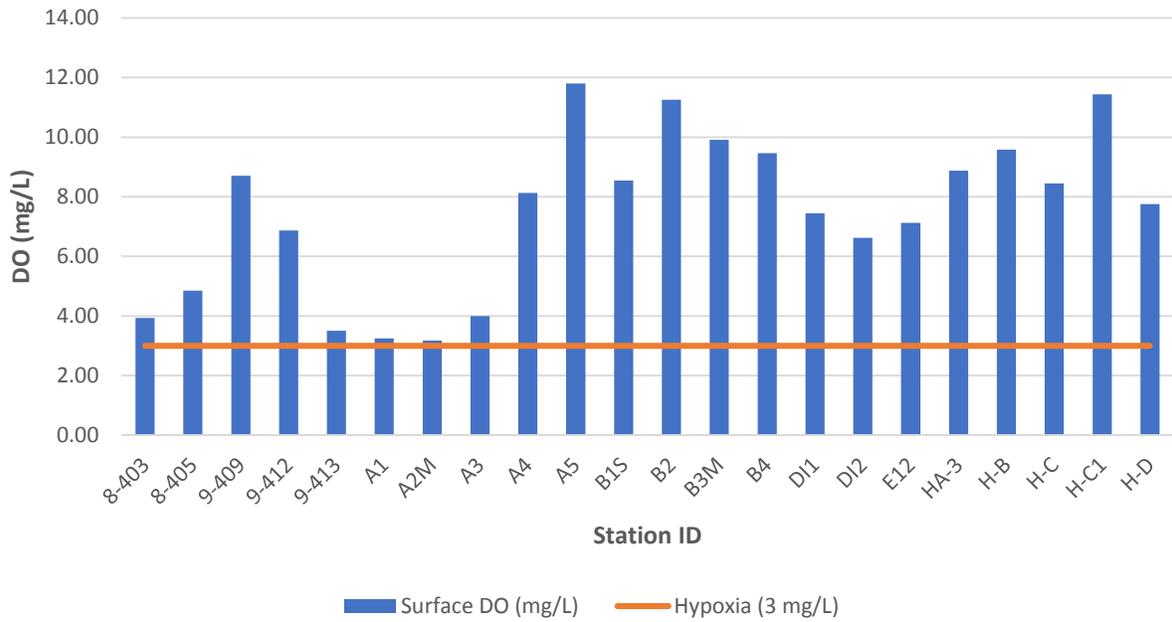
Marine organisms need oxygen to live, and low concentrations can have serious consequences for a marine ecosystem. Hypoxia occurs when dissolved oxygen (“DO”) concentrations become low. The Long Island Sound Study defines hypoxia as DO values which are below a concentration of 3.00 mg/L (EPA, 2000).

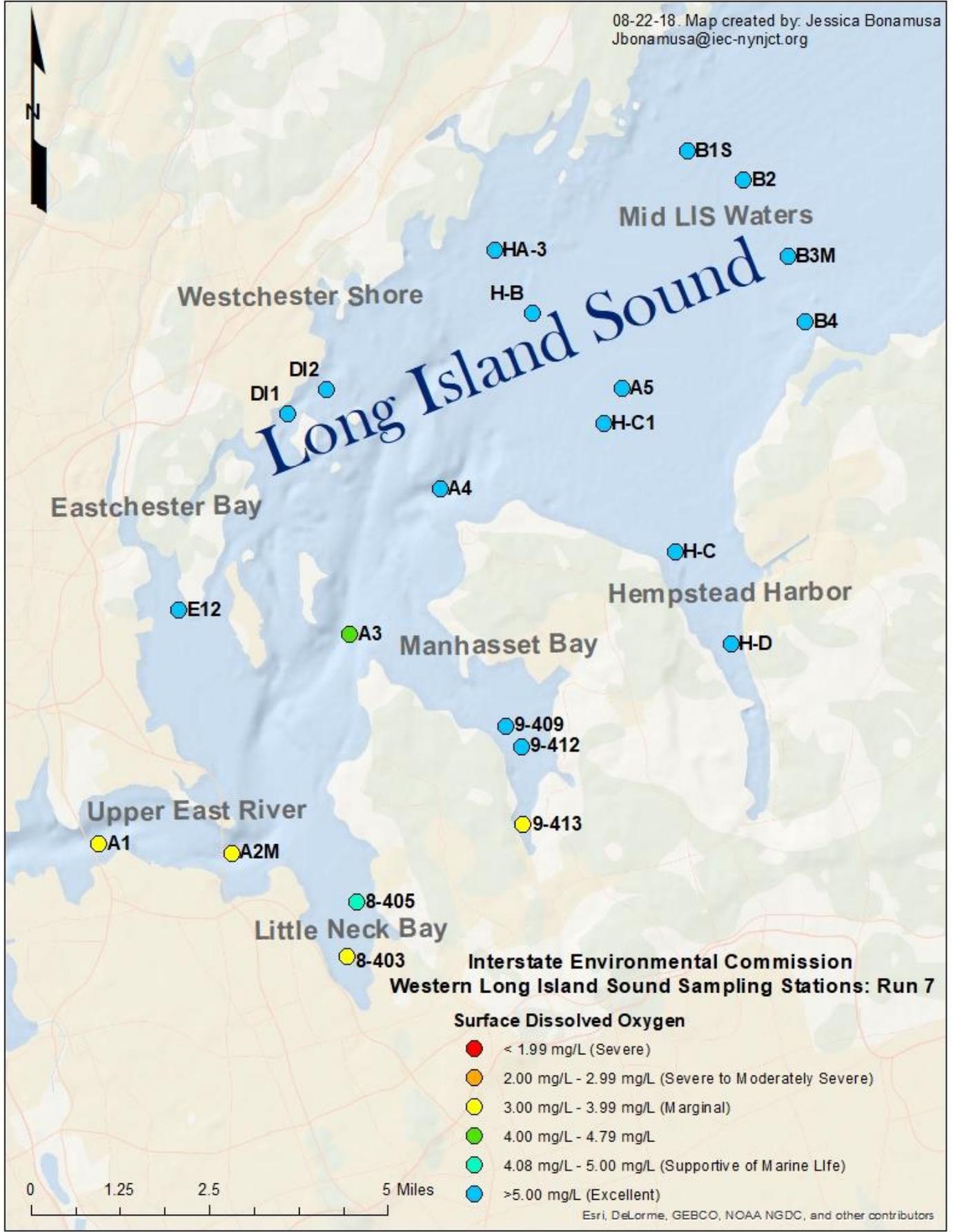




Long Island Sound

### WLIS Surface Dissolved Oxygen





## **SECCHI DISK DEPTH**

Secchi disk measurements ranged from 2.5 feet to 6.5 feet. The deepest readings were taken at stations A2M and A1. The shallowest readings were taken at stations 9-413 and 9-412.

## **CITATIONS**

US EPA. 2000. Ambient aquatic life water quality criteria for dissolved oxygen (saltwater): Cape Cod to Cape Hatteras. EPA-822-R-00-012. Office of Water, Washington, DC. p. 49.