

September 2018

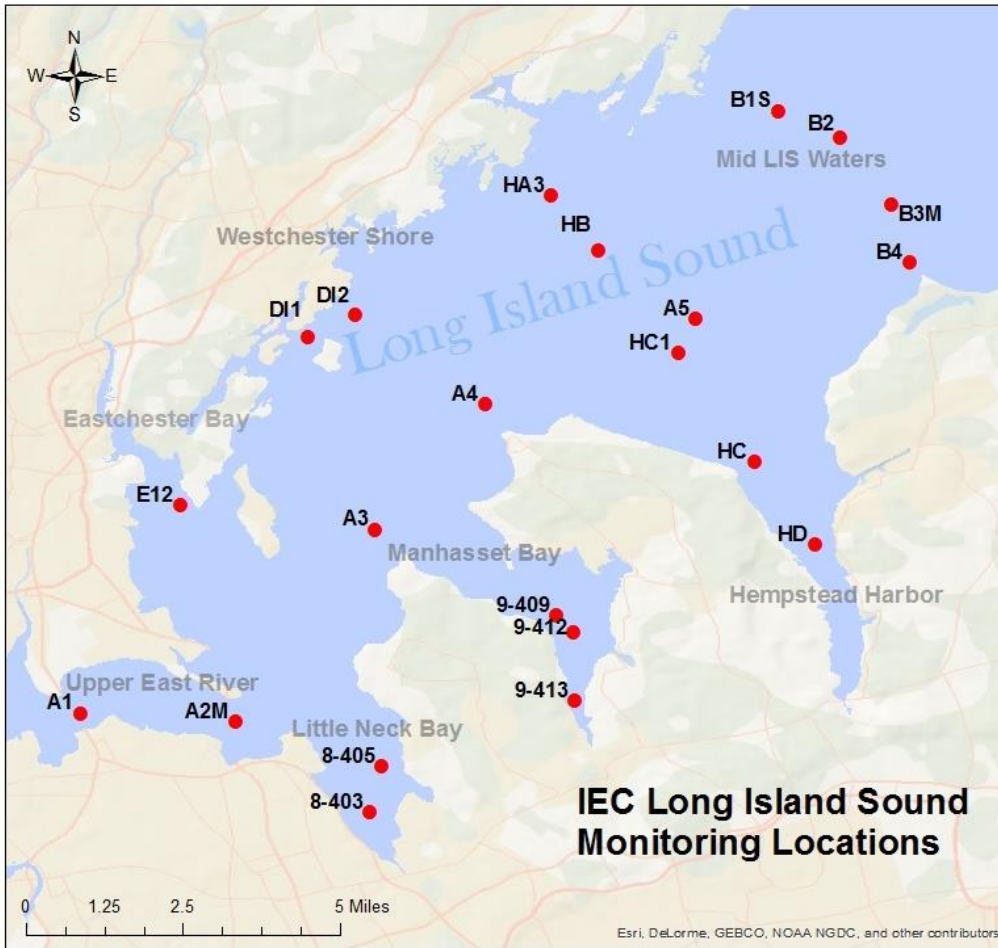
Ambient Water Quality Monitoring in the Western Long Island Sound

SURVEY 11: 9/4/2018

INVESTIGATION NUMBER: 17834



Interstate  
Environmental  
Commission  
NY · NJ · CT



STATION	LATITUDE DD	LONGITUDE DD
<b>E-12</b>	40.8487	-73.8045
A1	40.8013	-73.8268
A2M	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.

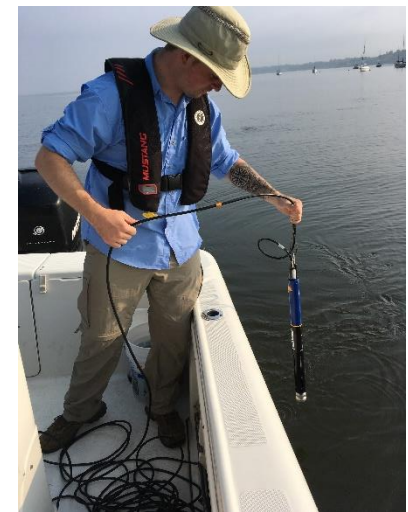
During the summer 2018, IEC staff will perform 12 weekly surveys each summer of 22 stations in the far western Long Island Sound. The 12 surveys will include weekly *in situ* measurements of water temperature, salinity, dissolved oxygen, pH, and Secchi disk depth. Measurements at each station will be 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  
[www.neiwpcc.org](http://www.neiwpcc.org)  
[www.iec-nynjct.org](http://www.iec-nynjct.org)

2800 Victory Blvd., Building 6S,  
 Room 106  
 (College of Staten Island- CUNY  
 campus)  
 Staten Island, NY 10314  
 Phone: (718) 982-3792  
 Fax: (718) 698-8472  
[epowers@iec-nynjct.org](mailto:epowers@iec-nynjct.org)

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 # 11 AT A GLANCE

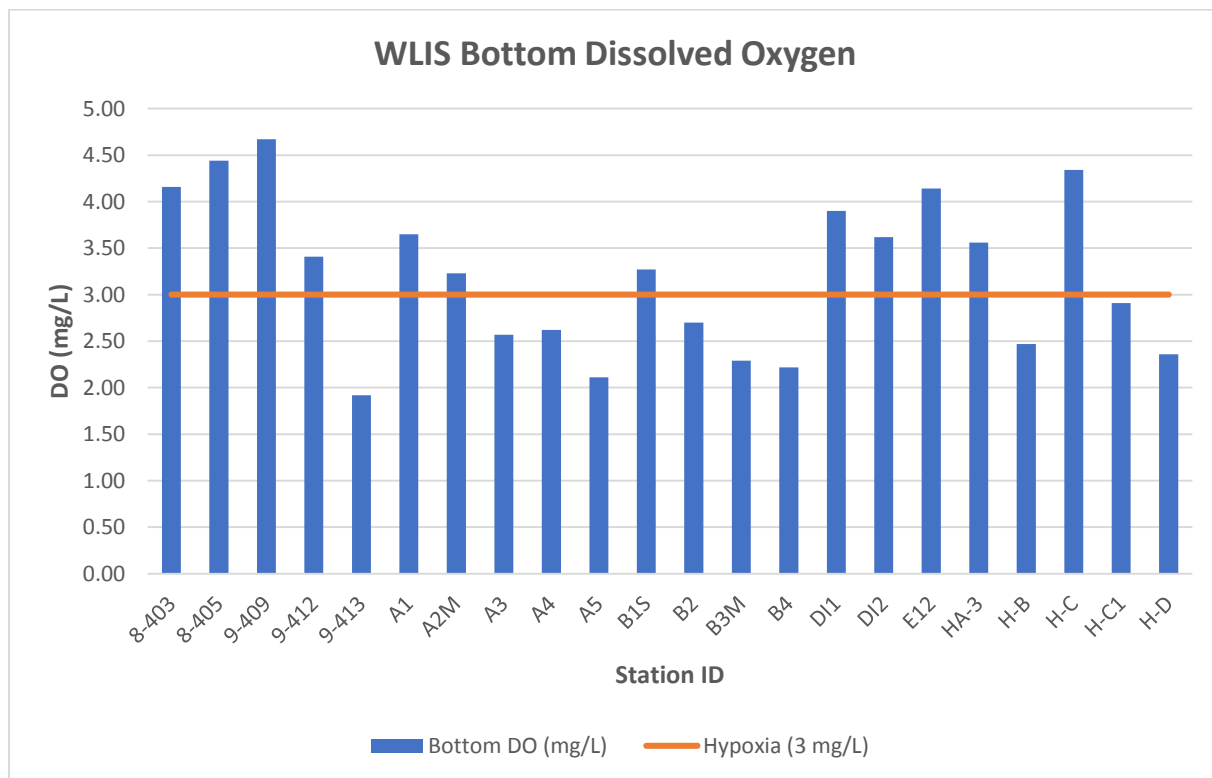
<b>Hypoxia (DO &lt;3.00 mg/L)</b>	10 sites exhibited hypoxia (See Note A)
<b>Lowest Surface DO concentration</b>	3.87 mg/L (station A1)
<b>Lowest bottom DO concentration</b>	1.92 mg/L (station 9-413)
<b>Average surface DO concentration</b>	6.81 mg/L
<b>Average bottom DO concentration</b>	3.21 mg/L

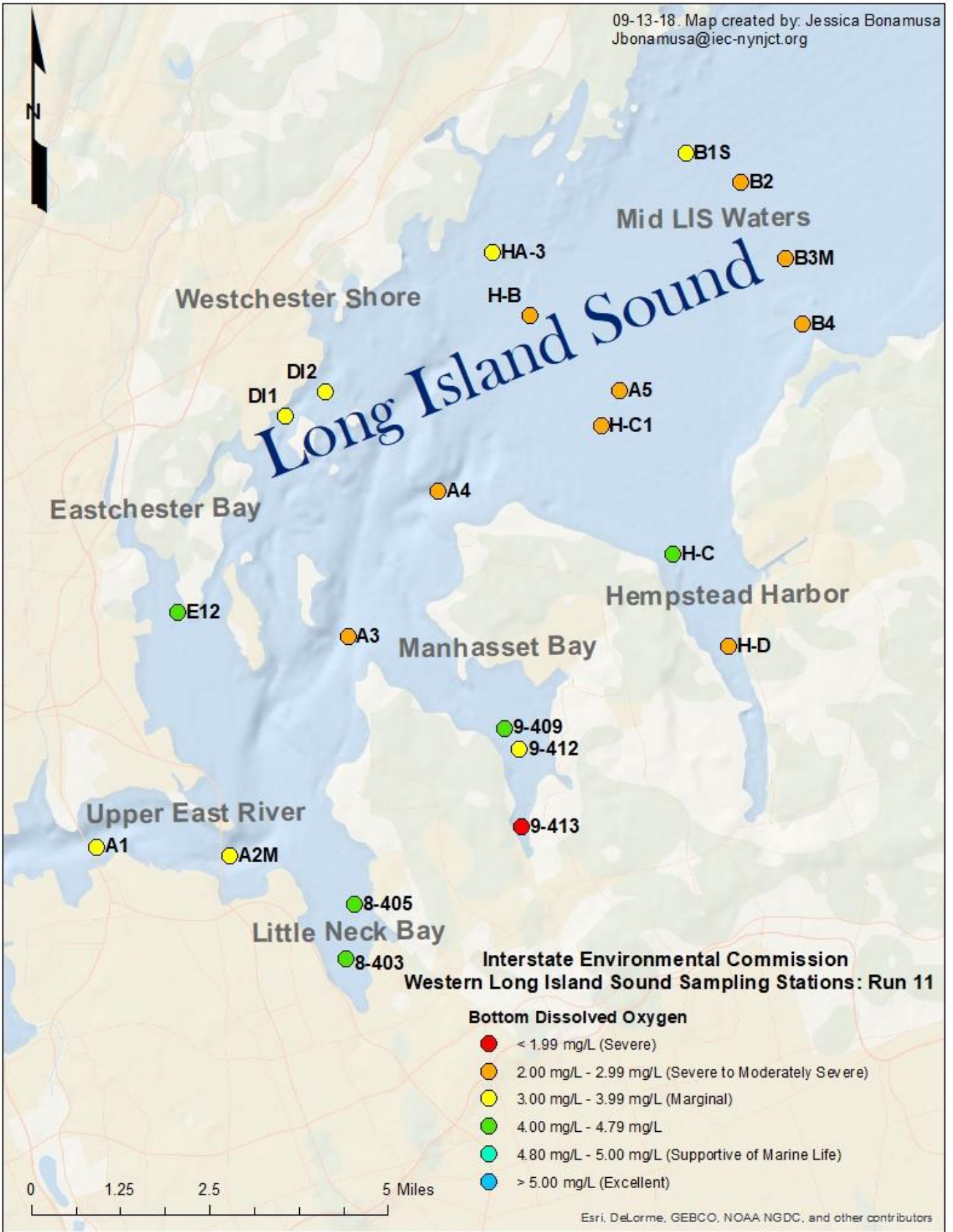
<b>Average surface water temperature</b>	25.22 °C
<b>Average bottom water temperature</b>	24.15 °C
<b>Average water column ΔT</b>	1.03 °C
<b>Average surface salinity</b>	28.03 ppt
<b>Average bottom salinity</b>	27.67 ppt

Ten (10) sites (9-413, A3, H-B, B2, B3M, B4, H-D, H-C1, A5, A4) exhibited hypoxic measurements at bottom depth. B3M also exhibited hypoxia at a mid-depth. No sites exhibited hypoxia at the surface.

Atmospheric temperatures during the time of the survey ranged between 78 °F and 93°F. The weather conditions were hot, humid and hazy. The survey started at 6:07 and ended at 10:27, with low tide at 12:11 and high tide at 05:56 as per the NOAA tide table 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

Westchester Shore

Eastchester Bay

Upper East River

Little Neck Bay

Manhasset Bay

Hempstead Harbor

Mid LIS Waters

DI1  
DI2

HA-3

H-B

B1S

B2

B3M

B4

A5

H-C1

A4

H-C

A3

H-D

9-409

9-412

9-413

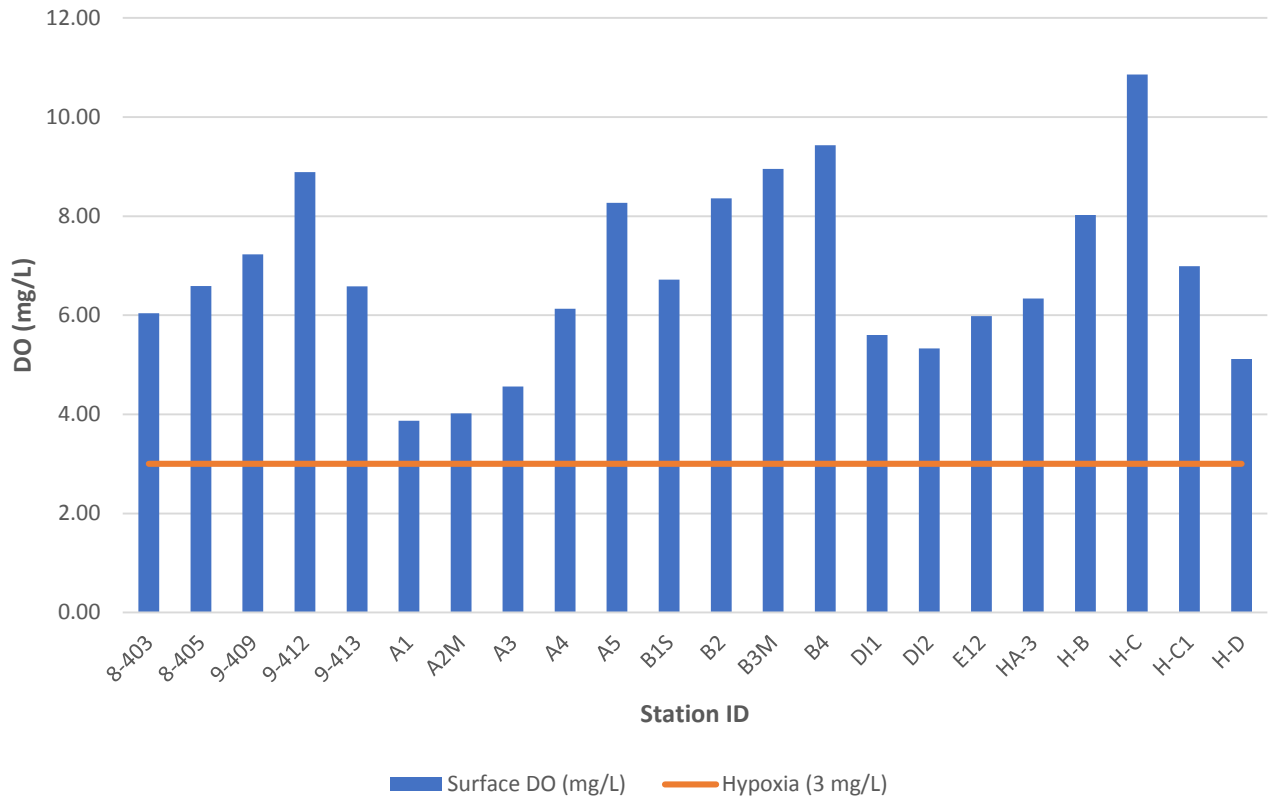
8-405

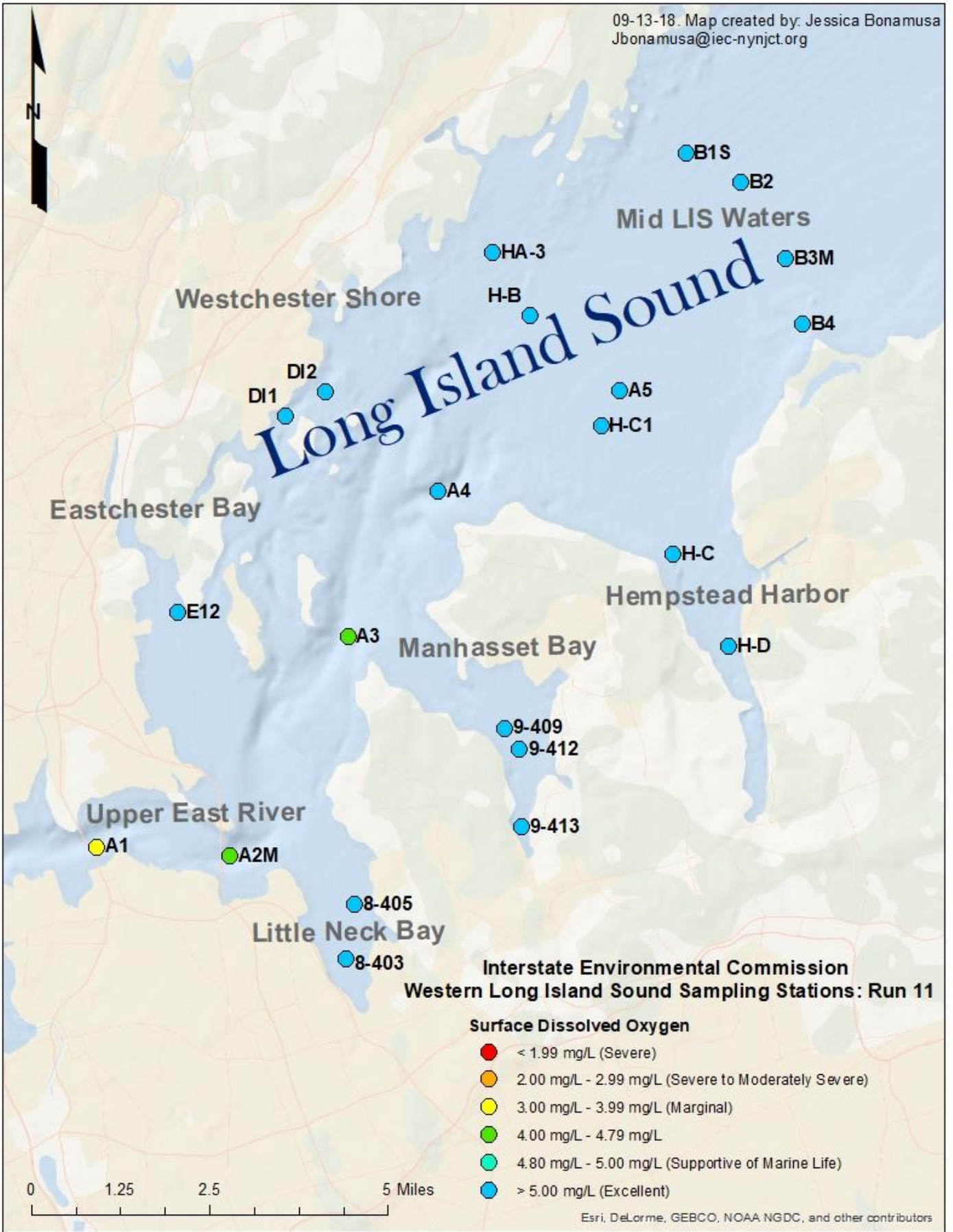
8-403

A1

A2M

# WLIS Surface Dissolved Oxygen





## **SECCHI DISK DEPTH**

Secchi disk measurements ranged from 3.0 feet to 7.0 feet. The deepest readings were taken at stations A2M and B1S. The shallowest readings were taken at station 9-413, 8-403 and HC.

## **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.