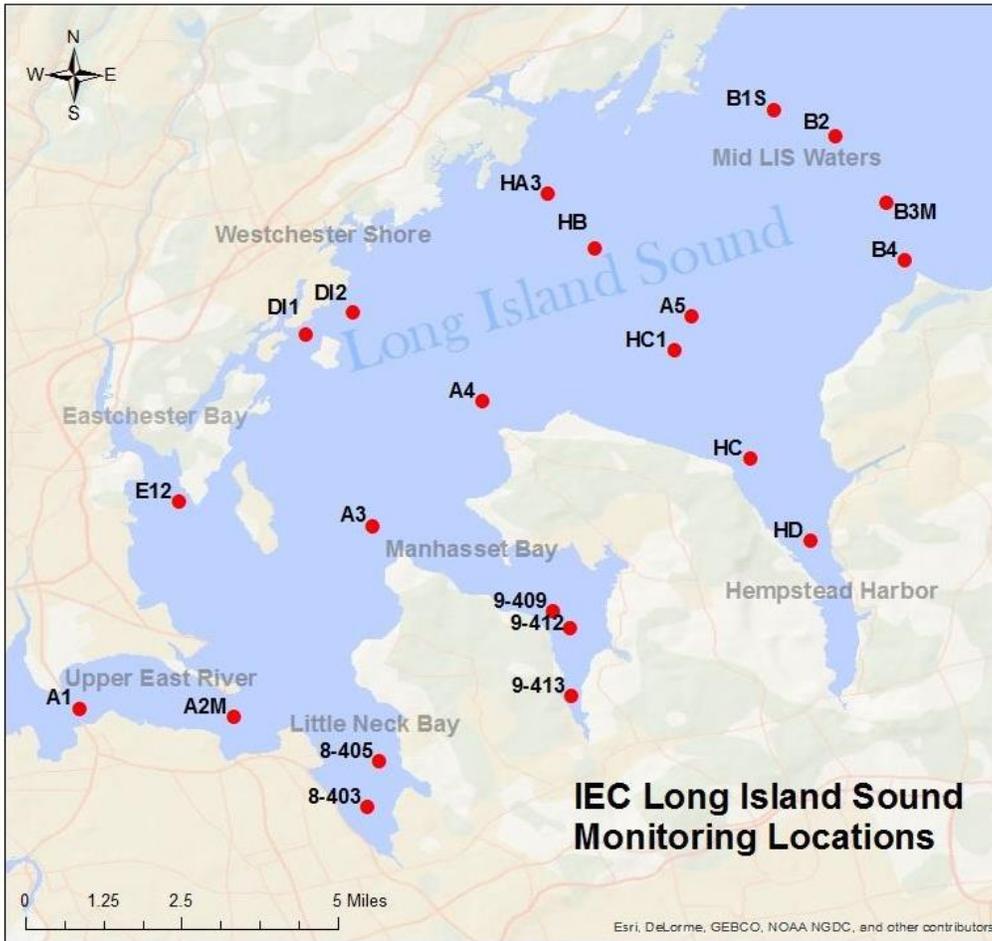




**Western Long Island Sound Monitoring
2021 Summer Survey Bi-Weekly Summary
Surveys #5 & #6
Survey Dates: July 27, 2021 & August 3, 2021**



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.

Interstate Environmental
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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
9/8/2021	11	<i>In situ</i> parameters only
9/14/2021	12	<i>In situ</i> , nutrients, chlorophyll a, BOD, TSS



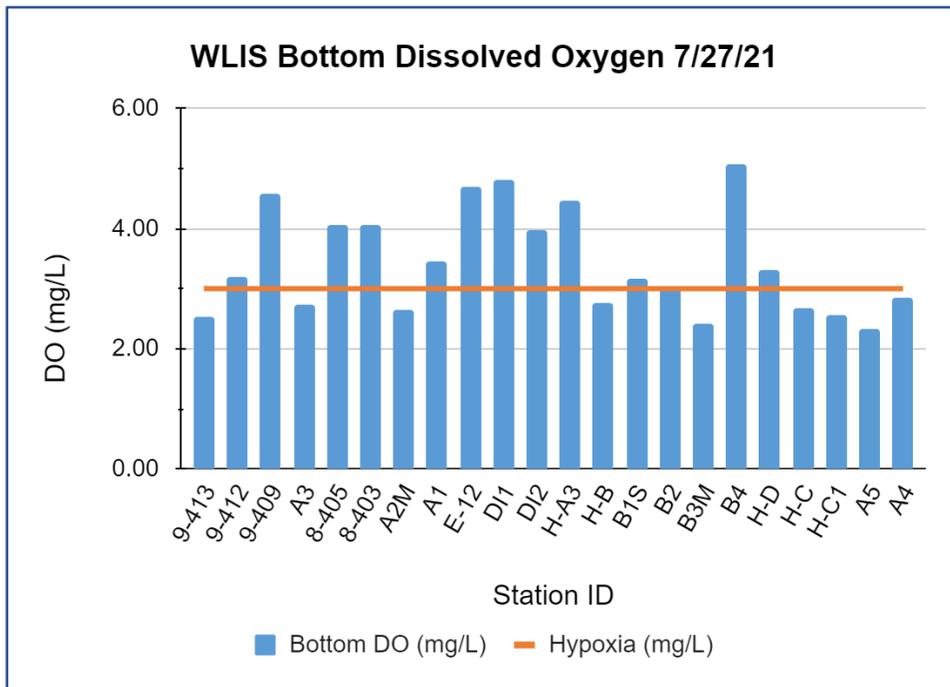
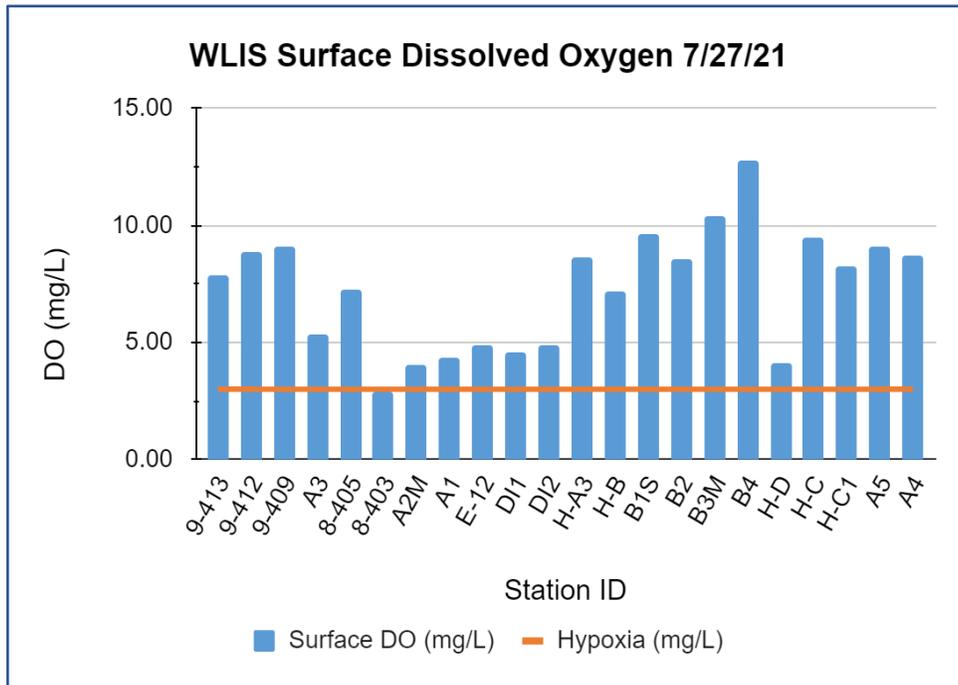
School of bunker fish

SURVEY #5 AT A GLANCE 07/27/2021

Hypoxia (DO <3.00 mg/L)	Nine stations exhibited hypoxia at bottom depths: Manhasset Bay – 9-413 Upper East River – A2M Westchester Shoreline – H-B Mid-LIS waters – A3, B3M, H-C1, A5, A4 Hempstead Harbor – H-C Station 8-403 in Little Neck Bay exhibited hypoxia at surface depth.
Lowest surface DO concentration	2.90 mg/L (Station 8-403 in Little Neck Bay)
Lowest bottom DO concentration	2.33 mg/L (Station A5 in the Mid LIS waters)
Average surface DO concentration	7.30 mg/L
Average bottom DO concentration	3.43 mg/L
Average surface water temperature	22.66 °C
Average bottom water temperature	21.12 °C
Average water column ΔT	1.54 °C
Average surface salinity	25.74 ppt
Average bottom salinity	26.85 ppt

Survey #5 Narrative Summary

The 5th weekly summer survey took place on Tuesday, July 27th, 2021. The survey began at 05:24 and ended at 08:56, with low tide at 09:09 and 08:50 at Kings Point, NY and New Rochelle, NY, respectively. The weather conditions were sunny with clear skies, and cloud cover was consistently estimated to be 0% across all stations. The weather station at LaGuardia Airport reported 0.00 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 1.0 ft in Manhasset Bay to 9.0 ft in the Mid-LIS waters. **Nine stations exhibited hypoxia at bottom depths:** 9-413, A2M, H-B, A3, B3M, H-C1, A5, A4, and H-C. **Only one station exhibited hypoxia at the surface:** 8-403. During this survey, we observed **oil at the surface of the water at stations D11 and D12**, located along the New Rochelle/Westchester shoreline. The source of the oil likely came from the dielectric fluid oil spill which occurred on July 17th in New Rochelle, NY; this is discussed in the previous summary for surveys #3 and 4.



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 July 27, 2021



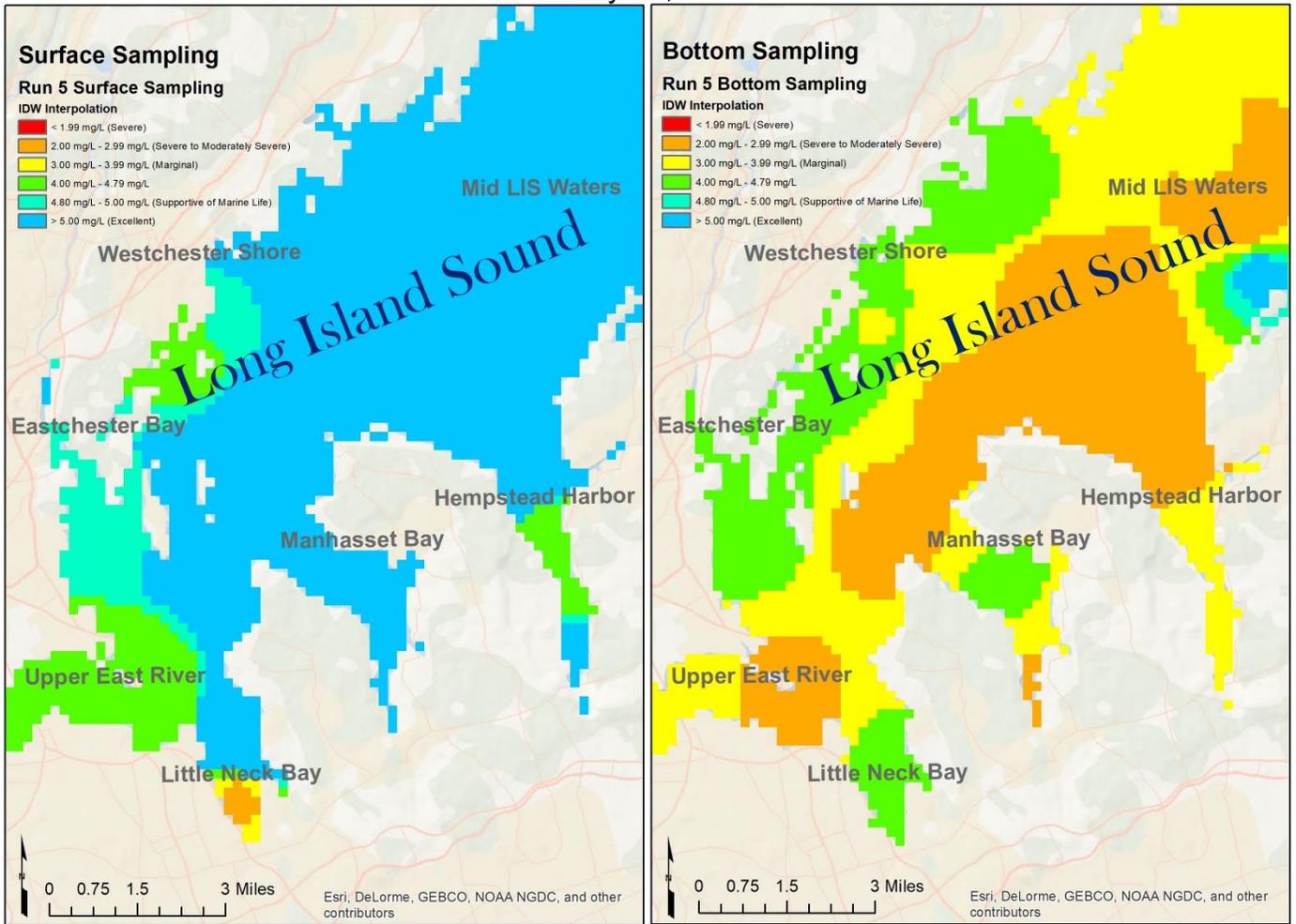
Map by: Jessica Bonamusa



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Map Made: 8/13/21

Interstate Environmental Commission Western Long Island Sound Sampling
 July 27, 2021



Map by: Jessica Bonamusa

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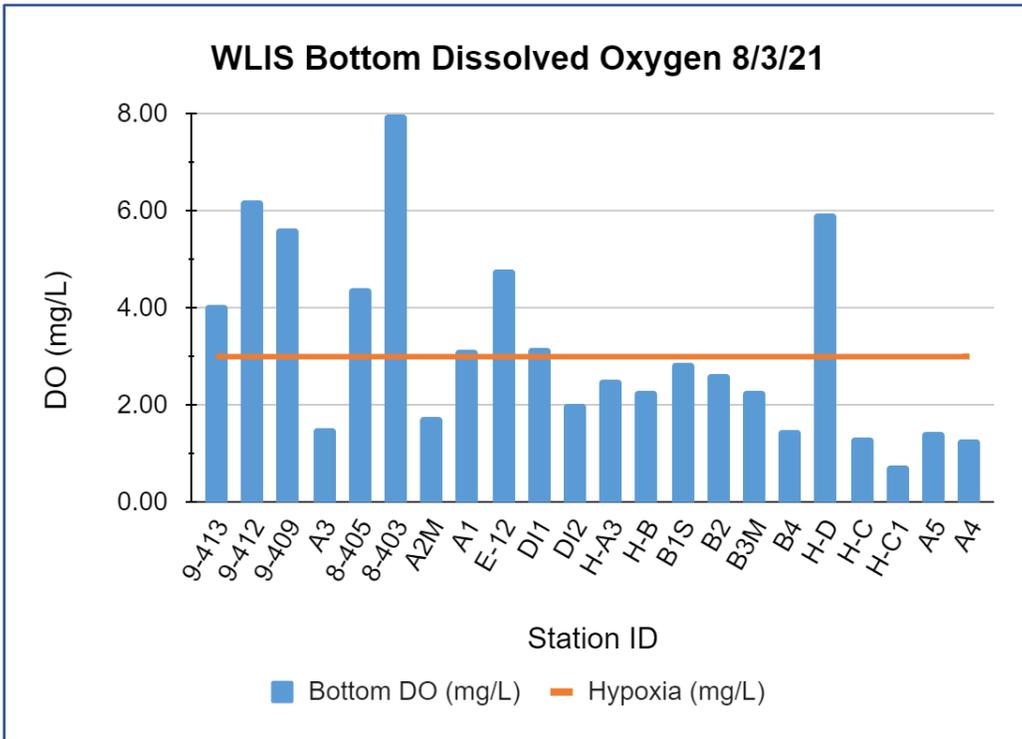
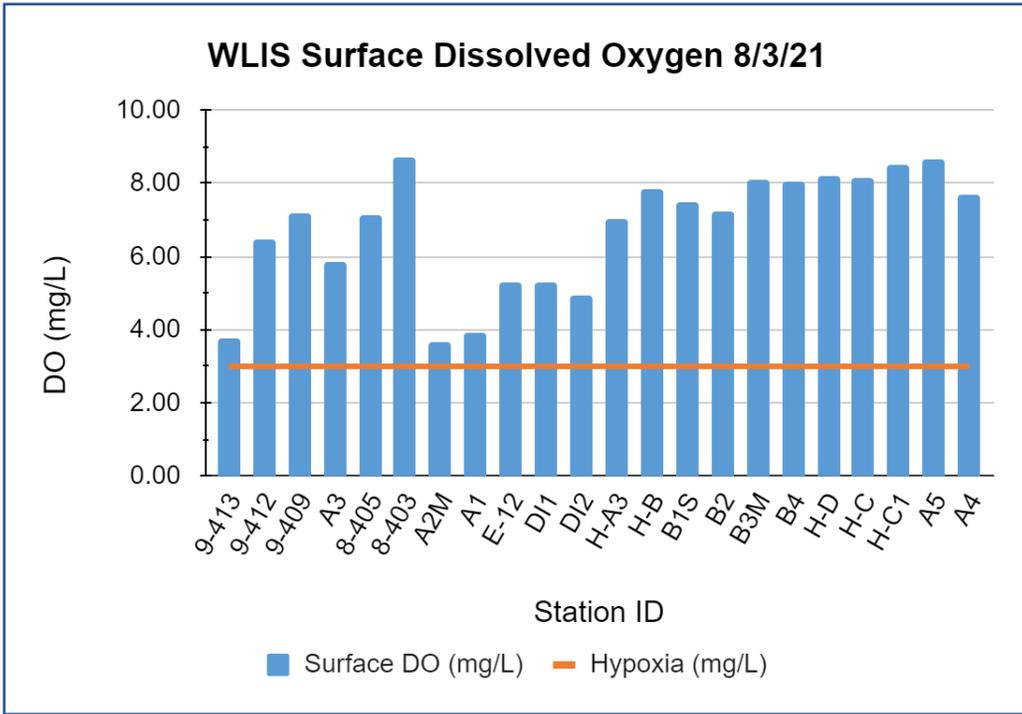
Map Made: 8/13/21

SURVEY #6 AT A GLANCE 08/03/2021

Hypoxia (DO <3.00 mg/L)	13 stations exhibited hypoxia at bottom depths: Mid-LIS waters – A3, B1S, B2, B3M, B4, H-C1, A5, A4 Upper East River – A2M Westchester Shoreline – DI2, H-A3, H-B Hempstead Harbor – H-C No stations exhibited hypoxia at surface depths.
Lowest surface DO concentration	3.64 mg/L (Station A2M in the Upper East River)
Lowest bottom DO concentration	0.74 mg/L (Station H-C1 in the Mid-LIS waters)
Average surface DO concentration	6.78 mg/L
Average bottom DO concentration	3.17 mg/L
Average surface water temperature	22.20 °C
Average bottom water temperature	21.09 °C
Average water column ΔT	1.11 °C
Average surface salinity	26.26 ppt
Average bottom salinity	27.11 ppt

Survey #6 Narrative Summary

Weekly summer survey #6 took place on Tuesday, August 3rd, 2021. The survey began at 05:49 and ended at 09:49, with high tide at 08:57 and 08:41 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 40 to 100% across all stations. The weather station at LaGuardia Airport reported 0.00 and 0.18 inches of precipitation for the 24 and 48-hour period prior to the start of the survey, respectively. Secchi disk measurements ranged from 2.5 ft in Manhasset Bay and Little Neck Bay to 8.0 ft in Upper East River. **13 stations exhibited hypoxia at bottom depths, though no stations exhibited hypoxia at surface depths.**



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 August 3, 2021



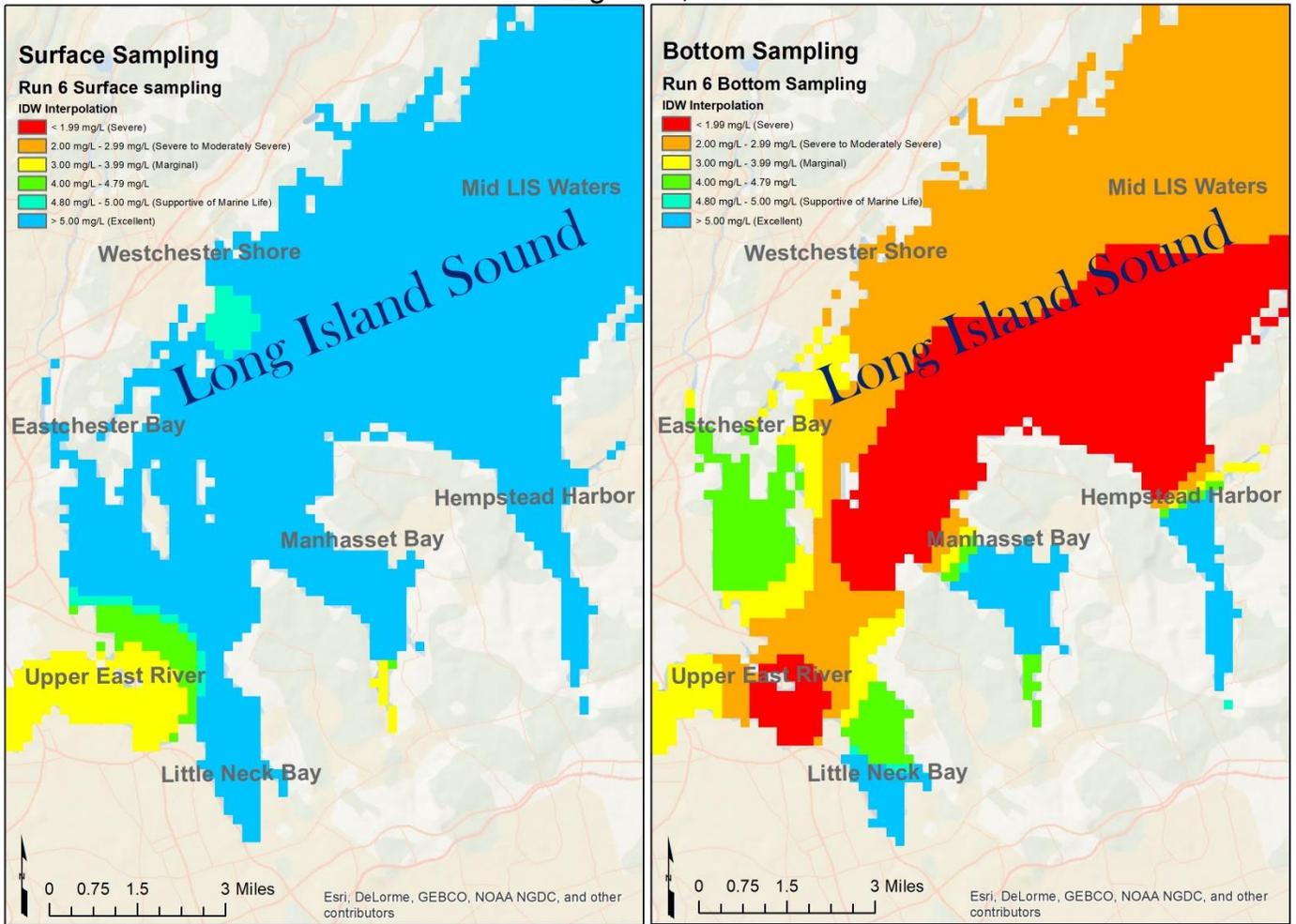
Map by: Jessica Bonamusa



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Map Made: 8/13/21

Interstate Environmental Commission Western Long Island Sound Sampling
August 3, 2021



Map by: Jessica Bonamusa

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