

**Day in the Life of the Hudson River 10/20/15 Data**

**RIVER MILE 25W**

**Piermont Pier**

**Margie Turrin & 9 Lamonters, Lamont-Doherty Earth Observatory**

**Latitude N 41 degrees 02'591 Longitude W 73 degrees 53'794**



**Tom Mullane, Eileen McCaffrey, and Catherine Bonanno– Pearl River HS  
APES – 44 Students**



**Jennifer Mazza  
Clarkstown South HS  
13 Environmental Science Students**



**Julie West, Oak Meadow School  
4 students**

**Location:** Piermont Pier, Piermont NY

**Area:** Man made fishing/shipping pier at the east end, long pier with paved roadway and vegetated strip along both sides

**Surrounding Land Use:** Urban/residential 80% , Forested 20%

**Sampling Site:** Pier, roadway in center of whole pier, parking area at end, Plants and trees along side. Shoreline Rip Rap, collected wood in area and piping entering river on the south of sampling site

**Plants in area:** no submerged aquatic plants in the water

**Water depth:** Varied by location on the pier and by tide

**River Bottom –** sandy/rocky bottom with marsh grass growing in or near the water

**Plants in area:** sumac and other plants 15%; phragmites 85%

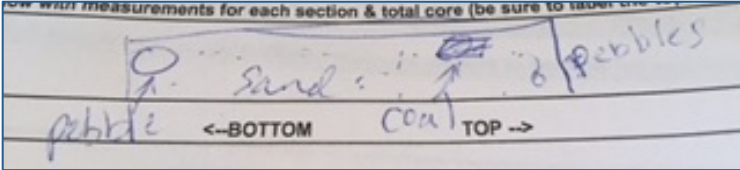
<i>ITEM</i>	<i>Time</i>	<i>Temperature</i>	<i>Weather &amp; Observations</i>	
<i>Physical</i>				
<b>Air Temperature</b>	9:10AM	12.2°C °F	Beaufort 2 Mph 10 SW	Cloud cover 26-50%
	9:45 AM	13°C °F	Beaufort 1 1-3 kts	Cloud cover 26-50%

	10:45 AM	15°C °F	Beaufort 3 Mph 8-12 SW	Cloud cover 0-25%
	12:15 PM	17°C	Beaufort 3 Mph 8-12 SSW	Cloud cover 0-25%
	1: 10 PM	18.5 °C °F	Wind S	
Weather today	No precip			
Weather last 3 days	COLD – constantly, no precip.			
<b><i>Water Temperature</i></b>	<b>Time</b>	<b>Surface Sample thermometer</b>	<b>Meter sample</b>	
	9:10AM	5.2°C		
	9:45 AM	13.3°C		
	10:45 AM	11.9°C	13.1°C	
	12:15 PM	15.5°C	14.2 °C	
	1: 10 PM	14.7 °C		
<b><i>Turbidity – Long Site Tube</i></b>	<b>Time</b>	<b>Long Site Tube</b>	<b>Average</b>	
	9:10AM	10 cm 14 cm 10.5 cm 11 cm	11.1 cm	
	10:00 AM	10.0 cm 9.5 cm	9.75 cm	
	10:45 AM	22.6 cm 27.8 cm 16.6 cm 28.0 cm	23.75 cm	
	12:12 PM	16.5 cm 11 cm 12 cm	13.17 cm	
	1:15 PM	7.1 cm 8 cm	7.55 cm	
<b><i>Secchi</i></b>	9:10	30 cm 30 40 30 26 60 65 60	43.8 cm	
	10:00 AM	40 cm 40 35 35 40 40	41.33 cm	

		45 47 50		
	10:40 AM	45 cm 40 40 27 27 28 40 45 48	37.8 cm	
	10:48 AM	69 cm 50 40	53 cm	
	12:15 PM	10 cm 7 9 9 8 10 20 20 20	12.6 cm	
	1:15 PM	19 cm 12 8 17 16.5 15 32	17.1 cm	
<b><i>Water Depth - tides</i></b>	<b>Time</b>	<b>Pier to Bottom</b>	<b>Pier to water surface</b>	<b>Water Depth @ pier end</b>
	9:04 AM	127 cm	51 cm	76 cm/fall
	9:27 AM	111 cm	51 cm	60 cm/fall
	9:53 AM	88 cm	46 cm	42 cm/fall
<b><i>Transition to rising tide</i></b>	10:10 AM	111 cm	52 cm	59 cm/rise
<b><i>*read in center of pier - found a deeper pocket</i></b>	*10:40 AM	155 cm	53 cm	102 cm/rise
	12:15 PM	190 cm	110 cm	80 cm/rise
<b><i>See HRECOS depth data below</i></b>				
<b><i>Chemical</i></b>	<b>SAMPLES * see HRECOS readings appended at the end of the student reporting</b>			
<b>DO</b>	<b>TIME</b>	<b>DO Reading</b>	<b>Water Temp</b>	<b>% Saturation</b>
<b><i>Drop count</i></b>	9:10AM	14 ppm	5.2°C	110%

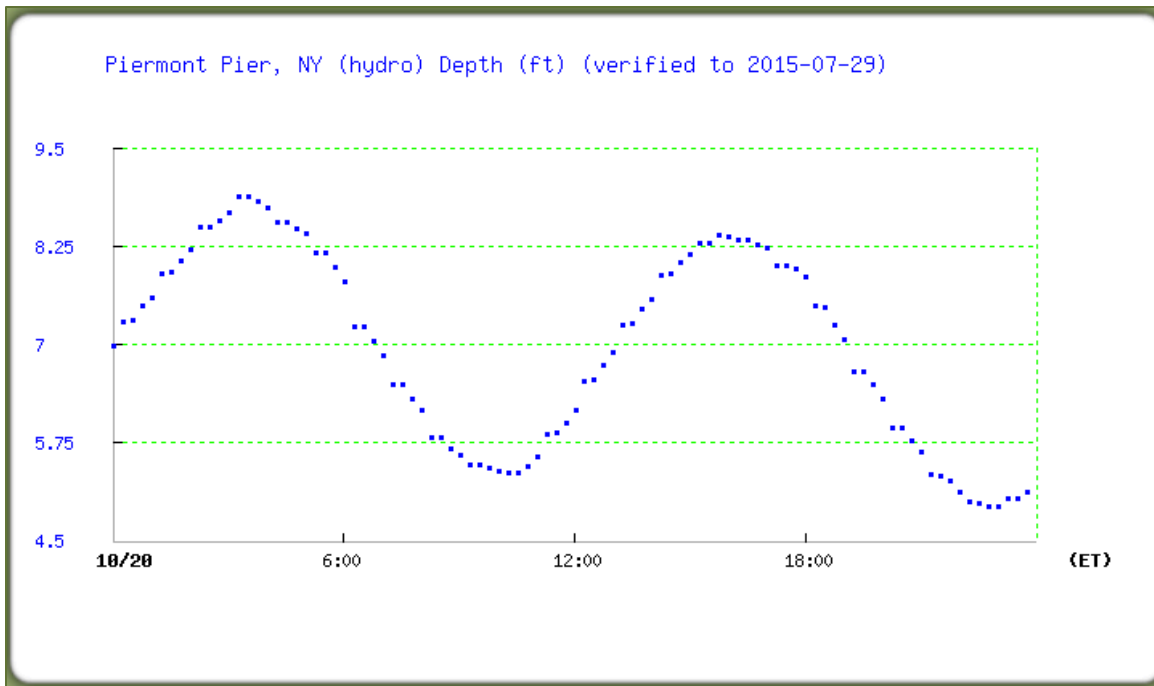
	9:45 AM	9 ppm	13.3°C	85%
	10:45 AM	12 ppm (bubble)	11.9°C	110%
	12:15 PM	3	15.5	30%
	1: 10 PM	10 ppm	14.7°C	96%
<b><i>pH</i></b>	<b>TIME</b>			
<i>colorimeter</i>	9:10AM	7.8		
	9:45 AM	8.0		
	10:45 AM	7.5		
	12:15 PM	7.5		
	1: 10 PM	8.3		
<b><i>Other Chemistry</i></b>	<b>TIME</b>	<b>Phosphates <i>colorimeter</i></b>	<b>Nitrates <i>Drop count</i></b>	<b>Alkalinity <i>Drop count</i></b>
	9:10AM	0.2 mg/L	0.44 mg/L	59 ppm
	9:45 AM	0.42 mg/L	0 mg/L	72 ppm
	10:45 AM	0.5 mg/L	0 mg/L	136 ppm
	12:15 PM	0 mg/L	0 mg/L	60 ppm
<b><i>*Salinity -</i></b>	<b>Refracto.</b>	<b>Glass Hydrometer</b>	<b>meter ppt</b>	
9:10AM	10 ppt	9.2 ppt 1.007s.g.@5.2 C		
9:45 AM		8.7 ppt		
10:45 AM	10 ppt		8.5 ppt	
12:15 PM	9 ppt	8.9 ppt 1.0075 s.g.	8.8 ppt	
1: 10 PM	14 ppt		8.9 ppt	
<b><i>Fish Catch Northside of pier</i></b>	<b><i>Number Caught</i></b>	<b><i>Species</i></b>	<b><i>Measure of largest</i></b>	<b><i>TIME &amp; CATCH</i></b>
<b><i>Rotation #1 Fish</i></b>	14	Atlantic Silverside	14 cm	<b><i>9:30 AM F-DIV - 2</i></b>
	2	Striped Bass	9 cm	<b><i>16 Totals</i></b>
<b><i>Macroinvert</i></b>	500 +	Comb jellies	6 cm	<b><i>Macro</i></b>
	17	Blue Crab	6 cm	<b><i>M - DIV 3</i></b>
	1	Sand Shrimp	2.5 cm	<b><i>518 Totals</i></b>
<b><i>Rotation #2 Fish</i></b>	21	Atlantic Silverside	9.5 cm	<b><i>10:25 AM F-DIV 3</i></b>
	3	Striped Bass	11cm	<b><i>25 totals</i></b>
	1	American Eel	15 cm	
<b><i>Macroinvert</i></b>	1	Blue Crab	3.5 cm	<b><i>Macro</i></b>
	8	Sand Shrimp	4 cm	<b><i>M - DIV 3</i></b>
	20	Comb Jellies	4 cm	<b><i>29 Totals</i></b>

<b>Rotation #3 Fish</b>	49	Atlantic Silverside	11 cm	<b>10:45 AM Fish</b>	
	10	Striped Bass	16 cm	<b>F - DIV 4</b>	
	1	mummichog	NR	<b>61 Totals</b>	
	1	White Perch	14 cm		
<b>Macroinvert</b>	75	Comb Jelly		<b>Macro</b>	
	6	Blue Crab	3 cm	<b>DIV - 3</b>	
	2	Sand Shrimp	2.5 cm	<b>83 Totals</b>	
<b>Rotation #4 Fish</b>	104	Atlantic Silverside	8.3 cm	<b>12:20 PM Fish</b>	
	2	Striped Bass	9 cm	<b>DIV 2 106 Total</b>	
<b>Macroinvert</b>	40	Comb Jelly	10 cm	<b>Macro</b>	
	2	Blue Crab	3.5 cm	<b>M - DIV - 3</b>	
	5	Sand Shrimp	3 cm	<b>47 Total</b>	
<b>Rotation #5 Fish</b>	52	Atlantic Silversides	7 cm	<b>1:00 PM FISH</b>	
	3	Striped Bass	10 cm	<b>F - DIV - 3</b>	
	1	White Perch	8 cm	<b>56 - Total</b>	
<b>Macroinvert</b>	100	Comb Jellies		<b>M - DIV 1 100 Total</b>	
<b>GRAND TOTALS</b>	<b>FISH DIV - 5</b>	<b>FISH TOTAL - 264</b>	<b>MACRO DIV- 3</b>	<b>MACRO TOTAL - 777</b>	
<b>Sediment Cores – (Nichole &amp; Clare helping from core lab)</b>	<b>Length</b>	<b>H2S Smell</b>	<b>Rare</b>	<b>Common</b>	<b>Abundant</b>
<b>9:30 AM shallow</b>	<b>7 cm total: Oxidized top bottom ~5 cm plant material, top ~ 2 cm sand</b>	No	Clay	Sand Gravel	N/R
<b>9:30 AM deep</b>	<b>32cm with oxidized top top 7 cm - 4 layers noted: ~1-2 cms bottom ~13 cm next ~7 cm next ~7 cm top</b>	Yes	Sand Gravel Pebbles Coal	N/R	Clay
<b>10:00 AM – Shallow</b>	<b>11cm bottom ~ half plant material, ~top half sand</b>	No	Clay	Sand Gravel	N/R

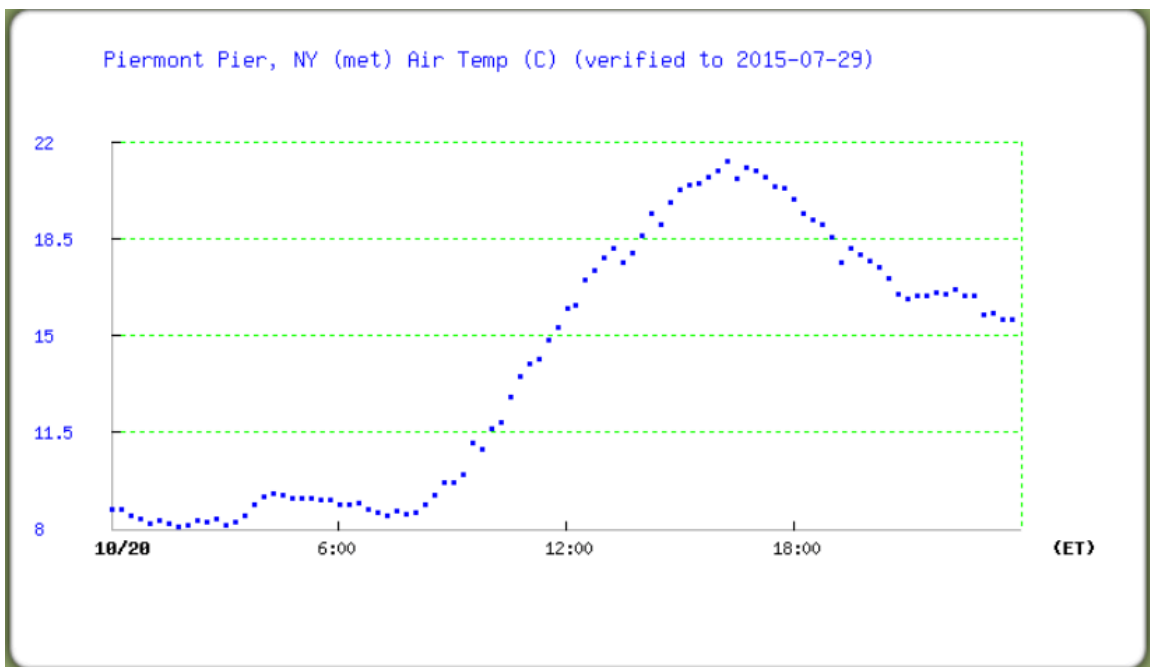
<b>10:00 AM deep</b>	<b>32 cm</b> 1) bottom few cm sand, 2) main section clay, 3) top few cm sand	No	Sand	N/R	Clay,
<b>10:40 AM – shallow</b>	11 cm disaggregated	No	N/R	N/R	Clay Mud Sand Gravel
<b>10:40 AM deep</b>	<b>30 cm oxidized top (no measure on this)</b>	No	Sand Gravel	N/R	Clay Mud
<b>12:30 PM Shallow</b>	<b>9 cm oxidized top (no measure on this)</b>	Yes	Mud	Pebbles	Sand Gravel
<b>12:30 PM deep</b>	<b>11.5 cm oxidized top (4 cm)</b>	Yes	Gravel Pebbles Wood (roots?) Brick Living veget. (sprouts & roots)	Sand	Clay Mud
<b>1:07 PM left shore</b>	<b>12 cm no oxidized top</b>	Yes	Mud Shells	Sand Gravel Pebbles Coal (image below)	N/R
					
<b>1:07 PM deep core</b>	<b>17.5 cm no oxidized top</b>	No	Pebbles	Mud Sand	Gravel

***Piermont HRECOS Screen Captures on following pages***

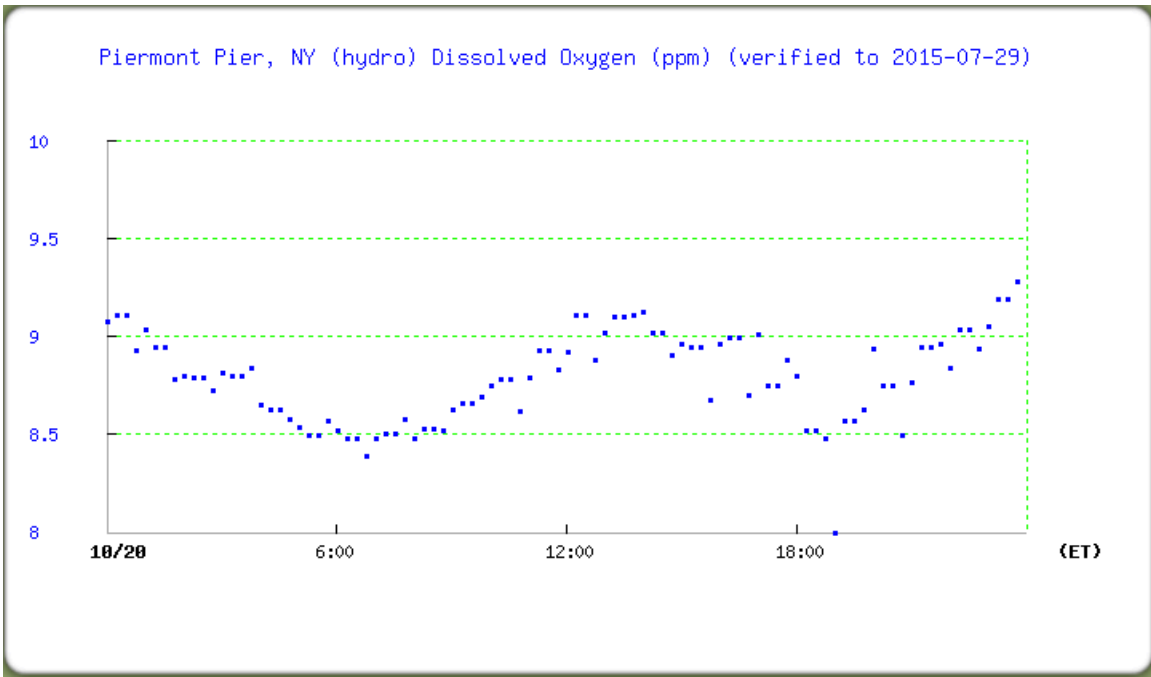
HRECOS site is located just behind the rectangular eastern end of the pier attached to one of the pier stations. When operational it is a continuous data feed recorded every 15 minutes.



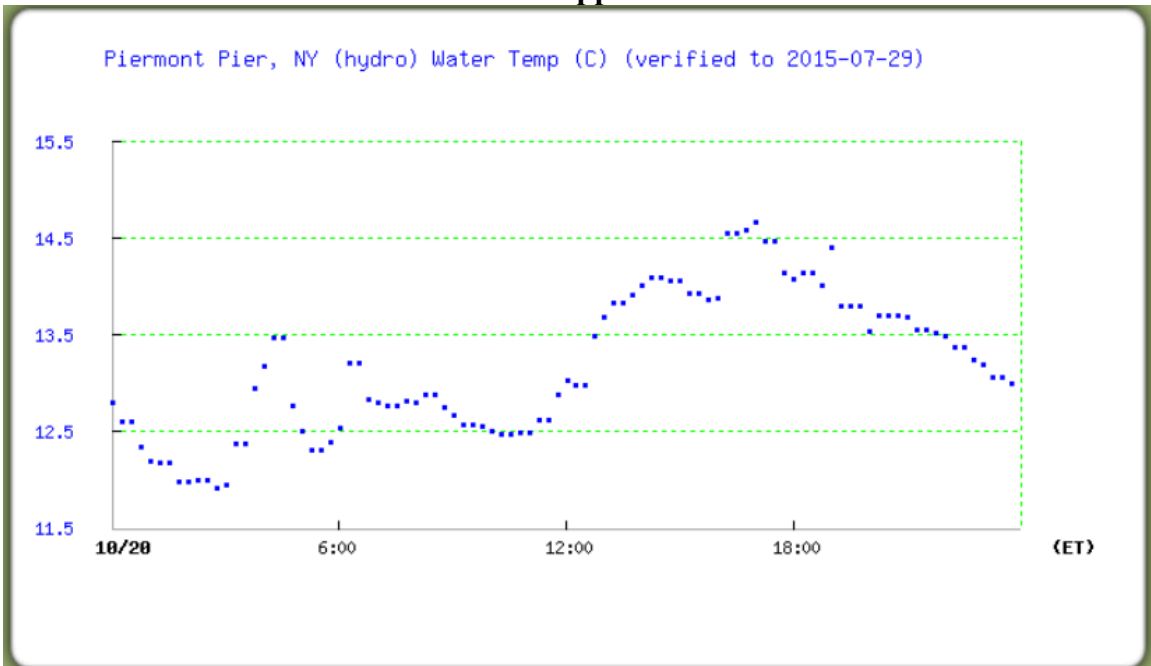
**Depth – sampling team captured the transition from a falling to rising tide**



**Air Temperature**

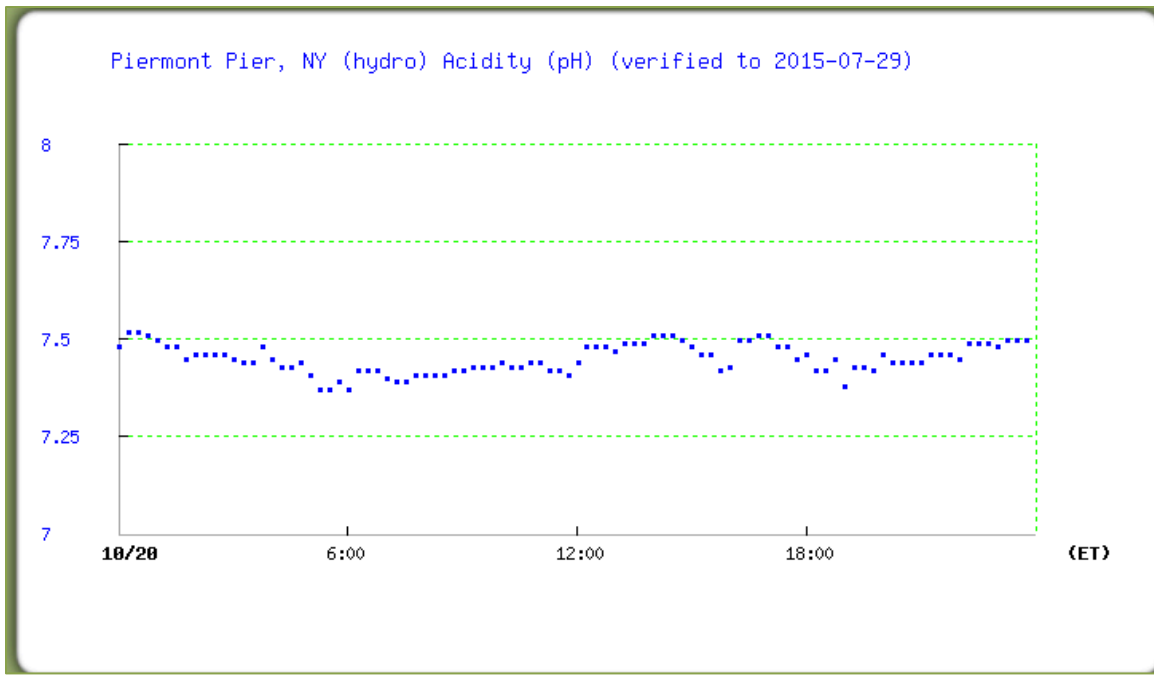


**DO ppm**

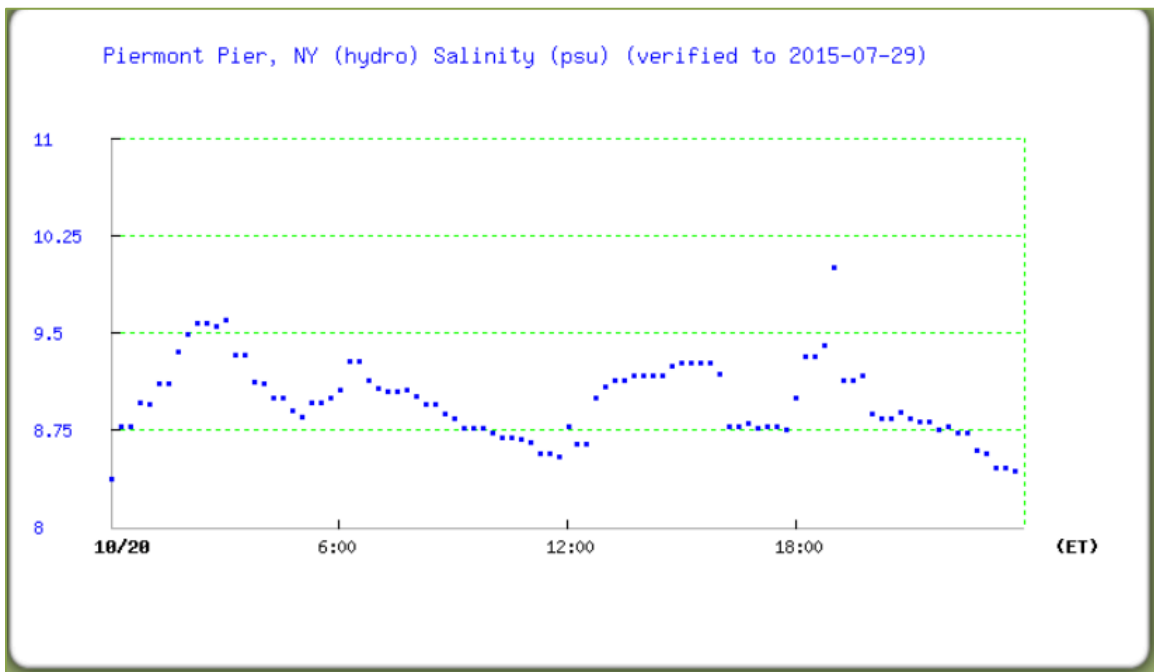


**Water temperature**





**pH**



**Salinity in psu (equates in the Hudson to ppt)**