

**Day in the Life of the Hudson River 10/21/14 Data**  
**(Salt Front RM 64.3)**  
**RIVER MILE 25W**  
**Piermont Pier**

**Margie Turrin & 9 Lamonters, Lamont-Doherty Earth Observatory**  
**Latitude N 41 degrees 02'592 Longitude W 73 degrees 53'789**



**Tom Mullane, Eileen McCaffrey, and Catherine Bonanno– Pearl River HS APES – 24 Students**



**Patti Kilkelly, Tappan Zee High School 10 Environmental Science Students**



Latitude 41°02.591N Longitude 073°53.794W

**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>	9:32AM	17°C 63°F	Beaufort 1 North Mph 1-3

	9:58 AM	14.5°C 58°F		
	10:46 AM	14°C 57°F	Beaufort 2 North	
	1:03 PM	16 °C 61°F	Beaufort 4 North	
Weather recent	Rain last few days, wind picked up during day. Clouds.			
<b>Water Temperature</b>	<b>Time</b>	<b>Surface Sample</b>		
	9:32AM	17°C		
	9:58 AM	17°C		
	10:46 AM	18°C		
	1:03 PM	17°C		
<b>Turbidity – Long Site Tube</b>	<b>Time</b>	<b>Long Site Tube</b>	<b>Average</b>	<b>Secchi</b>
	9:15 AM	24.8 cm 29.9 cm	27.3 cm	Not read
	10:00 AM	42.0 cm 37.5 cm	39.75 cm	60 cm
	10:43 AM	35.1 cm 38.5 cm	36.8 cm	63 cm
	12:16 PM	32.2 cm 28.9 cm	30.55 cm	46 cm
<b>Chemical</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>Drop count</b>	9:32AM	7 ppm	17°C	65%
	9:58 AM	8 ppm	17°C	85%
	10:46 AM	8 ppm	18°C	85%
	1:03 PM	8 ppm	17°C	85%
<b>pH</b>	<b>TIME</b>			
<i>colorimeter</i>	9:32AM	7.25		
	9:58 AM	7.5		
	10:46 AM	7.3		
	1:03 PM	7.5		
<b>Phosphates</b>	<b>TIME</b>			
<i>colorimeter</i>	1:03 PM	0.43mg/L		
<b>Nitrates</b>	<b>TIME</b>			
<i>Drop count</i>	10:46 AM	0.44 mg/L		
	1:03 PM	0.44 mg/L		
<b>Alkalinity</b>	<b>TIME</b>			
<i>Drop count</i>	10:46 AM	120 ppm		
	1:03 PM	108 ppm		

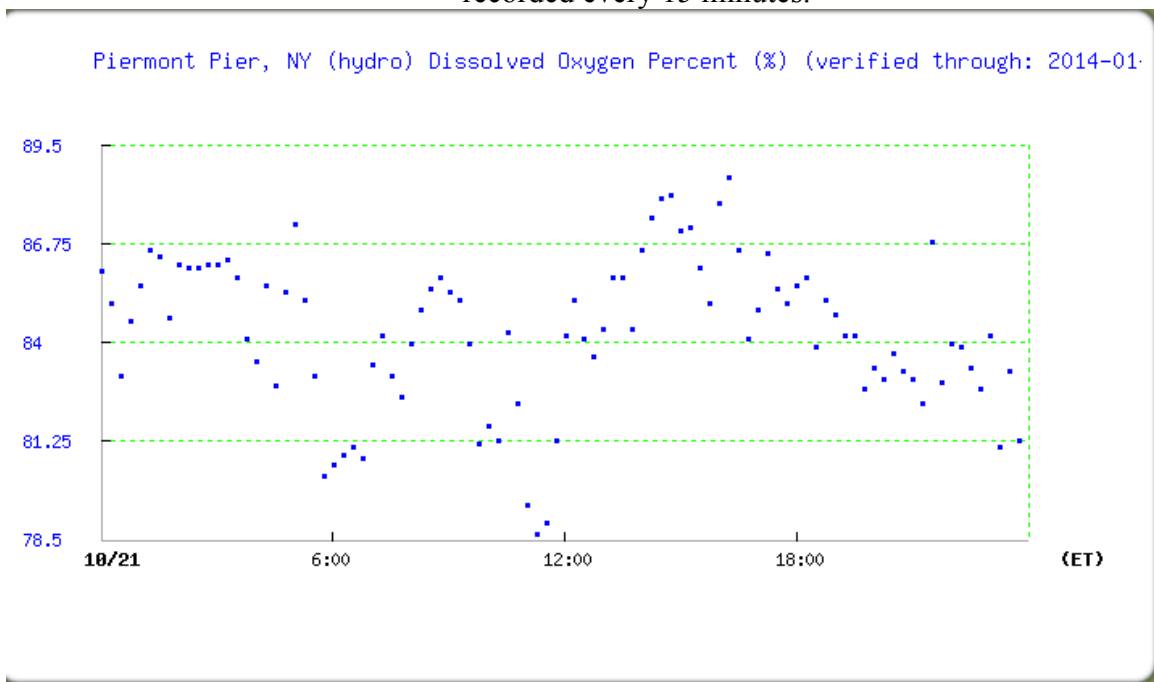
<i>*Salinity -</i>	<b>Refracto.</b>	<b>Hydrometer Glass Hydrometer</b>		<b>Quantab ppm cℓ</b>	<b>*Quantabs ppm total salinity</b>
9:32AM	9 ppt	6.7 ppt		<i>7.3 units - 2603 ppm cℓ</i>	<b>4702 ppm</b>
9:58 AM	10 ppt	6.7 ppt 1.0050 s.g.		<i>8.2 units - 4067 ppm cℓ</i>	<b>7347 ppm</b>
10:46 AM	10 ppt	8.9 ppt 1.0065 s.g.		<i>8.4 units - 4554 ppm cℓ</i>	<b>8227 ppm</b>
1:03 PM	11 ppt	8.0 ppt 1.006 s.g.		<i>8.4 units - 4554 ppm cℓ</i>	<b>8227 ppm</b>
<b>Tides- Time</b>	<b>Pier to river bottom</b>	<b>Pier to water</b>	<b>Water Depth</b>	<b>Tides</b>	<b>Currents</b>
10:27 AM	552 cm	138cm	414 cm	Ebb	
12:52 PM	550 cm	206 cm	344 cm	Ebb	27 cm/sec
1:20 PM			340 cm	Ebb	23 cm/sec
<b>Fish Catch Northside of pier</b>	<b>Number Caught</b>	<b>Species</b>		<b>Measure of largest</b>	<b>TIME &amp; CATCH</b>
<b>Rotation #1</b>	117	Atlantic Silverside		10 cm	<i>9:00 AM</i>
	12	Herring		5 cm	<b>Diversity 2</b>
					<b>129 Total</b>
<b>Rotation #2</b>	24	Atlantic Silverside		9.5 cm	<i>10:00 AM</i>
	1	Striped Bass		5 cm	<b>Diversity 5*</b>
	6	Herring			<b>33 total catch</b>
	1	Bay Anchovy		6 cm	<b>*not in total</b>
	1	Rough Silverside			
	25*	Juvenile moon jellies			
<b>Rotation #3</b>	22	Atlantic Silverside		8 cm	<i>10:30 AM</i>
	1	Blue Fish			<b>Diversity 2*</b>
	1*	Blue Crab (M)			<b>*23 Total Catch</b>
	8*	Comb Jelly small			<b>*Not in totals</b>
	1	Naked Goby from trap		3 cm	<b>24 Total catch</b>
<b>Rotation #4</b>	1	Mummichog		6.5 cm	<i>11:30 PM</i>
	78	Atlantic Silverside		11 cm	<b>Diversity 3*</b>
	2	Striped Bass		10 cm	<b>81 Total</b>

				<b>Catch</b>	
	2*	Ctenophore*		<b>*Not in totals</b>	
<b>Grand Total</b>	<b>Count 266</b> <b>Count 36</b>	<b>Fish only</b> <b>macros</b>		<b>Div. 7 fish</b> <b>Div. 3 macro</b>	
<b>Plankton</b>	<b>Time</b>	<b>ID</b>	<b>Magnific.</b>		
	9:30 AM 9:34 AM	Hydroid medusa Hydroid medusa Anacystis Species	10X 20X 20X		
	9:30 AM 9:34AM 10:19 AM 10:19 AM 10:22 AM 11:00 AM 11:00AM 11:00 AM 11:00 AM 11:00 AM	Adult copepod Phyto-Diatom Dinoflagellates Larvae of ? Bosmina Adult copepod Water flea Anacystis species Melosira species Echinopluteus Species	10X microscope 1X 1X microscope microscope 2.5X 10X 25		
	12:42 PM 12:34 PM	Skeletonema Species Bivaliger larva (clam) veliger (snail)	microscope		
<b>Sediment Cores</b>	<b>Length</b>	<b>H2S Smell</b>	<b>Rare</b>	<b>Common</b>	<b>Abundant</b>
<b>9:15AM</b>	<b>11 cm total:</b> 9-11 clay 7-9 silt 5-7 fine sand 5-4 med.sand top-pebbles	Yes	Brick	Sand Silt Clay Pebbles Leaves Wood	Mud Sand
<b>9:30 AM</b> <b>water 46 cm</b>	10 cm with oxidized top	Yes	Leaves wood roots	Sand Gravel pebbles	Clay mud
<b>10:40 AM –</b> <b>water 76 cm</b>	14 cm	Yes	Sand Pebbles Leaves Wood	Clay, mud	
<b>10:42 AM</b>	13 cm bottom 6 cm woody Top 7 cm Cap of pebbles	Yes	Mud Sand Gravel Pebbles roots	Sand wood	Clay, wood
<b>12:15 PM –</b> <b>water 61 cm</b>	11 cm	Yes	Sand	mud	
<b>12:15 PM</b>	11 cm	Yes	Sand	mud	

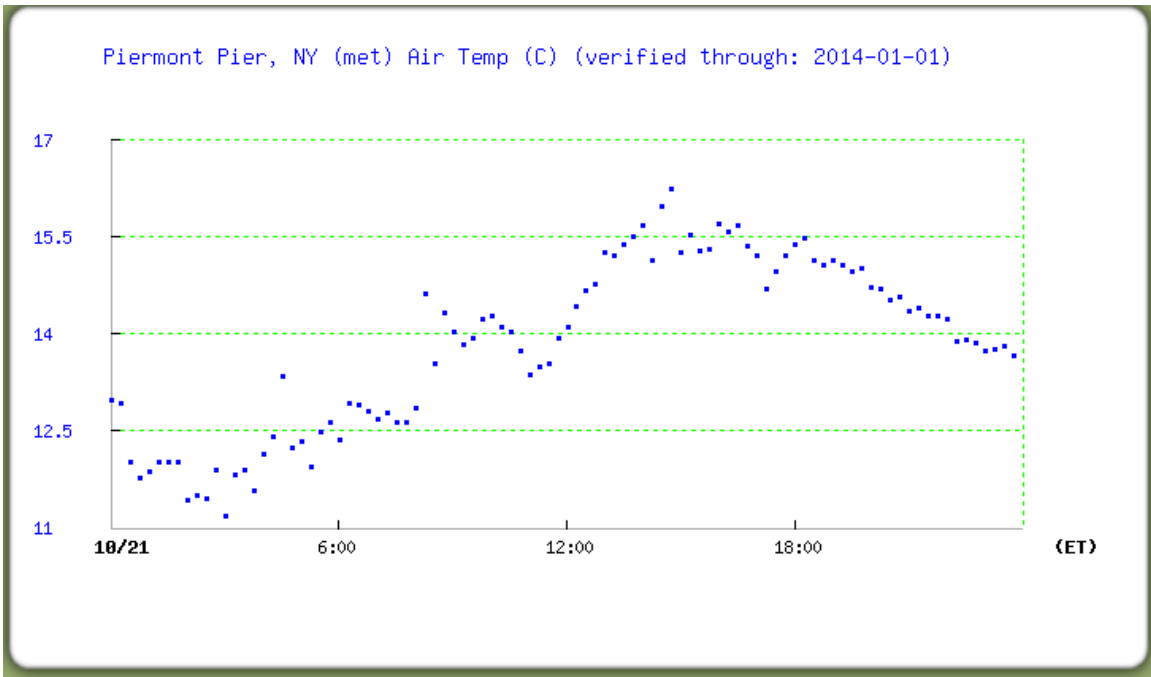
<b>12:45 PM</b>	9 cm				
<b>1:09 PM</b>	15 cm	Yes	Pebbles Coal	Leaves Brick	Clay Mud Sand Wood
<b>1:15 PM water 75 cm</b>	14 cm	Yes	Sand pebbles		Clay,
<b>Other Observations</b>	Overcast day that ended with rain just as students were leaving.				

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

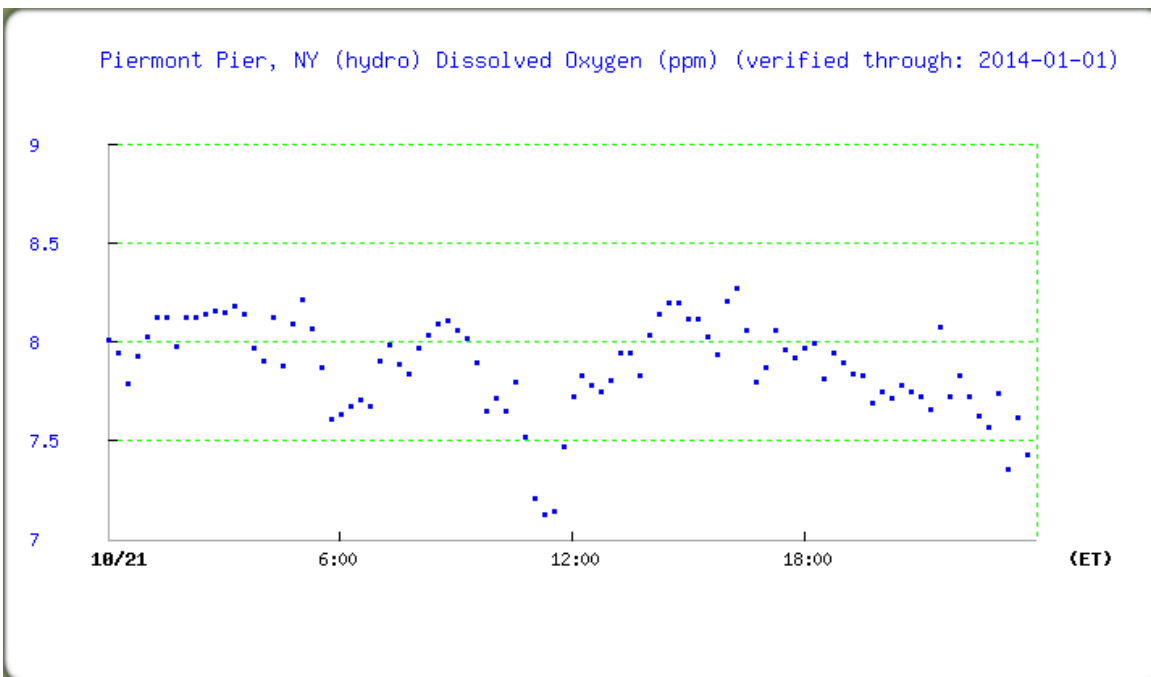
HRECOS site is located just behind the rectangular eastern end of the pier attached to one of the pier stations. When operational it is a continuous data feed recorded every 15 minutes.



**DO % Saturation**

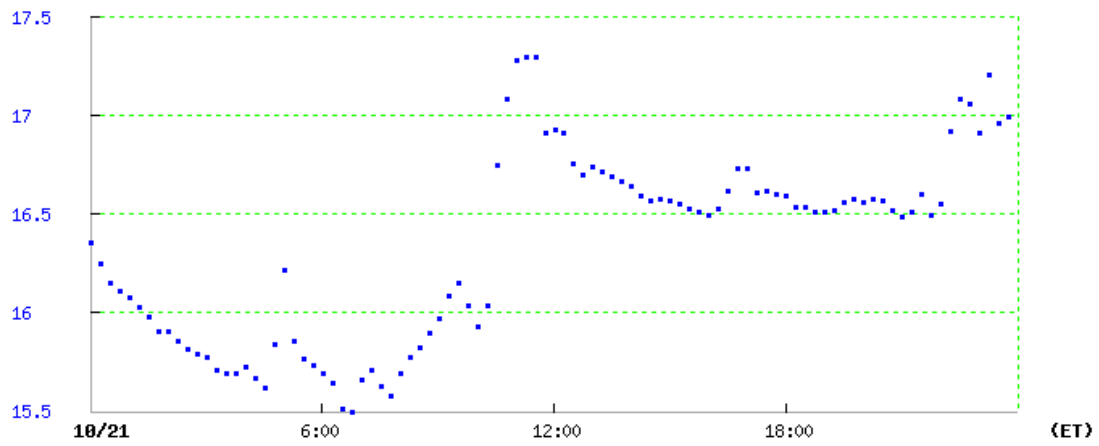


**Air Temperature**



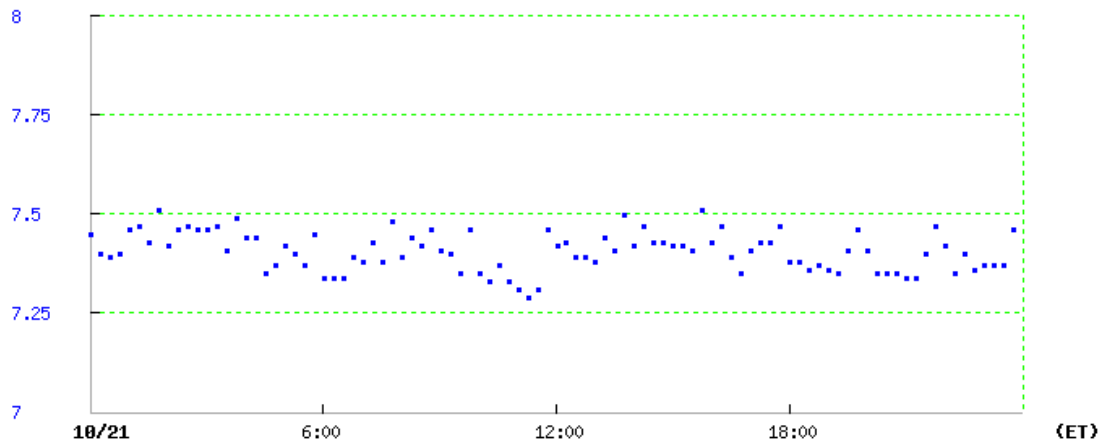
**DO ppm**

Piermont Pier, NY (hydro) Water Temp (C) (verified through: 2014-01-01)

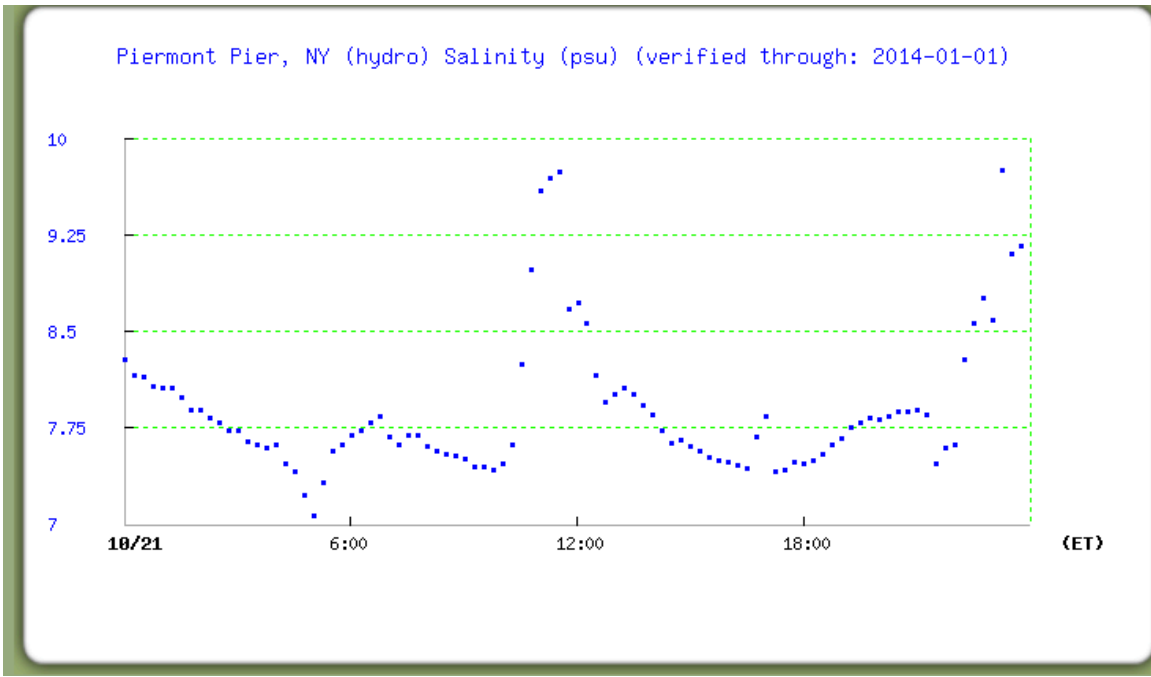


**Water temperature**

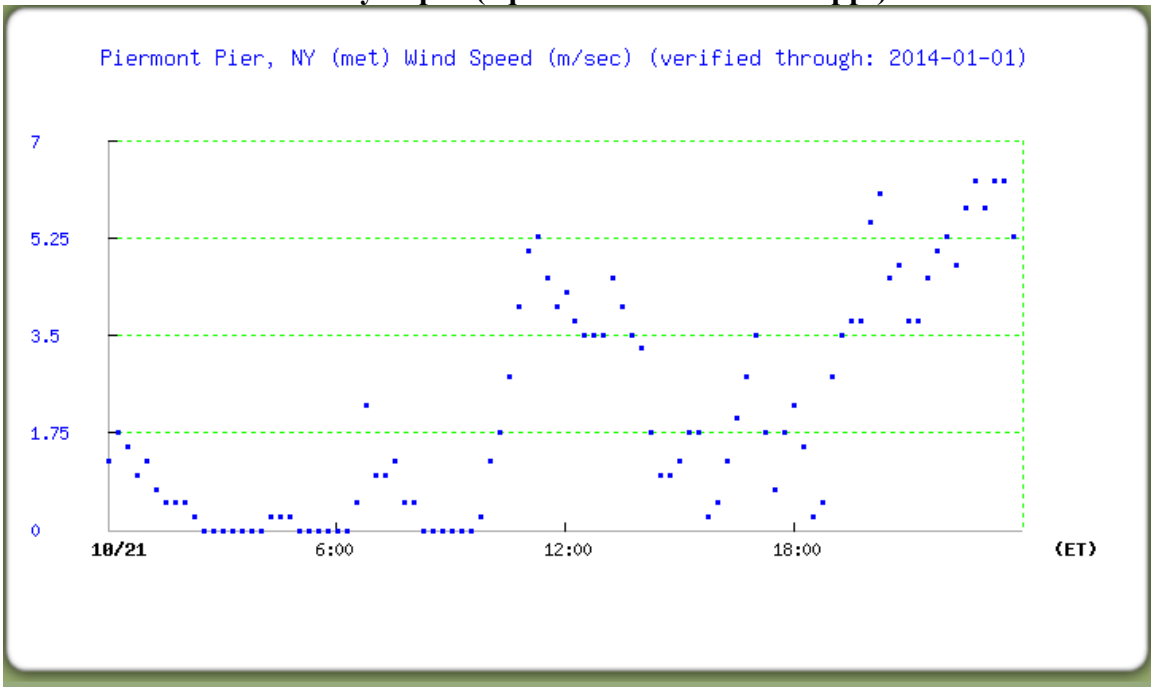
Piermont Pier, NY (hydro) Acidity (pH) (verified through: 2014-01-01)



**pH**



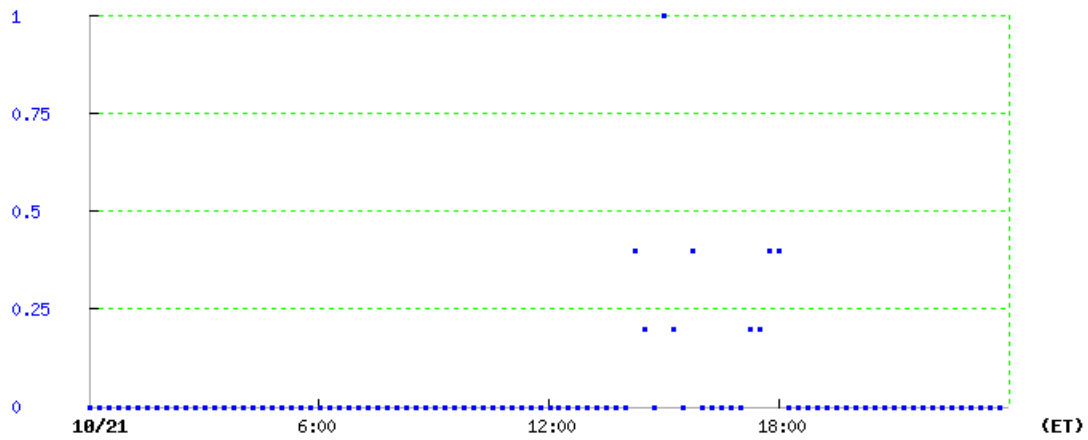
**Salinity in psu (equates in the Hudson to ppt)**



**Windspeed in meters per second**

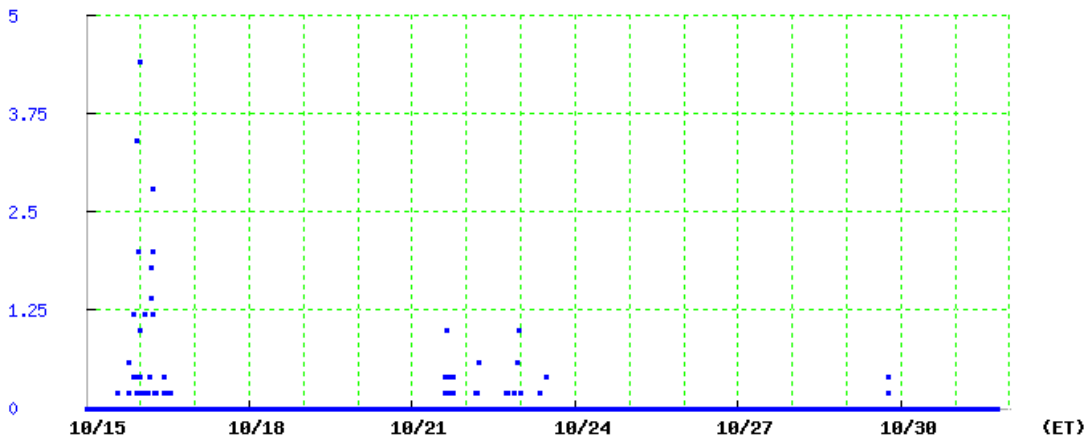


Piermont Pier, NY (met) Rainfall (mm) (verified through: 2014-01-01)



**Rainfall for today – rain just after we sampled!**

Piermont Pier, NY (met) Rainfall (mm) (verified through: 2014-01-01)



**Why we sampled on the 21<sup>st</sup> and not on 10/16/14!**