

**Snapshot Day 10/18/11 Data  
(Salt Front RM 35.7  
RIVER MILE 25W  
Piermont Pier**

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Sonia Cairo, Keep Rockland Beautiful  
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Latitude N 41 degrees 02'590 Longitude W 73 degrees 53'789**



**Tom Mullane, Jo Mosella, Eileen McCaffrey– Pearl River HS APES – 24 students**



**Ellen Pollina, Pat Kilkelly, Tappan Zee HS – AP Bio – 25 students**



**Jen Mazza,– Clarkstown South High School – 15 IB Env. Sci.**

**Location:** Piermont Pier, Piermont NY

**Area:** Man made fishing/shipping pier at the east end, long pier with paved roadway and vegetation 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:** some plants in the water but lots of plants along pier & lots of water celery washed up on shore

**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 30%; marsh plants 70%; reeds & cattails

<i>ITEM</i>	<i>Time</i>	<i>Reading 1</i>		<i>Comments</i>
<b>Physical</b>				
<b>Air Temperature</b>	9:15AM	14°C	9:50 AM	17°C
	10:10 AM	17.5°C	10:30 AM	20°C
	10:56 AM	21°C	11:30 AM	24 °C
	12:20 PM	21.5 °C	1:05 PM	26 °C
	1:29 PM	23.5 °C		
<b>Wind Speed</b>	<b>Time</b>	<b>Beaufort # &amp; Direction</b>	<b>Anenometer</b>	<b>Description</b>
Very windy	9:15 AM	1 - Sw	1.1 knots	Mostly Cloudy, light drizzle
	9:50 AM	1 - SW	1.1 knots	30% Cloud cover, no rain
	10:10AM	1 – SW	1.0 knots	70% cloud cover, no rain
	10:30 AM	1 - SW	2.5 knots	Partly Cloudy, no rain
	10:56 AM	1 - SW	2.9 knots	Partly Cloudy, no rain
	11:30 AM	1 - SW	2.2 knots	25% Cloudy, no rain
	12:20 PM	1 - S	2 knots	Clear, no rain
	1:05 PM	1 - S	1.2 knots	Clear, few scattered clouds, no rain
	1:29 PM	1 - S	2.4 kts.	Clear, no rain
Weather recently	Some small amount of rain last few days, mainly nice weather			
<b>Water Temperature</b>				Average
	9:45 AM	16°C	17°C	16.5°C
	10:20AM	16°C	18.4 °C	17.2°C
	11:00AM	17°C	19°C	18.5°C

	12:20PM	17°C	18°C	17.5°C
	1:15 PM	17°C	18.2°C	17.6°C
<b><i>Turbidity –</i></b>	<b>Time</b>	<b>3 reading</b>	<b>Average</b>	
	9:14 AM	10.4, 11.2, 11.8	11.13 cm	<b>Long site tube</b>
	9:45 AM	8.9, 13.9, 12	11.6 cm	
	10:09 AM	16.6, 16, 14.1	15.6 cm	
	10:34 AM	16.0, 19, 20	18.3 cm	
	11:03 AM	23.2, 25, 20.5	22.8 cm	
	11:20 AM	26, 26.9, 21	24.2 cm	
	12:30 PM	21.7, 32.5, 30.2	28.1 cm	
	12:50 PM	27.4, 25.1, 25.4	25.9 cm	
	1:15 PM	30.6, 31.2, 28.6	30.1 cm	
	1:33 PM	26.0, 24.0, 25.0	25 cm	
<b><i>Chlorophyll</i></b>	9:22AM	1.0		North side of pier by blockhouse
	9:56 AM	1.5		
	10:15 AM	1.0		
	10:35 AM	1.0		
	11:10AM	0.5		
	11:35 PM	0.5		
	12:35 PM	1.5		
	1:02 PM	0.4		
	1:35 PM	1.5		
<b><i>Chemical</i></b>	<b><i>*Water sampled at surface and at depth with niskin bottle reported in two separate sets of readings below. Depth for bottom samples ranged from 3.4 meters to 4.3 meters</i></b>			
		<b>SURFACE SAMPLES</b>		
<b>DO</b>	<b>TIME</b>	<b>DO Reading</b>	<b>Water Temp</b>	<b>% Saturation</b>
<b><i>Drop count</i></b>	9:15AM	error	16°C	
	10:10AM	error	16.5°C	
	11:00AM	error	16.5°C	
	12:00PM	8 mg/L	17°C	85%
	12:25 PM	10 mg/L	17°C	100%
	1:05 PM	8 mg/L	18°C	85%
		<b>BOTTOM SAMPLES</b>		
<b>DO</b>	<b>TIME</b>	<b>DO Reading</b>	<b>Water Temp</b>	<b>% Saturation</b>
	9:15AM	9.0 mg/L	14°C	87%
	10:10AM	error	15°C	
	11:00AM	7 mg/L	16°C	70%
	12:25 PM	9 mg/L	17 °C	90%
	1:05 PM	9 mg/L	18°C	95%

<i>pH</i>	TIME	SURFACE SAMPLES	DEPTH SAMPLES	
<i>colorimeter</i>	9:15AM	7.3	7.2	
	10:10AM	6.9	7	
	11:00AM	7.2	7	
	12:25 PM	7.3	7.4	
	1:05 PM	7.2	7	
Phosphates	TIME	SURFACE SAMPLES	DEPTH SAMPLES	
<i>colorimeter</i>	9:15AM	0.2 mg/L	0.2 mg/L	
	10:10AM	0.24 mg/L	0.2 mg/L	
	11:00AM	0.22 mg/L	0.2 mg/L	
	12:25 PM	0.17 mg/L	0.1 mg/L	
	1:05 PM	0.06 mg/L	0.16 mg/L	
Nitrates	TIME	SURFACE SAMPLES	DEPTH SAMPLES	
<i>Drop count</i>	9:15AM	0.2 mg/L	<0.1 mg/L	
	10:10AM	<0.1	<0.1 mg/L	
	11:00AM	<0.1	<0.1 mg/L	
	12:25 PM	0.2	<0.1 mg/L	
	1:05 PM	0.1	<0.2 mg/L	
Alkalinity	TIME	SURFACE SAMPLE	DEPTH SAMPLES	
<i>Drop count</i>	9:15AM	120 ppm	85 ppm	
	10:10AM	160 ppm	88 ppm	
	11:00AM	170 ppm	120 ppm	
	12:25 PM	85 ppm	80 ppm	
	1:05 PM	80 ppm	90 ppm	
Salinity -	TIME	SURFACE SAMPLE	DEPTH SAMPLES	
		<i>Glass Cylinder Hydrometer</i>	<i>Quantabs Cl-</i>	<i>Converted to Total Salinity</i>
<i>* seem too high</i>	9:15AM	<i>1.004 density – 5.1 ppt</i>	<i>Used low tabs exceeded chart</i>	
<i>*seem too high</i>	10:10AM	1.008 density – 10.6 ppt	1001 ppm Cl-	1.8 ppt
	11:00AM	1.002 density – 2.9 ppt	1204 ppm	2.175 ppt
	12:25 PM	1.001 – 1.5 ppt	1250 ppm	2.258 ppt
	1:05 PM	1.002 – 2.9 ppt	Not read	
Tides-Time	Tide Stick	Tide	Rate of Change	Water Depth end of pier-cm
9:10 AM	20 cm	Rising		340 cm
9:42 AM	30 cm	Rising – 10 cm/32 mins	0.313 cm/min	335 cm

10:09AM	40 cm	Rising – 10 cm/27 min	0.37 cm/min	359 cm
10:32 AM	50 cm	Rising – 10 cm/23 min	0.43 cm/min	385 cm
11:03 AM	60 cm	Rising- 10 cm/31 min	0.32 cm/min	380 cm
11:39AM	80 cm	Rising – 20 cm/36 min	0.56 cm/min	410 cm
12:25 PM	100 cm	Rising – 20 cm/46 min	0.43 cm/min	401 cm
1:20 PM	110 cm	Rising- 10 cm/45 min	0.22 cm/min	430 cm
1:40 PM	Lost stick	Rising		404 cm* different spot
<b>Currents</b>	<b>Time</b>	<b>CM/#SEC</b>	<b>Cm per sec</b>	<b>North/South Ebb/Flood/Still</b>
	9:15 AM	346/45	7.7 cm/sec	North/Flood
<b>Toss close to pier ~ 40 m</b>	9:42 AM	882/26	33.92	North/Flood
<b>Toss ~60-80 m out</b>	10:05 AM	1030/51	20.4	North/Flood
<b>~30-40 m out</b>	10:32 AM	1220/26	47.1	North/Flood
	10:58 AM	1170/41	28.5	North/Flood
	11:30 AM	870/19	46	North/Flood
<b>Toss ~35 m out</b>	12:25 PM	820/20	41	North/Flood
	1:20 PM	1050/25	42	North/Flood
	1:40 PM	210/9	23	North/Flood
<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 4 seines</b>	3	Atlantic Silverside	9 cm	9:25 AM
	2	Striped Bass	7 cm	<b>Diversity 4</b>
	2	Herring	13 cm	<b>8 total catch</b>
	1	Banded Killifish	11 cm	
<b>Rotation #2 6 seines</b>	51	Atlantic Silverside	9 cm	10:35 AM
	4	Striped Bass	7 cm	
	1	Menhaden		
	3	White Perch	15 cm	
<b>*fish trap</b>	*2	Naked Gobies	3 cm	<b>Diversity 6</b>
	2	Crabs		<b>63 total catch</b>
<b>Rotation #3</b>	41	Atlantic Silverside	9 cm	11:00 AM
	10	Herring	10 cm	
	1	Striped Bass	12 cm	<b>Diversity3</b>
				<b>52 total</b>
<b>Rotation #4</b>	59	Herring		12:45 PM
	65	Atlantic Silverside		
	2	Menhaden		
	1	Striped Bass	10 cm	<b>Diversity 5</b>

<i>*Fish trap</i>	*1	Naked Goby			<b>128 total catch</b>
<b>Rotation #5</b>	30	Atlantic Silverside		10 cm	<i>1:20 PM</i>
	9	Herring			<b>Diversity 2</b>
					<b>39 total</b>
		<b>Grand Total</b>			<b>Diversity 8 Count 290</b>
<b>Macro-invertebrates</b>	Rock barnacles	Comb jellies	Amphipods - Amphiopora	Amphipods - Leptocheirus plumulosus shoemaker	Amphipods – Melita Nitida Smith
<b>Plankton</b>	Zoo-plankton	Isopoda, Amphipoda, Cumacea, Branchiopoda, Copepoda, Cirripeda		Phytoplankton	Several types
<b>Sediment Cores</b>	Length	H2S Smell	Rare	Common	Abundant
<b>9:18 AM – 2.5 ft. water depth</b>	14 cm	No	Wood	Clay, gravel, pebbles, living vegetation	mud
<b>9:37 AM - 2.5 ft. water depth</b>	14 cm	No	Mussel shell	Pebbles, wood, oyster shell, macroinvert	Clay, mud, gravel
<b>9:58 AM - 2.5 ft. water depth</b>	14 cm – top pebbles and gravel, bottom clay	Yes	Oyster shells	Sand, gravel, leaves, wood	Clay, mud, pebbles, living vegetation
<b>10:30 AM – 4 ft. deep</b>	17 cm – gravel top layer, mud below	No		Clay, sand, gravel, wood, macroinvert, living vegetation	Mud, pebbles
<b>11:00 AM – 3 ft. deep</b>	10 cm – 1 cm top of gravel, lower layer mud	Yes	Gravel – top only  *NOTE worm in core	Clay, sand, wood	Mud, leaves, living vegetation
<b>11:11 AM</b>	14 cm with 4 cm gravel top	Yes	Fresh water mussel	Clay, mud,	Sand, gravel, pebbles, leaves, living vegetation – more gravel

					than sand, large pebbles
<b>11:30 AM – 5 ft. deep</b>	18 cm – 8 cm gravel on top and 10 cm mud below				
<b>12:25 PM</b>	17 cm – 11 cm gravel on top and 6 cm mud	Yes	Leaves, wood, shells, macroinvt, brick, coal, slag		Clay, mud, gravel, living vegetation
<b>12:45 PM</b>	12 cm – 9 cm gravel on top and 3 cm mud below		Leaves	Clay, mud,	Sand, gravel, pebbles, living vegetation
<b>1:15 PM</b>	8.5 cm – no top	Yes	Coal,	Gravel, pebbles	Clay, mud, leaves, living vegetation
<b>1:28 PM</b>	14 cm – 8 cm sand on top, 6 cm mud below	Yes	Wood, shells, macros	Leaves	Clay, mud, sand, gravel, pebbles, living vegetation
<b>OTHER</b>	1:05 PM	Cormorants & seagulls visible			
	1:40 PM	Monarch Butterfly migrating			
<b>SHIPPING</b>	9:50 AM	Yacht white color		Southbound	
	1:04 PM	Barge		Northbound	
	1:35 PM	Barge - blue		Northbound	Full