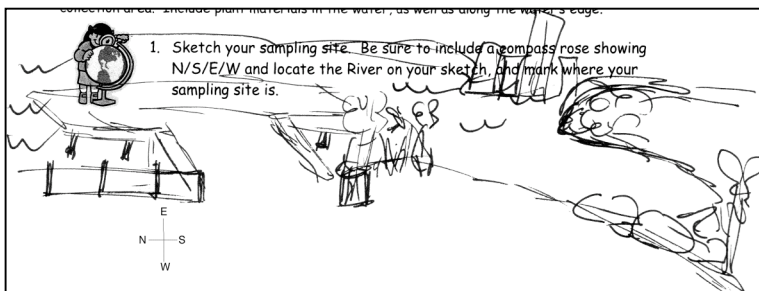


**Snapshot Day 10/8/09 Data
(Salt Front RM 60.3)
RIVER MILE 25W
Piermont Pier
Lamont-Doherty Earth Observatory**



**Ellen Pollina, Brian Newburger– Tappan Zee High School AP Bio. – 30 students
Tom Mullane & Sheryl Turk - Pearl River High School APES – 50 students
Jen Mazza, Khris Arvanites– Clarkstown South High School - 12 HS students
Latitude N 41 degrees 02'591" Longitude W 73 degrees 53'792"**



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>
<i>Physical</i>				
Air Temperature	10:00 AM	17°C		
	10:32 AM	19 °C		
	11:25 AM	18°C		
	11:40 AM	19 °C		
	12:40 PM	26 °C		
	1:00 PM	24 °C		
	1:20 PM	20.5 °C		
Wind Speed	Time	Beaufort #	Anenometer	Direction
Very windy	10:00 AM	3	7.4 knots	North
	10:30 AM	1	3.5 knots	NW
	11:00 AM		18.1 km/hr	7.4 kts. NW
	11:25 AM	1	1.6 knots	NW
	11:40 AM	1	2.8 knots	N/NW
	12:40 AM	1	1.2 knots	North
	1:00 PM	0	0.7 knots	
	1:20 PM	2	5.0 knots	
Cloud Cover	Partly cloudy			
Weather today	Very windy on the pier, a bit chilly, northerly wind gusts, mostly calm water with mild waves			
Weather recently	Tuesday sunny and warm, Wed. windy and rainy.			
Water Temperature				SURFACE SAMPLE
	9:30 AM	18°C		
	10:30AM	16°C		
	11:30AM	16°C		
	12:30PM	16°C		
	1:15 PM	16°C		
Water Temperature				BOTTOM SAMPLE
	9:30AM	17°C		
	10:30AM	17°C		
	11:30 AM	17°C		
	12:30 PM	18.5°C		
	1:15PM	18.5°C		

<i>Turbidity –</i>	9:30 AM	16.5 cm		Long site tube
	10:30AM	17.5 cm		
	10:55AM	16 cm		
	11:06AM	12.3 cm		
	11:28AM	13.4 cm		
	12:40PM	15 cm		
	1:00 PM	17.6 cm		
<i>Turbidity</i>	9:30 AM	40 cm		Secchi Disk
	10:00 AM	40 cm		
	10:30 AM	40 cm		
	11:25 AM	20 cm		
	11:40 AM	32.5 cm		
	12:40 PM	45 cm		
	1:10 PM	45 cm		
	1:30 PM	50 cm		
<i>Turbidity</i>	9:30 AM	40 JTU		Small site tube
	10:00AM	27.5 JTU		
	10:30AM	27.5 JTU		
	11:06AM	25 JTU		
	11:25AM	42.5 JTU		
	12:40PM	45 JTU		
	1:00 PM	35 JTU		
<i>Depth</i>	10:00 AM	30 cm		
	10:30 AM	410 cm		
	10:40 AM	420 cm		
	11:25 AM	463 cm		
	12:25 PM	502 cm	Waves made it hard to read	
	12:40 PM	456 cm		
	1:10 PM	459 cm		
<i>Chlorophyll</i>	1:00 PM	1.75		
	1:20 PM	1.75		
<i>Chemical</i>	SURFACE WATER SAMPLES			
DO	9:30 AM	22.0 mg/L	18°C	Too high – students probably introduced O2
<i>Drop count</i>	10:30AM	9 mg/L	16°C	90%
	11:30AM	5 mg/L	16°C	50%
	12:30PM	4 mg/L	16°C	40%
	1:15 PM	9 mg/L	16°C	90%
pH	9:30 AM	7.0		
<i>colorimeter</i>	10:30AM	7.5		
	11:30AM	7.0		
	12:30PM	7.25		

	1:15 PM	7.5		
Phosphate	9:30 AM	0.2 mg/L		
<i>colorimeter</i>	10:30AM	0.54 mg/L		
	11:30AM	0.40 mg/L	Seems too high?	
	12:30PM	0.44 mg/L	Seems too high?	
	1:15 PM	0.1 mg/L		
Nitrate	9:30 AM	0.88 mg/L		
<i>Drop count</i>	10:30AM	0 ppm		
	11:30AM	0 ppm		
	12:30PM	0 ppm		
	1:15 PM	0 ppm		
Alkalinity	9:30 AM	82 ppm		
<i>Drop count</i>	10:30AM	105 ppm		
	11:30AM	90 ppm		
	12:30PM	100 ppm		
	1:15 PM	75 pm		
Salinity	9:30 AM	6.6 ppt		<i>Hydrometer</i>
	10:30AM	6.6 ppt		
	11:30AM	6.6 ppt		
	12:30PM	6.6 ppt		
	1:15 PM	6.6 ppt		
Chemical	BOTTOM WATER SAMPLES			
DO	9:30AM	8.0 mg/L	17°C	80%
	10:30AM	9.0 mg/L	17°C	92%
	11:30 AM	9.0 mg/L	17°C	95%
	12:30 PM	8.0 mg/L	18.5°C	85%
	1:15PM	11.0 mg/L	18.5°C	115%
pH	9:30AM	8.2		
	10:30AM	8.4		
	11:30 AM	7.5		
	12:30 PM	7.0		
	1:15PM	7.5		
Phosphate	9:30AM	0 mg/L		
	10:30AM	0 - 0.5 mg/L		
	11:30 AM	0.38 mg/L		
	12:30 PM	0.1 mg/L		
	1:15PM	0.25 mg/L		
Nitrate	9:30AM	0 -0.2 ppm		
	10:30AM	0 ppm		
	11:30 AM	0 ppm		
	12:30 PM	0 ppm		
	1:15PM	0 ppm		
Alkalinity	9:30AM	86 ppm		

	10:30AM	90 ppm		
	11:30 AM	62 ppm		
	12:30 PM	100 ppm		
	1:15PM	95 ppm		
Salinity	9:30AM	7 ppt		refractometer
	10:30AM	7 ppt		
	11:30 AM	8 ppt		
	12:30 PM	7 ppt		
	1:15PM	7 ppt		
Tides	Time	Tide Stick		
	9:38 AM	12 cm		
<i>Setting a tide stick</i>	10:00 AM	30 cm	flood	
	10:30AM	41 cm	flood	
	11:00 AM	58 cm	flood	
	11:20 AM	70 cm	flood	
	12:25 PM	85 cm	Flood	
	1:10 PM	90 cm	flood	
	1:23PM	72 cm	rising	
Currents	Time	Cm/60 secs	Cm per sec	Knots/direction
	9:45 AM	Strong current opposite direction to waves	32.6 cm/sec	flood
	10:00 AM		50.2 cm/sec	flood
	10:15 AM	1826.3cm/60 secs	33.4 cm/sec	flood
	10:49 AM		38.2 cm/sec	flood
	11:27 AM		15.8 cm/sec	flood
	11:45 AM		38.2 cm/ sec	Flood
	12:00 PM	2290cm/60 secs	46.1 cm/sec	
	12:30 PM		43.7 cm/sec	Flood
	12:40 PM		34.2 cm/sec	
	1:20 PM		27.6 cm/sec	
Fish Catch	Number Caught	Species	Measure of largest	Seine 30 m
Northside of pier	19	Atlantic Silverside	5 cm	9:30 AM
5 rotations –	1	Striped Bass	12 cm	
Each group 1 seine	5	Juvenile Blue Crabs	3 cm	
But with 2 nets	1	Naked Goby		Diversity 5
	Several	Ctenaphors (comb jelly)		
	2	Shore shrimp	2 cm	28 + total
	9	Atlantic Silverside	10 cm	10:00 AM
	1	White Perch	19 cm	
	6	Blue Crab	1	Diversity 4
	Several	Ctenaphors (comb jelly)		16 + total
	22	Atlantic Silverside	9 cm	11:17 AM

	1	Striped Bass			
	1	Menhaden	15 cm	Diversity 5	
	1	White Perch	21 cm		
	2	Blue Crab	9 cm	27 total	
	15	Atlantic Silverside	9 cm	<i>12:30 PM</i>	
	3	Striped Bass	12 cm		
	6	Blue Crab	10 cm		
	3	White Perch	22 cm		
	52	Comb jellies	2 cm	Diversity 6	
	1	Shore shrimp	3 cm	80 total	
	5	Atlantic Silverside	15cm	<i>1:00 PM</i>	
				Diversity 1	
				5 total	
	5	Atlantic Silverside	8 cm		
	1	Striped Bass		Diversity 3	
	5	Blue Crabs	4 cm	11 total	
		Grand Total		Diversity 8 Count 167	
OTHER	2	Cumaceas			
Cores	Length	Abundant	Common	Rare	Comments
9:30 AM – water	18 cm 5 cm top grainy dark -13 cm bottom lighter clay	Clay	Sand Gravel	Mud wood	Feels like clay, newer sediment is looser and cooler, smells metallic and sulfurish
10:06 AM – water 70 cm deep	29 cm - 10 cm top sand & gravel bottom clay & mud	Clay, mud	Sand Gravel	Pebbles & Shells	material in a pocket in the clay down by bottom
10:42 AM –	19 cm – top 1 cm oxidized	Sand –	Clay	Gravel Pebbles Leaves	
11:25 AM –	12 cm – 9 cm in the middle are red	Sand	Mud Gravel	Pebbles Clay & some vegetation	Oxidized top
12:00 PM –	6 cm – top 2.5 cm	Sand, leaves & Living vegetation	Clay, leaves (grasses)	Mud Gravel Pebbles	Dark colored, not very oxidized a lot,

				Wood Brick	no sulfur smell, grainy with clay
12:35 PM – water 47 cm	7 cm -	Clay – fine grain	Mud Sand	Gravel	Small bit of H2S odor, some plants in & organisms
1:00 PM –		Sand Leaves	Clay Mud Gravel	Pebbles Wood	
<i>Shipping</i>	10:25 AM	Recreational boat			
	10:30 AM	Sailboat	White		Southbound
<i>History</i>	Pier used to load cargo from trains to boats in WWII, people came to pier at nighttime and silently loaded ships with thousand of soldiers. 50,000 soldiers a month were shipped out from pier.				