

Day in the Life of the Hudson River 10/06/2023
Piermont Pier, Piermont, NY
RIVER MILE: 25.4
Salt Front: ~ RM 52



Spring Valley High School-Shawn Kapusinsky



Pearl River High School-Tom Mullane

Lamont Doherty Earth Observatory- Margie Turrin & Marisa Annunziato
48 students, 11th-12th grade, 12 adults
Latitude 41.043189°N & Longitude -73.895952°W



Location: Piermont Pier, Piermont, Rockland County, NY.
Surrounding Land Use: 80% Urban/Residential & 20% Forested
Sampling Site: Pier, shoreline rip rap, some phragmites along both sides of the pier. Sparkill Creek flows into the Hudson on the south side of pier and Piermont Marsh is directly to the south. At the southern base of the pier sewage outfall piping entering river on the south of sampling site. Today we had the sloop Clearwater at the end of the pier for much of our sampling and so we used it as a platform for currents. We also had two crabbers who dominated both sides of the pier with their traps and their active handling of the traps undoubtedly impacted the turbidity measurements.
Shoreline: NR
Water: Calm
River Bottom: Muddy & Rocky
Plants in the water: Phragmites
 *NR = Not read/recorded
Photo of sediment core with clay on bottom, middle section is fully sand and top is mud. Superstorm Sandy layer of sand?

ITEM	Time	Reading	Comments
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<i>Physical</i>						
<i>Air Temperature</i>	9:04 AM 9:41 AM 10:20 AM 11:56 AM 12:45 PM	19°C 20°C 19°C 21°C 22°C	66.2°F 68°F 66.2°F 69.8°F 71.6°F			
<i>Wind Speed:</i>	9:04 AM 9:41 AM 10:20 AM 11:56 AM 12:45 PM	<i>Anemometer</i> 4.3 mph 4.75 mph 4 mph 2.3 mph 2.5 mph	<i>Beaufort</i> 2 2 2 1 2		<i>Direction</i> East Southeast Southeast Southeast Southeast	
<i>Weather today</i>	10:20 AM	>75% Cloud Cover	Drizzle			
<i>Weather the past 3 days:</i>	Yesterday Nice & Sunny; Rained off and on a lot this fall					
<i>Tides-</i>	<i>Time</i>	<i>Rising, Falling, Unchanged</i>		<i>Height (cm)</i>		
	9:14 AM 9:41 AM 10:25 AM 11:56 AM 12:45 PM	- Slack/Unchanged Rising Rising Rising		274 cm 274 cm 284 cm 320 cm 357 cm		
<i>Current-</i>	<i>Time</i>	<i>Cm/sec</i>	<i>Knots</i>	<i>North/South</i>	<i>Ebb/Flood/Slack</i>	
	9:04 AM 9:11 AM 10:30 AM 12:20 PM 12:40 PM	18.34 0.13 13.19 24.02 21.19	0.3569 0.0052 0.2565 0.4674 0.41	South South North North North	Ebb Ebb Flood Flood Flood	
<i>Water Temperature-</i>	8:55 AM 9:38 AM 10:25 AM 11:58 AM 12:45 PM	20.4°C 20.7°C 20.5°C 21°C 20°C		68.7°F 69.3°F 68.9°F 69.8°F 68°F		
<i>Turbidity- Long Sight Tube (120 cm)</i> <i>*see note in the site description about the impact of the two crabbers on the turbidity data collection.</i>	8:50 AM 8:55 AM 9:10 AM 9:18 AM 9:40 AM 9:46 AM 10:00 AM 10:30 AM 10:48 AM 12:00 PM 12:25 PM 12:40 PM 1:00 PM	76 cm 64.8 cm 61.5 cm 65 cm 54 cm 43.7 cm 59.4 cm 57 cm 46 cm 26.8 cm 83.8 cm 40.1 cm 26 cm		<i>Secchi Disk (cm)</i>	8:50 AM 8:55 AM 9:10 AM 9:18 AM 9:40 AM 9:48 AM 10:00 AM 10:30 AM 10:48 AM 12:03 PM 12:25 PM 12:30 PM 12:40 PM 1:00 PM	117 cm 107 cm 87.5 cm 90 cm 87 cm 90 cm 82 cm 75.6 cm 82.5 cm 42 cm 63.5 cm 60 cm 49.8 cm 43.3 cm
<i>Chemical</i>						
<i>Student Salinity- Refractometer</i>	8:55 AM 9:38 AM 10:25 AM 11:58 AM 12:45 PM	6,000 ppm 5,000 ppm 5,000 ppm 5,500 ppm 5,000 ppm		6 ppt 5 ppt 5 ppt 5.5 ppt 5 ppt		
<i>Hydrometer</i>	8:55 AM	6,400 ppm		6.4 ppt		

	9:38 AM 10:25 AM 11:58 AM 12:45 PM	6,000 ppm 2,000 ppm 5,000 ppm 3,000 ppm	6 ppt 2 ppt 5 ppt 3 ppt	
DO – Hach Drop Count Kit	<i>Time</i>	<i>Temp</i>	<i>ppm DO</i>	<i>% saturation</i>
	8:55 AM 9:28 AM 9:38 AM 10:25 AM 11:58 AM 12:45 PM	20°C 20°C 20°C 20.5°C 21°C 20°C	9 ppm 9 ppm 11 ppm 7 ppm 10 ppm 10 ppm	100% 100% 120% 80% 110% 115%
pH – Color Match Kit	8:55 AM 9:38 AM 10:25 AM 11:58 AM 12:45 PM	8 7.5 7.8 8.2 7.5		
Nitrates- Lamotte Kit	8:55 AM 9:17 AM 9:38 AM 10:25 AM 10:38 AM 11:58 AM	0.4 ppm 0.7 ppm 0.4 ppm 0.5 ppm 0.6 ppm 0.8 ppm		
Phosphates- Lamotte Kit	8:55 AM 9:38 AM 10:25 AM 10:38 AM 11:58 AM 12:45 PM 1:01 PM	0.34 ppm 0.34 ppm 0.47 ppm 0.4 ppm 0.54 ppm 0.25 ppm 0.24 ppm		
Alkalinity- Lamotte Kit	8:55 AM 9:38 AM 10:25 AM 11:58 AM 12:45 PM	60 ppm 61 ppm 50 ppm 53 ppm 70 ppm		
Biological				
Fish- Seine (6 Hauls)	Number	Name	Length of longest	Notes
9:15 AM-1:00 PM	55 8	Atlantic Silverside Striped Bass		
Fish Totals	TOTAL: 63	Diversity: 2		
Macroinvertebrates	Number	Name	Length of longest	Sex
	10 7 3 4	Blue Crab Asian Shore Crab Palaemonetes Shrimp Crangon Shrimp		5 M, 4 F
Macroinvertebrate Totals	TOTAL: 24	Diversity: 4		
Plankton Pump	Number	Name		
	1 1 1 2	Insect Molt Ankistrodesmus Sp. Pediastrum Sp. Bosmina longirostris		
Plankton Totals	Total: 5	Diversity: 4		

<i>Length</i>	<i>Time</i>	<i>H₂S smell</i>	<i>Oil</i>	<i>Oxidized Top</i>	<i>Grain Size</i>	<i>Other Features</i>
16 cm	NR	Y	N	N	<i>Abundant:</i> Mud <i>Common:</i> Clay, Sand, Gravel <i>Rare:</i> Pebbles	<i>Common:</i> Wood 3 cm on top and 13 cm rough material on bottom
17.5 cm	NR	N	N	N	<i>Abundant:</i> Mud <i>Common:</i> Gravel <i>Rare:</i> Clay, Sand, Pebbles	10 cm rough, rocky on top, 5 cm sand, 3.5 cm smooth at base
10 cm	NR	Y	N	N	<i>Abundant:</i> Mud, Sand, Gravel, Pebbles <i>Common:</i> Clay	<i>Common:</i> Brick <i>Rare:</i> Leaves, Macroinvertebrates, Living Vegetation 3.5 cm finer material, 6.5 cm softer sediment on bottom
9 cm	10:40 AM	Y	N	N	<i>Abundant:</i> Clay <i>Common:</i> Mud, Sand, Pebbles <i>Rare:</i> Gravel	<i>Rare:</i> Leaves, Wood, Mussel shells, Living vegetation
19 cm	NR	Y	N	N	<i>Abundant:</i> Clay <i>Common:</i> Mud, Gravel, Pebbles <i>Rare:</i> Sand	<i>Common:</i> Wood <i>Rare:</i> Leaves, Oyster shells, Macroinvertebrates, Brick 4 cm rock, 12 cm smooth gray clay and 3 cm wood bottom
19 cm	9:45 AM	Y	N	N	<i>Abundant:</i> Clay <i>Common:</i> Mud <i>Rare:</i> Sand, Pebbles	<i>Abundant:</i> Wood <i>Common:</i> Slag <i>Rare:</i> Brick 7 cm from bottom a section of wood was wedged
11.3 cm	NR	N	N	N	<i>Abundant:</i> Mud, Sand <i>Common:</i> Pebbles <i>Rare:</i> Gravel	<i>Rare:</i> Oyster Shells, Mussel Shells, Brick
11.5 cm	NR	Y	N	N	<i>Abundant:</i> Clay, Mud <i>Rare:</i> Sand, Pebbles	<i>Abundant:</i> Living Vegetation 10.8 cm clay on bottom
15 cm	NR	faint	N	N	<i>Abundant:</i> Clay	<i>Rare:</i> Leaves, Living Vegetation, Brick, Coal

					<i>Common:</i> Sand, Gravel <i>Rare:</i> Pebbles	
12.6 cm	NR	Y	N	N	<i>Abundant:</i> Clay <i>Common:</i> Gravel, Pebbles, mud <i>Rare:</i> Sand	<i>Common living:</i> vegetation Rock on top (0.5cm) 3.5 cm sandy & mud 7.1 cm mud & clay

Boats-NR

Commercial/ Recreational	Time	Name	Color	Southbound/ Northbound	Light/ Loaded