

**Day in the Life of the Hudson River 10/4/12 Data
RIVER MILE 25W
Piermont Pier**

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Latitude N 41 degrees 02'592 Longitude W 73 degrees 53'789**



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APES – 41 students**



**Pat Kilkelly and Peter Dene Tappan
Zee HS – AP Bio – 19 students**



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9 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: no submerged aquatic plants in the water but lots of plants along pier and in intertidal zone & lots of water celery washed up on shore and coming up in nets

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>Temperature</i>	<i>Observations</i>	
<i>Physical</i>				
Air Temperature	9:20AM	23°C 66°F	Monarch butterfly, drifting boat dock (north)	
	9:40 AM	26°C	none	
	10:00 AM	27°C	none	
	10:30 AM	23 °C	Monarch Butterfly	
	10:45 AM	25 °C	Monarch Butterfly	
	11:00 AM	27 °C	Monarch Butterfly, Schooling Fish - Alongside the pier a group of what we felt were menhaden were circling energetically up close to the surface – flashing wide silver from their sides as they seemed to tip towards the surface (lasted ~30 minutes)	
	12:15 AM	25 °C	3 Monarch Butterfly	
	12:30 AM	23 °C	3 Monarch Butterfly	
	12:55 AM	24 °C	3 Monarch Butterfly	
	1:20 PM	23.5 °C	Monarch Butterfly	
Wind Speed	Time	Beaufort # & Direction	Anemometer	Description
	9:20AM	Calm		Mostly Cloudy,
	9:40 AM	Calm		Very Cloudy
	10:00 AM	Calm		cloud cover
	10:30 AM	Feel wind but too light to measure		Fog, cloudy
	10:45 AM	Calm		Light rain
	11:00 AM	Calm		Light rain
	12:15 AM	Beaufort 2 – South	6.0 gusts	Overcast, drizzle, misty
	12:30 AM	South	4.9 gusts	Little rain
	12:55 AM	South	4.1 gusts	Little rain
	1:20 PM	South	2.2 gusts	Light rain, cloudy
Weather recently	Some rain last few days, some wind			
Water Temperature	Time	Surface Sample	Depth Sample	Average

	9:30 AM	21°C	19°C	20°C
	10:10 AM	20.5°C	22°C	21.25°C
	10:40 AM	20.5°C	20°C	20.25°C
	12:20 PM	21°C	21°C	21°C
	1:10 PM	22°C	21°C	21.5°C
<i>Turbidity –</i>	Time	3 readings	Average	Pier Northside
<i>Long Site Tube</i>	9:05 AM	37,37,33	35.5 cm	Long site tube
	10:15 AM	26.5, 26, 24	25.5 cm	
	10:40 AM	22, 23, 23.4	22.8 cm	
	10:58 AM	26, 27, 24	25.6 cm	
	11:19 AM	27, 26	26.5 cm	
	12:17 PM	39, 38.2, 37	38 cm	
	12:37 PM	30, 31, 37.9	33 cm	
	1:03 PM	34, 39, 34	35.7 cm	
<i>Secchi</i>	9:10 AM	53, 46.5, 43	47.5 cm	Secchi
	10:01 AM	46, 3, 48	43.3 cm	
	10:25 AM	41, 42, 48	43.7 cm	
	10:58 AM	41, 41, 41	41 cm	
	11:16 AM	40	40 cm	
	12:15 PM	61, 61, 61	61 cm	
	12:32 PM	52, 52, 52	52 cm	
	12:55 PM	50, 47.5, 50	49.2 cm	
<i>Chlorophyll</i>	9:37AM	2.0		Pier Northside
	10:00 AM	2.0		
	11:05 AM	2.0		
	12:00 PM	2.0		
	12:10 PM	0.8		
	12:35 PM	2.0		
	1:00 PM	1.5		
	1:15 PM	1.5		
<i>Chemical</i>	<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>			
		SURFACE SAMPLES		
DO	TIME	DO Reading	Water Temp	% Saturation
<i>Drop count</i>	9:30 AM	Not read	21°C	
	10:10 AM	7 mg/L	20.5°C	68%
	10:40 AM	5 mg/L	20.5°C	55%
	12:20 PM	11 mg/L	21°C	125%
	1:10 PM	7 mg/L	22°C	80%
		BOTTOM SAMPLES		
DO**	TIME	DO Reading	Water Temp	% Saturation
<i>**see HRECOS</i>	9:30 AM	7.0 mg/L	19°C	75%

graph @ bottom				
*Expect error	10:10 AM	*13.0 mg/L	22°C	130%
	10:40 AM	7 mg/L	20°C	76%
	12:20 PM	*10 mg/L	21 °C	112%
	1:10 PM	8 mg/L	21°C	90%
pH	TIME	SURFACE SAMPLES	DEPTH SAMPLES	
<i>colorimeter</i>	9:30 AM	7.0	7.0	
	10:10 AM	7.3	7.3	
	10:40 AM	7.0	7.3	
	12:20 PM	6.8	6.8	
	1:10 PM	7.0	6.5	
Phosphates	TIME	SURFACE SAMPLES	DEPTH SAMPLES	
<i>colorimeter</i>	9:30 AM	0.58 mg/L	0.52 mg/L	
	10:10 AM	0.62 mg/L	0.54 mg/L	
	10:40 AM	0.64 mg/L	0.56 mg/L	
	12:20 PM	0.60 mg/L	0.4 mg/L	
	1:10 PM	0.38 mg/L	0.56 mg/L	
Nitrates	TIME	SURFACE SAMPLES	DEPTH SAMPLES	
<i>Drop count</i>	9:30 AM	0.45 mg/L	0.3 mg/L	
	10:10 AM	0.1 mg/L	0.1 mg/L	
	10:40 AM	0.1 mg/L	0.1 mg/L	
	12:20 PM	0.2 mg/L	0.1 mg/L	
	1:10 PM	0.1 mg.L	0.2 mg/L	
Alkalinity	TIME	SURFACE SAMPLE	DEPTH SAMPLES	
<i>Drop count</i>	9:30 AM	Not read	80 ppm	
	10:10 AM	113 ppm	68 ppm	
	10:40 AM	73 ppm	60 ppm	
	12:20 PM	88 ppm	120 ppm	
	1:10 PM	62 ppm	110 ppm	
Salinity -	TIME	SURFACE SAMPLE	DEPTH SAMPLES	<i>Refract. (R) GlassHydro(H)</i>
	9:30 AM	7 ppt -R 7.6 ppt - H	10 ppt -R 7.1 ppt - H	
	10:10 AM	8 ppt -R 7.9 ppt - H	10 ppt -R 7.6 ppt - H	
	10:40 AM	8 ppt -R 7.5 ppt - H	9.5 ppt -R 8.8 ppt - H	
	*12:20 PM	8.1 ppt -R	8.9 ppt -R	*Recalibrated

		9.1 ppt - H	9.5 ppt - H	refractometer
	1:10 PM	6.5 ppt -R 7.9 ppt - H	7 ppt -R 7.6 ppt - H	
Tides-Time	Total Depth	To Water Surface	Tide Depth	Ebb/Flood
9:10 AM	583 cm	190 cm	393 cm	
9:40 AM			392 cm	Still
10:00AM	579	174	405 cm	Flood
10:30 AM	588	160	428 cm	Flood
10:45 AM	593	157	436 cm	Flood
11:00AM	586	147	439 cm	Flood
12:11 PM			453 cm	Flood
12:33 PM	594	121	473 cm	Flood
1:00 PM			509 cm	Flood
Currents	CM/30 SEC	Cm per sec	Knots/hr	North/South Ebb/Flood/Still
9:18 AM	16.5	.55cm/sec	0.0107	Flood
9:42 AM	15.68	.52 cm/sec	0.0101	Flood
10:12 AM	18.85	.63 cm/sec	0.0122	Flood
10:35 AM	19.6	.65 cm/sec	0.0126	Flood
10:55 AM	15.35	.51 cm/sec	0.0099	Flood
11:15 AM	15.69	.52 cm/sec	0.0101	Flood
12:20 PM	17.43	.58 cm/sec	0.0113	Flood
12:45 PM	14.80	.49 cm/sec	0.0095	Flood
1:09 PM	6.81	.23 cm/sec	0.0044	Flood
1:30 PM	4.8	.16 cm/sec	0.0016	Flood
Fish Catch Northside of pier	Number Caught	Species	Measure of largest	TIME & CATCH
Rotation #1	34	Atlantic Silverside	8 cm	9:20 AM
	11	Striped Bass	12 cm	Diversity 6
	3	Herring	13 cm	49 total catch
	1	Blue Crab	5 cm	(Plus jellies)
	Many	Comb Jelly		
	Many	Moon Jelly		
Rotation #2	16	Atlantic Silverside	8 cm	10:07 AM
	1	Blue Crab		Diversity 4
	8	Jellies		27 total catch
	2	Crabs		Lots of water celery blades washed into net
Rotation #3	8	Atlantic Silverside	5 cm	11:00 AM
	4	Striped Bass	10 cm	
	1	White Perch	17 cm	Diversity34

	1	Blue Crab (F)	6 cm	14 total	
Rotation #4	18	Atlantic Silverside	6 cm	<i>12:30 PM</i>	
	1	Striped Bass	7 cm		
	7	White Perch	19 cm		
*identified post trip	1	*Black Drum (Juvenile)	~15 cm		
** Fish trap	**1	Naked Goby	4 cm		
	1	Blue Crab (missing claw and swimmeret)	15 cm	Diversity 7	
	2	Jelly fish	3 cm	31 total catch	
Rotation #5	103	Atlantic Silverside		<i>1:10 PM</i>	
	3	White Perch		Diversity 2	
				106 total	
		Grand Total		Diversity 7 (plus 2 types jellies) Count 227	
Plankton	9:50 AM 10:50 AM 10:50 AM 12:10 PM 12:25 PM	Diatoms (all circular) Copepod – Calanus Copepod – Nauplius Pleurosigma (elliptical diatom) Coscinodiscus (Diatom chain)			
Sediment Cores	Length	H2S Smell, Oil	Rare	Common	Abundant
9:00 AM	12 cm	H2S	Wood, brick		Clay, gravel, pebbles,
9:30 AM	20 cm	H2S & oil	Wood, brick		Clay, gravel
10:00 AM	15 cm –	Oil	Wood, brick		Clay, gravel, pebbles
10:24 AM – core with 3 sections - 2 cm oxid. top 5 cm gravel 10 cm clay	17 cm – 2 cm oxidized top, 5 cm gravel, 10 cm clay	H2S, Oxidized Top	Shells, Brick, Living Vegetation (roots)	Gravel (5 cm mid core) Pebbles, leaves, wood	Clay (10 cm bottom of core)
10:40 AM – 3 cm oxid. Top, 14 cm gravel	17 cm –	H2S, oxidized top	Mud, sand, shells, brick	Pebbles	gravel
11:00 AM		H2S, oxidized top	Sand, leaves, wood	Clay and brick	Gravel, pebbles

SHIPPING	TIME	Name	Color	North/South	Full/Empty
	9:16 Am	"S"	White/Navy	Southbound	passenger ship
	9:17 AM	Sailboat	White	Southbound	
	11:00 AM	Pleasure boat	White	Northbound	People in it
	12:55 PM	TRAIN!			
	1:28 PM	Tug	Black	Northbound	Full

SCREEN CAPTURES FROM PIERMONT HRECOS FOR CHEMISTRY READINGS



