**Day in the Life of the Hudson River 10/20/16 Data**

**(Salt Front ~RM 83)**

**RIVER MILE 25.4W**

**Piermont Pier**

**Margie Turrin & 12 Lamont Scientists, Lamont-Doherty Earth Observatory**

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**Jen Mazza, Clarkstown South High School, 18 students**

**Tom Mullane & Brenda King, Pearl River High School, 71 students**

**Shawn Kapusinsky, Spring Valley High School, 11 students**

**Julie West, Oak Meadow School, 5 students**

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

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| ***Clarkstown High School*** | ***Oak Meadow School*** |
|  |  |
| ***Spring Valley Students*** | ***Some Pearl River Students*** |

**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%

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***ITEM*** | **Group A** | | | | | | | **Group B** | | | | | |
| ***Physical*** | **Weather Today** | | | **Weather Last 3 Days** | | | | **Weather Today** | | | | **Weather last 3 days** | |
|  | Fair | | | Dry and hot | | | | Fair | | | | Dry and hot | |
| **Time** | **Cloud Cover** | | | **Air Temp °C** | | | | **Cloud Cover** | | | | **Air Temp °C** | |
| 9:00 | 75% | | | 17.6 | | | | 79% | | | | 20 | |
| 10:00 | 75% | | | 20 | | | | 90% | | | | 18 | |
| 11:00 | 75% | | | 20 | | | | 75% | | | | 20 | |
| 12:25 | 75% | | | 23 | | | | 85% | | | | 22 | |
| 1:15 | 50% | | | 23 | | | | 60% | | | | 22 | |
| **Time** | **Wind – Beaufort, Direction** | | | **Wind Anemometer** | | | | **Wind – Beaufort, Direction** | | | | **Wind Anemometer** | |
| 9:00 | 2 N | | | 5 | | | | 2 N | | | | 6 | |
| 10:00 | 2 E | | | 6 | | | | 2.5 SE | | | | 4.5-7.1 mph | |
| 11:00 | 4 E | | | 10 | | | | 3 SE | | | | 10 mph | |
| 12:25 | 3 SE | | | 10 | | | | 2.5 SE | | | | 5.3 mph | |
| 1:15 | 2 SE | | | 5 | | | | 2.8 SE | | | | 7.2 | |
| ***Turbidity –*** | **Group A** | | | | | | **Group B** | | | | | | |
| ***Long Site Tube***  ***All average 4 readings*** | **Time** | | **Long Site Tube** | | **Secchi** | | **Time** | | | **Long Site Tube /** | | | **Secchi** |
|  | 9:15 AM | | 40 cm | | 86.5 | | 9:35 | | | 27.2 cm | | | 53.1 cm |
|  | 10:00 AM | | 33.6 | | 55.26 | | 10:14 | | | 31.8 cm | | | 52.5 cm |
|  | 10:43 | | 30.4 | | 52.6 | | 11:08 | | | 30.7 cm | | | 56.75 |
|  | 12:14 | | 29.7 | | 34 | | 12:39 | | | 32.8 cm | | | 44 cm |
|  | 13:00 | | 37.8 | | 59.8 | | 13:21 | | | 49.9 cm | | | 55.7 cm |
| ***Chemical*** |  | | | | | | | | | | | | |
| **DO** | **TIME** | | | **DO Reading** | | | | | **Water Temp °C** | | **% Saturation** | | |
| **Group A** | 9:00 | | | 12 mg/L  8 mg/L | | | | | 17.2  17.1 | | 125%  80% | | |
| **Group B** |
|  | 10:00 | | | NR  9 mg/L | | | | | 18.0  17.9 | | NR  94% | | |
|  | 11:00 | | | 7 ppm  8 ppm | | | | | 18.0  18.0 | | 75%  85% | | |
|  | 12:00 | | | 7 mg/L  10 ppm | | | | | 19.0  18.0 | | 80%  105% | | |
|  | 13:00 | | | 8 mg/L  7 mg/L | | | | | 19.0  NR | | 84%  NR | | |
| ***pH*** | **TIME** | | | **Group A** | | | | | **Group B** | |  | | |
|  | 9:00 | | | 8.25 | | | | | 7.0 | |  | | |
|  | 10:00 | | | 8.0 | | | | | 7.0 | |  | | |
|  | 11:00 | | | 7.5 | | | | | 7.5 | |  | | |
|  | 12:00 | | | 8.25 | | | | | 7.0 | |  | | |
|  | 13:00 | | | 7.0 | | | | | 8.0 | |  | | |
| **Phosphates** | **TIME** | | | **Group A** | | | | | **Group B** | |  | | |
|  | NR | | | NR | | | | | NR | |  | | |
| **Nitrates** | **TIME** | | | **Group A** | | | | | **Group B** | |  | | |
|  | 9:00 | | | 0 ppm | | | | | <1 ppm | |  | | |
|  | 10:00 | | | NR | | | | | 0 ppm | |  | | |
|  | 11:00 | | | 0 ppm | | | | | 0.15 ppm | |  | | |
|  | 12:00 | | | 0.05 ppm | | | | | 0 ppm | |  | | |
|  | 13:00 | | | 0.01 ppm | | | | | 0 ppm | |  | | |
| **Alkalinity** | **TIME** | | | **Group A** | | | | | **Group B** | |  | | |
| *Drop count* | 9:00 | | | NR | | | | | 40 ppm | |  | | |
|  | 10:00 | | | 50 ppm | | | | | 51 ppm | |  | | |
|  | 11:00 | | | 80 ppm | | | | | 70 ppm | |  | | |
|  | 12:00 | | | 40 ppm | | | | | 74 ppm | |  | | |
|  | 13:00 | | | 84 ppm | | | | | 70 ppm | |  | | |
| ***\*Salinity*** | **Refracto.** | | | **Hydrometer Glass**  **Hydrometer** | | | | | **Quantab ppm cl-** | | **\*Quantabs ppm total salinity** | | |
| 9:00 | 15 ppt  13 ppt | | | 1.090 (?)  11.9 ppt | | | | | NR  NR | | NR  NR | | |
| 10:00 | 14 ppt  14 ppt | | | NR  12.2 ppt | | | | | 4944 ppm | | 8932 ppm | | |
| 11:00 | 14 ppt  15 ppt | | | 17.4 ppt  13.6 ppt | | | | | 6526 mg/L  4944 ppm | | 11790 ppm  8932 ppm | | |
| 12:00 | 14 ppt  13.5 ppt | | | 13.7 ppt  13.5 ppt | | | | | 4425 ppm  4944 ppm | | 7994 ppm  8932 ppm | | |
| 13:00 | 13.85 ppt  15 ppt | | | 14 ppt  12.4 ppt | | | | | 5608 ppm | | 10131 ppm | | |
| ***Tides-***  **Time** | **Group A**  **Pier to water** | | | **Flood/Ebb** | | | | | **Group B**  **Pier to water** | | **Flood/Ebb** | | |
| 9:06 AM | 196 cm | | | Flood | | | | | 215.2 cm | | Flood | | |
| 10:14 AM | 155 cm | | | Flood | | | | | 185 cm | | Flood | | |
| 10:41 AM | 141 cm | | | Flood | | | | | 172 cm | | Flood | | |
| 12:23 PM | 102 cm | | | Flood | | | | | 124 cm | | Flood | | |
| 1:03 PM | 110 cm | | | ~Still | | | | | 110 cm | | Flood | | |
| **Currents** | **Group A** | | | | | | | | **Group B** | | | | |
| **Time** | **Rate of Flow** | **Type** | | | | | | | **Rate of Flow** | | **Type** | | |
| 9:00 | 9.6 cm/sec  0.2 kt | Flood | | | | | | | 27.3 cm/sec | | Flood | | |
| 10:00 | 27.2 cm/sec  0.5 kt | Flood | | | | | | | 63.6 cm/sec | | NR | | |
| 11:00 | 68.0 cm/sec  1.3 kt | NR | | | | | | | 42 cm/sec | | Flood | | |
| 12:25 | 59.5 cm/sec  1.0 kt | Flood | | | | | | | 62.8 cm/sec  1.22 kt | | Flood | | |
| 1:15 | NR | NR | | | | | | | 54.67 cm/sec  1.06 kt | | Flood | | |
| **Fish Catch**  **Northside of pier (2 Seining Groups )** | ***Number Caught*** | Species | | | | | | | ***Measure of largest*** | | ***TIME & CATCH*** | | |
| ***Rotation #1 Group A*** | 5 | Striped Bass | | | | | | | 12 cm | | 9:48 | | |
| ***FISH*** | 60 | Atlantic Silverside | | | | | | | 8 cm | | **DIV 2**  **TOTAL 65** | | |
| ***MACRO*** | 3 | Blue Crab | | | | | | | 3 cm | | **DIV 2** | | |
|  | 30 | Comb Jelly | | | | | | | 3.5 cm | | **TOTAL 63** | | |
| ***Rotation #2 Group A*** | 6 | Striped Bass | | | | | | | 10 cm | | 9:53 | | |
| ***FISH*** | 9 | Atlantic Silverside | | | | | | | 9 cm | | **DIV 3**  **TOTAL 11** | | |
|  | 1 | White Perch | | | | | | | 20 cm | |  | | |
|  | 1 | Bay Anchovy | | | | | | | 4 cm | |  | | |
| **MACRO** | 1 | Blue Crab | | | | | | | 5 cm | | **DIV 2** | | |
|  | 10 | Comb Jellies | | | | | | | 3 cm | | **TOTAL 11** | | |
| ***Rotation #3 Group A*** | 13 | Atlantic Silverside | | | | | | | 12 cm | | 10:50 | | |
| ***FISH*** | 2 | White Perch | | | | | | | 17 cm | | **DIV 5** | | |
|  | 3 | Striped Bass | | | | | | | 13 cm | | **TOTAL 21** | | |
|  | 1 | Bay Anchovy | | | | | | | 4 cm | |  | | |
|  | 2 | Blue Fish | | | | | | | 19 cm | |  | | |
| **MACRO** | 1 | Sand Shrimp | | | | | | | 3 cm | | **DIV 2** | | |
|  | 2 | Blue Crab | | | | | | | 5 cm | | **TOTAL 3** | | |
| ***Rotation #4 Group A*** | 119 | Atlantic Silverside | | | | | | | 9 | | 12:20  **DIV 3** | | |
| **FISH** | 1 | White Perch | | | | | | | 11 | | **TOTAL 125** | | |
|  | 1 | Striped Bass | | | | | | | 9 | |  | | |
| **MACRO** | 4 | Blue Crab | | | | | | |  | | **DIV 1**  **TOTAL 4** | | |
| ***Rotation #1 Group B*** | 19 | Atlantic Silverside | | | | | | | 11 cm | | **9:30**  **DIV 2** | | |
| **FISH** | 1 | Striped Bass | | | | | | | 20 cm | | **TOTAL 20** | | |
| **MACRO** | 1 | Blue Crab | | | | | | | 2.5 cm | | **DIV 2** | | |
|  | 2 | Comb Jellies | | | | | | | 2 cm | | **TOTAL 3** | | |
| ***Rotation #2 Group B*** | 4 | Striped Bass | | | | | | | 10.6 cm | | **10:00** | | |
| **FISH** | 2 | White Perch | | | | | | | 4.1 cm | | **DIV 1**  **TOTAL 2** | | |
| **MACRO** | 1 | Sand Shrimp | | | | | | | 12.5 cm | | **DIV 1**  **TOTAL 1** | | |
| ***Rotation #3 Group B***  ***FISH*** | 1 | Atlantic Silverside | | | | | | | 8.2 cm | | **11:00**  **DIV 1**  **TOTAL 1** | | |
| ***MACRO*** | ~500 | Comb Jellies | | | | | | | 2 cm | | **DIV 1**  **TOTAL >500** | | |
| ***Rotation #4 Group B*** | 12 | Atlantic Silverside | | | | | | | 12 cm | | **DIV 1**  **TOTAL 12** | | |
| ***Rotation #5 Group B*** | 2 | Atlantic Silverside | | | | | | | 8 cm | | **DIV 1**  **TOTAL 2** | | |
| **GRAND TOTAL** | **FISH**  **MACRO** | **TOTAL**  **TOTAL** | | | | | | | **261**  **>585** | | **F - DIV 5**  **M - DIV 3** | | |
| **Sediment Cores** | ***Time*** | **Length** | | | | **Oxid Top** | | | **Grain Size** | | **Other Items** | | |
| ***Group A***  ***South of pier*** | ***9:00 AM*** | ***8 cm***  ***Top***  3.5 cm  ***Bottom*** 4.5 cm | | | | *NO* | | | ***Top –***  - mud  - gravel  - sand  \_\_\_\_\_\_\_\_\_\_  ***Bottom -*** Clay | | Wood  Oyster  Brick  Iron Pyrite | | |
| ***Group B***  ***South of pier*** | ***9:00 AM*** | ***12 cm***  ***Top***  6 cm  ***Bottom***  6 cm | | | | *NO* | | | ***Top –***  - clay  \_\_\_\_\_\_\_\_\_\_  ***Bottom –***  - sand  ***-*** *gravel* | | Brick  Coal  Worm | | |
| ***Group A***  ***South of pier*** | ***10:00 AM*** | ***20 cm***  ***Top***  5 cm  ***Bottom***  15 cm | | | | *NO* | | | **Top** Mud with gravel  \_\_\_\_\_\_\_\_\_  **middle** clay\_  \_\_\_\_\_\_\_\_  **Bottom** Sandy Mud | | Shell  Fin of fish  Red rock  Wood  Coal | | |
| ***Group B***  ***South of pier*** | ***9:50 AM*** | ***No layers - homogeous*** | | | | *No* | | | Sand  Clay | | Roots  Wood  Brick  Coal | | |
| ***Group A***  ***South of pier*** | ***11:00 AM*** | ***2 cm no layers*** | | | | *NO* | | | Sand  Gravel  Pebbles | | leaves | | |
| ***Group B***  ***South of pier*** | ***10:30 AM*** | ***7 cm***  ***Top***  3 cm  ***Bottom***  4 cm | | | | *Yes* | | | Clay/Sand | | Coal  Slag  Brick  Roots | | |
| ***Group A***  ***South of pier*** | ***12:00 Noon*** | *4 cm* | | | | *No* | | | Sand with gravel | | Brick  Wood  Roots  Leaves  Brick  Coal  Glass | | |
| ***Group B***  ***South of pier*** | ***12:00 Noon*** | *Homogenous* | | | | *No* | | | Sand  Gravel | | Brick  Coal | | |
| ***Group A***  ***NORTH of pier*** | ***1:00 PM*** | *10.5 cm* | | | | *No* | | | Sand with some gravel and pebbles | | brick | | |
| ***Group B***  ***South of pier*** | ***12:45 PM*** | *3 layers*  *Sand*  *Gravel*  *Sand* | | | | *No* | | | Sand & gravel | | Brick | | |
| **Other Observations** | Overcast day that ended with rain just as students were leaving. | | | | | | | | | | | | |