Marist College - Day in the Life of the Hudson & Harbor

October 16, 2018
4:45 - 6:45 PM
Saltfront ~RM 24
30 Marist students from Intro to Environmental Issues
(mostly first year college students)
with
Marist Professor Tom O'Dowd
Volunteer Educator Nick Martin
Hudson River Estuary Program Watershed Specialist Erin Lefkowitz

At the Marist College Waterfront
Floating Dock, Fixed Dock, and Gravel Beach
Poughkeepsie, NY
Dutchess County
River Mile ~76.5
41.722859°N, -73.938192°W

Surroundings Data

Land Type: Grassy lawn, Pier-like fixed dock, Rip-rap shoreline
Surrounding Land-Use as Percentage: 85% Educational (College Campus), 10% Drinking Water treatment facilities, 5% Passenger Train Line.
Shoreline Description: 100% Rocky shore (95% Riprap & 5% shale, etc.). Banks Altered, Riprap, two small "streams" (one could be an outfall from the drinking water treatment plant, the other road/lot runoff, either/both could be rerouted natural streams). Trees: sycamore, willow, ninebark.
Water Area Description: ~2 meters deep at the fixed dock. Bottom Rocky and Muddy.
Water Surface Description: Calm, besides occasional wakes
Plants in the Water Area: No rooted SAV. Water chestnut (fruits) and water celery (leaves) found floating, along with leaves of American sycamore, red oak, chestnut oak.
Observations of intertidal zone: Riprap rocks in the intertidal zone algae-covered. Between riprap rocks are Water chestnut fruits, sticks, garbage, occasional herbaceous plants. Occasional garbage floating by (styrofoam, straws, plastic iced coffee cups and lids, etc.). Feathers (unknown bird species).
Observations of anything that might have an "impact" on the data: None.

Birds: Large flocks of birds flying south!

Bird species	Number of birds (estimated)	Behavior	Time (estimated)
Double-crested cormorant	75	Flying south	5:00 PM
Canada goose	100	Flying south	5:05 PM
Gull (species unknown)	2	Cruising in various directions	5:05 PM
Brant	85	Flying south	5:10 PM
Canada goose	16	Feeding on grassy lawn	5:15 PM
Double-crested cormorant	1	Flying south	5:15 PM
Gull (species unknown)	1	Flying south	5:22 PM
Double-crested cormorant	1	Flying south	5:22 PM
Canada goose	30	Flying south	5:35 PM
Brant	30	Flying south	5:56 PM
Canada goose	20	Lingering in water near fixed dock	6:15 PM
Brant	1	Lingering in water near fixed dock	6:15 PM

Bird Species	Totals
Double-crested cormorant	77
Canada goose	166
Gull (species unknown)	3
Brant	116

Commercial, Recreational, and Train Traffic: Busier on land than shore!

Traffic observed	**Activity & Direction**	**Time (estimated)**
Crew boat (2)	Traveling North	5:03 PM
Brown Tug & Barge	Traveling South	5:04
White motor boat	Traveling South	5:06
Freight train	Travelling North	5:11
Amtrak	Travelling South	5:13
Freight train	Travelling South	5:23
Crew Boat	Travelling North	5:44
Small green motor boat	Travelling North	5:52
Crew Boat	Travelling South	5:52
Freight train	Travelling North	6:01
Amtrak	Travelling North	6:06 PM

Physical Conditions Data

Tides

Technique: Carpenter's Measuring Tape from base of fixed dock to surface of fixed dock (subtracting distance from dock surface to water surface)

Fixed dock height (from base to surface)	Dock surface to water surface	Water depth	Time
360 cm	155 cm	205 cm	5:05 PM

Current

Technique: Timing movement of floating object along known distance (length of the dock).
3:26 seconds / X centimeters → X seconds/centimeter

Wind Speed

Time	Speed from Anemometer	Beaufort Number	Notes
5:00 PM	2.2 mph	1	Leaves moving
5:15 PM	0.6 mph	0	No leaves moving
5:30 PM	2.6 mph	1	Leaves moving
5:45 PM	3.1 mph	1	Minimal leaf movement
5:50	4.0 mph	2	Slight branch movement & bending
6:00	0.2 mph	0	No branch or leaf movement

Air Temperature

Temperature (Farenheit)	66.5	59.9	59	58.6	55.9	54.8	55.2	55.4
Time (PM)	5:00	5:10	5:20	5:30	5:40	5:50	6:00	6:05

Weather

No precipitation
10 Miles visibility
Sunny

Sediment Sampling

Sample 1: Sediment at the Fixed Dock

Gravel: Abundant
Pebbles: Common
Mud: Rare
Smell: Absent

Sample 2: Sediment at the Seining Beach

Pebbles: Abundant
Gravel: Rare
Mud: Rare
Wood: Common
Zebra Mussels: Rare (2 shells found, separately; no living organism)
Other: Glass: Rare
Brick: Rare
Smell: Absent

Sample 3: Sediment push core between Fixed Dock and Seining Beach

Clay: Common
Mud: Common
Gravel: Absent
Pebbles: Absent
Smell: Absent
All else: Absent

Turbidity Data

Technique: Turbidity Tube

Depth of Visibility	**Converted to NTU***	**Time**
62.1 cm	6	5:30 PM
43.2 cm	14	5:45 PM
55.4 cm	9	6:00 PM

* = Used conversion chart from here:
http://extension.usu.edu/utahwaterwatch/monitoring/field-instructions/turbidity/turbiditytube/turbiditytubeconversionchart

Chemical Conditions Data

Dissolved Oxygen:

Technique 1: Salifert Oxygen Profi-Test

Technique 2: YSI Meter

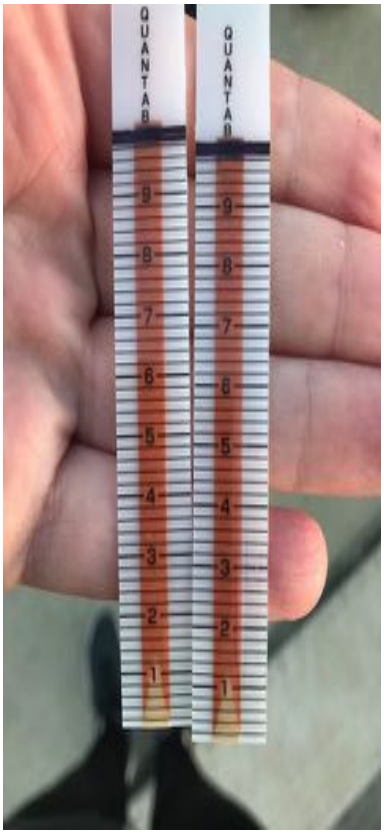
Salifert Oxygen Profi-Test	YSI Meter	Time
10.8 mg/L	9.8 mg/L	5pm - 6pm
11.3 mg/L	9.1 mg/L	

Salinity:

Technique 1: Low Range Quantab

Technique 2: YSI Meter

Quantab Reading	Quantab Salinity (ppm)	Quantab Salinity (ppt)	YSI Meter Salinity (ppt)	Time (PM)
1.2	<30 ppm below detect.	<0.03 ppt	0.1 ppt	5:15
1.2	<30 ppm	<0.03 ppt	0.1 ppt	5:30
1.2	<30 ppm	<0.03 ppt	0.1 ppt	5:45



pH

Technique: Color Match Test Kit

pH reading	7.1	7.2	7.2
Time	5:10 PM	5:30 PM	5:50 PM

Biological Data

Fish: 27 herring (alewife - large eye). ~2 .75 inches long, each. Caught by seine net.
Macroinvertebrates: 1 Female Giant Water Bug. ~0.5 inches long.
Surface detritus: Northern red oak leaves, water chestnut fruits, spadderdock stems and leaves, elm seedling, virginia creeper leaflets, Northern white-cedar leaves, etc.