

Halifax Harbour Water Quality Monitoring Project

Survey Summary #152

Survey Date: 26 March 2008
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report152_080326.doc
Data File: HHWQMP_data152_080326.xls

Data Return:
 Chemical: 100%
 Bacteria: 100%
 Profile: 95%
Overall: 98%

Sample Notes:

Additional bacteria samples were taken in the NW Arm. See data files for details.

The DO sensor on the CTD continues to experience stability issues (see notes in data file). DO profiles at HP1, B2, C4, E3 and H3 are plotted here but did not pass quality control and have been deleted from the data file. The CTD DO values remain consistently low. To match reference data they should be scaled by a factor of 1.46.

BYC site moved to ice edge (44° 43.254N, 63° 39.871W)

QA/QC samples:

Chemical Analysis		D2 – 1m	
		Reference Sample	QA/QC
Detectable Parameter	Units		
Ammonia (as N)	mg/L	0	0
Total Suspended Solids	mg/L	5	3
Copper	ug/L	0.7	0.7
Iron	ug/L	12	15
Manganese	ug/L	1	1
Zinc	ug/L	1	2

Fecal Coliform (CFU/100ml)

Site	C2-10m	SYC-10m	H3-1m	D2-1m
Reference	3	12	1	39
QA/QC	10	13	0	39

Comments:

General: The several days before the survey have been relatively dry and cold, with some precipitation (about 6 mm) the day of the survey. The harbour is relatively weakly stratified and more saline than in the previous survey. There remains very dense water, of similar or greater density than the Basin bottom water, at the bottom of the Inner Harbour. Further intrusion into the Basin would be relatively difficult to detect due to the uniform hydrographic conditions and high DO values already existing there. The commissioning of the Halifax sewage treatment plant is continuing. The sub-sewershed connections have been completed but “debugging” of the treatment process, including disinfection, is ongoing. Fecal coliform levels are very low with only four samples above the swimming guidelines occurring in the Inner Harbour. Three of the five are 10 m samples. The highest value is in the 1 m sample at EE3 that is close to the “Peace Pavilion” outfall on the Dartmouth side. There are also two exceedences of this guideline in the HP sites near the Hospital Point outfall.

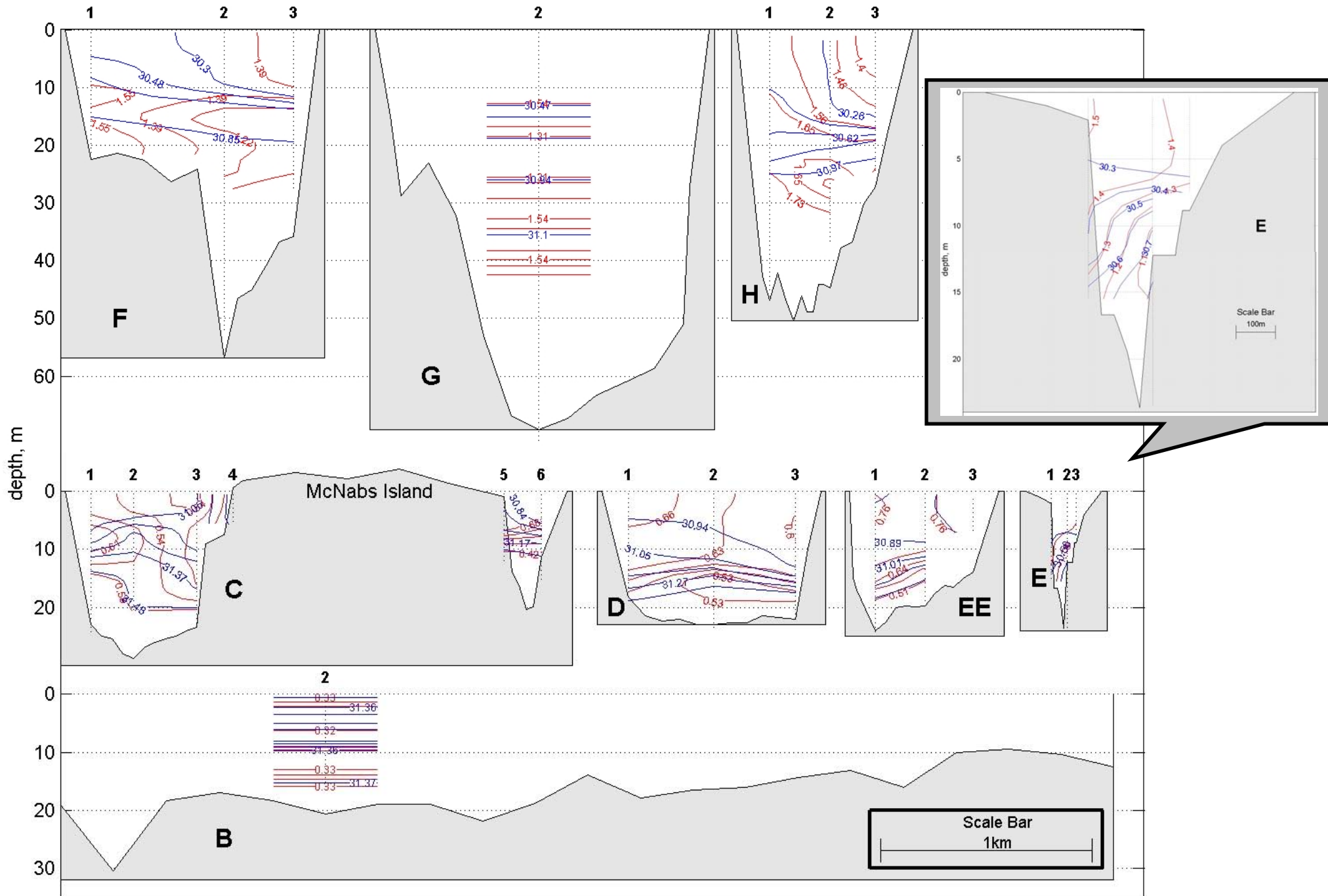
Fluorescence: The spring bloom seems to have subsided. The profile maximum fluorescence values in the Basin are on the order of 10 mg/m³ at a depth of about 10m. In the Inner Harbour the values are 2-4 mg/m³ at a similar depth. In the Outer Harbour the values are < 2 mg/m³ or about “background” levels.

TSS: TSS values are relatively low (mean 3.2 mg/L). There is no obvious coherent spatial distribution.

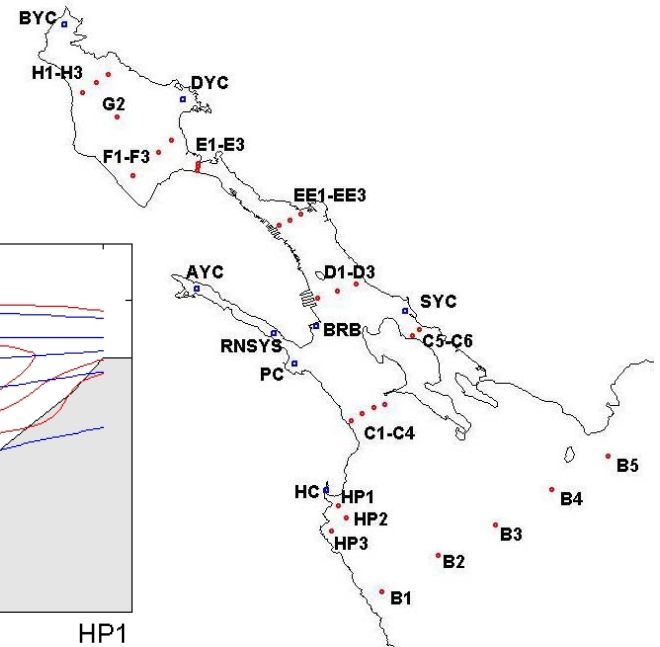
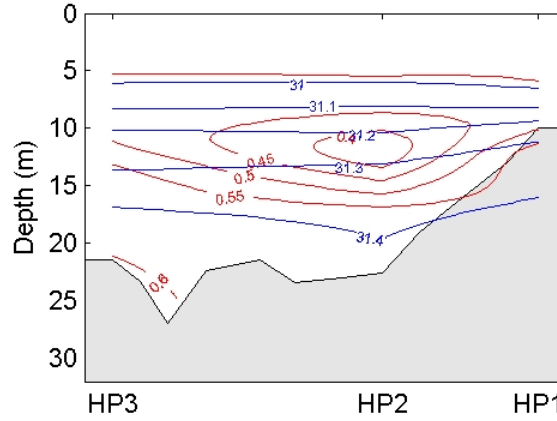
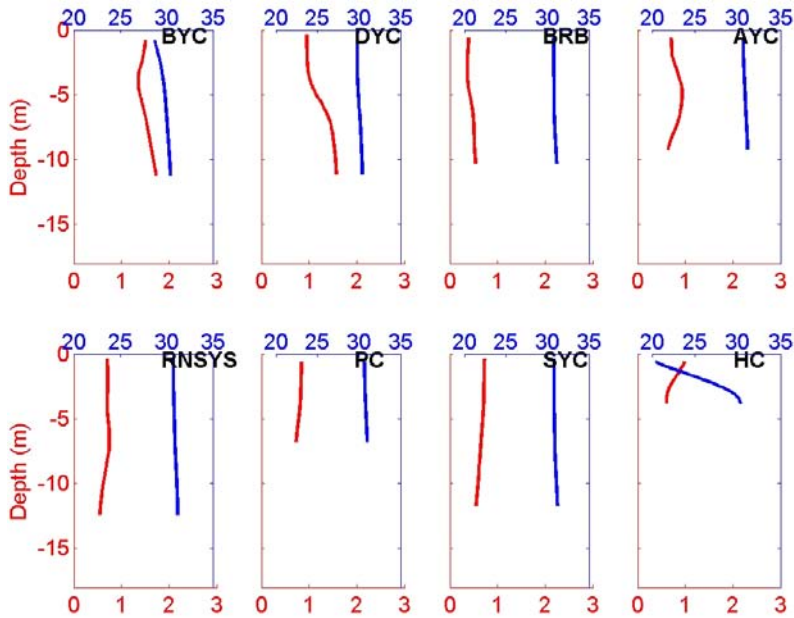
Ammonia: The ammonia concentrations are very low with only four of fourteen samples having levels slightly above the detection limit (0.05 mg/L).

Metals: There are no guideline exceedences. As is typical, the closest to exceedence is copper, but the highest concentrations are about 25% of the guideline value.

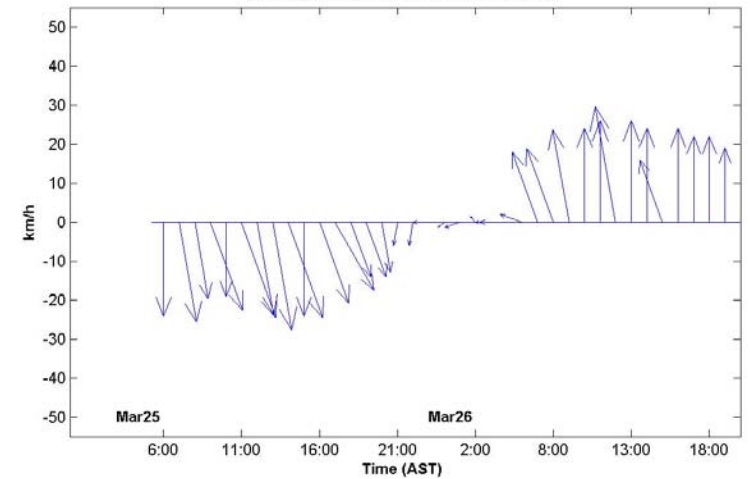
Dissolved Oxygen: The profile data has some problems (see sample notes), but when scaled appropriately indicates well oxygenated water everywhere, including, unusually, the bottom of Bedford Basin. The surface values are about 11.0 mg/L throughout the harbour. While in the bottom of the Basin the levels are relatively unchanged at about 9 mg/L. There are no guideline exceedences anywhere.



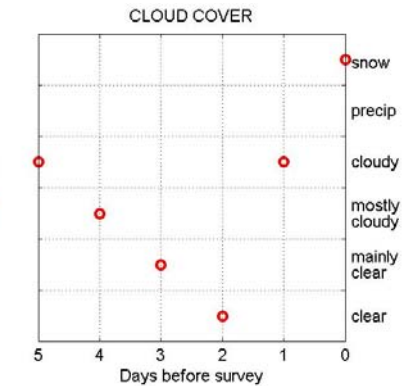
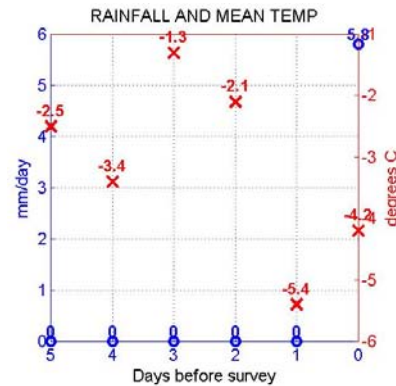
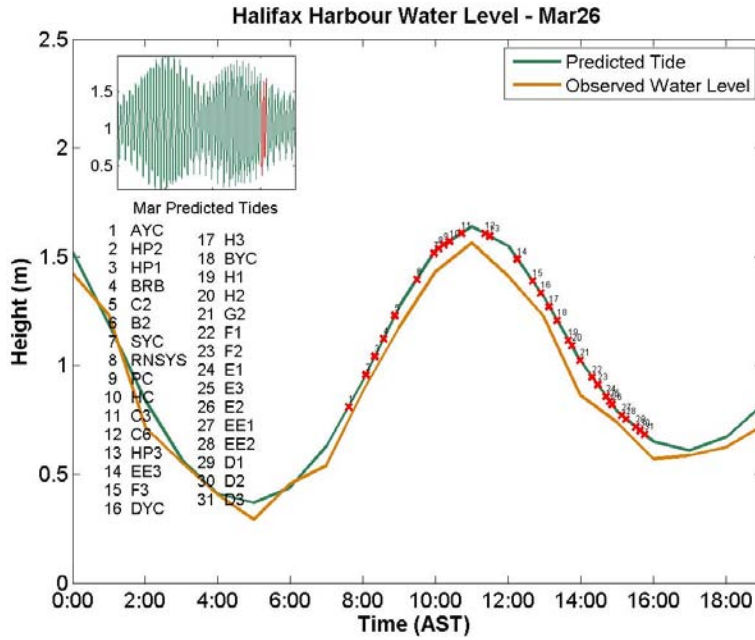
Yacht Clubs



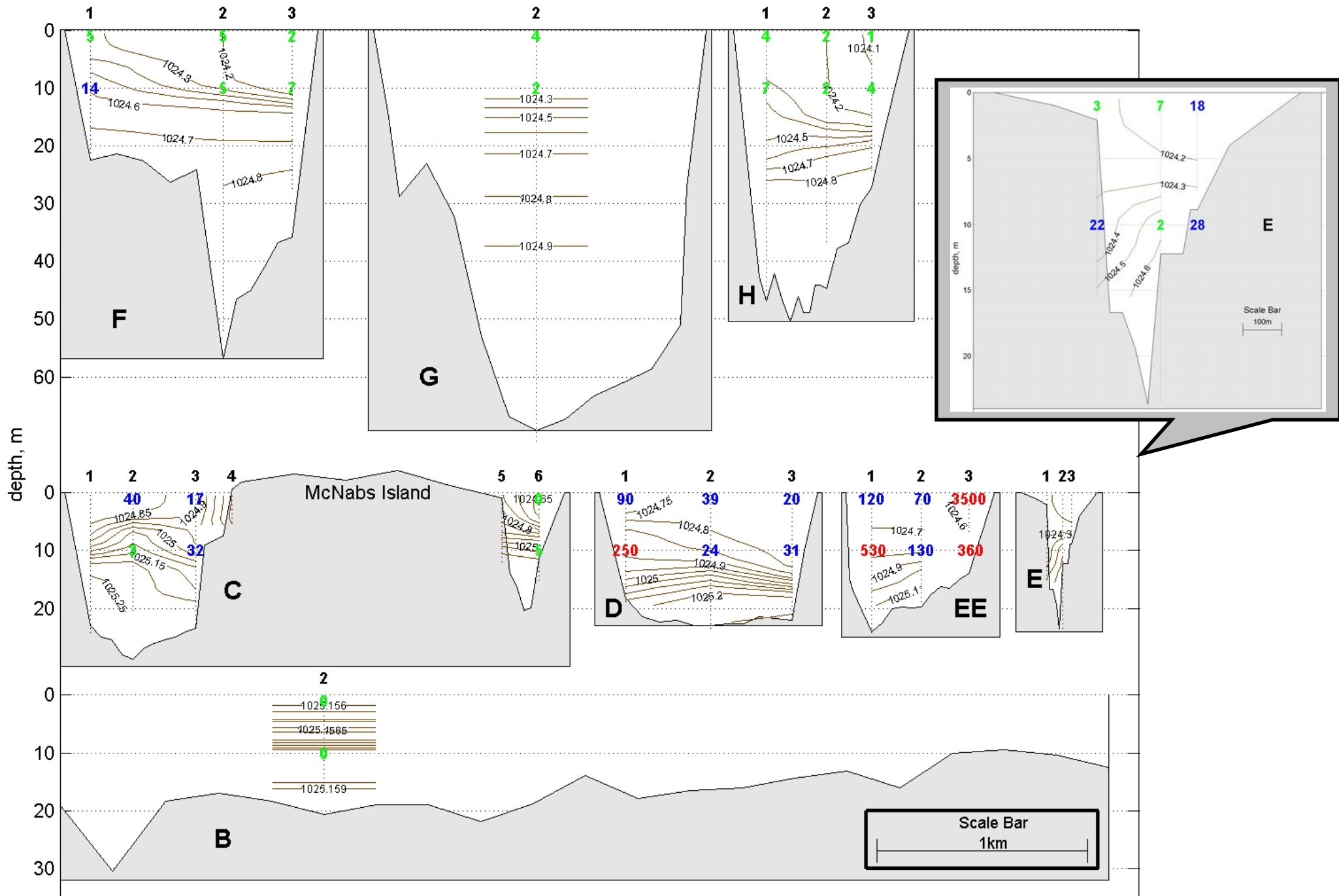
Wind Speed and Direction at Shearwater Jetty



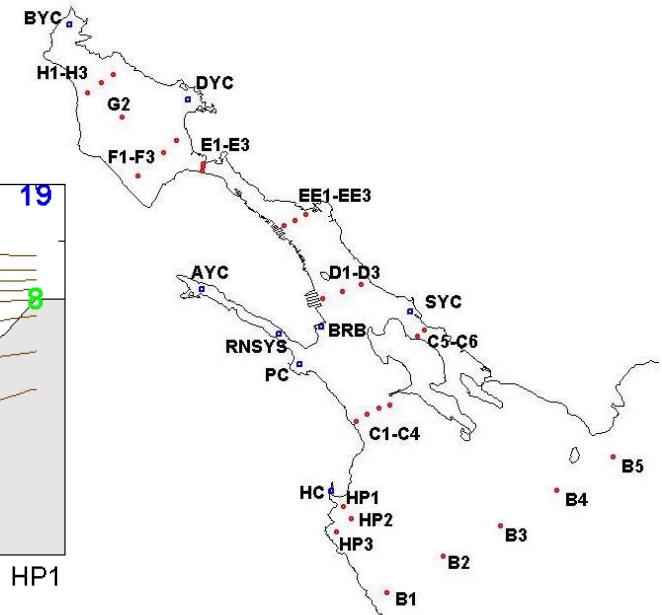
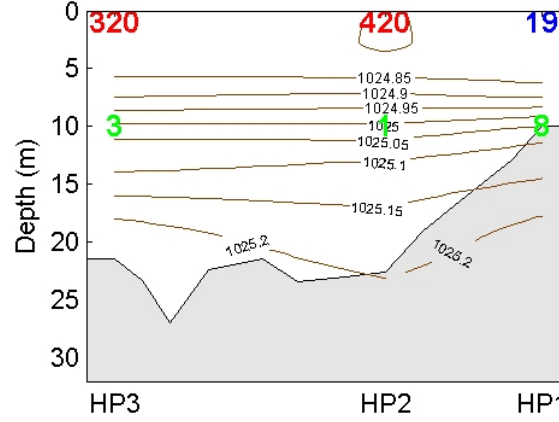
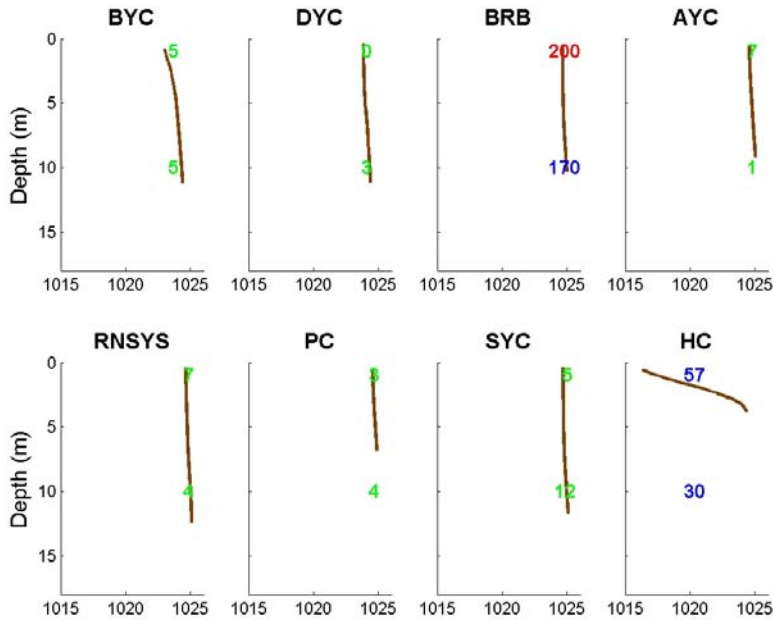
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



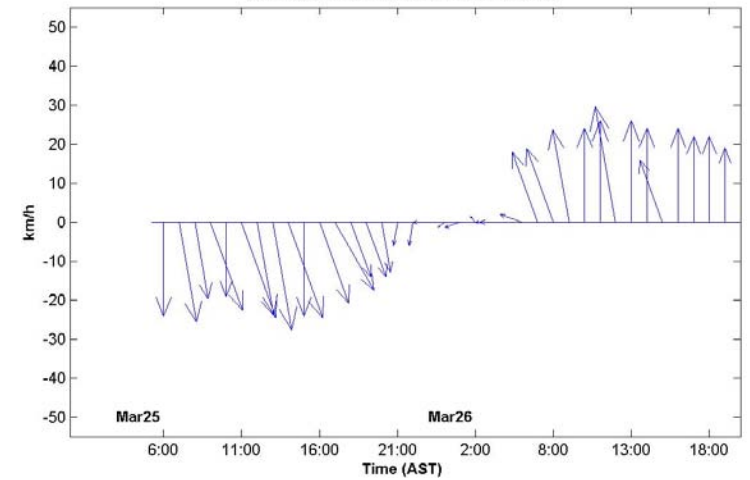
Salinity in PSU Temperature in °C



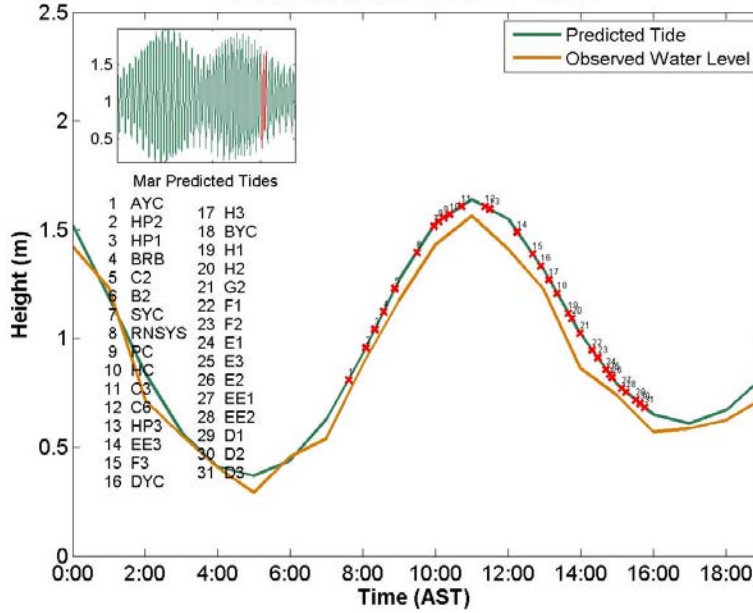
Yacht Clubs



Wind Speed and Direction at Shearwater Jetty

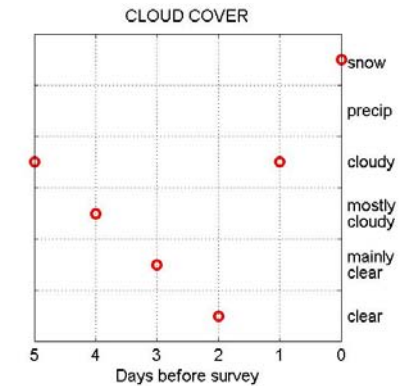
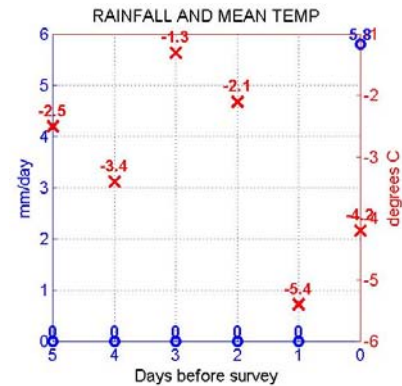


Halifax Harbour Water Level - Mar26



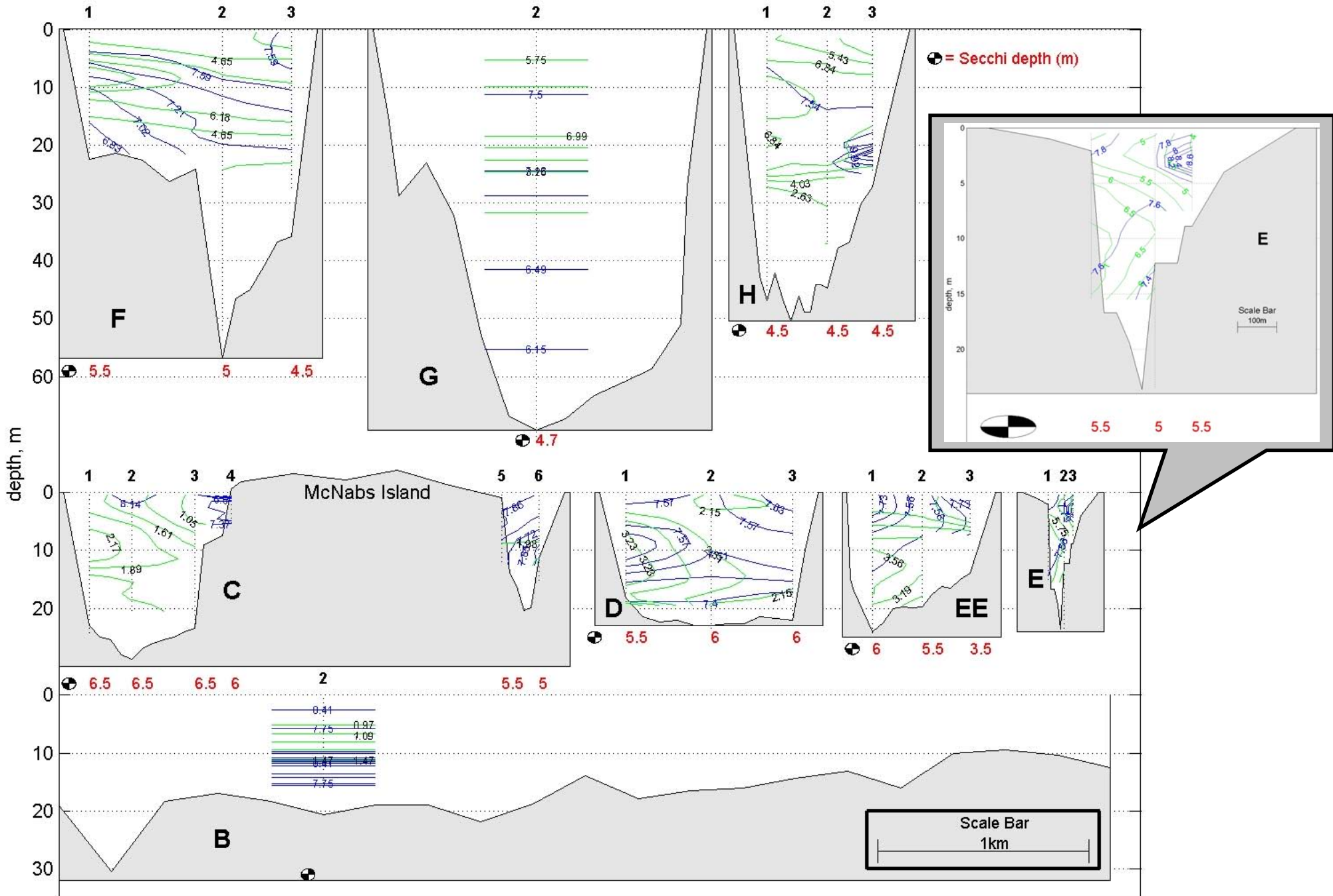
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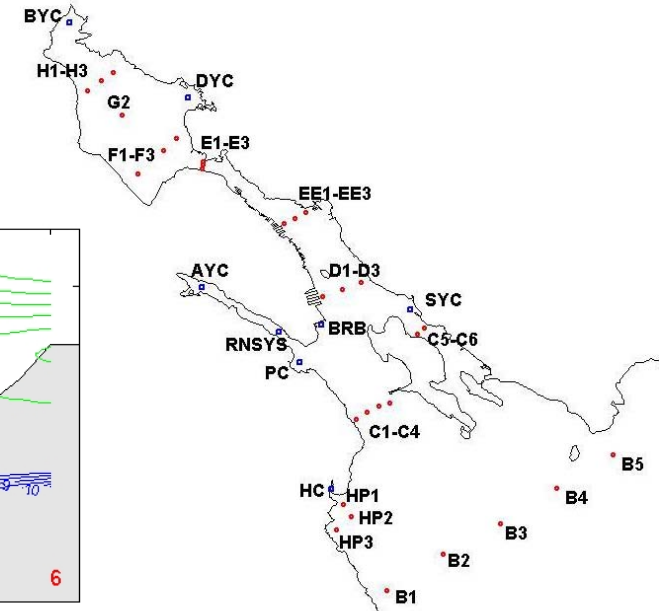
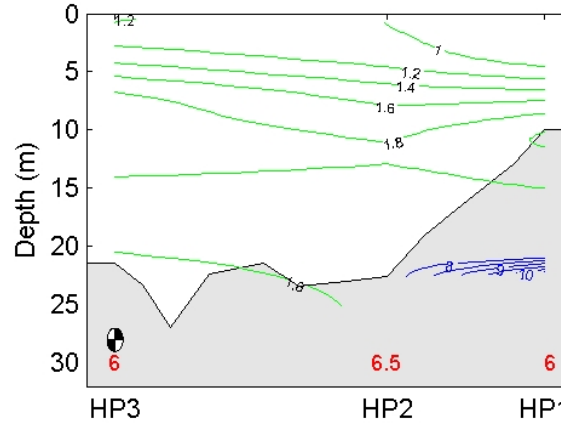
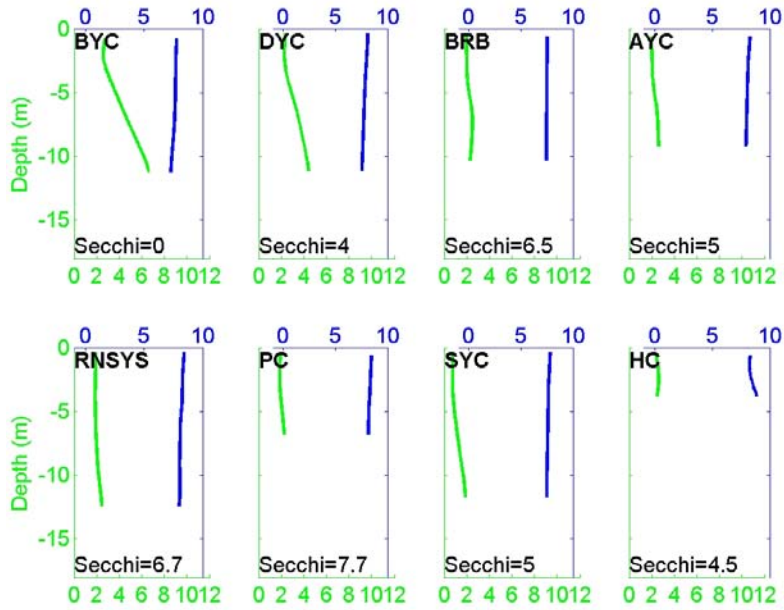


Potential Density in kg/m³

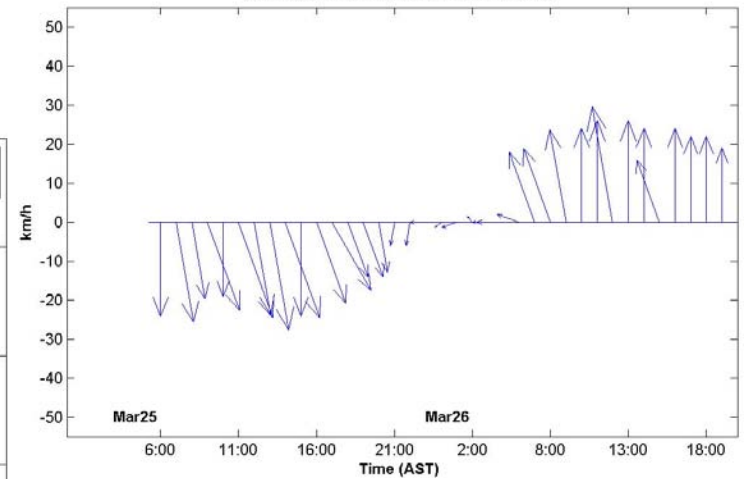
Fecal coliform: above swimming limit (200 cfu/100mL)
 above shellfish limit (14 cfu/100mL)
 below limits



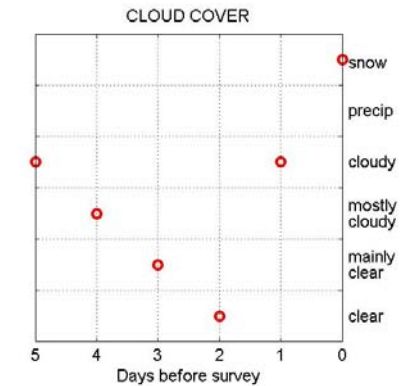
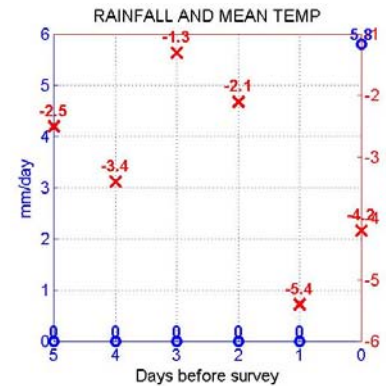
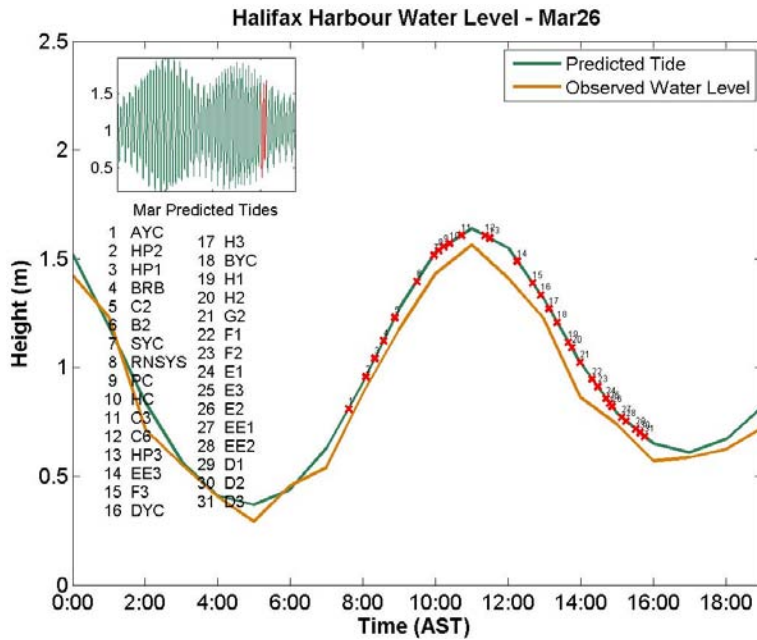
Yacht Clubs



Wind Speed and Direction at Shearwater Jetty



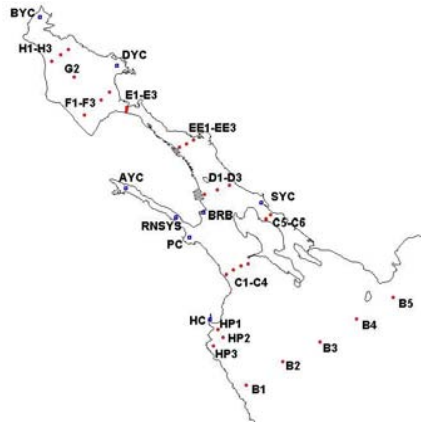
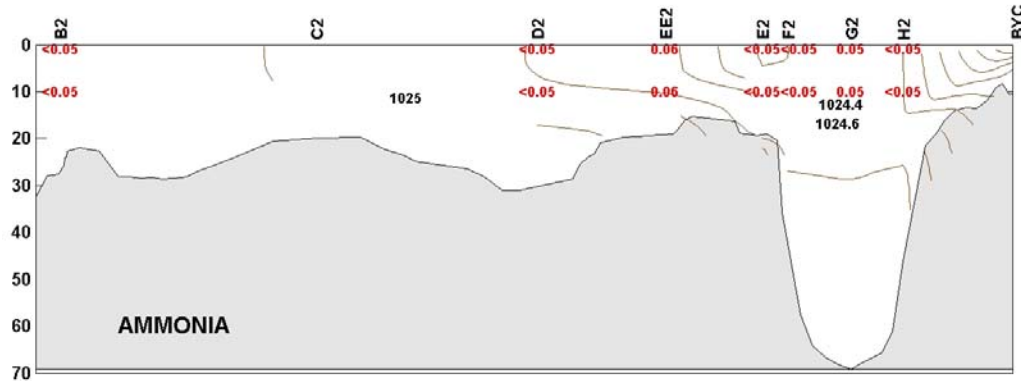
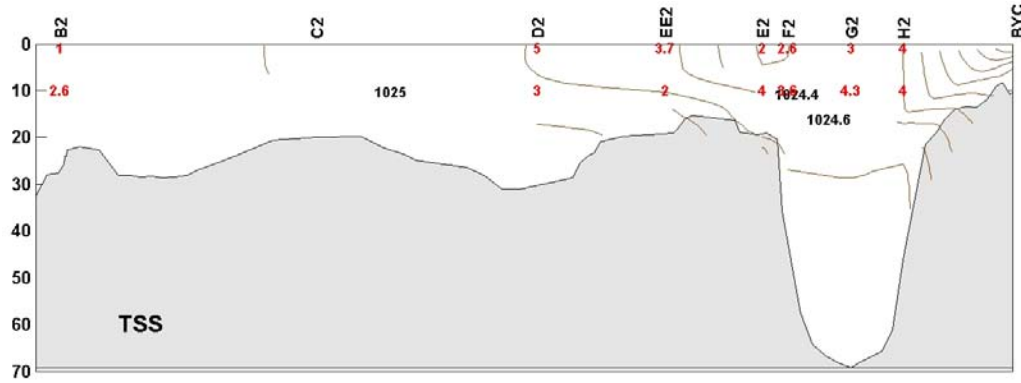
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



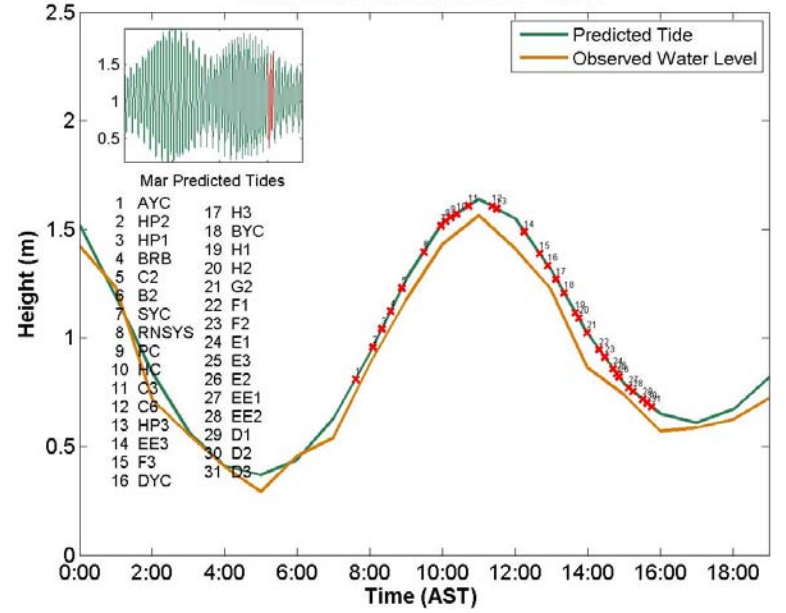
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Potential Density in kg/m^3

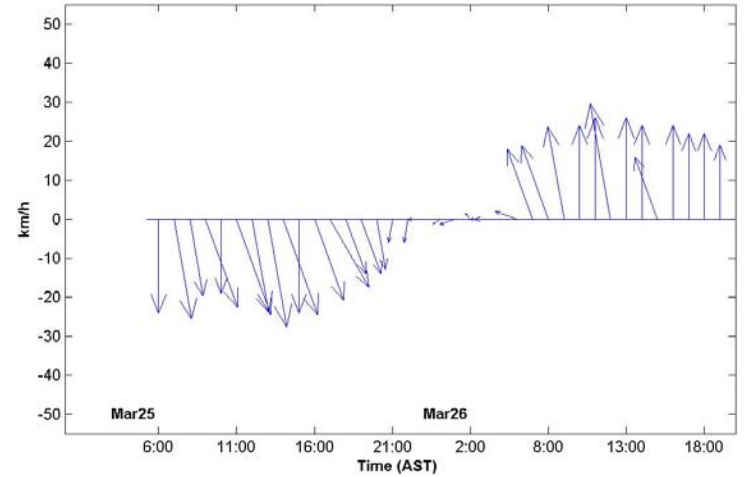
Ammonia in mg/L

TSS in mg/L

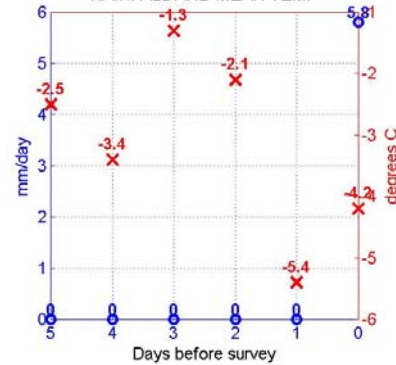
Halifax Harbour Water Level - Mar26



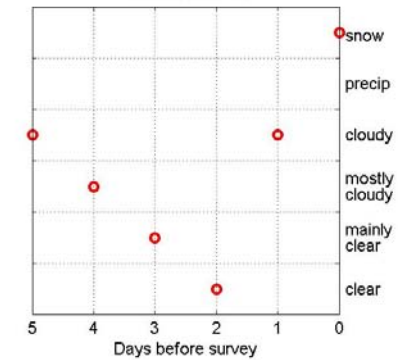
Wind Speed and Direction at Shearwater Jetty

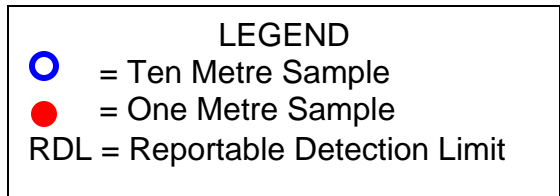
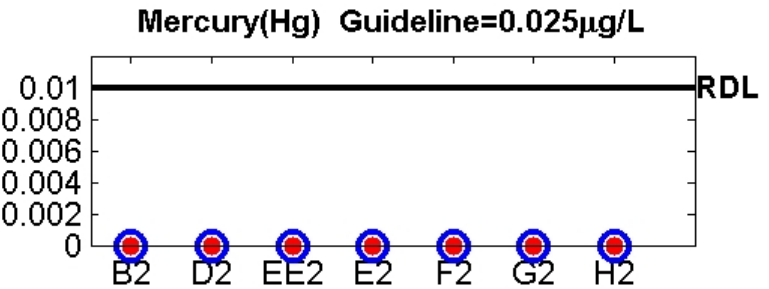
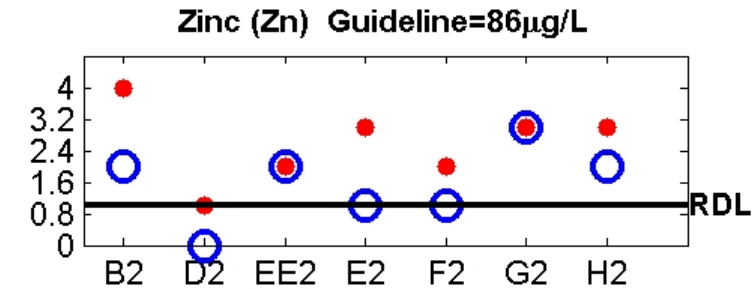
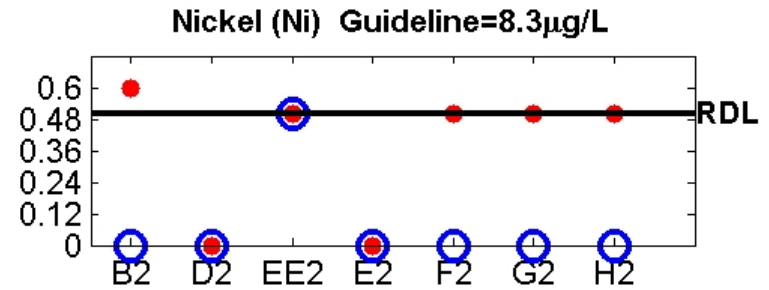
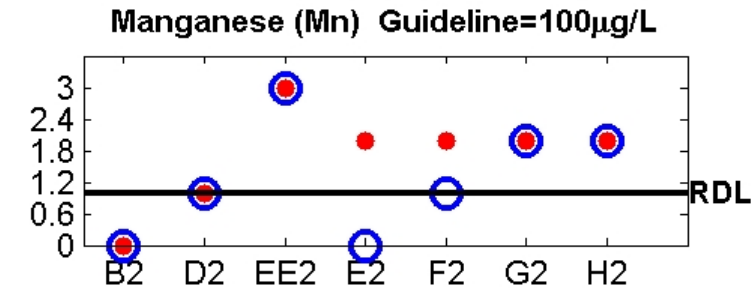
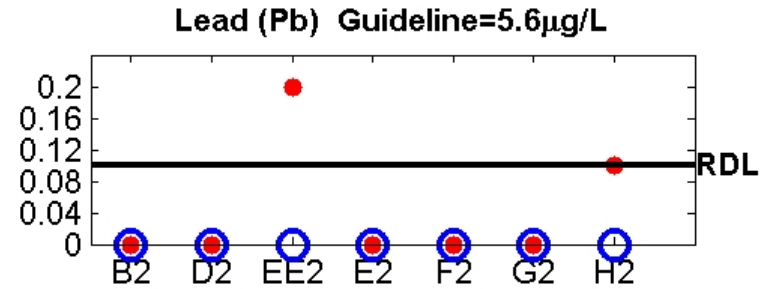
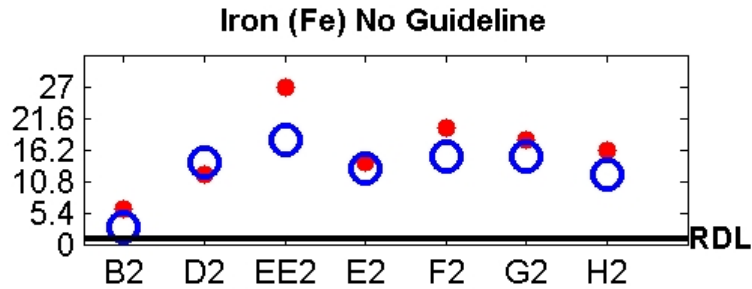
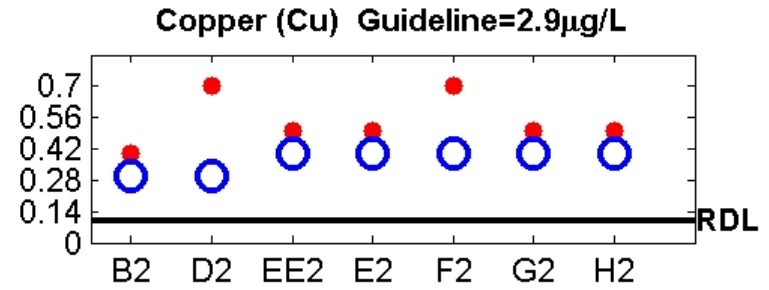
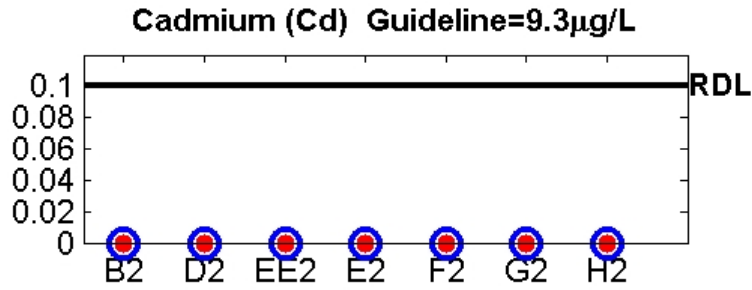


RAINFALL AND MEAN TEMP



CLOUD COVER

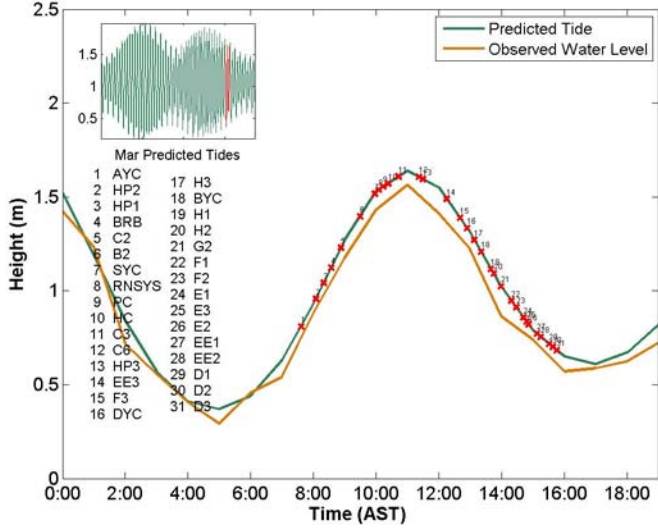




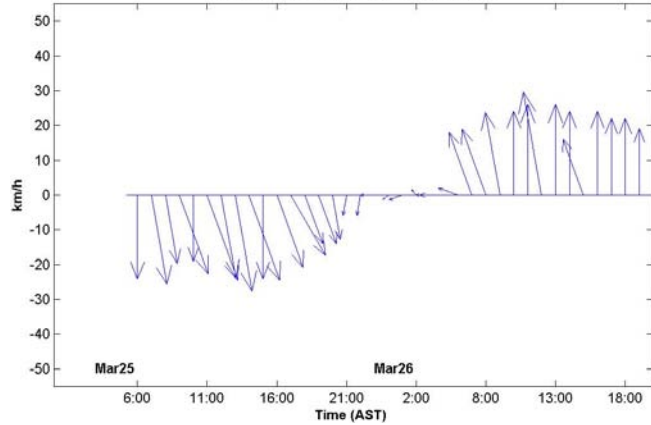
HRM Water Quality Monitoring

Fecal Coliform Summary – March 26, 2008

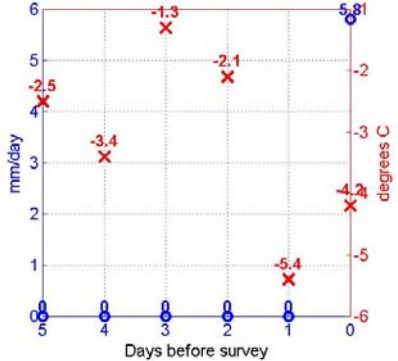
Halifax Harbour Water Level - Mar26



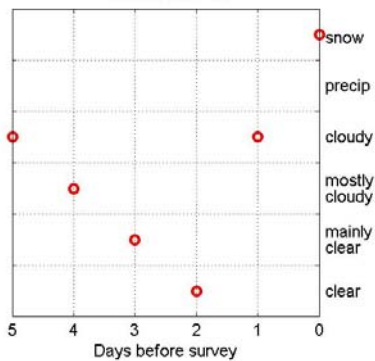
Wind Speed and Direction at Shearwater Jetty



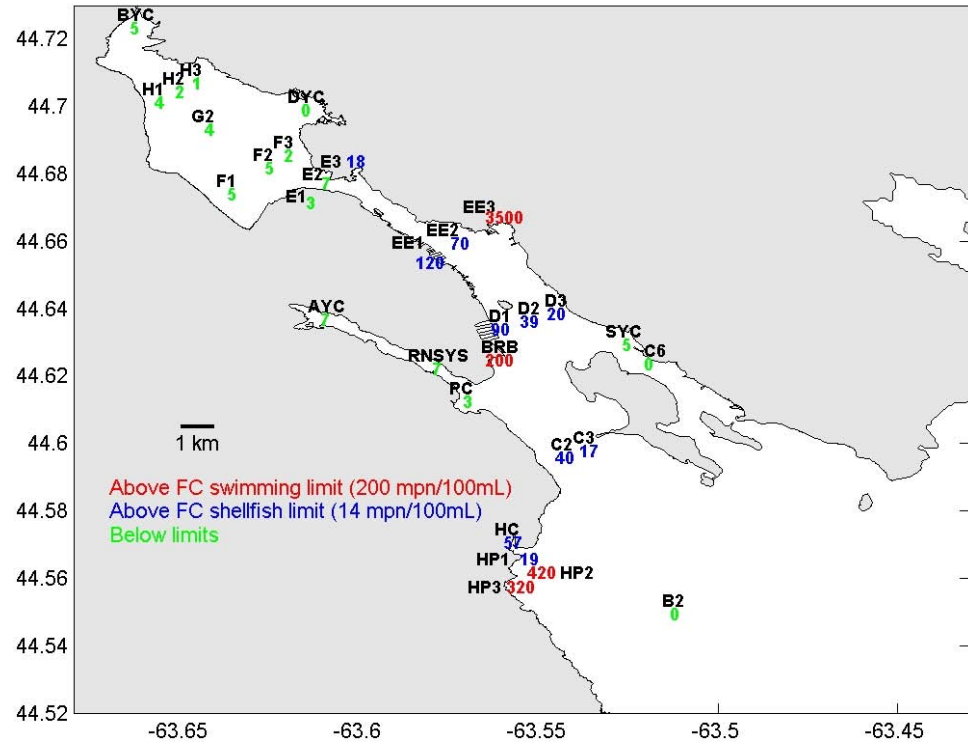
RAINFALL AND MEAN TEMP



CLOUD COVER



Fecal Coliform 1 m: March 26, 2008



Fecal Coliform 10 m

