

Halifax Harbour Water Quality Monitoring Project

Survey Summary #185

Survey Date: 2 June 2009
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report185_090602.doc
Data File: HHWQMP_data185_090602.xls
Data Return:

Chemical:	100%
Bacteria:	100%
Profile:	97%
Overall:	99%

Sample Notes:

A supplementary CTD cast was taken at the LOBO buoy location (44.6291 N, 63.5915 W) at 0739 local time (AST).

The CTD data from HC was lost in processing. The profiles plotted here are incorrect. The incorrect data has been deleted from the data file.

To match the collected reference data, the presented DO values should be scaled by a factor of 1.4 (see data file cover sheet).

QA/QC samples:

Chemical Analysis		E2-1m	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L	<0.05	<0.05
Total Suspended Solids	mg/L	4.0	9.0
Copper	ug/L	0.6	0.6
Iron	ug/L	11.0	19.0
Manganese	ug/L	4.0	5.0
Mercury	ug/L	<0.01	0.014
Nickel	ug/L	0.5	0.6
Zinc	ug/L	2.0	2.0

Fecal Coliform (CFU/100ml)

Site	C6-10m	DYC-1m	PC-10m	E2-1m
Reference	16	10	0	51
QA/QC	31	6	6	12

Comments:

General: There has been light to moderate rainfall (22 mm) in previous five days. Nonetheless, in general the surface water is slightly more saline and the bottom water fresher (density stratification less) than in the previous survey. The water continues to warm with surface temperatures about 8-10° C. The surface to bottom temperature difference in the Inner Harbour is 4-5° C. The hydrographic properties of the “below the sill” water in the Basin remain quite uniform, not significantly changed from the previous survey. The fecal coliform levels are generally low/moderate with some swimming guideline exceedences in the 1m samples in the Inner Harbour and Southern Basin. An unusually high value occurs at site C6 in Eastern Passage. There is also a more normal high value at HP1 near the Tribune Head outfall.

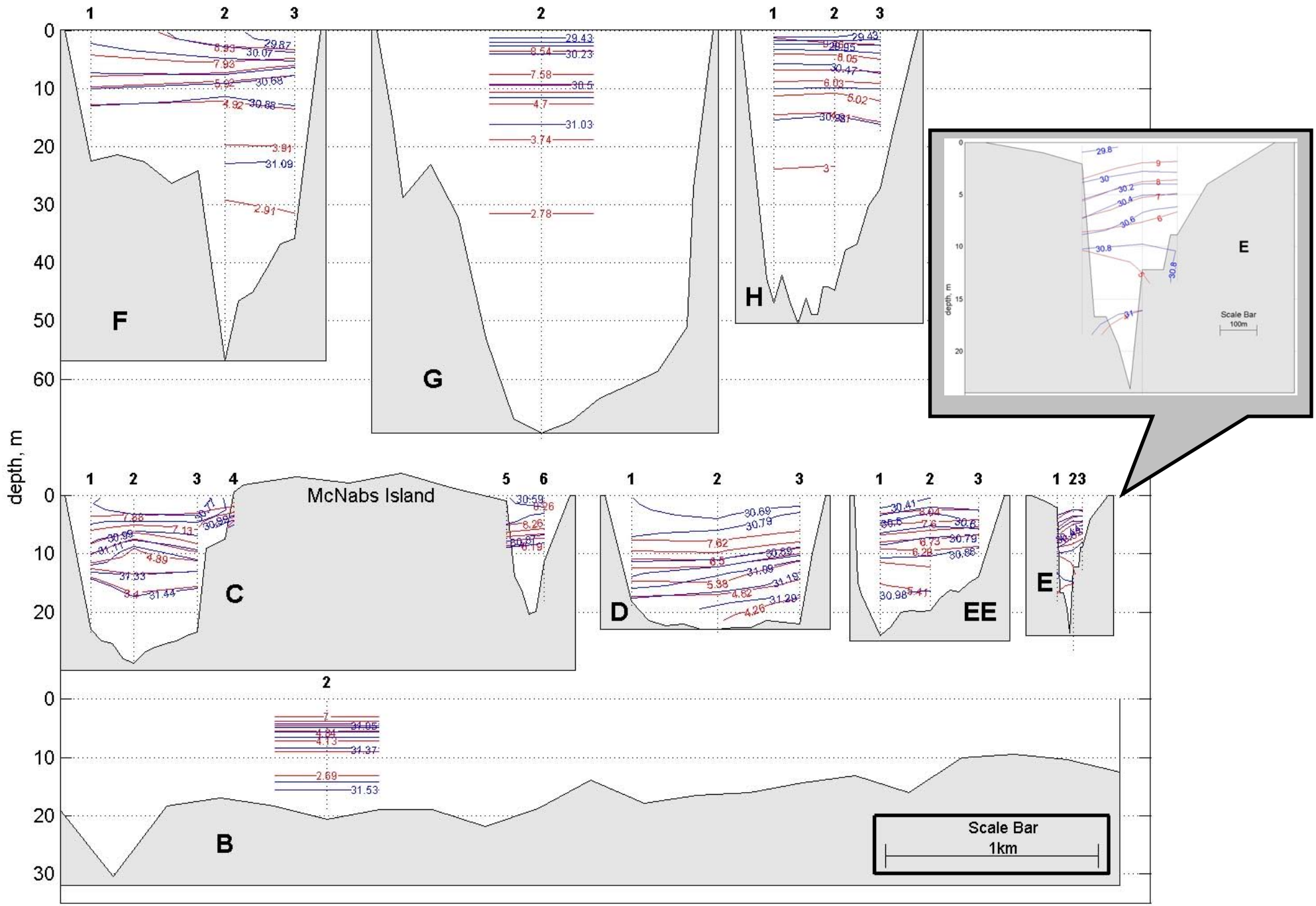
Fluorescence: The fluorescence levels are moderate and higher than in the previous survey. The profile maximum levels are 25-35 mg/m³ in the Basin and Narrows at a depth of 10-15m. These maximum levels decrease monotonically going out of the Harbour and are about 8 mg/m³ at section C. The maximum values occur higher in the water column in the Inner Harbour than in the Basin. At B2, in the Outer Harbour, the levels are quite uniform near 2 mg/m³, or about at “background” levels.

TSS: The average TSS levels are relatively low (3.5 mg/L). The values higher than average are generally in the 1m samples in the Basin and Inner Harbour, except that the highest value (7.0 mg/L) is observed in the 10m sample in the southern Basin (F2).

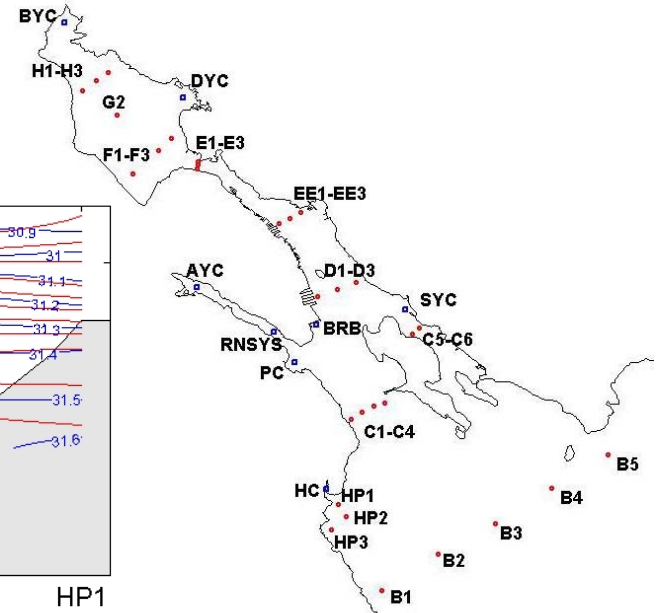
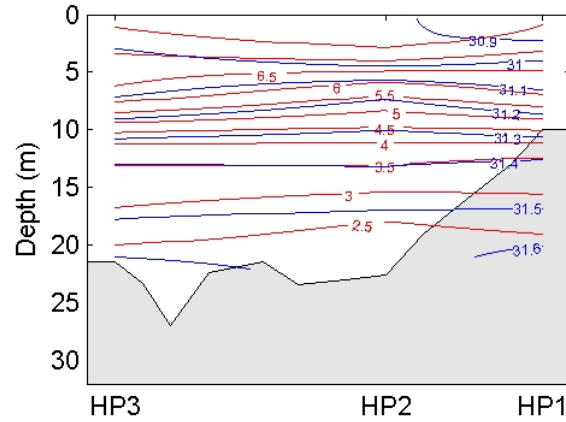
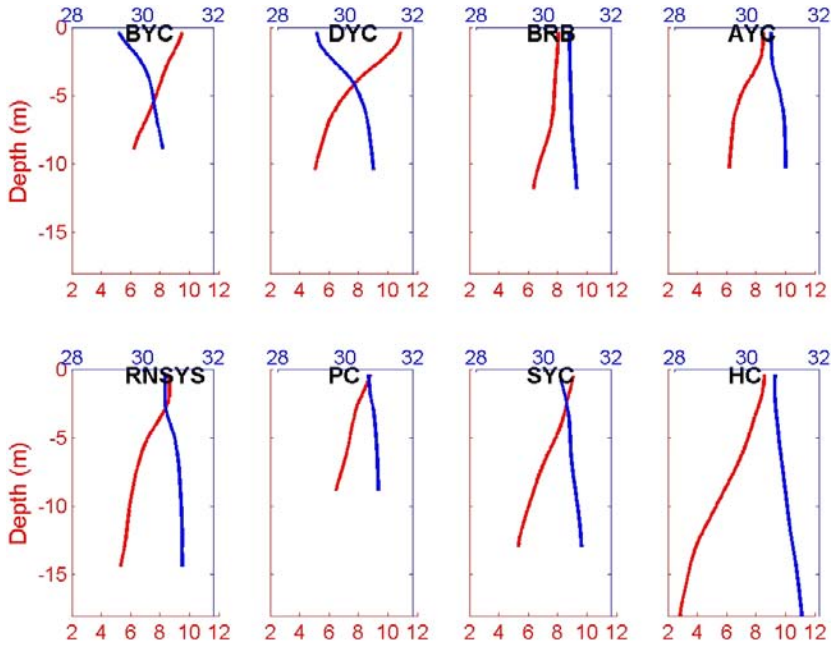
Ammonia: The ammonia levels are low with only one value slightly above the 0.05 mg/L detection limit.

Metals: There are no guideline exceedences. There are six samples with mercury levels above the 0.01 µg/L detection limit with the highest value about 70% of the 0.025 µg/L guideline. There are two one meter copper samples with levels about 50% of the 2.9 µg/L guideline.

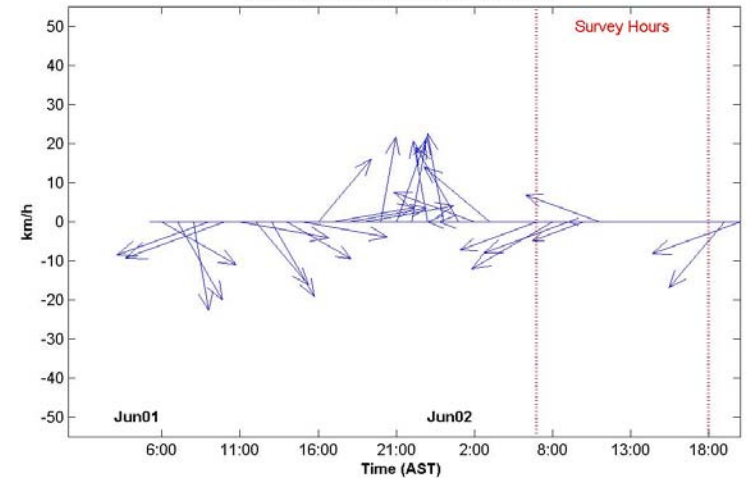
Dissolved Oxygen: The dissolved oxygen data, scaled appropriately by a factor of 1.4, indicates that the DO levels are relatively high with surface values being 10.5 to 11 mg/L. The DO decreases somewhat with depth. In the worst case outside of the Basin, the DO decreases to about 8.5 mg/L at the bottom in the Narrows. The DO continues to decrease in the Basin deep water but remains slightly above the 7.0 mg/L guideline. There were no guideline exceedences observed.



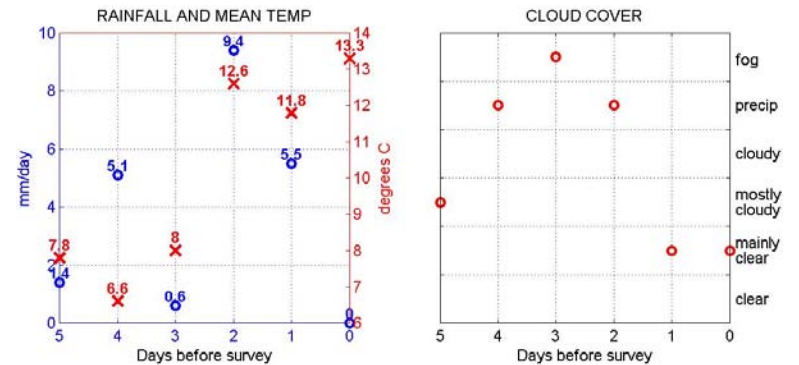
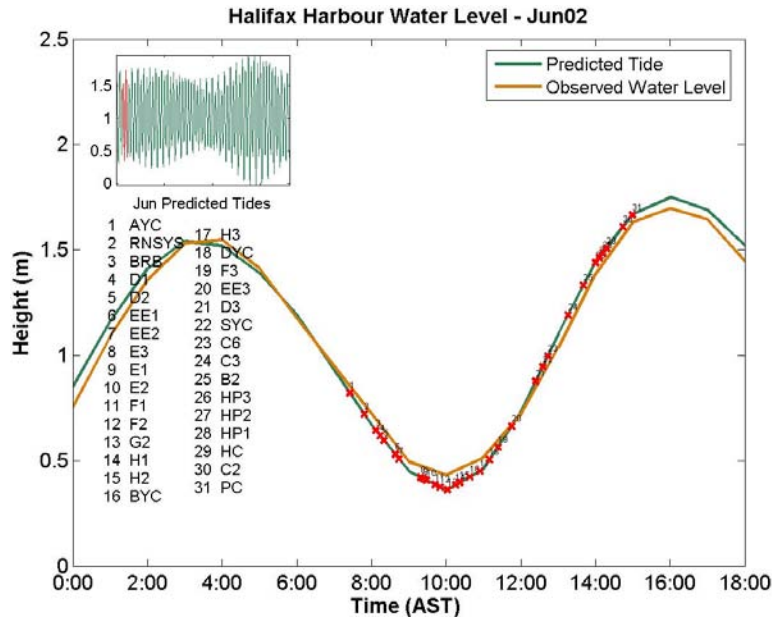
Yacht Clubs



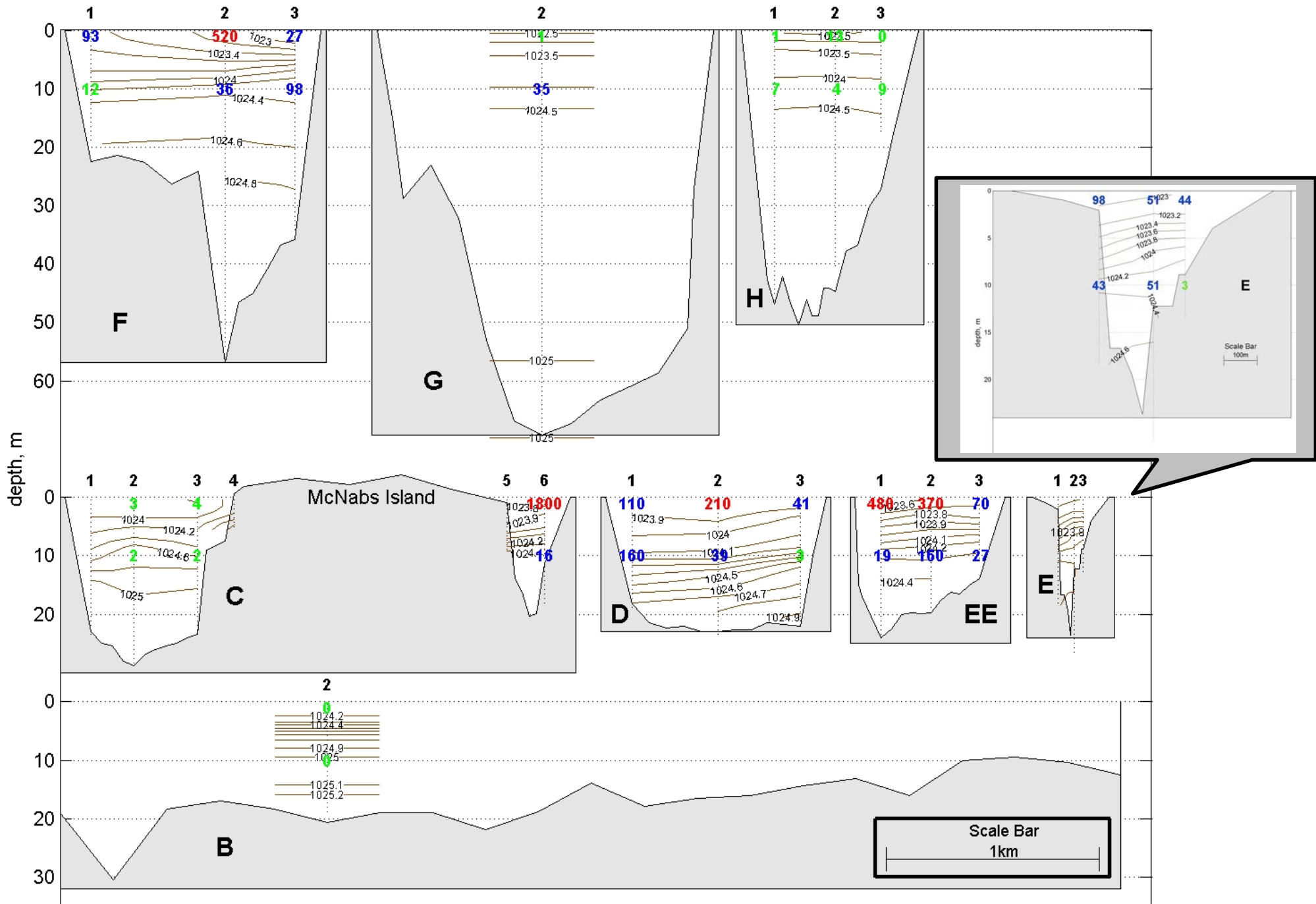
Wind Speed and Direction at Shearwater Jetty



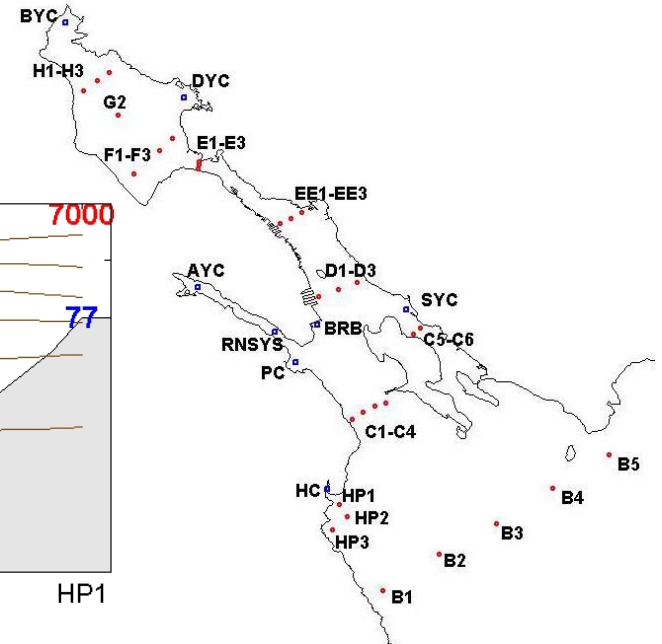
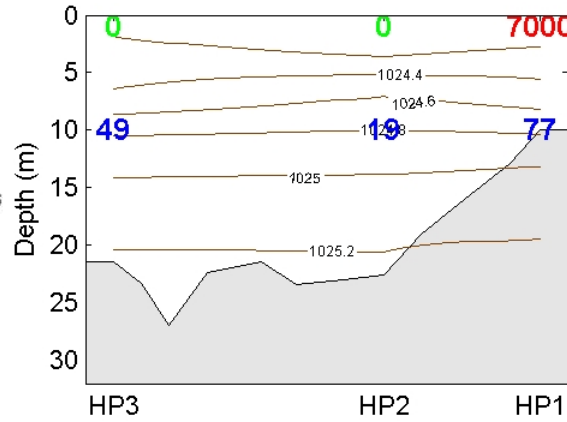
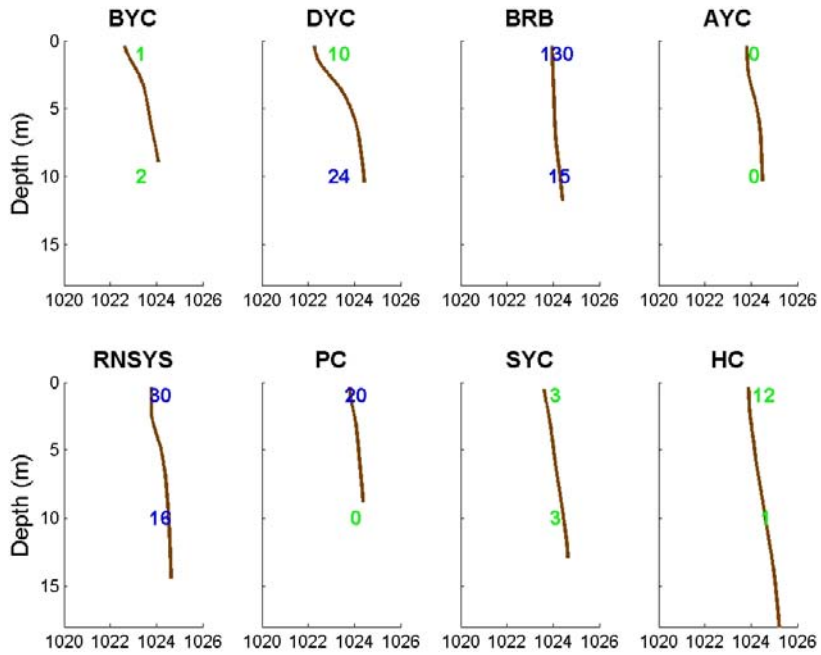
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



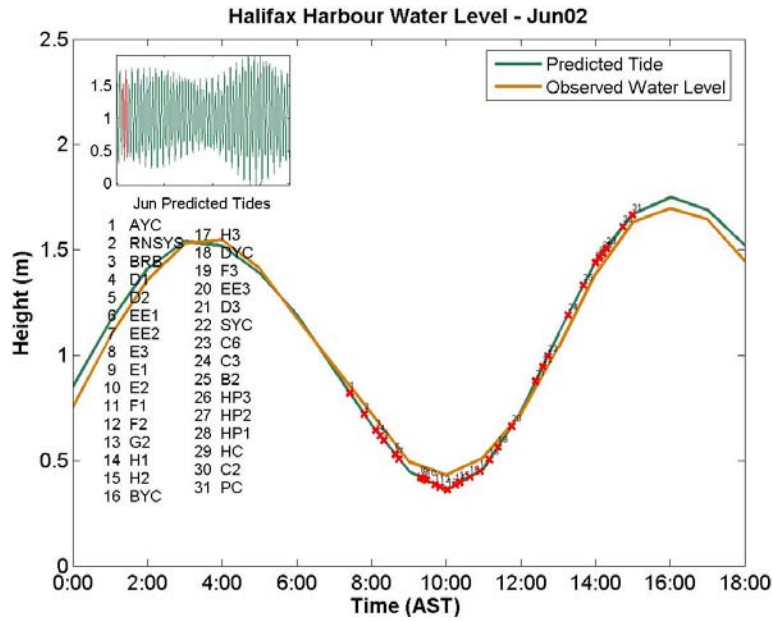
Salinity in PSU Temperature in °C



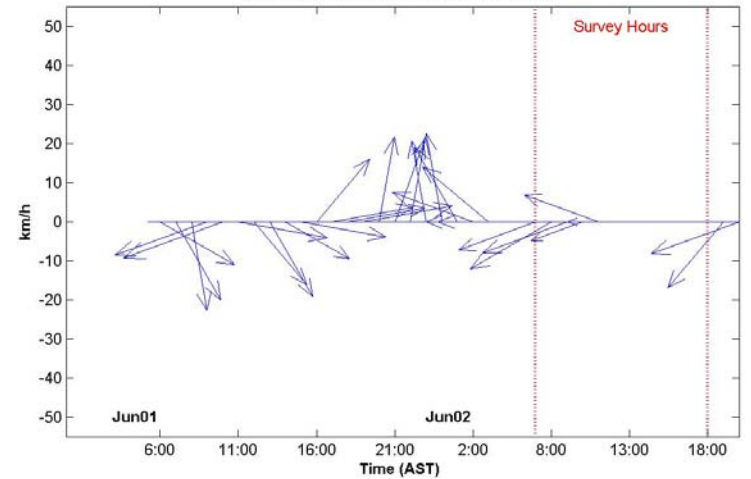
Yacht Clubs



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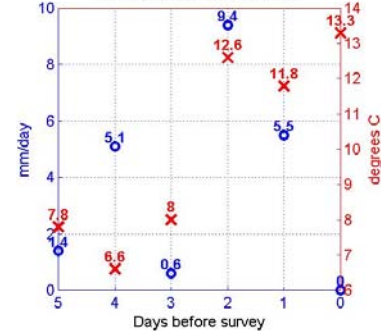
Wind Speed and Direction at Shearwater Jetty



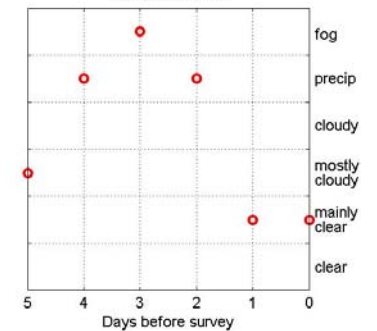
Potential Density in kg/m^3

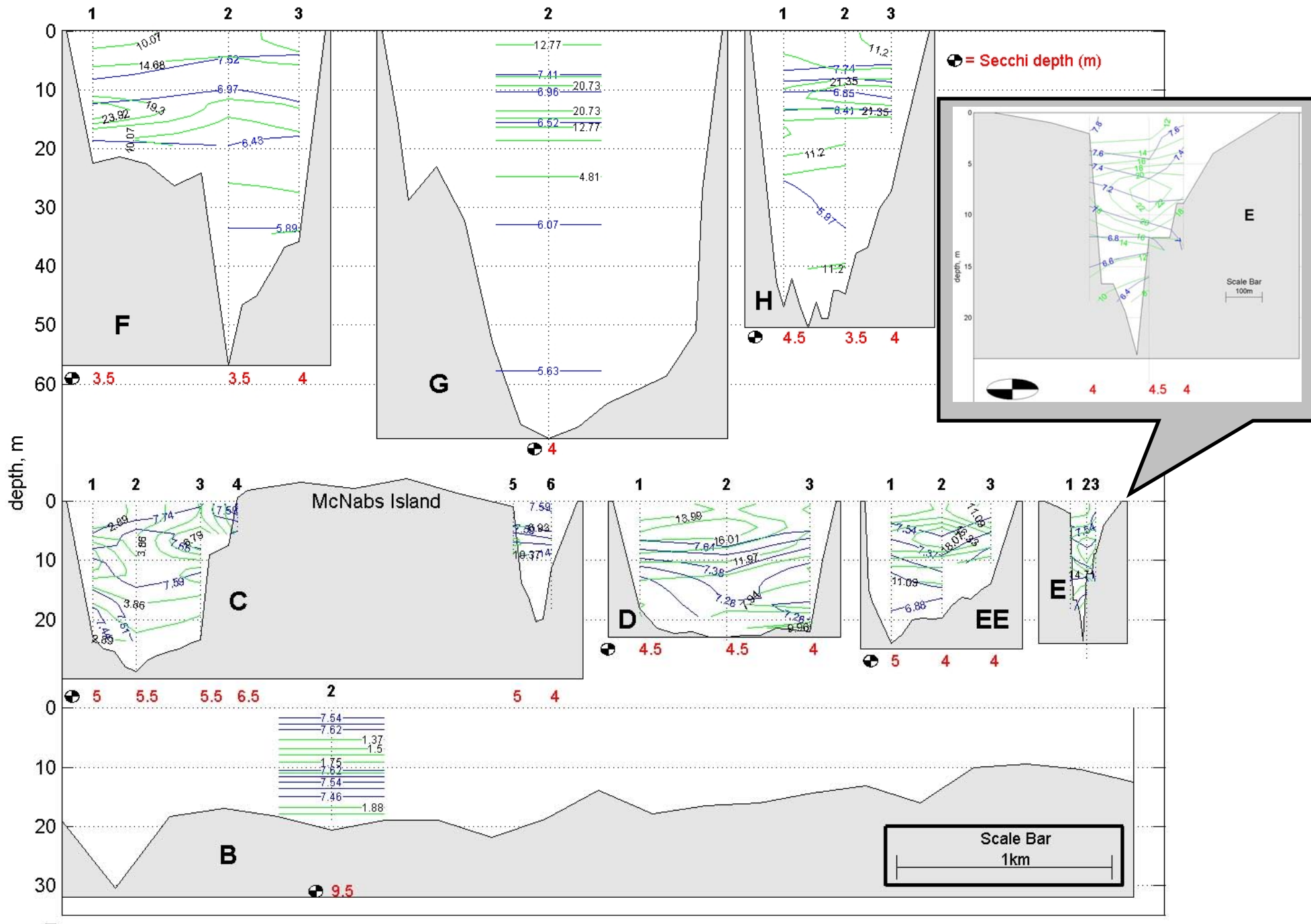
Fecal coliform: **above swimming limit (200 CFU/100mL)**
above shellfish limit (14 CFU/100mL)
below limits

RAINFALL AND MEAN TEMP

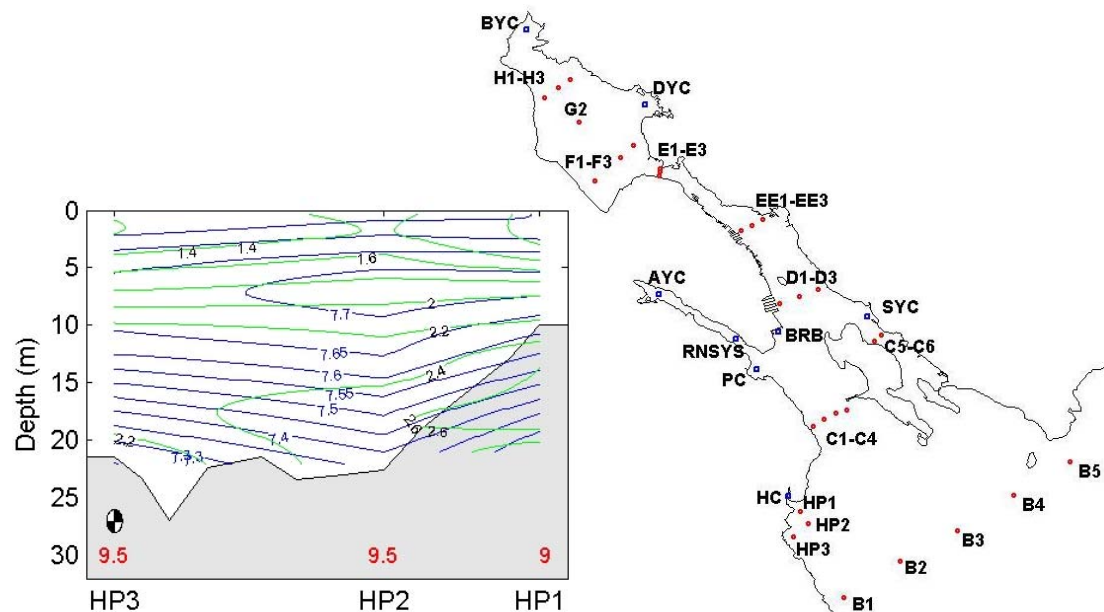
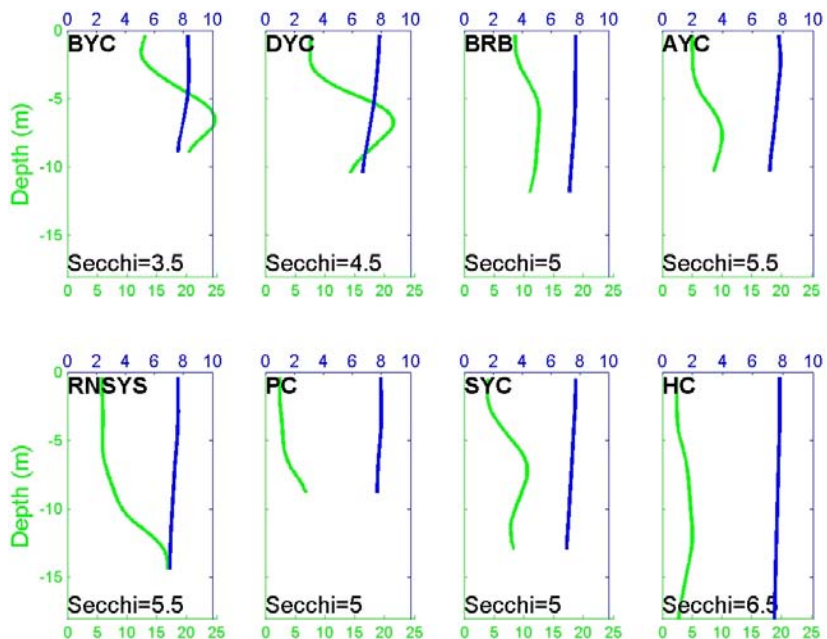


CLOUD COVER

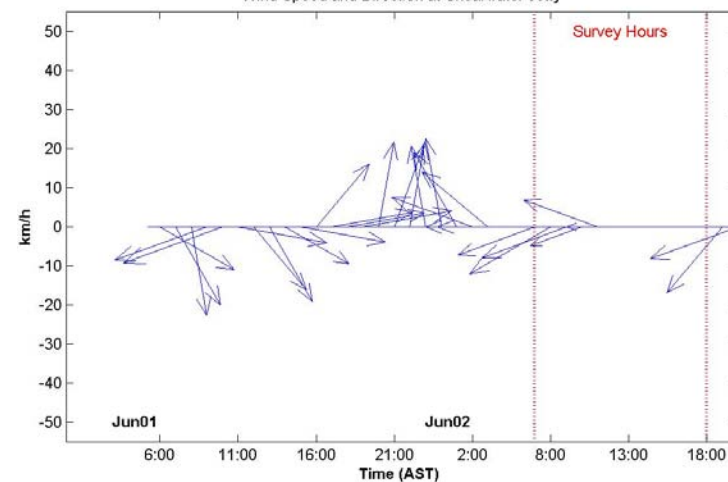




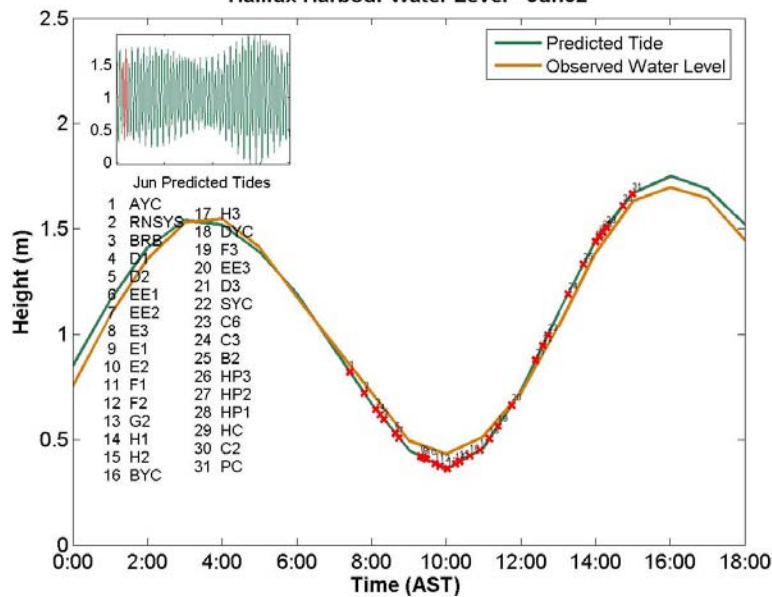
Yacht Clubs



Wind Speed and Direction at Shearwater Jetty



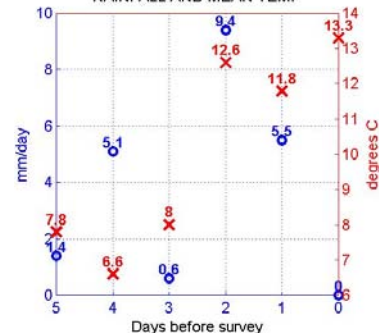
Halifax Harbour Water Level - Jun02



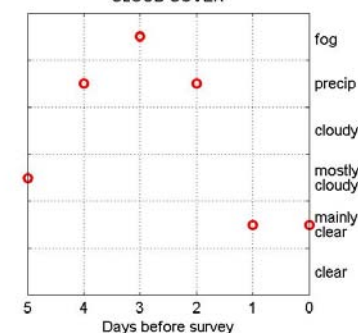
Rainfall and temperature data collected at Shearwater Autoport.

Cloud cover data collected at Shearwater Airport

RAINFALL AND MEAN TEMP

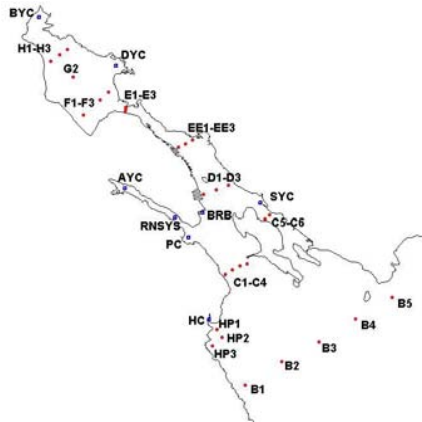
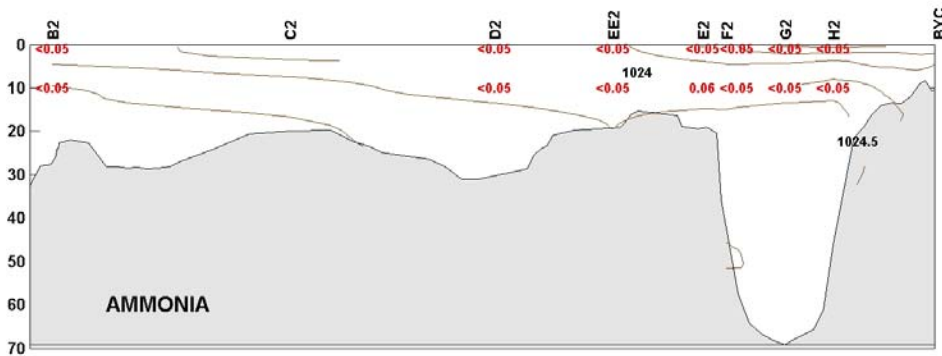
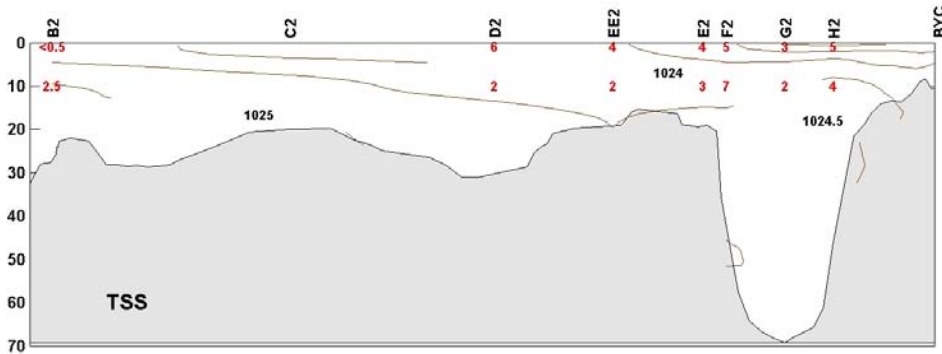


CLOUD COVER



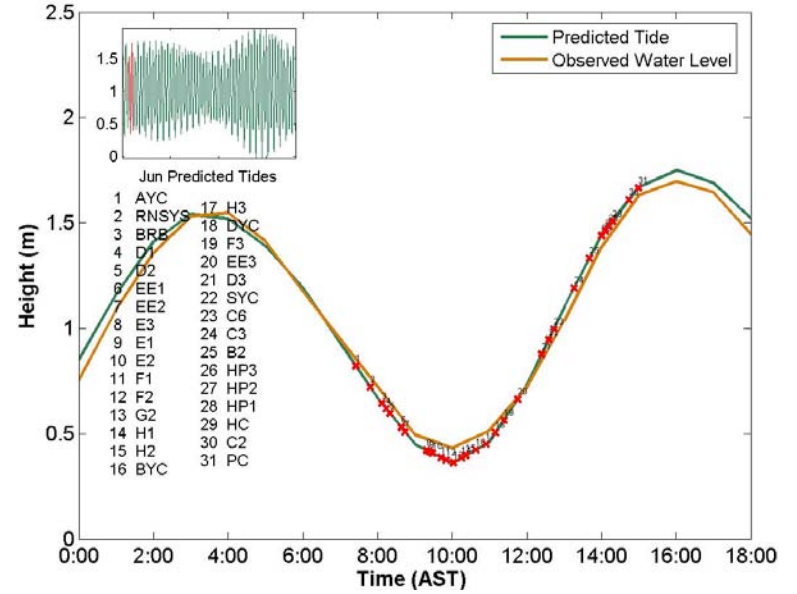
DO in mg/L

Chlorophyll in mg/m³

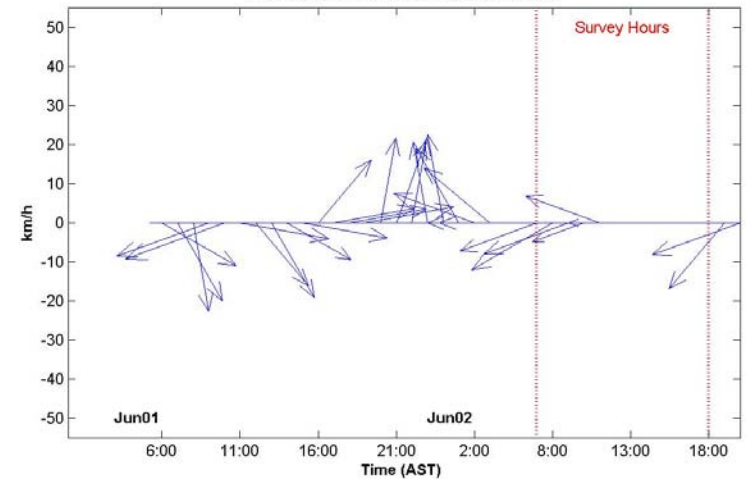


Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport

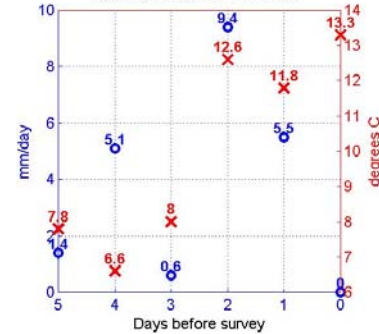
Halifax Harbour Water Level - Jun02



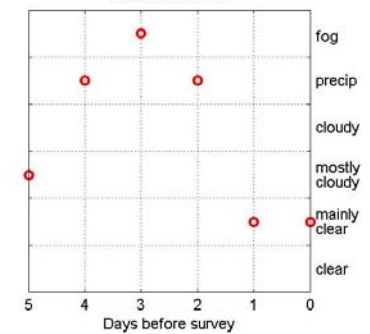
Wind Speed and Direction at Shearwater Jetty



RAINFALL AND MEAN TEMP



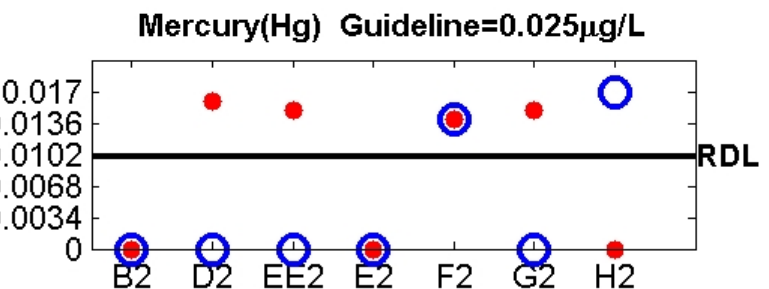
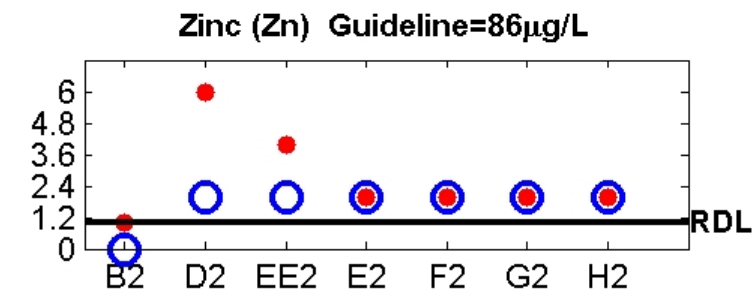
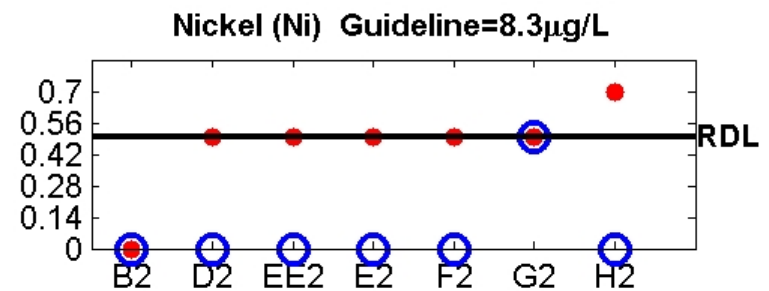
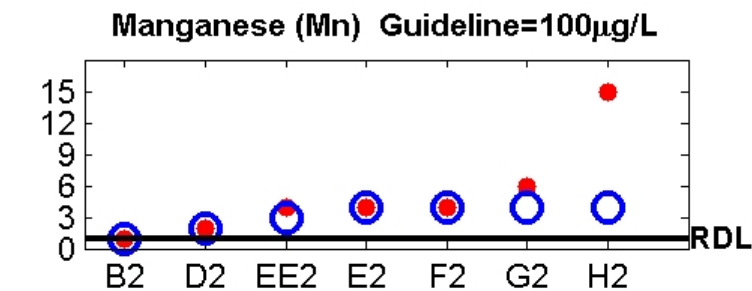
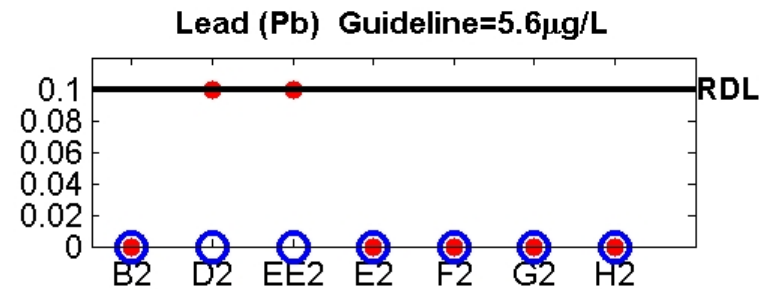
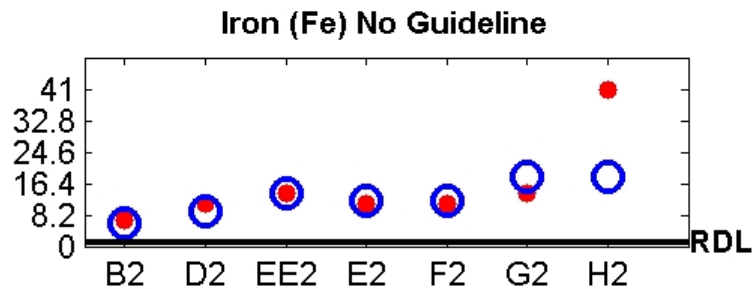
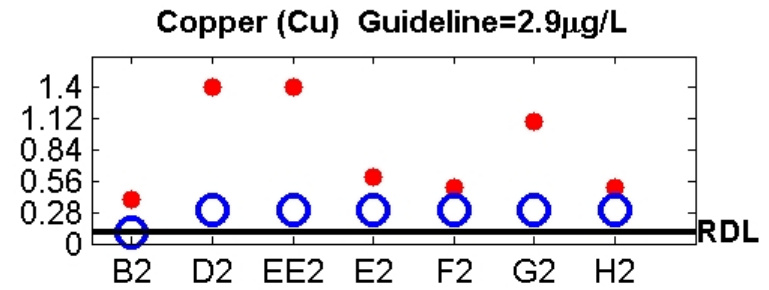
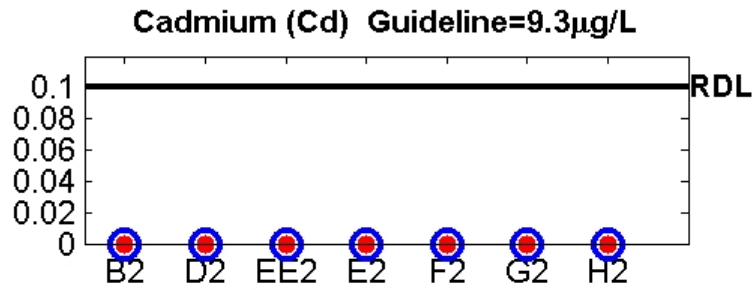
CLOUD COVER



Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

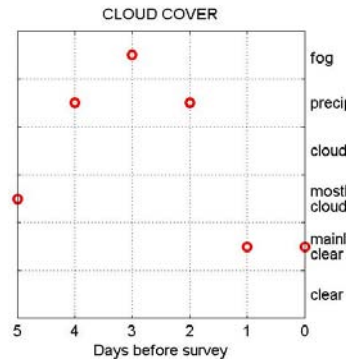
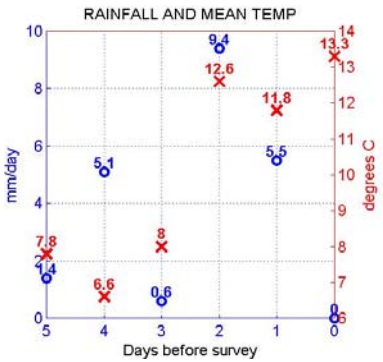
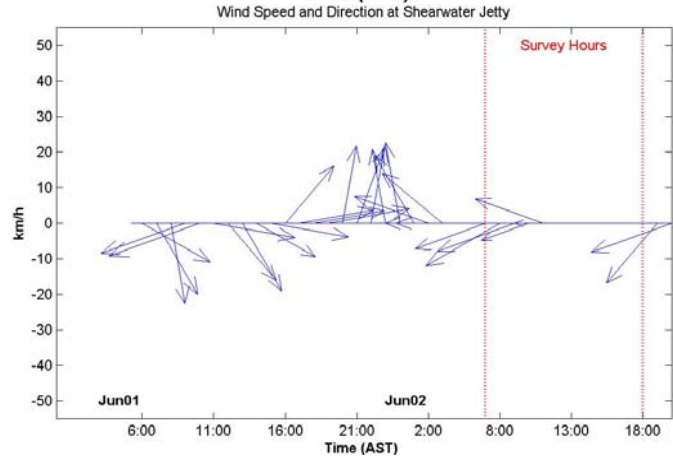
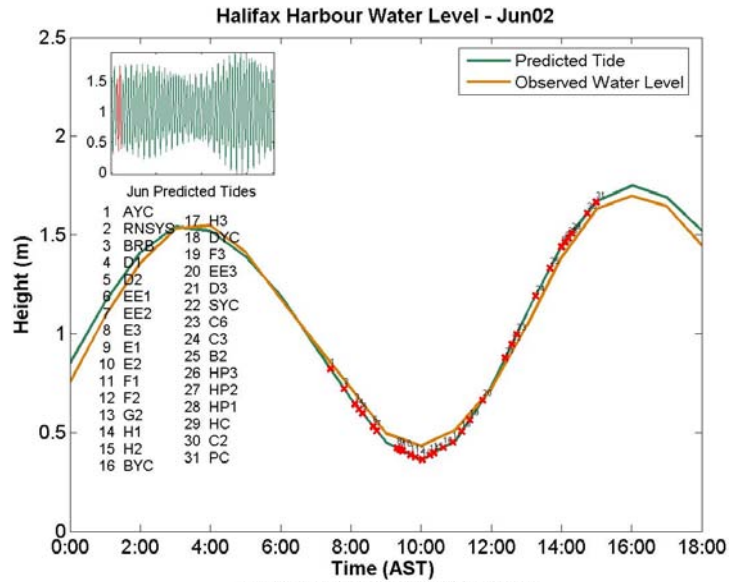


LEGEND

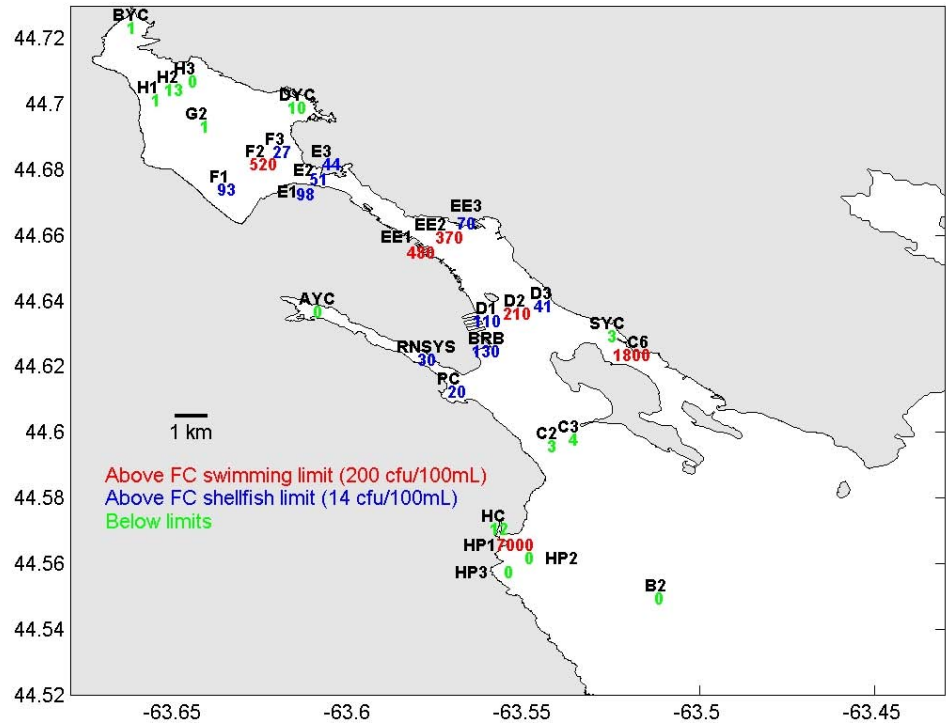
- = Ten Metre Sample
- = One Metre Sample
- RDL = Reportable Detection Limit

HRM Water Quality Monitoring

Fecal Coliform Summary – June 2, 2009



Fecal Coliform 1 m



Fecal Coliform 10 m

