

Halifax Harbour Water Quality Monitoring Project

Survey Summary #164

Survey Date: 09 September 2008
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report164_080909.doc
Data File: HHWQMP_data164_080909.xls

Data Return:
 Chemical: 100%
 Bacteria: 100%
 Profile: 94%
Overall: 97%

Sample Notes:

The location of the QA/QC samples was not recorded in the field notes, so the value cannot be compared.

The profile data at C4 and HP2 failed QAQC. There was probable loss of prime due to boat repositioning. The data is plotted here but has been deleted from the data file.

Connection of sewers to the Dartmouth Sewage Treatment Plant has been completed.

A supplementary CTD cast was taken at the LOBO buoy location (44.6291 N, 63.5915 W) at 15:10 local time. This is for cross comparison with CTD data (primarily DO)

To match the collected reference data the presented DO values should be scaled by a factor of 1.3 (see comparison in data file).

QA/QC samples:

Chemical Analysis		Not indicated	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L		0.15
Total Suspended Solids	mg/L		4.5
Copper	ug/L		0.5
Iron	ug/L		28
Manganese	ug/L		4
Zinc	ug/L		2

Fecal Coliform (CFU/100ml)

Site	NA	NA	NA	NA
Reference				
QA/QC	7	3	3	10

Comments:

General: The Harbour is somewhat less stratified than last survey. South of the Basin the surface water is somewhat warmer and fresher, but primarily the bottom water is less saline. The signature of the cold salty bottom water intrusion, evident in that survey, is dissipating. The fecal coliform levels are slightly higher than in the previous survey but remain remarkably low with most values below the 14 CFU/100 mL shellfishing limit. The only samples above the swimming limit are at HP1 and HC, in the vicinity of the Tribune Head outfall, and again, an unexplained high value at SYC.

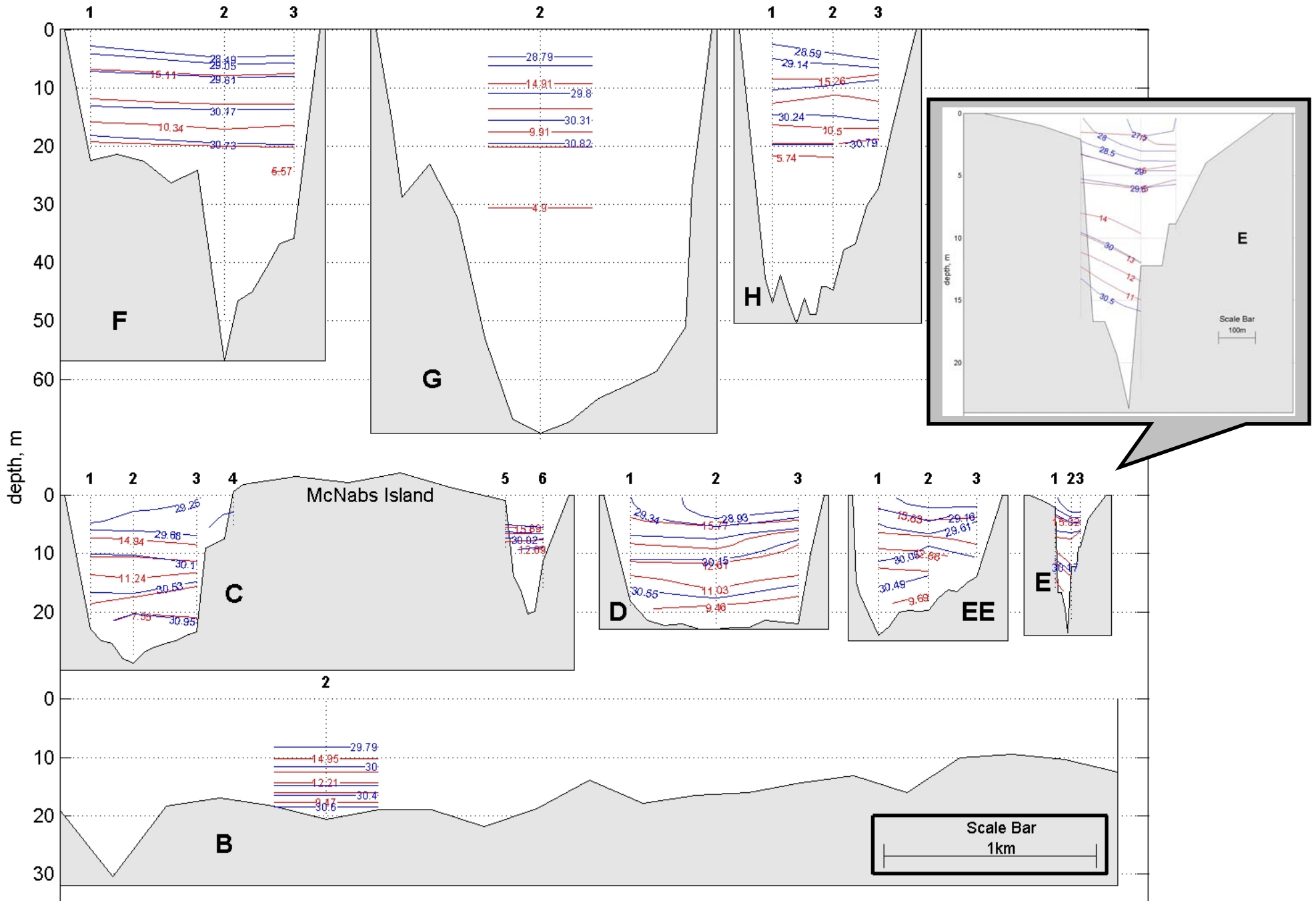
Fluorescence: The fluorescence levels remain somewhat elevated throughout the Harbour. The profile maximums vary from 20-30 mg/m³ in the Basin to 6-10 mg/m³ in the Outer Harbour.

TSS: The TSS levels are relatively low, and quite uniform with all values, except G2-10 m (11 mg/L), between 3 and 5 mg/L (mean 3.8 mg/L)

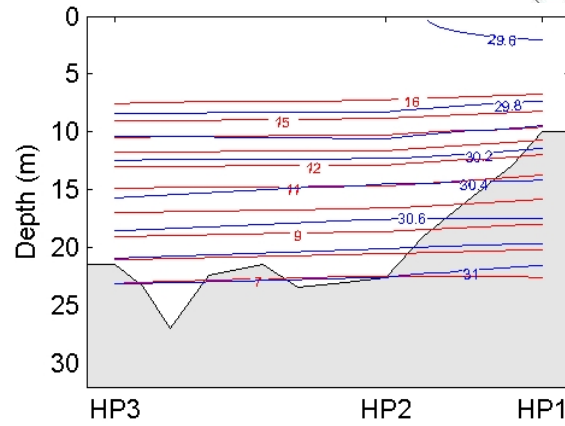
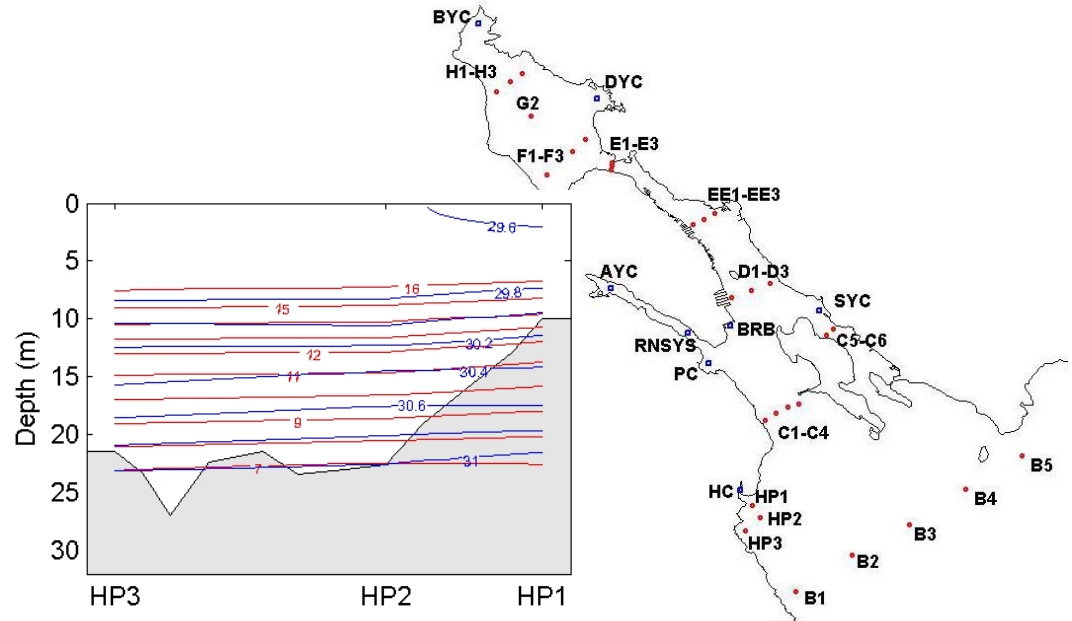
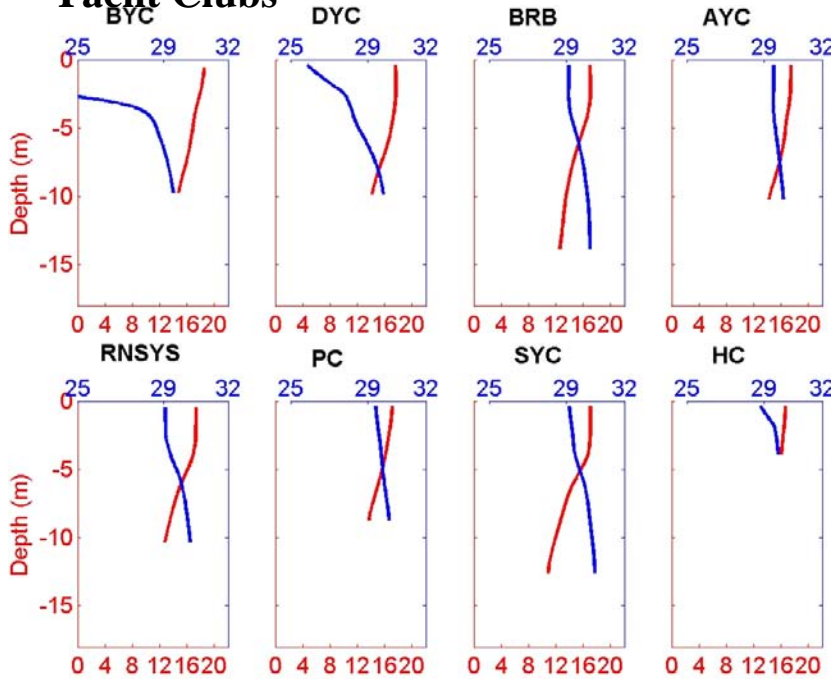
Ammonia: The ammonia levels are relatively high, and uniform with all samples having levels between 0.08 and 0.13 mg/L. The overall average is 0.10 mg/L.

Metals: There are no guideline exceedences. The closest to exceedence is copper with a maximum concentration of about 60% of the guideline in the B2-1 m sample.

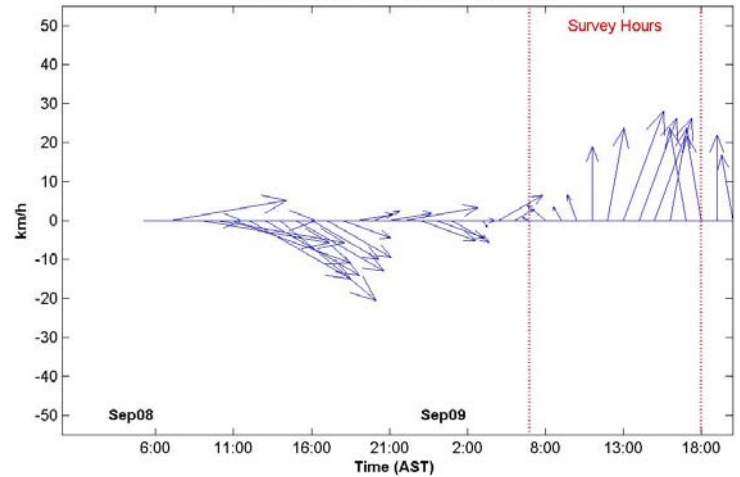
Dissolved Oxygen: The dissolved oxygen data, scaled appropriately by a factor of 1.3, indicates that the surface DO in the Harbour decreases monotonically from about 10.1 mg/L in the northern Basin to just under 8 mg/L in the Outer Harbour. South of the Basin the levels are quite vertically uniform, though there is a slight mid-water minimum. These values represents an exceedence of the class SA 8.0 mg/L guideline in the Outer Harbour, though the levels are >95% saturated at the ambient temperature. The only other guideline exceedence is in the deeper water of the Basin > 15 m. The Basin bottom water remains essentially unchanged.



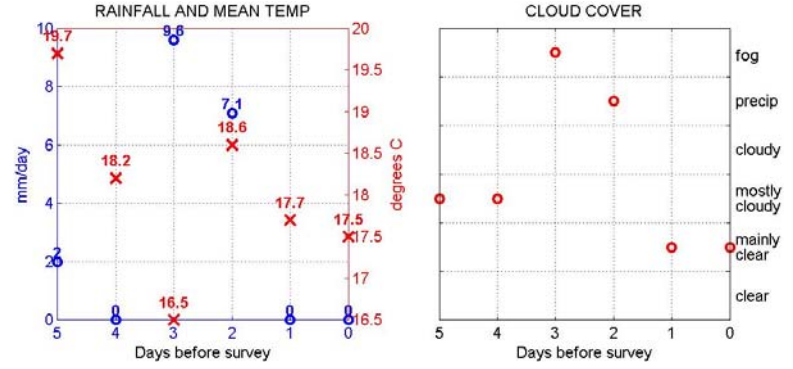
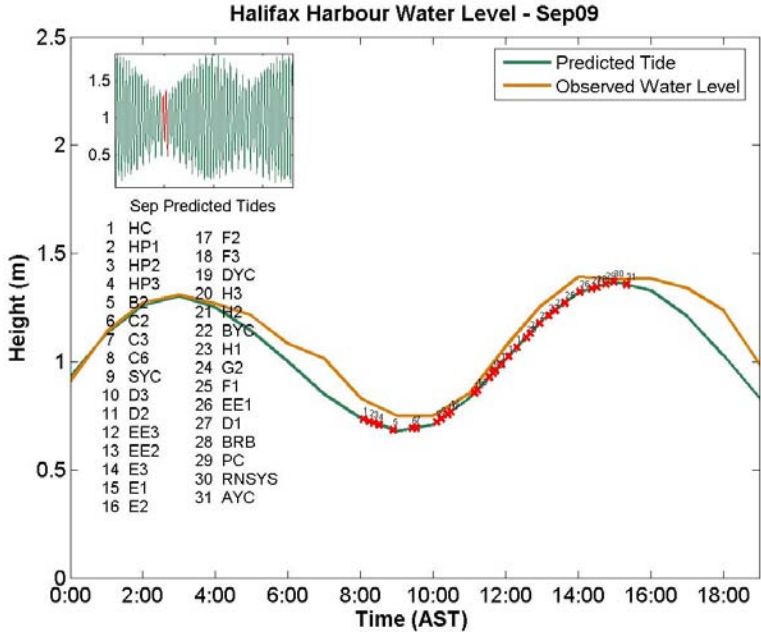
Yacht Clubs



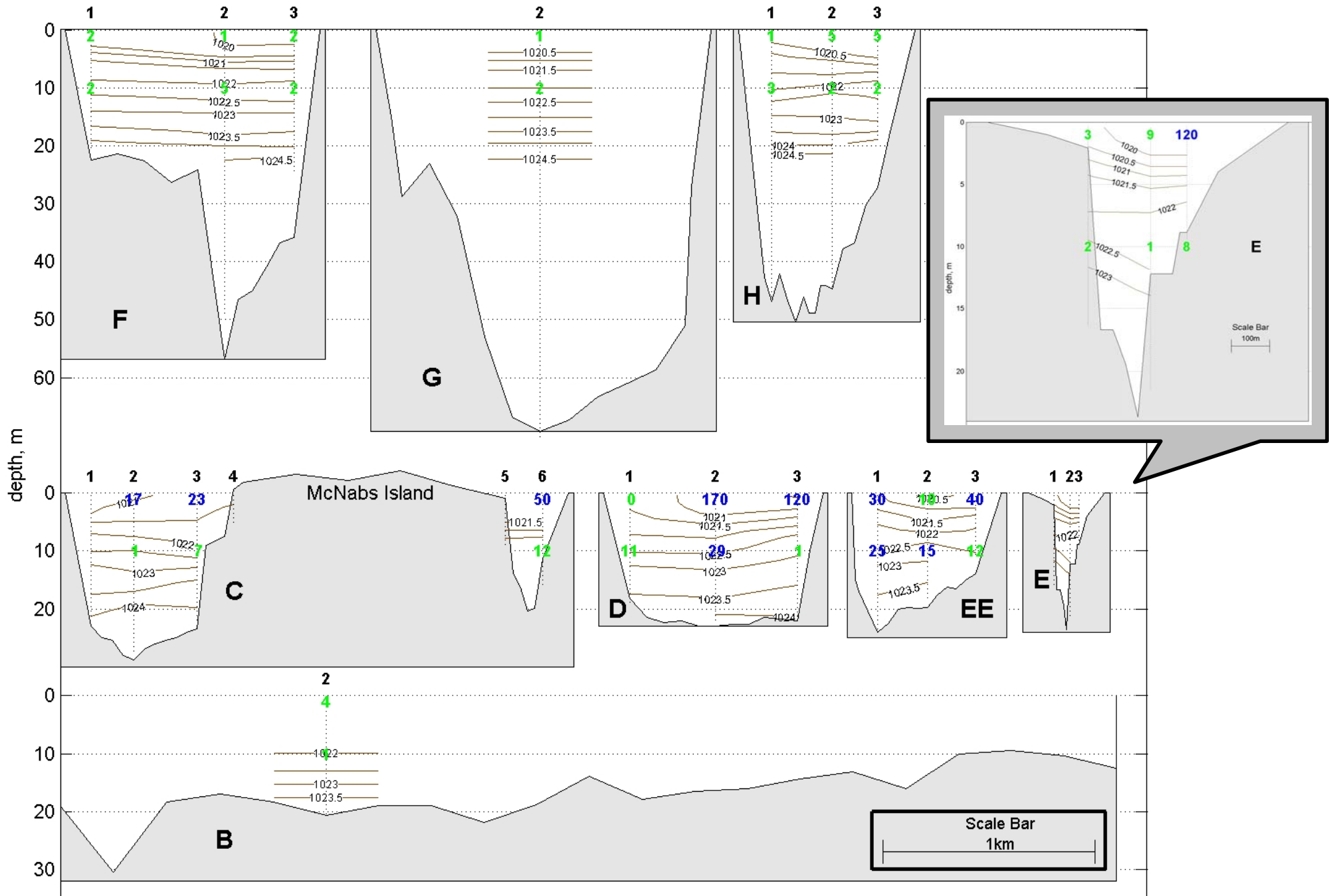
Wind Speed and Direction at Shearwater Jetty



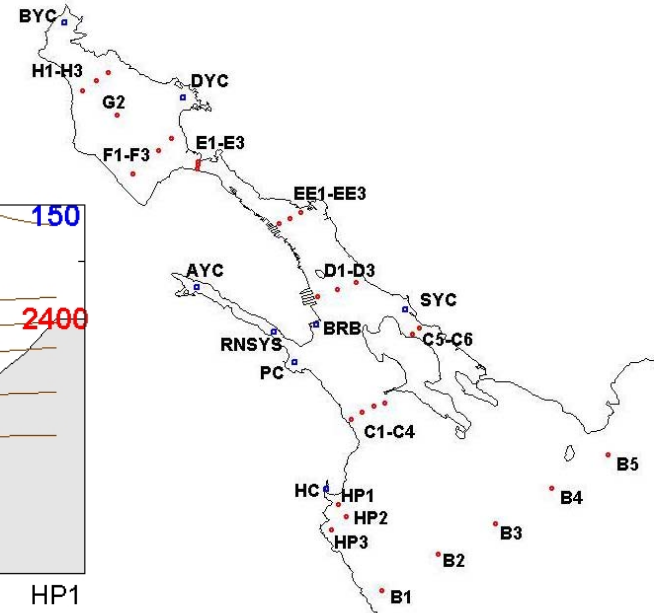
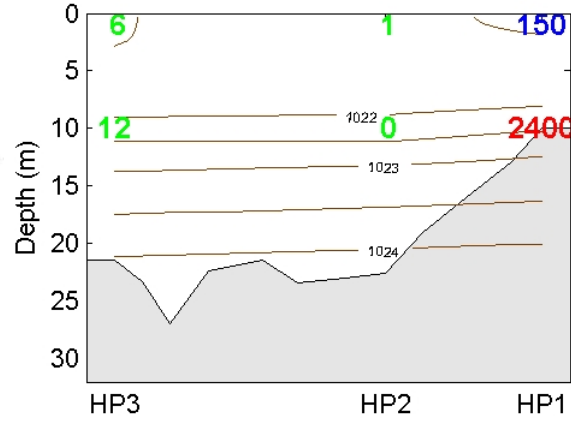
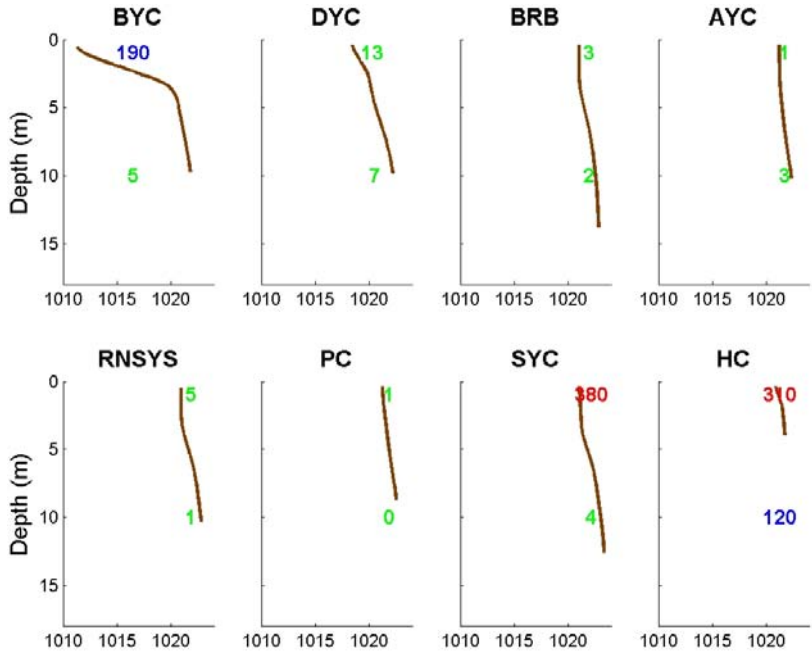
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



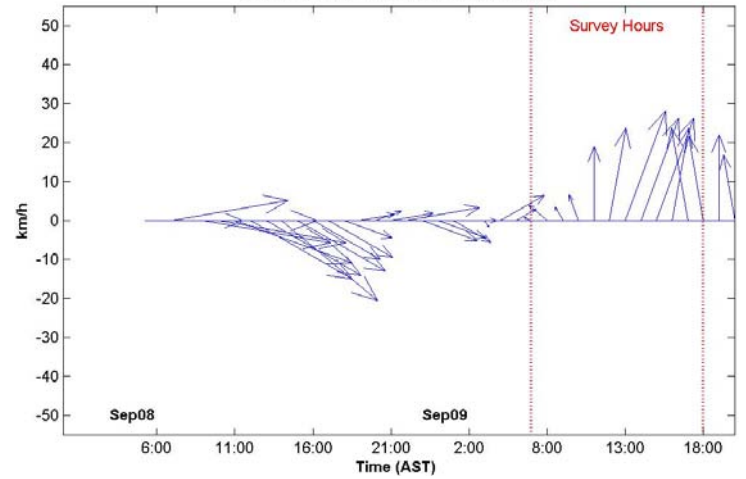
Salinity in PSU Temperature in °C



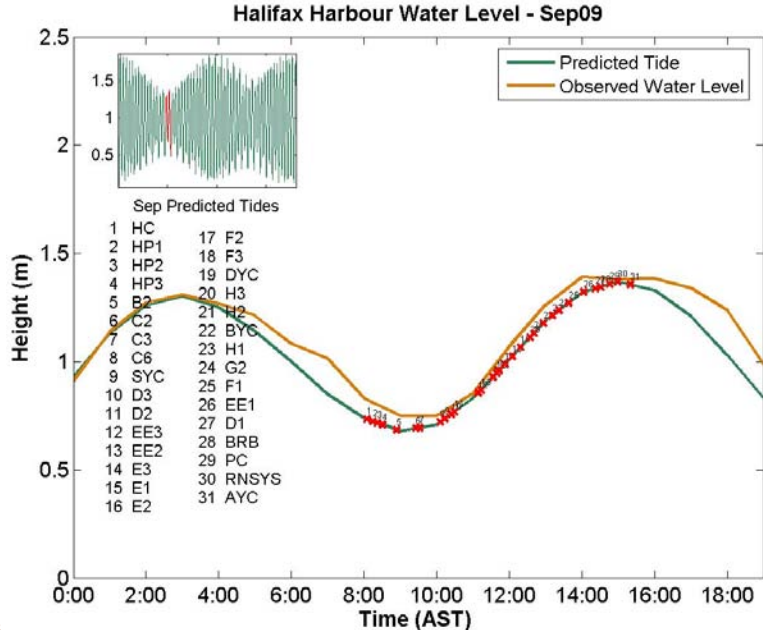
Yacht Clubs



Wind Speed and Direction at Shearwater Jetty

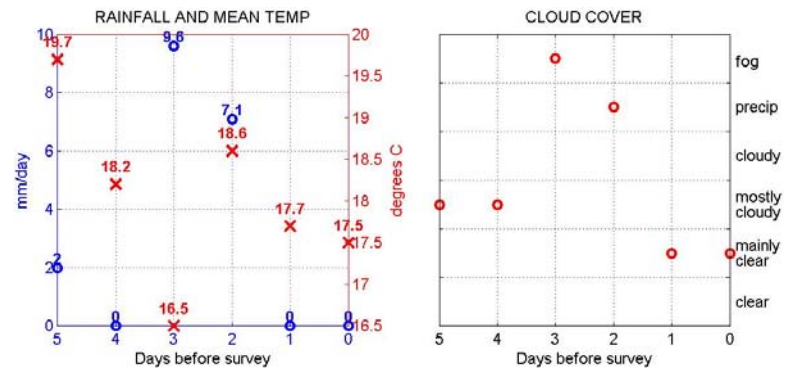


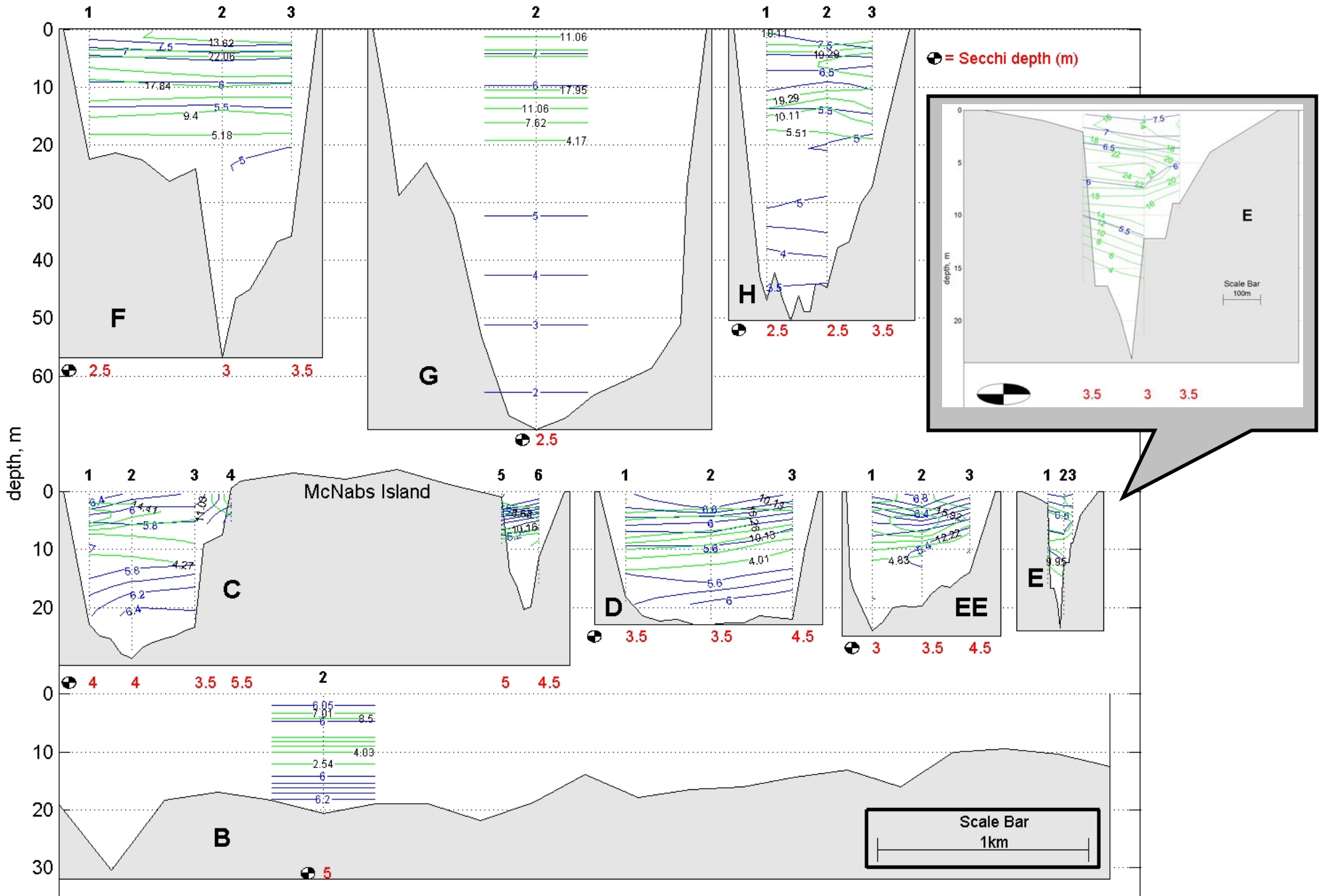
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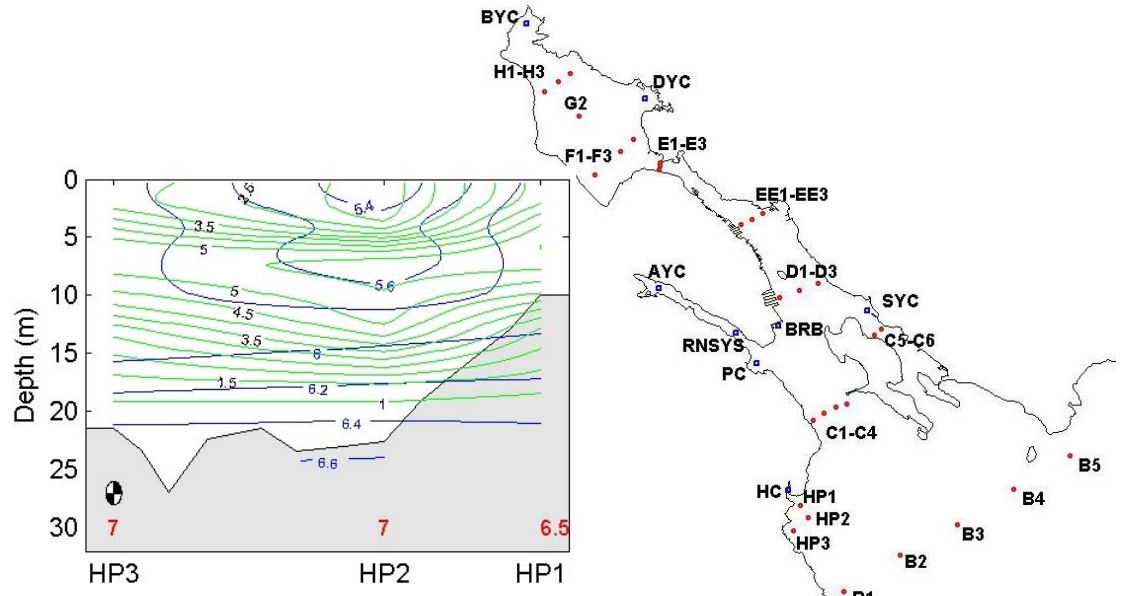
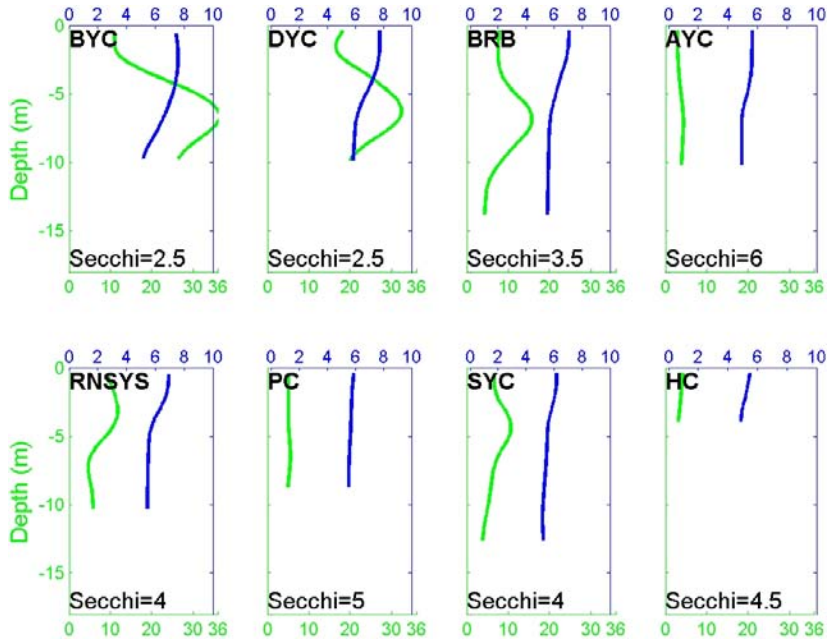
Potential Density in kg/m^3

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

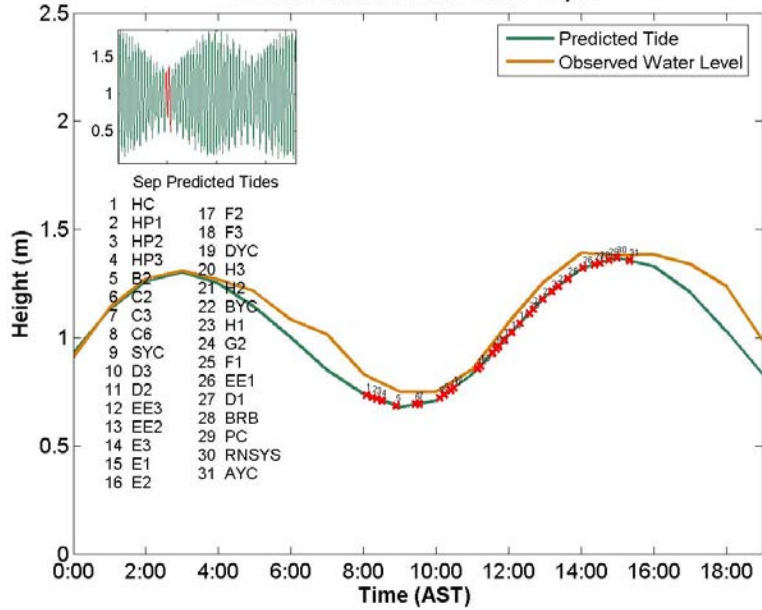




Yacht Clubs



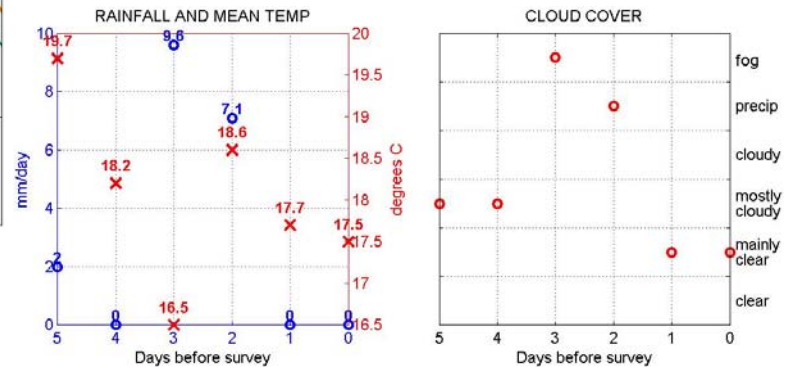
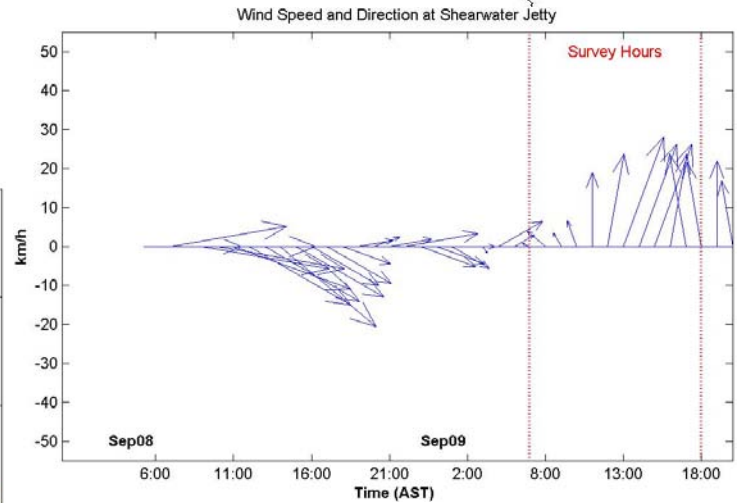
Halifax Harbour Water Level - Sep09



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

DO in mg/L

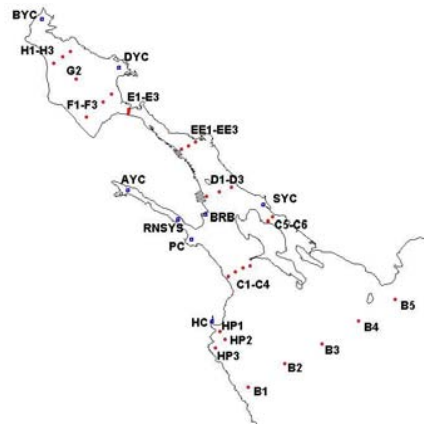
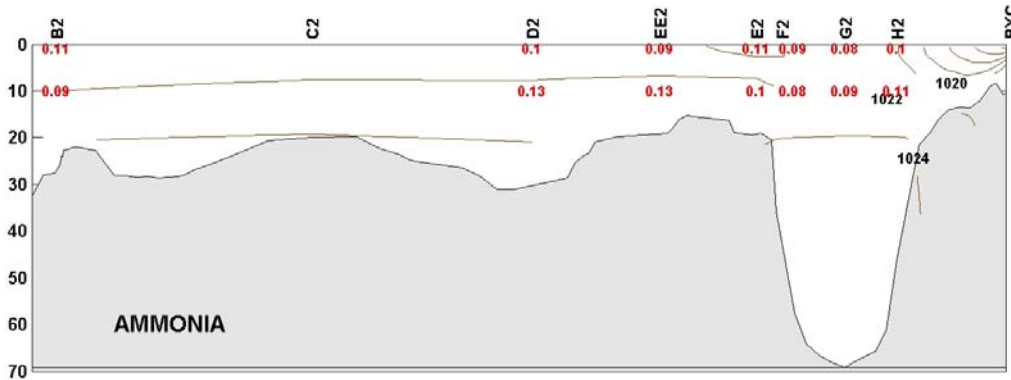
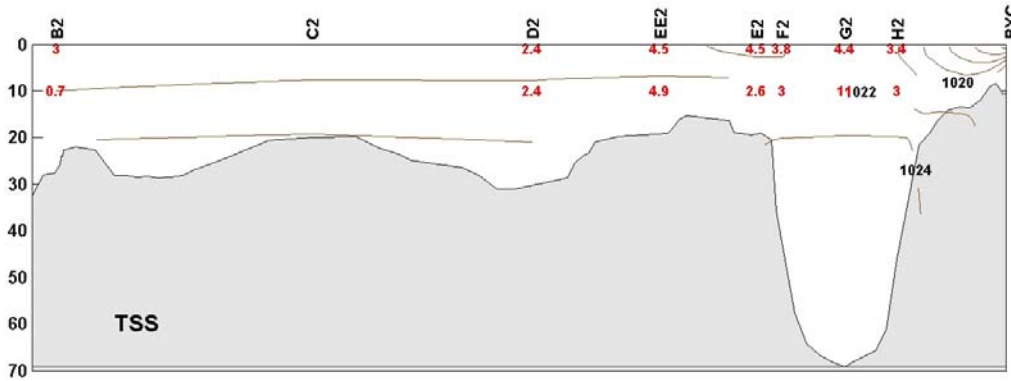
Chlorophyll in mg/m³



DO in mg/L

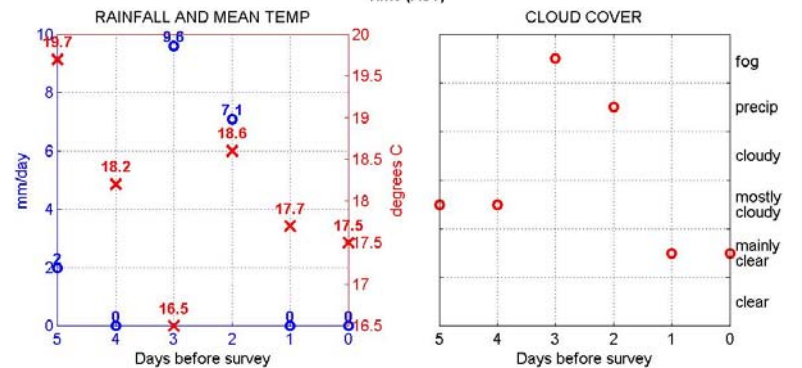
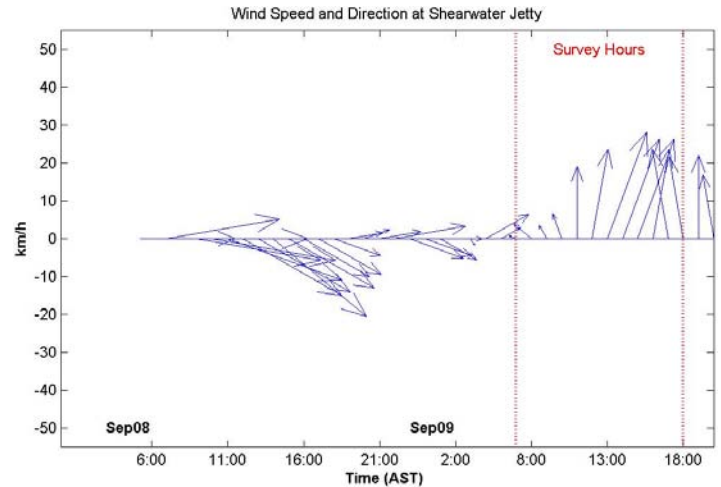
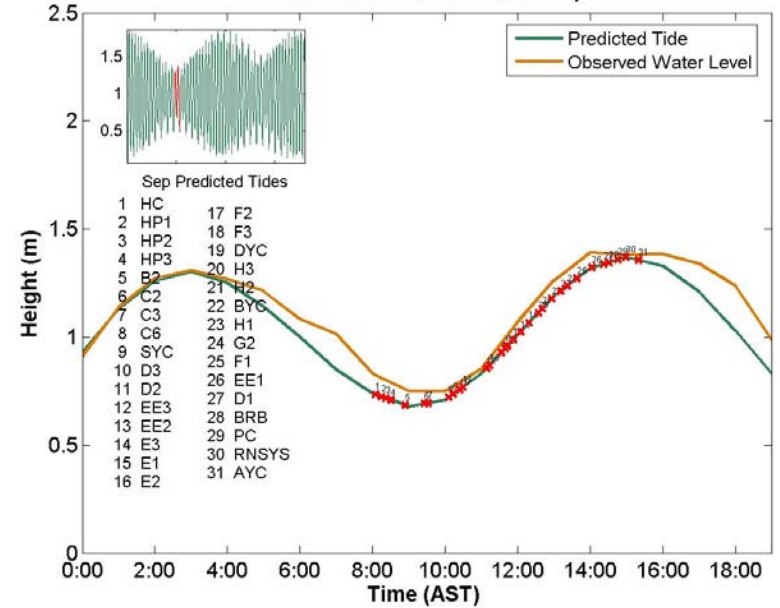
Chlorophyll in mg/m³

CHEMISTRY



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

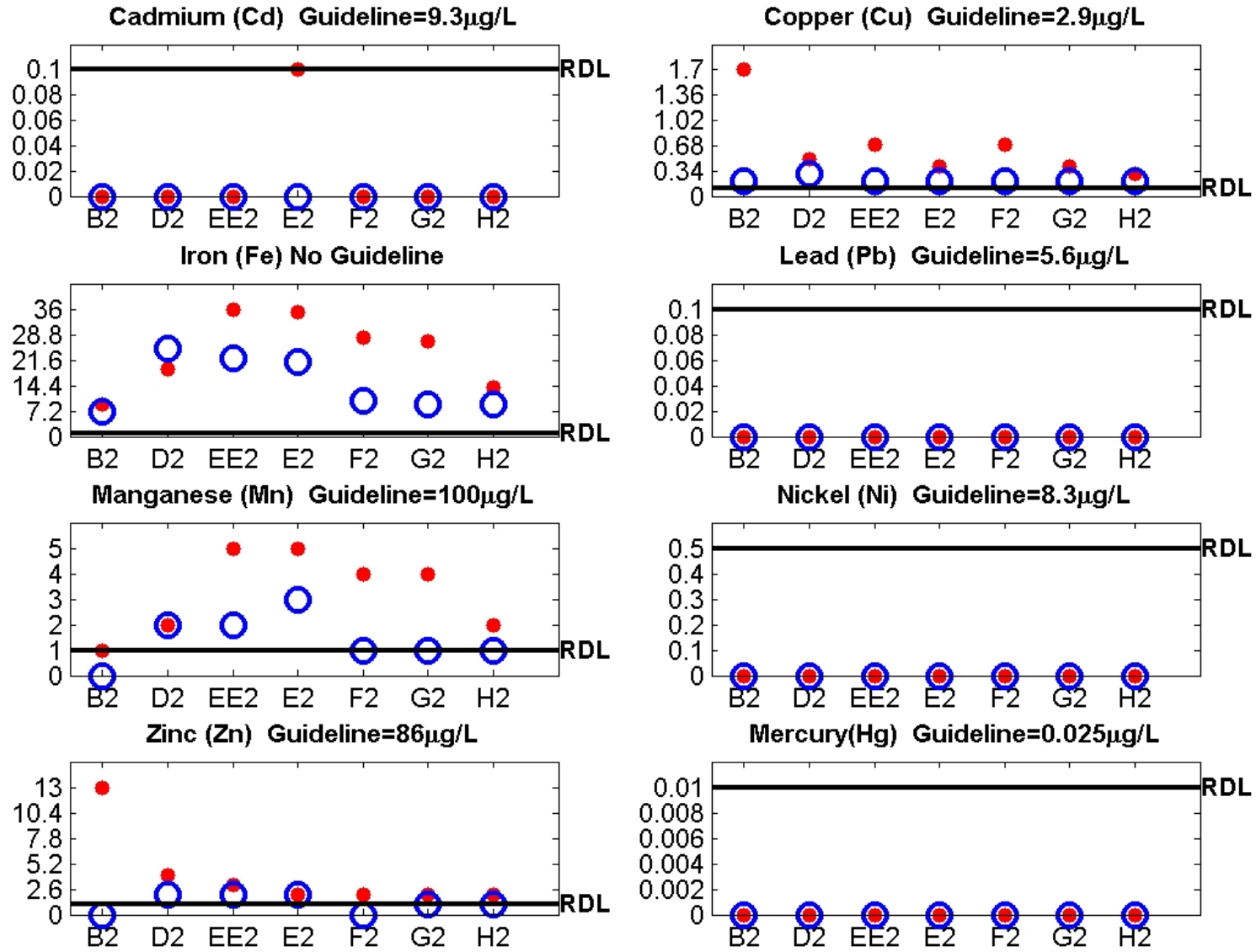
Halifax Harbour Water Level - Sep09



Potential Density in kg/m^3

Ammonia in mg/L

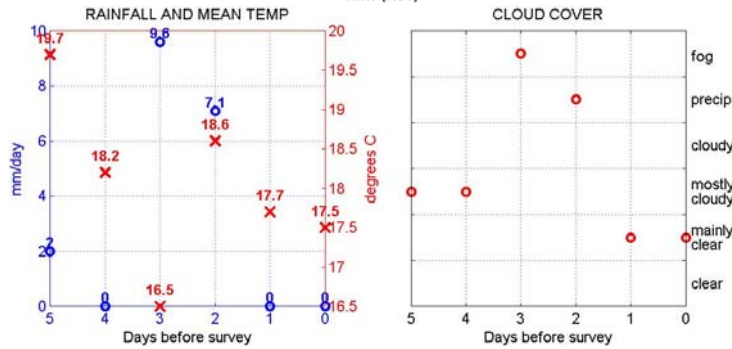
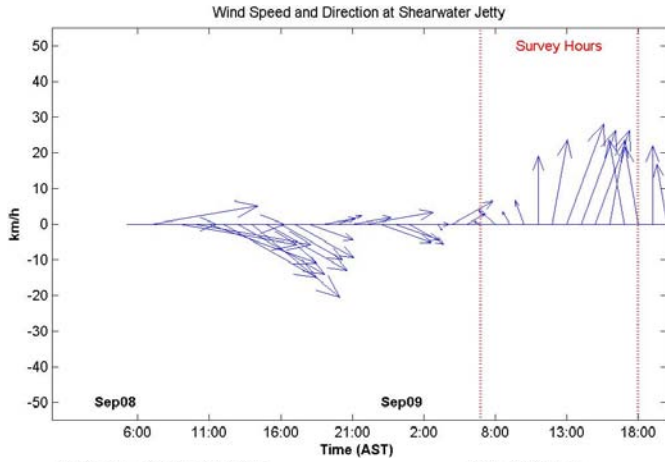
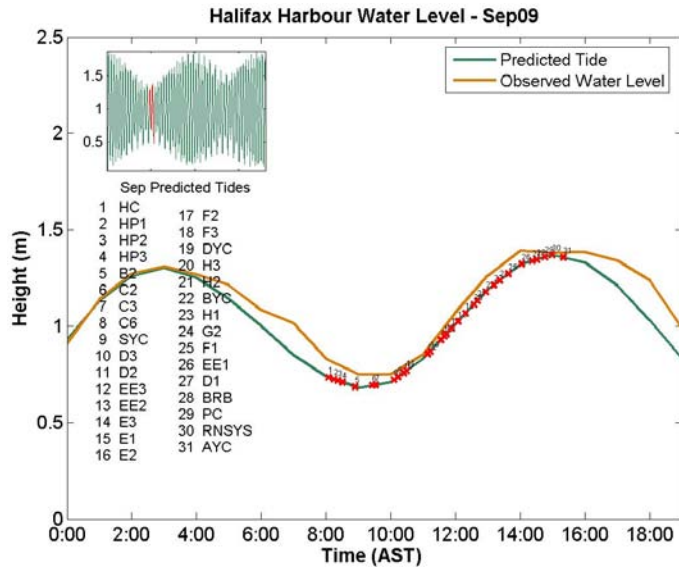
TSS in mg/L



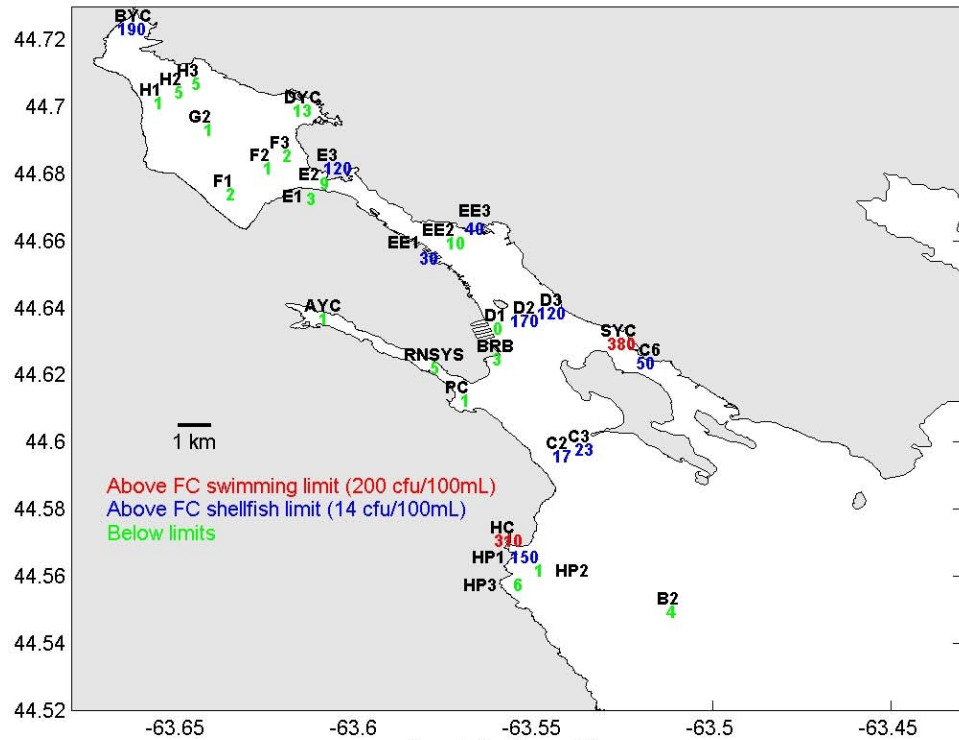
LEGEND
 ○ = Ten Metre Sample
 ● = One Metre Sample
 RDL = Reportable Detection Limit

HRM Water Quality Monitoring

Fecal Coliform Summary – September 09, 2008



Fecal Coliform 1 m



Fecal Coliform 10 m

