

Halifax Harbour Water Quality Monitoring Project Survey Summary #134

Survey Date: 18 July 2007
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report134_070718.doc
Data File: HHWQMP_data134_070718.xls

Data Return:

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

Sample Notes:

The CTD file from site PC was corrupt and has been discarded.

QA/QC samples:

Chemical Analysis		G2 - 10m	
Detectable Parameter	Units	reference sample	QA/QC
Ammonia (as N)	mg/L	0.06	0.05
Total Suspended Solids	mg/L	5	5.4
Copper	ug/L	0.3	0.4
Iron	ug/L	11	9
Manganese	ug/L	3	2
Zinc	ug/L	2	2

Fecal Coliform (CFU/100ml)

Site	F3-10m	DYC-10m	F1-1m	G2-10m
Reference	46	9	36	22
QA/QC	25	10	30	10

Comments:

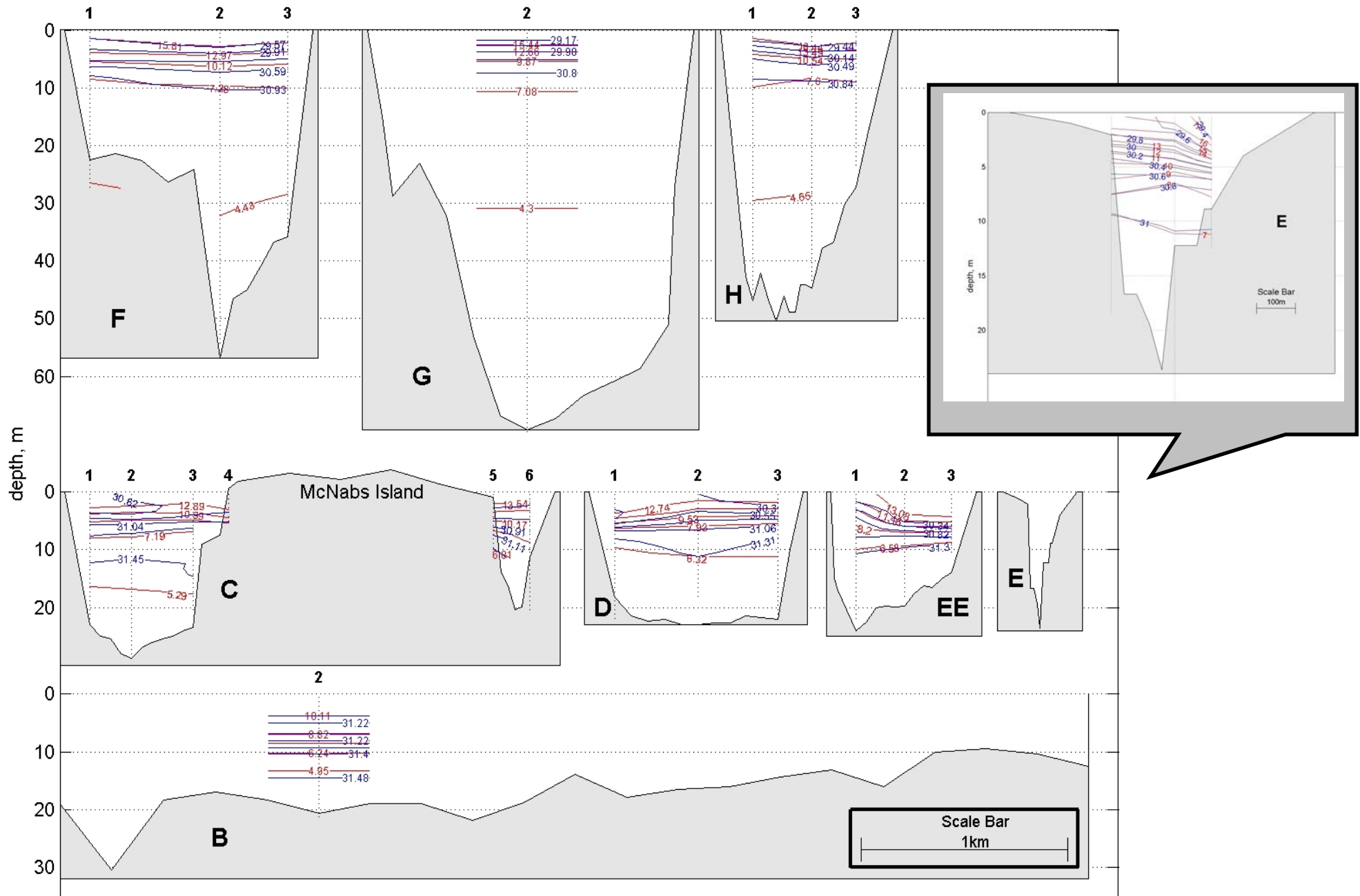
General: The weather has been warm and dry. The Sackville water levels are nearly at an annual low. The surface water has continued to warm, enhancing stratification. There is a distinct surface layer of warmer fresher water throughout the Basin and Inner Harbour. The bottom water (intermediate in the Basin) is slightly colder and saltier than the previous survey suggesting the intrusion of shelf bottom water. The salinity and temperature at the bottom of the Basin (G2) is unchanged from the previous survey. The fecal coliform (fc) values are very low with high values restricted to the Inner Harbour (D and EE sections) and one value at 10m at F2. The 10 m fc samples in the Basin are slightly higher than the 1m samples suggesting an up harbour deeper flow. This is consistent with the density distribution. The low fc values don't seem to be caused by enhanced flushing but are likely caused by the warm water and relatively clear skies which both enhance bacterial decay.

Fluorescence: The relatively intense phytoplankton bloom occurring last survey has subsided somewhat but there is still significant fluorescence. In the Basin the maximum values are on order of 20 mg/m³, while in the Inner Harbour these values drop to about 10 mg/m³. In the Outer Harbour the values of 1-2 mg/m³ are just above "background" concentrations.

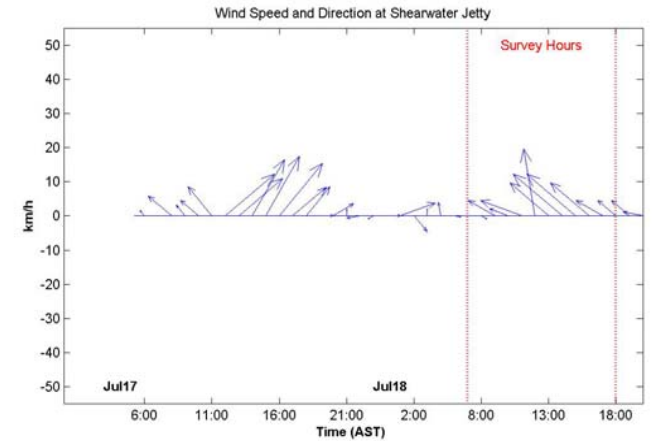
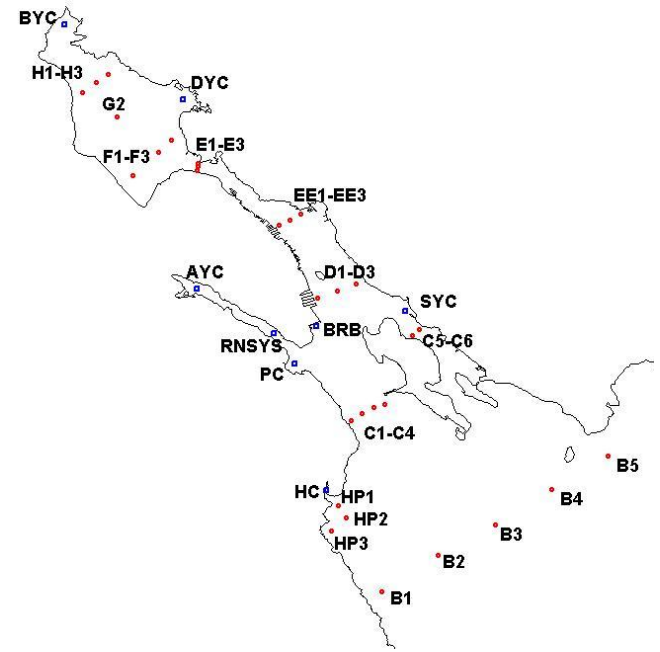
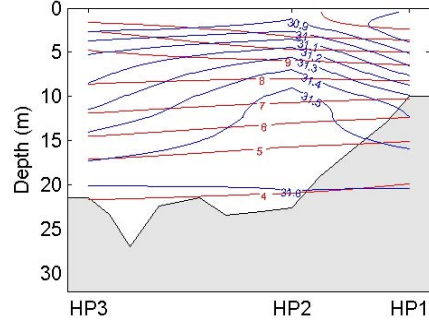
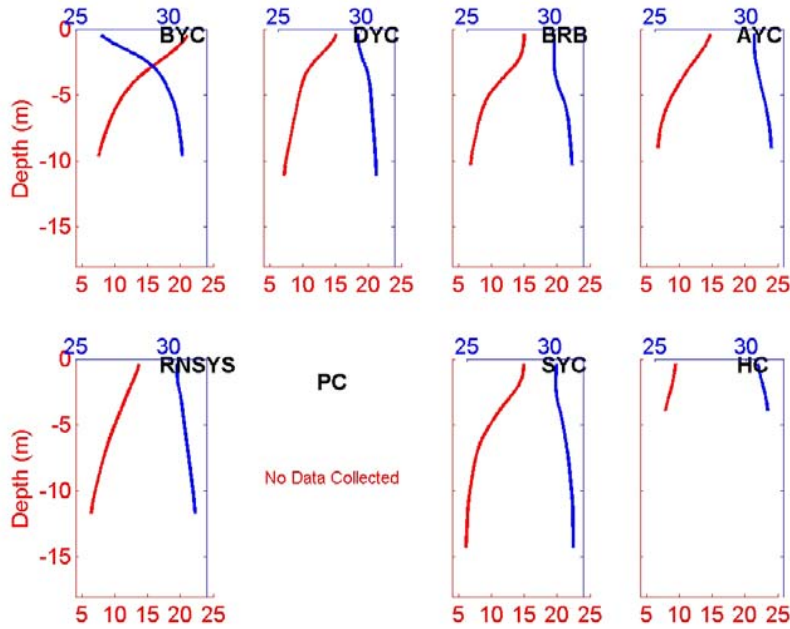
Ammonia: The ammonia nitrogen levels have continued to drop, with only 3 values, in 10m samples in the Basin, being slightly above the 0.05 mg/L detection limit.

TSS: There are some relatively high values (> 8 mg/L) but most values are lower (< 4 mg/L). There appears to be no clear pattern except that the values drop going out of the harbour (from EE out) and are lowest in the Outer Harbour. (B2)

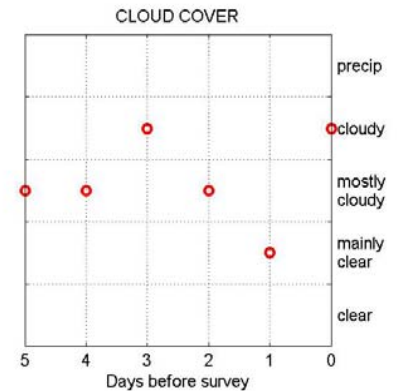
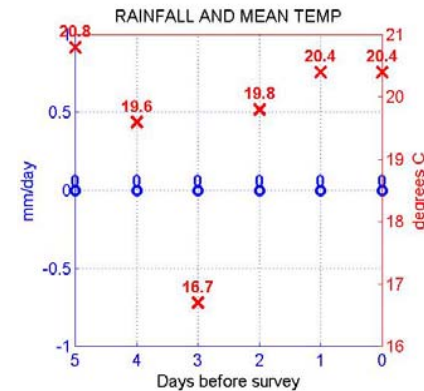
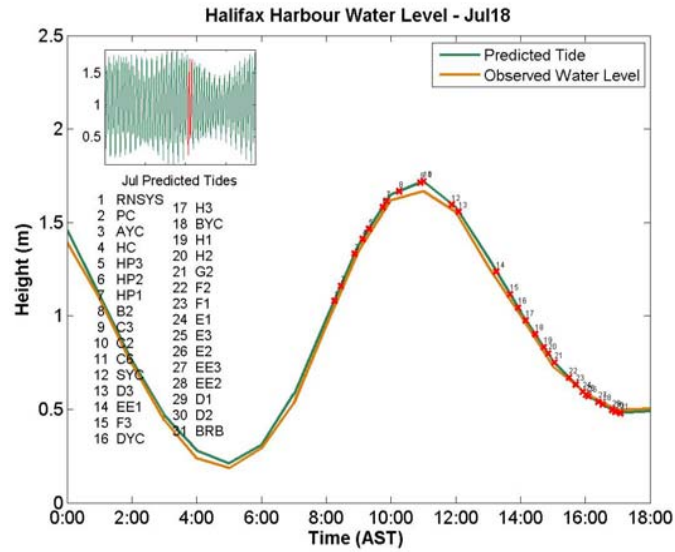
Dissolved Oxygen: Based on comparison with the Dalhousie CTD, which was just calibrated, the dissolved oxygen (DO) data is low and should be increased by about 30%. Overall, the data indicate that the levels have decreased somewhat since last survey. The surface water in the Harbour is at about 7.0 mg/L (9.1 mg/L adjusted) everywhere and decreases with depth from the Basin out to the E section. Further south, the pattern becomes more confused, perhaps by the intrusion of more oxygen rich bottom water evident at the B and C sections. At the bottom of the Basin, levels have continued to drop to about 4.6 mg/L (6.0 mg/L adjusted) Based on adjusted values, the only DO levels below use specific guidelines are in the deep Basin water (Class SB, < 7.0 mg/L).



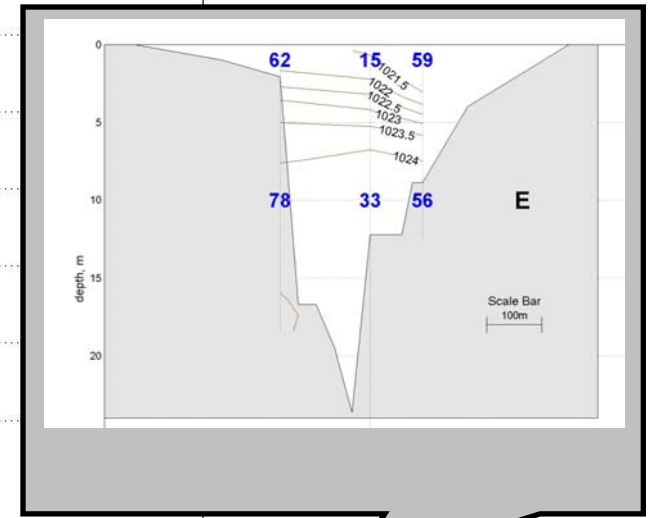
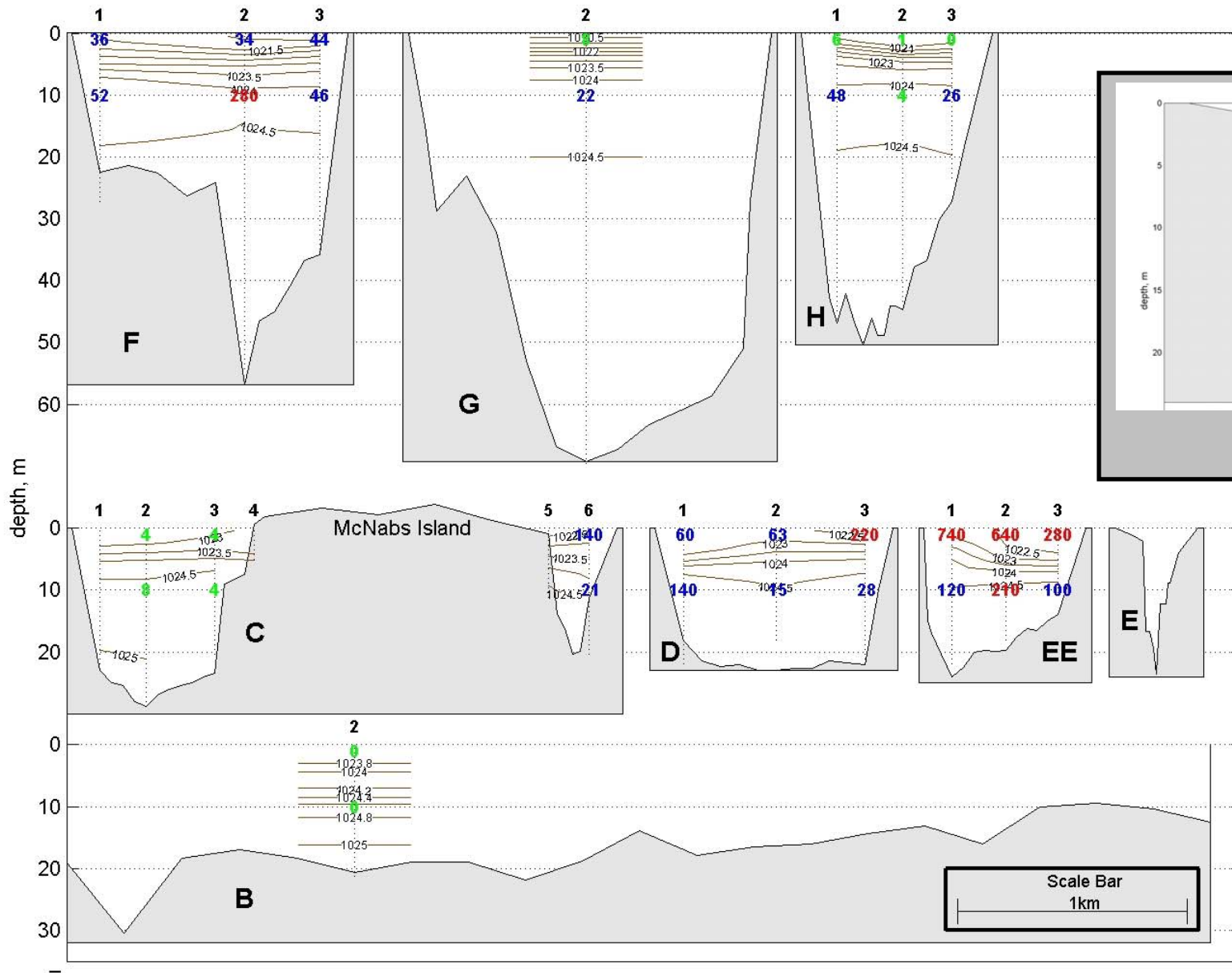
Yacht Clubs



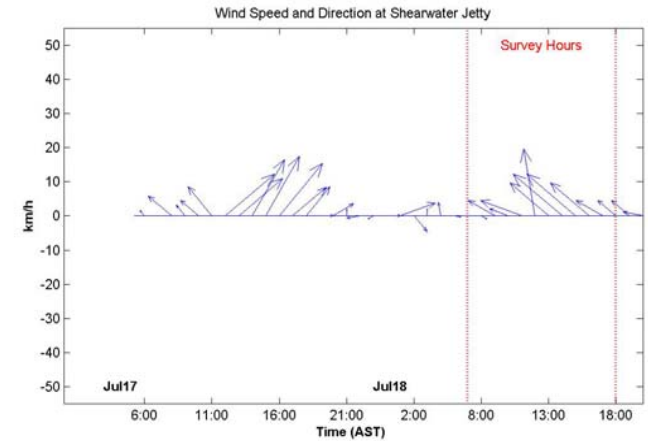
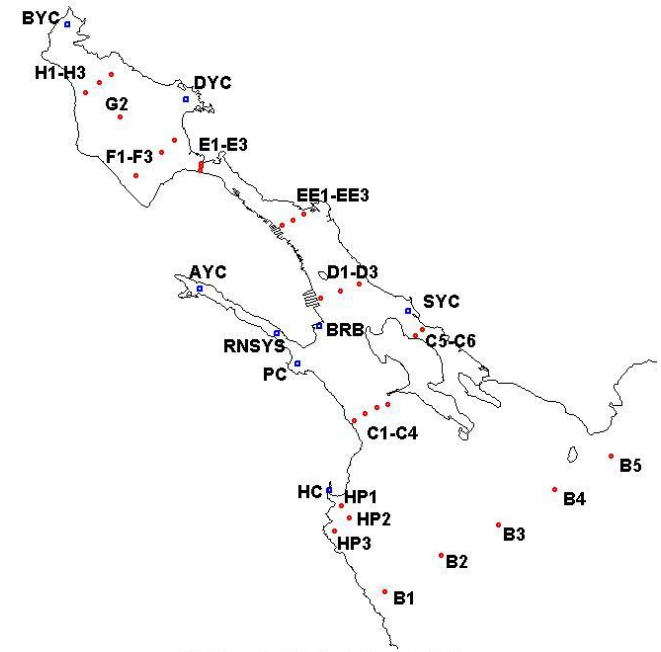
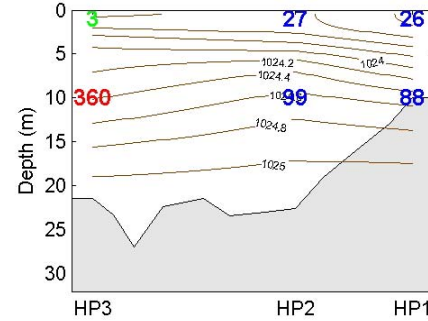
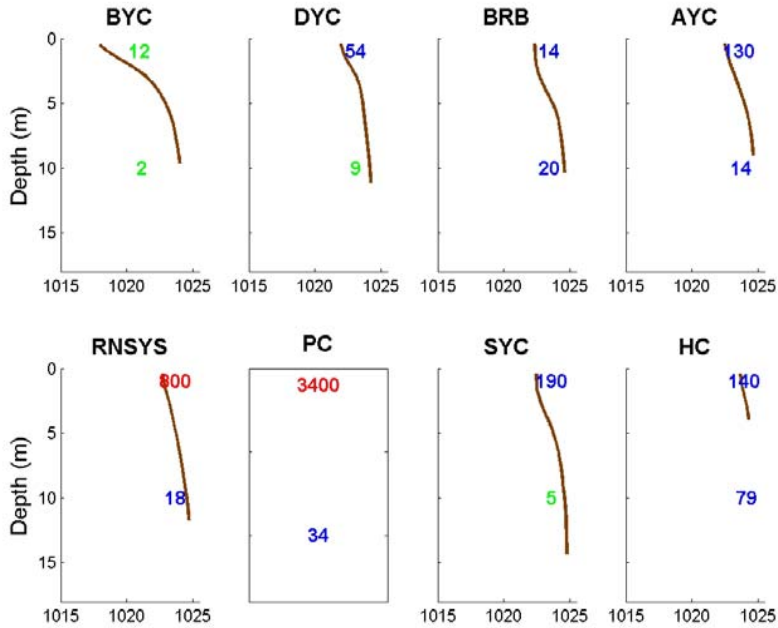
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



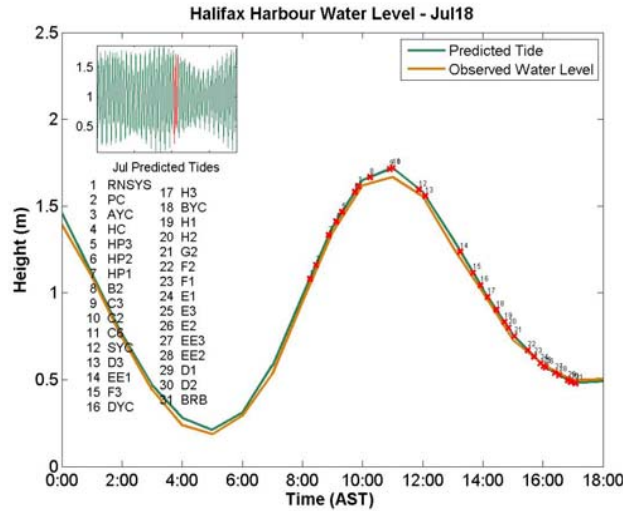
Salinity in PSU Temperature in °C



Yacht Clubs

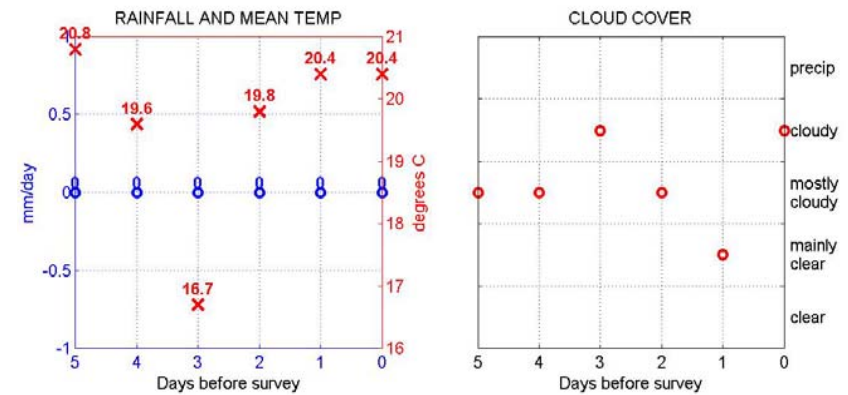


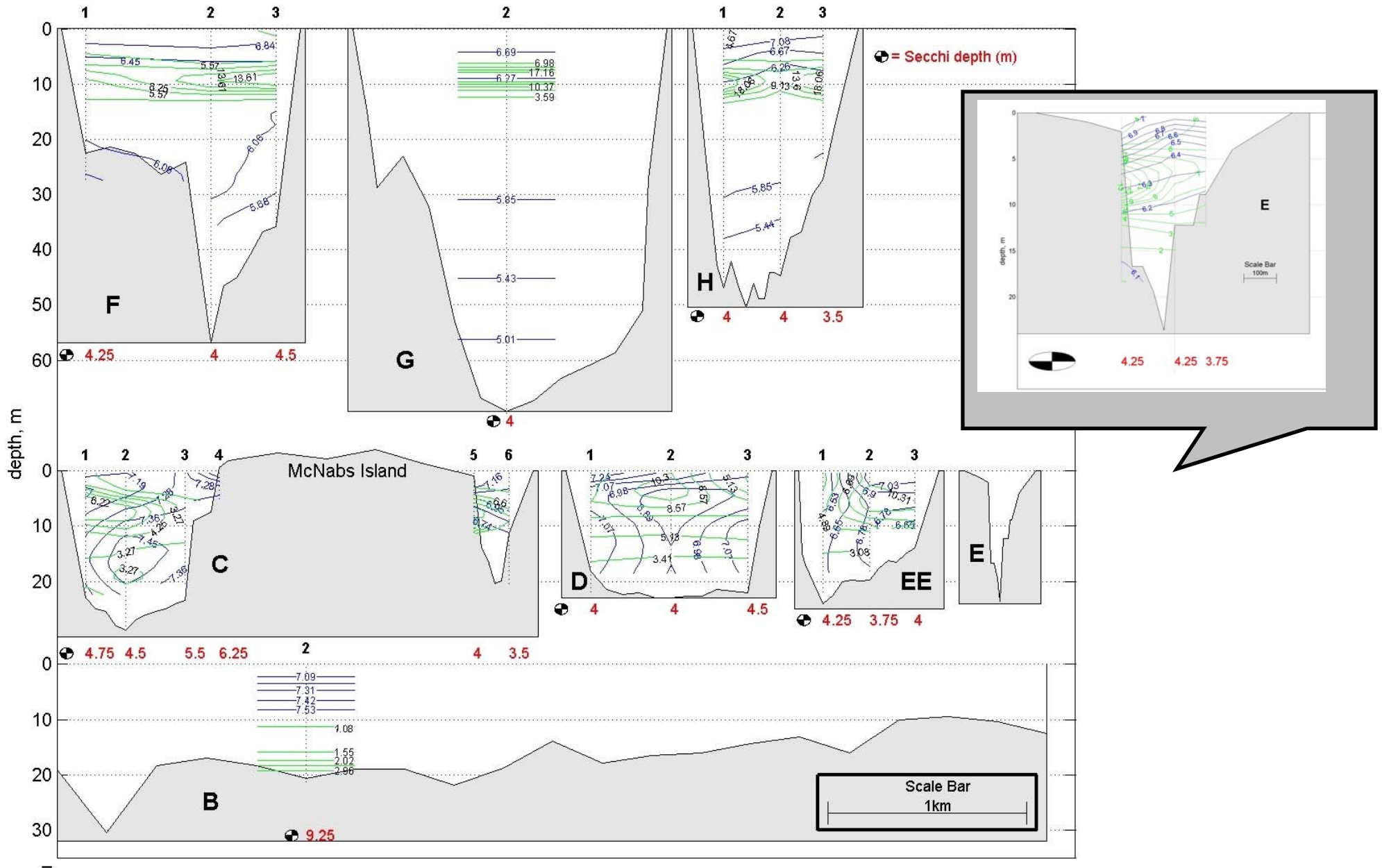
Rainfall and temperature data collected at Shearwater Autoport.
 Cloud cover data collected at Shearwater Airport



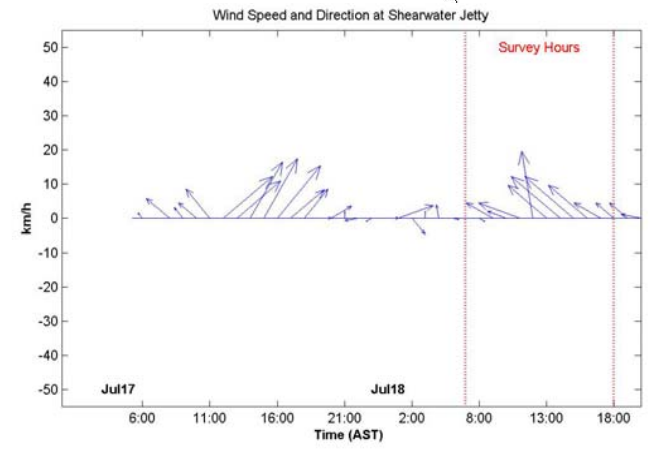
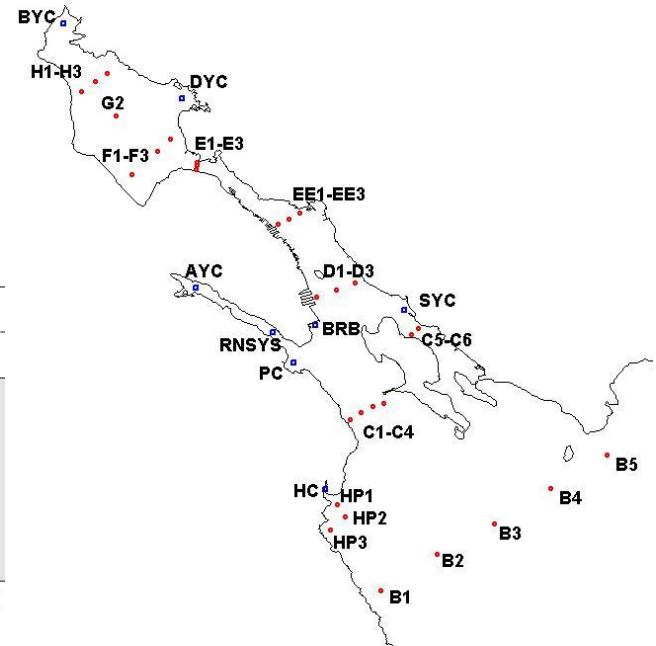
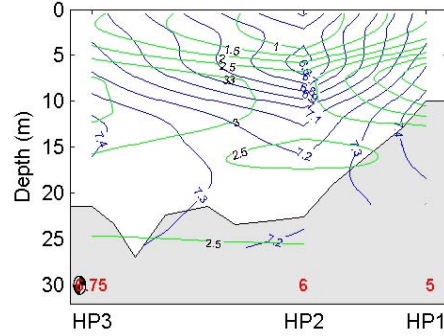
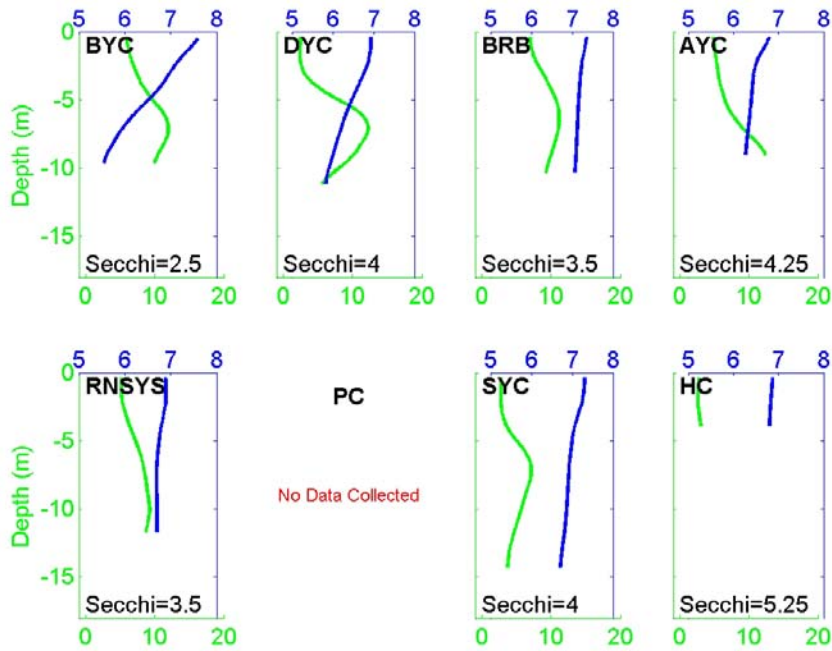
Potential Density in kg/m^3

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

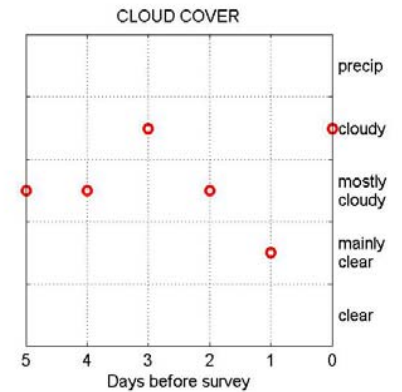
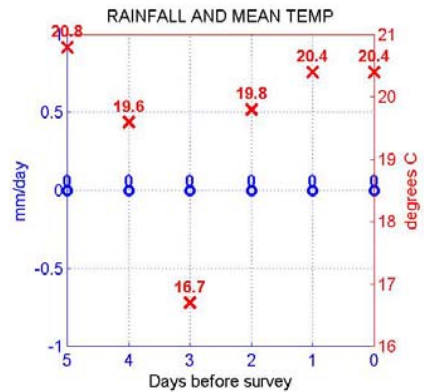
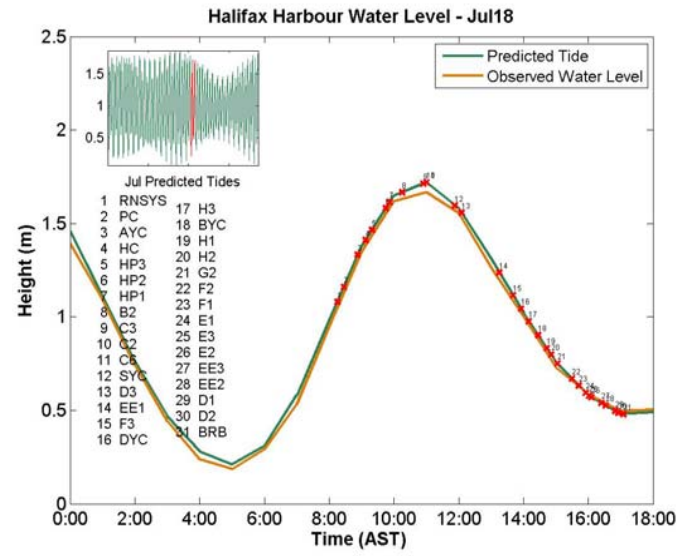




Yacht Clubs



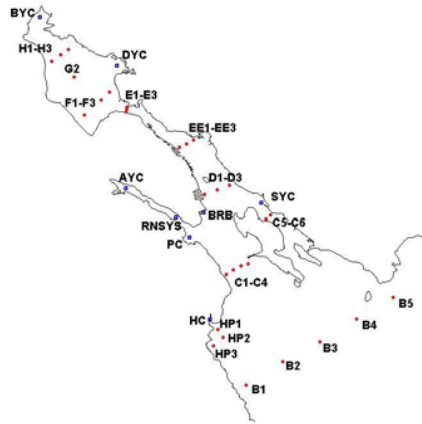
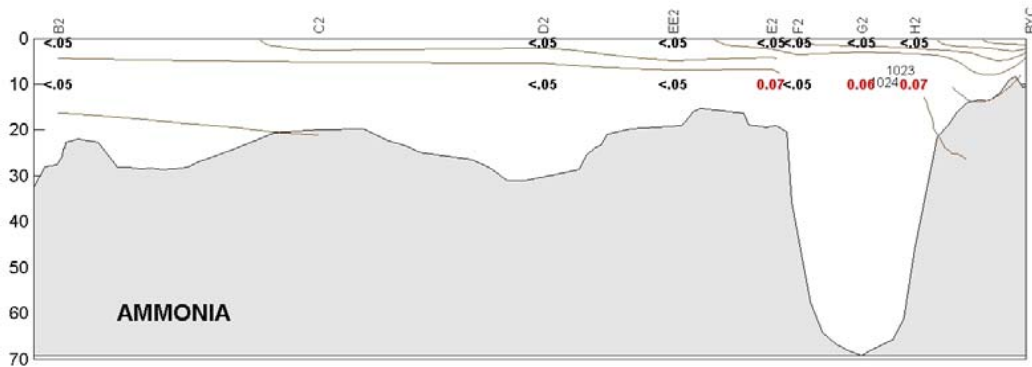
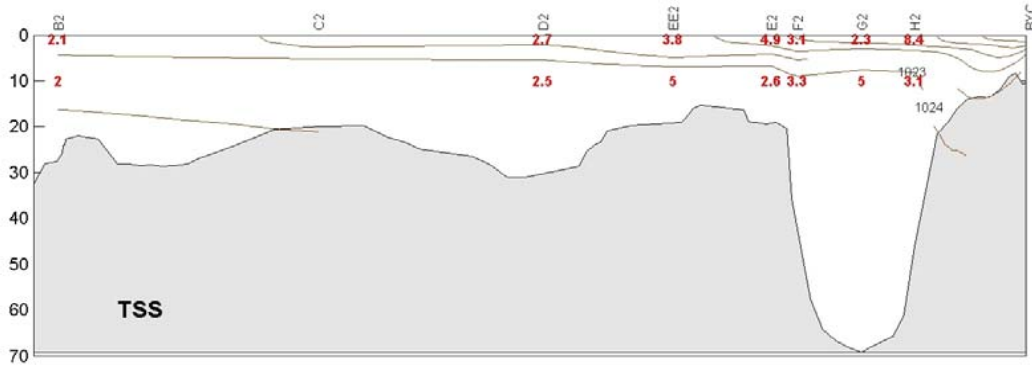
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



DO in mg/L Chlorophyll in mg/m³

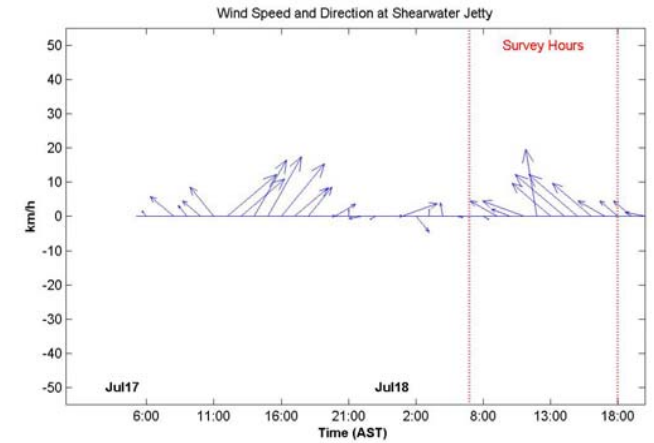
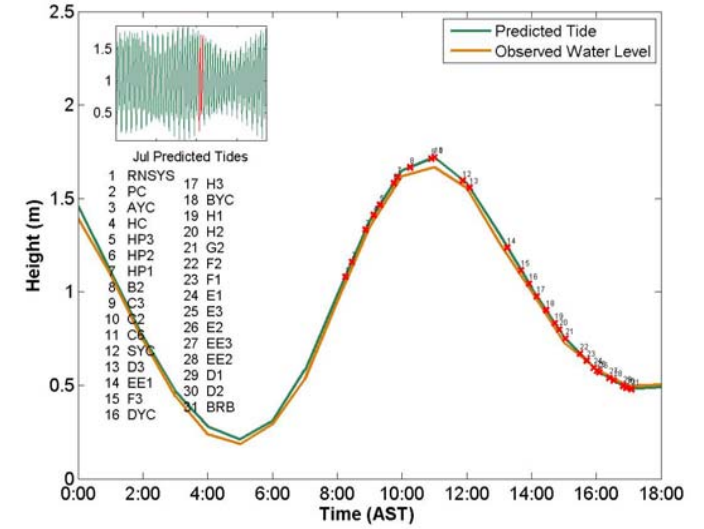
Harbour Water Quality Monitoring Program

CHEMISTRY



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

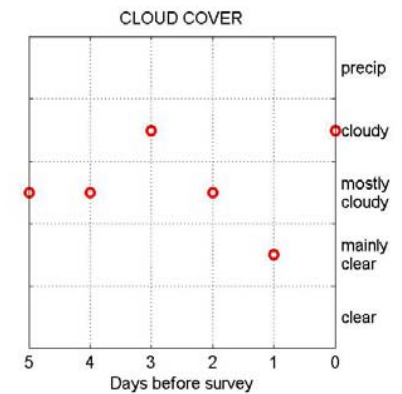
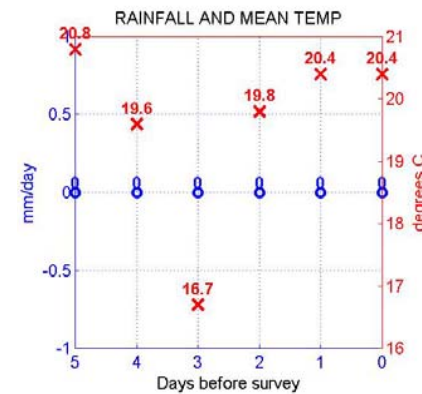
Halifax Harbour Water Level - Jul18

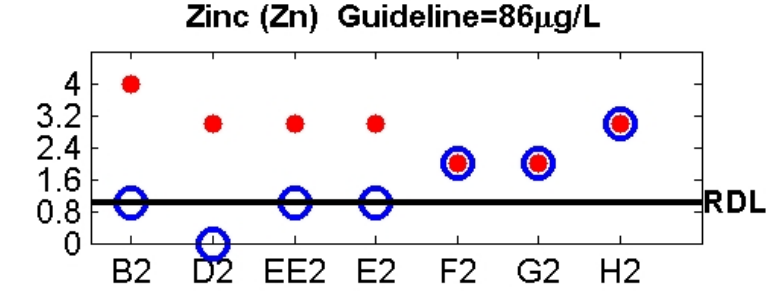
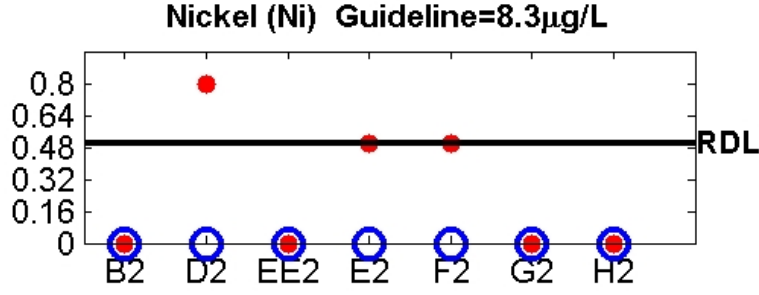
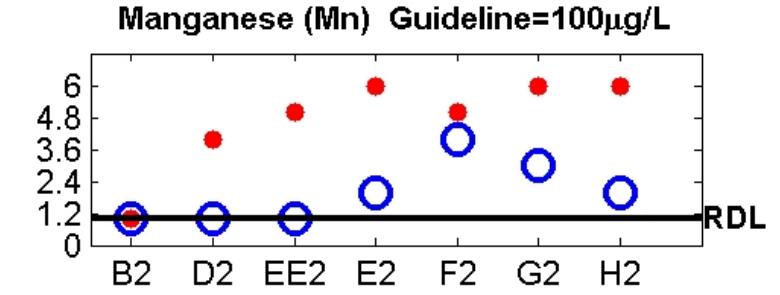
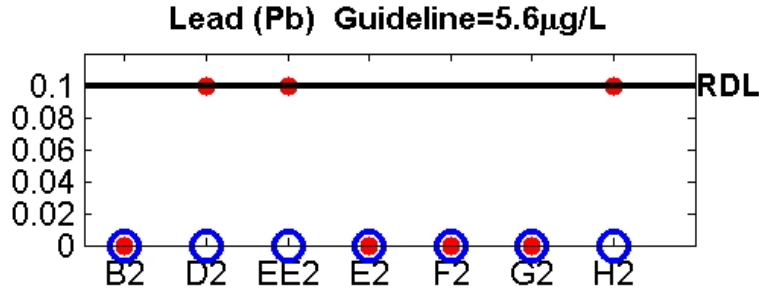
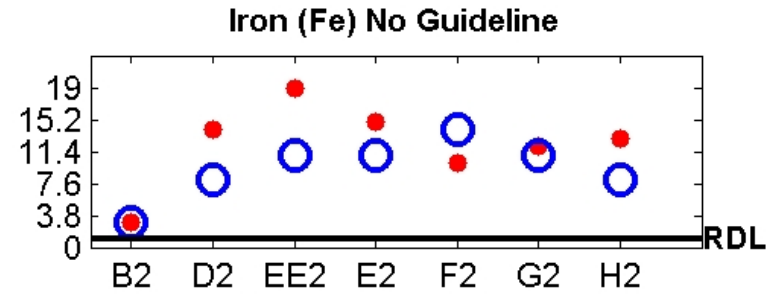
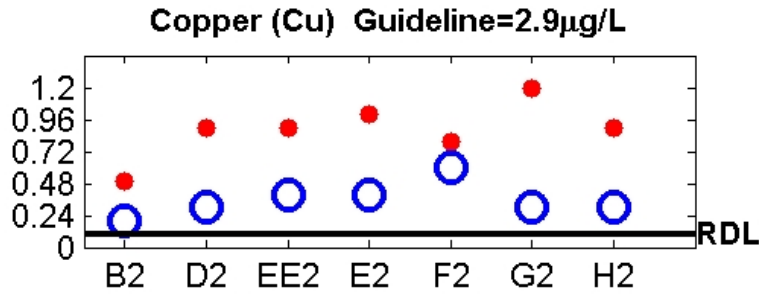
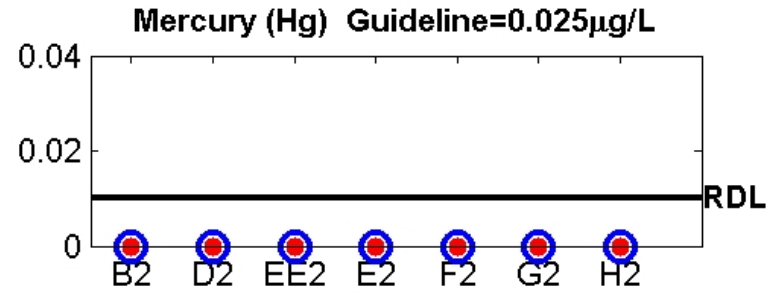
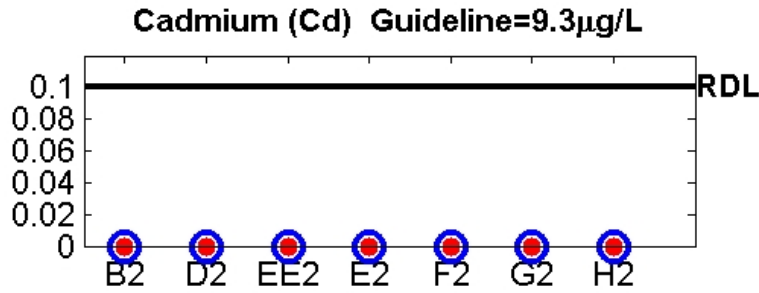


Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L





LEGEND

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