Halifax Harbour Water Quality Monitoring Project
Weekly Summary #112

Survey Date: 13 September 2006
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report112_060913.doc
Data File: HHWQMP_data112_060913.xls
Data Return:

Profile:	94%
Bacteria:	93%
Chemical:	86%
Overall:	**90%**

Sample Notes:

Sites B2 and HC were not sampled due to weather.

Extra Samples for $CBOD_5$ were taken at sites F1 and F2.

The location of one of the four fecal coliform QA/QC samples was not recorded.

Site DC-1m was sampled for all parameters.

The CTD air bleeder hole appears to have been at least partially clogged at stations F2 and E3. The problem was noticed and the hole was cleared before the next station. The oxygen data are affected most and, though plotted here, have been removed from the data file. The remaining data are less affected, appear ok and are left in the data file, but should be used with circumspection.

QA/QC samples:

Chemical Analysis		E2 - 10m		G2- 10m	
Detectable Parameter	**units**	**reference sample**	**QA/QC**	**reference sample**	**DUP**
Ammonia (as N)	mg/L	<0.05	<0.05	< 0.05	< 0.05
Total Suspended Solids	mg/L	3.1	4.3	2.9	n/a
				G2-1m	**DUP**
Copper	ug/L	0.4	0.5	1.0	0.8
Iron	ug/L	7.0	9.0	6.0	6.0
Lead	ug/L	<0.1	<0.1	0.2	0.2
Zinc	ug/L	1.0	2.0	13.0	11.0

Fecal Coliform (CFU/100ml)

Site	H3-10m	F3-1m	E2-10m
Reference	98	150	1500
QA/QC	79	230	860

Comments:

General: The salinity and temperature in the top 10-15 m in Basin, and throughout the water column in the remainder of the harbour, are very uniform in temperature (T= 16-17°C), and salinity (about 30 PSU). There is a relatively large water level surge of approx 25 cm over predicted tide, in spite of moderate offshore winds.

The elevated fecal coliform values at both 1 and 10m are generally centered on the sources in the Inner Harbour. There are elevated levels in the 10m samples in the southern Basin. This seems consistent with the down harbour wind. There is not strong evidence of diversion of sewage to the Fairview Cove CSO.

$CBOD_5$: Measurements at F1 and F2 resulted in no detectable levels (<5.0 mg/L).

Fluorescence: The levels are roughly twice those of two weeks ago. Profile maximum values are in high teens to 20 mg/m^3 in the Basin and throughout the Inner Harbour at a depth of 5-10m. The maximum profile value drops to about 7 mg/m^3 at a depth of 10-20 m at section C. This seems to correlate well with the secchi disk depths, which are 3-4 m everywhere except 4-5 m at section C.

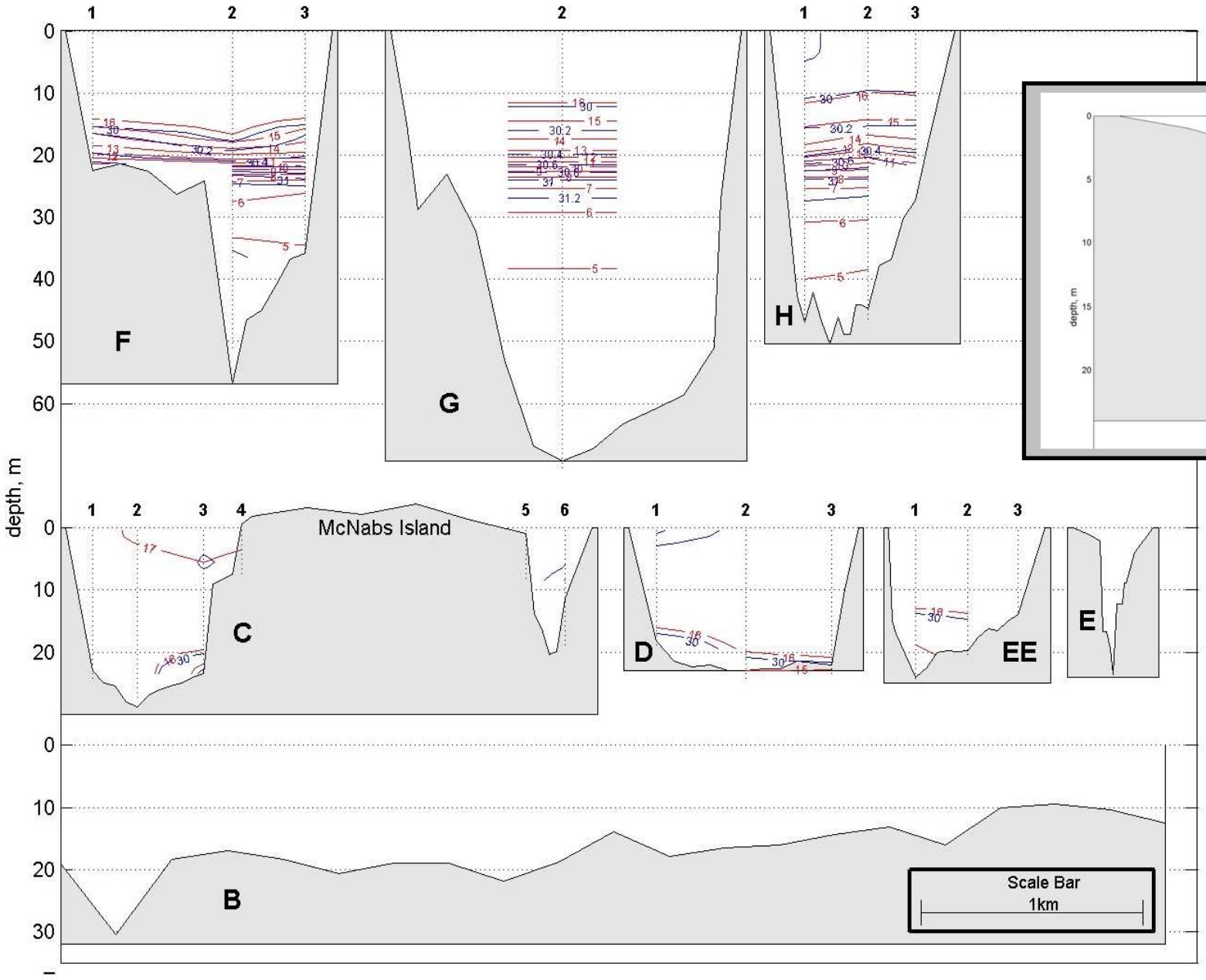
Dissolved Oxygen: The data indicate that all water classified SB (Basin, NW Arm and Outer Harbour around McNabs Island) has values lower than the applicable guideline (7.0 mg/L) throughout the water column. The Inner Harbour has values lower than the applicable class SC guideline (6.0 mg/L) at depths below approx 10m. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).

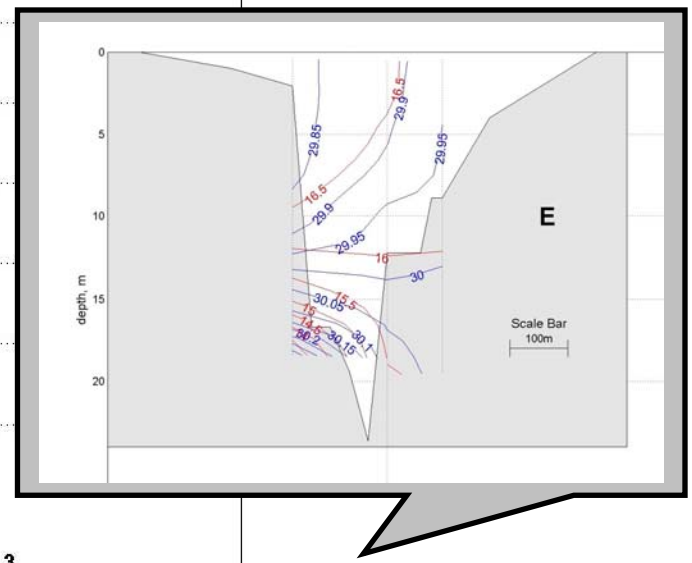
TSS: The TSS values are relatively low, varying from 1.3-3.1 mg/L. The lowest values (< 2 mg/L) are in the furthest seaward section measured (section D).

Ammonia: There were no ammonia values above the detection limit (0.05 mg/L).

Dartmouth Cove sample, detectable values:

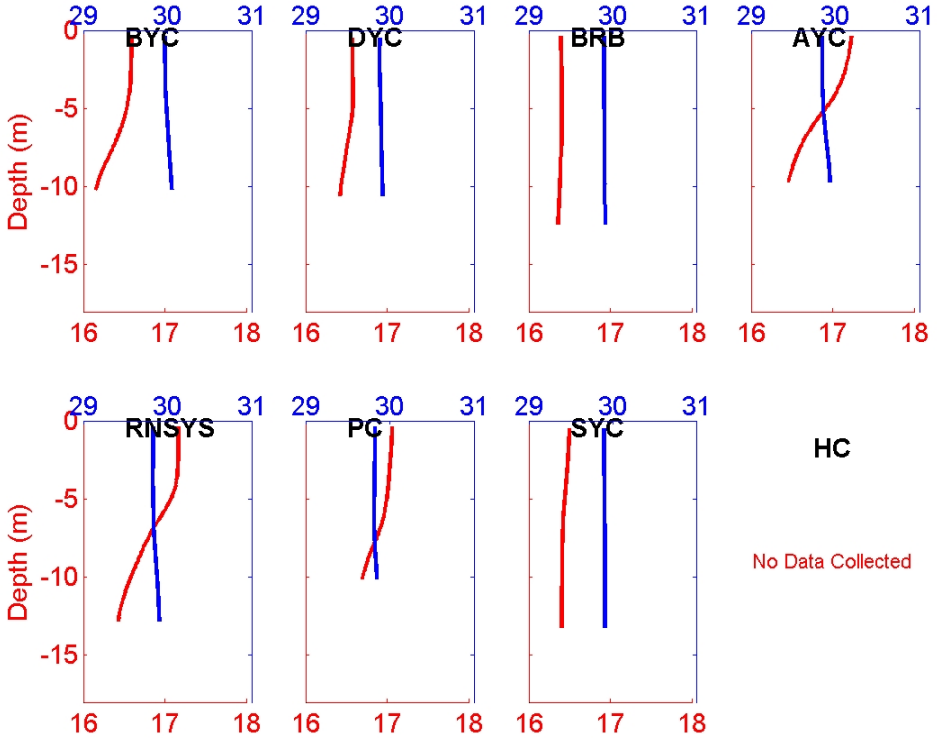
FC	TSS	CU	FE	Pb	Zn
300 cfu/100mL	5 mg/L	1.2 ug/L	10.0 ug/L	0.1 ug/L	4.0 ug/L





Unless otherwise labeled:
- **salinity** contour interval is 0.2 PSU
- **temperature** contour interval is 1ºC.

Yacht Clubs



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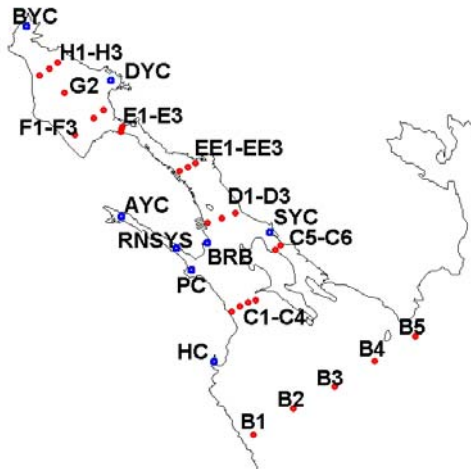
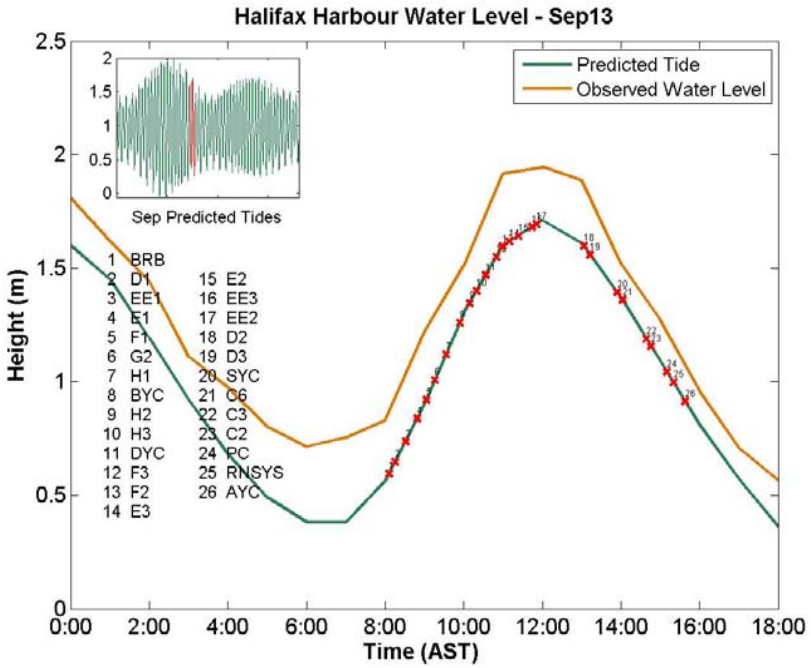
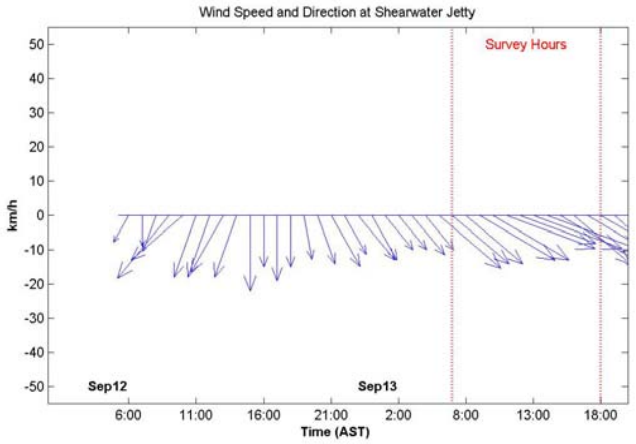


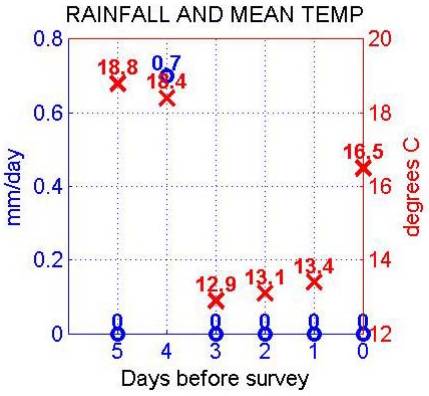
Salinity in PSU **Temperature in ^{o}C**

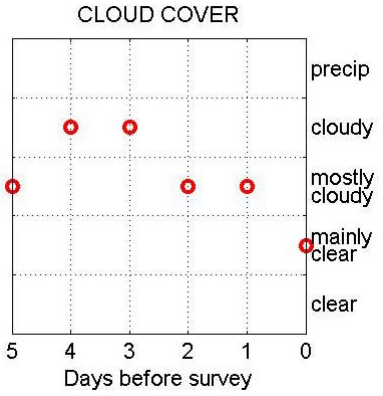
Rainfall and temperature data collected at Shearwater Autoport.

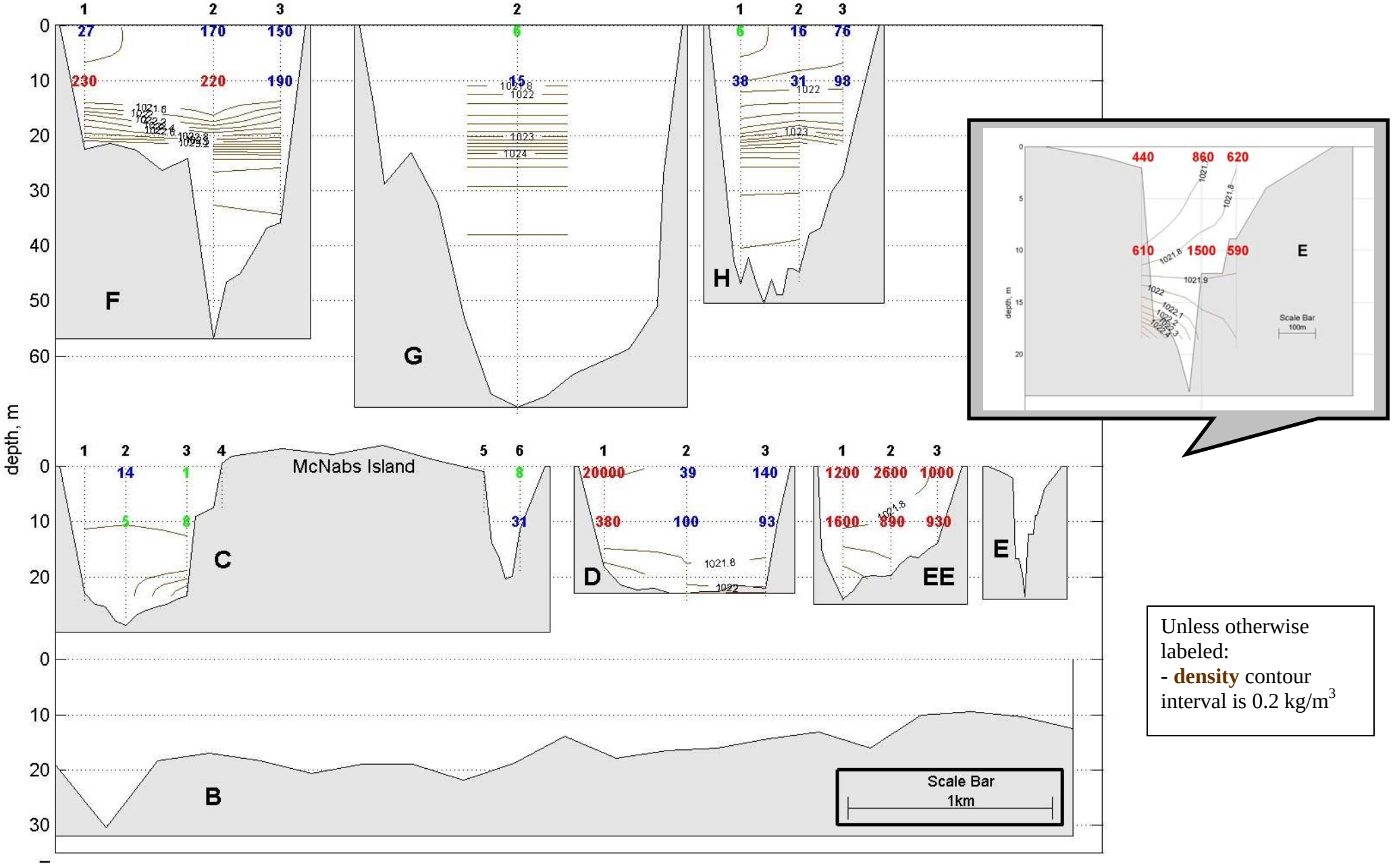
Cloud cover data collected at Shearwater Airport





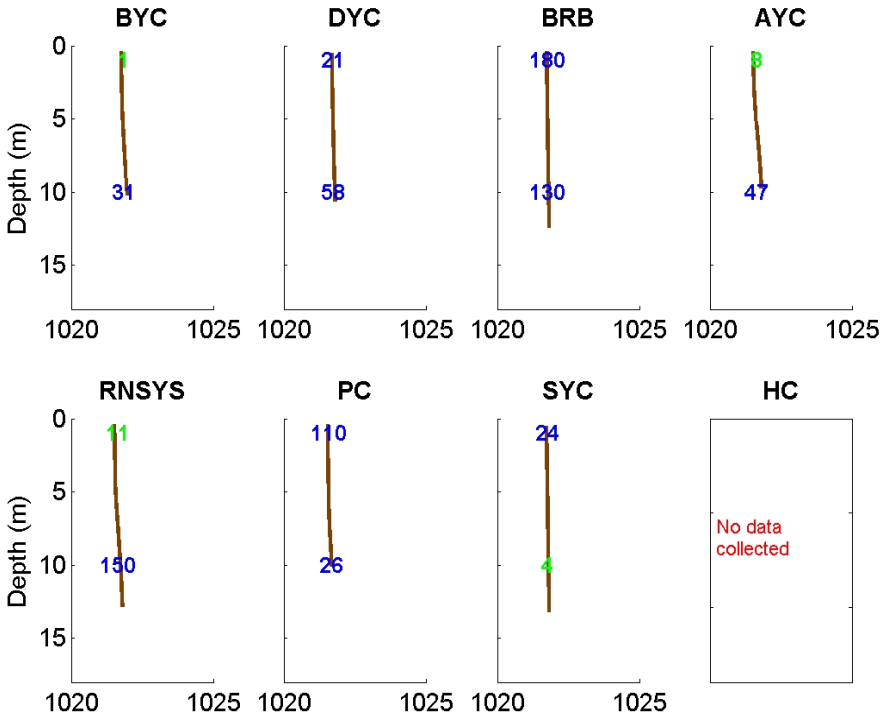


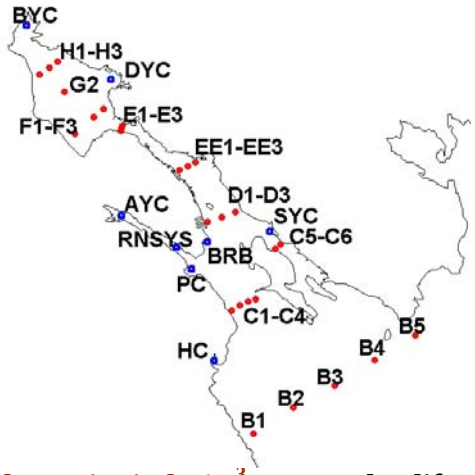




Unless otherwise labeled:
- **density** contour interval is 0.2 kg/m^3

Yacht Clubs



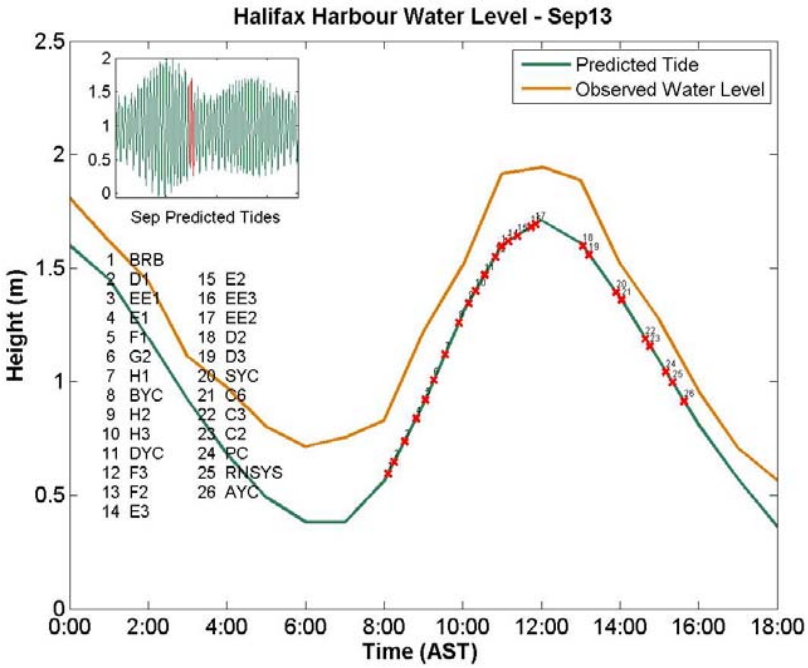


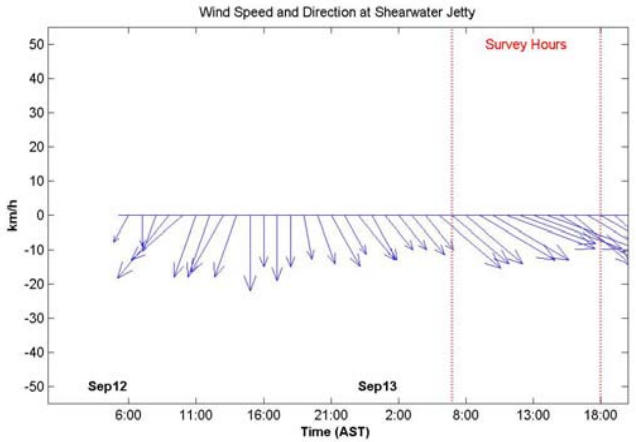
Rainfall and temperature data collected at Shearwater Autoport.

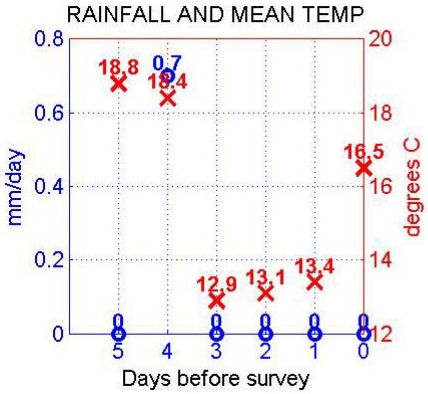
Cloud cover data collected at Shearwater Airport

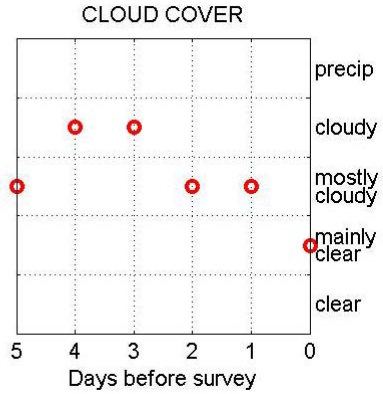
Potential Density in kg/m^3

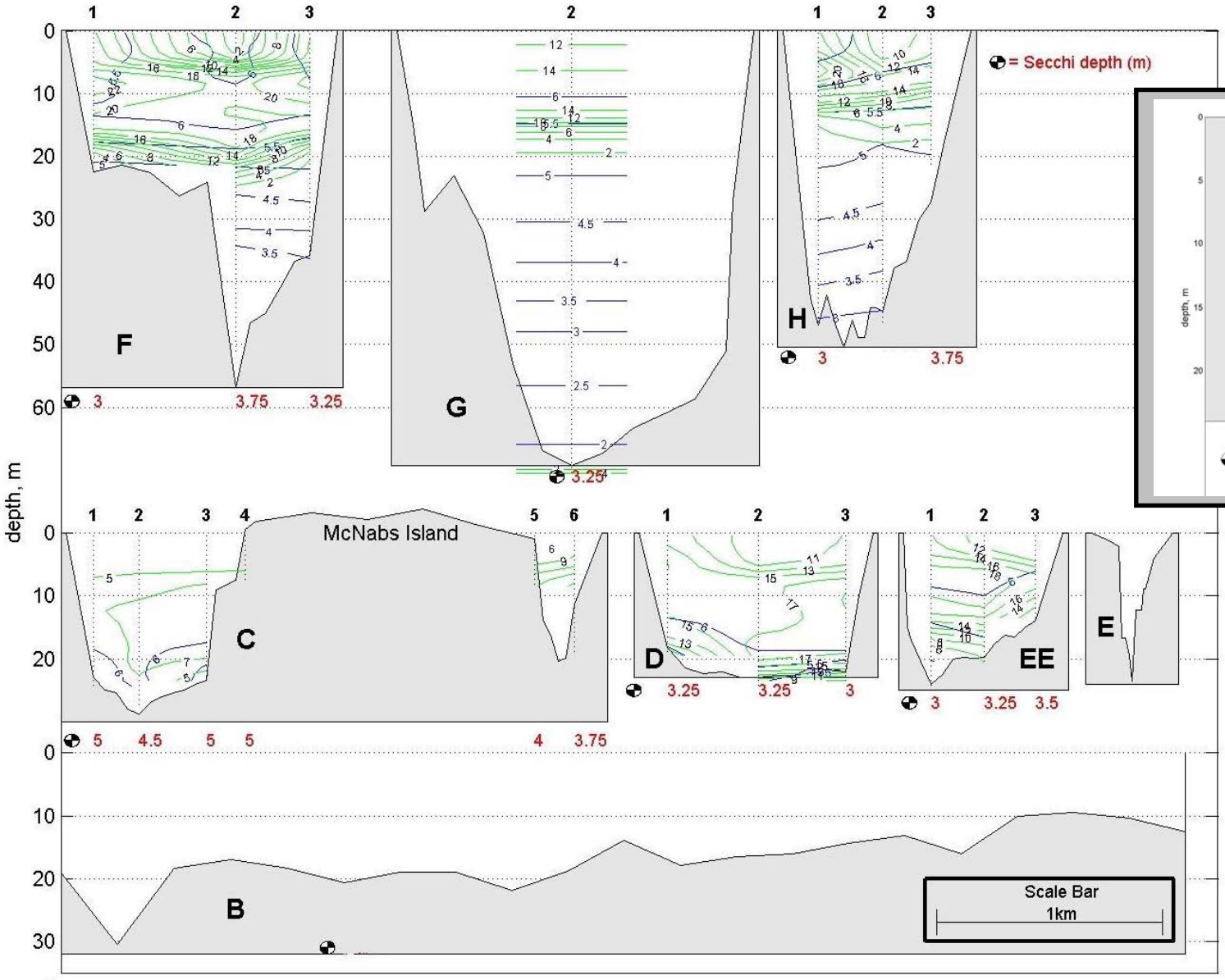
Fecal coliform: **above swimming limit (200 cfu/100mL)**
above shellfish limit (14 cfu/100mL)
below limits

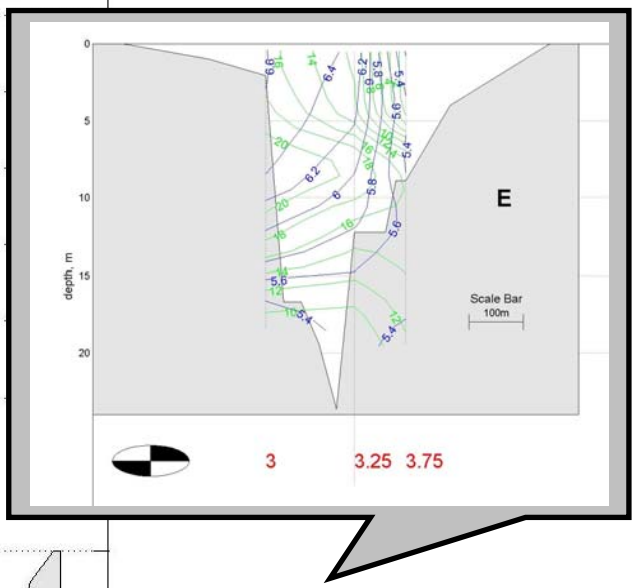






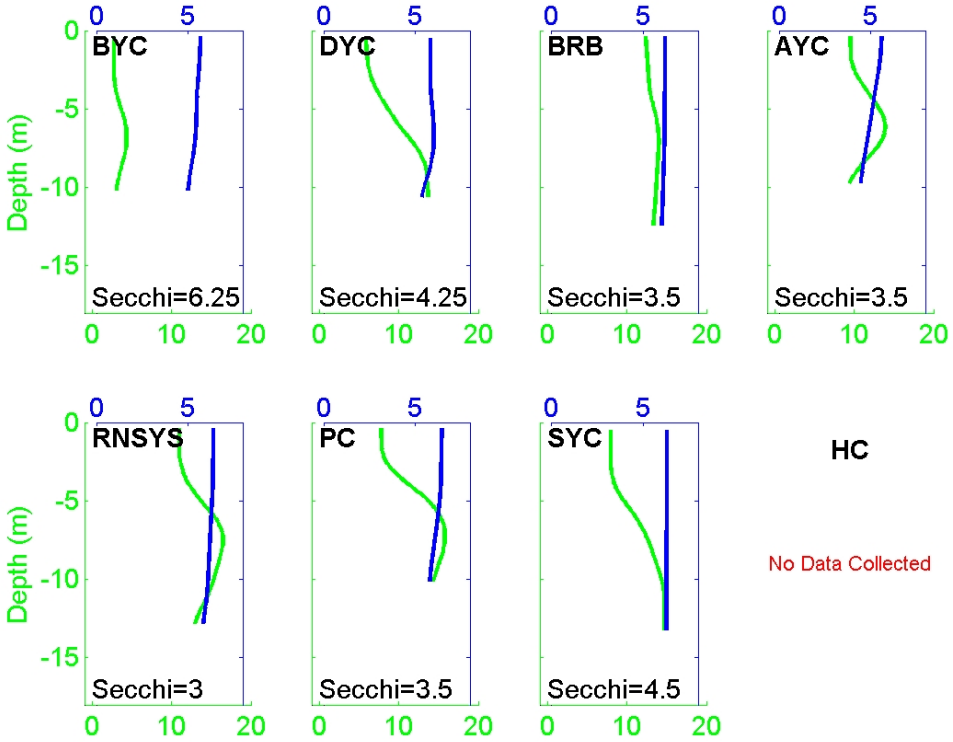






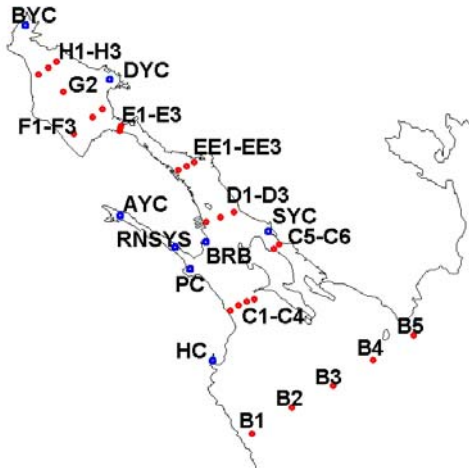
Unless otherwise labeled:
- **dissolved oxygen** contour interval is 1 mg/L
- **chlorophyll** contour interval is 2 mg/m^3.

Yacht Clubs



HC

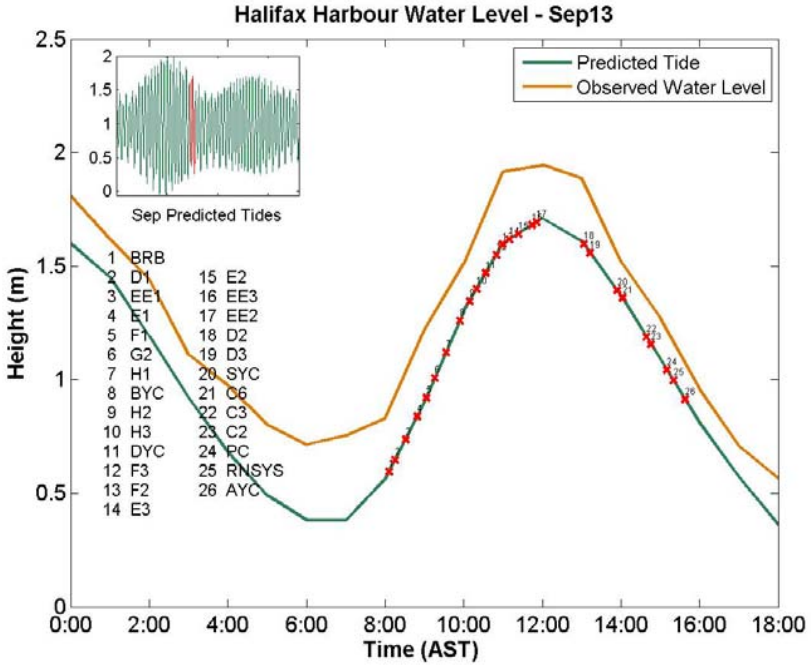
No Data Collected

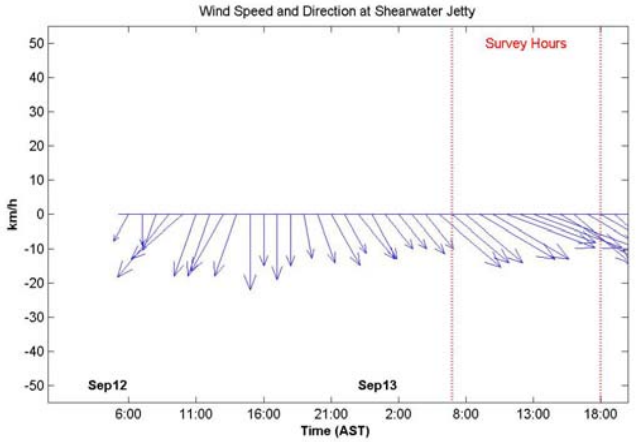


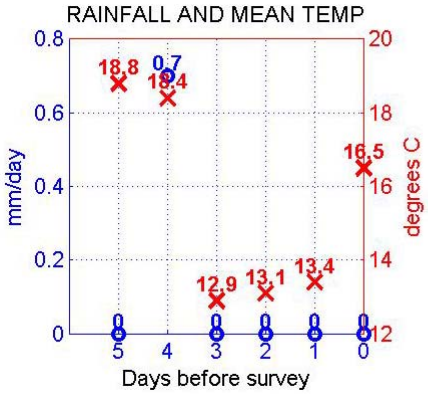
DO in mg/L **Chlorophyll in mg/m^3**

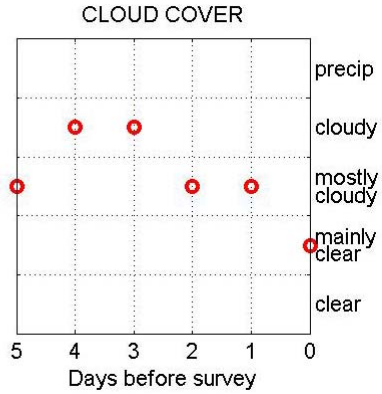
Rainfall and temperature data collected at Shearwater Autoport.

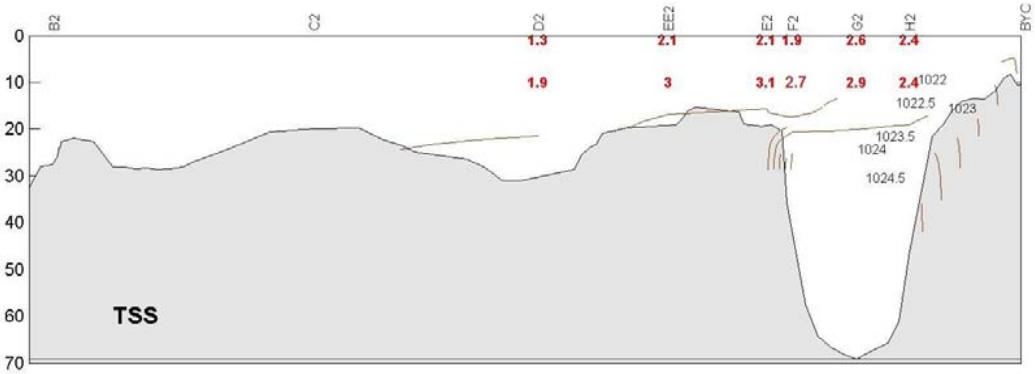
Cloud cover data collected at Shearwater Airport

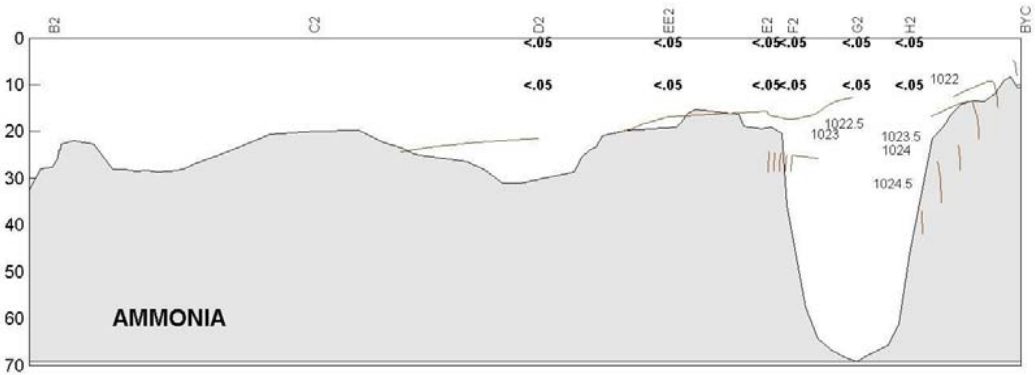


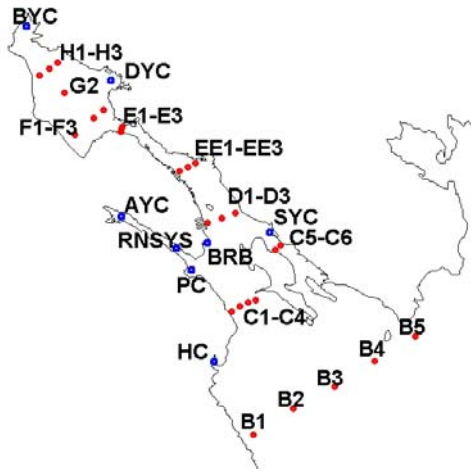








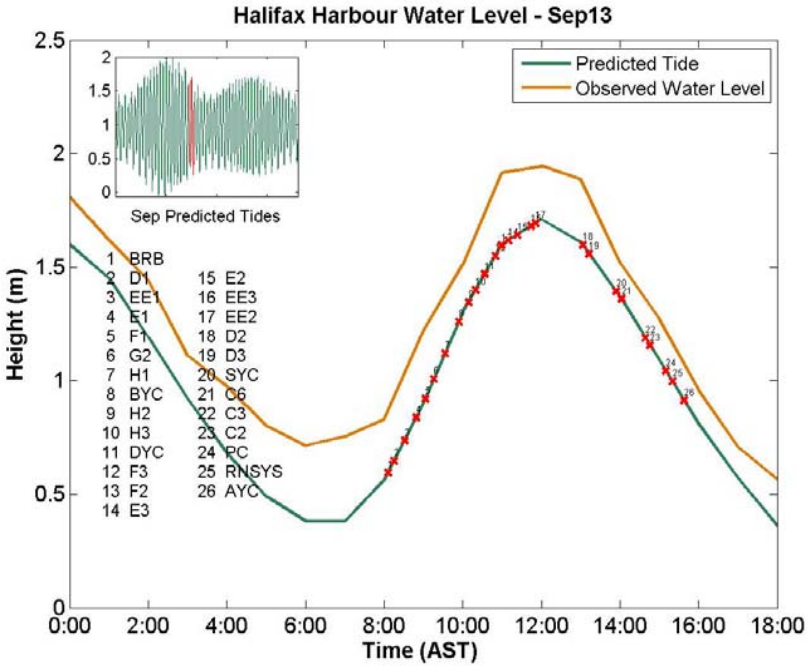


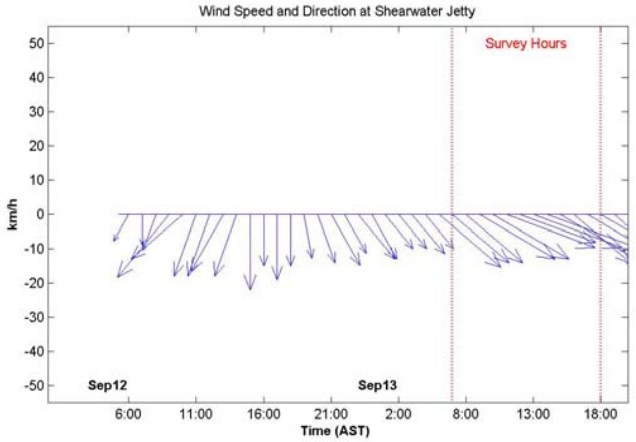


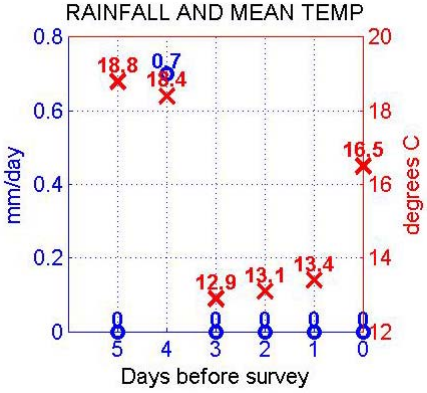
Rainfall and temperature data collected at Shearwater Autoport.

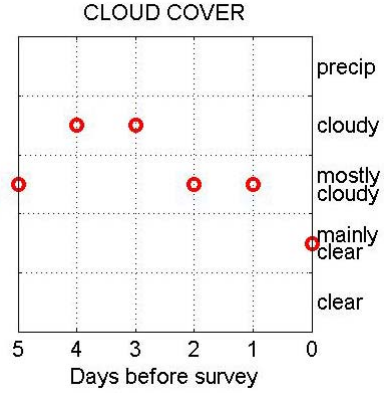
Cloud cover data collected at Shearwater Airport

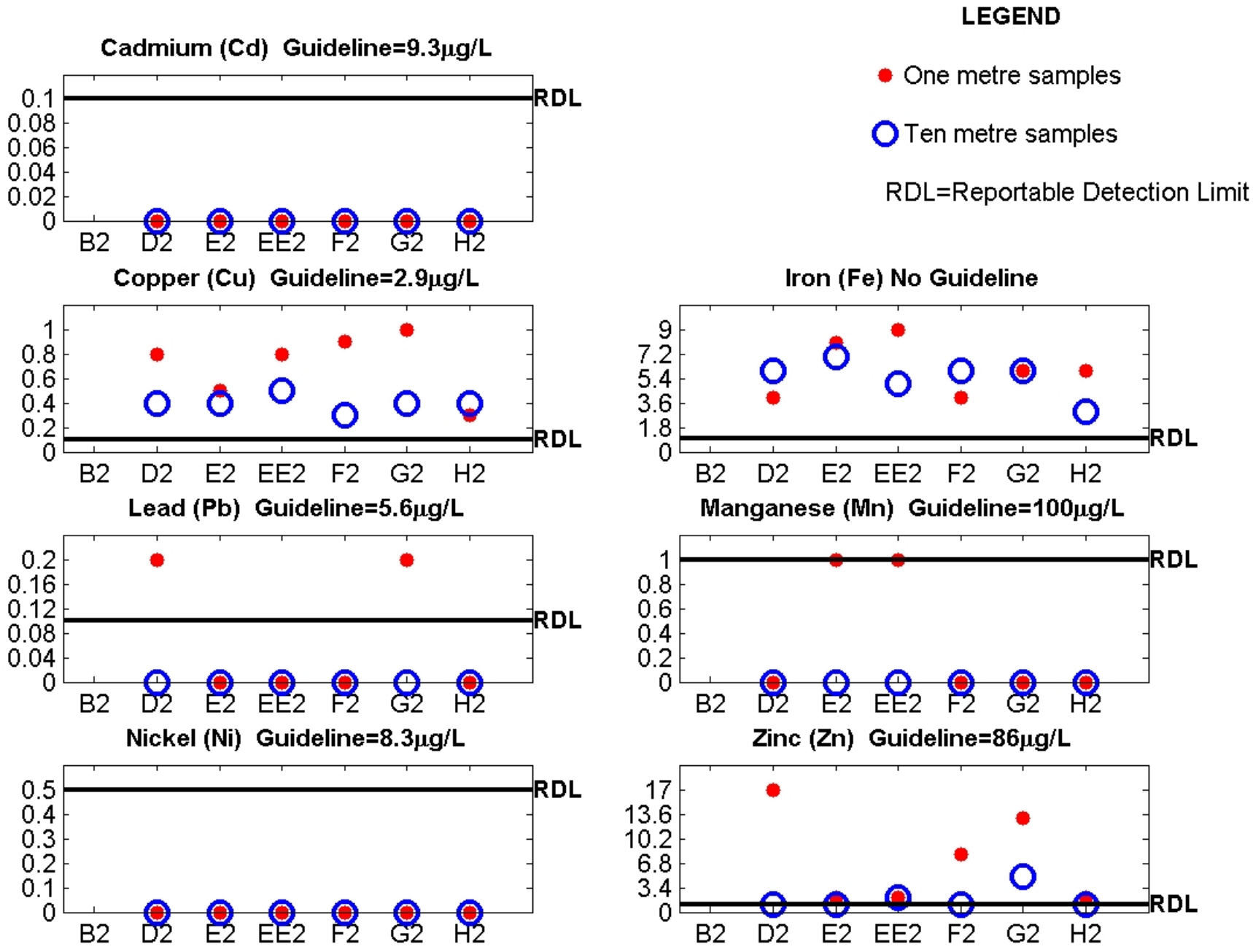
Potential Density in kg/m^3 **Ammonia in mg/L** **TSS in mg/L**










LEGEND
One metre samples
Ten metre samples
RDL=Reportable Detection Limit
Cadmium (Cd) Guideline=9.3µg/L
Copper (Cu) Guideline=2.9µg/L
Iron (Fe) No Guideline
Lead (Pb) Guideline=5.6µg/L
Manganese (Mn) Guideline=100µg/L
Nickel (Ni) Guideline=8.3µg/L
Zinc (Zn) Guideline=86µg/L
RDL
B2 D2 E2 EE2 F2 G2 H2