Halifax Harbour Water Quality Monitoring Project
Weekly Summary #77

Survey Date: 06 December 2005
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report077_051206.doc
Data File: HHWQMP_data077_051206.xls

Data Return:

Profile:	94%
Bacteria:	100%
Chemical:	100%
Overall:	**97%**

Sample Notes:

CTD instrument error resulted in garbled data at site EE2. The data is not included.

There were problems with the CTD at site E2 which showed up in the QA/QC procedures. The DO sensor exhibited erratic behaviour and did not come to equilibrium during CTD "soaking" time. This is an unfamiliar problem and the effect on the other data is uncertain. The data for this site is included in the plots but has been deleted from the data file.

Chemical Analysis QA/QC

Detectable Parameter	units	E2-1M reference sample	QA/QC	Dup
Ammonia (as N)	mg/L	0.12	0.12	
Total Suspended Solids	mg/L	8	4	6

Fecal Coliform QA/QC (CFU/100ml)

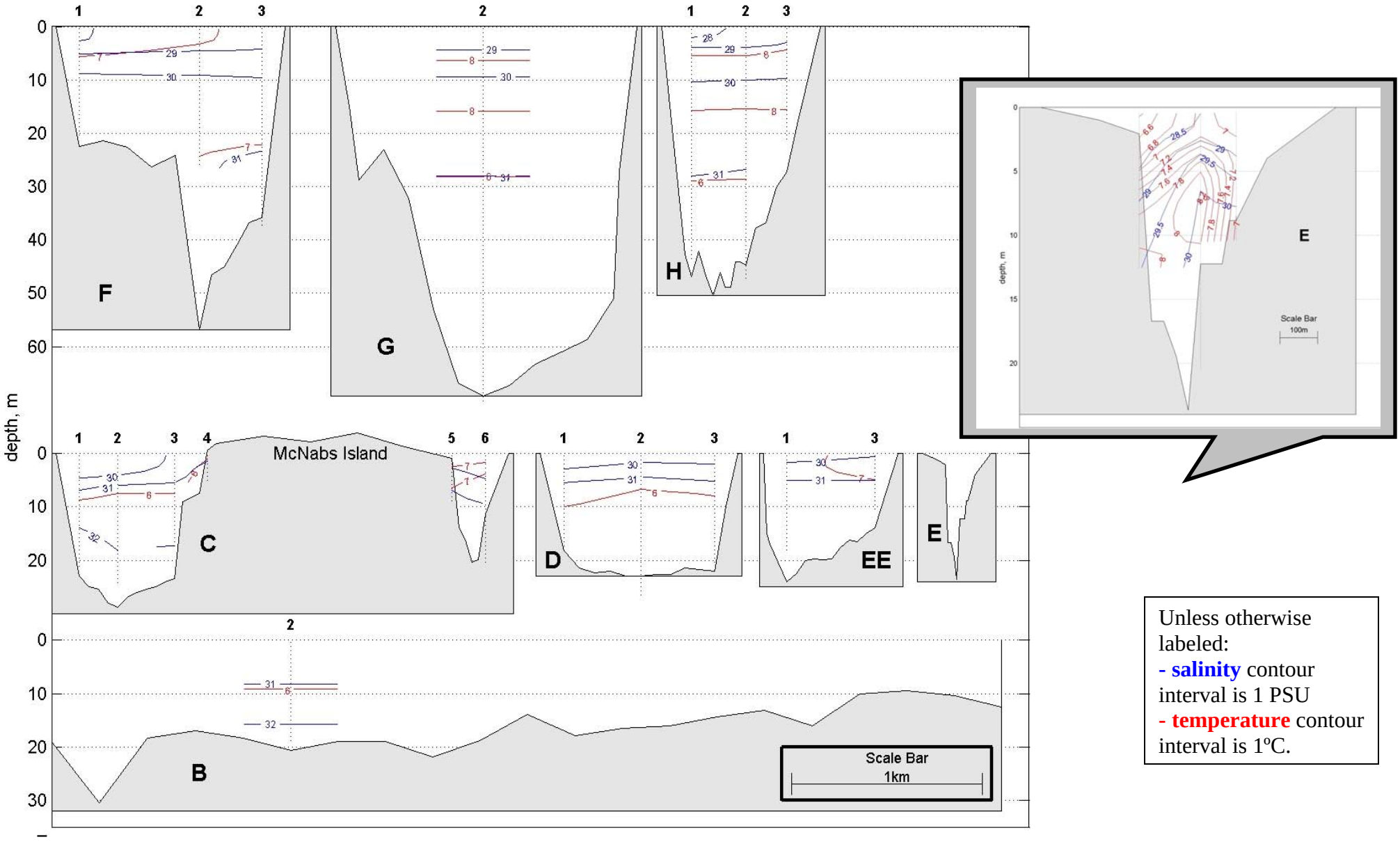
Site	DYC-1m	F1-10m	RNSYS-1m	E2-1m
Reference	21	93	170	21
QA/QC	15	51	270	23

Comments:

General: There have been minor amounts of rain (15 mm in the previous five days) and overall there is less fresh water in the Harbour this week than last. Consistent with this, the Harbour is generally less stratified except in the Outer Harbour. Sections C and B, which were well mixed last week, now show some stratification. The Harbour has cooled about 1.5 ºC overall but the bottom water temperature has dropped more than the surface temperature. The coliform values are significantly lower than in the previous two weeks. The 1 m coliform distribution is displaced down the Harbour with values > 1000 CFU at section C and a value of 160 CFU/100 mL occurring at B2. The coliform distribution, combined with the consistent stratification throughout the Harbour (with the exception of the Narrows, where data is suspect), implies an estuarine circulation pattern perhaps enhanced by the light to moderate winds blowing out of the Harbour. On the up-Harbour side, there are higher coliform values in the 10 m samples at the E section, suggesting a deeper up-Harbour flow. In the Basin, coliform values at both the 1 and 10m samples are similar and relatively low. This could imply an interruption of the up-Harbour flow at the Narrows or perhaps suggests that it is occurring deeper than 10m.

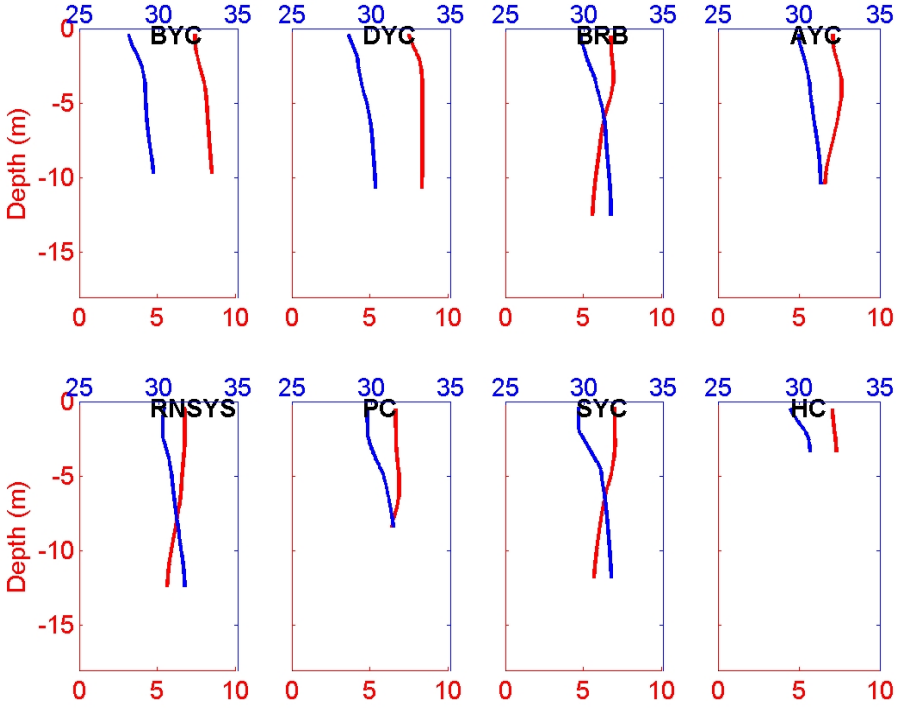
Chlorophyll: Fluorescence values are up slightly compared to last week. Profile maximums vary from about 1.5 to 4.0 mg/m^3, with lower values occurring in the Outer Harbour (B and C sections) and the NW Arm.

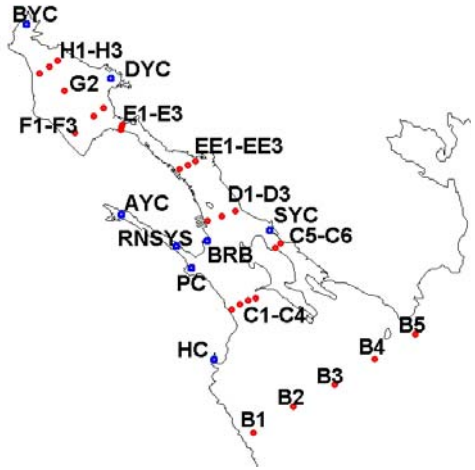
Dissolved Oxygen: The data indicate that the dissolved oxygen concentration throughout the Harbour, including the top 10m of the Basin, is about 7.0 mg/L or slightly below. This means that the Class SC guideline of 6.0 mg/L in the Inner Harbour is met. Elsewhere, in Class SB water (7.0 mg/L) the DO is borderline and in class SA water, the 8.0 mg/L guideline is not met. The bottom water in Bedford Basin continues to drop and is now at about 4.0 mg/L. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).



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

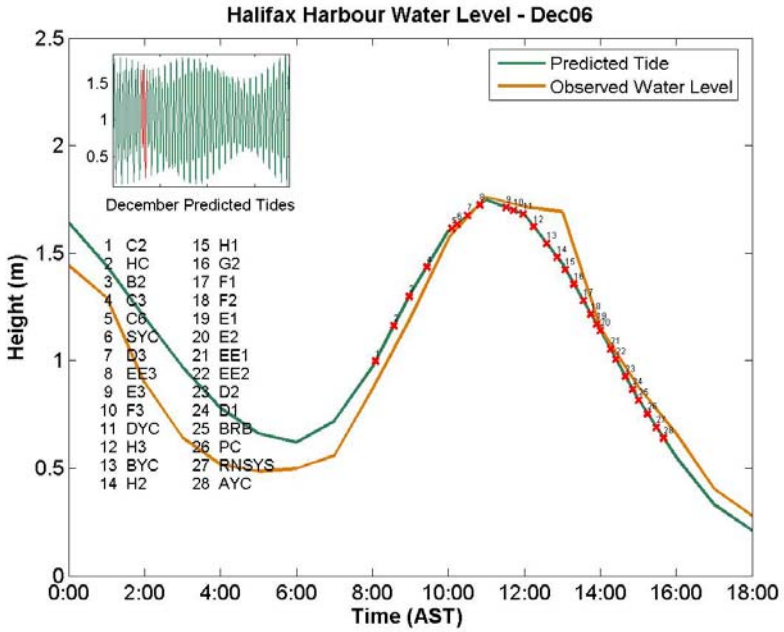
Yacht Clubs

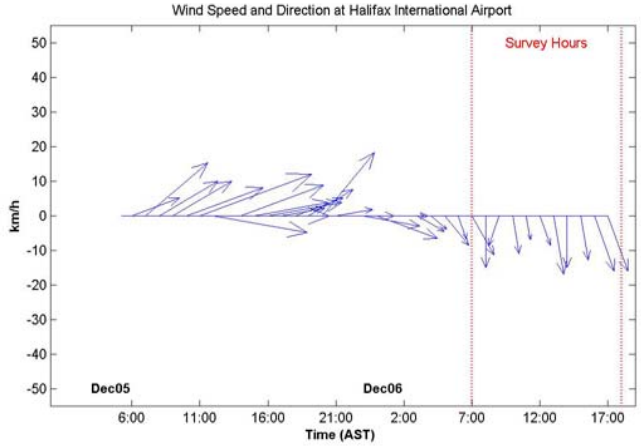


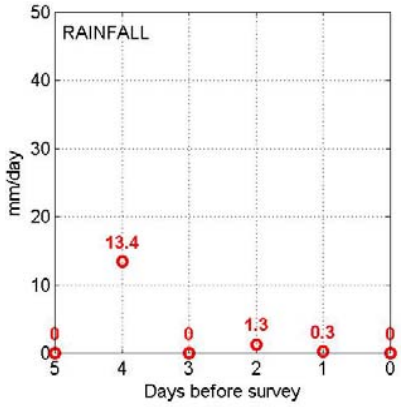


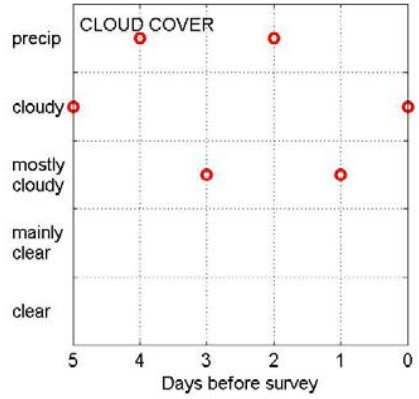
Salinity in PSU **Temperature in ^{o}C**

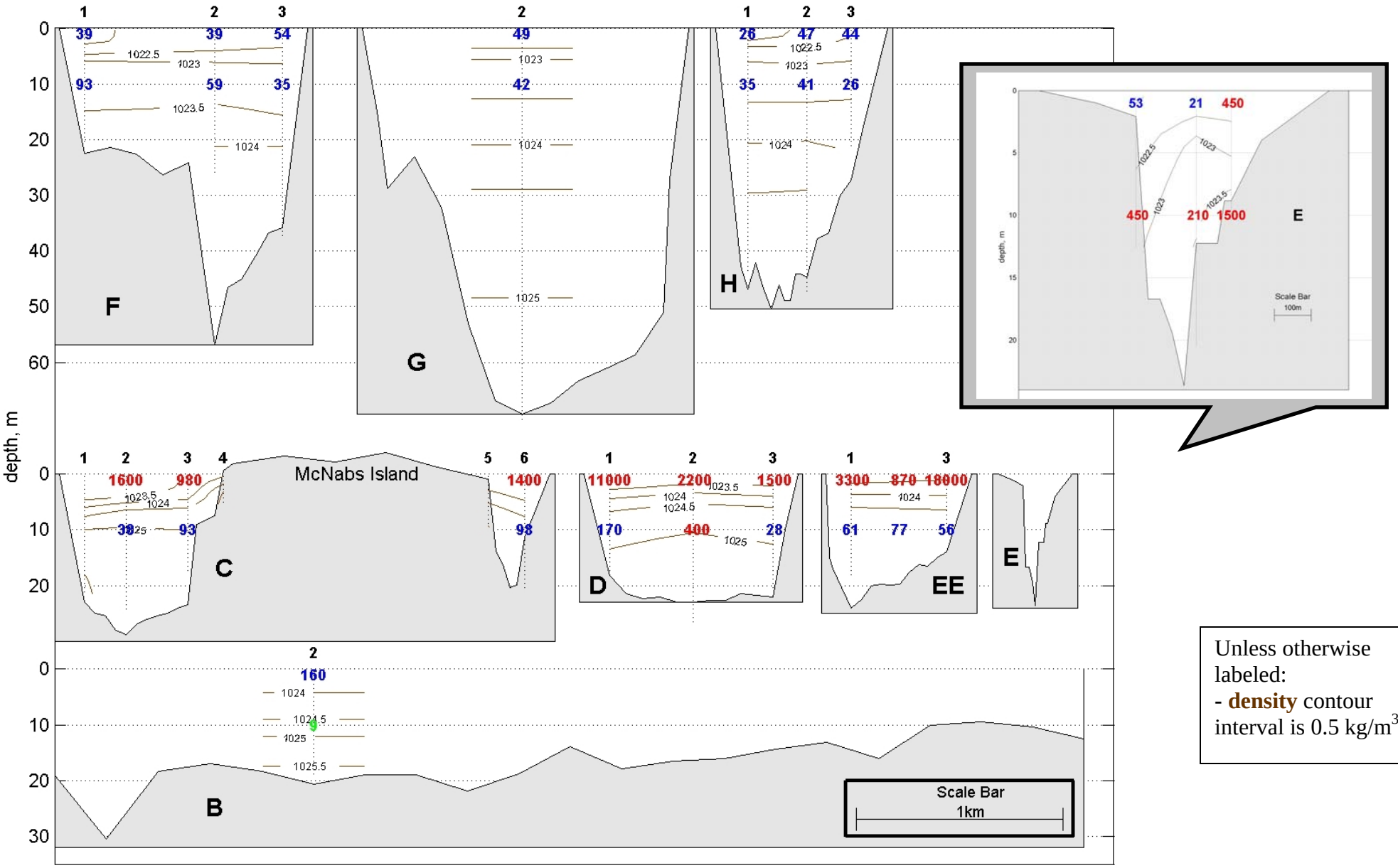
Weather data collected at the Halifax International Airport





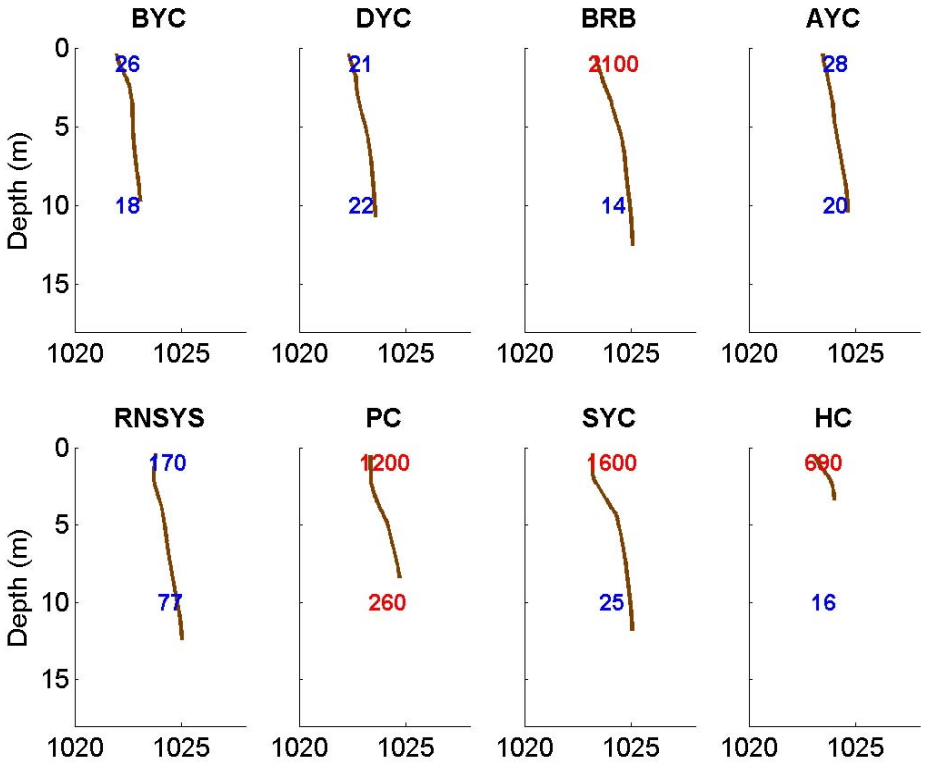


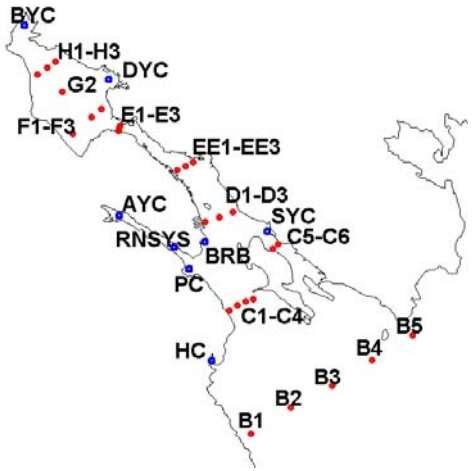




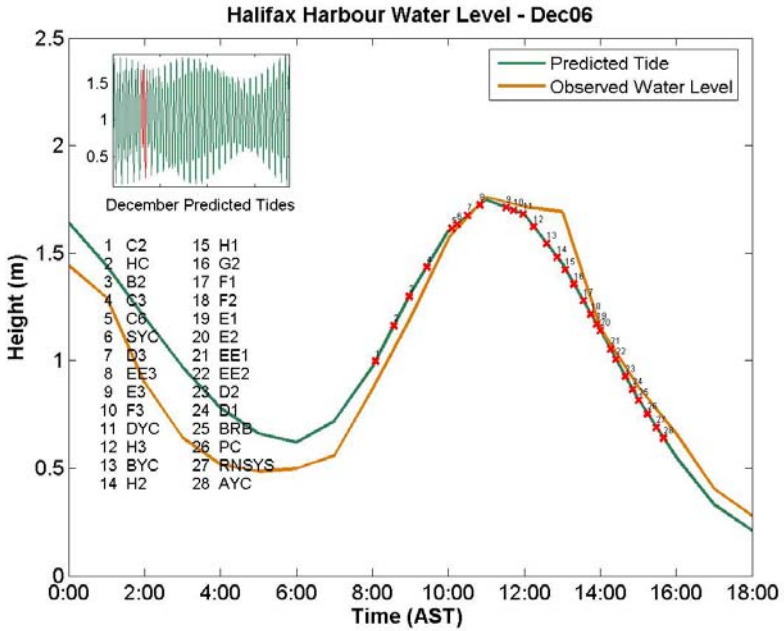
Unless otherwise labeled:
- **density** contour interval is 0.5 kg/m^3

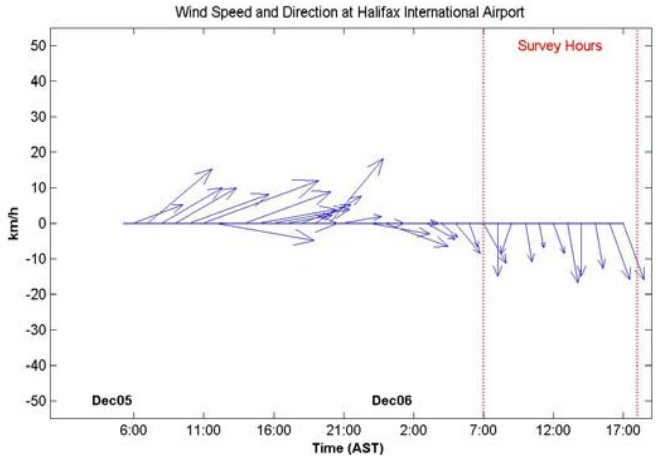
Yacht Clubs

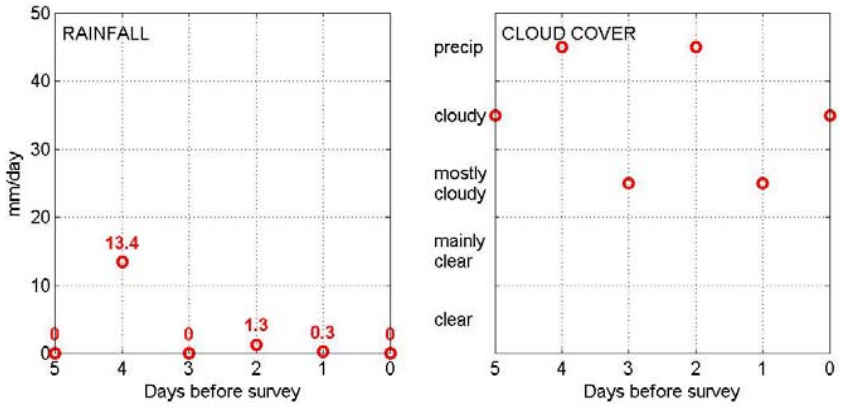




Weather data collected at the Halifax International Airport

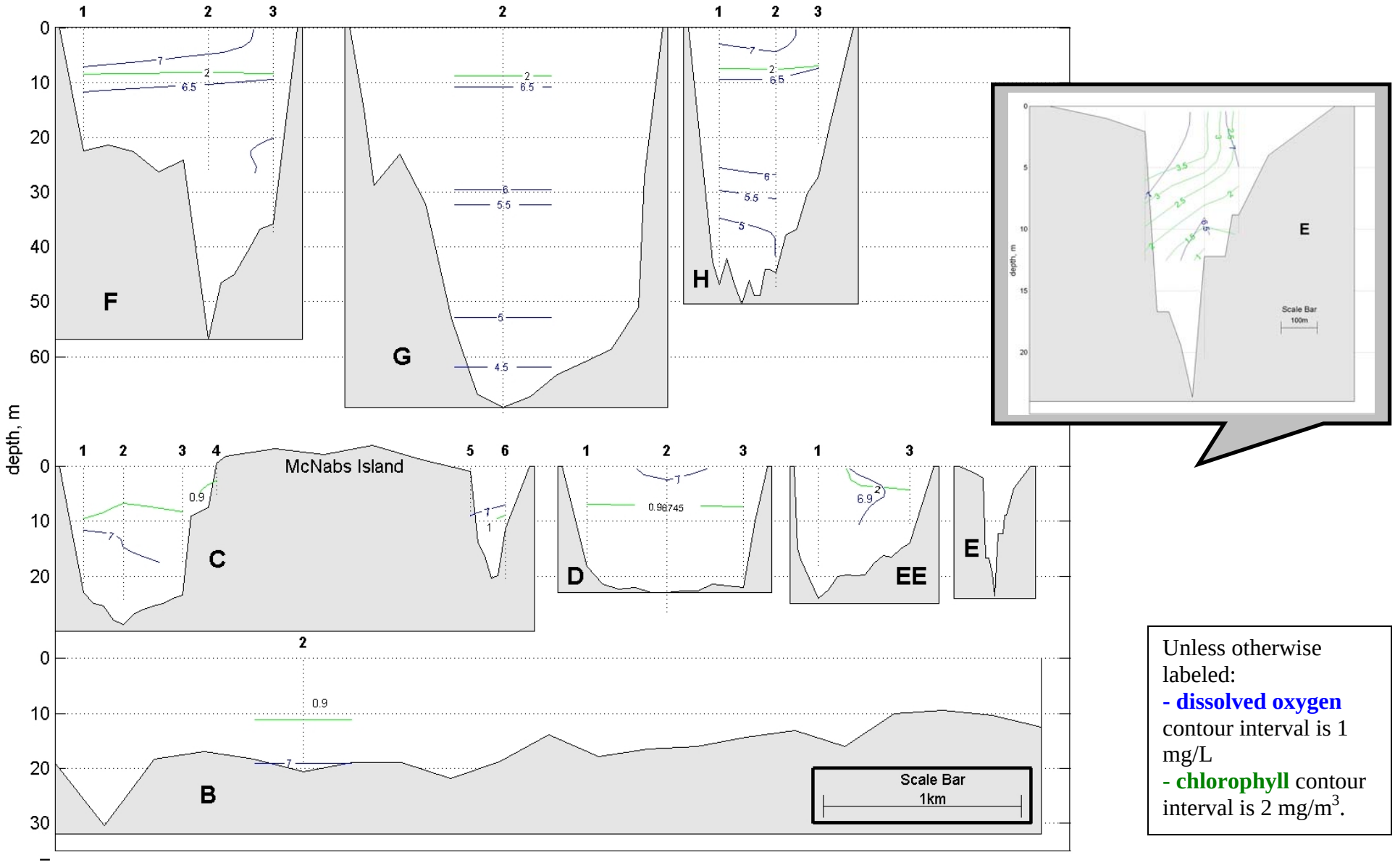






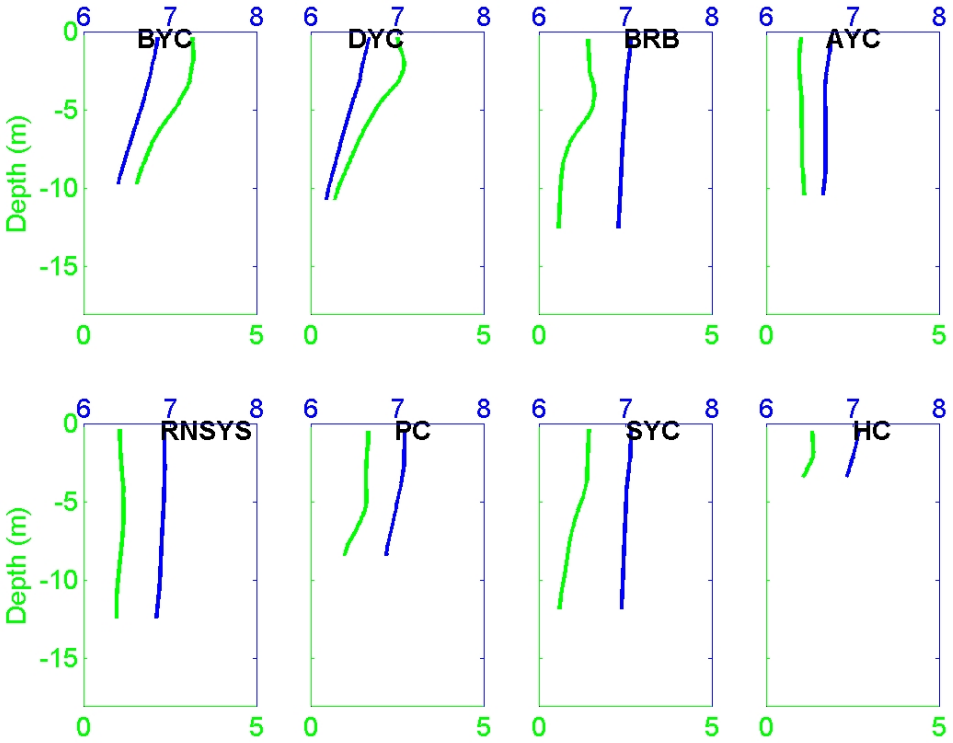
Potential Density in kg/m^3

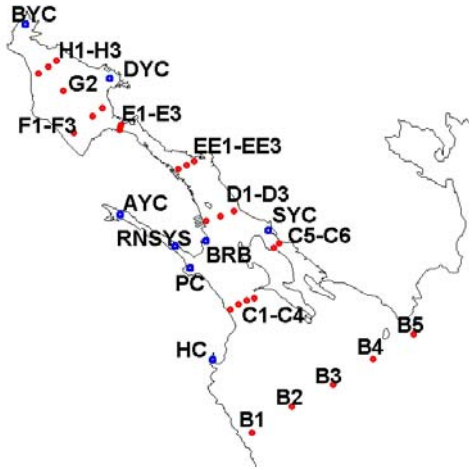
Fecal coliform: above swimming limit (200 cfu/100mL)
above shellfish limit (14 cfu/100mL)
below limits



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

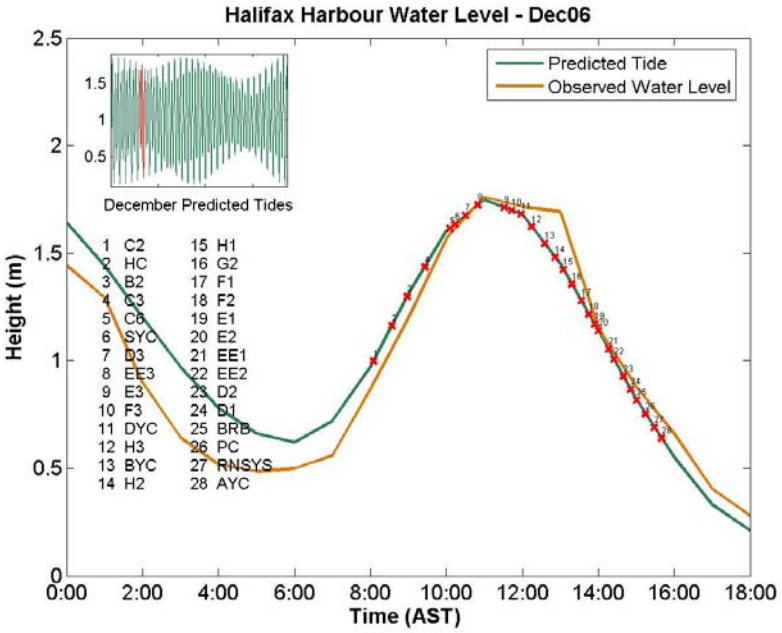
Yacht Clubs

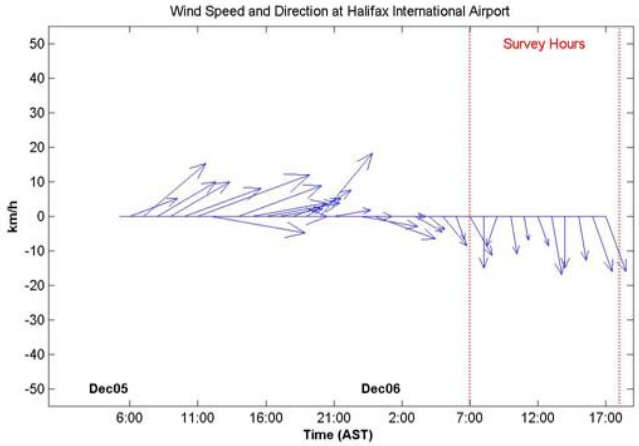


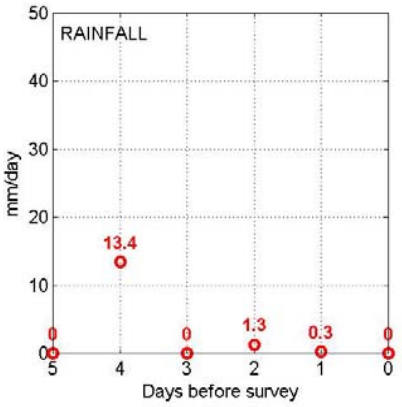


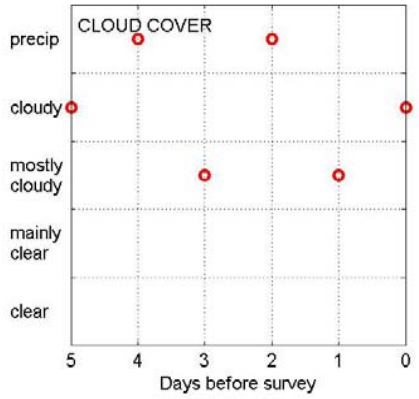
Weather data collected at the Halifax International Airport

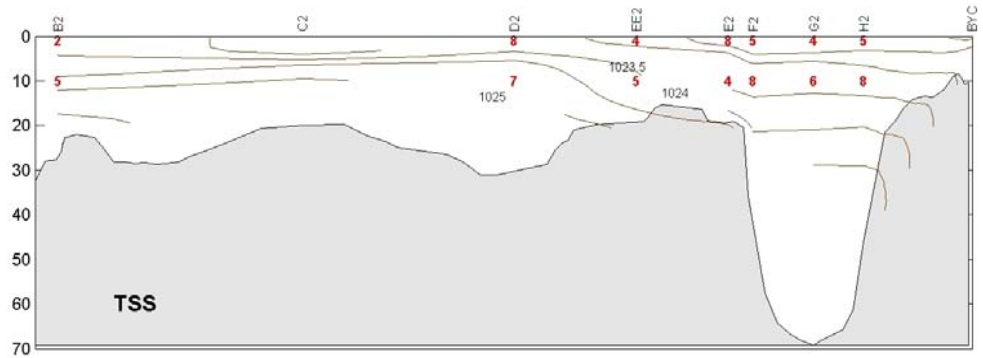
DO in mg/L **Chlorophyll in mg/m^3**

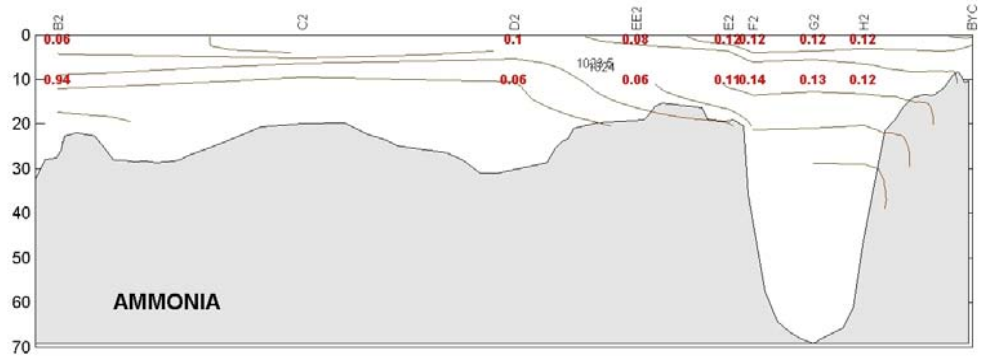


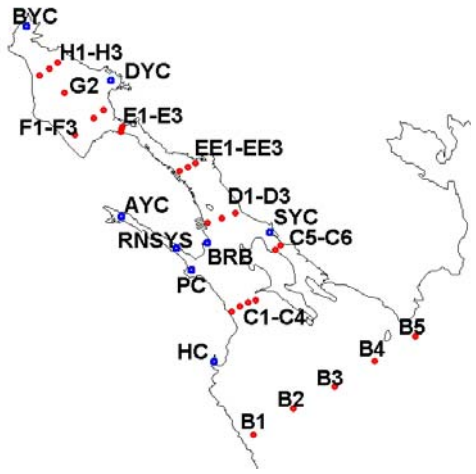












Potential Density in kg/m^3 **Ammonia in mg/L** **TSS in mg/L**

Weather data collected at the Halifax International Airport