

# Halifax Harbour Water Quality Monitoring Project

## Weekly Summary #65

**Survey Date:** 14 September 2005  
**Nature of Survey:** Complete Survey  
**Report File (this document):** HHWQMP\_report065\_050914.doc  
**Data File:** HHWQMP\_data065\_050914.xls

**Data Return:**

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

**Sample Notes:**

At station G2 the CTD exhibited unusual behaviour during the stabilization period and did not come to stable equilibrium. This appears to have affected only the topmost 9m of the cast, but the data should be used with caution.

Two fecal coliform QA/QC samples were mislabeled and could not be matched to the corresponding reference sample.

**QA/QC samples:**

Chemical Analysis		H2-1m		H2- 10m	
		reference Sample	QA/QC	reference Sample	Dup
Ammonia (as N)	mg/L	< 0.05	< 0.05	0.14	
Total Suspended Solids	mg/L	11	6.1	7.3	
Boron	ug/L	4900	4600	4700	4800
Iron	ug/L	<500	<500	540	<500
Lithium	ug/L	250	230	230	220
Strontium	ug/L	7600	7200	7300	7200
Titanium	ug/L	92	80	85	80
Uranium	ug/L	3.9	3.8	3.9	4
Zinc	ug/L	57	54	<50	<50

**Fecal Coliform (CFU/100ml)**

Site	H2-1m	SYC-10m
Reference	3	29
QA/QC	0	26

**Regulated parameters with all samples below detection (<EQL)**

Parameter	EQL (µg/L)	Parameter	EQL (mg/L)
Cadmium	3	Oil and Grease	5
Manganese	20		
Copper	20		
Lead	5		

**Detectable non-regulated metals**

Metal	EQL (µg/L)	Number >EQL	Mean (µg/L)	Range (µg/L)
Boron	500	16	4681	4400-5000
Iron	500	4	558	510-660
Lithium	20	16	228	200-250
Strontium	50	16	7412	7100-7700
Thallium	1	1	1.1	1.1
Titanium	20	16	83	70-97
Uranium	1	16	4	3.8-4.5
Vanadium	20	1	28	28

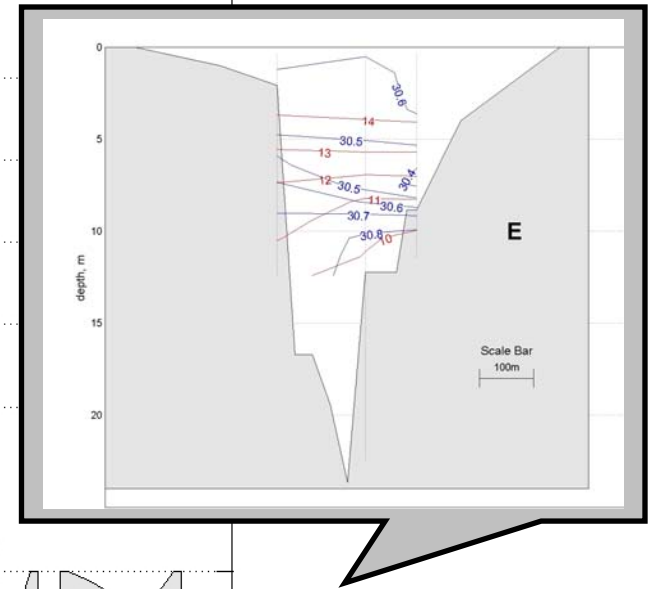
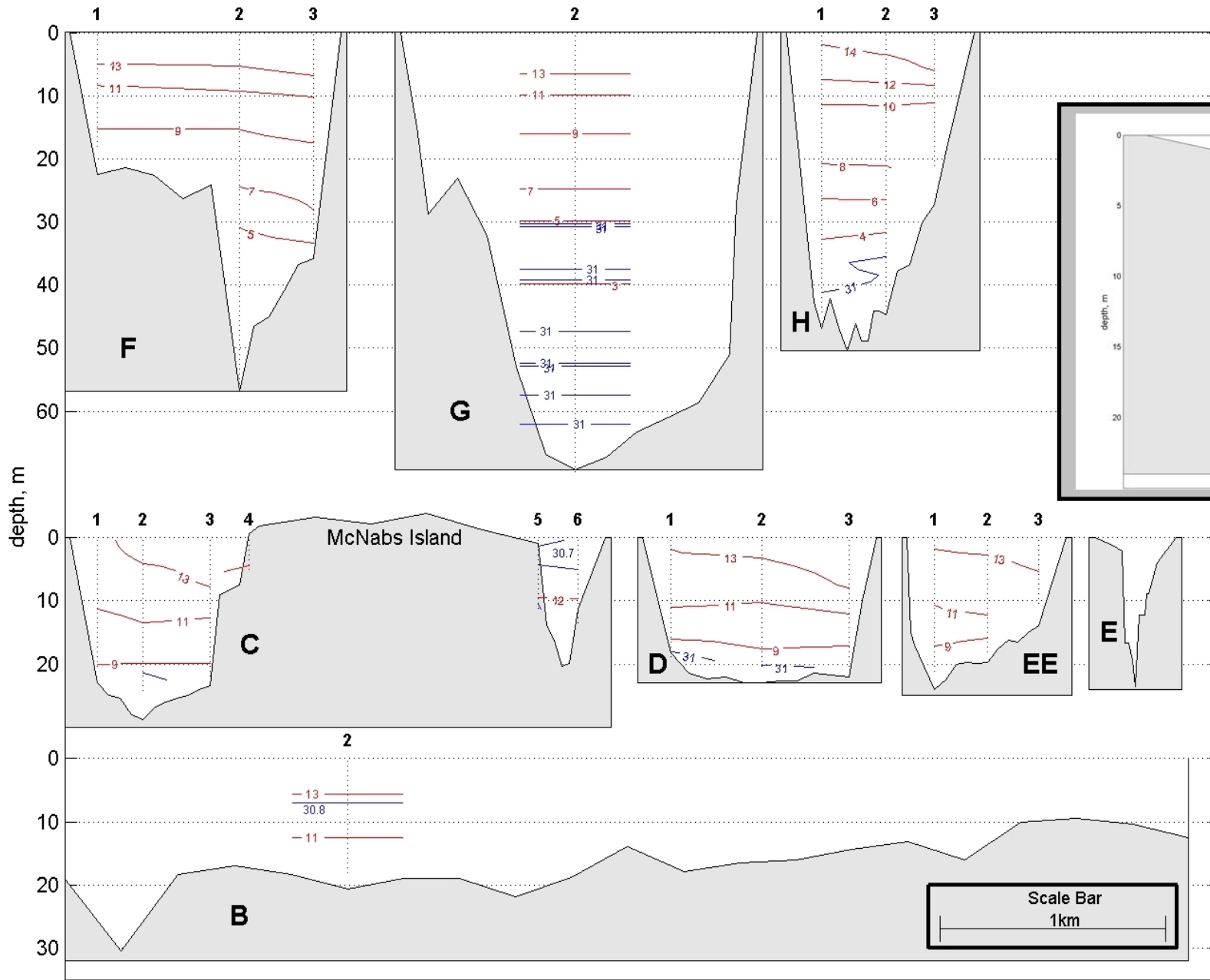
**Comments:**

**Metals:** Two samples have detectable levels of chromium below the 50 ug/L guideline, B2-1m (24 ug/L), and E2-1m (20 ug/L). A total of 12 samples (all except F2-10m, G2-10m, H2-10m, and H2-10mDup) have detectable zinc levels ranging from 51-62 ug/L (guideline: 86 ug/L). The G2-10m sample has a nickel value of 20 ug/L (guideline: 8.3 ug/L).

**Dissolved Oxygen:** The data suggests that the water throughout the Harbour (above 20m depth) has DO levels between approx 6.5 and 7.5mg/L. This is below guidelines in the Basin and the NW Arm (Class SB) and in the outer Harbour at station B (Class SA). The bottom water in Bedford Basin continues to drop at 3.1 mg/L. The DO data is not ground-truthed. (See DO discussions in QR#1, 2, 3).

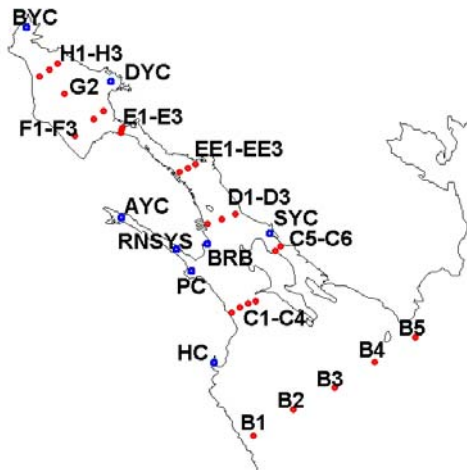
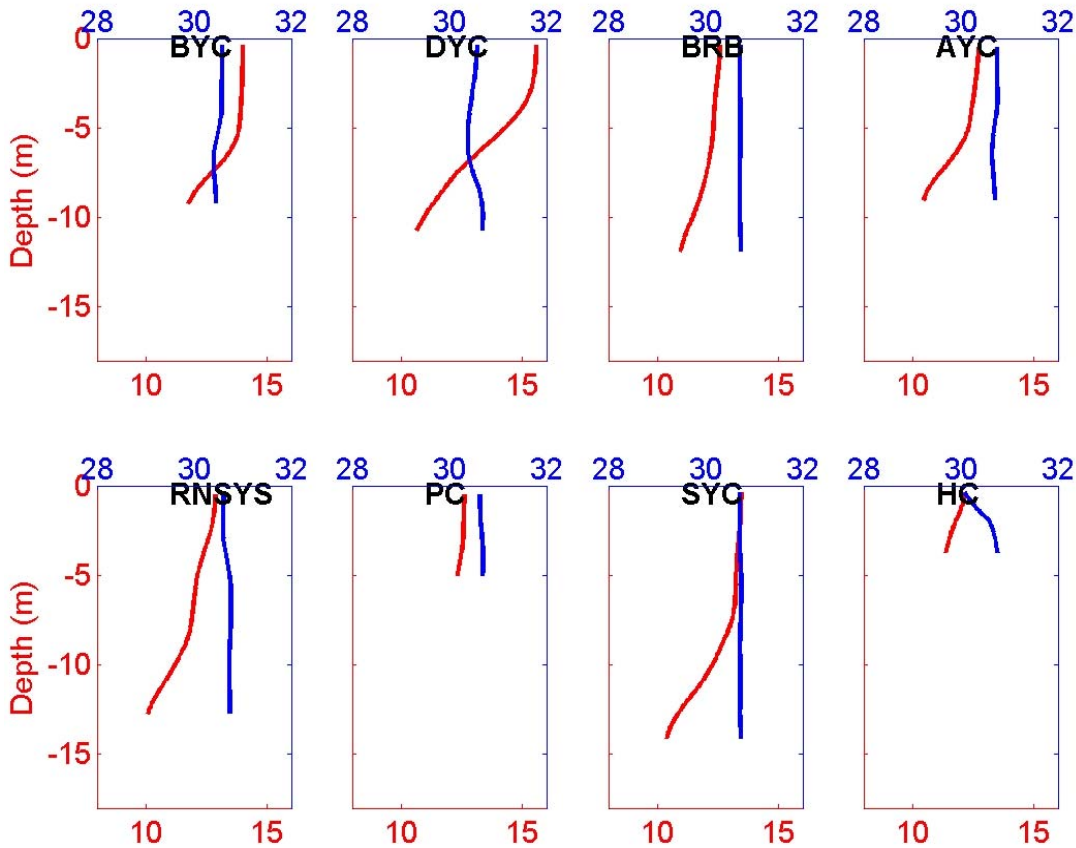
**Chlorophyll:** The fluorescence values this week are similar to last week. There is a maximum of 12-24 mg/m<sup>3</sup> at 7-8 m in the Basin and Northwest Arm. The values drop somewhat and tend to occur deeper in the water column further out of the Harbour, reaching 7 mg/L at 17m at B2.

**General:** Overall the Harbour is cooling, the surface water, at 13-14 °C, is 4-5° C cooler than last week, however the bottom water is only about a degree cooler. Dry weather has resulted in an overall increase in salinity, with the surface salinity increasing, on average, about 0.1 psu more than bottom water salinity. The net effect is a reduction in density stratification from the previous week, leaving the Harbour in a very uniform state. There are quite a large number of fecal coliform values greater than 200 cfu/100 mL, throughout the Inner Harbour and into the southern Basin. This is consistent with a period of relatively low flushing with a moderate SSW wind during sampling.



Unless otherwise labeled:  
 - salinity contour interval is 1 PSU  
 - temperature contour interval is 2°C.

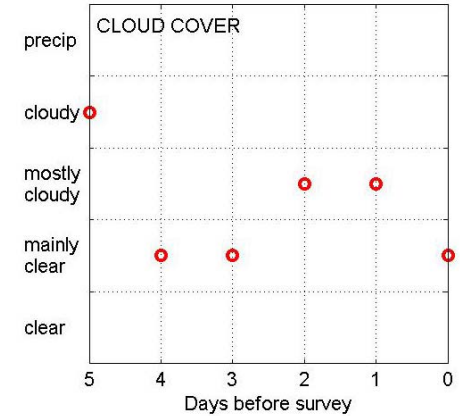
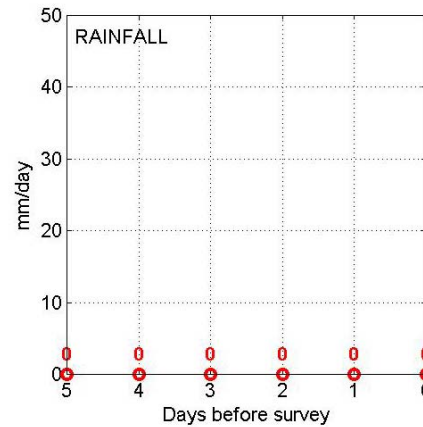
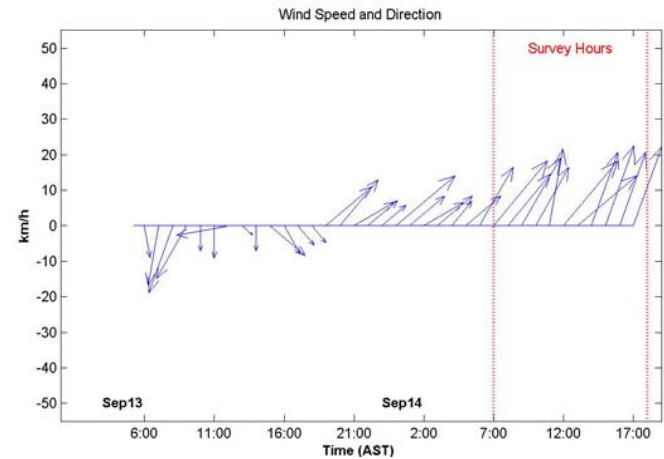
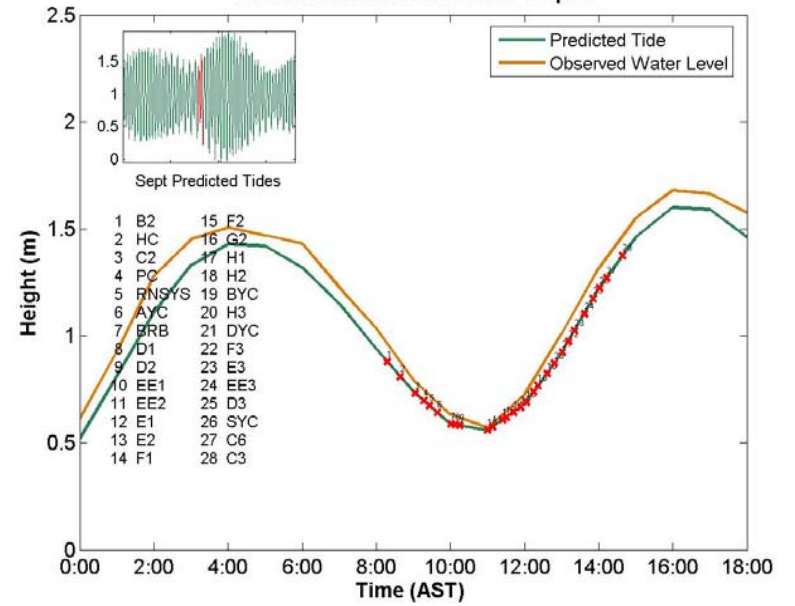
# Yacht Clubs

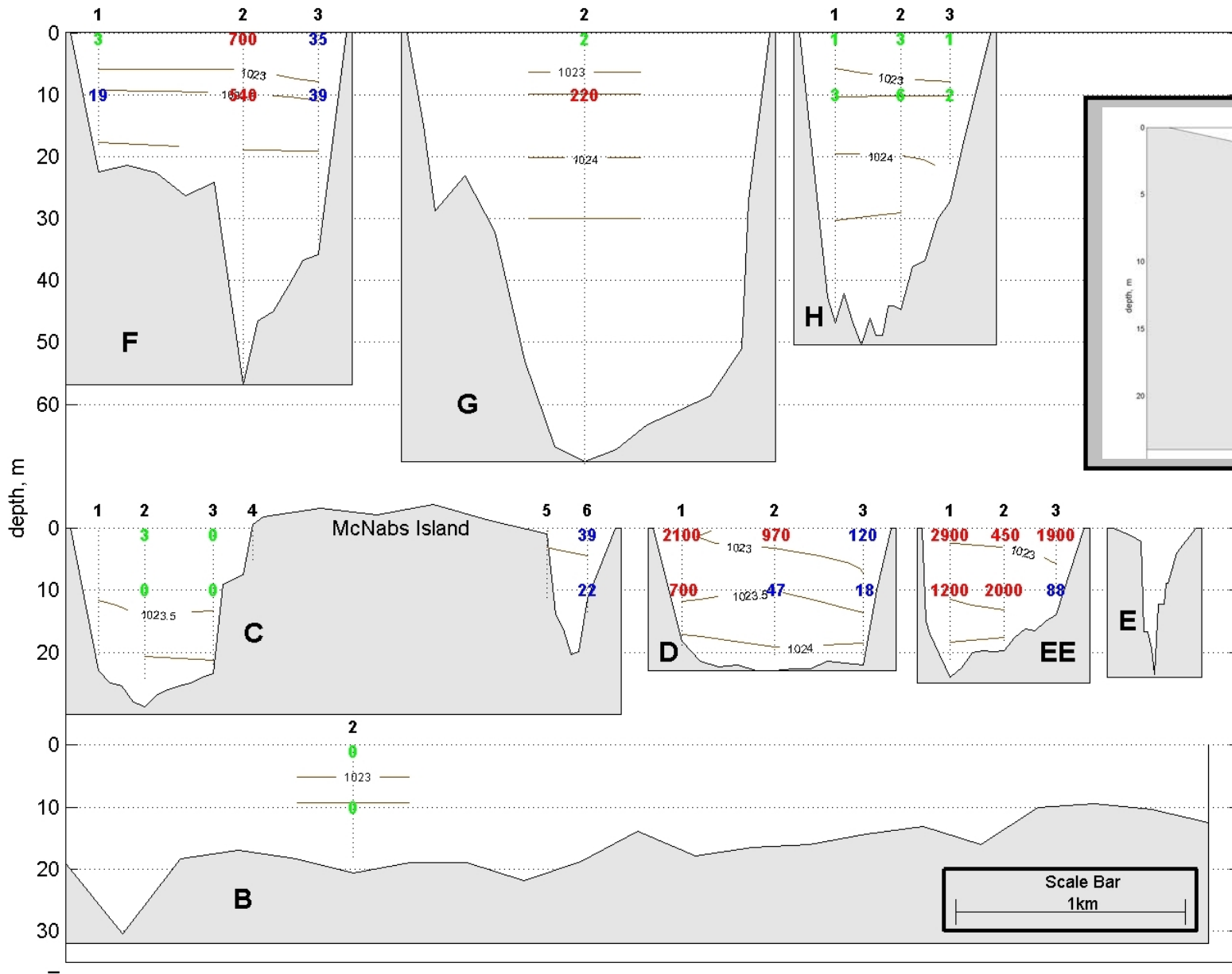


Salinity in PSU      Temperature in °C

Weather data collected at the Halifax International Airport

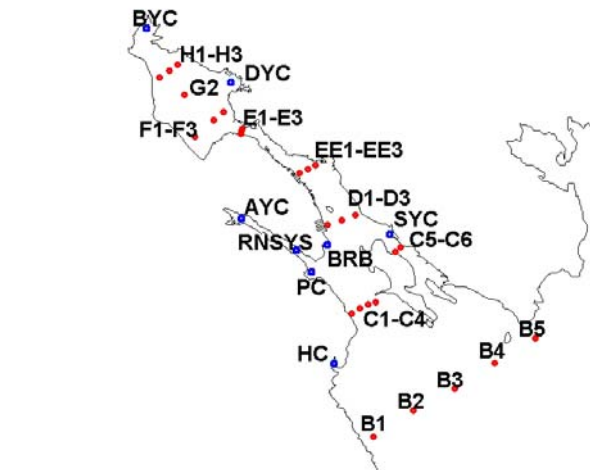
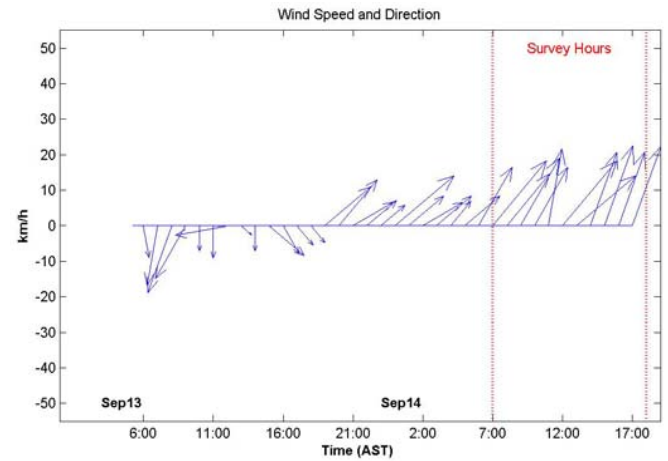
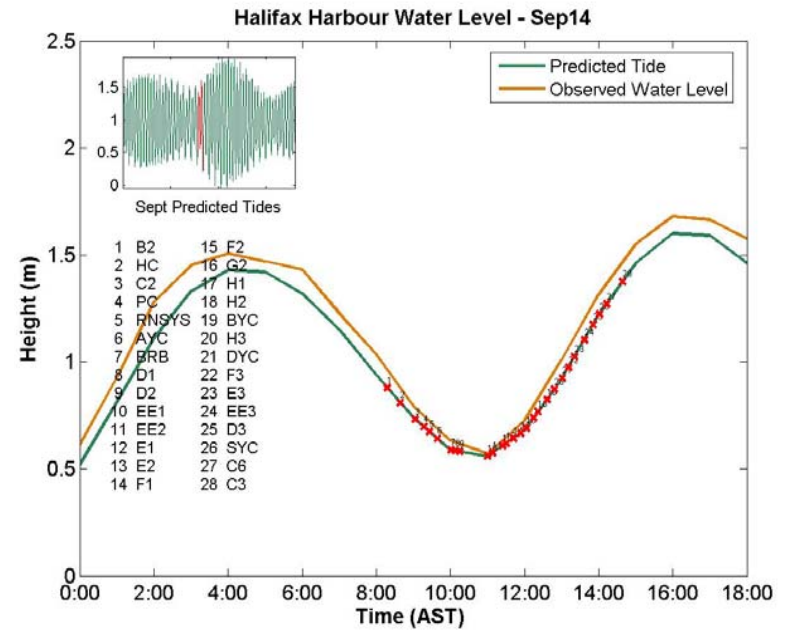
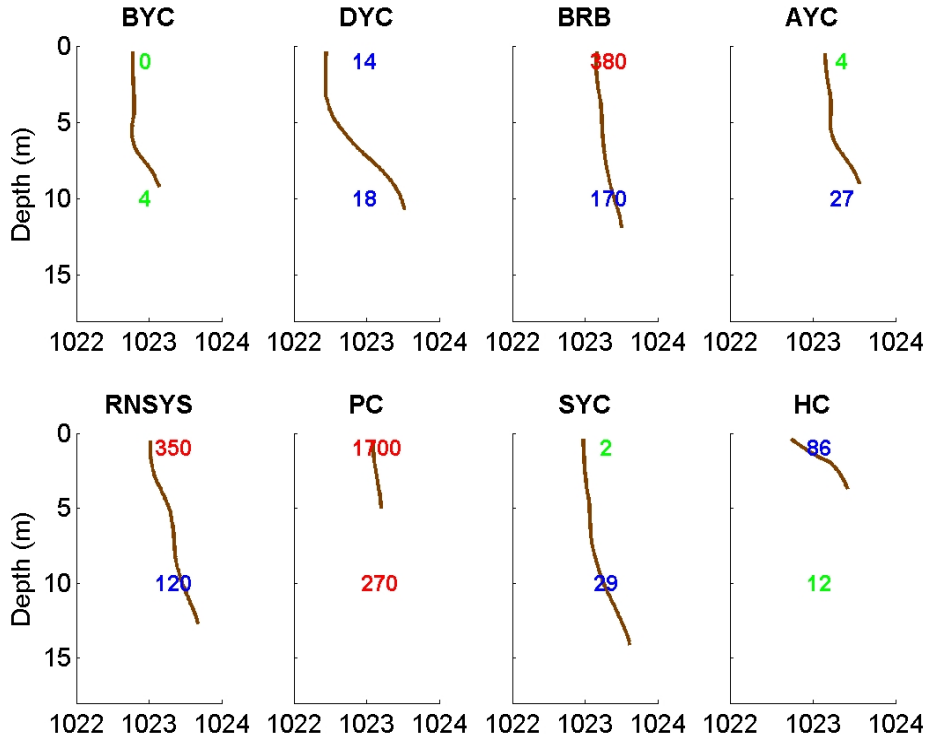
## Halifax Harbour Water Level - Sep14





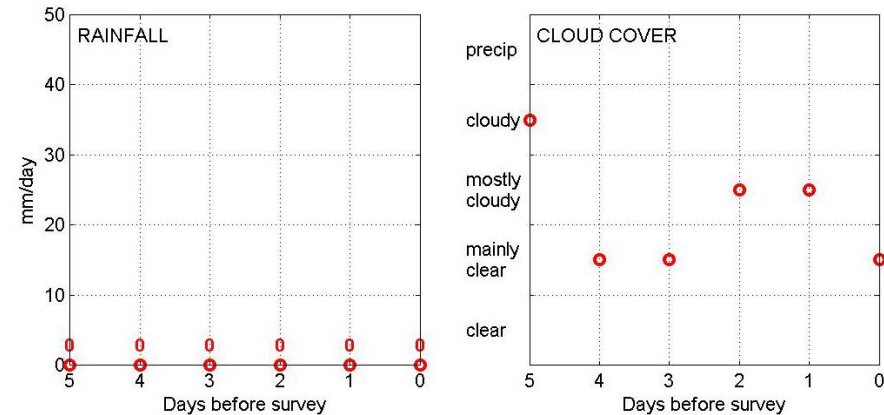
Unless otherwise labeled:  
 - **density** contour interval is 0.5 kg/m<sup>3</sup>

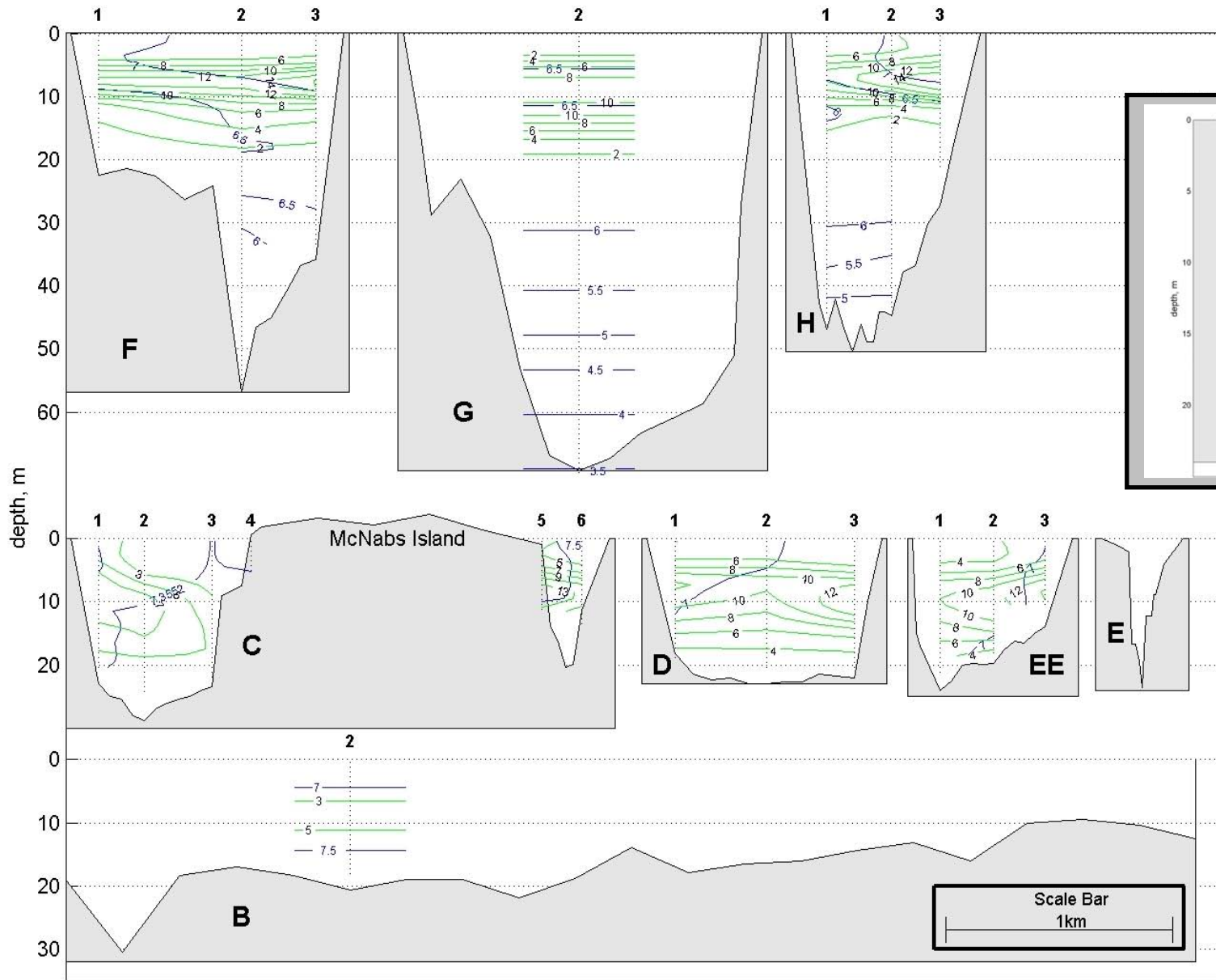
# Yacht Clubs



Weather data collected at the Halifax International Airport

Potential Density in  $\text{kg/m}^3$  Fecal coliform: above swimming limit (200 cfu/100mL)  
 above shellfish limit (14 cfu/100mL)  
 below limits

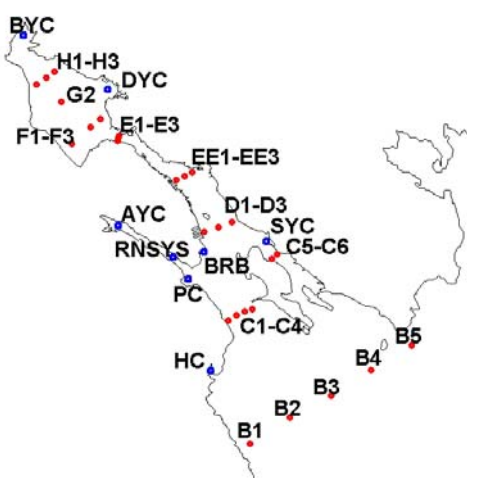
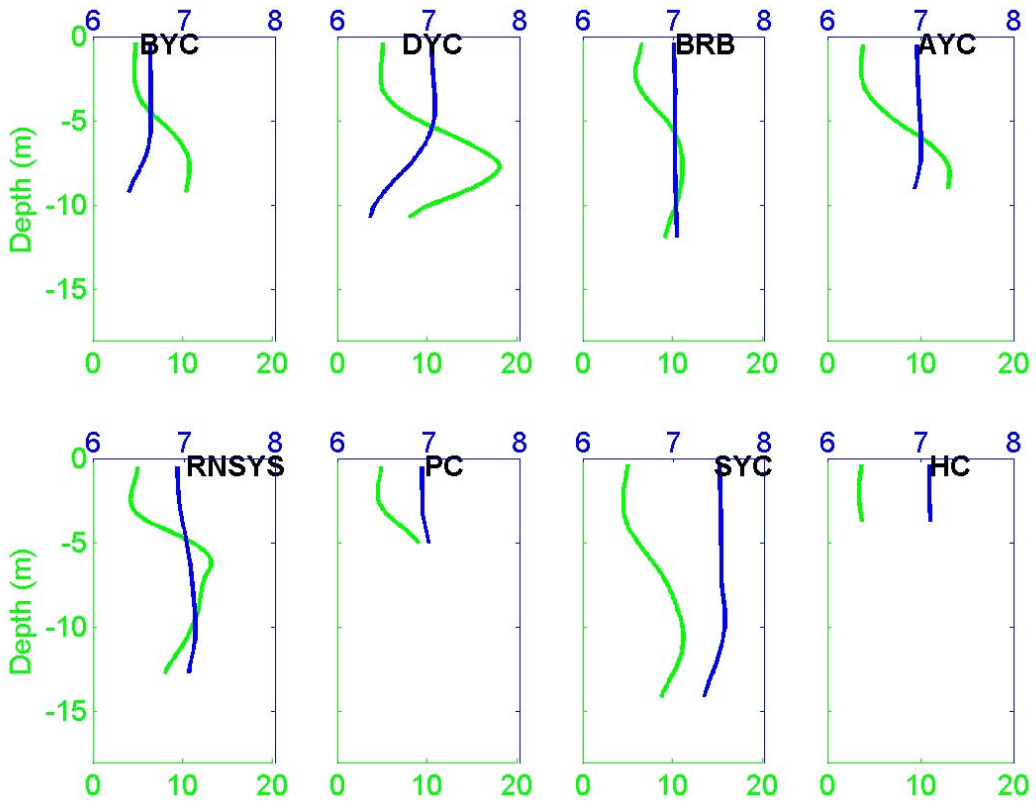




Unless otherwise labeled:  
- **dissolved oxygen** contour interval is 0.5 mg/L  
- **chlorophyll** contour interval is 2 mg/m<sup>3</sup>.



# Yacht Clubs

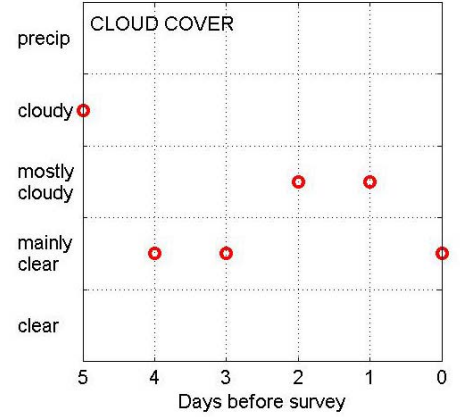
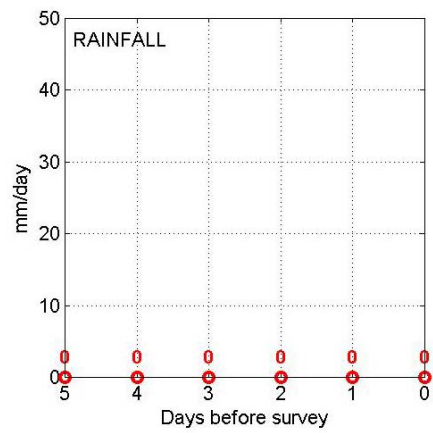
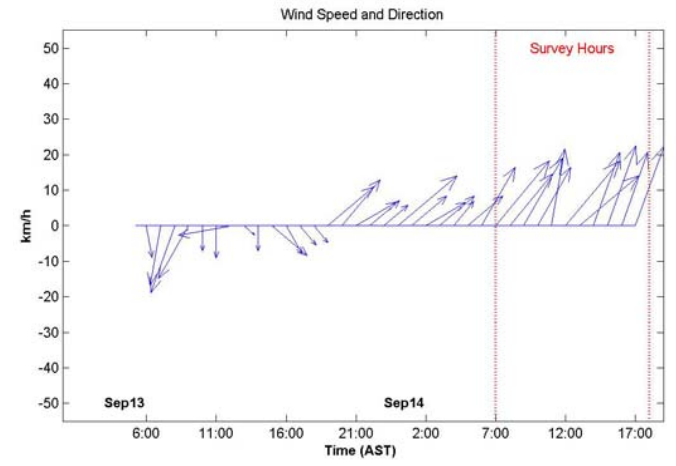
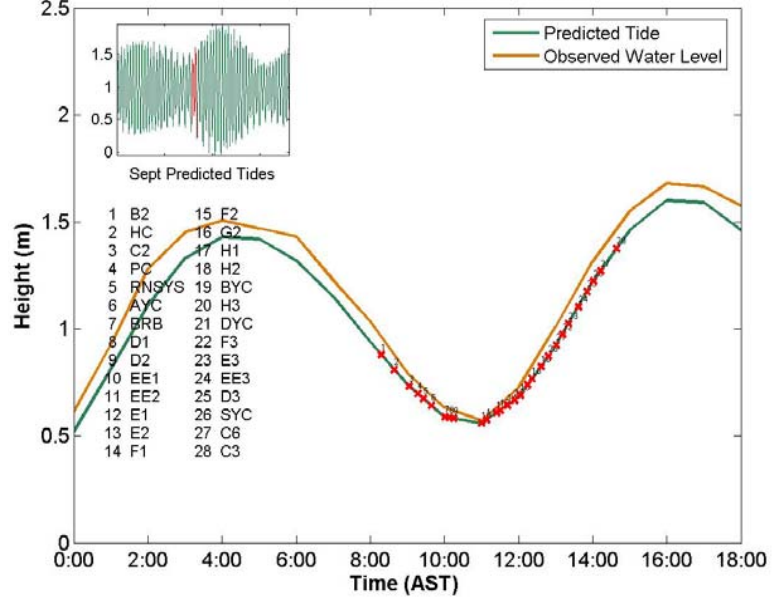


DO in mg/L

Chlorophyll in mg/m<sup>3</sup>

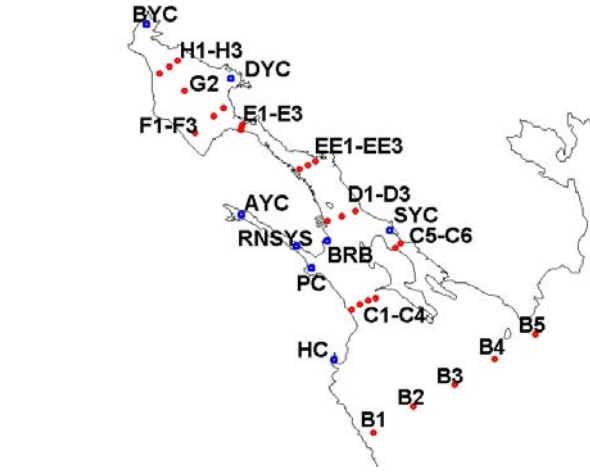
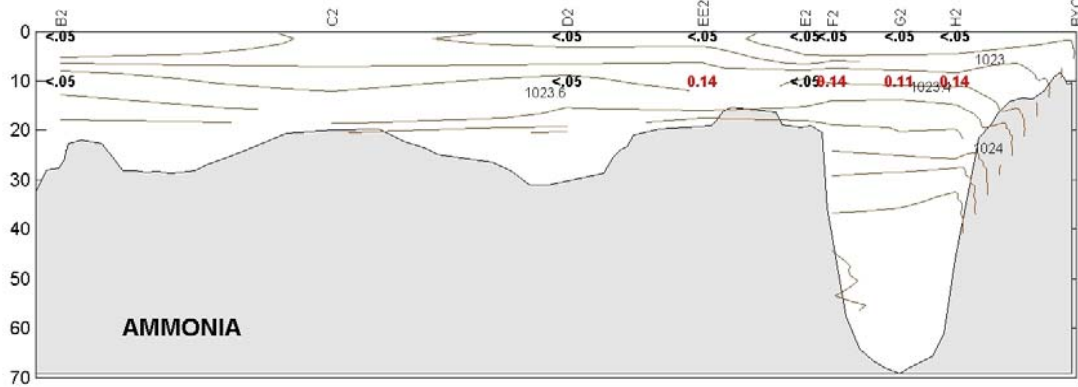
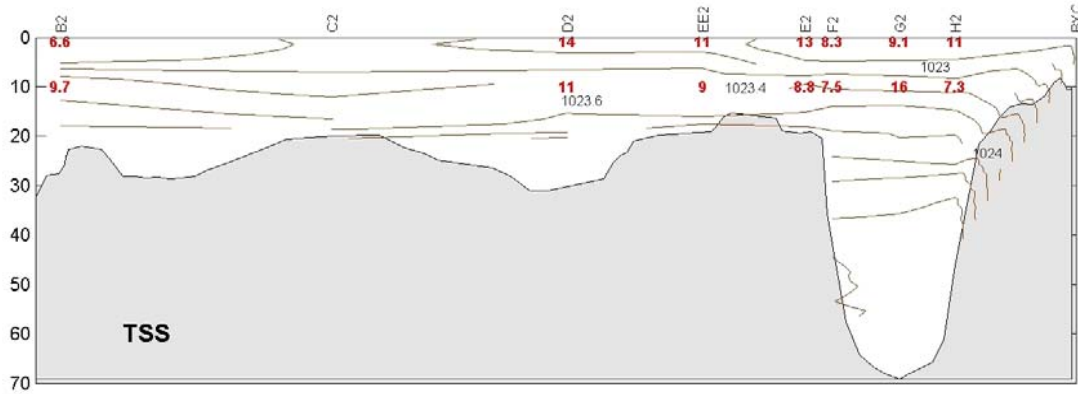
Weather data collected at the Halifax International Airport

## Halifax Harbour Water Level - Sep14



Harbour Water Quality Monitoring Program

CHEMISTRY



Potential Density in  $\text{kg/m}^3$

Ammonia in  $\text{mg/L}$

TSS in  $\text{mg/L}$

Weather data collected at the Halifax International Airport

Halifax Harbour Water Level - Sep14

