

# Halifax Harbour Water Quality Monitoring Project

## Weekly Summary #120

**Survey Date:** 3 January 2007  
**Nature of Survey:** Complete Survey  
**Report File (this document):** HHWQMP\_report120\_070103.doc  
**Data File:** HHWQMP\_data120\_070103.xls

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

**Sample Notes:**

CBOD samples were taken at 1 and 10 m at site F2.

The CTD QA/QC procedure indicates that there may be a relatively well-oxygenated shallow surface layer in Herring Cove that is missed in the processed data.

The CTD QA/QC procedure indicates that the CTD experienced flow problems at EE2 causing an underestimation of DO at the surface of at least 0.5 mg/L. This DO data has been plotted here, but has been deleted from the data file. The remaining data streams are much less affected and have been left in the file, but should be used with circumspection.

**QA/QC samples:**

Chemical Analysis		B2 - 10m	
		reference sample	QA/QC
Detectable Parameter	Units		
Ammonia (as N)	mg/L	<0.05	<0.05
Total Suspended Solids	mg/L	0	2
Copper	ug/L	0.2	0.2
Iron	ug/L	2	3

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

Site	SYC-10m	H3-10m	D1-10m	B2-10m
Reference	450	160	97	0
QA/QC	310	110	69	0

**Comments:**

**General:** Despite significant precipitation (26 mm rain/snow) two days before the survey, the harbour is more saline and less salinity stratified than two weeks ago. The temperature is very uniform, both horizontally and vertically, at 4.2- 5.0° C, everywhere in the top 20 m. This is about one degree colder than two weeks ago. The fecal coliform (FC) values are not particularly high and are quite vertically uniform in the Inner Harbour, with high values occurring in either the 1 or 10m samples. In the Basin the higher values occur in the 10m samples, but the difference between the 1 and 10m samples is not as pronounced as it often is. The FC distribution is displaced down harbour with high values occurring generally in the 1m samples at BRB, PC and C3. There is a high (540 cfu/100 mL) value associated with slightly less dense surface water at HP3. This appears to be from the Tribune Head outfall as the value inside Herring Cove is much lower.

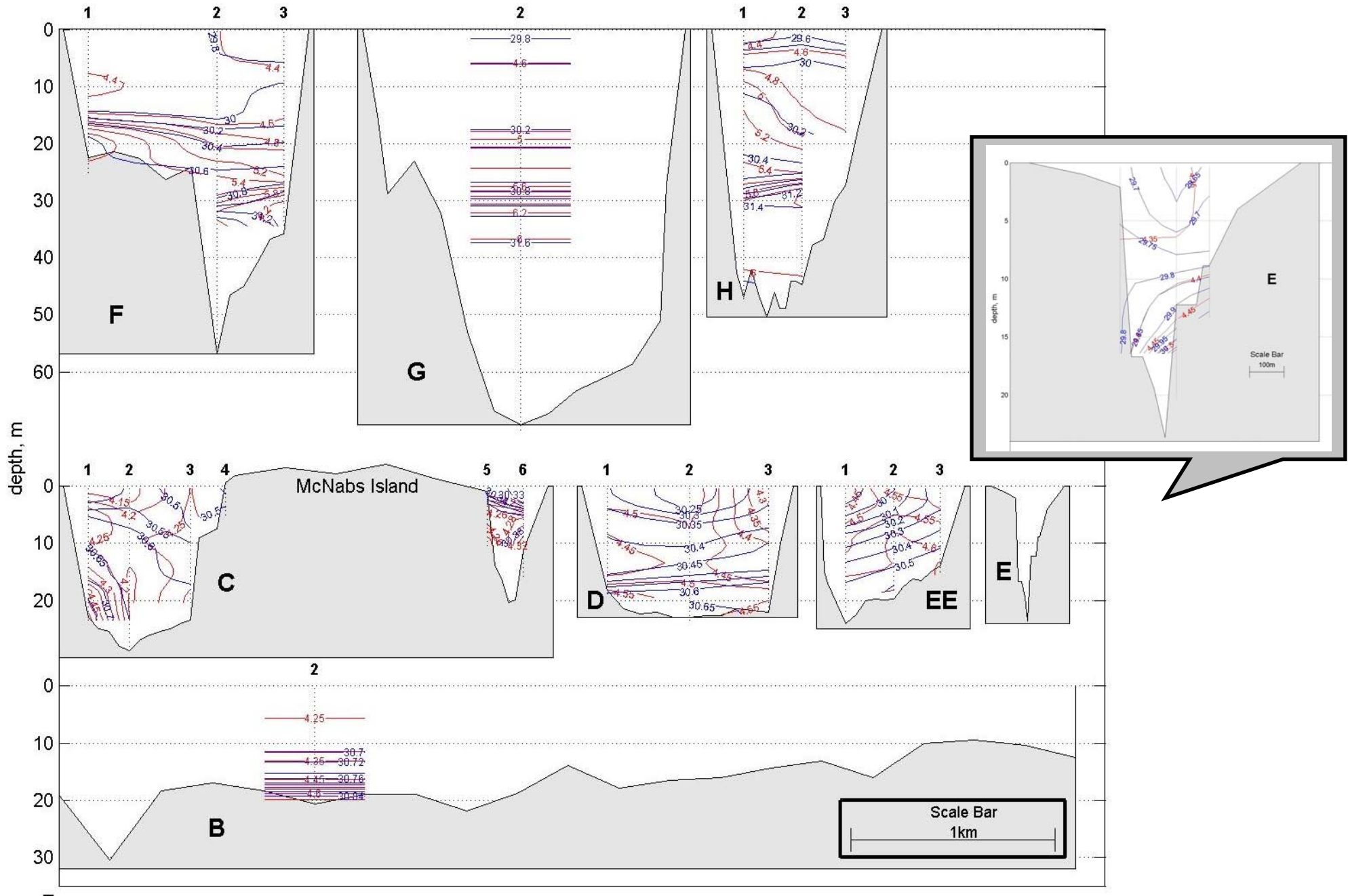
**Fluorescence:** Overall the fluorescence values are very low with profile maximum values of about 1-2 mg/m<sup>3</sup> everywhere. The highest values (approx 2.2 mg/m<sup>3</sup>) occur at 8m in the Narrows.

**Ammonia:** Ammonia values are relatively uniform everywhere at 0.05 to 0.08 mg/L. The values are very slightly higher (0.08 mg/L) in the surface of the Basin, and drop below detection in the Outer Harbour (B2).

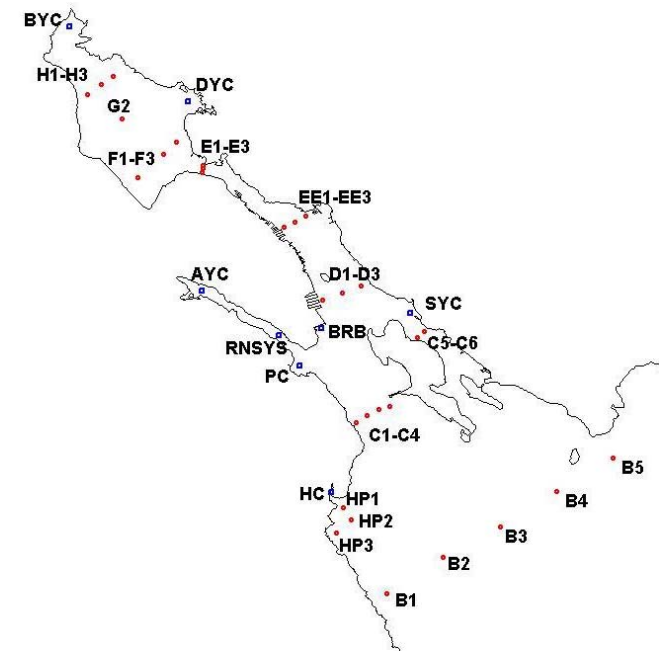
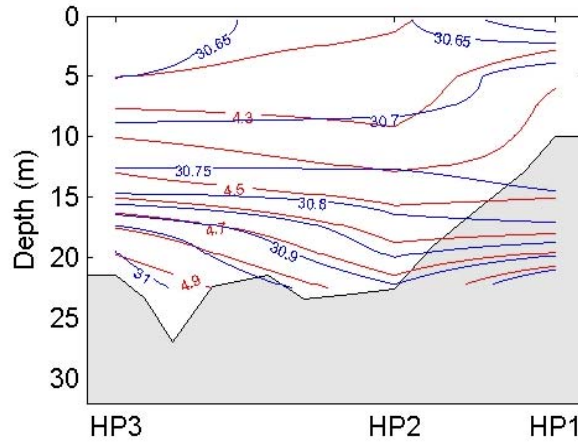
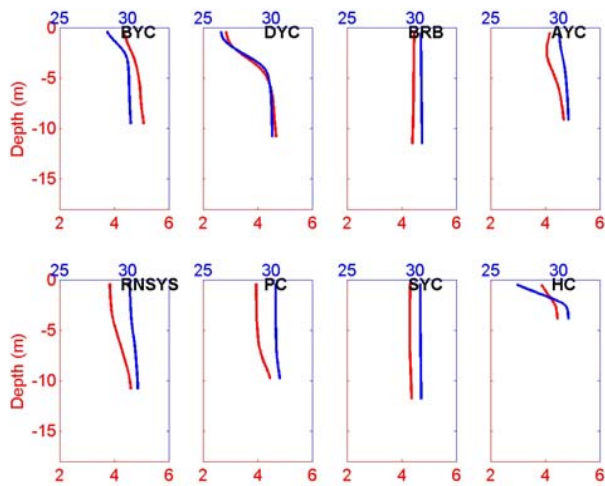
**TSS:** TSS values are generally relatively low (<0.5-3.6 mg/L). The highest values (> 3.0 mg/L) are in the Narrows and southern Basin.

**Dissolved Oxygen:** The data indicate that the dissolved oxygen (DO) in the deepest Basin bottom water has continued to drop from about 3.0 mg/L two weeks ago, to just greater than 2.0 mg/L, with levels below 4.0 mg/L everywhere deeper than 33 m. The surface water DO has increased since the previous survey, likely in part due to the strong winds (mean > 50 km/hr) the day before the survey. The measured DO is now > 7.0 mg/L in the top 12 m of the Basin. This level meets the class SB guideline, though as usual the guideline is not met in the deeper water. From the Narrows to the Outer Harbour, the DO is between 7.0 and 8.0 mg/L and is quite vertically uniform. This meets the class SB and Class SC guidelines, but does not meet the class SA guideline applicable to the Outer Harbour (B2). The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).

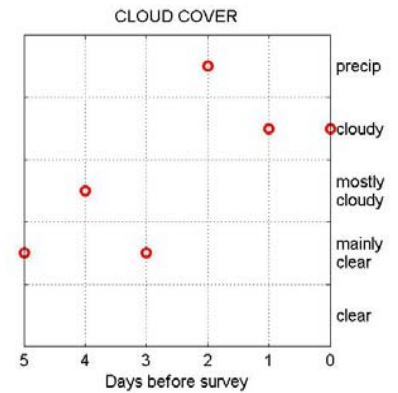
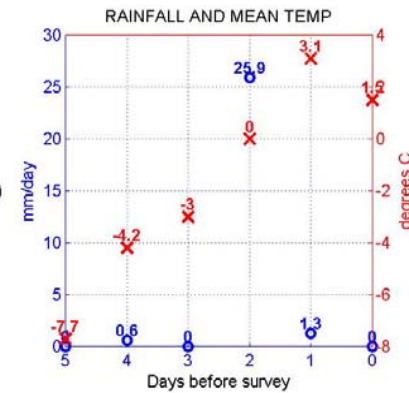
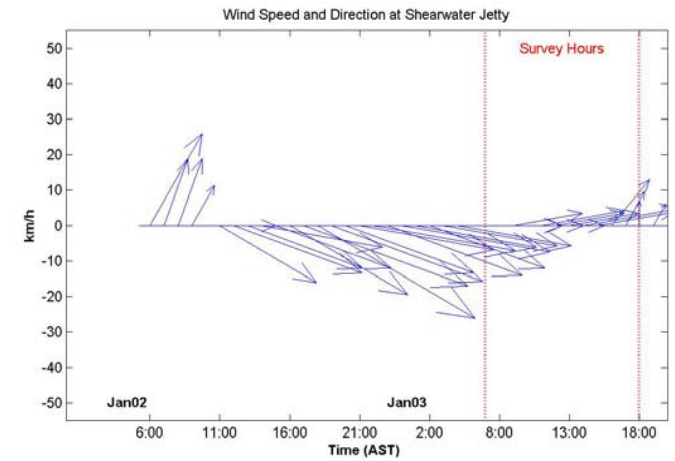
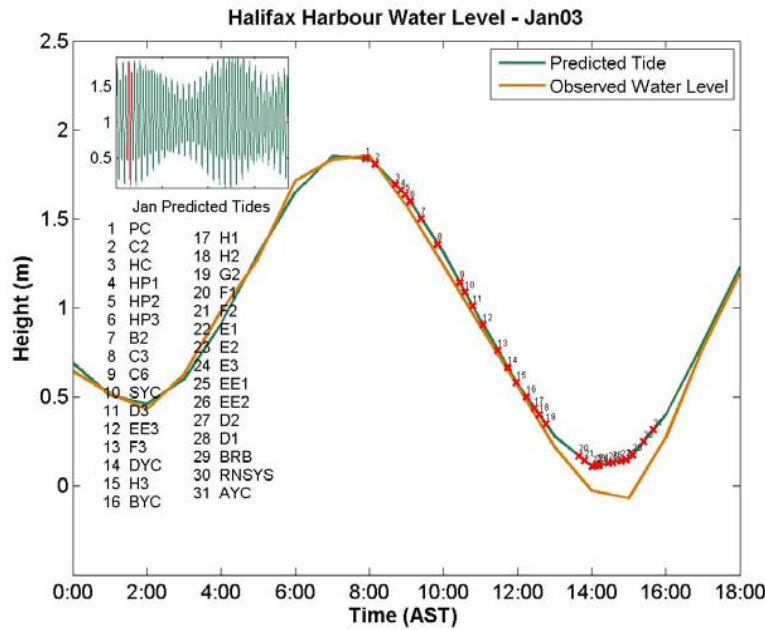
**CBOD:** The two samples at F2 showed non-detectable CBOD.



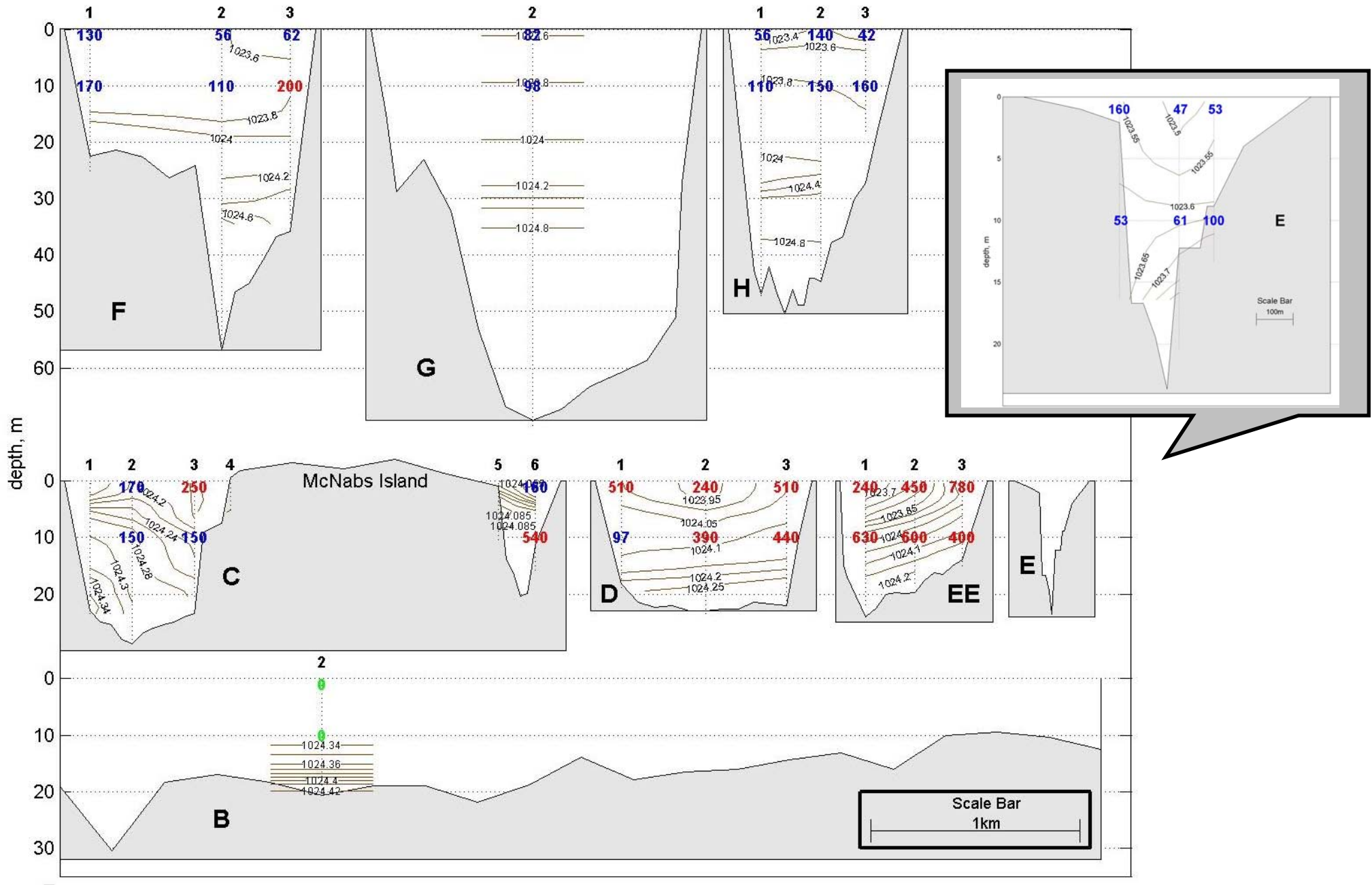
# Yacht Clubs



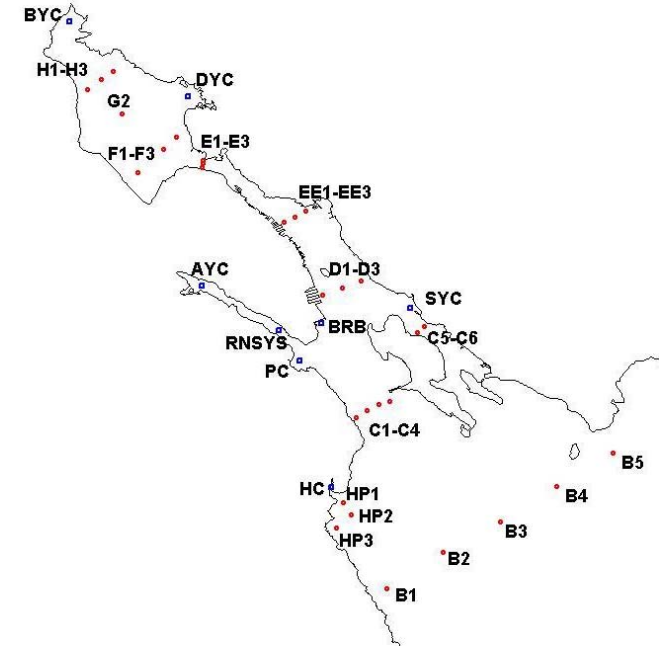
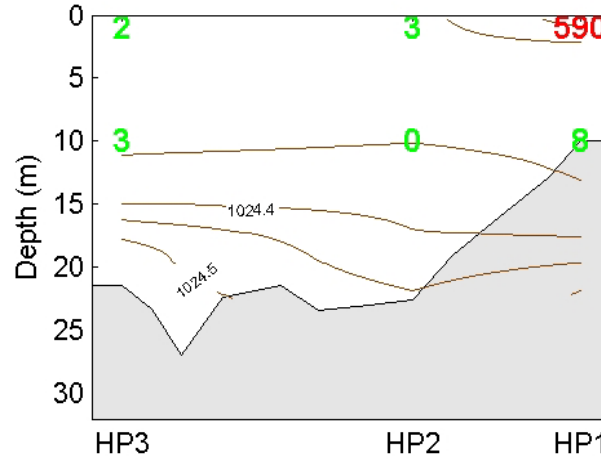
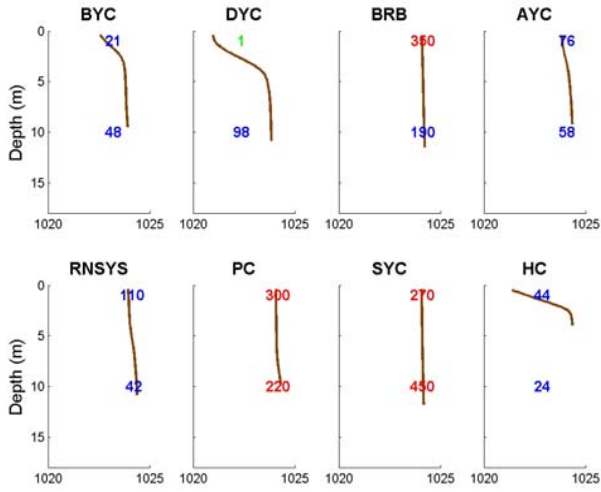
Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport



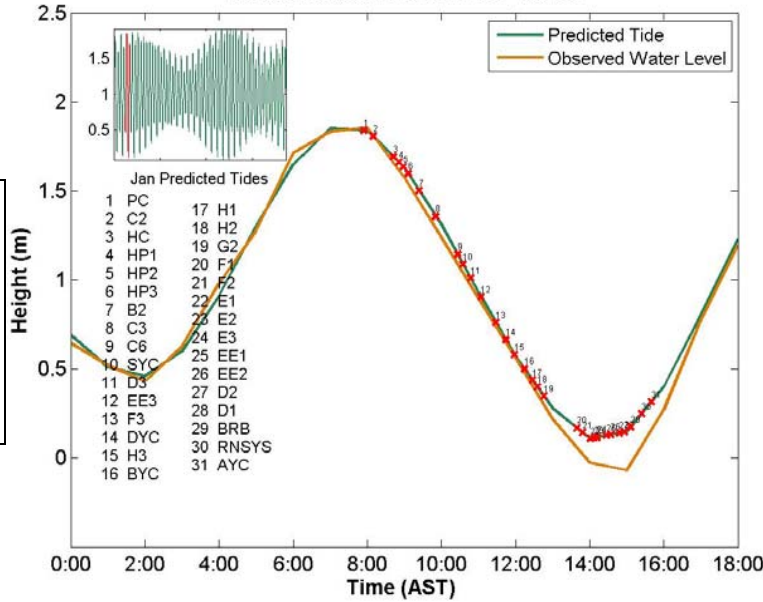
Salinity in PSU      Temperature in °C



# Yacht Clubs



Halifax Harbour Water Level - Jan03

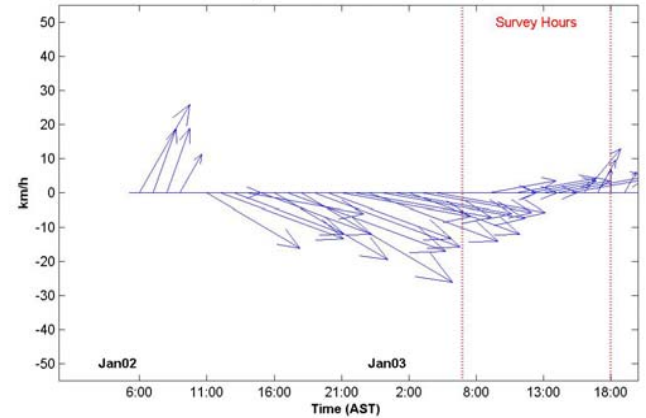


Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport

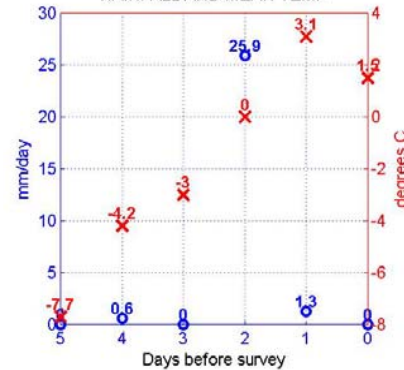
Potential Density in kg/m<sup>3</sup>

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

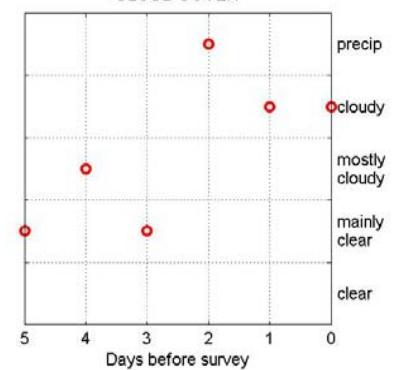
Wind Speed and Direction at Shearwater Jetty

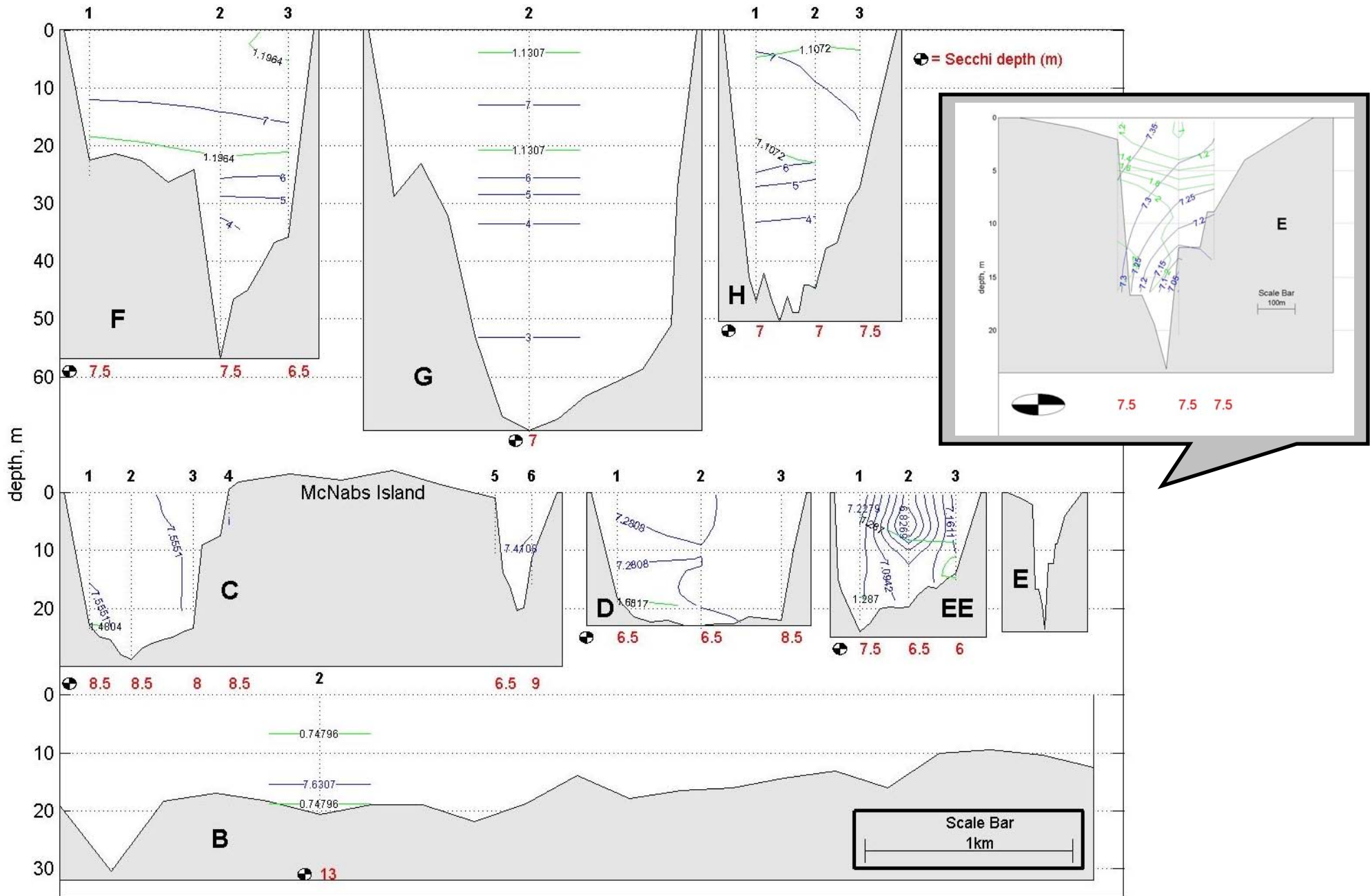


RAINFALL AND MEAN TEMP

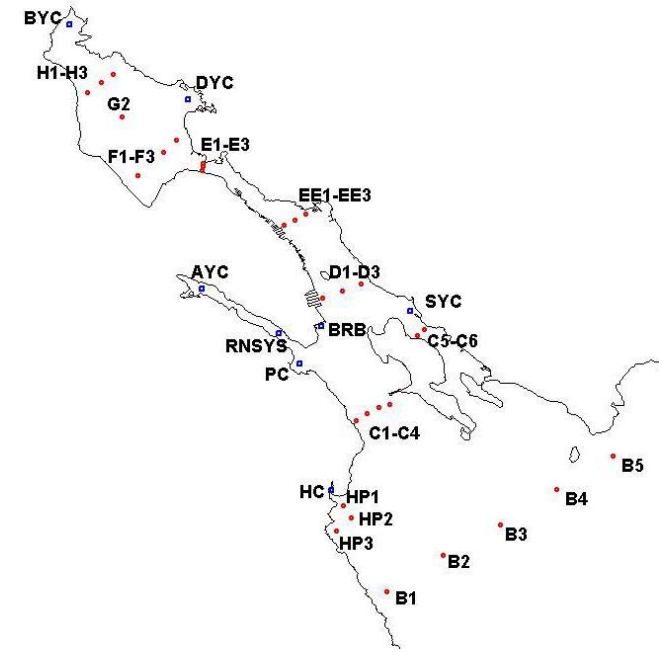
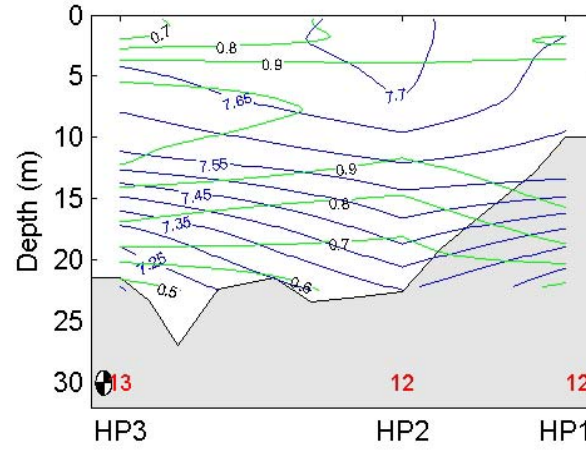
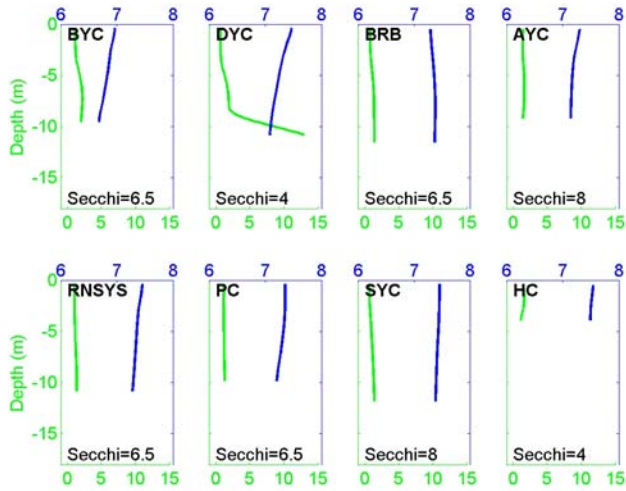


CLOUD COVER

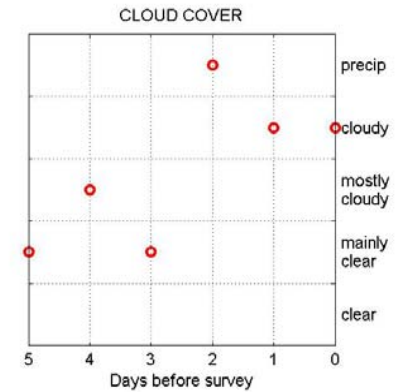
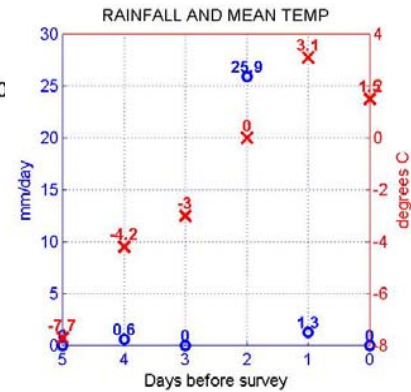
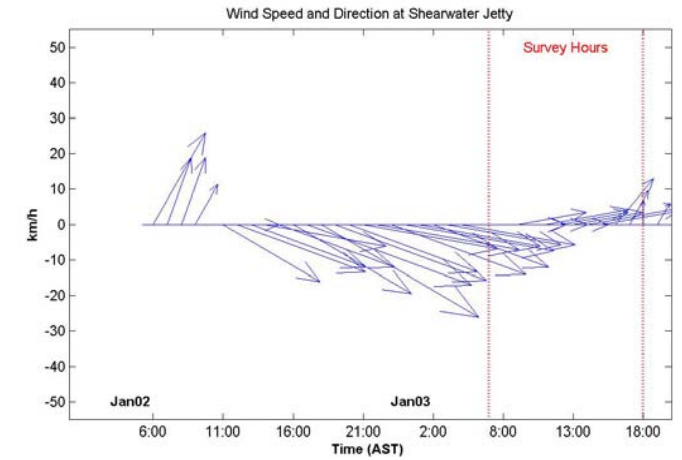
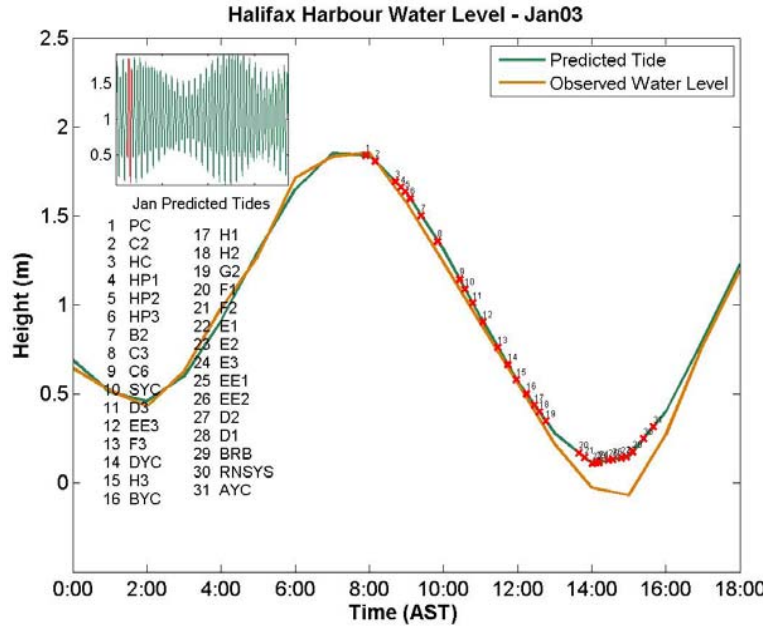




# Yacht Clubs



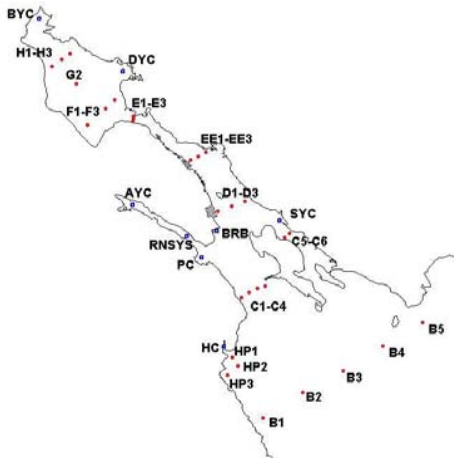
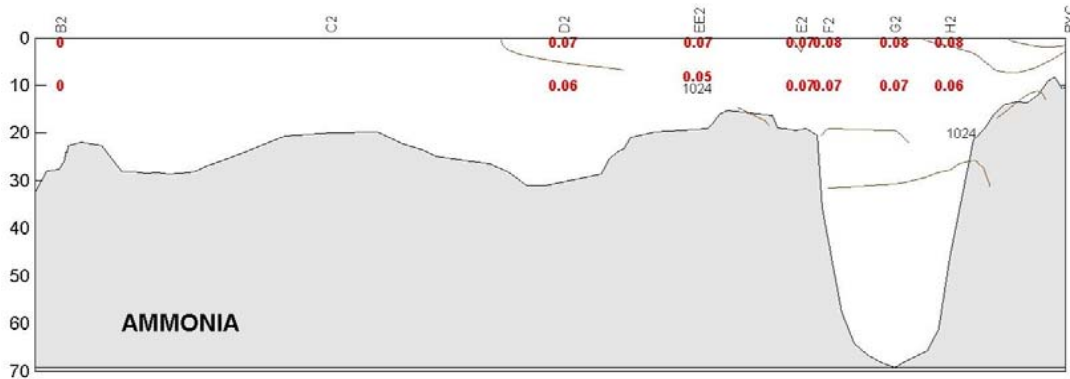
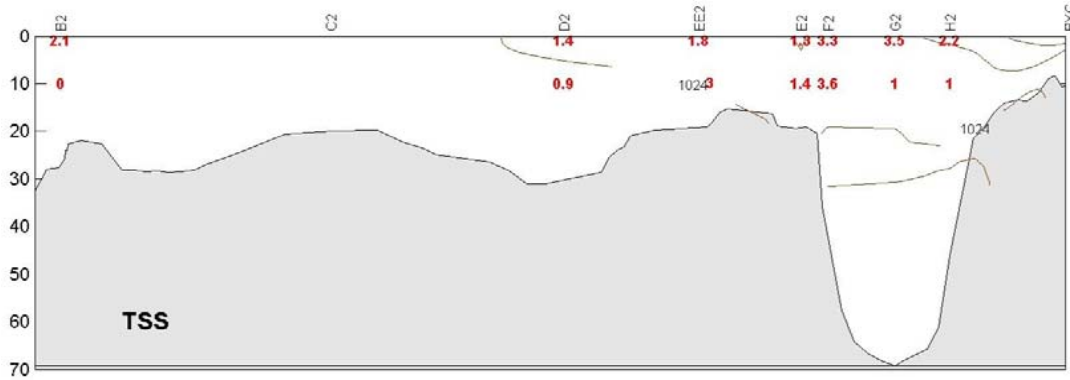
Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport



DO in mg/L

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

**CHEMISTRY**



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

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

Ammonia in  $\text{mg/L}$

TSS in  $\text{mg/L}$

**Halifax Harbour Water Level - Jan03**

