

# Halifax Harbour Water Quality Monitoring Project

## Survey Summary #159

**Survey Date:** 02 July 2008  
**Nature of Survey:** Complete Survey  
**Report File (this document):** HHWQMP\_report159\_080702.doc  
**Data File:** HHWQMP\_data159\_080702.xls

**Data Return:**  
 Chemical: 100%  
 Bacteria: 100%  
 Profile: 99%  
**Overall: 100%**

### Sample Notes:

Dartmouth Cove (DC) was sampled this survey for fecal coliform.

To match the collected reference data the presented DO values should be scaled by a factor of 1.37 (see comparison in data file).

A supplementary CTD cast was taken at the LOBO buoy location (44.6291° N, 63.5915° W) at 15:21 local time.

All DO records have been plotted here but the DO record for site C4 has been deleted from the data file due to poor record quality.

### QA/QC samples:

#### Chemical Analysis

Detectable Parameter	Units	E2 - 1m	
		Reference Sample	QA/QC
Ammonia (as N)	mg/L	0.05	<0.05
Total Suspended Solids	mg/L	3.1	1.8
Copper	ug/L	0.7	0.6
Iron	ug/L	13	9
Manganese	ug/L	2	1
Zinc	ug/L	4	3

### Fecal Coliform (CFU/100ml)

Site	C2-10m	EE3-1m	BRB-10m	E2-1m
Reference	0	70	1	39
QA/QC	2	92	2	34

### Comments:

**General:** There has been slight rainfall in the five days preceding the survey. There is some freshwater signal in the Basin but overall the salinity in the Harbour is quite uniform. The surface water has warmed significantly (approximately 4°C) increasing density stratification somewhat but the Harbour stratification remains relatively moderate. In the Basin, the water below 30 m is quite uniform in hydrographic properties. The Halifax STP is fully operational. The UV disinfection system came on line full time on 1 April. Fecal coliform levels are very low, with no values above the swimming guideline (200 cfu/100 mL) in any of the regular samples. The extra samples in Dartmouth Cove have counts of >10,000 cfu/100 mL (DC-1 m) and 1300 cfu/100 mL (DC-10 m), due to temporary construction bypasses into the Cove.

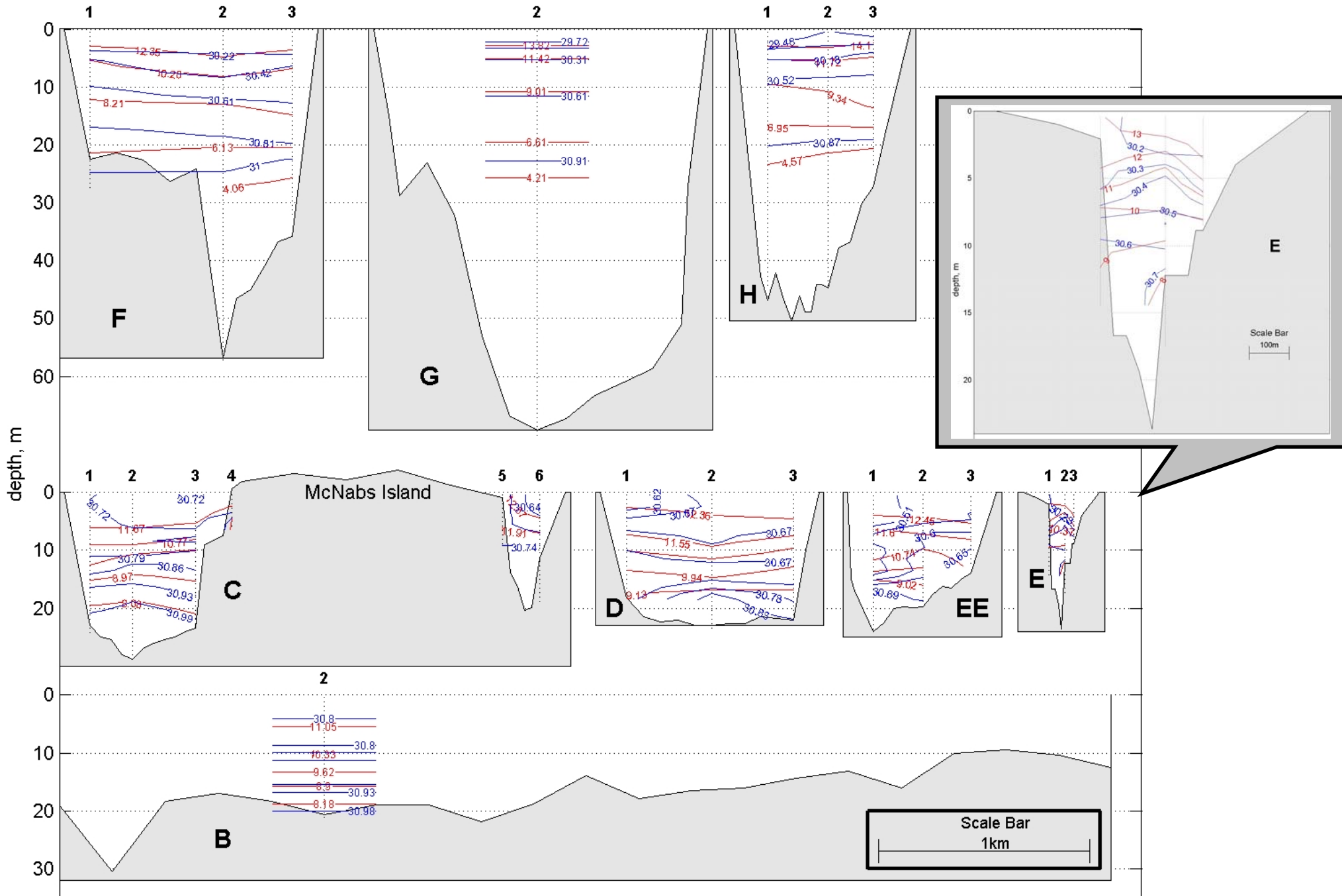
**Fluorescence:** The fluorescence levels are moderate and quite uniform. In the Inner Harbour and Basin the profile maximums are 15 - 20 mg/m<sup>3</sup> at a depth of 10 - 12 m. In the Outer Harbour the profile maximums drop below 5 mg/m<sup>3</sup>.

**TSS:** The TSS levels are low with an average value of 2.8 mg/L and a max value of only 4.0 mg/L.

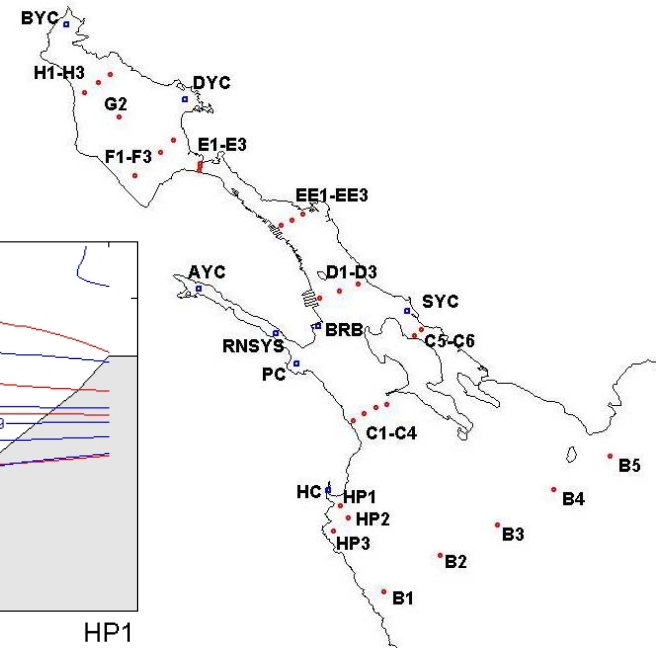
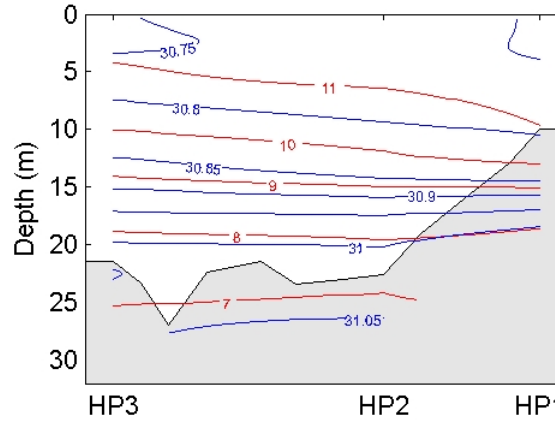
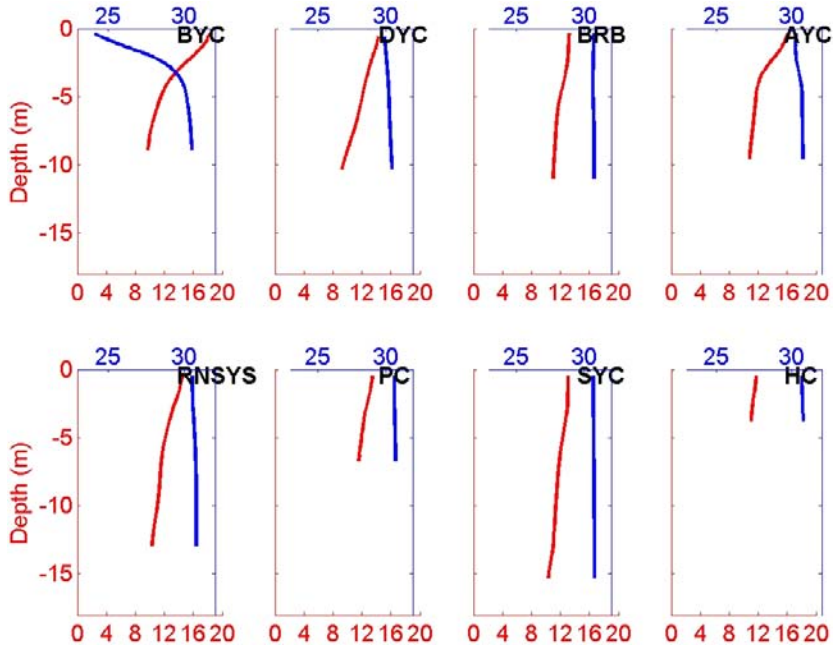
**Ammonia:** The ammonia concentrations are low with 8 of 14 samples below the 0.05 mg/L detection limit. The remainder of the samples are at, or just above, the detection limit except for a single value of 0.10 mg/L at H2-1 m.

**Metals:** There are no guideline exceedences. The closest values to exceedence were copper (E2-1 m and G2-1 m) with levels about 40% of the applicable guideline.

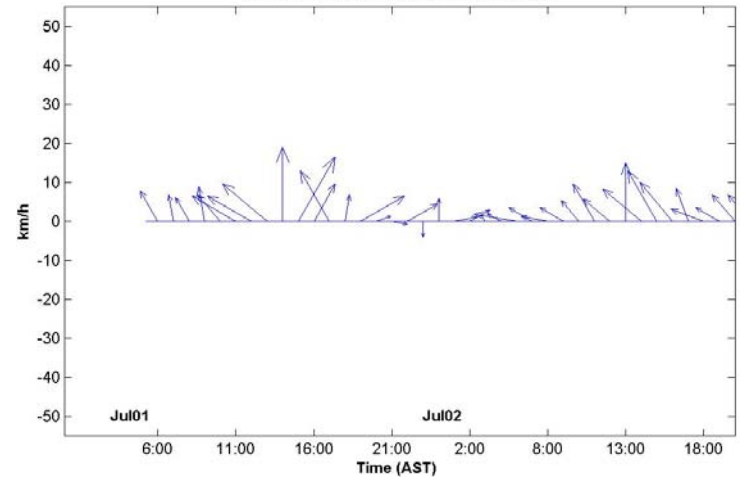
**Dissolved Oxygen:** The DO data, scaled by a factor of 1.37, indicates surface levels of about 9.5 mg/L everywhere and no values below 8 mg/L except in the deep Basin. The DO in the Basin bottom water continues to drop and is now just under the 7.0 mg/L guideline. There are no other guideline exceedences.



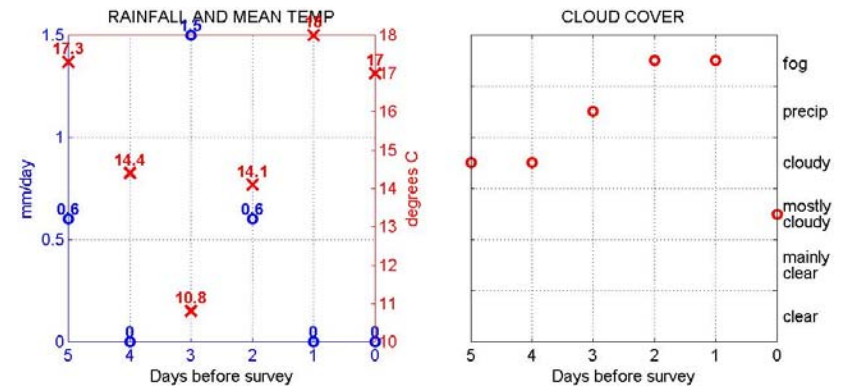
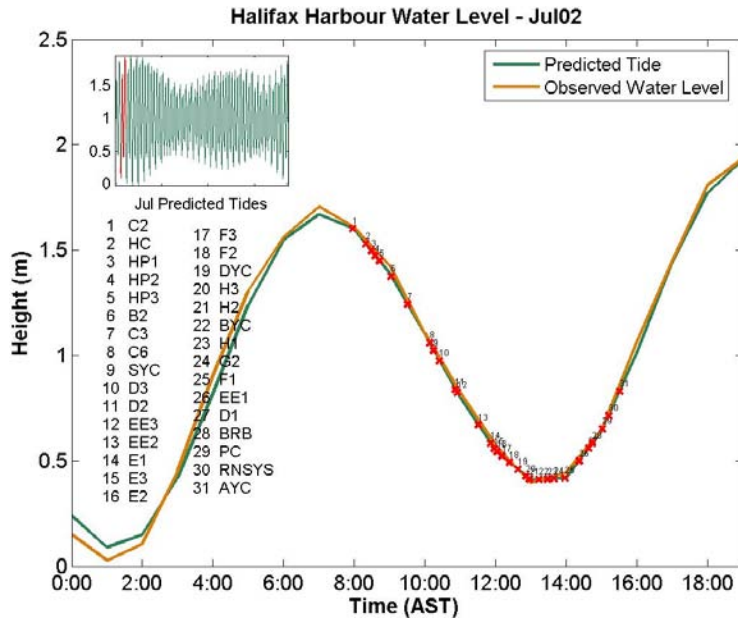
# Yacht Clubs



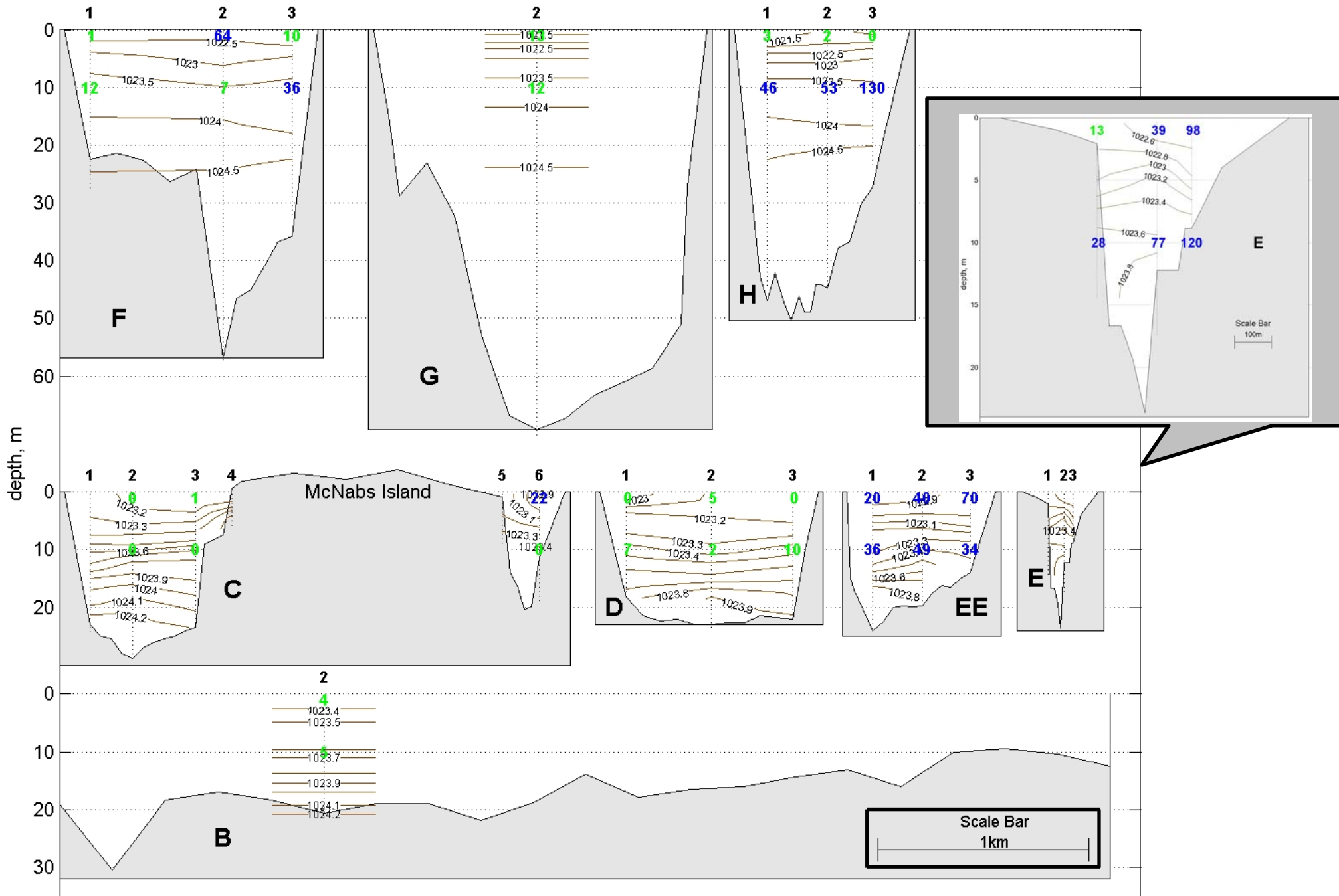
Wind Speed and Direction at Shearwater Jetty



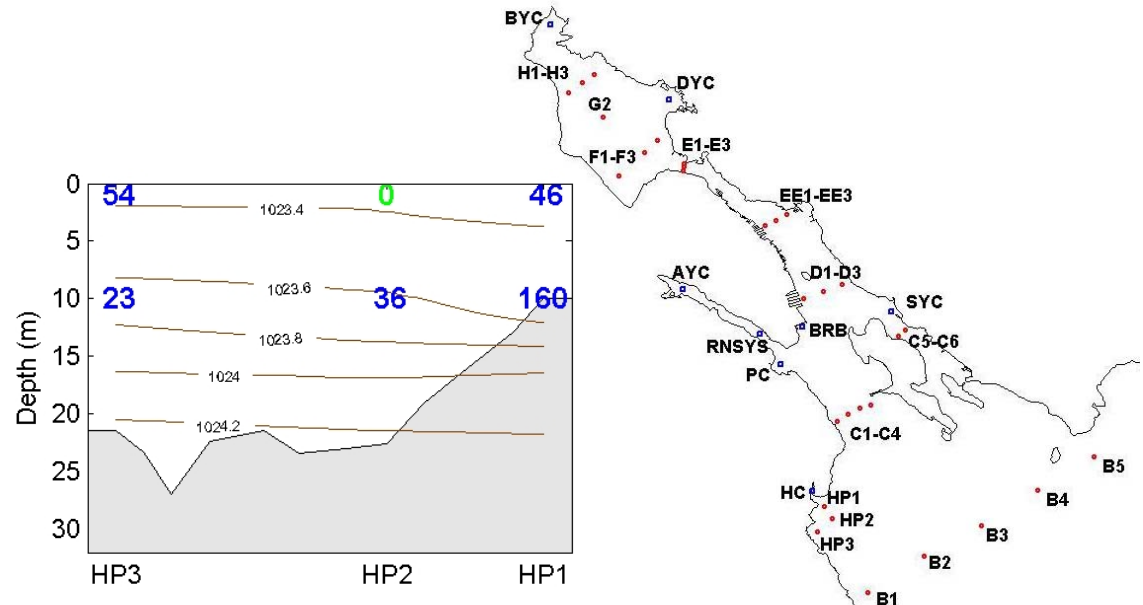
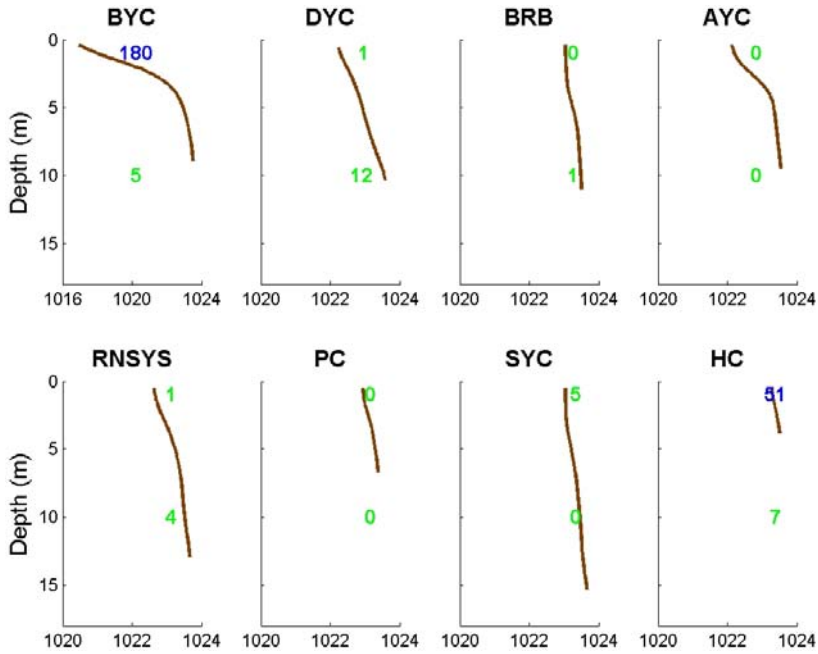
Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport



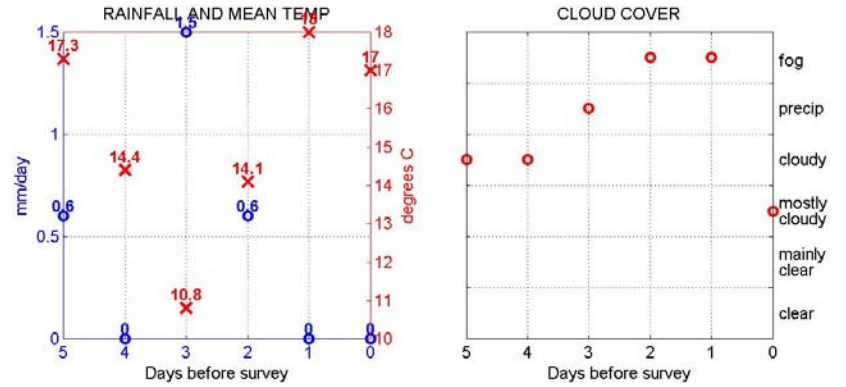
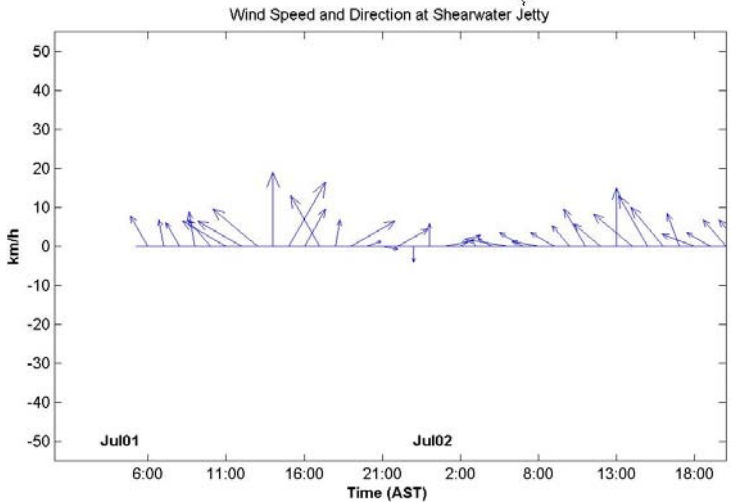
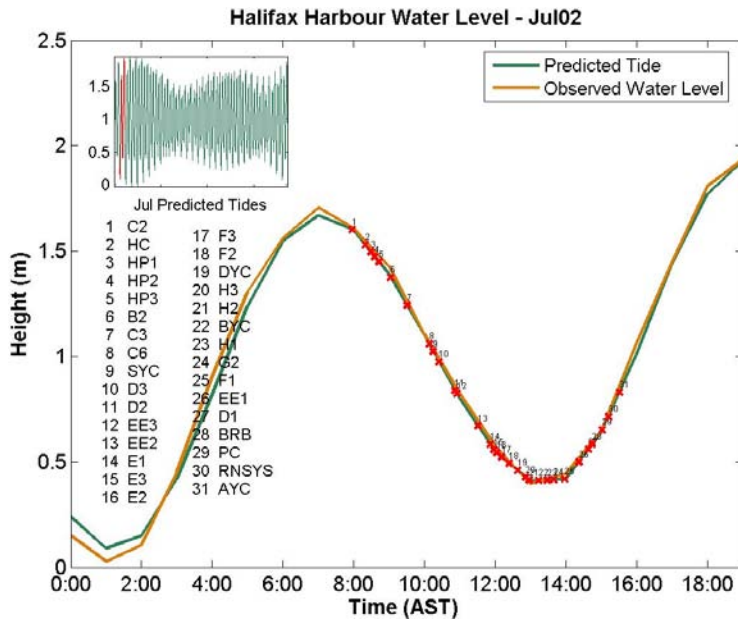
Salinity in PSU      Temperature in °C



# Yacht Clubs

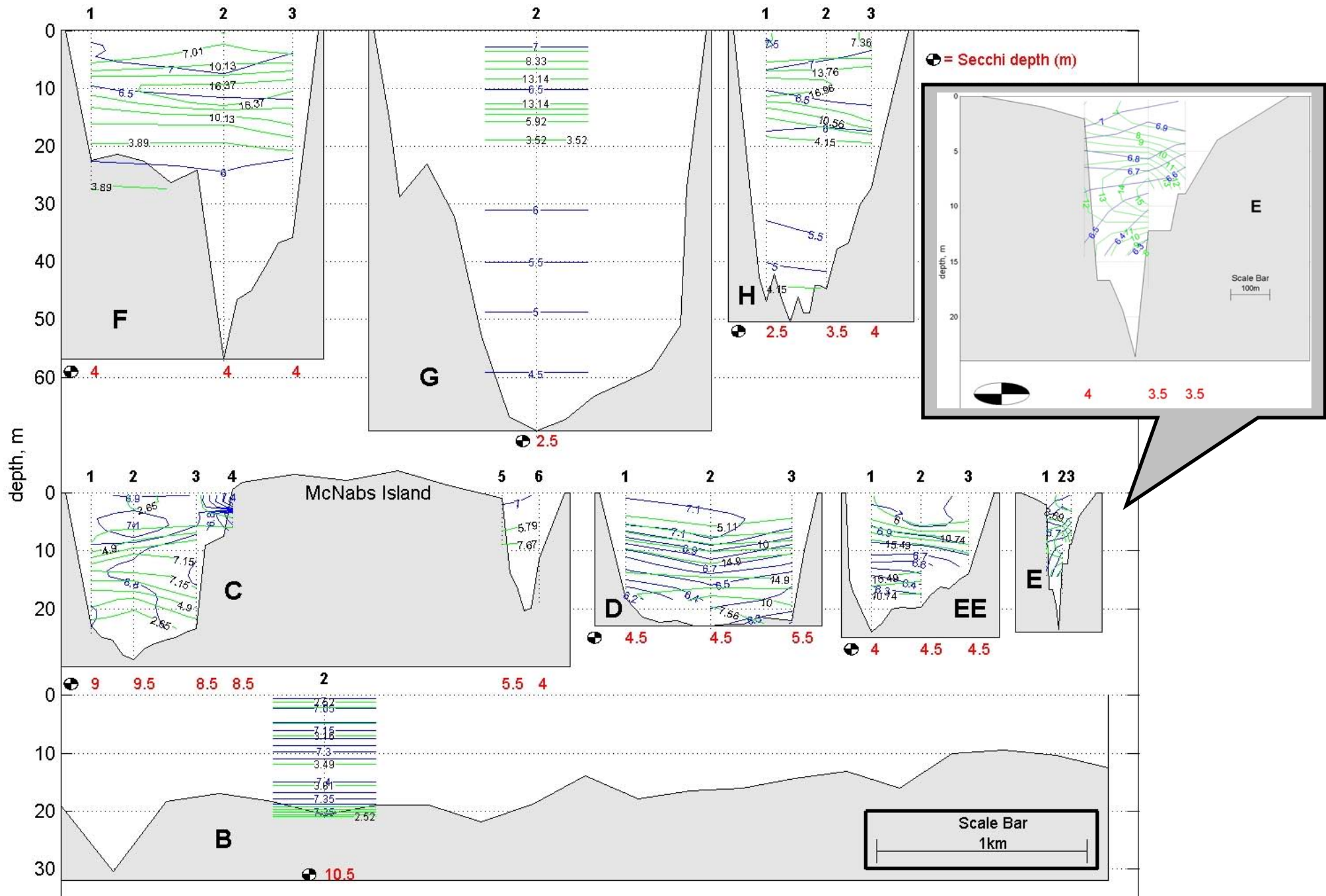


Rainfall and temperature data collected at Shearwater Autoport.  
 Cloud cover data collected at Shearwater Airport

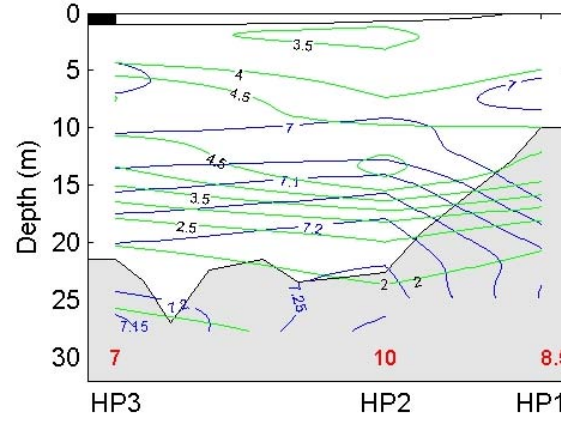
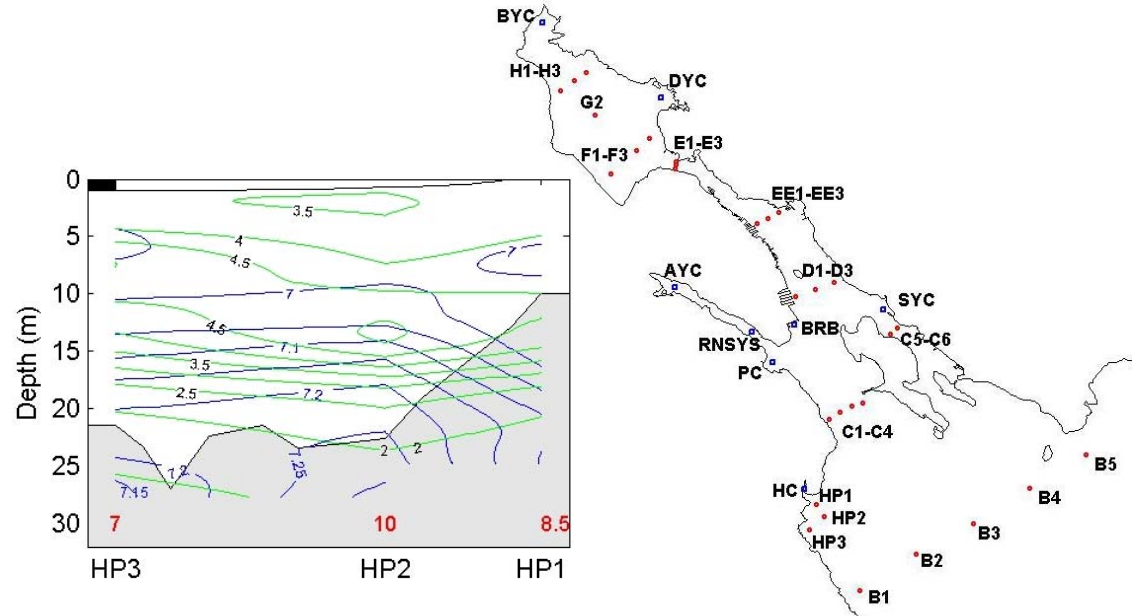
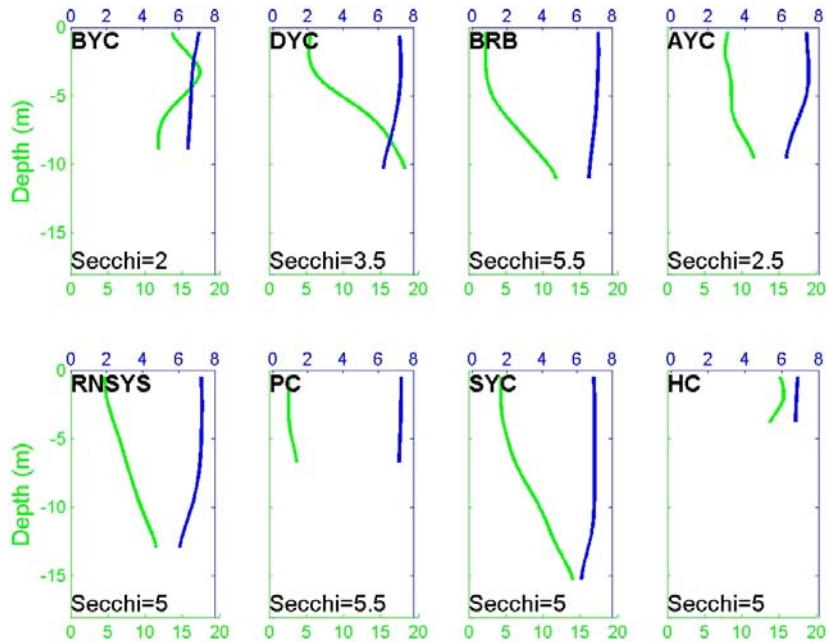


Potential Density in kg/m<sup>3</sup>

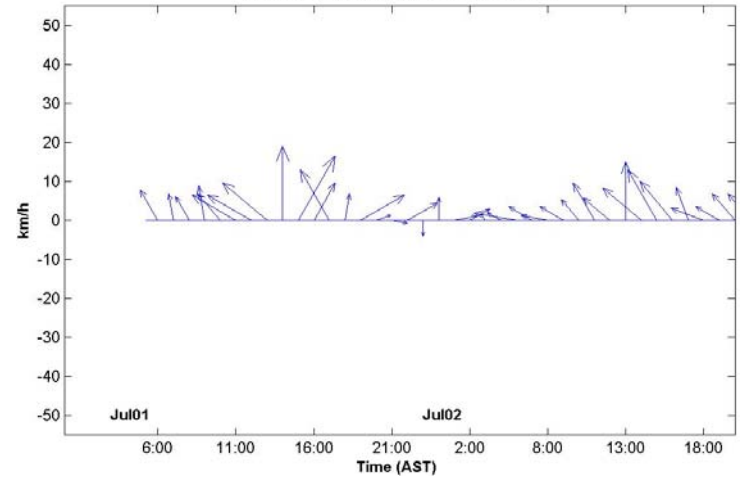
Fecal coliform: **above swimming limit (200 cfu/100mL)**  
**above shellfish limit (14 cfu/100mL)**  
 below limits



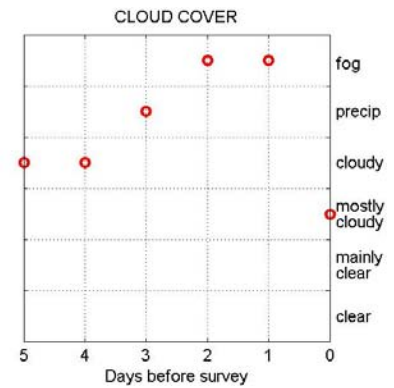
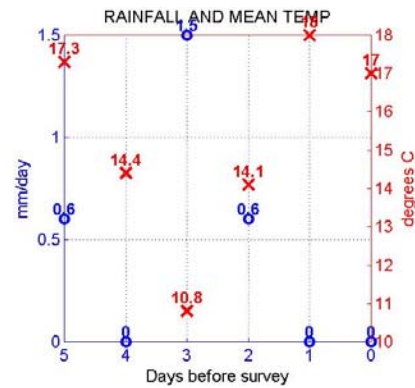
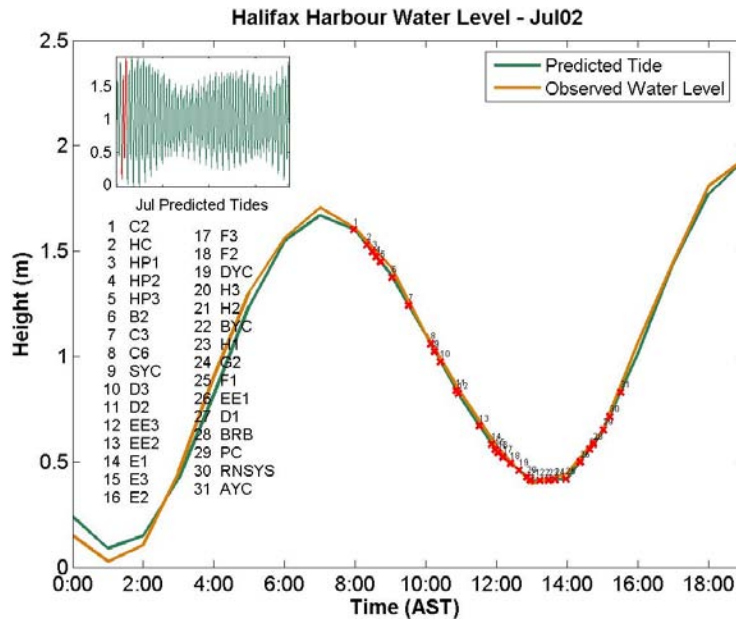
# Yacht Clubs



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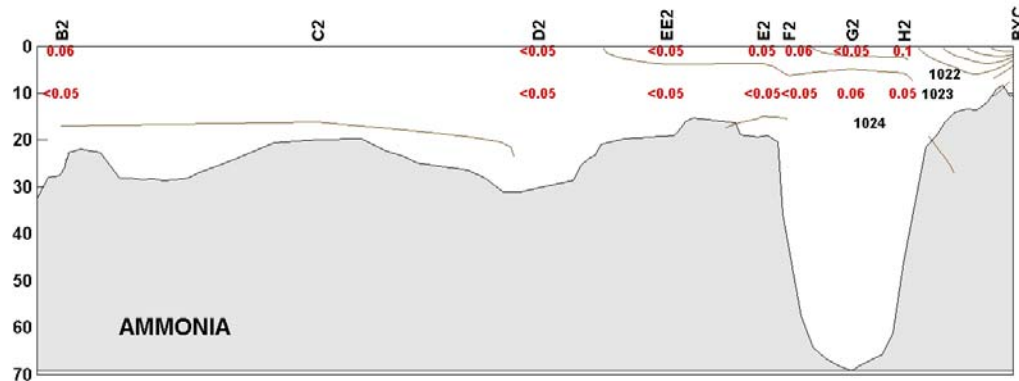
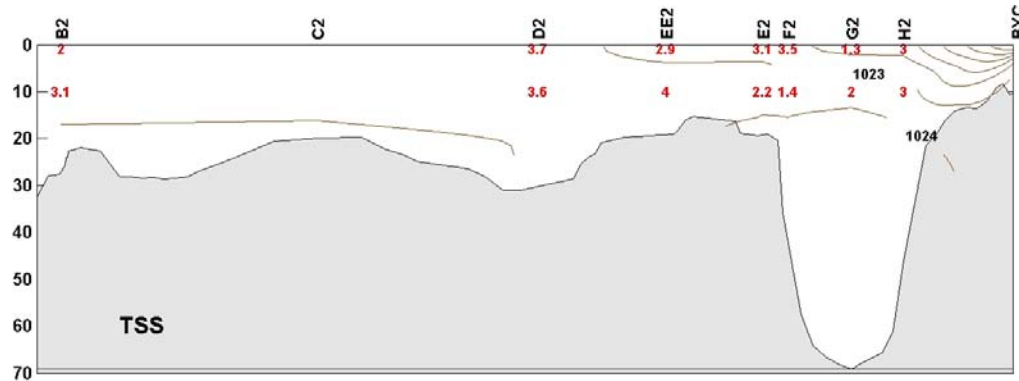
Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport



DO in mg/L

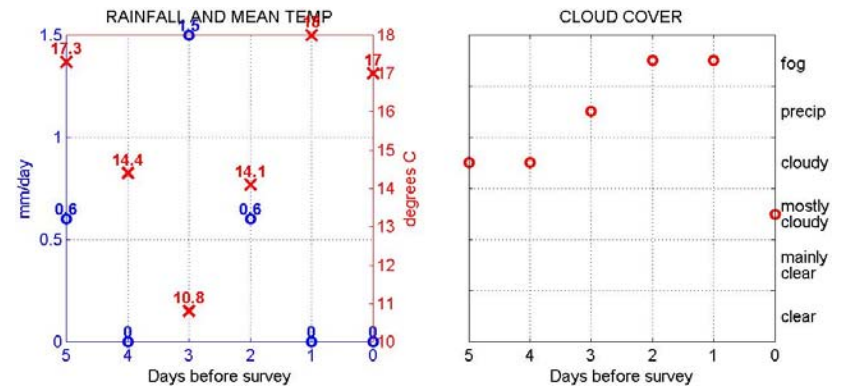
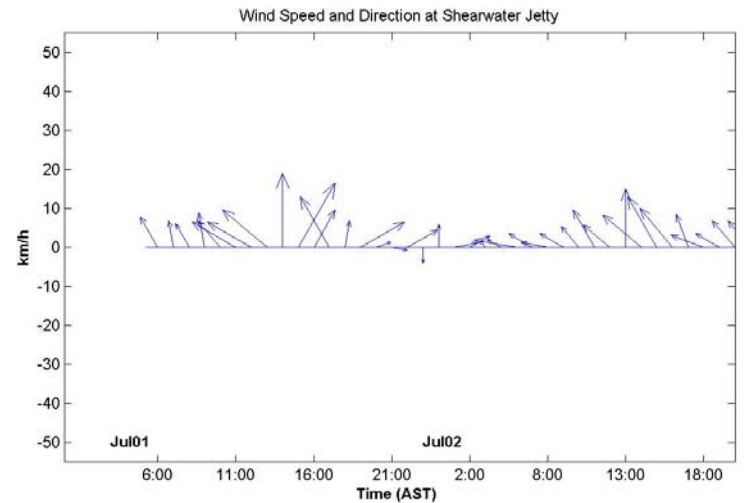
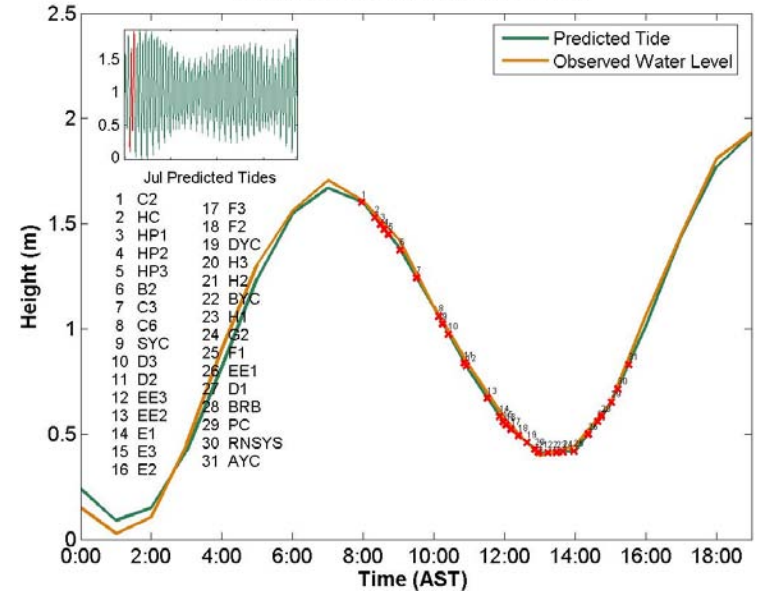
Chlorophyll in mg/m<sup>3</sup>

CHEMISTRY



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

Halifax Harbour Water Level - Jul02

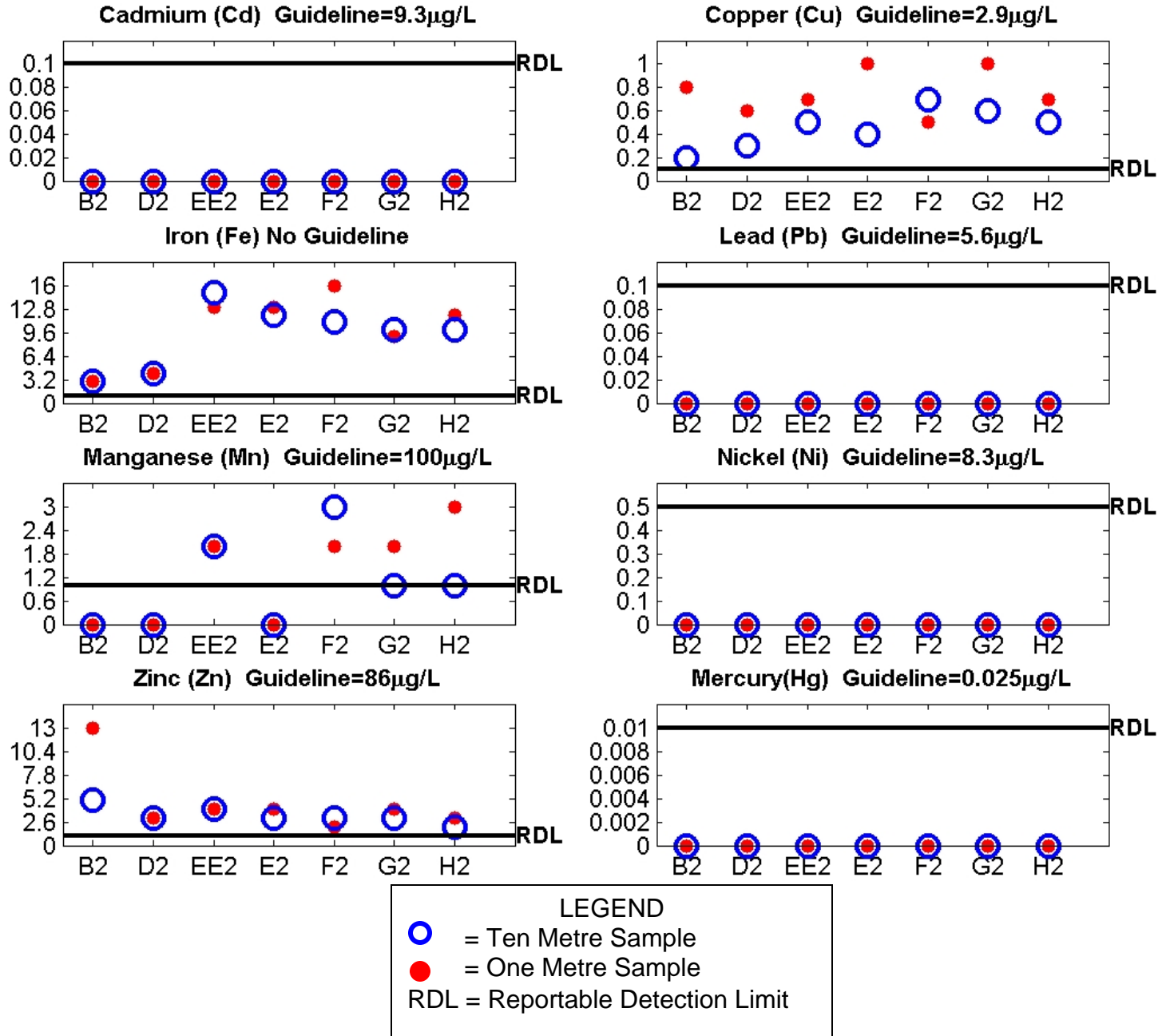


Potential Density in  $\text{kg/m}^3$

Ammonia in mg/L

TSS in mg/L

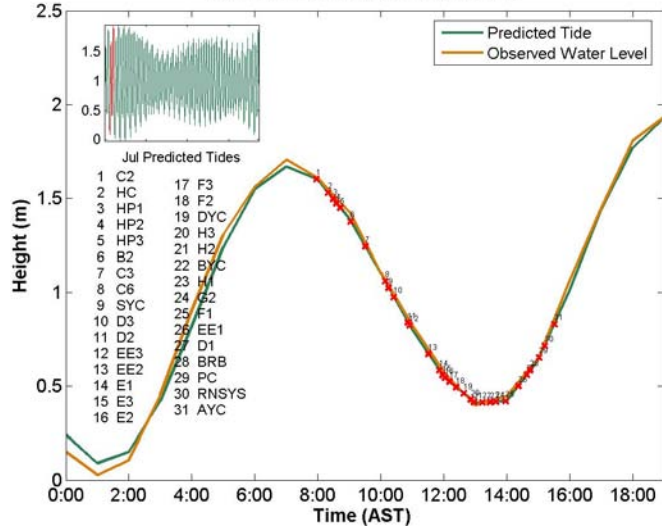




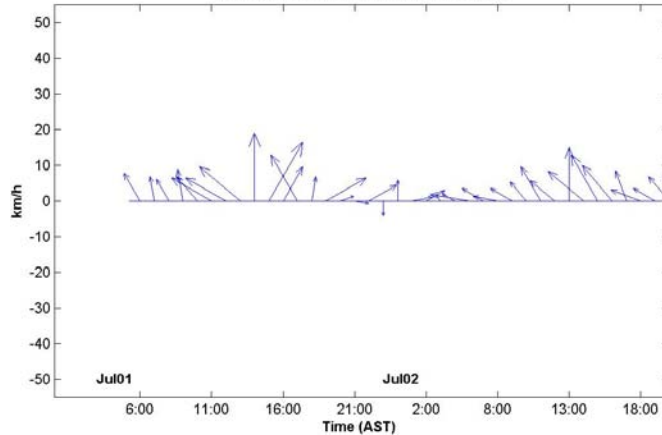
# HRM Water Quality Monitoring

## Fecal Coliform Summary – July 2, 2008

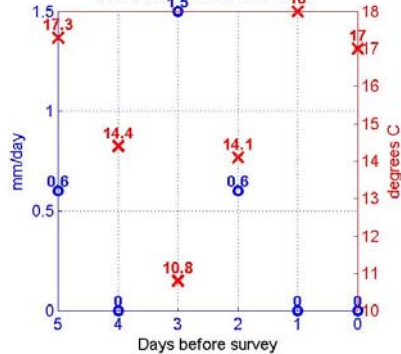
Halifax Harbour Water Level - Jul02



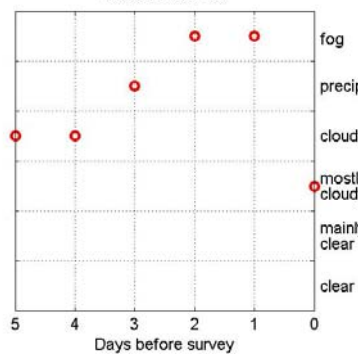
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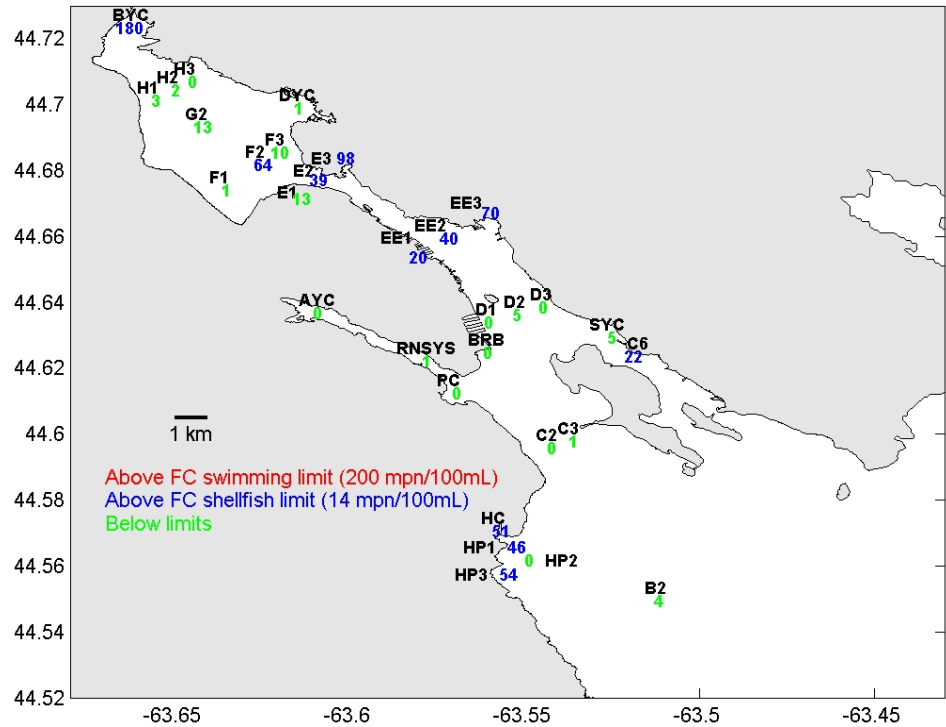
RAINFALL AND MEAN TEMP



CLOUD COVER



Fecal Coliform 1 m: July 2, 2008



Fecal Coliform 10 m

