

# Halifax Harbour Water Quality Monitoring Project Survey Summary #166

**Survey Date:** 07 October 2008  
**Nature of Survey:** Complete Survey  
**Report File (this document):** HHWQMP\_report166\_081007.doc  
**Data File:** HHWQMP\_data166\_081007.xls

**Data Return:**

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

**Sample Notes:**

A supplementary CTD cast was taken at the LOBO buoy location (44.6291 N, 63.5915 W) at 0735 local time. However the LOBO buoy is out of service.

The CTD DO profiles had small spikes at stations B2 and E1. The spikes have been edited out.

To match the collected reference data the presented DO values should be scaled by a factor of 1.3 (see comparison in data file).

**QA/QC samples:**

Chemical Analysis		H2 – 10m	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L	0.08	0.08
Total Suspended Solids	mg/L	1	1
Copper	ug/L	0.4	0.4
Iron	ug/L	11	16
Manganese	ug/L	<1	1
Zinc	ug/L	2	2

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

Site	C2-10m	F3-1m	F1-1m	H2-10m
Reference	ND	ND	2	1
QA/QC	100	1	1	1

**Comments:**

**General:** There appears to be an ongoing intrusion of cold salty and not particularly well oxygenated (ca 75% saturated) bottom water into the Harbour. The bottom water throughout the Harbour is denser than the Basin bottom water and it appears to be displacing this water. The intruding water is higher in oxygen content than the Basin bottom water and the dissolved oxygen at the bottom of the Basin has increased. The fecal coliform concentrations are low with no values in the Inner Harbour exceeding the swimming guideline. There is one exceedence of the swimming guideline in the 1 m sample at HP2, in the vicinity of the Tribune Head outfall.

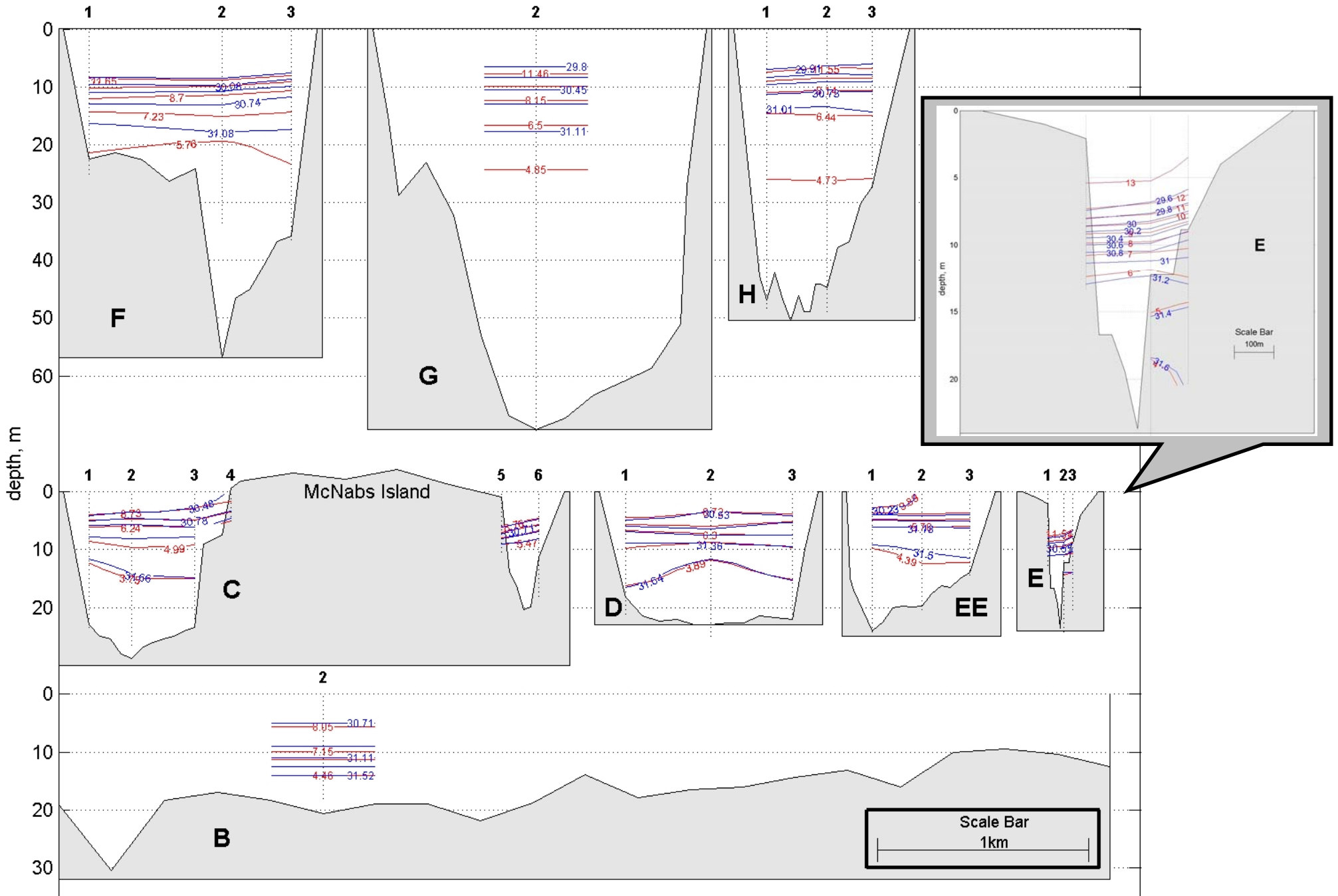
**Fluorescence:** The fluorescence levels remain slightly elevated throughout the Harbour. The profile maximums are all less than 20 mg/m<sup>3</sup> in the Basin, but are slightly lower in section H. South of the Narrows the concentrations are generally less than 10 mg/m<sup>3</sup> and drop, somewhat irregularly going out of the Harbour.

**TSS:** The TSS levels are relatively low with all values less than 6 mg/L (mean 2.9 mg/L). There is no obvious coherent spatial distribution

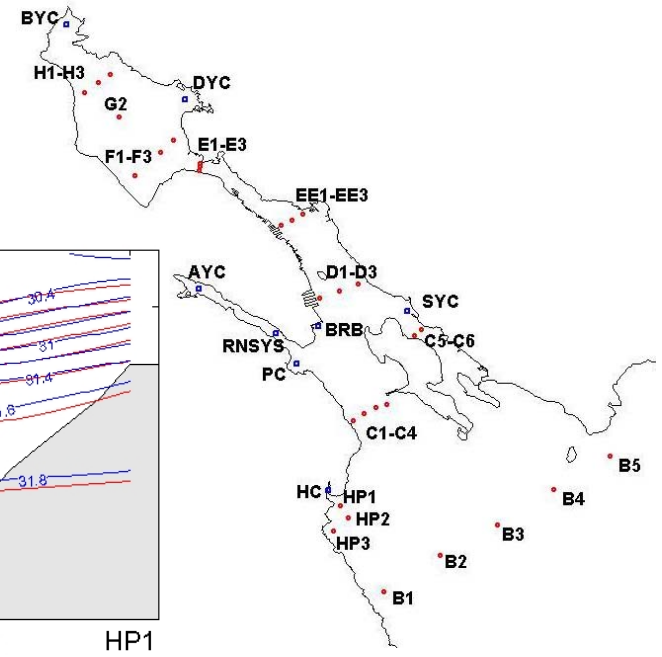
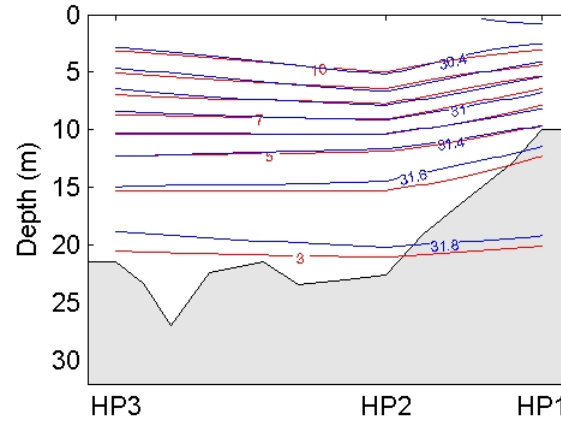
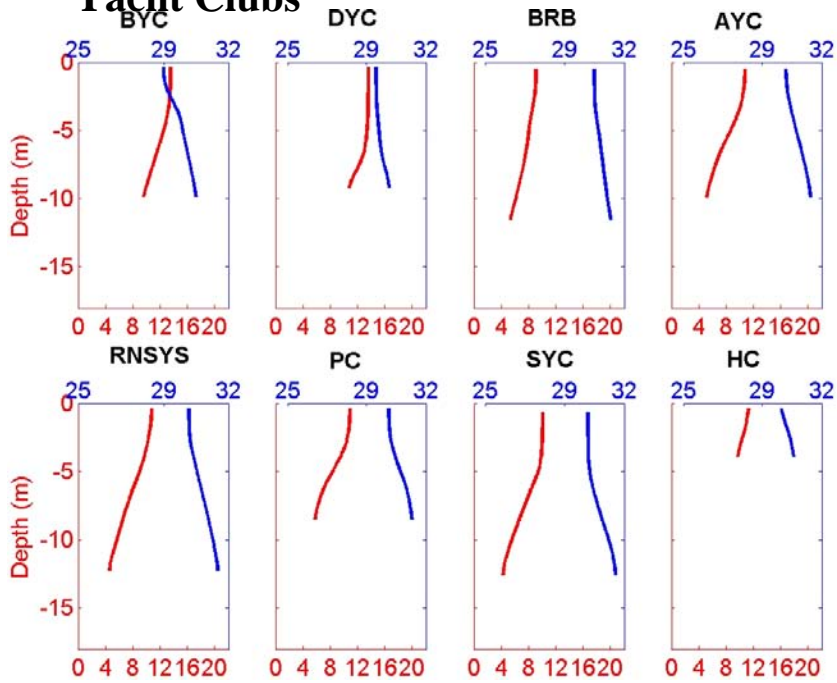
**Ammonia:** The ammonia levels are low, with 9 of 14 samples (%) having concentrations below the 0.05 mg/L detection limit. The maximum value is 0.09 mg/L. There is no obvious coherent spatial distribution.

**Metals:** There are no guideline exceedences. The closest to exceedence is copper with a maximum concentration of about 70% of the guideline in the 10 m samples at site B2.

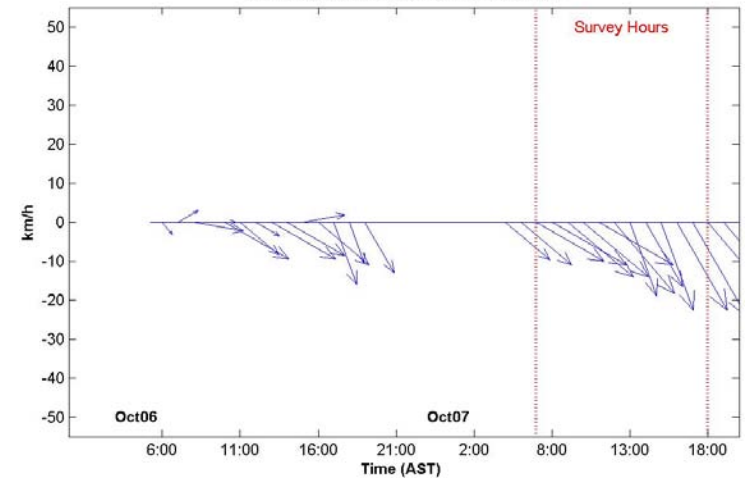
**Dissolved Oxygen:** The dissolved oxygen data, scaled appropriately by a factor of 1.3, indicates that the surface DO in the Harbour is generally very uniform at about 8-9 mg/L. The exception is in the Northern Basin (H section) where it appears that the oxygen poor bottom water is upwelling due to the intrusion. Unusually the lowest DO in the Harbour is at the bottom of the H section. At G2 there is a DO minimum at about 45 m and the deepest water has increased to greater than 6.0 mg/L. The only guideline exceedence is in the deeper water of the Basin.



# Yacht Clubs

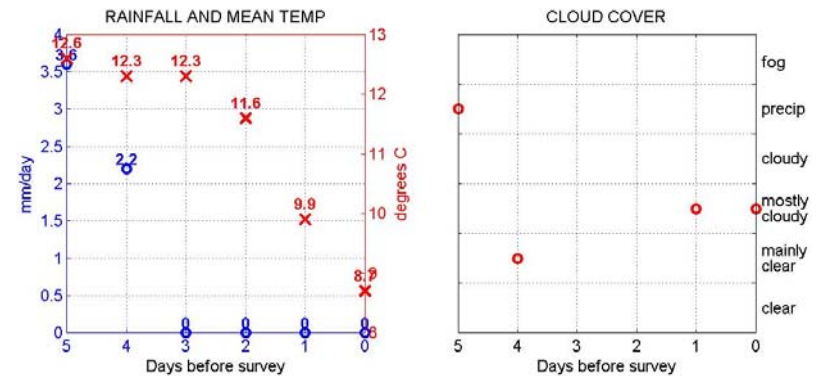
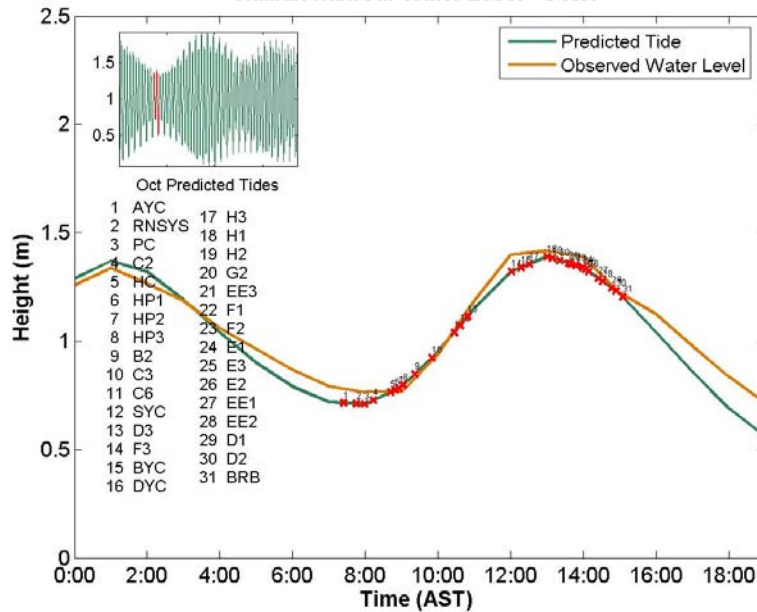


Wind Speed and Direction at Shearwater Jetty

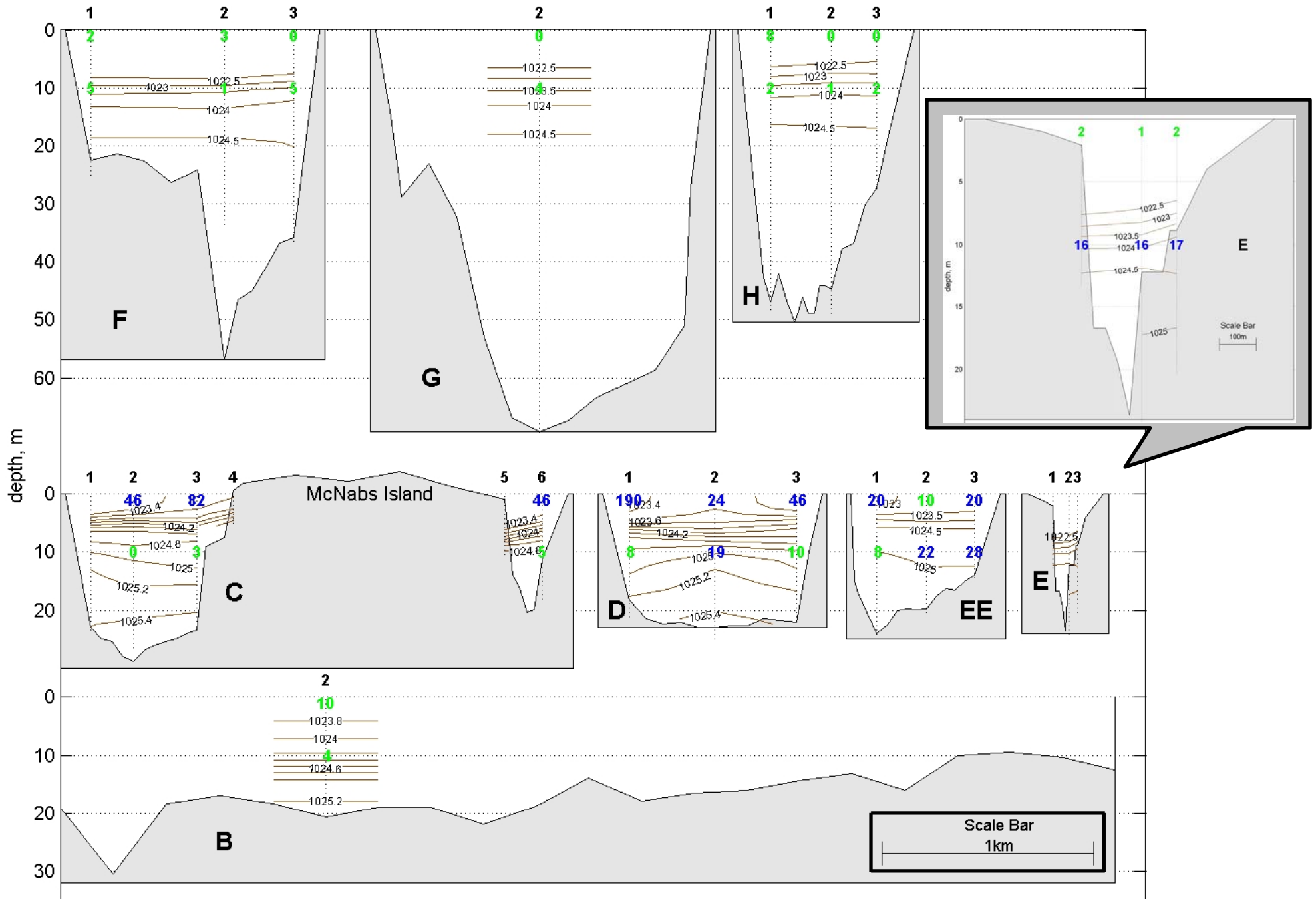


Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport

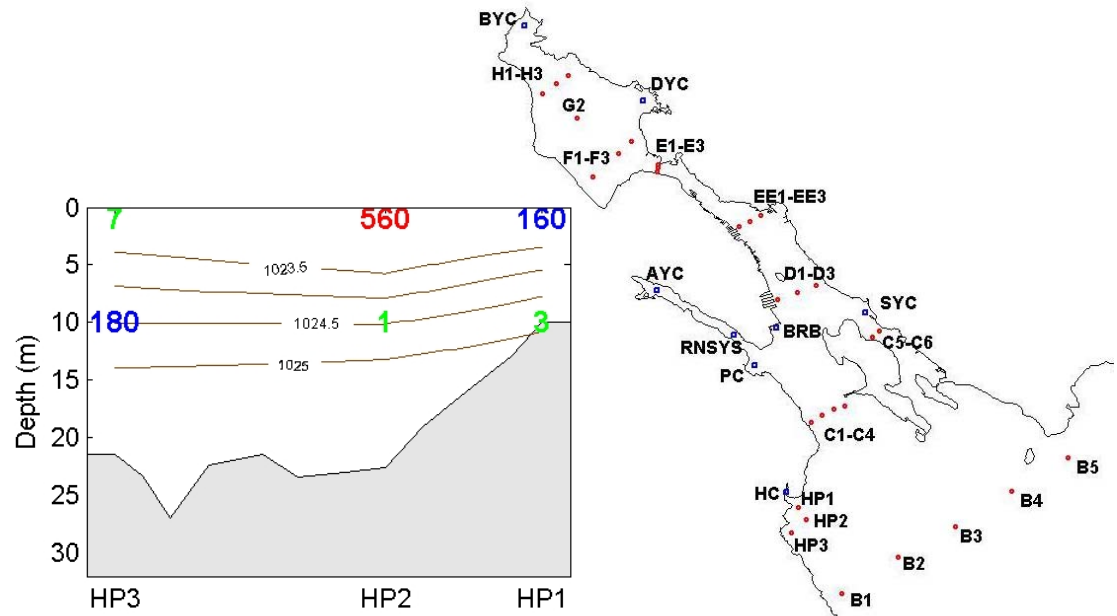
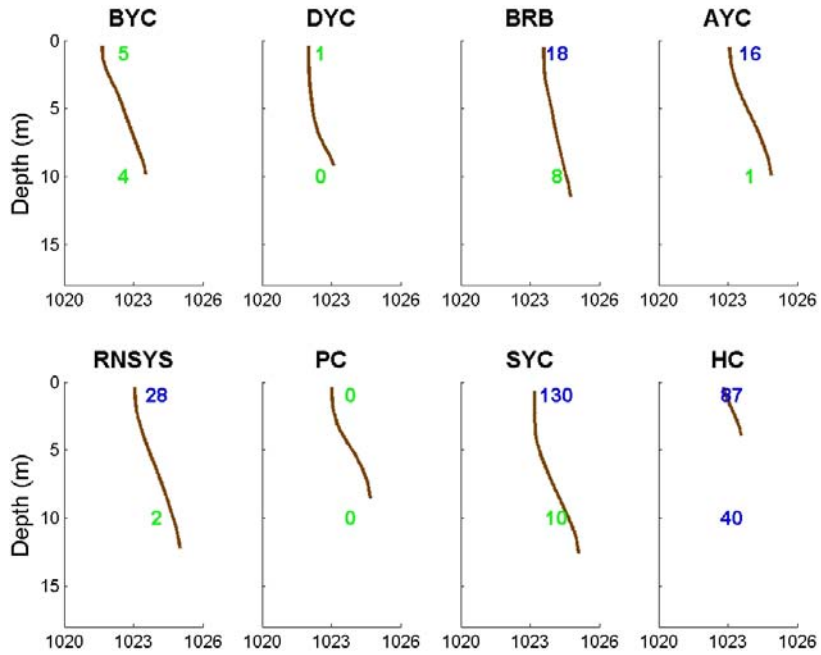
Halifax Harbour Water Level - Oct07



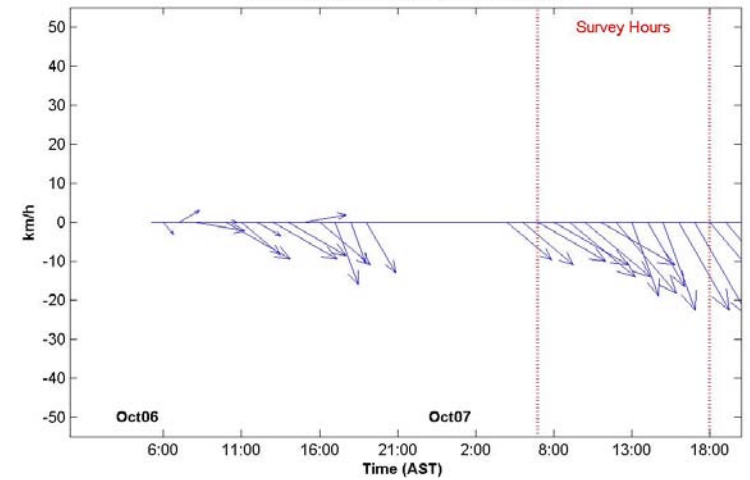
Salinity in PSU      Temperature in °C



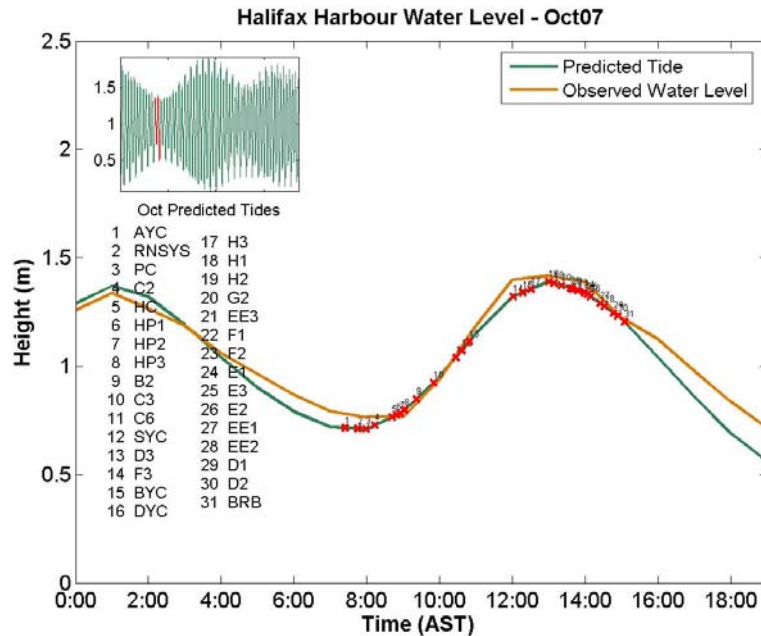
# Yacht Clubs



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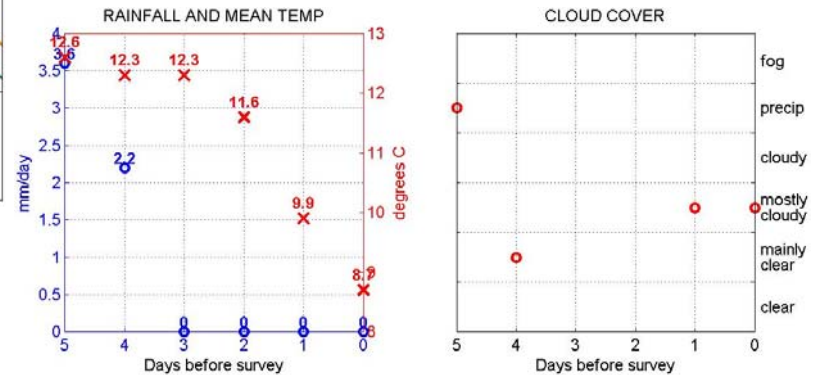


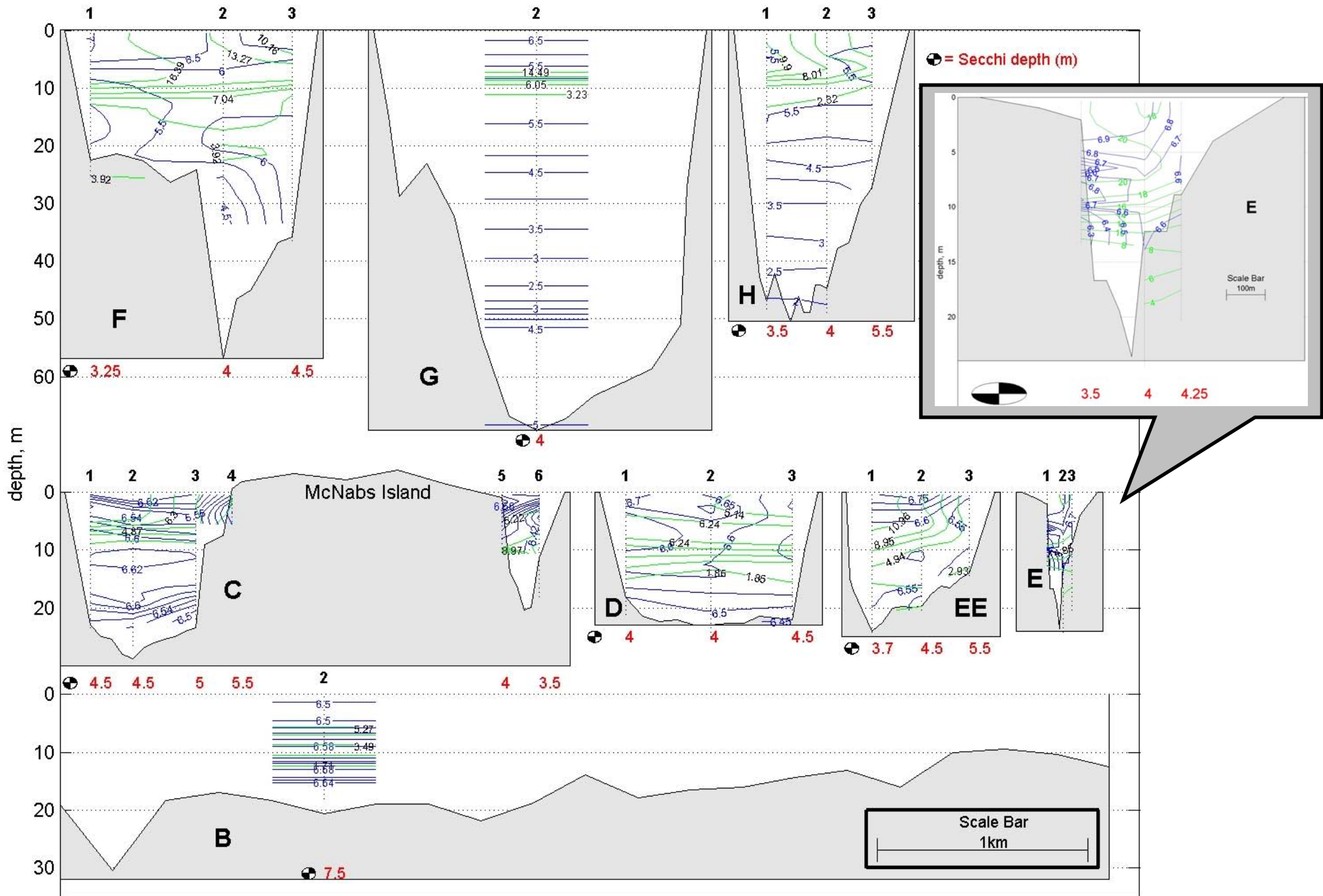
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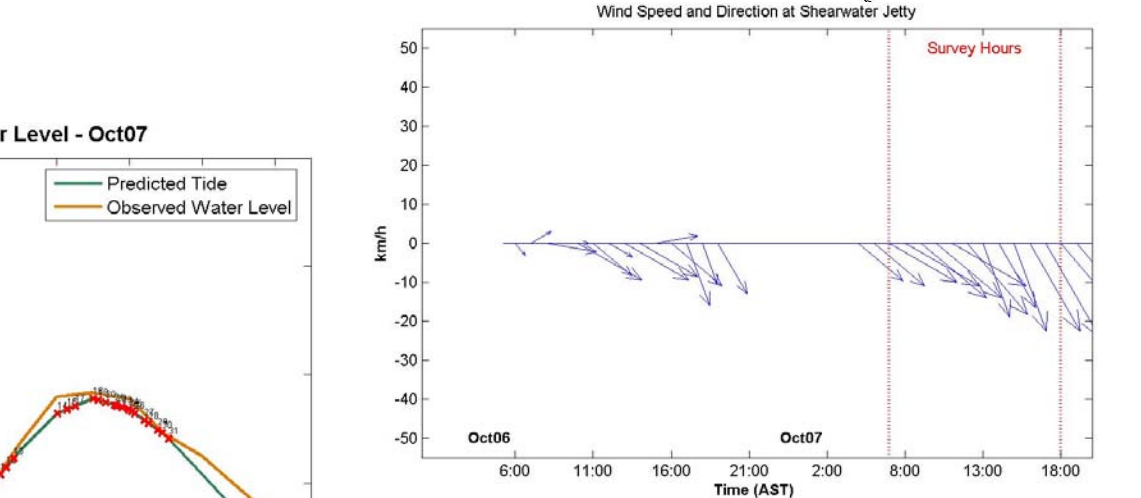
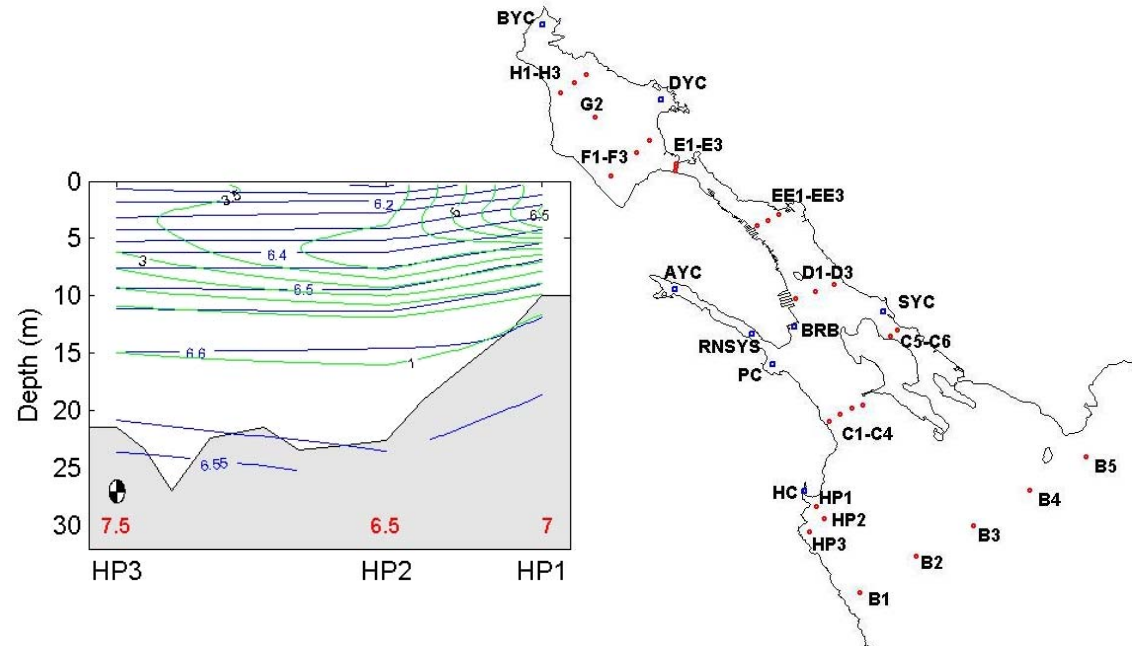
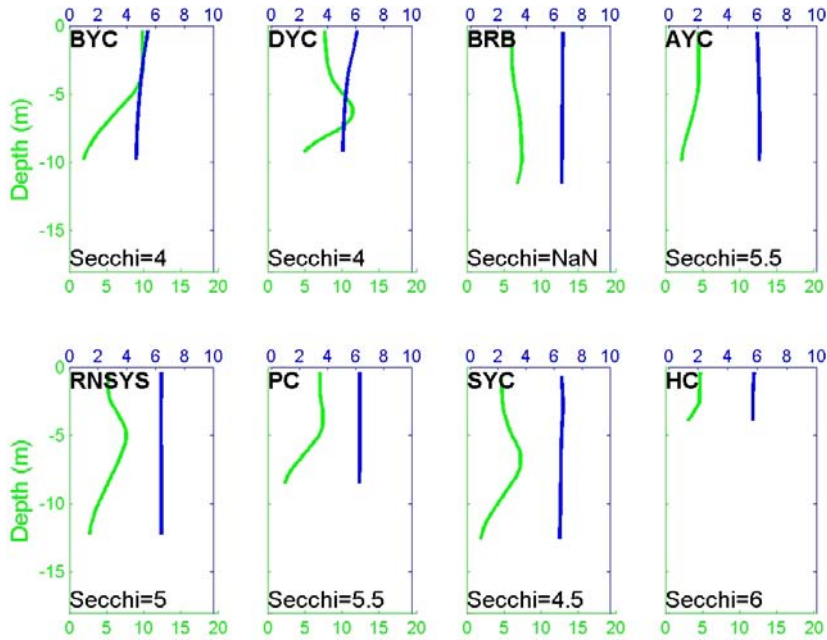
Potential Density in kg/m<sup>3</sup>

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

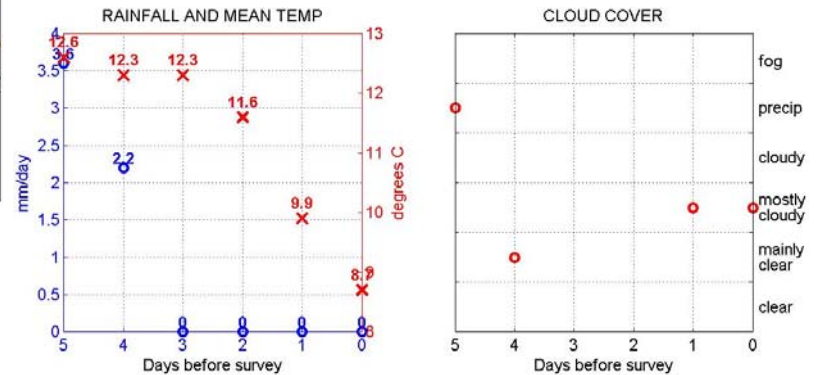
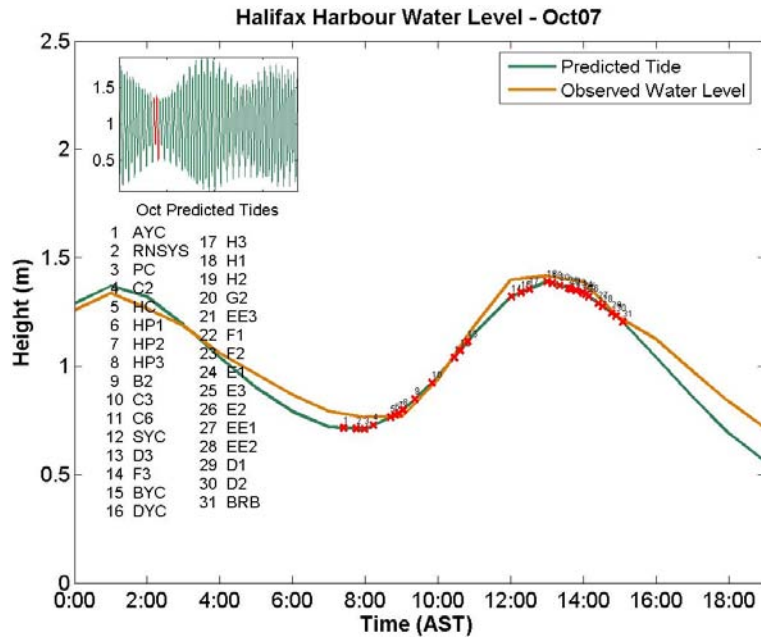




# Yacht Clubs



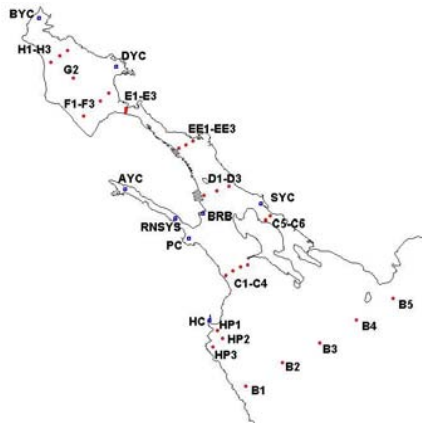
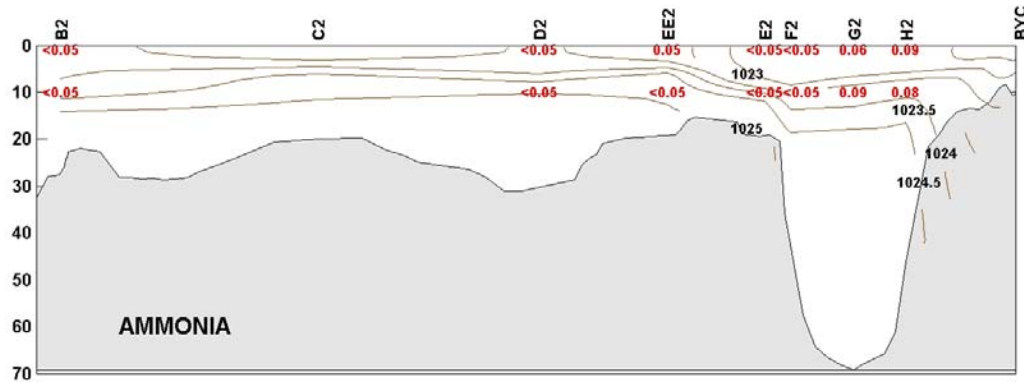
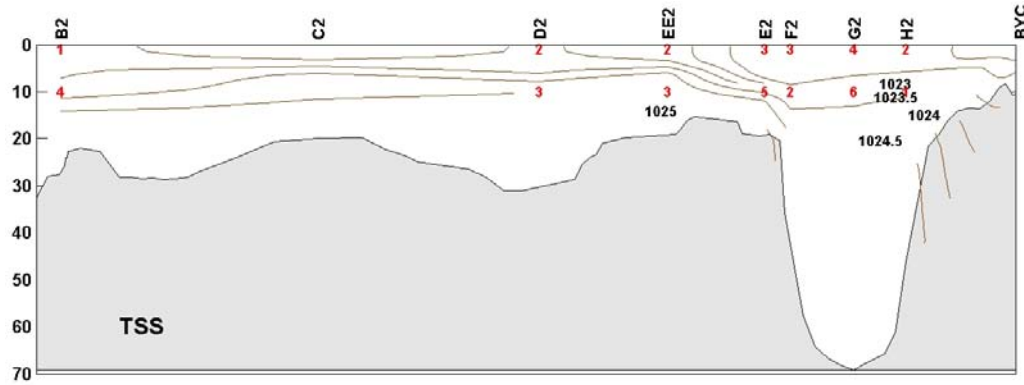
Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport



DO in mg/L

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

CHEMISTRY



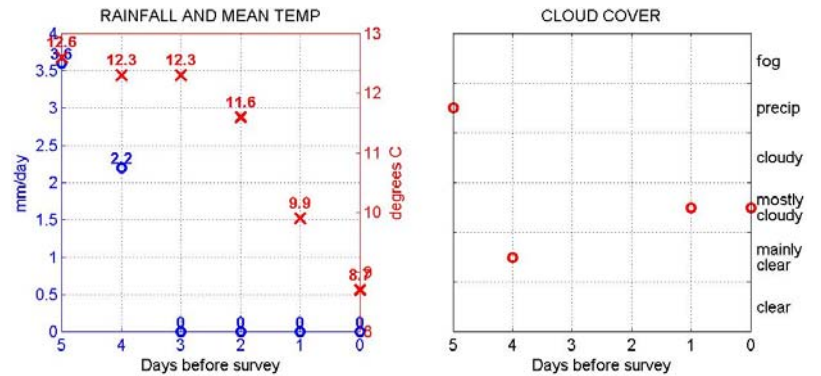
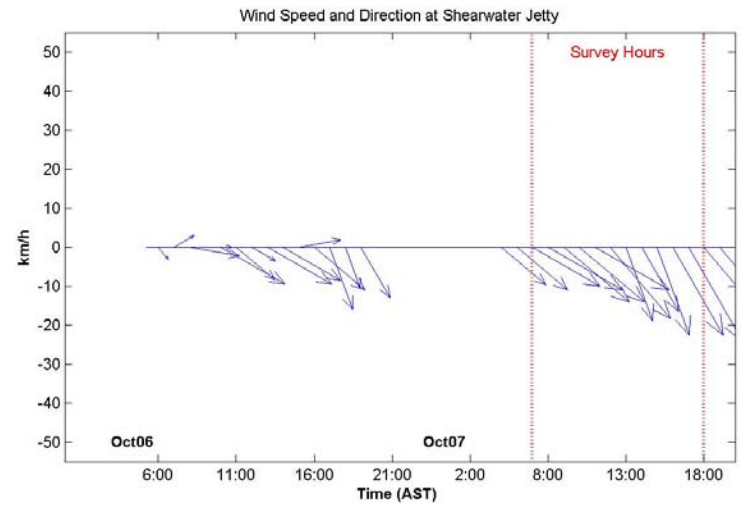
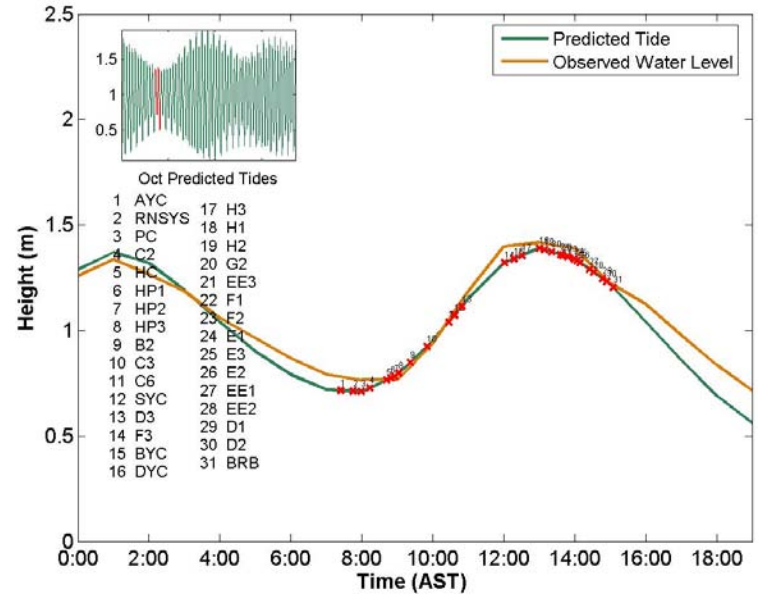
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Potential Density in  $\text{kg/m}^3$

Ammonia in mg/L

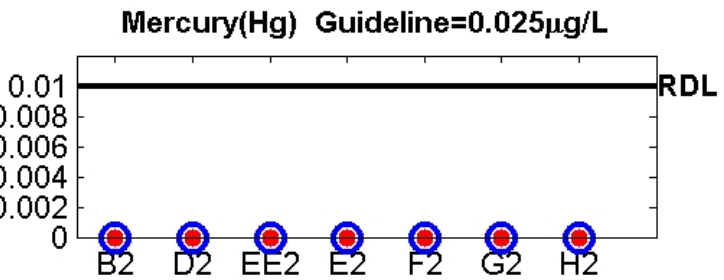
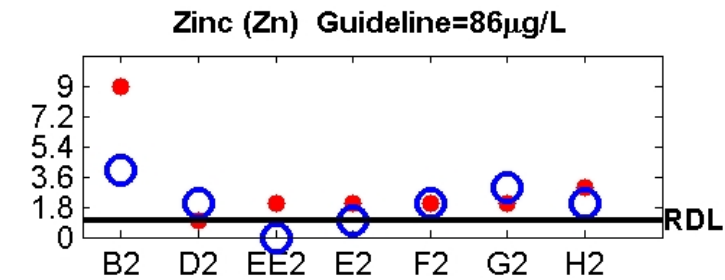
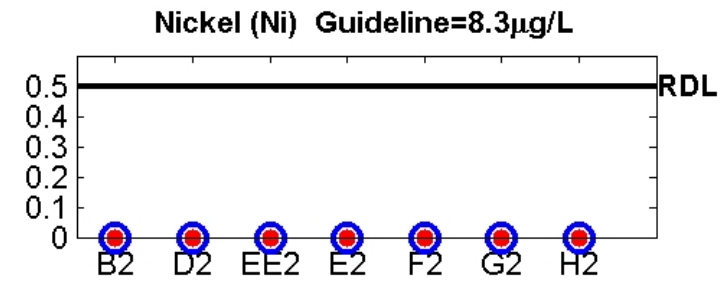
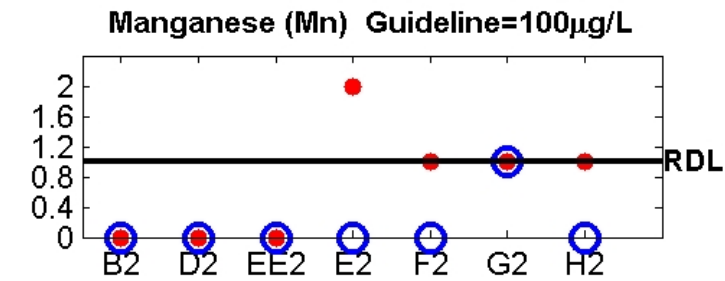
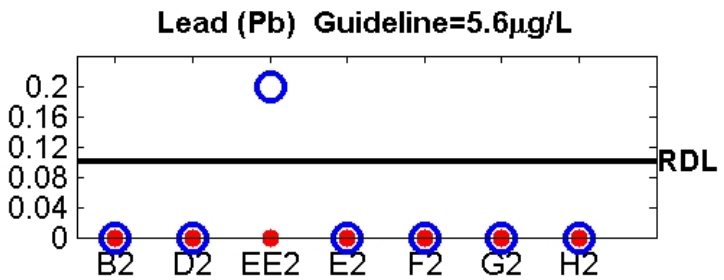
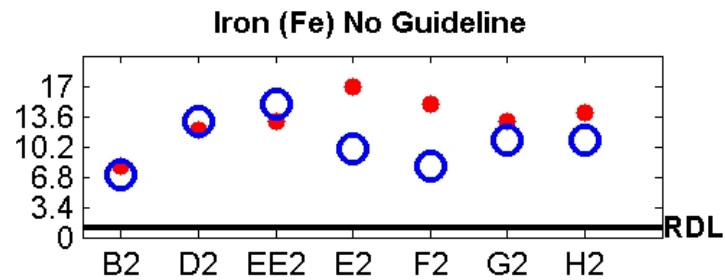
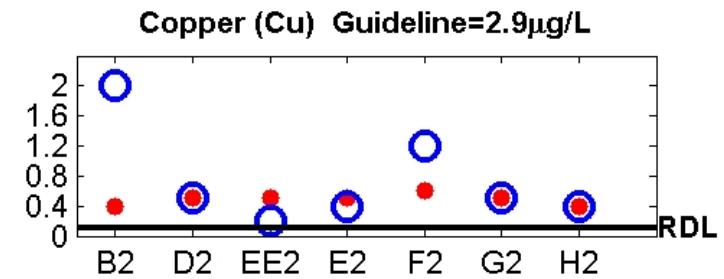
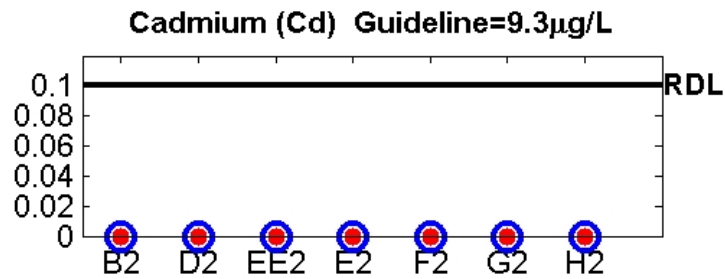
TSS in mg/L

Halifax Harbour Water Level - Oct07



Potential Density in  $\text{kg/m}^3$     Ammonia in mg/L    TSS in mg/L    Rainfall and temperature data collected at Shearwater Autoport.    Cloud cover data collected at Shearwater Airport





**LEGEND**  
 ○ = Ten Metre Sample  
 ● = One Metre Sample  
 RDL = Reportable Detection Limit

# HRM Water Quality Monitoring

## Fecal Coliform Summary – October 7, 2008

