

# Halifax Harbour Water Quality Monitoring Project Survey Summary #172

**Survey Date:** 29 December 2008  
**Nature of Survey:** Complete Survey  
**Report File (this document):** HHWQMP\_report172\_081229.doc  
**Data File:** HHWQMP\_data172\_081229.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 15:42 local time.

To match the collected reference data the presented DO values should be scaled by a factor of 1.4 (see comparison in data file).

**QA/QC samples:**

Chemical Analysis		E2-1m	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L	0.09	0.08
Total Suspended Solids	mg/L	2	2
Copper	ug/L	0.8	0.3
Iron	ug/L	12.0	26.0
Manganese	ug/L	7.0	21.0
Nickel	ug/L	0	0.5
Zinc	ug/L	3.0	3.0

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

Site	C6-10m	DYC-1m	PC-10m	E2-1m
Reference	82	72	8	330
QA/QC	98	9	9	110

**Comments:**

**General:** There has been moderate rainfall (approx 33 mm) in the five days before the survey. The harbour in general has become more well mixed everywhere except in the Southern Basin and Narrows, where there is a relatively strong freshwater signature in the surface water. In the Outer Harbour (B2) the water column is very nearly uniform. The temperature is quite uniform at about 4° C, though there is a slight midwater minimum in the Inner Harbour. In the Basin the temperature is slightly higher but quite uniform at about 4-5.5 ° C. The fecal coliform concentrations in the Inner Harbour are mostly around the 200 CFU/100 mL swimming limit, with several above the limit. Only the sample at EE3-1 is significantly higher. There is also a one relatively high value at HP3 10 m, near the Tribune Head outfall.

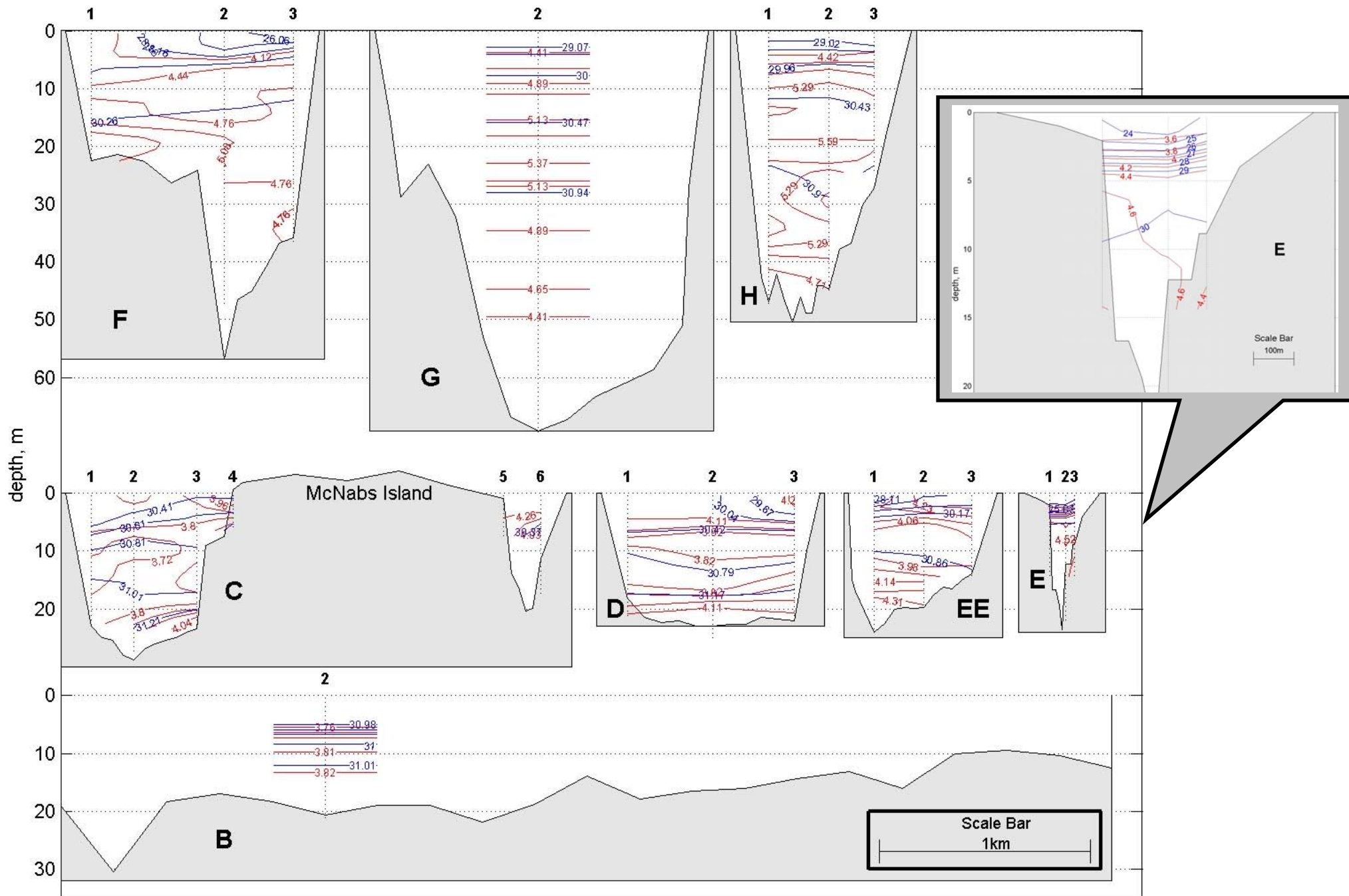
**Fluorescence:** The fluorescence data indicates that levels remain very low. The profile maximum levels are below 2 mg/m<sup>3</sup> almost everywhere. This is close to “background” (annual minimum) levels.

**TSS:** The TSS levels are low with all values between 2-3mg/L (mean is 2.3 mg/L). All 1m samples are 2 mg/L.

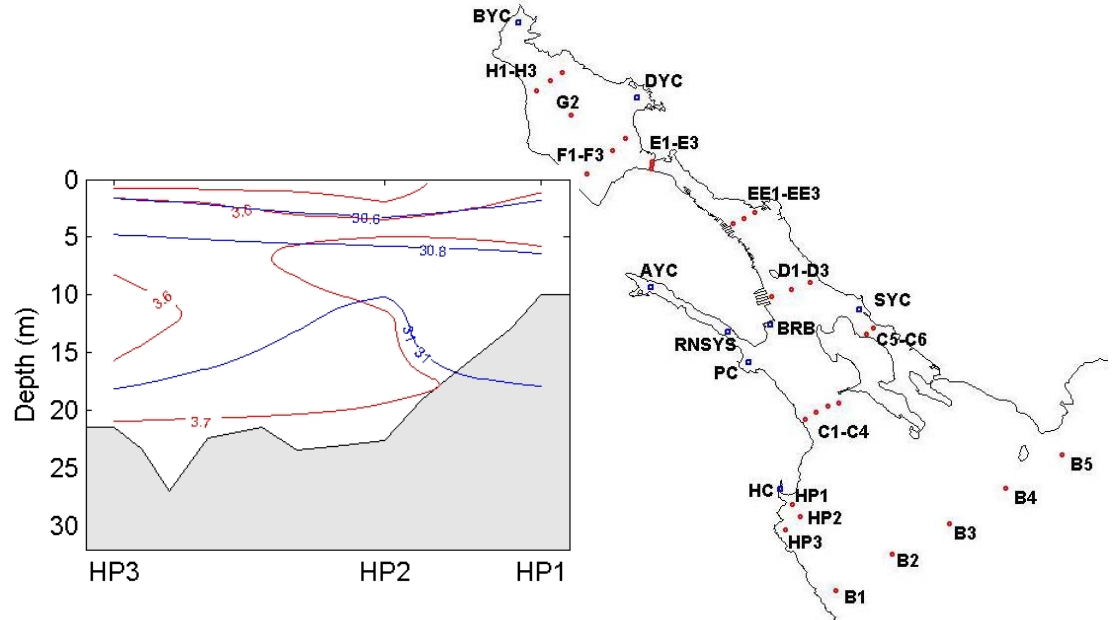
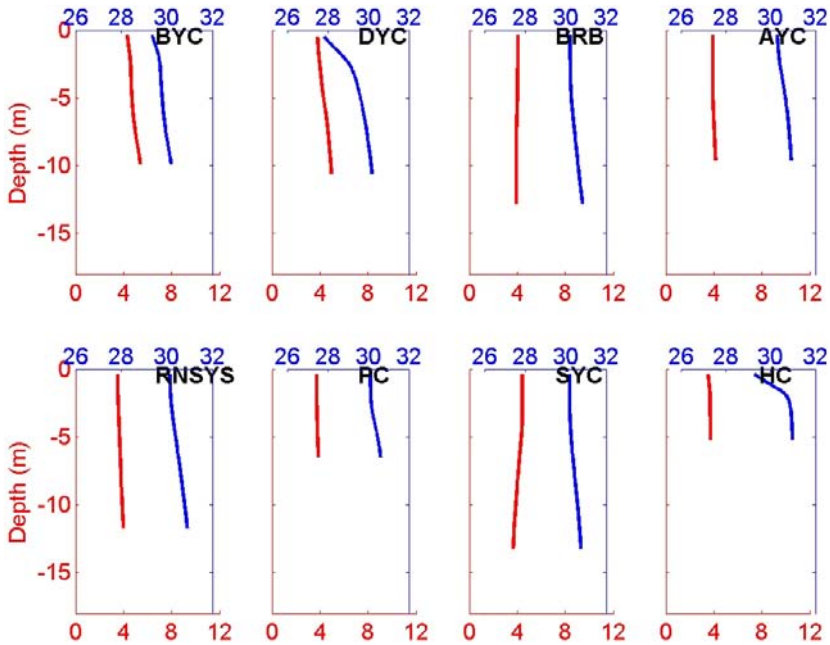
**Ammonia:** The ammonia levels are generally moderate with a mean value of about 0.07 mg/L. There does not appear to be a coherent spatial pattern except that the samples in the Outer Harbour (B2) are lowest, with undetectable levels (<0.05 mg/L).

**Metals:** There are unusually high manganese concentrations in several samples. The highest value of 45 ug/L (EE2-1) is 45% of the relevant guideline. Aside from this there are several copper samples at about 45% of the 2.9 ug/L guideline.

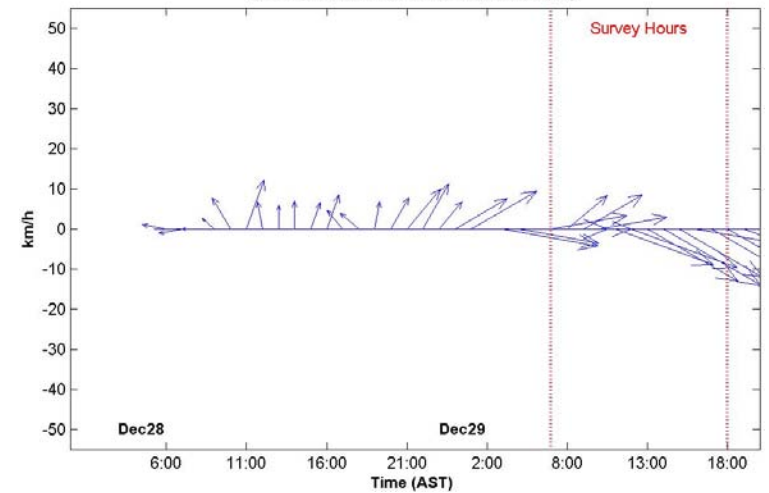
**Dissolved Oxygen:** There is a strong near surface DO gradient in the southern Basin and northern Inner Harbour. The data processing routine misses this somewhat at some sites, thereby underestimating the DO at the surface. The dissolved oxygen data, scaled appropriately by a factor of 1.4, indicates that the surface DO levels are quite uniform at between 9.2 and 9.8 mg/L everywhere. The lower values occur in the Inner Harbour. There is a slight decrease with depth in the Inner Harbour but values are very vertically uniform in the Outer Harbour. The only guideline exceedence is the class SB (7.0 mg/L) guideline in the deeper water of the Basin. The YSI/scaled Seabird values are slightly lower than the LOBO values. There is no BBPMP data this week.



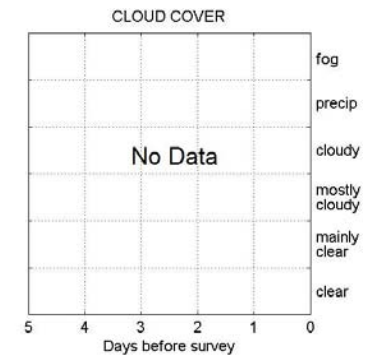
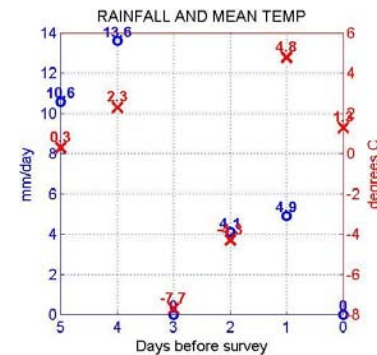
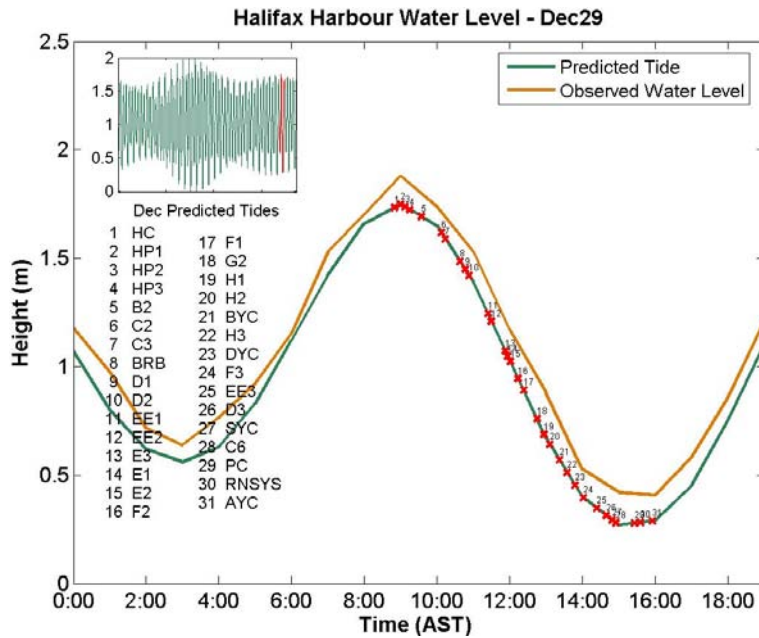
# Yacht Clubs



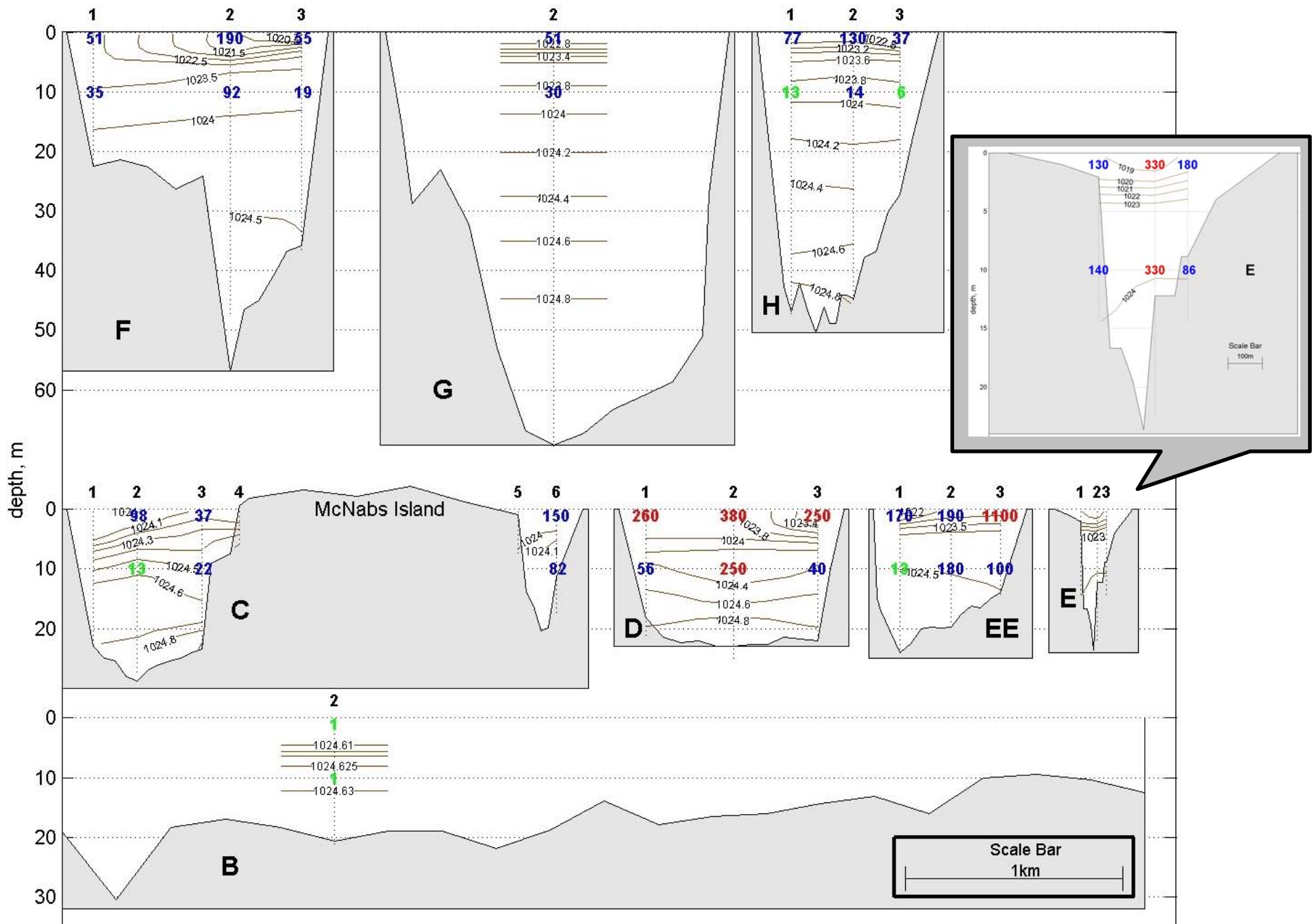
Wind Speed and Direction at Shearwater Jetty



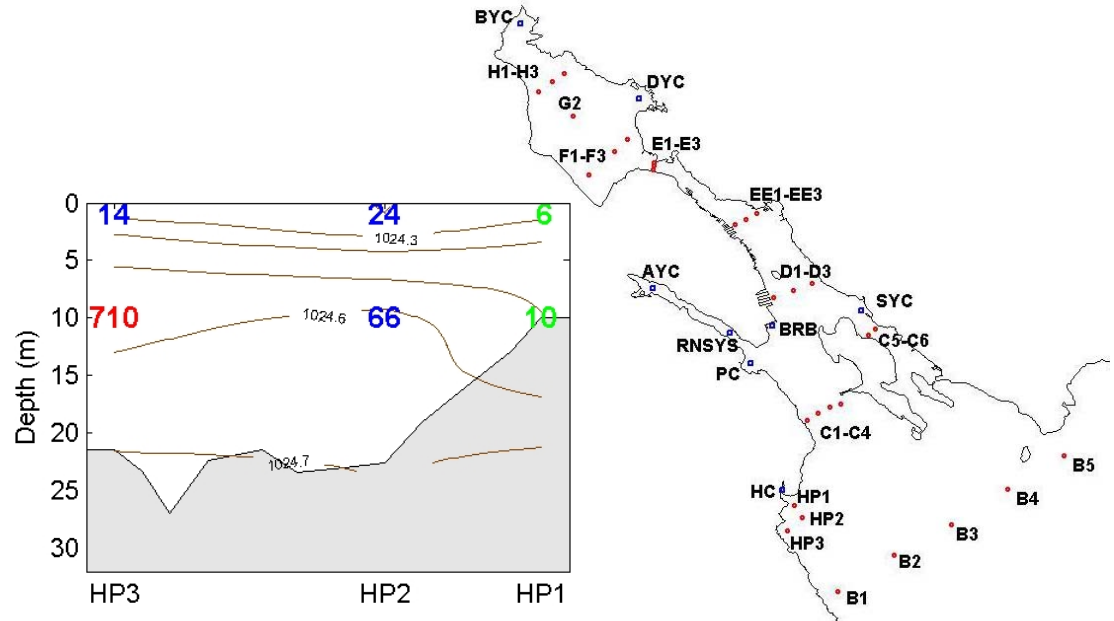
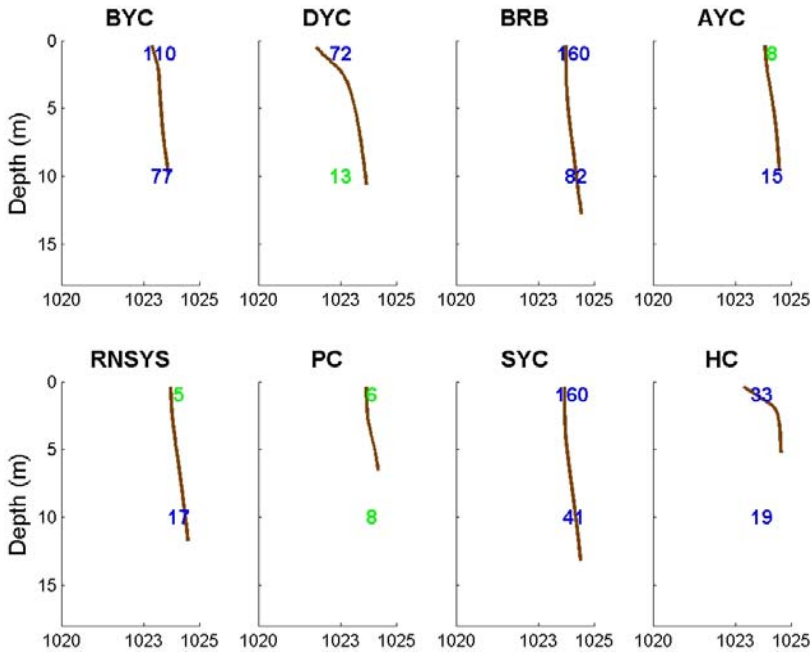
Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport



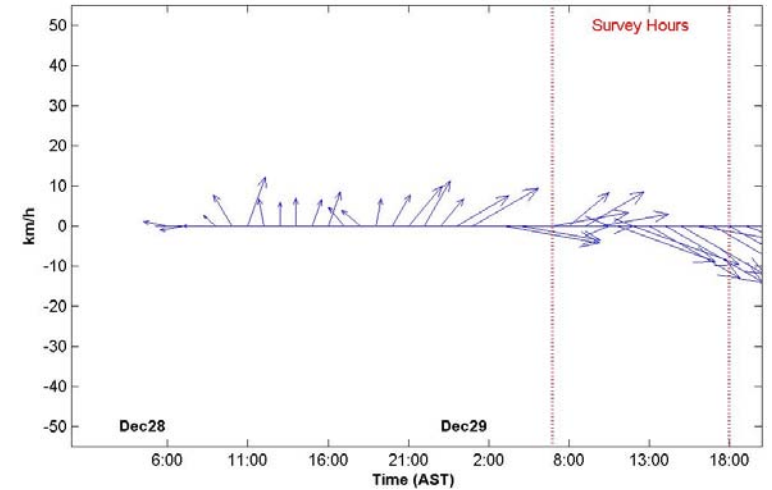
Salinity in PSU      Temperature in °C



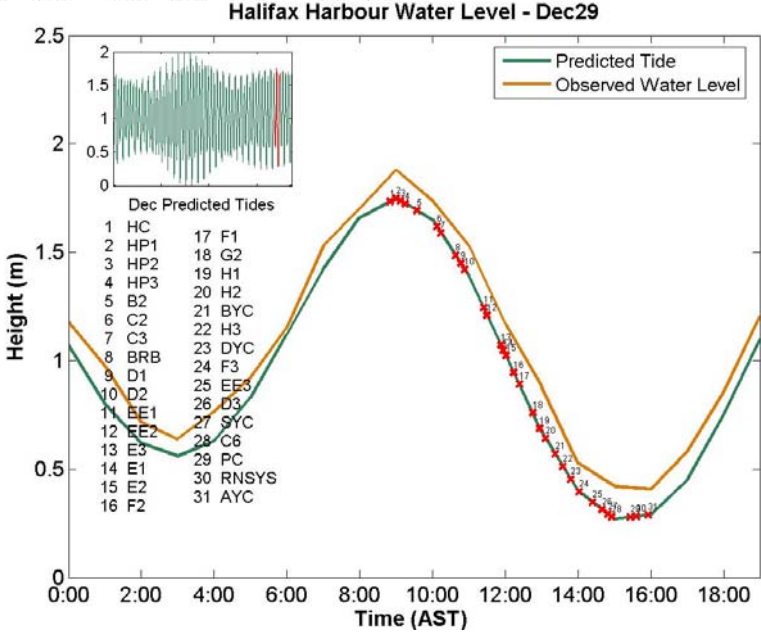
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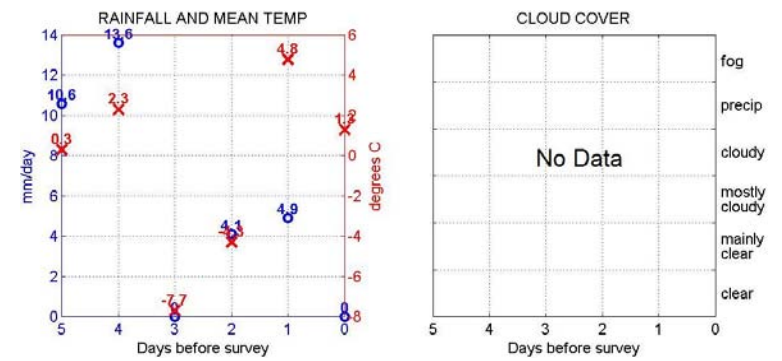


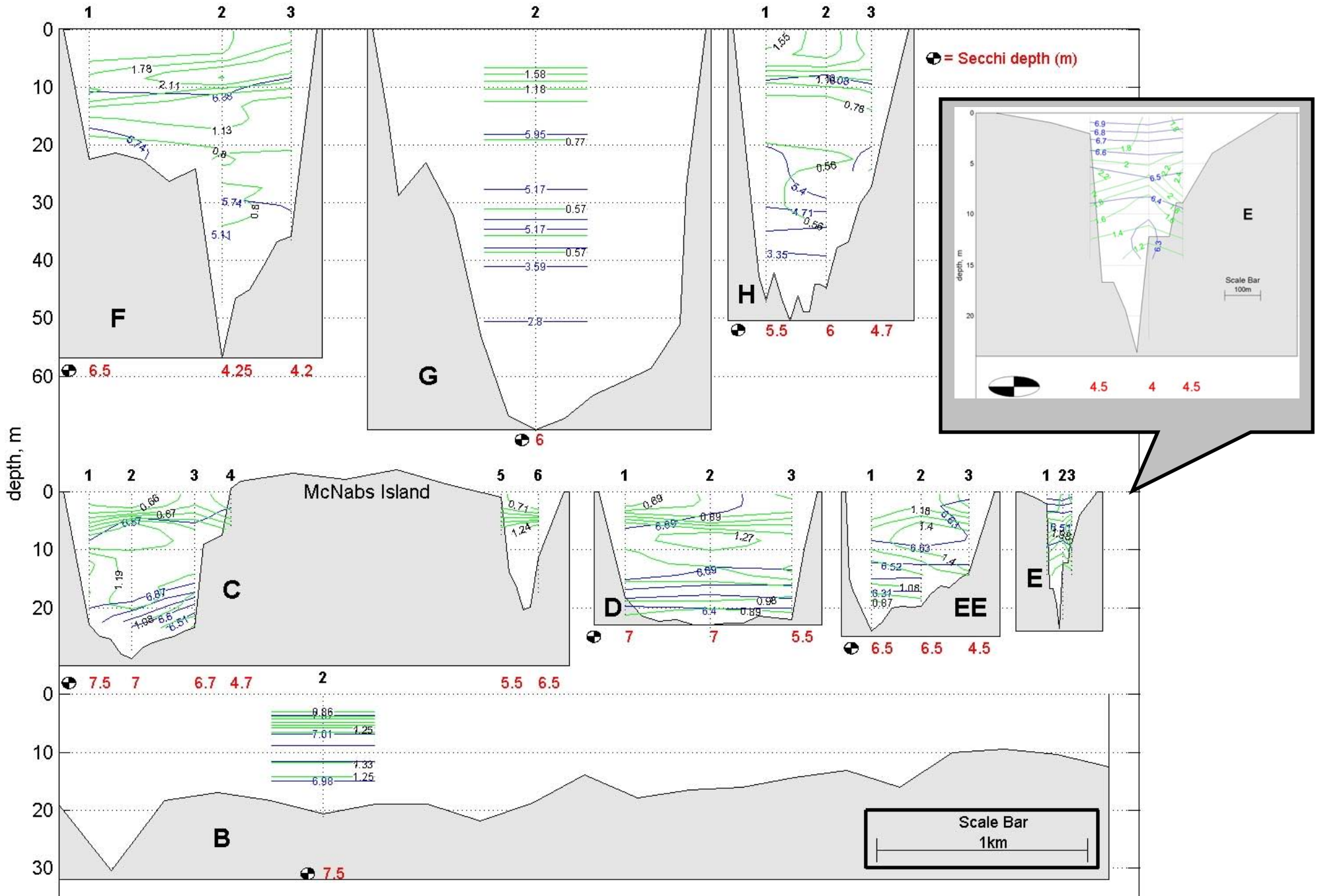
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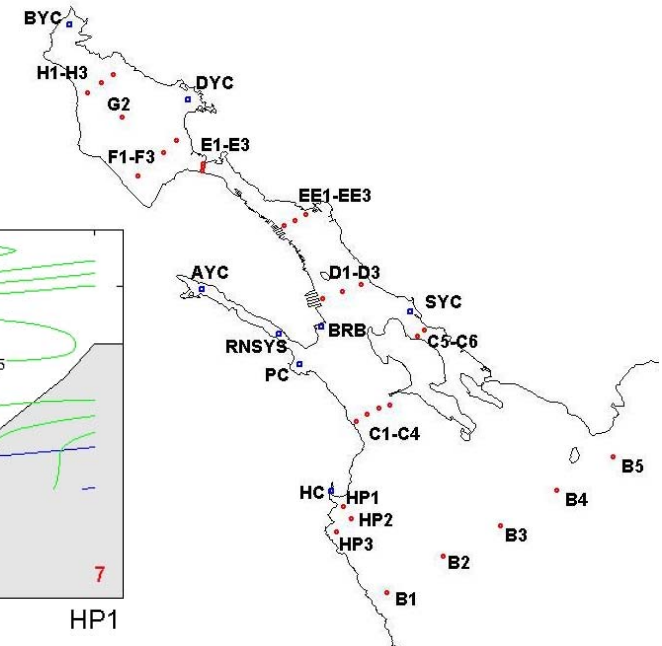
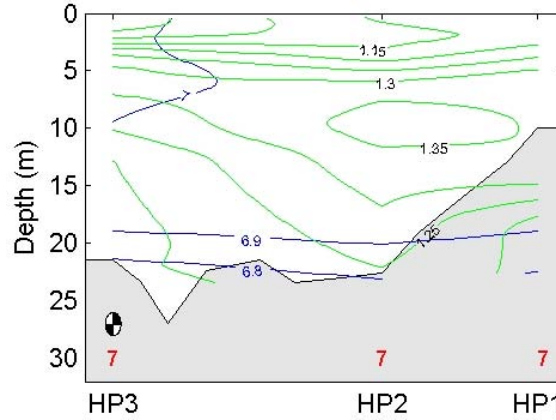
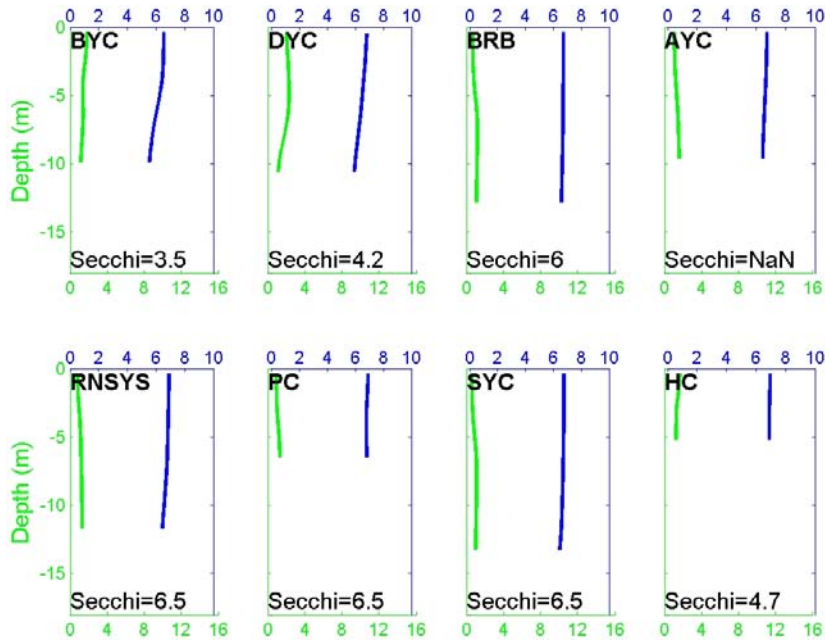
Potential Density in  $\text{kg/m}^3$

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

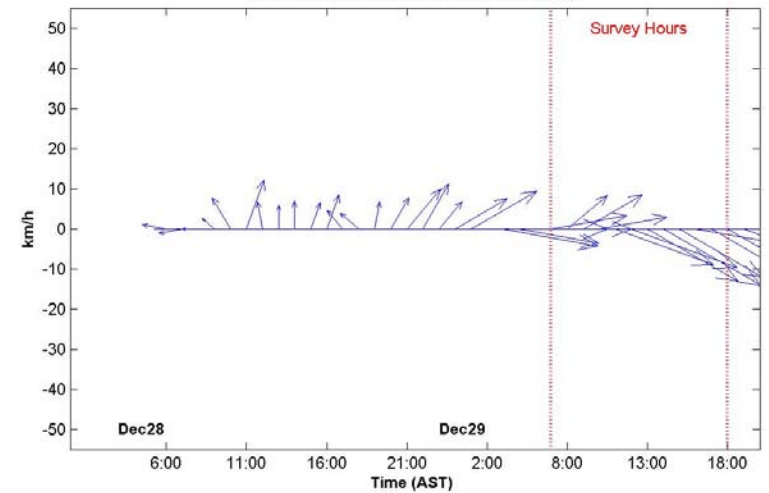




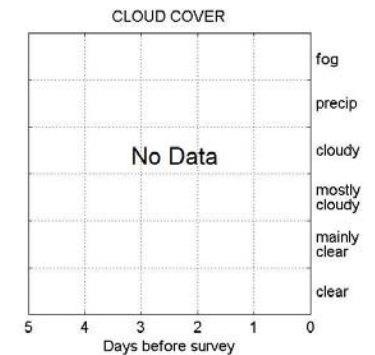
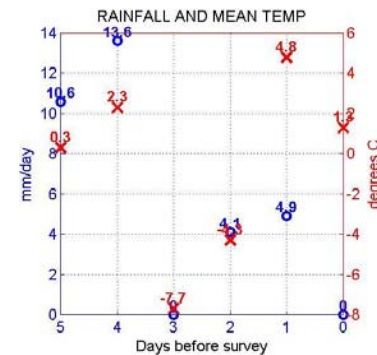
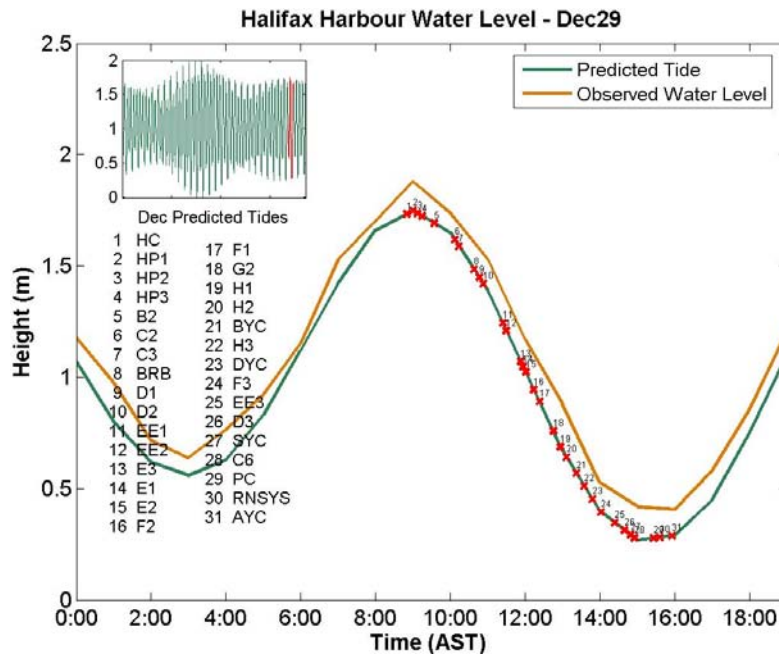
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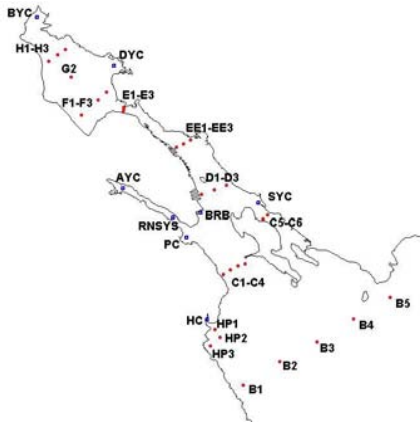
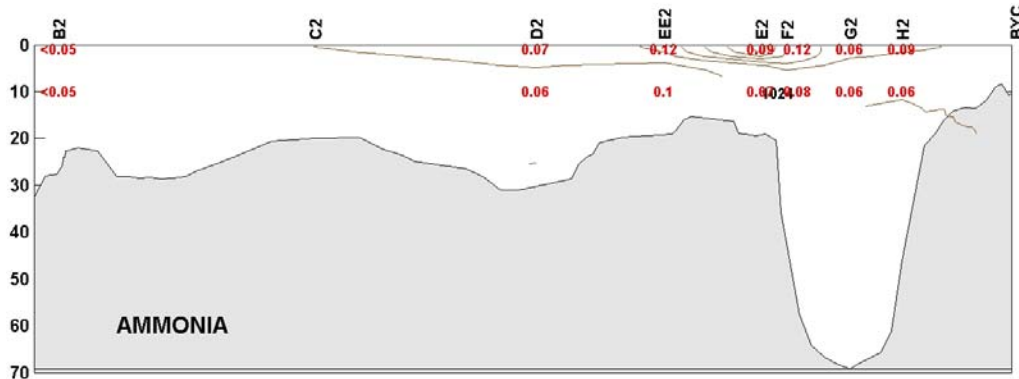
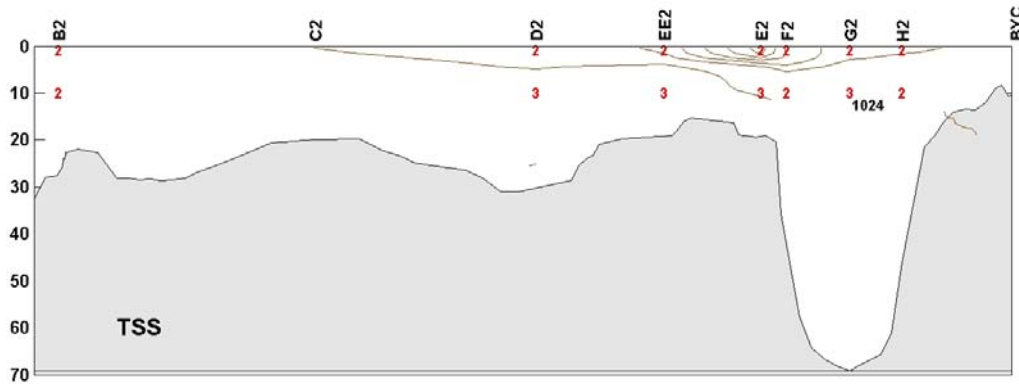
Rainfall and temperature data collected at Shearwater Autoport.  
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DO in mg/L

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

CHEMISTRY



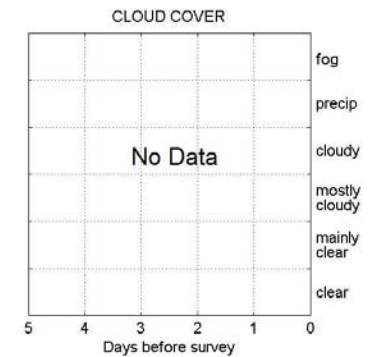
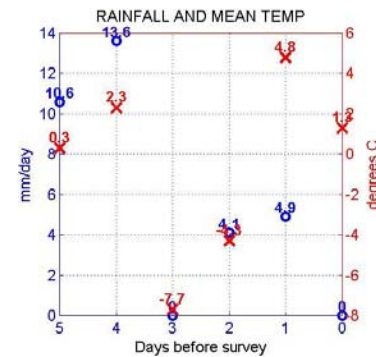
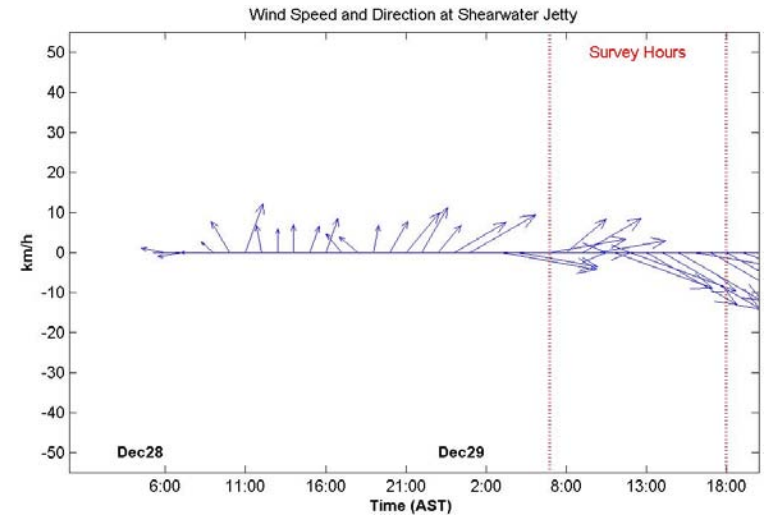
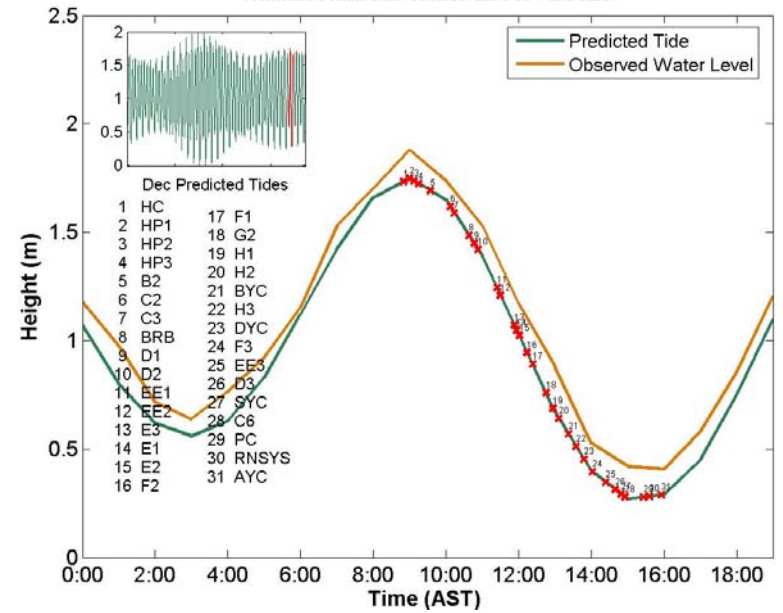
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Potential Density in  $kg/m^3$

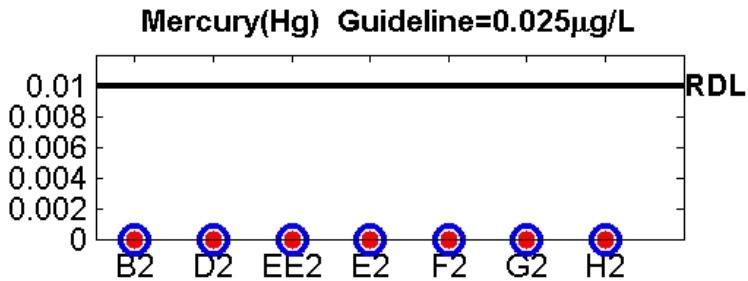
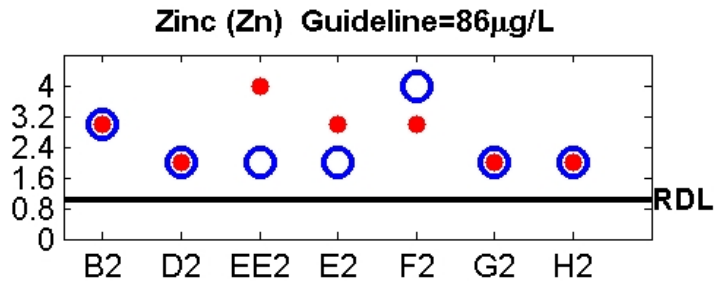
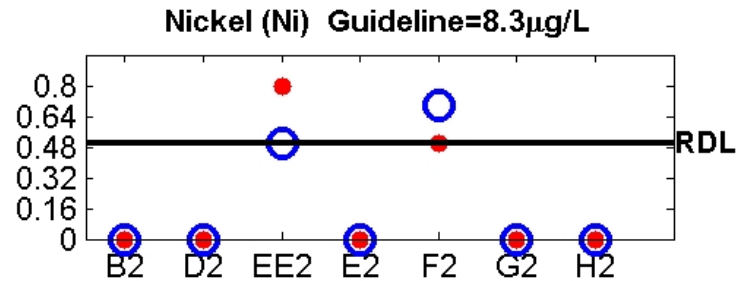
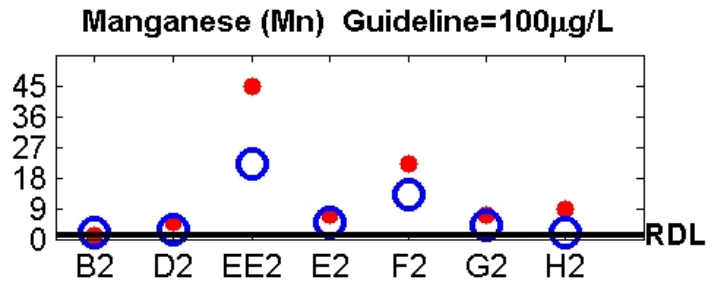
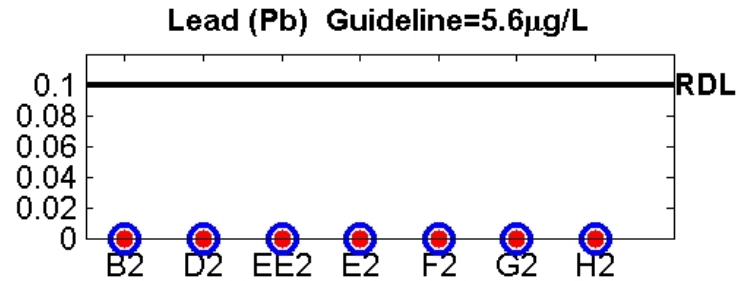
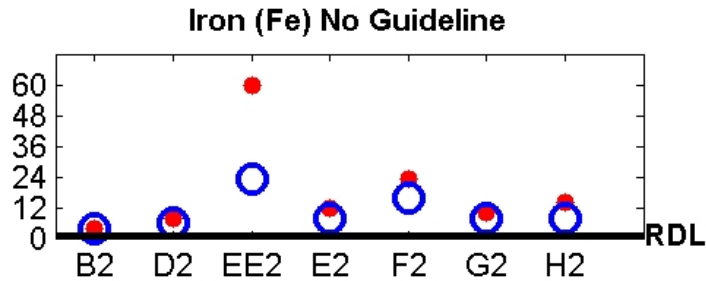
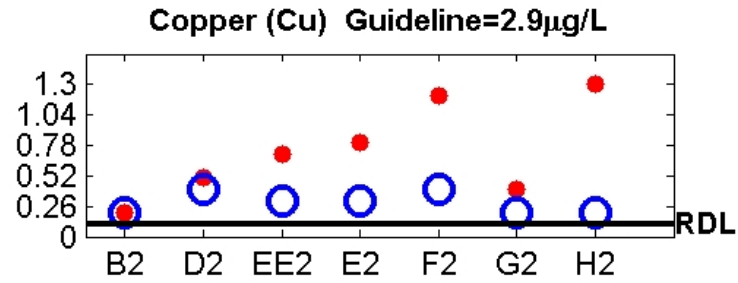
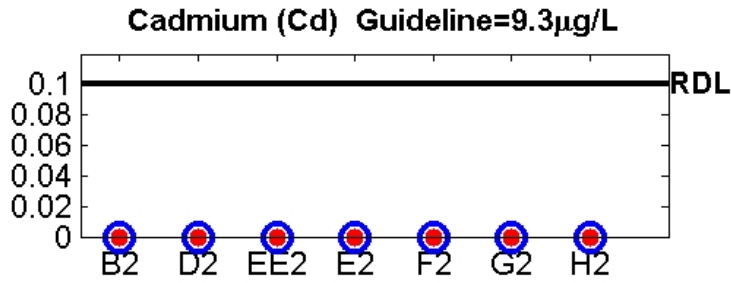
Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Dec29







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

# HRM Water Quality Monitoring

## Fecal Coliform Summary – December 29, 2008

