

# Halifax Harbour Water Quality Monitoring Project Survey Summary #154

**Survey Date:** 22 April 2008  
**Nature of Survey:** Complete Survey  
**Report File (this document):** HHWQMP\_report154\_080422.doc  
**Data File:** HHWQMP\_data154\_080422.xls

**Data Return:**

Chemical: 100%  
 Bacteria: 100%  
 Profile: 98%  
**Overall: 99%**

**Sample Notes:**

Additional bacteria samples were taken in the NW Arm. See data files for details.

A supplementary CTD cast was taken at the LOBO buoy location (44.6291° N, 63.5915° W) at 16:00 local time.

The DO profiles for sites B2 and C4 had stability problems and are plotted here but have been truncated in the data file.

The handheld YSI DO probe was unavailable. Supplementary DO measurements were not made for this survey.

**QA/QC samples:**

Chemical Analysis		H2 – 1m	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L	0.06	0.05
Total Suspended Solids	mg/L	5.9	5.0
Copper	ug/L	0.2	0.2
Iron	ug/L	13.0	15.0
Manganese	ug/L	4.0	4.0
Zinc	ug/L	3.0	3.0

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

Site	EE1-10m	E3-1m	C3-10m	H2-1m
Reference	56	77	0	0
QA/QC	77	120	1	0

**Comments:**

**General:** In spite of warming surface water, the harbour as a whole is less stratified than in the previous survey. The Inner Harbour bottom water has freshened and warmed somewhat, reducing the density to slightly less than that of the Basin Bottom water. In the Basin the water below 20 - 30 m is quite uniform in hydrographic properties, with uniformly high dissolved oxygen. The Halifax STP is fully operational. The UV disinfection system became fully operational on 1 April. Fecal coliform levels are very low with only the 1 m sample at EE3 (near the “Peace Pavilion “ outfall on the Dartmouth) side) exceeding the swimming guidelines. There is a tendency for higher levels in the 10 m samples in the Basin.

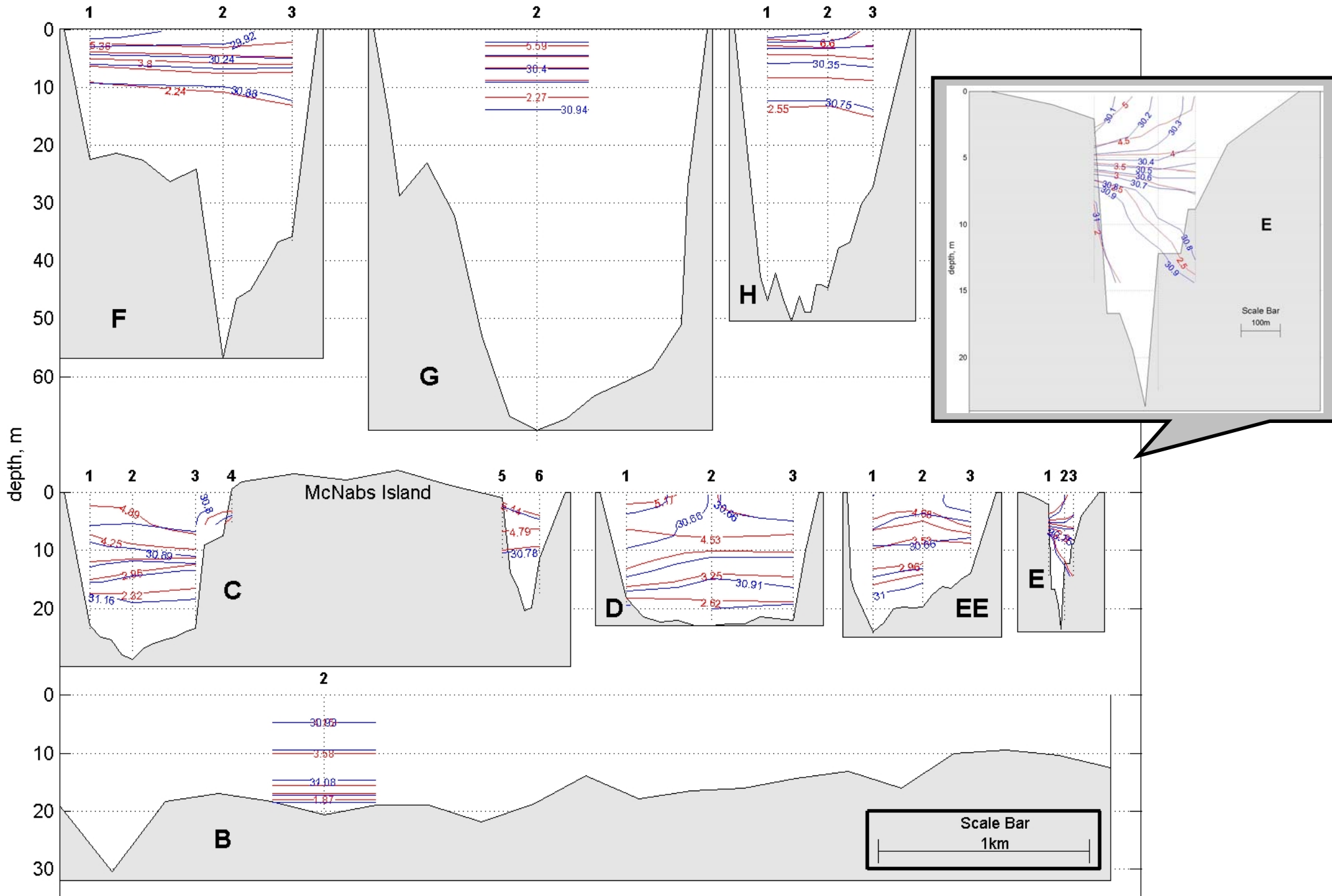
**Fluorescence:** Significant fluorescence is measured on relatively broad peaks, and relatively deep in the water column, on profiles throughout the harbour. In the Basin the peaks are <20 mg/m<sup>3</sup> at depths of 10-20m. In the Inner Harbour the levels are 20 - 25 mg/m<sup>3</sup> in the bottom half of the water column. The highest values (27 mg/m<sup>3</sup>) are at the bottom in the Outer Harbour.

**TSS:** TSS exhibits relatively low to typical values, with a maximum value of about 9.1 mg/L (mean 5.5 mg/L). There is no obvious coherent spatial distribution.

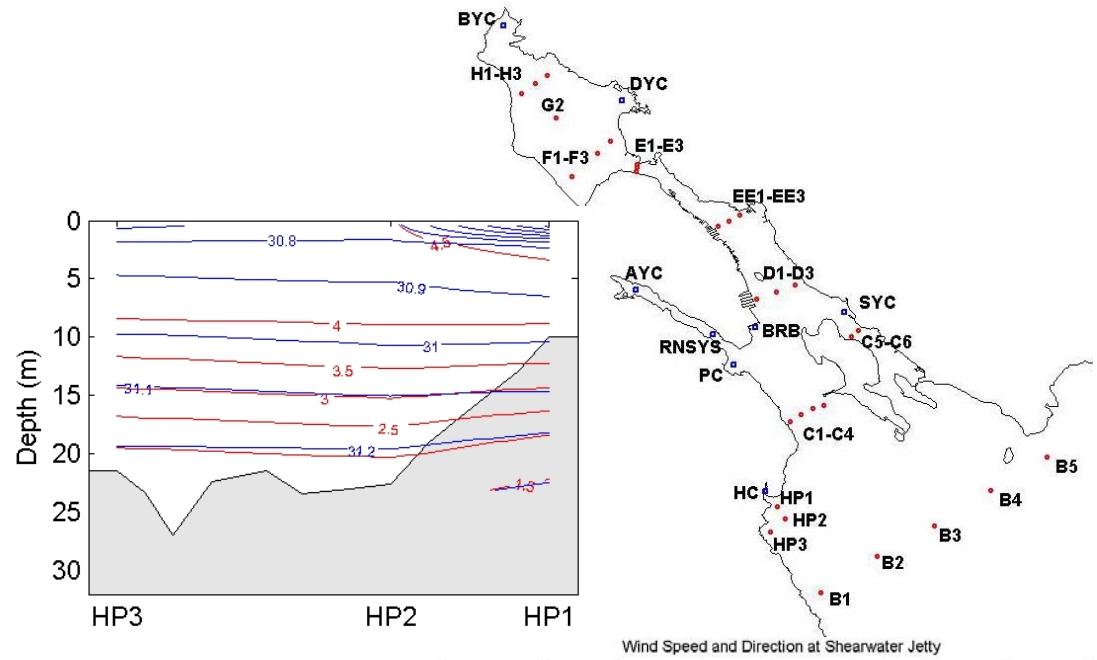
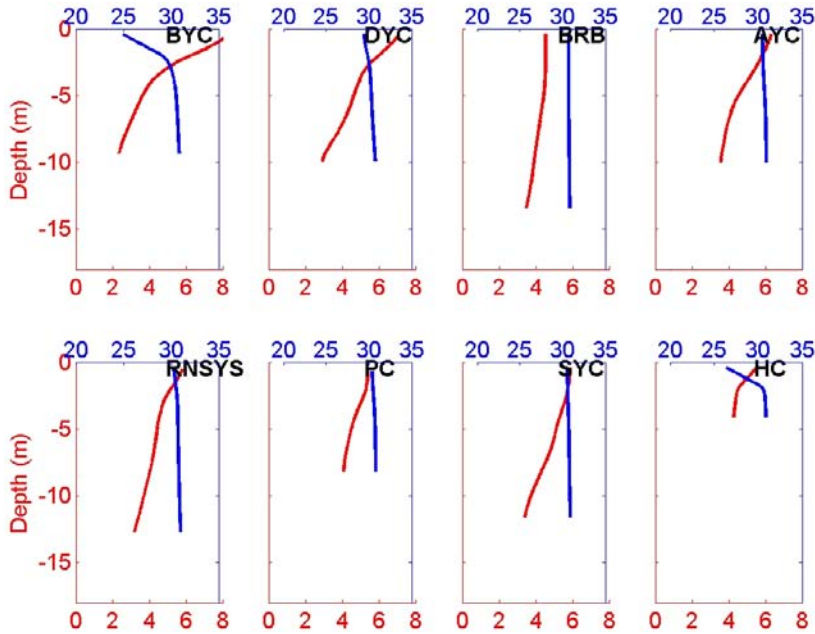
**Ammonia:** The ammonia concentrations are very uniform at just over the detection limit (0.05 mg/L). There is no obvious coherent spatial distribution

**Metals:** There are no guideline exceedences. As is typical, the closest to exceedence is copper, but the highest concentrations are about 35% of the guideline value.

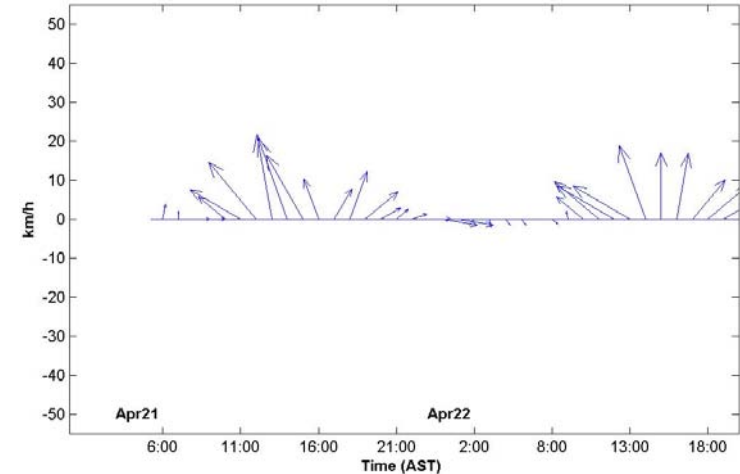
**Dissolved Oxygen:** Since the YSI data is not available there has been no specific scale factor computed for this survey. However, based on other available measurements (i.e BBPMP and LOBO - see data file cover sheet) it appears that the CTD DO sensor readings were similarly low to those of other recent surveys (e.g. scale up by about 1.4). This would imply very high dissolved oxygen everywhere. However, even without scaling, there are no exceedences of use specific dissolved oxygen criteria anywhere except in the deep Basin.



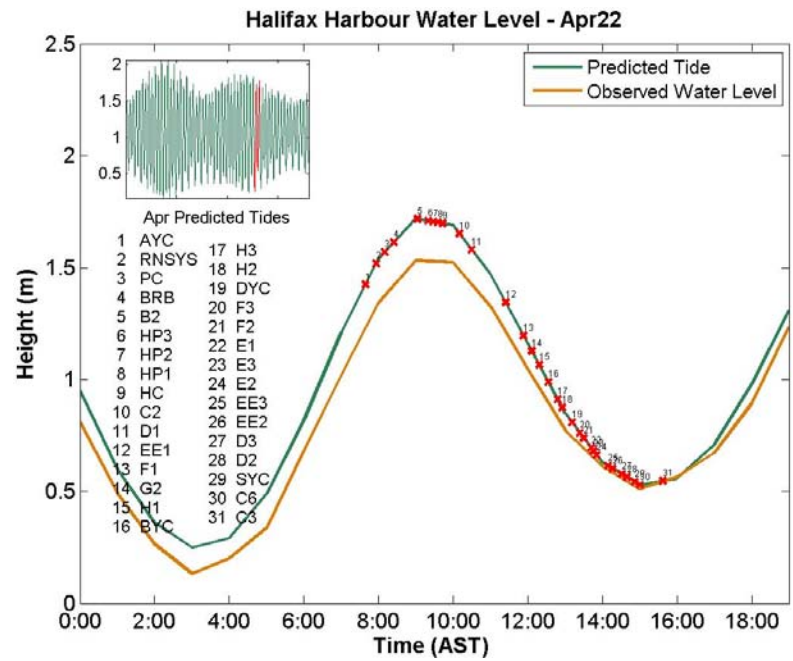
# Yacht Clubs



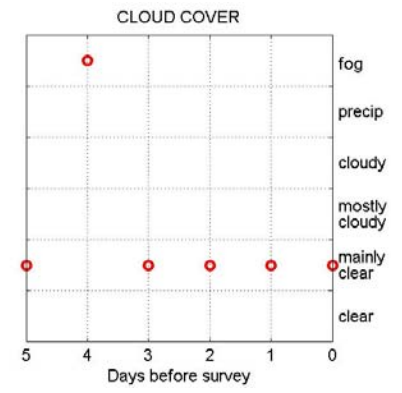
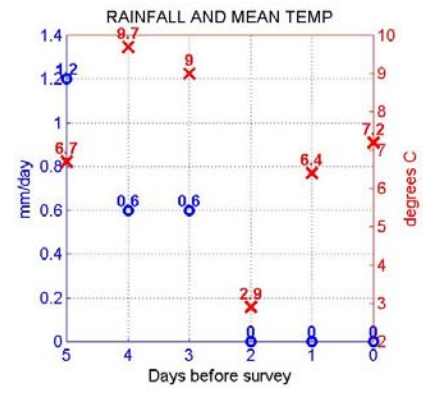
Wind Speed and Direction at Shearwater Jetty

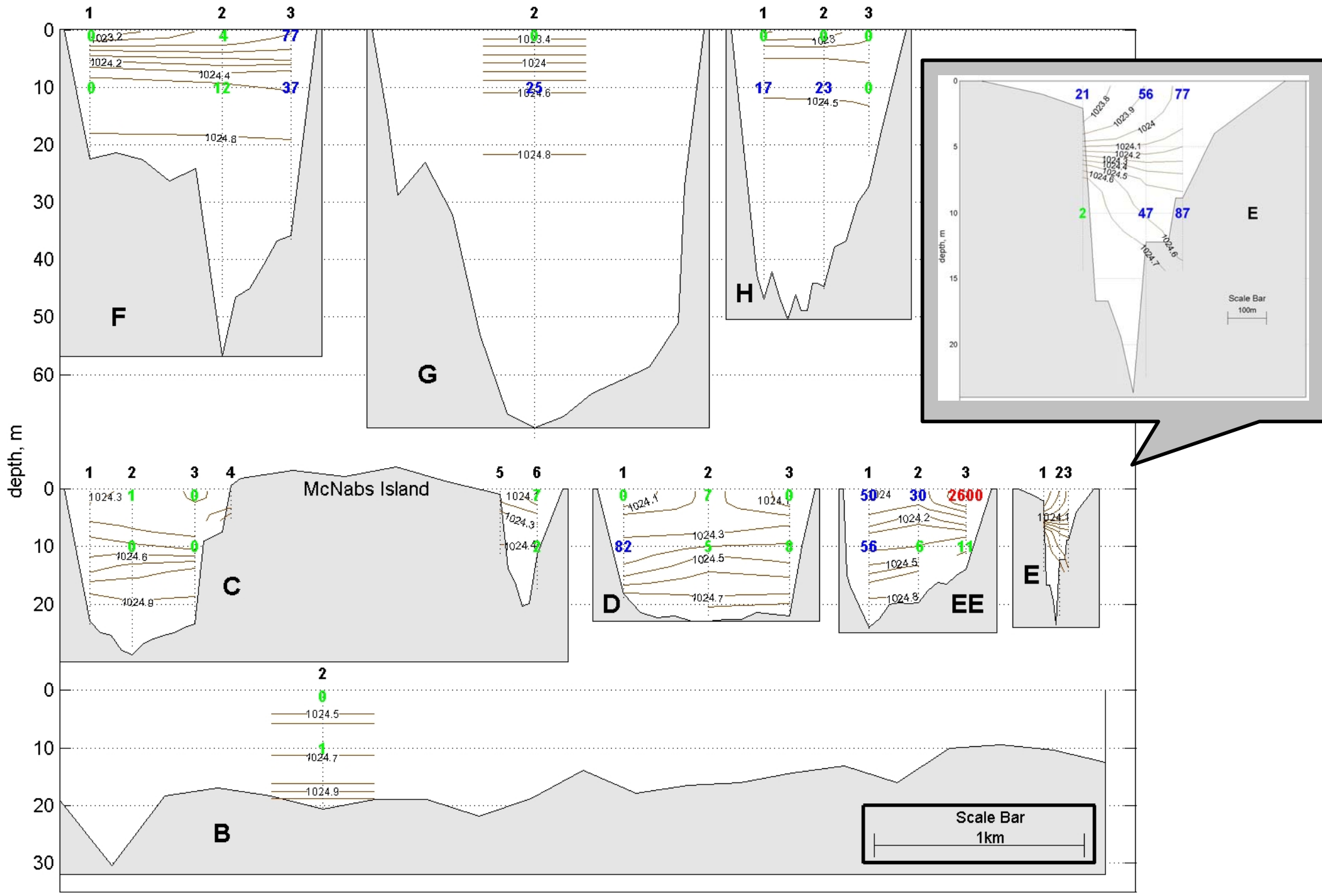


Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport

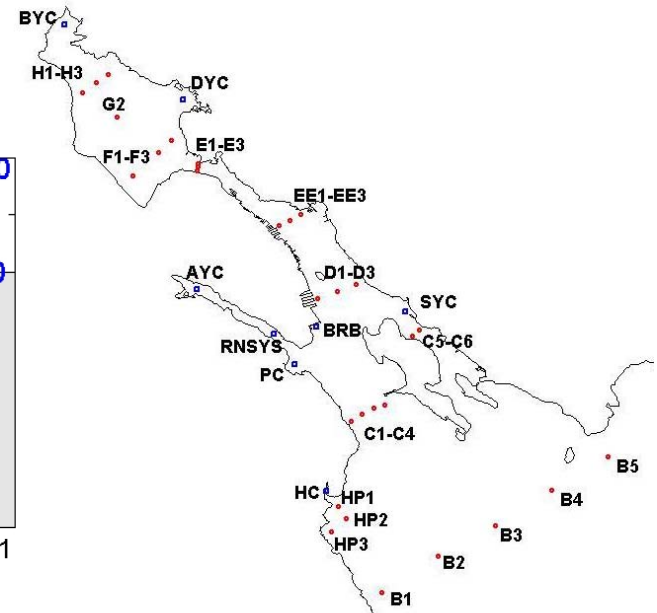
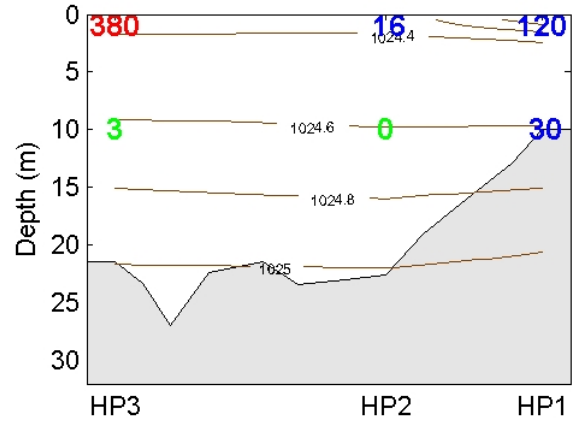
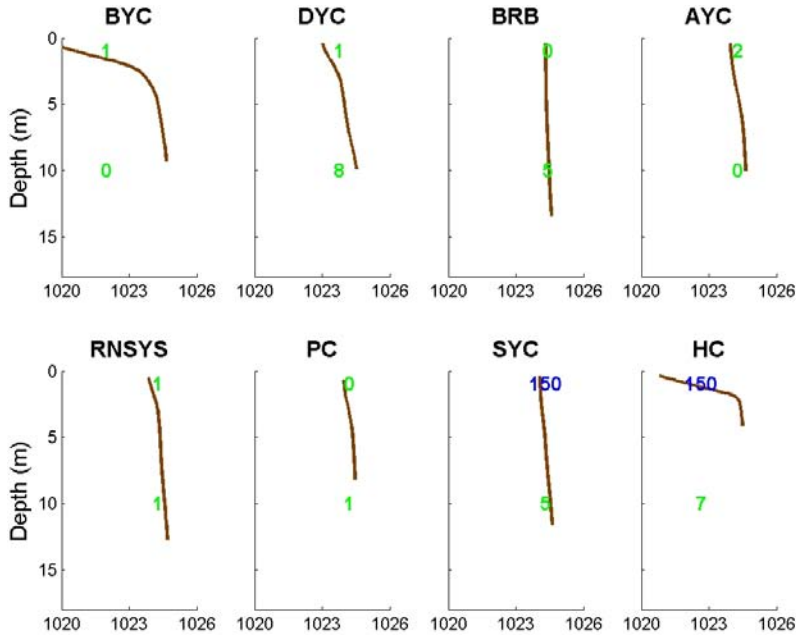


Salinity in PSU      Temperature in °C

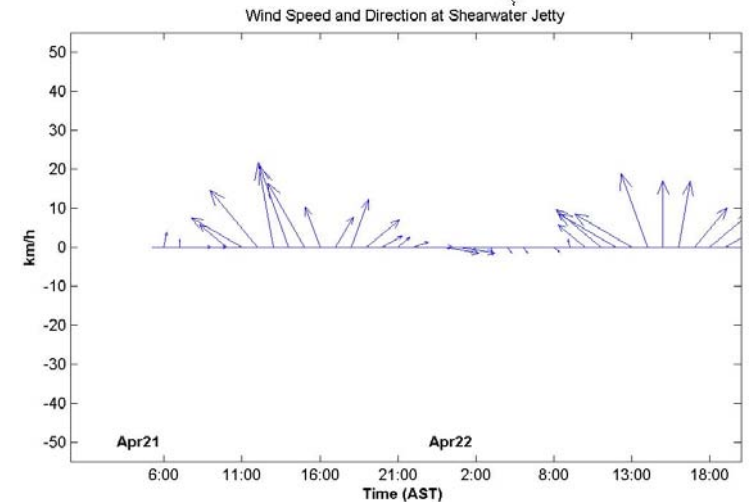
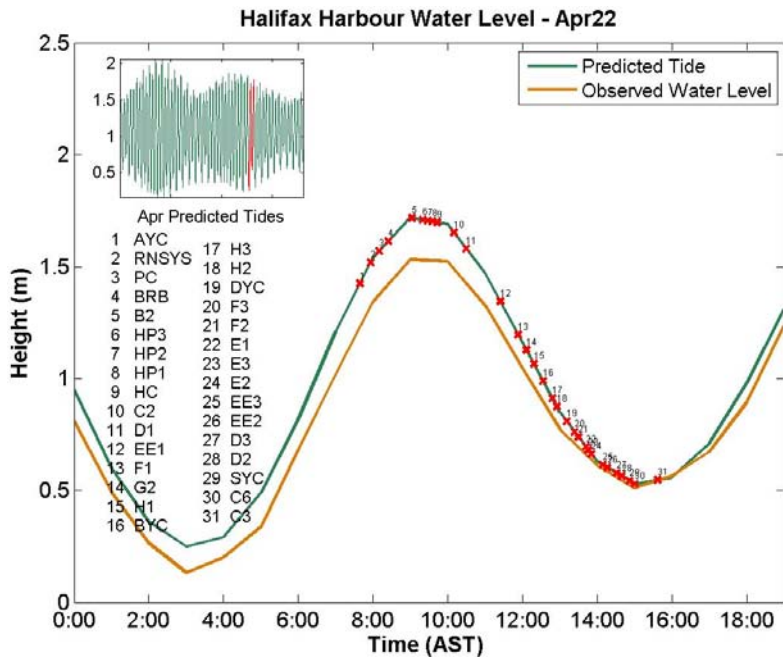




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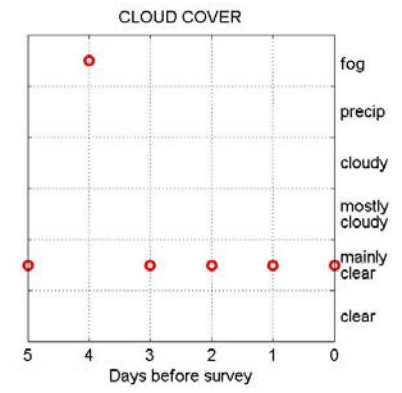
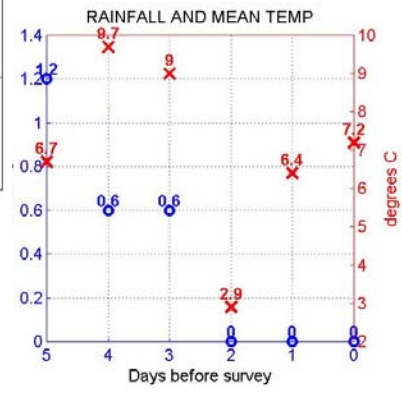


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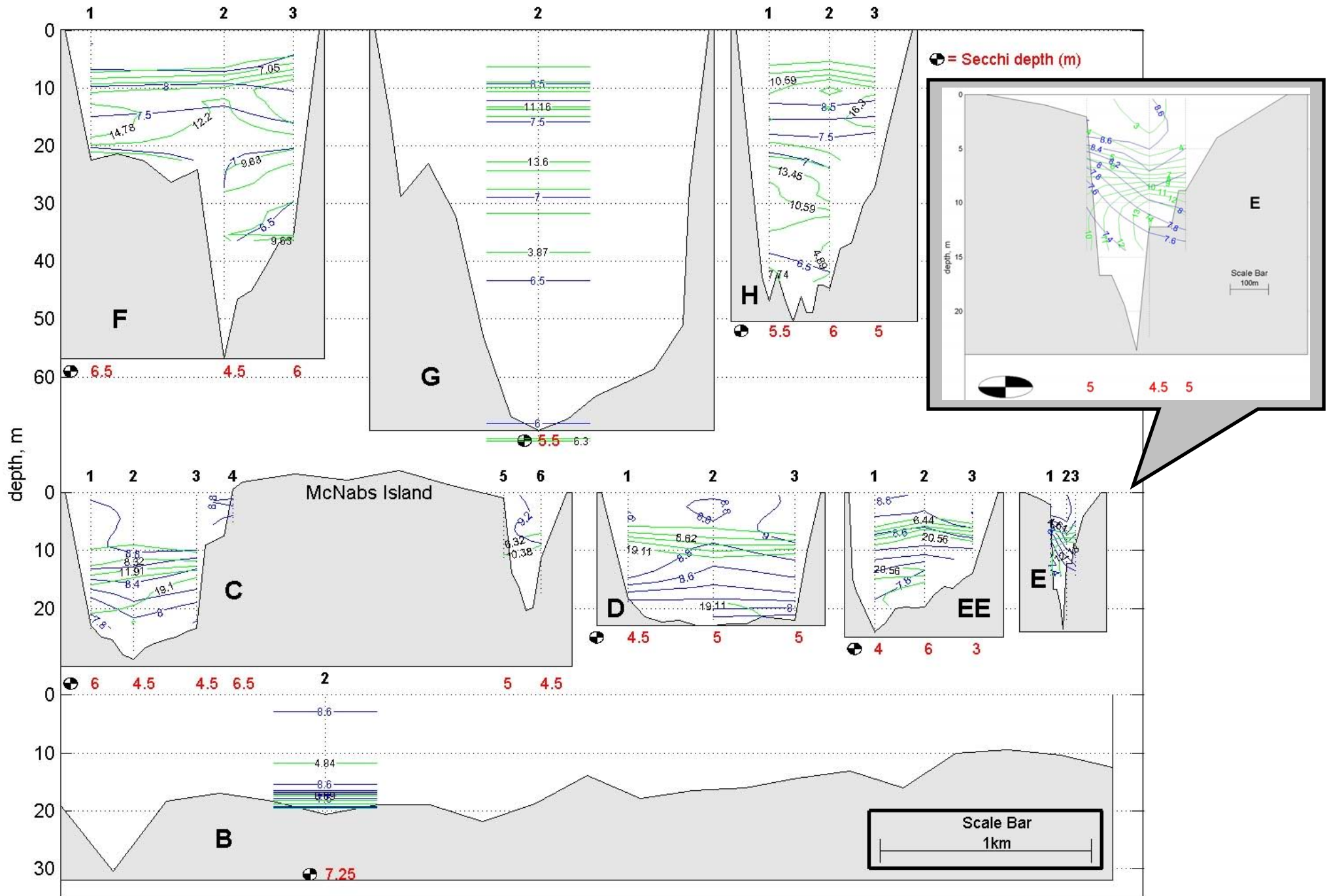


Potential Density in  $\text{kg/m}^3$

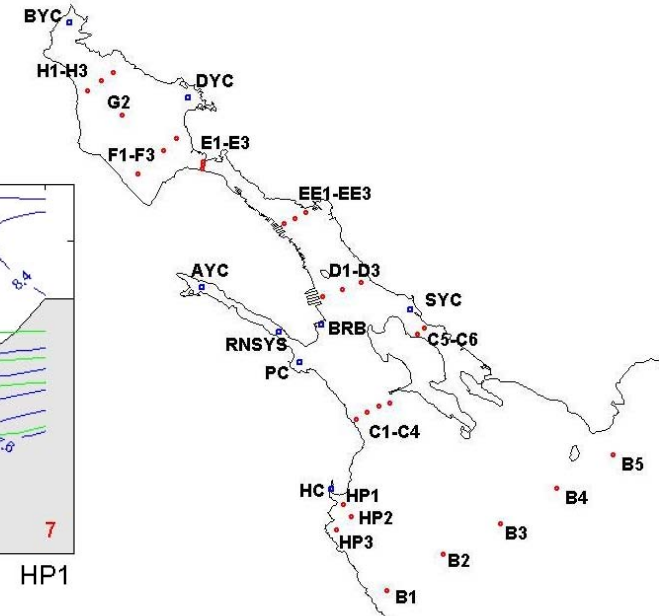
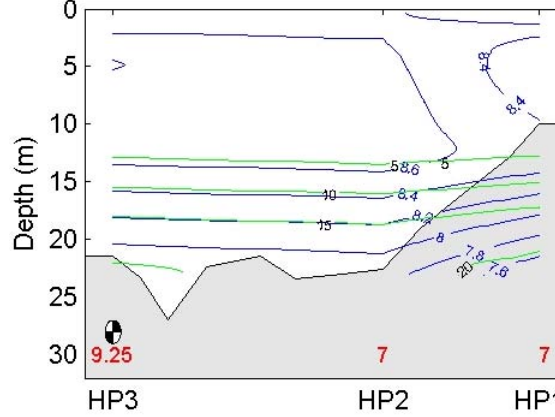
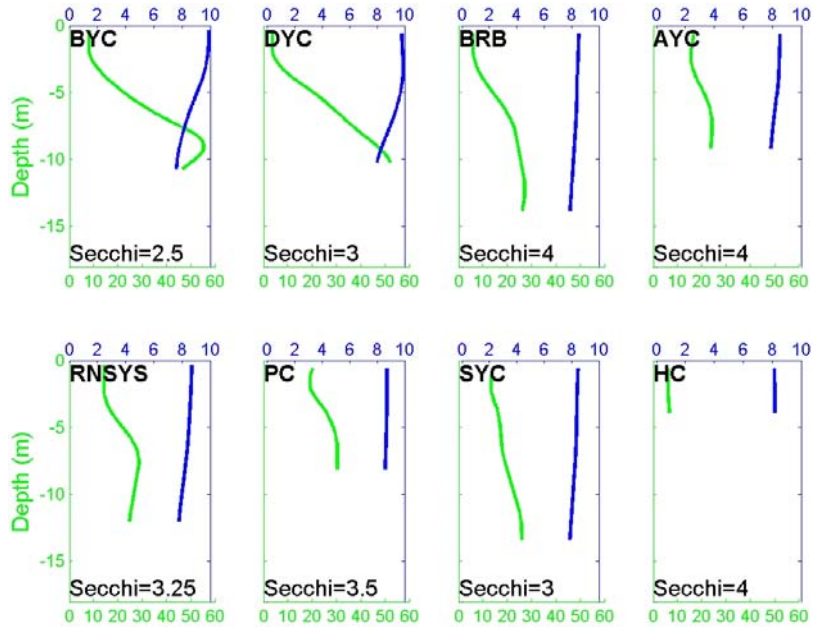
Fecal coliform: **above swimming limit (200 cfu/100mL)**  
**above shellfish limit (14 cfu/100mL)**  
below limits



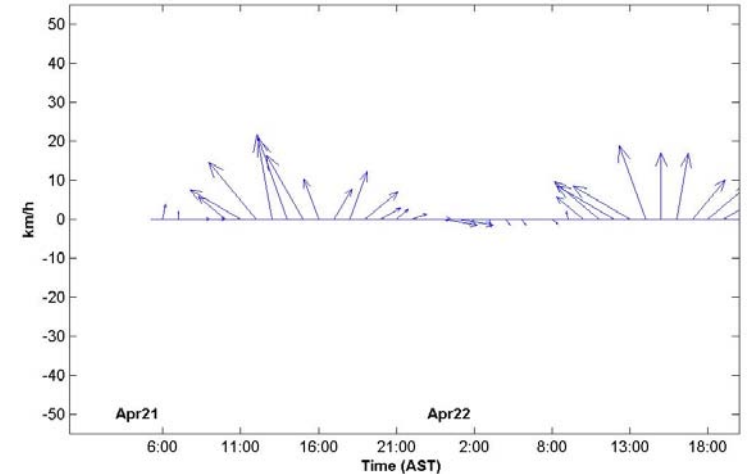




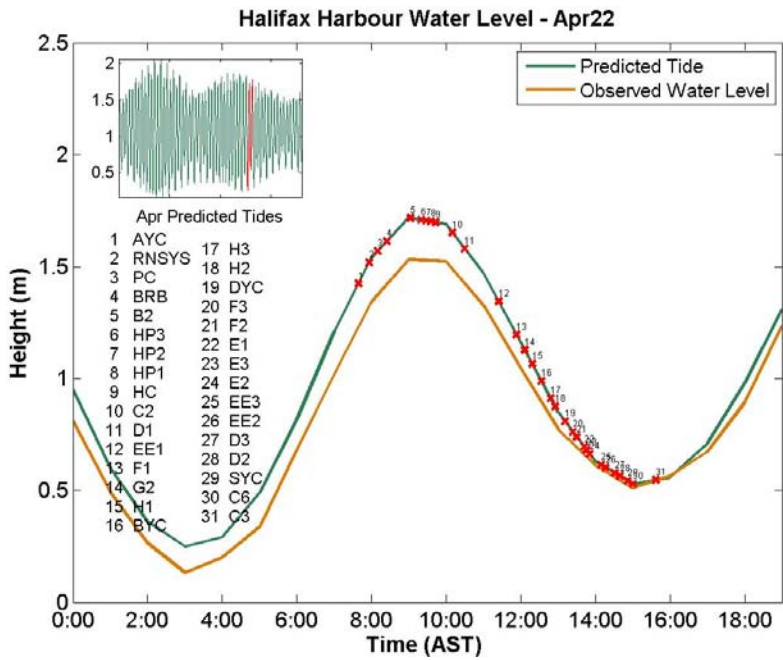
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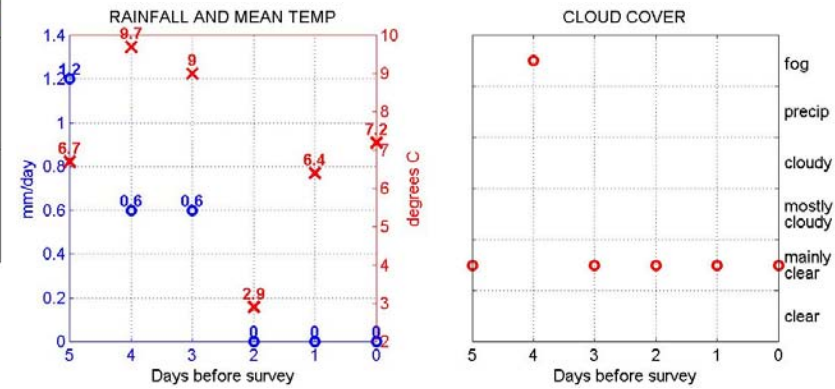


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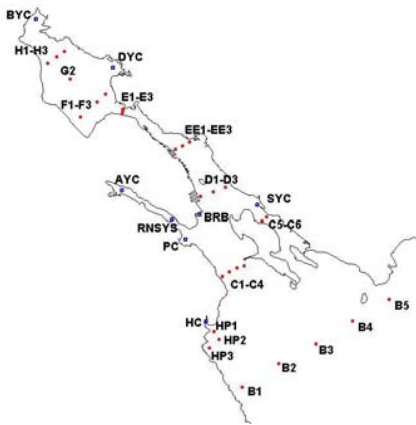
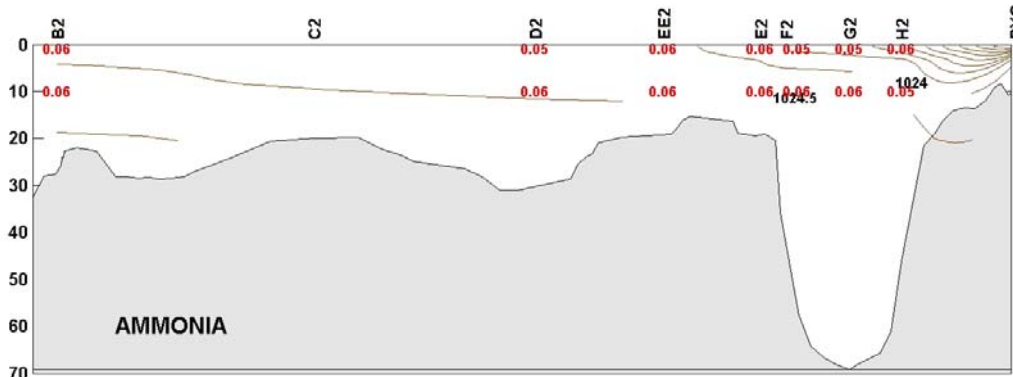
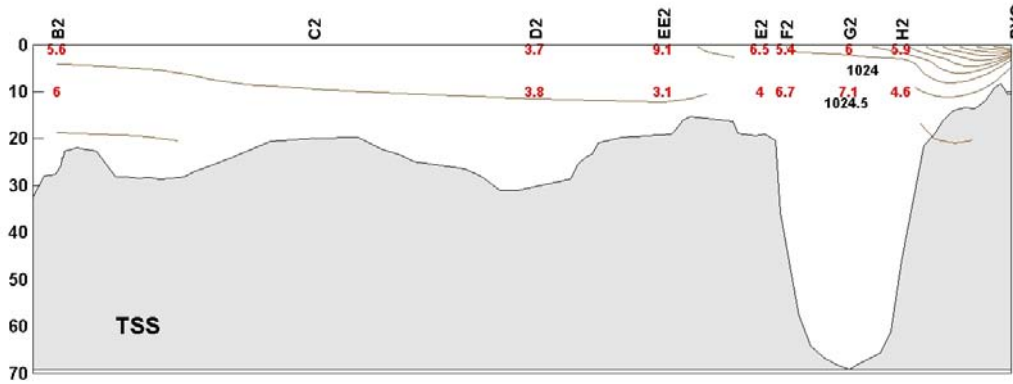


DO in mg/L

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



CHEMISTRY



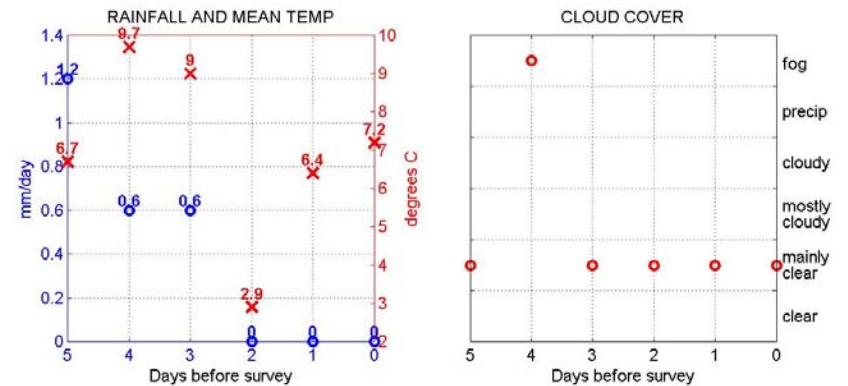
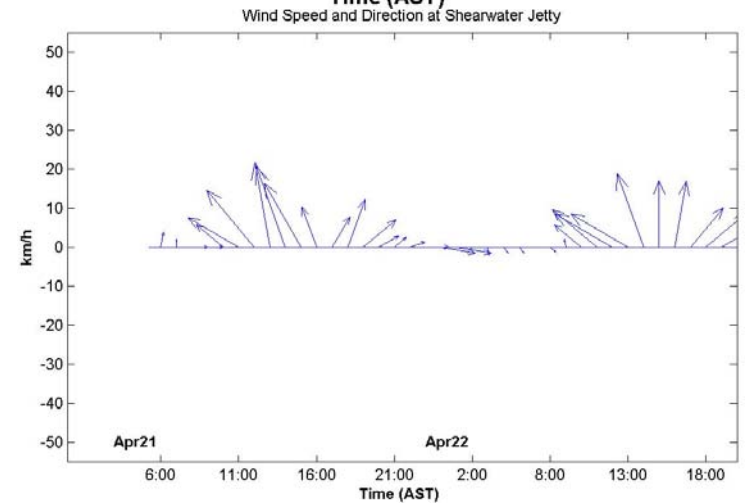
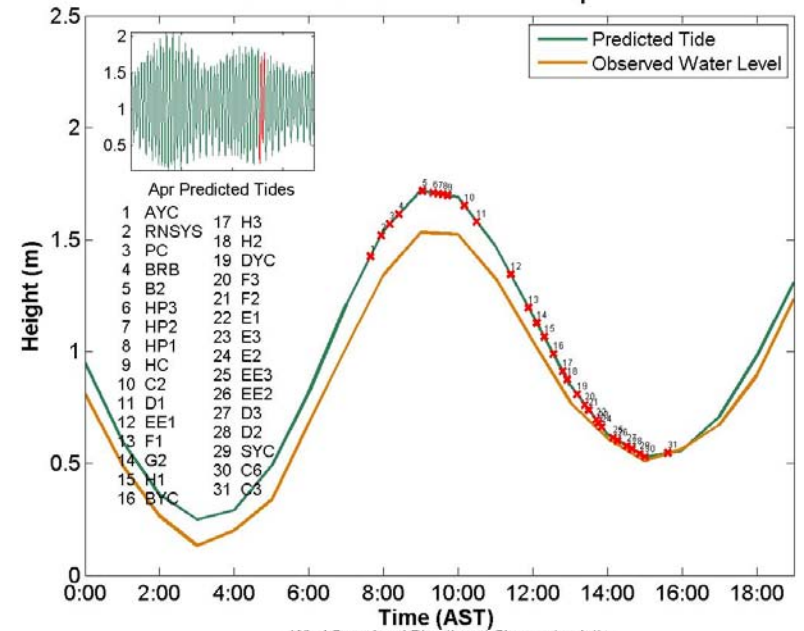
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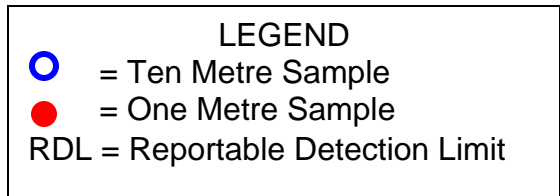
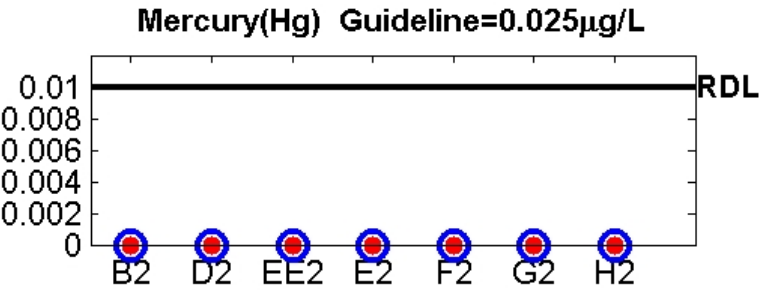
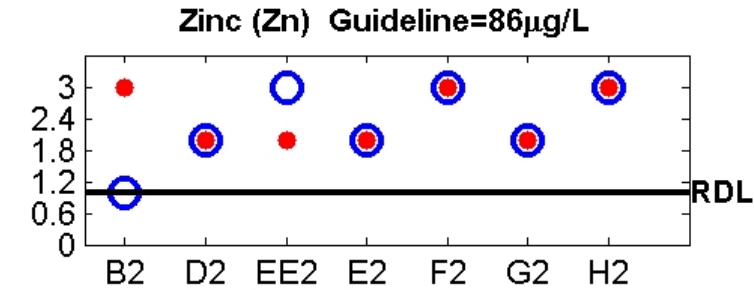
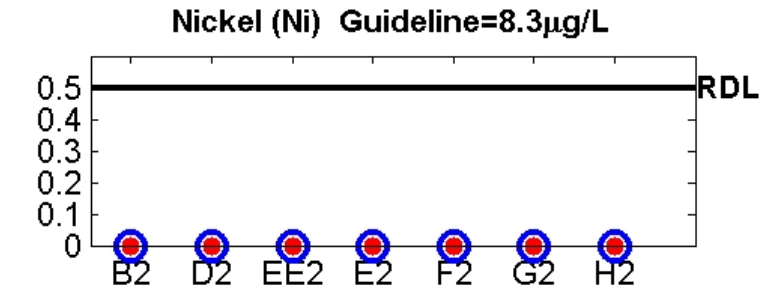
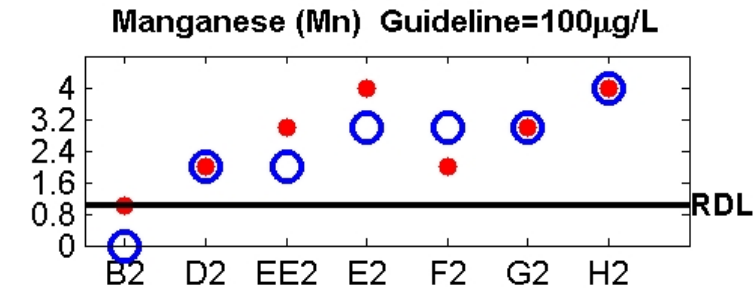
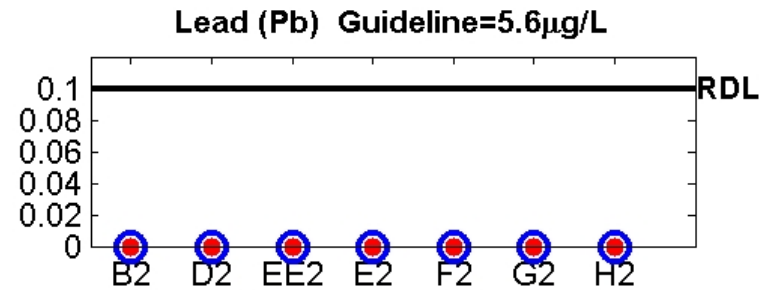
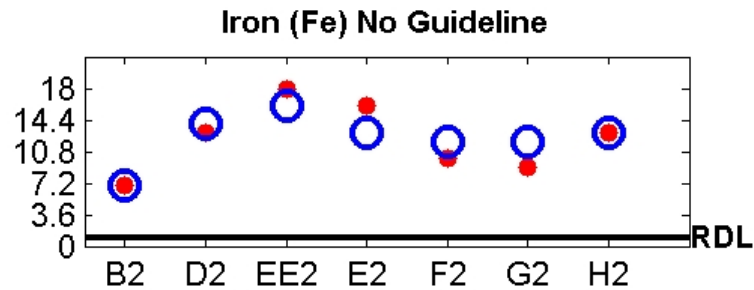
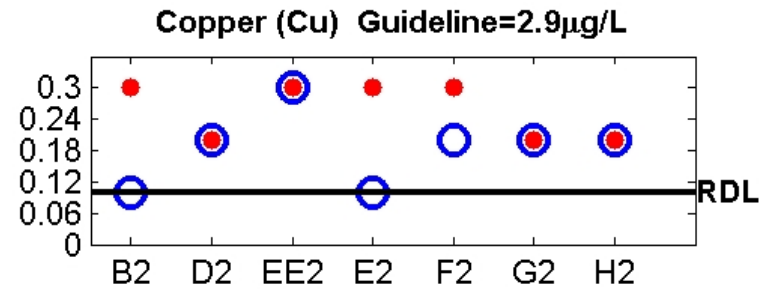
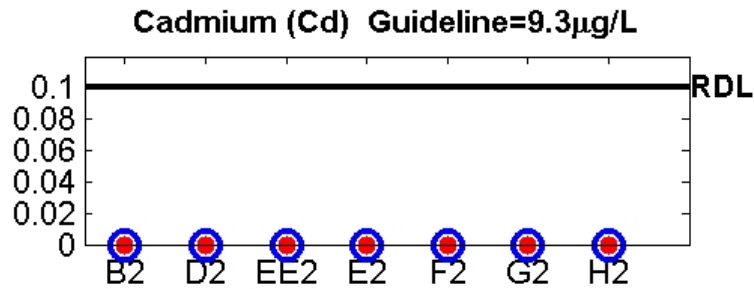
Ammonia in  $\text{mg/L}$

TSS in  $\text{mg/L}$

Halifax Harbour Water Level - Apr22

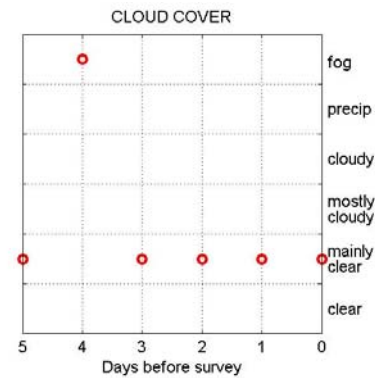
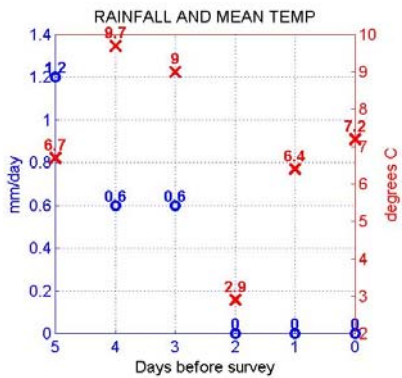
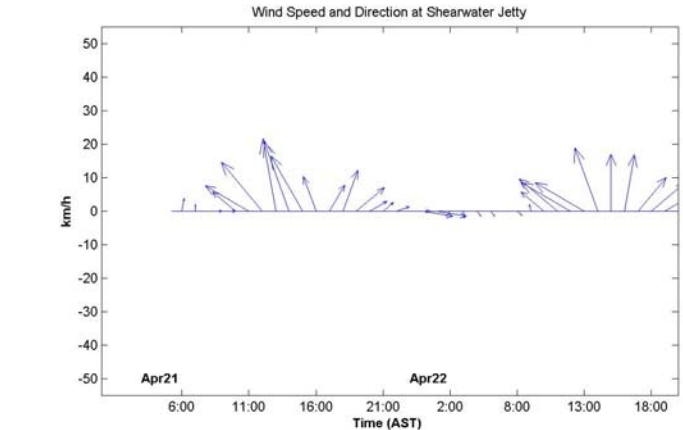
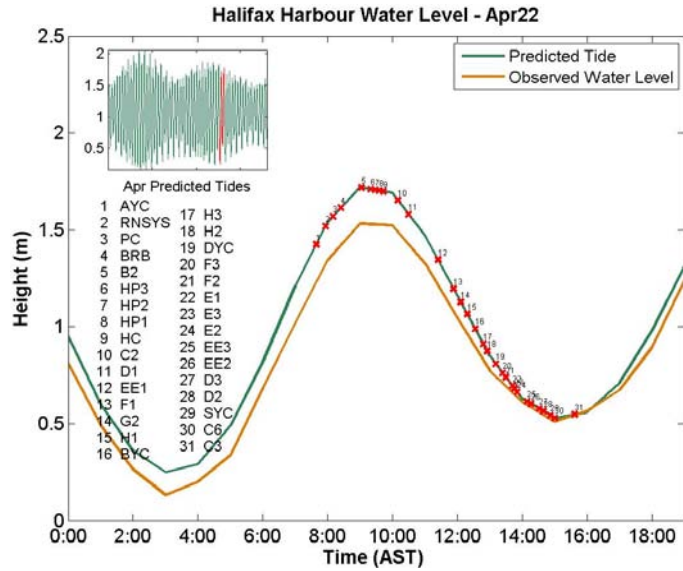




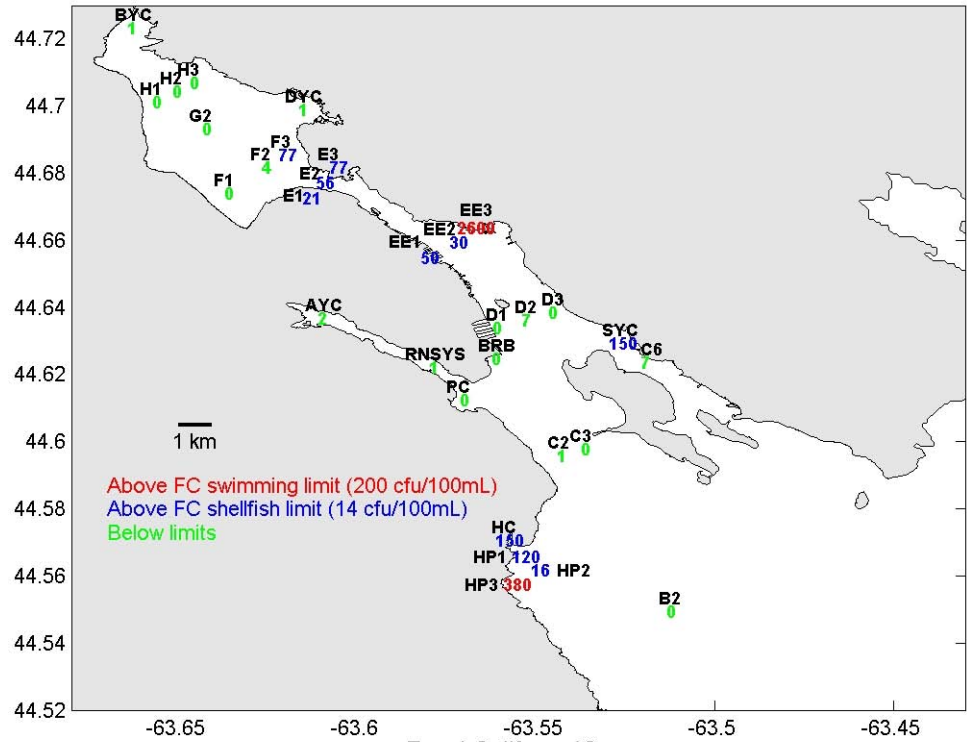


# HRM Water Quality Monitoring

## Fecal Coliform Summary – April 22, 2008



Fecal Coliform 1 m



Fecal Coliform 10 m

