

# Halifax Harbour Water Quality Monitoring Project

## Survey Summary #184

**Survey Date:** 19 May 2009  
**Nature of Survey:** Complete Survey  
**Report File (this document):** HHWQMP\_report184\_090519.doc  
**Data File:** HHWQMP\_data184\_090519.xls

**Data Return:**  
 Chemical: 100%  
 Bacteria: 100%  
 Profile: 94%  
**Overall: 97%**

### Sample Notes:

There was no data recorded on the CTD at BYC, probable user error.

The CTD data at H2 was artificially shallow and appears misaligned. There is no explanation, but the data plotted here has been deleted from the data file.

To match the collected reference data, the presented DO values should be scaled by a factor of 1.5 (see data file cover sheet).

### QA/QC samples:

Chemical Analysis		E2-1m	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L	<0.05	<0.05
Total Suspended Solids	mg/L	2.6	4.6
Copper	ug/L	0.6	0.6
Iron	ug/L	11.0	13.0
Manganese	ug/L	6.0	8.0
Nickel	ug/L	<0.5	0.5
Zinc	ug/L	2.0	2.0

### Fecal Coliform (CFU/100ml)

Site	C6-10m	DYC-1m	PC-10m	E2-1m
Reference	4	18	170	140
QA/QC	7	10	160	15

### Comments:

**General:** The water properties are not very different from the previous survey. Overall the harbour is slightly fresher, except the surface water in the Basin is very slightly more saline. The water properties in the deeper Basin water remain remarkably uniform. The fc levels are moderate to low with some elevated values in the 1m samples on the Halifax side of the harbour and in the Outer Harbour near the Tribune Head outfall (HP and HC). There is a single value just above the 200 cfu/100 mL guideline in the 10m sample at D3, on the Dartmouth side of the harbour.

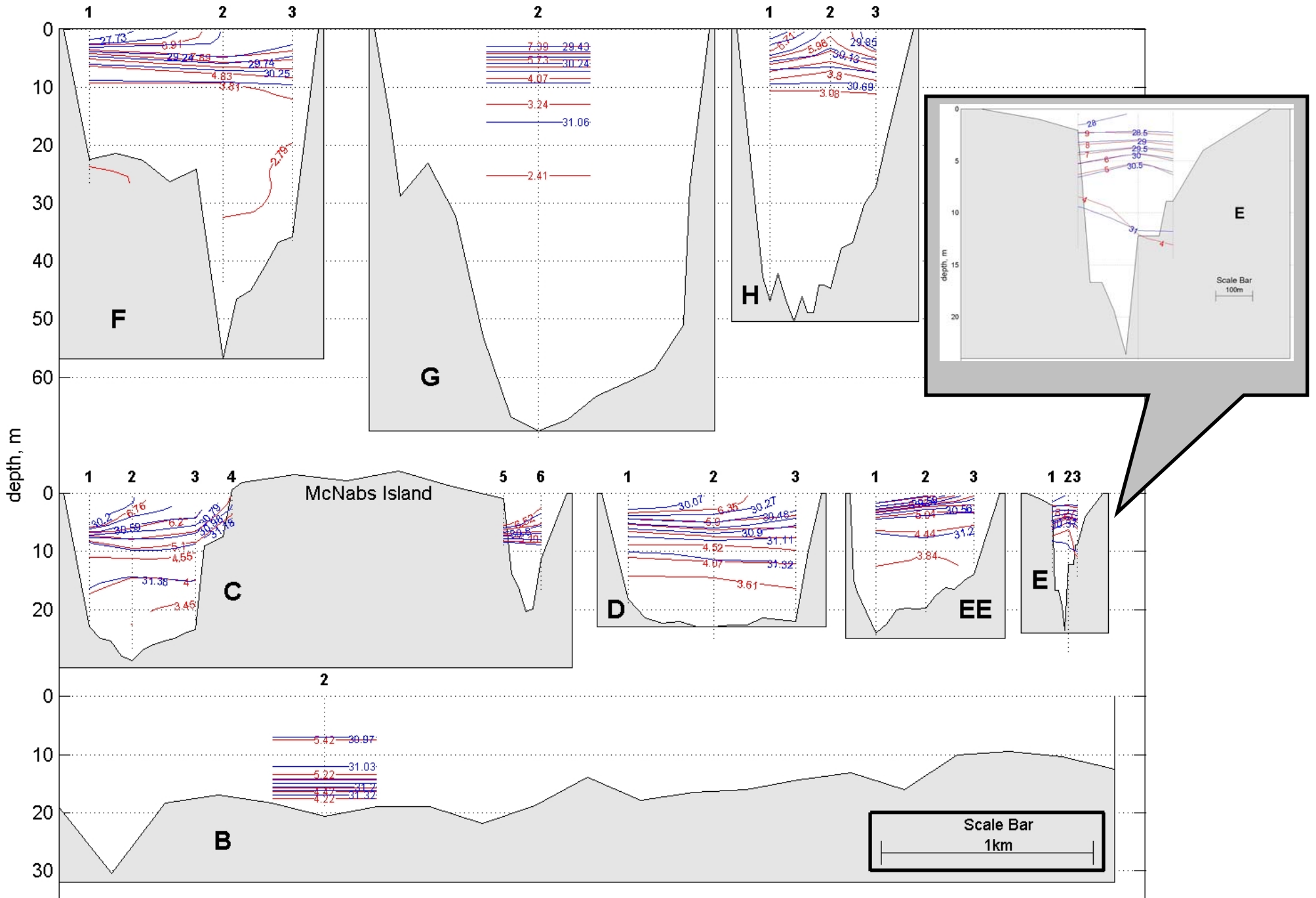
**Fluorescence:** The fluorescence levels have decreased significantly from the high values of the previous survey. The levels throughout the Inner Harbour and Basin are quite uniform at 11-17 mg/m<sup>3</sup> at a depth of about 7 m. The levels in the Outer Harbour (B2) are lower, approximately 3 mg/m<sup>3</sup>. In the Basin there is a second profile maximum of similar magnitude at a depth of about 40-45m. This may be the remnants of the large bloom documented in the previous survey.

**TSS:** The average TSS levels are low (2.8 mg/L), with a maximum value of 5.5 mg/L). There is no obvious spatial pattern.

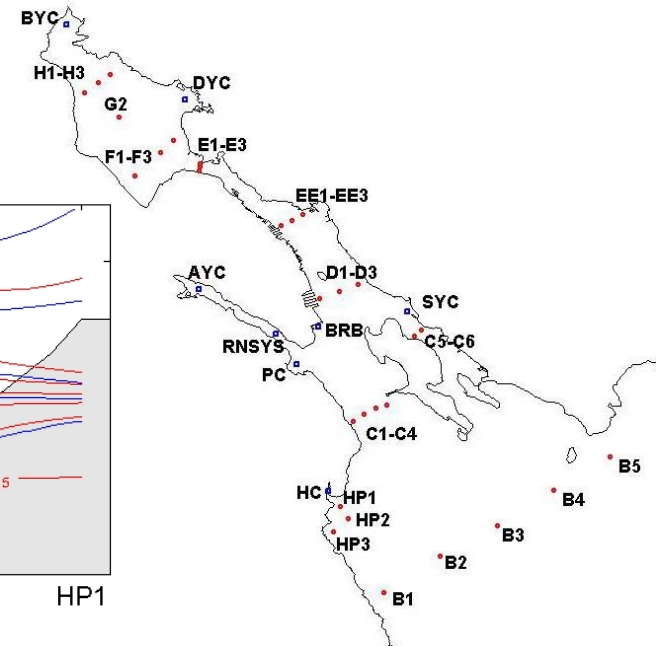
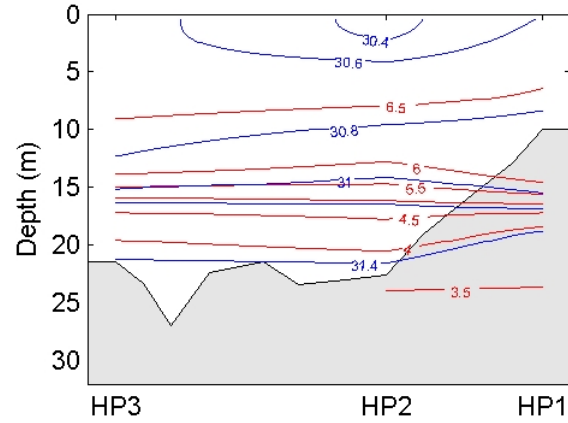
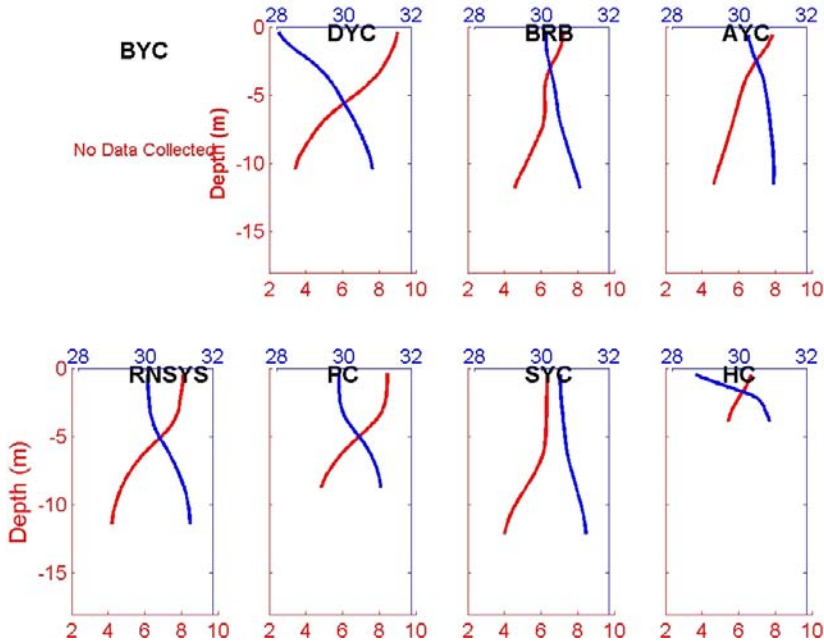
**Ammonia:** The ammonia levels are low with only two detectable values (>0.05 mg/L).

**Metals:** There are no guideline exceedences. The two one meter samples in the mid and southern Basin (F2 and G2) have elevated levels of copper, lead, nickel and zinc. The closest to guideline exceedence levels is copper with both samples at about 60% of the 2.9 µg/L guideline.

**Dissolved Oxygen:** The dissolved oxygen data, scaled appropriately by a factor of 1.5. indicates that the DO levels are uniformly high. Outside the Basin the levels are everywhere > 10 mg/L with levels at the surface about 1 mg/L higher than at the bottom. In the Basin the DO in the surface water is > 12 mg/L. The deep values have decreased since the uniform values observed in the previous survey but remain relatively high, with minimum values about 8.7 mg/L. There were no guideline exceedences observed.



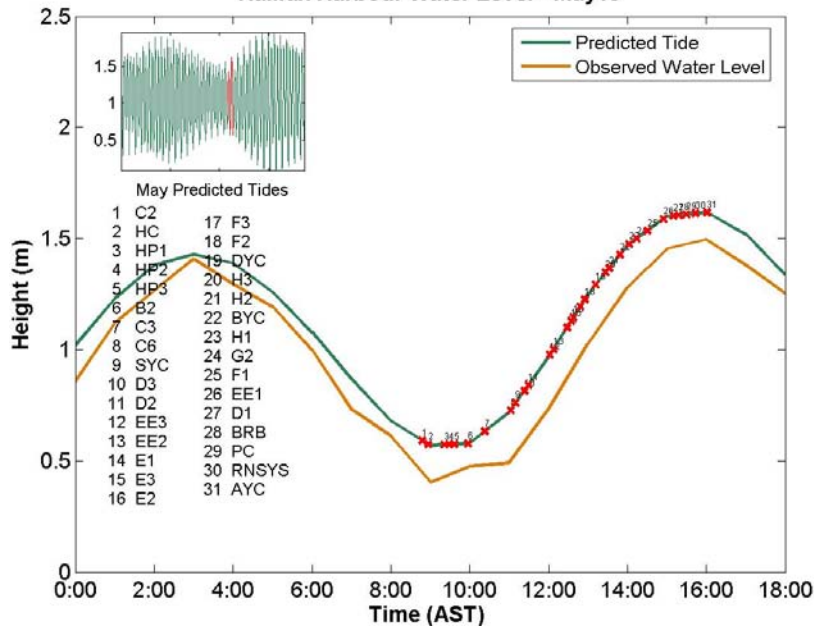
# Yacht Clubs



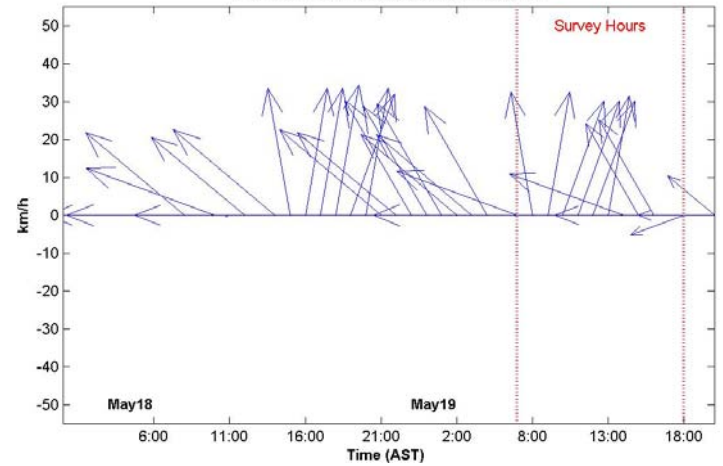
Rainfall and temperature data collected at Shearwater Autoport.

Cloud cover data collected at Shearwater Airport

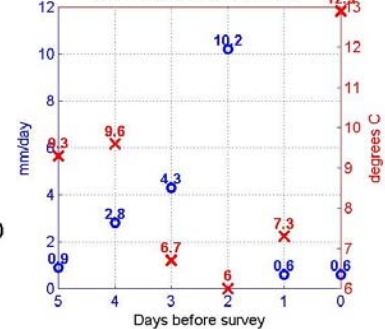
Halifax Harbour Water Level - May19



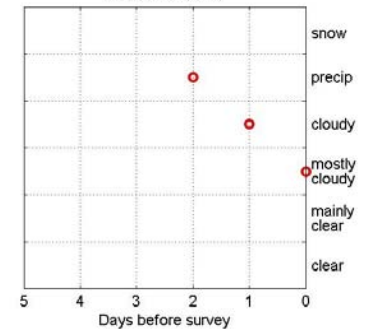
Wind Speed and Direction at Shearwater Jetty



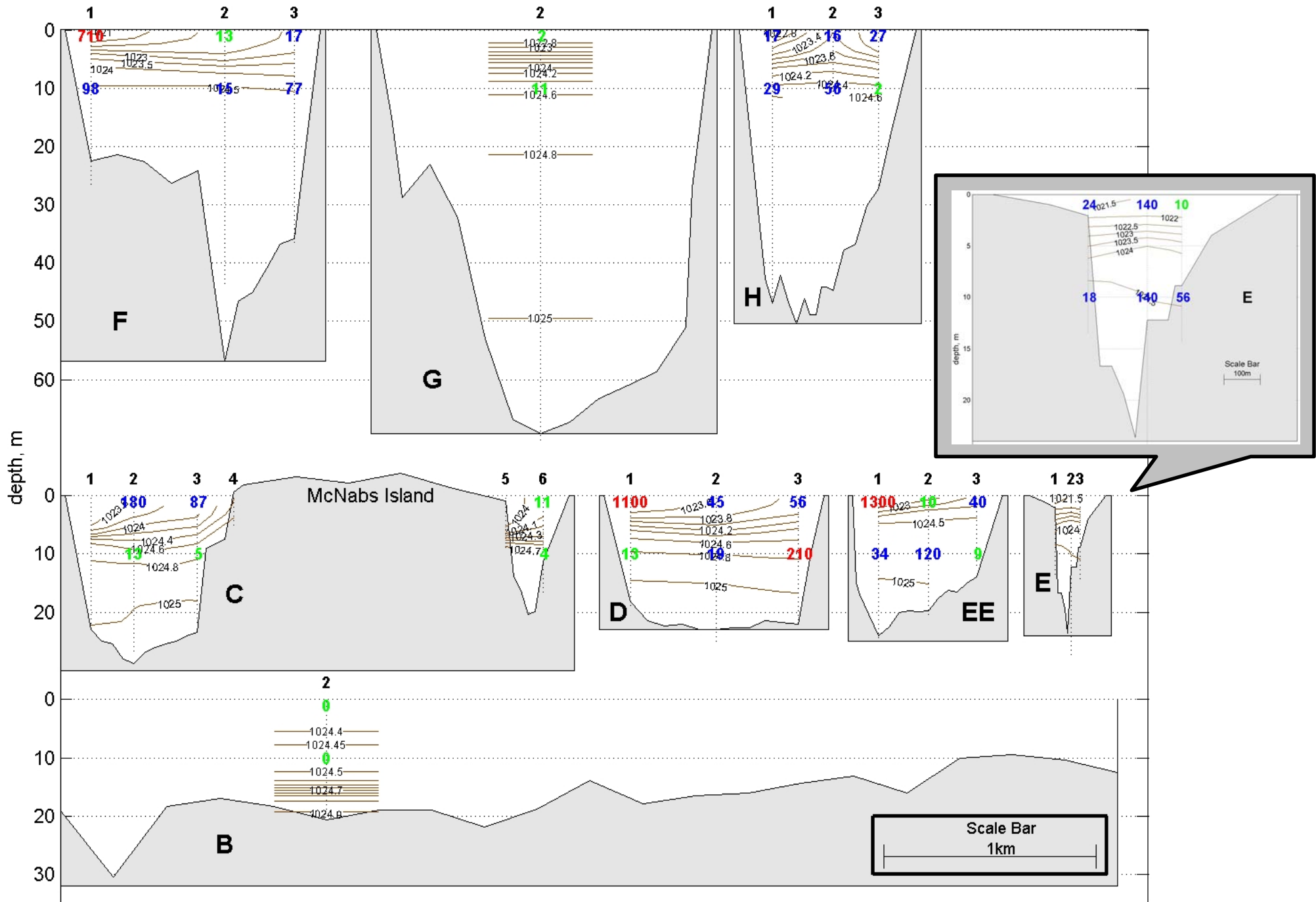
RAINFALL AND MEAN TEMP



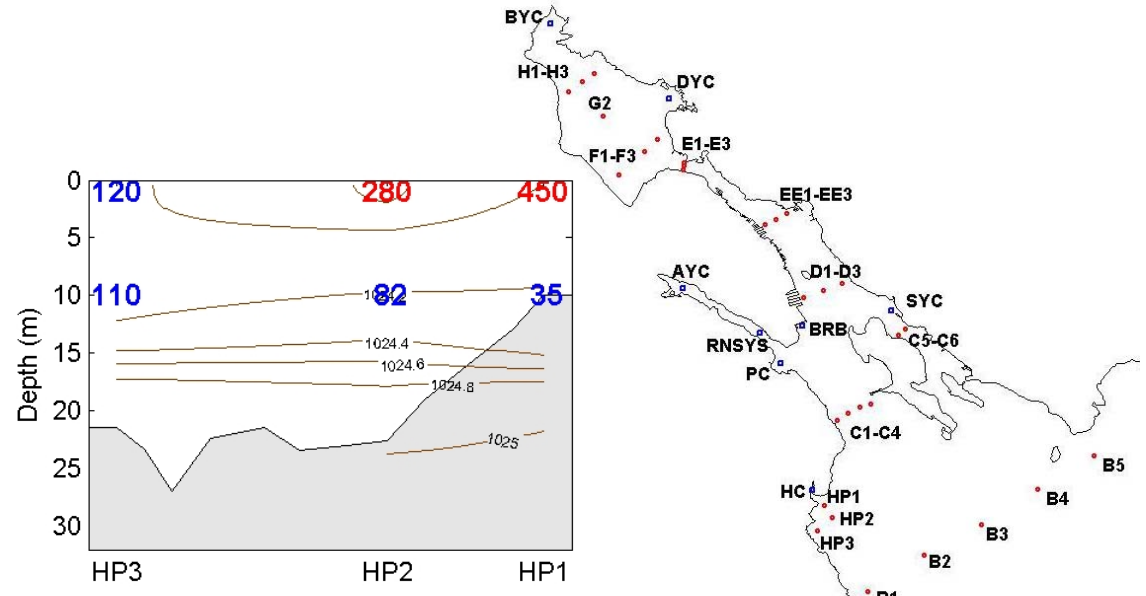
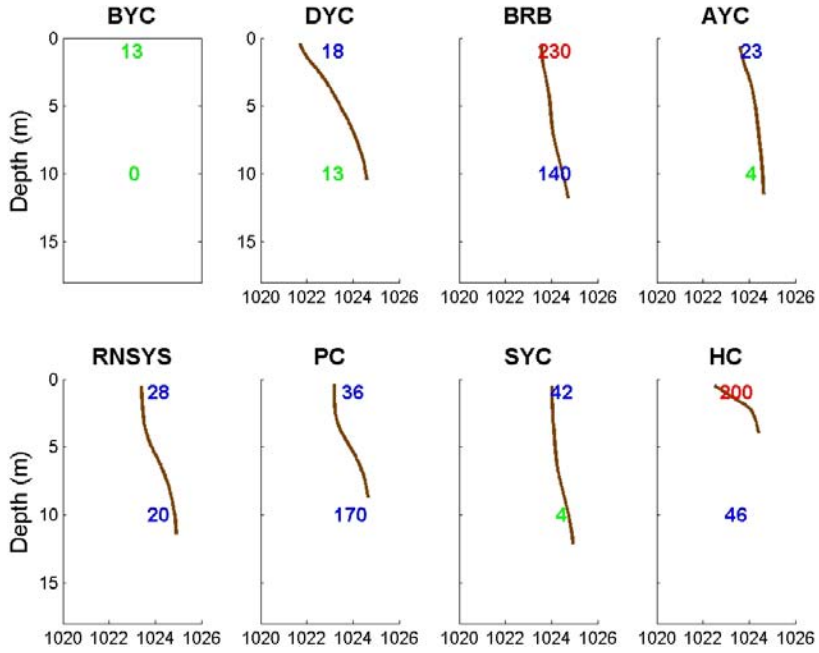
CLOUD COVER



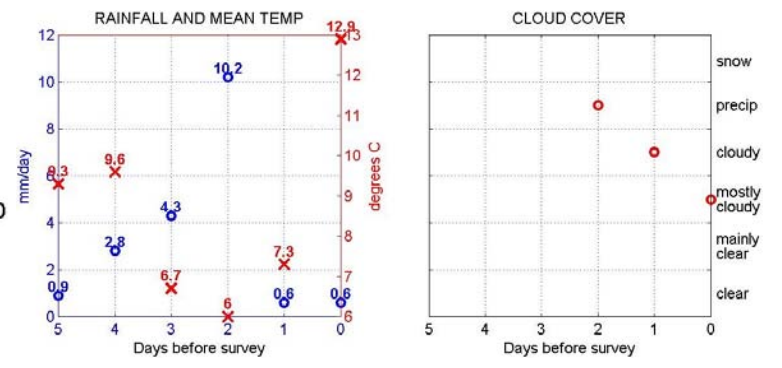
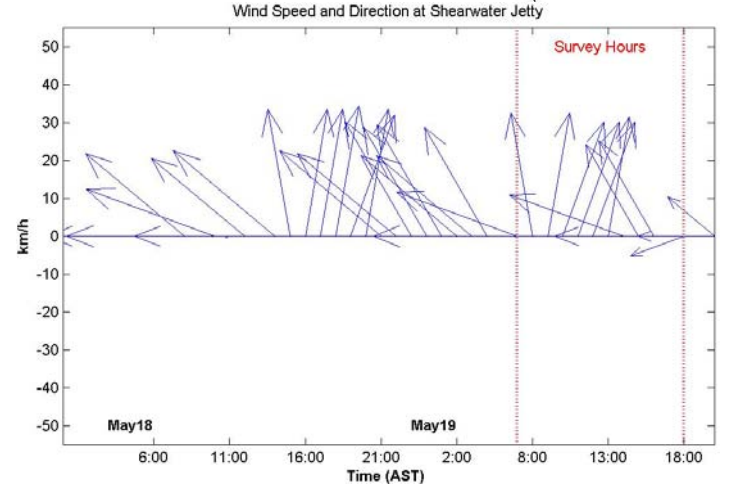
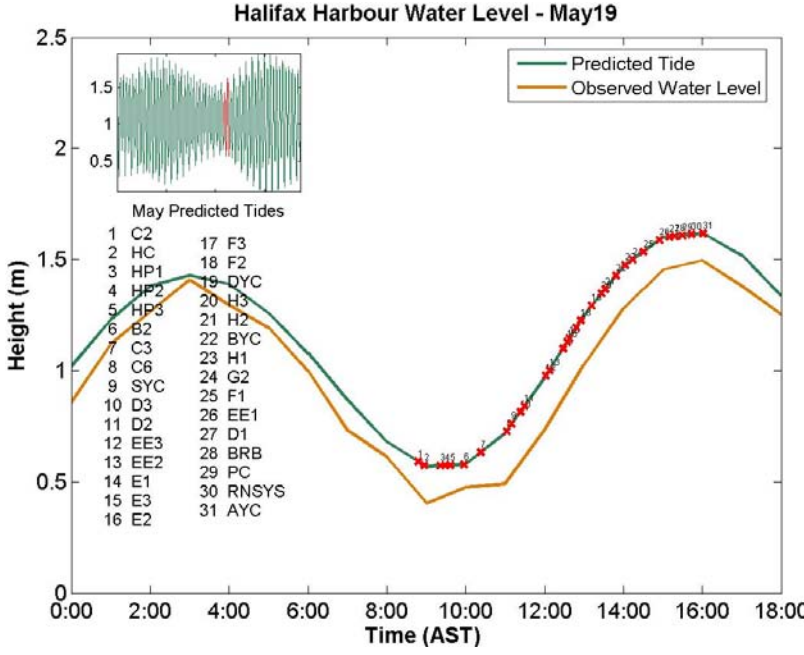
Salinity in PSU      Temperature in °C



# Yacht Clubs



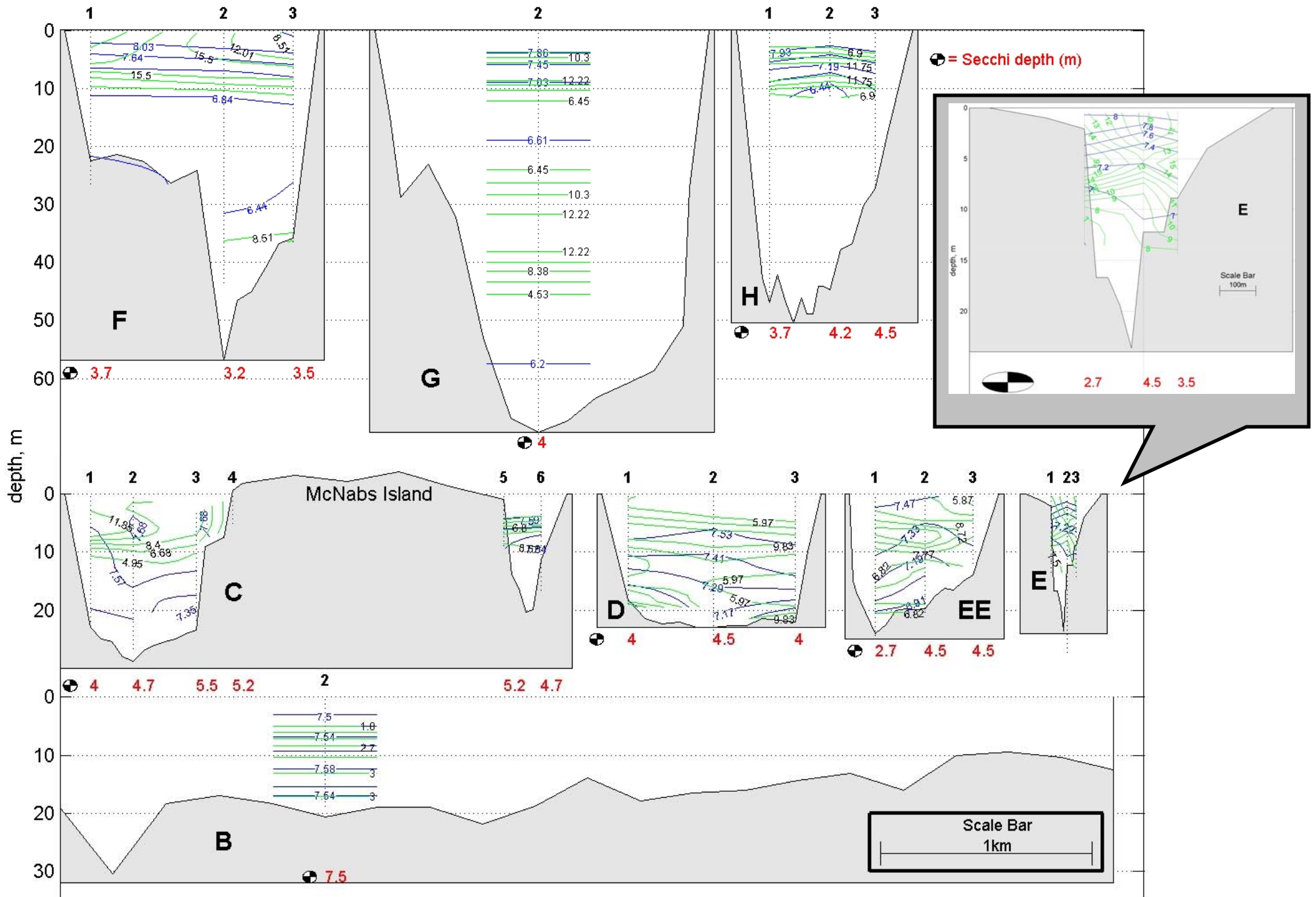
Rainfall and temperature data collected at Shearwater Autoport.  
Cloud cover data collected at Shearwater Airport



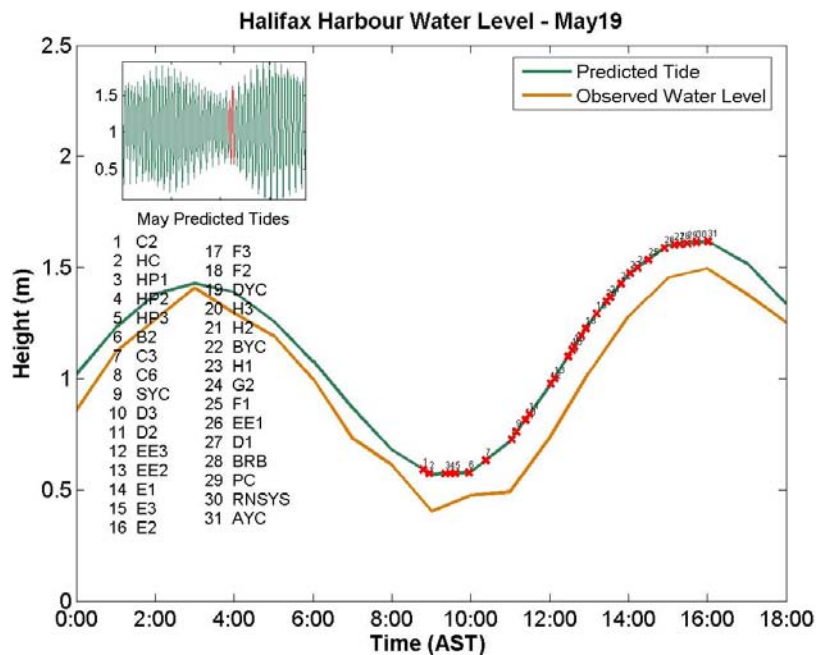
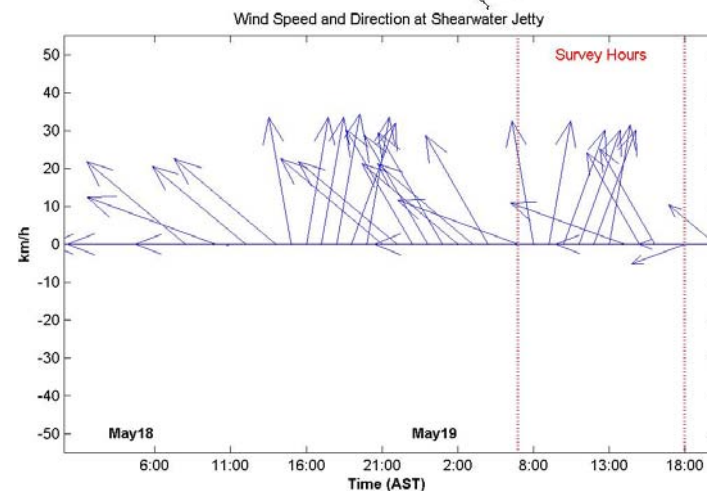
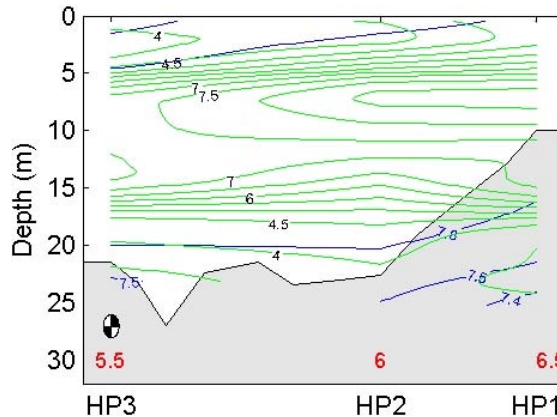
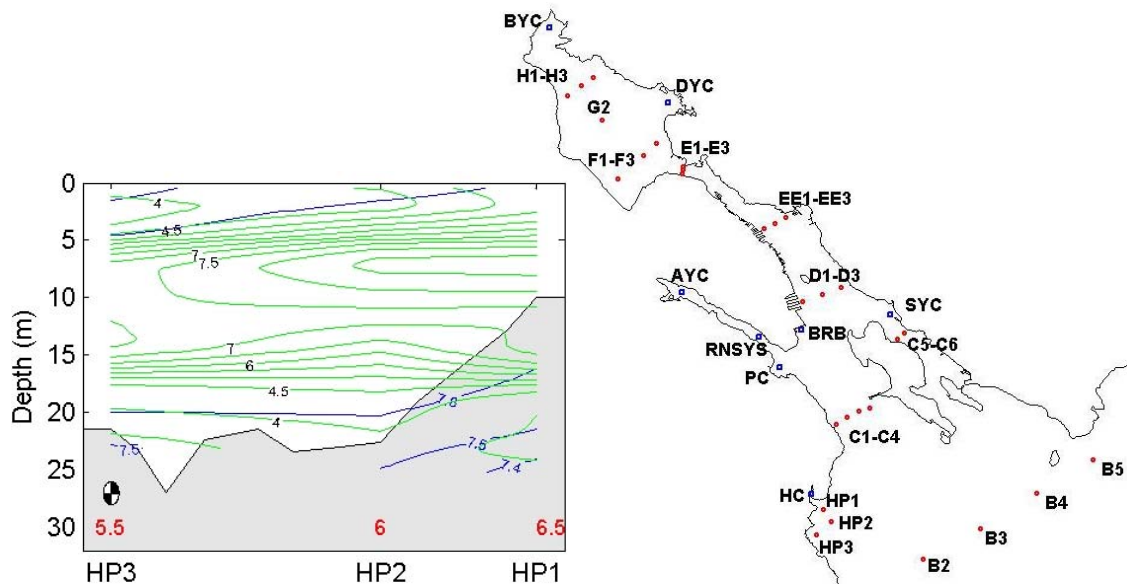
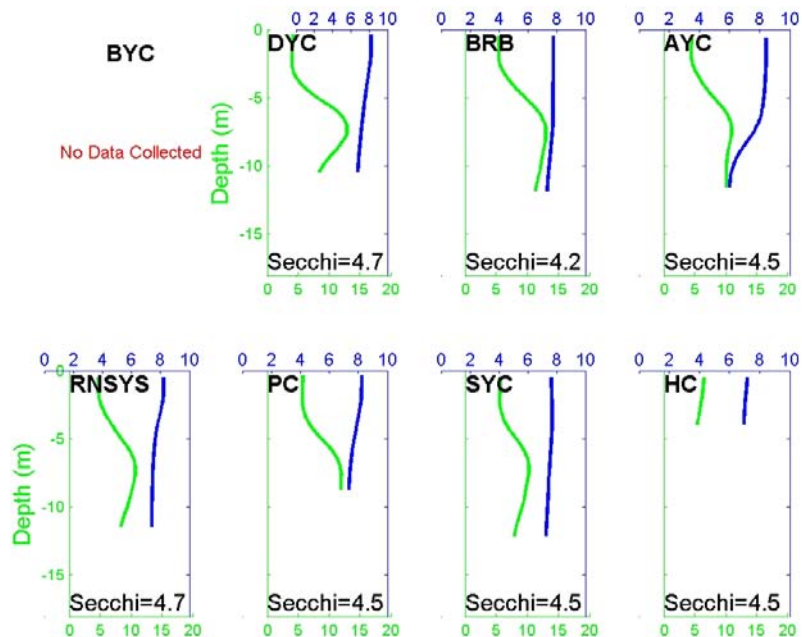
Potential Density in kg/m<sup>3</sup>

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



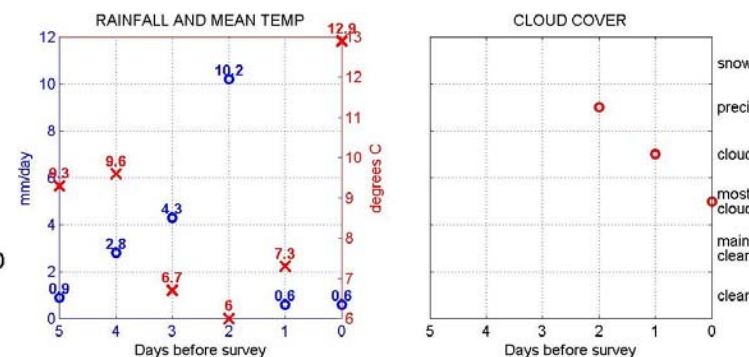


# Yacht Clubs



Rainfall and temperature data collected at Shearwater Autoport.

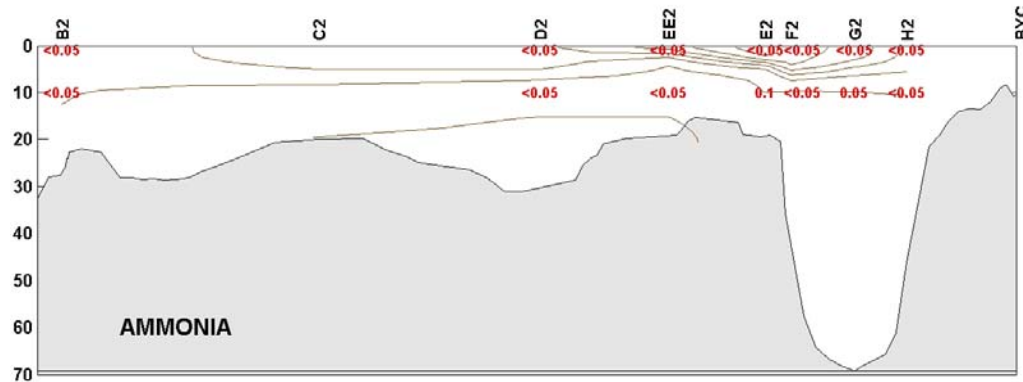
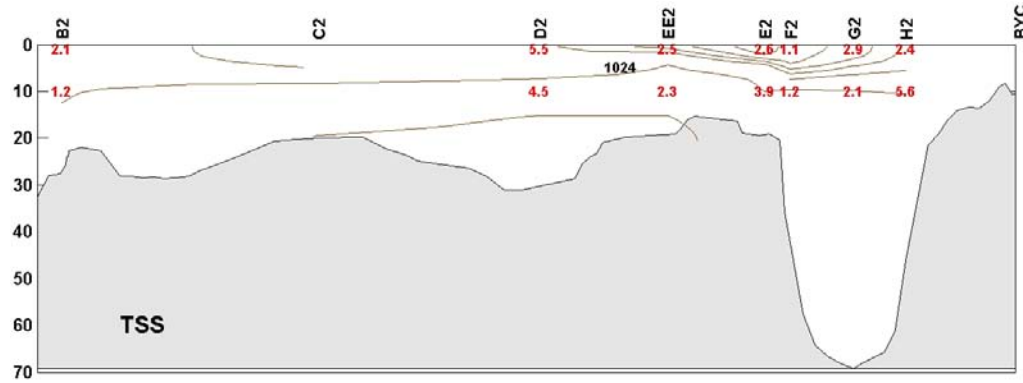
Cloud cover data collected at Shearwater Airport



DO in mg/L

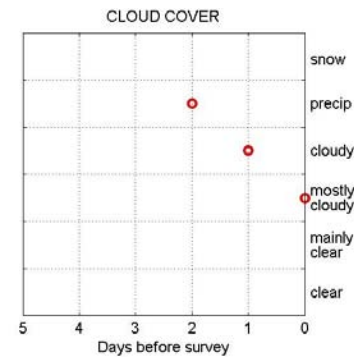
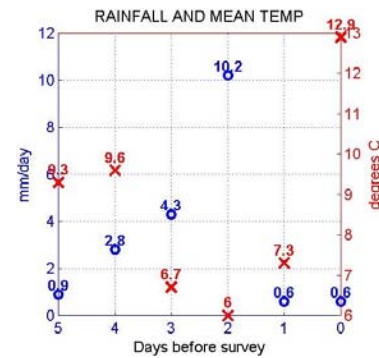
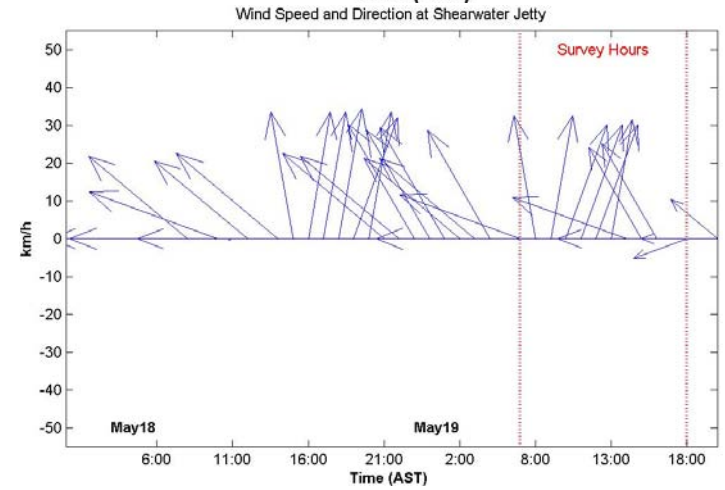
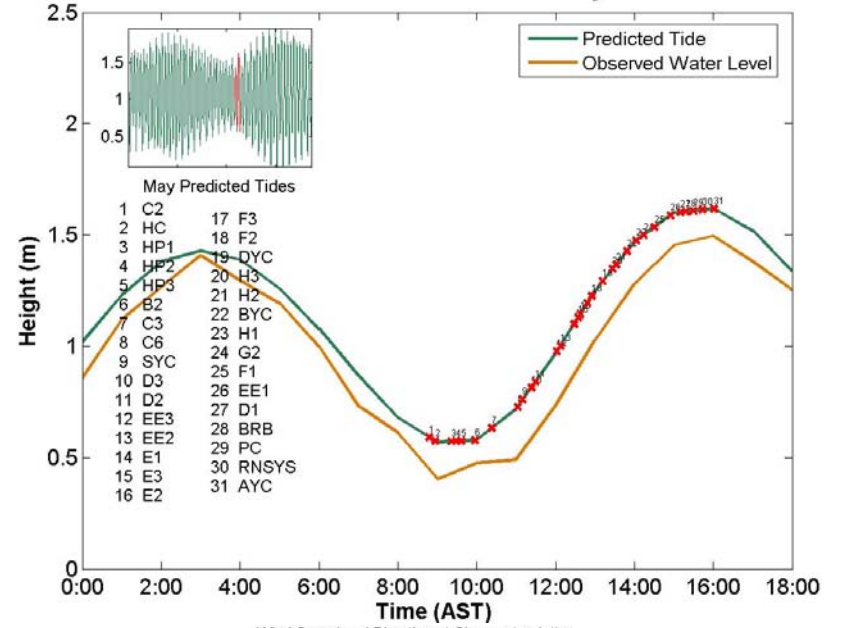
Chlorophyll in mg/m<sup>3</sup>

CHEMISTRY



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

Halifax Harbour Water Level - May19

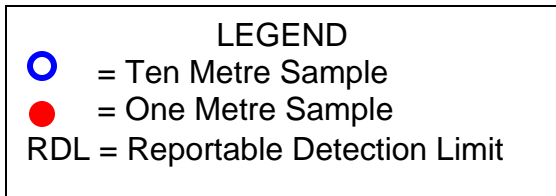
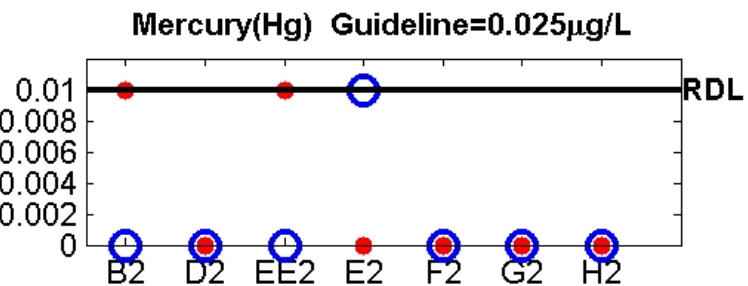
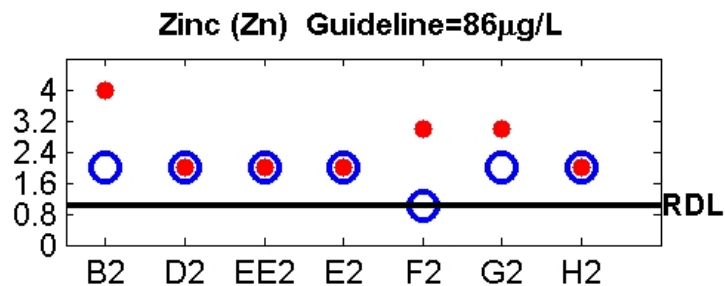
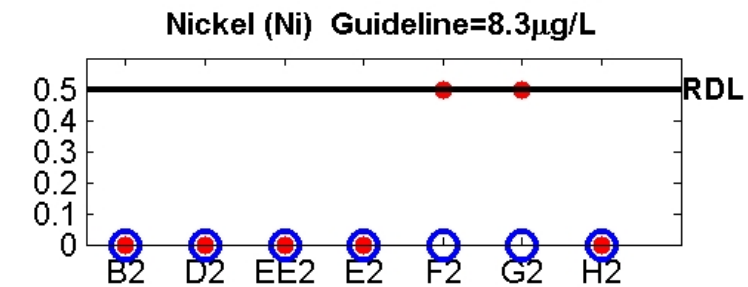
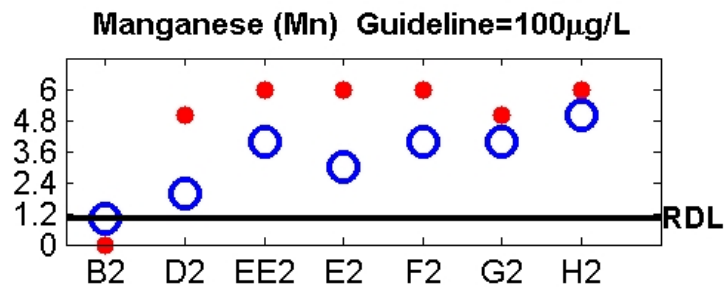
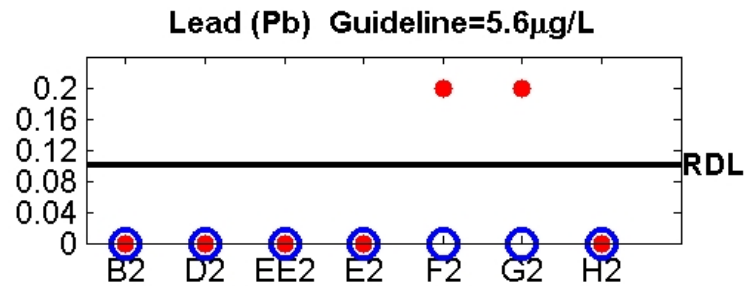
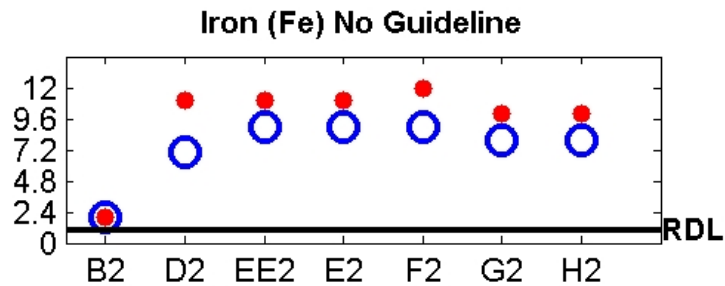
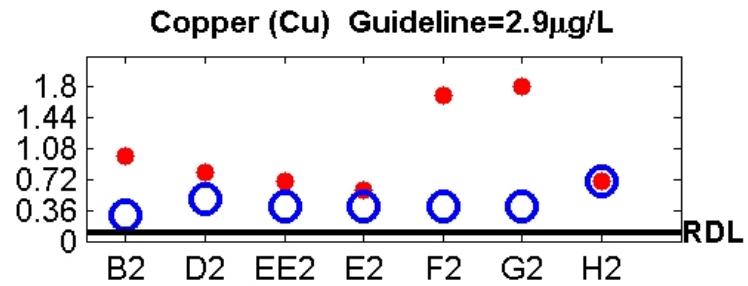
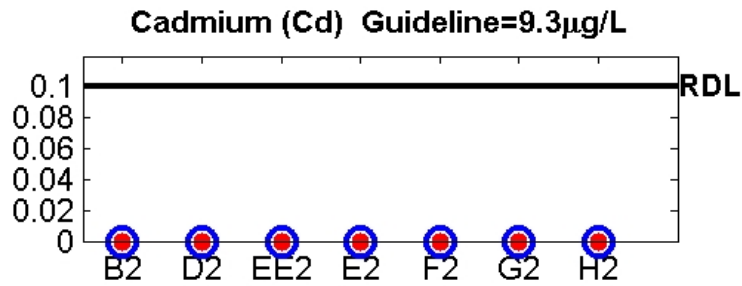


Potential Density in  $\text{kg/m}^3$

Ammonia in  $\text{mg/L}$

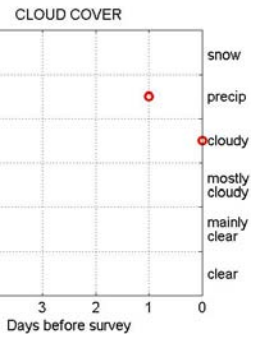
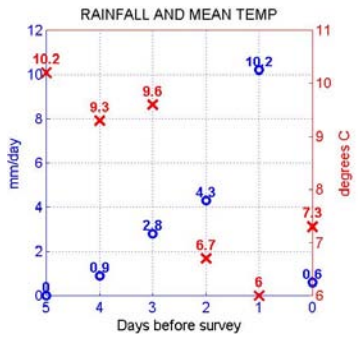
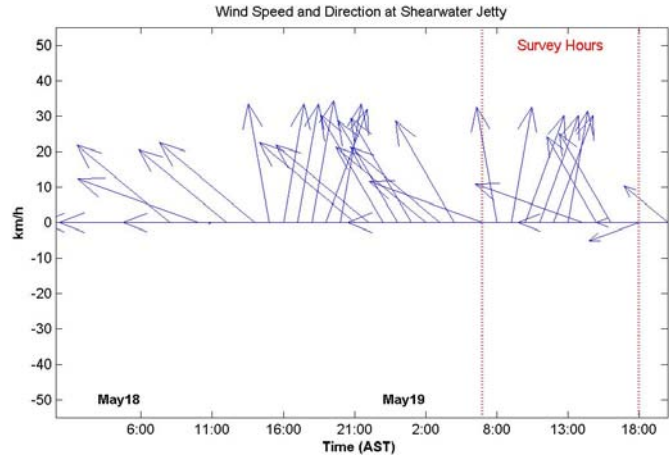
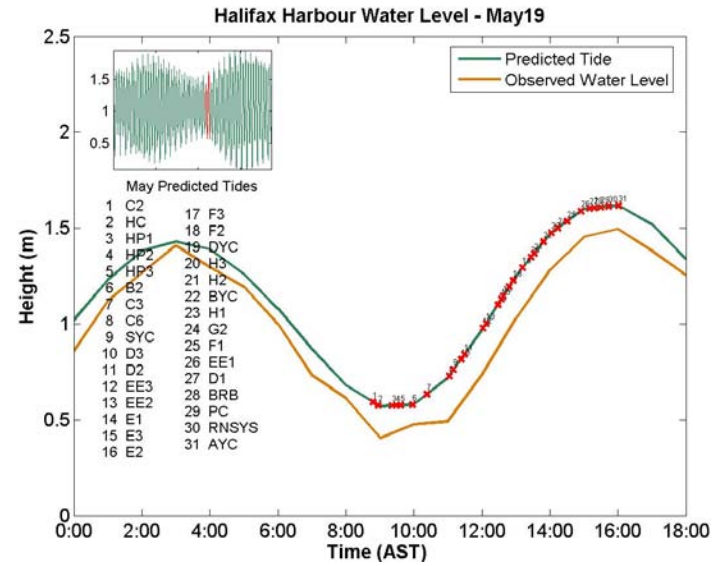
TSS in  $\text{mg/L}$



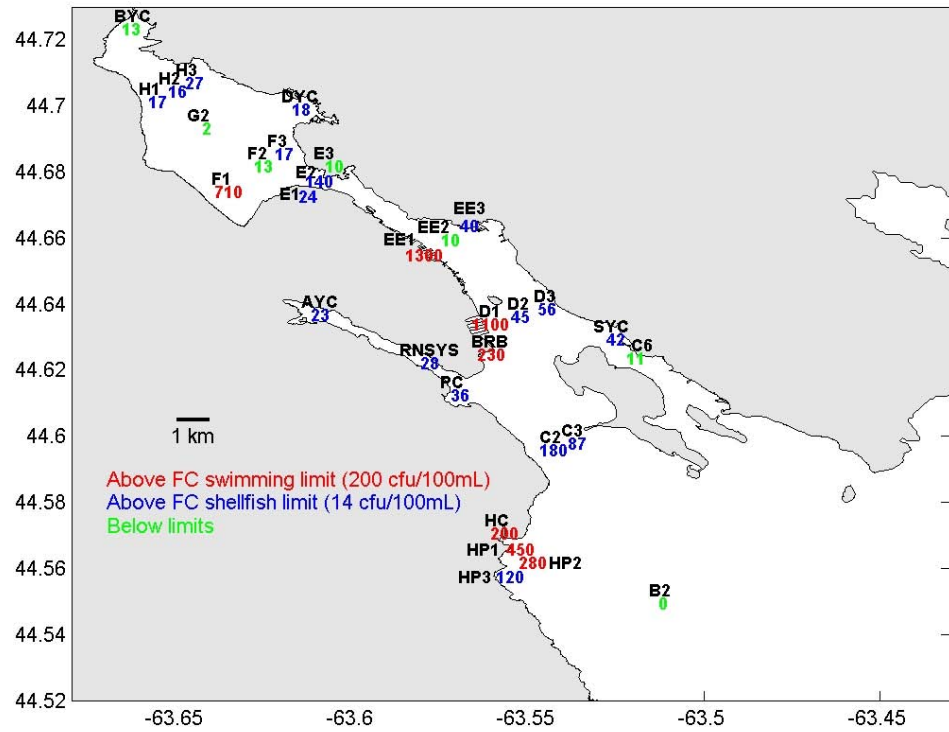


# HRM Water Quality Monitoring

## Fecal Coliform Summary – May 19, 2009



Fecal Coliform 1 m



Fecal Coliform 10 m

