Halifax Harbour Water Quality Monitoring Project
Weekly Summary #122

Survey Date: 30 January 2007
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report122_070130.doc
Data File: HHWQMP_data122_070130.xls

Data Return:

Profile:	96%
Bacteria:	97%
Chemical:	100%
Overall:	**97%**

Sample Notes:

DYC not sampled due to ice. BYC sample moved to ice edge.

The CTD appeared to experience flow problems during the instrument stabilization period at sites AYC and RNSYS. In both cases the flow, as evidenced in the DO data, seems to have established itself before the actual cast occurred. At AYC the DO sensor did not have sufficient time to stabilize before the cast began. This DO data is plotted here but has been deleted from the data file. The remainder of the data from these casts appears unaffected.

QA/QC samples:

Chemical Analysis

Detectable Parameter	Units	H2 - 10m reference sample	QA/QC
Ammonia (as N)	mg/L	0.05	0.05
Total Suspended Solids	mg/L	1.6	1.5
Copper	ug/L	0.3	0.3
Iron	ug/L	4.0	3.0
Zinc	ug/L	1.0	2.0

Fecal Coliform (CFU/100ml)

Site	C3-10M	E3-10M	BYC-10M	H2-10M
Reference	260	32	4	41
QA/QC	120	35	9	24

Comments:

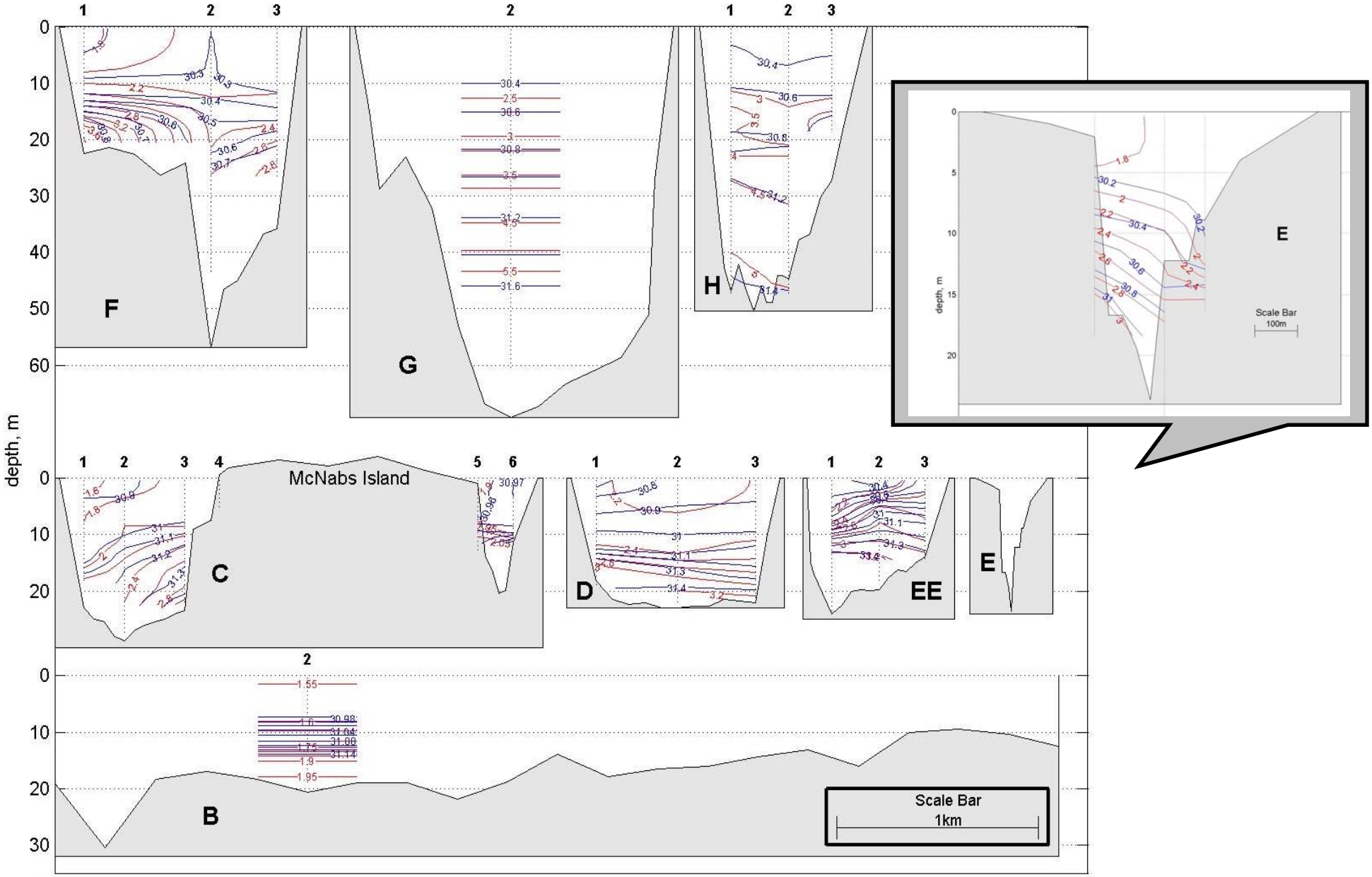
General: There has been no precipitation in the five days before the survey. The Harbour is generally more saline than in the previous survey but from the Narrows south, the water is slightly more stratified. The densest water in the Harbour is at the bottom of the Inner Harbour. In the Basin, the salinity at depth is slightly greater than last survey. This all suggests that there has been an intrusion of more saline shelf water. The density of the water at the bottom of the Narrows (15-20 m) is equivalent to the density at 30m in the Basin, implying that the intrusion is continuing at some level. However, site B2 has slightly less dense bottom water suggesting that the intrusion may not be presently occurring in a major way. The fecal coliform levels are high and similar to last survey with the exception that, this week, the values at B2 are quite high. The site PC data also suggest the plume from Chain Rock outfall is displaced out of the Harbour. These observations support the deeper intrusion and/or the direct affect of prevailing offshore wind that occurred the day before and during the survey.

Fluorescence: Fluorescence values are relatively low and uniform everywhere, with profile maximums just over 1 mg/L at a depth of 10-15 m.

Ammonia: The ammonia values vary only from <0.05 to 0.08 mg/L, but again the variation appears systematic. The highest values are in the in the Basin and Narrows and decrease going out of the Harbour.

TSS: The TSS values are all relatively low (<0.5-2.4 mg/L). The variation is low but the minimum values are near surface with the highest values in the near surface samples in the Inner Harbor, Narrows and southern Basin. Unusually, these values are lower than the values at B2. The secchi depth values are also quite high, 6.5 to 10.5 m.

Dissolved Oxygen: The dissolved oxygen (DO) data indicates that the surface values (<20 m) are generally > 7.0 mg/L everywhere, with values of nearly 8.0 mg/L in the Outer Harbour. The Basin bottom water DO has increased slightly to just over 2.0 mg/L. This is consistent with a deep water intrusion that has replaced some of the Basin bottom water. Above 20 m the Basin water meets the applicable class SB (7.0 mg/L) guideline. All other class SB and Class SC (6.0 mg/L) areas meet their respective guidelines. In the Outer Harbour (B2 and HP sites) the DO is 7.6 - 8.0 mg/L or just below the applicable SA guideline of 8.0 mg/L. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).


depth, m
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McNabs Island
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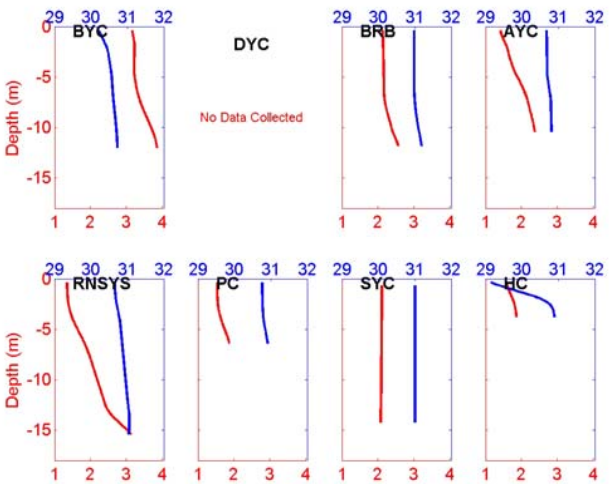
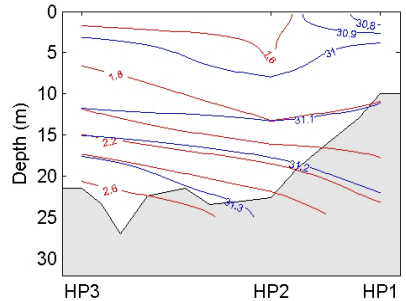
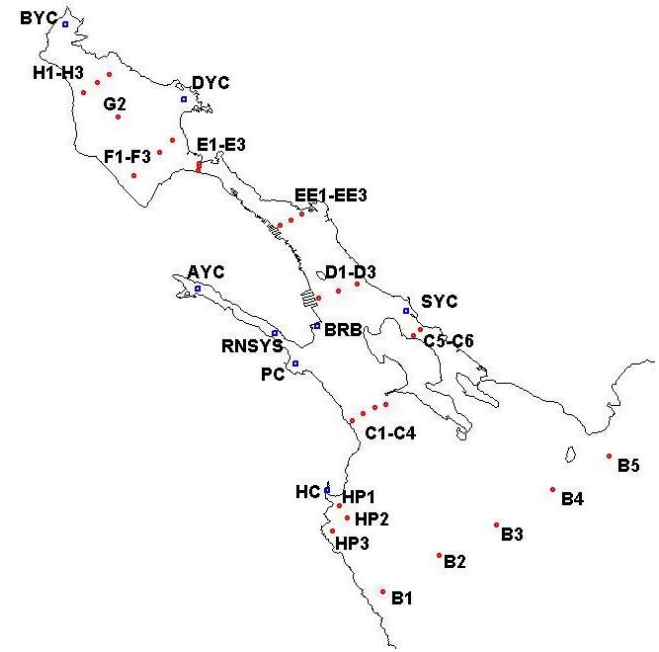
Scale Bar
1km
Scale Bar
100m

Yacht Clubs

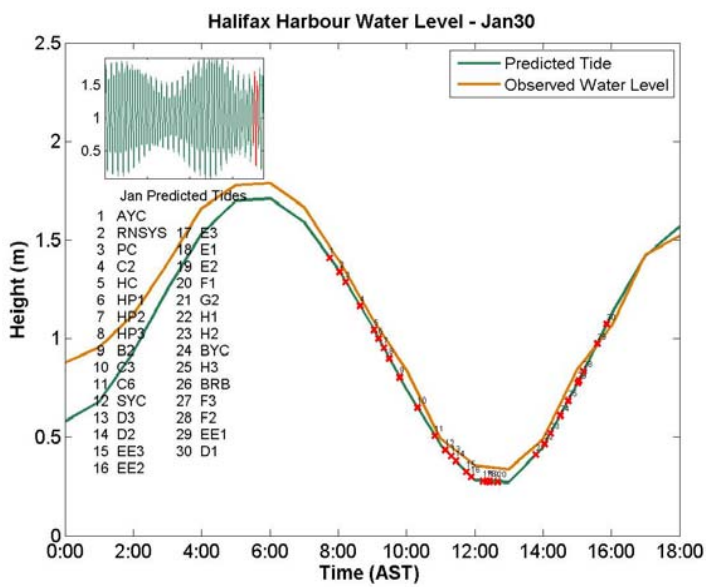


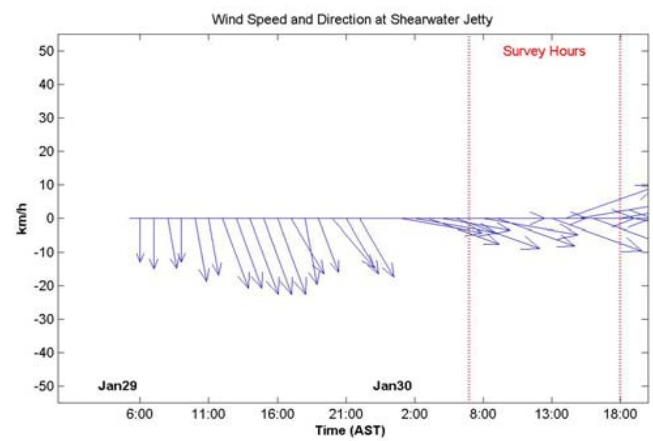


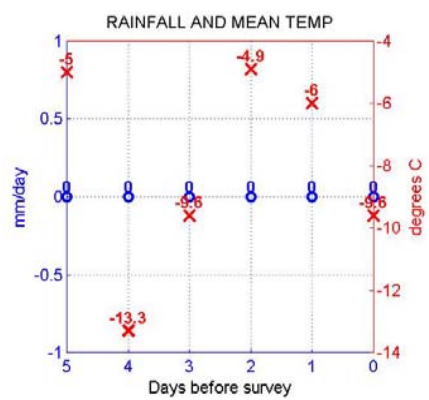


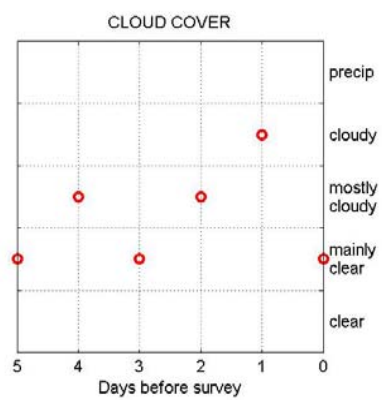
Rainfall and temperature data collected at Shearwater Autoport.

Cloud cover data collected at Shearwater Airport

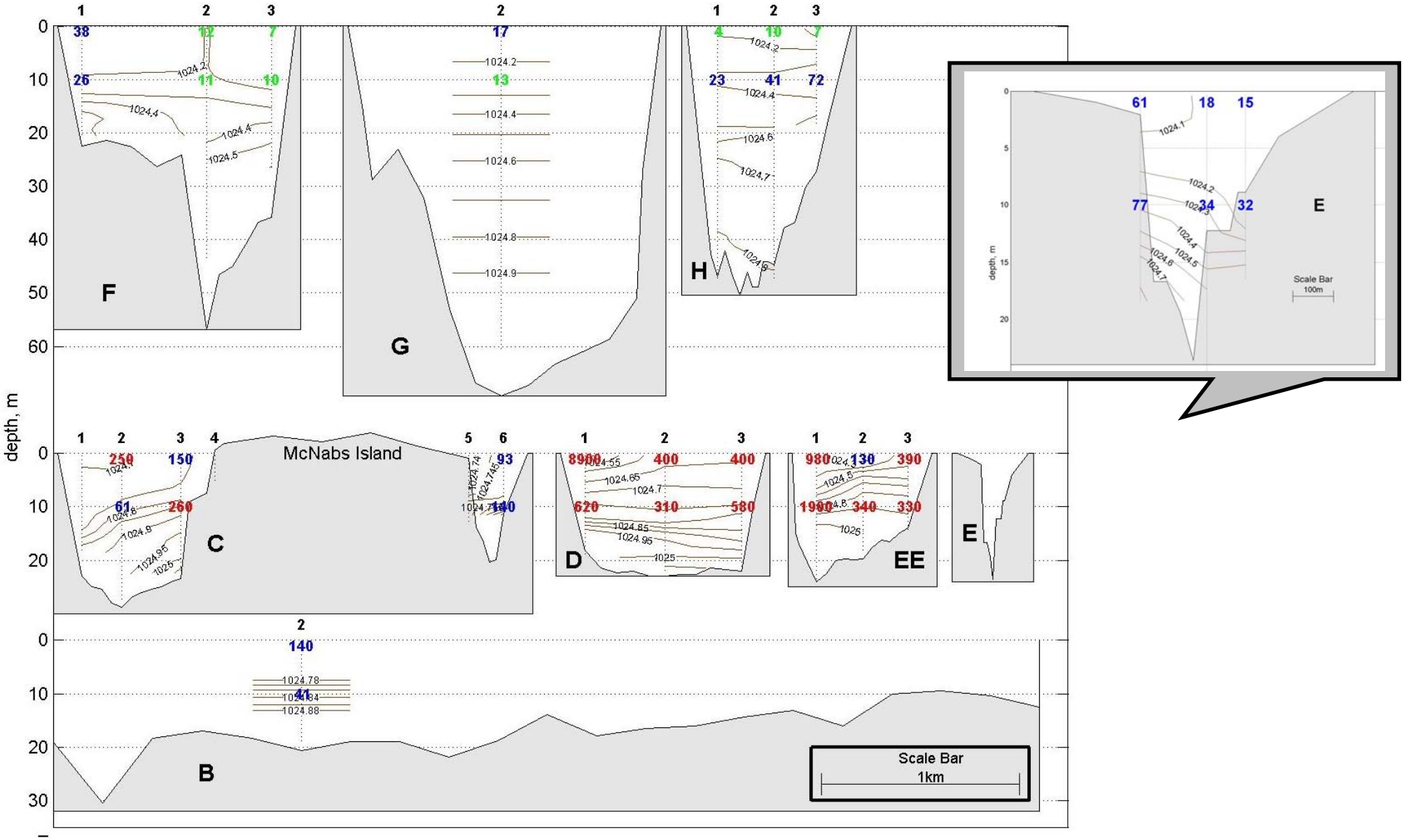








Salinity in PSU **Temperature in ^{o}C**


depth, m
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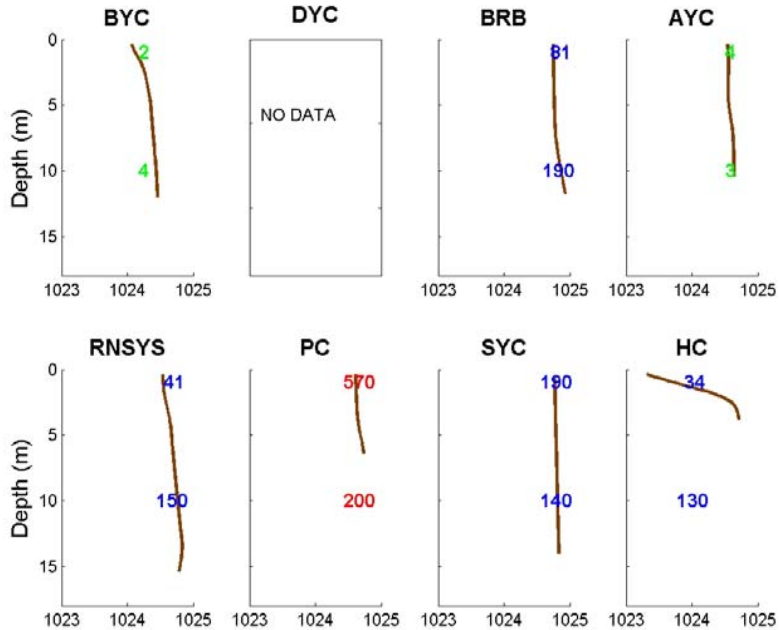
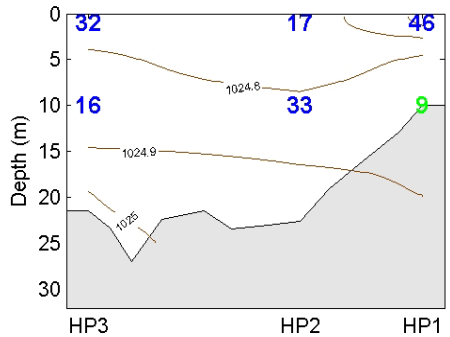
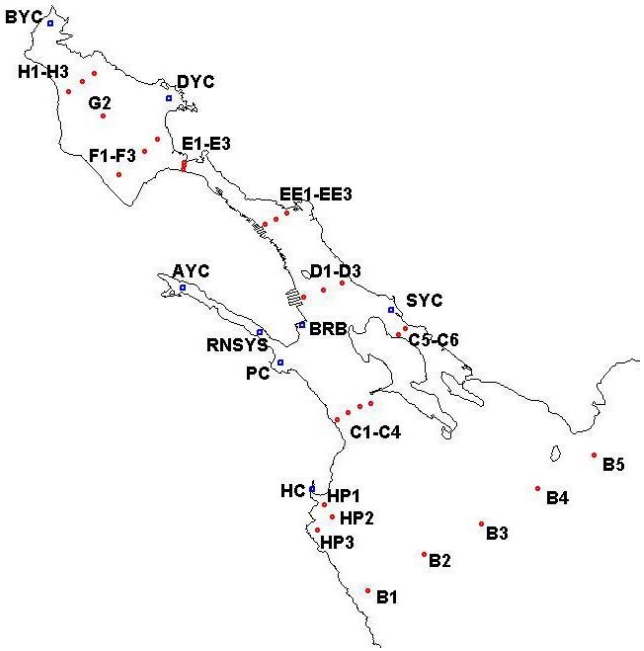
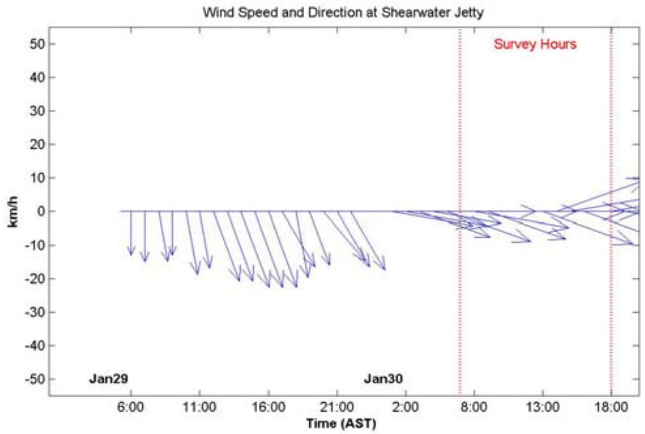
Scale Bar
1km
Scale Bar
100m

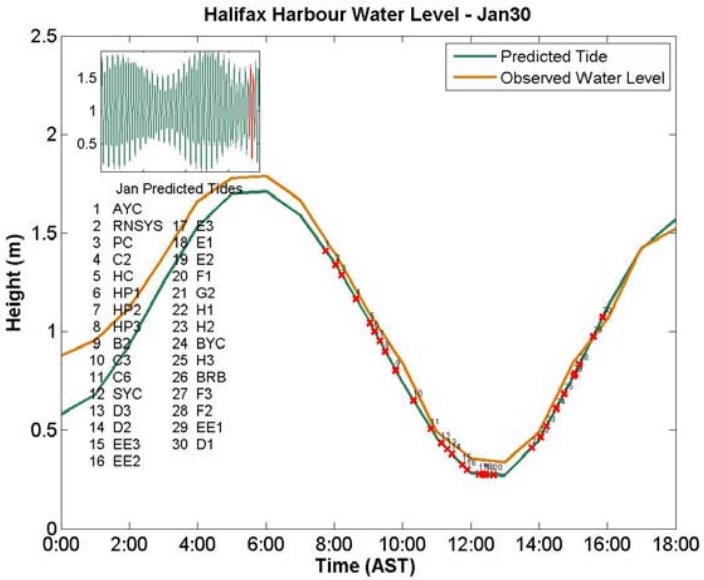
Yacht Clubs











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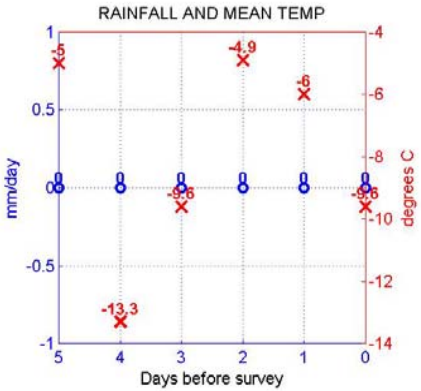
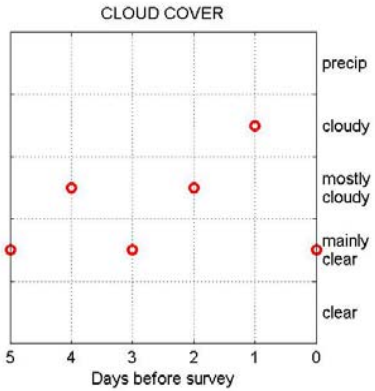
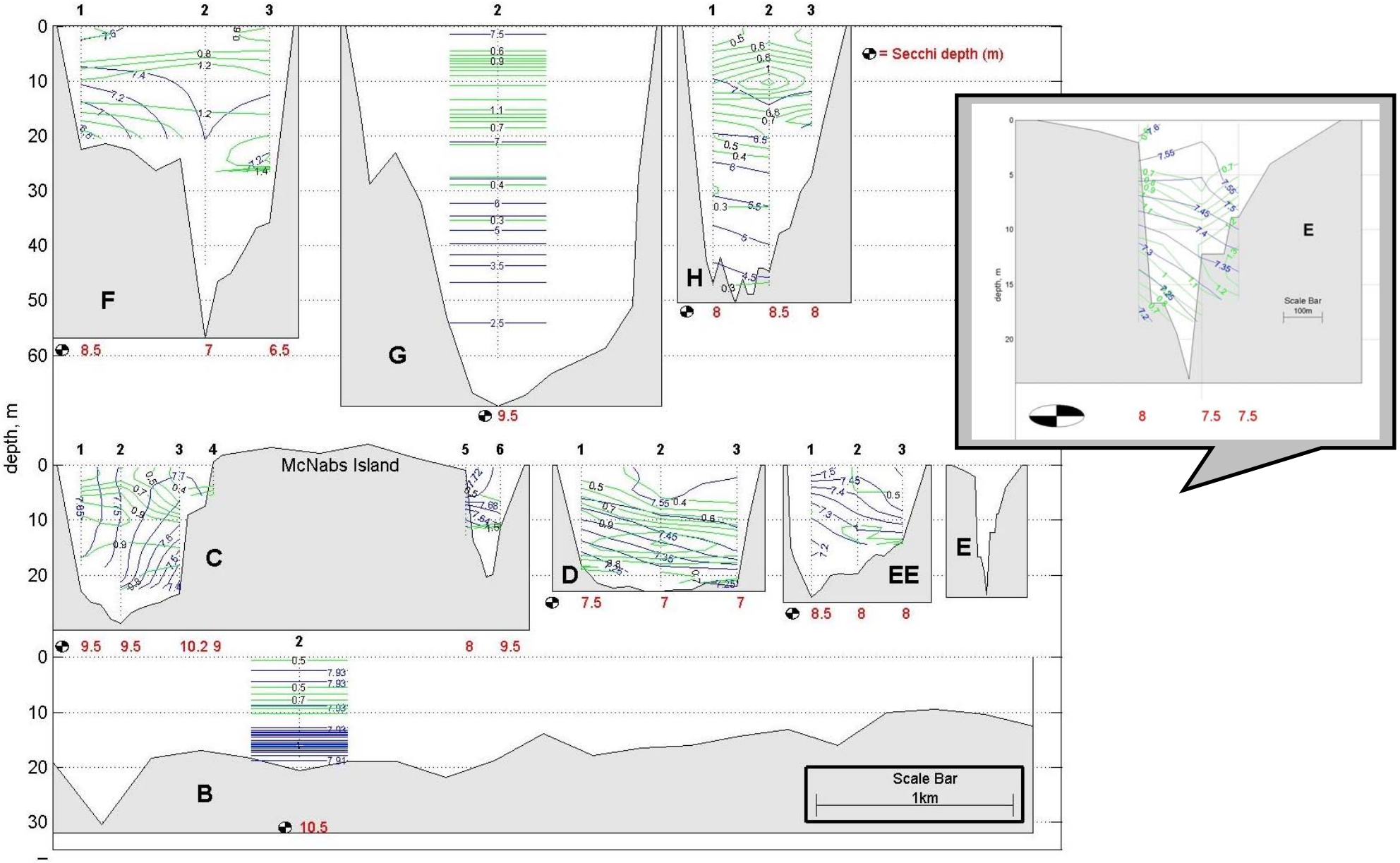




Potential Density in kg/m^3

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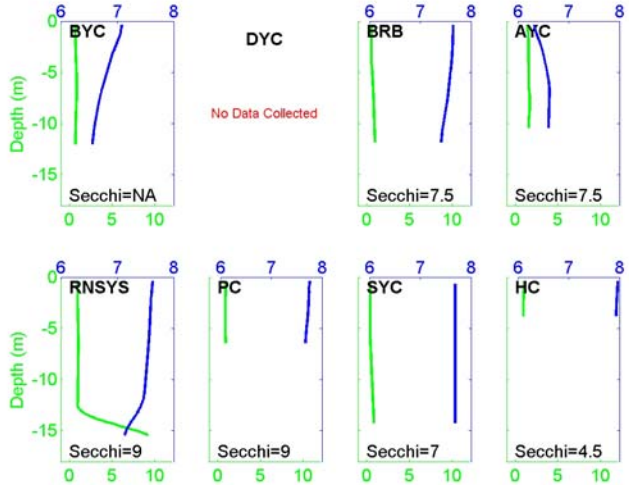

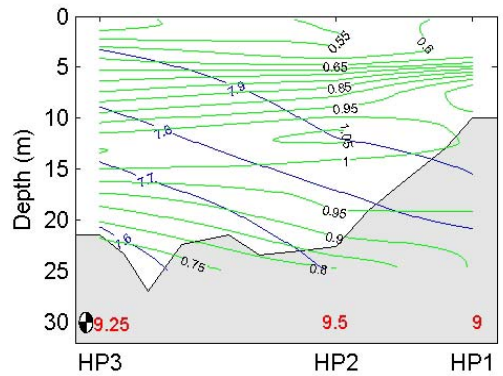

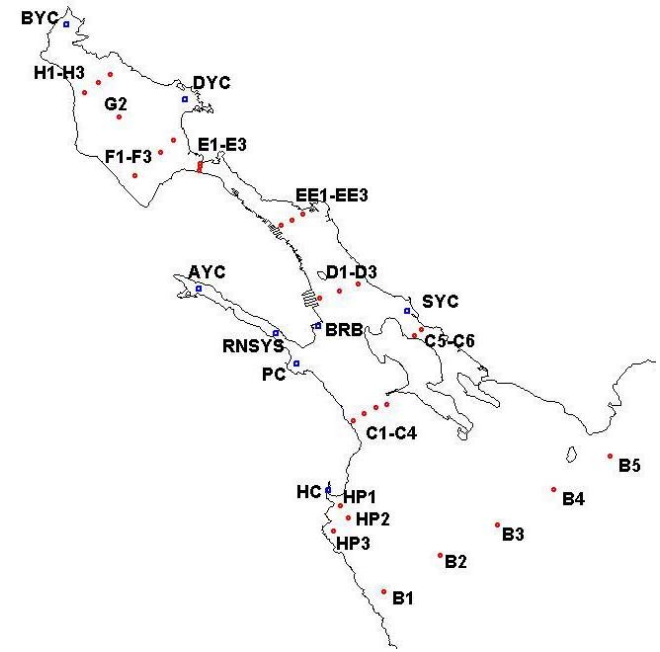

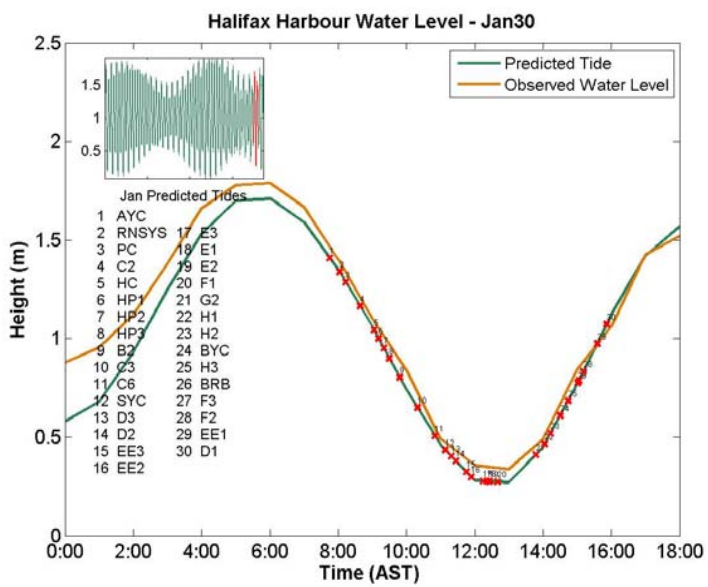

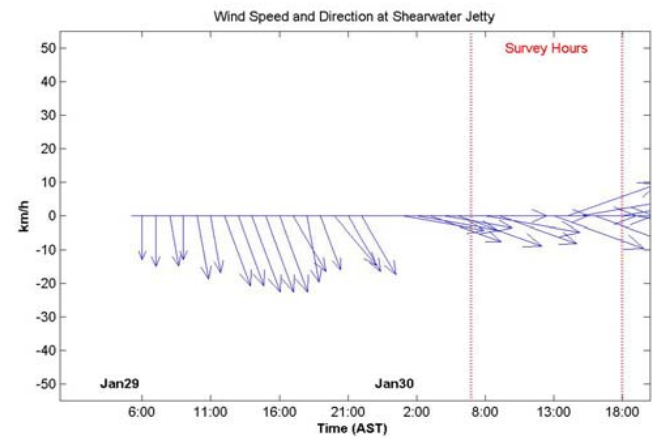

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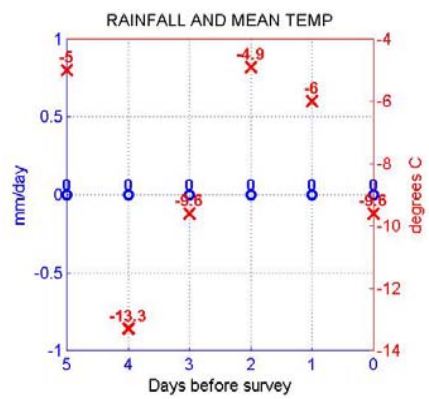
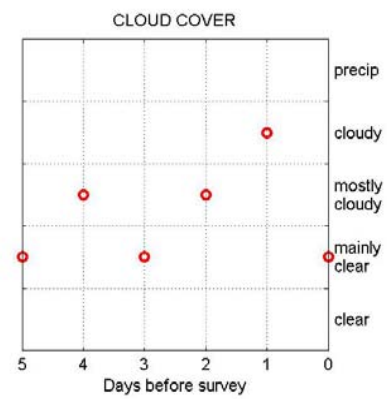
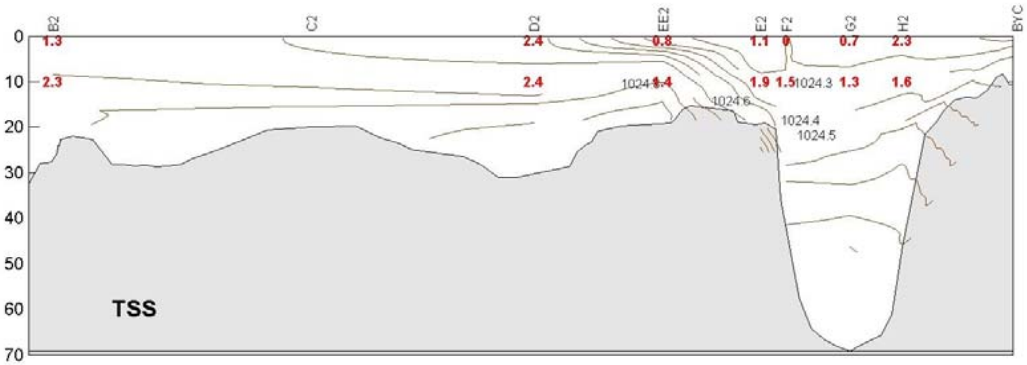
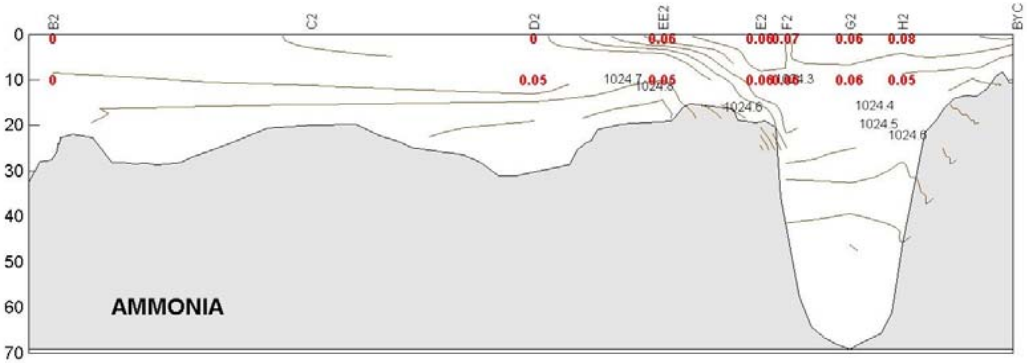
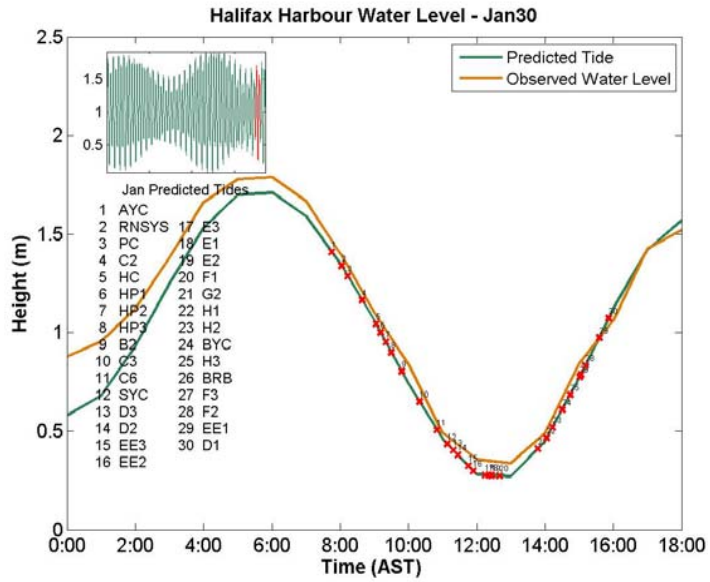


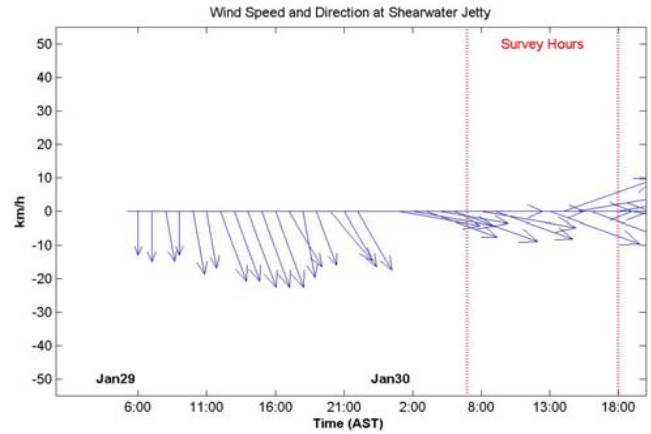


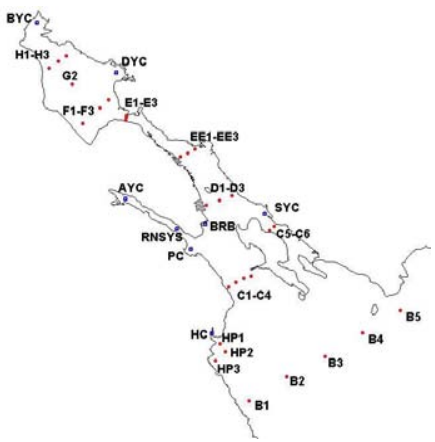
DO in mg/L **Chlorophyll in mg/m^3**











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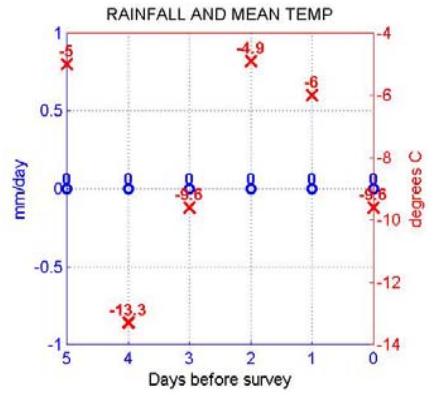
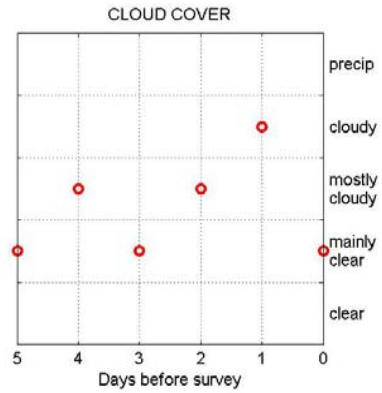
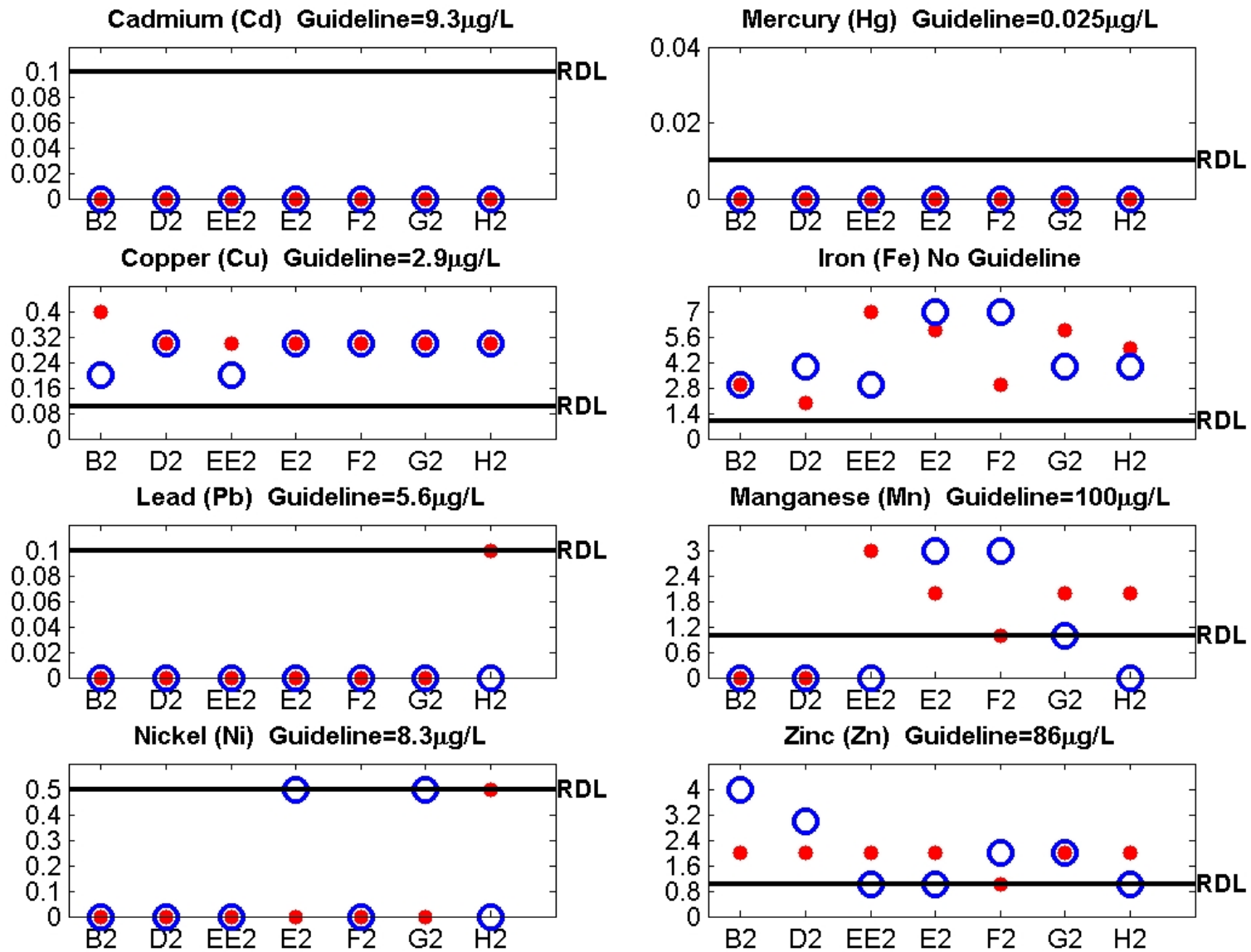




Potential Density in kg/m^3 **Ammonia in mg/L** **TSS in mg/L**



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