

Halifax Harbour Water Quality Monitoring Project

Survey Summary #156

Survey Date: 21 May 2008
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report156_080521.doc
Data File: HHWQMP_data156_080521.xls

Data Return:

Chemical:	84%
Bacteria:	97%
Profile:	94%
Overall:	92%

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 07:53 local time.

Site B2 not sampled due to high winds.

All DO records have been plotted here but the DO records for site C5 and E3 have been deleted from the data file and record for site E2 has been truncated due to poor record quality.

To match the collected reference data the presented DO values should be scaled by a factor of 1.40 (see comparison in data file).

QA/QC samples:

Chemical Analysis

Detectable Parameter	Units	G2 - 10m	
		Reference Sample	QA/QC
Ammonia (as N)	mg/L	0.07	<0.05
Total Suspended Solids	mg/L	1.7	3
Copper	ug/L	0.4	0.6
Iron	ug/L	9.0	10.0
Manganese	ug/L	1.0	<1.0
Zinc	ug/L	3	4

Fecal Coliform (CFU/100ml)

Site	C6-1m	E1-10m	HP3-1m	G2-10m
Reference	1	87	51	9
QA/QC	5	170	21	4

Comments:

General: There has been significant rainfall in the four days preceding the survey (total of about 42 mm), and there is a strong freshwater signal in the Northern Basin (BYC and H sections). Perhaps due to the brisk winds, the remainder of the harbour is moderately stratified from top to bottom, but the profiles exhibit a relatively strong gradient at midwater. In the Basin, the water below 30 m is quite uniform in hydrographic properties. The Halifax STP is fully operational. The UV disinfection system came on line full time on 1 April. Fecal coliform levels are higher than in the previous few surveys. Recent rainfall may be a factor. The highest values are in the centre of the harbour, but the distribution appears to be shifted up harbour, perhaps in response to the brisk winds of the previous day. The field notes again indicate the lack of a visible boil at the Peace Pavilion outfall on the Dartmouth side (perhaps a diversion for construction).

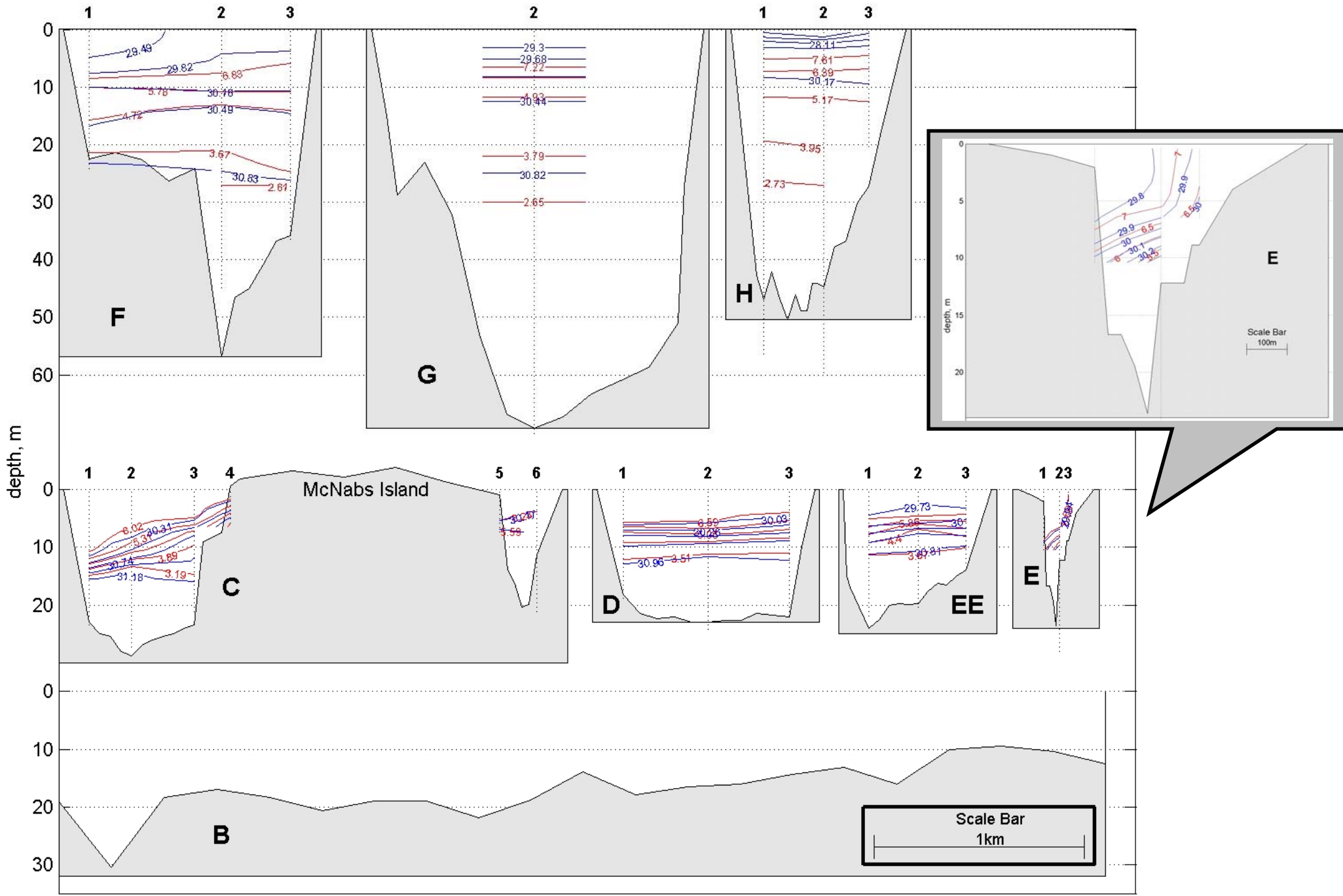
Fluorescence: The fluorescence levels are moderate (7 - 10 mg/m³) throughout the harbour, with profile maximum values occurring at or near the surface in the Northern Basin and from 4 - 10 m from the Southern Basin out to section C. In the Outer Harbour (HP sites) the maximum levels decrease to about 2 mg/m³.

TSS: The TSS levels are low with an average value of 2.1 mg/L and a maximum value of 4.0 mg/L. There is no obvious coherent spatial distribution.

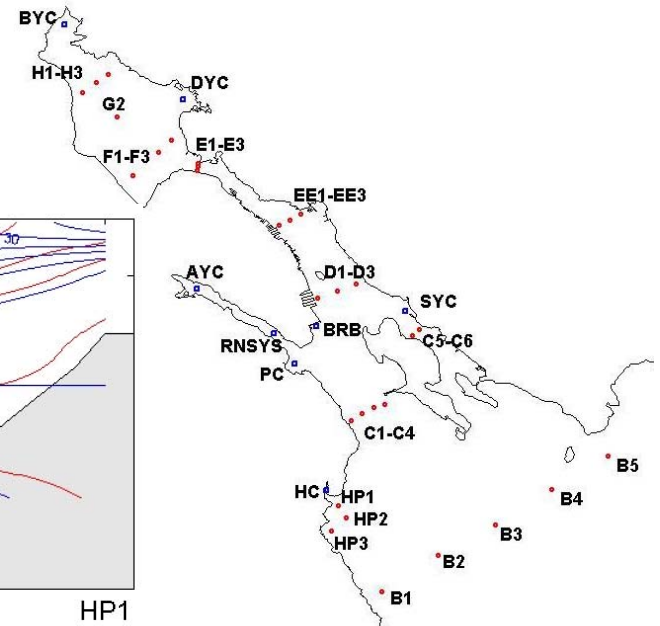
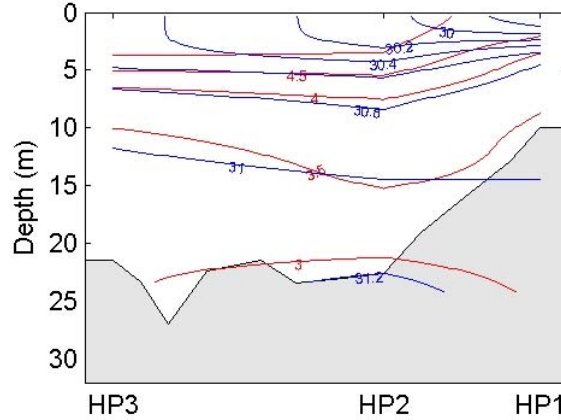
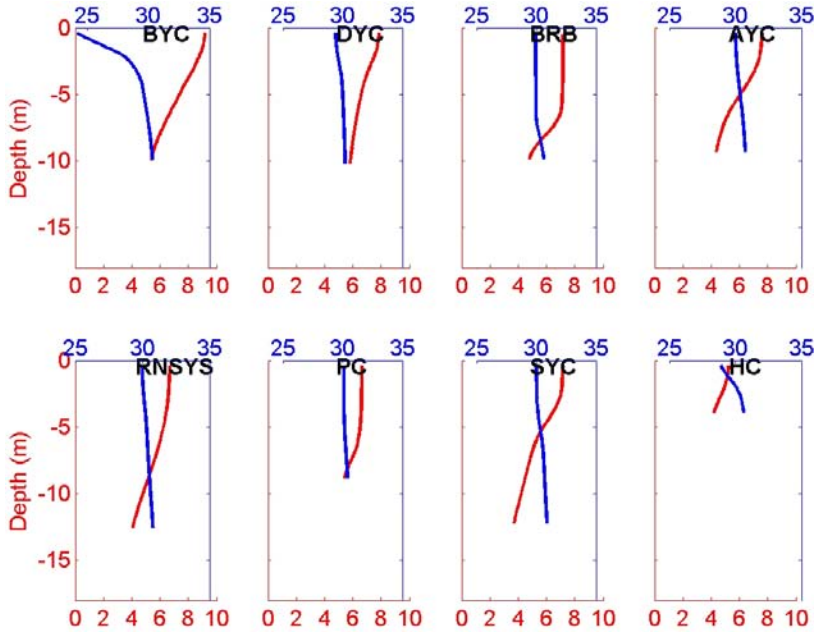
Ammonia: The ammonia concentrations are somewhat more variable than they have been recently with three of twelve samples being less than the 0.05 mg/L detection limit, but a maximum value of 0.14 mg/L. There is no obvious coherent spatial distribution.

Metals: There are no guideline exceedences. The closest to exceedence were copper and the one sample with detectable mercury (E2-10 m), both of these had levels about 40% of the applicable guideline.

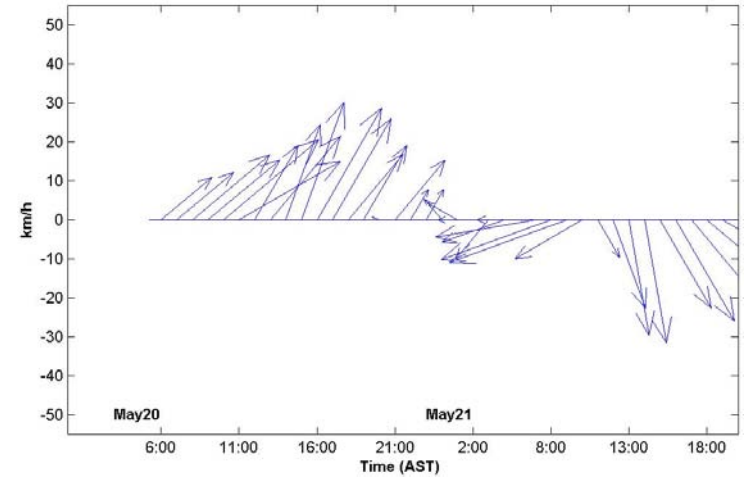
Dissolved Oxygen: The DO data, scaled by a factor of 1.40, shows high dissolved oxygen in the shallower water (<30 m) everywhere. The deep Basin levels are dropping, but remain at about the 7.0 mg/L guideline. In the Inner Harbour the most oxygenated water is at the bottom suggesting potential intrusion of shelf water. There are no guideline exceedences.



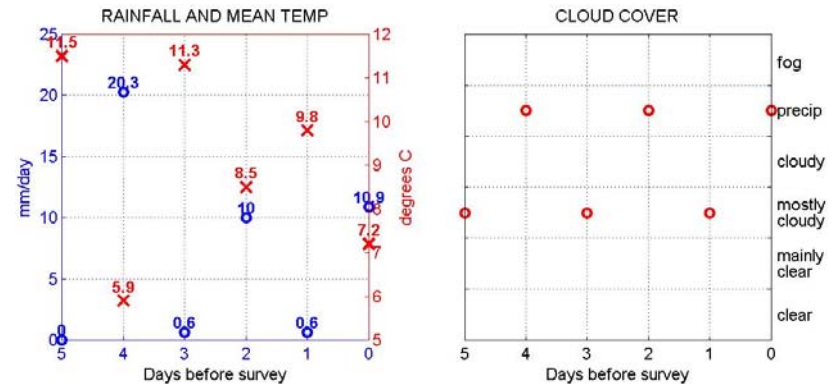
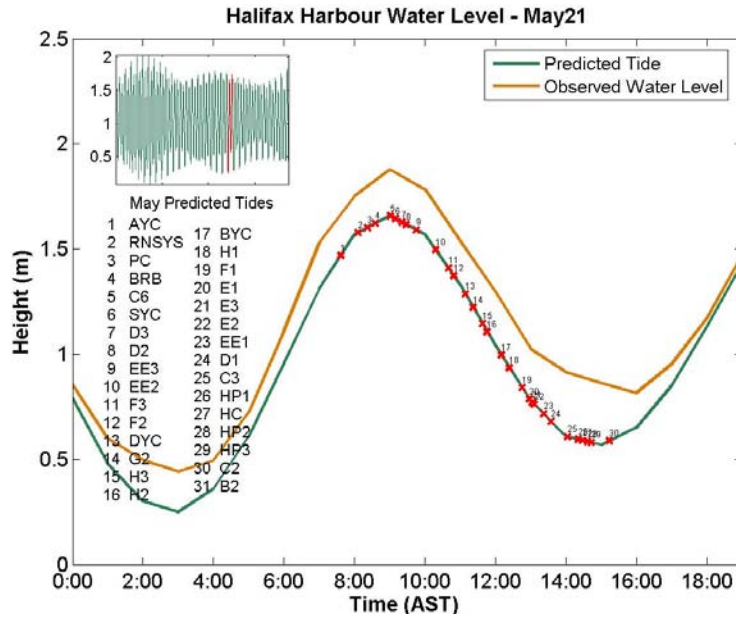
Yacht Clubs



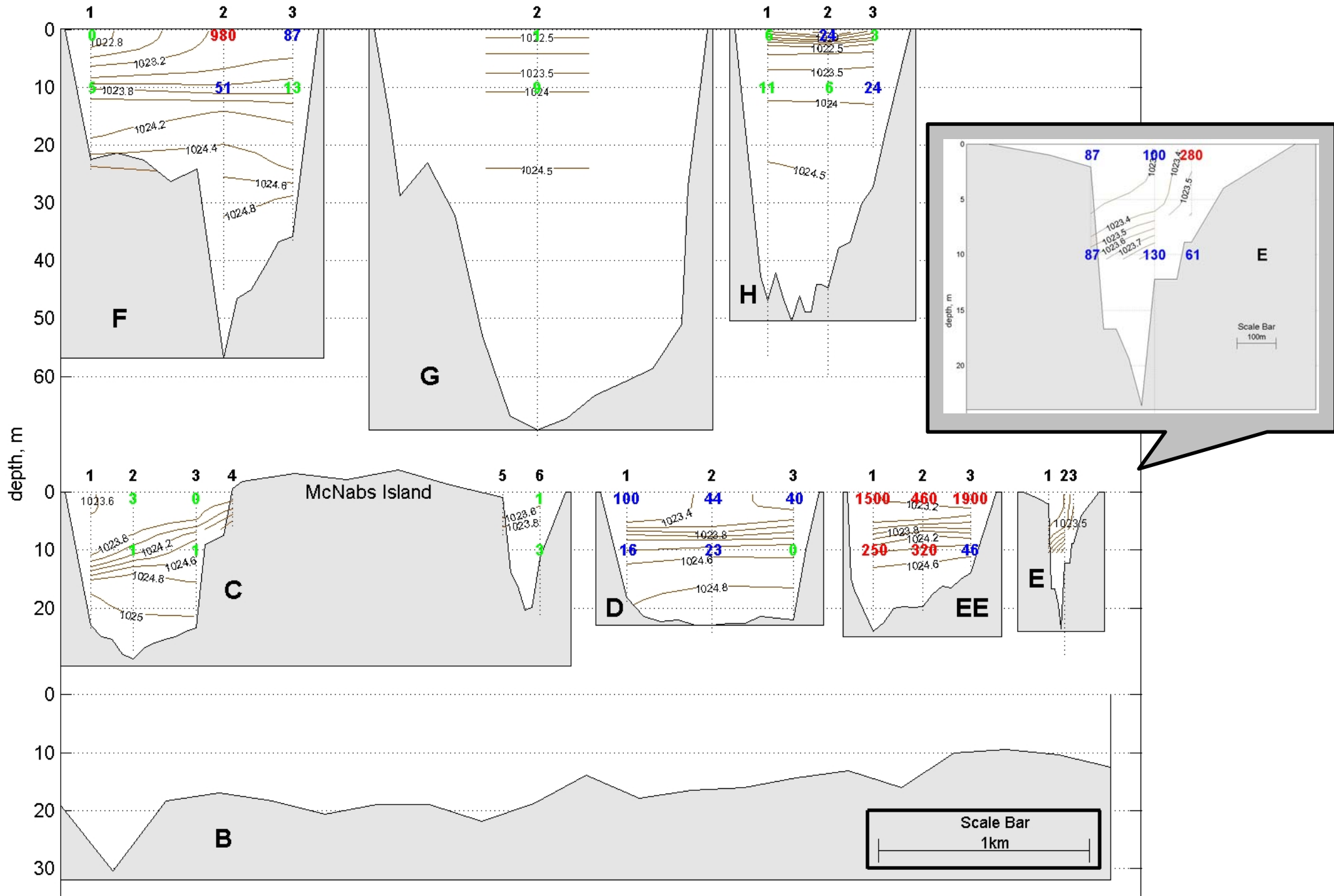
Wind Speed and Direction at Shearwater Jetty



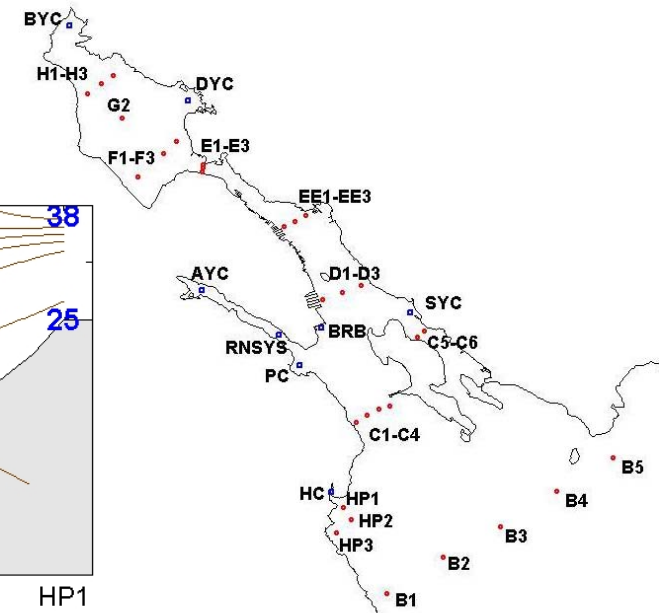
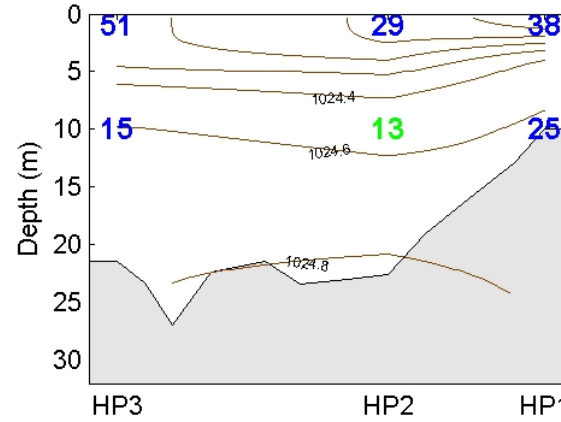
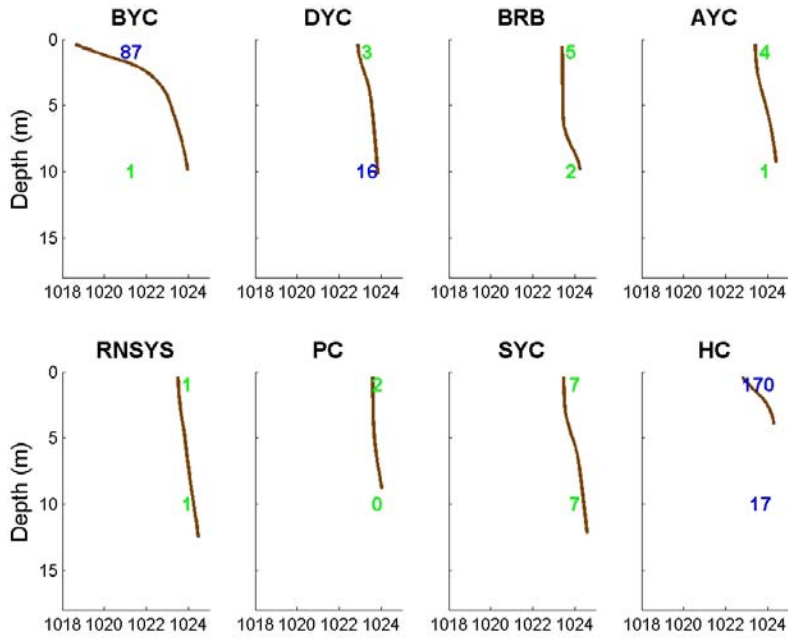
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



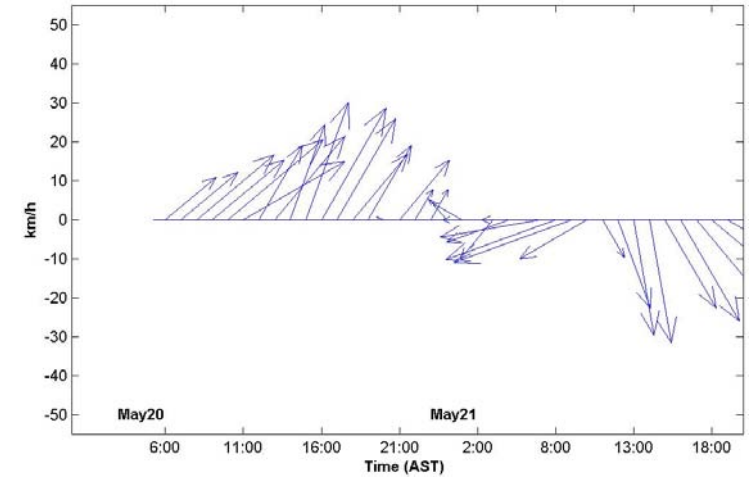
Salinity in PSU Temperature in °C



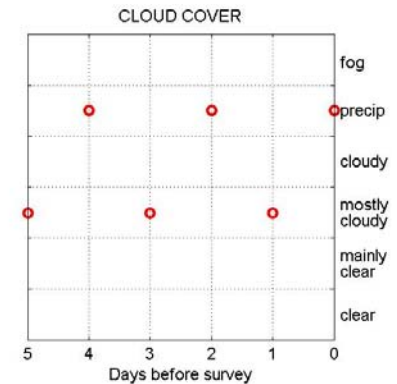
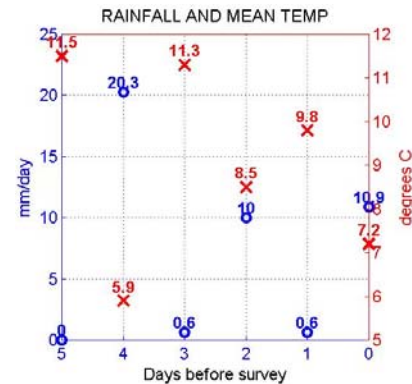
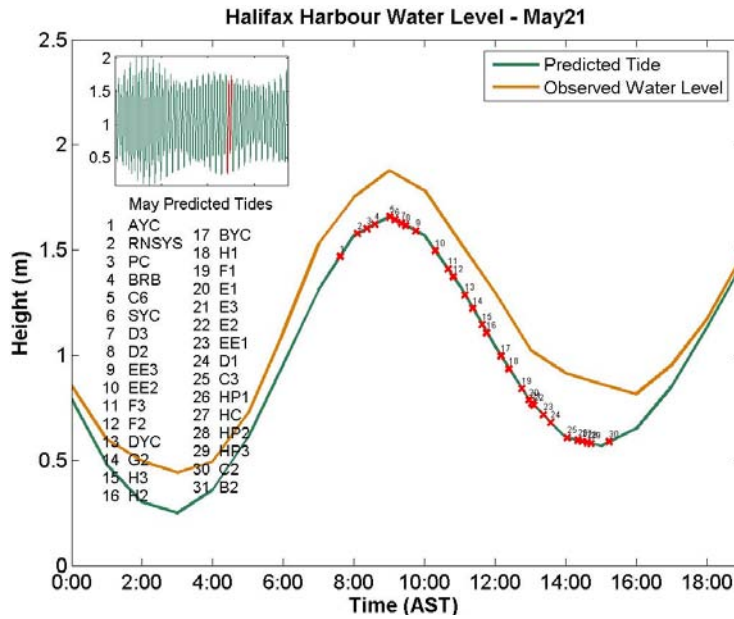
Yacht Clubs



Wind Speed and Direction at Shearwater Jetty

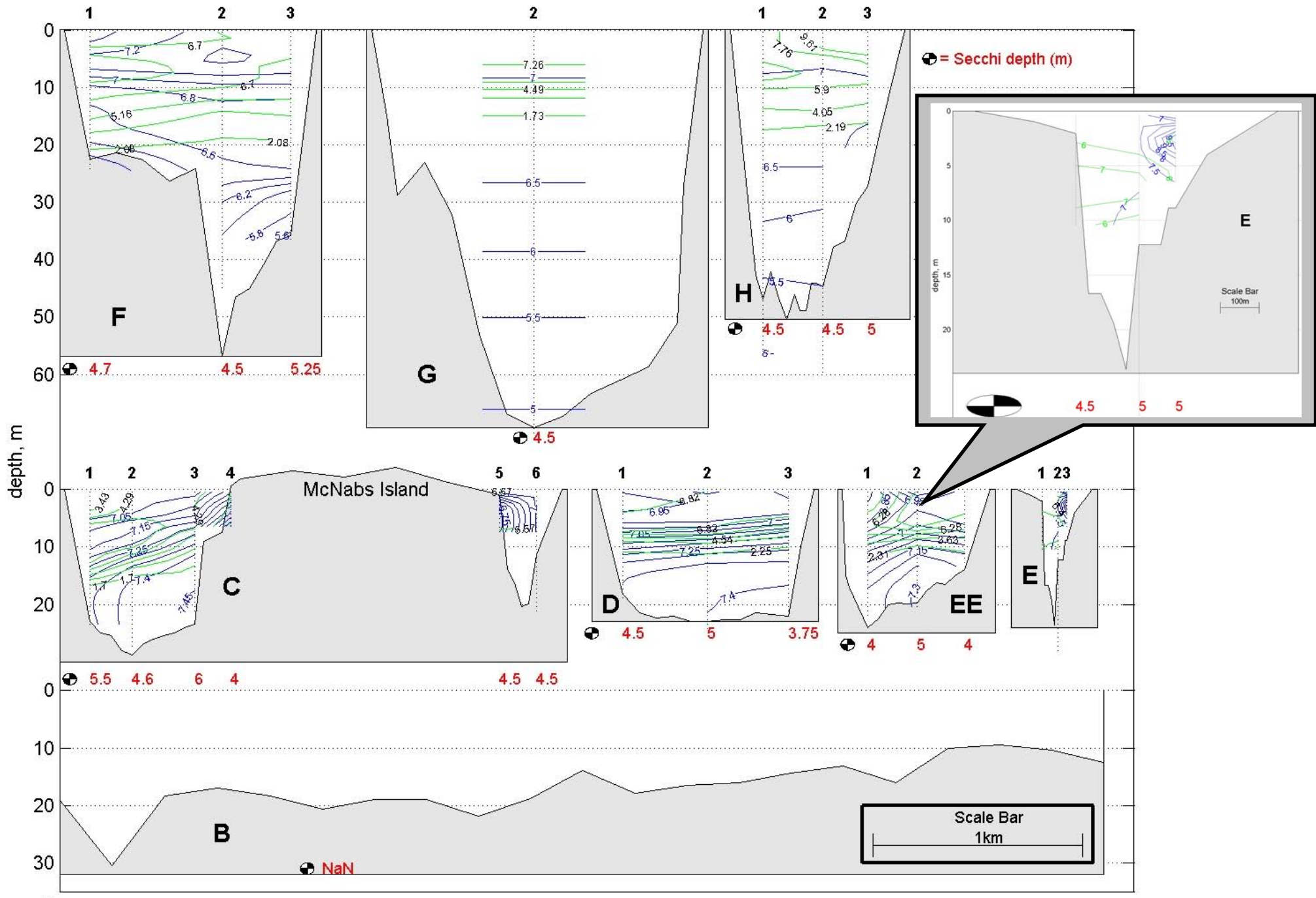


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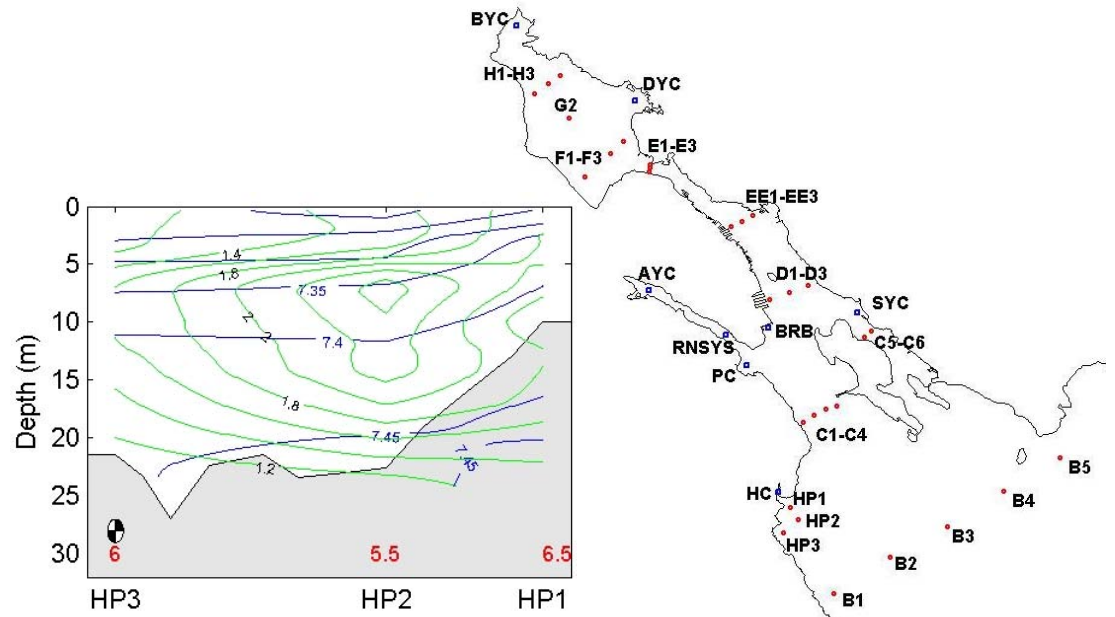
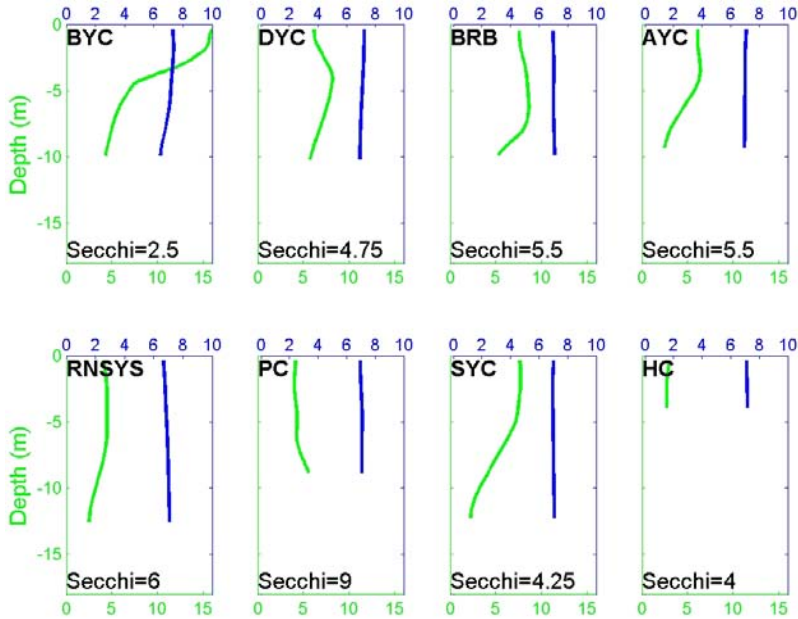


Potential Density in kg/m³

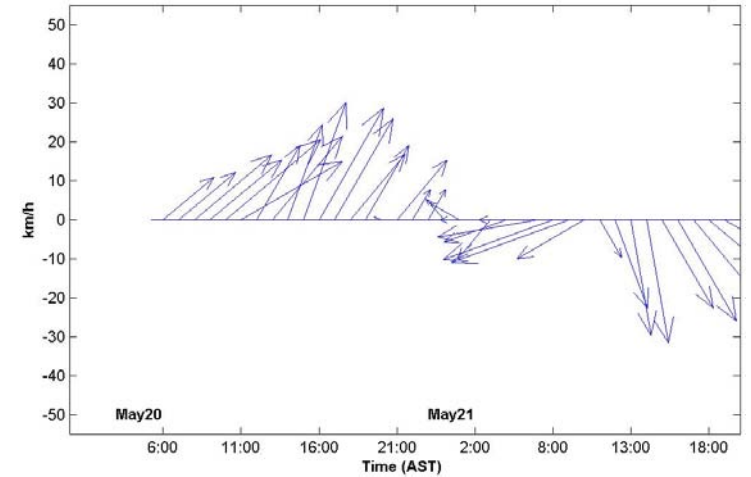
Fecal coliform: **above swimming limit (200 cfu/100mL)**
above shellfish limit (14 cfu/100mL)
 below limits



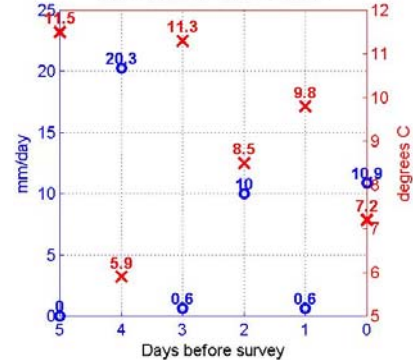
Yacht Clubs



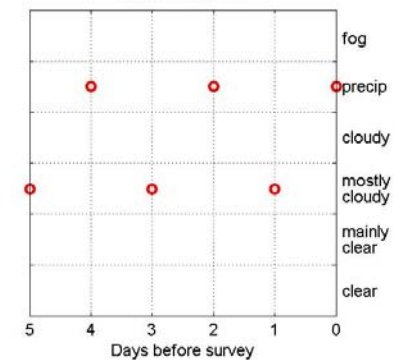
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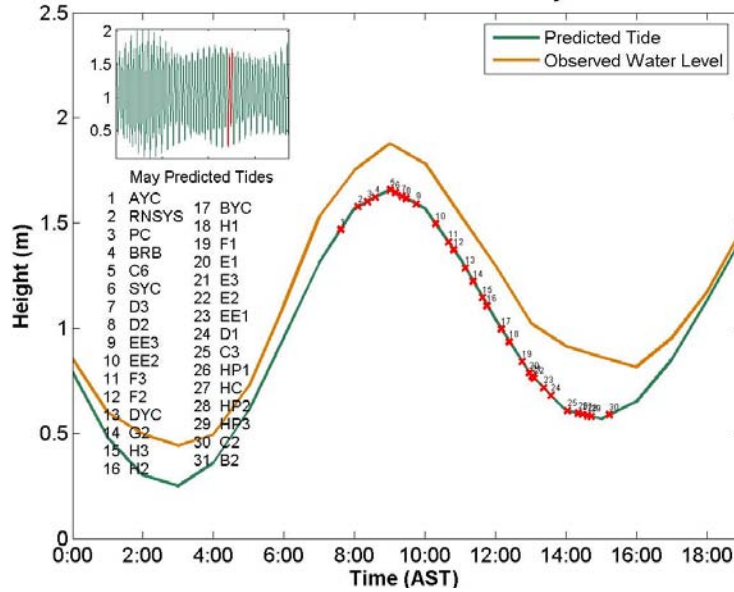
RAINFALL AND MEAN TEMP



CLOUD COVER



Halifax Harbour Water Level - May21



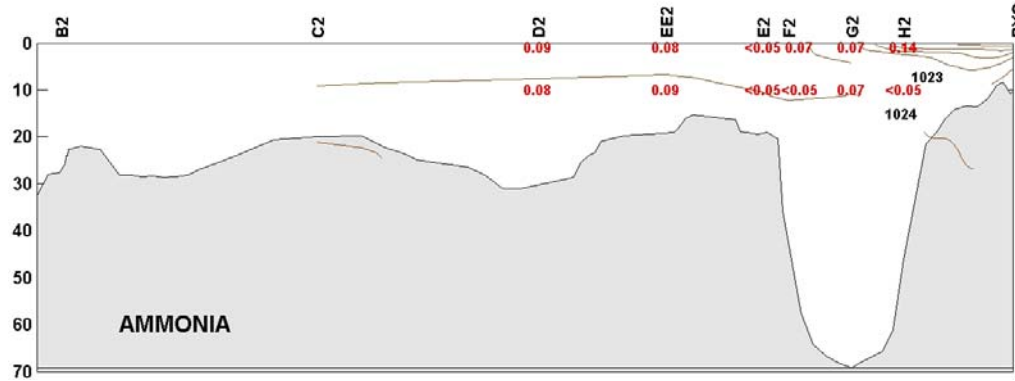
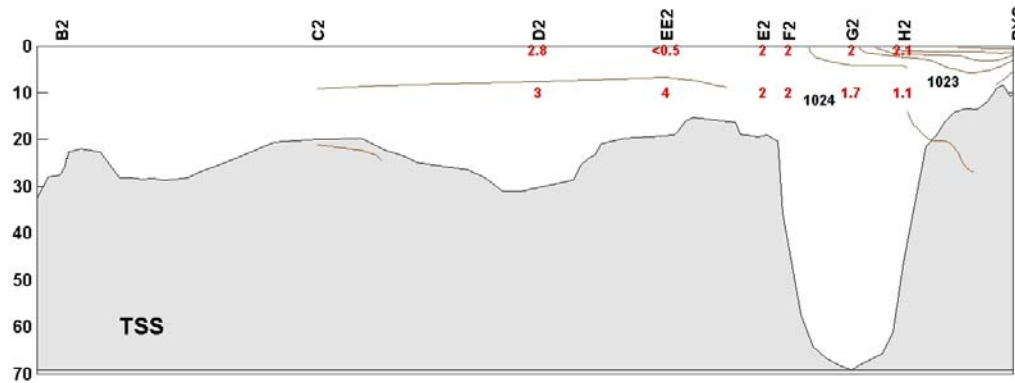
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DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



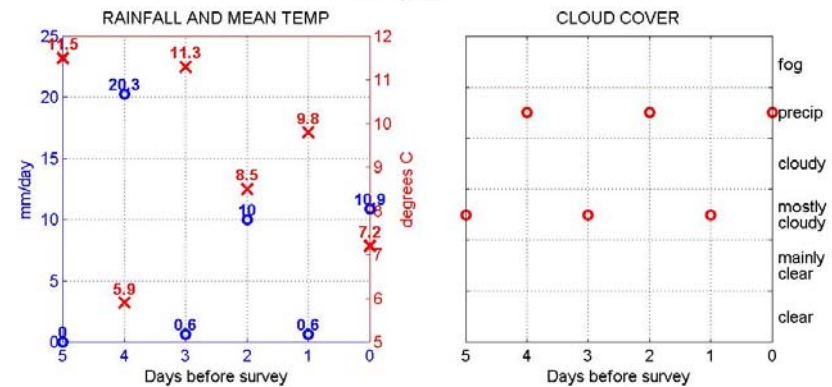
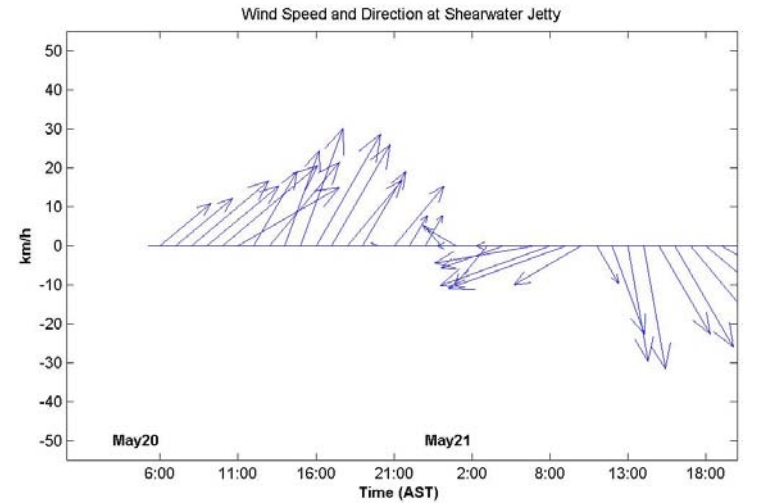
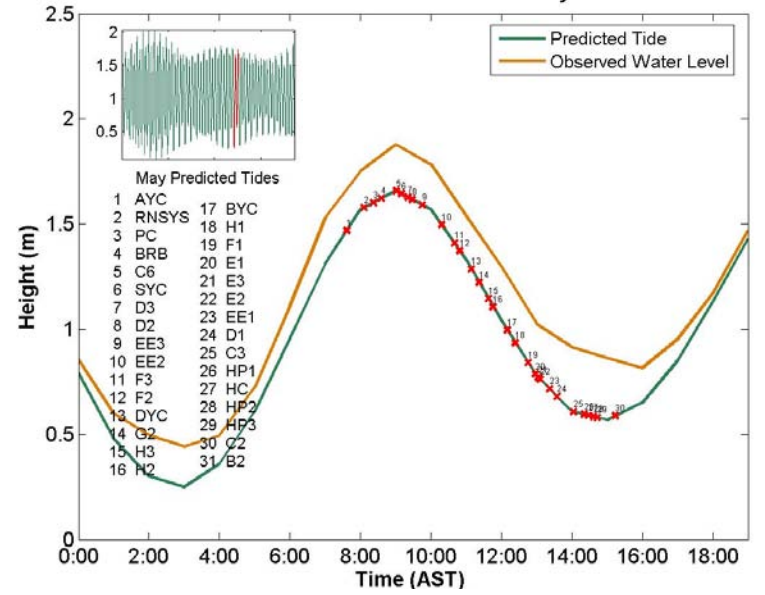
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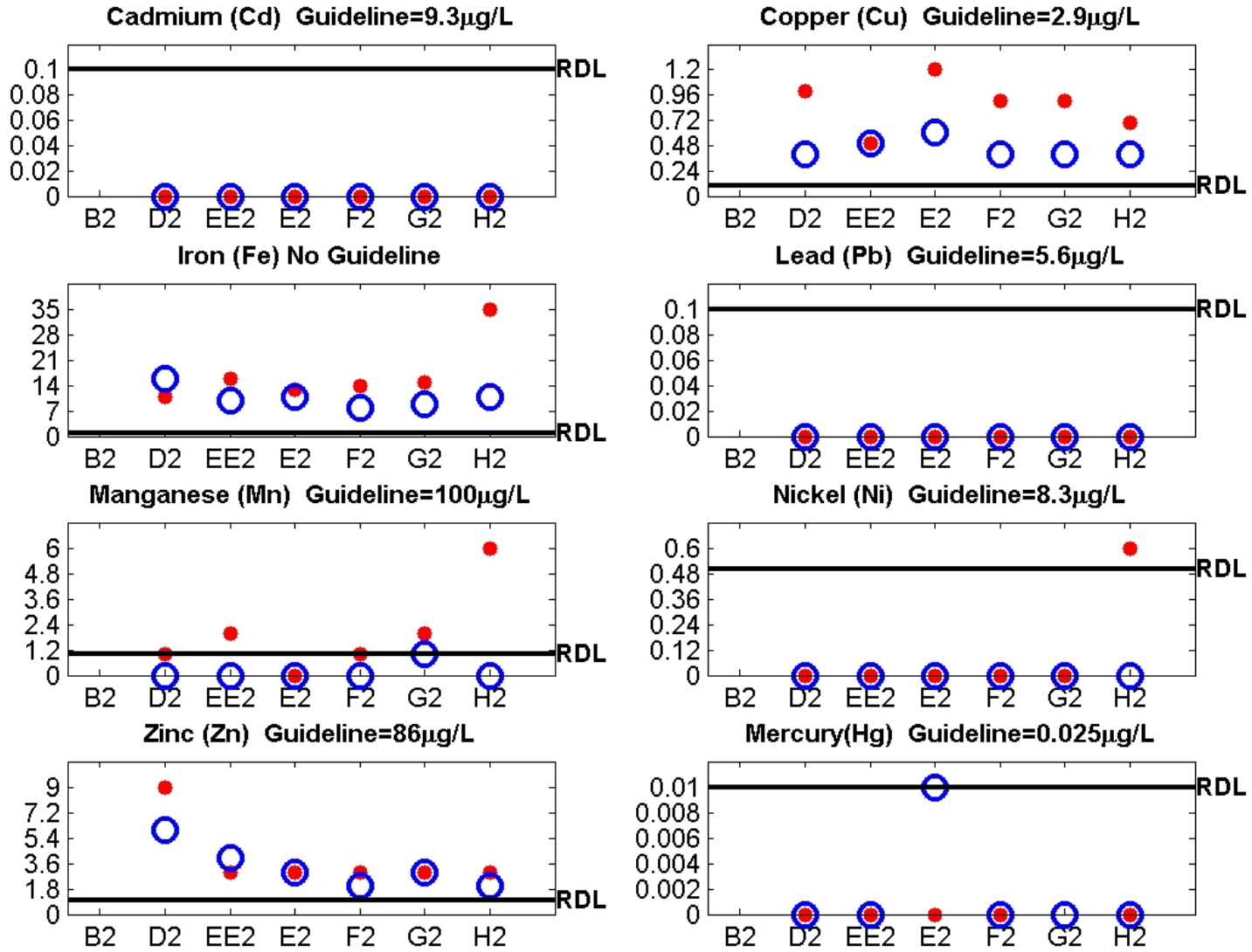
Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - May21





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

HRM Water Quality Monitoring

Fecal Coliform Summary – May 21, 2008

