

Halifax Harbour Water Quality Monitoring Project

Survey Summary #125

Survey Date: 13 March 2007
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report125_070313.doc
Data File: HHWQMP_data125_070313.xls

Data Return:
 Profile: 94%
 Bacteria: 97%
 Chemical: 100%
Overall: 96%

Sample Notes:

DYC was skipped due to ice.

BYC was sampled at ice edge 44° 42.798' N, 63° 39.796' W

CTD data failed quality control at station F3. This data is included in the report but is deleted in the data file

QA/QC samples:

Chemical Analysis		H2 - 10m	
Detectable Parameter	Units	reference sample	QA/QC
Ammonia (as N)	mg/L	0.09	0.06
Total Suspended Solids	mg/L	4	5
Copper	ug/L	0.4	0.4
Iron	ug/L	10	9
Manganese	ug/L	2	2
Zinc	ug/L	2	2
Mercury	ug/L	0.02	0.02

Fecal Coliform (CFU/100ml)

Site	EE3-10M	C6-10M	H1-10M	H2-10M
Reference	130	12	8	0
QA/QC	83	13	6	2

Comments:

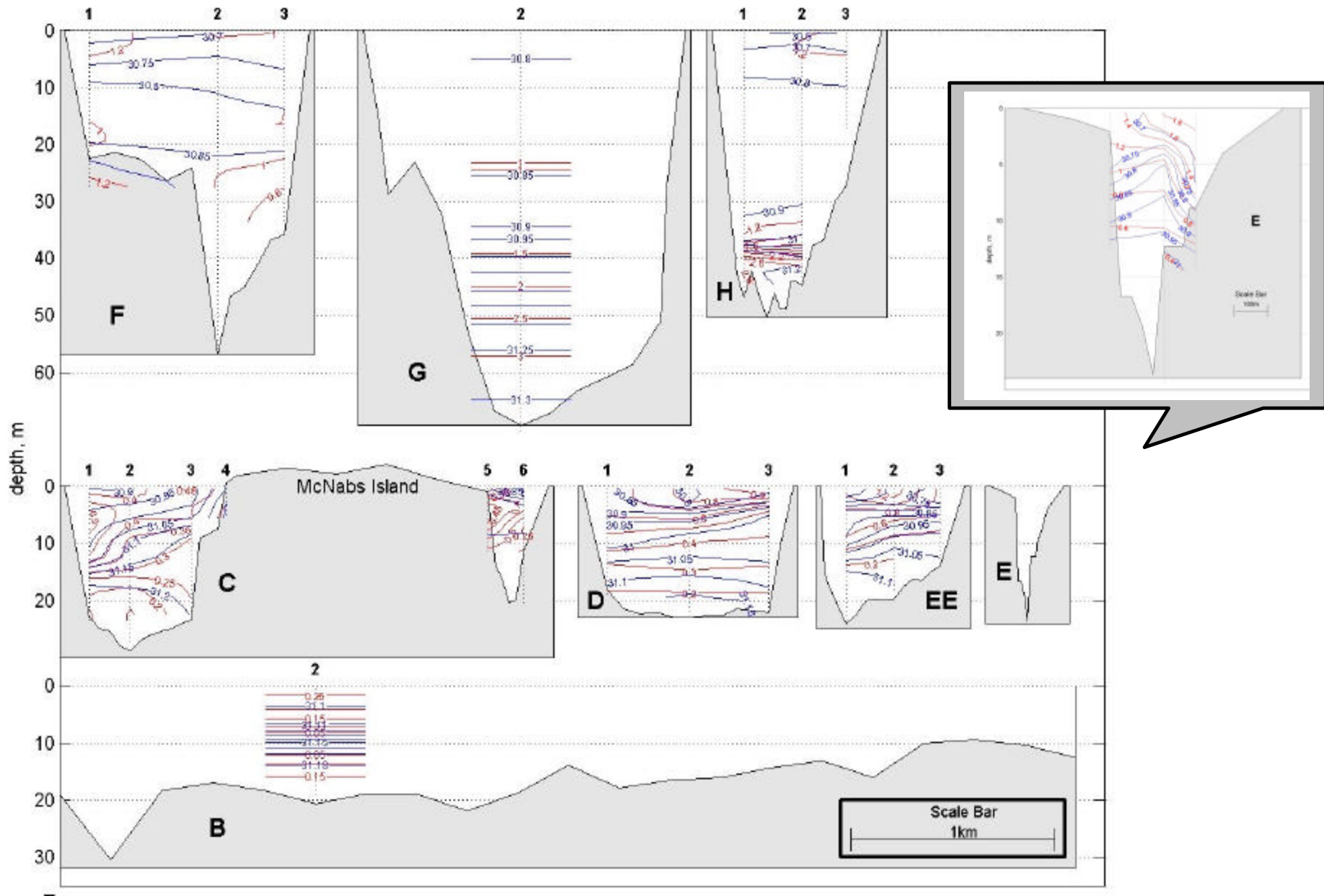
General: The harbour appears slightly fresher than in the previous survey, but the overall stratification remains similar and remarkably low. There has been only slight rainfall, but the air temperature has averaged above freezing for two days prior to the survey, raising the possibility of some meltwater input. The temperature in the top 20m throughout the harbour ranges only from about 0.2 to 1.2°C. The exception is in the Narrows (E section) where water in excess of 1.8°C is evident. This is likely due to cooling water discharge from the Tuft's Cove power plant and is consistent with the sample being taken near high tide. The Basin remains marginally stratified with less than 0.3 sigma difference over the entire water depth. Consistent with the lack of stratification, the bottom water has decreased in temperature by almost 1°C. The fecal coliform values are typically high in the Inner Harbour, and are similar to the previous survey. Notable are the relatively high values at section C, which at first look are at odds with the light up-harbour winds. An elevated value at RNSYS is consistent with the wind affecting the plume from the Chain Rock outfall.

Fluorescence: It appears that the Spring phytoplankton bloom has begun. Fluorescence values are higher than last survey, with profile maximums of about 11-14 mg/m³ at a depth of 7-10 m, throughout the Harbour, except at B2 in the Outer Harbour. Here, the values drop slightly to about 8 mg/m³, at a depth of 8 m.

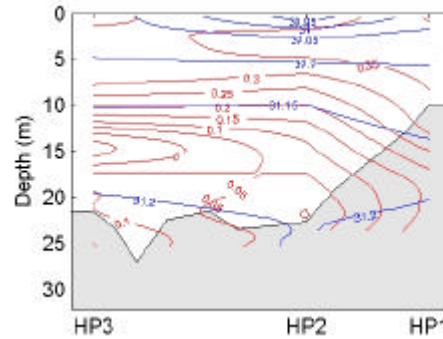
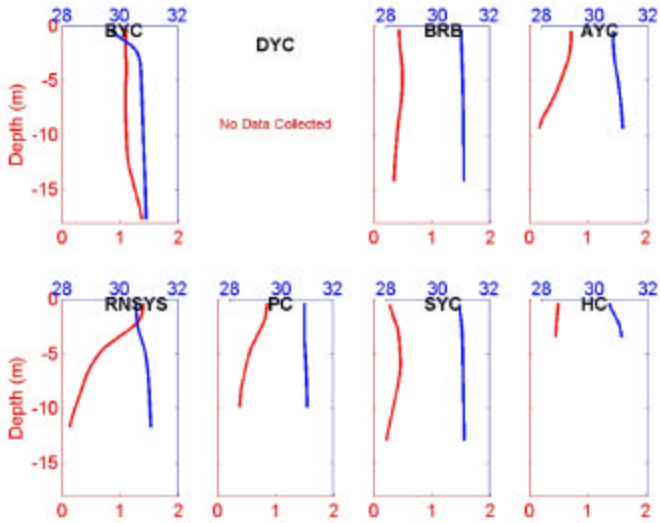
Ammonia: There are detectable levels (> 0.05 mg/L) of ammonia in the 1m samples, as well as two 10m samples, up-harbour of site EE2. The highest value (0.1 mg/L) is in the 1m sample in Narrows and coincides with a lens of slightly fresher water, likely the result of sewage input near the Narrows. This is consistent with the high 1m coliform levels observed at the Narrows sites.

TSS: The TSS values are generally quite a bit higher than last survey, (range 2.3-6.9 mg/L) but once again, there is no obvious pattern.

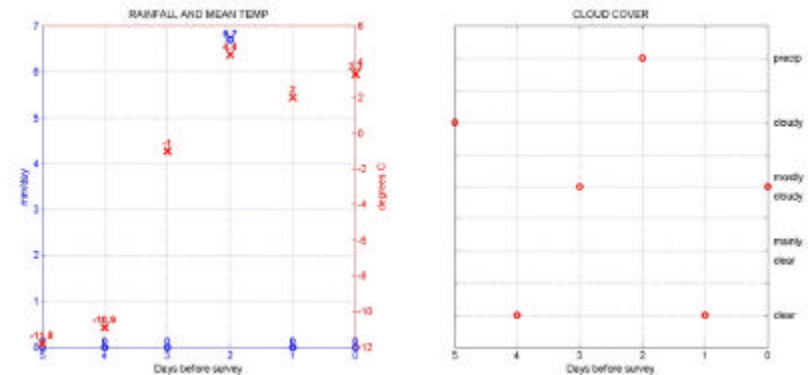
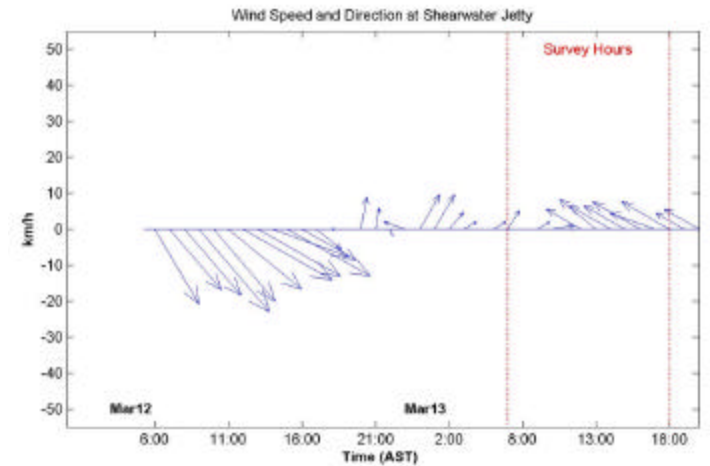
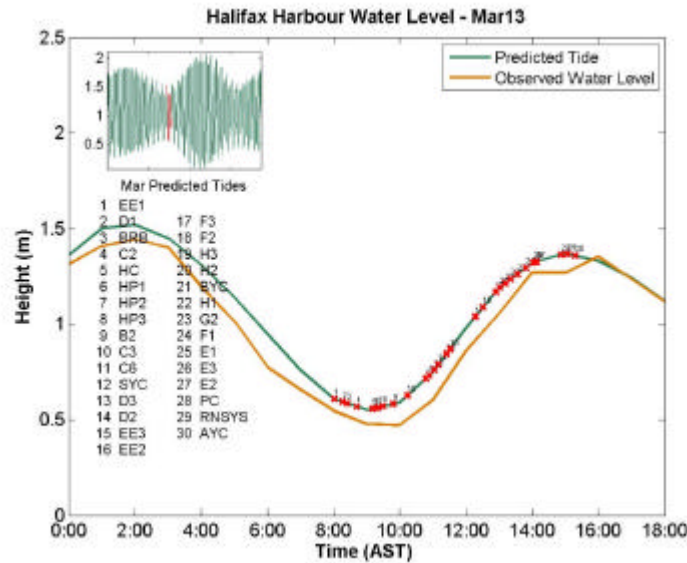
Dissolved Oxygen: The dissolved oxygen (DO) data indicate a vertical variation of about 0.5 mg/L in the top 20m of most of the Harbour. In the Basin the values vary from about 8-8.5 mg/L, while further out of the Harbour the values range from about 8.5-9.0 mg/L. In the Outer Harbour (B2), the DO is almost uniform at about 9.0 mg/L. Consistent with the lack of stratification, the Basin bottom water has increased by almost 1 mg/L to about 4.5 mg/L. The only area below applicable guidelines is the Basin bottom water (< 7.0 mg/L). The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).



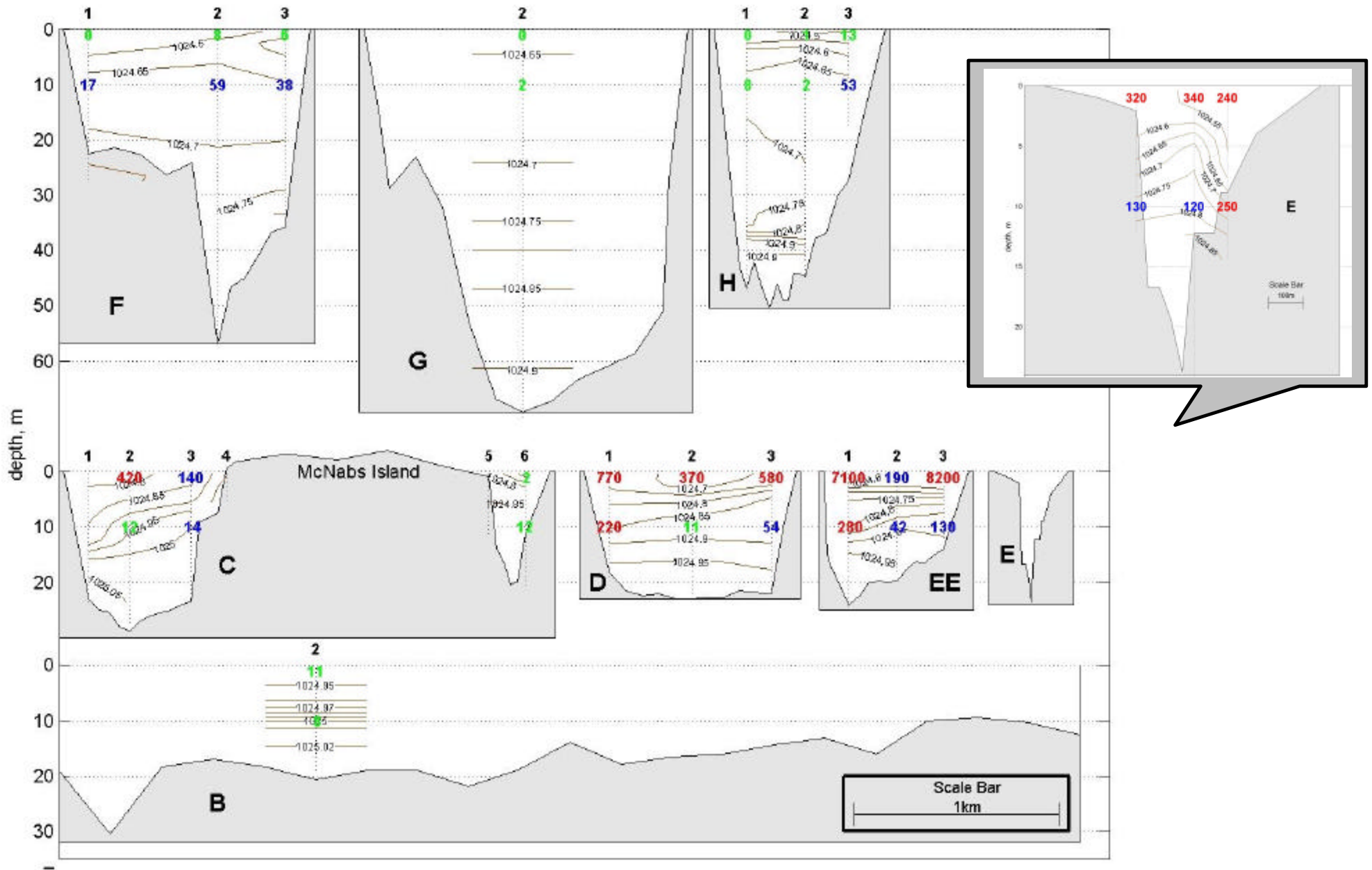
Yacht Clubs



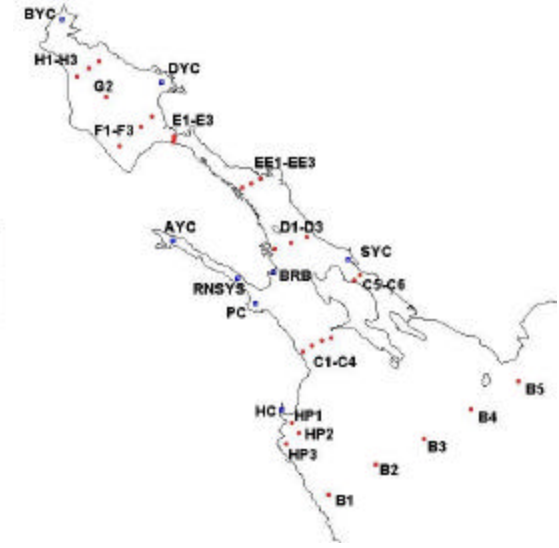
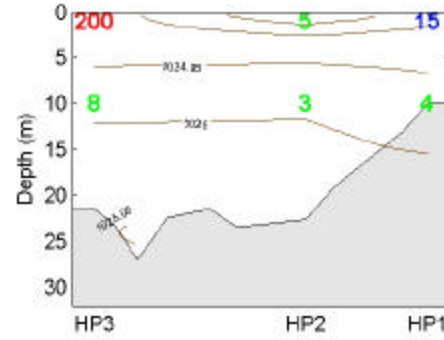
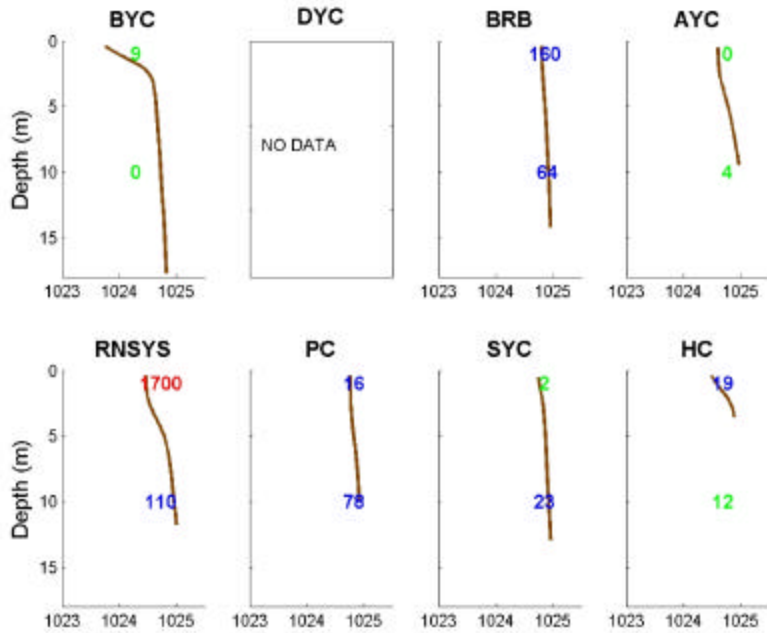
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



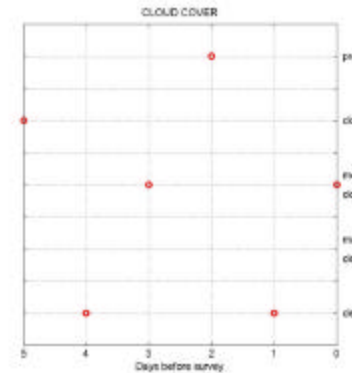
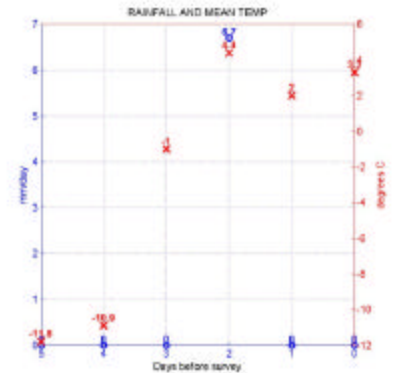
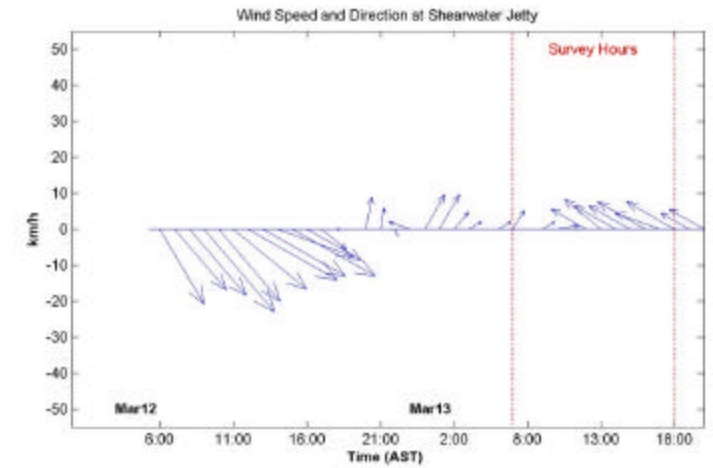
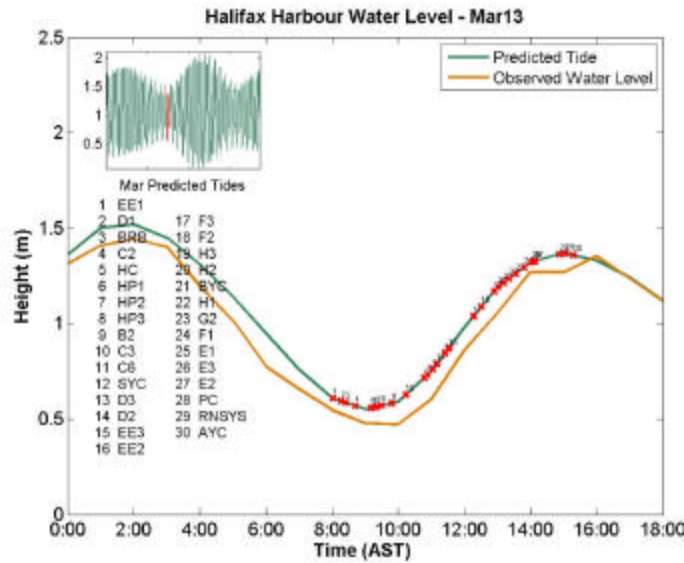
Salinity in PSU Temperature in °C



Yacht Clubs

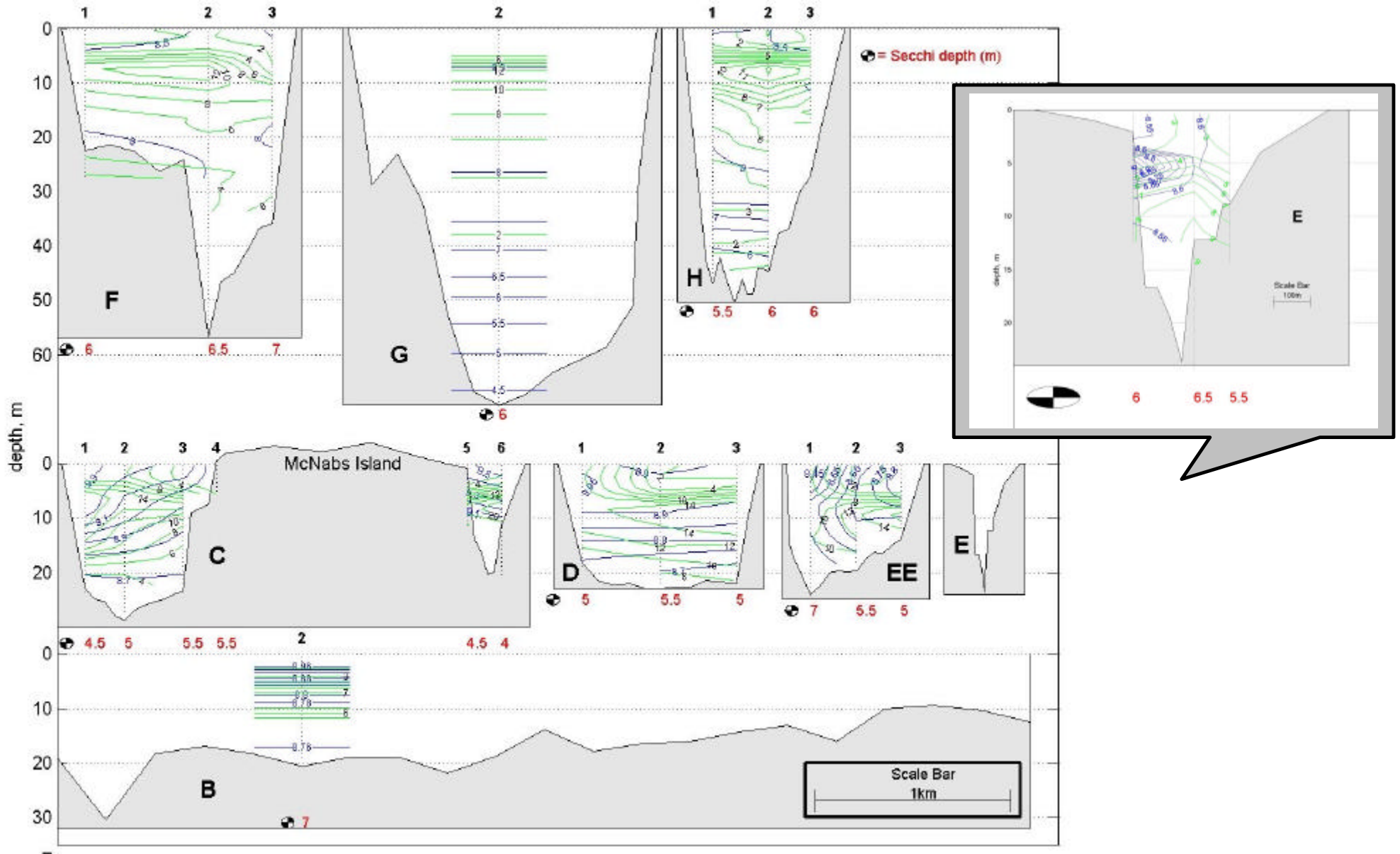


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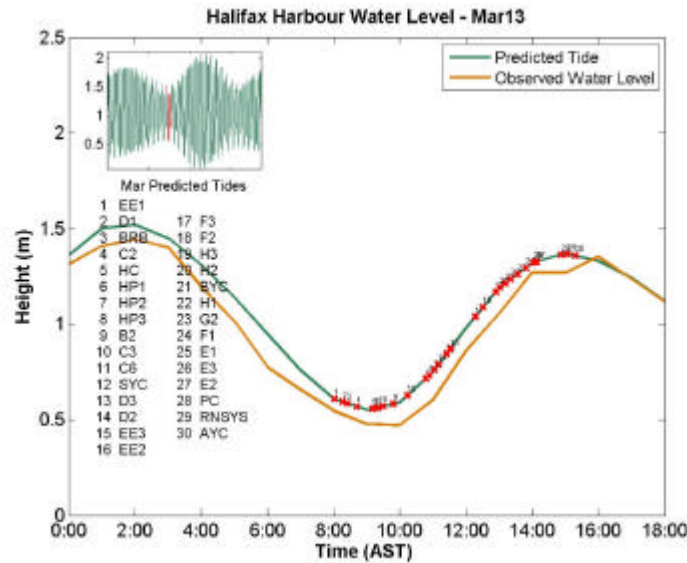
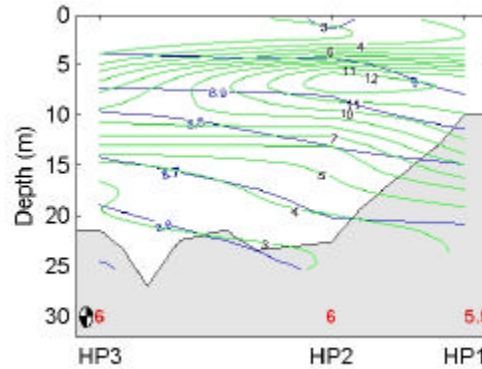
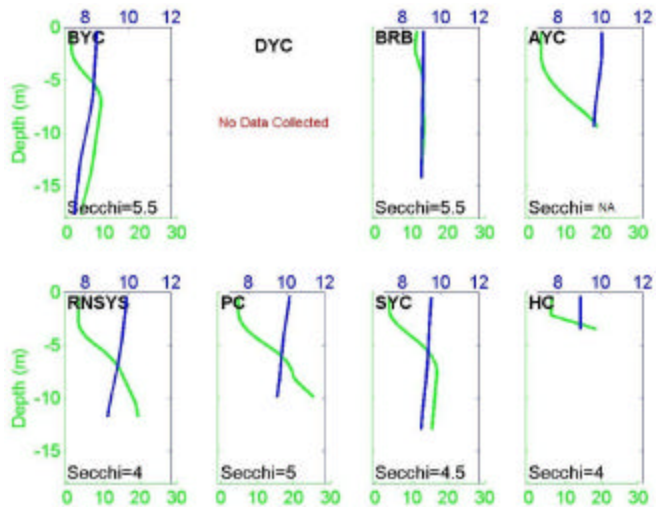


Potential Density in kg/m^3

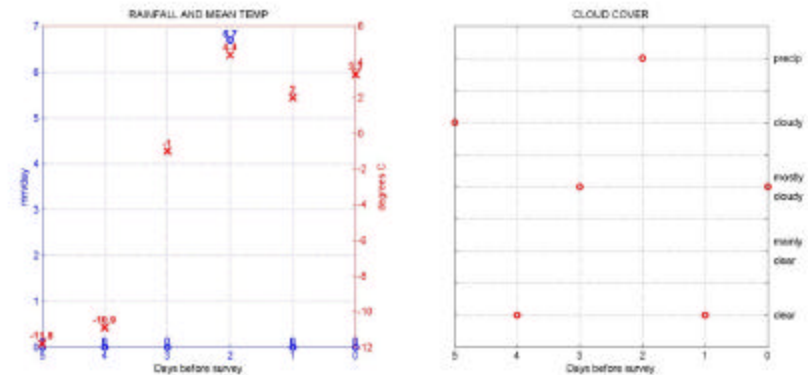
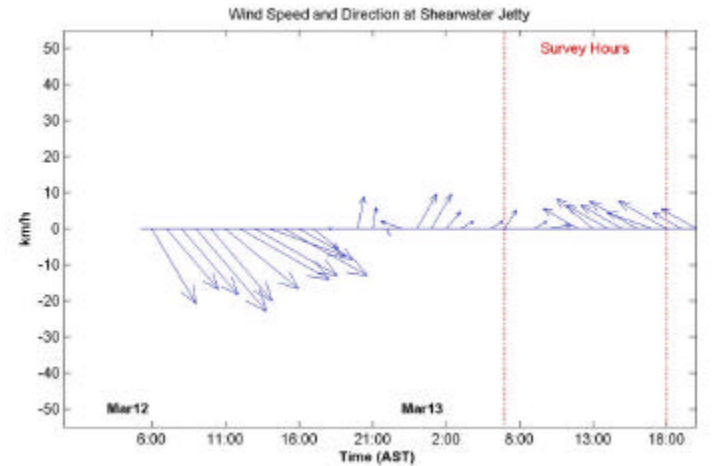
Fecal coliform: **above swimming limit (200 cfu/100mL)**
above shellfish limit (14 cfu/100mL)
below limits



Yacht Clubs

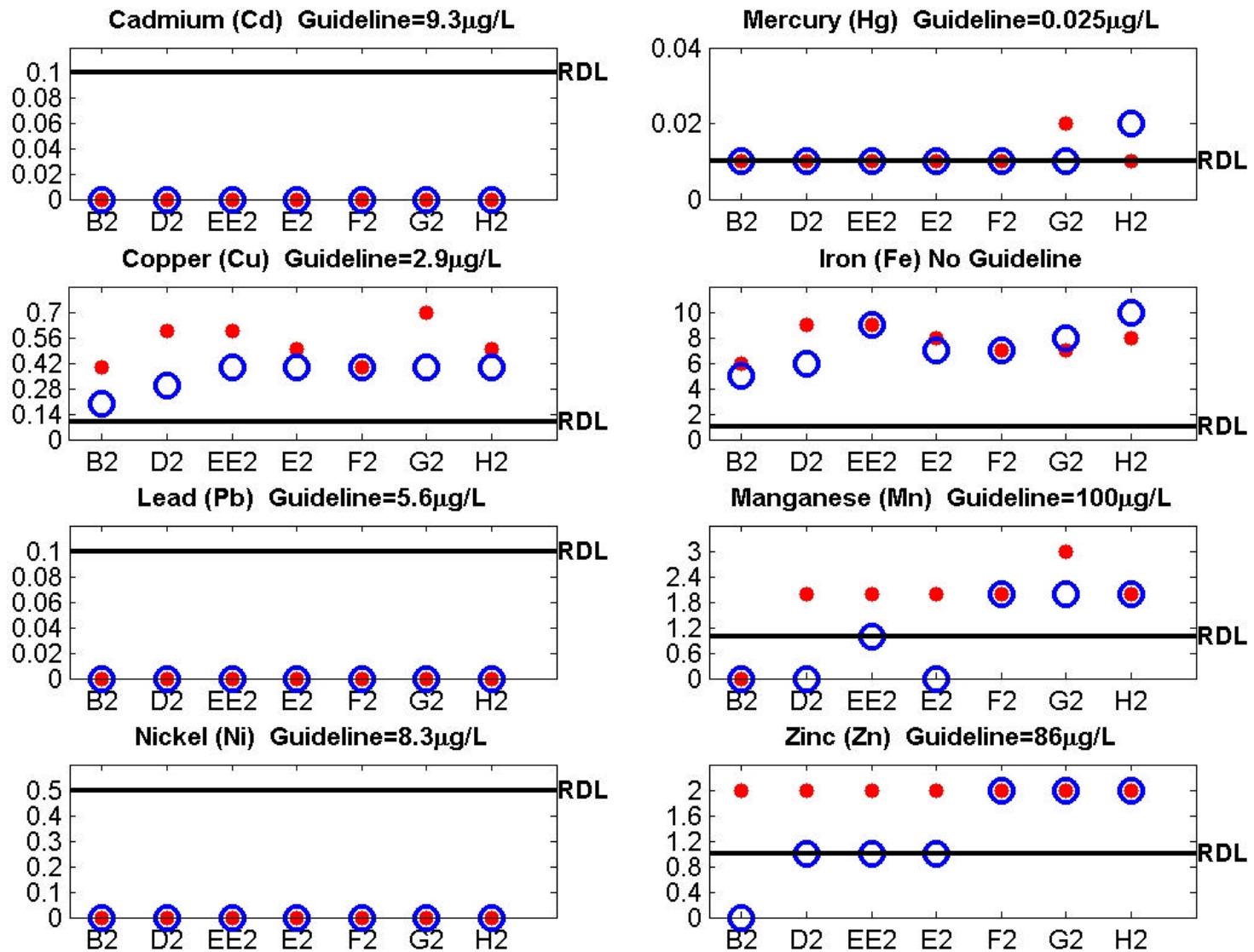


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DO in mg/L

Chlorophyll in mg/m³



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