

Halifax Harbour Water Quality Monitoring Project Survey Summary #126

Survey Date: 28 March 2007
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report126_070328.doc
Data File: HHWQMP_data126_070328.xls

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

Sample Notes:

The sites at which QAQC 3 and 4 were taken were not documented. The CTD was not turned on at site BYC, so there are no profile data. CTD data for site AYC is missing apparently lost during processing.

QA/QC samples:

Chemical Analysis		QAQC4	
Detectable Parameter	Units	reference sample	QA/QC
Ammonia (as N)	mg/L	NA	0.09
Total Suspended Solids	mg/L	NA	8.5
Copper	ug/L	NA	0.4
Iron	ug/L	NA	6
Manganese	ug/L	NA	2
Zinc	ug/L	NA	2

Fecal Coliform (CFU/100ml)

Site	HP2-10m	D1-10m
Reference	0	32
QA/QC	2	26

Comments:

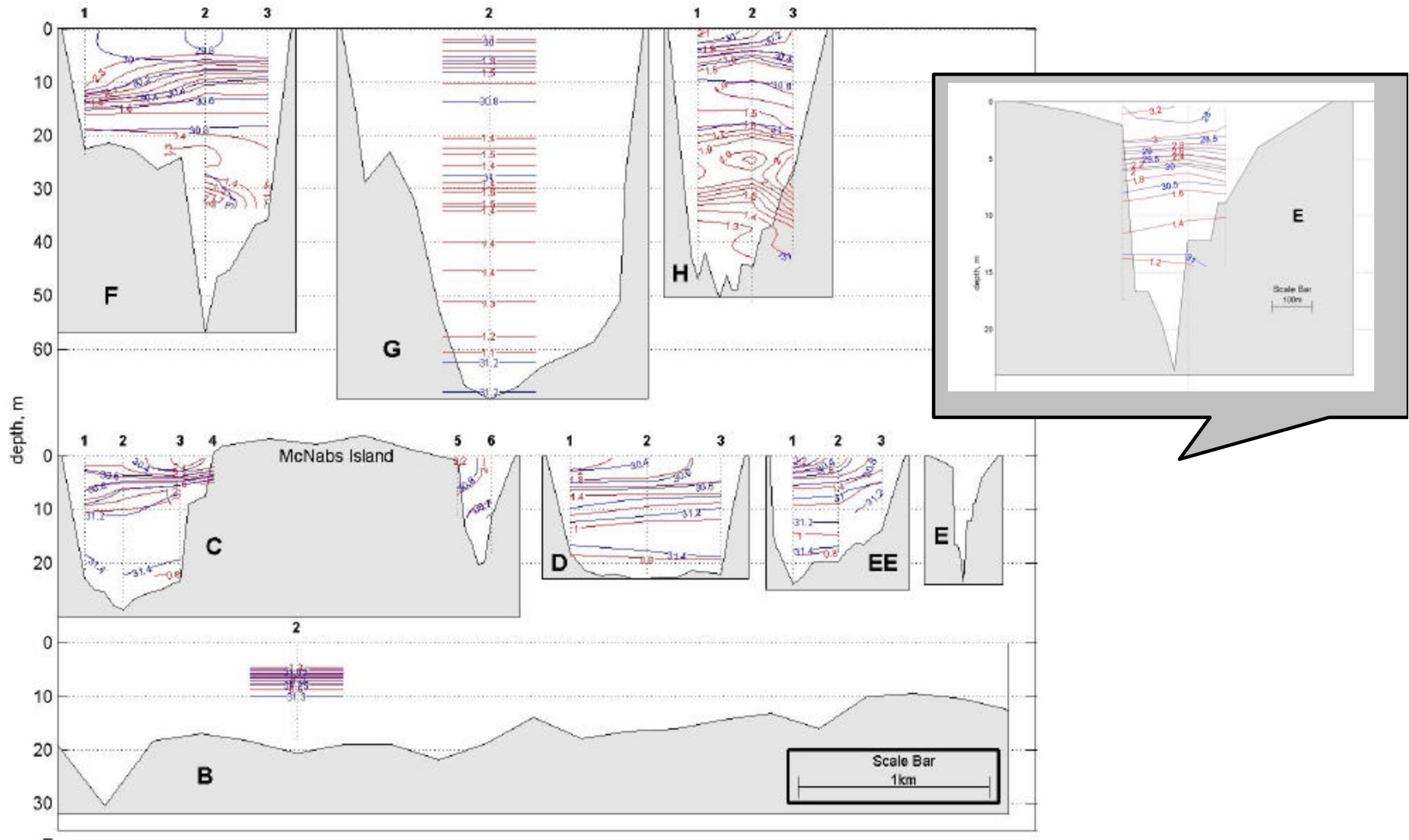
General: Overall the Harbour is fresher than in the previous survey, and is somewhat more stratified. This is despite the subfreezing temperatures and lack of precipitation in the five days before the survey. The Basin bottom water has been replaced by slightly fresher, colder water that is only very slightly denser than the water previously at the bottom of the Basin. Associated with this, the temperature has inverted. The temperature above 10m has increased by about a degree, while the bottom water has cooled by 1-1.5 degrees and is at the temperature of the top 20m in the previous survey. This event was set up by the very uniform conditions evident over the previous month. It appears that it was at least in part forced by the intrusion of deeper shelf water as evidenced by the down harbour displacement of the coliform distribution in the surface water. There are high values out to Section C and elevated levels at the surface all the way out to B2 in the Outer Harbour.

Fluorescence: The Spring phytoplankton bloom continues. Fluorescence values are higher than last survey, with profile maximums of $>20 \text{ mg/m}^3$, at a depth of about 10 m, from the southern Basin (section F) through the Inner Harbour all the way to the Outer Harbour (B2). The highest values tend to be along the Western side of the harbour. In the remainder of the Basin the profile maximums are 12-14 at a depth of 5-7 m. It is unusual that the maximum fluorescence is not in the Basin.

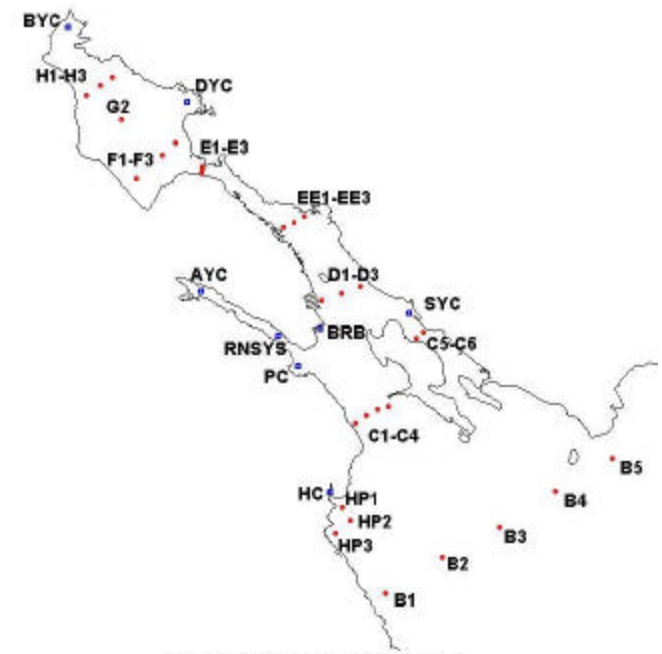
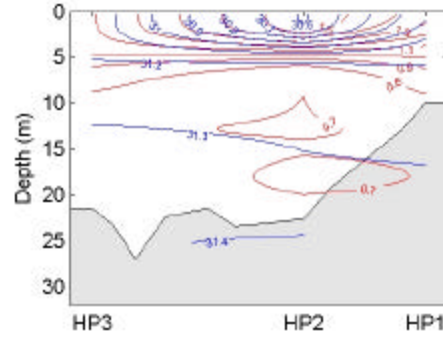
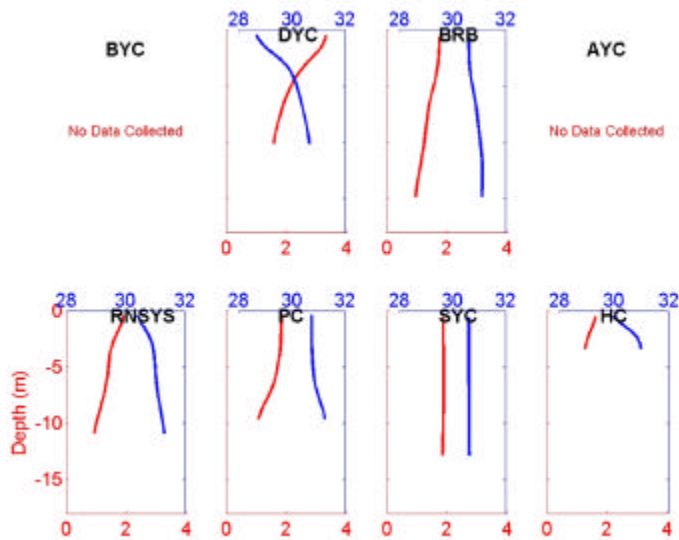
Ammonia: There are detectable levels ($> 0.05 \text{ mg/L}$) of ammonia in twelve of sixteen samples. These are generally grouped in the Basin and Inner Harbour, however there are also detectable values at B2 in the Outer Harbour.

TSS: The TSS values are again higher than last survey, (range 2.7- 10.0 mg/L) but again, there is no obvious pattern.

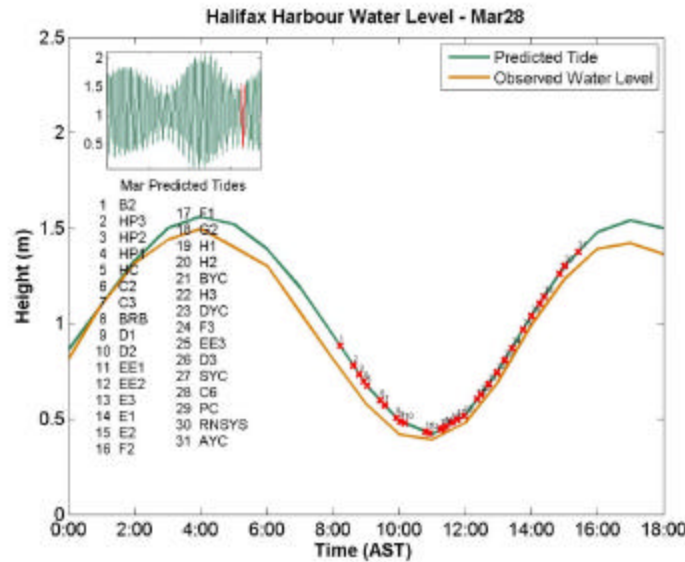
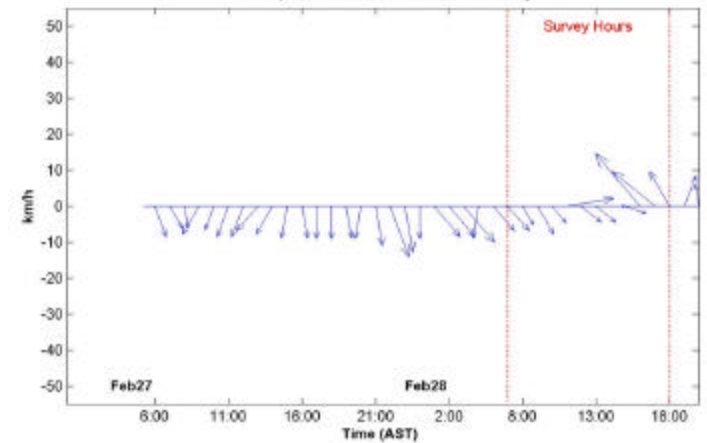
Dissolved Oxygen: The dissolved oxygen (DO) data indicate that the DO levels are not as vertically uniform as recently observed, but are generally higher. The surface values are mostly $> 9.0 \text{ mg/L}$. Outside of the Basin the bottom levels are between 8.2 –8.8 mg/L. The renewed Basin bottom water is $>7.0 \text{ mg/L}$. There are no values below applicable guidelines anywhere in the Harbour. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).



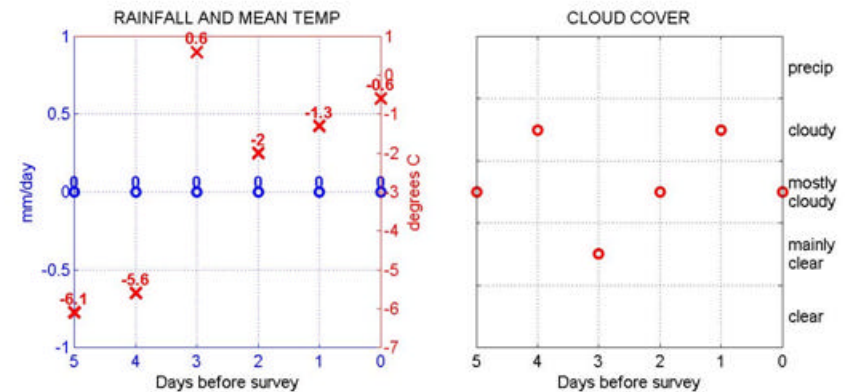
Yacht Clubs



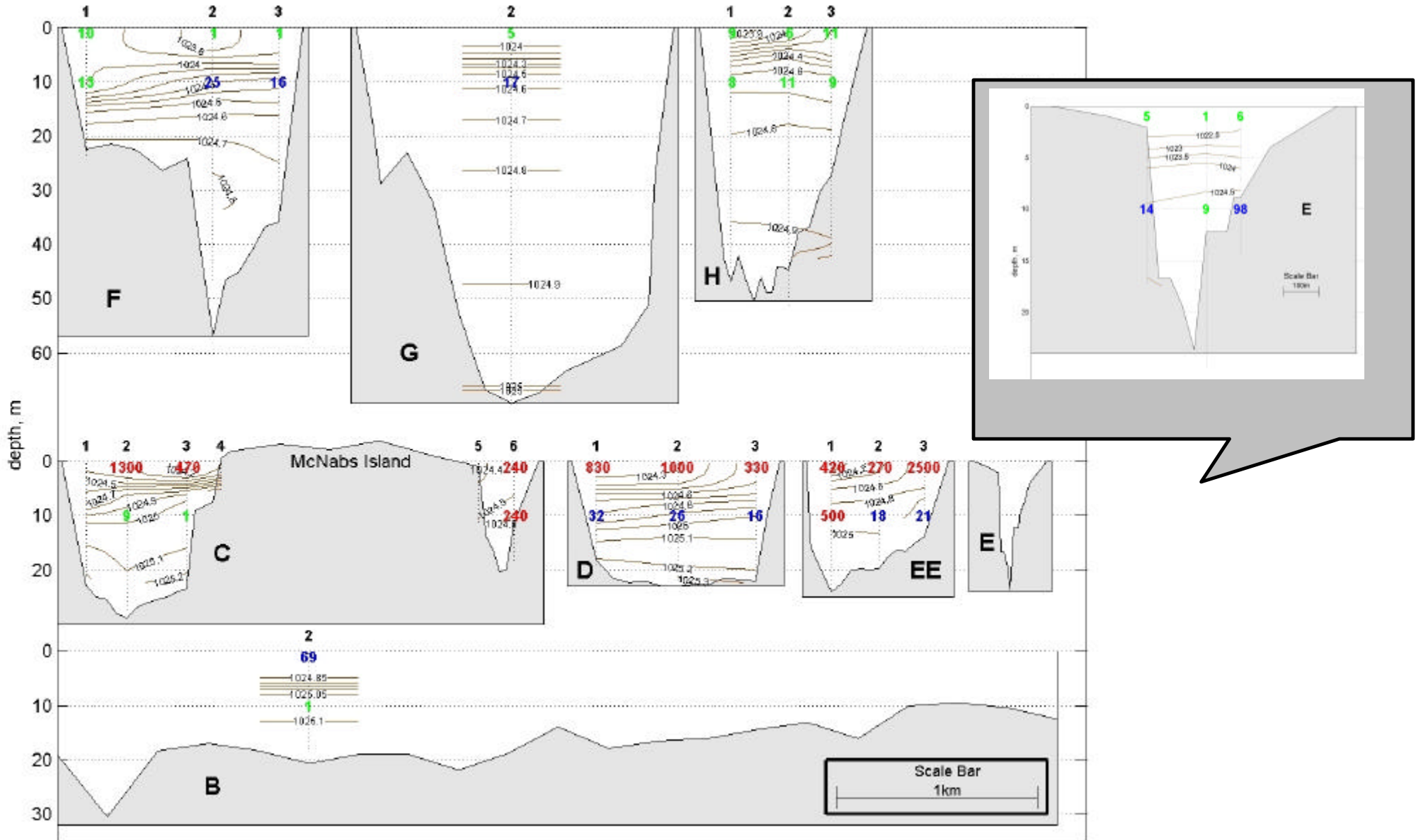
Wind Speed and Direction at Shearwater Jetty



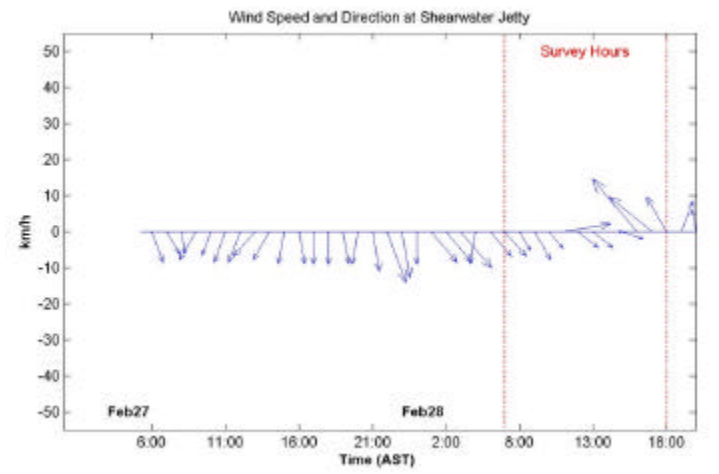
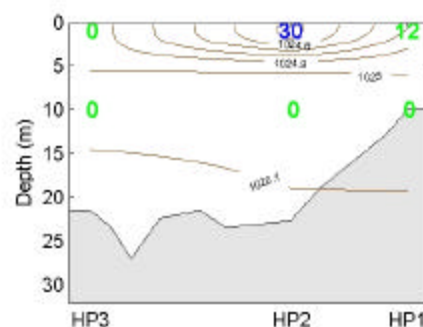
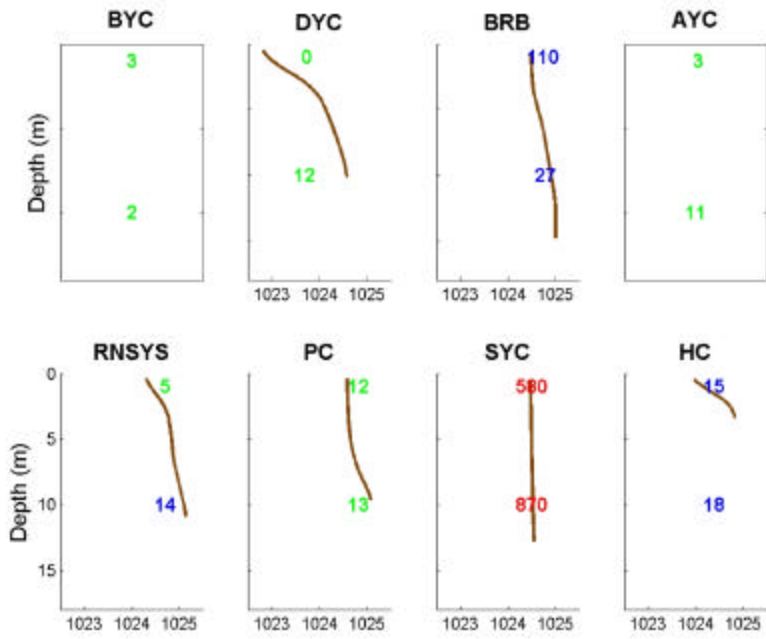
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



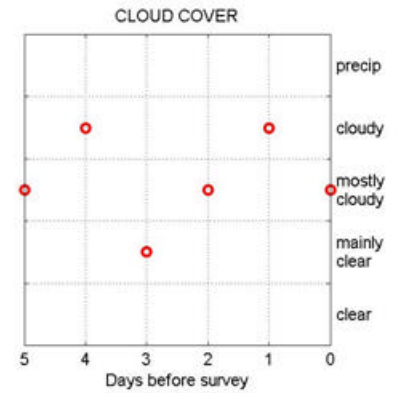
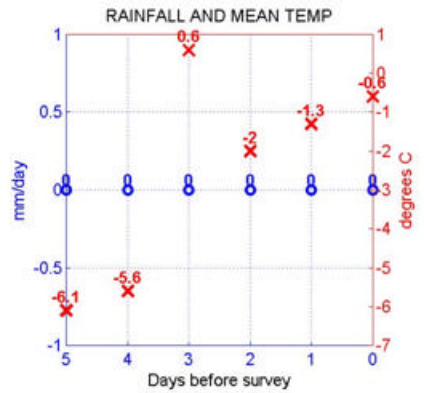
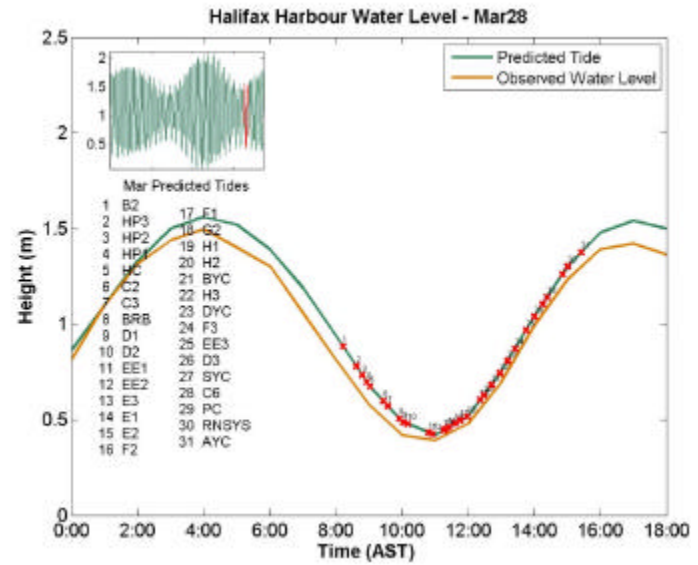
Salinity in PSU Temperature in °C



Yacht Clubs



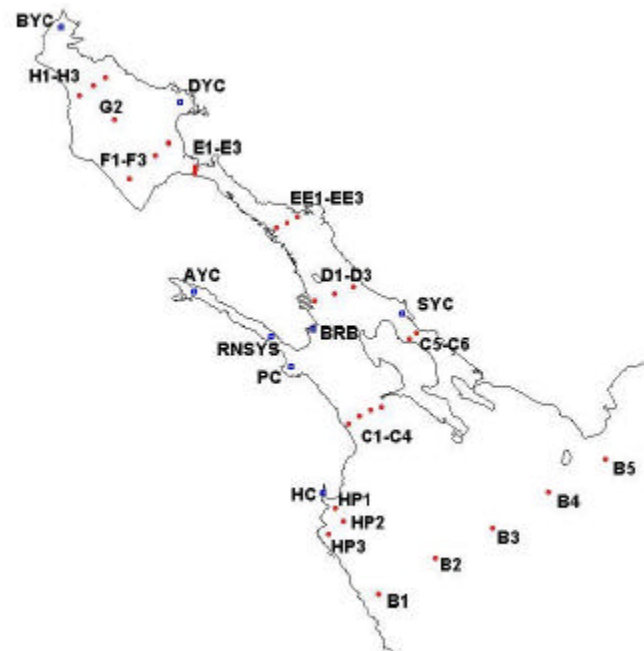
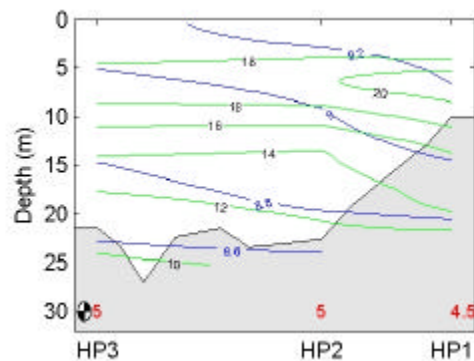
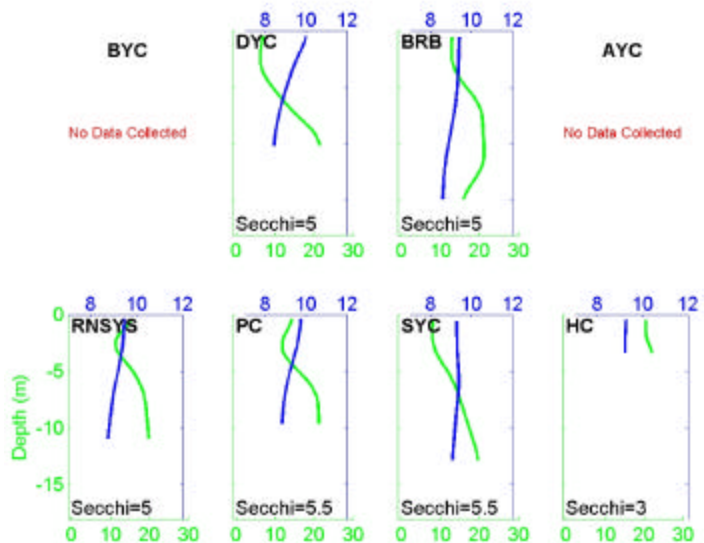
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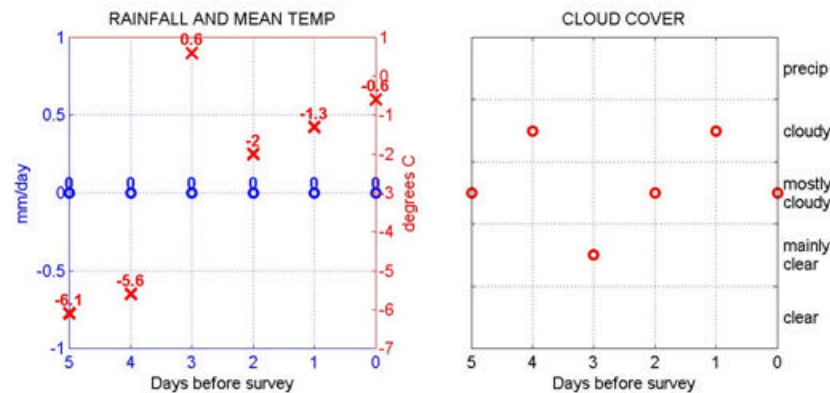
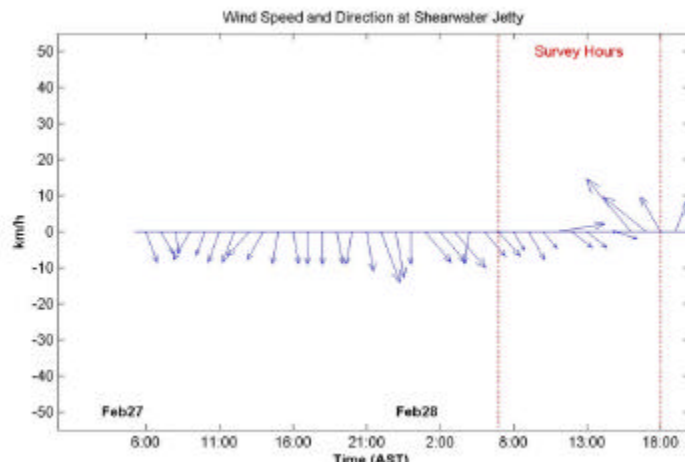
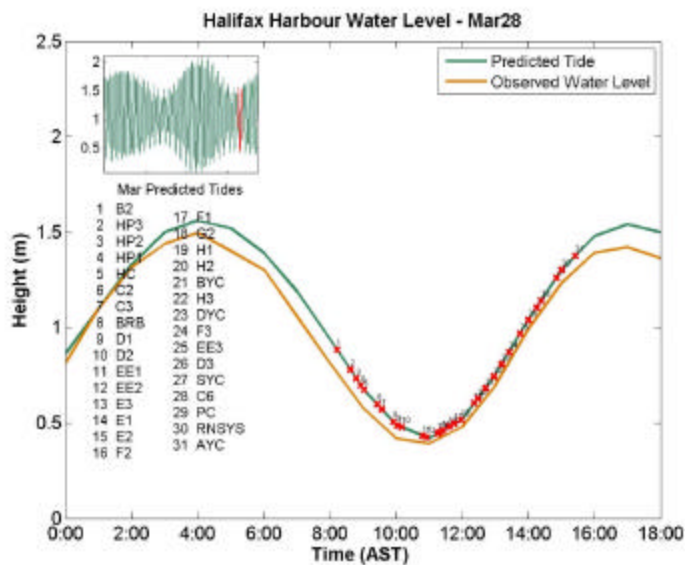
Potential Density in kg/m³

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

Yacht Clubs

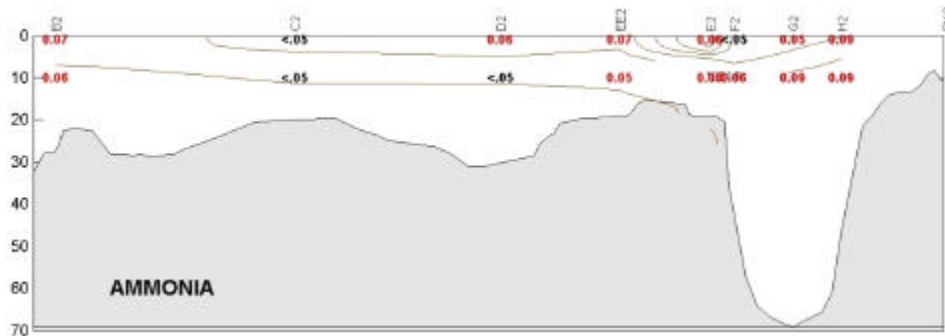
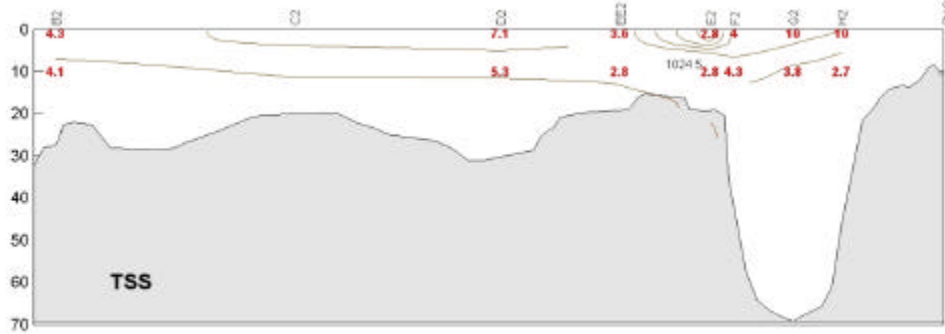


Rainfall and temperature data collected at Shearwater Autoport.
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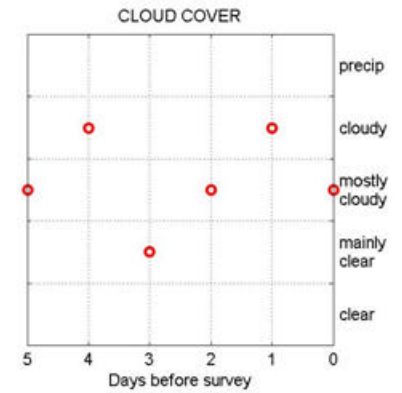
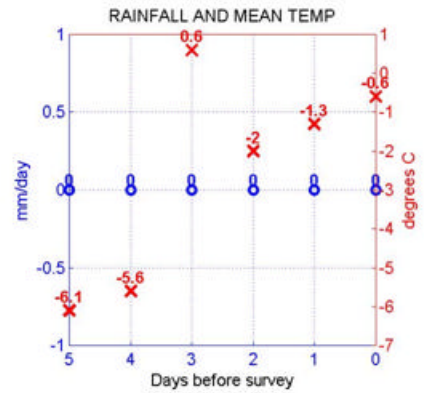
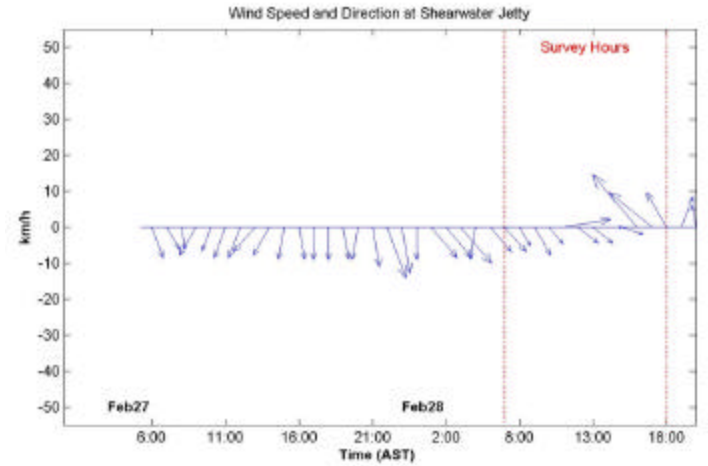
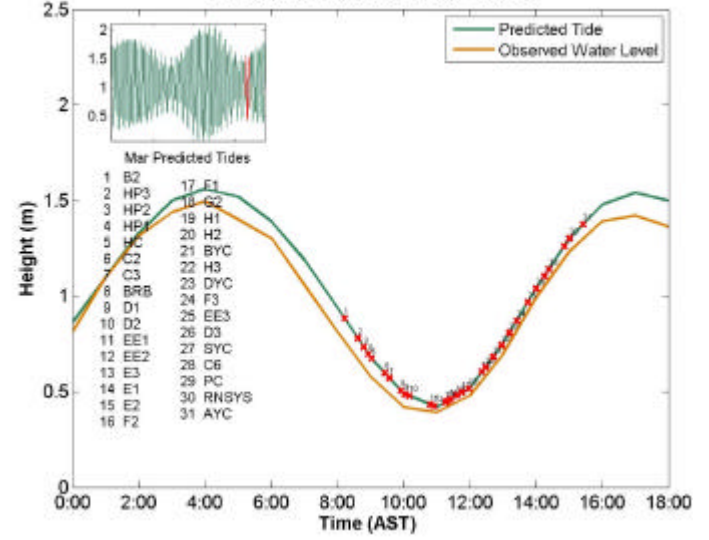
DO in mg/L

Chlorophyll in mg/m³



Rainfall and temperature data collected at Shearwater Autoport.
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Halifax Harbour Water Level - Mar28



Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

