

Halifax Harbour Water Quality Monitoring Project Survey Summary #157

Survey Date: 04 June 2008
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report157_080604.doc
Data File: HHWQMP_data157_080604.xls

Data Return:
 Chemical: 100%
 Bacteria: 100%
 Profile: 96%
Overall: 98%

Sample Notes:

A supplementary CTD cast was taken at the LOBO buoy location (44.6291° N, 63.5915° W) at 15:37 local time.

Dartmouth Cove (DC) was sampled this survey, due to temporary effluent diversion.

All DO records have been plotted here but the DO record for site EE2 has been deleted from the data file and the records for sites HP1, B2 and F1 have been truncated due to poor record quality.

To match the collected reference data the presented DO values should be scaled by a factor of 1.35 (see comparison in data file).

QA/QC samples:

Chemical Analysis		G2 – 1m	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L	0.07	<0.05
Total Suspended Solids	mg/L	5.4	5.0
Cobalt	ug/L	0.1	0.1
Copper	ug/L	0.8	0.8
Iron	ug/L	36	36
Manganese	ug/L	6.0	7.0
Nickel	ug/L	0.6	0.6
Zinc	ug/L	4	6

Fecal Coliform (CFU/100ml)

Site	SYC-1m	HP2-1m	E1-10m	G2-1m
Reference	1	0	130	0
QA/QC	4	0	1	0

Comments:

General: There has been significant rainfall about three days preceding the survey (total of about 30 mm), and the harbour surface continues to warm. The surface water in the Basin has freshened slightly and the deeper water in the Inner Harbour has become more saline. Overall the harbour is somewhat more stratified than in the previous survey though the vertical gradients are more uniform. There is dense water in the Inner Harbour at least up to section EE that is denser than the Basin bottom water. 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 generally very low. The exception is on the Dartmouth side at stations EE3, D3 and DC.

Fluorescence: The fluorescence levels are moderate (10-20 mg/m³) throughout the harbour, with profile maximum values occurring at 6-12 m. There is a less distinct pattern than normally, though values are slightly lower and deeper in the water column in the Outer Harbour (HP and B sites).

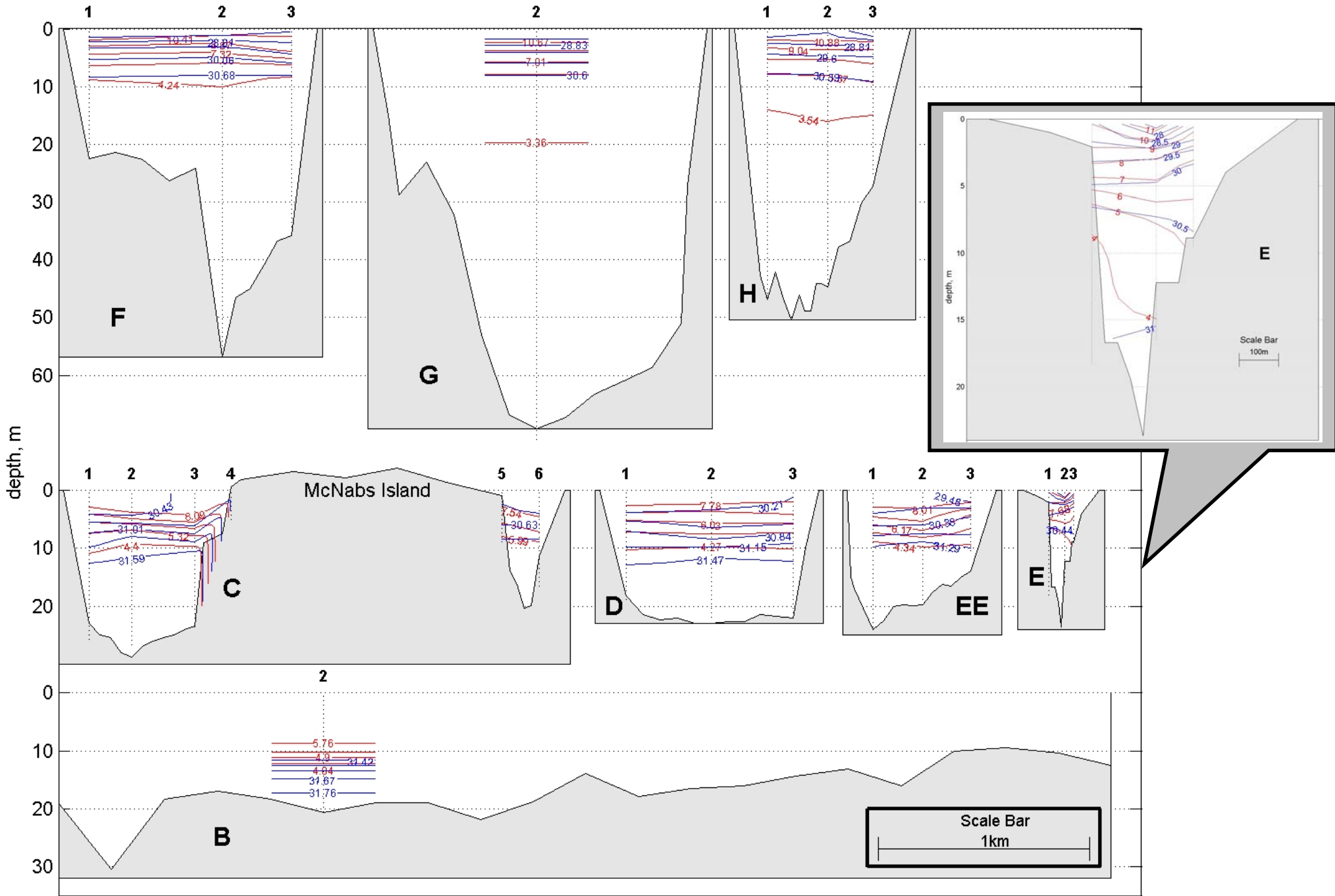
TSS: The TSS levels are moderate with an average value of 5.5 mg/L and a maximum value of 14.0 mg/L in the DC sample. There is no obvious coherent spatial distribution.

Ammonia: The ammonia concentrations vary from less than the 0.05 mg/L detection limit (four samples) to a maximum of 0.17 mg/L in the Dartmouth Cove (DC) sample. Most samples are only slightly above the detection limit.

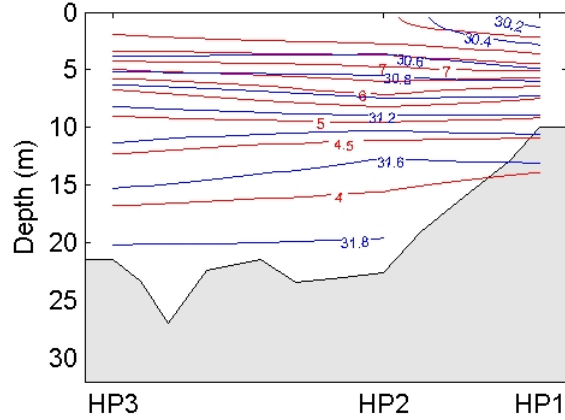
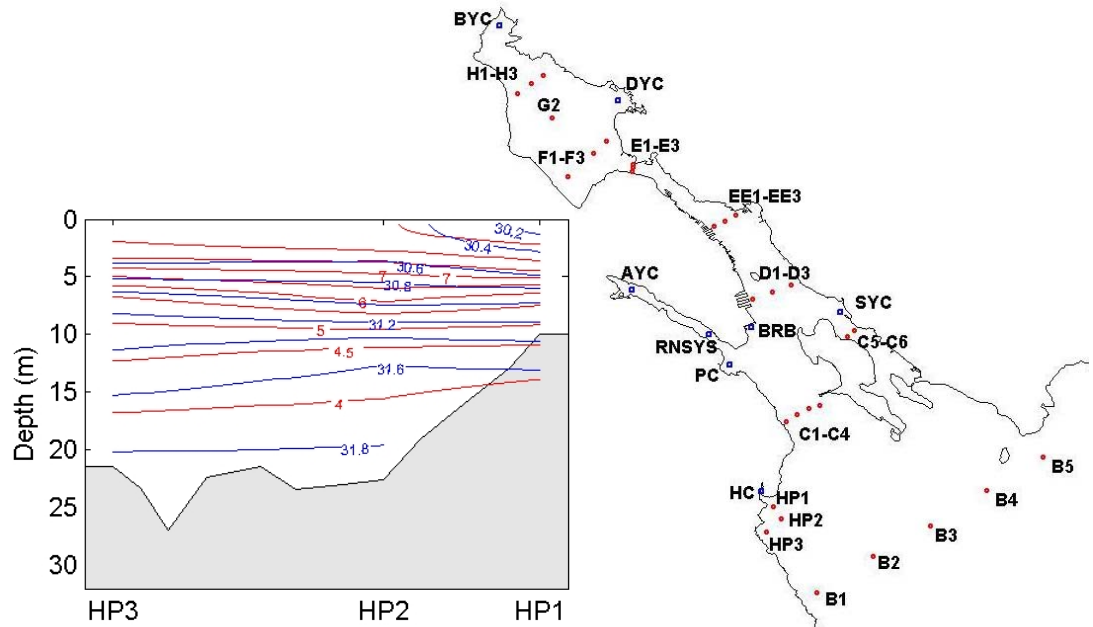
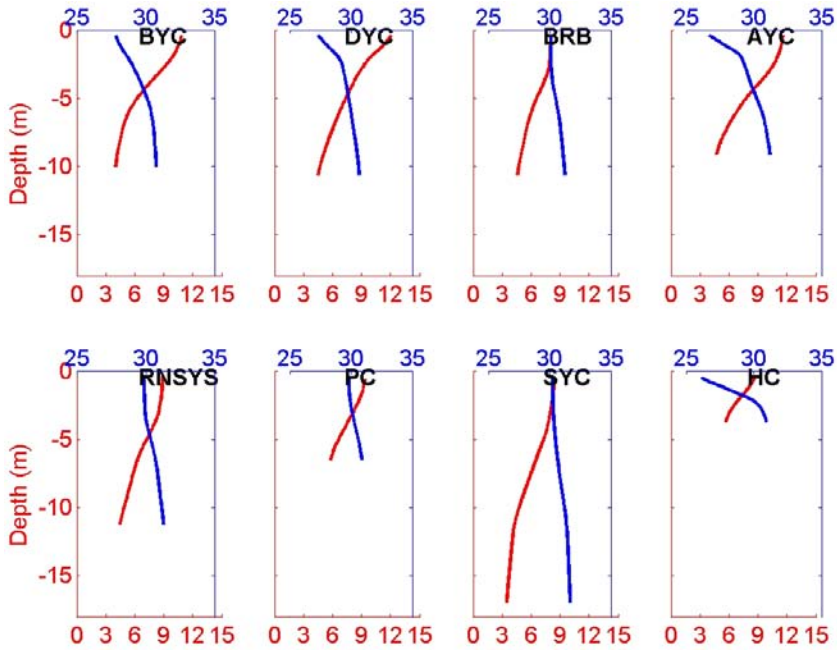
Metals: There are no guideline exceedences in any samples. The closest values to exceedence in regular samples were copper (F2-1m) and the one sample with detectable mercury (E2-10m), both of these had levels about 40% of the applicable guideline. The levels in the DC-1m sample were relatively high, with the highest observed levels of mercury and iron.

Dissolved Oxygen: The DO data, scaled by a factor of 1.35, shows high dissolved oxygen in the shallower water (<30 m) everywhere. The deep Basin levels are dropping, but remain at about or above the 7.0 mg/L guideline. There are no guideline exceedences.

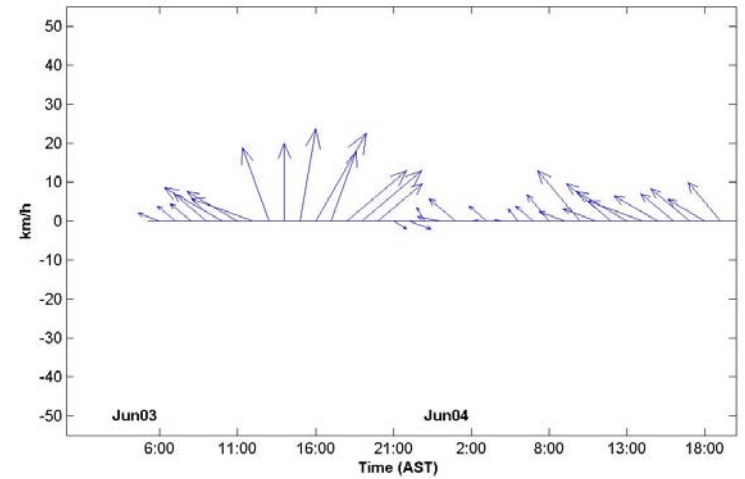
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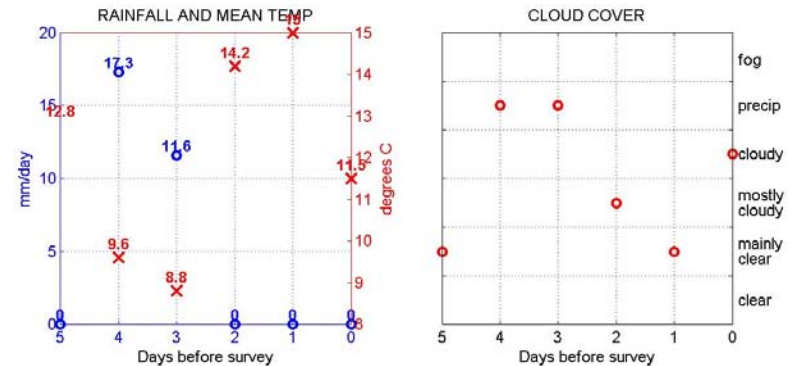
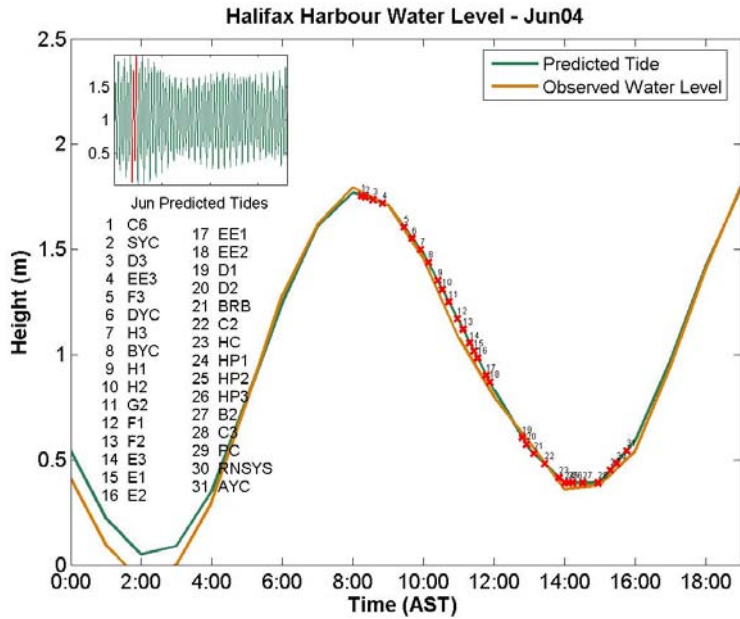
Yacht Clubs



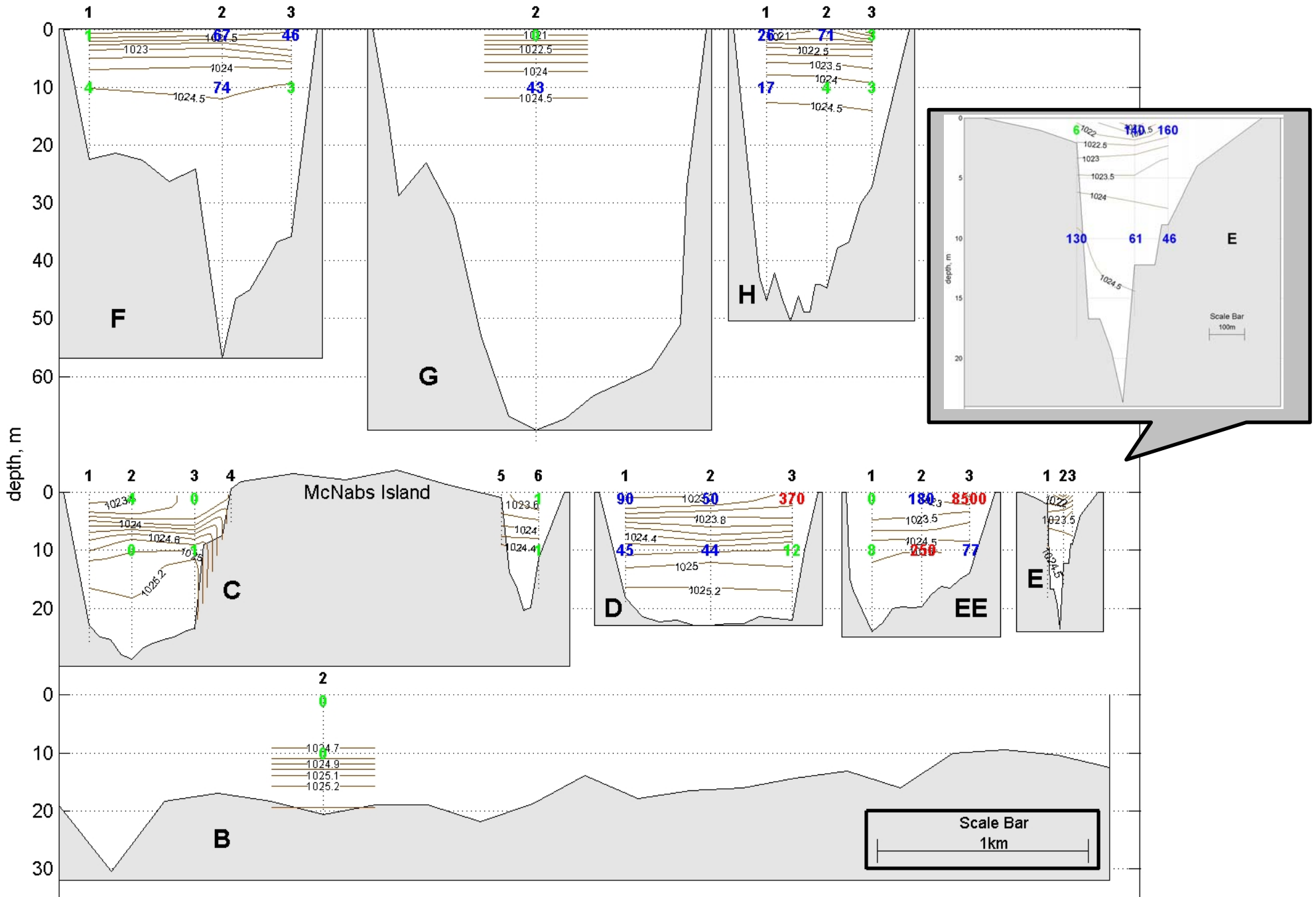
Wind Speed and Direction at Shearwater Jetty



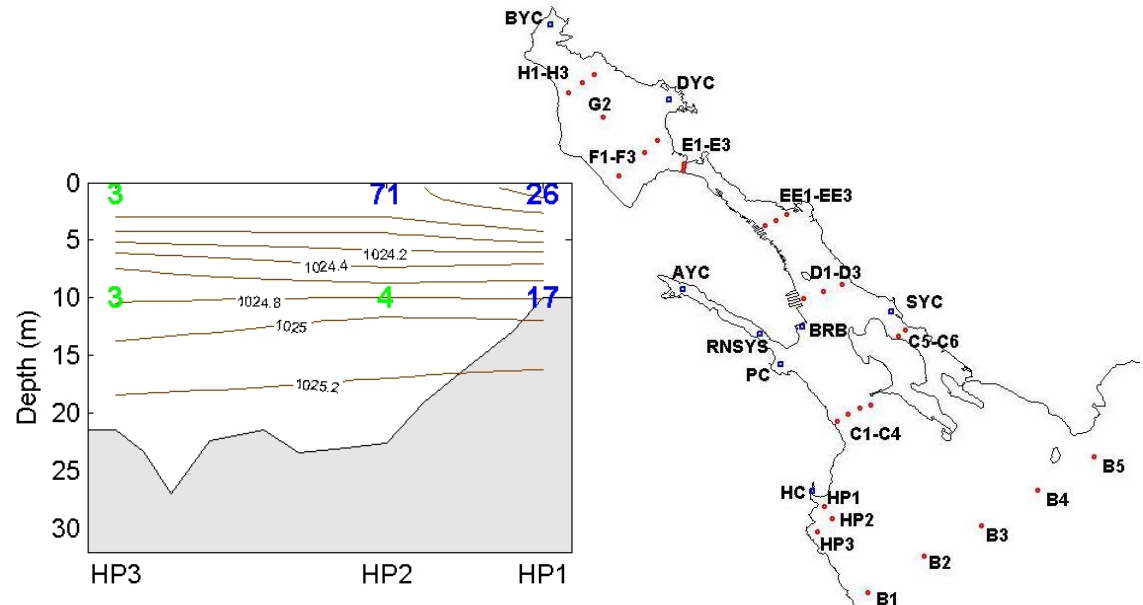
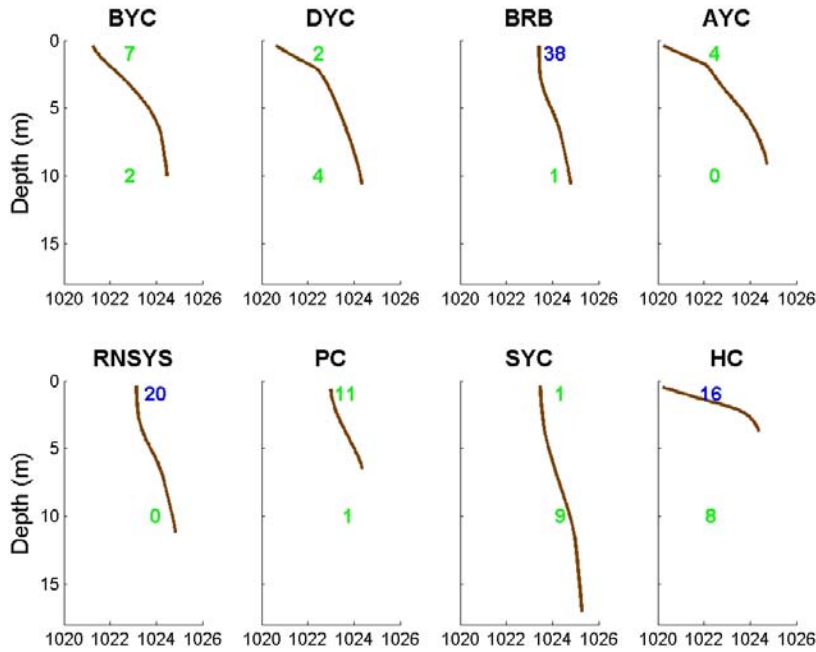
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



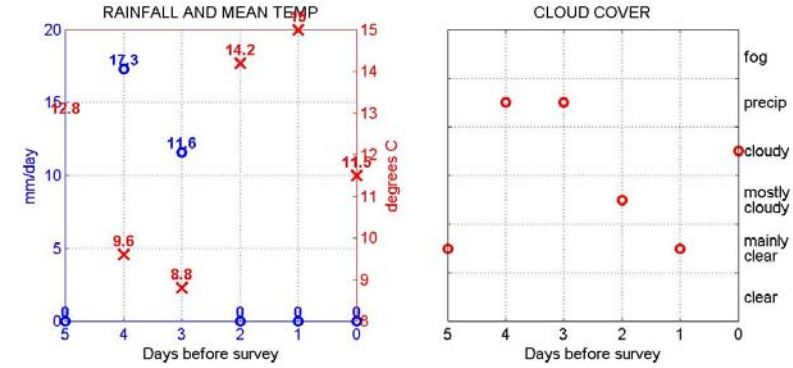
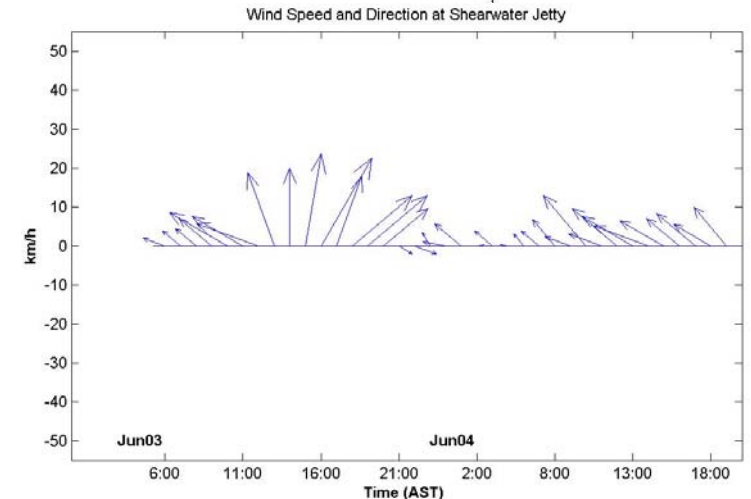
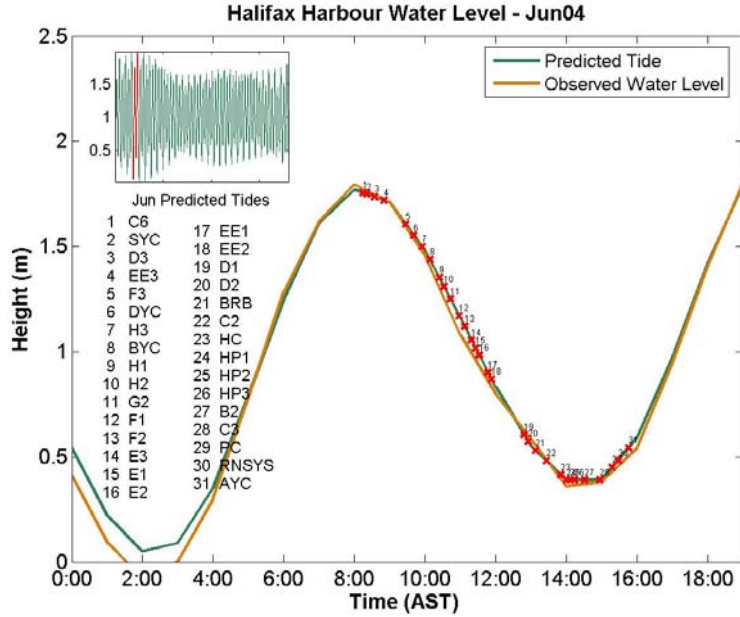
Salinity in PSU Temperature in °C



Yacht Clubs

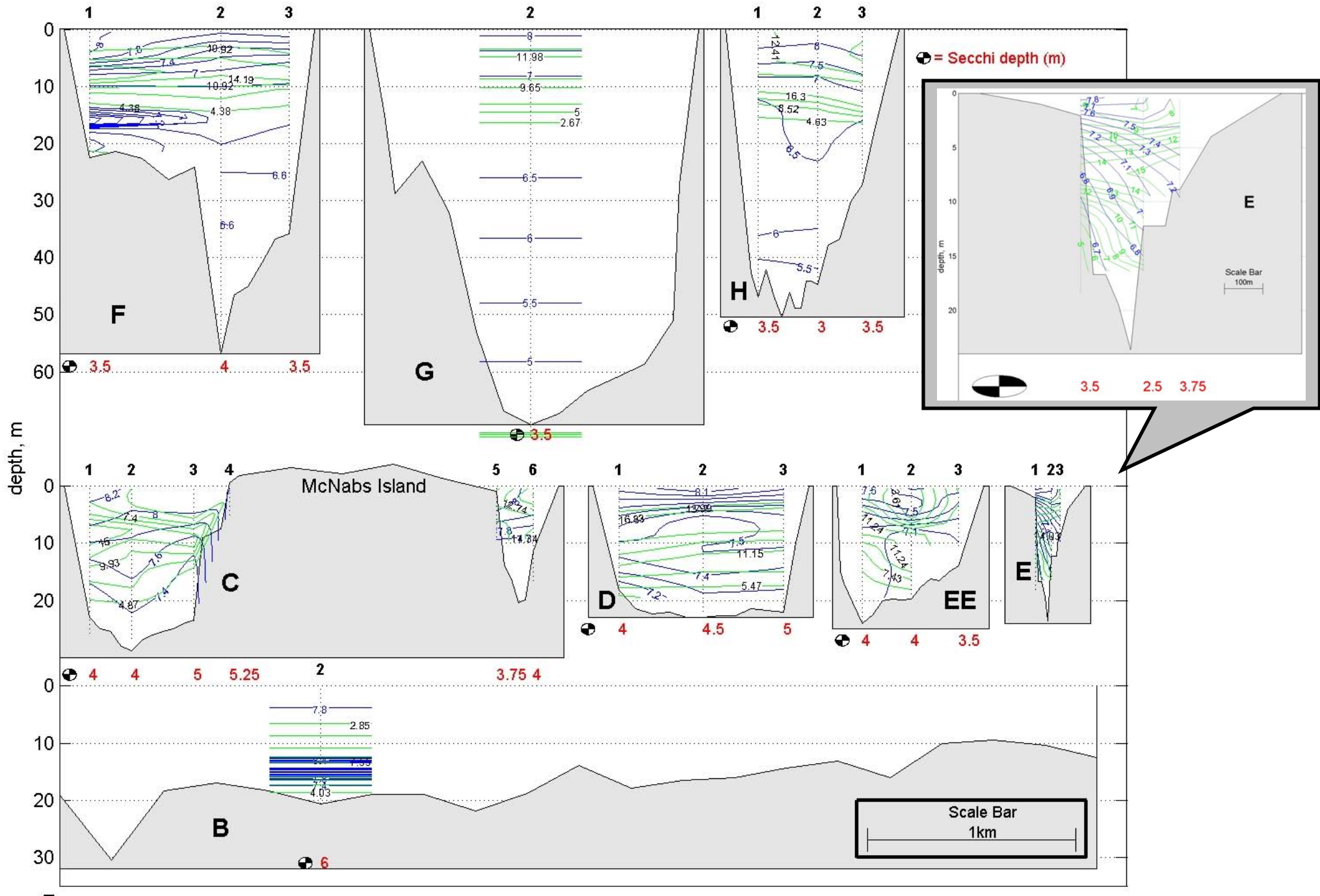


Rainfall and temperature data collected at Shearwater Autoport.
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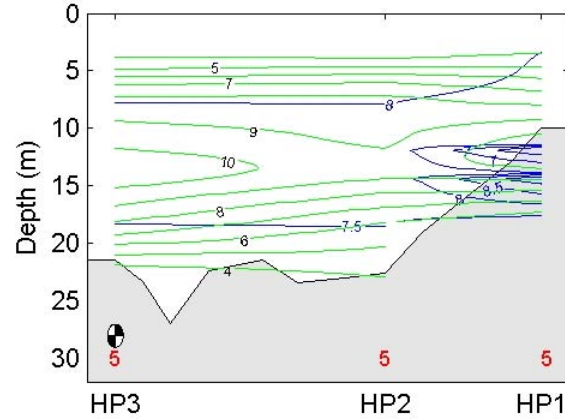
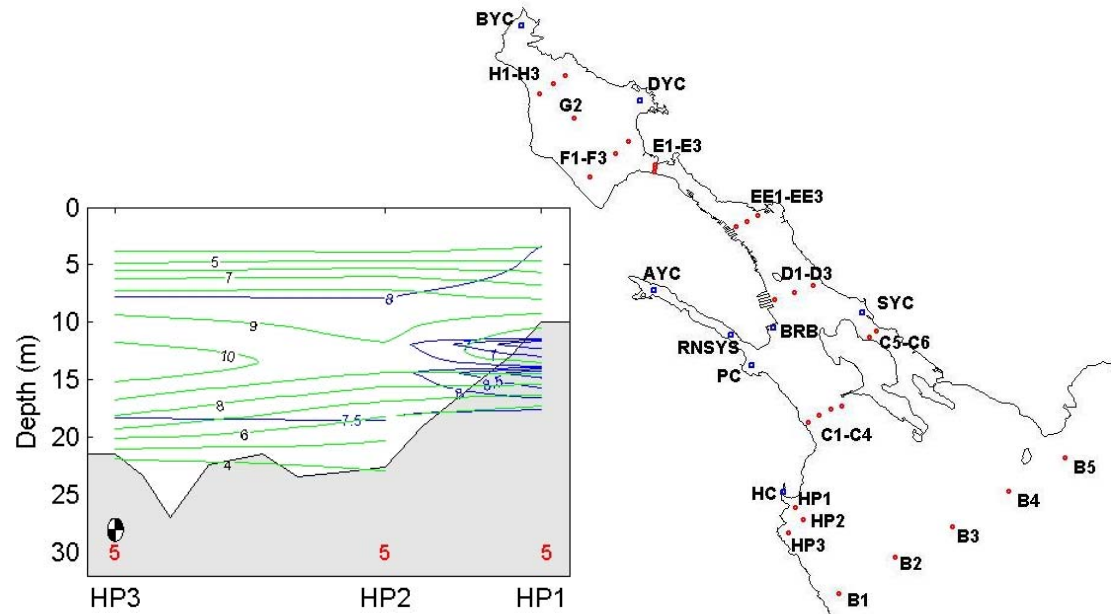
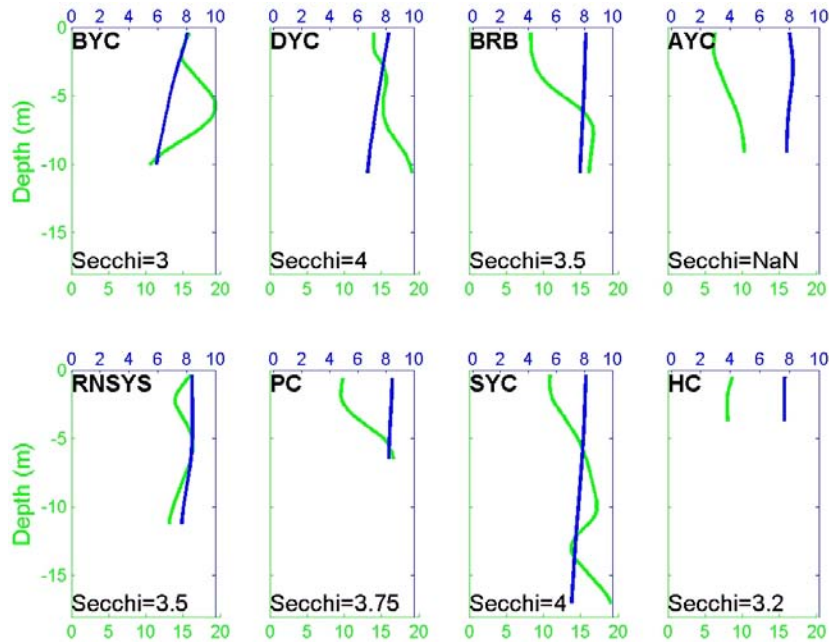


Potential Density in kg/m^3

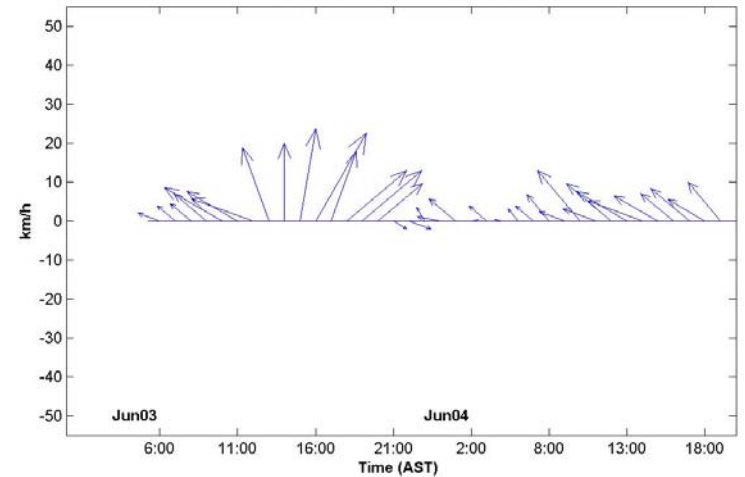
Fecal coliform: **above swimming limit (200 cfu/100mL)**
above shellfish limit (14 cfu/100mL)
below limits



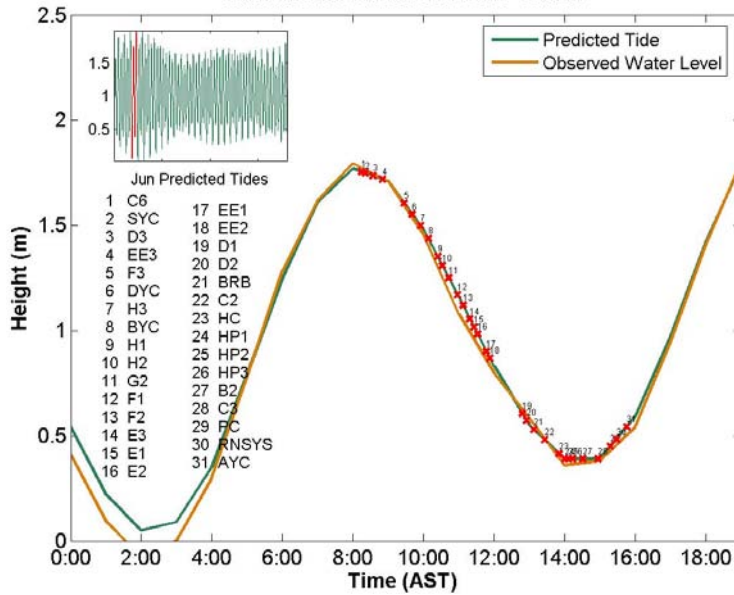
Yacht Clubs



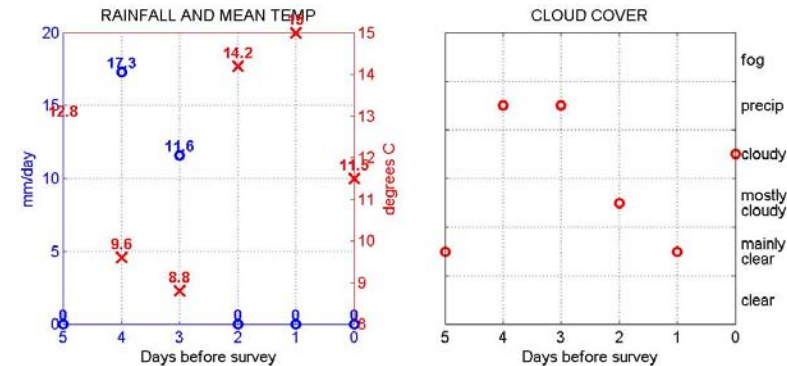
Wind Speed and Direction at Shearwater Jetty



Halifax Harbour Water Level - Jun04



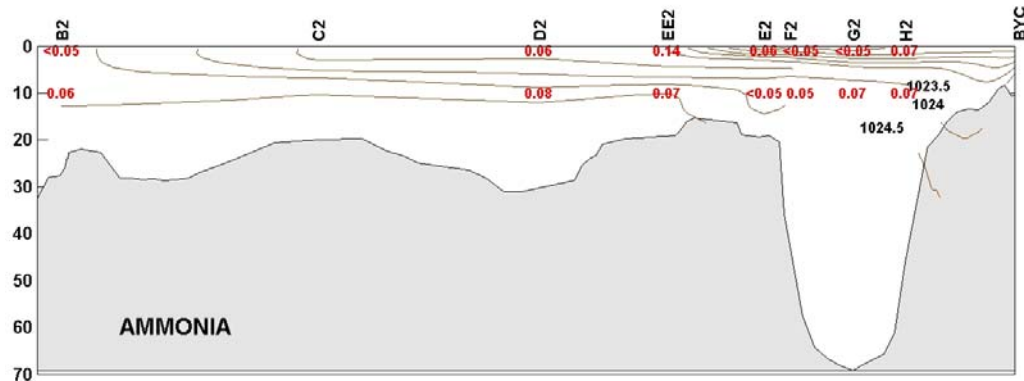
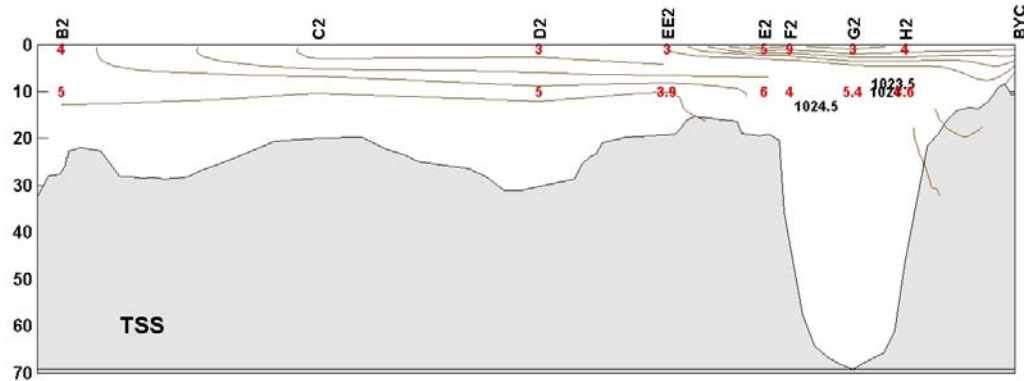
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Cloud cover data collected at Shearwater Airport



DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



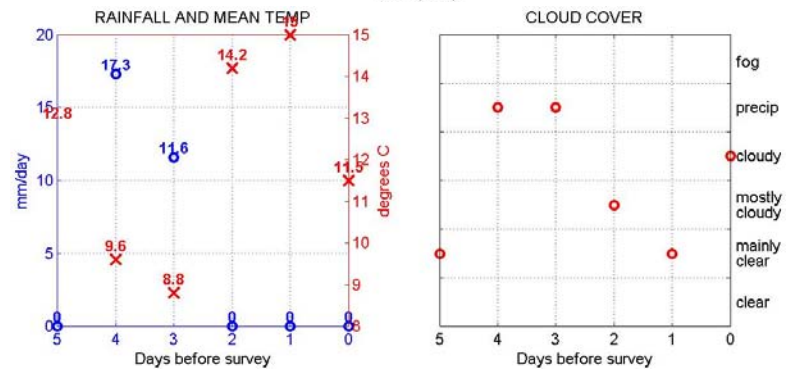
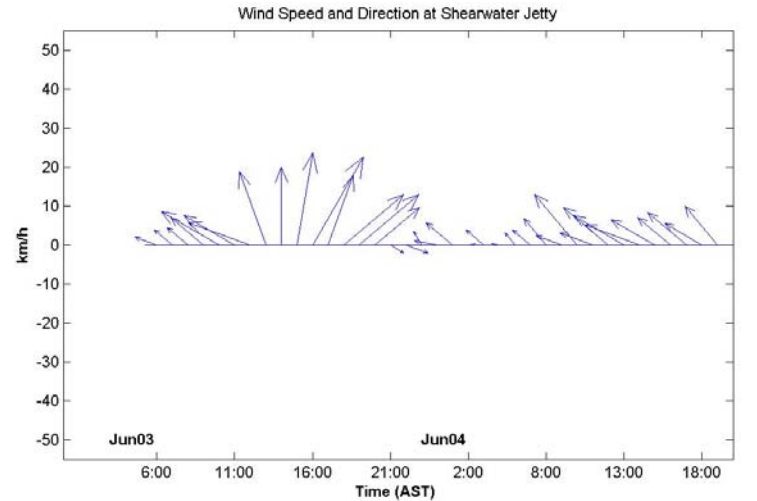
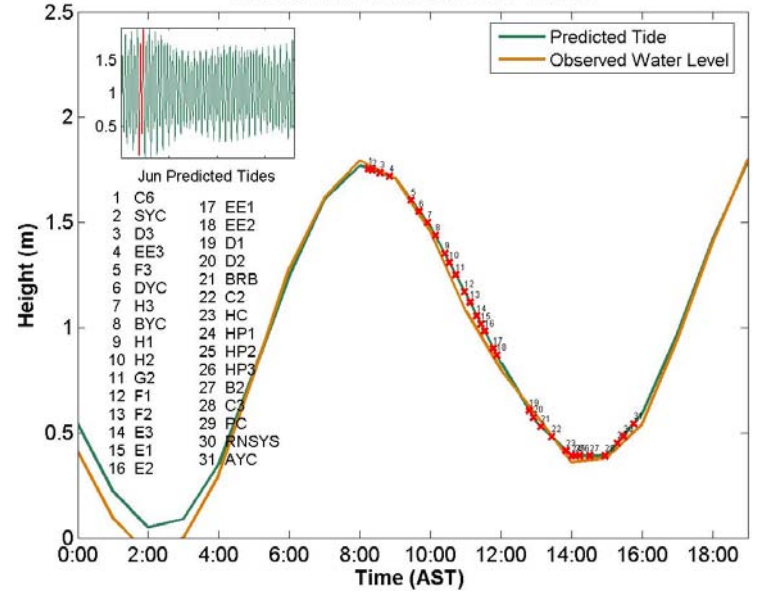
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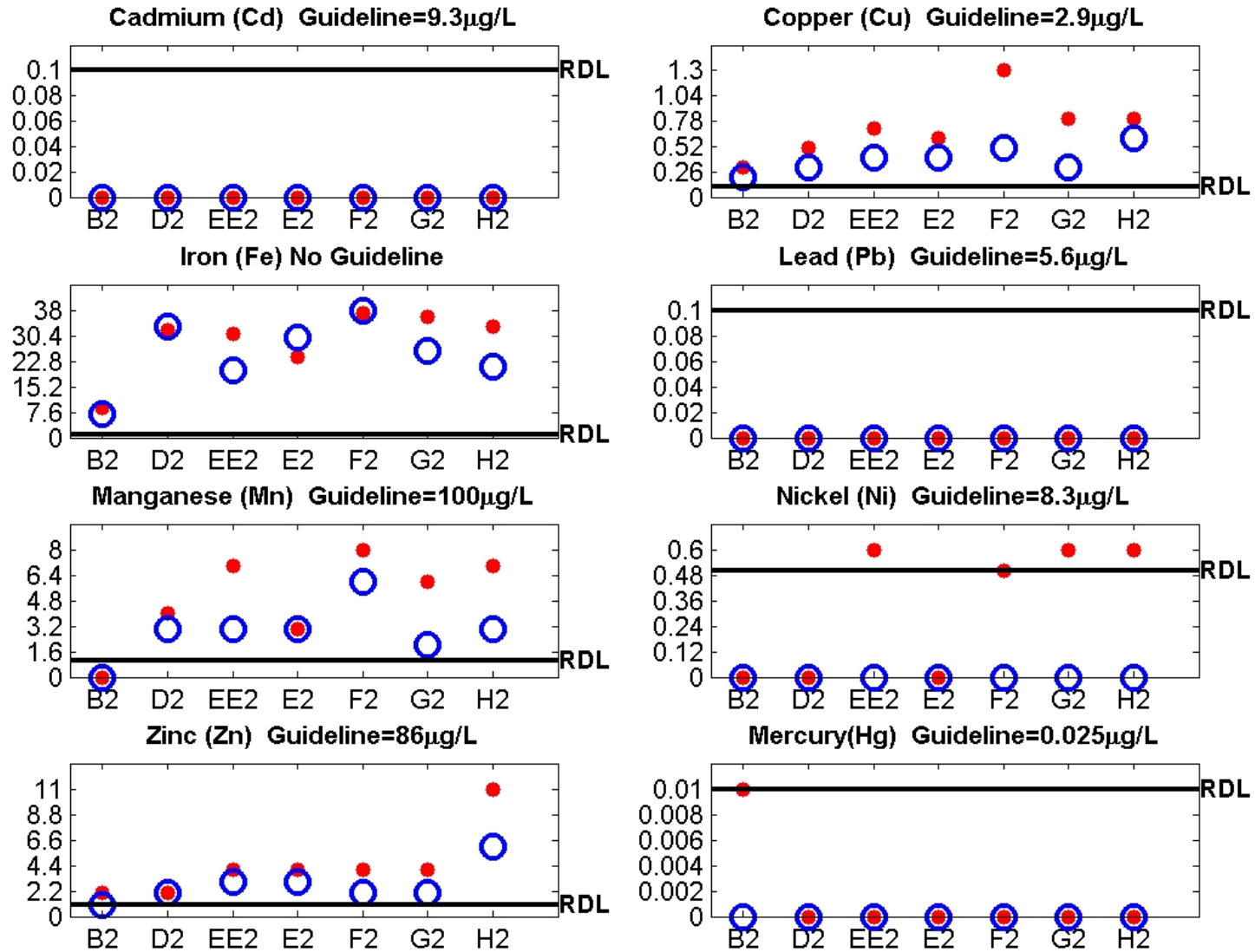
Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Jun04





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

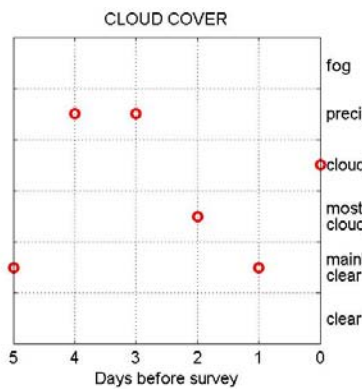
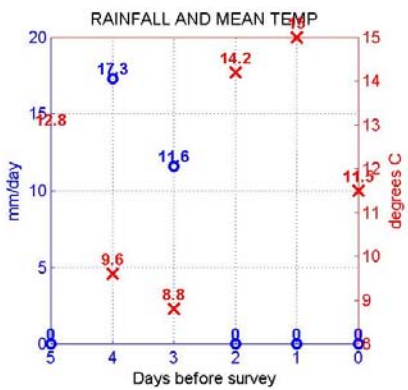
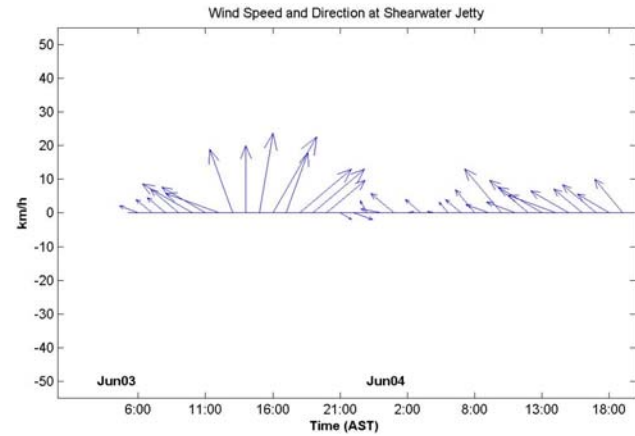
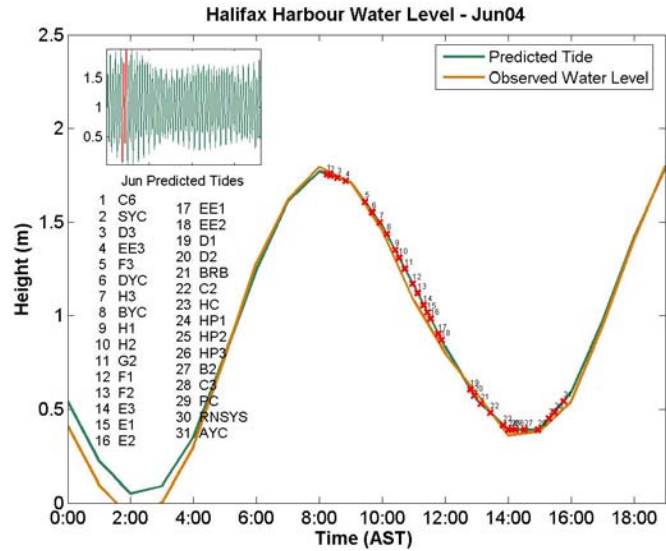
Potential Density in kg/m³

Ammonia in mg/L

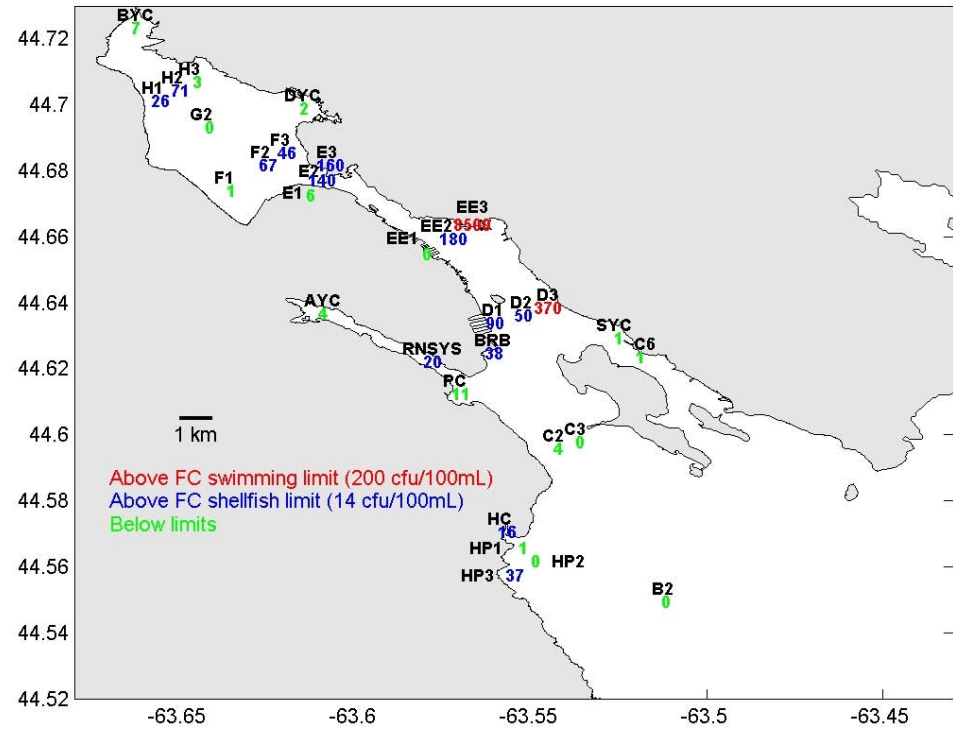
TSS in mg/L

HRM Water Quality Monitoring

Fecal Coliform Summary – June 4, 2008



Fecal Coliform 1 m



Fecal Coliform 10 m

