

Halifax Harbour Water Quality Monitoring Project

Survey Summary #158

Survey Date: 16 June 2008
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report158_080616.doc
Data File: HHWQMP_data158_080616.xls

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

Sample Notes:

Additional bacteria samples were taken in the NW Arm. See data files for details.

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

To match the collected reference data the presented DO values should be scaled by a factor of 1.46 (see comparison in data file).

A supplementary CTD cast was taken at the LOBO buoy location (44.6291° N, 63.5915° W) at 08:25 local time.

QA/QC samples:

Chemical Analysis		B2 – 10m	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L	<0.05	<0.05
Total Suspended Solids	mg/L	1.1	1.9
Copper	µg/L	0.2	0.2
Iron	µg/L	7	8
Zinc	µg/L	2	3

Fecal Coliform (CFU/100ml)

Site	C3-1m	C2-10m	F3-1m	B2-10m
Reference	0	0	1	0
QA/QC	2	0	1	0

Comments:

General: There has been minimal rainfall in the five days preceding the survey. Harbour surface temperature has changed little. The surface water has become more saline and the bottom water in the Inner Harbour has become somewhat less saline resulting in relatively weak stratification quite a bit less than in the previous survey. 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 very low, with no values above the swimming guideline (200 cfu/100 mL) in any of the regular samples. The extra samples in Dartmouth Cove have counts of >10,000 cfu/100 mL (DC-1 m) and 5400 cfu/100 mL (DC-10 m).

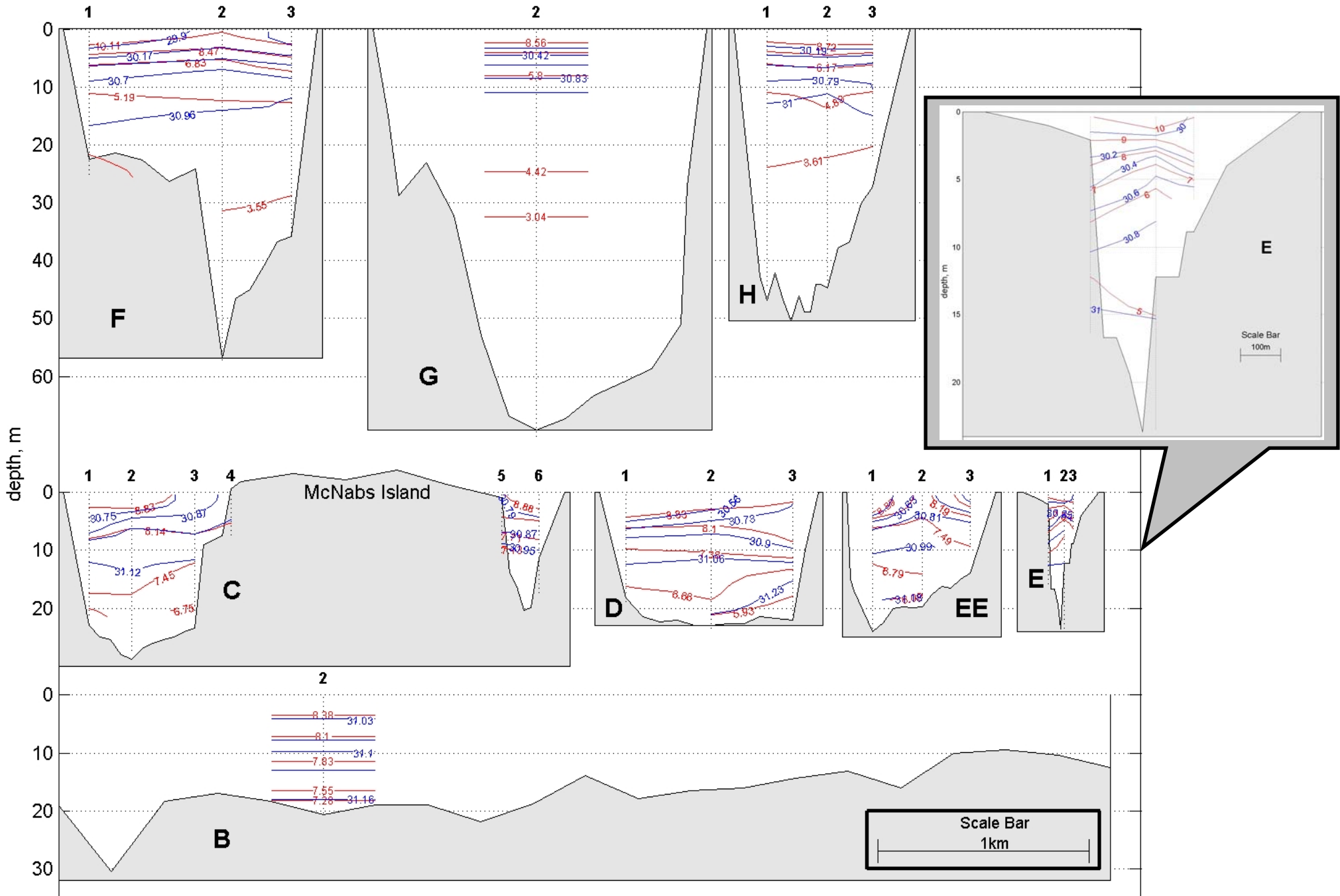
Fluorescence: The fluorescence levels are relatively low. In the Basin the profile maximums are 9 - 10 mg/m³ at a depth of 10 - 14 m. Going out of the harbour, the profile maximum values drop reaching about 2 - 3 mg/m³ in the Outer Harbour though the depth of the maximums remains about the same at 11 - 15 m.

TSS: The TSS levels are low with an average value of 3.1 mg/L and a max value of 5.7 mg/L in regular samples. The highest value measured (7.0 mg/L) is in the extra sample taken in Dartmouth Cove (DC).

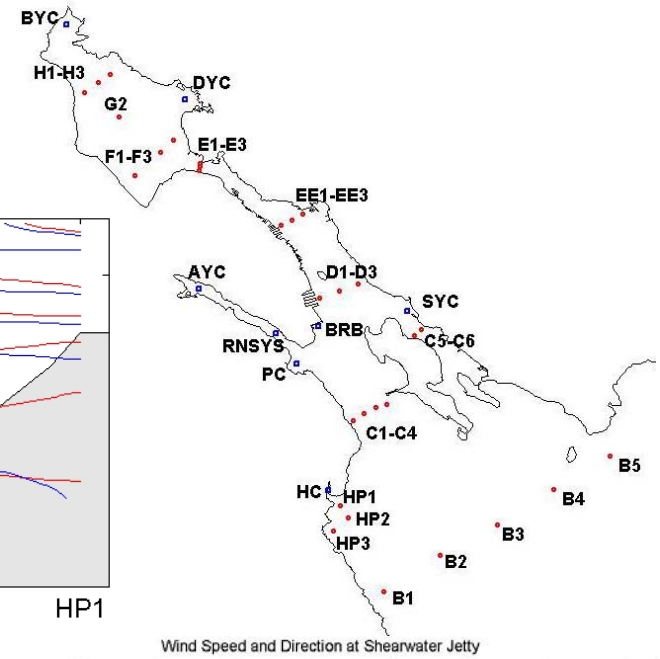
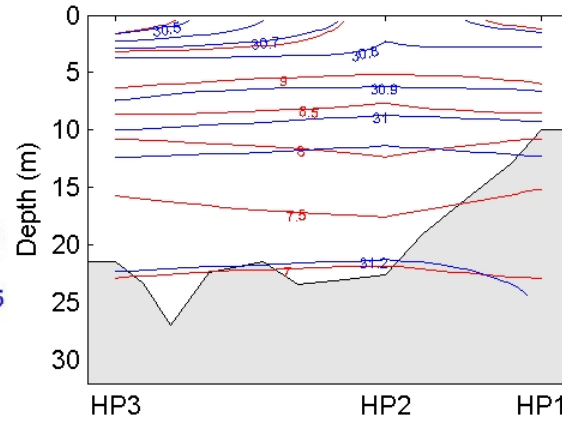
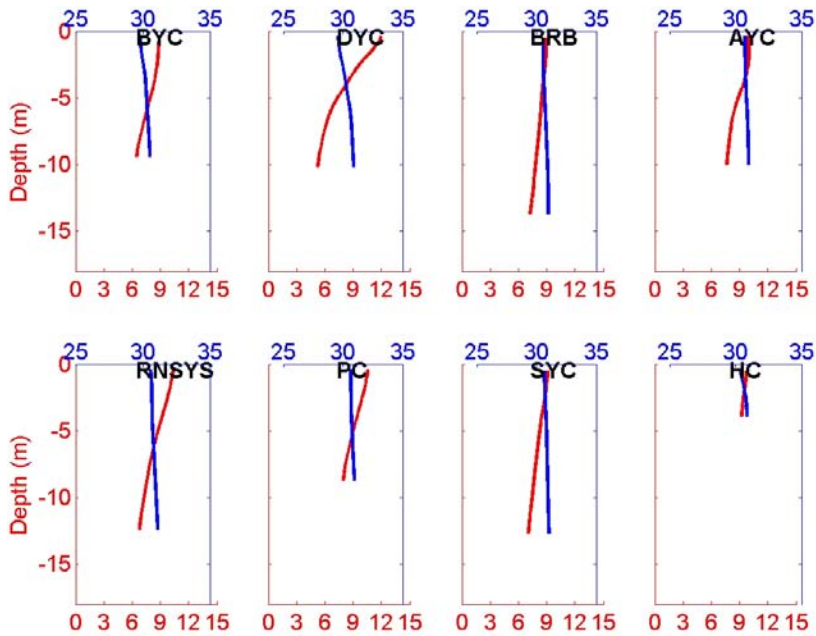
Ammonia: The ammonia concentrations are very low with no values above the 0.05 mg/L detection limit in the regular samples. The only detectable value is relatively very high (1.4 mg/L) in the DC sample.

Metals: There are no guideline exceedences in the regular samples. The closest values to guideline exceedence were copper (F2-1 m and H2-1 m) with levels about 30% of the guideline. The DC-1m sample has the highest observed concentrations of copper, iron, manganese zinc and mercury (only detectable level). The copper concentration is just at the 2.9 µg/L guideline.

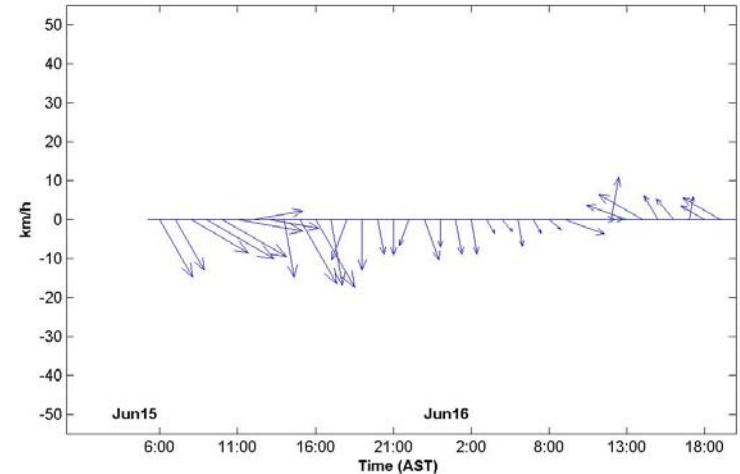
Dissolved Oxygen: The DO data, scaled by a factor of 1.46, show high dissolved oxygen in the surface water (10.5 - 11 mg/L) everywhere. South of the narrows the whole water column is quite uniform at these levels. In the Basin the DO levels decrease with depth. The deep Basin levels remain at or slightly below the 7.0 mg/L guideline. There are no other guideline exceedences.



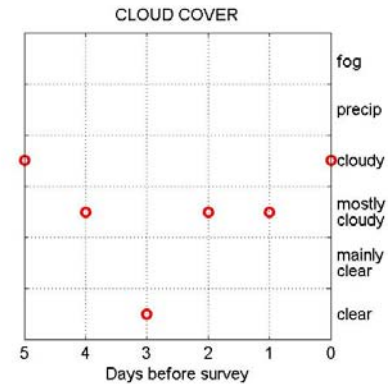
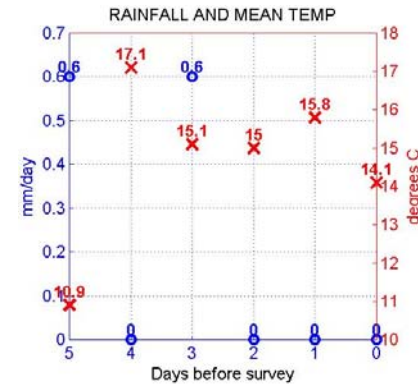
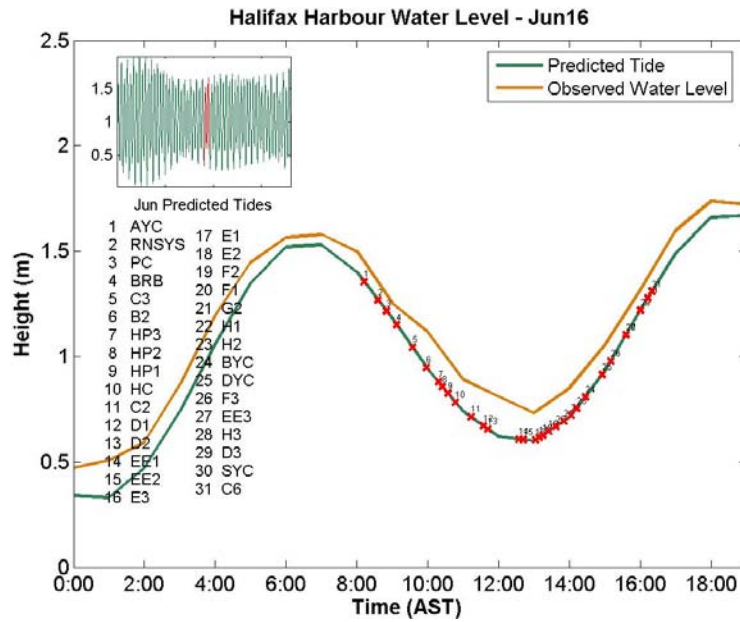
Yacht Clubs



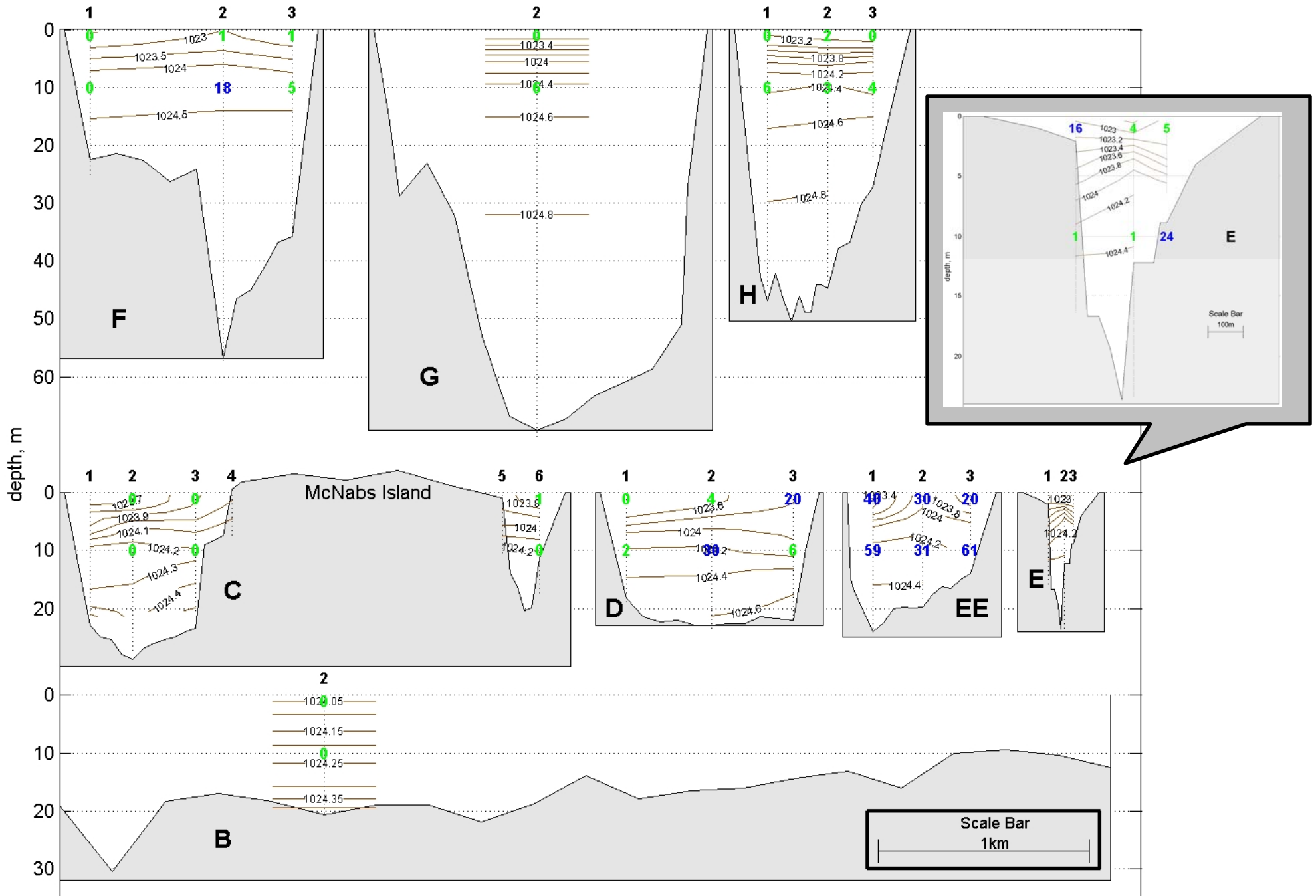
Wind Speed and Direction at Shearwater Jetty



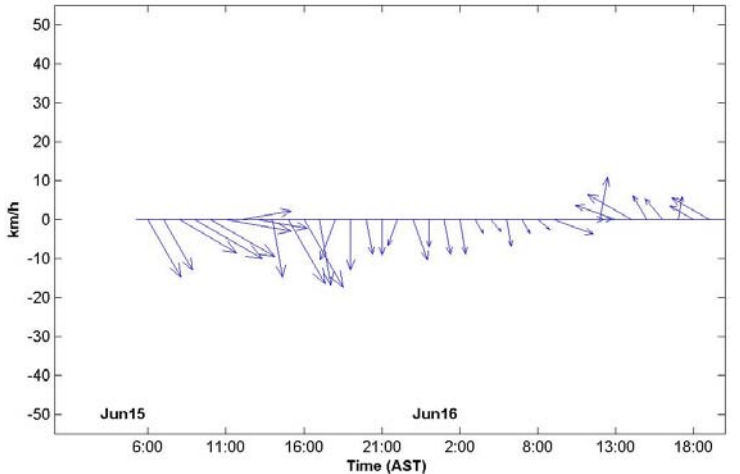
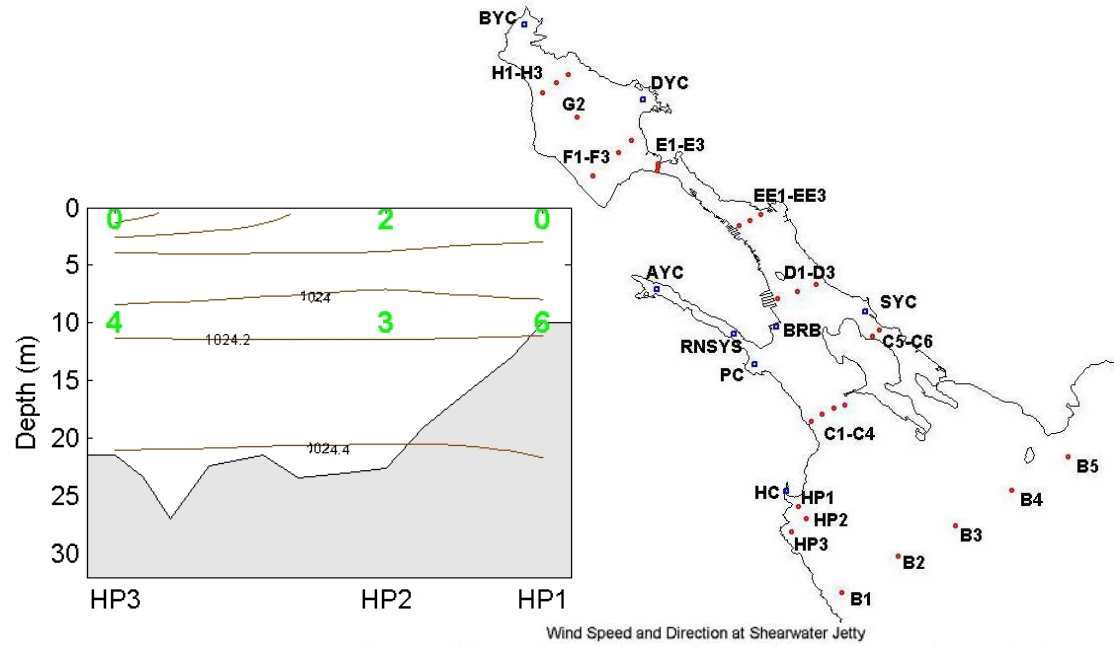
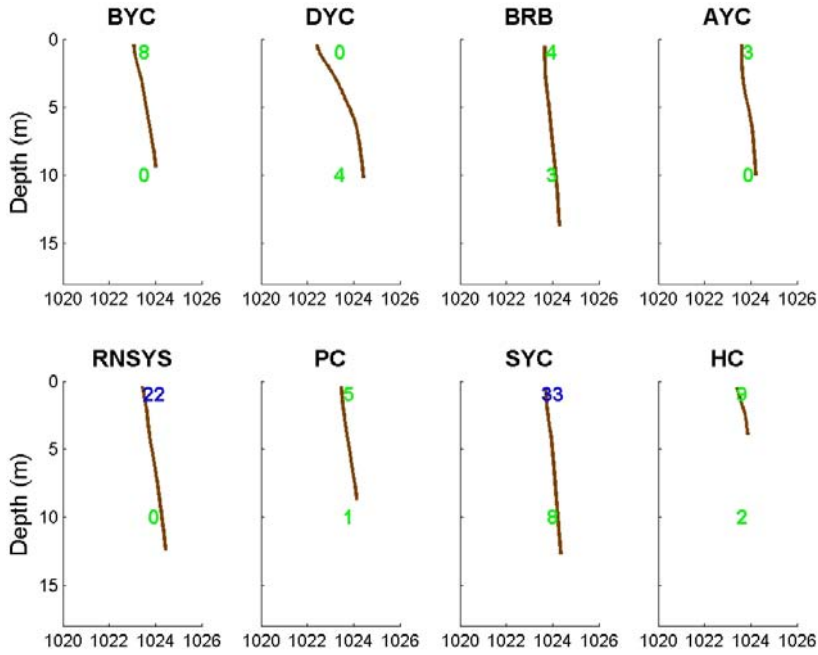
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



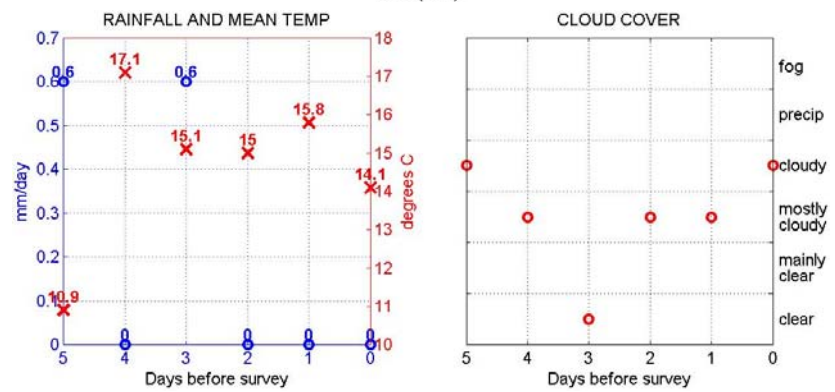
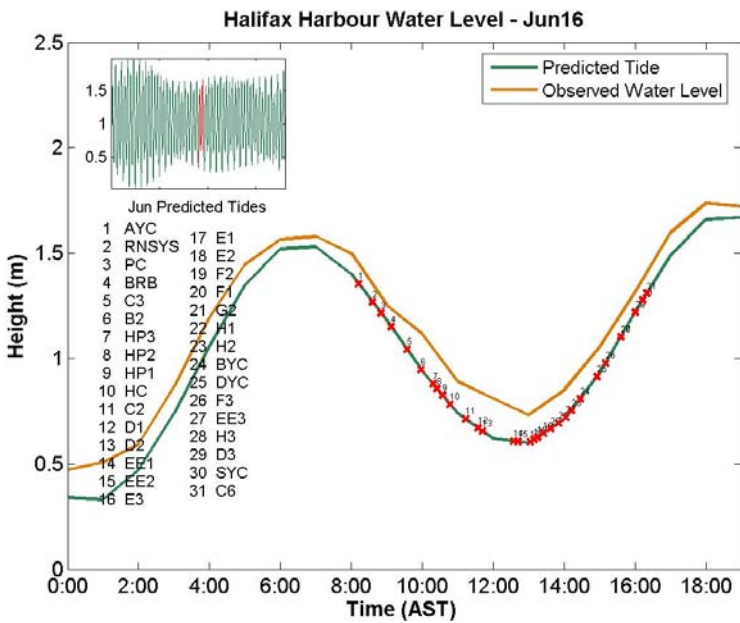
Salinity in PSU Temperature in °C



Yacht Clubs



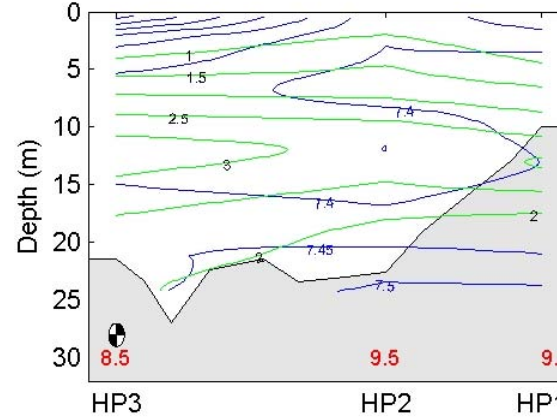
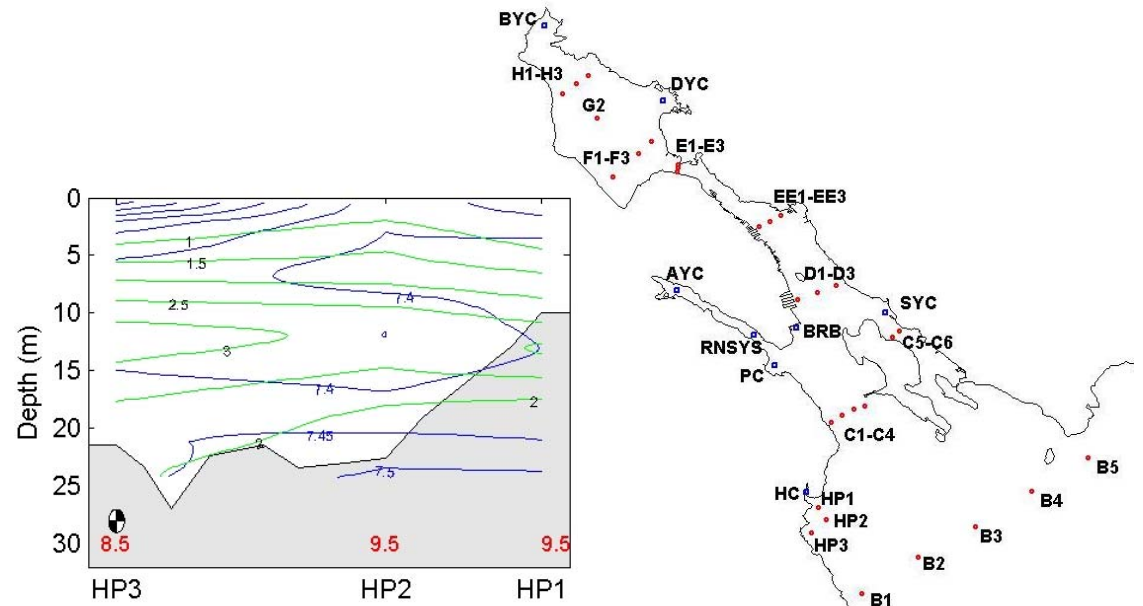
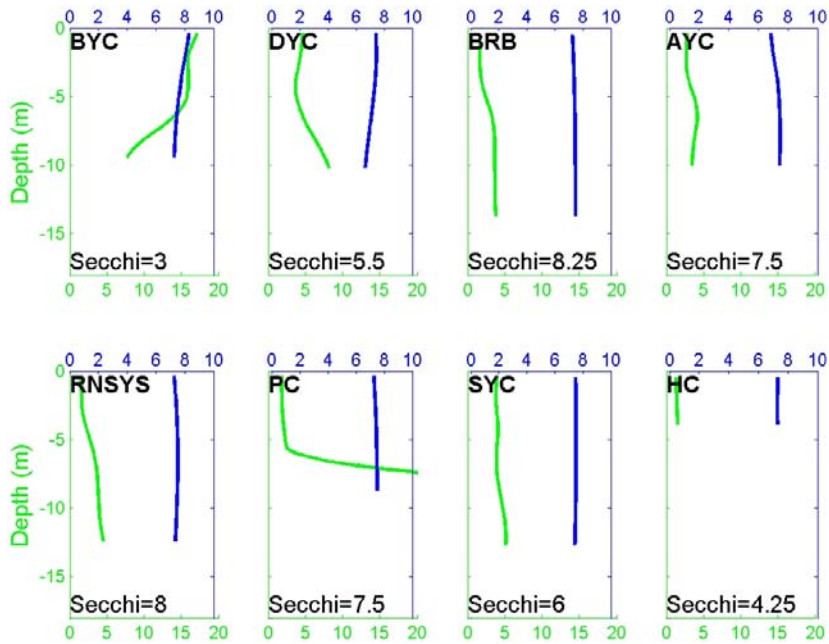
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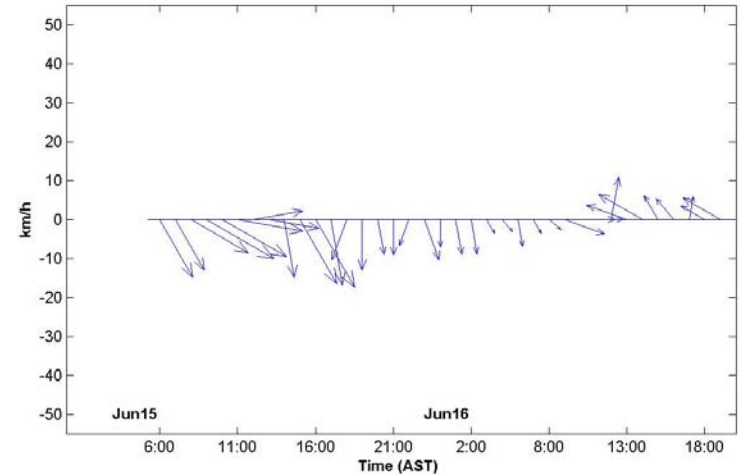
Potential Density in kg/m³

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

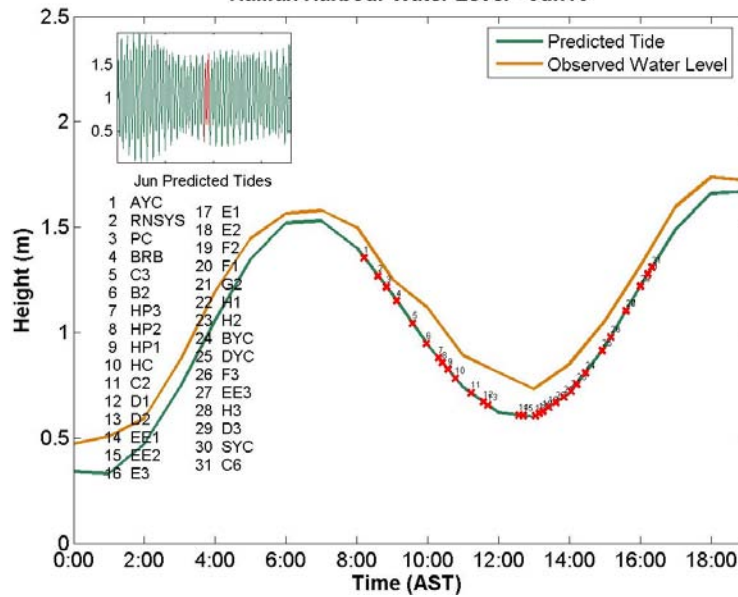
Yacht Clubs



Wind Speed and Direction at Shearwater Jetty

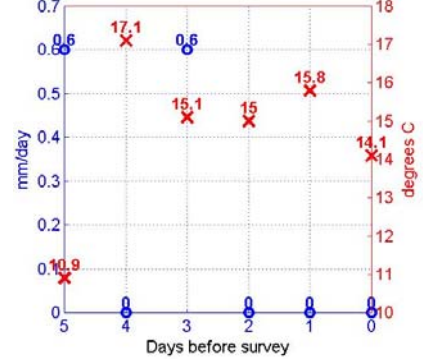


Halifax Harbour Water Level - Jun16

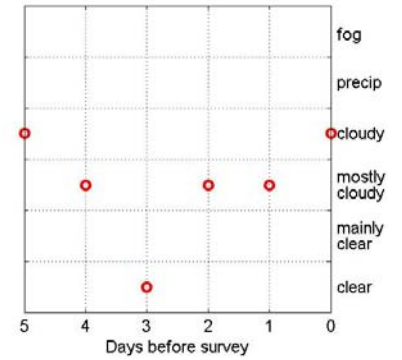


Rainfall and temperature data collected at Shearwater Autoport.
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RAINFALL AND MEAN TEMP



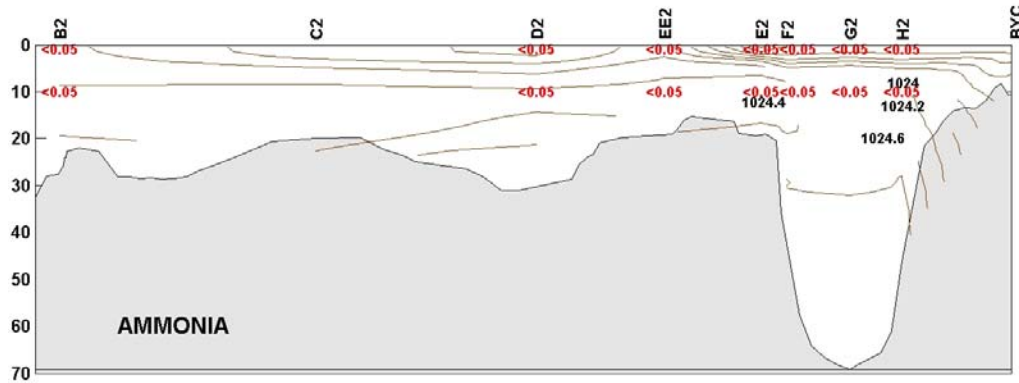
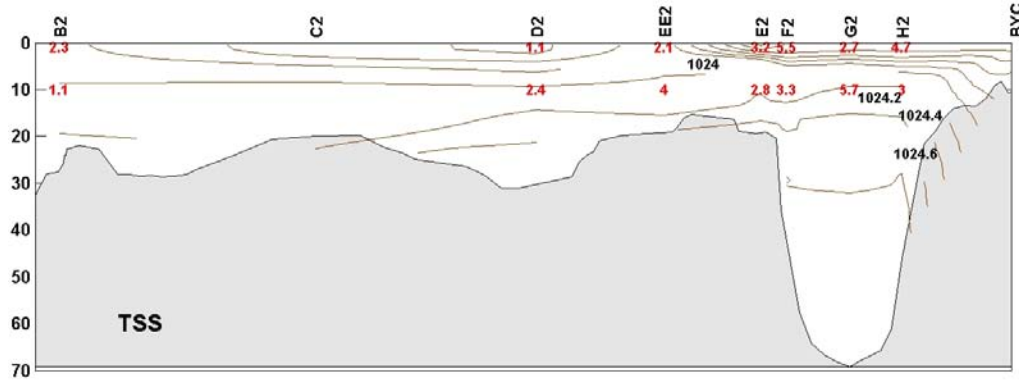
CLOUD COVER



DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



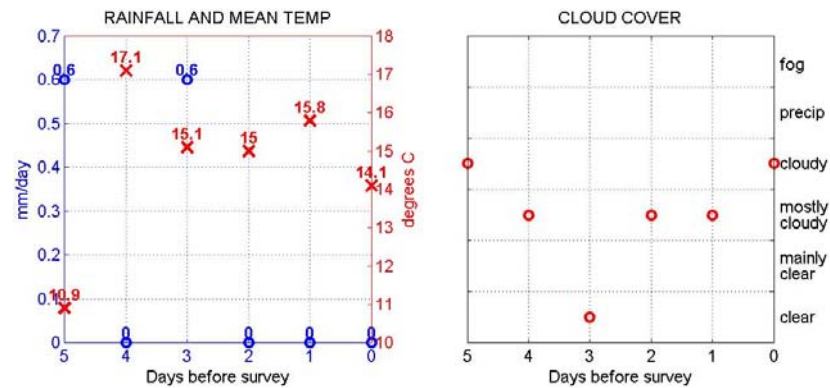
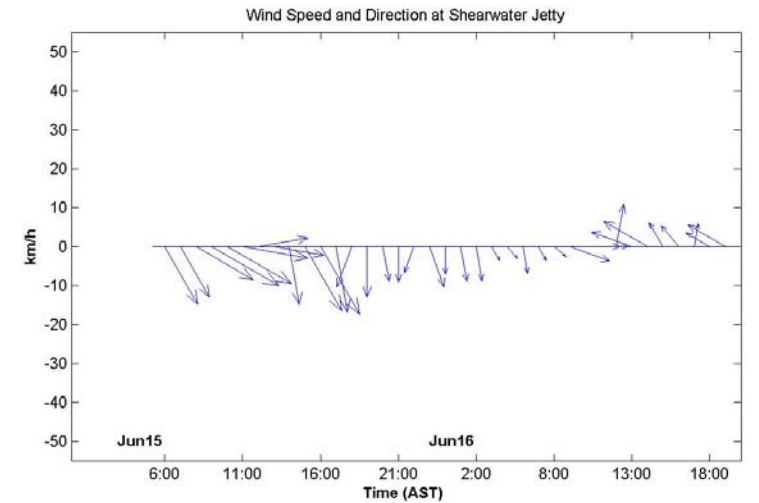
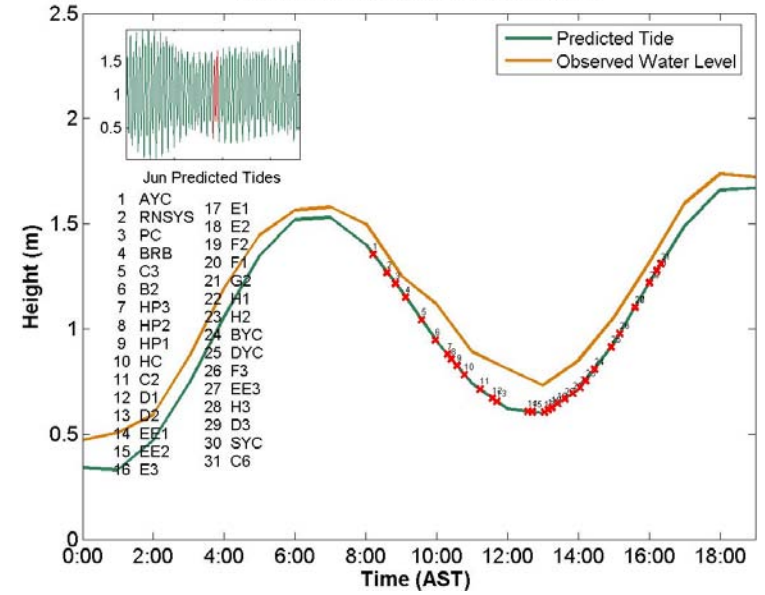
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Potential Density in kg/m^3

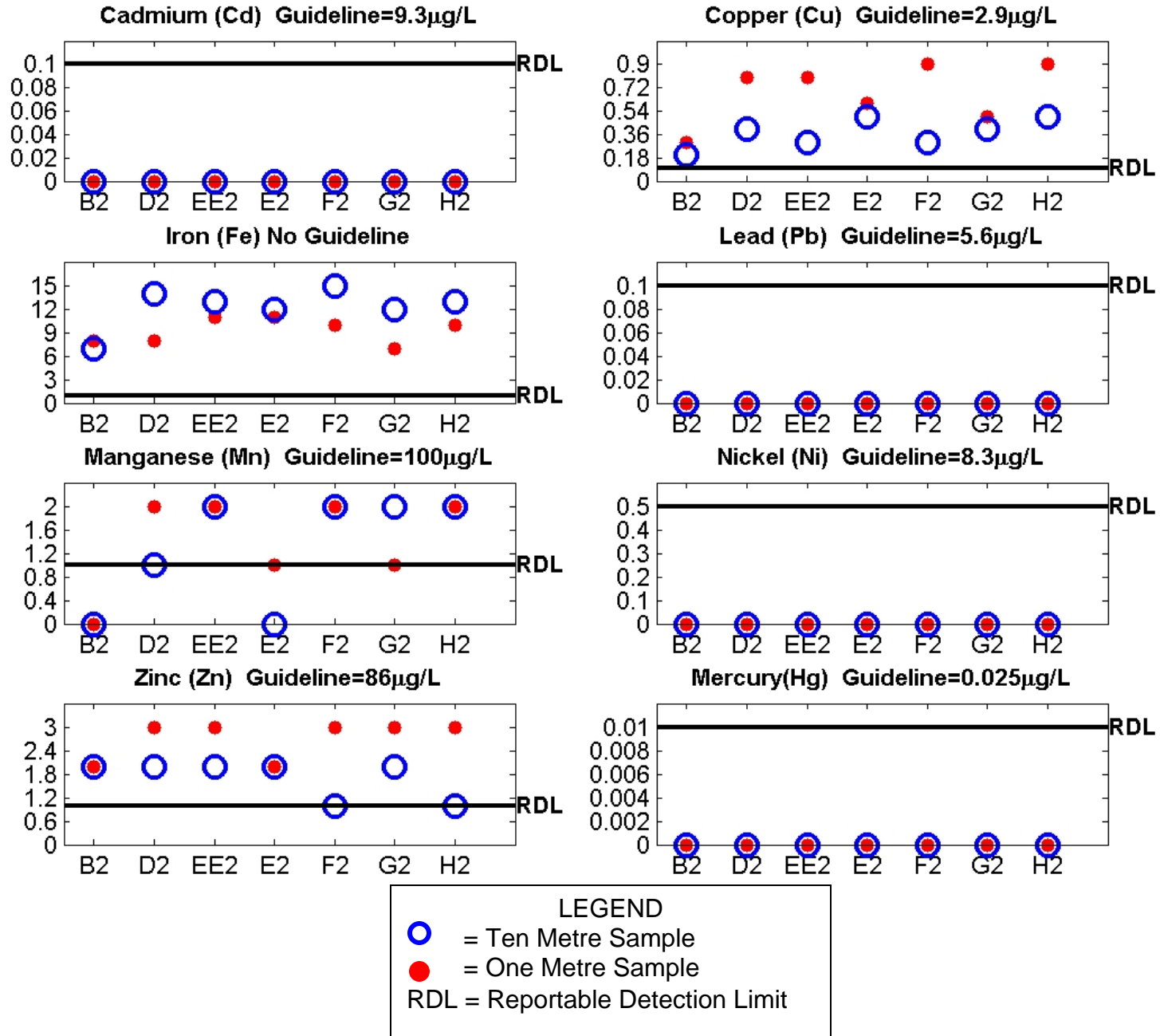
Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Jun16



0.6, 17.1, 0.6, 15.1, 15, 15.8, 14.1, 10.9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, fog, precip, cloudy, mostly cloudy, mainly clear, clear



HRM Water Quality Monitoring

Fecal Coliform Summary – June 16, 2008

