

Halifax Harbour Water Quality Monitoring Project Survey Summary #186

Survey Date: 15 June 2009
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report186_090615.doc
Data File: HHWQMP_data186_090615.xls

Data Return:
 Chemical: 100%
 Bacteria: 100%
 Profile: 97%
Overall: 99%

Sample Notes:

A supplementary CTD cast was taken at the LOBO buoy location (44.6291 N, 63.5915 W) at 1525 local time (AST).

The CTD profile at HP1 did not pass quality control (pump lost prime). The data is plotted here but has been deleted from the data file.

To match the collected reference data, the presented DO values should be scaled by a factor of 1.4 (see data file cover sheet).

There were spikes in the DO profiles at B2 and EE3. These are included in the plots but have been edited out and annotated in the data file.

QA/QC samples:

Chemical Analysis		E2-1m	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L	0.07	0.07
Total Suspended Solids	mg/L	0.8	1.3
Copper	ug/L	0.8	0.7
Iron	ug/L	10	10
Lead	ug/L	0.1	0.1
Manganese	ug/L	3.0	3.0
Zinc	ug/L	3.0	4.0

Fecal Coliform (CFU/100ml)

Site	C6-10m	DYC-1m	PC-10m	E2-1m
Reference	1	1	5	45
QA/QC	0	1	4	98

Comments:

General: There has been moderate rainfall (34 mm) three days before the survey. The surface water near freshwater sources (e.g. northern Basin, Herring Cove) is slightly fresher and the water has warmed overall by about 2° C. Otherwise the hydrographic properties have not changed appreciably. The density stratification remains moderate. The fecal coliform levels are generally low with only two values slightly in excess of the swimming guideline in section F. There are relatively high values in the 1m sample at PC, often seemingly affected by the Chain Rock outfall and a not unusual high value near the Tribune head outfall at HP3.

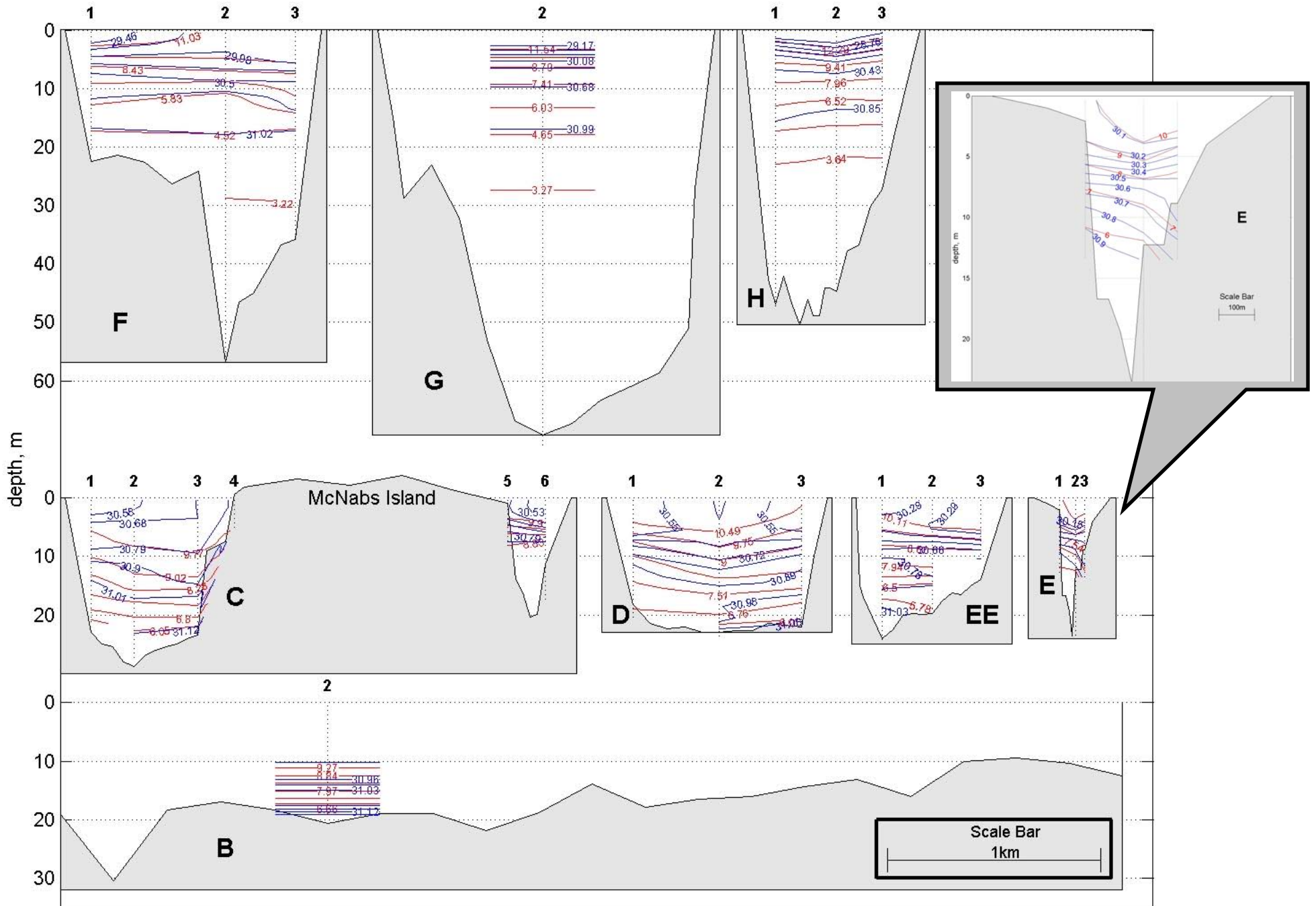
Fluorescence: The fluorescence levels are moderate and in the Basin are at about the same levels as the previous survey (20-30 mg/m³), but the maximums occur much deeper in the water column at about 20m. In the Inner Harbour the max values decrease to less than 10 mg/m³ and occur near the bottom. At B2, in the Outer Harbour, the maximum values are about 3.5 mg/m³, again near bottom.

TSS: The average TSS levels are low (1.2 mg/L). The highest values are in the 10m samples in the Basin.

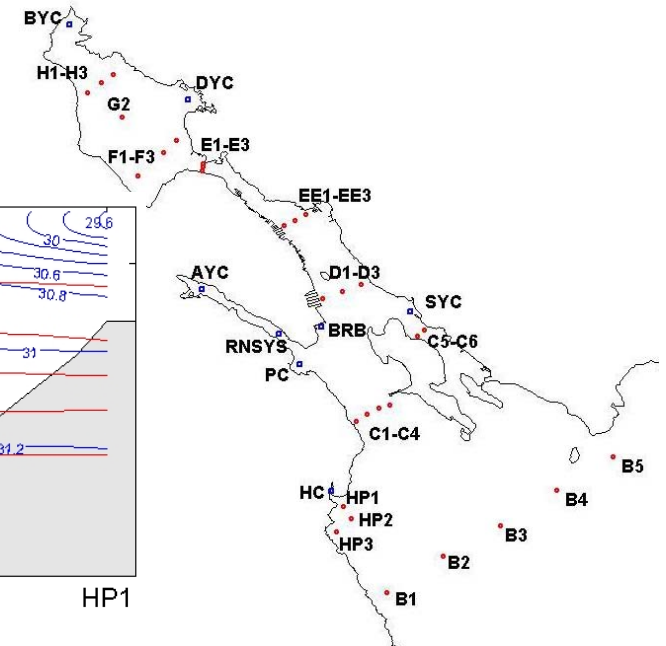
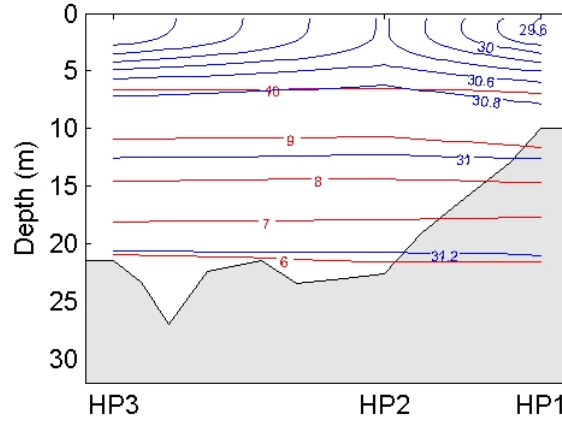
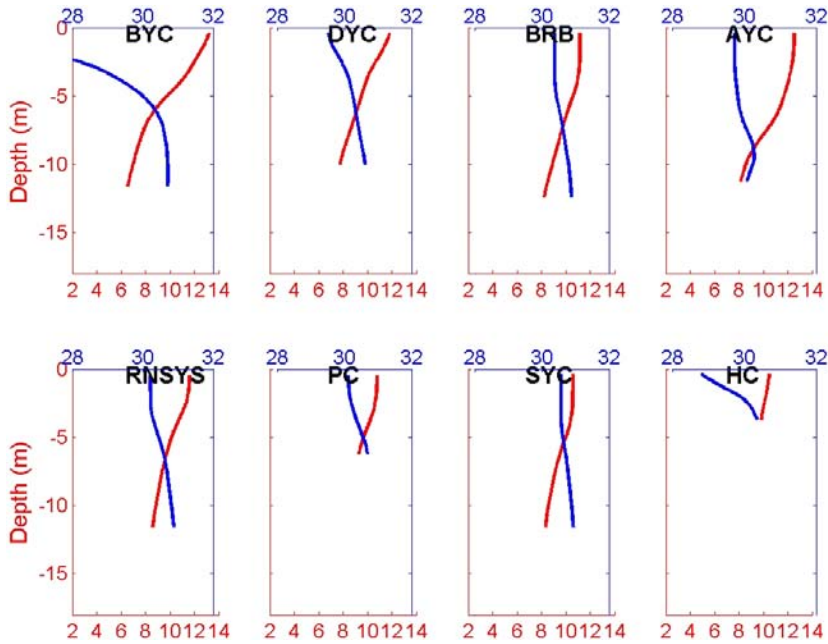
Ammonia: The ammonia levels are moderate. The highest value (0.14 mg/L) is at H2 in the northern Basin with values generally decreasing going south in the Harbour to below the detection limit (0.05 mg/L) at section D and B2.

Metals: There are no guideline exceedences. The metal closest to guideline exceedence is copper with two one meter samples in the Basin at about 40-45% of the 2.9 µg/L guideline.

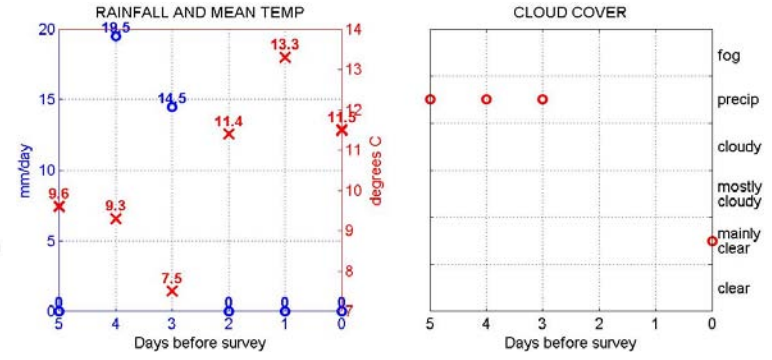
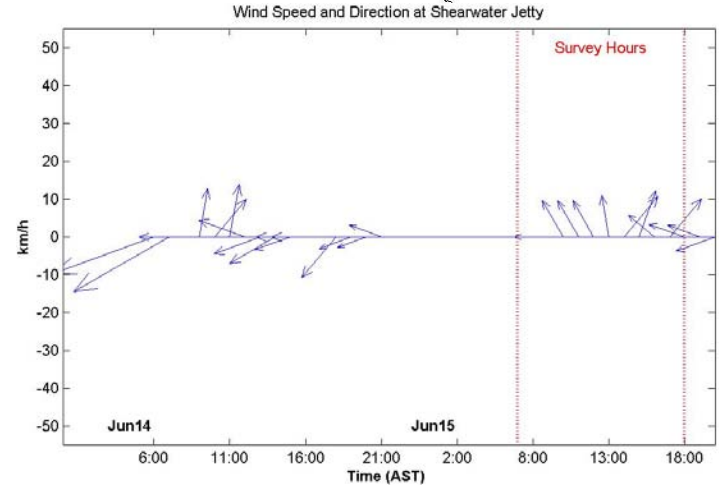
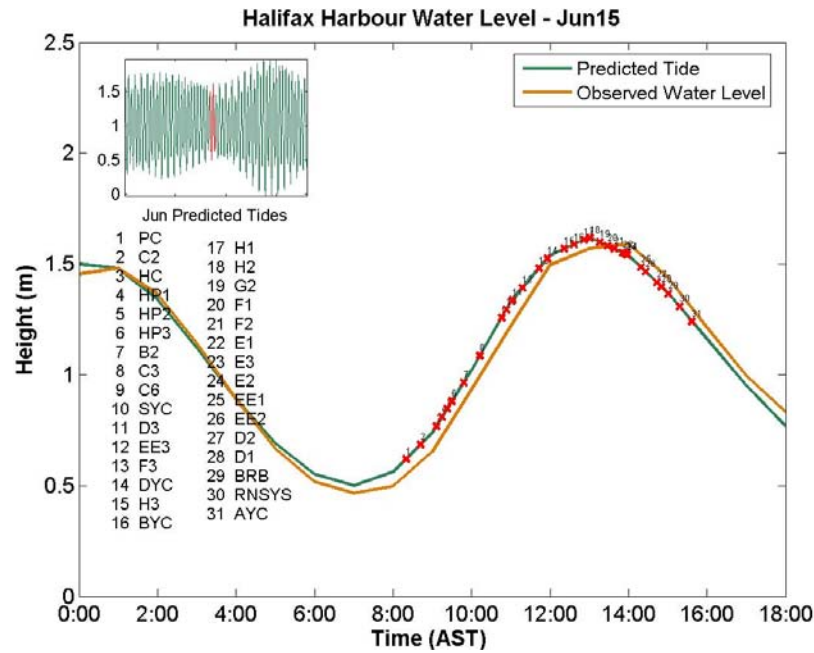
Dissolved Oxygen: The dissolved oxygen data, scaled appropriately by a factor of 1.4, indicates that the surface DO levels are very uniform and relatively high at about 10 mg/L. The DO generally decreases with depth except that it becomes quite uniform at section C and become greater at the bottom at B2. The DO continues to decrease in the Basin deep water and has now dropped below the applicable 7.0 mg/L guideline. There were no other guideline exceedences observed.



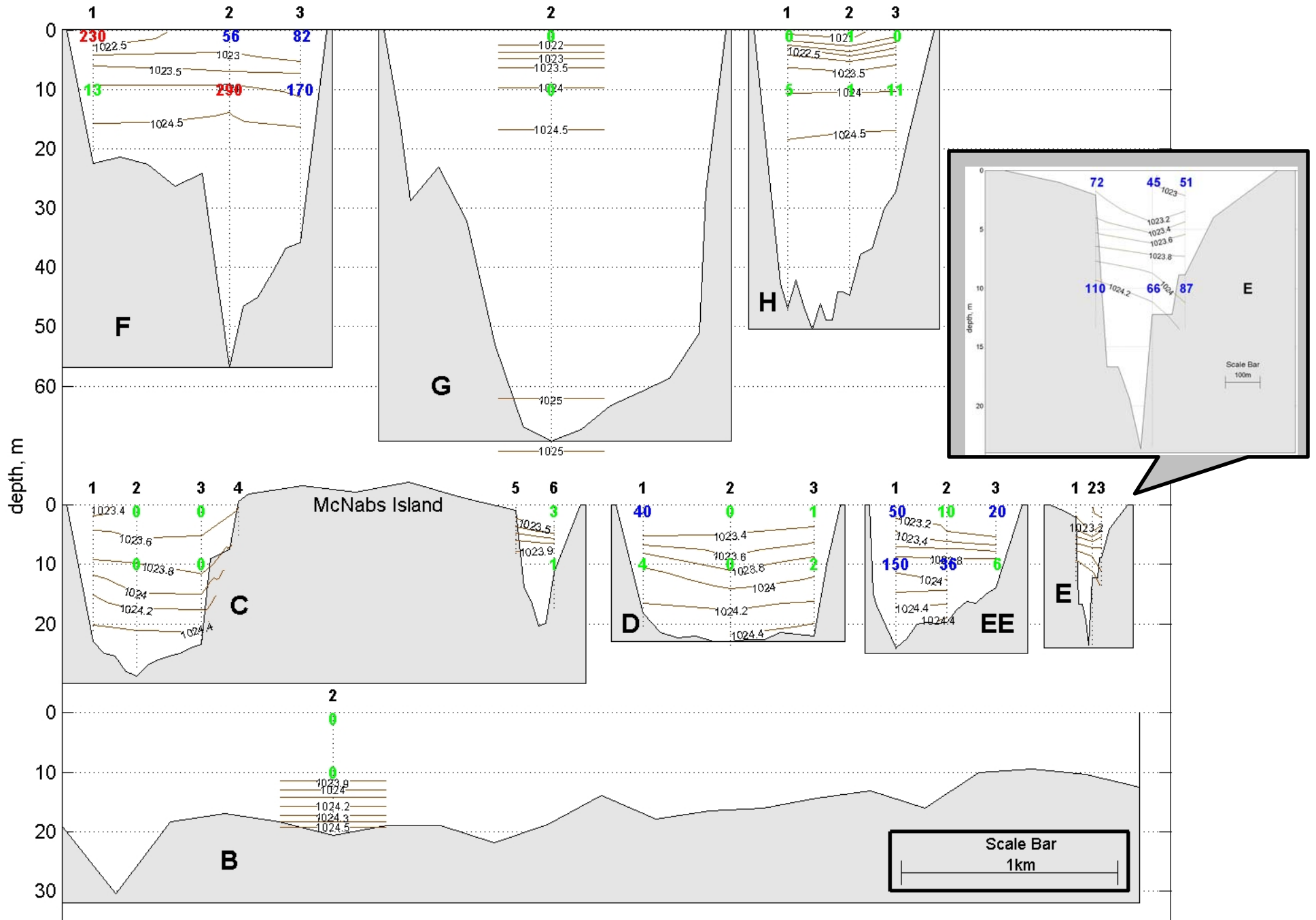
Yacht Clubs



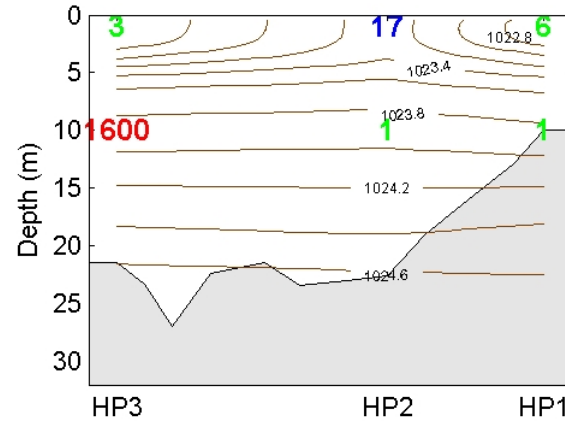
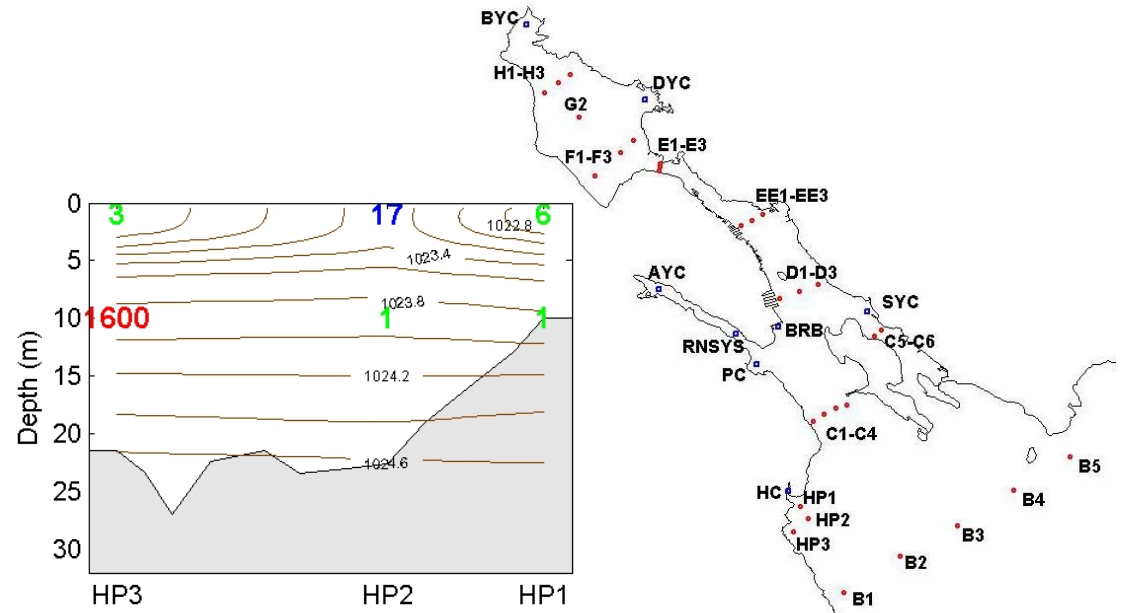
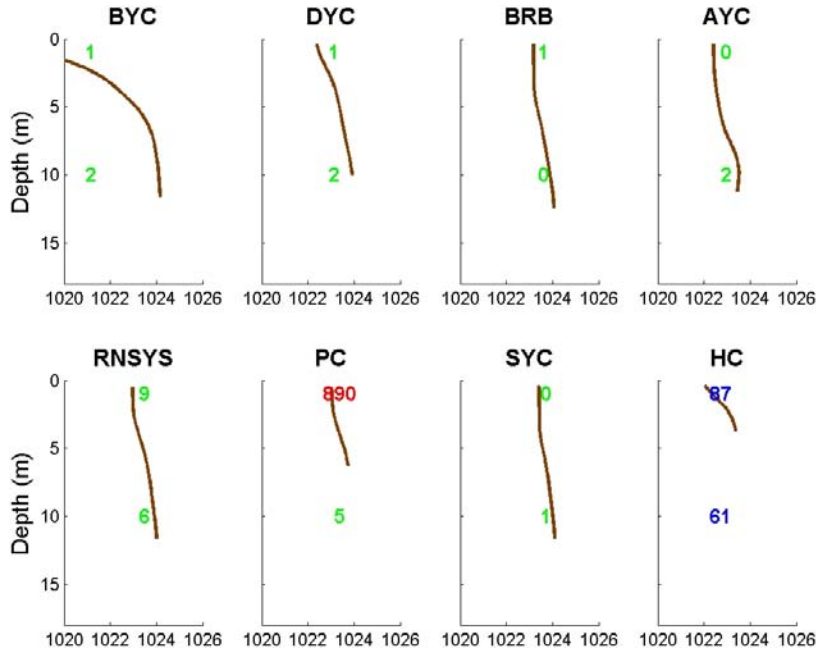
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



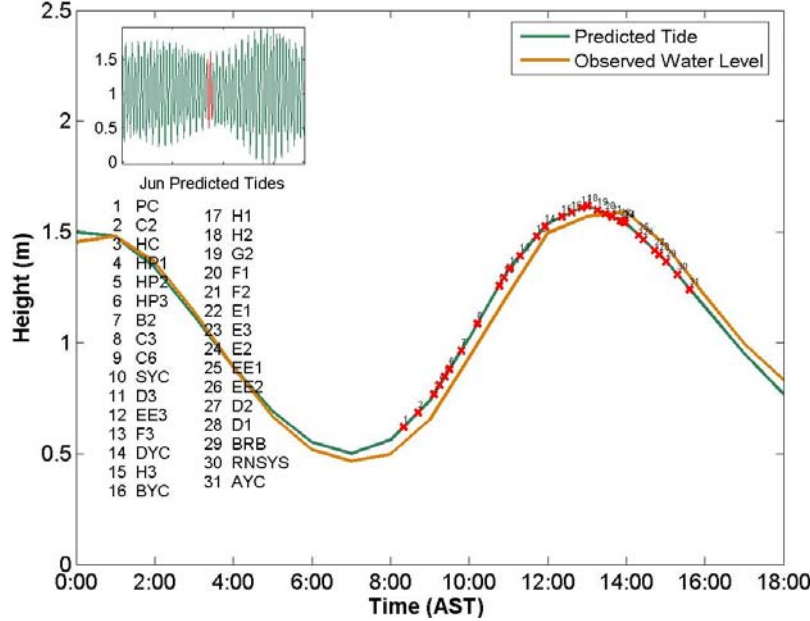
Salinity in PSU Temperature in °C



Yacht Clubs

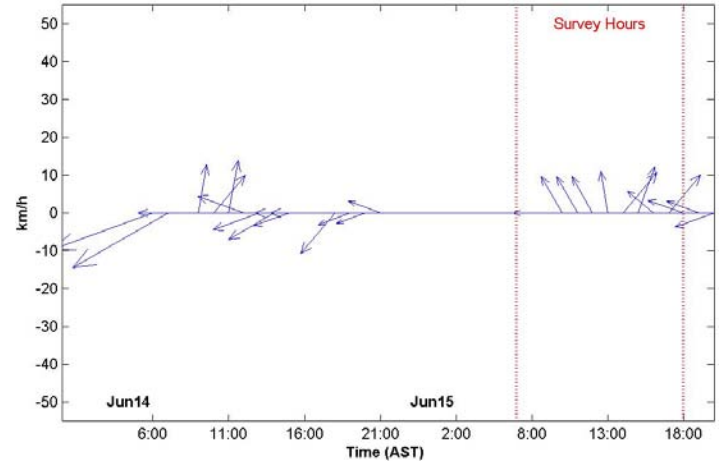


Halifax Harbour Water Level - Jun15

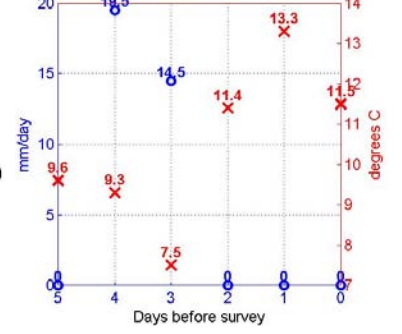


Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport

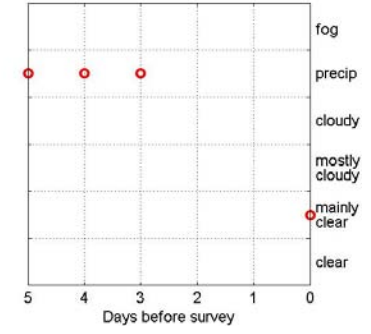
Wind Speed and Direction at Shearwater Jetty



RAINFALL AND MEAN TEMP

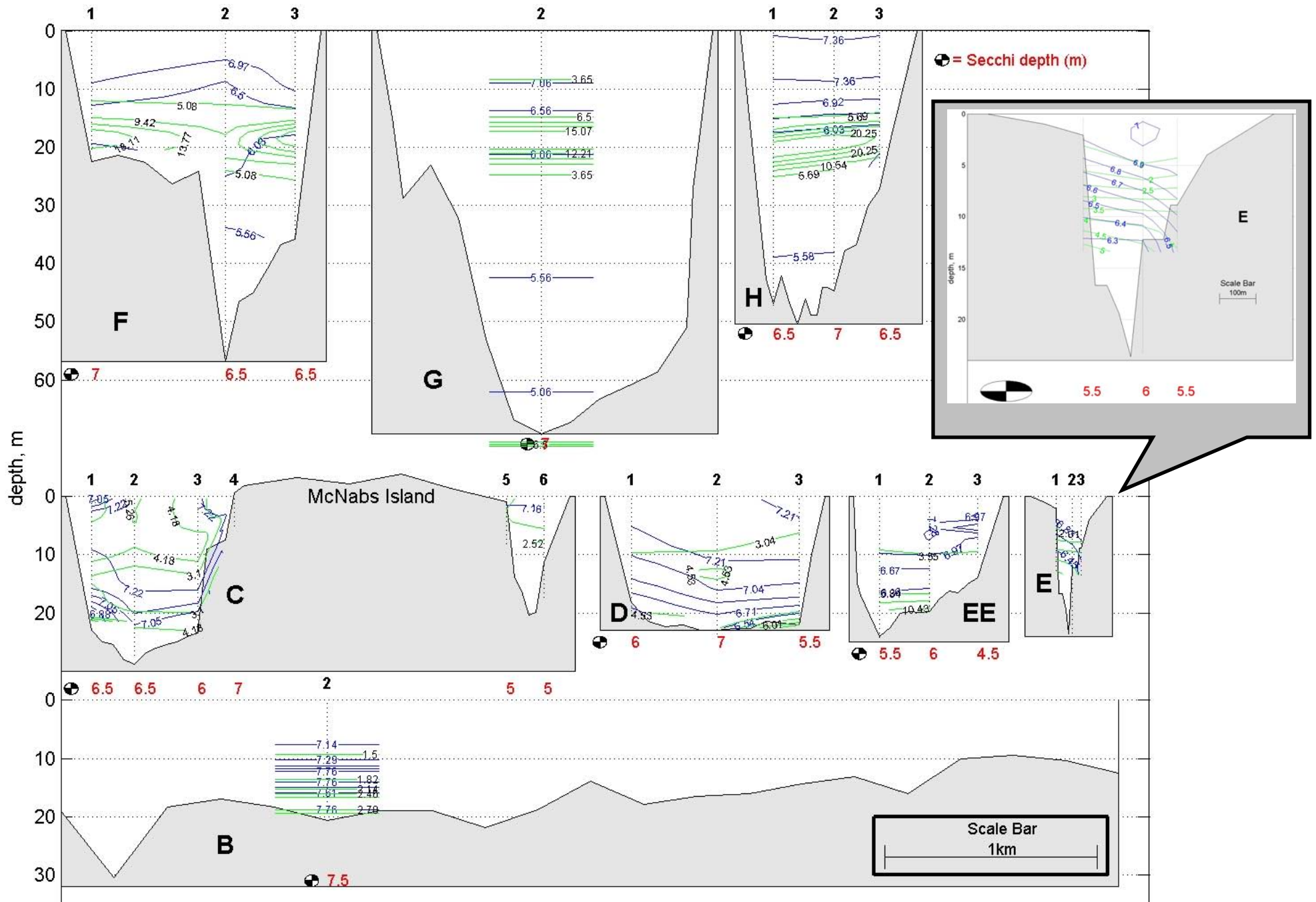


CLOUD COVER

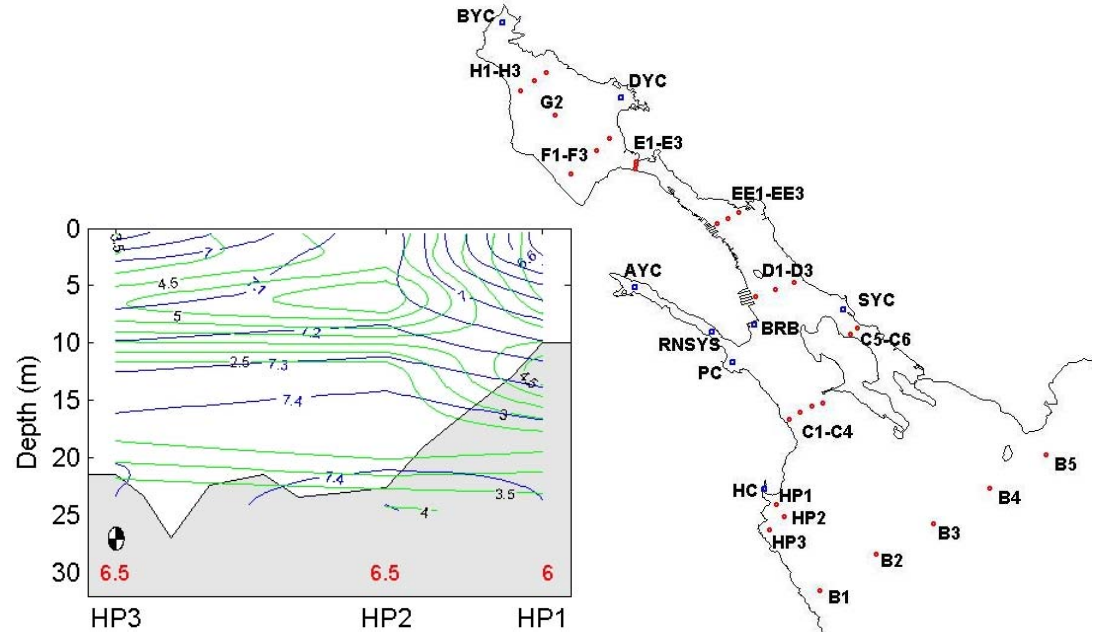
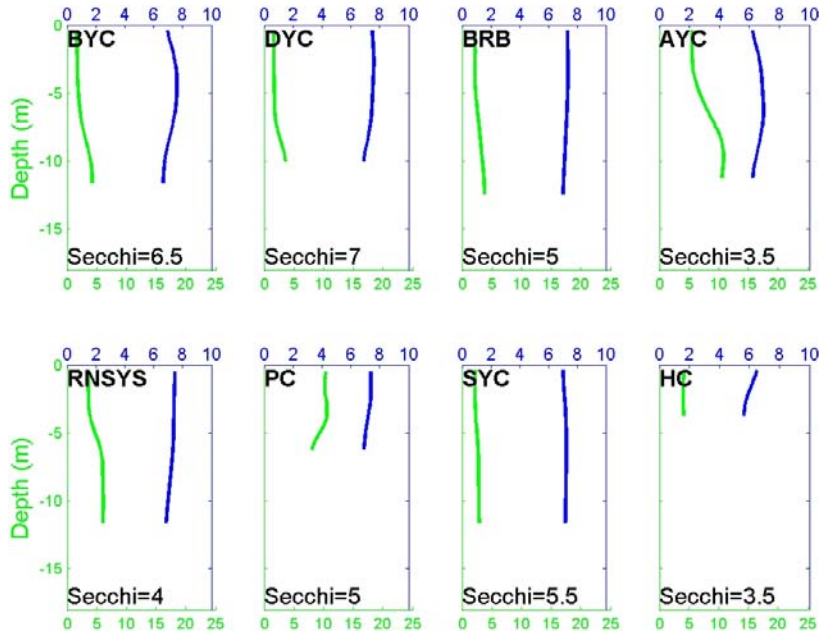


Potential Density in kg/m³

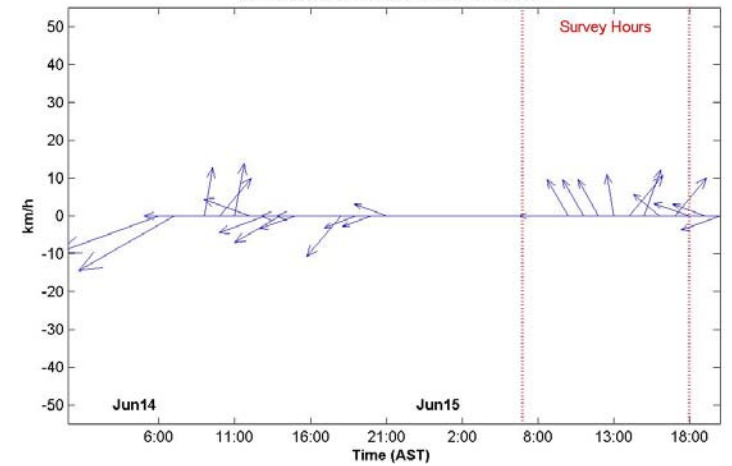
Fecal coliform: **above swimming limit (200 CFU/100mL)**
above shellfish limit (14 CFU/100mL)
below limits



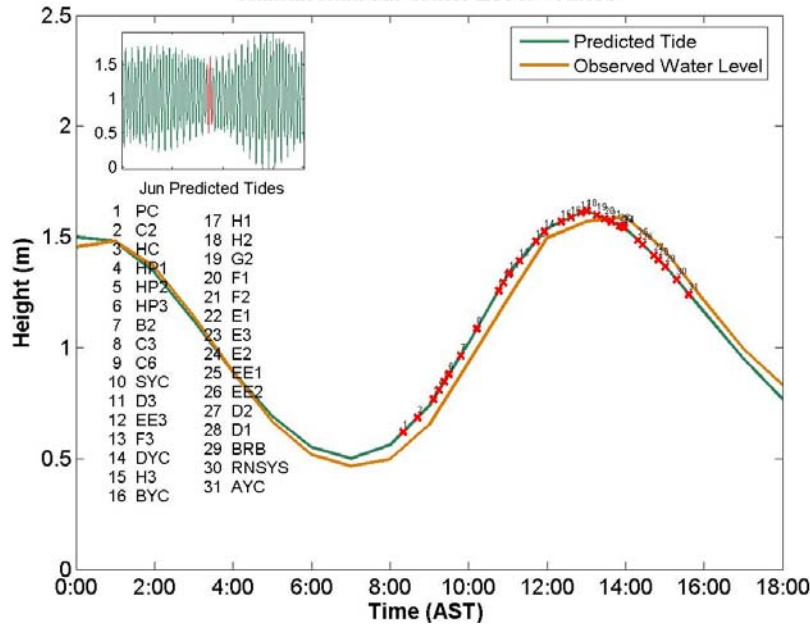
Yacht Clubs



Wind Speed and Direction at Shearwater Jetty

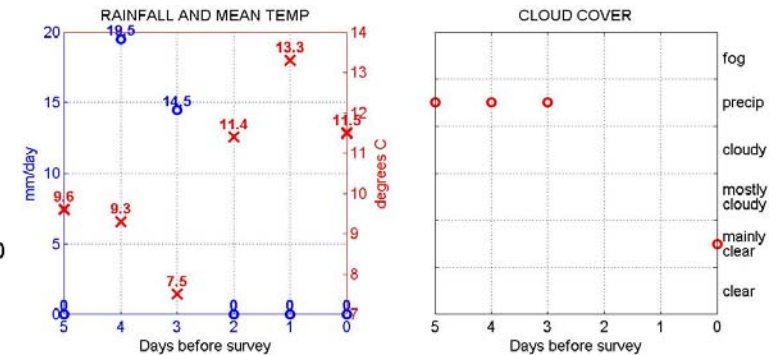


Halifax Harbour Water Level - Jun15



Rainfall and temperature data collected at Shearwater Autoport.

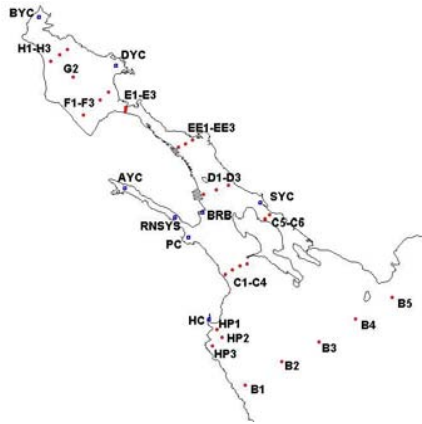
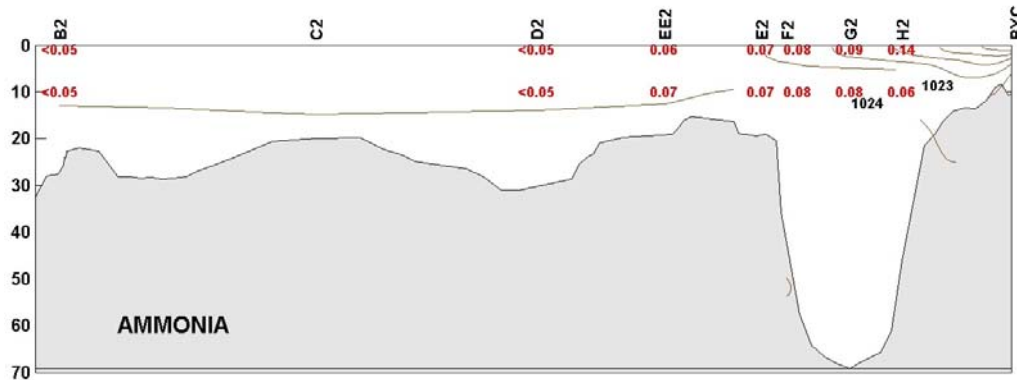
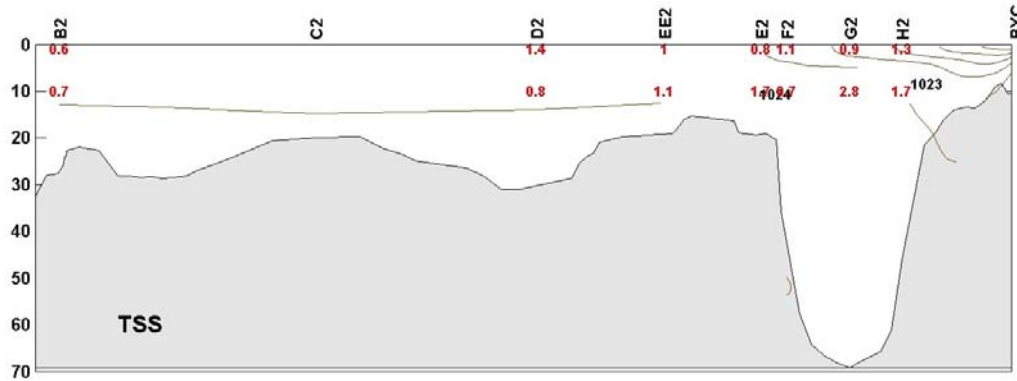
Cloud cover data collected at Shearwater Airport



DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



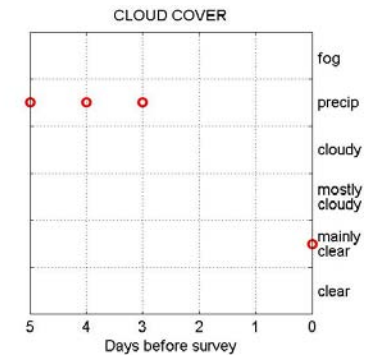
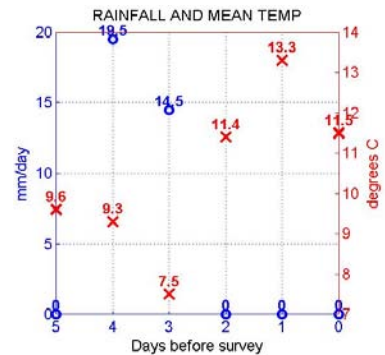
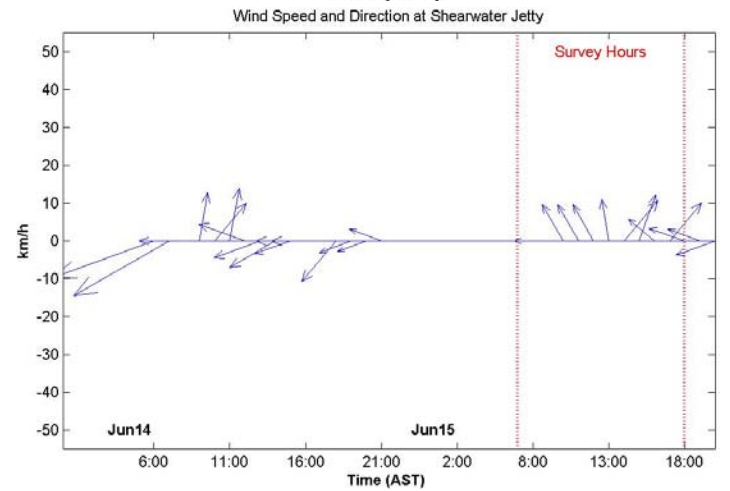
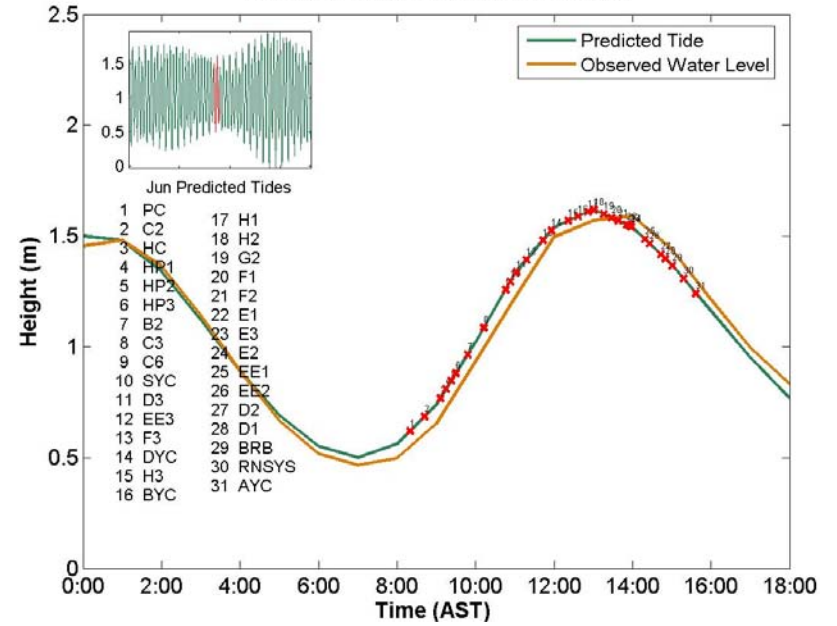
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport

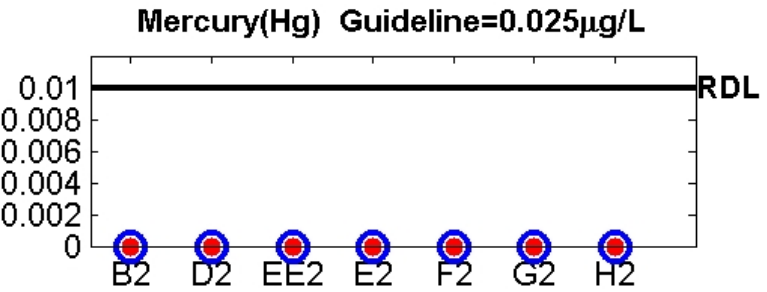
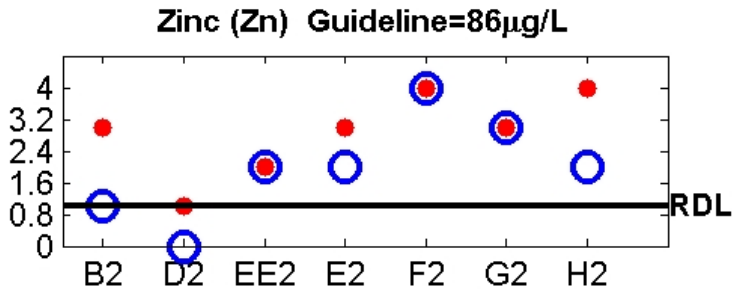
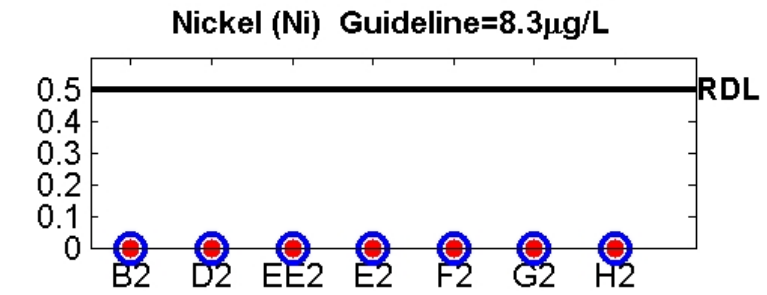
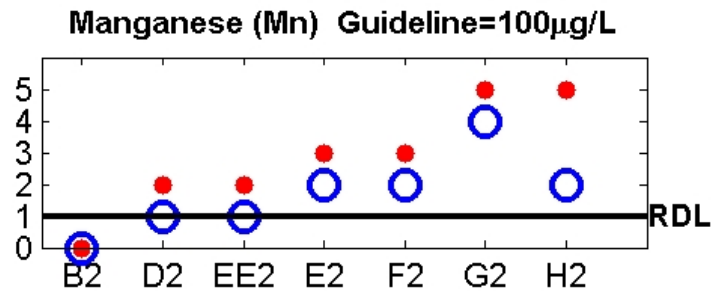
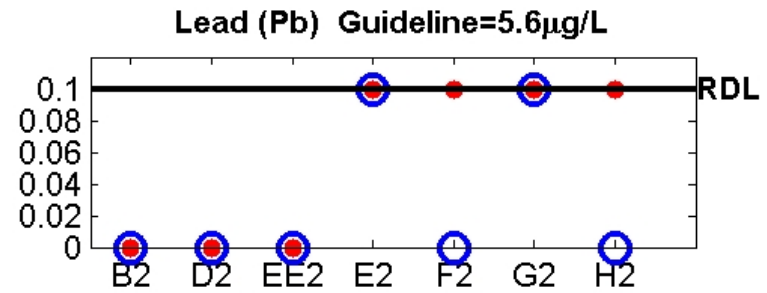
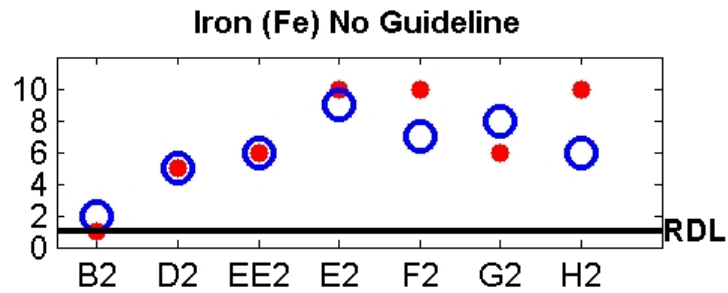
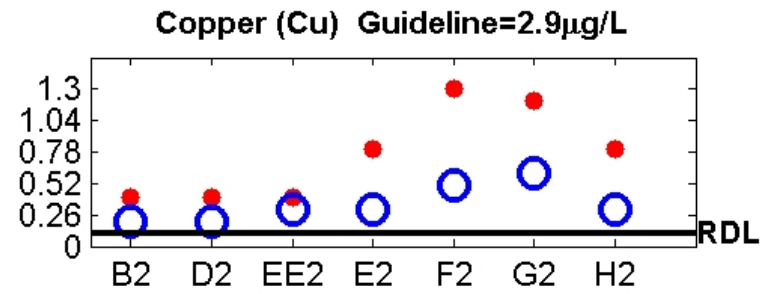
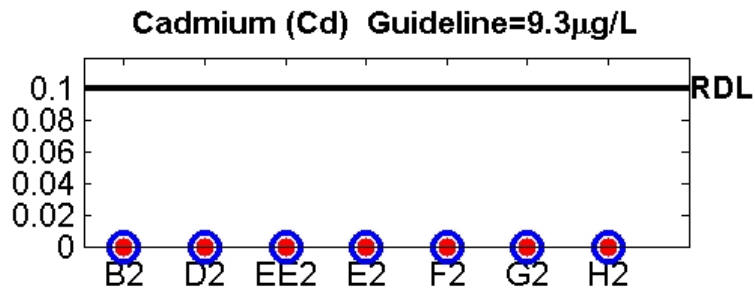
Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Jun15



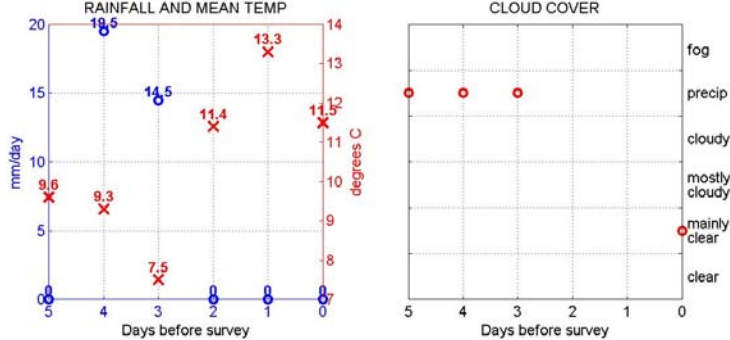
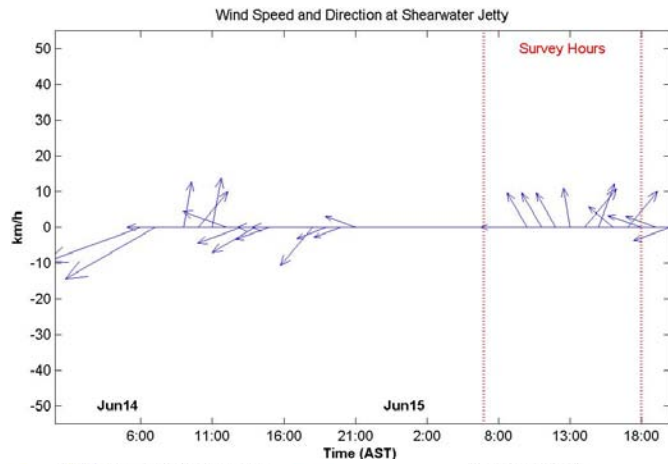
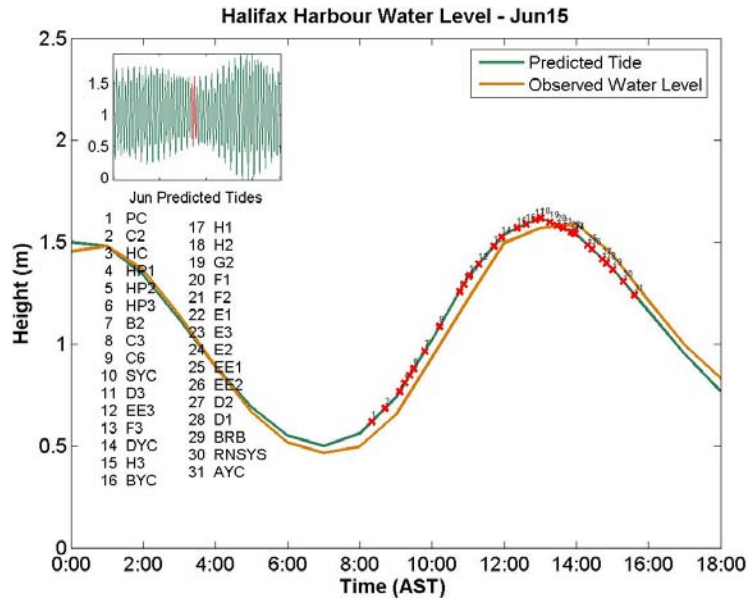


LEGEND

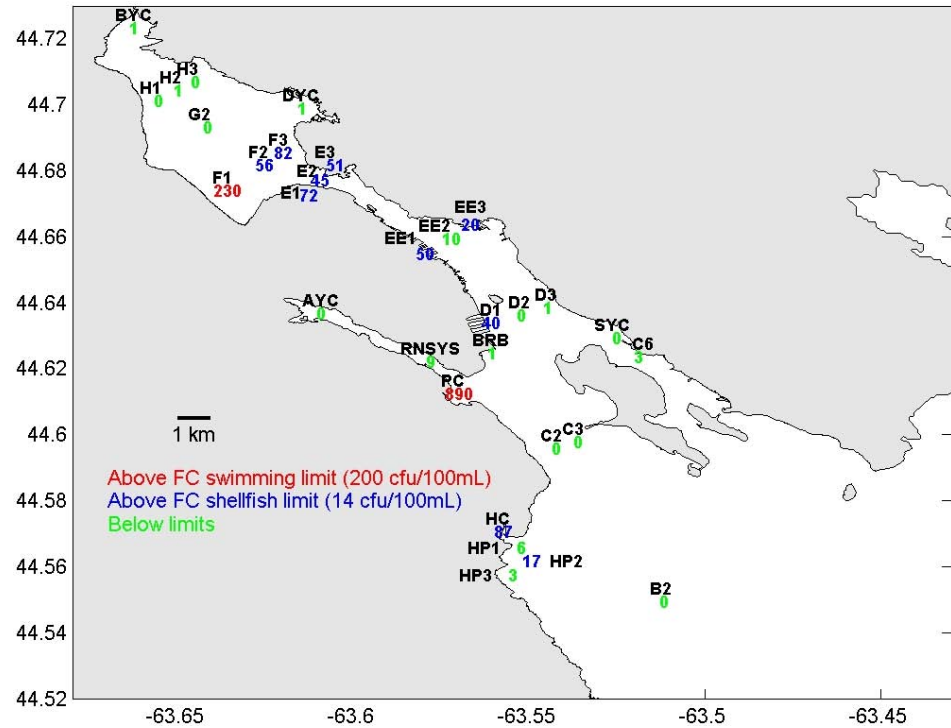
- = Ten Metre Sample
- = One Metre Sample
- RDL = Reportable Detection Limit

HRM Water Quality Monitoring

Fecal Coliform Summary – June 15, 2009



Fecal Coliform 1 m



Fecal Coliform 10 m

