

Halifax Harbour Water Quality Monitoring Project

Weekly Summary #115

Survey Date: 24 October 2006
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report115_061024.doc
Data File: HHWQMP_data115_061024.xls

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

Sample Notes:

n/a

QA/QC samples:

Chemical Analysis		EE2-1m		F2 - 10m	
		reference sample	DUP	reference sample	QA/QC
Detectable Parameter	units				
Ammonia (as N)	mg/L	n/a	n/a	0.12	0.11
Total Suspended Solids	mg/L	n/a	n/a	0.7	1.0
Copper (Cu)	ug/L	0.3	0.3	0.2	0.2
Iron (Fe)	ug/L	11	8	7	5
Manganese (Mn)	ug/L	3	2	2	1
Zinc (Zn)	ug/L	3	3	2	2

Fecal Coliform (CFU/100ml)

Site	E1-10M	E2-1M	H1-10M	F2-10M
Reference	>10000	2800	3	5
QA/QC	>10000	9200	6	7

Comments:

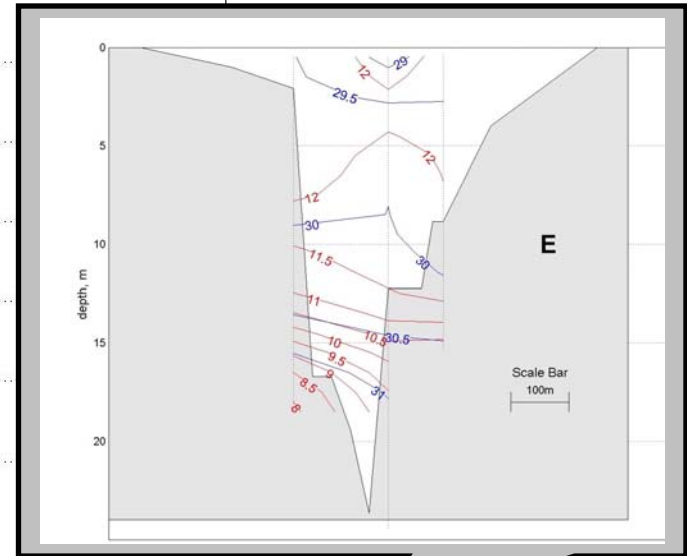
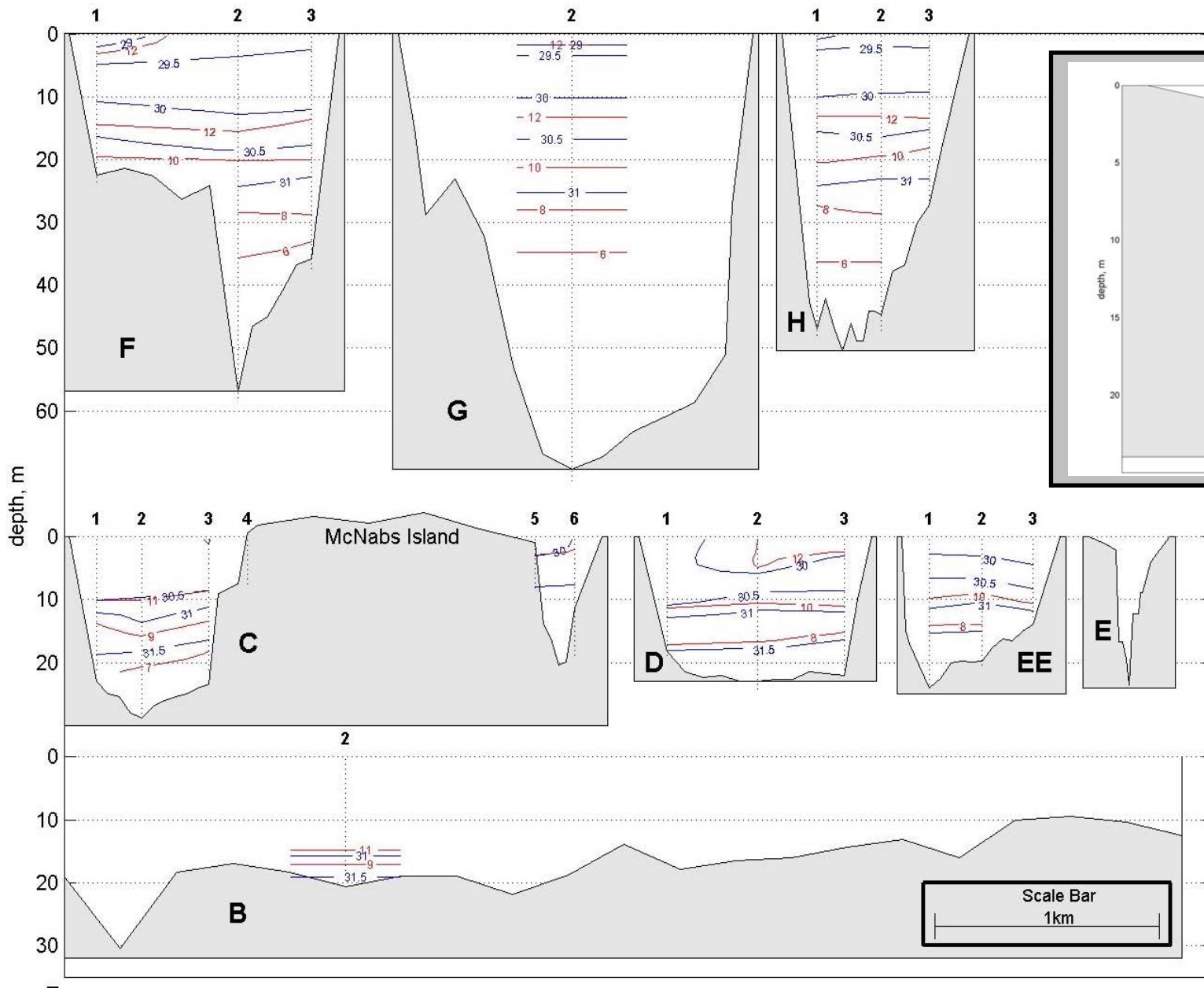
General: The Harbour is significantly more salinity stratified than the uniform conditions two weeks ago. The surface water, except at B2, is somewhat fresher while the bottom water, as far up harbour as the Narrows, is more saline. The water temperature has dropped by about 2°C in the surface water and 3-4°C in the bottom water. These observations are consistent with an intrusion of colder, saltier shelf water. The fecal coliform (fc) values are quite high in the 1 m samples of the Inner Harbour (sections D and EE) and at both depths in the Narrows. The highest fecal coliform (fc) concentrations are mostly limited to the surface water of the Inner Harbour (sections D and EE), consistent with discharges into the surface layer of the relatively stratified environment. The fecal coliform distribution does not suggest estuarine flow north of the Narrows, where there are high values at the 10m depth. The fc values are low everywhere in the Basin. There is no particular evidence of the sewage diversion to the Fairview Cove CSO. There are three out of range values (E1-10m, D3-1 m, and RNSYS-1m). The fc analysis resolution is adjusted based on past values, this procedure has almost completely eliminated out of range values. These out of range values are therefore truly anomalous.

Fluorescence: The apparent bloom of two weeks ago has subsided. The highest values are about 8.0 mg/m³ at 6-7 m in the southern Basin. Outside the Basin the maximum values are all about 3-4 mg/m³ at about 5m. The field perception was of very clear water throughout the harbour, with secchi disk readings generally between 7 and 9.5 m.

Dissolved Oxygen: The data indicate that the Dissolved Oxygen in the near surface water is below the use-specific guidelines throughout the Harbour. The only area where the DO is above the guideline is in the deeper water of the Inner Harbour which is just over the guideline of 6.0 mg/L. Elsewhere the values are below the guidelines throughout the water column. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).

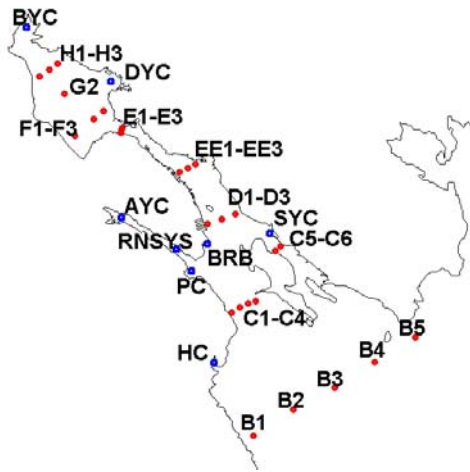
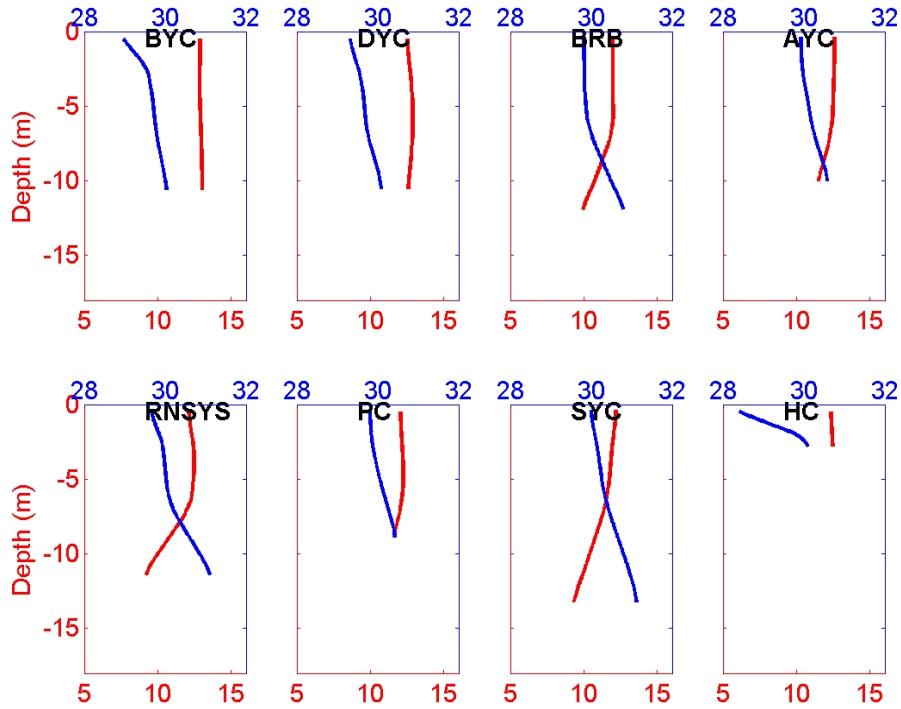
TSS: The TSS values are relatively low with 10 of 14 samples <1 mg/L and 4 samples below the 0.05 mg/L RDL.

Ammonia: The ammonia values in the Basin and 1m samples in the Inner Harbour are relatively high; mostly ≥ 0.1 mg/L. Values in the Outer Harbour (B2) and 10m samples in the Inner Harbour are below the 0.05 mg/L detection limit.



Unless otherwise labeled:
 - salinity contour interval is 0.5 PSU
 - temperature contour interval is 2°C.

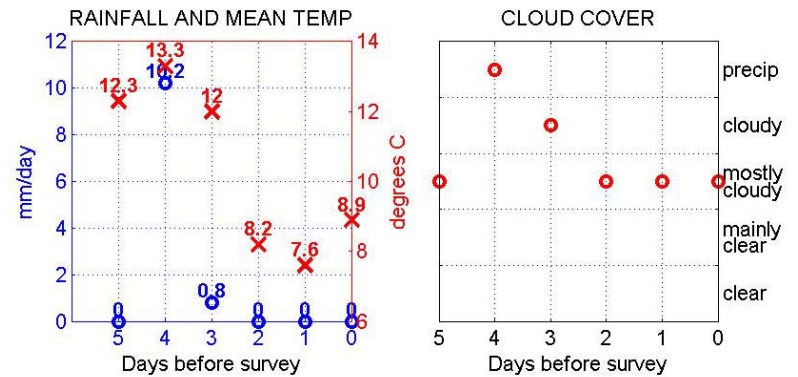
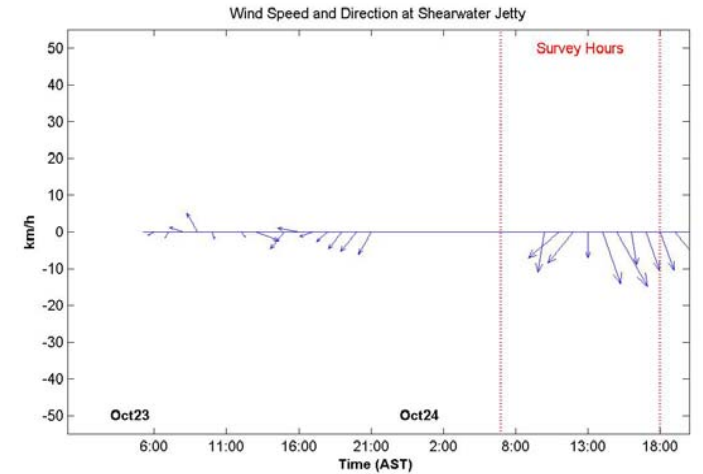
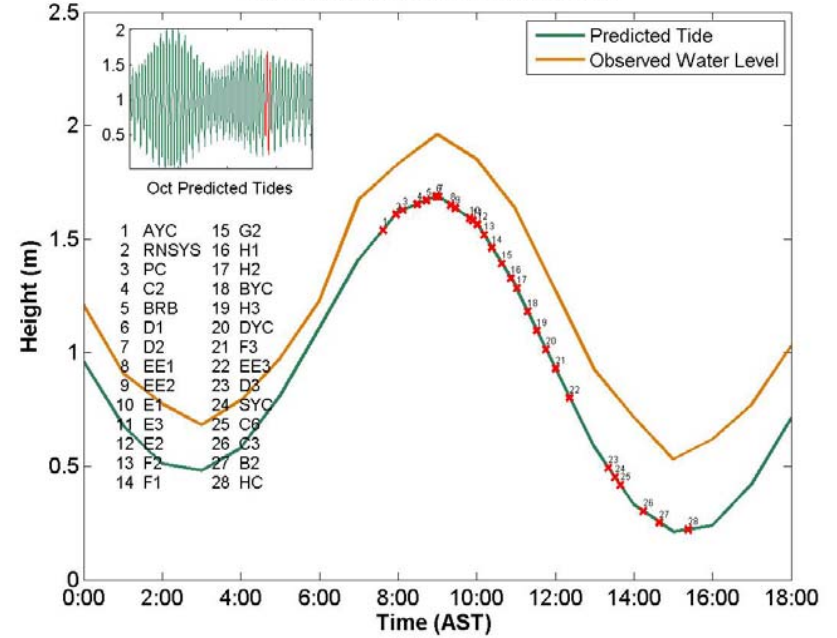
Yacht Clubs

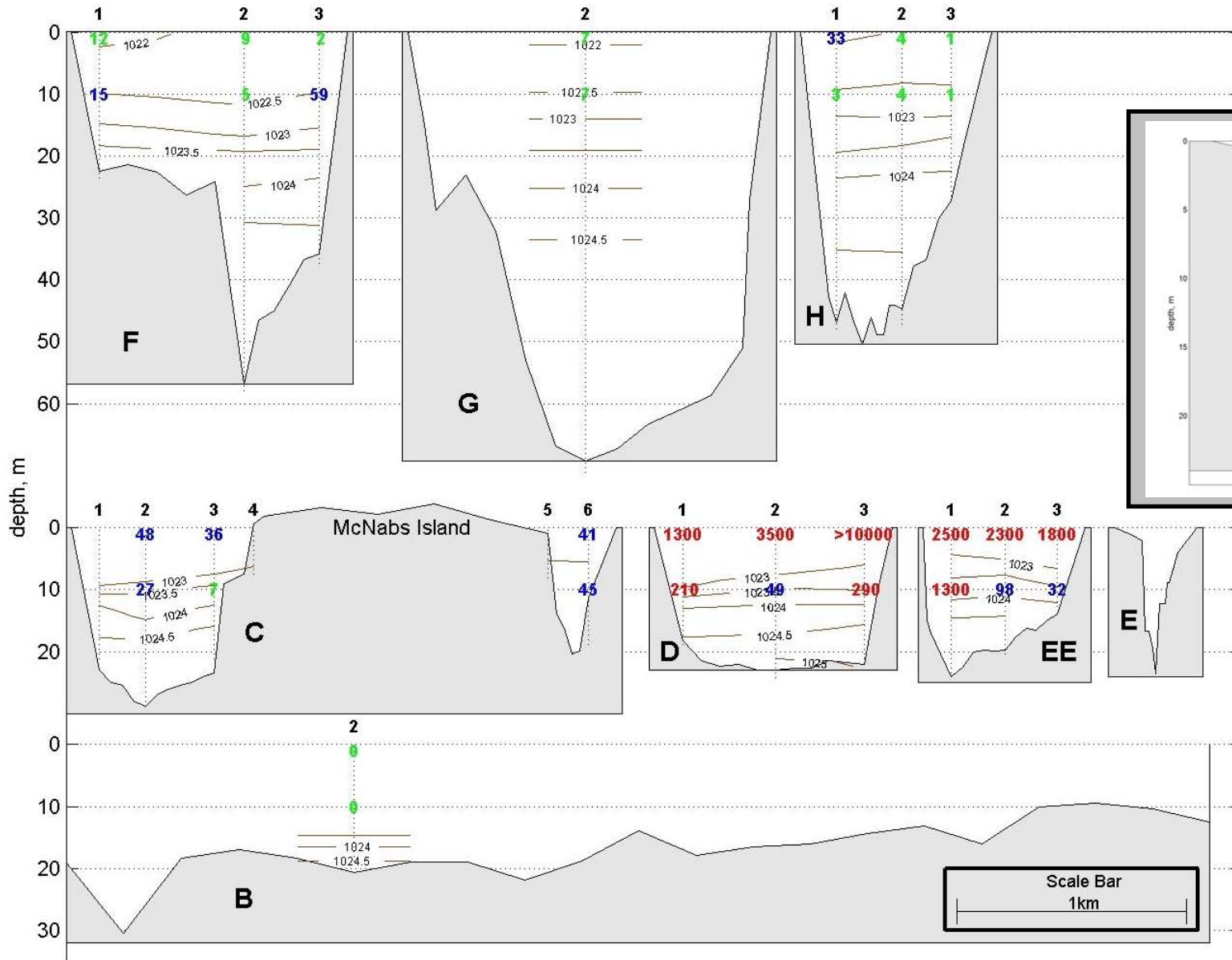


Salinity in PSU Temperature in °C

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

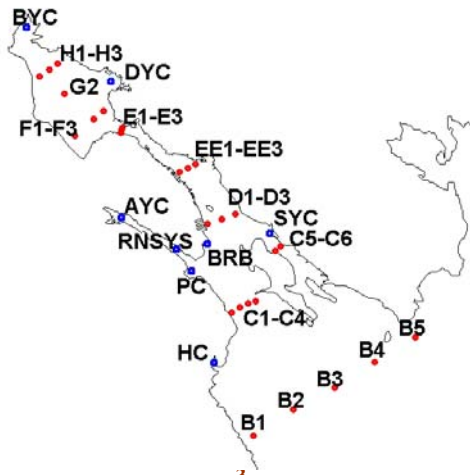
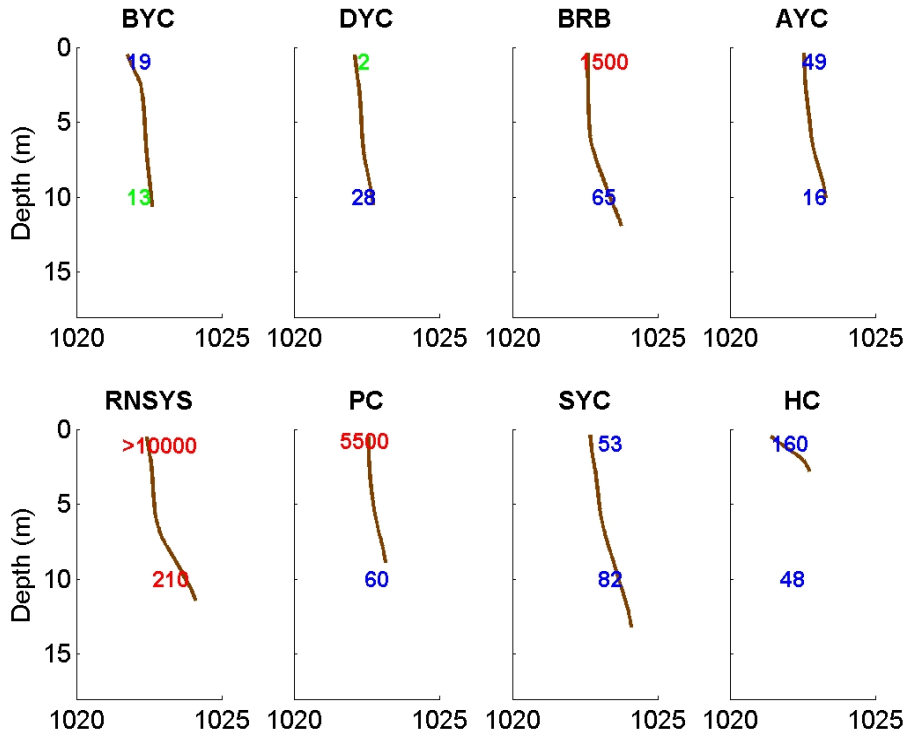
Halifax Harbour Water Level - Oct24





Unless otherwise labeled:
 - **density** contour interval is 0.5 kg/m³

Yacht Clubs

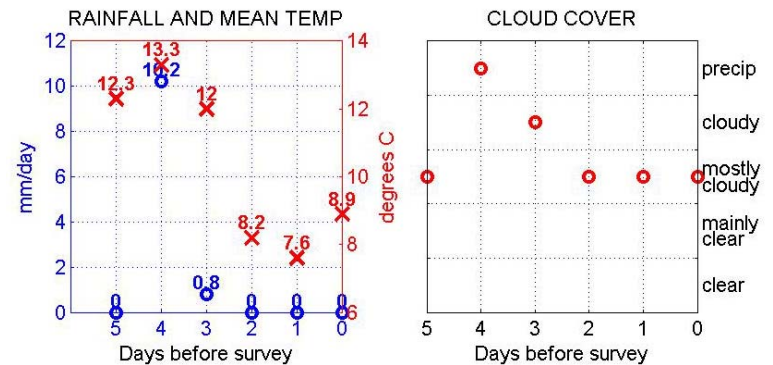
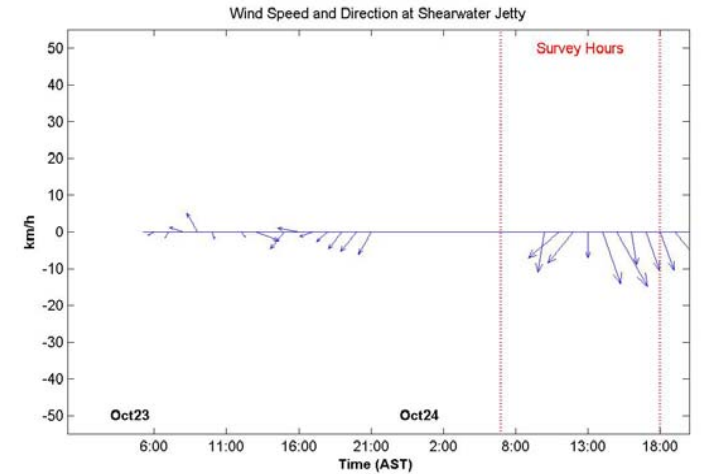
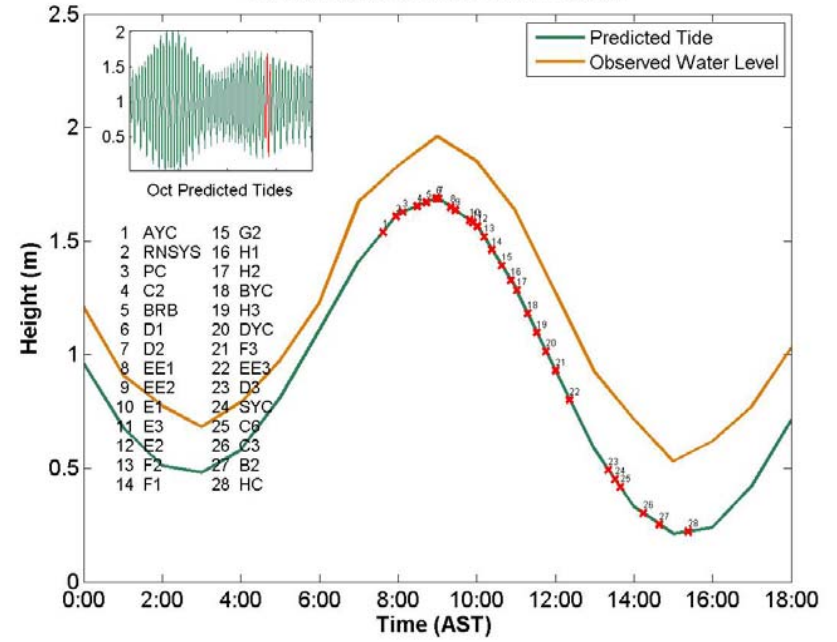


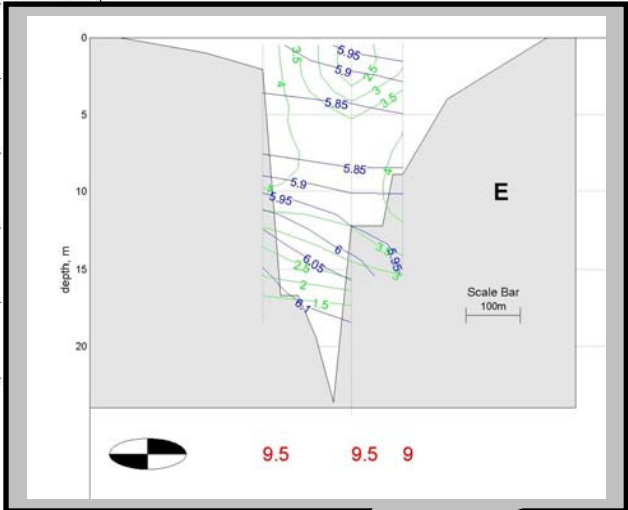
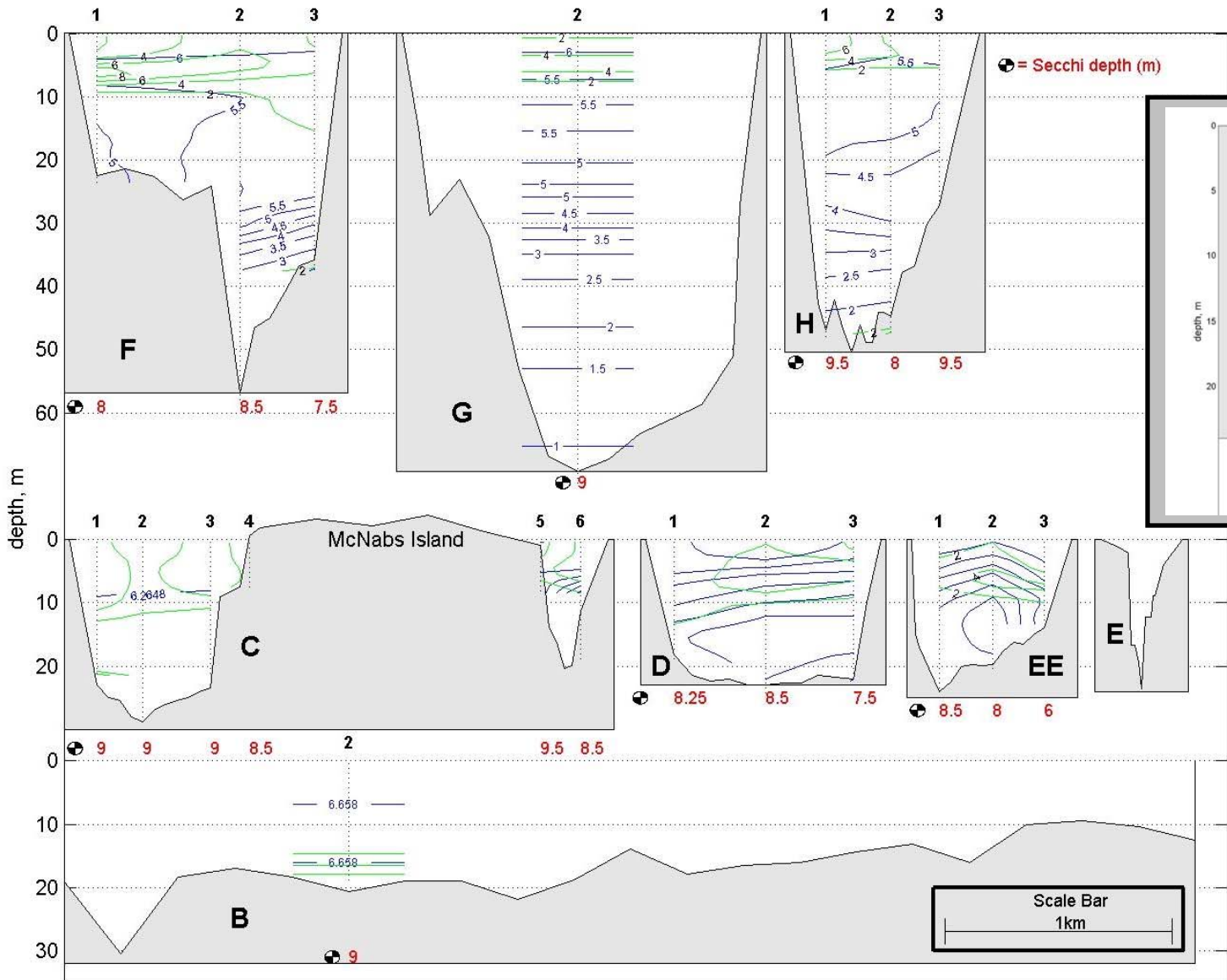
Rainfall and temperature data collected at Shearwater Autoport.
 Cloud cover data collected at Shearwater Airport

Potential Density in kg/m^3

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

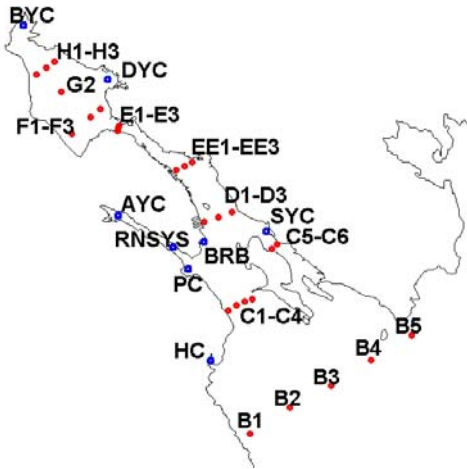
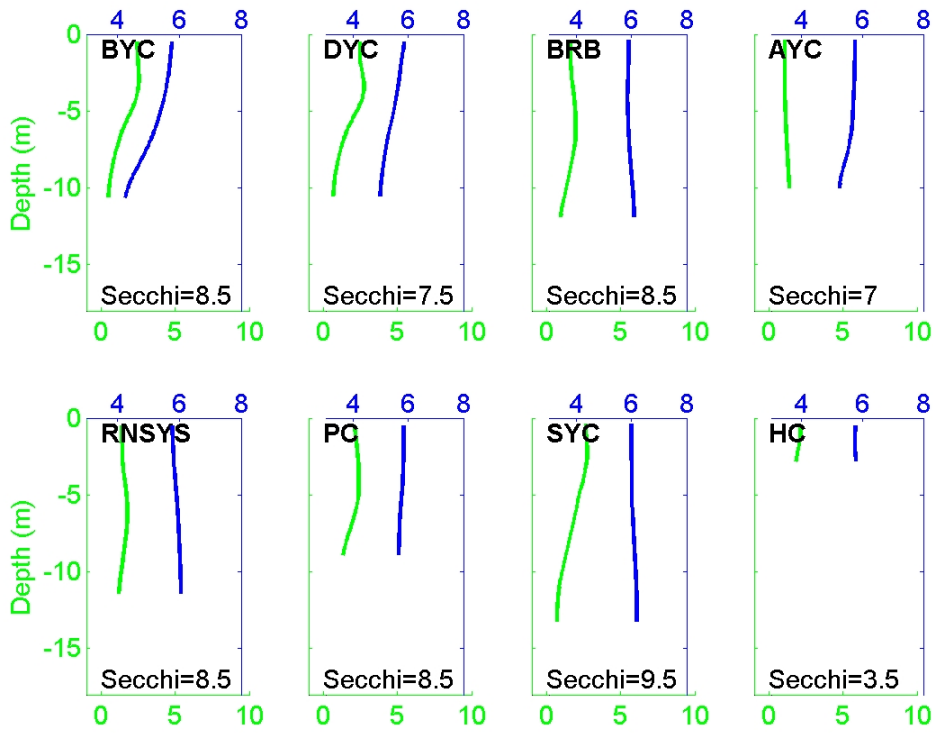
Halifax Harbour Water Level - Oct24





Unless otherwise labeled:
 - **dissolved oxygen** contour interval is 0.5 mg/L
 - **chlorophyll** contour interval is 0.5 mg/m³.

Yacht Clubs

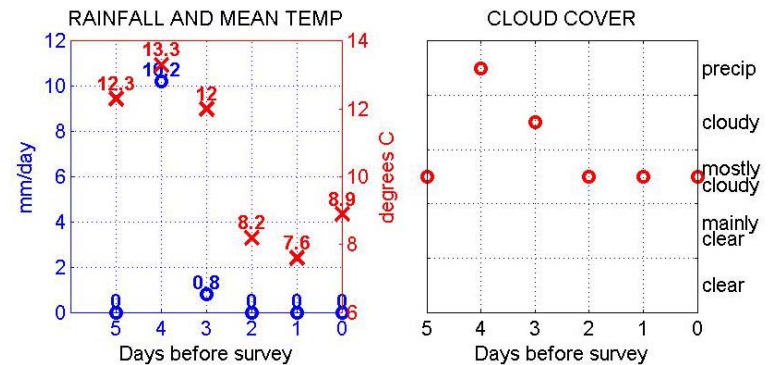
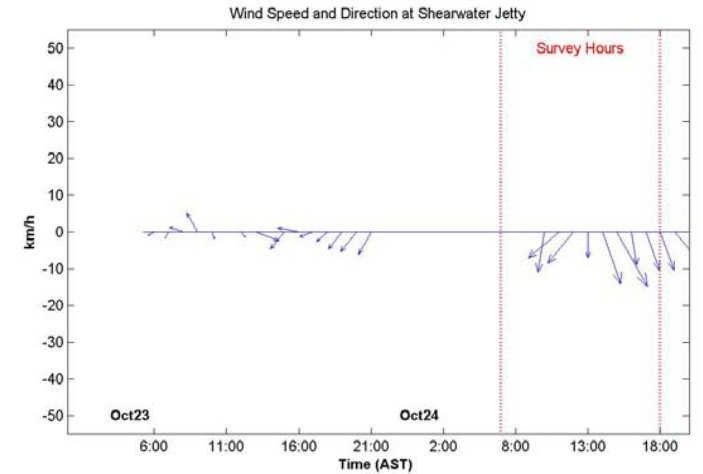
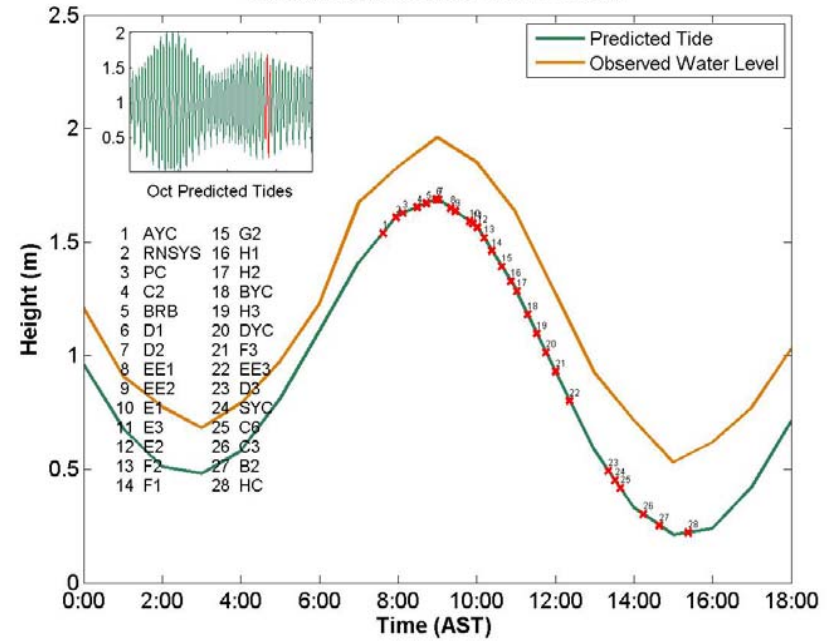


DO in mg/L

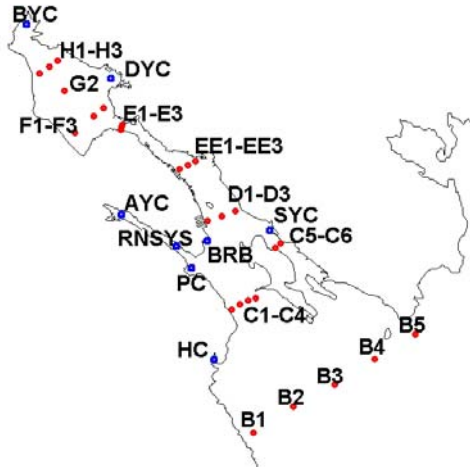
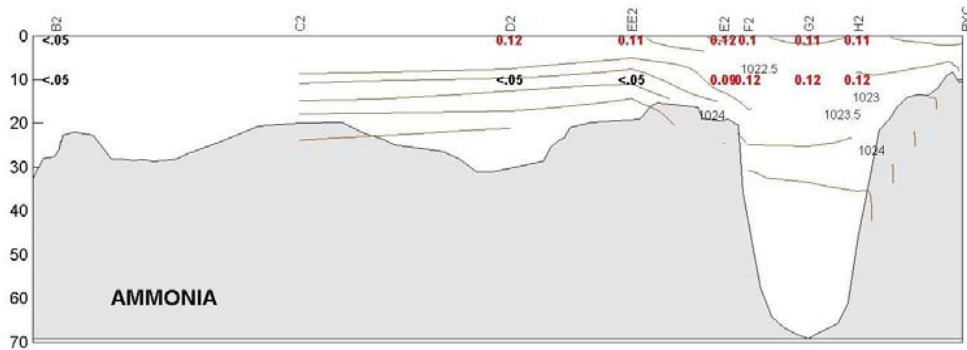
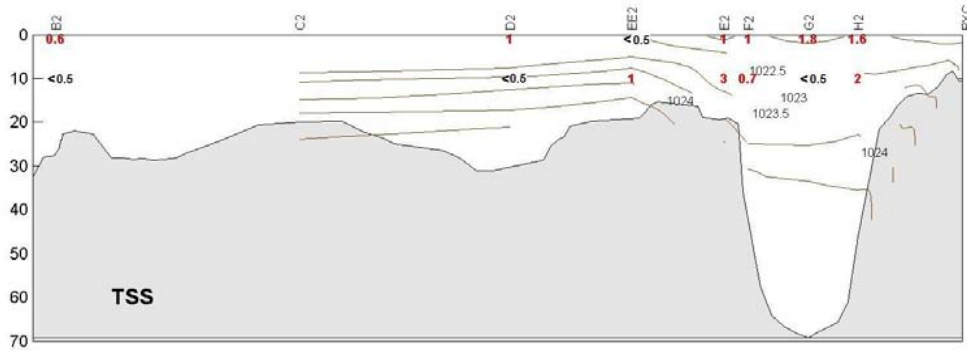
Chlorophyll in mg/m³

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

Halifax Harbour Water Level - Oct24



CHEMISTRY



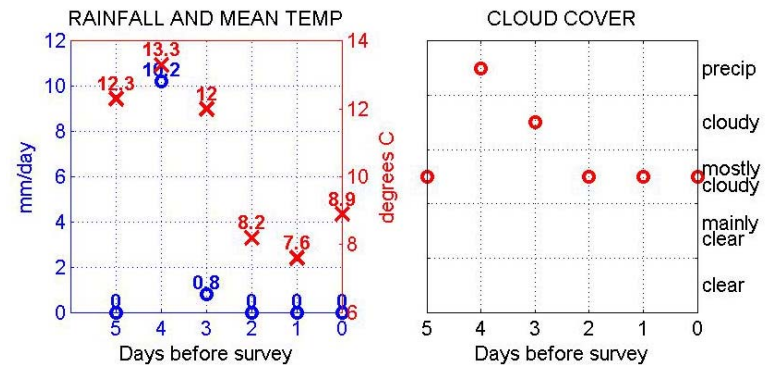
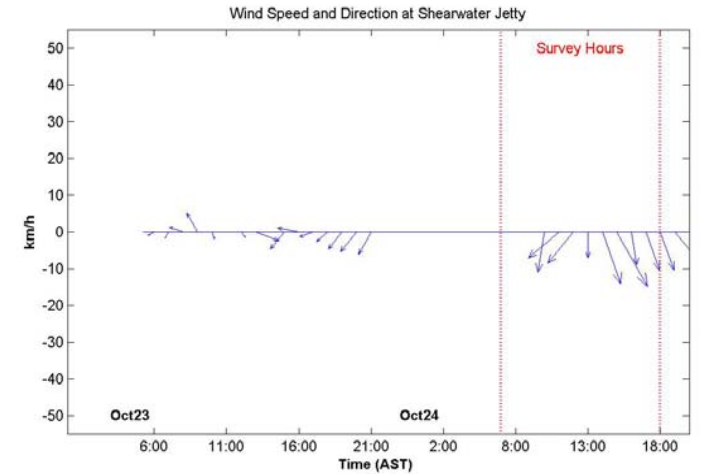
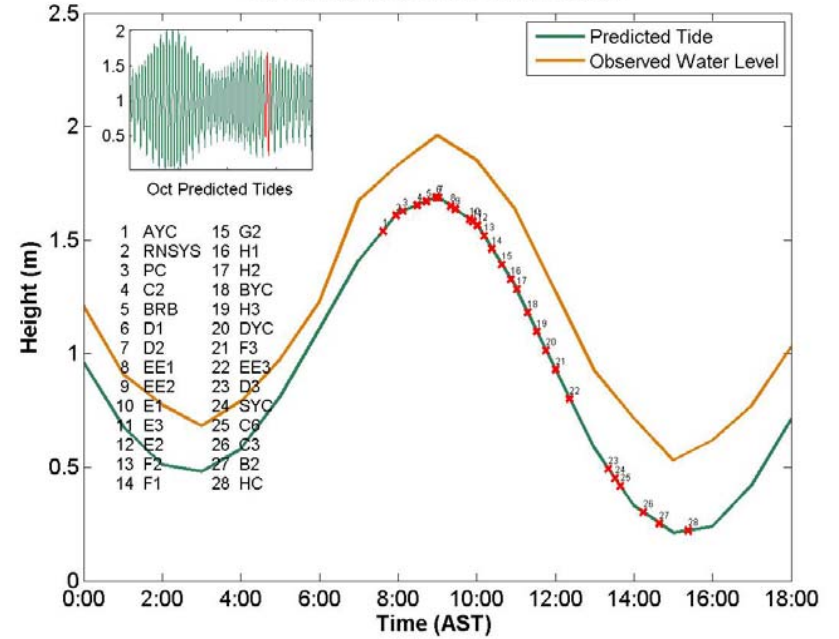
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport

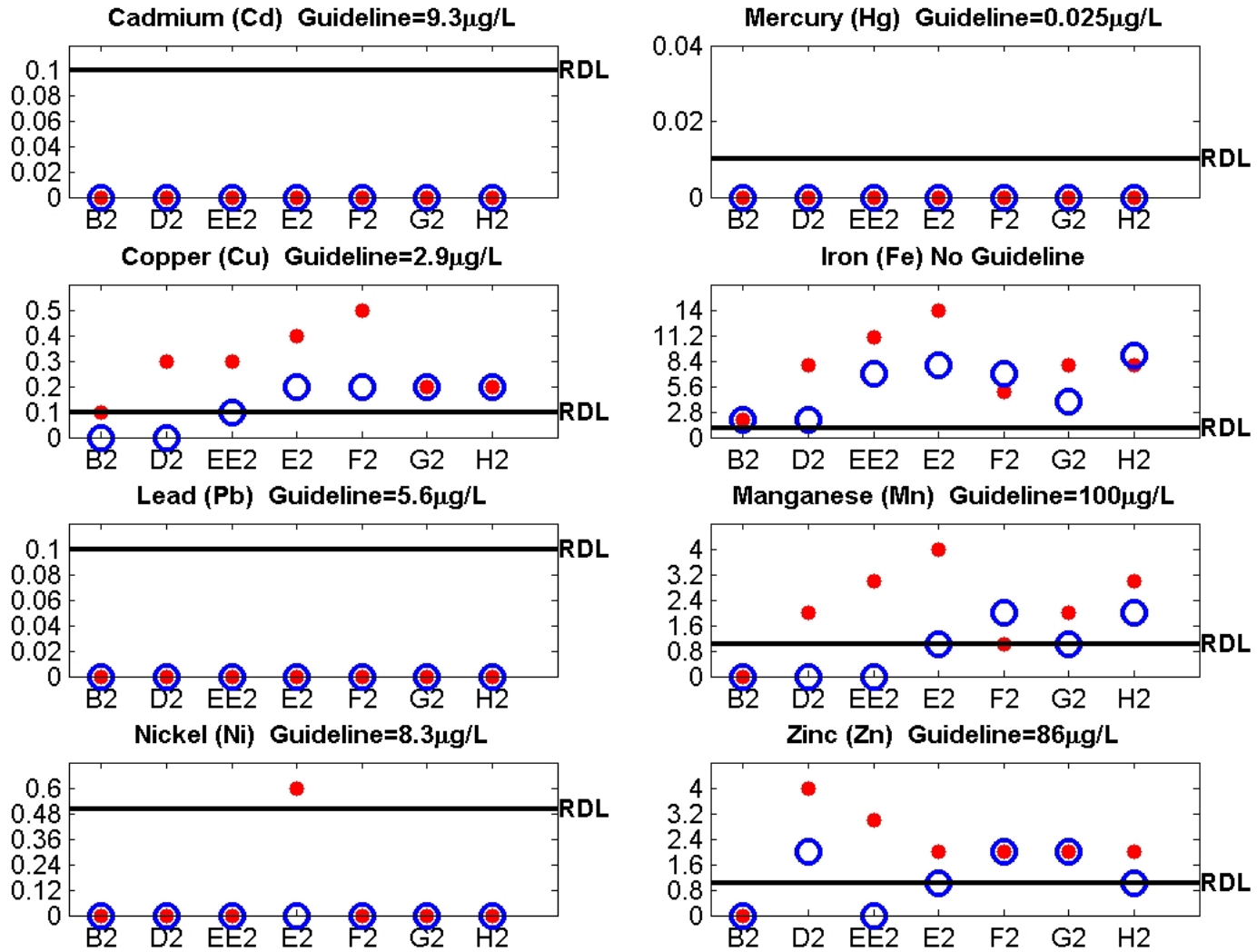
Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Oct24





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