

Halifax Harbour Water Quality Monitoring Project

Survey Summary #169

Survey Date: 19 November 2008
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report169_081119.doc
Data File: HHWQMP_data169_081119.xls

Data Return:
 Chemical: 86%
 Bacteria: 77%
 Profile: 74%
Overall: 78%

Sample Notes:

Outer Harbour stations (C1-4, HP1-3, HC and B2) were not sampled due to gale winds.

A supplementary CTD cast was taken at the LOBO buoy location (44.6291 N, 63.5915 W) at 14:01 local time.

To match the collected reference data the presented DO values should be scaled by a factor of 1.3 (see comparison in data file).

QA/QC samples:

Chemical Analysis		G2 – 10m	
Detectable Parameter	Units	reference Sample	QA/QC
Ammonia (as N)	mg/L	0.06	0.07
Total Suspended Solids	mg/L	2.2	2.4
Copper	ug/L	0.5	0.5
Iron	ug/L	15	15
Manganese	ug/L	1.0	<1.0
Zinc	ug/L	4.0	4.0

Fecal Coliform (CFU/100ml)

Site	F1-1m	PC-1m	RNSYS-1m	G2-10m
Reference	63	11	54	31
QA/QC	56	13	33	16

Comments:

General: There has been in excess of 100 mm of rain in the five days preceding the survey. This has freshened the surface water throughout the Harbour, but there is a layer of fresher water tending along the western side of the Basin and Inner Harbour. This layer is particularly evident in the Southern Basin and Narrows. The bottom water in the Inner Harbour has become more saline, likely due to the induced estuarine circulation. As a result the Harbour is much more strongly stratified than it has been in recent surveys. In spite of recent heavy rains, and probable sewage overflows, the fecal coliform concentrations, though slightly elevated, are quite low, with no swimming criteria exceedences anywhere that was sampled.

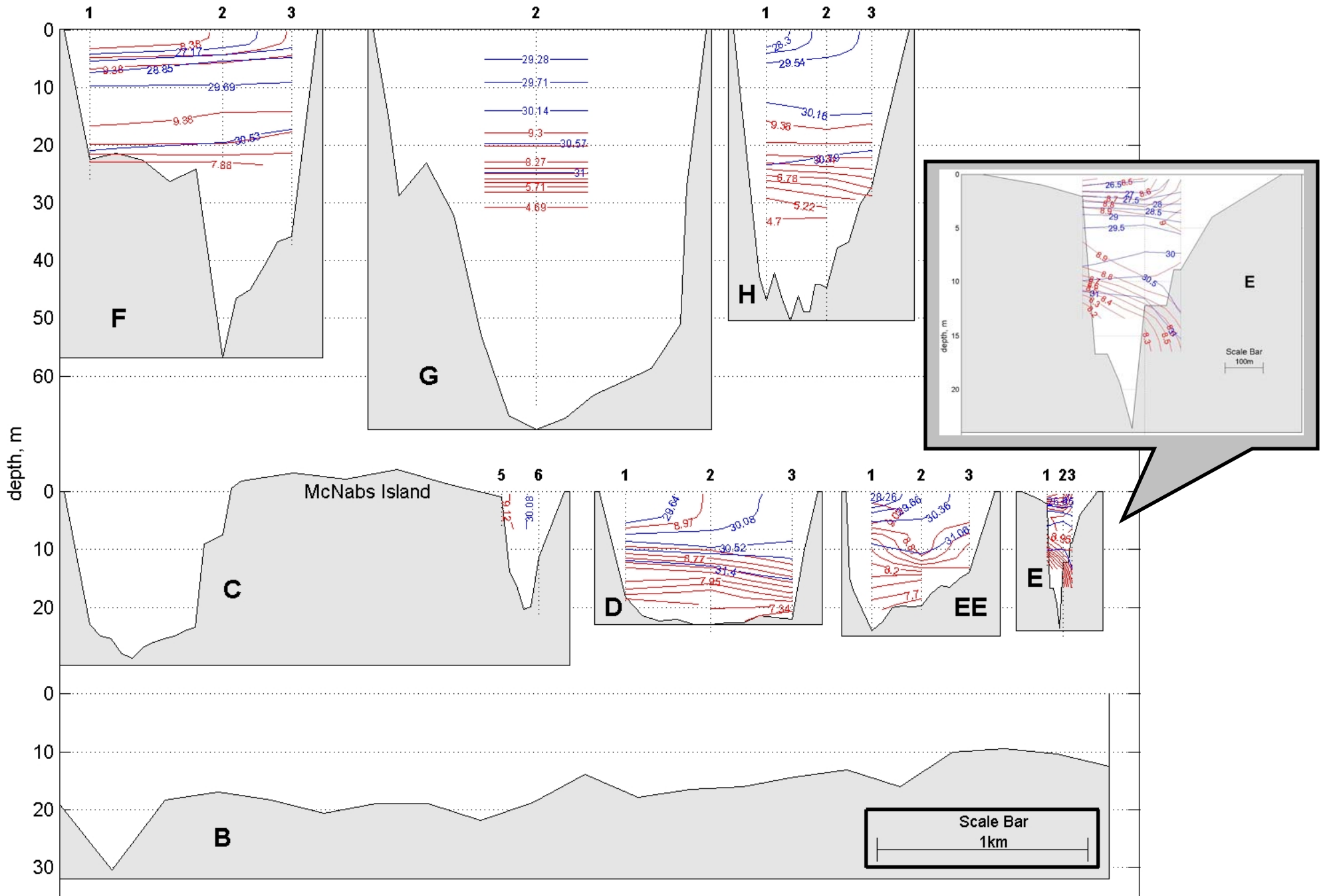
Fluorescence: There is continued low level phytoplankton activity. There is a peak of activity (> 20 mg/L) in the southern Basin and Narrows. Elsewhere the levels are generally less than 10 mg/L.

TSS: The TSS levels are relatively low with all values less than 5 mg/L (mean 2.9 mg/L). There appears to be slightly higher values associated with the fresher surface water in the Southern Basin and Narrows.

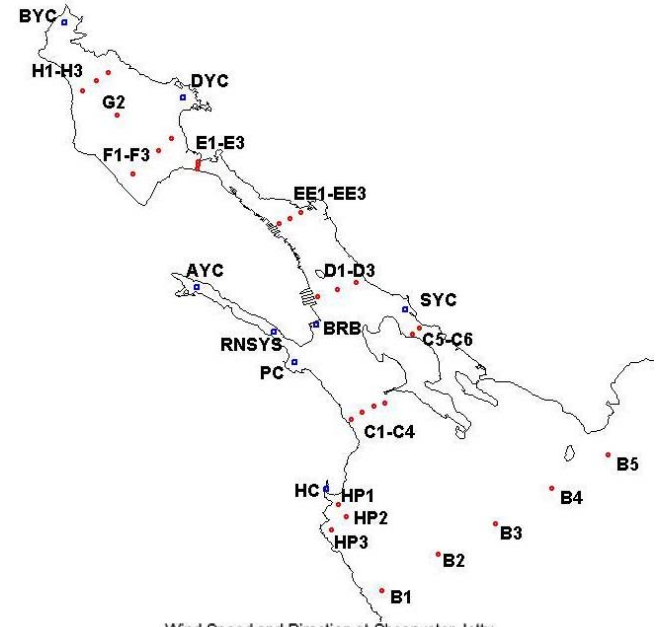
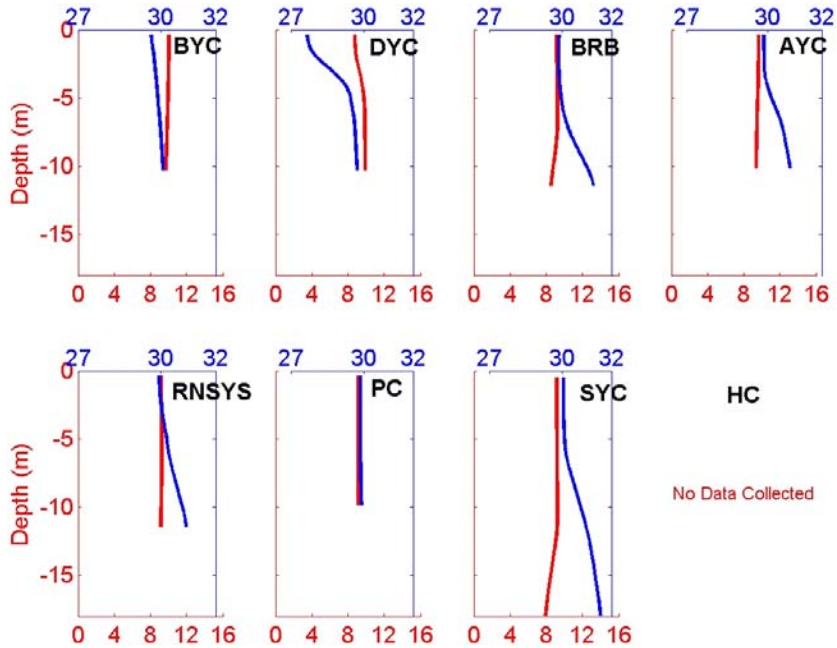
Ammonia: The ammonia levels are generally quite low with 4 of the total of 12 samples below the 0.05 mg/L detection limit, and an average concentration of about 0.08 mg/L. The exception is the 10 m sample at EE2 that has an elevated concentration of 0.42 mg/L.

Metals: There is one copper measurement (4.4 ug/L) in the 10 m sample at F2 that exceeds the 2.9 ug/L guideline.

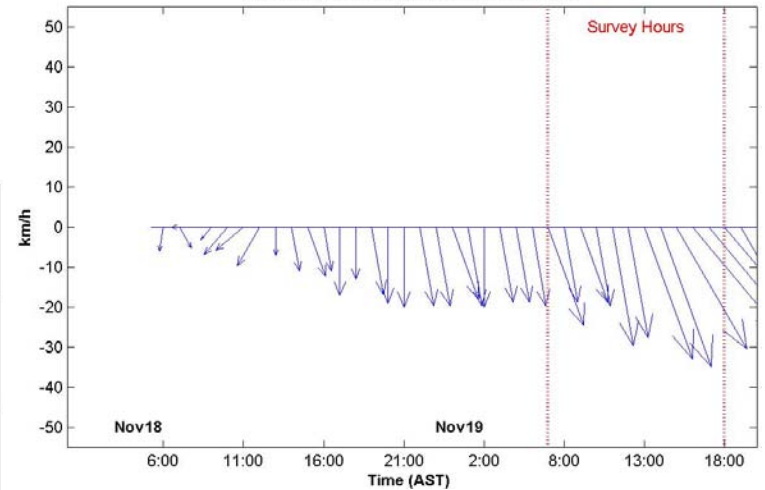
Dissolved Oxygen: The dissolved oxygen data, scaled appropriately by a factor of 1.3, indicates that the surface DO levels are highest in the southern Basin and Narrows (approximately 8.5 mg/L), corresponding to the fresher water and a fluorescence peak in this area. Elsewhere, the surface levels are quite uniform at about 8.0 mg/L and decrease slightly with depth to just under 8.0 mg/L. The DO in the deep water of the Basin (> 30 m) is relatively high and quite uniform at > 5 mg/L. The only guideline exceedence, in the areas measured in this survey, is the class SB (7.0 mg/L) guideline in the deep Basin water.



Yacht Clubs

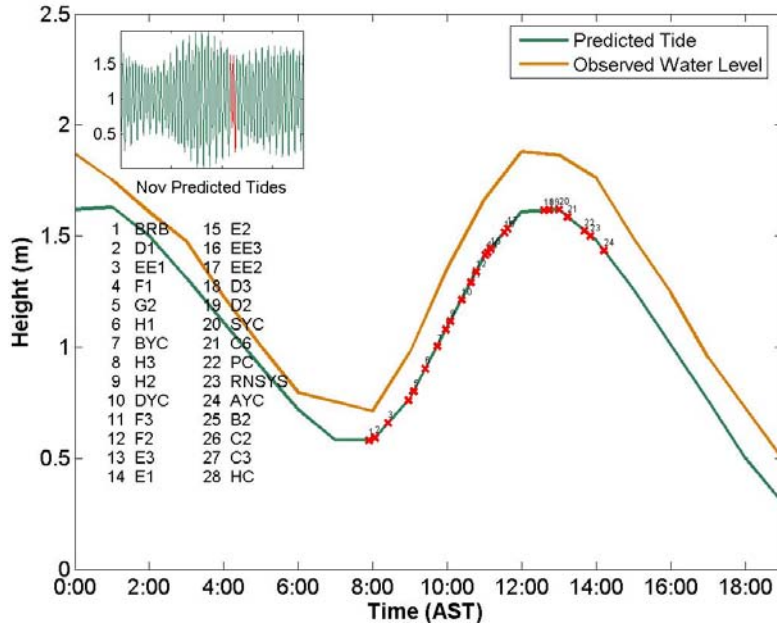


Wind Speed and Direction at Shearwater Jetty

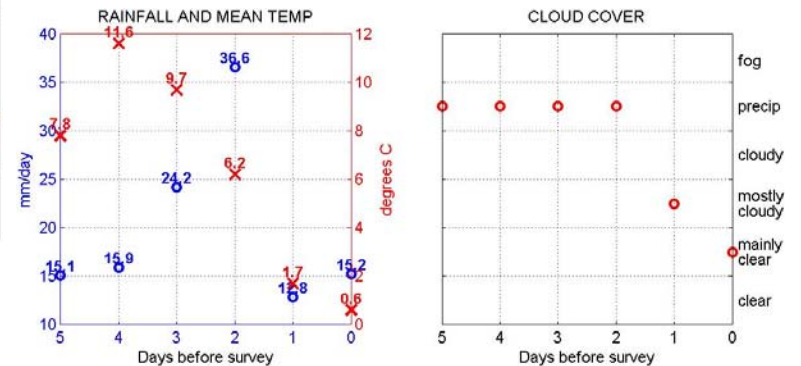


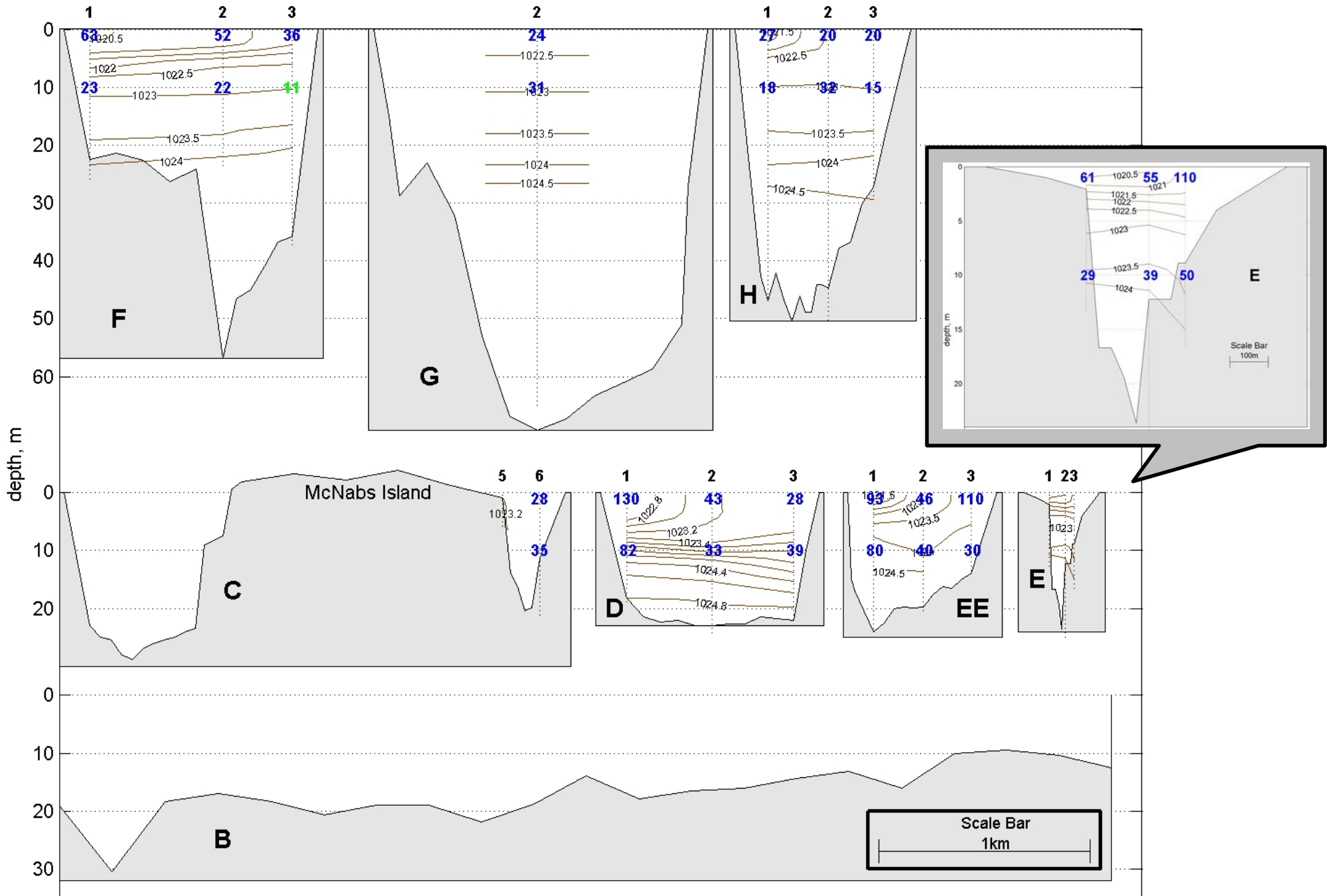
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport

Halifax Harbour Water Level - Nov19

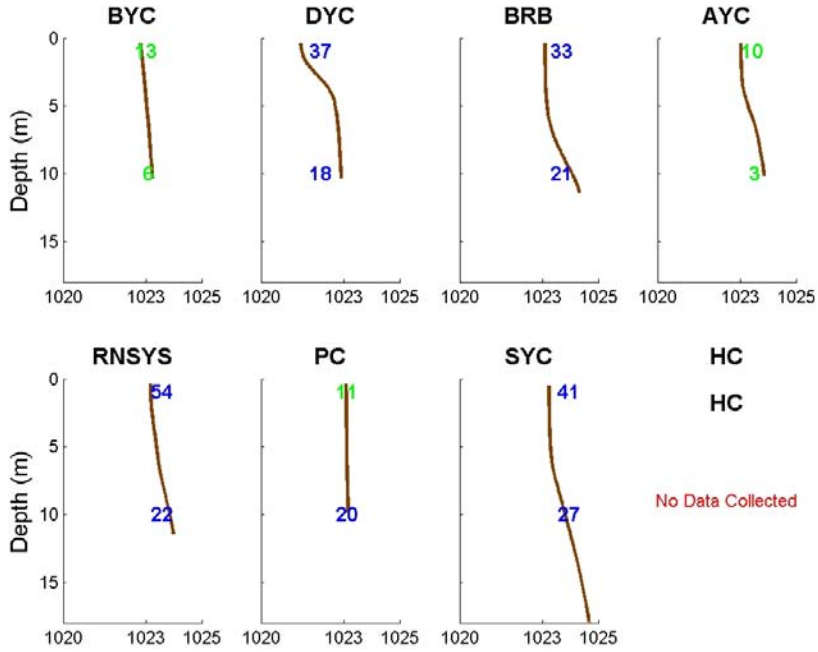


Salinity in PSU Temperature in °C

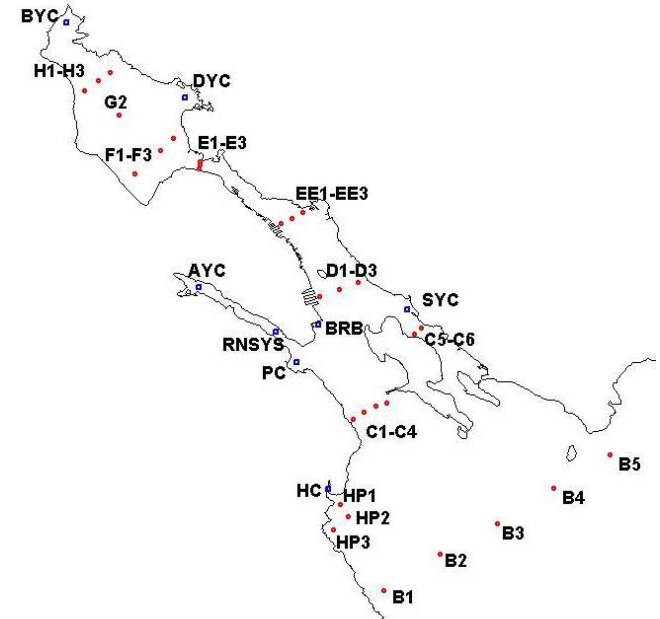




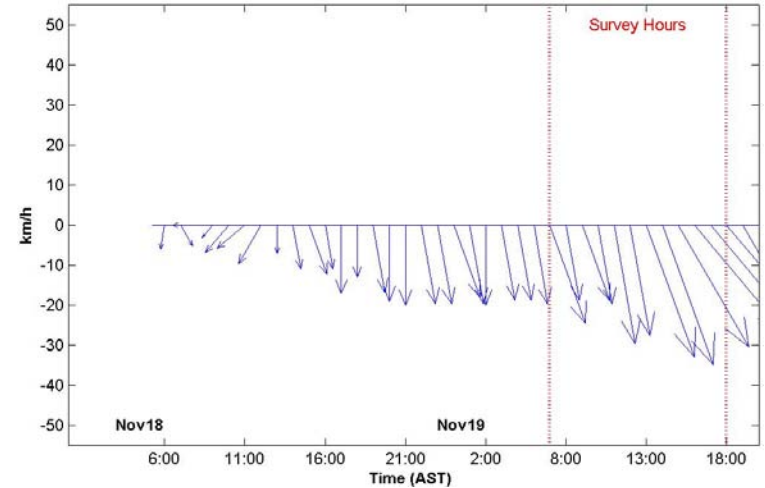
Yacht Clubs



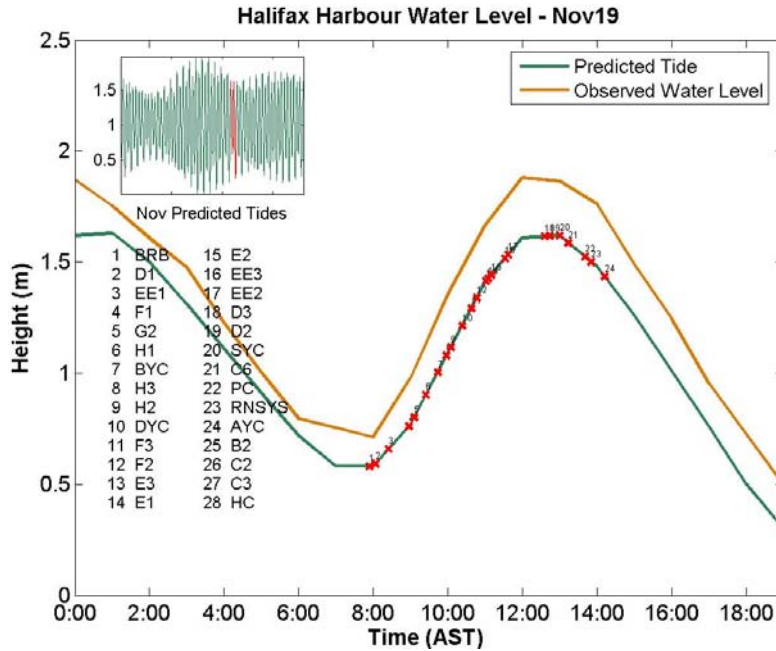
No Data Collected



Wind Speed and Direction at Shearwater Jetty

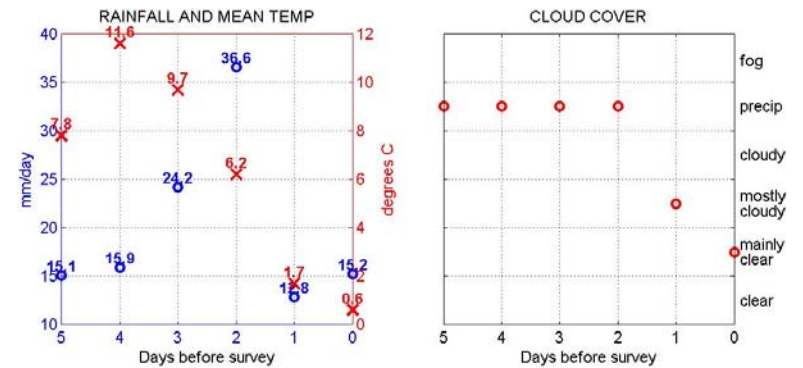


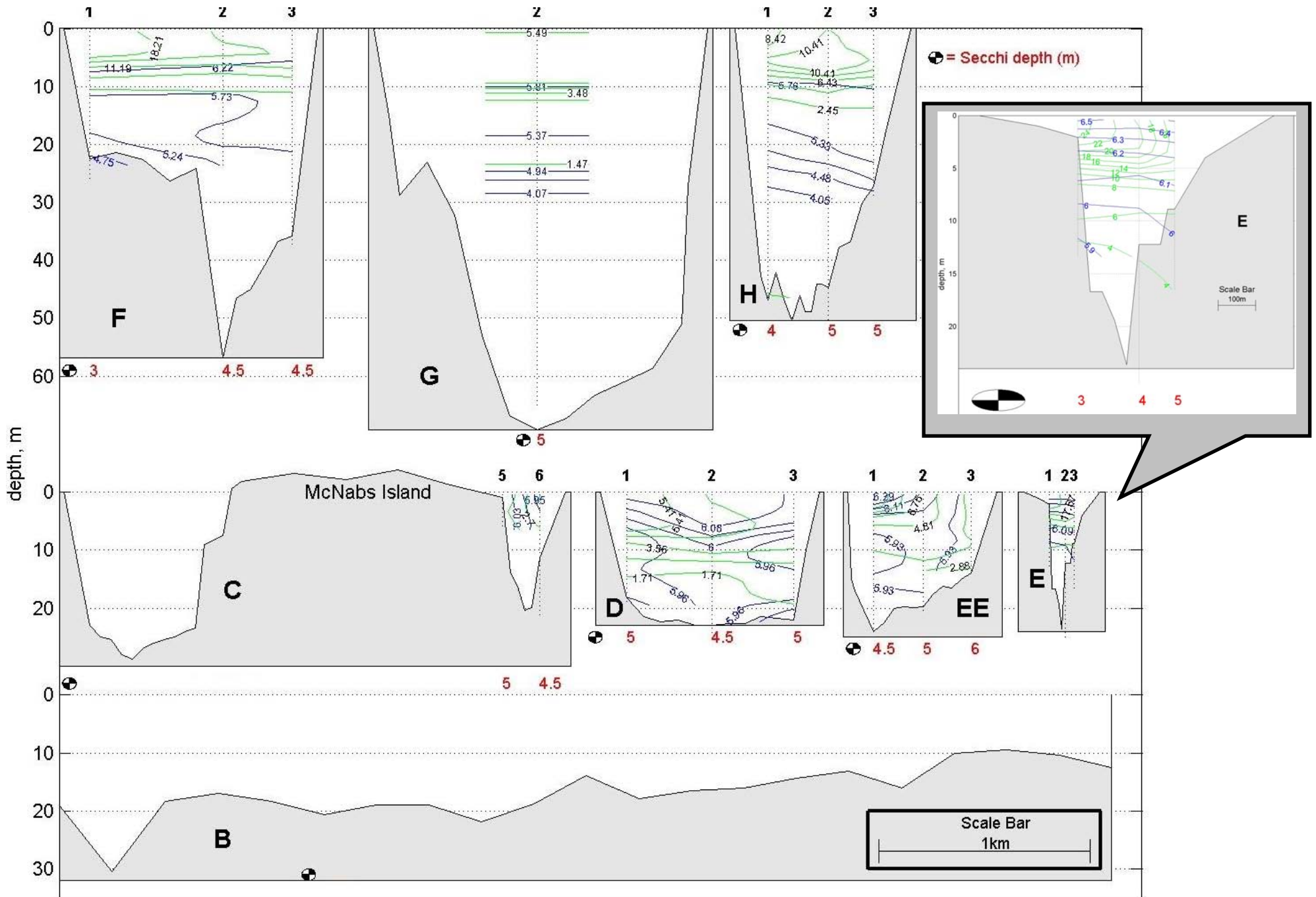
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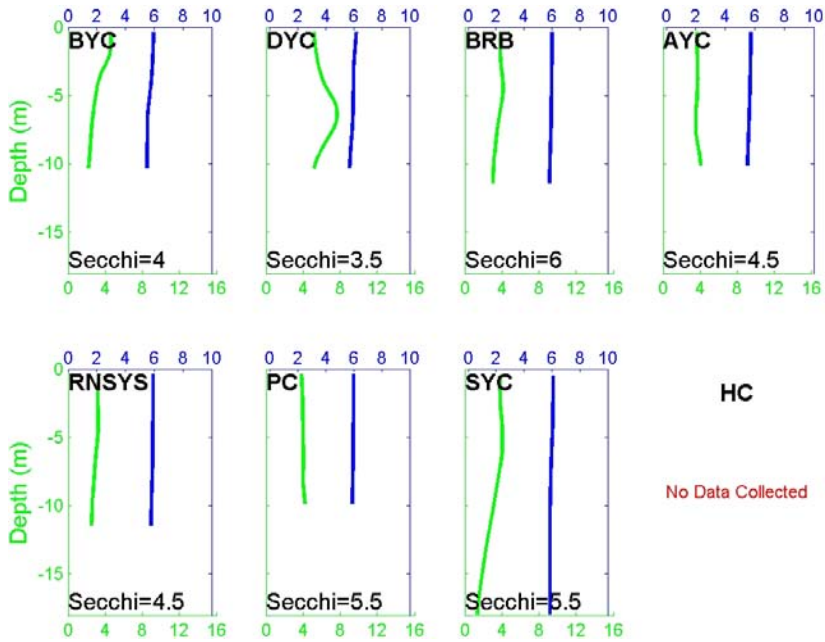
Potential Density in kg/m^3

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



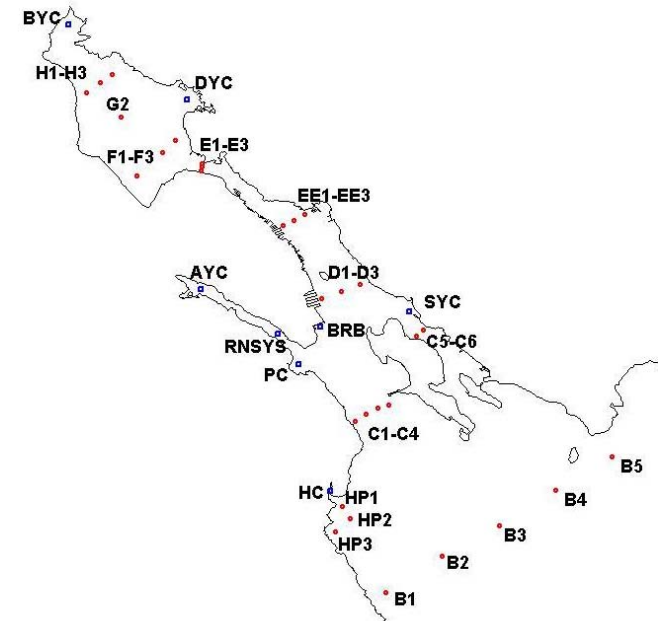


Yacht Clubs

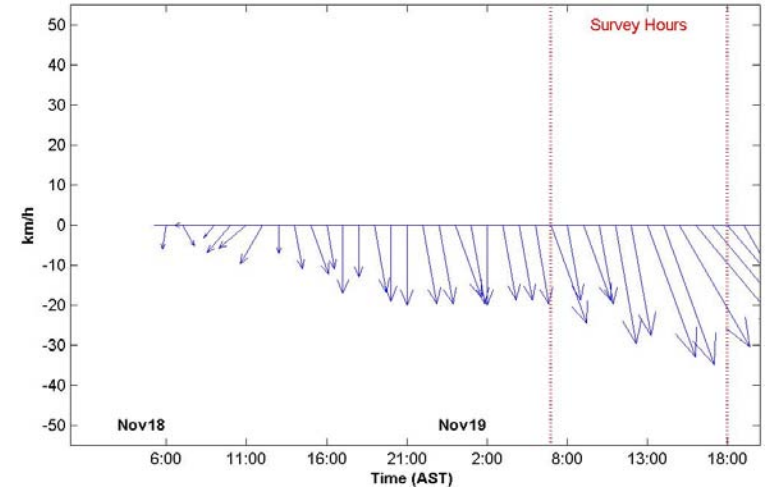


HC

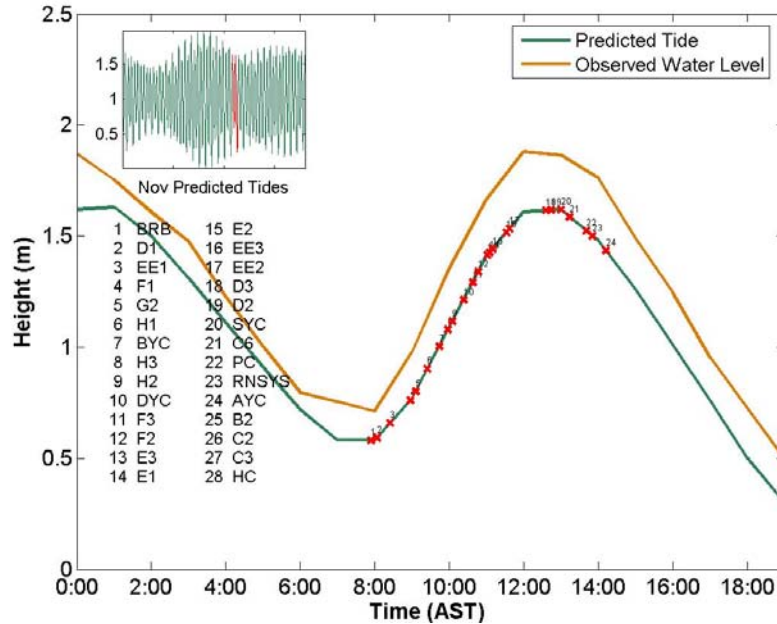
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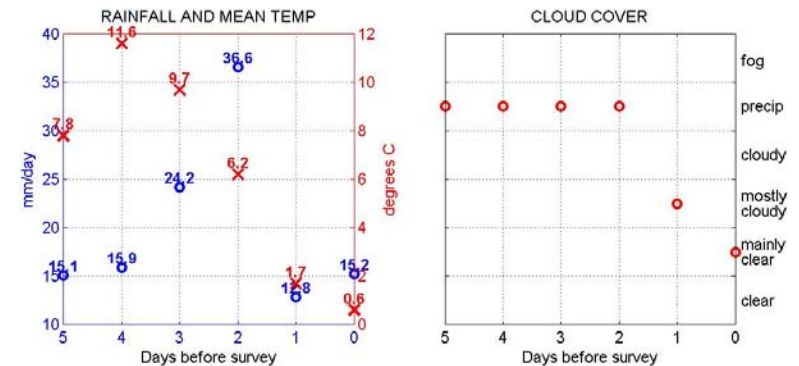
Halifax Harbour Water Level - Nov19



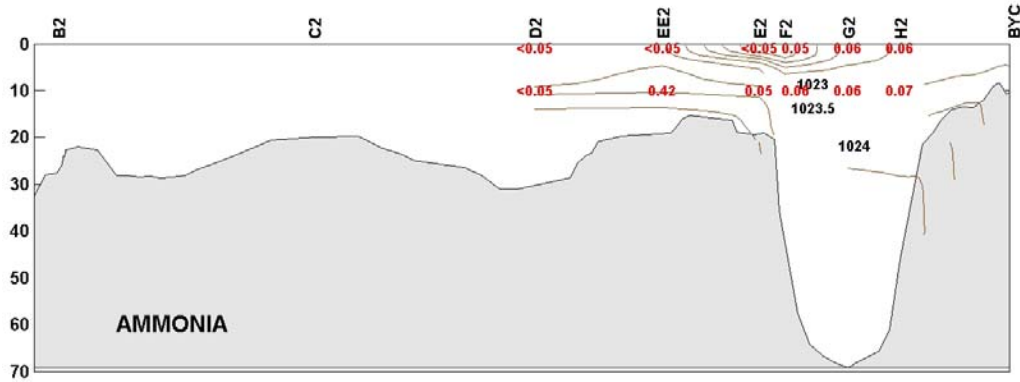
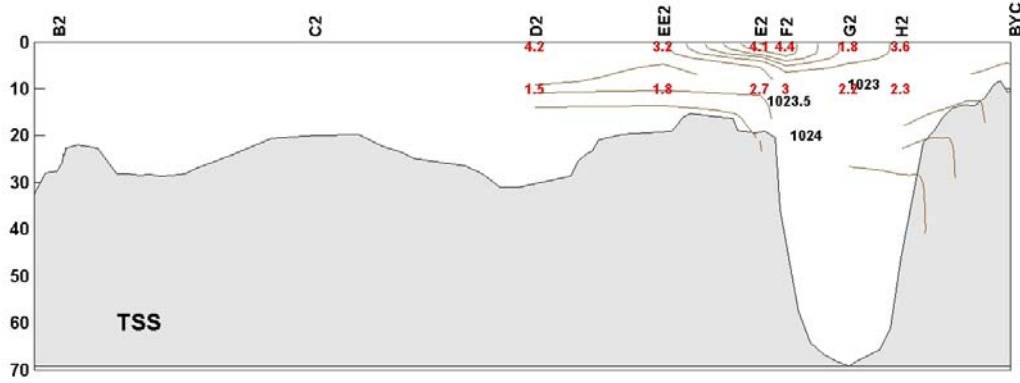
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DO in mg/L

Chlorophyll in mg/m³



CHEMISTRY



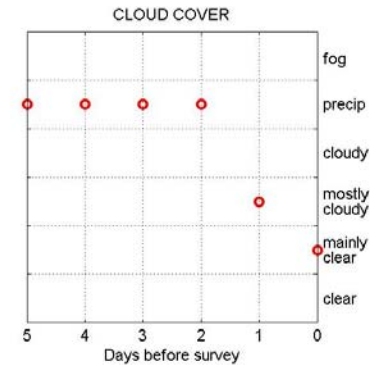
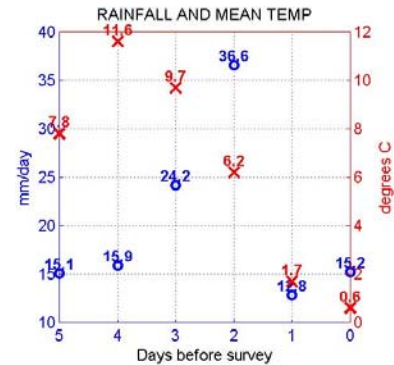
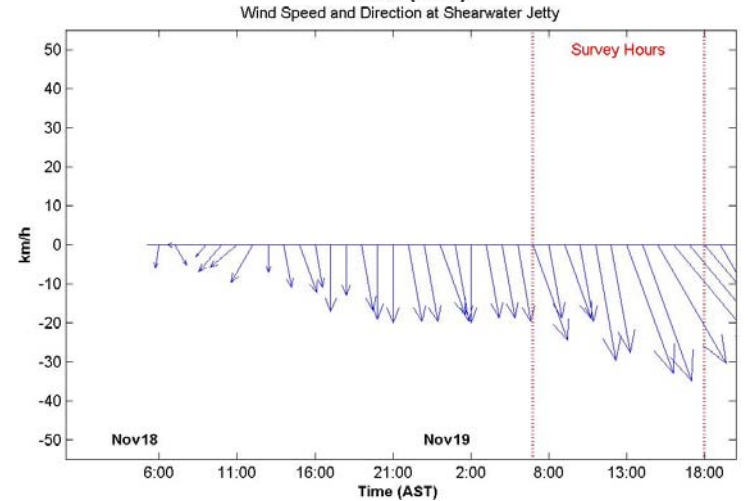
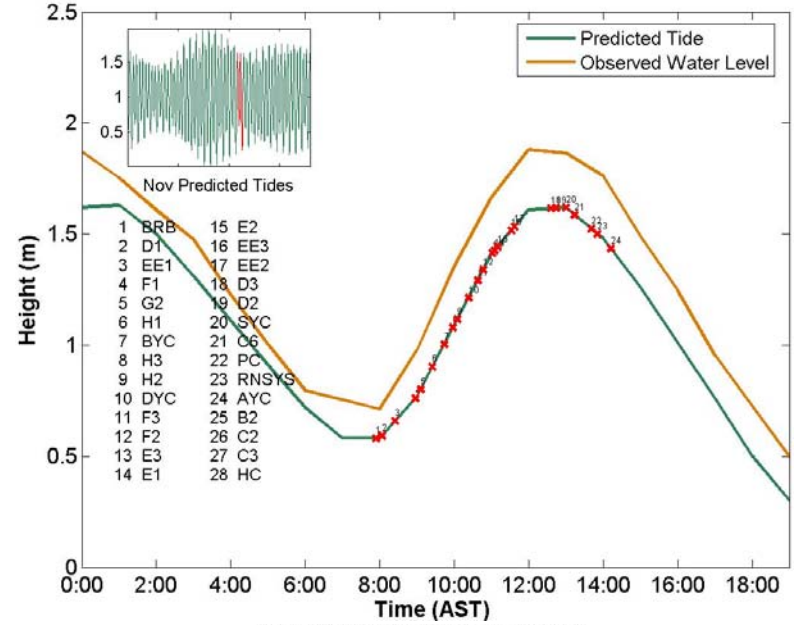
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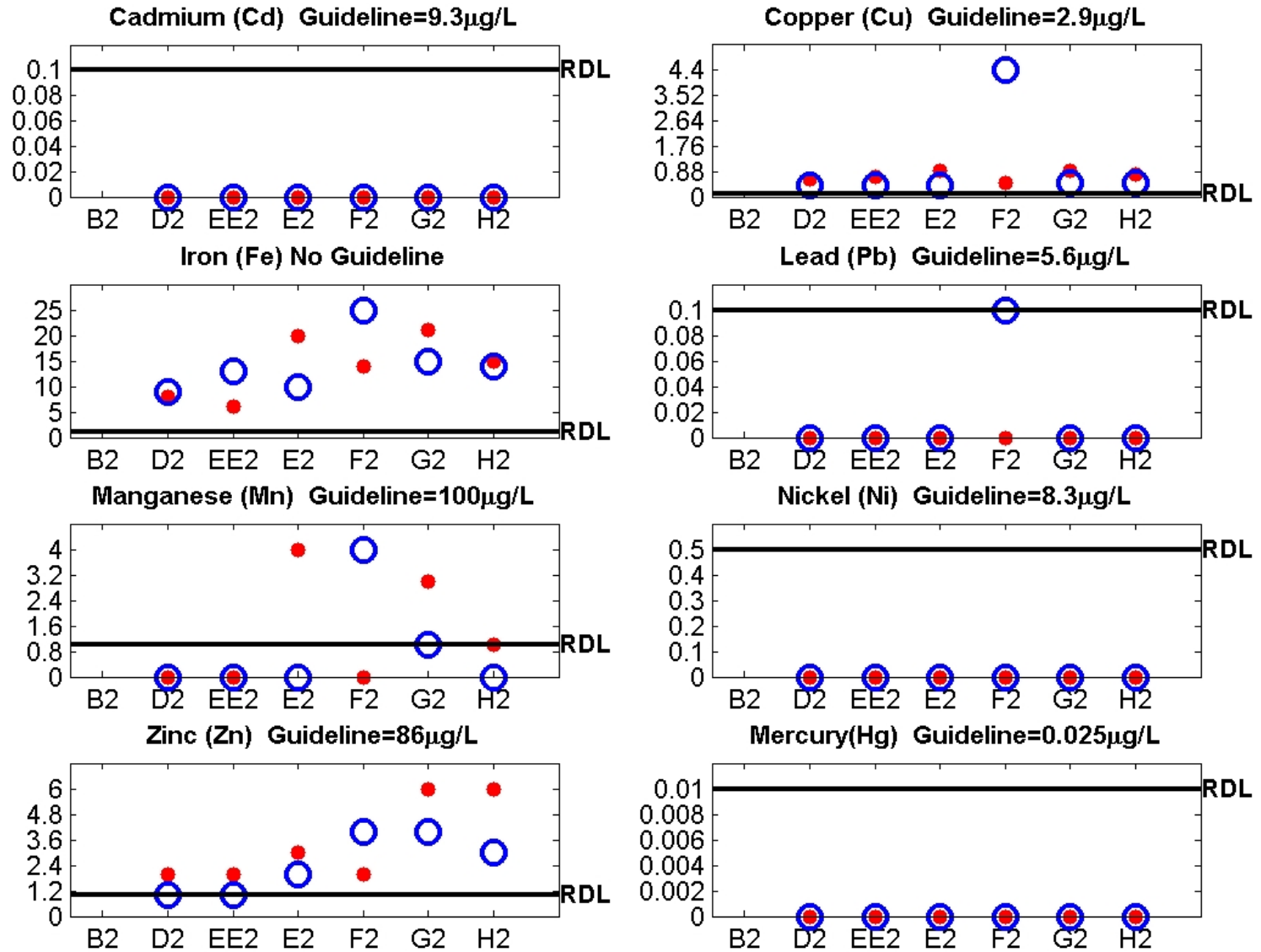
Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Nov19





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

HRM Water Quality Monitoring

Fecal Coliform Summary – November 19, 2008

