

Halifax Harbour Water Quality Monitoring Project Survey Summary #138

Survey Date: 12 September 2007
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report138_070912.doc
Data File: HHWQMP_data138_070912.xls

Data Return:

Profile: 100%
 Bacteria: 100%
 Chemical: 100%
Overall: 100%

Sample Notes:

The project CTD is back in service after factory calibration.

QA/QC samples:

Detectable Parameter		Units	G2-10m	
			Reference Sample	QA/QC
Ammonia (as N)		mg/L	0.06	0.09
Total Suspended Solids		mg/L	6.7	3.8
Copper		ug/L	1.1	0.4
Iron		ug/L	19	9
Manganese		ug/L	5	1
Zinc		ug/L	2	2

Fecal Coliform (CFU/100ml)

Site	E1-10m	H1-1m	RNSYS-10m	G2-10m
Reference	500	240	46	300
QA/QC	850	390	130	310

Comments:

General: The fresher surface features evident in the previous survey have dissipated leaving the harbour saltier and generally less density stratified. The top 10m of the Inner Harbour is notably well mixed. The exception is in the northern Basin where the conditions remain stratified, likely due to the moderate rainfall (20 mm) the previous day. Fecal coliform values are generally quite high with the distribution displaced up-harbour. In the Basin, the higher values tend to be in the near surface samples, except in the most northerly section (H). This implies some combination of up-harbour surface transport, ongoing bypass input from the Fairview cove CSO and/or some unusual northern Basin input (e.g. Sackville River or Mill Cove STP). The exceptionally high value in the 1m sample at EE3 corresponds to field notes that the sample was taken in the visible plume from the Peace Pavilion outfall.

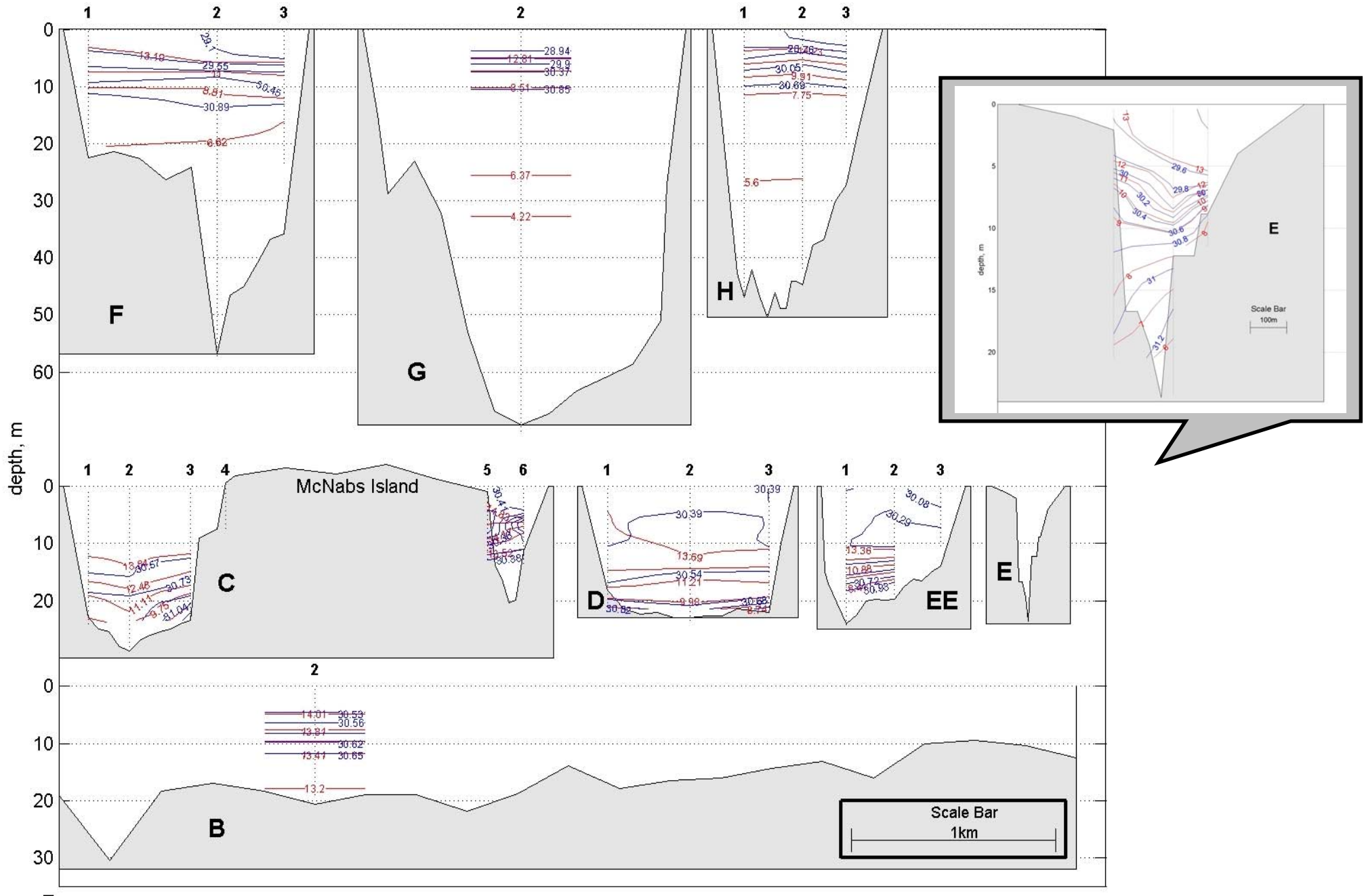
Fluorescence: The phytoplankton activity seems to continue, with maximum fluorescence values in the Basin on the order of 30 mg/m³. The near-surface values are in the teens and 20's leading to the observation of a visible green cast to the surface water. The Inner Harbour values have dropped to less than half those of the previous survey. Most notable is that the near surface values are significantly lower (<10 mg/m³) than in recent surveys. The profile maximum values occur at depths of 9-18 m. In the Outer Harbour the maximum levels remain at 5-6 mg/m³.

Ammonia: The NH₃ has dropped from recent surveys with half the values below the 0.05 mg/L detection limit and no values >0.09 mg/L. Not unusually, the highest values are in the 10m samples in the Basin.

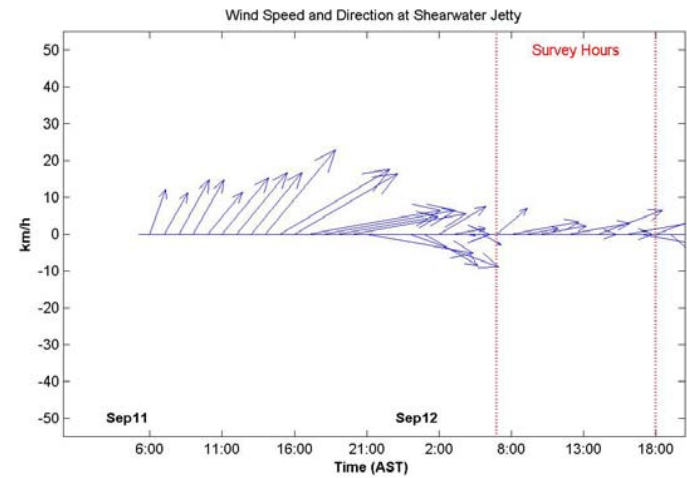
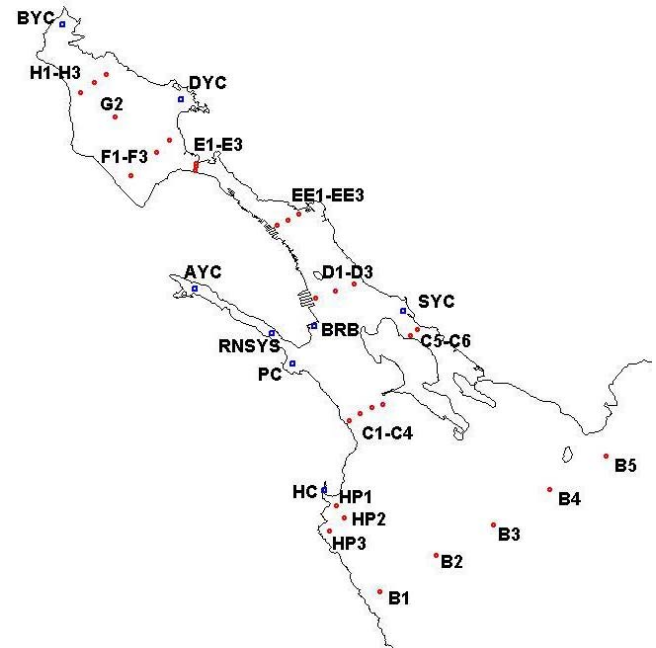
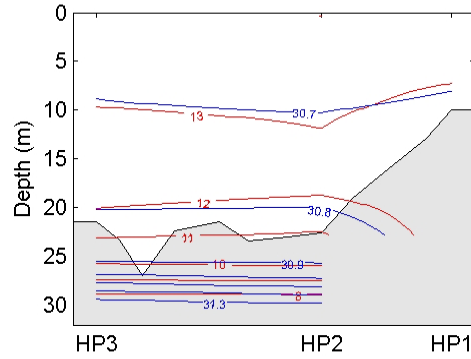
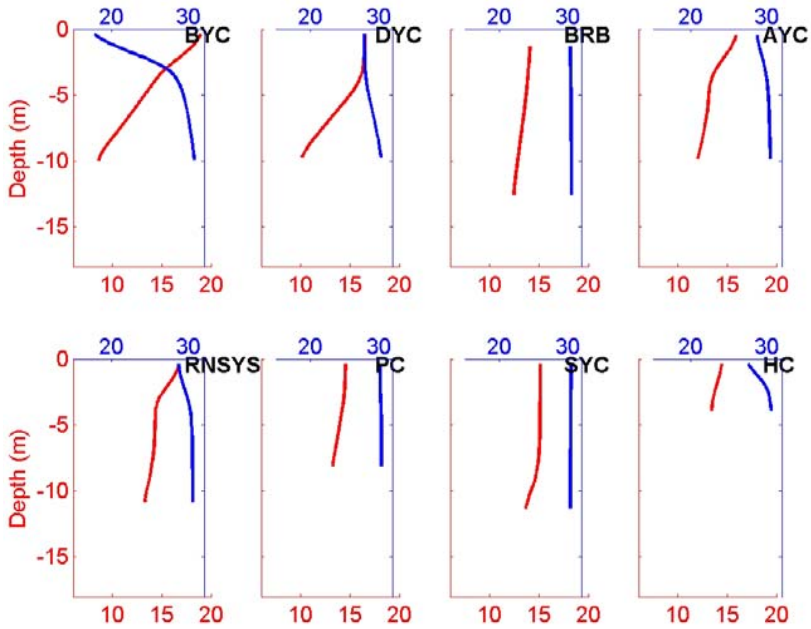
TSS: TSS is relatively high in the northern Inner Harbour and Basin, with most values > 4.0 mg/L. The highest values (approx 7 mg/L) are at the head of the Basin.

Dissolved Oxygen: In the Basin the maximum dissolved oxygen (DO) is still at or near the surface but the values have dropped by 1-2 mg/L from last survey's high values. South of the Narrows, the DO is relatively uniform between 8.0 – 9.2 mg/L. and there is a maximum of 9-9.2 mg/L at a water depth varying from 10 – 17 m, going from the Inner to Outer Harbour. The only values below the use specific guidelines are the deeper waters (>35 m) of the Basin that are below 7 mg/L. The DO data is not ground-truthed, however, this data was obtained with a just factory calibrated instrument. (see DO discussion in QR#1).

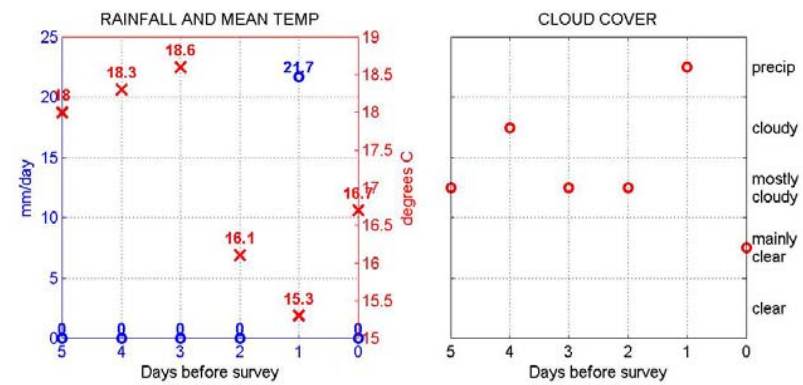
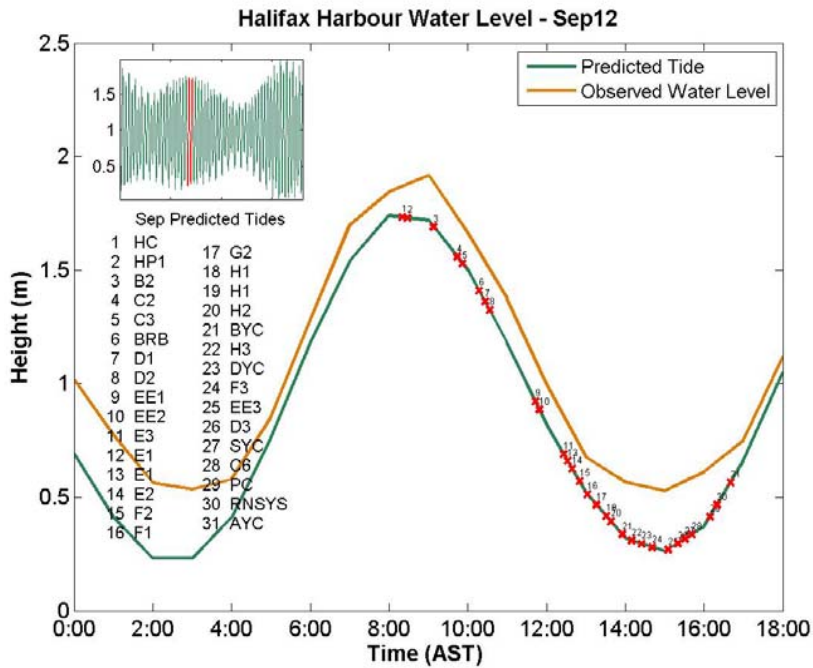
Metals: There is a single value of mercury (0.05 ug/L) at E2-1m which exceeds the 0.025 ug/L environmental quality guideline.



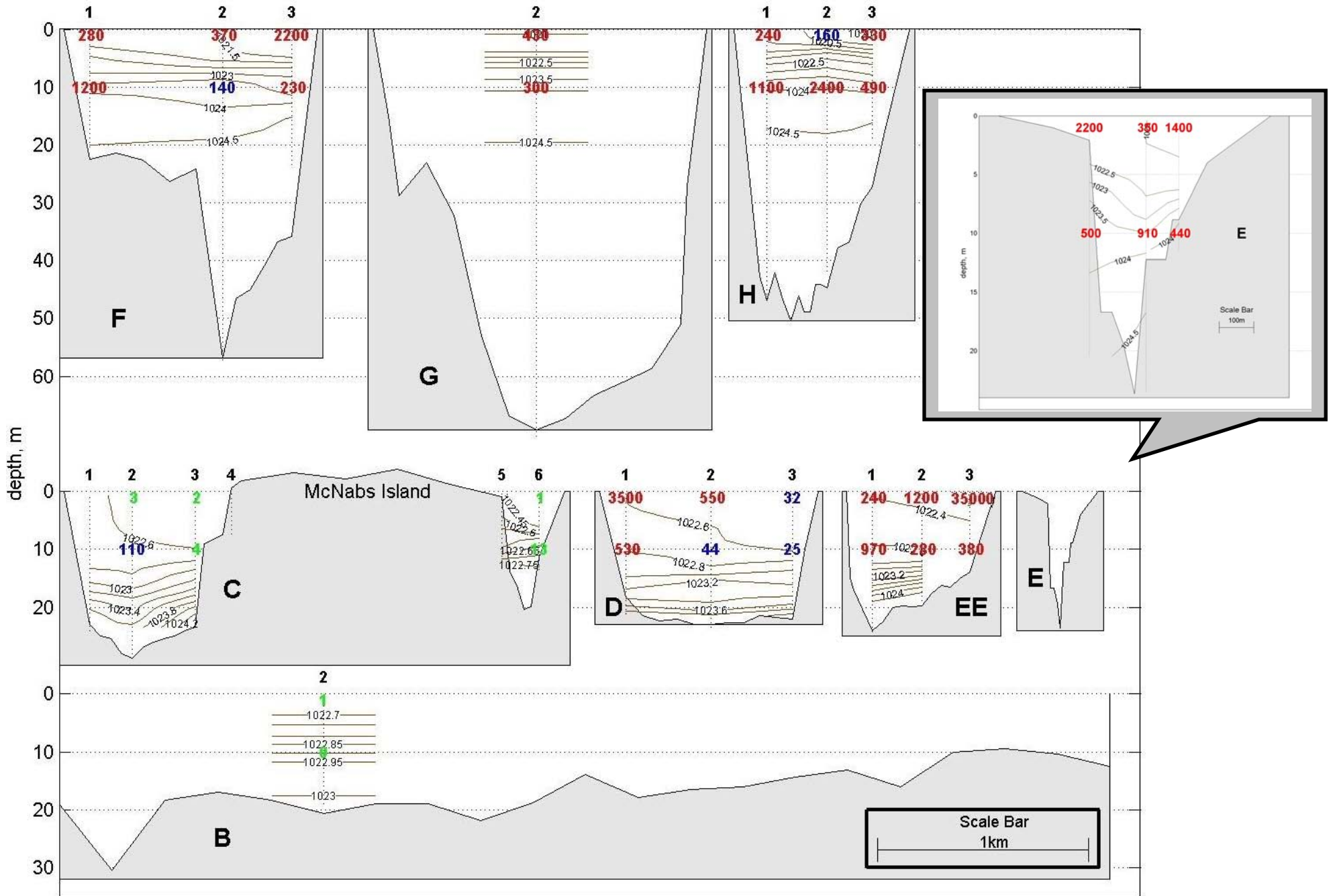
Yacht Clubs



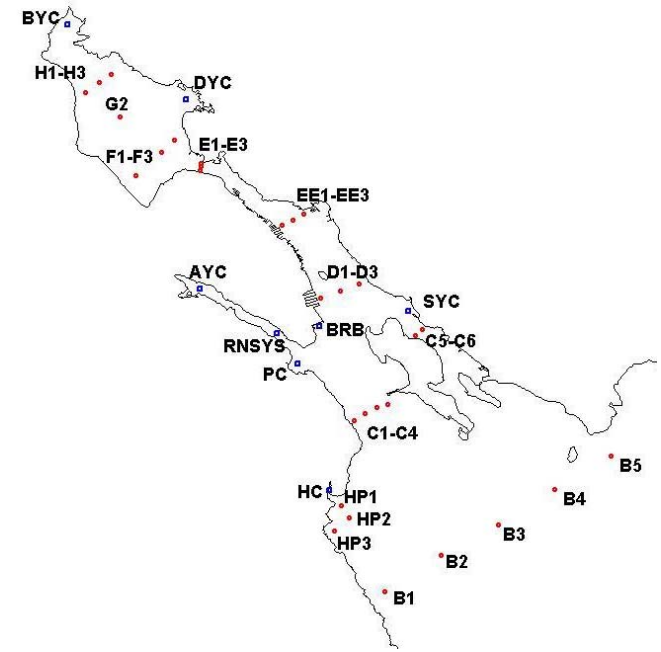
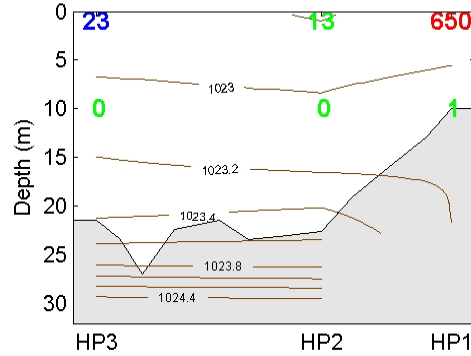
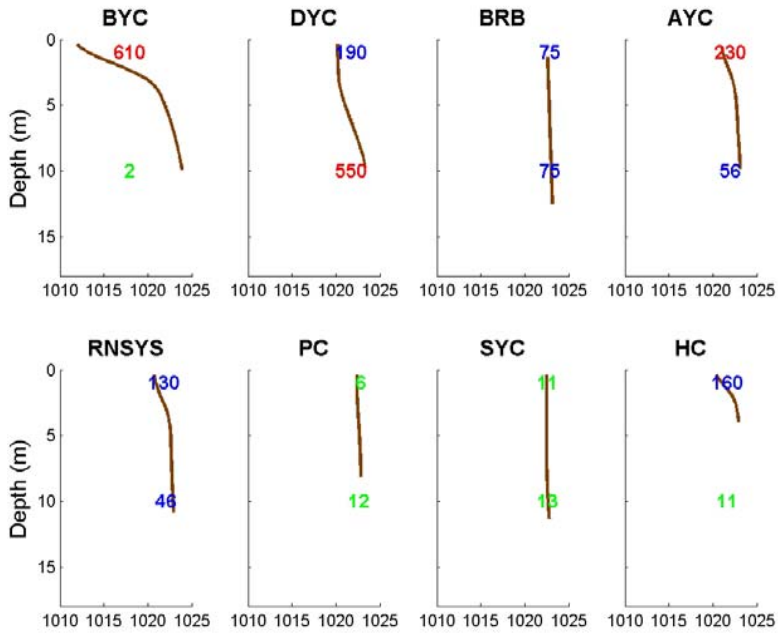
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



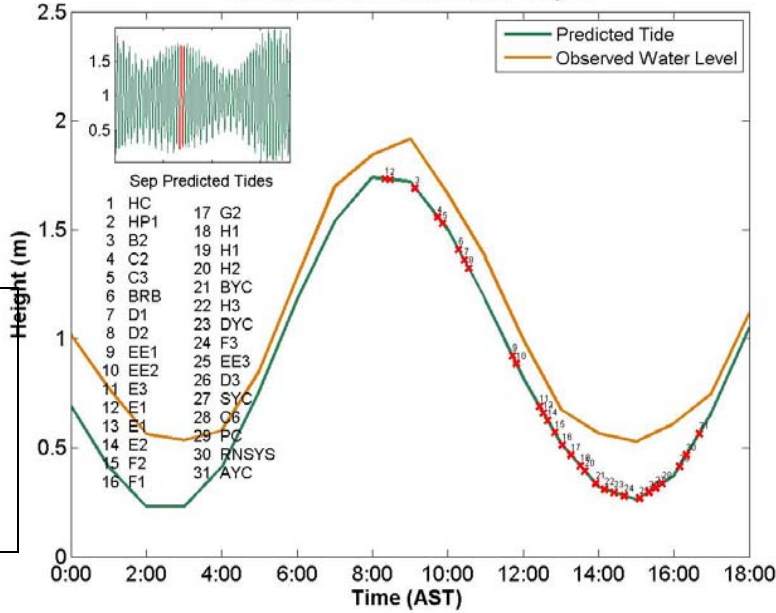
Salinity in PSU Temperature in °C



Yacht Clubs



Halifax Harbour Water Level - Sep12

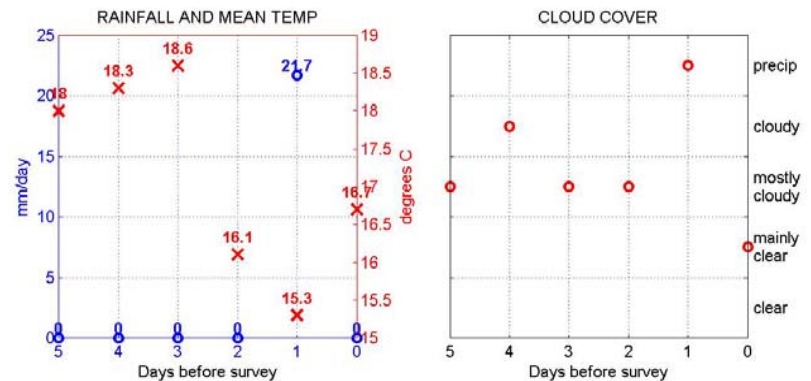
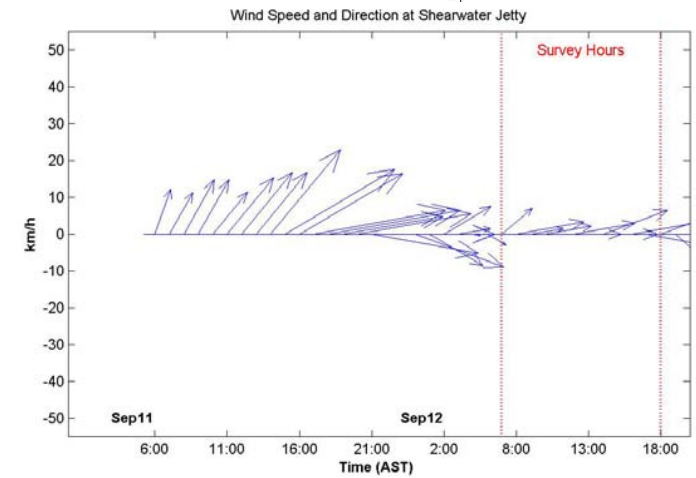


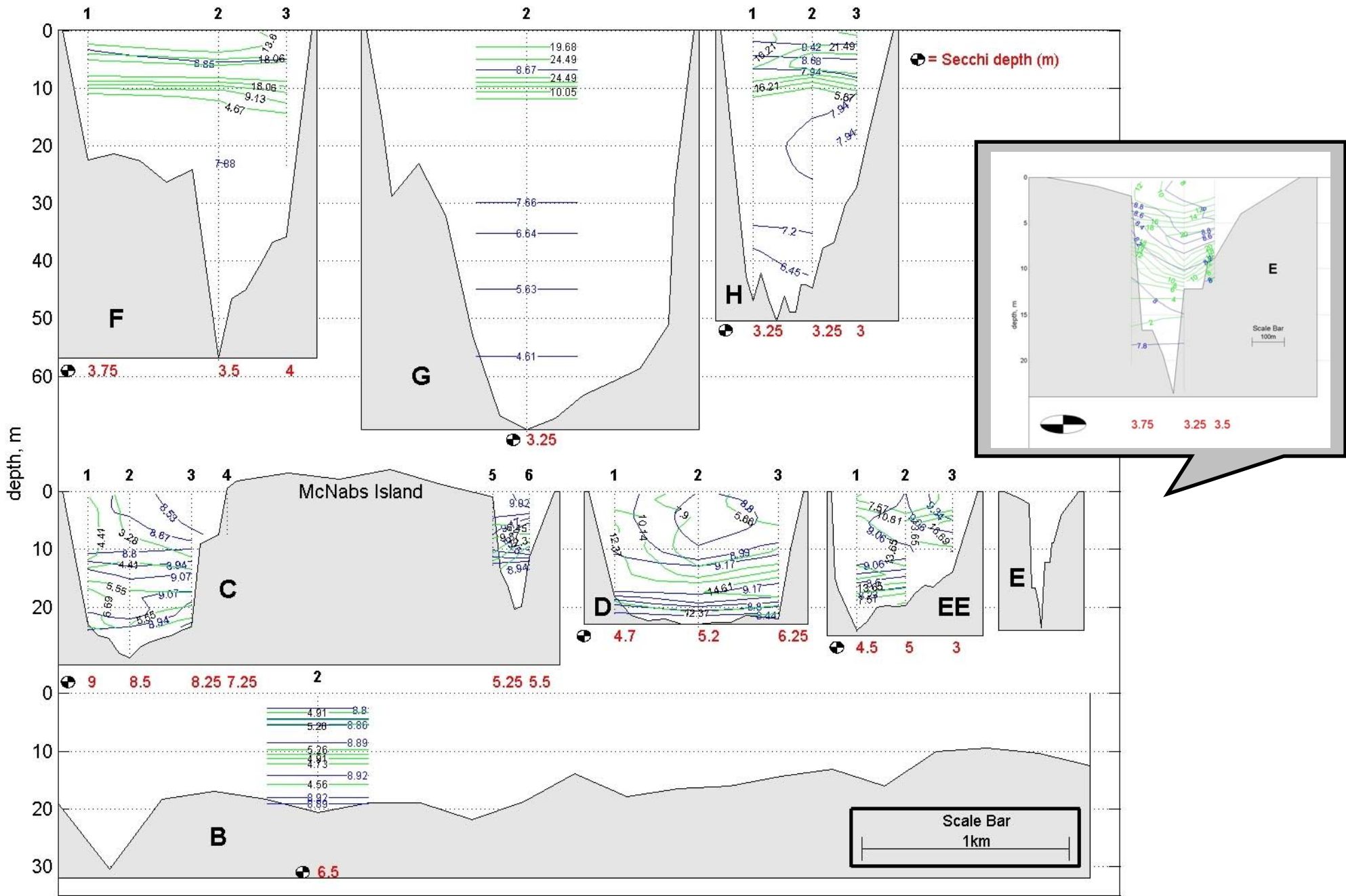
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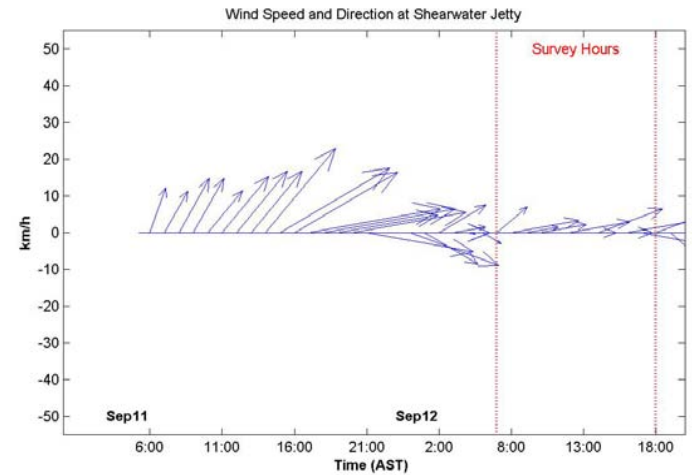
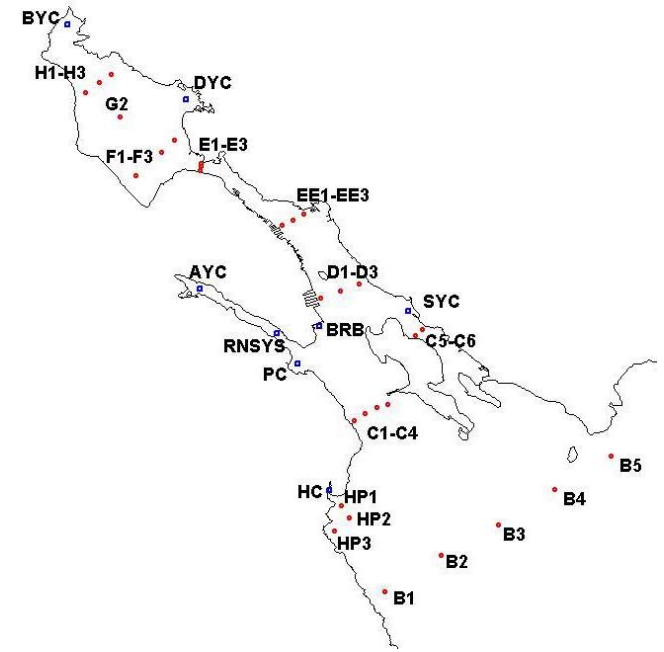
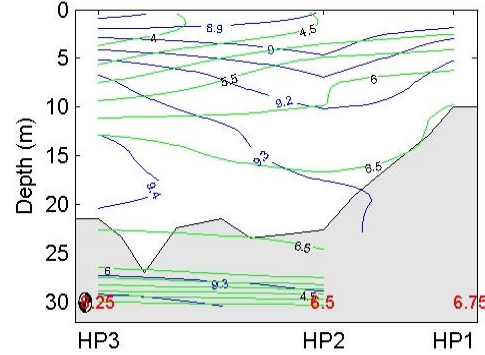
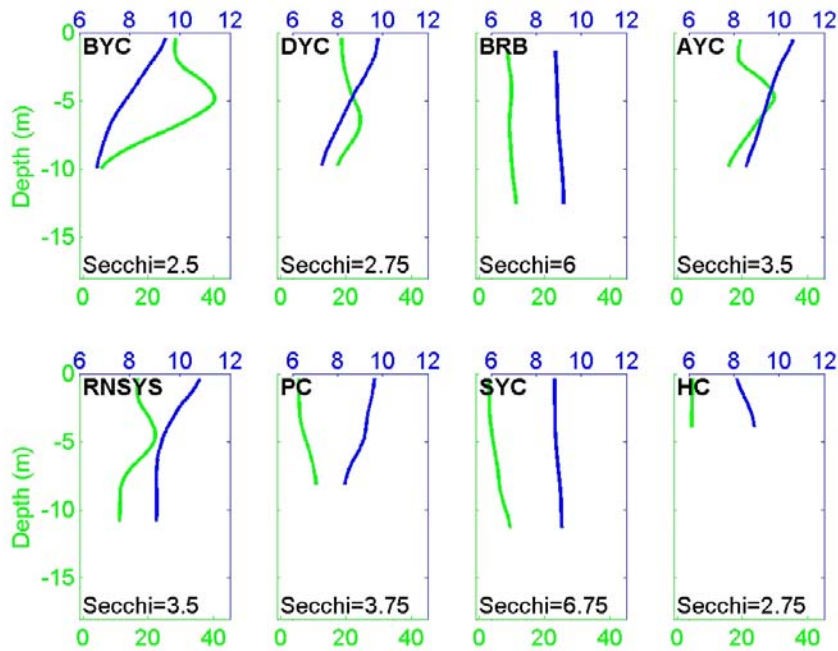
Potential Density in kg/m^3

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

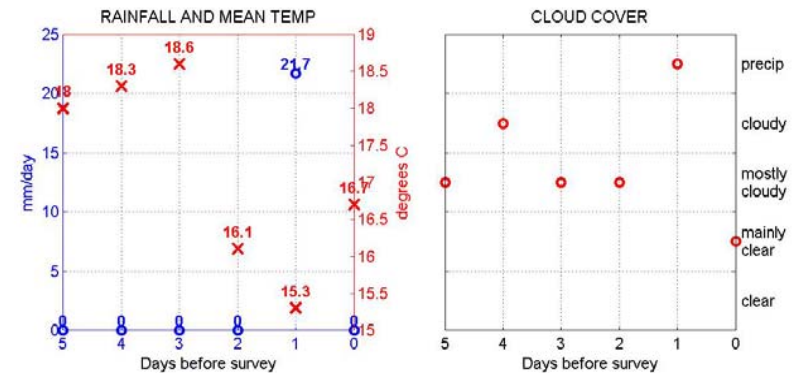
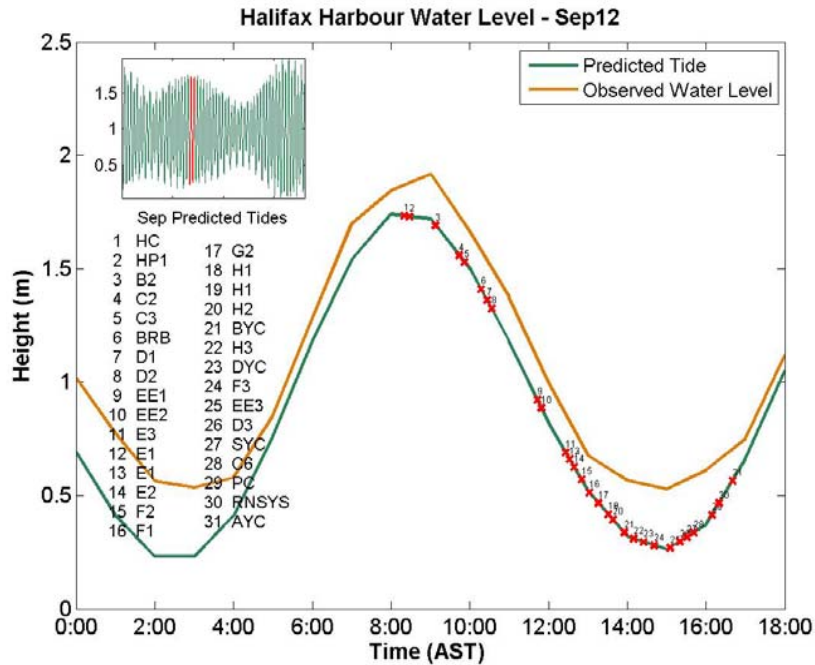




Yacht Clubs



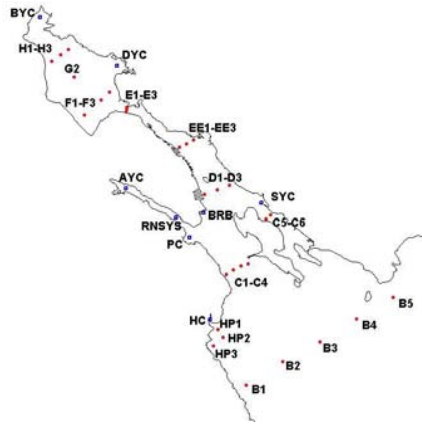
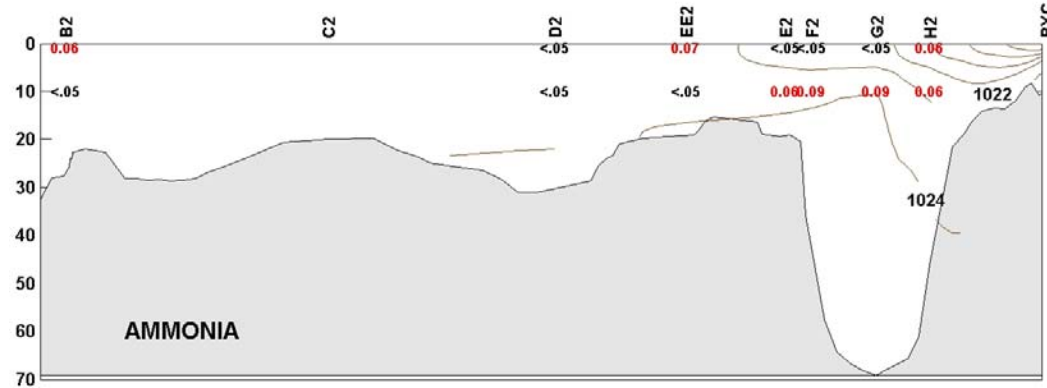
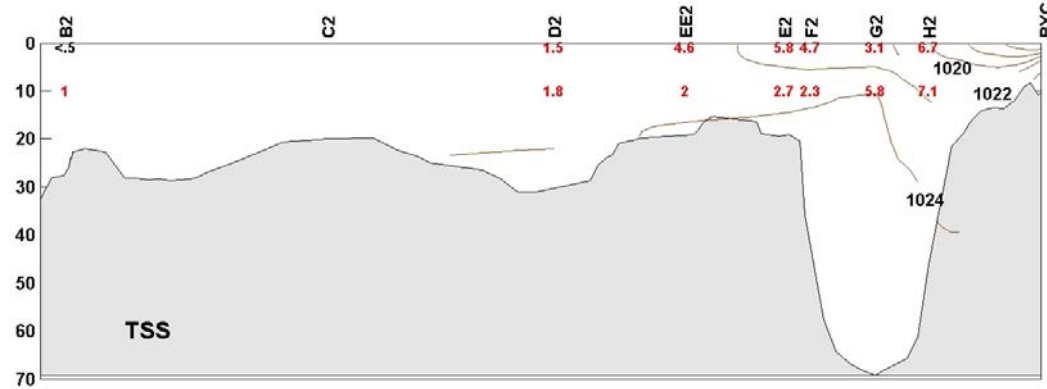
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DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



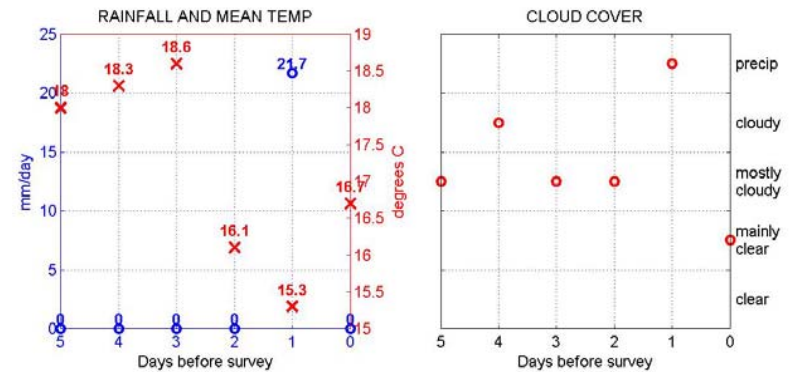
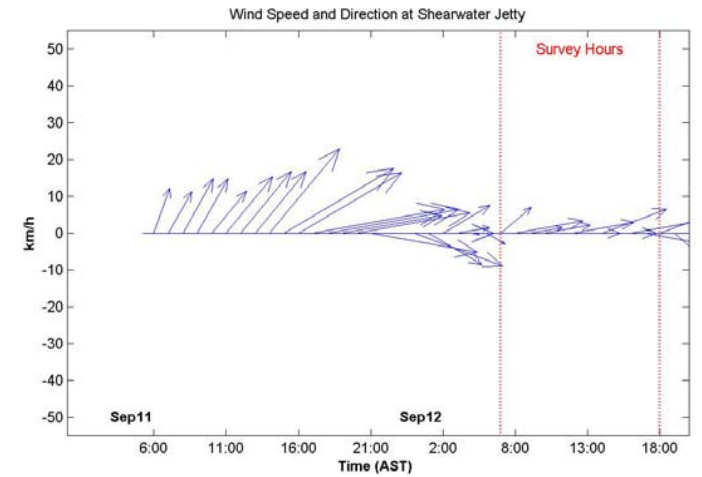
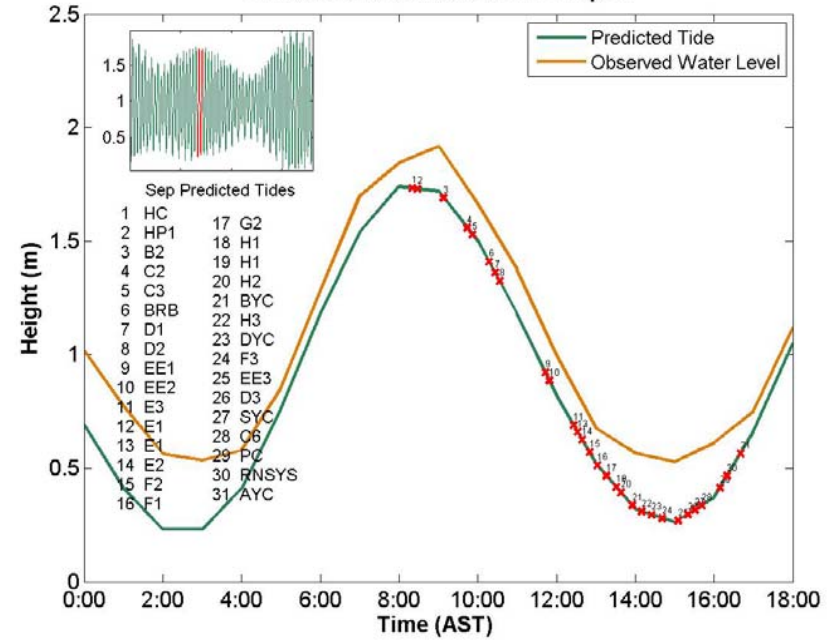
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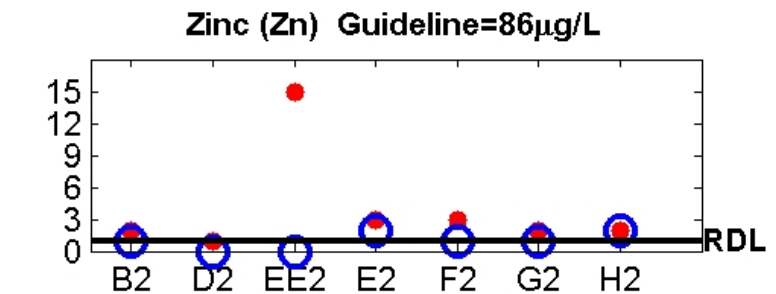
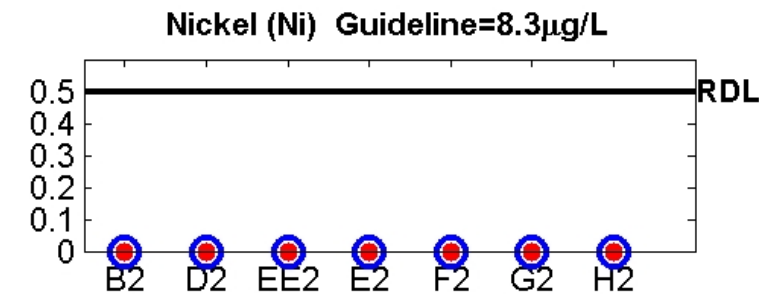
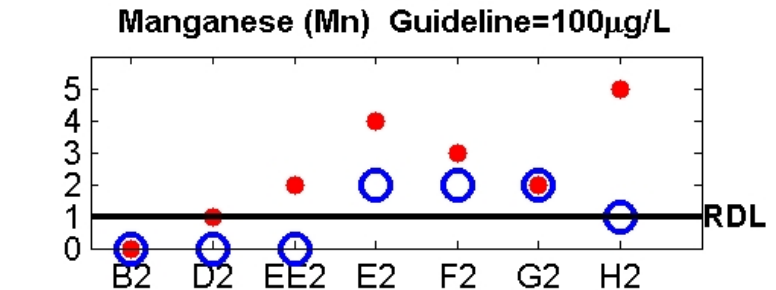
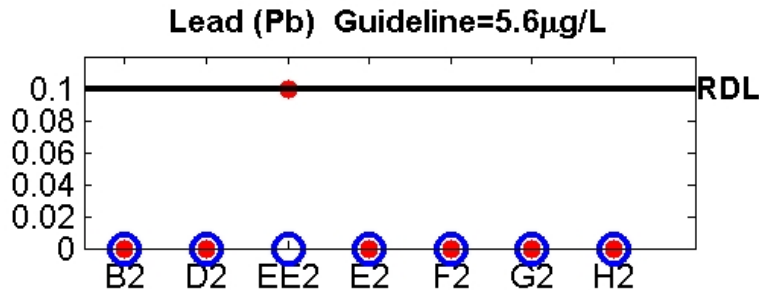
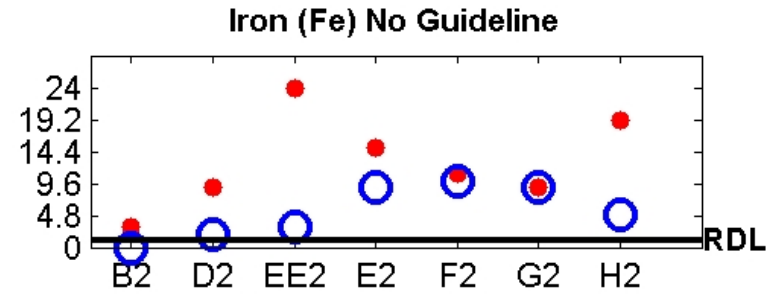
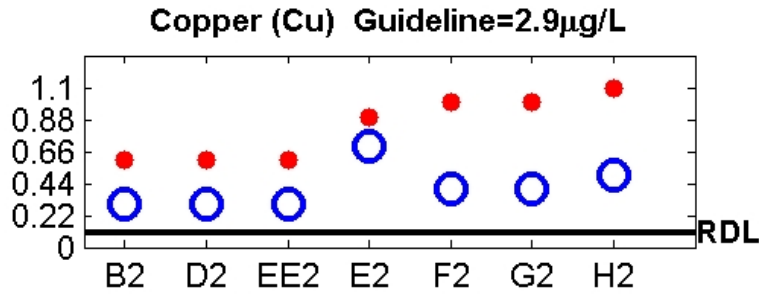
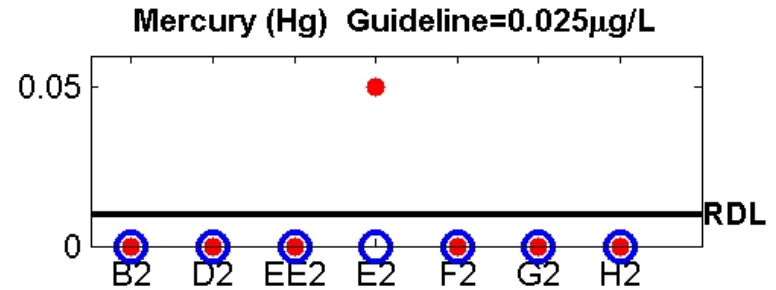
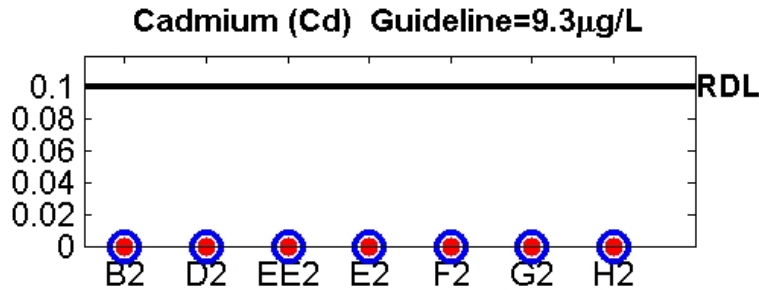
Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Sep12





LEGEND

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