

Halifax Harbour Water Quality Monitoring Project Survey Summary #165

Survey Date: 23 September 2008
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report165_080923.doc
Data File: HHWQMP_data165_080923.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 15:40 local time.

SYC profile data is missing due to a processing error.

Profiles at stations B2 and E1 had small spikes in the DO data. These have been edited out.

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

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		B2 – 1m	
		Reference Sample	QA/QC
Detectable Parameter	Units		
Ammonia (as N)	mg/L	0.11	0.1
Total Suspended Solids	mg/L	1.8	1.7
Copper	ug/L	0.5	0.3
Iron	ug/L	2	6
Zinc	ug/L	3	1

Fecal Coliform (CFU/100ml)

Site	EE3-10m	BYC-10m	C2-1m	B2-10m
Reference	110	4	ND	ND
QA/QC	110	4	ND	ND

Comments:

General: The weather has been dry. The Harbour is only slightly stratified, the change from last survey is primarily due to the increased salinity and decreased temperature (roughly 2- 5° C) of the surface water.. The fecal coliform levels are low with only one value (EE1-10 m) in the Inner Harbour being above the 200 cfu/100 mg/L swimming guideline. There is also one exceedence of the swimming guideline in Herring Cove, likely due to the effect of the Tribune Head outfall.

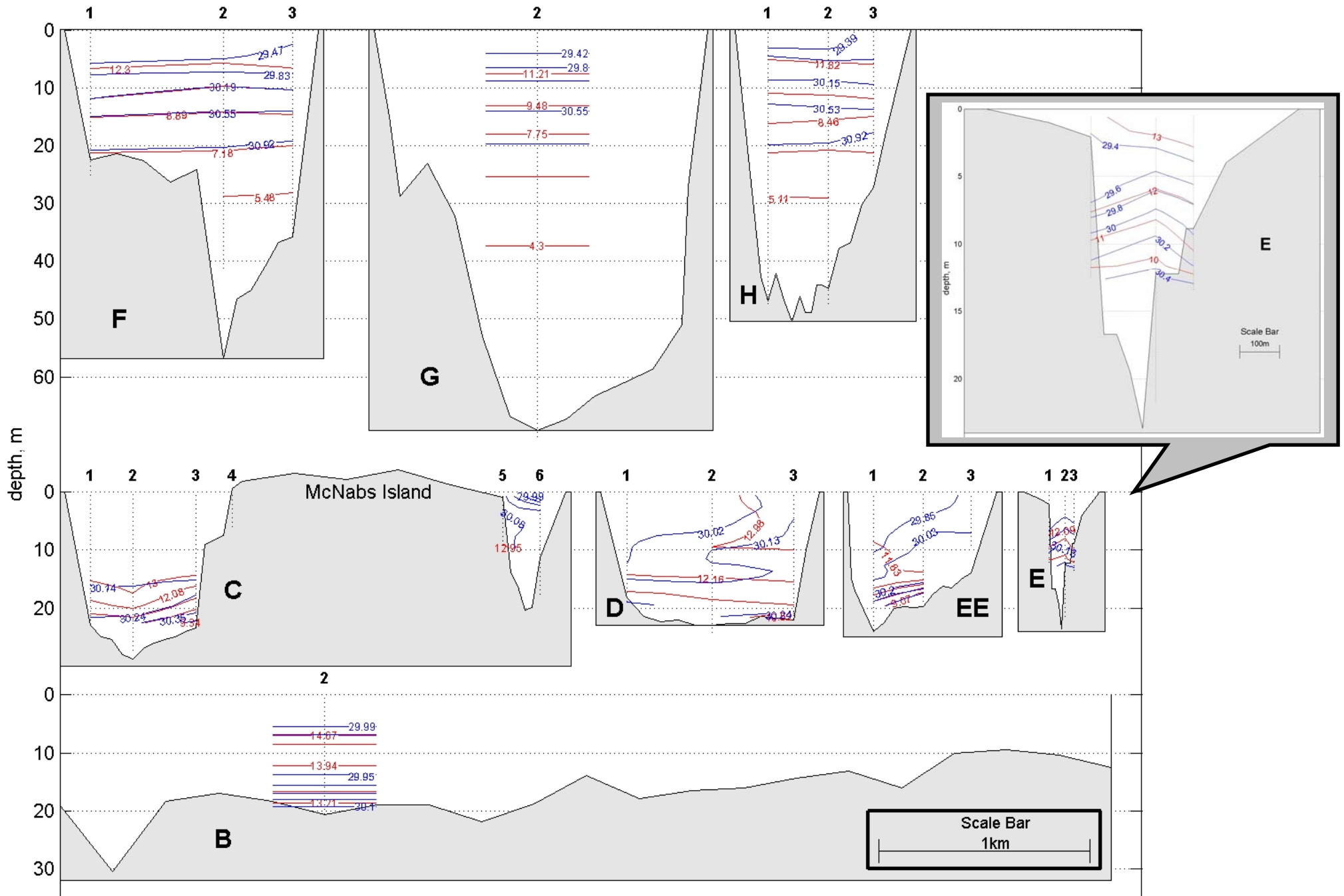
Fluorescence: The fluorescence levels remain slightly elevated throughout the Harbour. The profile maximums are all less than 20 mg/m³ in the Basin and decrease monotonically going out of the Harbour to just over 4 mg/m³ at B2 in the Outer Harbour. This compares to minimal background values of 1-2 mg/m³.

TSS: The TSS levels are relatively low, and quite uniform with all values, except at H2-10m (6.5 mg/L), less than 5 mg/L (mean 2.8 mg/L).

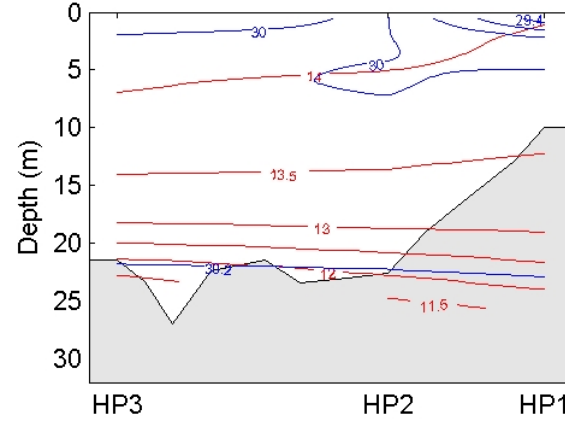
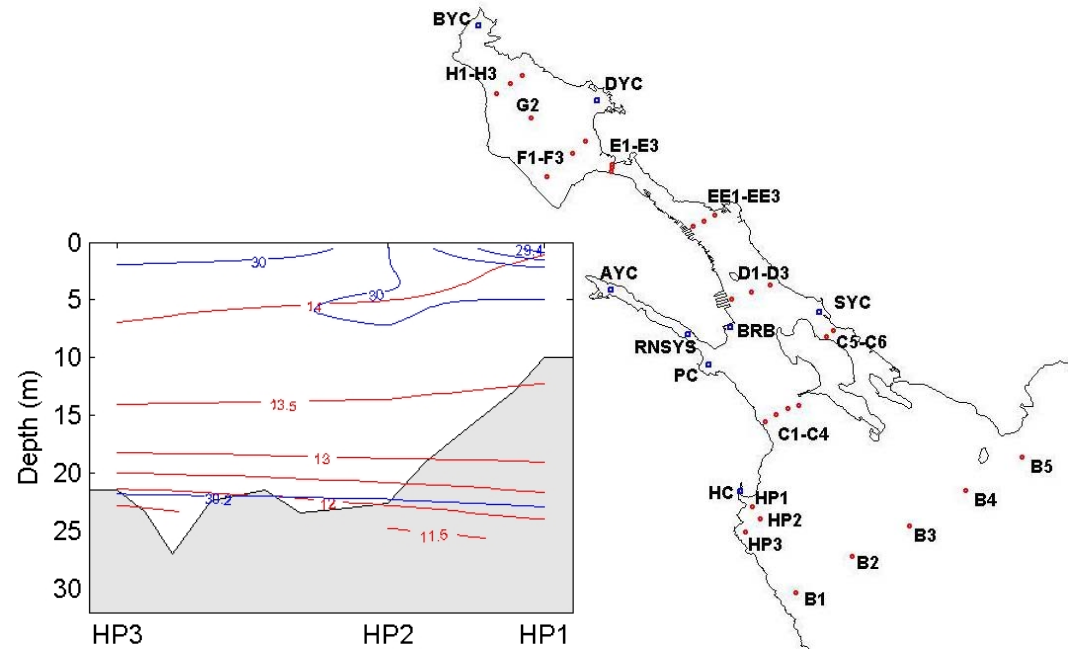
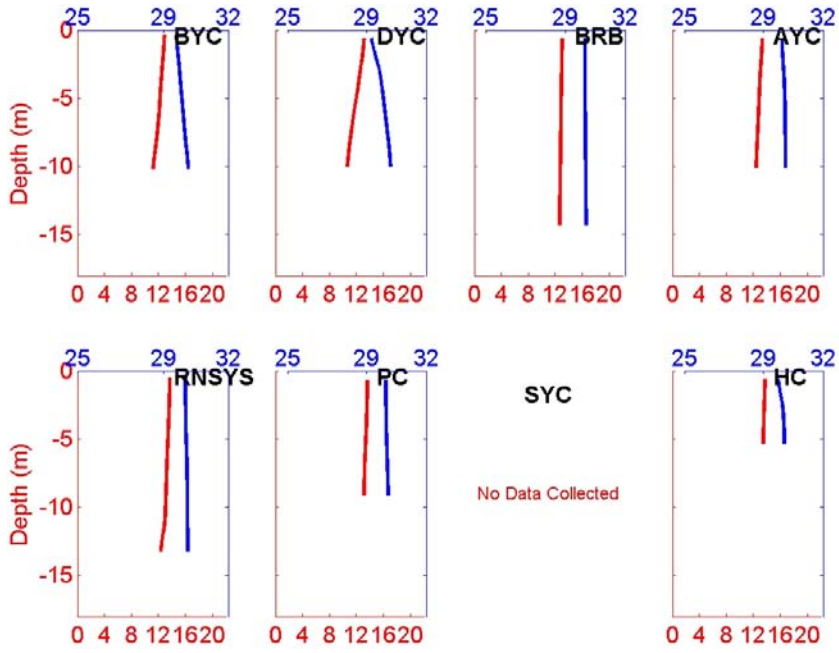
Ammonia: The ammonia levels are relatively high, with all samples having detectable values (>0.05 mg/L) and an overall average of 0.13 mg/L. There is no obvious coherent spatial distribution.

Metals: There are no guideline exceedences. The closest to exceedence is copper with a maximum concentration of about 50% of the guideline in the 1 m samples at sites D2 and EE2..

Dissolved Oxygen: The dissolved oxygen data, scaled appropriately by a factor of 1.3, indicates that the surface DO in the Harbour decreases monotonically from about 9.0 mg/L in the northern Basin to just under 8 mg/L in the Outer Harbour. In most of the Harbour the DO decreases with depth. The exception is in the Outer Harbour where the levels are much more uniform vertically. In the Basin the deepest bottom water is very low at about 2 mg/L, this represents the usual guideline exceedence there. From the Narrows out to section C the bottom water is at about 6.8 mg/L. This represents guideline exceedences in the class SB and SA areas of the Outer Harbour. These levels are above 90% saturation.

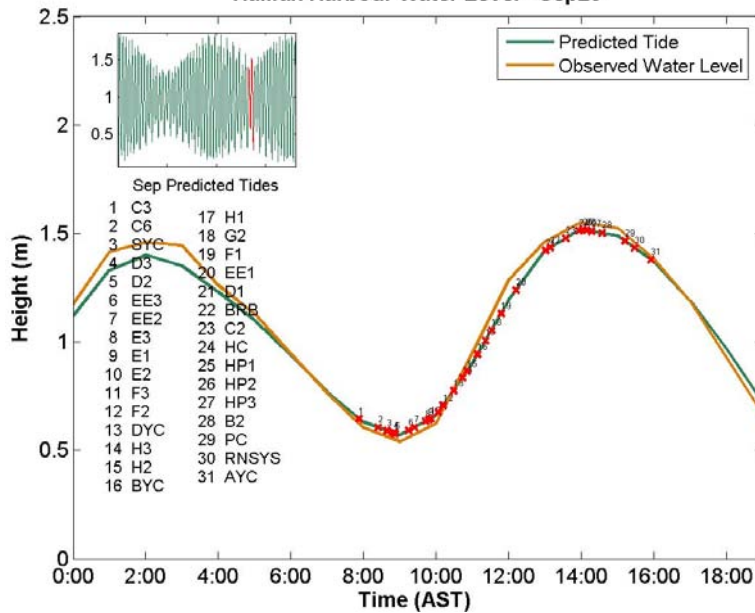


Yacht Clubs

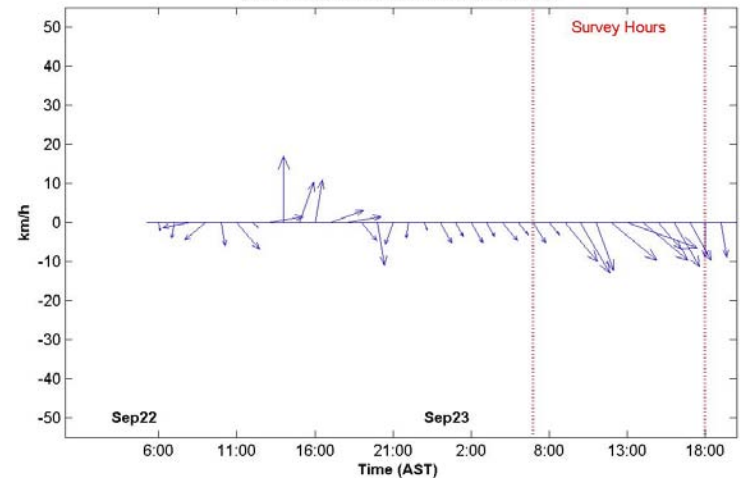


Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport

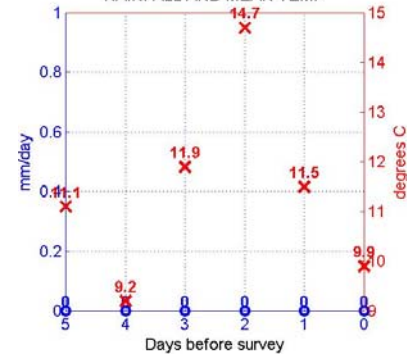
Halifax Harbour Water Level - Sep23



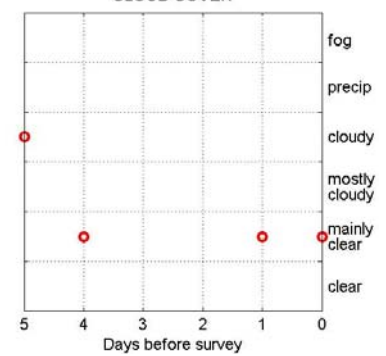
Wind Speed and Direction at Shearwater Jetty



RAINFALL AND MEAN TEMP

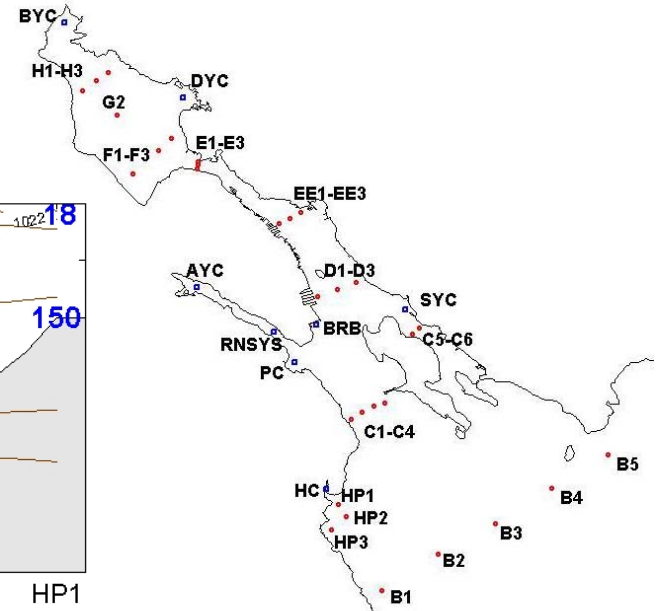
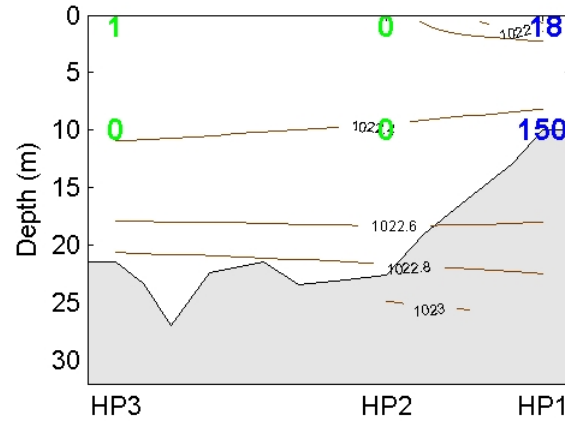
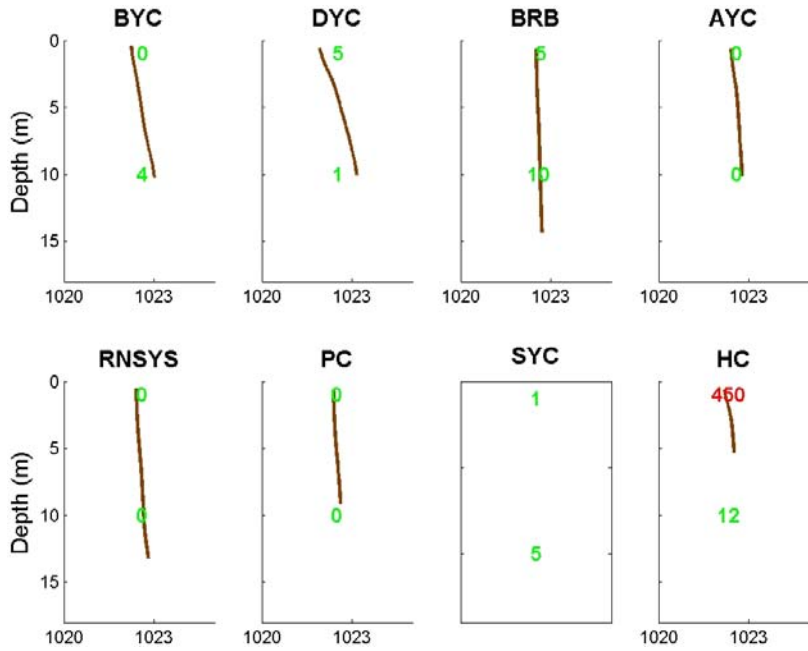


CLOUD COVER

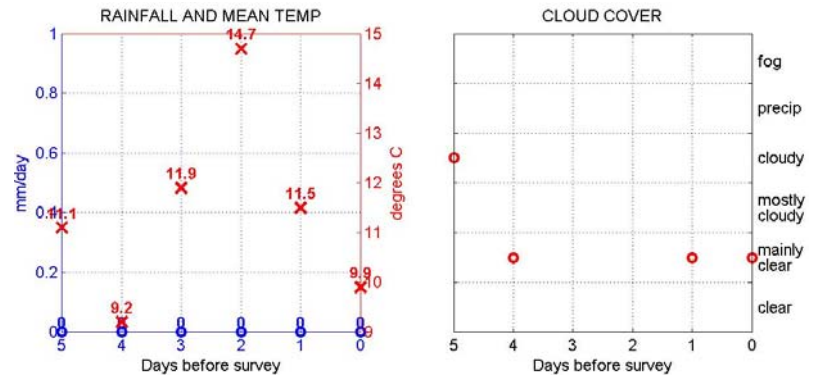
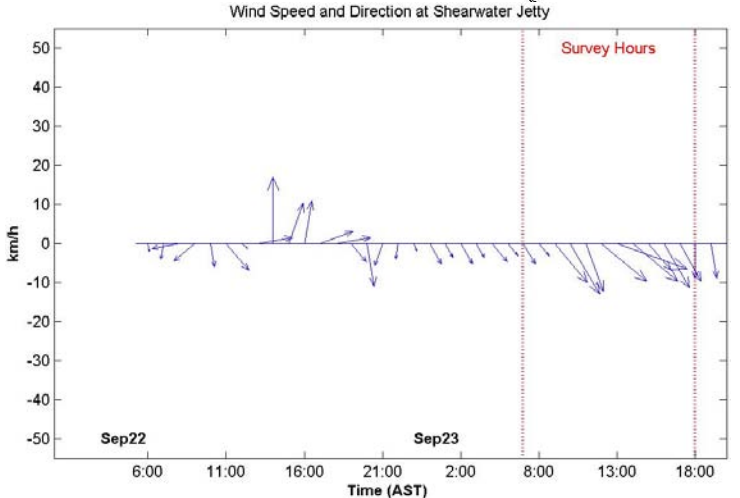
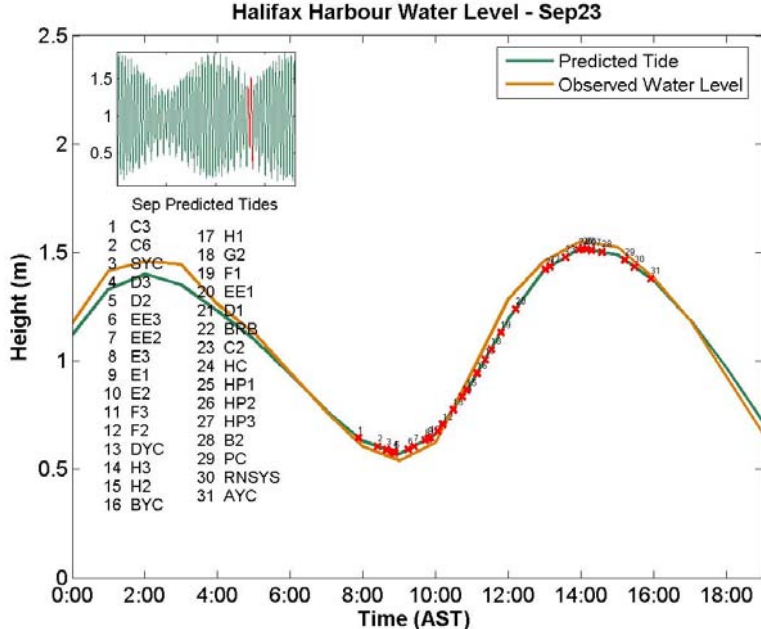


Salinity in PSU Temperature in °C

Yacht Clubs

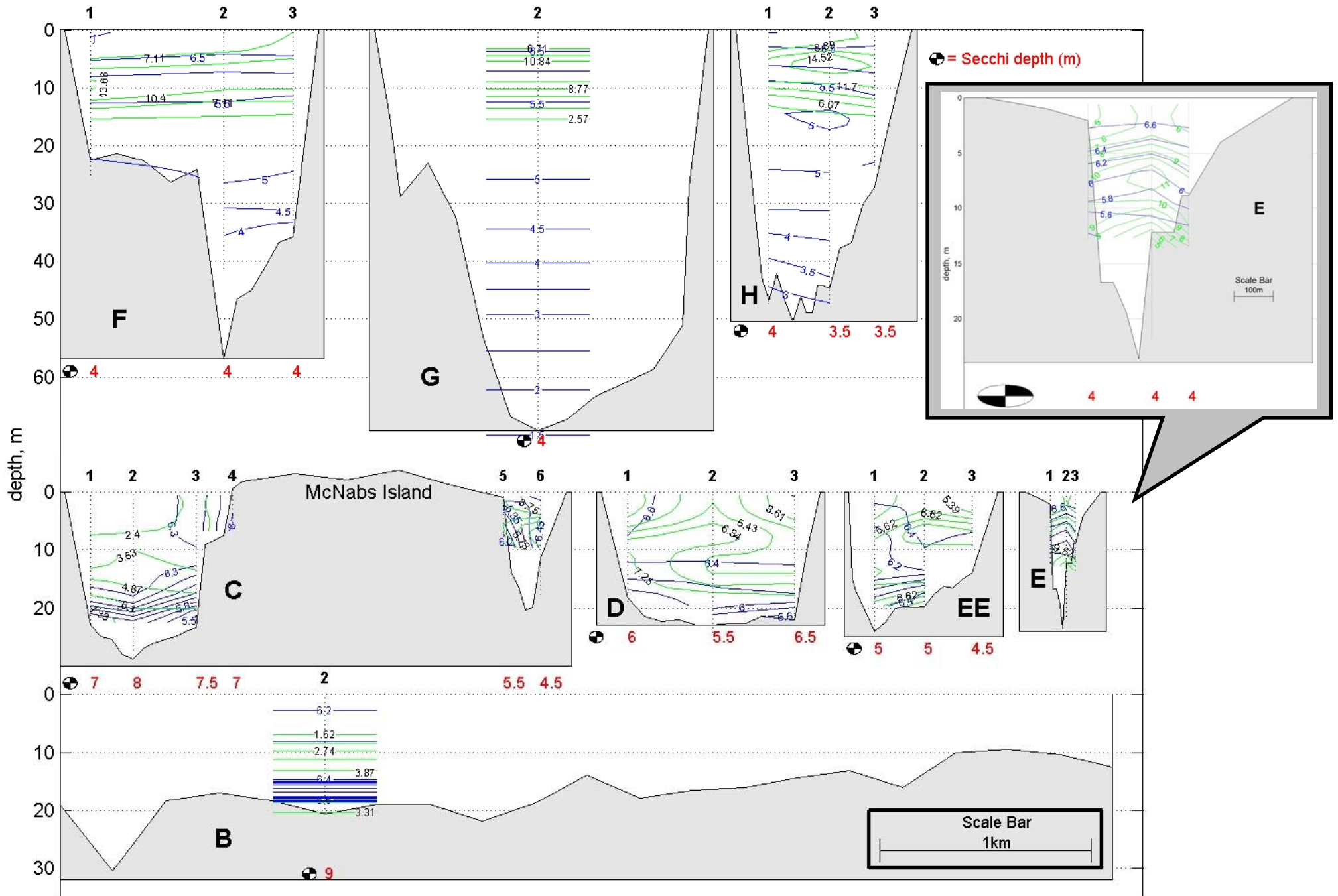


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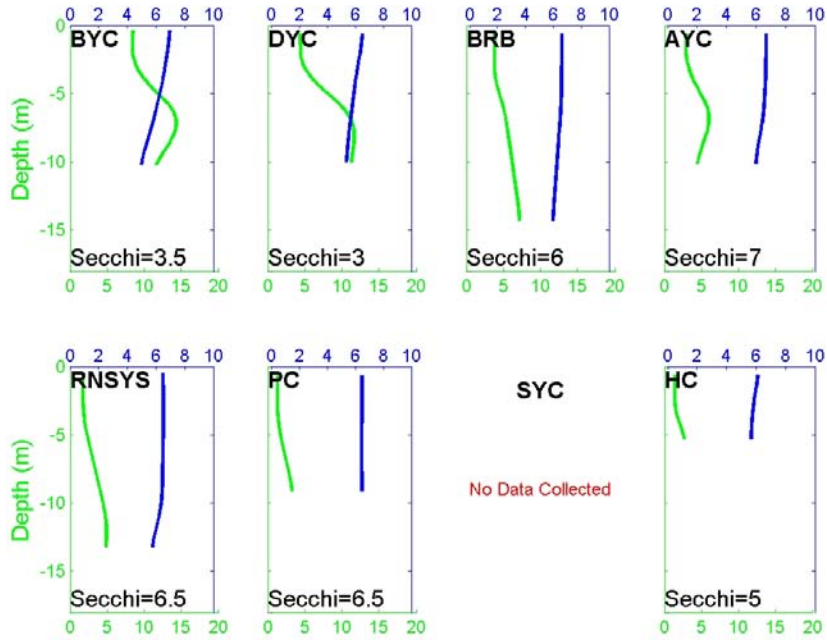


Potential Density in kg/m^3

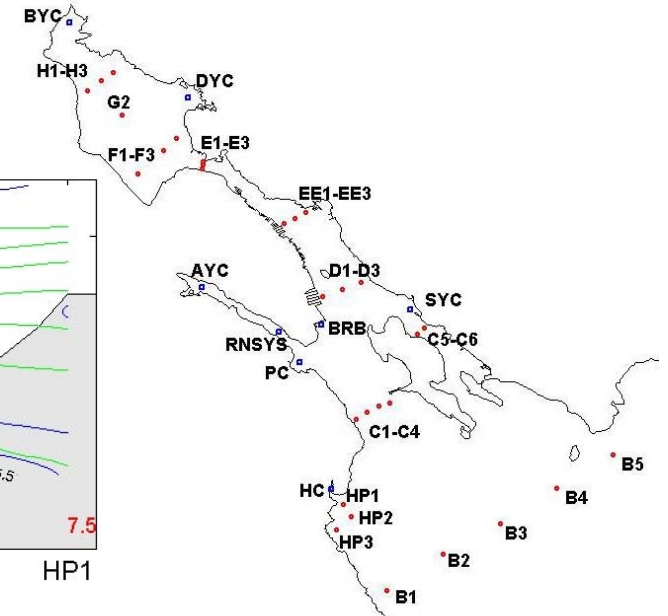
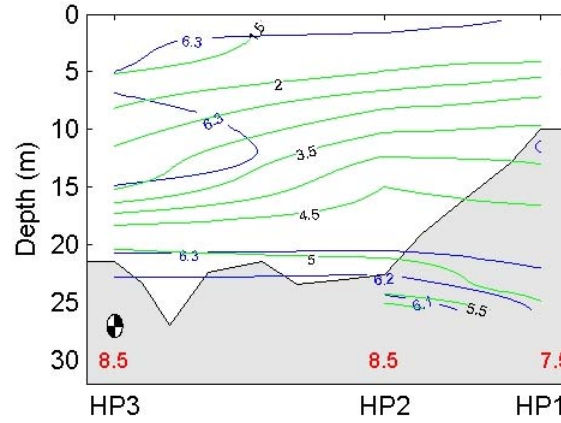
Fecal coliform: **above swimming limit (200 cfu/100mL)**
above shellfish limit (14 cfu/100mL)
below limits



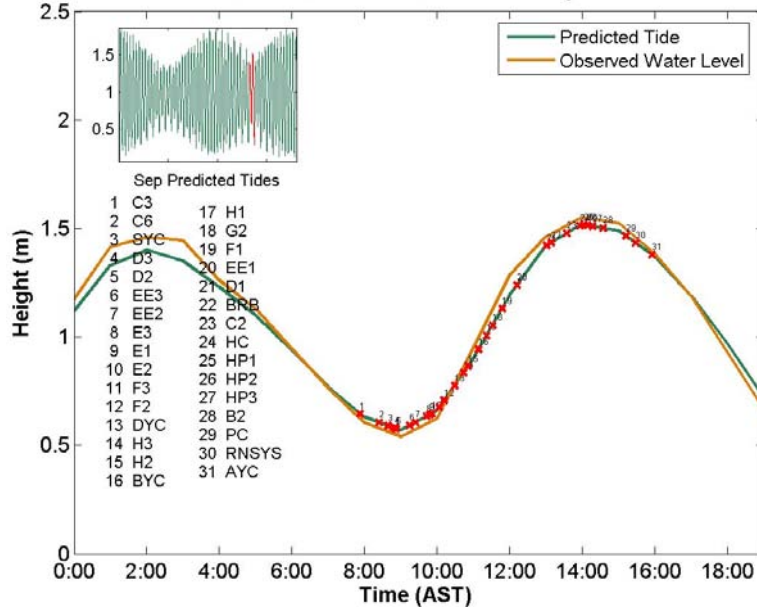
Yacht Clubs



No Data Collected



Halifax Harbour Water Level - Sep23



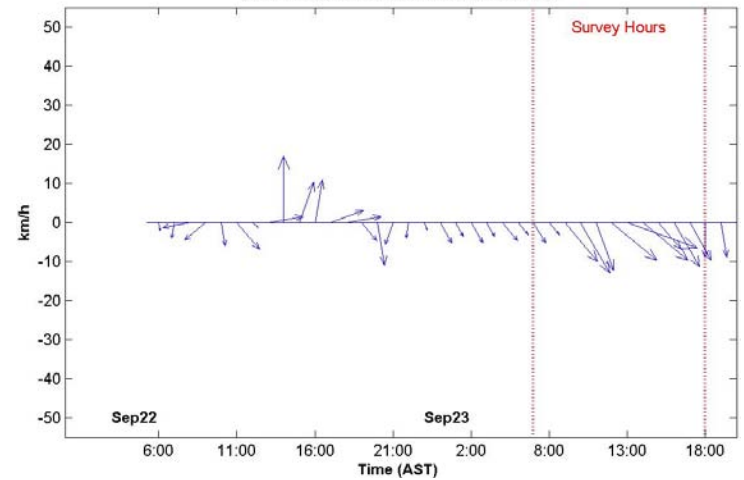
Sep Predicted Tides

1	C3	17	H1
2	C6	18	G2
3	BYC	19	F1
4	D3	20	EE1
5	D2	21	D1
6	EE3	22	BRB
7	EE2	23	C2
8	E3	24	HC
9	E1	25	HP1
10	E2	26	HP2
11	F3	27	HP3
12	F2	28	B2
13	DYC	29	PC
14	H3	30	RNSYS
15	H2	31	AYC
16	BYC		

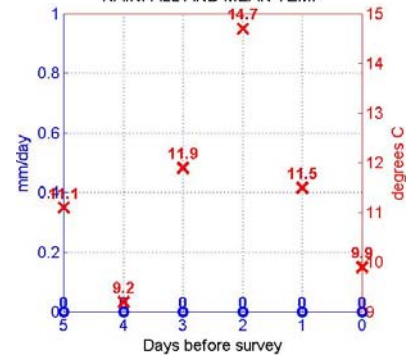
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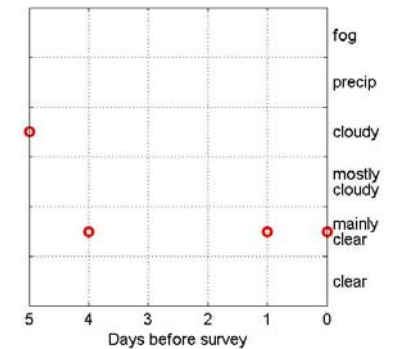
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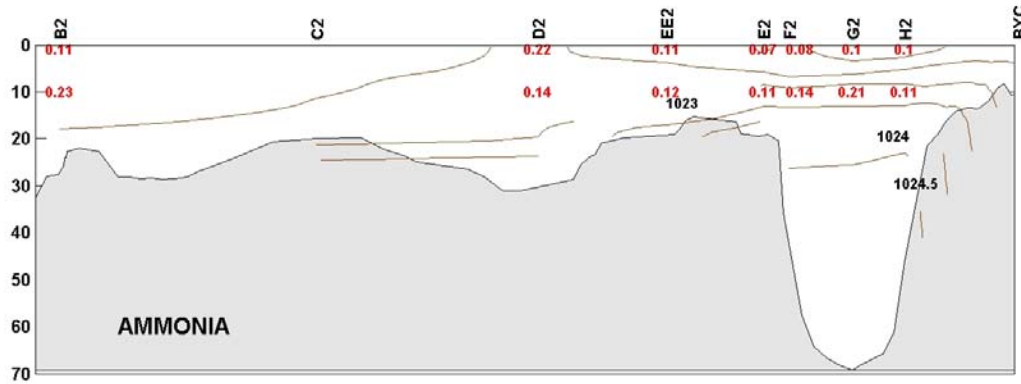
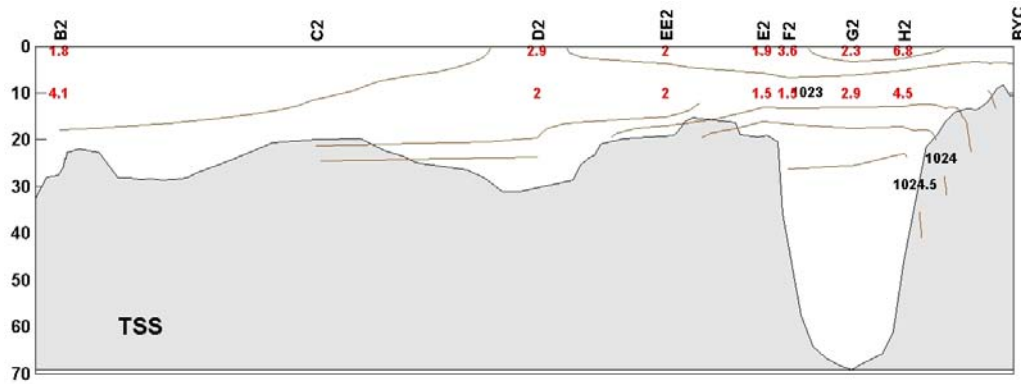
CLOUD COVER



DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



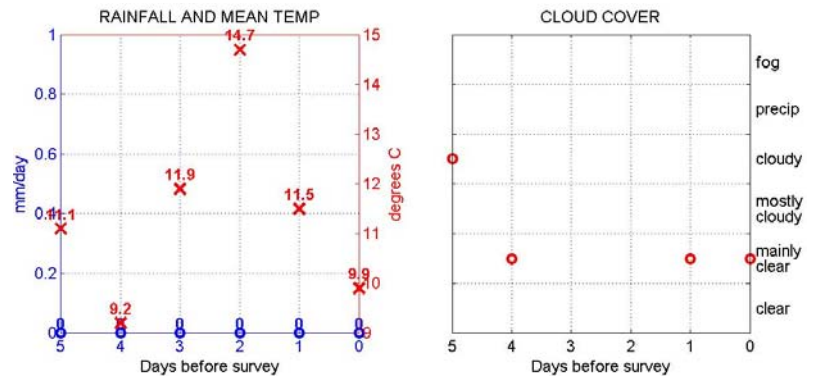
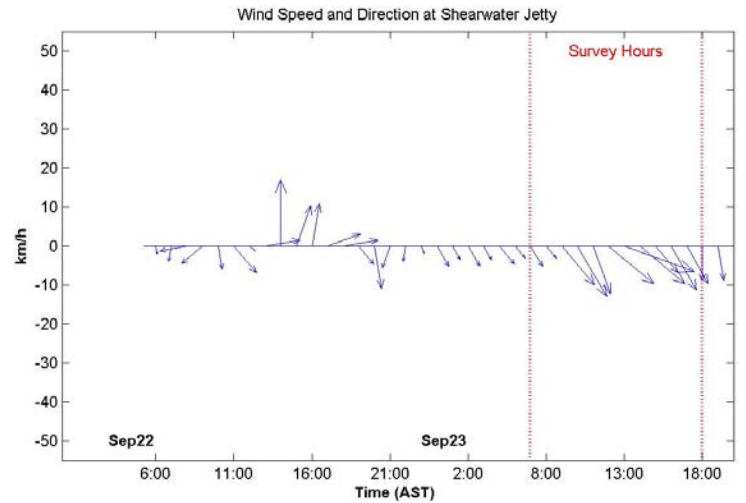
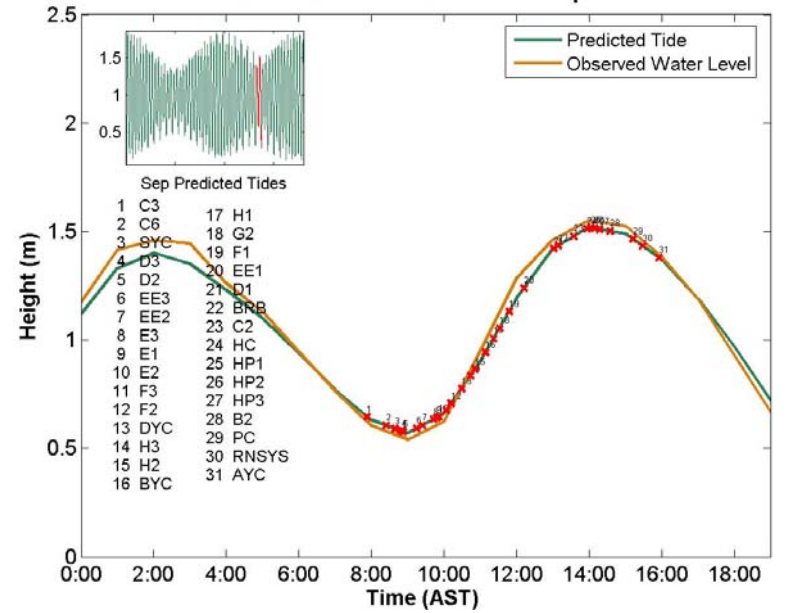
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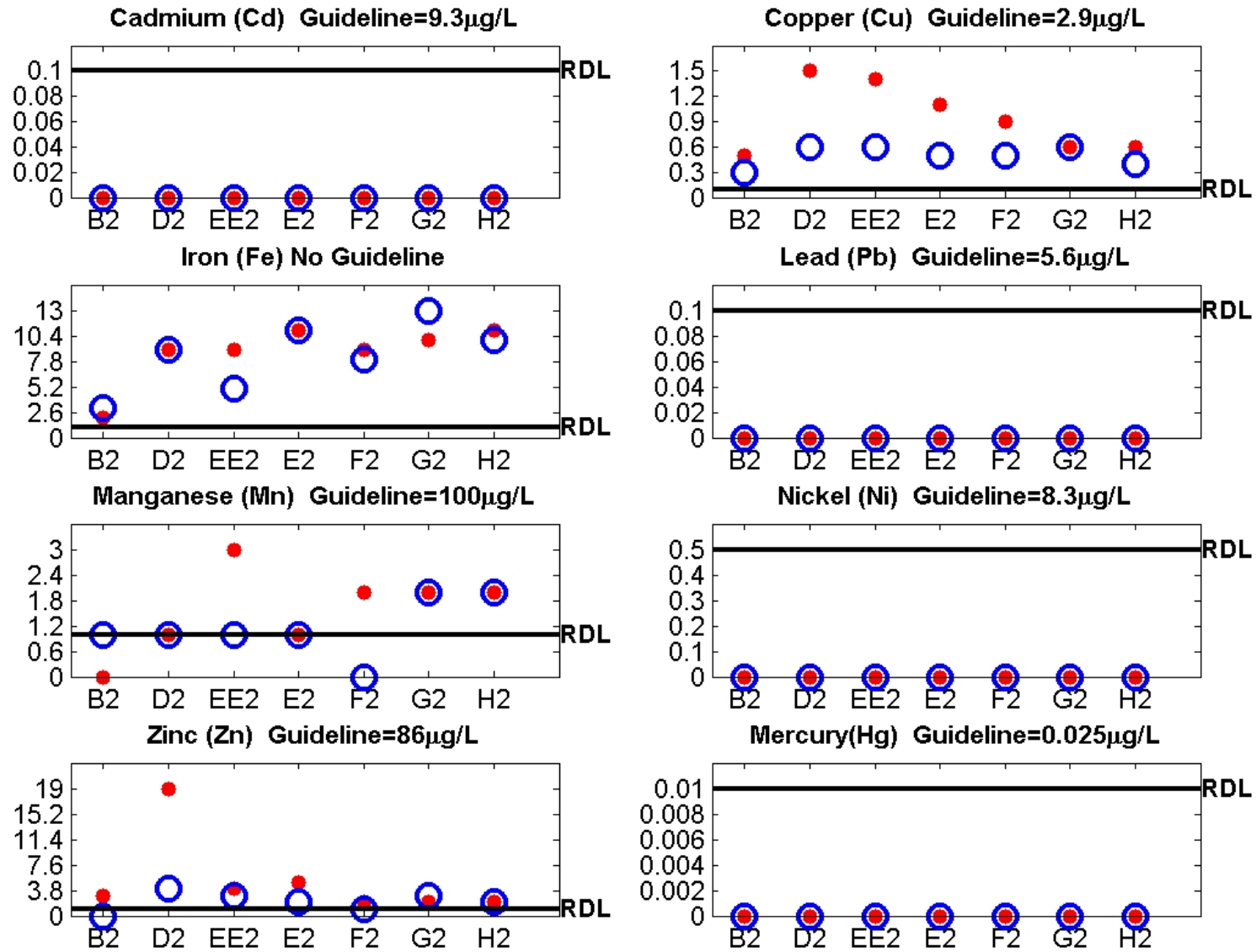
Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Sep23





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

HRM Water Quality Monitoring

Fecal Coliform Summary – September 23, 2008

