

Halifax Harbour Water Quality Monitoring Project

Weekly Summary #69

Survey Date: 11 October 2005
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report069_051011.doc
Data File: HHWQMP_data069_051011.xls

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

Sample Notes: Aluminum values for samples E2-1m and F2-1m have been discounted due to lab problems, see comments in data file.

Chemical Analysis QA/QC		H2- 1m		
Detectable Parameter	units	reference sample	QA/QC	Dup
Ammonia (as N)	mg/L	0.12	0.12	
Total Suspended Solids	mg/L	11	12	
Boron	µg/L	2800	3000	3000
Lithium	µg/L	110	120	110
Manganese	µg/L	29	<20	<20
Strontium	µg/L	5700	5800	5800
Titanium	µg/L	39	38	41
Uranium	µg/L	3	2	2
Zinc	µg/L	53	51	<50

Fecal Coliform QA/QC (CFU/100ml)

Site	BRB-1m	BYC-10m	SYC-1m	H2-1m
Reference	2200	470	1000	740
QA/QC	1400	320	2300	>10000

Regulated parameters with all samples below detection (<EQL)

Parameter	EQL(µg/L)	Parameter	EQL(mg/L)
Copper	20	Oil and Grease	5
Nickel	20		

Detectable non regulated metals

Metal	EQL (µg/L)	Number >EQL	Mean (µg/L)	Range (µg/L)
Boron	500	16	2856	1600-3600
Iron	500	1	570	570
Lithium	20	16	118	72-140
Strontium	50	16	5719	3200-6600
Thallium	1	1	3	3
Titanium	20	16	42	32-51
Uranium	1	16	3	2-6

Comments:

Cadmium: One sample (E2-1m at 4 µg/L) had a detectable level of cadmium, below the guideline limit of 9.3 µg/L.

Chromium: Two samples (E2-1m at 23 µg/L, and E2-10m at 22 µg/L) had detectable levels of chromium. These are both below the guideline limit of 50 µg/L.

Lead: One sample (E2-1m at 6 µg/L) had a detectable level of lead, above the guideline limit of 5.6 µg/L.

Manganese: Five samples (E2-1m at 60 µg/L, EE2-1m at 34 µg/L, F2-1m at 43 µg/L, G2-1m at 22 µg/L, and H2-1m at 29 µg/L) had detectable levels of manganese. These are all below the guideline limits of 100 µg/L.

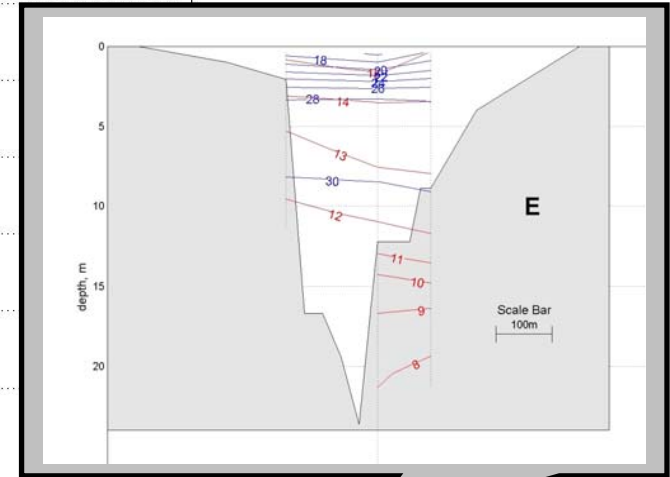
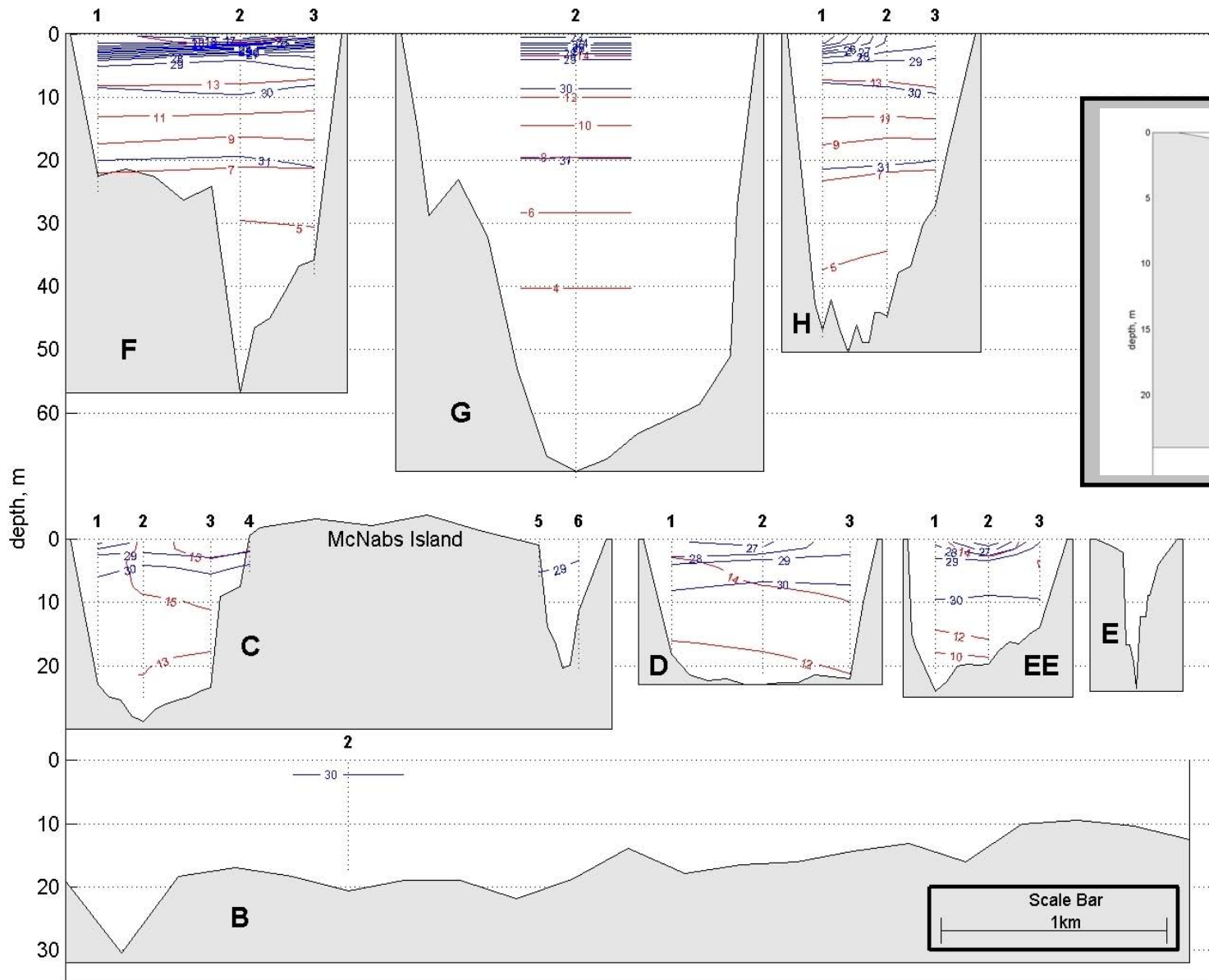
Zinc: All samples except EE2-10m and G2-10m had detectable levels of zinc. They ranged in value from 50 to 68 µg/L. All are below the guideline limit of 86 µg/L.

General: There has been 153 mm of rain in the three days before this survey, resulting in a huge freshwater influx (river and CSO) to the Harbour. There is surface lens of very fresh water, from CSOs, centered on the Narrows (E section) extending into the southern Basin. This water is up to 50% fresh, and visually and measurably contaminated. Here, Secchi disk depths are on the order of 1m, with metals content and bacteria levels that are the highest observed to date. The coliform values are extremely high everywhere, except in the Outer Harbour (B2). The 1m bacteria levels in the Basin are higher than at 10m, implying an up-harbour migration of freshwater. The Outer Harbour (B2) is extremely well mixed, no doubt due to winds associated with the rainfall, with a density less than Inner Harbour bottom water.

Chlorophyll: Values are slightly higher this week than last, on the order of 2 mg/m³ everywhere, with some near surface values around 9 mg/m³ in the Basin.

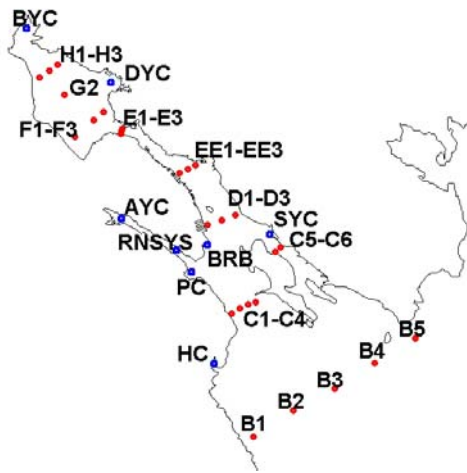
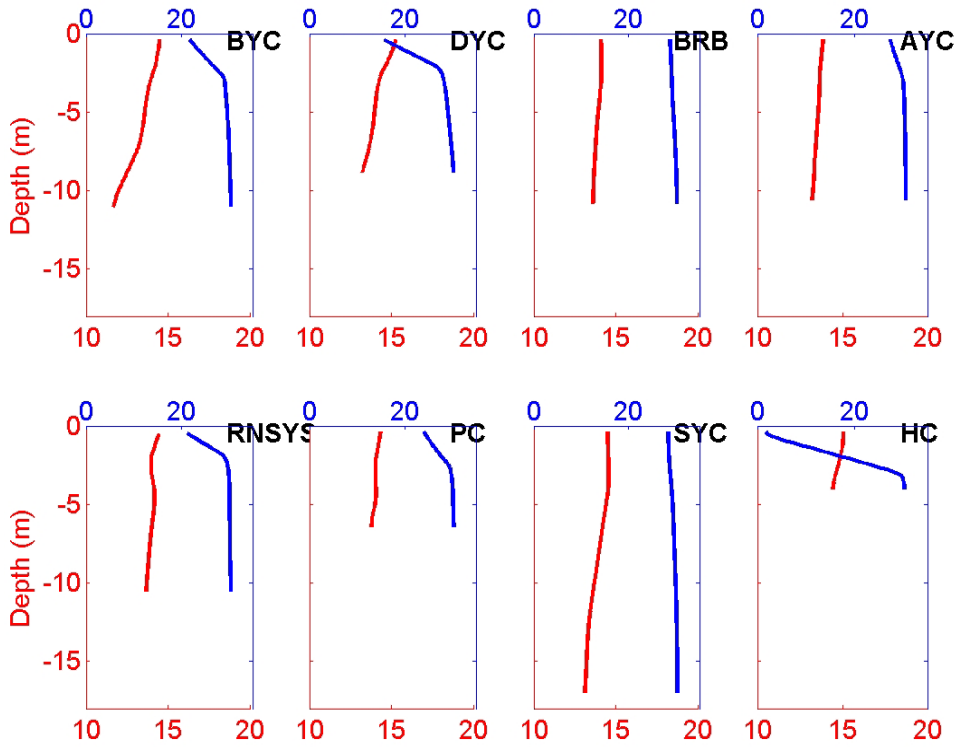
Dissolved Oxygen: Generally, the surface water DO is very uniform throughout the Harbour. The Basin deep water has dropped slightly from last week.

TEMPERATURE-SALINITY CONTOURS



Unless otherwise labeled:
 - salinity contour interval is 1 PSU
 - temperature contour interval is 2°C.

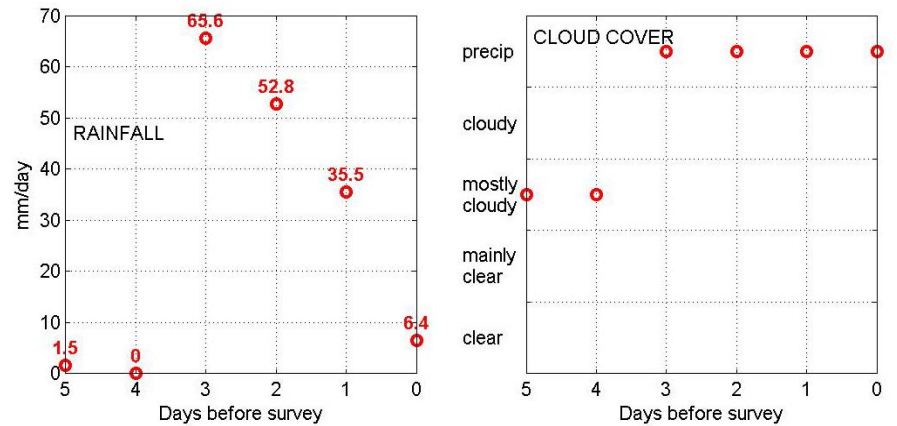
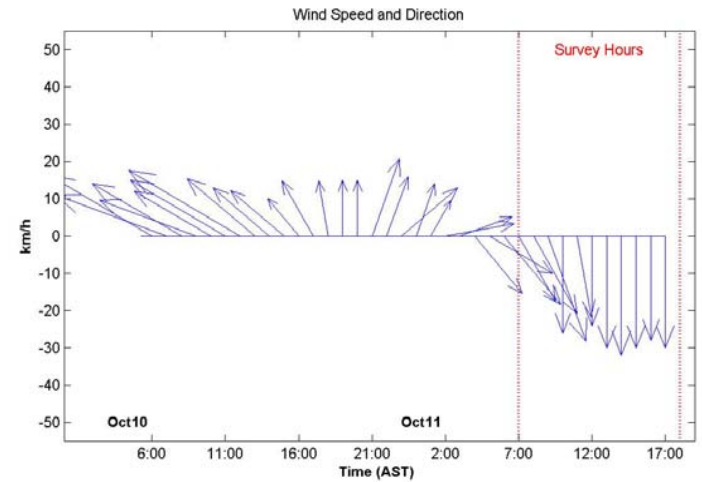
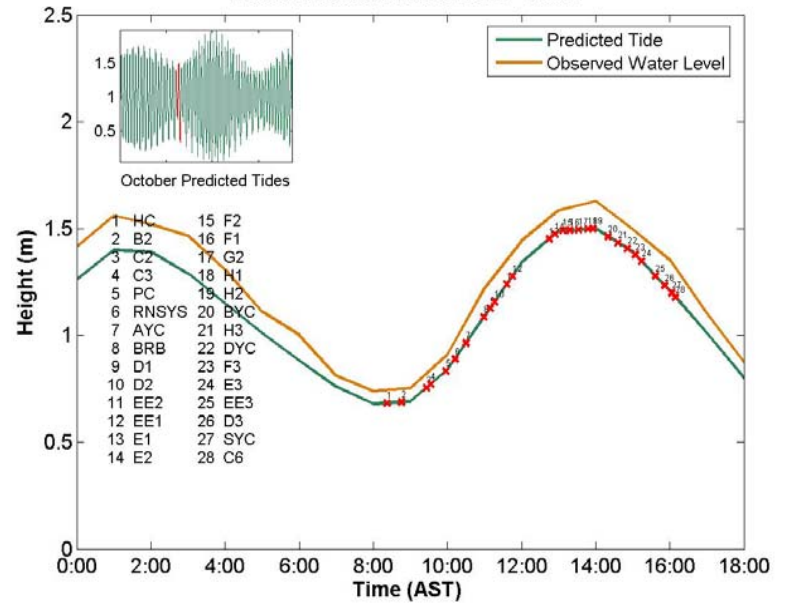
Yacht Clubs

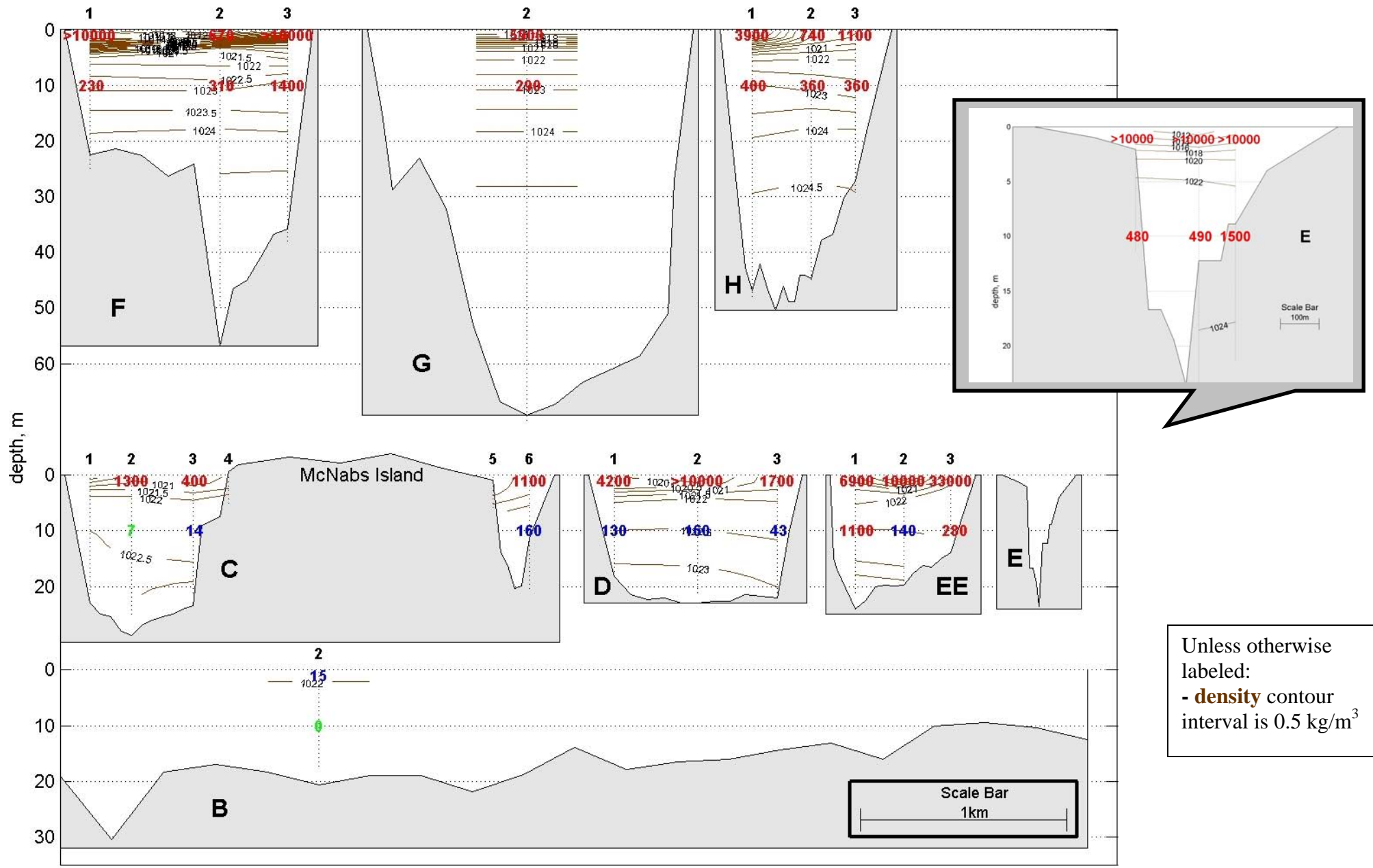


Salinity in PSU Temperature in °C

Weather data collected at the Halifax International Airport

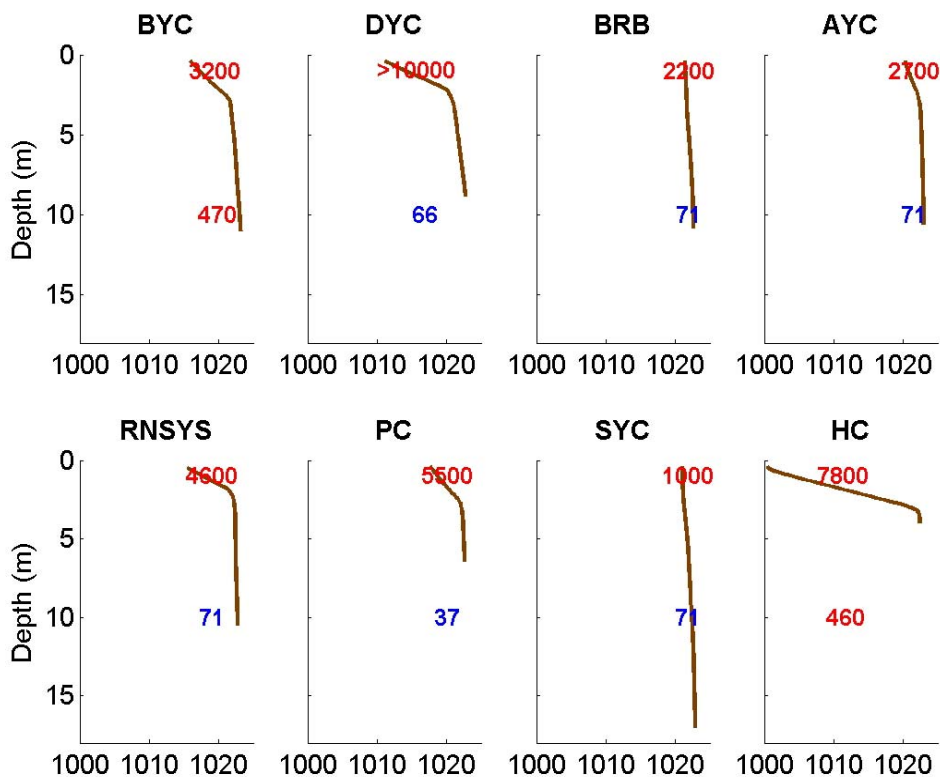
Halifax Harbour Water Level - Oct11



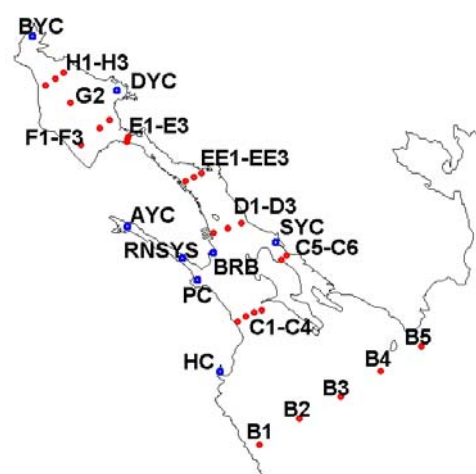
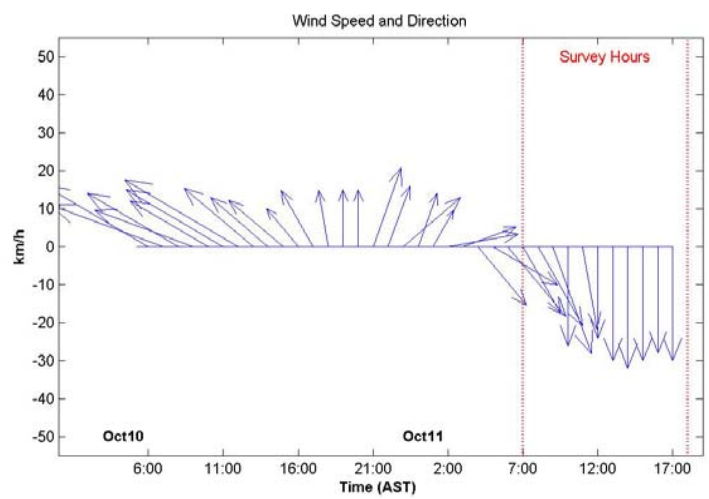
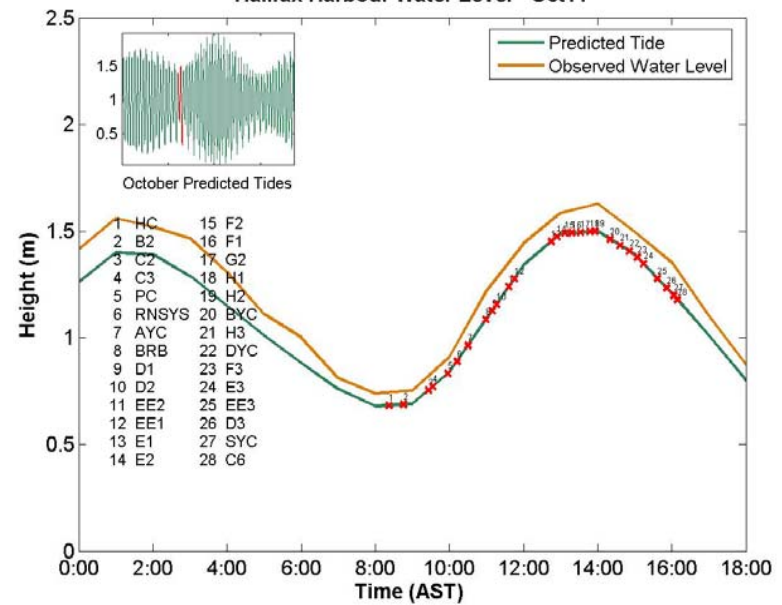


Unless otherwise labeled:
- **density** contour interval is 0.5 kg/m³

Yacht Clubs



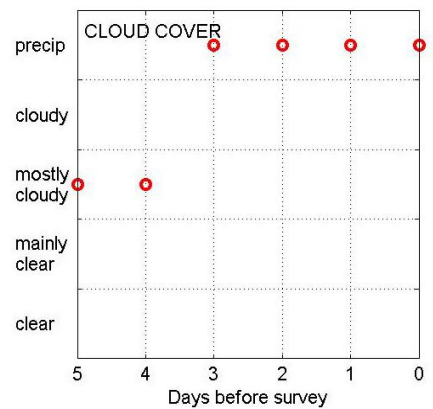
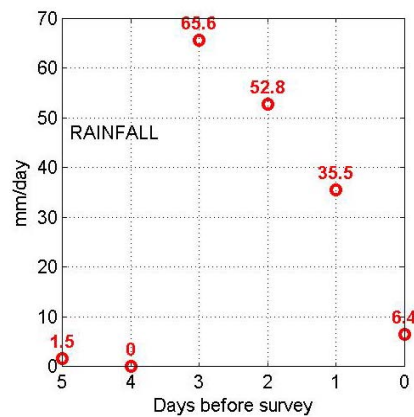
Halifax Harbour Water Level - Oct11

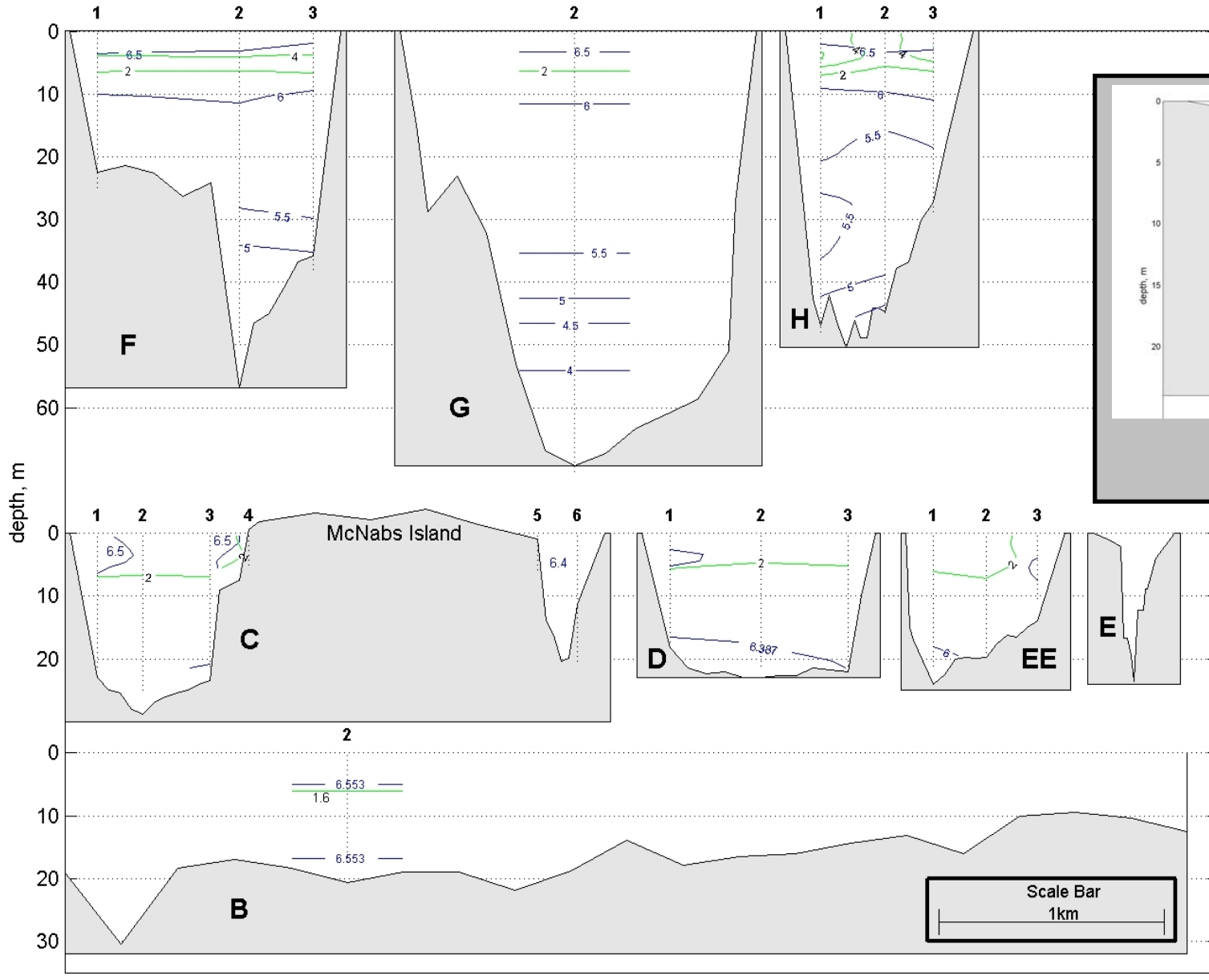


Weather data collected at the Halifax International Airport

Potential Density in kg/m³

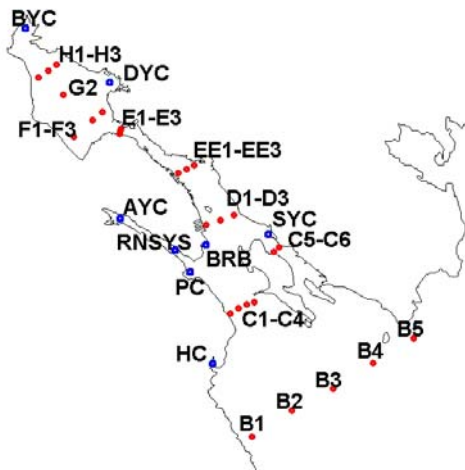
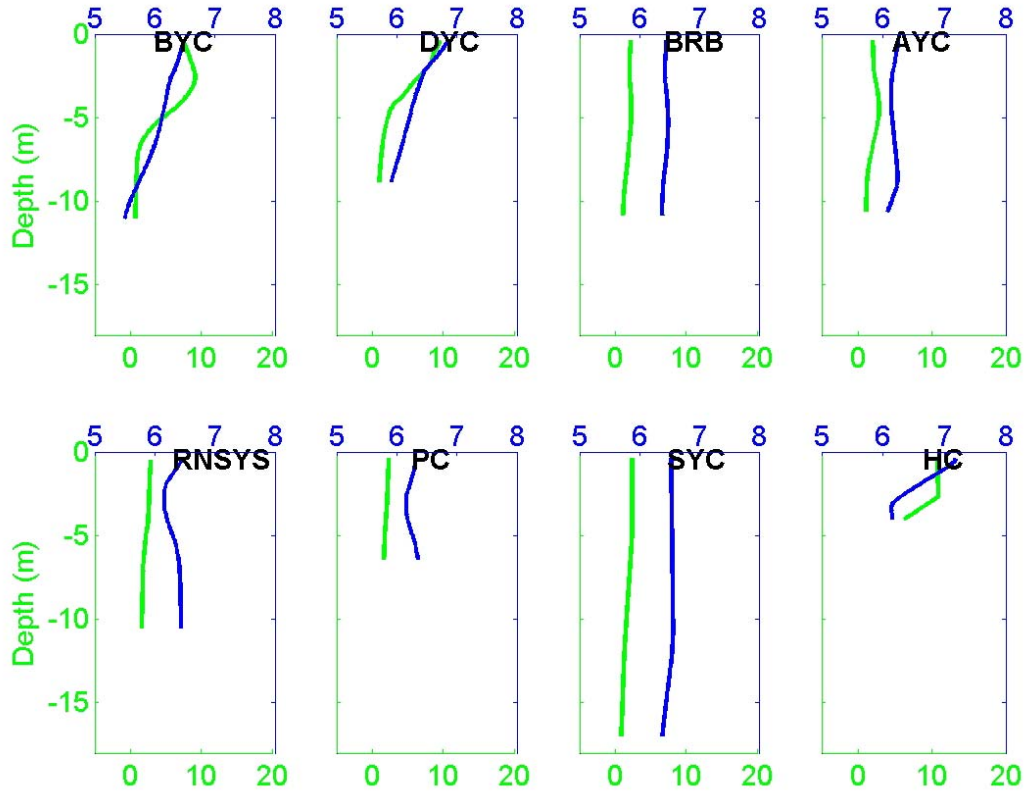
Fecal coliform: above swimming limit (200 cfu/100mL)
above shellfish limit (14 cfu/100mL)
below limits





Unless otherwise labeled:
 - **dissolved oxygen** contour interval is 0.5 mg/L
 - **chlorophyll** contour interval is 2 mg/m³.

Yacht Clubs

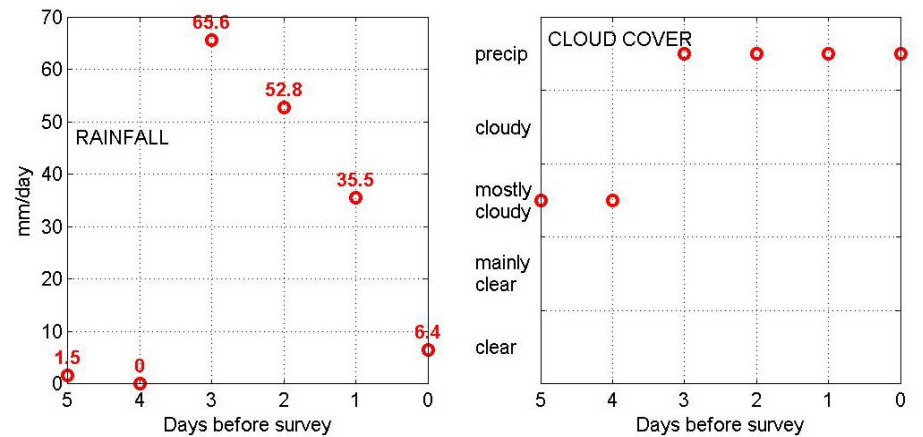
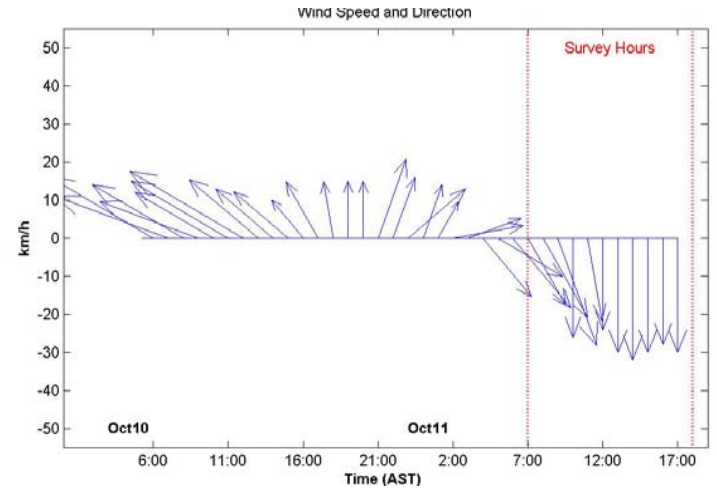
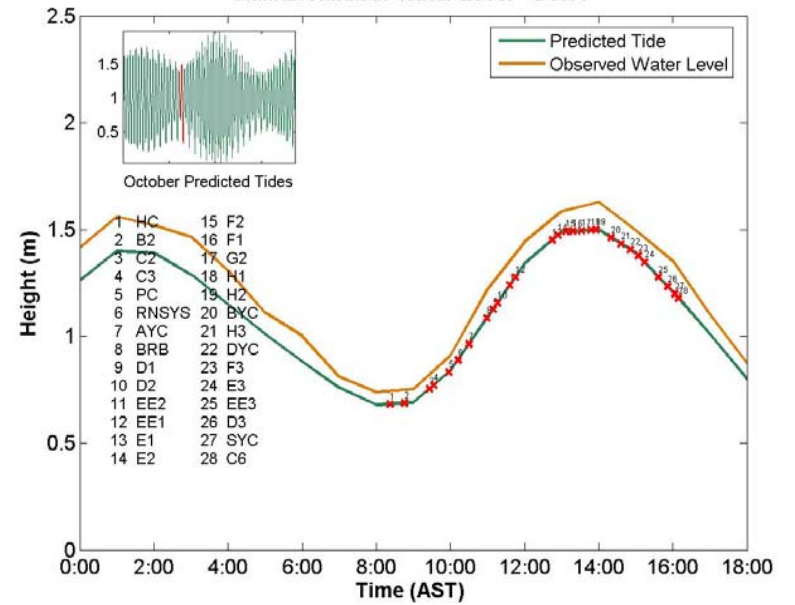


DO in mg/L

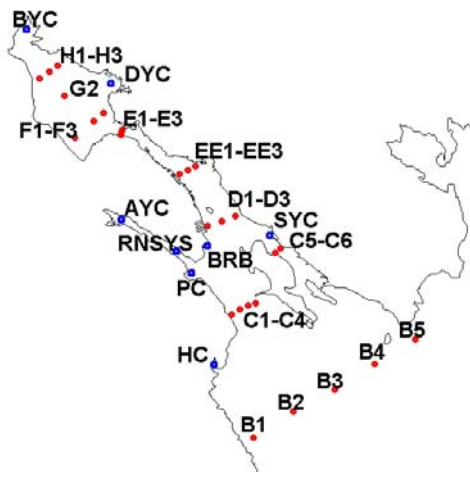
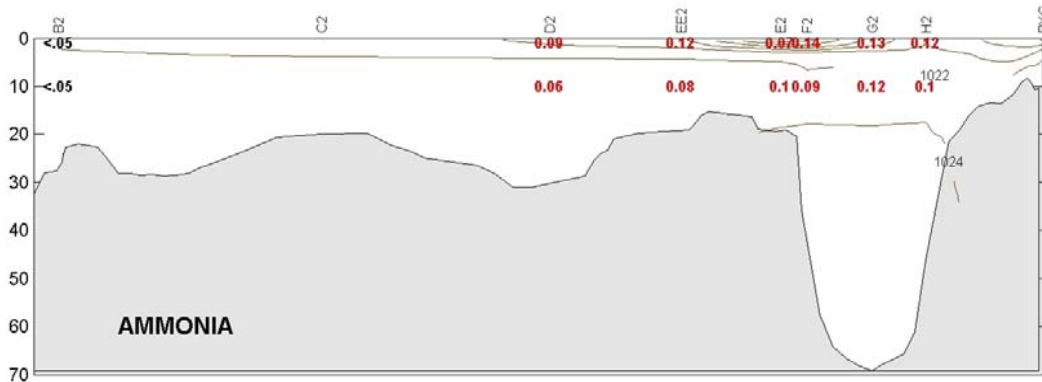
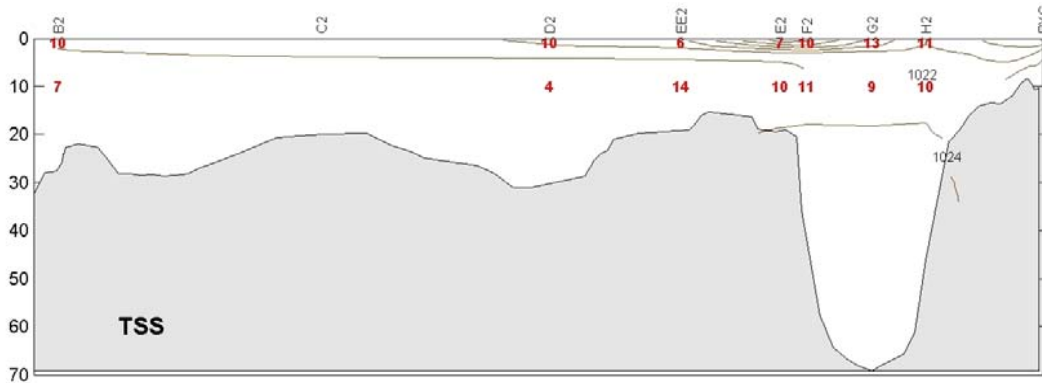
Chlorophyll in mg/m³

Weather data collected at the Halifax International Airport

Halifax Harbour Water Level - Oct11



CHEMISTRY



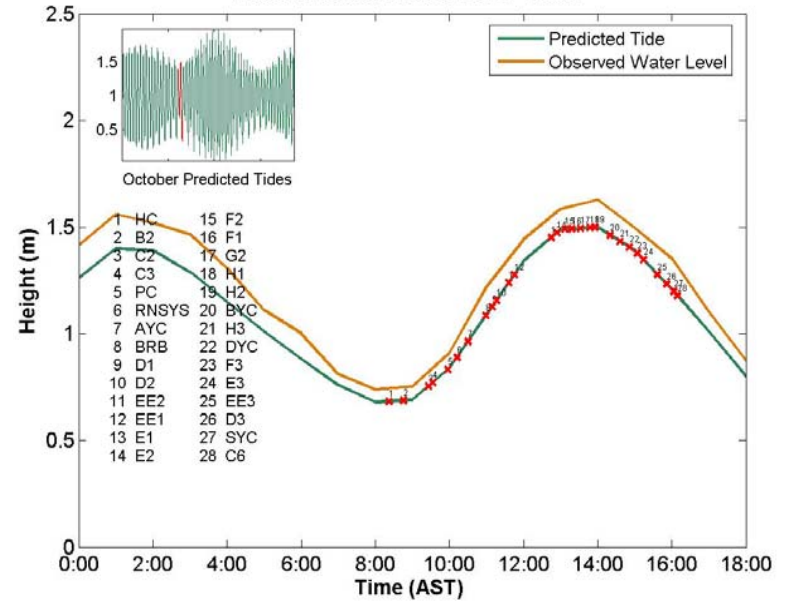
Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Weather data collected at the Halifax International Airport

Halifax Harbour Water Level - Oct11



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

