

Halifax Harbour Water Quality Monitoring Project

Weekly Summary #73

Survey Date: 09 November 2005
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report073_051109.doc
Data File: HHWQMP_data073_051109.xls

Data Return:
 Profile: 100%
 Bacteria: 96%
 Chemical: 100%
Overall: 99%

Sample Notes:

There were no fecal coliform samples taken at B2, there was no Chem QA/QC suite taken and one of four coliform QA/QC sampled was not labeled with sampling site.

The fecal coliform samples generally analyzed at lower resolution were analyzed at the standard resolution resulting in two out of range values.

Chemical Analysis QA/QC

Detectable Parameter	units	B2-1m	
		reference sample	Dup
Ammonia (as N)	mg/L	<0.05	
Total Suspended Solids	mg/L	14	
Aluminum	ug/L	490	<100
Boron	ug/L	4000	3900
Lithium	ug/L	160	160
Strontium	ug/L	6700	6700
Titanium	ug/L	48	56
Uranium	ug/L	3	3

Fecal Coliform QA/QC (CFU/100ml)

Site	C6-1m	DYC-1m	H2-10m
Reference	58	12	81
QA/QC	230	13	>10000

Regulated parameters with all samples below detection (<EQL)

Parameter	EQL(µg/L)	Parameter	EQL(µg/L)	Parameter	EQL(mg/L)
Cadmium	3	Lead	5	Oil and Grease	5
Chromium	20	Nickel	20		
Copper	20				

Detectable non regulated metals

Metal	EQL (µg/L)	Number >EQL	Mean (µg/L)	Range (µg/L)
Aluminum	100	2	300	110-490
Boron	500	15	3740	3500-4000
Lithium	20	15	157	150-170
Strontium	50	15	6587	6400-6900
Titanium	20	15	50	43-56
Uranium	1	15	3	3

Comments:

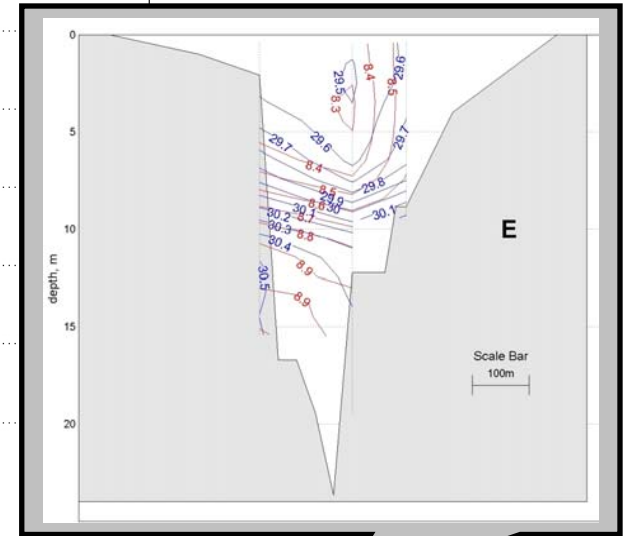
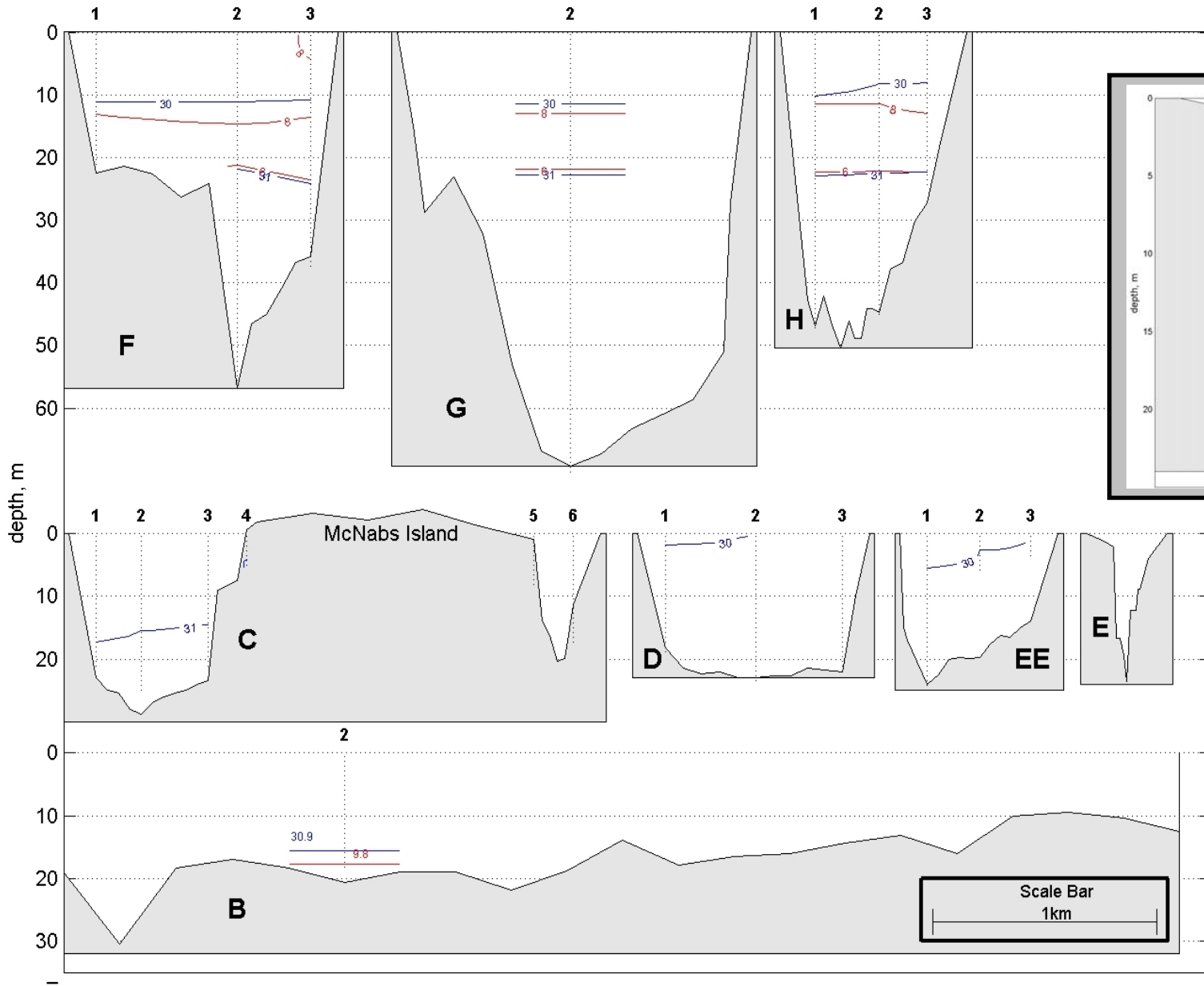
Metals: Two samples (D2-1m at 25 µg/L, and EE2-10m at 24 µg/L) had detectable levels of manganese. These are both below the guideline limit of 100 µg/L. Three samples (D2-1m at 67 µg/L, EE2-10m at 51 µg/L, and H2-1m at 56 µg/L) had detectable levels of zinc. These are all below the guideline limit of 86 µg/L.

General: The Harbour, particularly south of the Narrows, is vertically well-mixed in all variables. In spite of some rain, the freshwater signal at the head of the Basin, evident last week, has nearly dissipated. The Harbour, overall, has cooled about half a degree since last week and now has an average temperature of about 8.5 °C. The water is warmer in the outer Harbour (9.8 °C at B2). Coliform values are relatively high in the Inner Harbour, with high values occurring in the 1m samples in the southern Basin. This suggests an up-Harbour flow of surface water. This seems at odds with the relatively high northerly winds. The southern Basin was sampled at mid- to high tide on a rising tide, which might explain part of this. There is also an approximate 10 cm surge over tide, suggesting potential shelf influence on the circulation.

Chlorophyll: Overall the fluorescence values are somewhat lower than last week. Generally, profile maximums are between 1.5 and 6.0 mg/m³, with the higher values occurring in the Basin. At B2 the distribution is vertically uniform at 1.25 mg/m³.

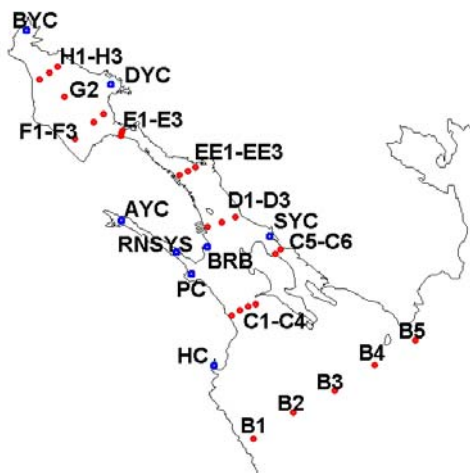
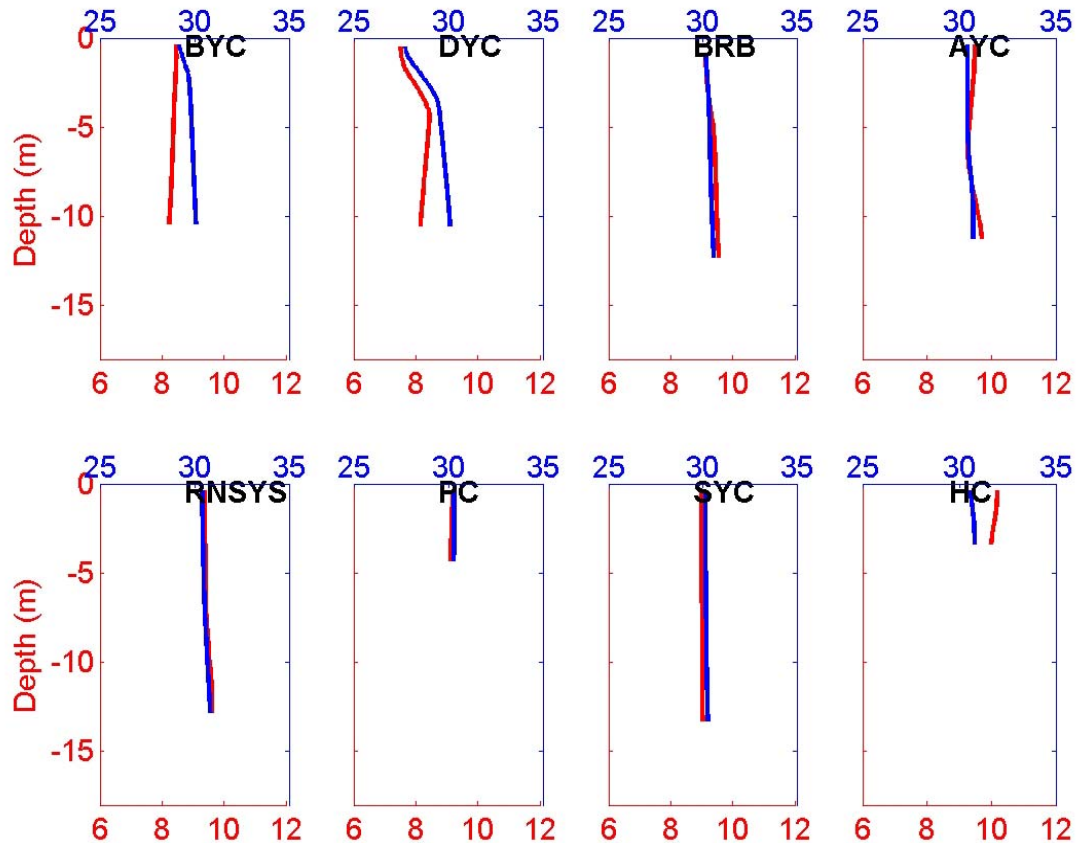
Dissolved Oxygen: The measurements indicate that the DO levels in the surface water (top20 m) in the Basin and North end of the Narrows vary from about 7 mg/l at the surface to about 6 mg/L at 20 m. Below 20m, the values are quite uniform at around 5.5 mg/L. There is a hint of a mid-water minimum, at a depth of 27-30m, a relic of the intrusion that occurred two weeks ago. South of the Narrows, the values are very uniform vertically, varying between 6.5 to 6.8 mg/L, and increasing to 7.1 mg/L at B2. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).

TEMPERATURE-SALINITY CONTOURS



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

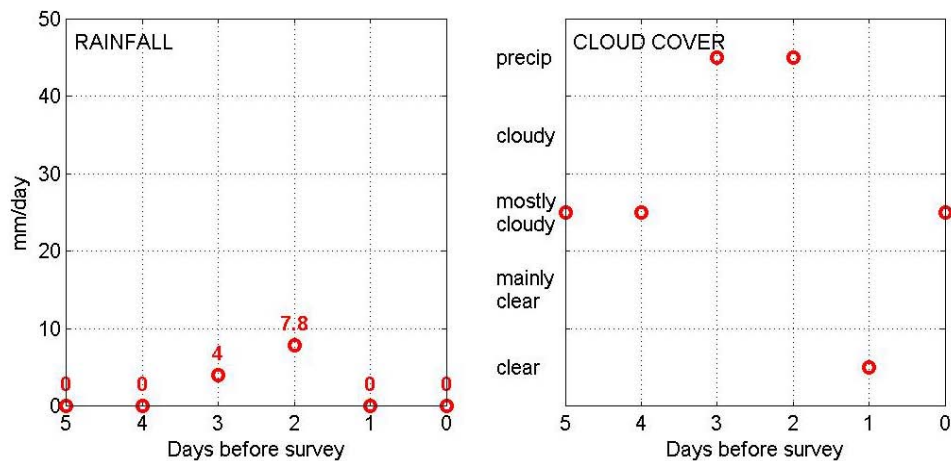
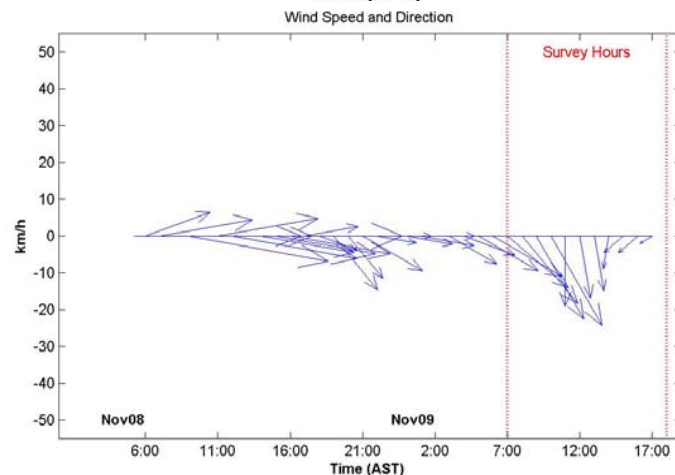
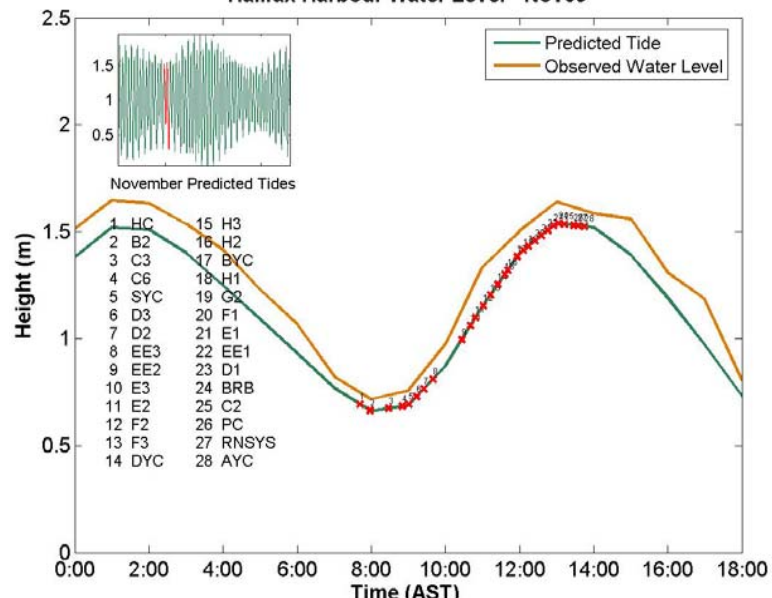
Yacht Clubs

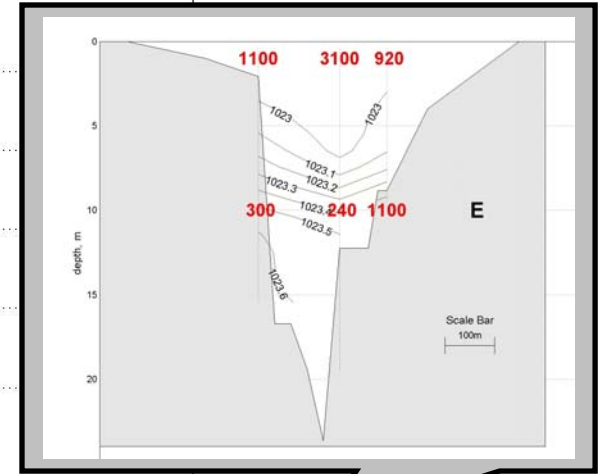
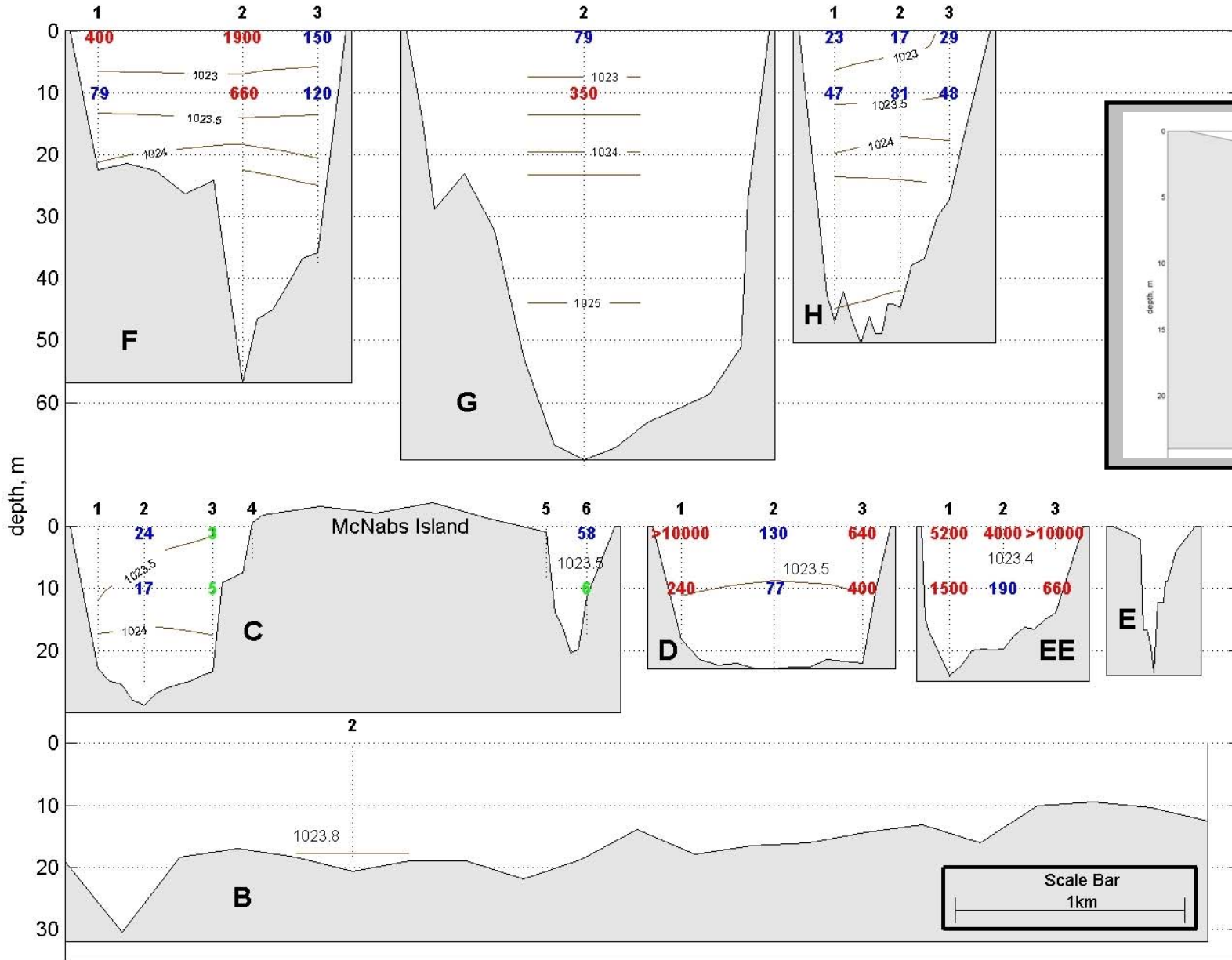


Salinity in PSU Temperature in °C

Weather data collected at the Halifax International Airport

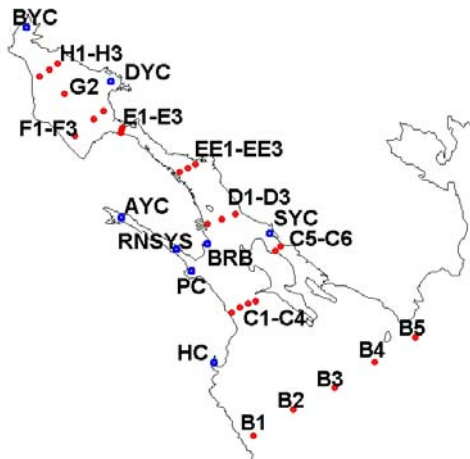
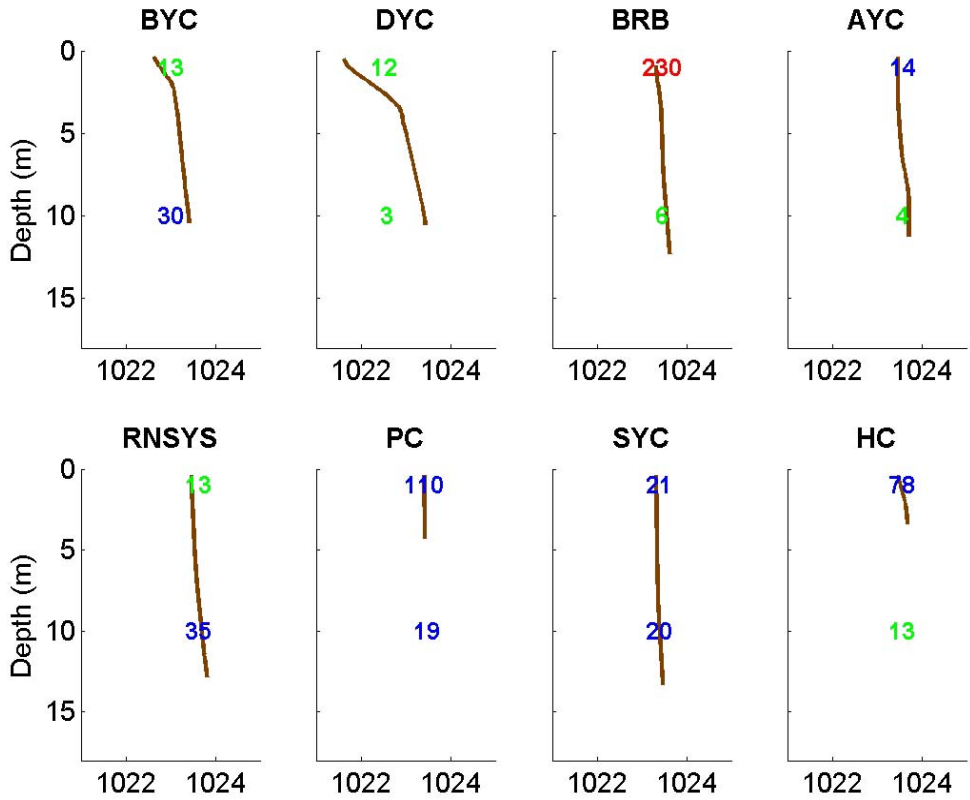
Halifax Harbour Water Level - Nov09





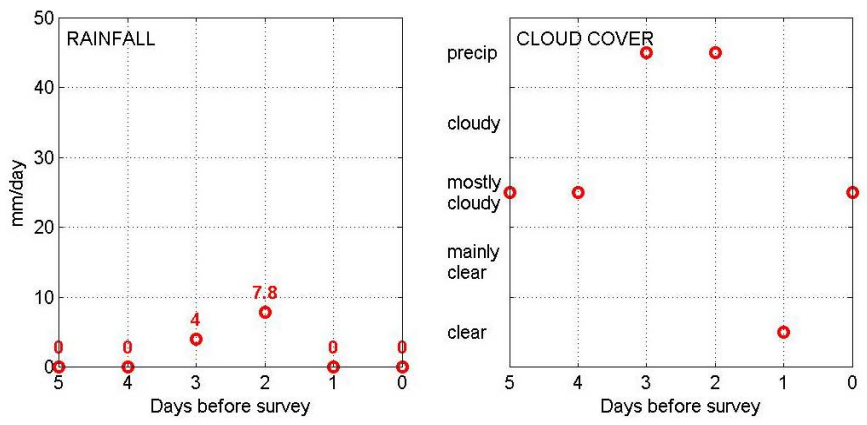
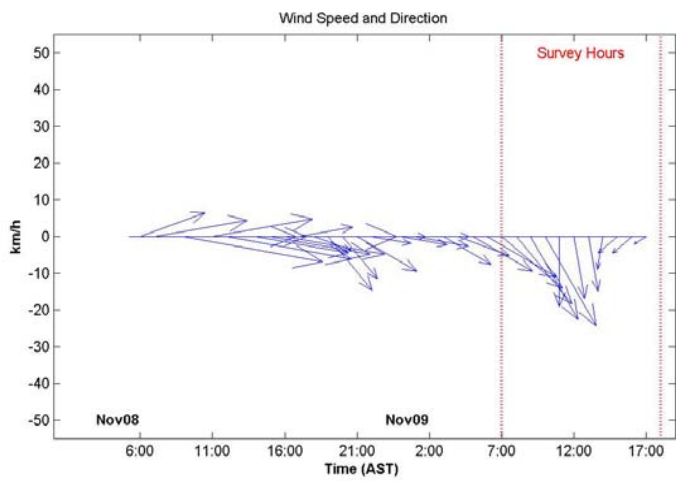
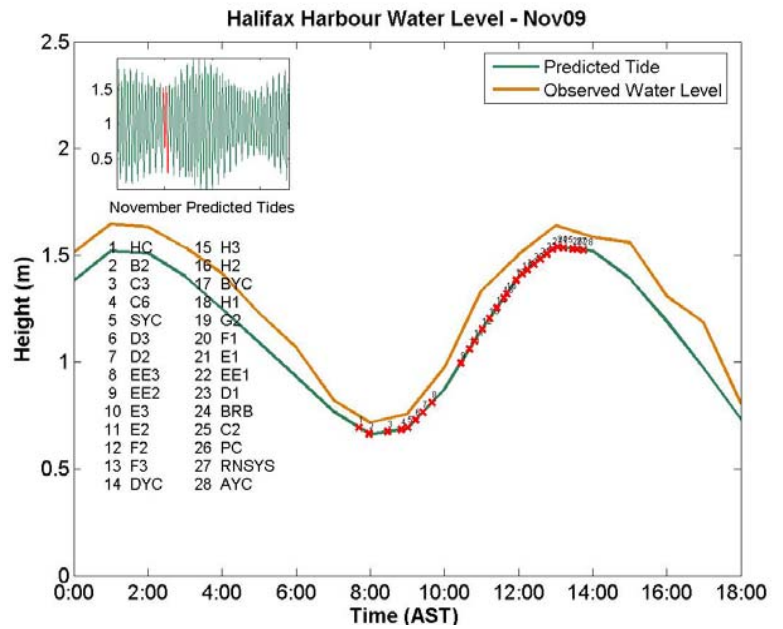
Unless otherwise labeled:
 - **density** contour interval is 0.5 kg/m³

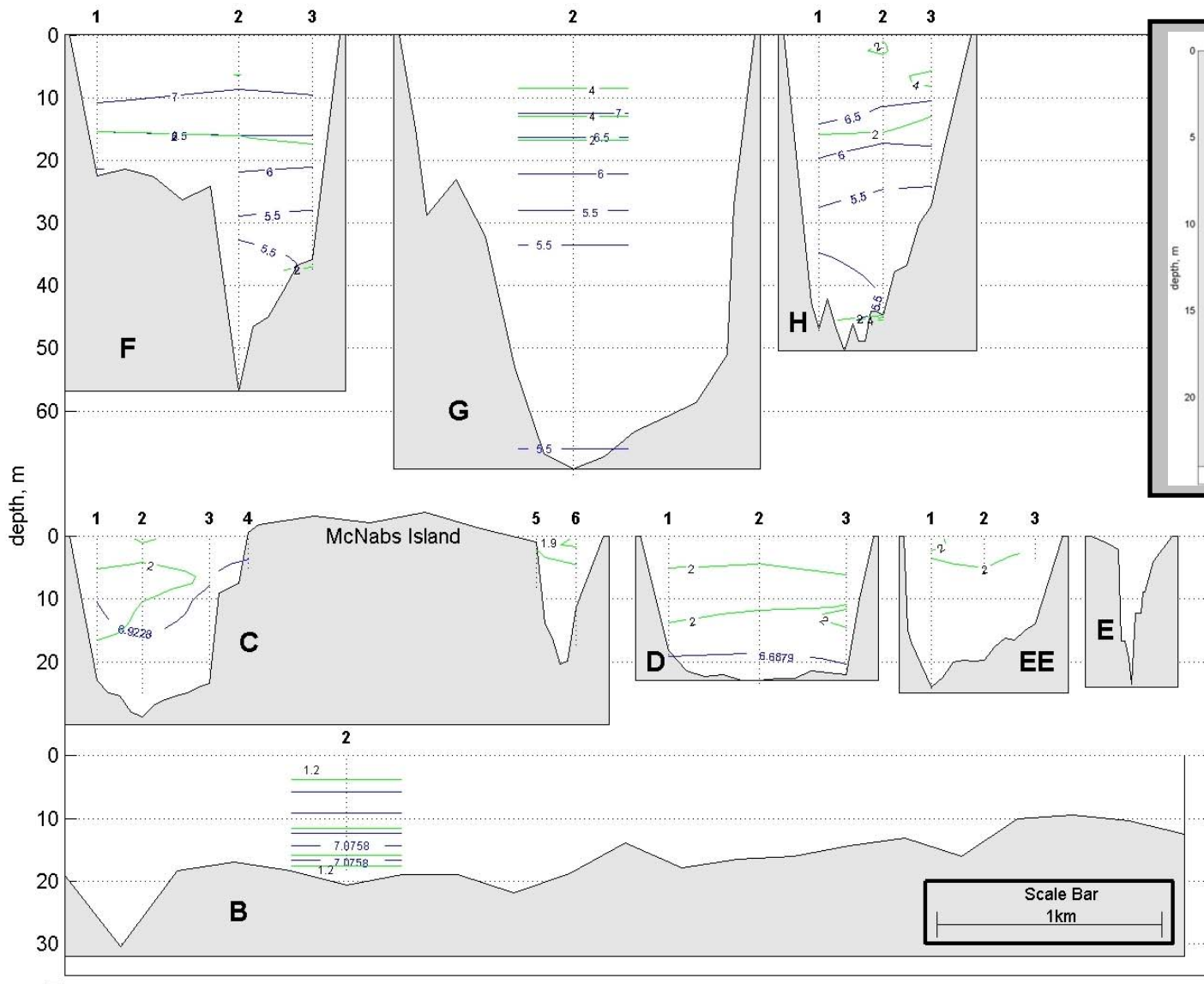
Yacht Clubs



Weather data collected at the Halifax International Airport

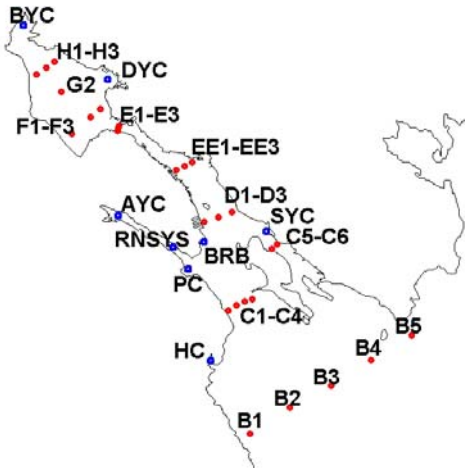
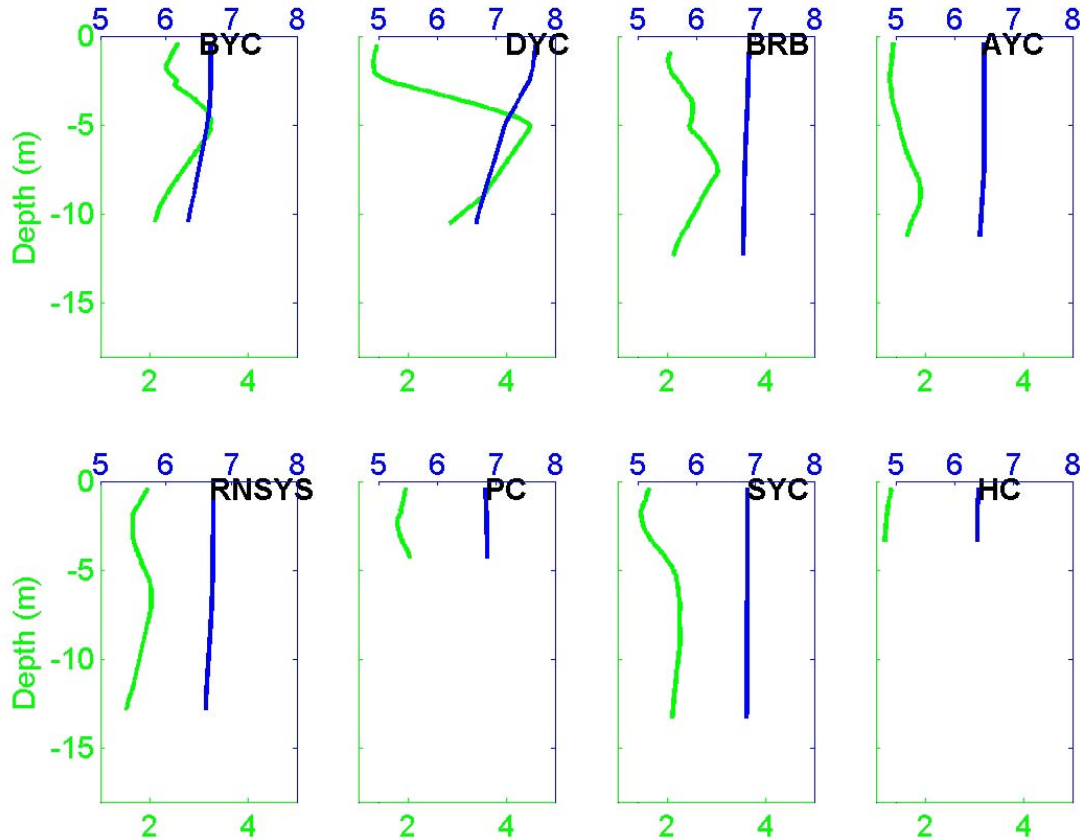
Potential Density in kg/m^3 Fecal coliform: above swimming limit (200 cfu/100mL)
 above shellfish limit (14 cfu/100mL)
 below limits





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

Yacht Clubs

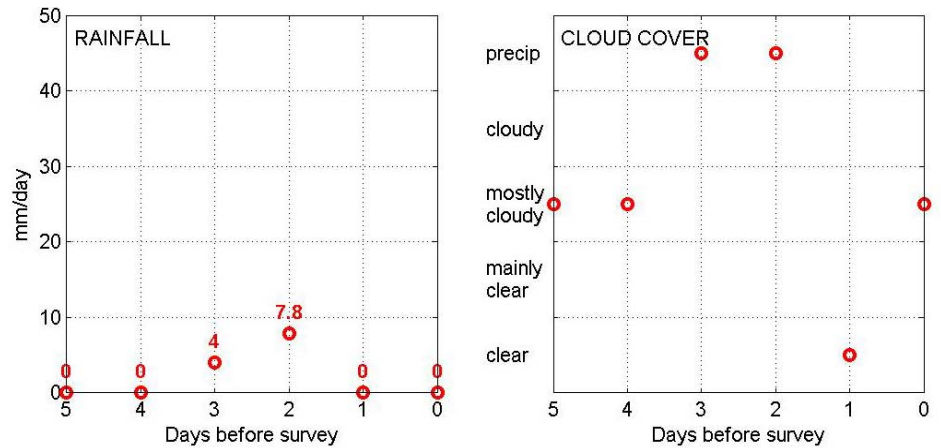
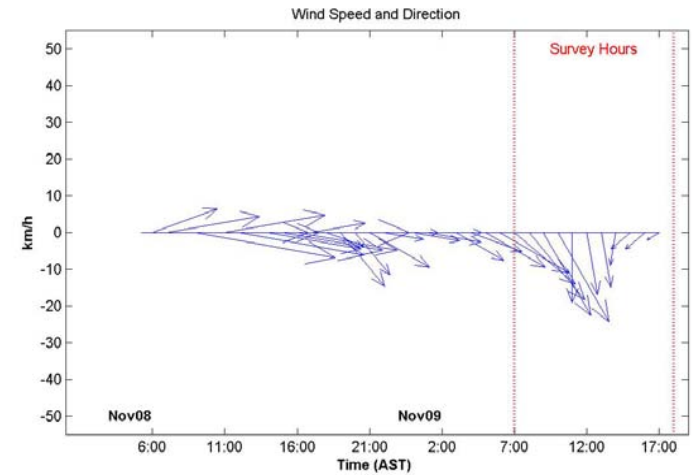
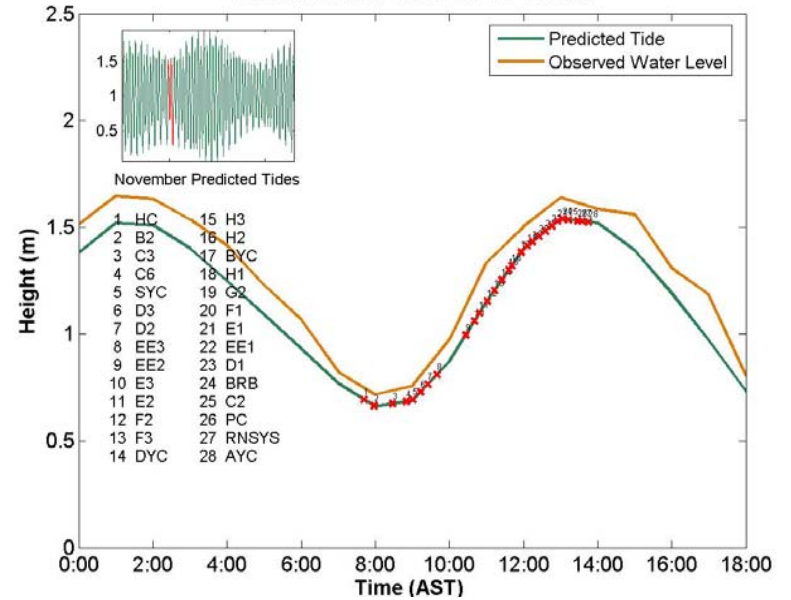


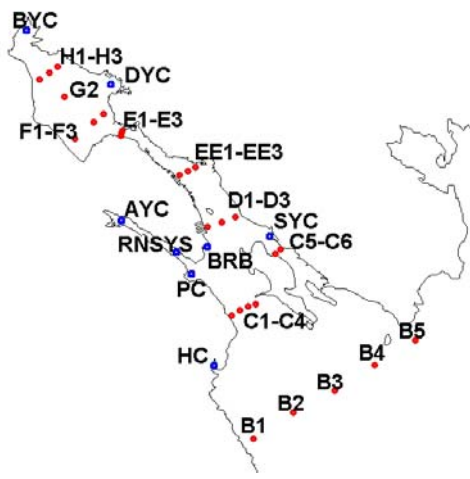
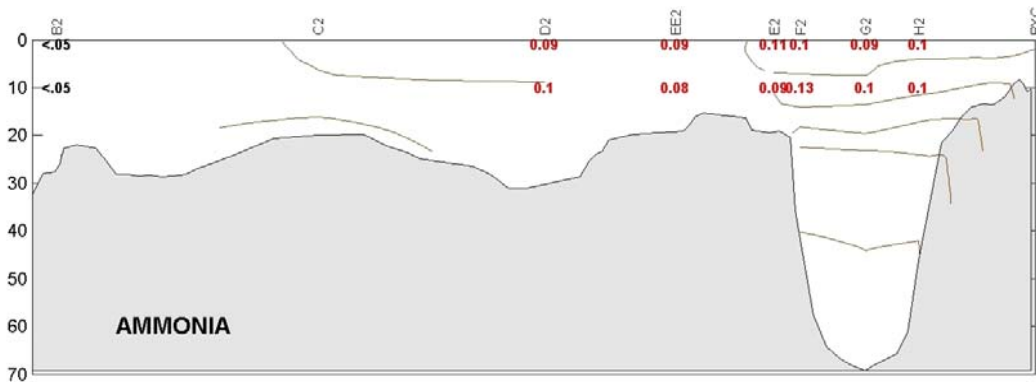
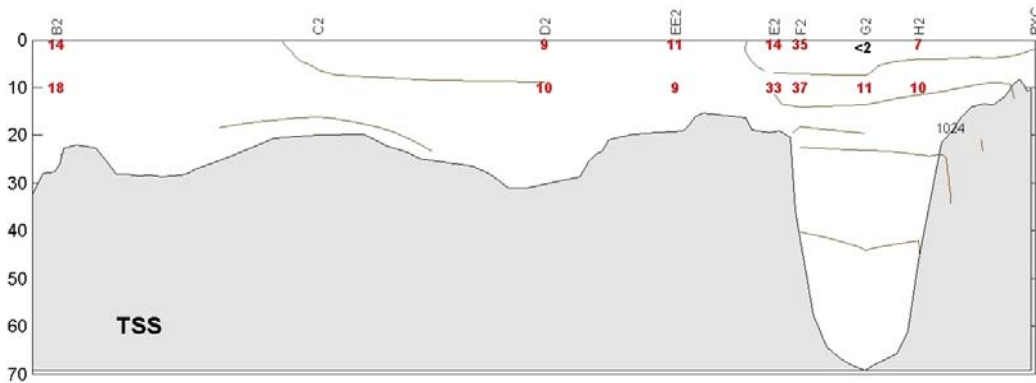
DO in mg/L

Chlorophyll in mg/m³

Weather data collected at the Halifax International Airport

Halifax Harbour Water Level - Nov09





Weather data collected at the Halifax International Airport

Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Nov09

