

Halifax Harbour Water Quality Monitoring Project

Weekly Summary #99

Survey Date: 09 May 2006
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report099_060509.doc
Data File: HHWQMP_data099_060509.xls

Data Return:

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

Sample Notes:

N/A

QA/QC samples:

Chemical Analysis		G2 - 1m		EE2- 10m		
		Ref sample	Dup	Ref sample	QA/QC	Dup
Detectable Parameter	units					
Ammonia (as N)	mg/L	0.06	<0.05	0.08	0.06	
Total Suspended Solids	mg/L	6		4	5	5

Fecal Coliform (CFU/100ml)

Site	BYC-10m	E3-1m	C6-1m	EE2-10m
Reference	4	8700	1	170
QA/QC	4	5900	0	130

Comments:

General: The Harbour has warmed significantly in the last week. The surface water varies from 7°C in the Outer Harbour to 10°C in the north end of Bedford Basin. The bottom water in the Inner Harbour has warmed a degree to about 4°C. In the Outer Harbour, the temperature stratification has reestablished after last week's well mixed conditions. There is a stronger freshwater signal in the near surface water of the Basin, however the 30 PSU contour at about 10m persists throughout the Harbour.

There is little salinity stratification south of the Basin. Similar to last week, there is a moderate east wind on both the day before, and the day of the survey and there is about 10 cm set down of the observed water level compared to the predicted tide.

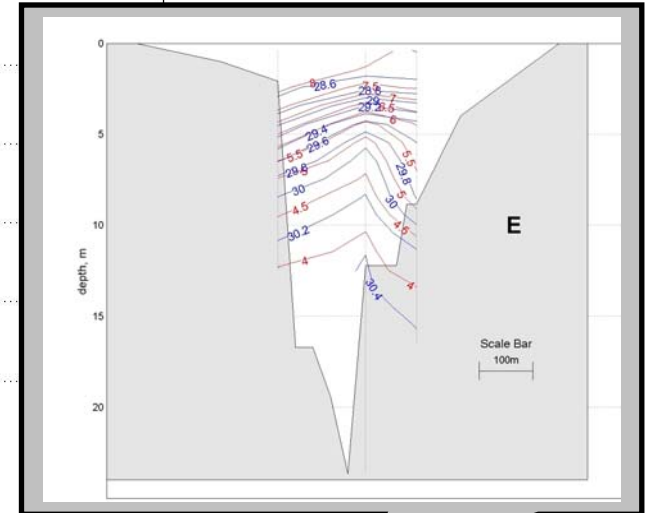
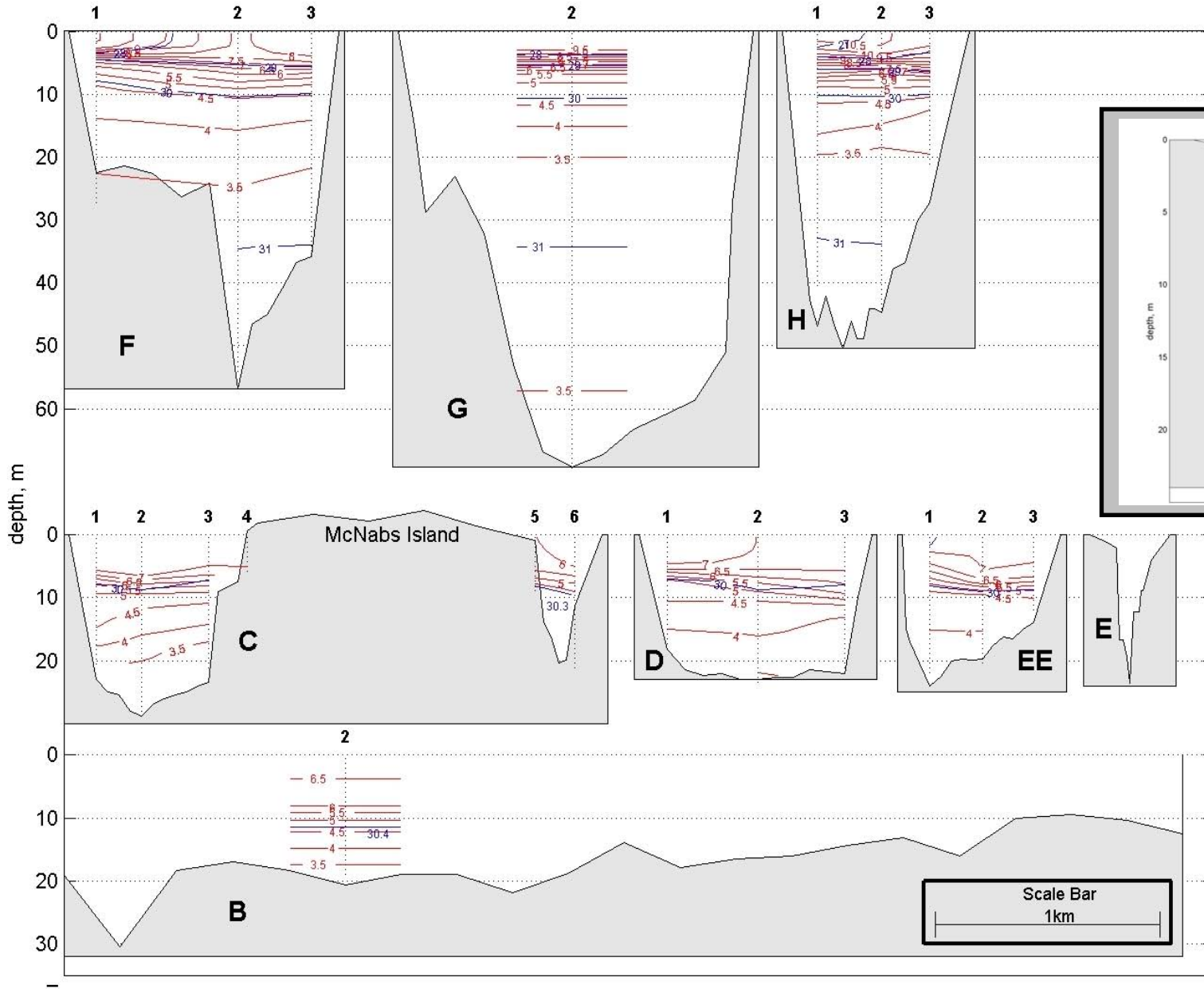
The coliform values are lower than last week but the distribution is still displaced up harbour, with elevated levels in the Narrows and southern Basin. The highest values in the southern Basin occur in the 1m sample instead of the more usual 10m sample. This pattern is similar to last week but is not as distinct. The high values in the Narrows are associated with water with a density > 22 σ (1022 kg/m³). This water persists at the surface into the southeastern Basin (Sites F2 and F3). North and west of this, water of this density is lower in the water column, under the fresher water influence of the Sackville River. Here, the more normal pattern returns with higher values associated with the deeper denser water.

Fluorescence: The fluorescence values have dropped since last week. The highest values are about 12-14 mg/m³ at a depth of 7-8 m throughout the Basin. These are about half of last week's maximums. South of the Narrows, the fluorescence signal drops dramatically to 3-4 mg/m³ in the Inner Harbour, and to 1-2 mg/m³ ("background") in the Outer Harbour.

Dissolved Oxygen: The data indicate that, the highest values (>9.5 mg/L) are in the Basin surface water. The profiles are quite uniform at levels > 8 mg/L south of the Narrows. These values increase slightly to around 8.7 mg/L in the Outer Harbour (site B2). The minimum value in the deepest part of Bedford Basin has dropped back a bit to about 3.5 mg/L. The deep water in the Basin represents the only values below the applicable use-specific guidelines this week. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).

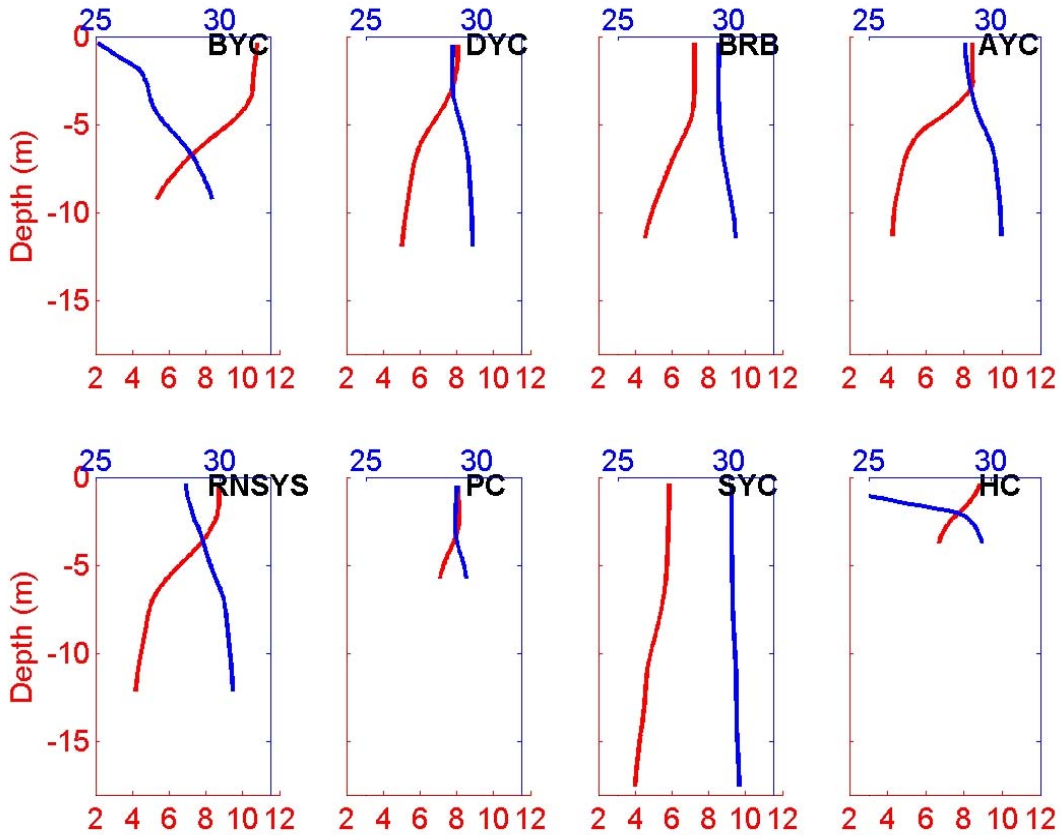
TSS: The TSS values are not particularly high but the highest values (5-6 mg/L) are in the surface waters of the Basin. The values in the Outer Harbour are below detection (< 1 mg/L). These values correlate with secchi disk depth which is about twice as deep in the Outer Harbour as in the Basin. This is also consistent with the higher fluorescence levels in the Basin.

TN: Overall the values are just above the detection limit. The exception is the Narrows (E2) where both samples where the values of 1.1 mg/L is more than twice the detection limit.

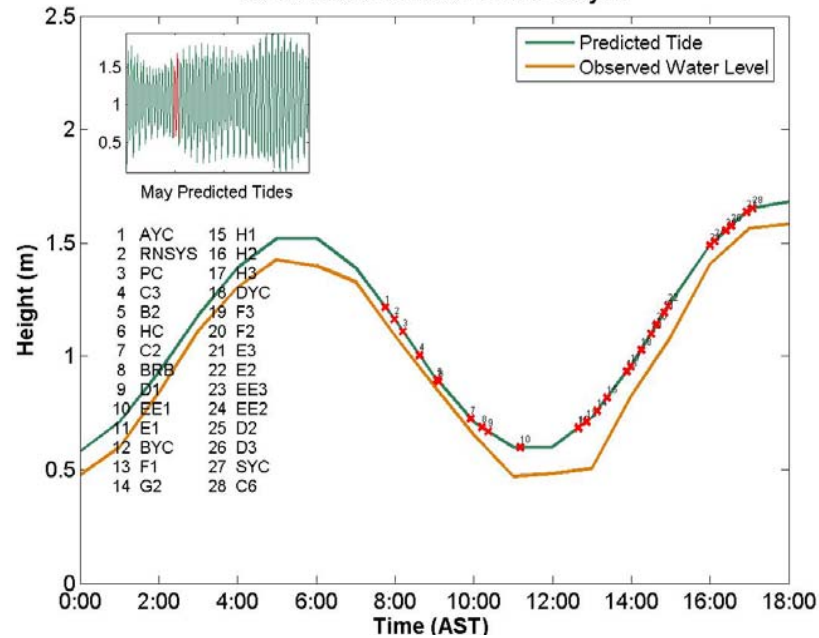


Unless otherwise labeled:
 - salinity contour interval is 1 PSU
 - temperature contour interval is 1°C.

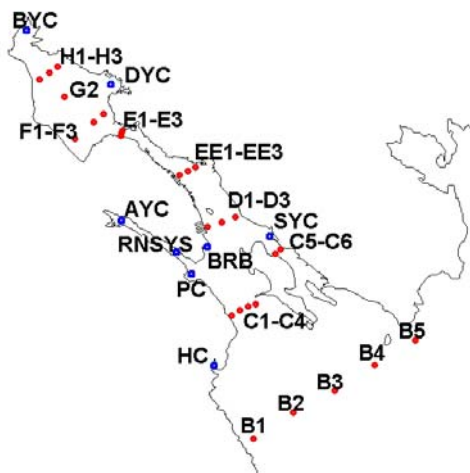
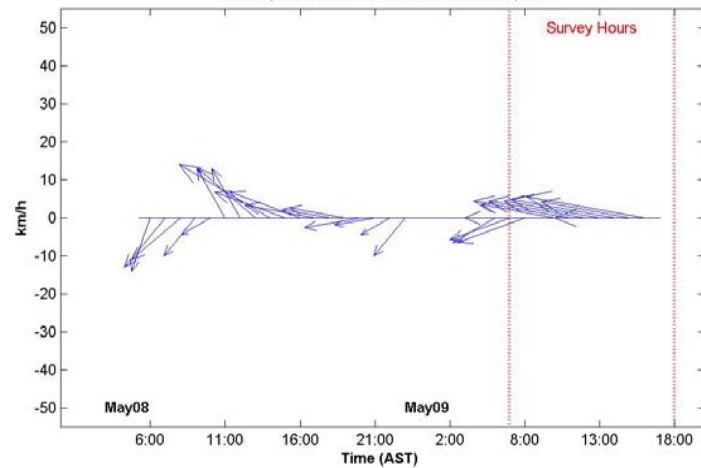
Yacht Clubs



Halifax Harbour Water Level - May09

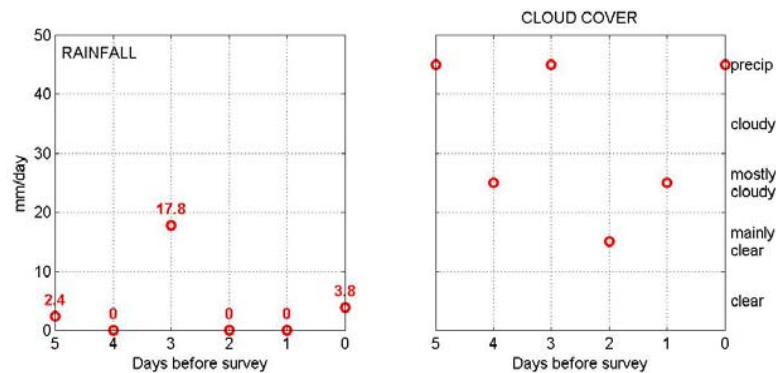


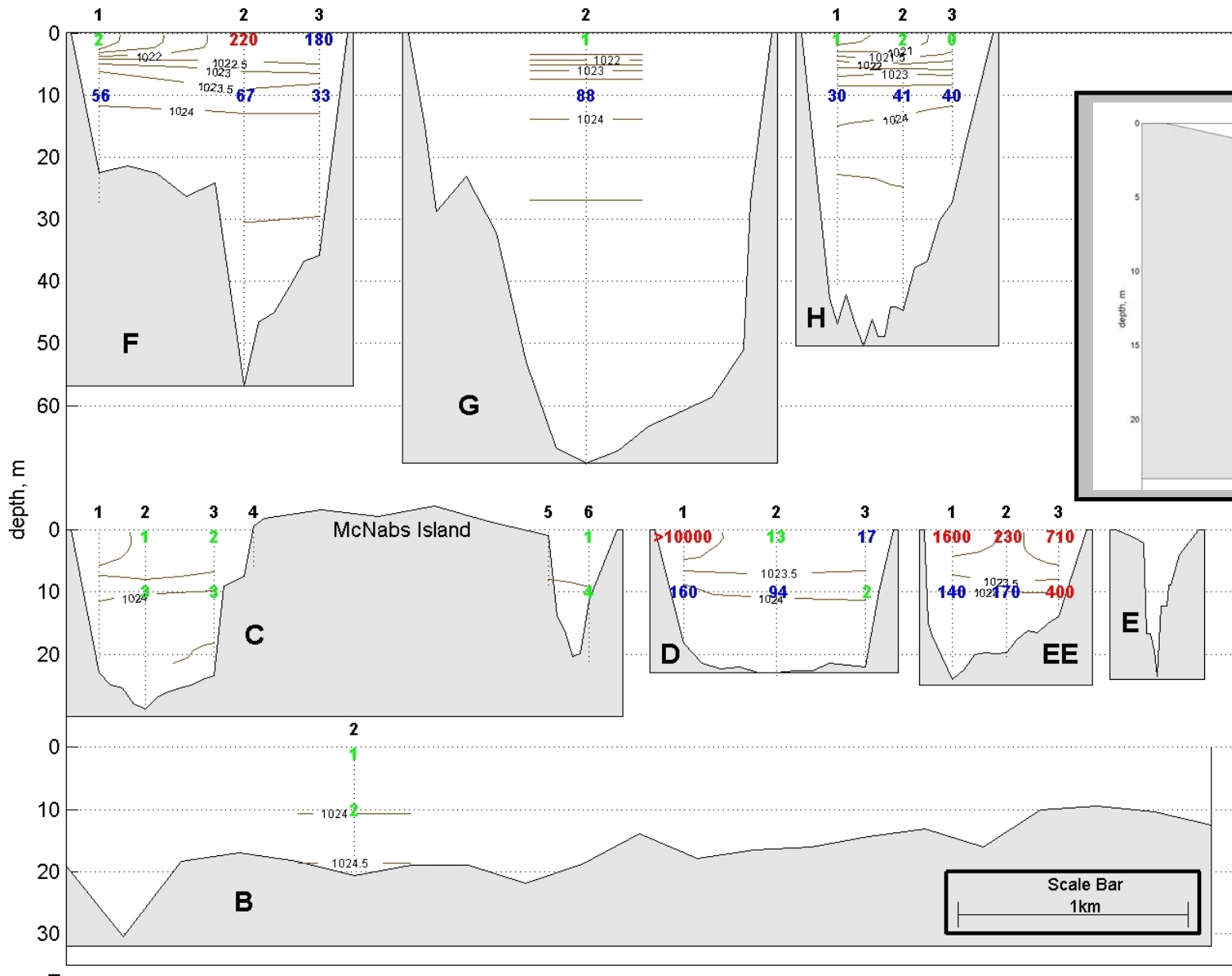
Wind Speed and Direction at Shearwater Airport



Weather data collected at the Shearwater Airport

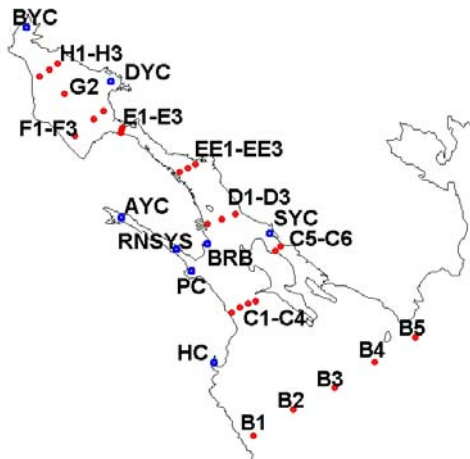
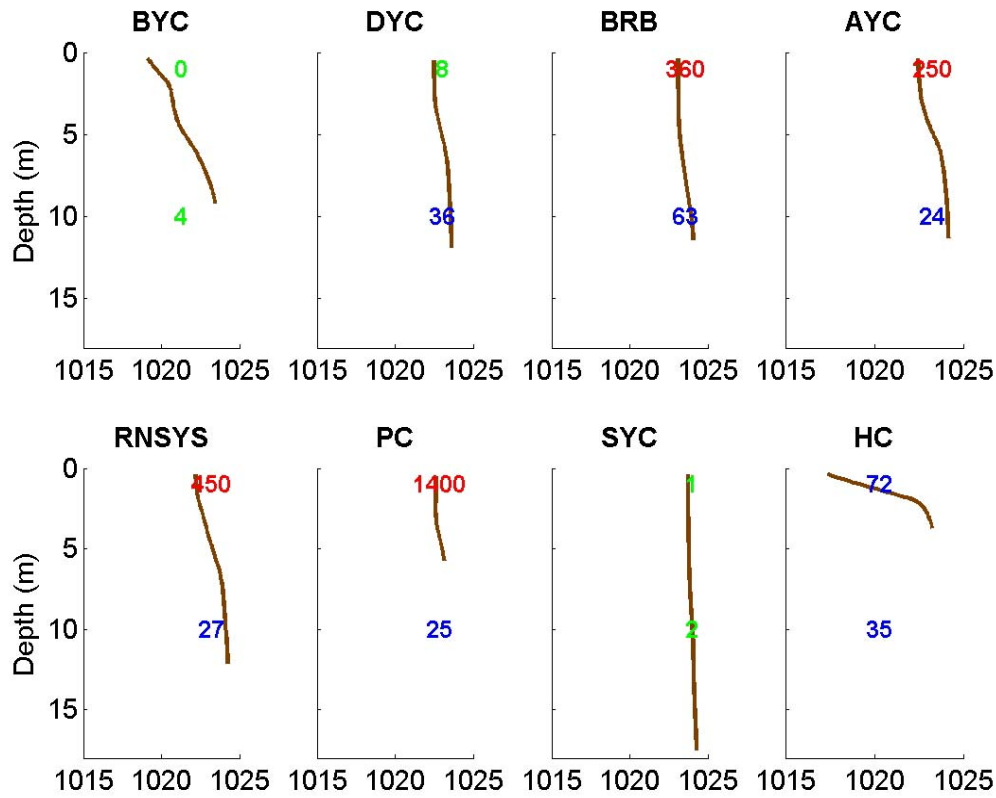
Salinity in PSU Temperature in °C





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

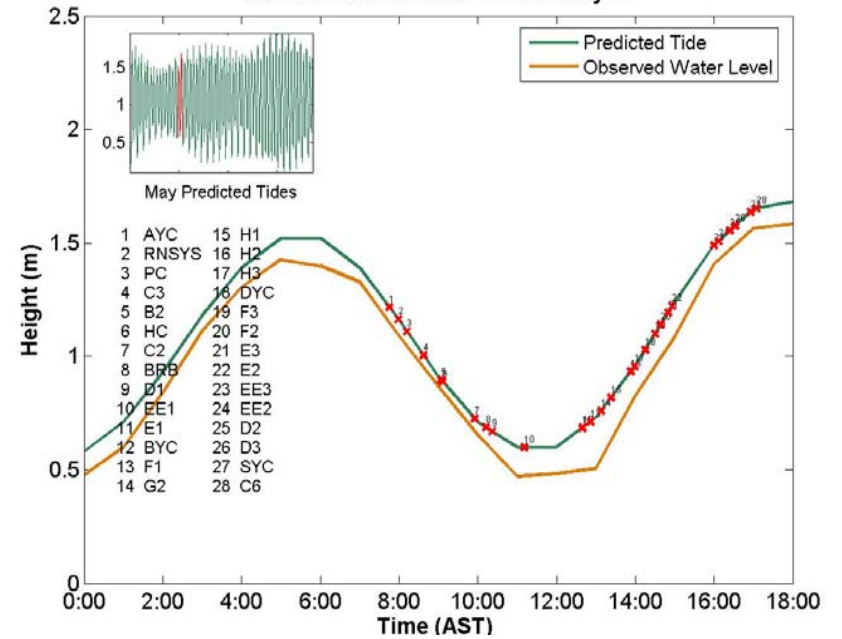
Yacht Clubs



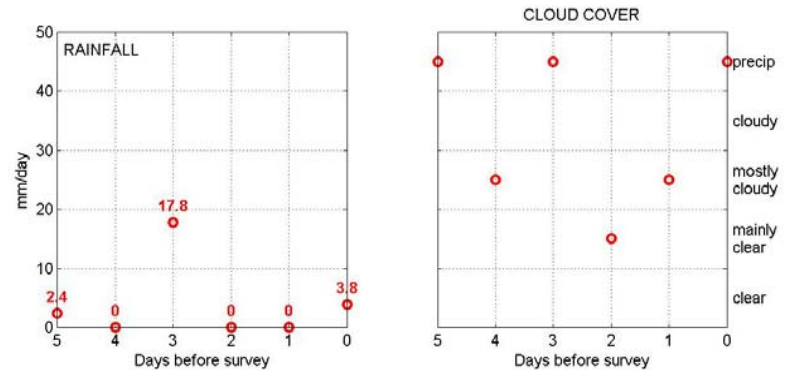
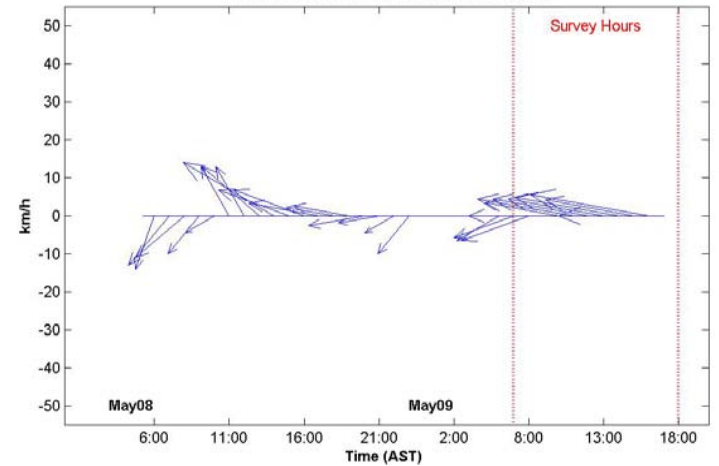
Weather data collected at the Shearwater Airport

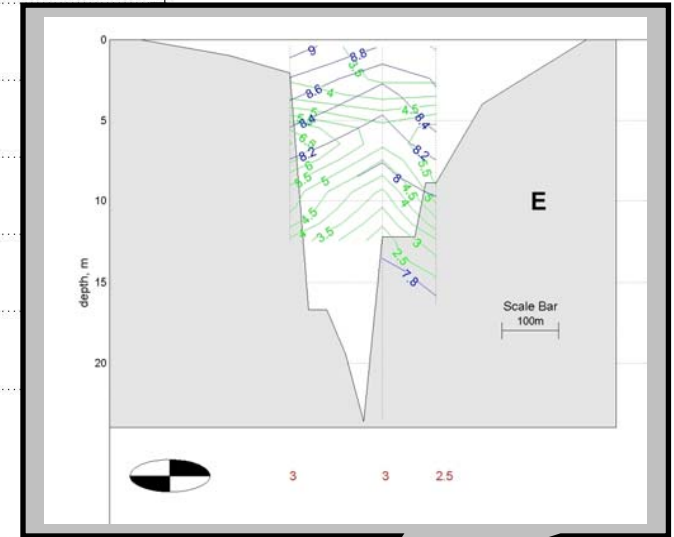
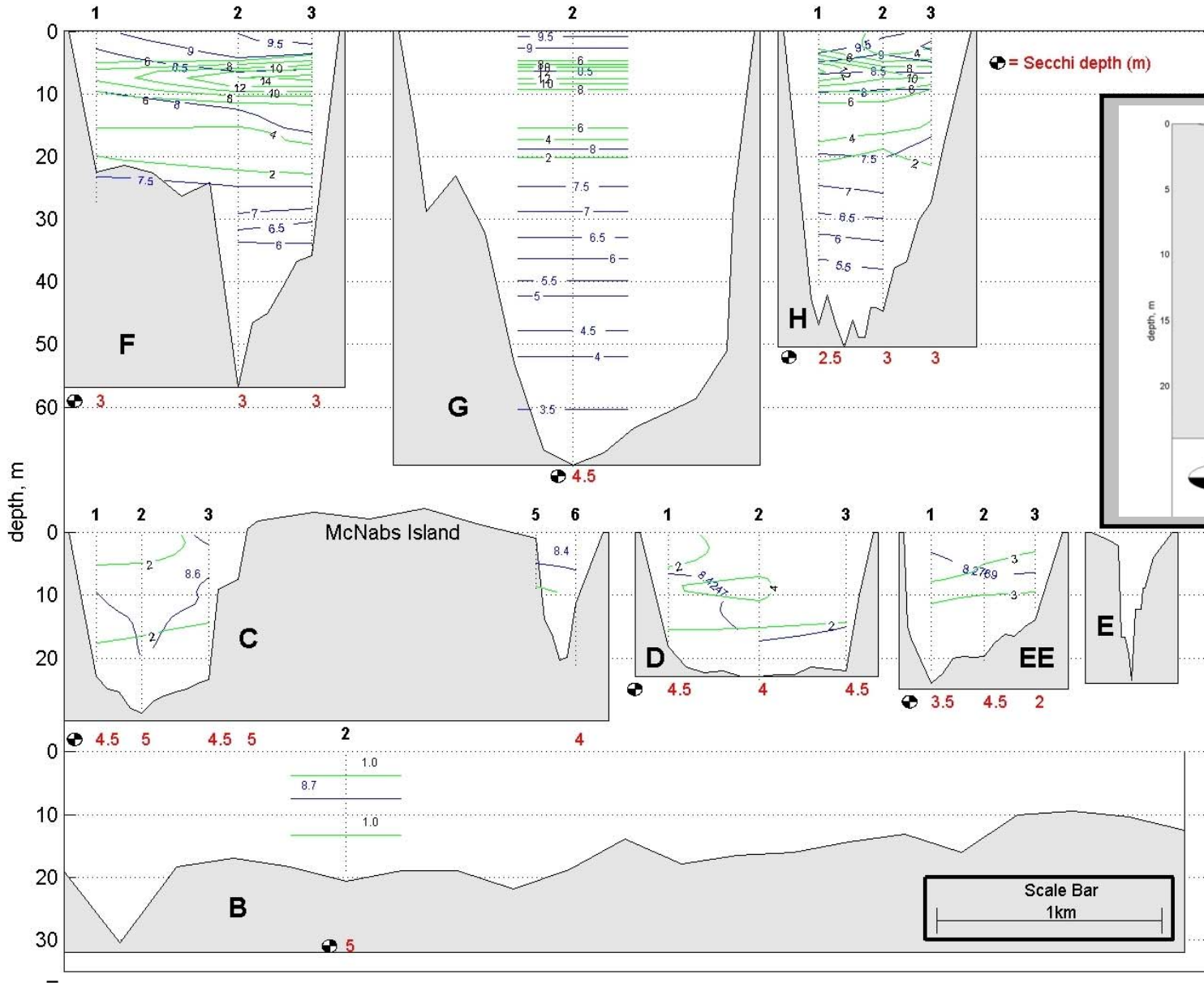
Potential Density in kg/m^3 Fecal coliform: **above swimming limit (200 cfu/100mL)**
above shellfish limit (14 cfu/100mL)
below limits

Halifax Harbour Water Level - May09



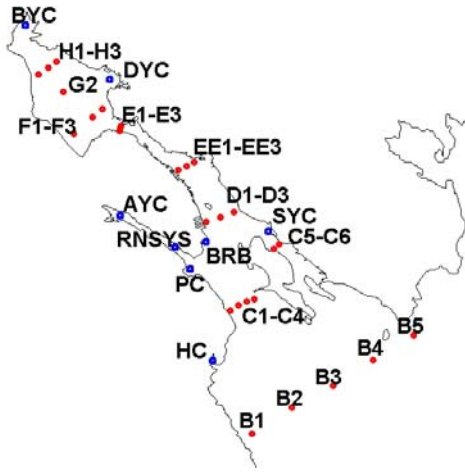
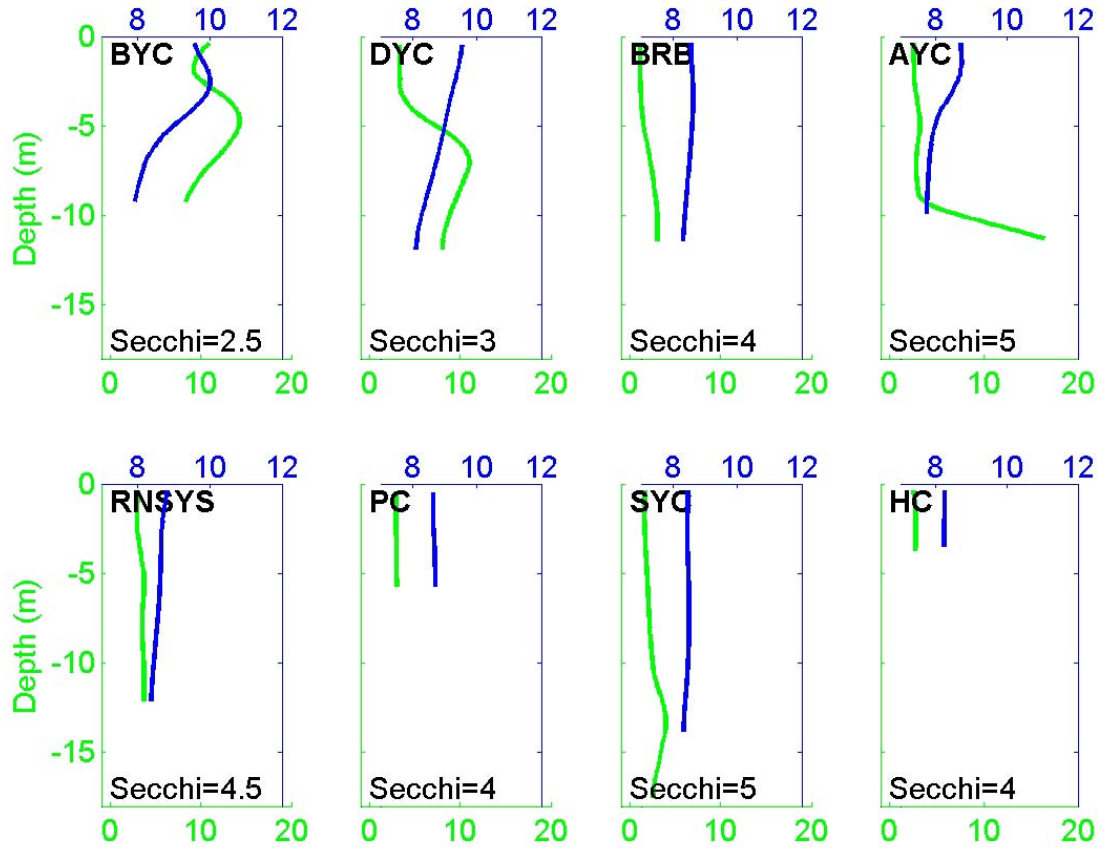
Wind Speed and Direction at Shearwater Airport





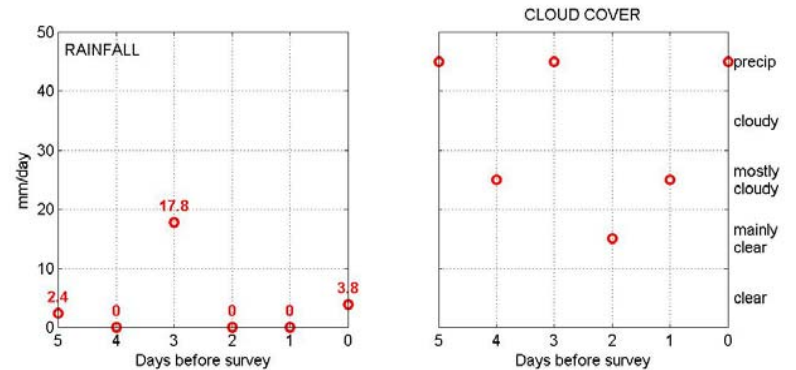
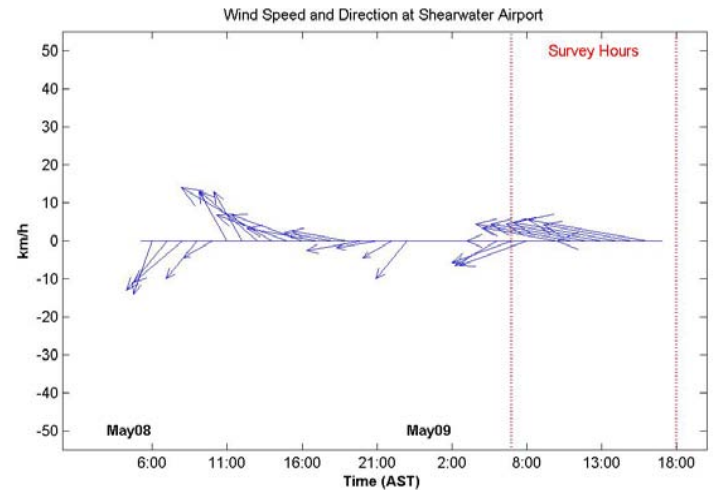
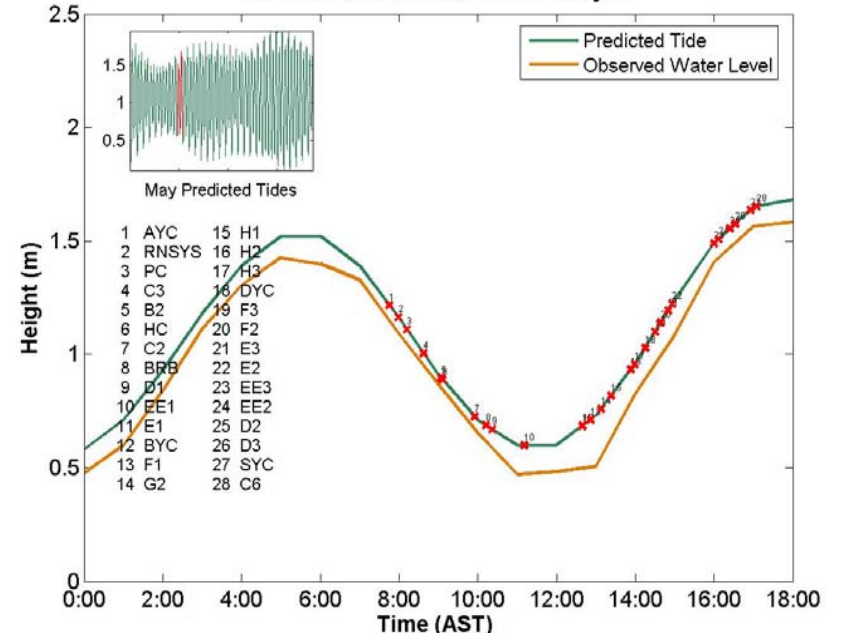
Unless otherwise labeled:
 - **dissolved oxygen** contour interval is 1 mg/L
 - **chlorophyll** contour interval is 2 mg/m³.

Yacht Clubs

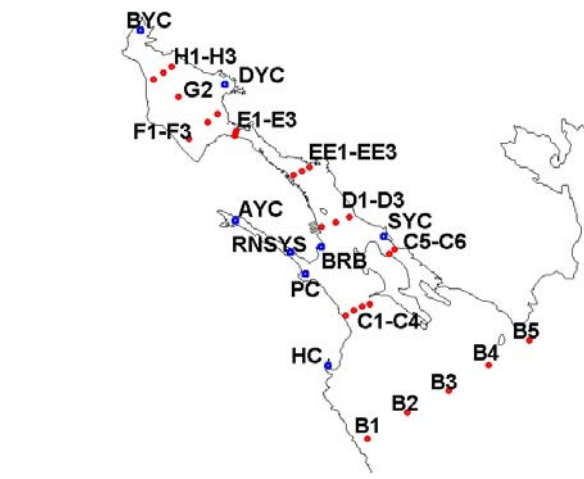
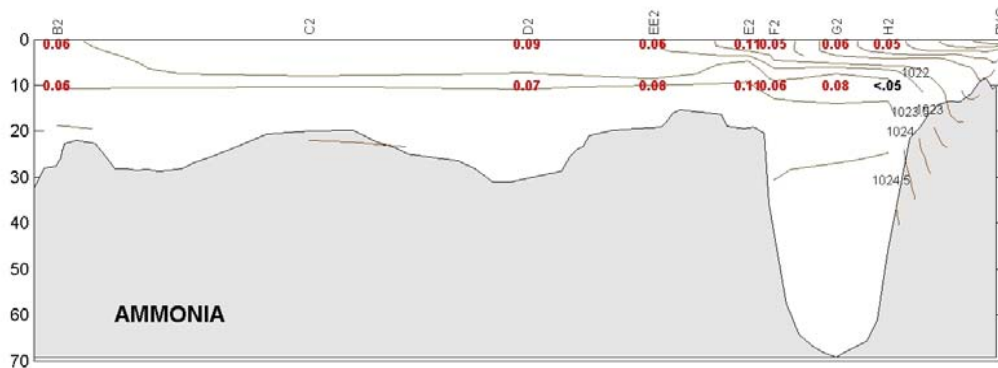
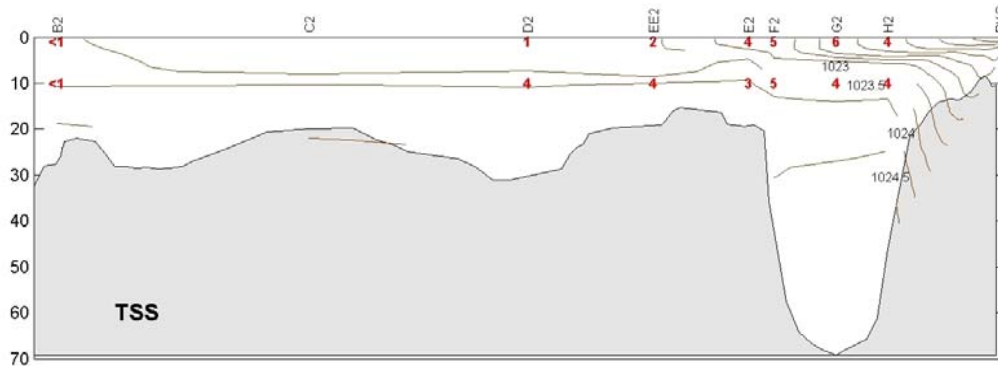


Weather data collected at the Shearwater Airport

Halifax Harbour Water Level - May09



CHEMISTRY



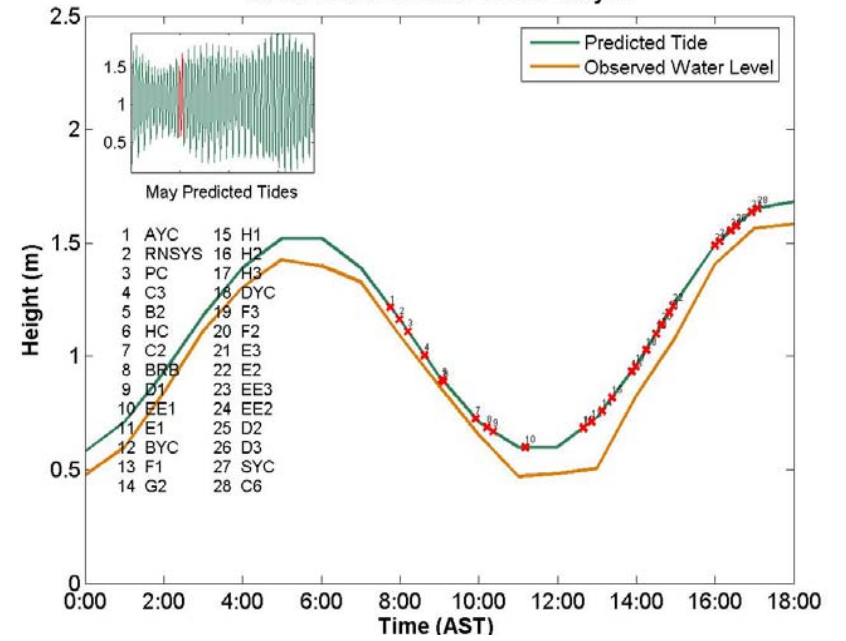
Weather data collected at the Shearwater Airport

Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

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Wind Speed and Direction at Shearwater Airport

