

# Halifax Harbour Water Quality Monitoring Project

## Weekly Summary #78

**Survey Date:** 13 December 2005  
**Nature of Survey:** Coliform Survey  
**Report File (this document):** HHWQMP\_report078\_051213.doc  
**Data File:** HHWQMP\_data078\_051213.xls

**Data Return:**

Profile: 90%  
 Bacteria: 89%  
 Chemical: na  
**Overall: 90%**

**Sample Notes:**

Stations B2 and HC were missed due to weather (low visibility due to heavy fog).

Station EE3 was missed. The site was initially skipped temporarily to meet a fueling appointment further down the Harbour. An extended wait for a fuel truck (3 hours) meant that it could not be made up due to daylight restrictions.

**Fecal Coliform QA/QC (CFU/100ml)**

Site	E1-1m	BYC-1m	D3-10m	PC-1m
Reference	240	740	300	>10000
QA/QC	210	580	48	9200

**Comments:**

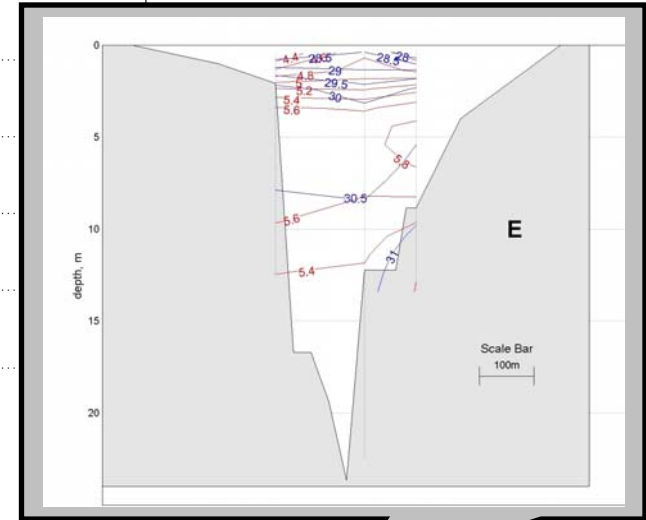
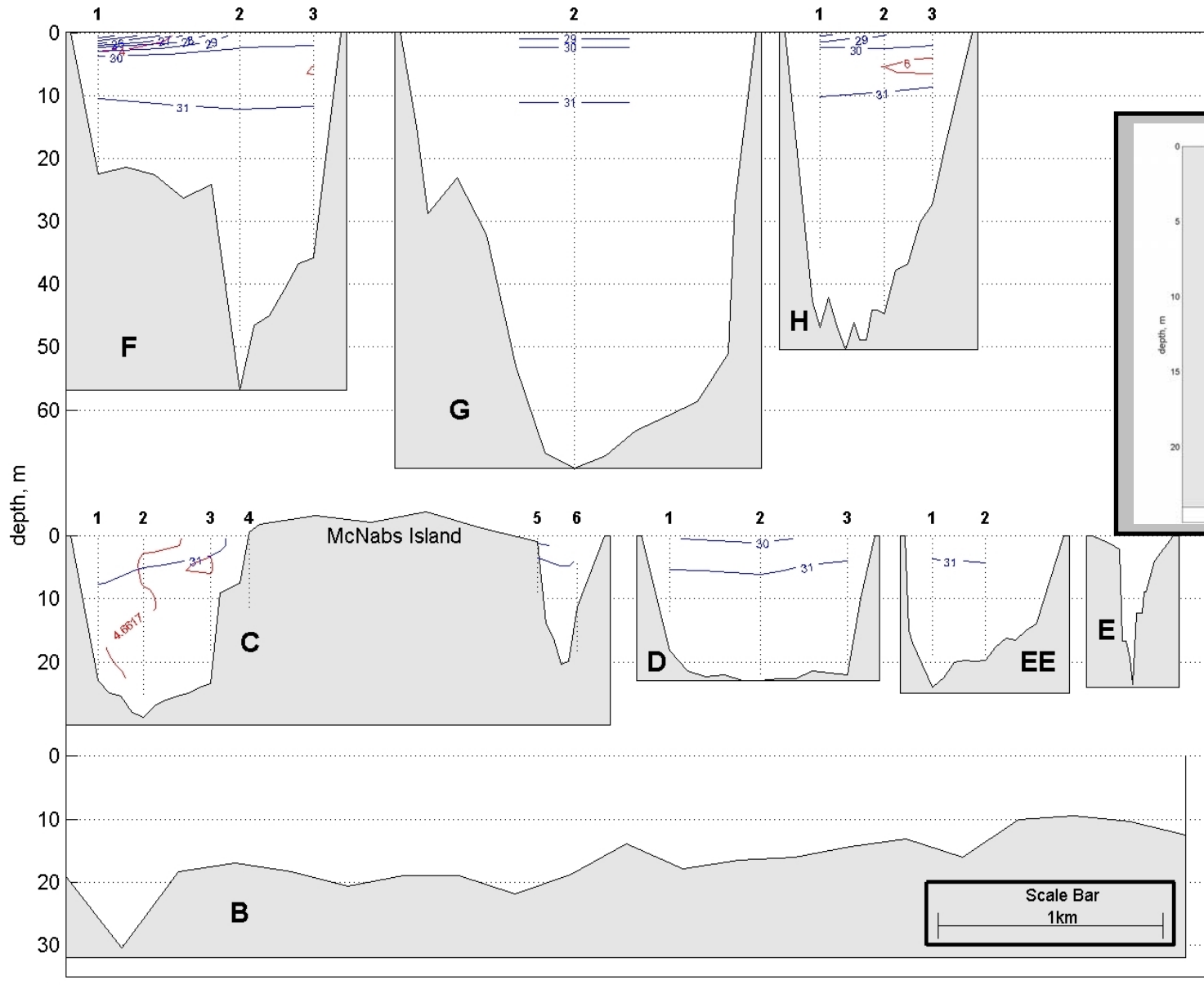
General: There has been an intrusion of deeper shelf water during the week, likely displacing much of the water in the Harbour. While there has been quite a bit of precipitation (61 mm) over the last 5 days, the freshwater signature is weak. The exception is the southwestern side of the Basin where there is a very thin layer of fresher, colder water (S=22, T=2.2 °C) a few meters thick at F1. There is also a suggestion of this feature at H1 (S=27, T=5.4 °C). This layer is associated with elevated coliform values, suggesting an Inner Harbour source. While the source of this water is unclear, its location is likely associated with the light to moderate NE wind on the day of the survey. Overall, the Harbour has a somewhat lower

freshwater content than last week, and is generally less stratified. With the exception of the colder surface feature water in the Basin, the water temperature is almost completely uniform at 4-5°C. It is possible that the intrusion has flushed much of the fresh water signal out of the Harbour and/or some of the precipitation is contained in snow or ice, which has not been documented. (Note that it was snowing on the day of the survey).

Coliform values are relatively high and, with the exception of the surface feature in the Basin, are distributed in a fairly common pattern for the Harbour. The 1m concentration distribution is displaced down the Harbour; there are values > 200cfu/100mL all the way to section C. The 10 m distribution is displaced slightly up-Harbour into the Basin, though this is not as obvious at the down-Harbour end, as values >200 cfu/100mL occur in the C2 sample. This pattern is probably caused by some combination of weak estuarine circulation and down-Harbour winds. An intrusion could contribute to this distribution, but there is no evidence that the intrusion is ongoing. The coliform values in the NW Arm are very high with an out-of-range value (>10,000 cfu/100mL) for the first time ever in the PC-1m sample.

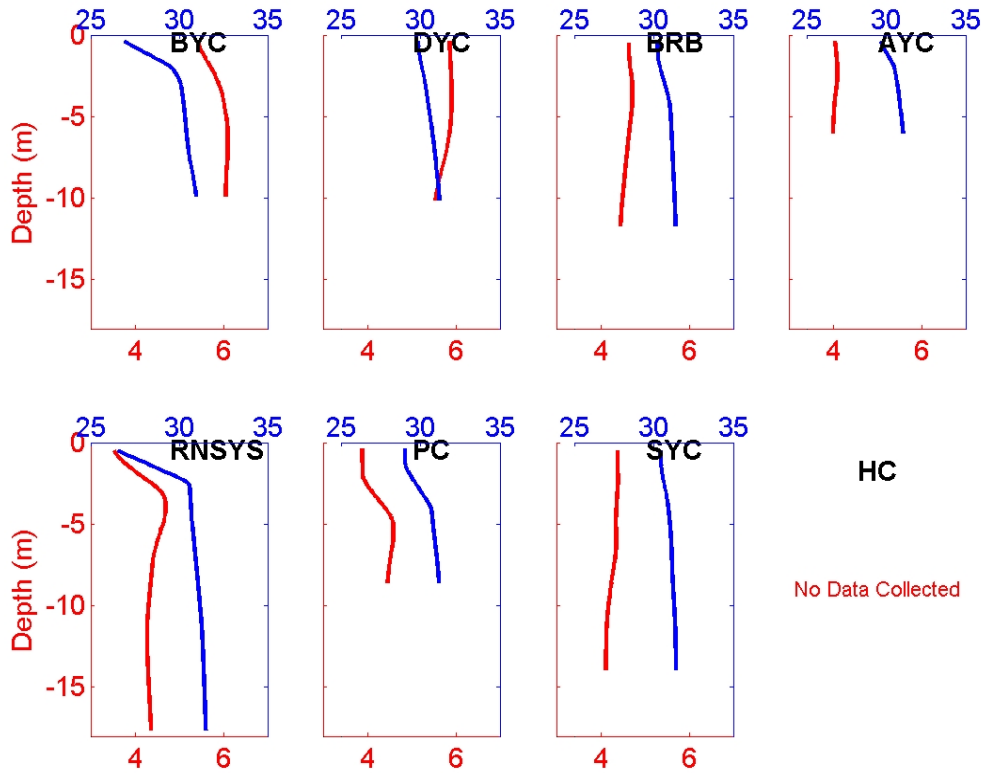
Chlorophyll: Fluorescence is somewhat uniformly low, with profile maximums of about 1-2 mg/m<sup>3</sup>. The values are slightly higher in the Basin with profile maximums ranging from 2- 5 mg/m<sup>3</sup>.

Dissolved Oxygen: The intrusion of shelf water has raised the DO levels in the Basin bottom water again (last occurrence on 27 Oct) to close to 6 mg/L. Values in the surface water are quite uniform throughout the Harbour, with profile maximums of 7-8 mg/L and minimums of 6-7 mg/L. The only values below the use-specific guidelines are in Bedford Basin waters deeper than 5-10m, where the values are less than the 7.0 mg/L class SB guideline. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).

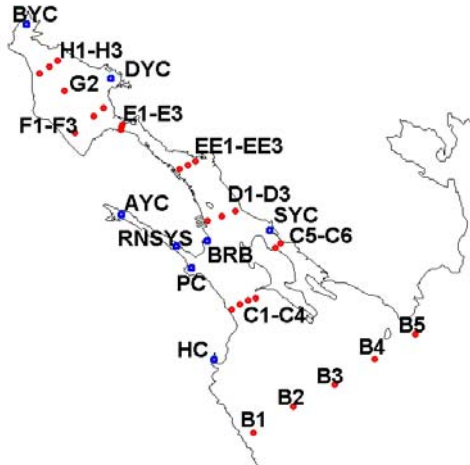


Unless otherwise labeled:  
 - salinity contour interval is 1 PSU  
 - temperature contour interval is 1°C.

# Yacht Clubs

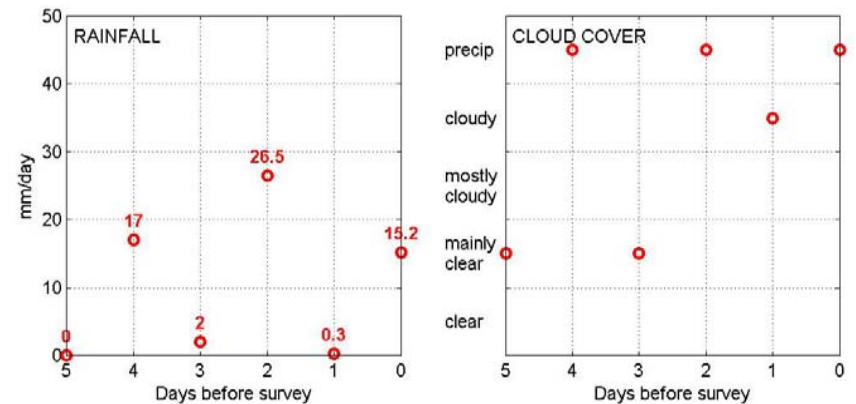
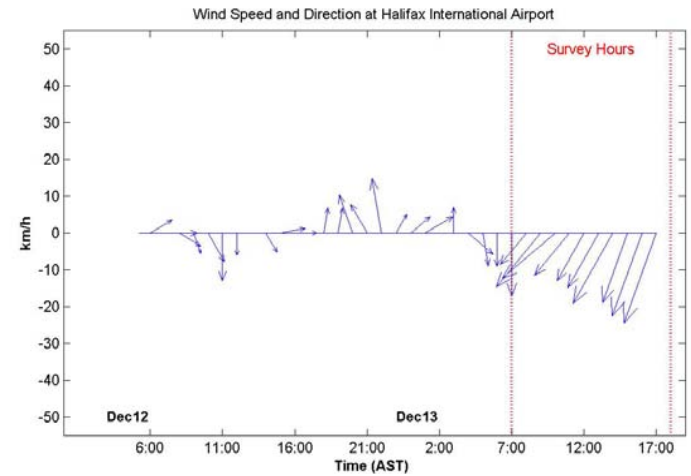
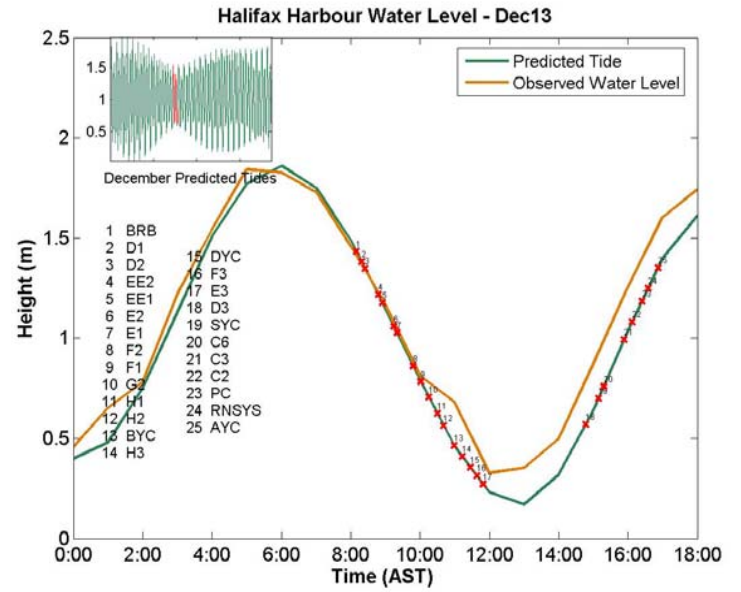


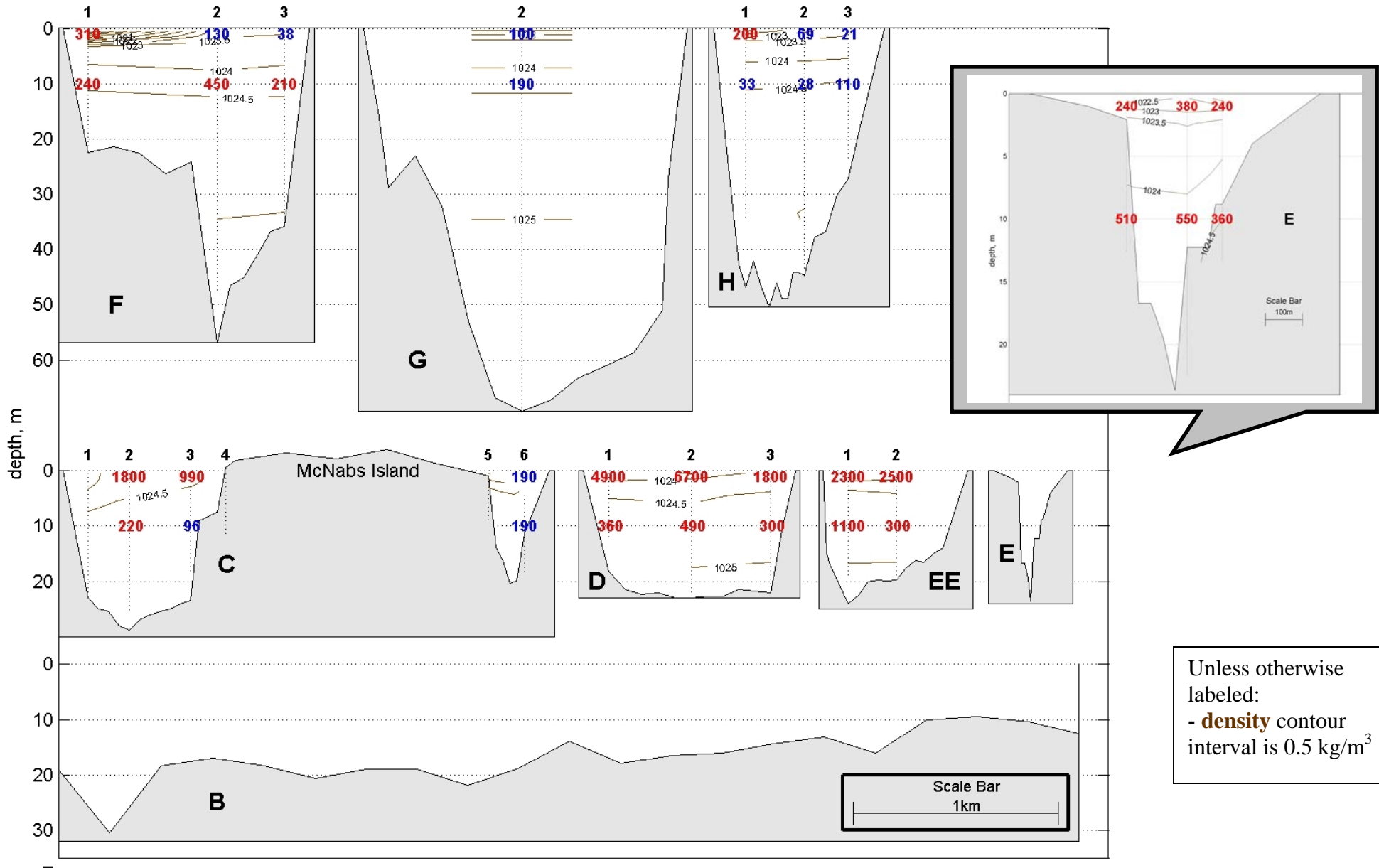
HC  
No Data Collected



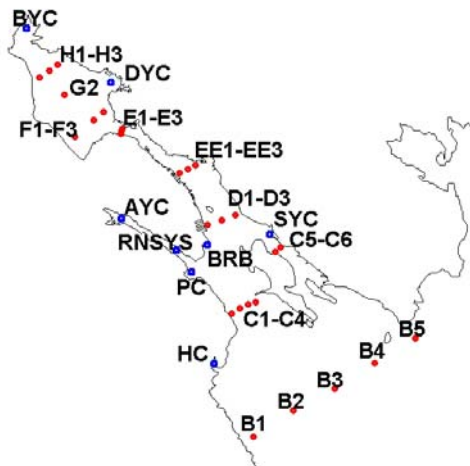
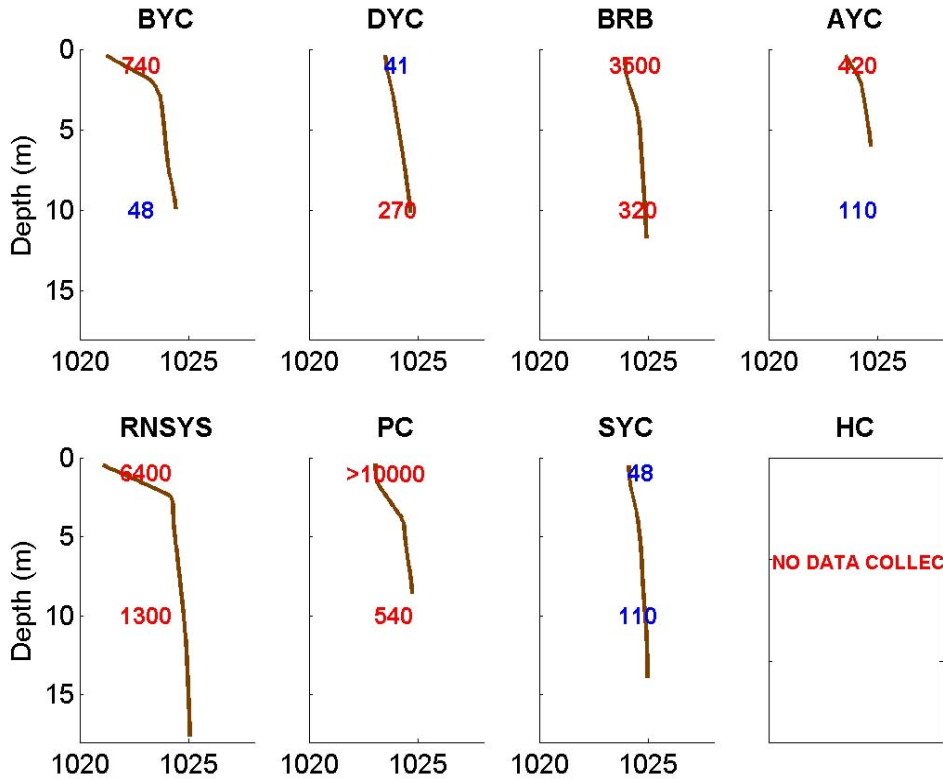
Salinity in PSU      Temperature in °C

Weather data collected at the Halifax International Airport





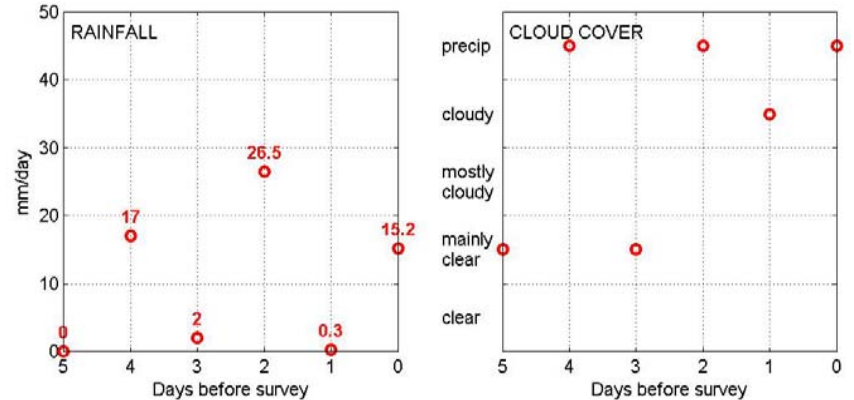
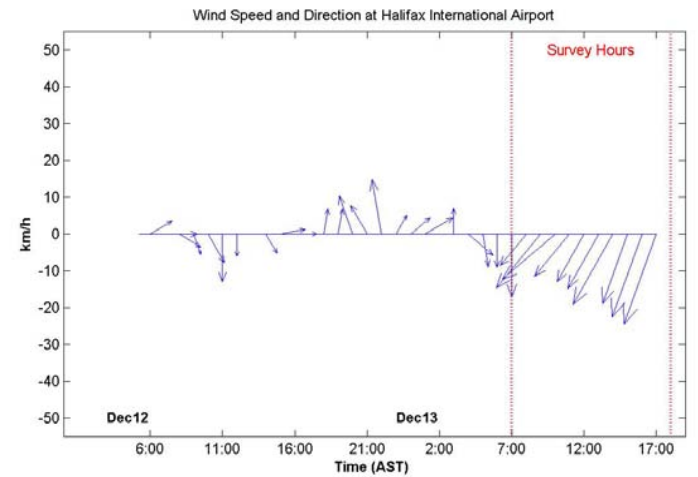
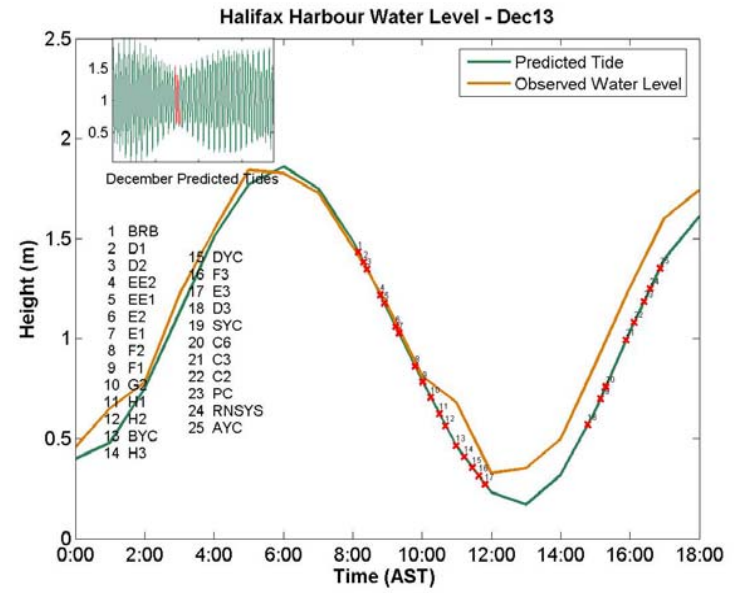
# Yacht Clubs

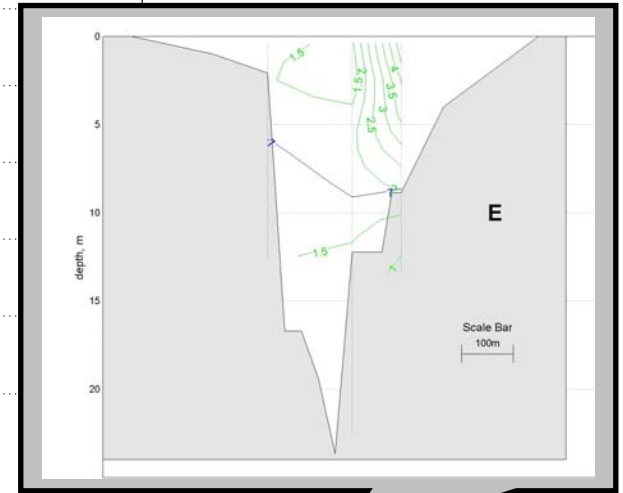
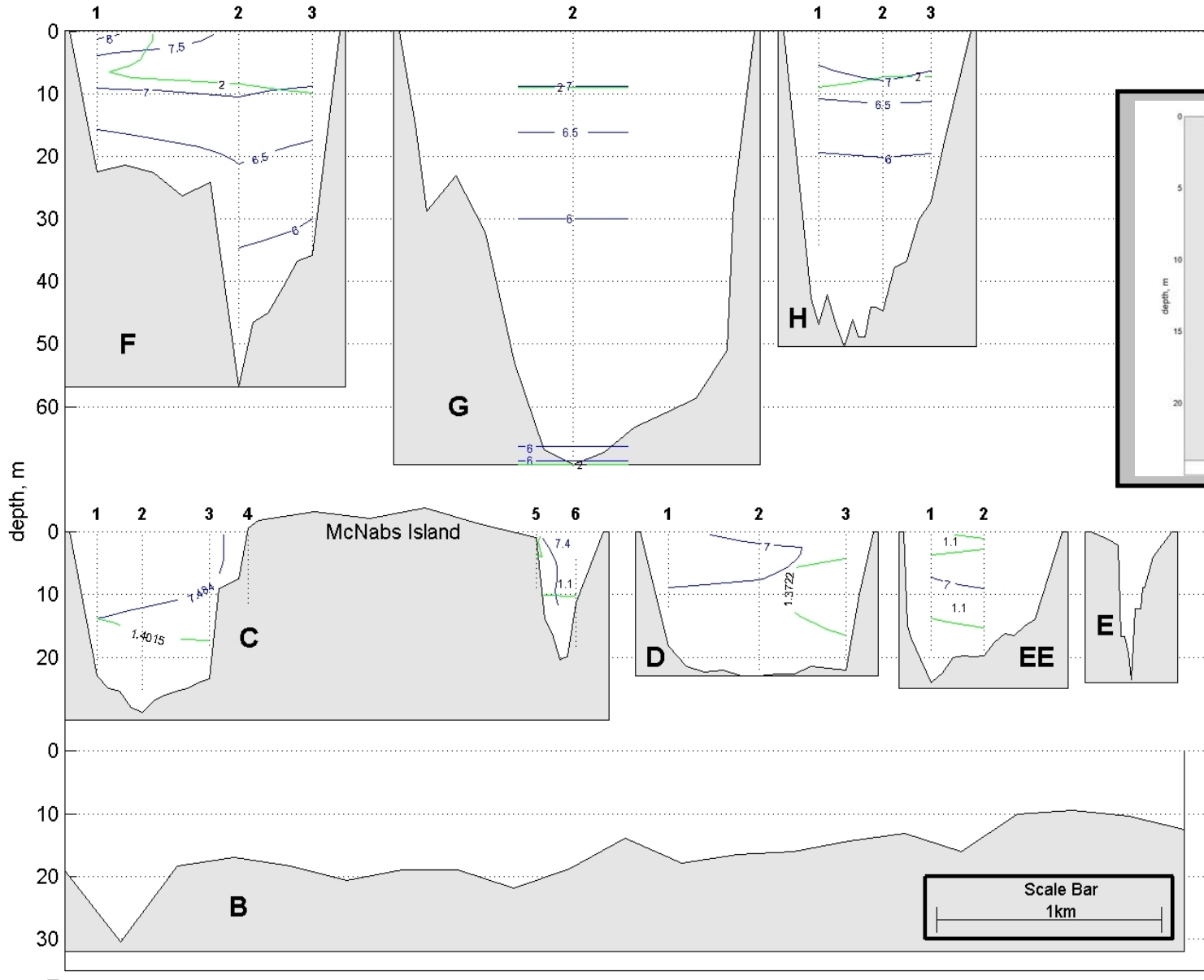


Weather data collected at the Halifax International Airport

Potential Density in  $\text{kg/m}^3$

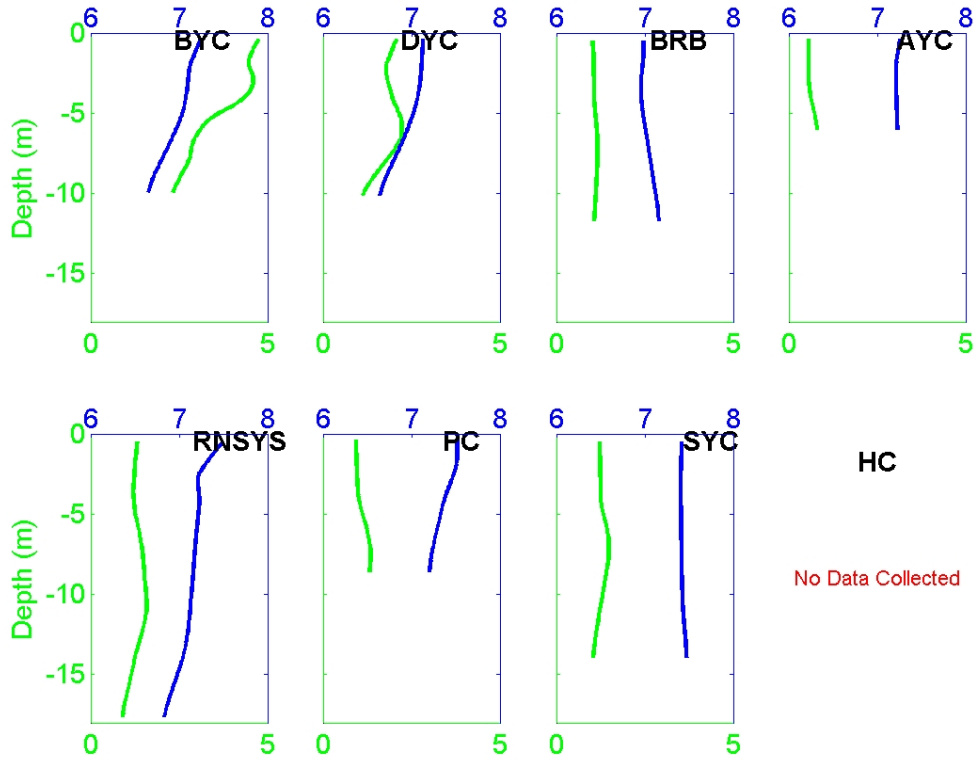
Fecal coliform: **above swimming limit (200 cfu/100mL)**  
**above shellfish limit (14 cfu/100mL)**  
 below limits





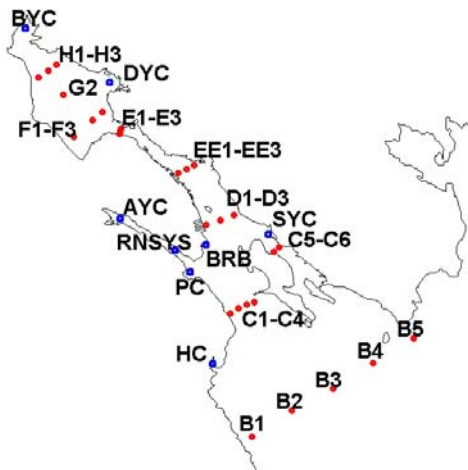
Unless otherwise labeled:  
 - **dissolved oxygen** contour interval is 1 mg/L  
 - **chlorophyll** contour interval is 2 mg/m<sup>3</sup>.

# Yacht Clubs



HC

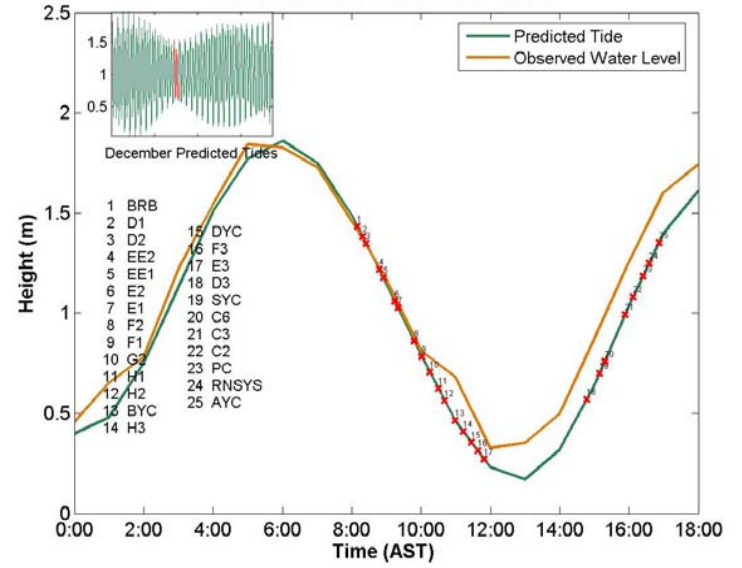
No Data Collected



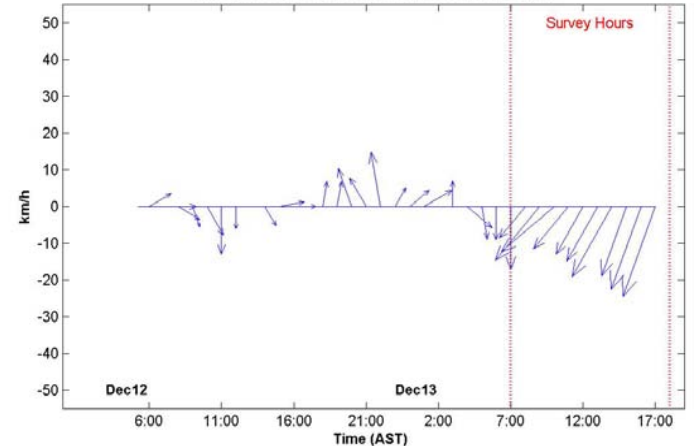
DO in mg/L

Chlorophyll in mg/m<sup>3</sup>

Halifax Harbour Water Level - Dec13



Wind Speed and Direction at Halifax International Airport



Weather data collected at the Halifax International Airport

