

# Halifax Harbour Water Quality Monitoring Project

## Weekly Report #40

**Survey Date:** 22 March 2005  
**Nature of Survey:** Coliform Survey  
**Report File (this document):** HHWQMP\_report040\_050322.doc  
**Data File:** HHWQMP\_data040\_050322.xls

**Data Return:**  
Profile: 97%  
Bacteria: 96%  
Chemical: na  
**Overall: 97%**

### Sample Notes:

Site AYC not sampled due to ice.

### QA/QC samples:

#### Fecal Coliform (CFU/100ml)

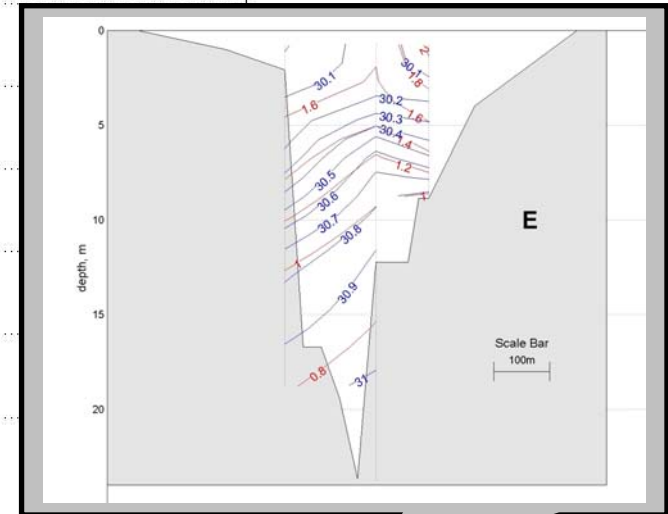
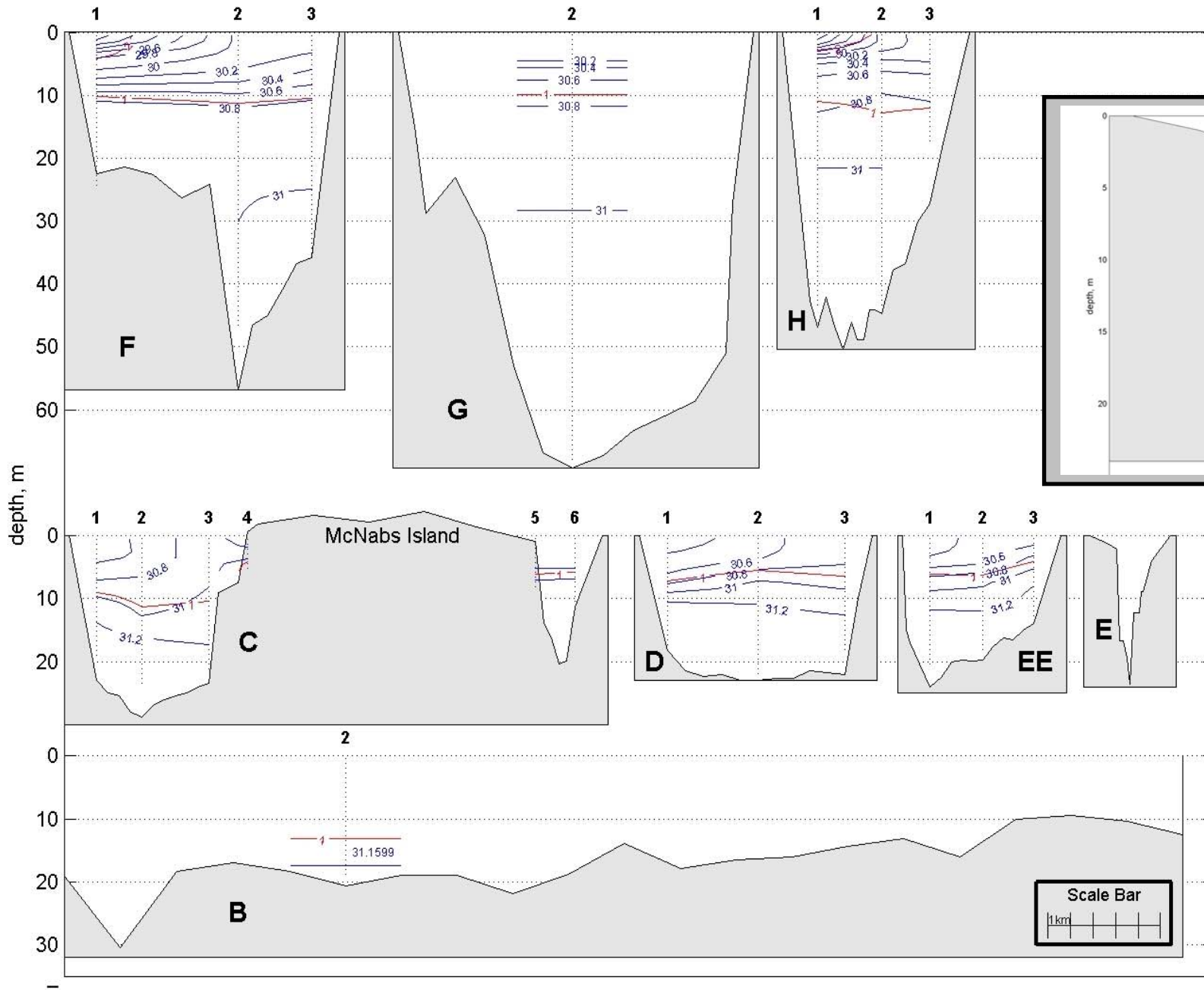
Site	PC-1m	E2-10m	C3-10m	C2-1m
Reference	4600	98	4	77
QA/QC	5900	130	ND	64

### Comments:

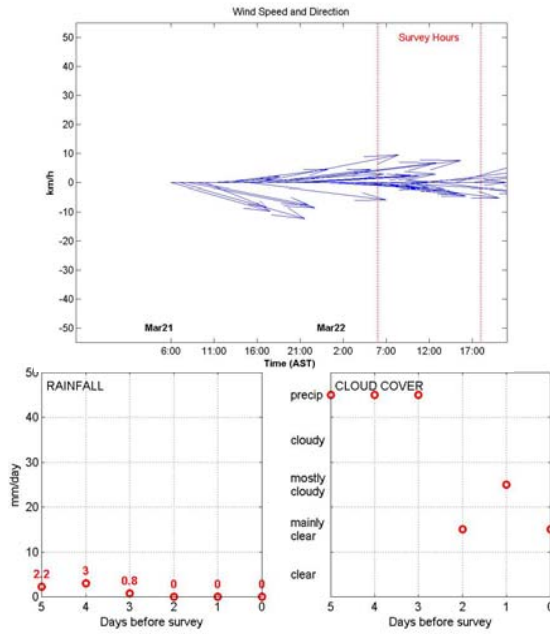
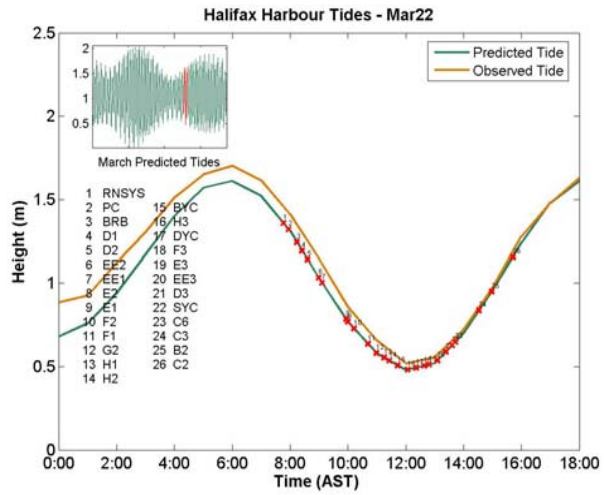
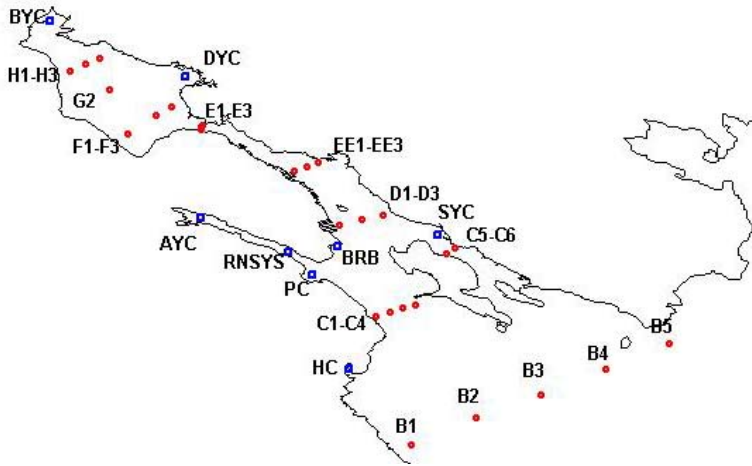
**Dissolved Oxygen:** The Basin has overturned (or is overturning). The bottom water in the Basin now has a DO content of 9 mg/L. The lowest dissolved oxygen levels (about 7.9 mg/L) are still in the Basin in a layer between 20 and 25 m water depth. There are no dissolved oxygen levels below guidelines anywhere in the harbour.

**Chlorophyll a:** Spring Bloom is definitely underway, there is a chlorophyll a maximum in all profiles at a depth varying between 5 and 10m. These profile maximums are highest (about 25 mg/l) in the southern Basin and decrease to 8-10 mg/L in the inner harbour and to 3 mg/L at site B2.

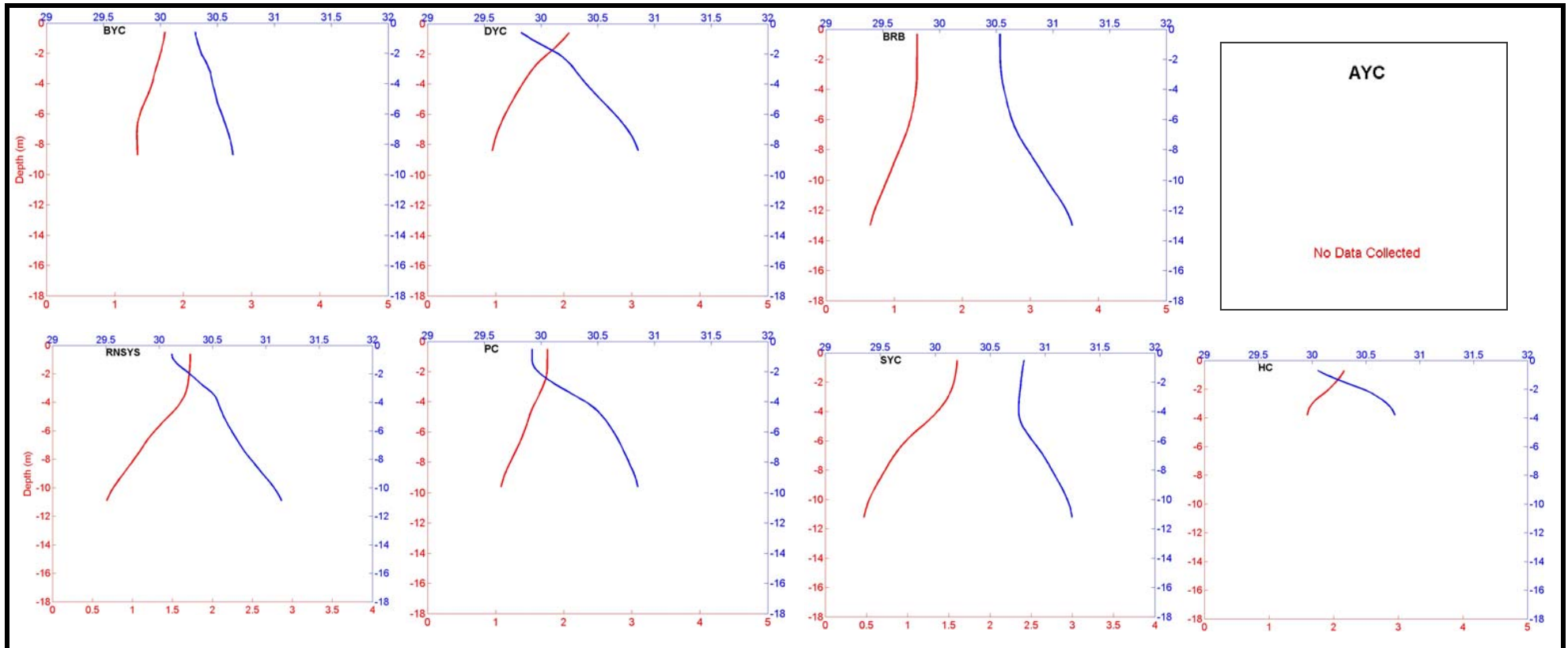
**General:** This is perhaps the most interesting week since the program began. The Basin appears to be in the final stages of overturning. The oxygen-poor bottom water has been replaced by the intrusion of denser (more saline) oxygen-rich shelf bottom water. This phenomenon is caused by upwelling of dense bottom water against the coast when the surface water is pushed offshore by wind. The Basin bottom water, which has been at a dissolved oxygen concentration of < 1 mg/L, now has an oxygen content of about 9 mg/L. The old bottom water has been uplifted and mixed with surface water. A relic layer of slightly oxygen depressed (approx 7.9 mg/L) water remains at about 25 m water depth. There is water denser than the Basin bottom water at the sill in the Narrows, implying that this overturning is continuing. The spatial distribution of high (> 200) fecal coliform values is relatively small, being limited to the surface water at sections EE and D, and the values are relatively low. This is consistent with the significant flushing and mixing which can accompany intrusion events.



Unless otherwise labeled:  
 - salinity contour interval is 0.2 PSU  
 - temperature contour interval is 1°C.

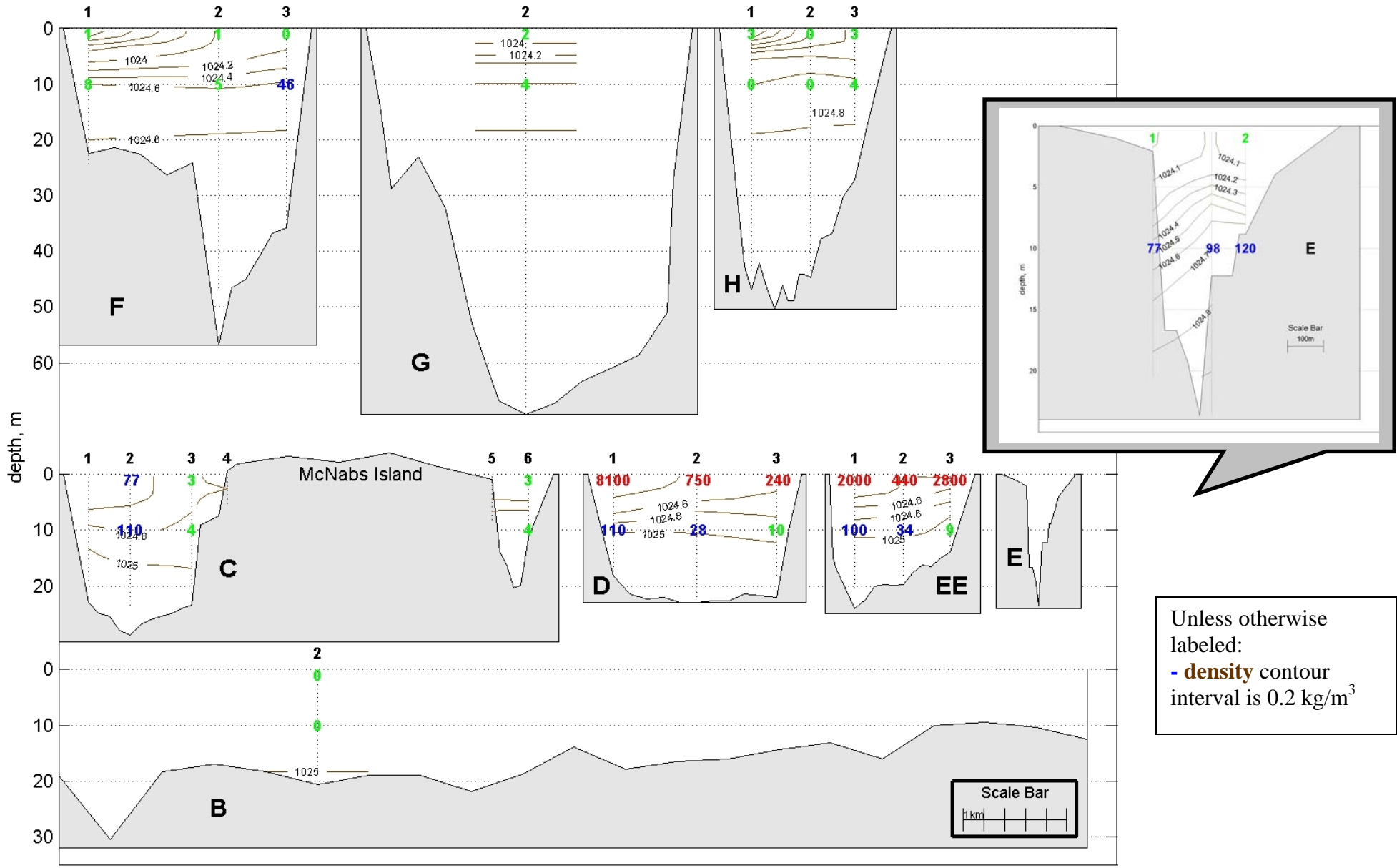


## Yacht Clubs



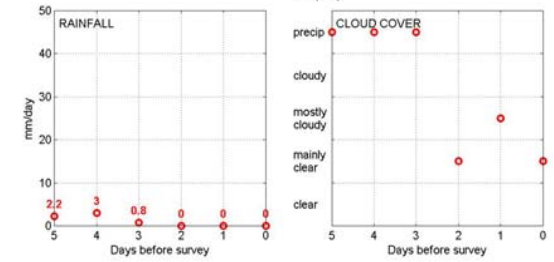
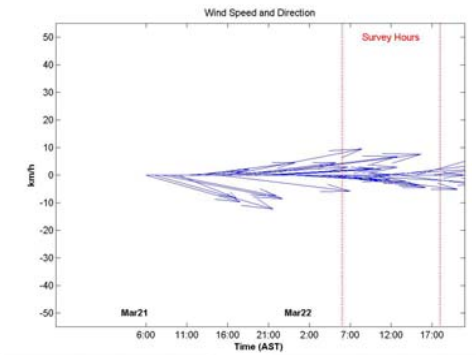
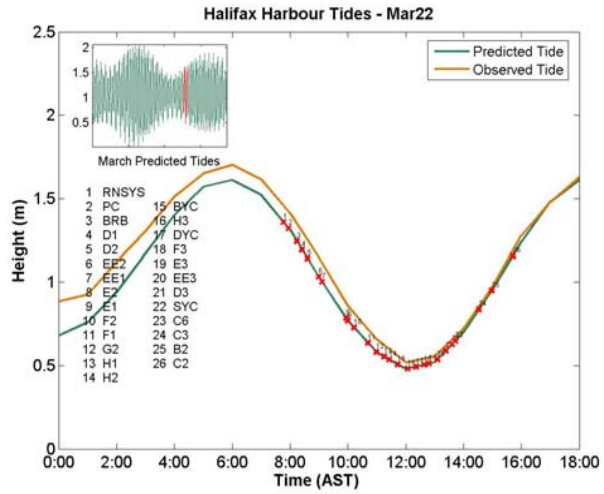
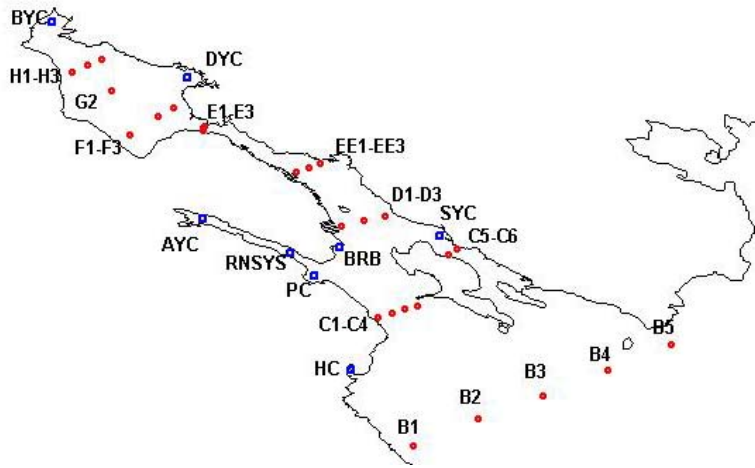
Salinity in PSU

Temperature in °C

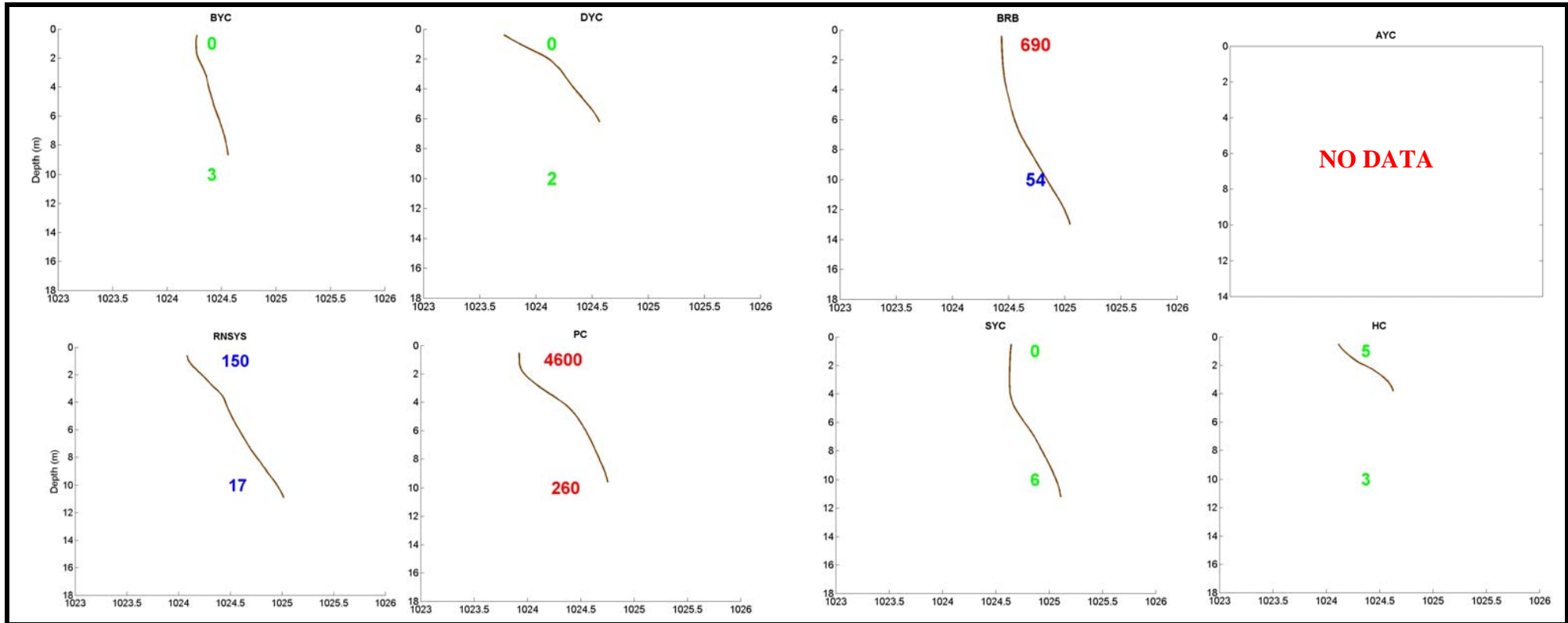


Unless otherwise labeled:  
 - density contour interval is 0.2 kg/m<sup>3</sup>

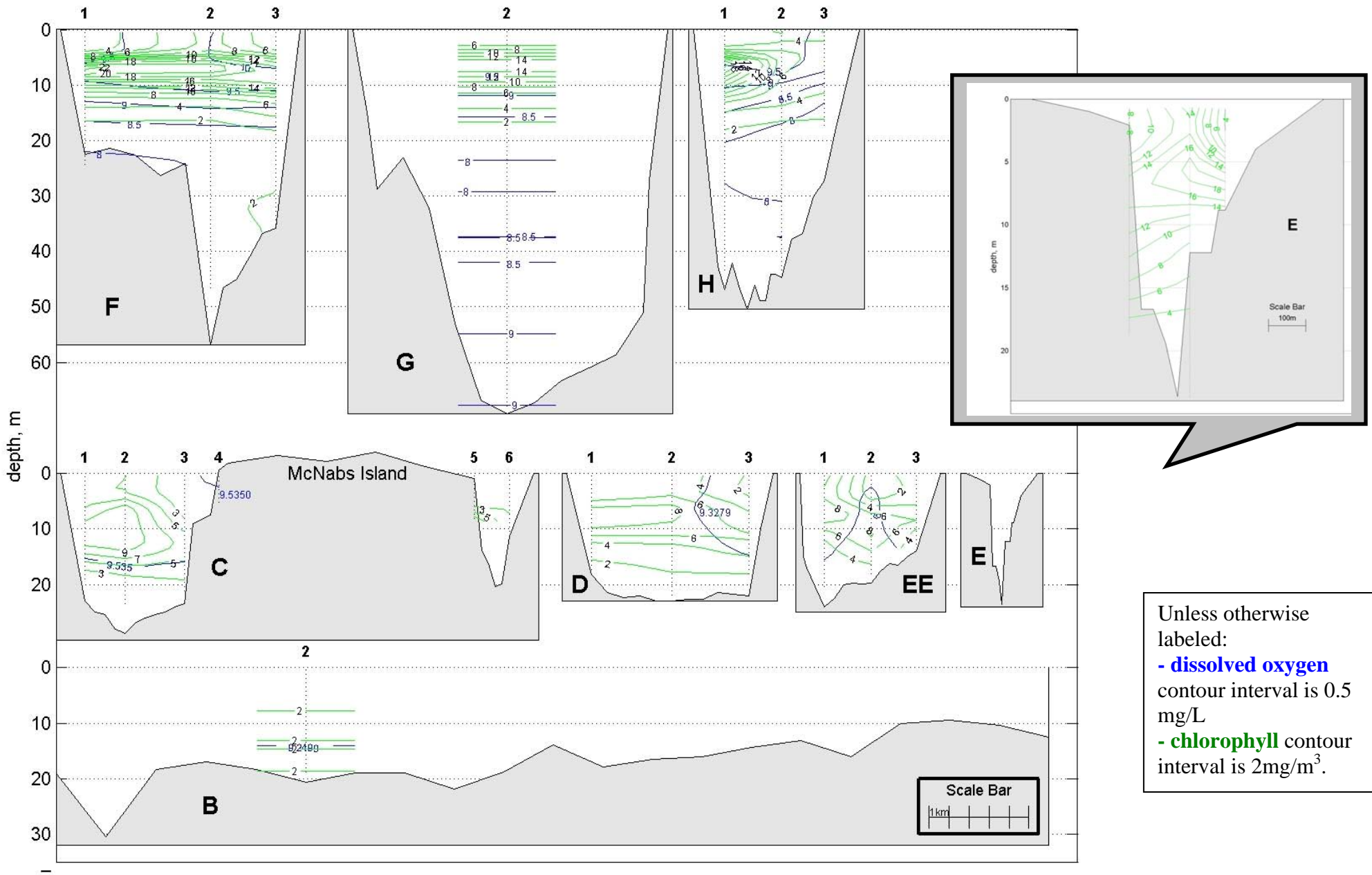
Density in kg/m<sup>3</sup>    Fecal coliform: above swimming limit (200 cfu/100mL)  
 above shellfish limit (14 cfu/100mL)  
 below limits

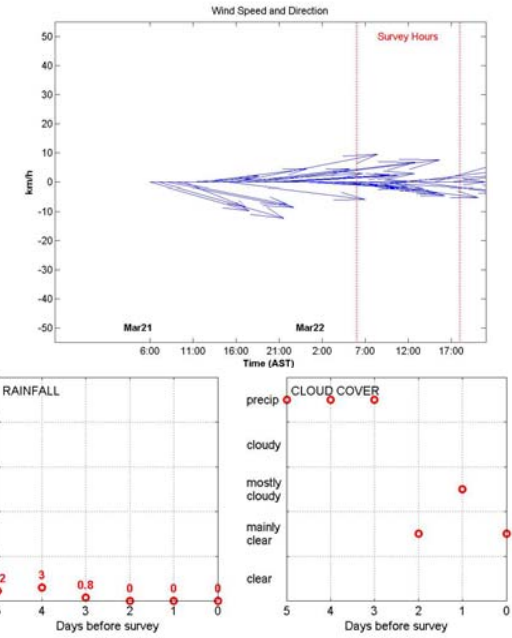
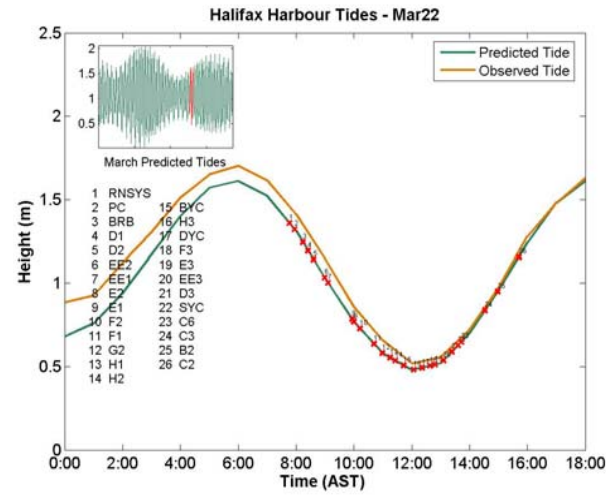
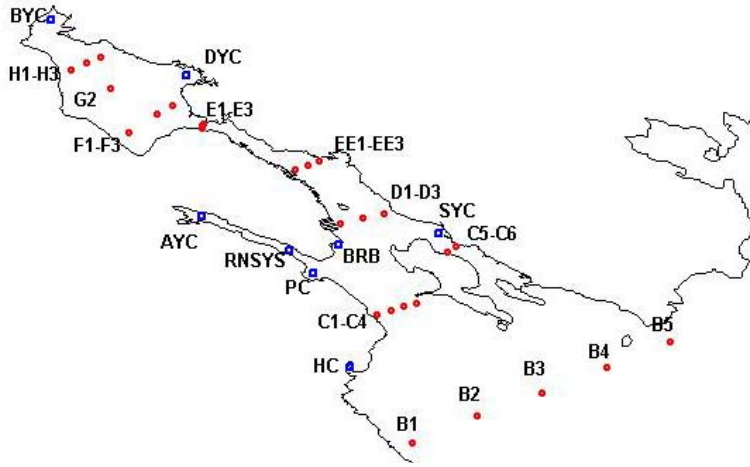


### Yacht Clubs

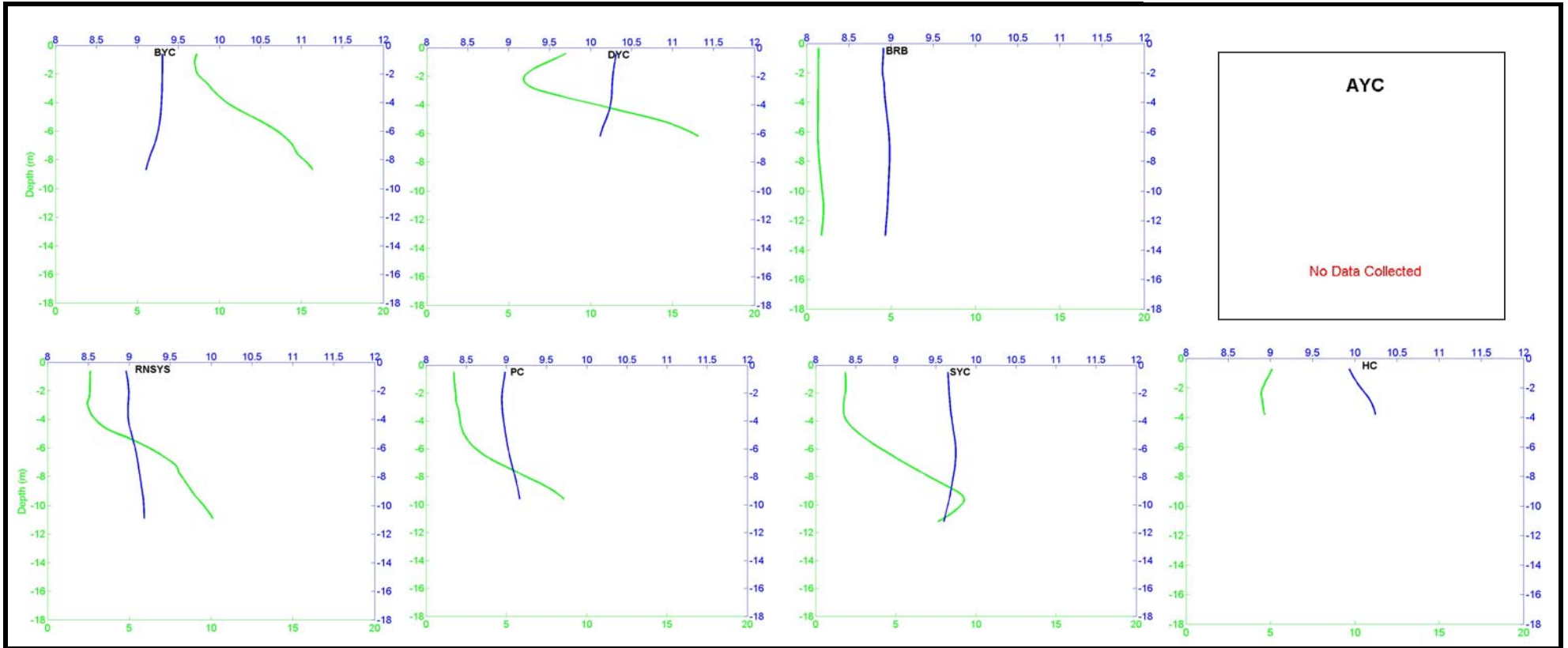


**Density in kg/m<sup>3</sup>**      **Fecal coliform: above swimming limit (200 cfu/100mL)**  
**above shellfish limit (14 cfu/100mL)**  
 below limits





### Yacht Clubs



DO in mg/L

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