

# Halifax Harbour Water Quality Monitoring Project

## Weekly Summary #105

**Survey Date:** 21 June 2006  
**Nature of Survey:** Complete Survey  
**Report File (this document):** HHWQMP\_report105\_060621.doc  
**Data File:** HHWQMP\_data105\_060621.xls

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

**Sample Notes:**

n/a

**QA/QC samples:**

Chemical Analysis		G2 – 10m		F2-1m	
		Ref Sample	Lab Dup	Ref Sample	QA/QC
Detectable Parameter	units				
Ammonia (as N)	mg/L	0.05	NA	<0.05	<0.05
Total Suspended Solids	mg/L	4	4	4	4

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

Site	EE3-10m	BYC-1m	D1-10m	F2-1m
Reference	1500	1300	83	30
QA/QC	1800	1000	92	36

**Comments:**

**General:** In spite of essentially dry weather this week, Bedford Basin exhibits a strong freshwater signal. This apparently originates from the Sackville River in response to previous wet weather. There has been a persistent, moderate (ca. 20 km/h) south (up-harbour) wind through the previous day and continuing during sampling.

There is a very thin surface layer (of order 1m) of quite fresh, and relatively warm, water in the Basin that extends into the Inner Harbour. The surface water has a salinity of 10 PSU at BYC, increases to 20 PSU in the central Basin, and again to 25

PSU in the Narrows. This near-surface layer is evident as far south as section D. Everywhere in the Inner Harbour and Basin, the 30 PSU contour is above 5m. In the Outer Harbour the salinity is relatively uniform at about 31 PSU.

Consistent with the salinity data, the field notes indicate that the surface water in the Basin and northern Inner Harbour has a brown tinge, perhaps associated with tannin from Sackville River. At many locations in this area, visible particulates (phytoplankton flocs?) are noted. The Secchi disk depths in the Basin are all low, at values of 2-2.5 m and are only slightly higher in the Inner Harbour.

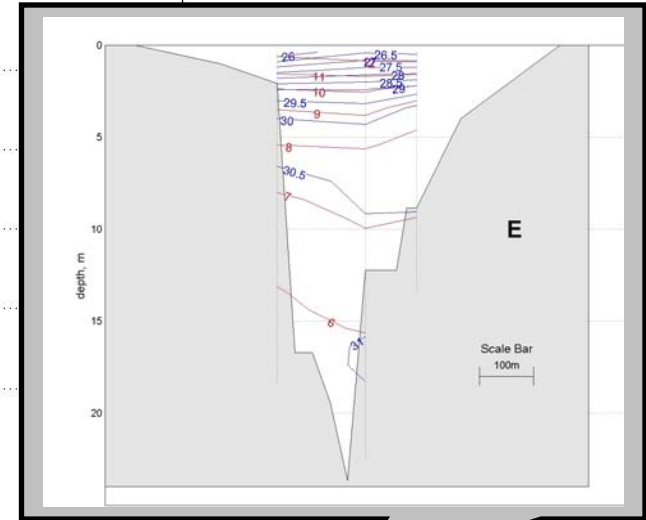
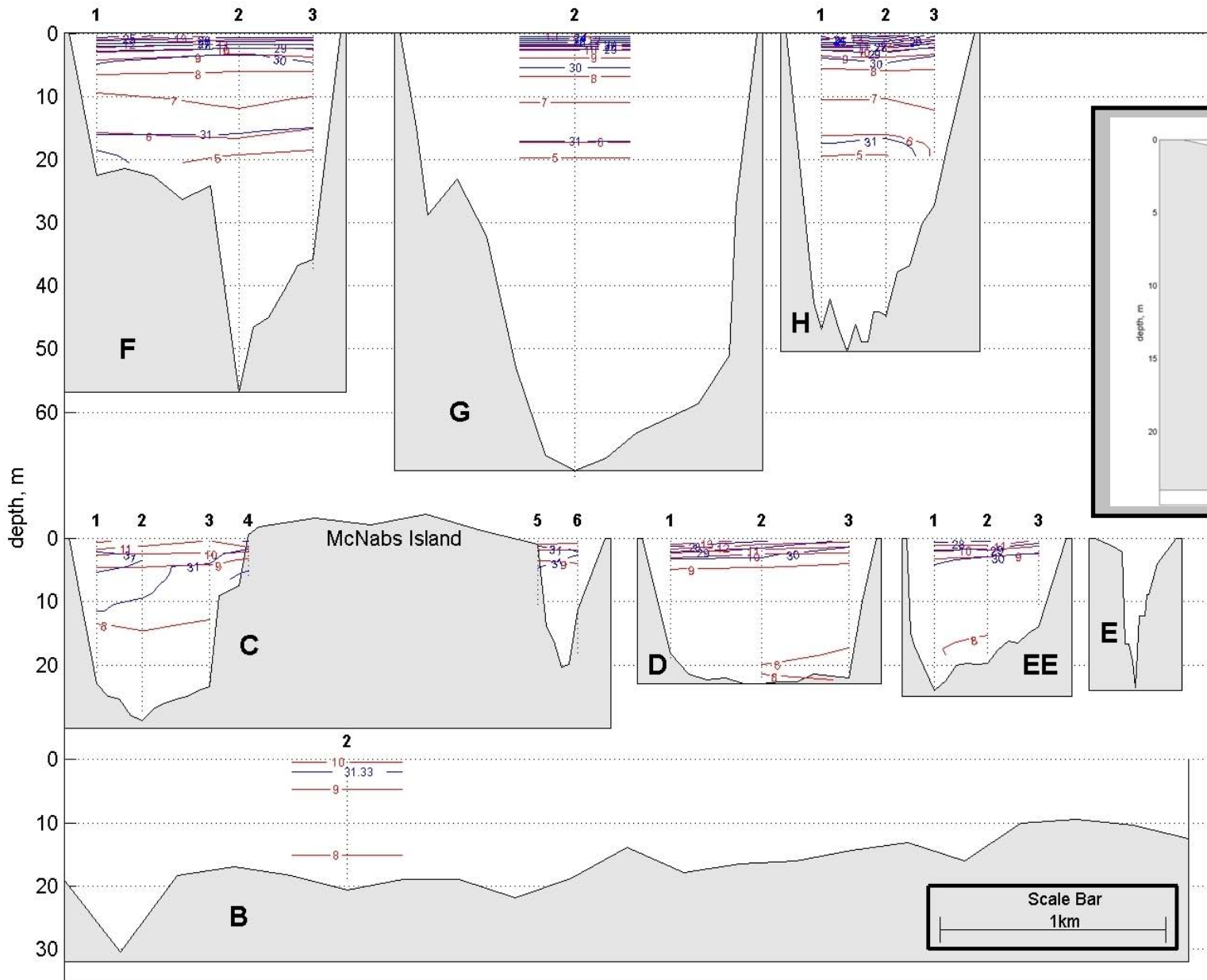
The fecal coliform (fc) concentrations are fairly high in the Inner Harbour, in both the 1 and 10m samples. The effluent from some of the deeper outfalls may be trapped below the strong surface stratification. In the Basin there are some high values and the distribution is unusual. The 1m values are generally higher than the 10m values and there are high concentrations in the 1m sample at H1-1m and BYC-1m. Similar patterns have been previously seen only in a few high flow situations. DYC and HC, both areas affected by streams also exhibit unusually high fc levels, even for high flow conditions.

**Fluorescence:** The maximum profile values in the Basin are generally slightly lower than last week, at levels which are about 20 mg/m<sup>3</sup> or less, at about 9m. This is deeper than last week. The profile maximums decrease monotonically, at about the same depth, going out of the Harbour. At B2 the levels are vertically uniform at about 2-3 mg/m<sup>3</sup>, which is slightly above “background “ levels.

**Dissolved Oxygen:** The data indicate that, the surface DO values have dropped from last week and now are less than 8.0 mg/L everywhere. The DO in the deeper water of the Basin has dropped slightly and is now at about 4 mg/L. This is below the applicable class SB guideline of 7.0 mg/L. In the Outer Harbour (B2) the DO has not changed appreciably from last week and, at about 7.7 mg/L, is below the 8.0 mg/L class SA guideline. This week the bottom water in the NW Arm is also below 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).

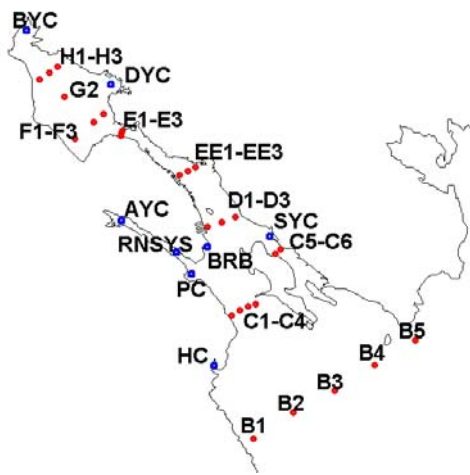
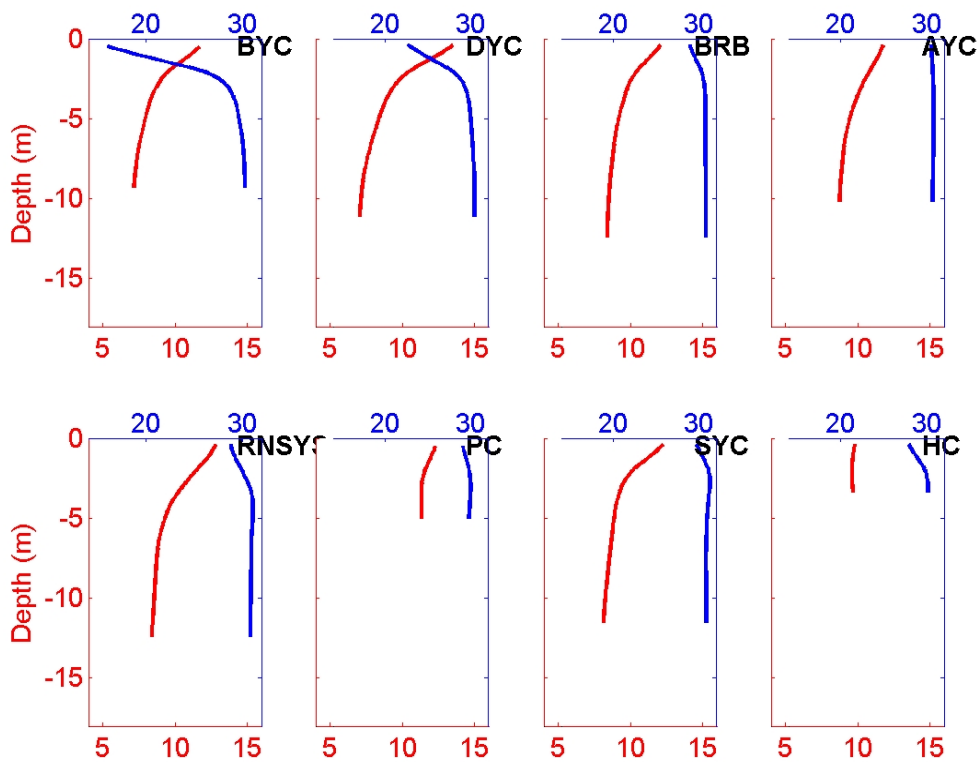
**TSS:** The TSS values are relatively low (between 2-4 mg/L) with one value of 6 mg/L. There does not appear to be a significant pattern.

**Ammonia:** The ammonia nitrogen values are relatively low. Eight of fourteen values are below detection (0.05 µg/L) and the remaining values are all < 0.06 µg/L. The detectable values tend to occur in the 10m samples in the Basin and Narrows.



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

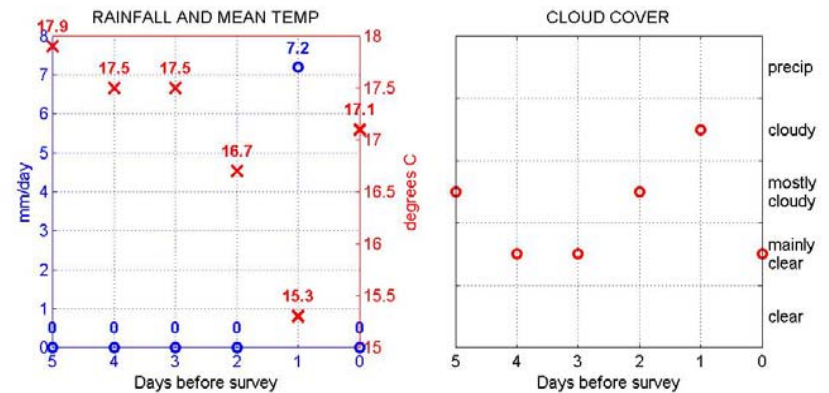
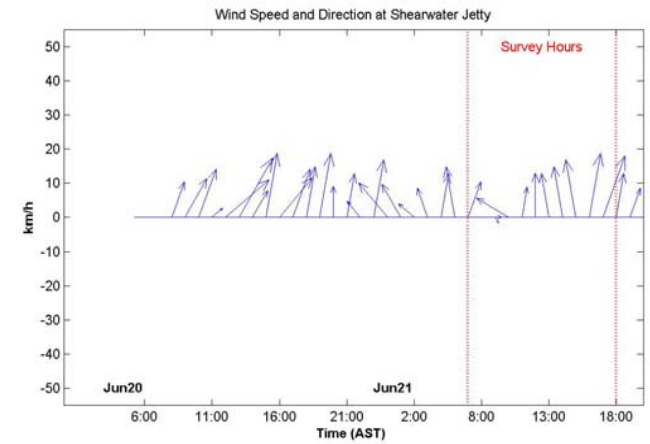
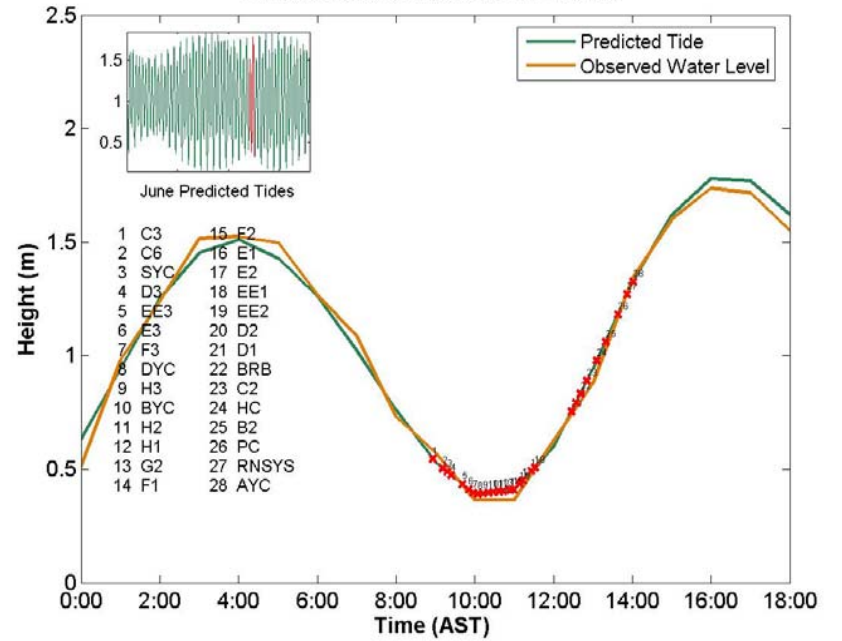
# Yacht Clubs

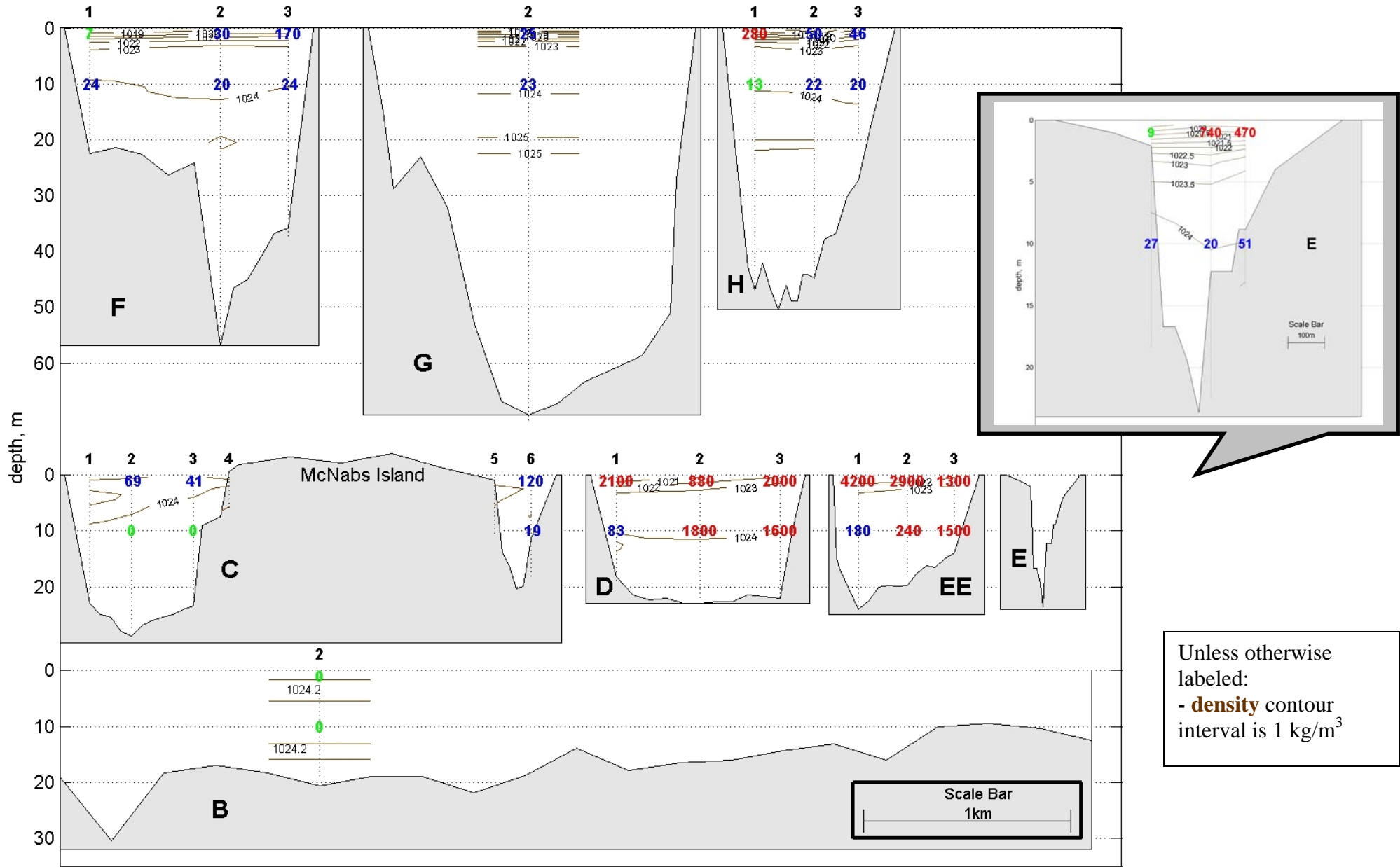


Salinity in PSU      Temperature in °C

Weather data collected at Shearwater Autoport.

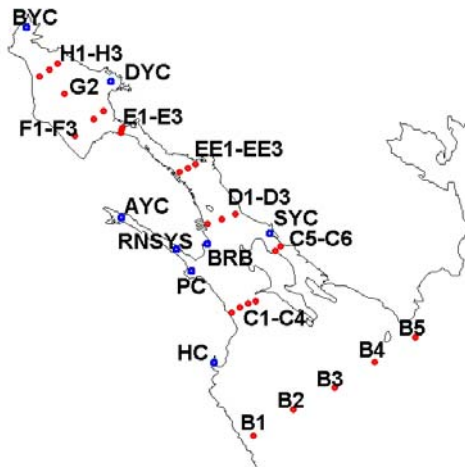
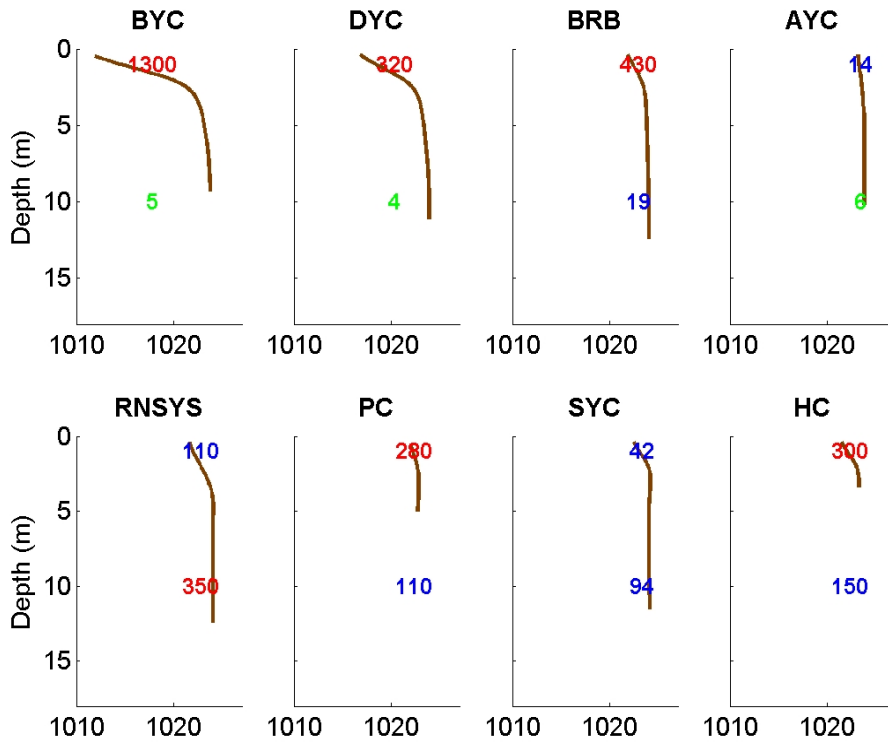
# Halifax Harbour Water Level - Jun21





Unless otherwise labeled:  
 - **density** contour interval is 1 kg/m<sup>3</sup>

# Yacht Clubs

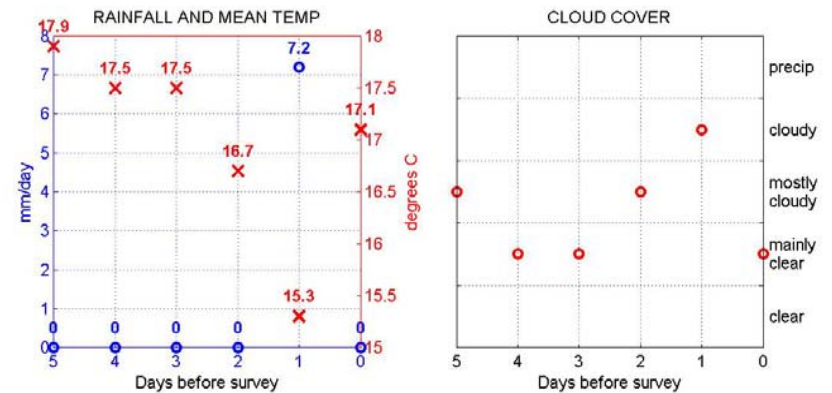
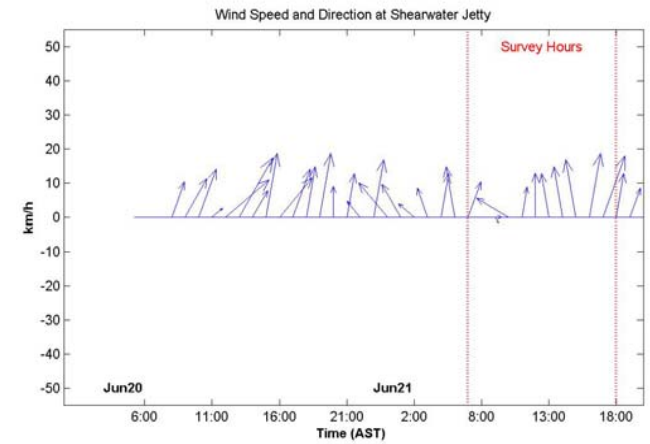
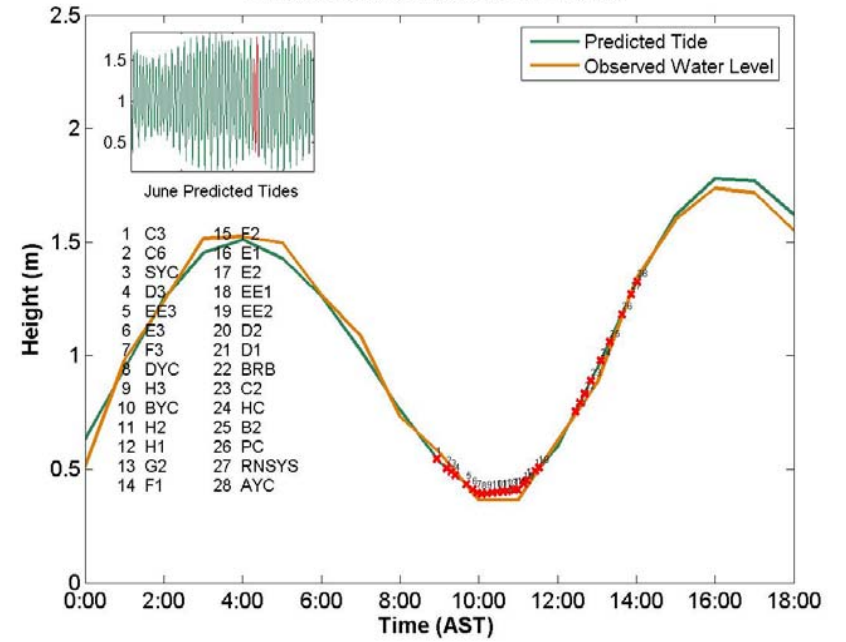


Weather data collected at Shearwater Autoport.

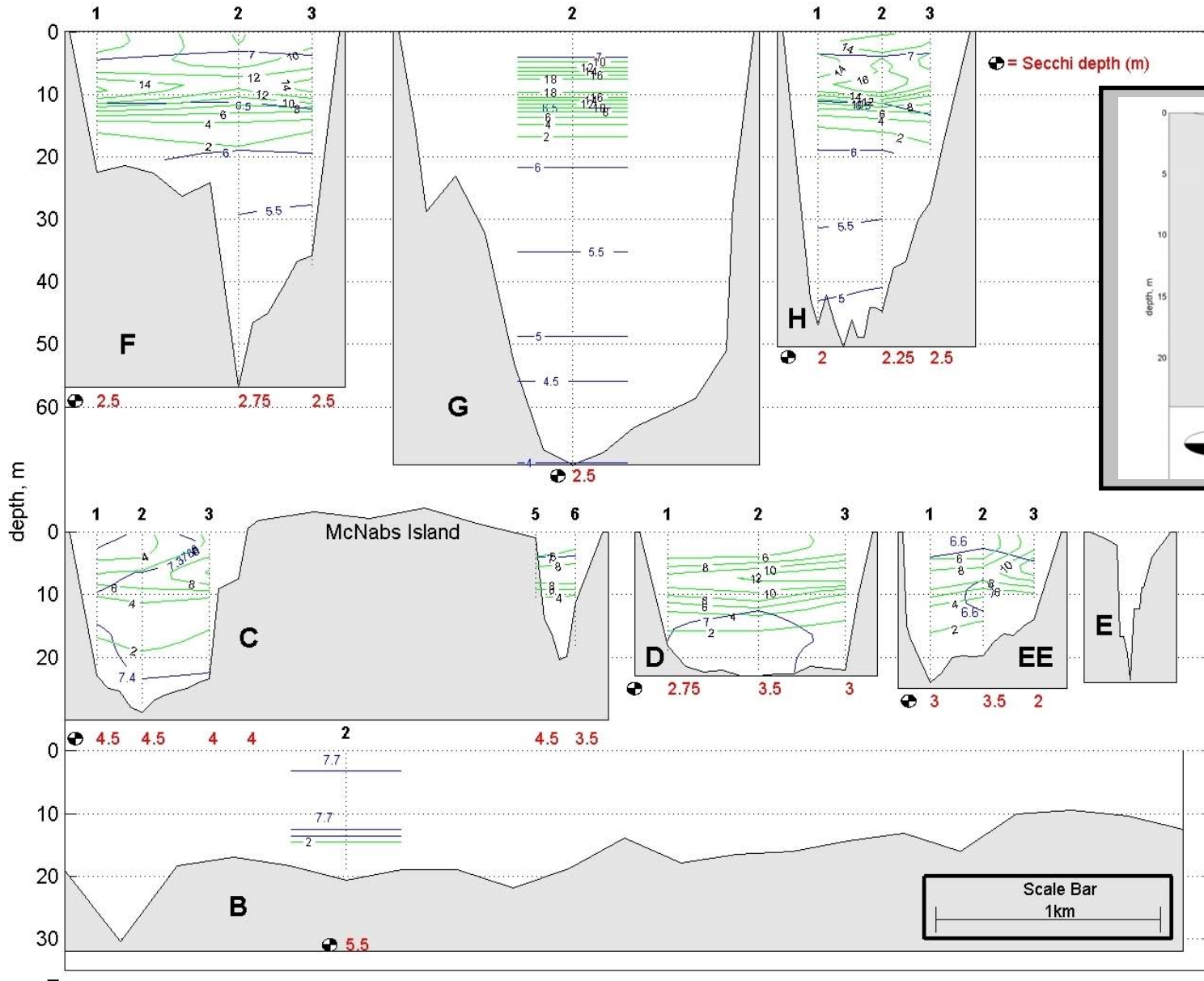
Potential Density in kg/m<sup>3</sup>

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

## Halifax Harbour Water Level - Jun21

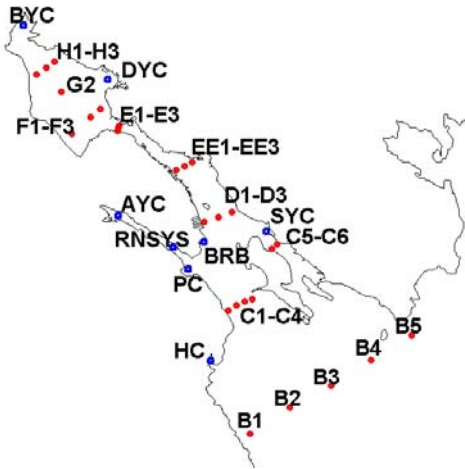
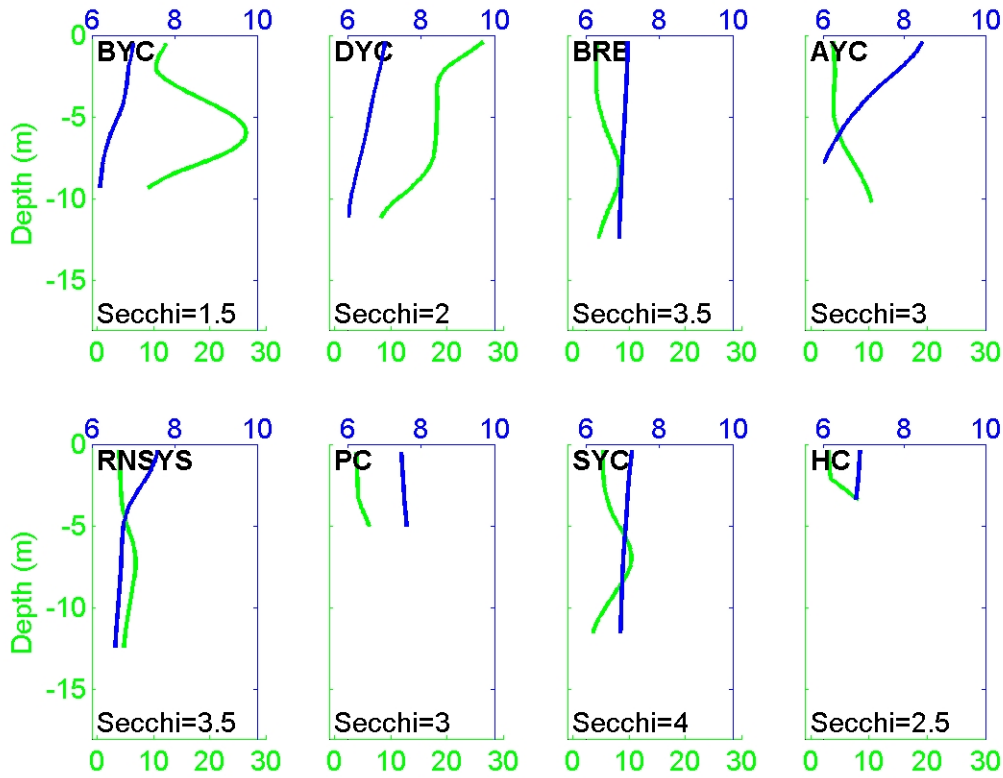






Unless otherwise labeled:  
 - **dissolved oxygen** contour interval is 0.5 mg/L  
 - **chlorophyll** contour interval is 2 mg/m<sup>3</sup>.

# Yacht Clubs

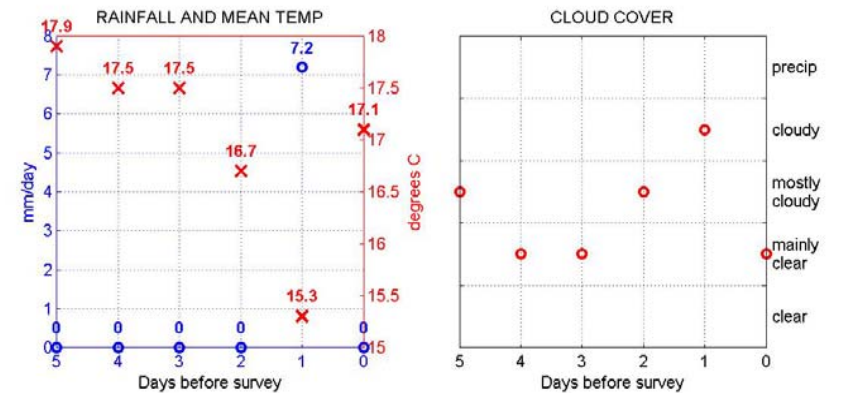
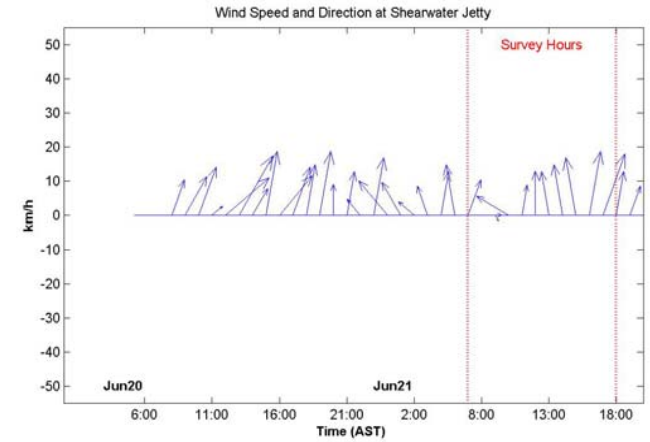
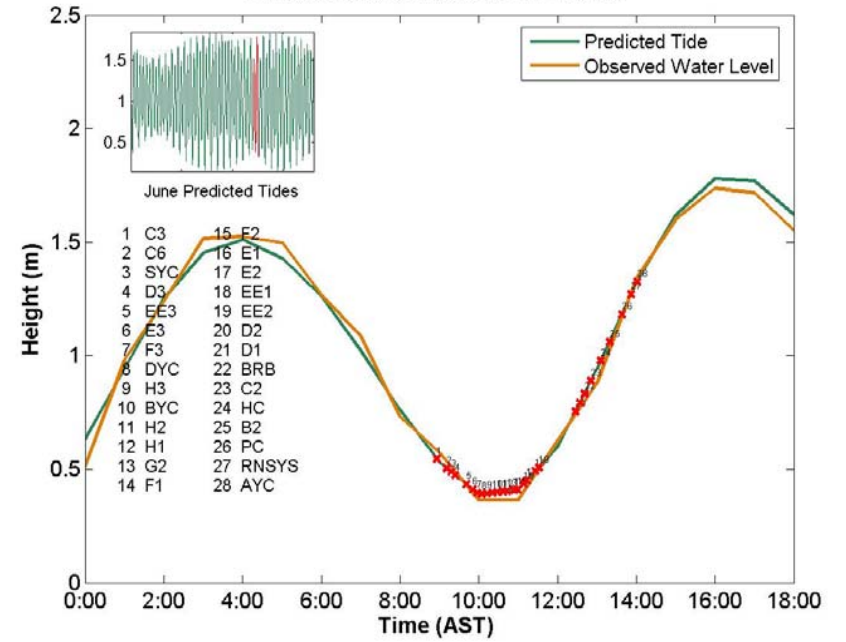


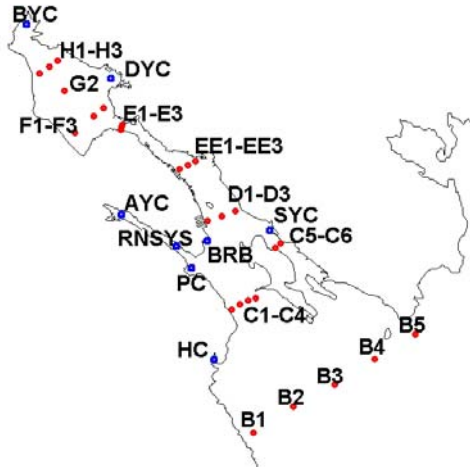
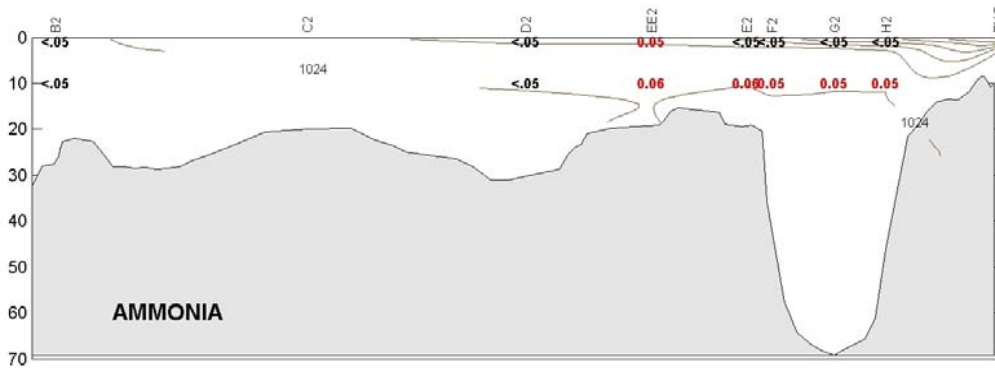
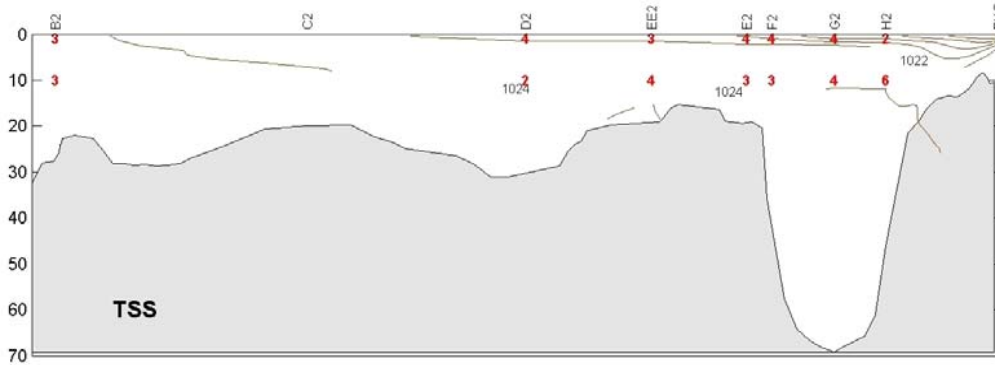
DO in mg/L

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

Weather data collected at Shearwater Autoport.

## Halifax Harbour Water Level - Jun21





Weather data collected at Shearwater Autoport.

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

Ammonia in  $\text{mg/L}$

TSS in  $\text{mg/L}$

Halifax Harbour Water Level - Jun21

