

# Halifax Harbour Water Quality Monitoring Project

## Weekly Summary #113

**Survey Date:** 26 September 2006  
**Nature of Survey:** Complete Survey  
**Report File (this document):** HHWQMP\_report113\_060926.doc  
**Data File:** HHWQMP\_data113\_060926.xls

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

### Sample Notes:

There were irregularities noted in the stabilization DO record at site EE1. The data for this cast is in the data file, but should be used with circumspection.

A supplementary sample for all parameters was taken near the Fairview Cove CSO (44.6662 N 63.6292 W). Sediment samples (Dalhousie Univ.) were taken at many water sample sites and two additional sediment samples were taken near the Mill Cove STP (44.7168 N, 63.6688 W and 44.7169 N, 63.6646 W). Supplementary FC samples were taken at the first site and CTD casts were done at both. CBOD samples were taken at both depths at sites F1 and F2.

### QA/QC samples:

#### Chemical Analysis

Detectable Parameter	units	B2 - 1m		EE2- 10m	
		reference sample	Dup	reference sample	QA/QC
Ammonia (as N)	mg/L	0.05	0.05	<0.05	<0.05
Total Suspended Solids	mg/L	1	n/a	1	1
		F2-1m			
Copper (Cu)	ug/L	1.7	1.5	0.2	0.7
Iron (Fe)	ug/L	6.0	6.0	7.0	8.0
Lead (Pb)	ug/L	0.1	0.1	ND	ND
Manganese (Mn)	ug/L	ND	1.0	ND	1.0
Zinc (Zn)	ug/L	1.0	1.0	ND	ND

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

	HC-1m	C6-10m	BYC-1m	EE2-10m
Reference	240	6	1	22
QA/QC	130	12	0	36

### Comments:

**General:** An apparent intrusion of colder, more saline water is evident in the Inner Harbour, as far in as the Southern Basin. The bottom water in the Inner Harbour is more than 1 PSU more saline than two weeks ago. There has been only slight precipitation and, therefore, no freshening of the surface layer. This salinity distribution is likely a response to larger scale shelf dynamics. Fecal coliform (fc) levels are generally quite low, particularly in the Basin surface water, with the distribution displaced somewhat down harbour in the surface and up harbour in the lower layer, consistent with an ongoing intrusion. The relatively high fc value in the F1-1m sample is likely due to the influence of the Fairview Cove CSO diversion. There is water which is as dense as or denser than the Basin bottom water at the bottom of the Inner Harbour up to section D.

**CBOD<sub>5</sub>:** Measurements at F1 and F2 resulted in no detectable levels (<5.0 mg/L).

**Fluorescence:** Levels have dropped markedly in the previous two weeks and are now quite uniformly low throughout the harbour, with profile maximums less than 4 everywhere except in the southern Basin, where they are slightly higher.

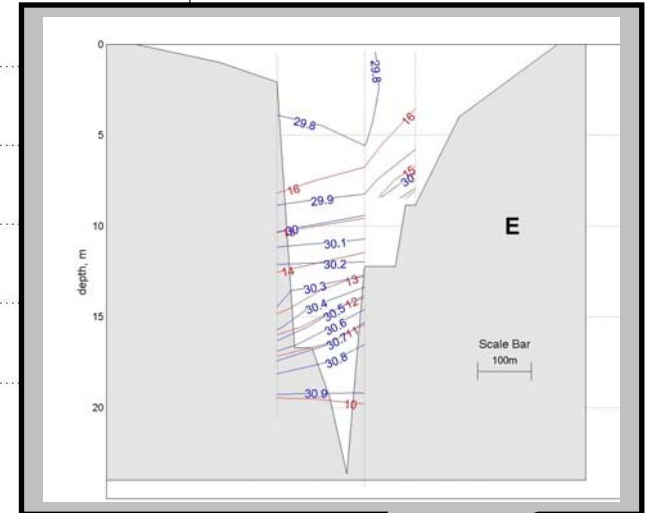
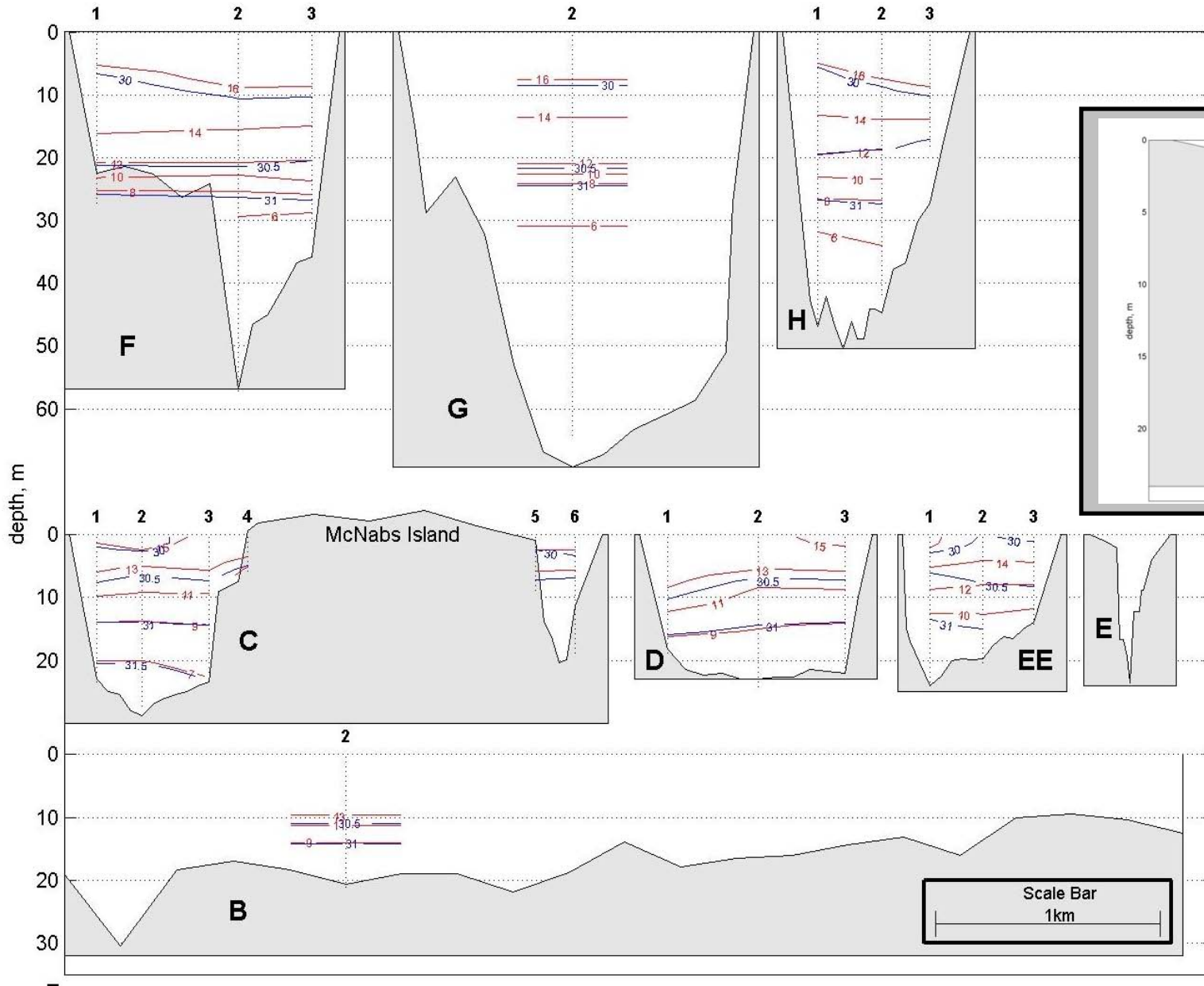
**Dissolved Oxygen:** DO levels are below appropriate use-specific guidelines nearly everywhere in the Harbour. In the Basin, the values decrease monotonically from the surface down, while in the remainder of the Harbour, the DO is higher at the bottom than at the surface. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).

**TSS:** The TSS values are relatively low, varying from 0.8-3.8 mg/L. The only values >2.0 mg/l are in the Basin.

**Ammonia:** All 1m samples, and the 10m samples in the Narrows and Basin are ≥ 0.05 mg/L. The highest values (up to 0.12 mg/L) are in the 10 m samples.

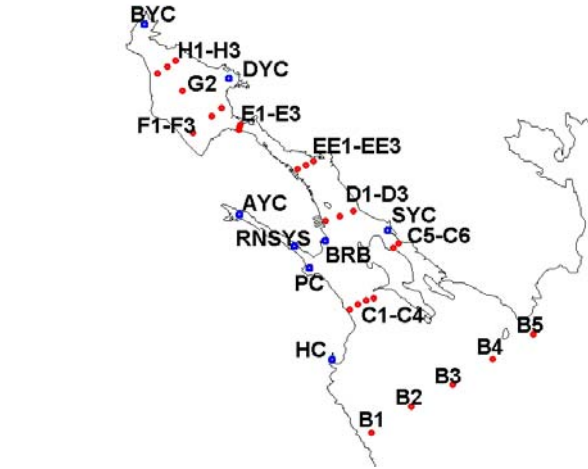
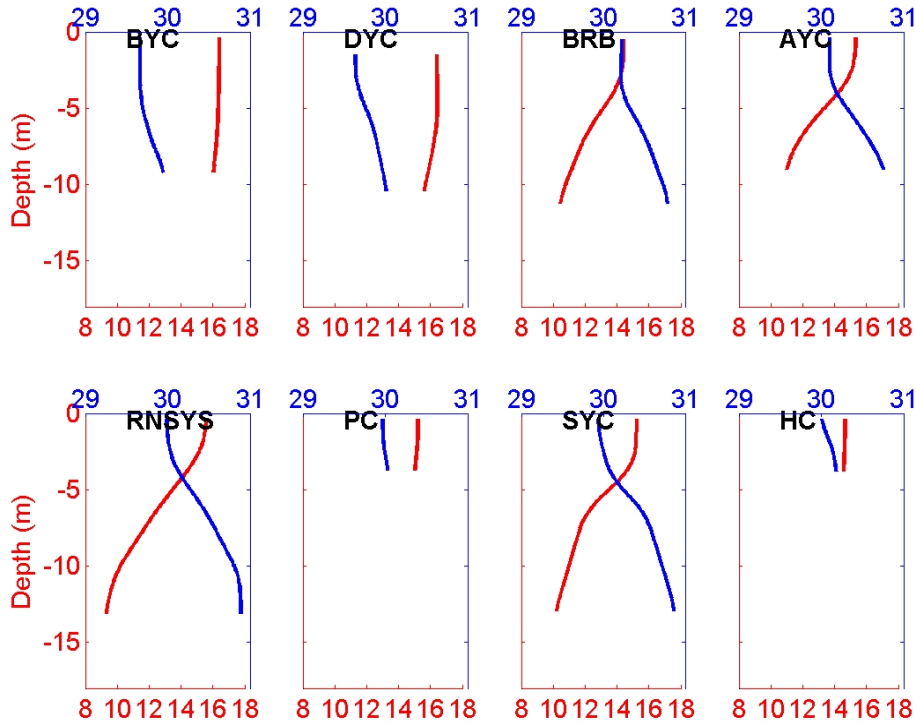
### Supplementary samples:

Detectable Parameter	FC (cfu/100mL)	NH <sup>3</sup> (mg/L)	Tss (mg/L)	Cu (ug/L)	Fe (ug/L)	Mn (ug/L)	Zn (ug/L)
F. Cove - 1m	13000	0.33	2.3	1.3	13.0	3.0	2.0
F.Cove- 10m	50	0.12	2	0.4	9.0	1.0	1.0
M.Cove - 1m	ND	N/A	N/A	N/A	N/A	N/A	N/A
M.Cove-10m	ND	N/A	N/A	N/A	N/A	N/A	N/A



Unless otherwise labeled:  
 - salinity contour interval is 0.5 PSU  
 - temperature contour interval is 2°C.

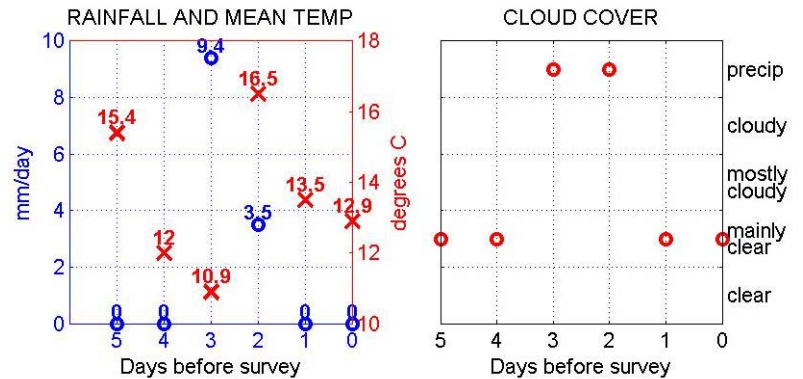
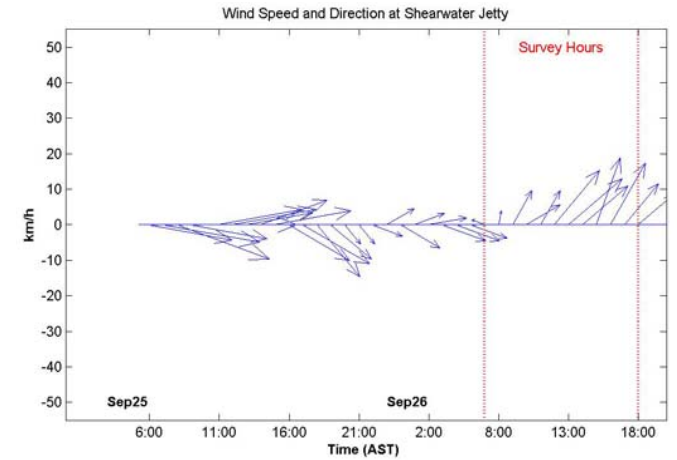
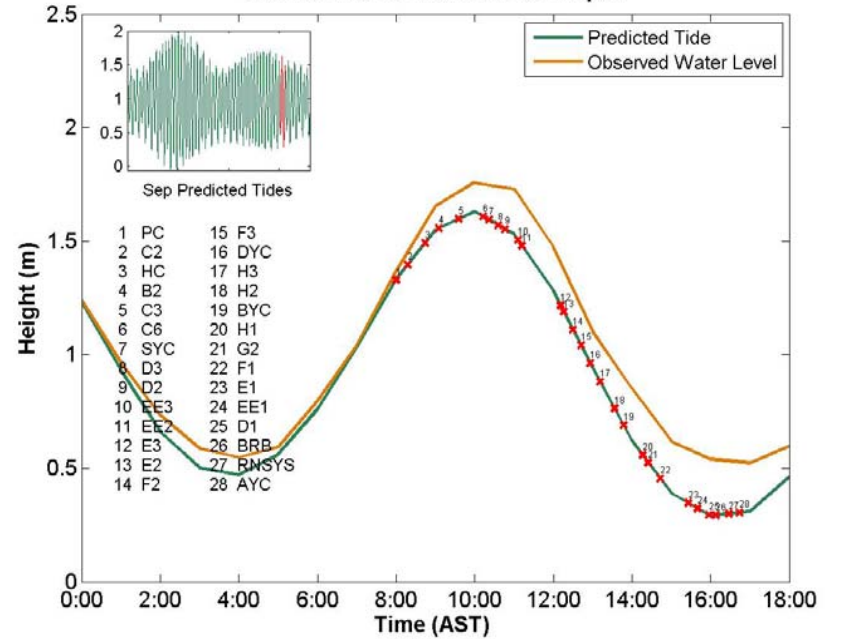
# Yacht Clubs

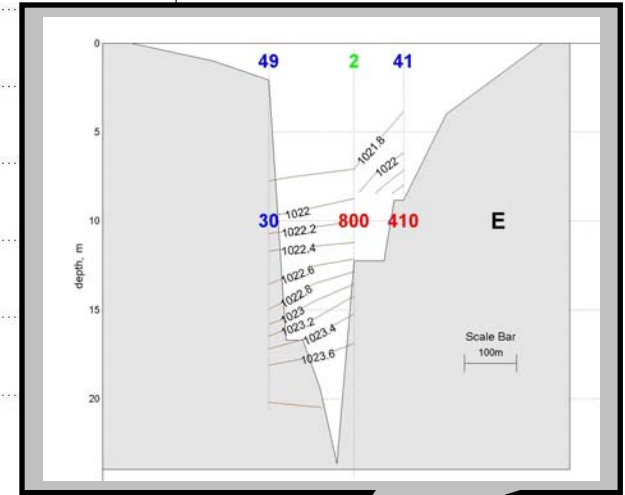
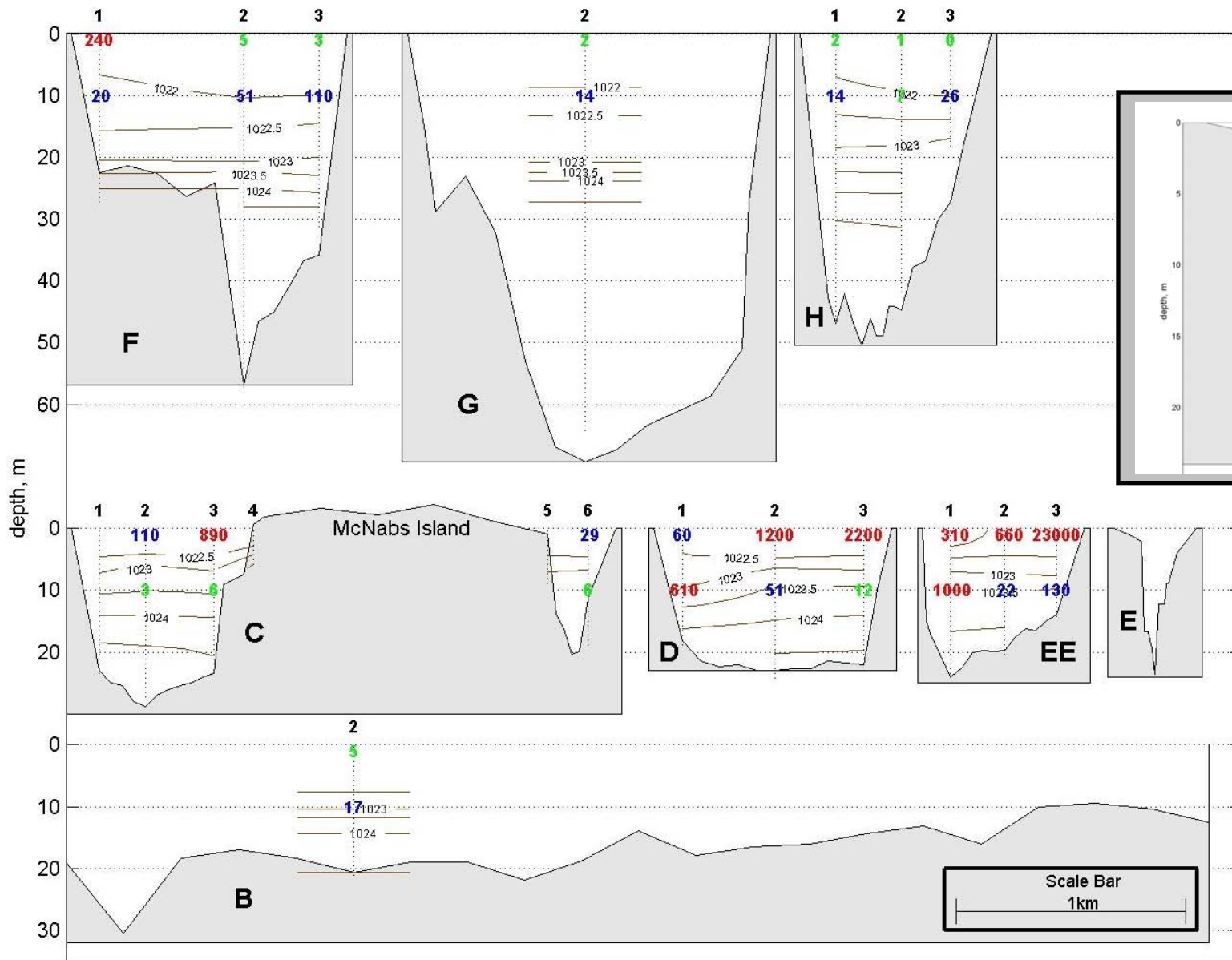


Salinity in PSU      Temperature in °C

Rainfall and temperature data collected at Shearwater Autoport.  
 Cloud cover data collected at Shearwater Airport

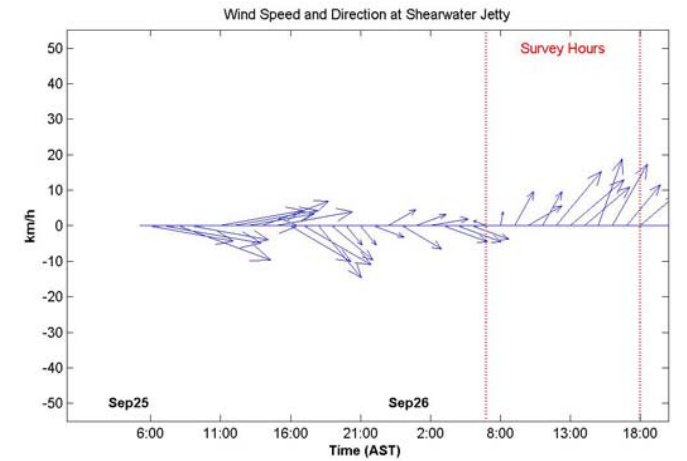
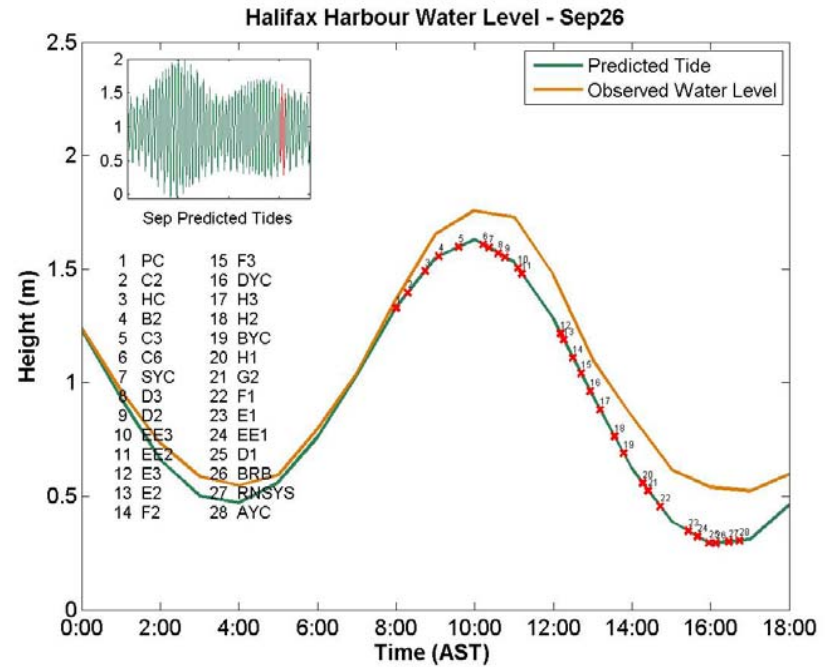
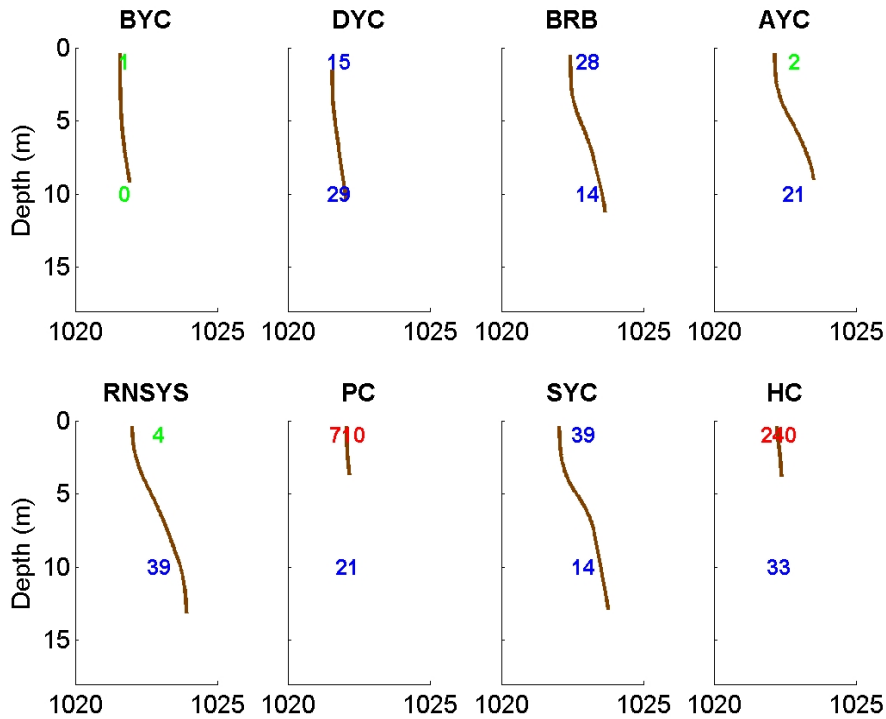
## Halifax Harbour Water Level - Sep26





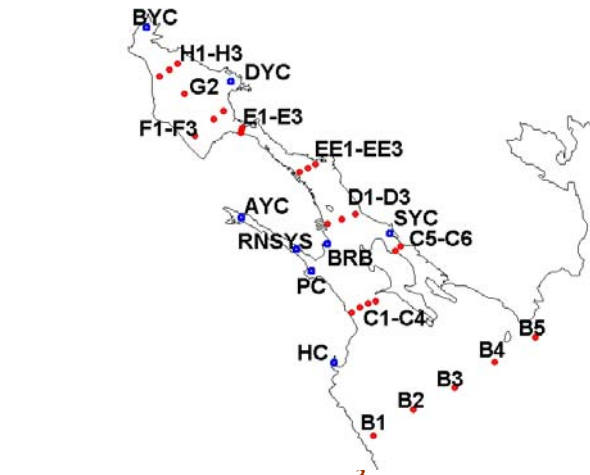
Unless otherwise labeled:  
 - **density** contour interval is 0.5 kg/m<sup>3</sup>

# Yacht Clubs



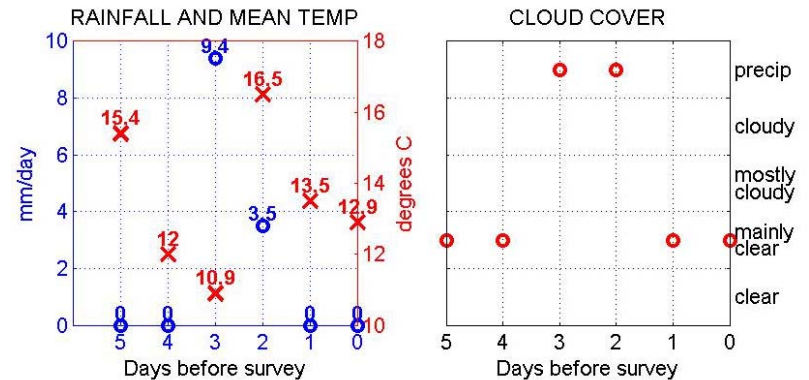
Rainfall and temperature data collected at Shearwater Autoport.

Cloud cover data collected at Shearwater Airport

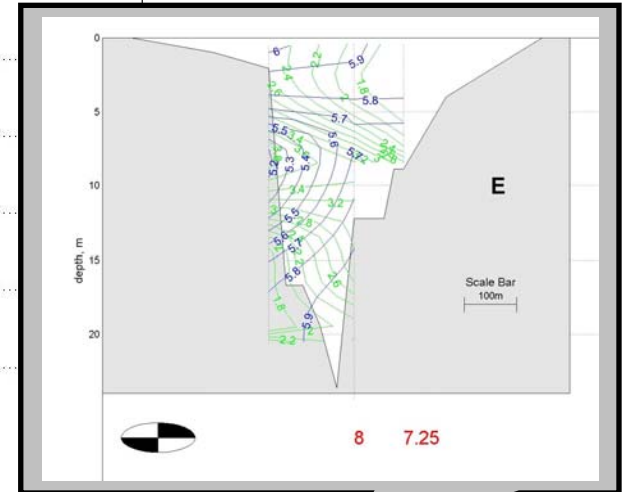
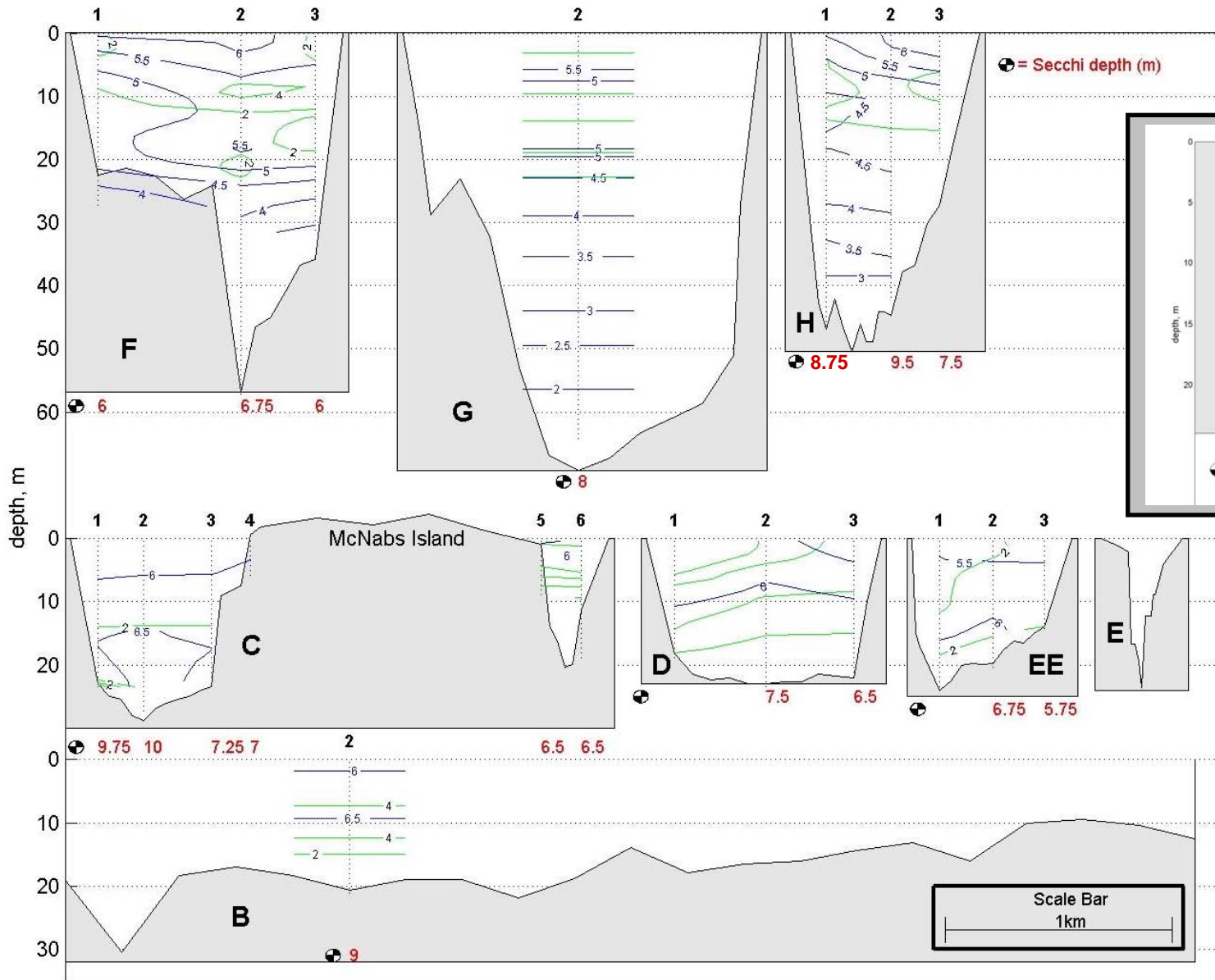


Potential Density in  $\text{kg/m}^3$

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

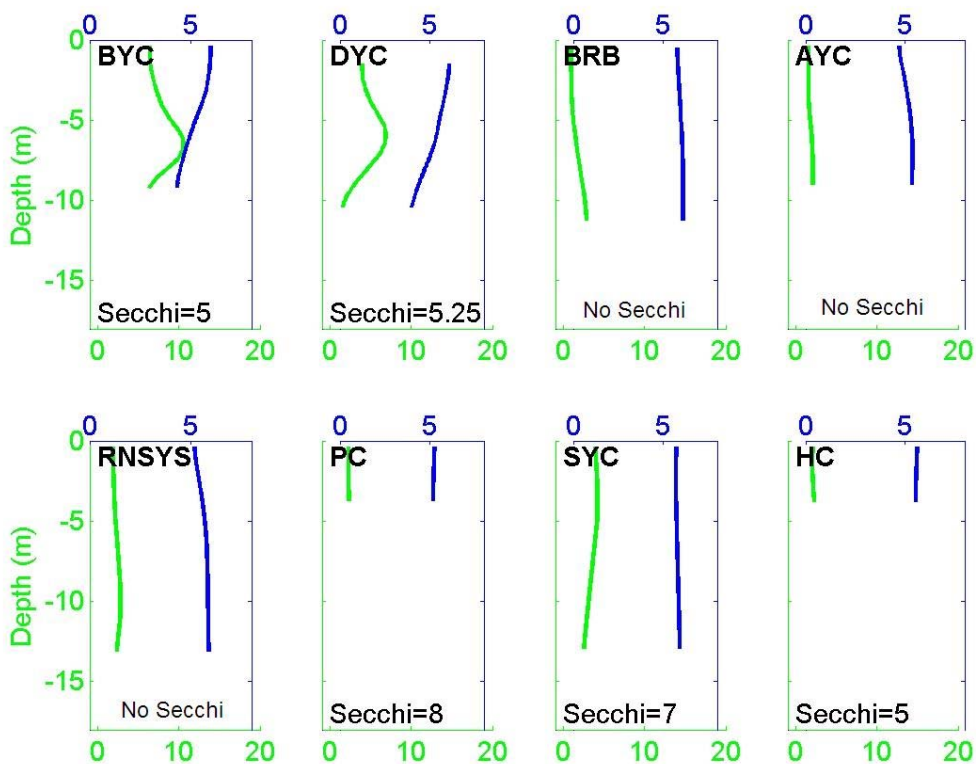




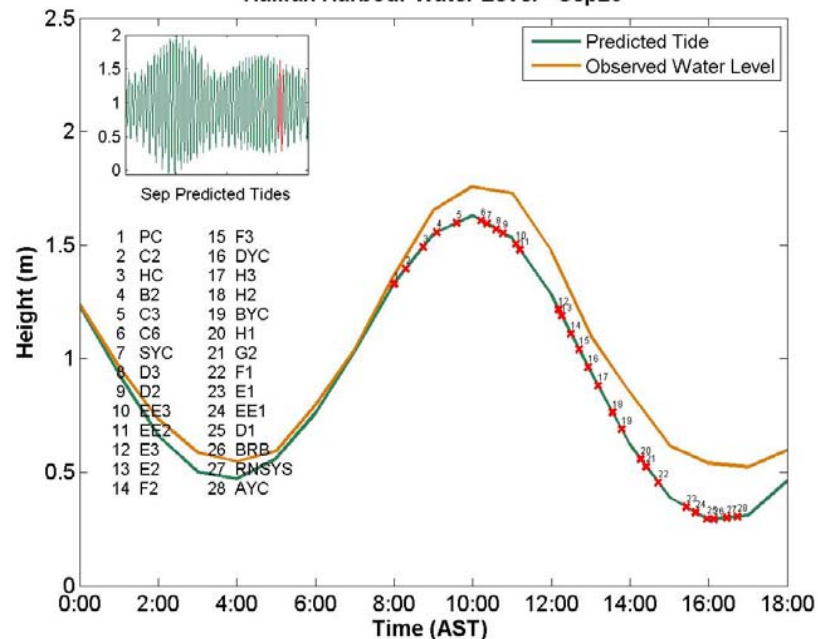


Unless otherwise labeled:  
 - **dissolved oxygen** contour interval is 0.5 mg/L  
 - **chlorophyll** contour interval is 2 mg/m<sup>3</sup>.

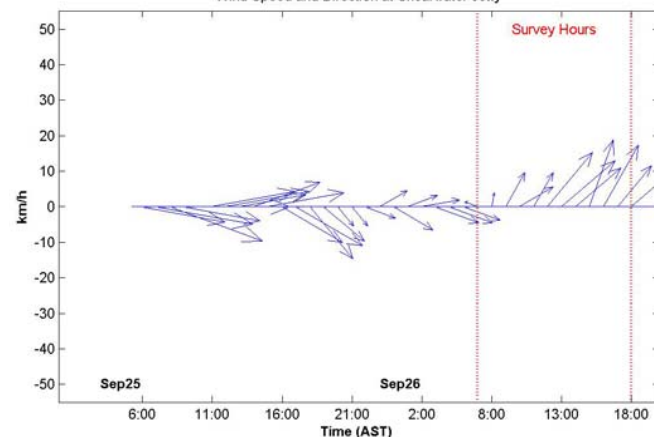
# Yacht Clubs



# Halifax Harbour Water Level - Sep26

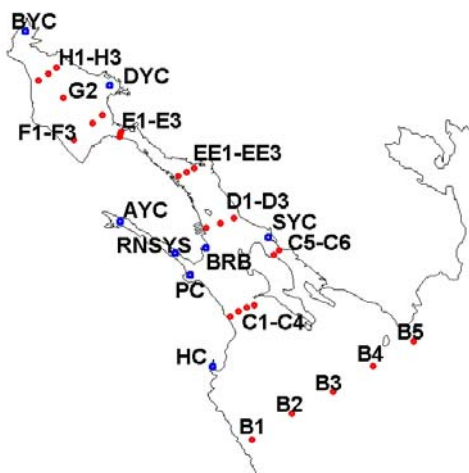


# Wind Speed and Direction at Shearwater Jetty



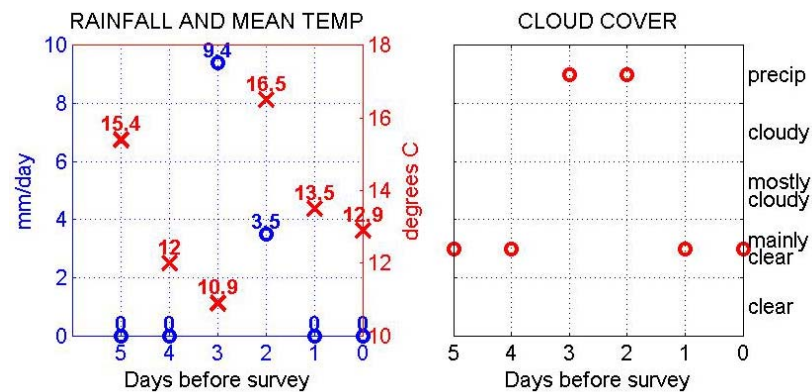
Rainfall and temperature data collected at Shearwater Autoport.

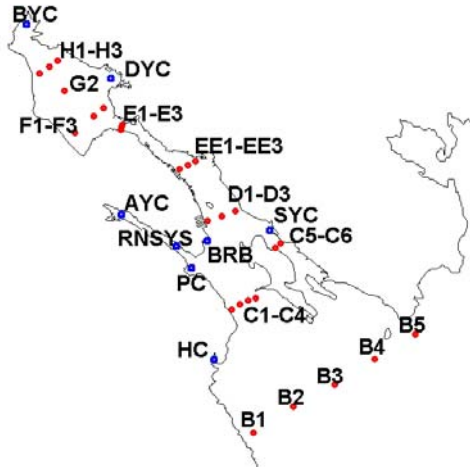
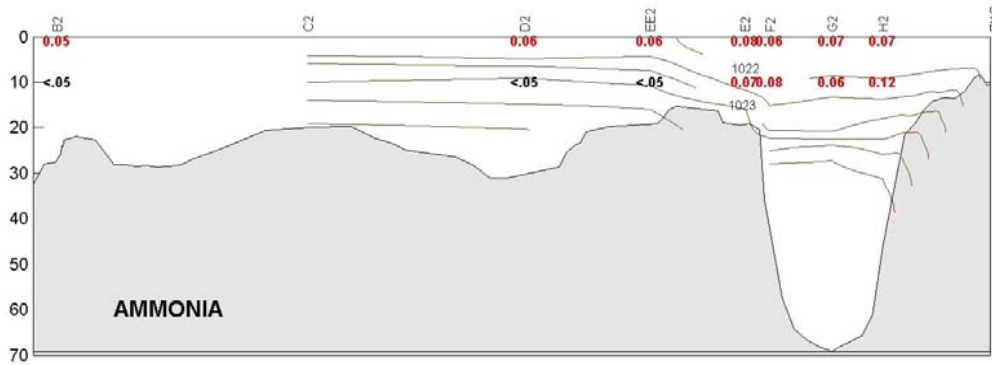
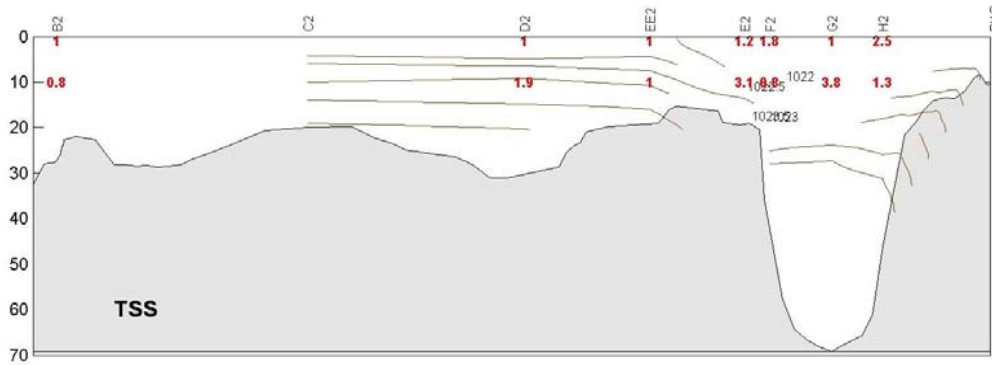
Cloud cover data collected at Shearwater Airport



DO in mg/L

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





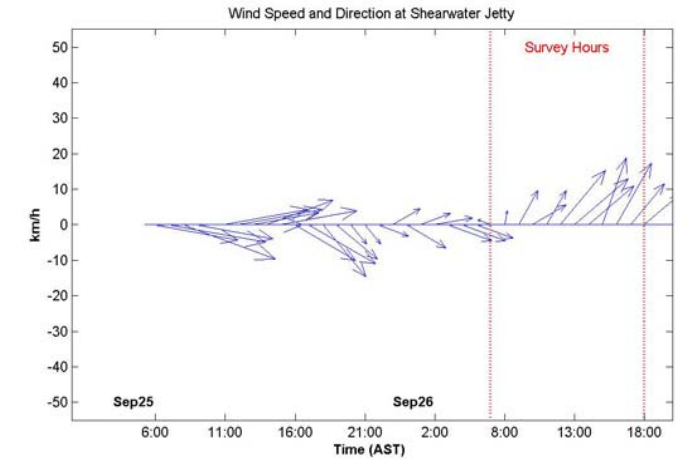
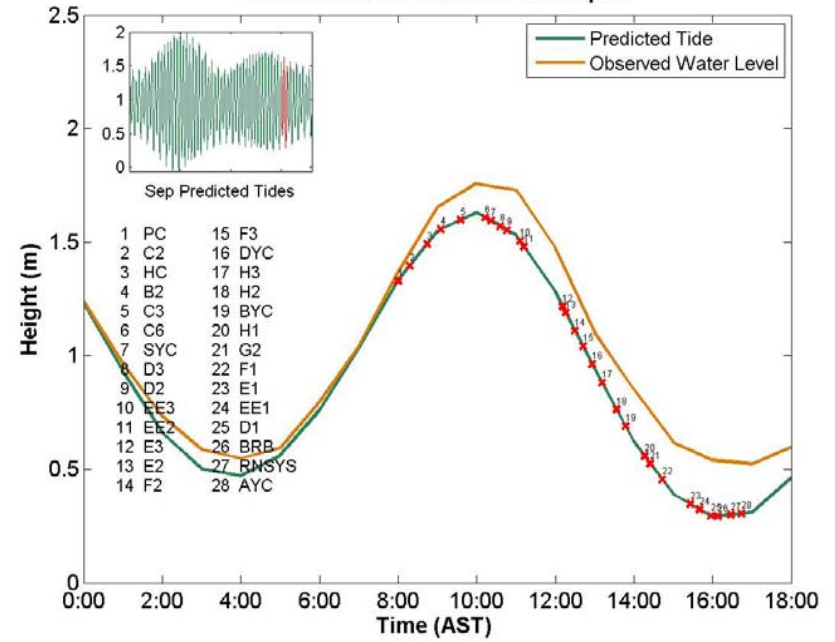
Rainfall and temperature data collected at Shearwater Autoport.  
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Potential Density in  $\text{kg/m}^3$

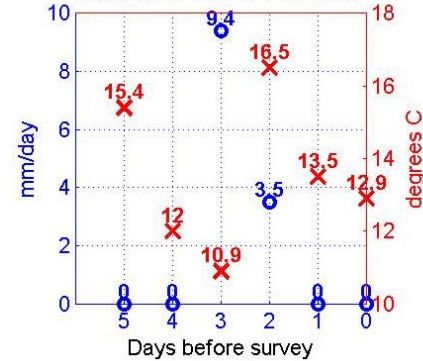
Ammonia in  $\text{mg/L}$

TSS in  $\text{mg/L}$

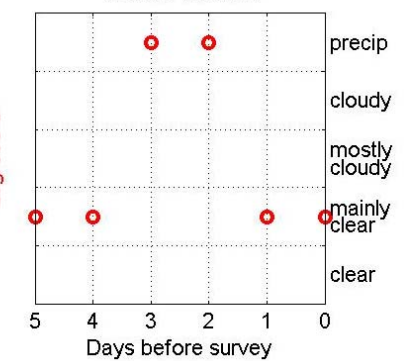
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RAINFALL AND MEAN TEMP



CLOUD COVER





**LEGEND**

● One metre samples

○ Ten metre samples

RDL=Reportable Detection Limit

