

Halifax Water Quality Monitoring Project

Weekly Report #45

Survey Date: 27 April 2005
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report045_050427.doc
Data File: HHWQMP_data045_050427.xls

Data Return: Profile: 97%
 Bacteria: 96%
 Chemical: 86%
Overall: 93%

Sample Notes:

Site B2 was not sampled due to fog and vessel traffic.

An opportunistic sample was taken off pier A, coordinates 44° 38.177' N, 63° 33.795' W. This sampled a visible feature extending from between the piers to at least past Georges Island. Photos 19, 20, 21, 22 on film roll # 3.

QA/QC samples:

Chemical Analysis

Detectable Parameter	units	H2-10m		G2-1m	
		reference sample	Dup	reference sample	QA/QC
Ammonia (as N)	mg/L	<0.05		0.09	< 0.05
Total Suspended Solids	mg/L	8.7		3.9	14
Boron	ug/L	3000	3000	2900	3000
Lithium	ug/L	150	150	140	140
Strontium	ug/L	6500	6300	5800	5900
Titanium	ug/L	56	60	54	54
Uranium	ug/L	2.6	2.6	2.4	2.4
Iron	ug/L	<500	<500	<500	760

Fecal Coliform (CFU/100ml)

Site	F2-1m	H1-10m	BRB-10m	G2-1m
Reference	55	5	120	60
QA/QC	35	170	150	36

Regulated parameters with all samples below detection (<EQL)

Parameter	EQL(µg/L)	Parameter	EQL(µg/L)	Parameter	EQL(mg/L)
Cadmium	3	Manganese	20	Oil and Grease	5
Chromium	20	Nickel	20		
Copper	20	Zinc	50		
Lead	5				

Detectable non regulated metals

Boron, lithium, strontium, titanium and uranium exhibit very stable background concentrations in the Harbour. These levels have been documented in previous reports. The QA/QC sample at G2-1m, had an iron concentration of 760 µg/L, while the reference sample for this site had no detectable iron (EQL 500 µg/L).

Comments:

Opportunistic Sample: This sample had the following relevant values:

Detectable Parameter	Units	Value	Detectable Parameter	Units	Value
Fecal Coliform	CEU/100mL	>10,000	Ammonia (as N)	mg/L	0.32
CBOD ₅	mg/L	6.2	TSS	mg/L	15

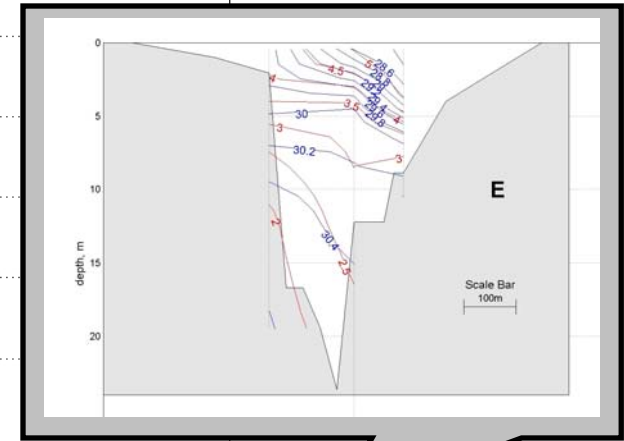
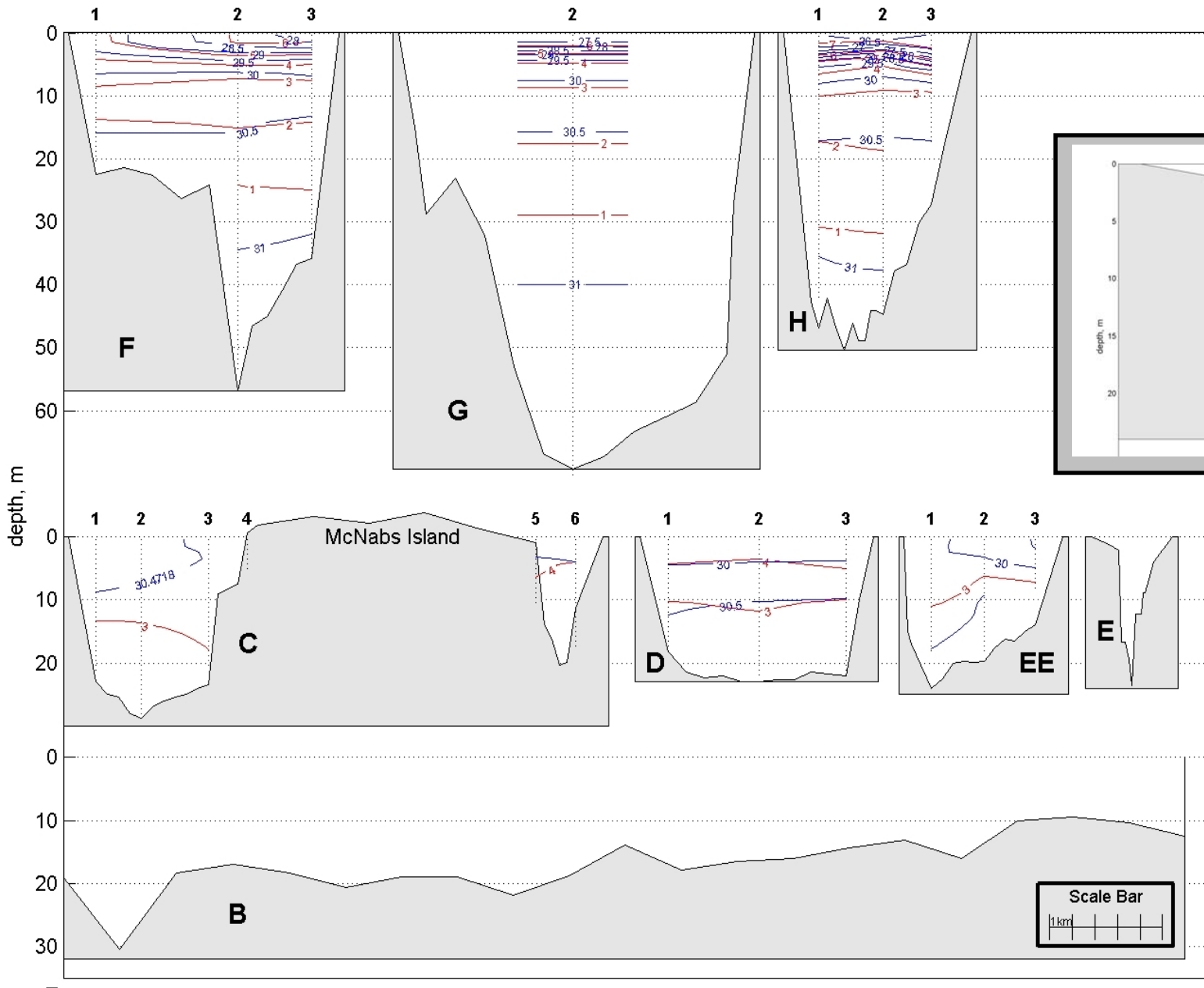
These values are the highest observed (except coliform, which is indeterminate) this week. The CBOD₅ values suggest that at this point the sewage is probably diluted by a factor of 10 to 20.

Dissolved oxygen: The dissolved oxygen is relatively uniform in the range of 8.4 to 9.7 mg/L in the Harbour surface waters (< 20m). The bottom water in Bedford Basin remains quite high with DO values > 7.5 mg/L. There are no observed values below applicable guidelines.

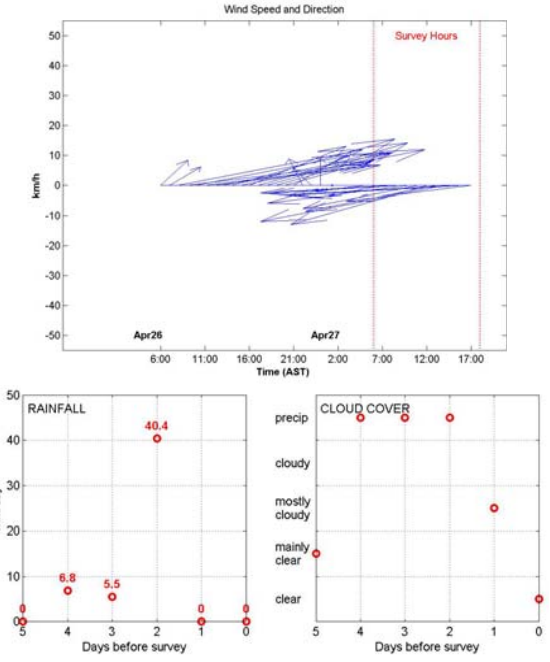
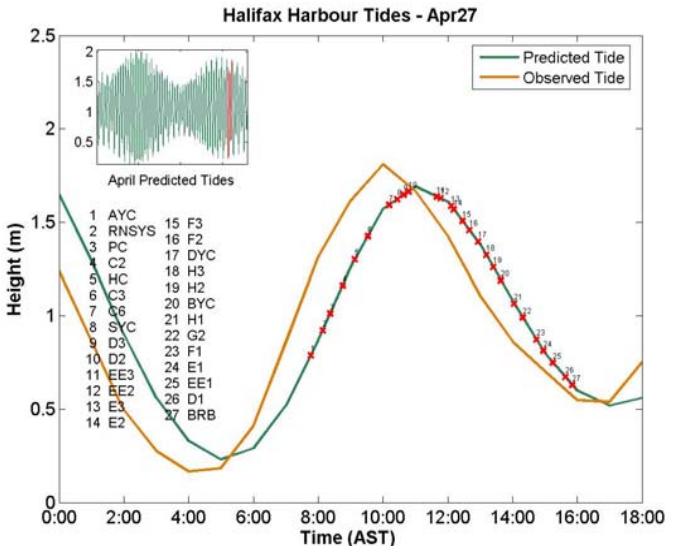
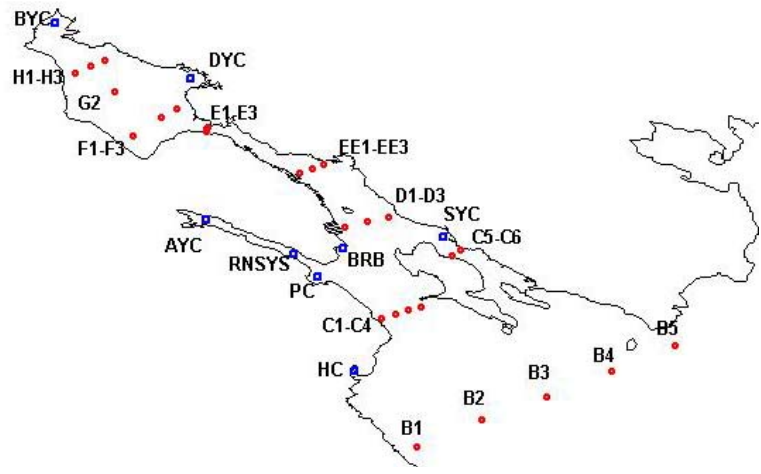
Chlorophyll a: The spring bloom appears to be ending. The values are about 25-50% of last weeks' values and the profile maximums are much deeper. The maximums are at a depth of >30m in the Basin and > 15 m in the remainder of the Harbour

General: The Basin is relatively stratified (more so than last week), likely as a transient effect of wet weather two days before the survey. Down-harbour from the Narrows the effect of the freshwater input is much less evident, and here the water column is relatively uniform (less stratified than last week). The fecal coliform values are quite high in the inner harbour and the distribution is consistent with two-layer estuarine circulation. The values are higher in the 10m samples in the Basin than at the surface, consistent with an up-harbour flow of bottom water. The reverse situation is much less evident on the down-harbour side as the high surface values extend only to the D section where there are significant sources. The surface samples are not elevated in the C section.

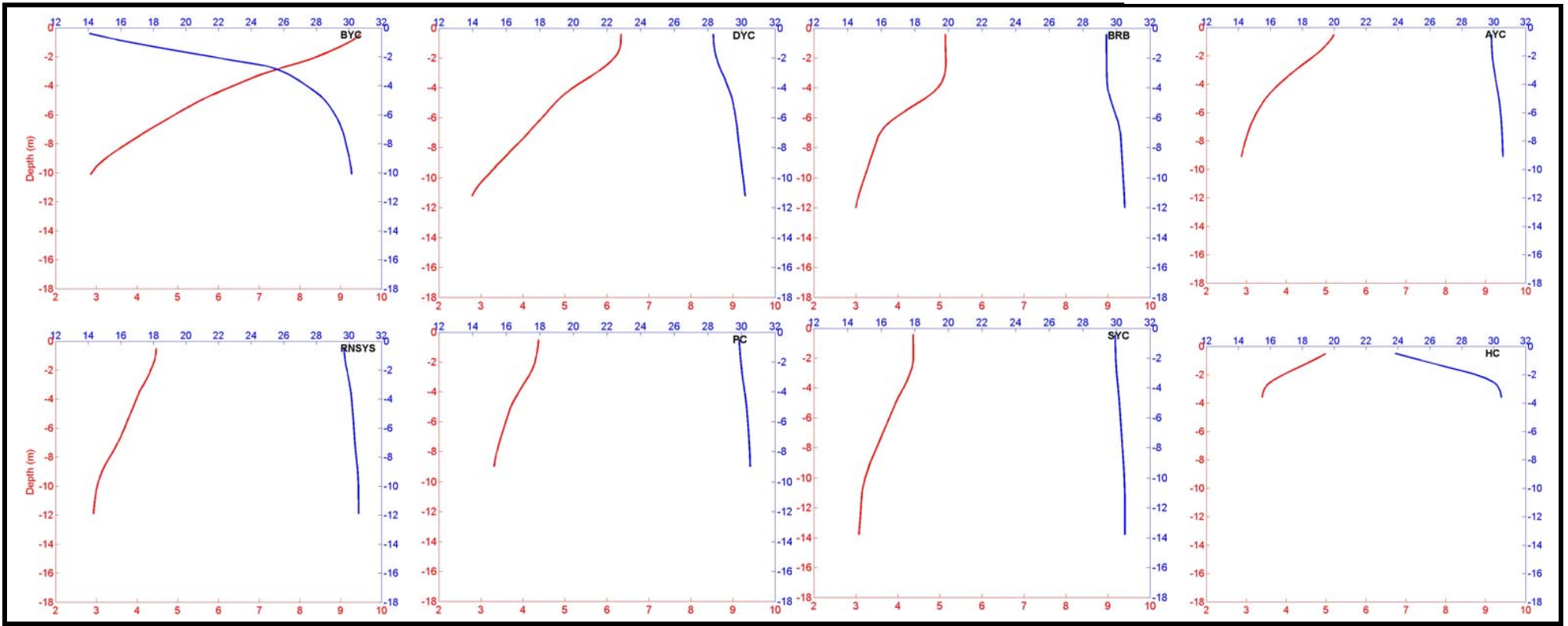
TEMPERATURE-SALINITY CONTOURS



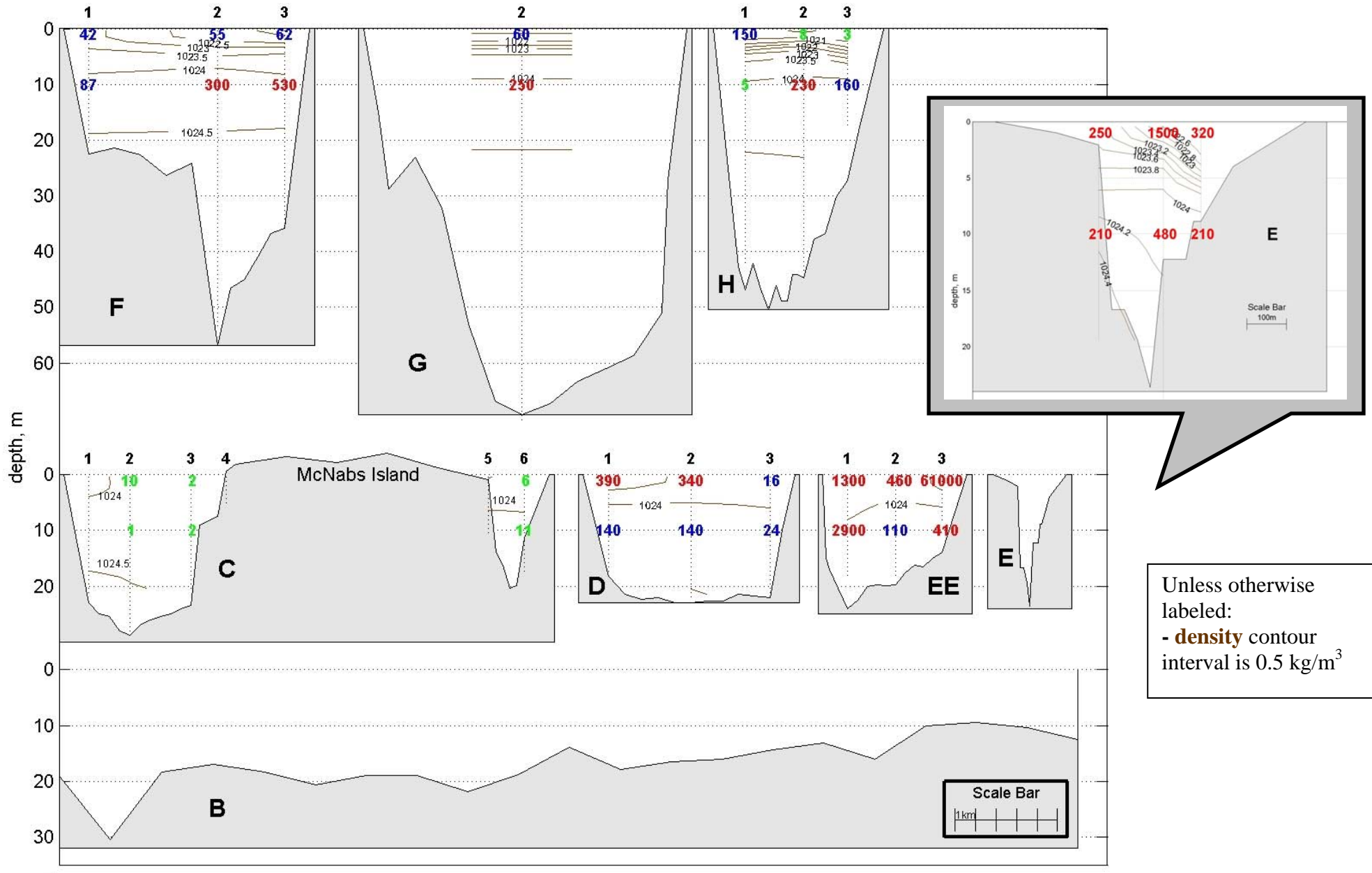
Unless otherwise labeled:
- **salinity** contour interval is 0.5 PSU
- **temperature** contour interval is 1°C.



Yacht Clubs



Salinity in PSU Temperature in °C



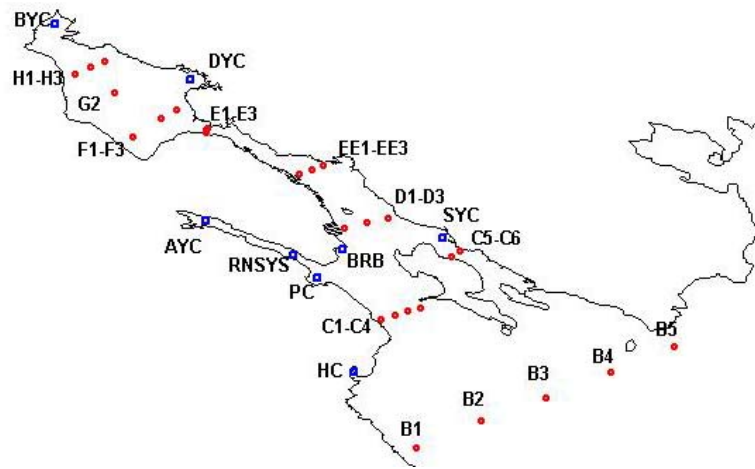
Unless otherwise labeled:
 - density contour interval is 0.5 kg/m³

Density in kg/m³

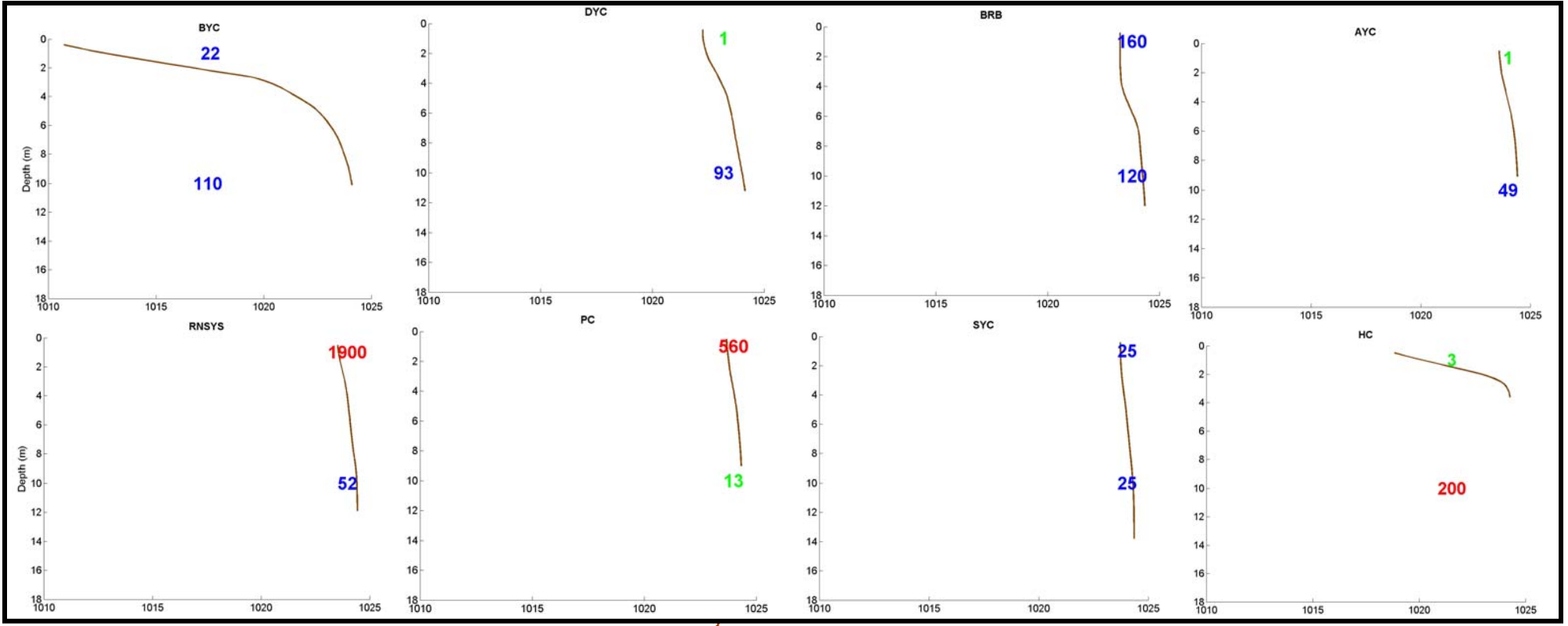
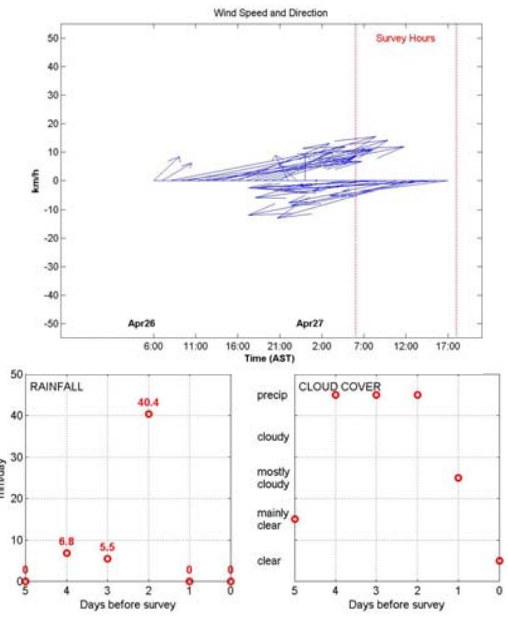
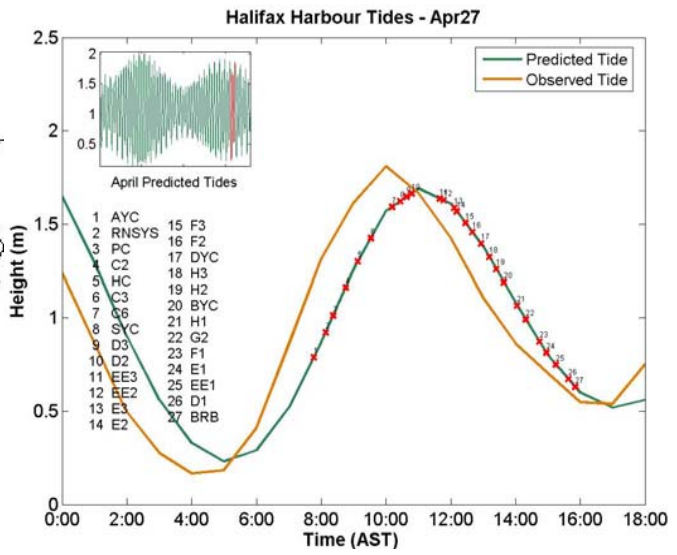
Fecal coliform: below limits

above shellfish limit (14 cfu/100mL)

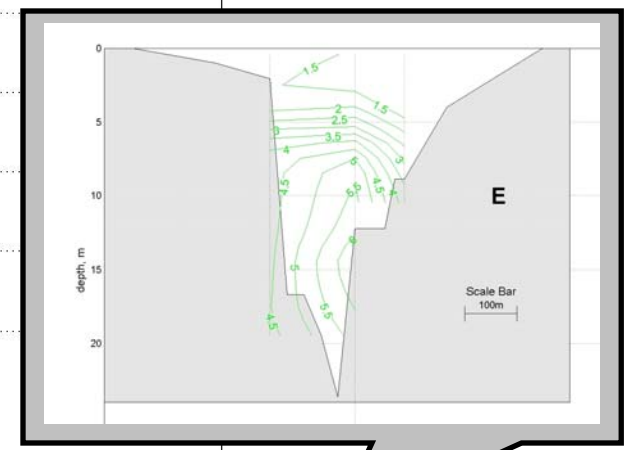
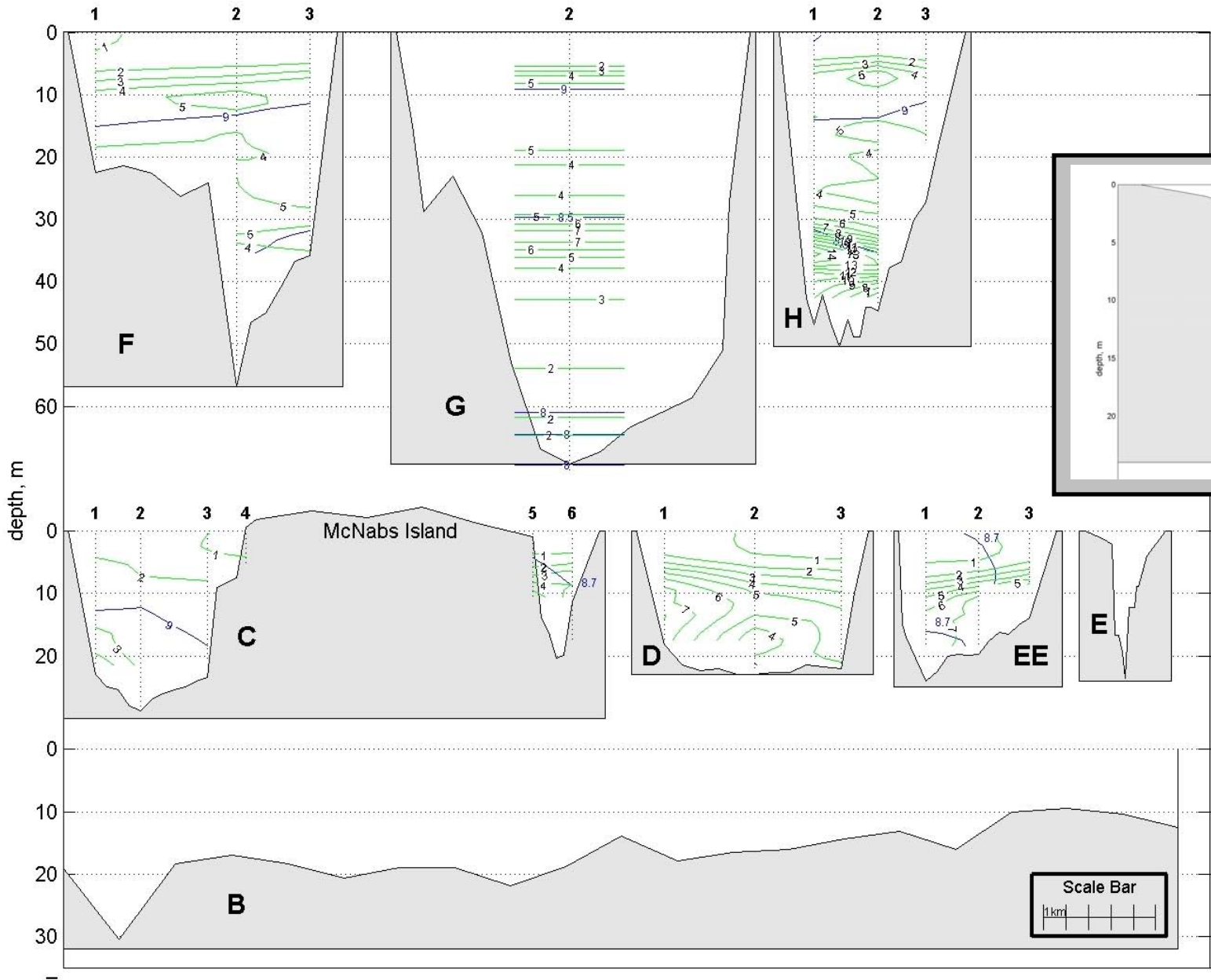
above swimming limit (200 cfu/100mL)



Yacht Clubs

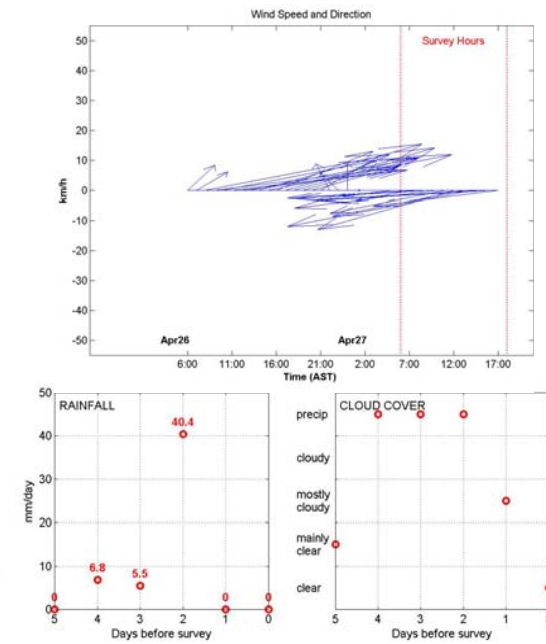
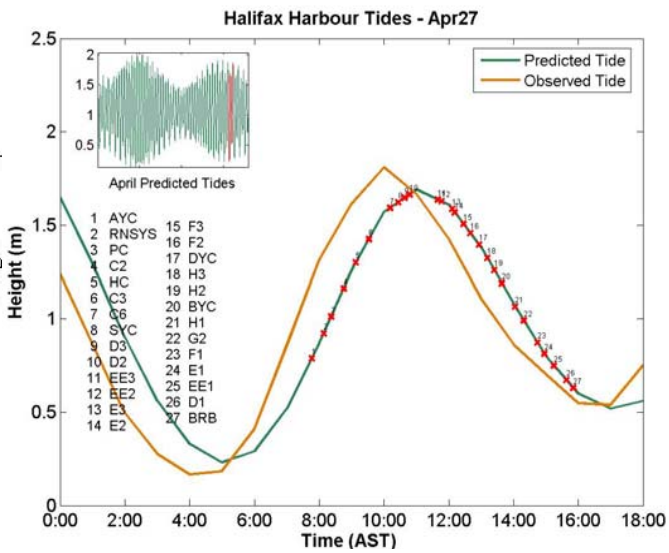
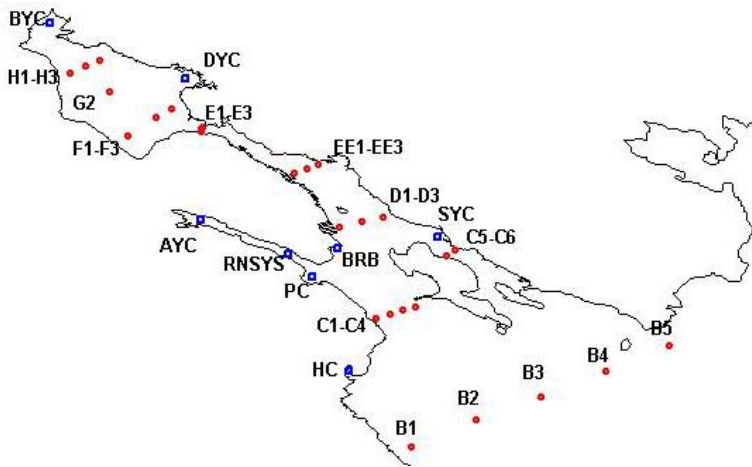


Density in kg/m³ **Fecal coliform: below limits**
above shellfish limit (14 cfu/100mL)
above swimming limit (200 cfu/100mL)

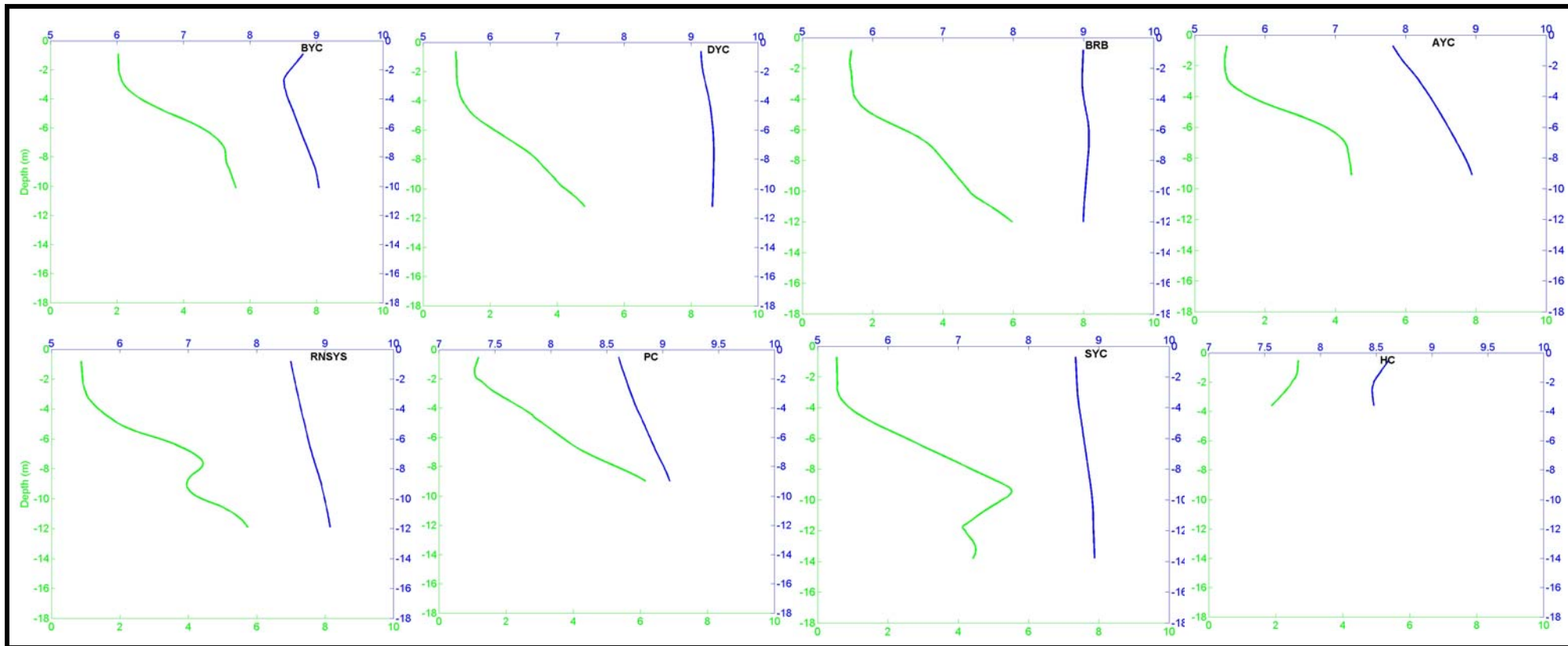


Unless otherwise labeled:

- **dissolved oxygen** contour interval is 0.5 mg/L
- **chlorophyll** contour interval is 1mg/m³.



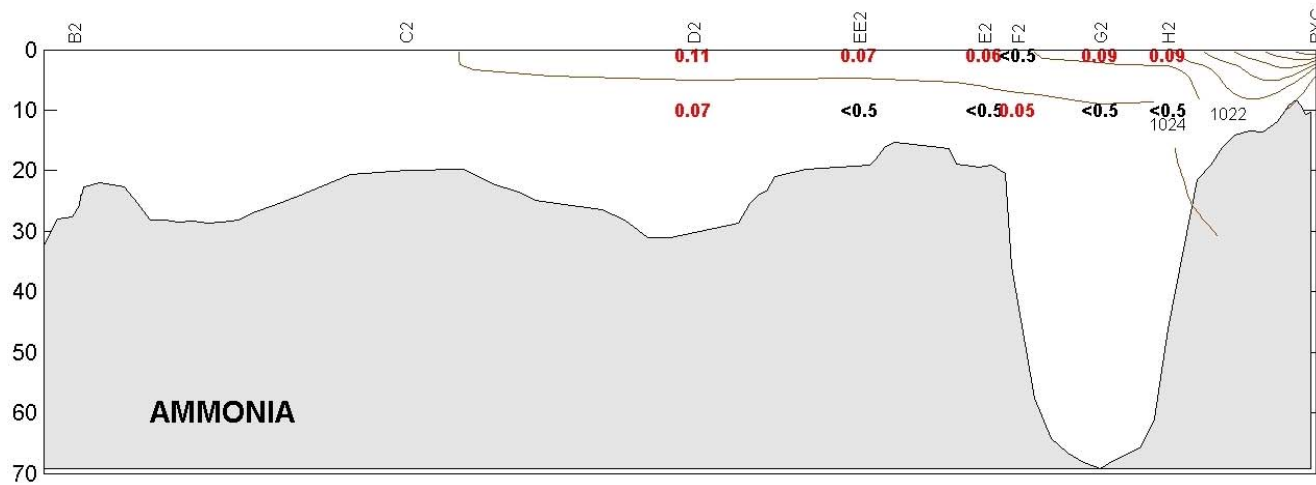
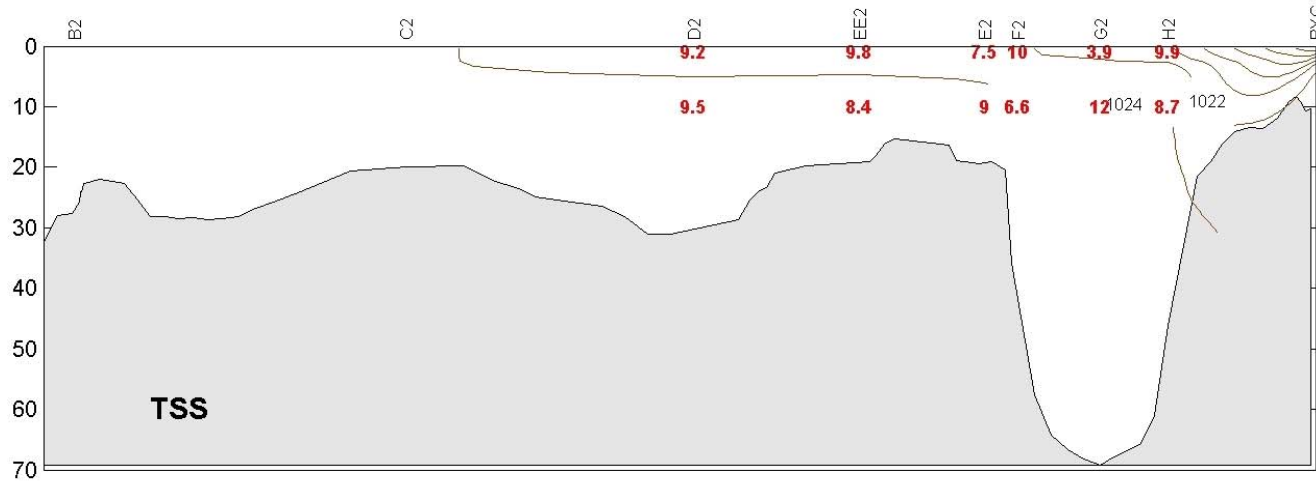
Yacht Clubs



DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



Density in kg/m³

Ammonia in mg/L

TSS in mg/L

