

Halifax Harbour Water Quality Monitoring Project

Weekly Summary #37

Survey Date: 02 March 05
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report037_050302.doc
Data File: HHWQMP_data037_050302.xls

Data Return:

Profile: 87%
 Bacteria: 82%
 Chemical: 86%
Overall: 85%

Sample Notes:

Site B2 not sampled due to weather.
 Sites AYC, HC, DYC and BYC not sampled due to ice
 CTD profiles were obtained at alternate BYC site (BYC-Alt) at ice edge.
 Coordinates: 44.7124 N, 63.6620 W.
 At site EE1 sensors failed to reach equilibrium before the CTD cast was started.
 Probable flow blockage. The profile data for this site are unreliable

QA/QC samples:

Chemical Analysis		G2-1m		H2-10m	
Detectable Parameter	units	reference Sample	QA/QC	Reference Sample	Dup
Ammonia (as N)	mg/L	0.08	0.06	<0.05	
Total Suspended Solids	mg/L	6.7	16	7.8	
Boron	ug/L	3500	3800	3800	3600
Lithium	ug/L	160	160	160	160
Manganese	ug/L	<20	<20	<20	21
Strontium	ug/L	7000	6700	6900	6800
Titanium	ug/L	52	50	57	55
Uranium	ug/L	3.3	3.2	3.3	3.5

Fecal Coliform (CFU/100ml)

Site	H3-10m	F1-1m	D1-10m	E2-1m
Reference	31	19	300	100
QA/QC	14	8	450	190

Regulated parameters with all samples below detection (<EQL)

Parameter	EQL(µg/L)	Parameter	EQL(µg/L)
Cadmium	3	Nickel	20
Chromium	20	Oil and Grease	5
Copper	20	CBOD ₅	5
Lead	5		

Detectable non regulated metals

Metal	EQL (µg/L)	Number >EQL	Mean (µg/L)	Range (µg/L)
Boron	500	14	3643	3500-3800
Lithium	20	14	160	150-170
Strontium	50	14	6836	6600-7200
Titanium	20	14	55	49-60
Uranium	1	14	3.4	3.1-3.7

Comments:

Manganese: Two samples (EE2-1m and the duplicate H2-10m) had detectable values of 21 ug/L each. Neither of these exceed the guideline of 100 ug/L. The reference site H2-10m of the duplicate sample had non-detectable levels of manganese.

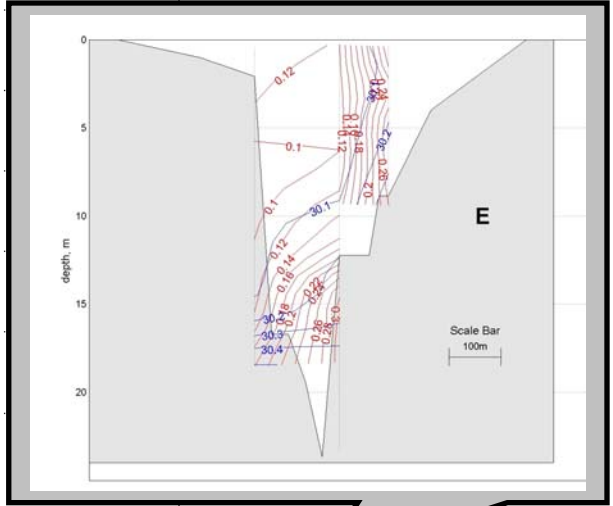
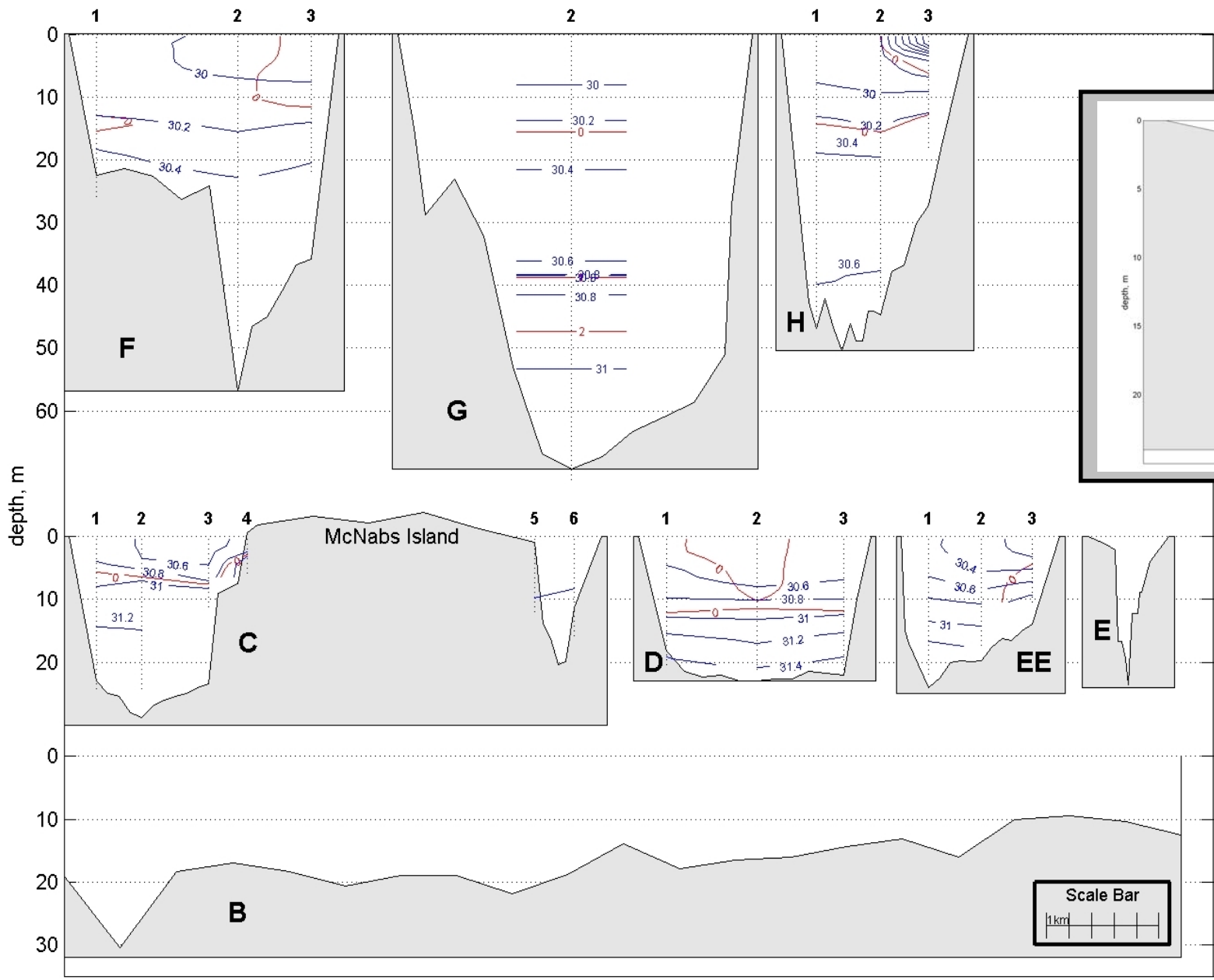
Zinc: One sample (D2-1m) had detectable values of zinc at 55 ug/L. This does not exceed the guideline of 86 ug/L.

Dissolved Oxygen: All surface water (<20 m) has DO values ranging from approximately 8.3 to 9.0 mg/L. The only values below guidelines are in the bottom water of Bedford Basin (below 40-45m). The minimum value is approximately 1.2 mg/L at the lowest point in the Basin (70M).

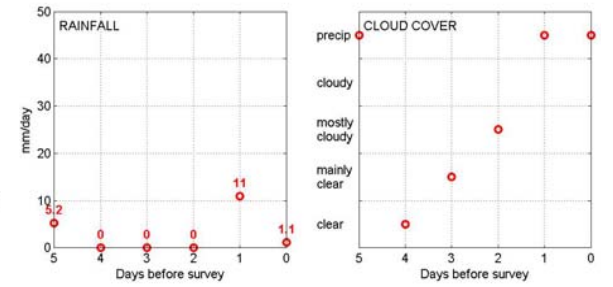
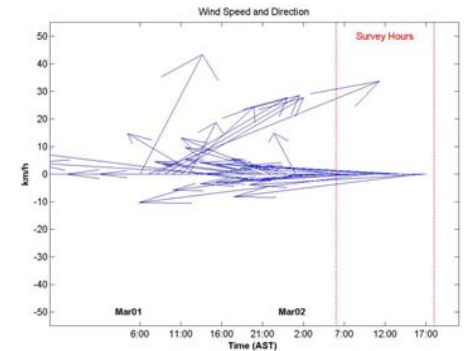
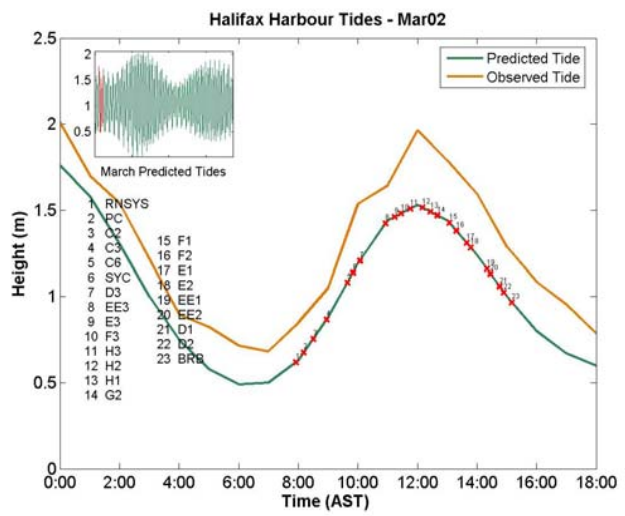
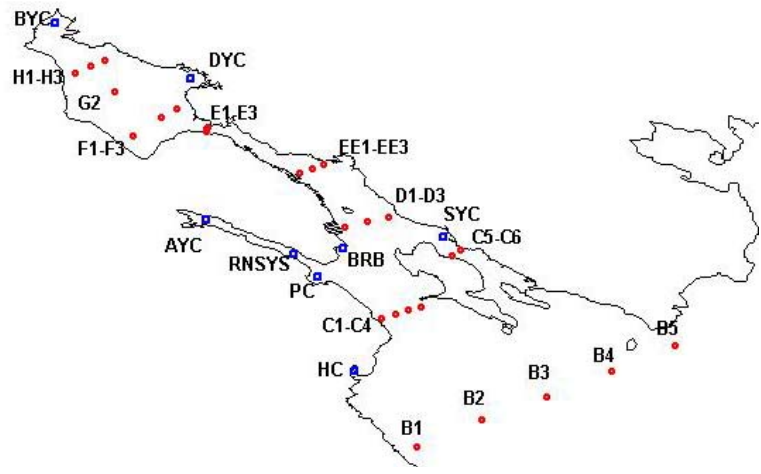
Chlorophyll a: Values > 2 mg/m³ are observed in Bedford Basin. These are higher than the relatively uniform winter values of < 1 mg/m³.

General: There have been gale winds for several days. The observed water level during the survey exhibits a >0.4 M surge over tide. There is very saline, cold water at the bottom of the inner Harbour. This bottom water is denser than the bottom water in the Basin raising the possibility of intrusion over the sill and renewal of the Basin bottom water. This most dense water does not appear at the narrows (section E), however it appears that there may have been significant renewal of intermediate water in the Basin as evidenced by the DO data.

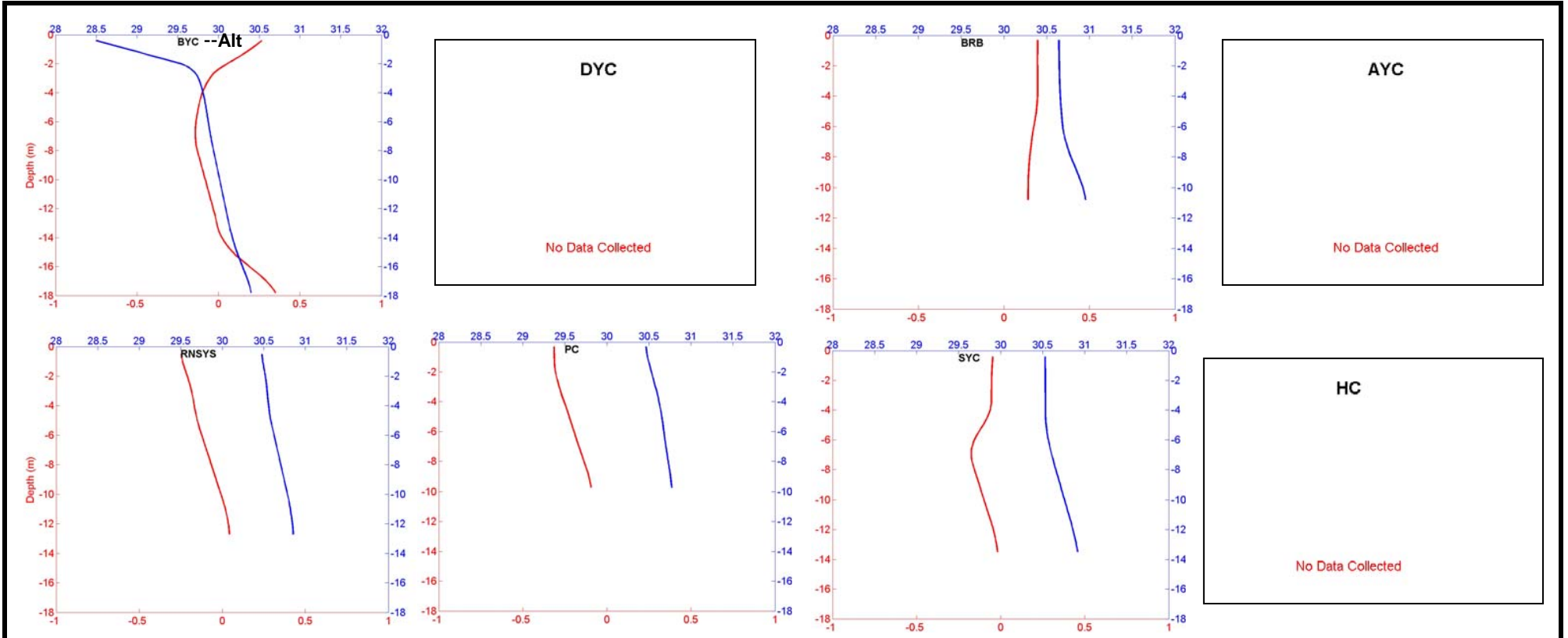
The coliform values outside the inner Harbour (primarily Sections D and EE) are relatively low, perhaps due to increased mixing/ flushing of the harbour caused by shelf water intrusion.



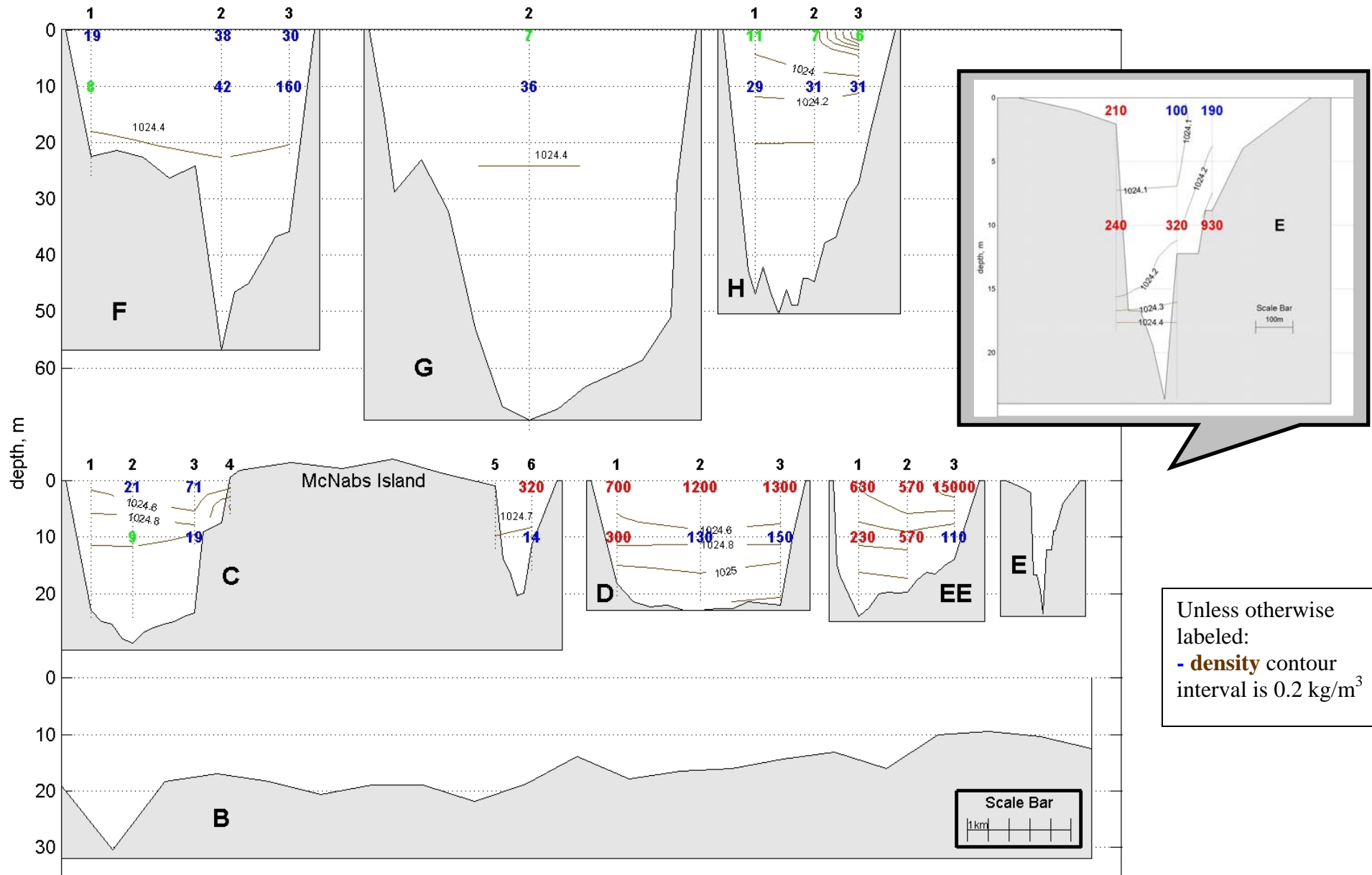
Unless otherwise labeled:
 - salinity contour interval is 0.2 PSU
 - temperature contour interval is 1°C.



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Salinity in PSU Temperature in °C

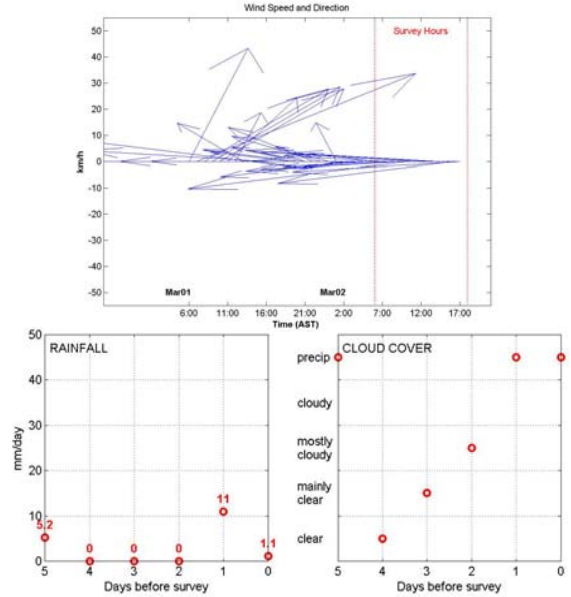
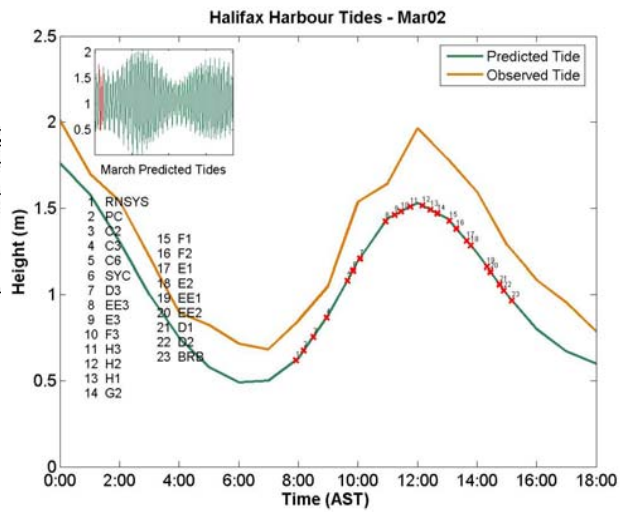
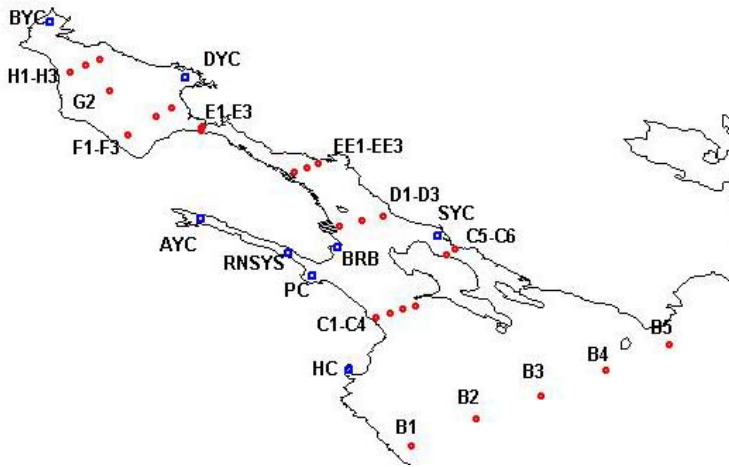


Density in kg/m³

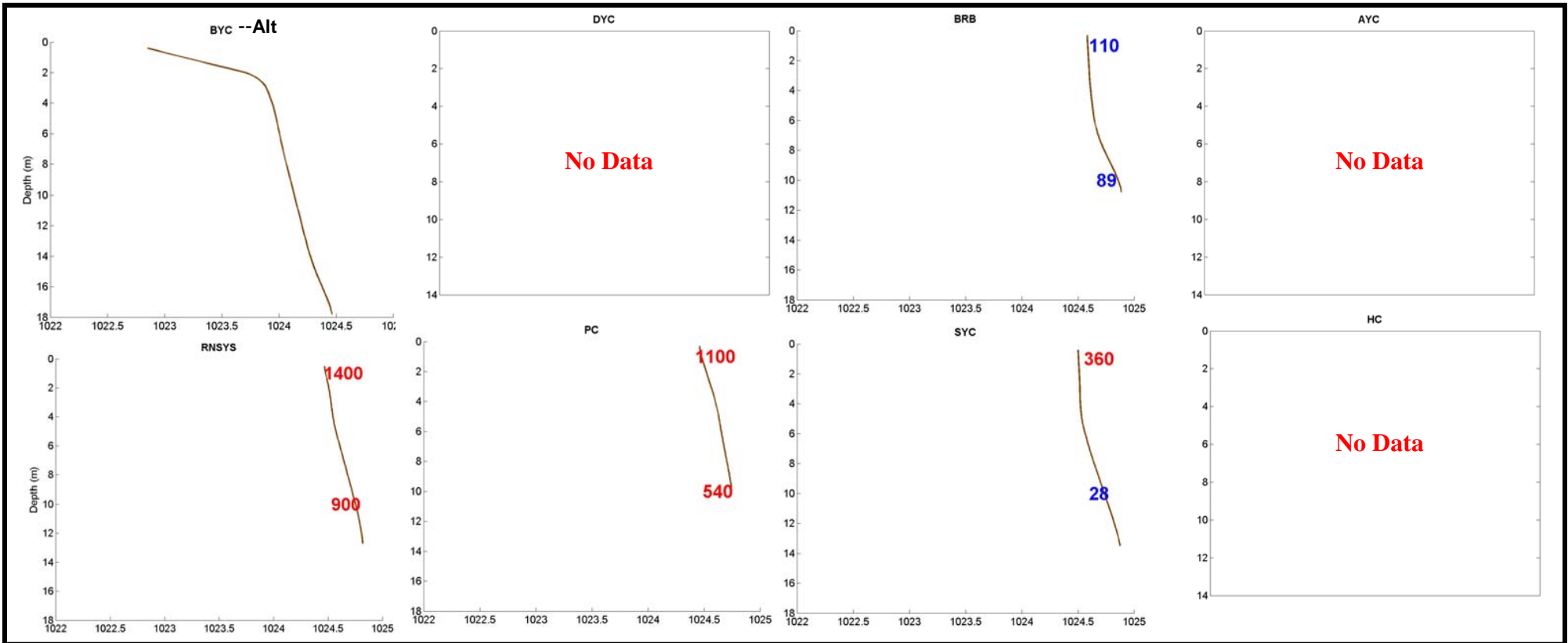
Fecal coliform: below limits

above shellfish limit (14 cfu/100mL)

above swimming limit (200 cfu/100mL)



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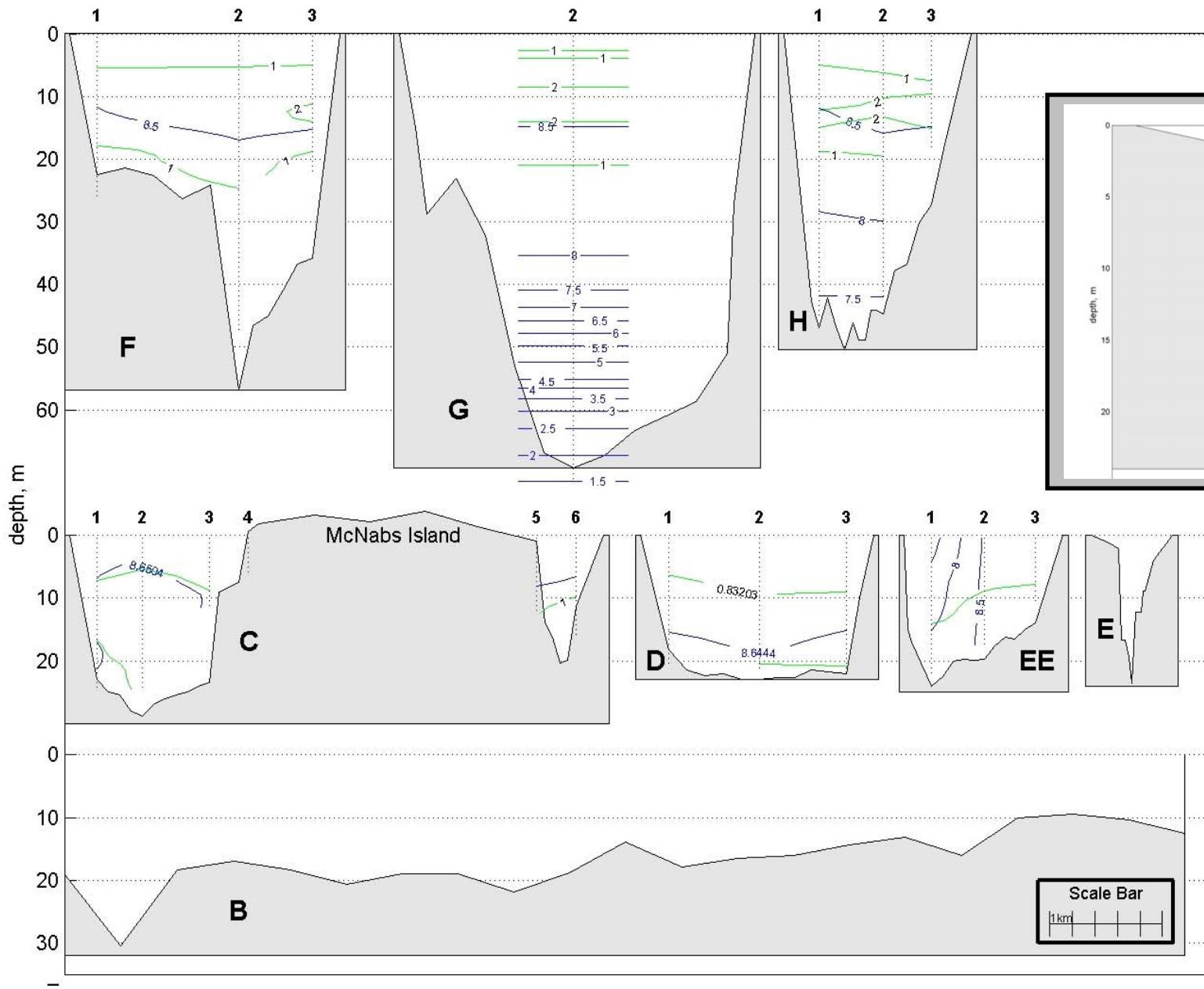


Density in kg/m³

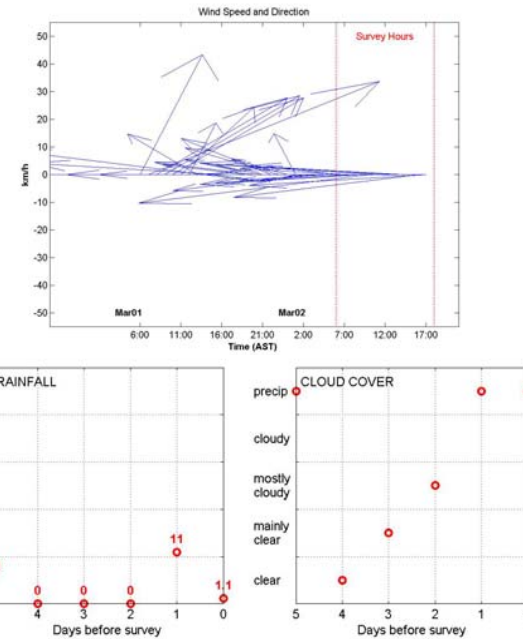
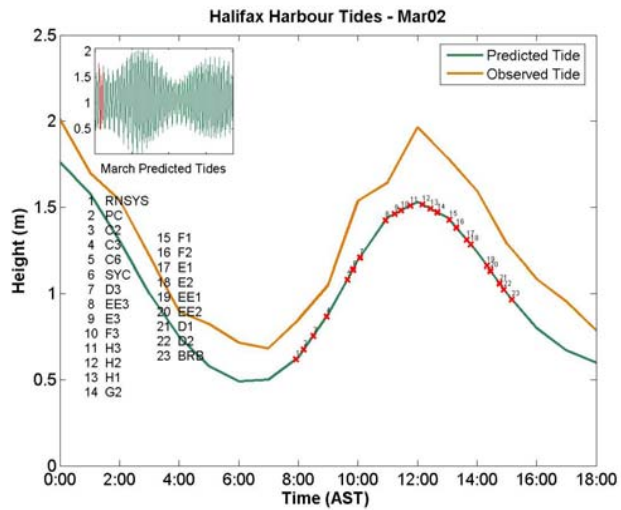
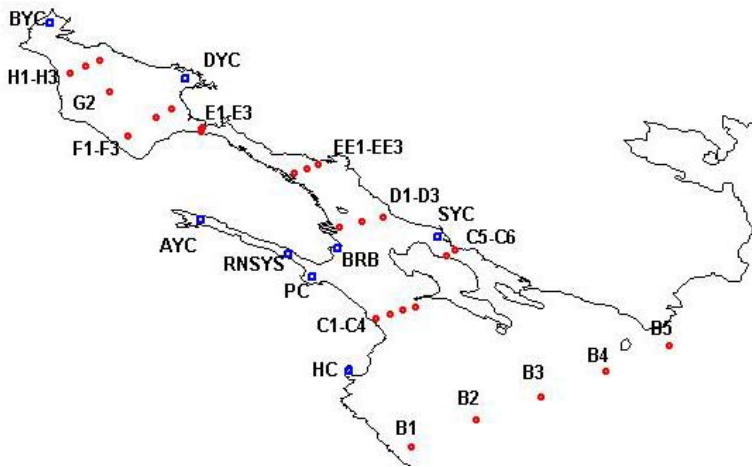
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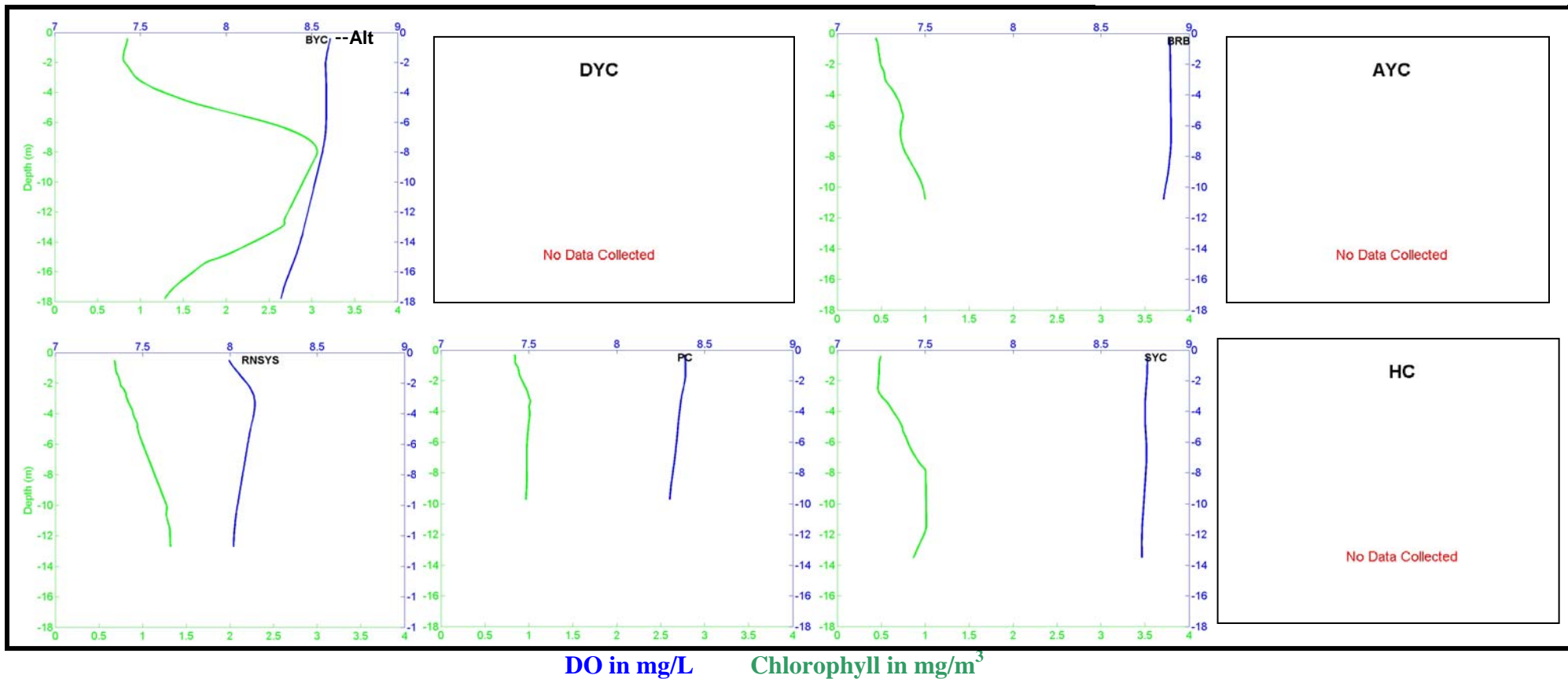
above swimming limit (200 cfu/100mL)



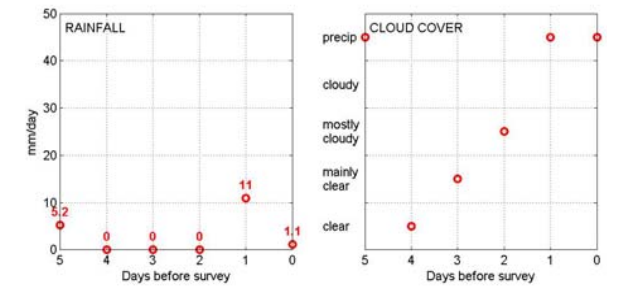
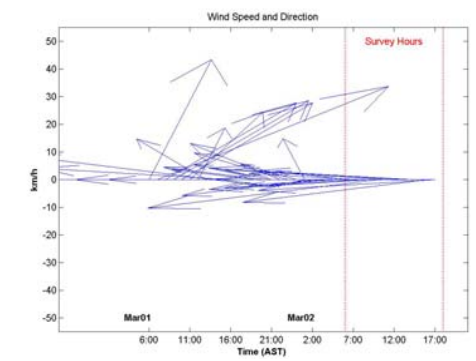
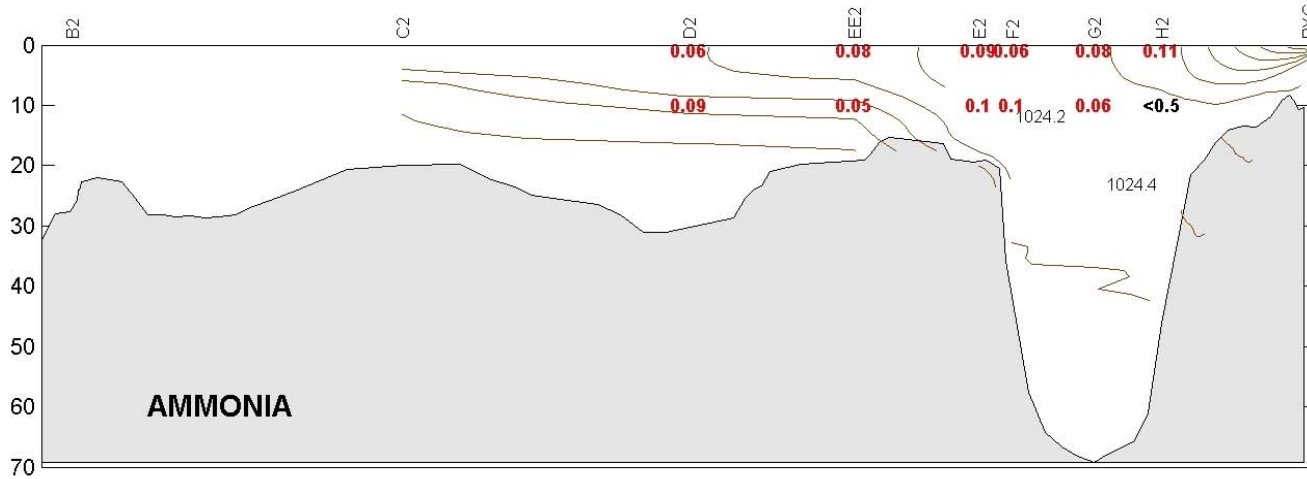
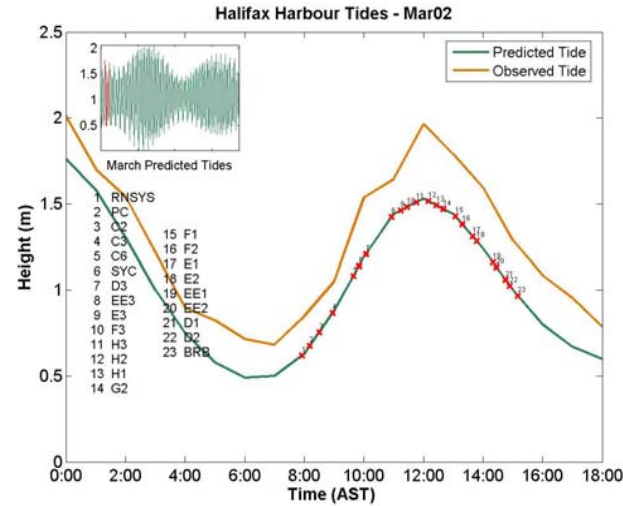
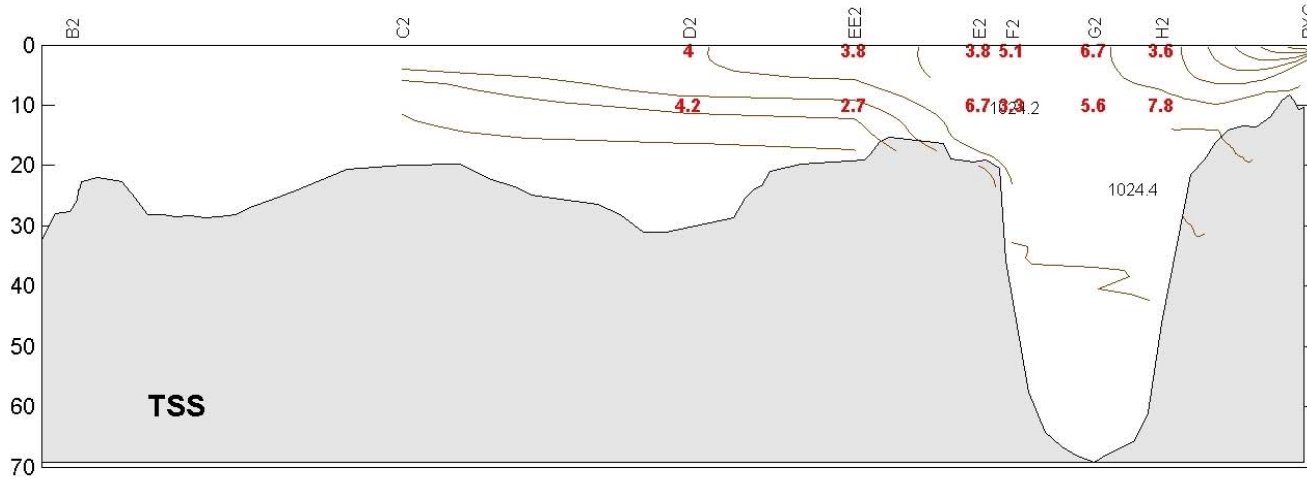
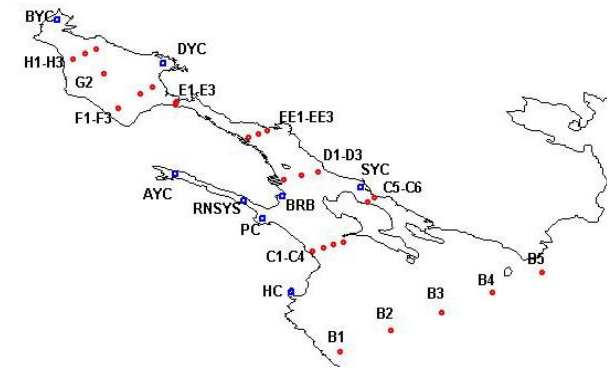
Unless otherwise labeled:
 - **dissolved oxygen** contour interval is 0.5 mg/L
 - **chlorophyll** contour interval is 1mg/m³.



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CHEMISTRY



Density in kg/m³

Ammonia in mg/L

TSS in mg/L