

# Halifax Harbour Water Quality Monitoring Project

## Weekly Report #49

**Survey Date:** 25 May 2005  
**Nature of Survey:** Complete Survey  
**Report File (this document)** HHWQMP\_report049\_050525.doc  
**Data File:** HHWQMP\_data049\_050525.xls

**Data Return:**  
 Profile: 84%  
 Bacteria: 89%  
 Chemical: 86%  
**Overall: 86%**

### Sample Notes:

Sites C1, C3, C4, HC and B2 not sampled due to strong winds.

### QA/QC samples::

Chemical Analysis		H2 - 1m	
		reference sample	QA/QC
Detectable Parameter	units		
Total Suspended Solids	mg/L	8.5	7.5
Aluminum	ug/L	160	160
Boron	ug/L	1400	1500
Manganese	ug/L	35	35
Lithium	ug/L	54	61
Strontium	ug/L	2400	2500
Titanium	ug/L	24	24
Uranium	ug/L	1.2	1

### Fecal Coliform (CFU/100ml)

Site	F1-10m	H1-1m	PC-1m	H2-1m
Reference	330	570	380	740
QA/QC	250	420	520	450

### Regulated parameters with all samples below detection (<EQL)

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

### Detectable non regulated metals

Boron, lithium, strontium, titanium and uranium exhibit very stable background concentrations in the Harbour. These background levels have been documented in previous reports. In this survey, the H2- 1m and the corresponding QA/QC sample had detectable levels of aluminum.

### Comments:

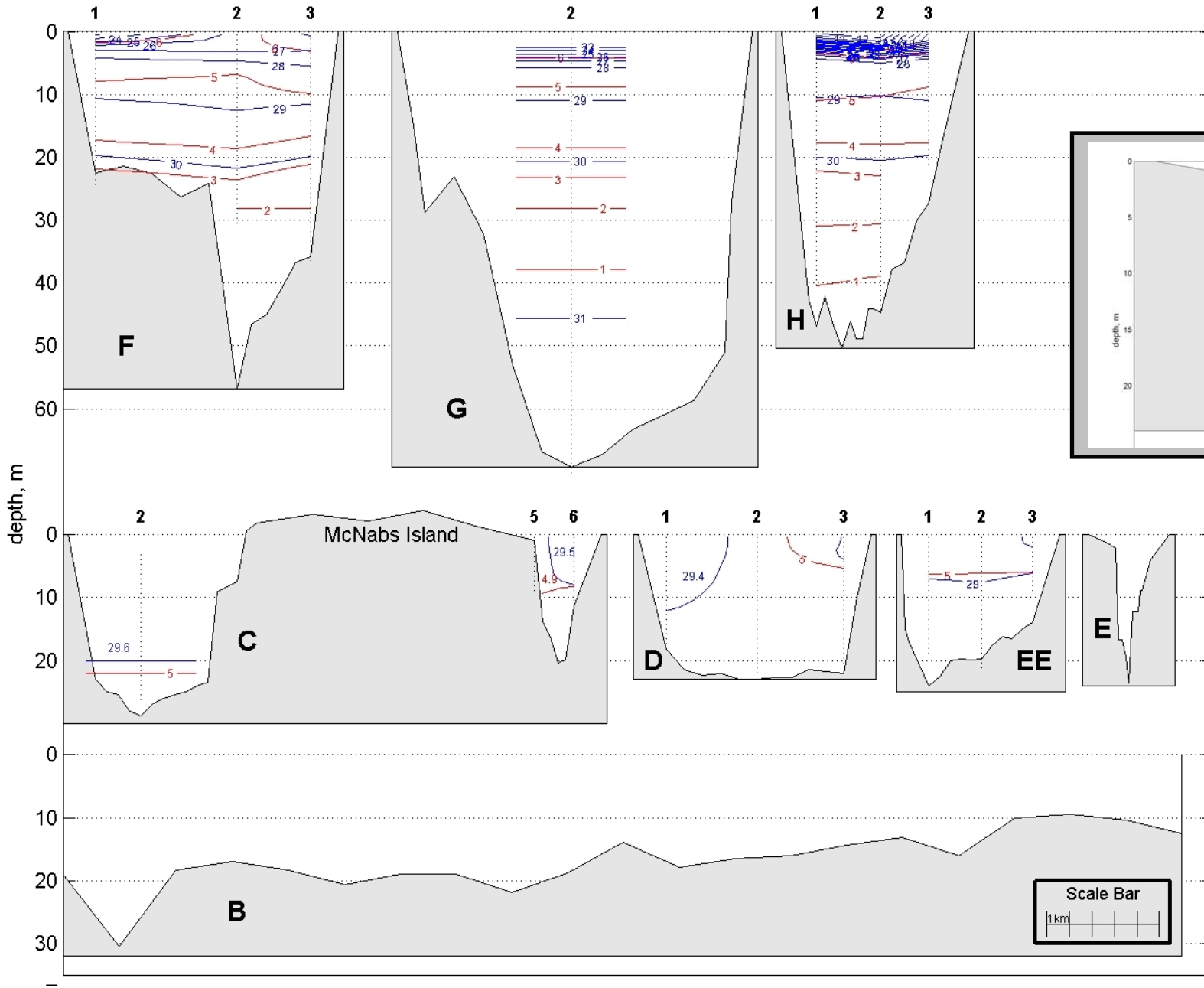
**Manganese:** Two samples (H2-1m and its QA/QC sample) had detectable levels of manganese at 35 ug/L. The guideline for manganese is 20 ug/L.

**Dissolved Oxygen:** The surface waters (<30m) of the Harbour are very uniform in oxygen concentration with values between 8.0 and 8.5. The bottom waters of Bedford Basin (>30m) drop to minimum values of 6.5 mg/L, which are the only values below guidelines in the Harbour.

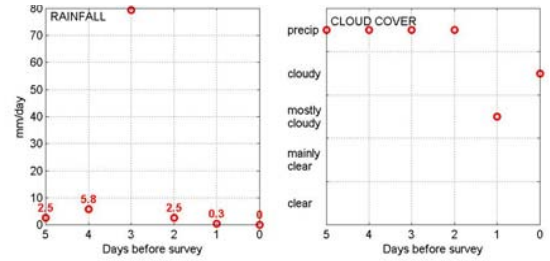
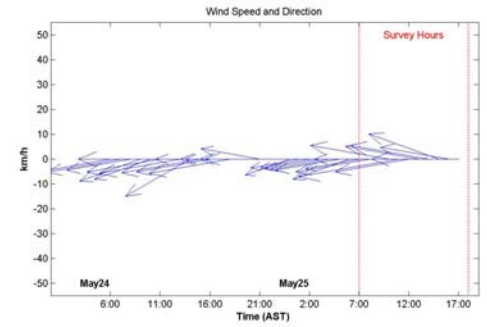
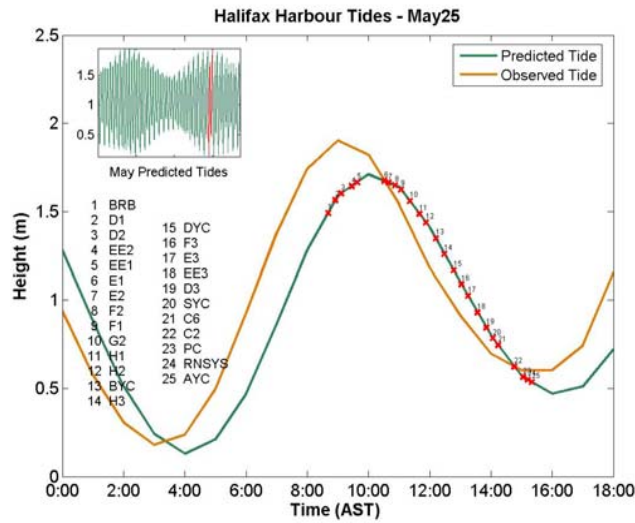
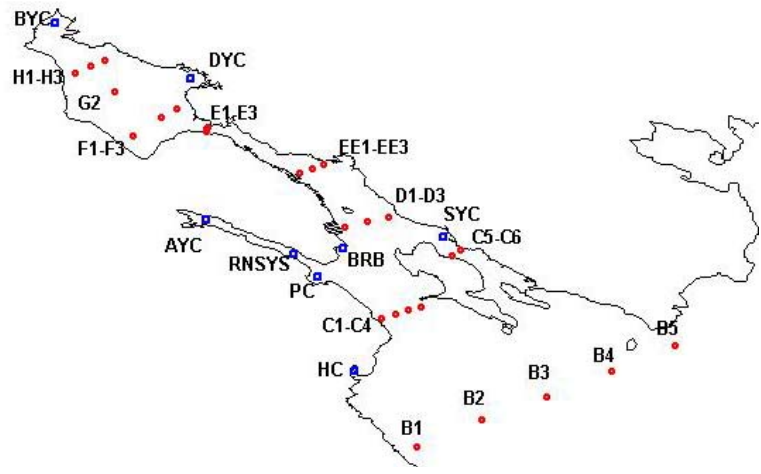
**Chlorophyll-a:** The highest chlorophyll-a values are in the near surface in the Basin with values of approximately 10 mg/m<sup>3</sup>. South of the Narrows, the values drop rapidly to <2.0 mg/ m<sup>3</sup> by station C2.

**General.** This represents a period of wet windy weather, including nearly 80 mm of rain three days before the survey. The persistent downwelling (generally easterly) winds have pushed surface water into the Harbour. There is approximately a 0.2 to 0.3 m surge over tide. This flow appears to be counteracting the flow of fresher water out of the Harbour. There is a layer of very fresh water at the head of Bedford Basin but the Harbour south of the Narrows (section E) is nearly vertically uniform. Consistent with this, the bacteria levels throughout the Basin and northern Harbour are high, but the values in section D and in the main channel at section C are relatively low.

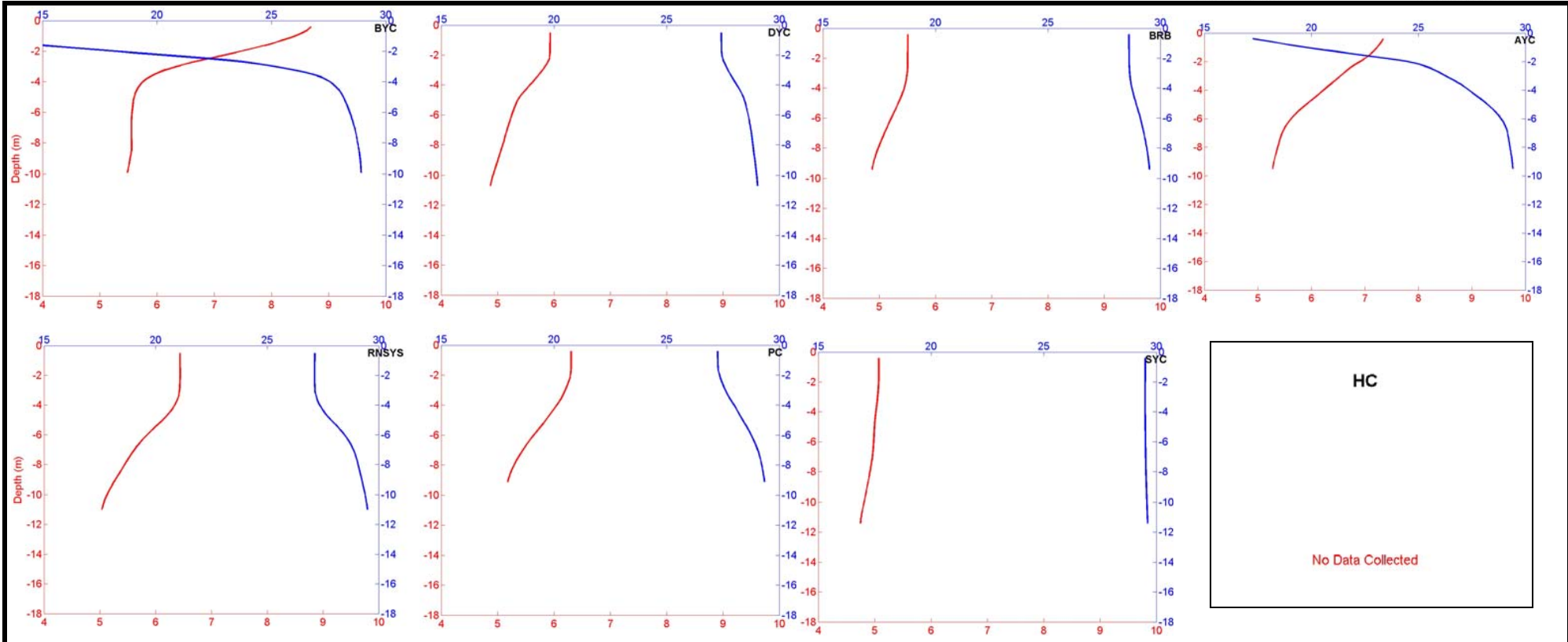
The layer of very fresh water. has resulted in a commensurate reduction in seawater background metals measured at H2, but an increase in aluminum and manganese concentration. This phenomenon has been noted previously, but points more strongly to a Sackville River source for these metals.



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



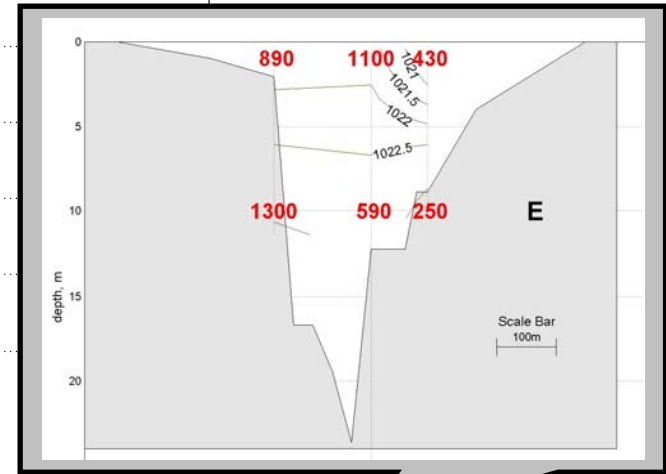
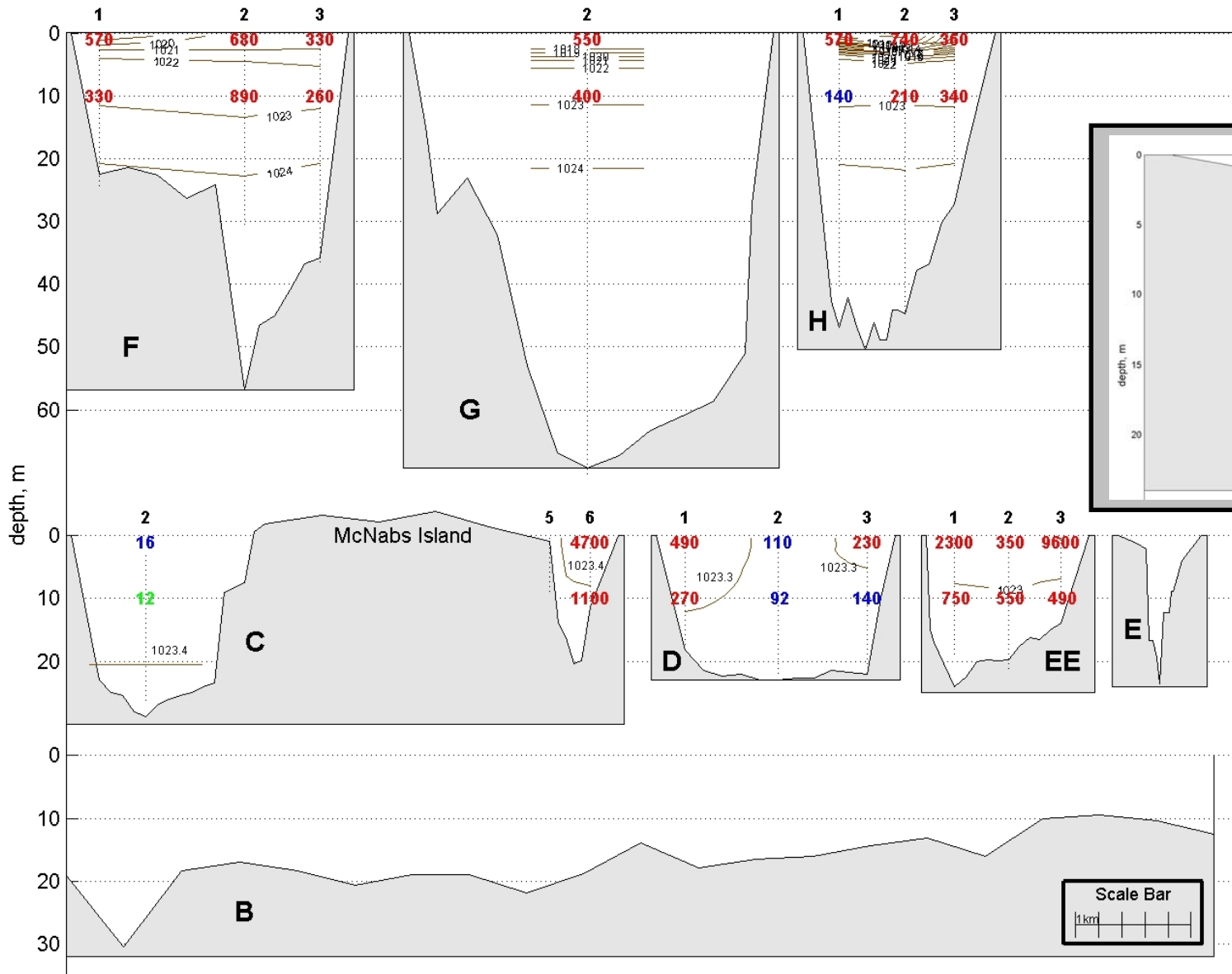
## Yacht Clubs



HC

No Data Collected

Salinity in PSU      Temperature in °C



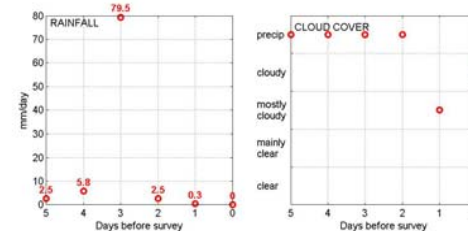
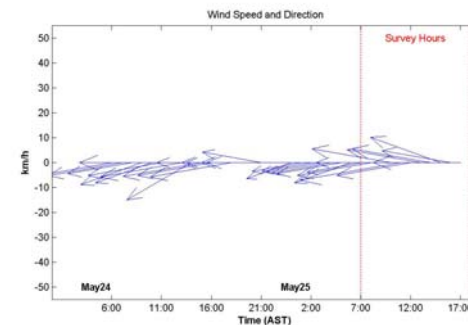
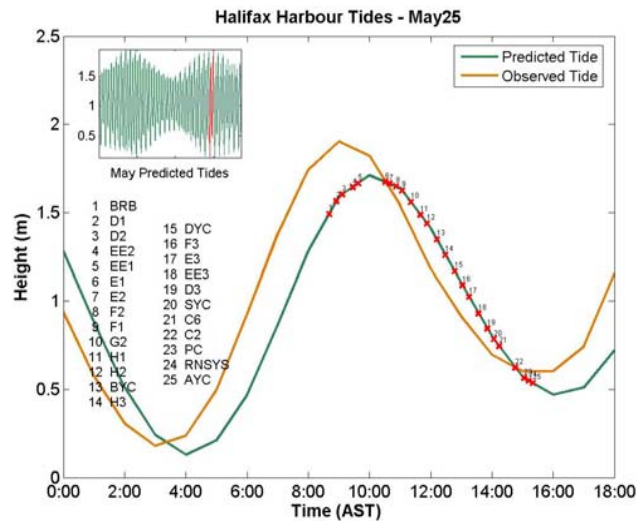
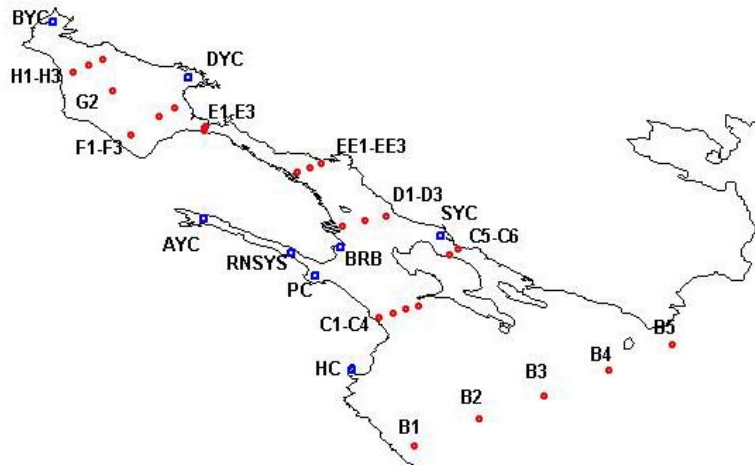
Unless otherwise labeled:  
 - **density** contour interval is 1 kg/m<sup>3</sup>

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

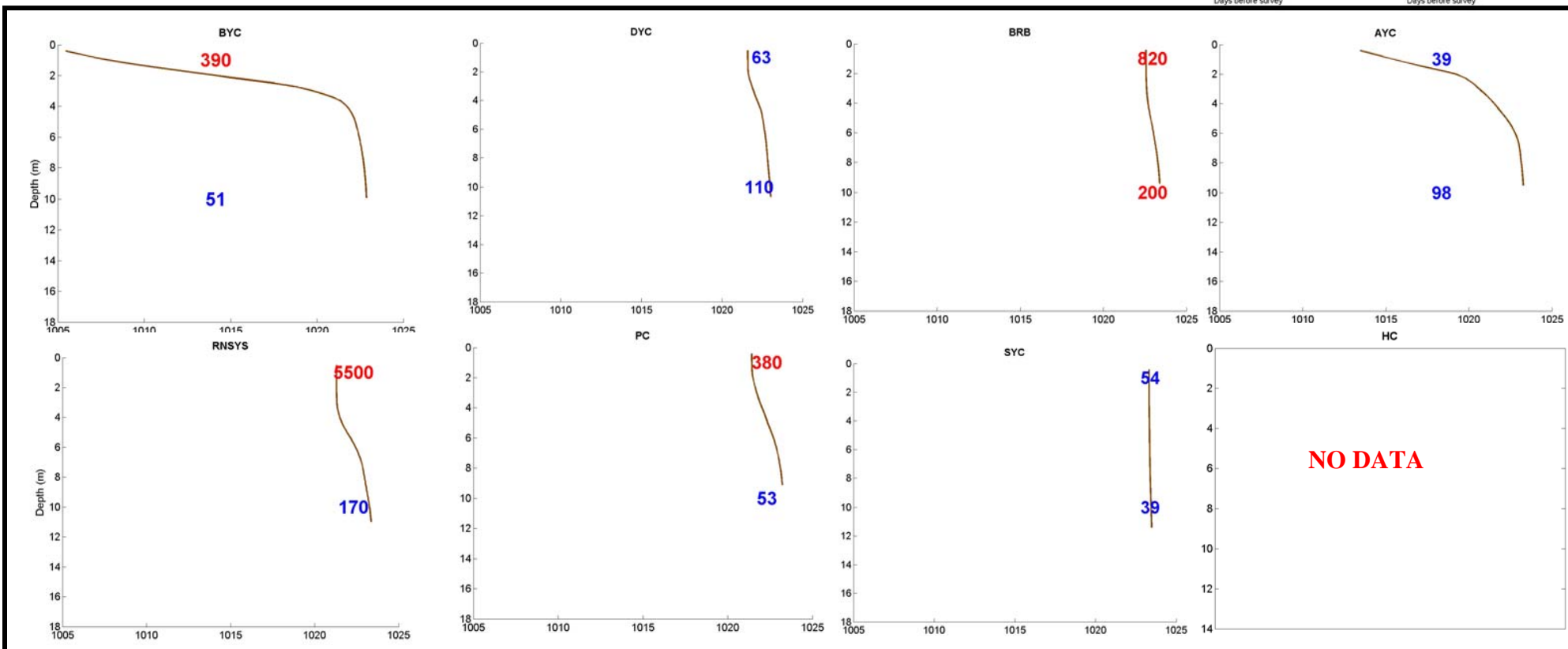
Fecal coliform: **below limits**

**above shellfish limit (14 cfu/100mL)**

**above swimming limit (200 cfu/100mL)**



## Yacht Clubs

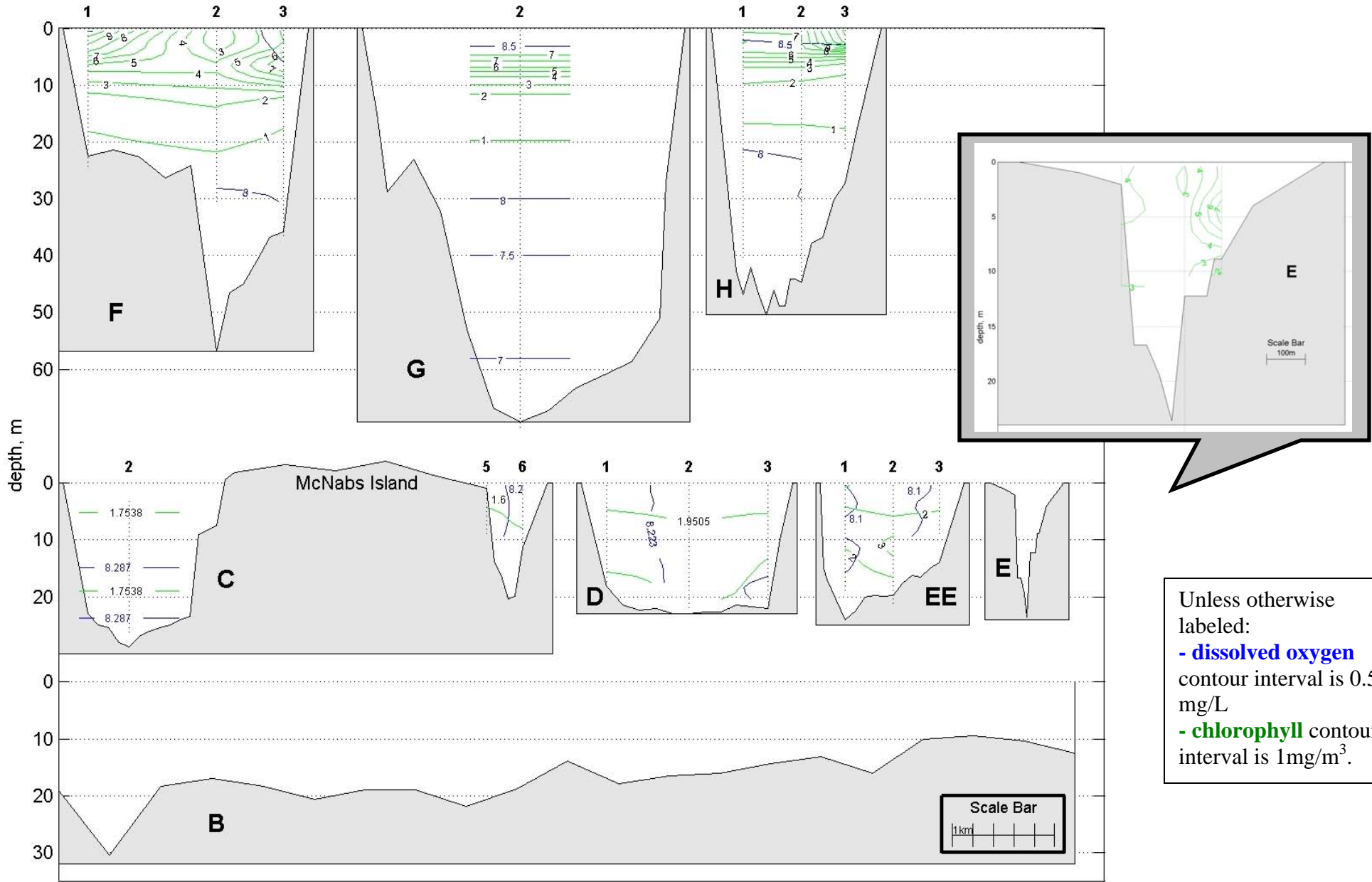


Density in  $\text{kg/m}^3$

Fecal coliform: **below limits**

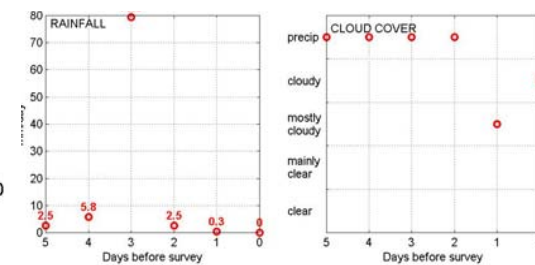
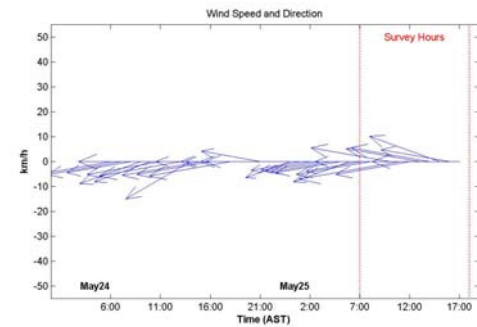
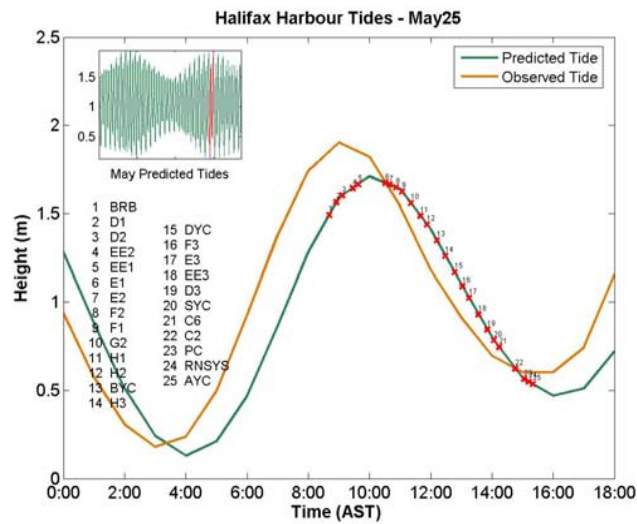
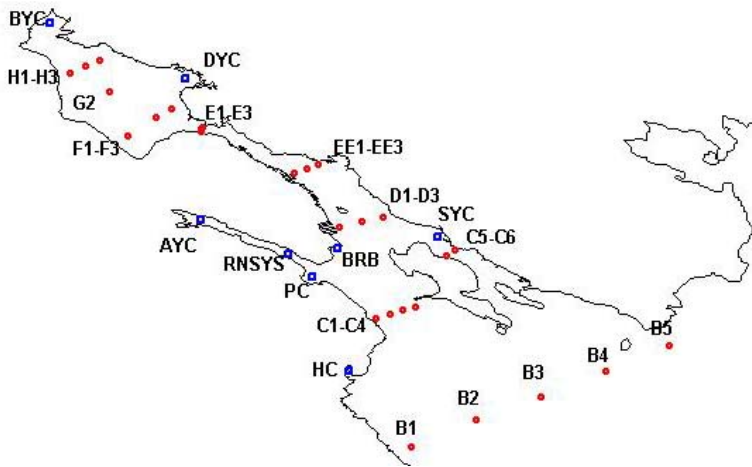
**above shellfish limit (14 cfu/100mL)**

**above swimming limit (200 cfu/100mL)**

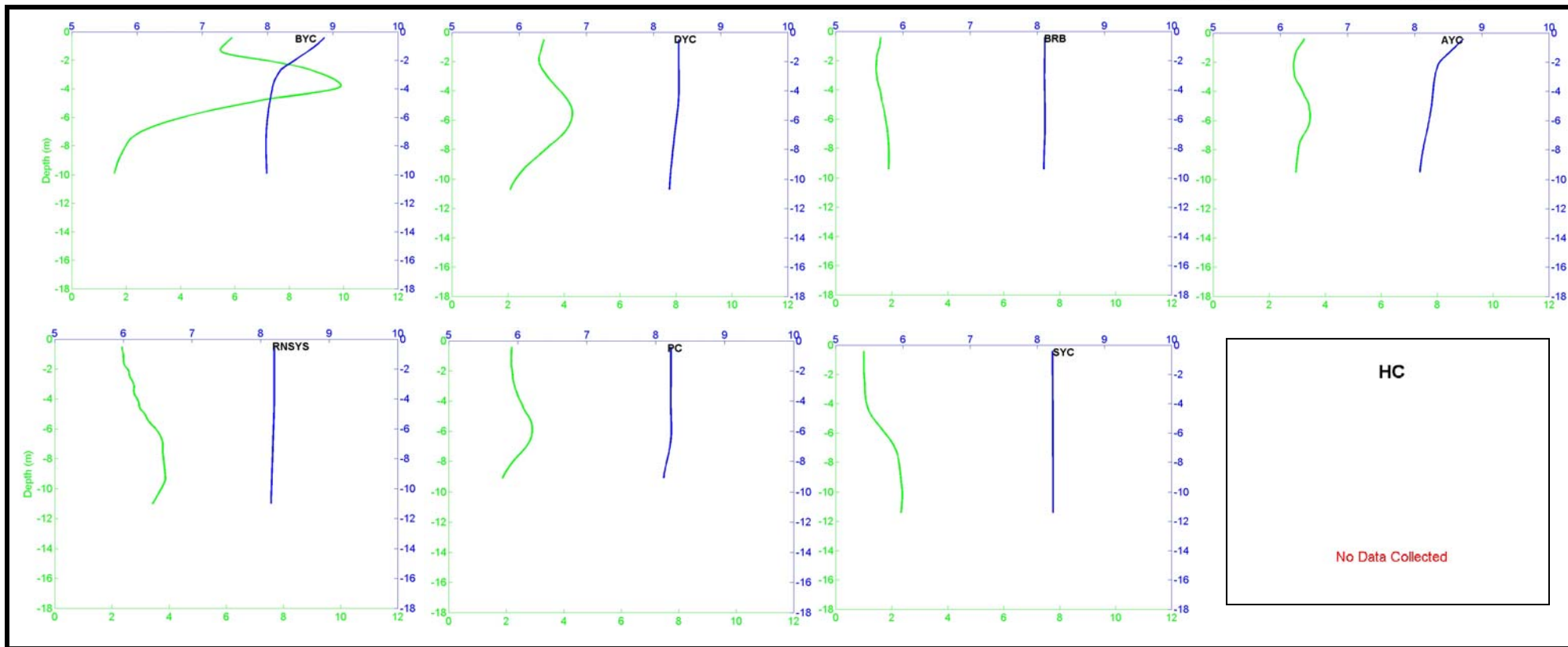


Unless otherwise labeled:  
 - dissolved oxygen contour interval is 0.5 mg/L  
 - chlorophyll contour interval is 1mg/m<sup>3</sup>.





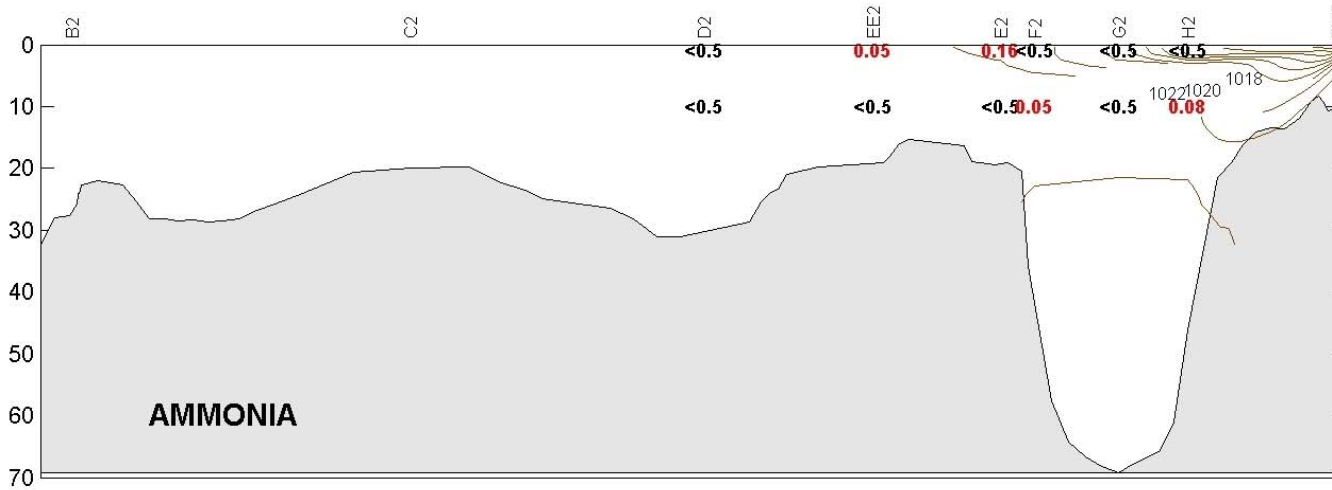
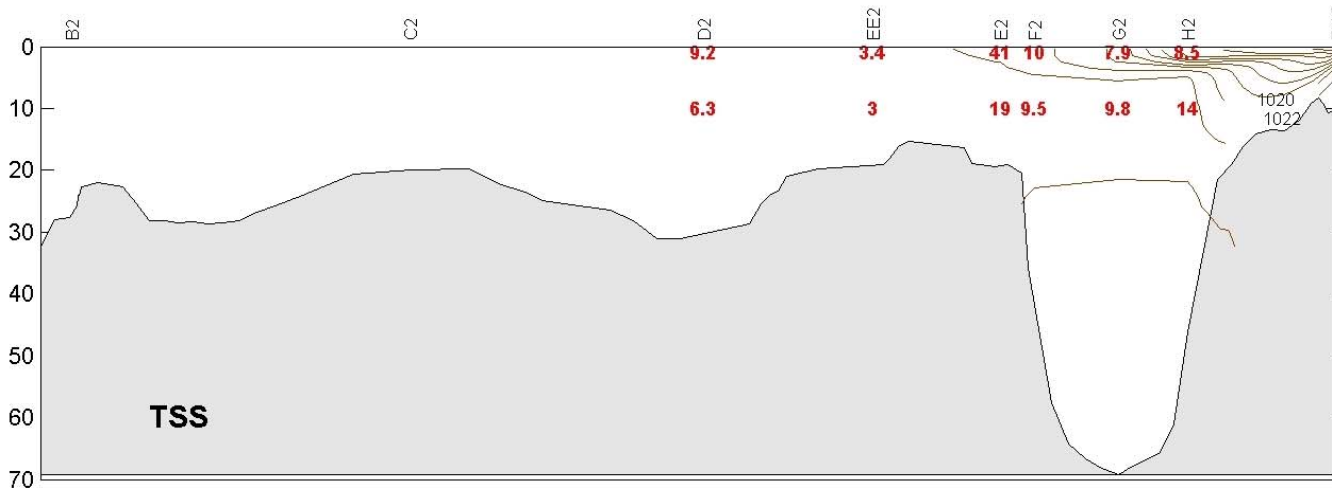
## Yacht Clubs



DO in mg/L

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

CHEMISTRY



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

Ammonia in mg/L

TSS in mg/L

