

Halifax Harbour Water Quality Monitoring Project

Weekly Report #47

Survey Date: 10 May 2005
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report047_050510.doc
Data File: HHWQMP_data047_050510.xls

Data Return:

Profile: 94%
 Bacteria: 96%
 Chemical: 100%
Overall: 96%

Sample Notes:

Site DYC was not sampled due to diver operations in area. Site C5 (CTD only) was not sampled due to a fueling appointment.

A new sampling procedure for the Total Oil and Gas sample was instituted. From now on, at each of the chemistry sites, a single sample will be obtained from the very surface of the water.

QA/QC samples:

Chemical Analysis		B2-10m		EE2-10m		F2-1m	
Detectable Parameter	units	reference sample	Dup	reference sample	Dup	reference sample	QAQC
Ammonia (as N)	mg/L	<005		<0.05		0.12	<0.05
Total Suspended Solids	mg/L	14		6	5.9	8	8.8
Aluminum	ug/L	<100	<100	<100		190	180
Boron	ug/L	2500	2400	3500		2000	1500
Manganese	ug/L	<20	<20	<20		36	34
Lithium	ug/L	110	110	160		84	64
Strontium	ug/L	6600	6300	6900		3600	3200
Titanium	ug/L	71	70	67		37	40
Uranium	ug/L	3	3.1	2.5		1.5	1.6

Fecal Coliform (CFU/100ml)

Site	BRB-1m	EE1-1m	RNSYS-10m	F2-1m
Reference	2000	200	63	160
QA/QC	2700	7500	39	220

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	CBOD ₅	5
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 five 1m Basin samples had detectible levels of aluminum.

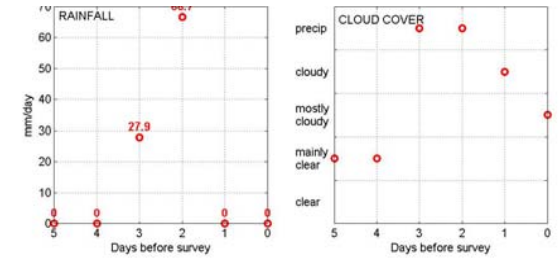
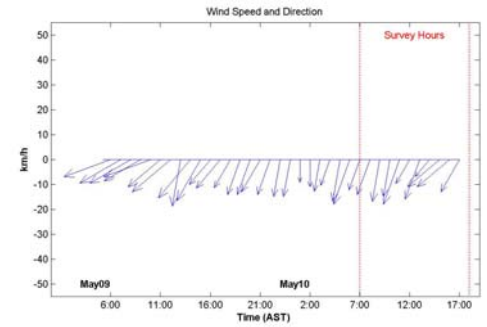
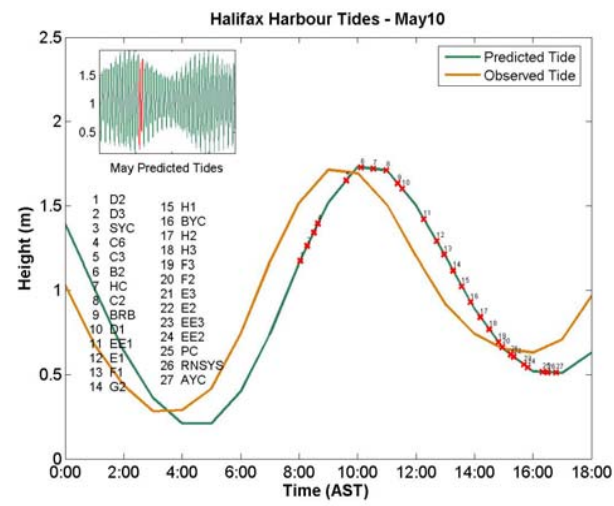
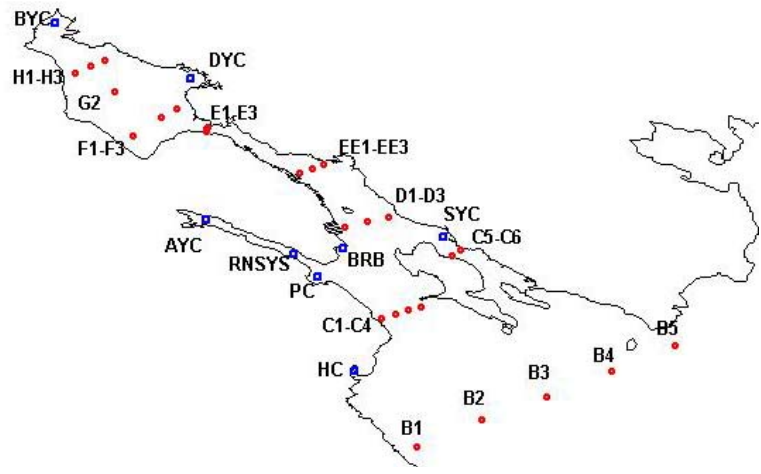
Comments:

Manganese: Five samples (E2-1m, 36 ug/L; F2-1m, 36 ug/L; G2-1m, 33 ug/L; H2-1m, 38 ug/L, and the QA/QC sample from F2-1m, 34 ug/L) had detectable levels of manganese. The guideline for manganese is 100 ug/L.

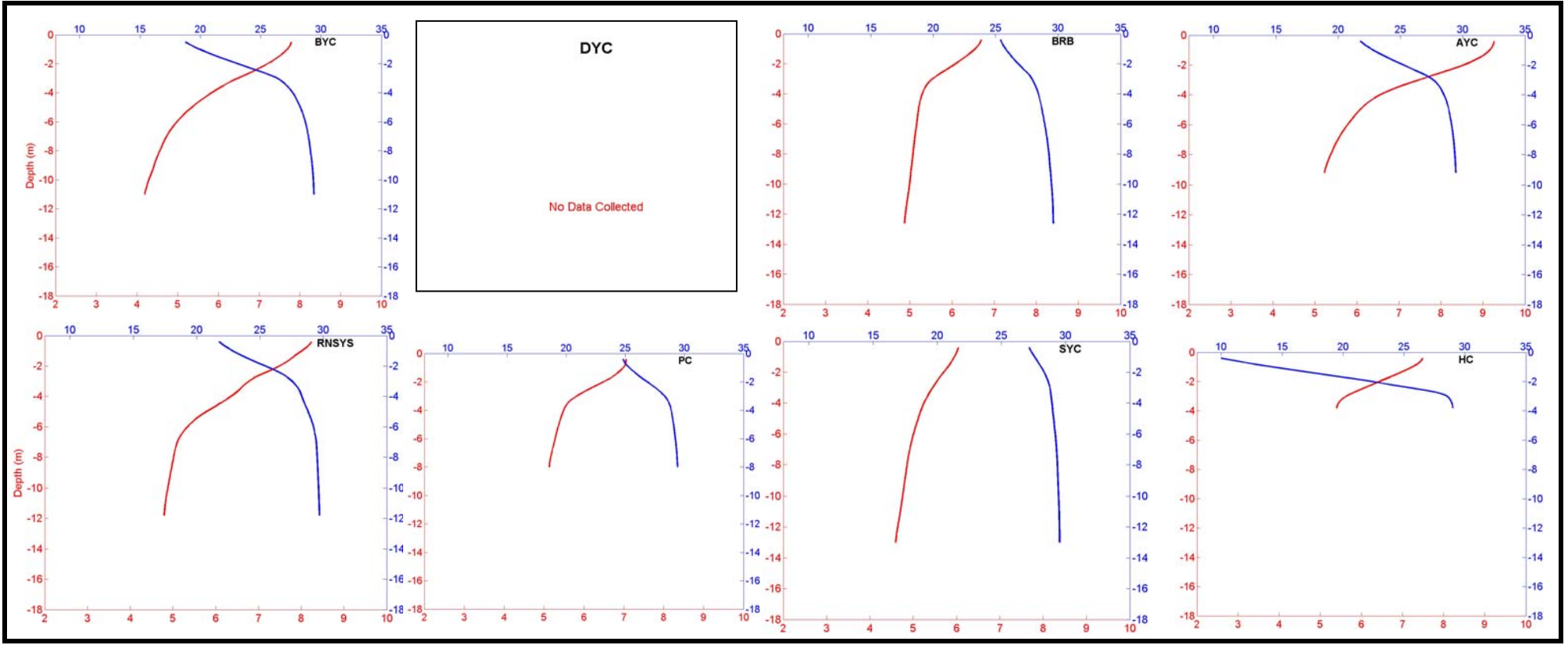
Dissolved Oxygen: DO concentration remains at about 8.0-8.5 mg/L throughout the Harbour, including the bottom water of Bedford Basin. There are no cases of DO concentrations lower than applicable guidelines.

Chlorophyll-a: The highest chlorophyll-a values (approx 18 mg/m³) occur at the very surface of the Basin. Outside the Basin the values are lower and the maximum occurs at about 5 m depth.

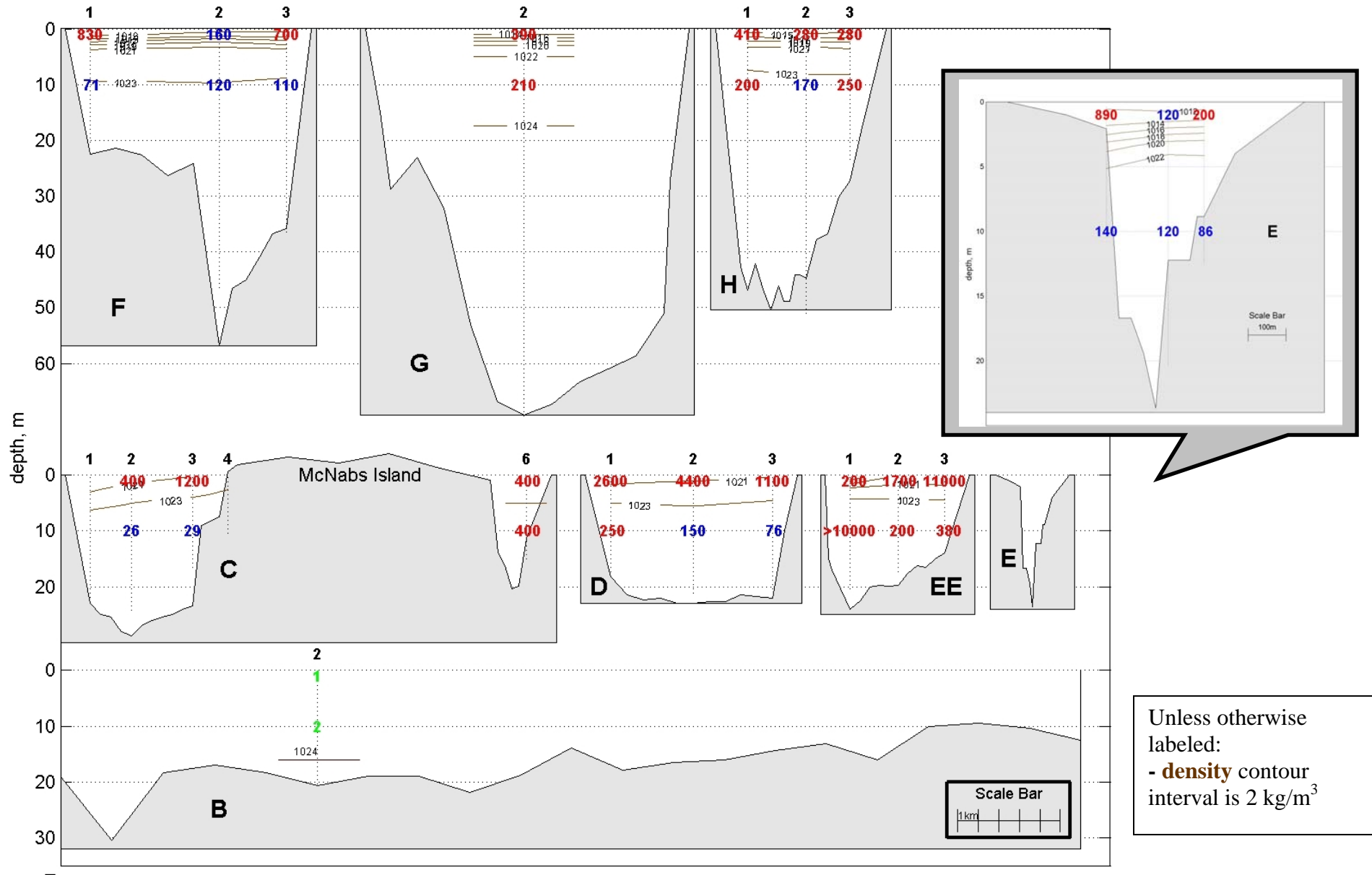
General: Nearly 100 mm of rain 2-3 days before sampling has led to one of the most stratified events sampled to date. A very fresh surface layer (<20 psu) extends all over Bedford Basin. The stratification extends throughout the harbour but is not nearly as distinct in the outer harbour as other events (e.g. 1 Dec 04 – week 24). This may be a function of time elapsed since the rainfall and/or a function of the general downwelling (Northeast) winds. The fecal coliform values throughout the inner Harbour and Basin are high, particularly in the 1m samples. In the Basin, the higher values are most often in the 10m samples. The elevated bacteria levels (as with the fresh water signal) do not extend to the outer Harbour (site B2). In the 1m chemistry samples taken in the Basin, the levels of the non-regulated metals are reduced approximately 50% from their normal background levels, primarily by dilution with freshwater. In the same samples, the manganese and aluminum values are elevated. This suggests that the Basin may have a freshwater source (e.g. Sackville River) responsible for the periodically observed elevated values of these metals.



Yacht Clubs



Salinity in PSU Temperature in °C



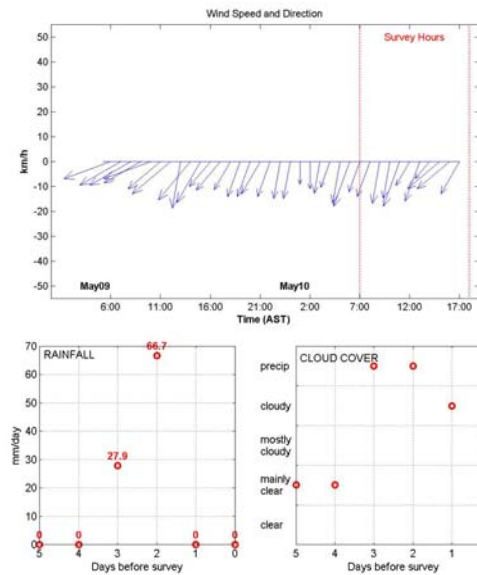
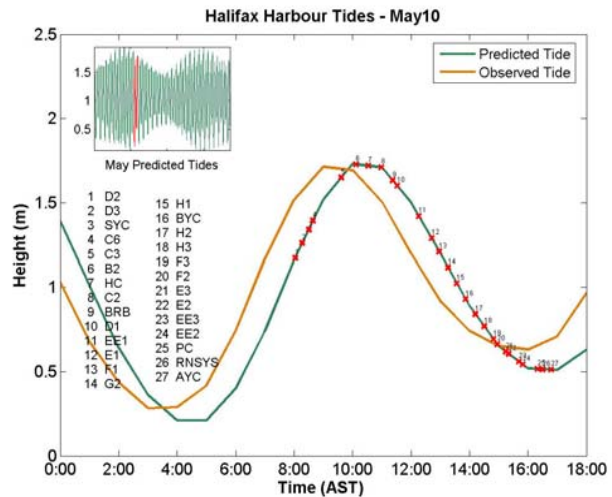
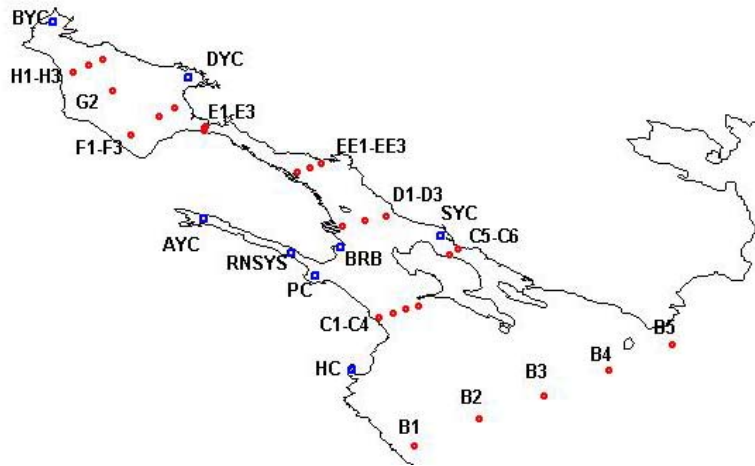
Unless otherwise labeled:
 - density contour interval is 2 kg/m^3

Density in kg/m^3

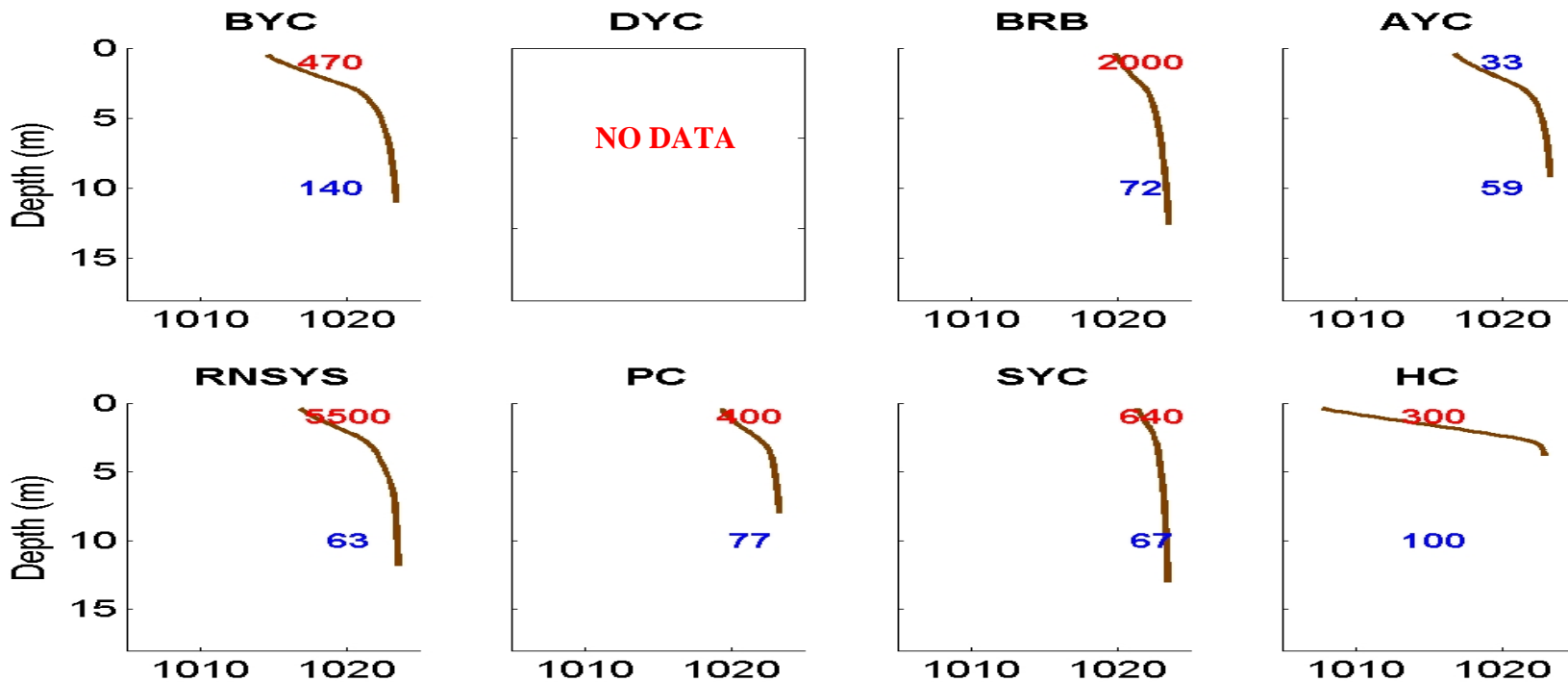
Fecal coliform: below limits

above shellfish limit (14 cfu/100mL)

above swimming limit (200 cfu/100mL)



Yacht Clubs

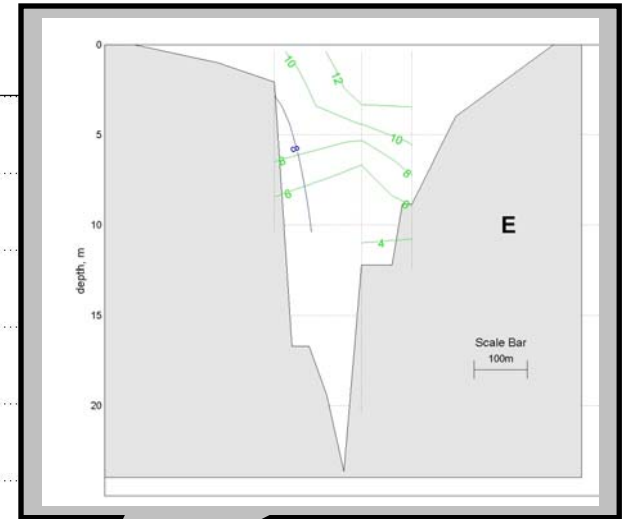
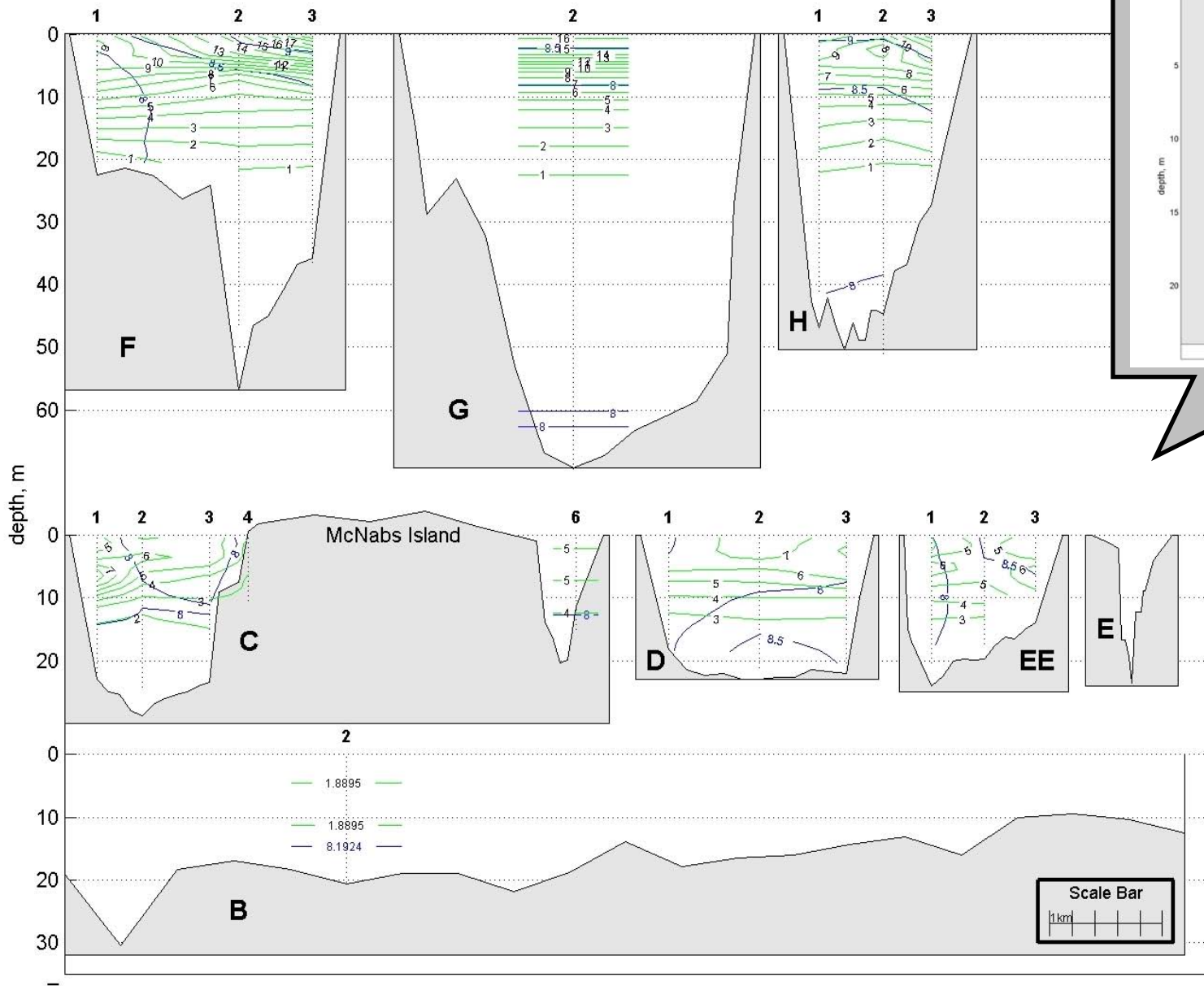


Density in kg/m³

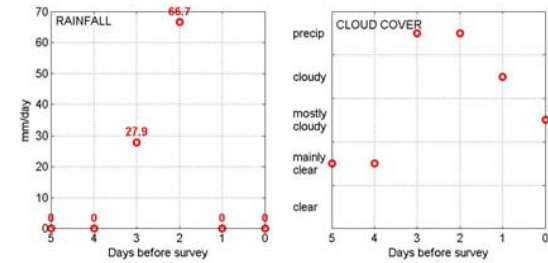
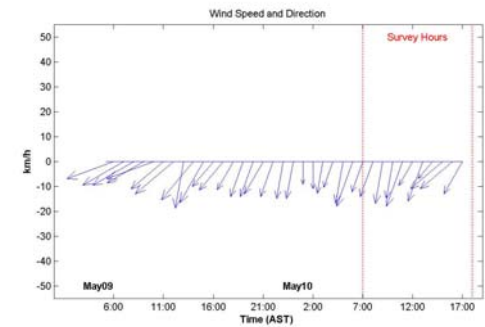
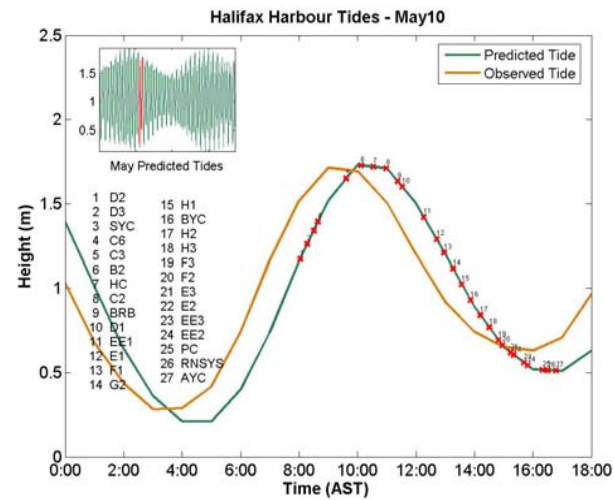
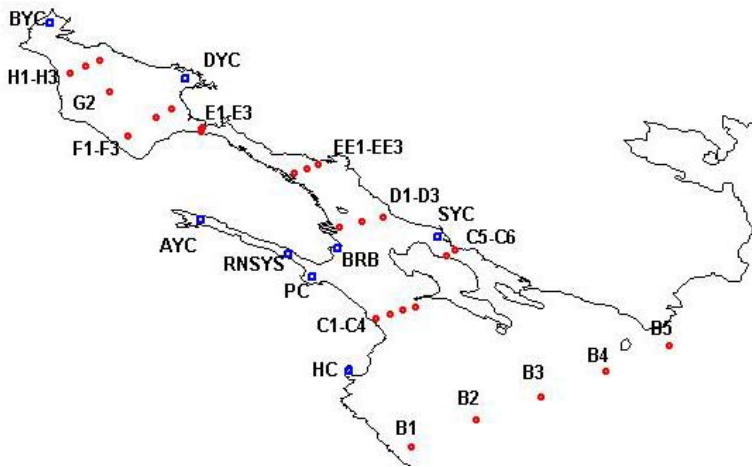
Fecal coliform: below limits

above shellfish limit (14 cfu/100mL)

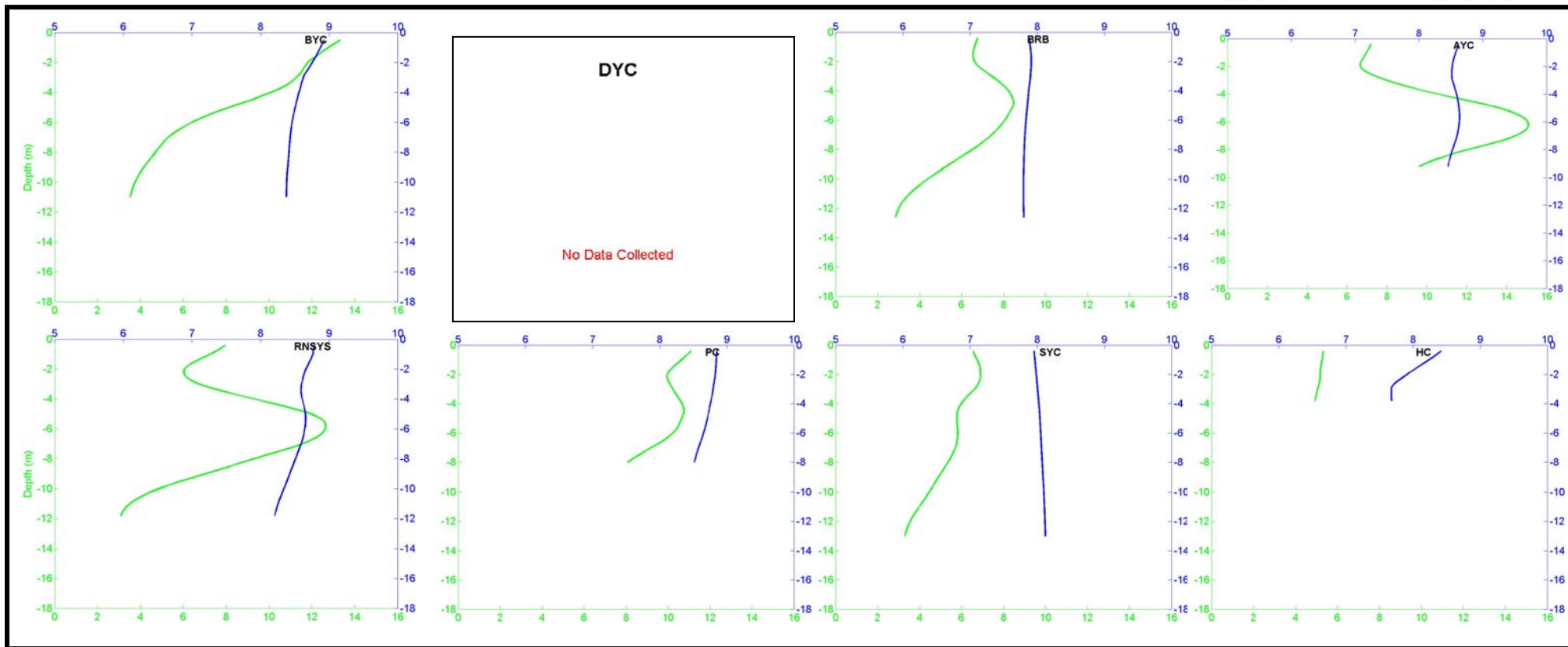
above swimming limit (200 cfu/100mL)



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



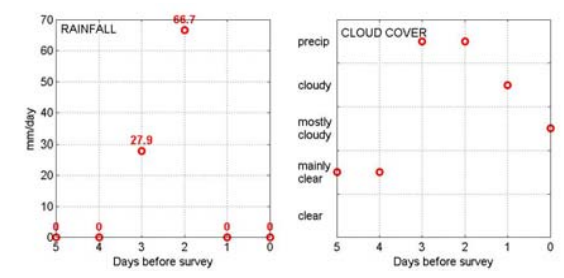
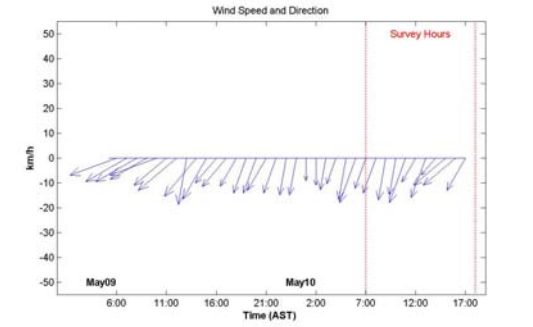
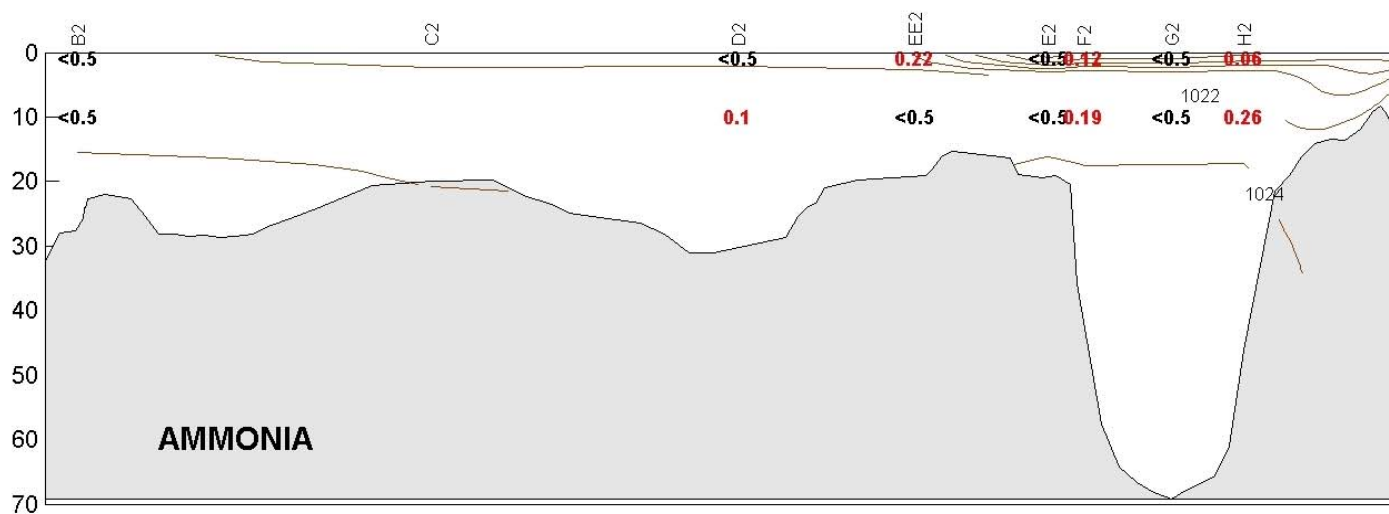
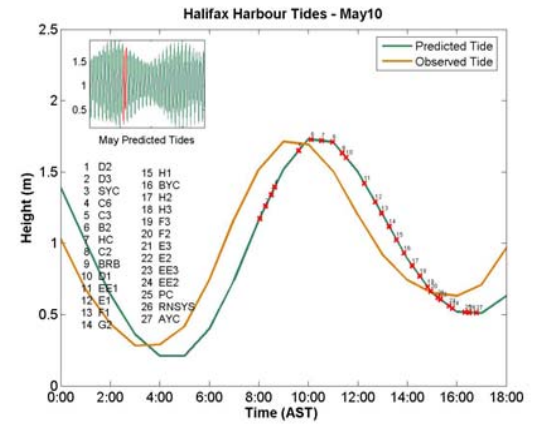
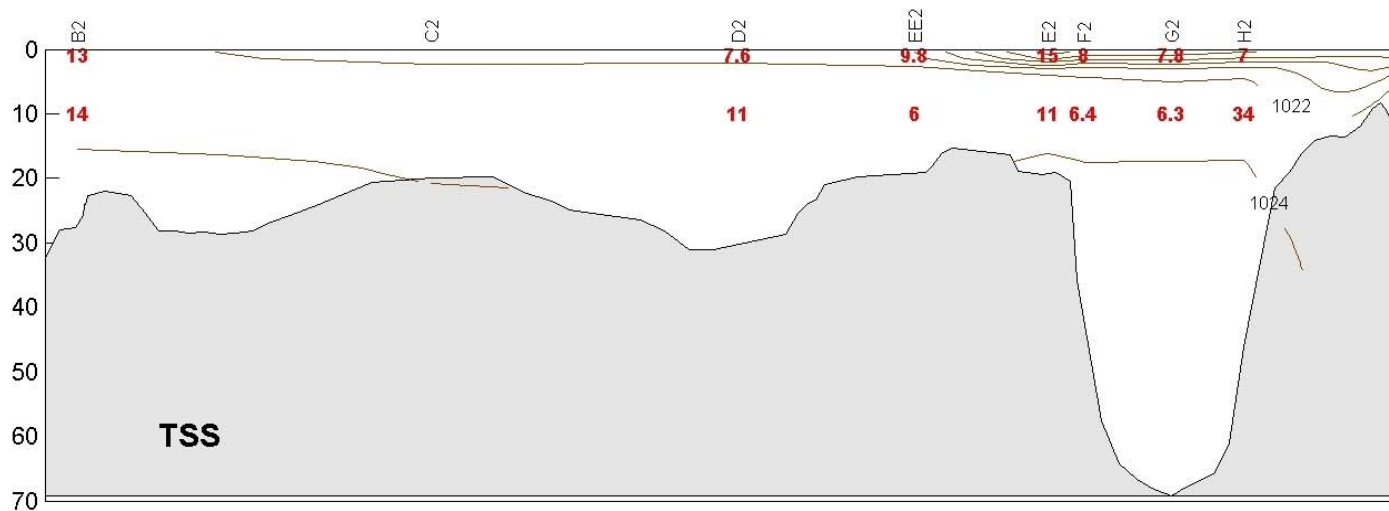
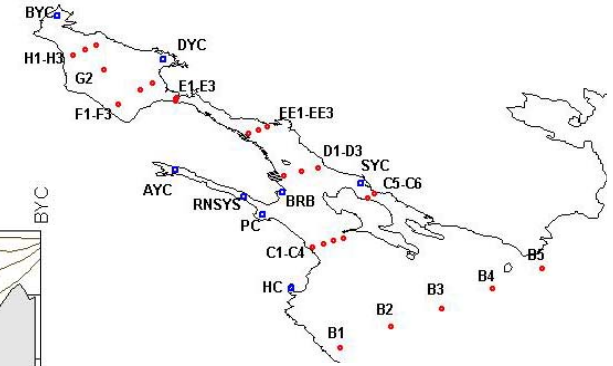
Yacht Clubs



DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



Density in kg/m³ Ammonia in mg/L TSS in mg/L