Halifax Harbour Water Quality Monitoring Project
Weekly Summary #88

Survey Date: 21 February 2006
Nature of Survey: Coliform Survey
Report File (this document): HHWQMP_report088_060221.doc
Data File: HHWQMP_data088_060221.xls

Data Return:

Profile:	90%
Bacteria:	93%
Chemical:	na
Overall:	**91%**

Sample Notes:

DYC was missed due to ice.

The AYC and B2 CTD data did not pass quality check. There appeared to be an instrument flow problem, perhaps caused by icing. The data is included in the report plots but has been deleted from the data file.

QA/QC samples:

Fecal Coliform (CFU/100ml)

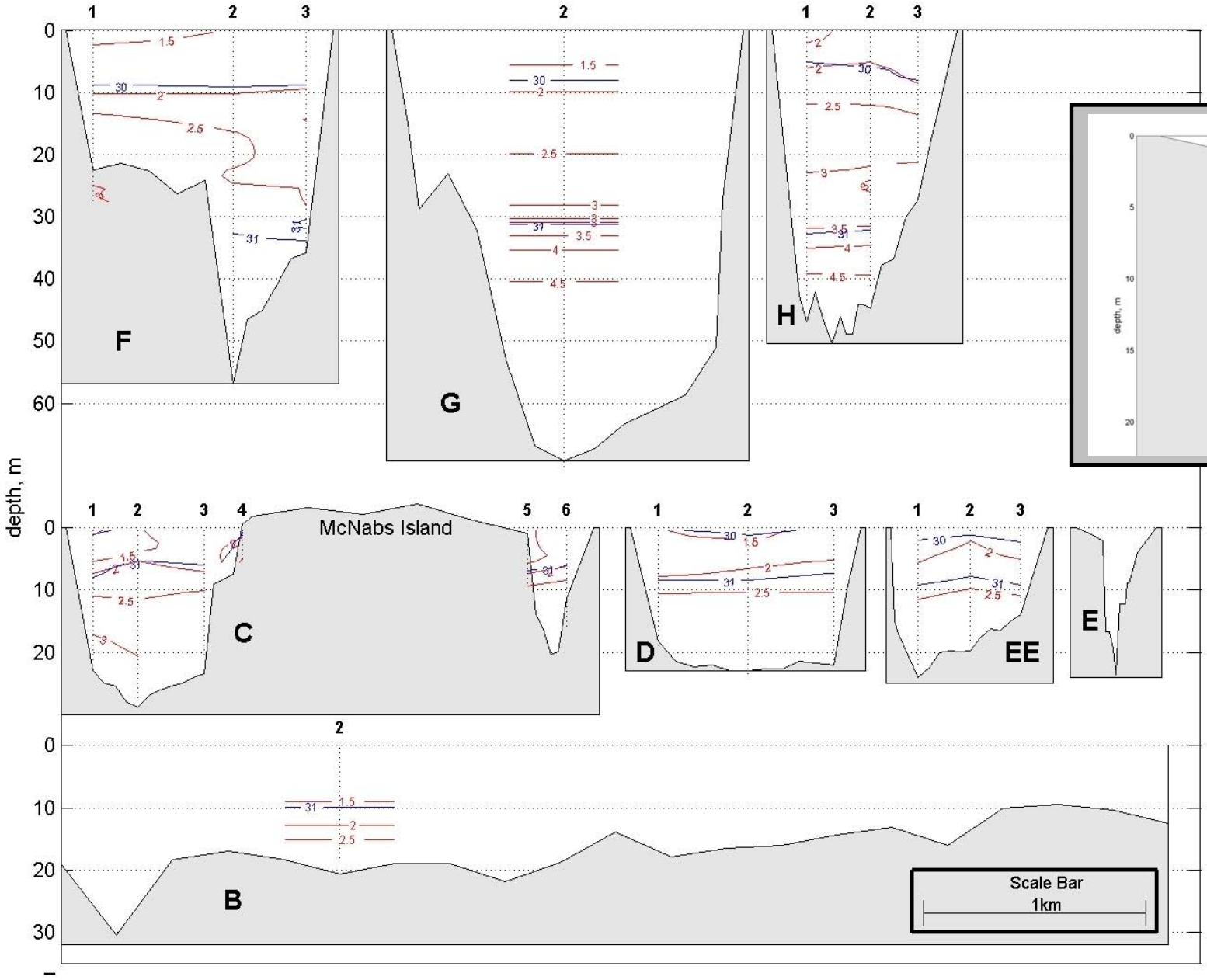
Site	HC-10m	B2-1m	G2-1m	F2-1m
Reference	38	2	4	3
QA/QC	50	8	1	1

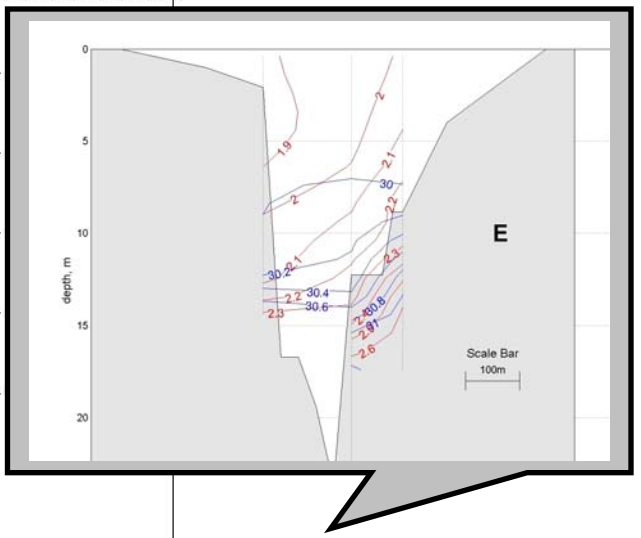
Comments:

General: The Inner and Outer Harbour are more stratified than last week, while the Basin has changed much less. Similarly these areas are more saline. There has been negligible precipitation. The near surface water temperature on average has dropped by about 0.5° C, while the bottom water is about 0.5° C warmer. This is all indicative of an intrusion of denser water (saltier and warmer shelf bottom water) occurring in the harbour. At this time water as dense as the Basin bottom water (> 1025 kg/m^3) exists at the bottom of section EE. The bottom water at the sill in the Narrows is quite dense and an intrusion of this water may be occurring at intermediate depth. There is no signal in the bottom dissolved oxygen values in the Basin. The fecal coliform values are generally low, probably due to high flushing rates in the Inner Harbour caused by the intrusion. The exception is EE3 where a very high value (50,000 cfu/100 mL) occurs even though the tide is high and the wind is blowing up harbour, conditions which would tend to displace the plume from the Peace Pavillion outfall up harbour, away from the sampling site. This is consistent with an intrusion, which would result in an estuary like circulation pattern (in at the bottom and out at the surface).

Chlorophyll: The chlorophyll levels in the Basin overall have increased since last week. Profile maximums of around 6 mg/m^3 are in evidence fairly uniformly at a depth of 7-10 m throughout the Basin. The values drop going further out of the harbour, to 2.5 – 5 mg/m^3 in the Inner Harbour and to more usual "background" values of 1-2 mg/m^3 in the Outer Harbour.

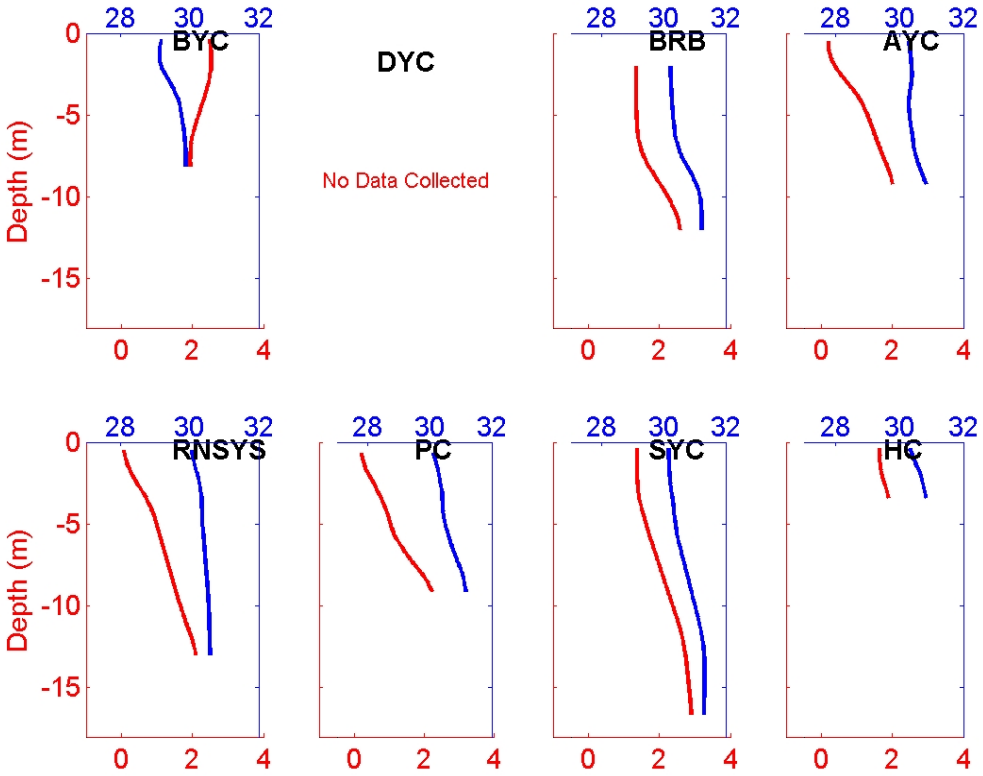
Dissolved Oxygen: The dissolved oxygen levels are similar to last week. The data indicate that the surface values everywhere in the Harbour are about 8.5 mg/L. The plots indicate that the levels at AYC and B2 were lower than this, however these levels are due to instrument problems as discussed in the sample notes. South of the Narrows the values are very vertically uniform. The DO in the bottom water in the Basin continues to drop and is now about 3.5 mg/L. The Basin deep water represents the only values below the applicable use-specific guidelines this week. The DO data is not ground-truthed and absolute values are questionable (see DO discussion in QR#1).

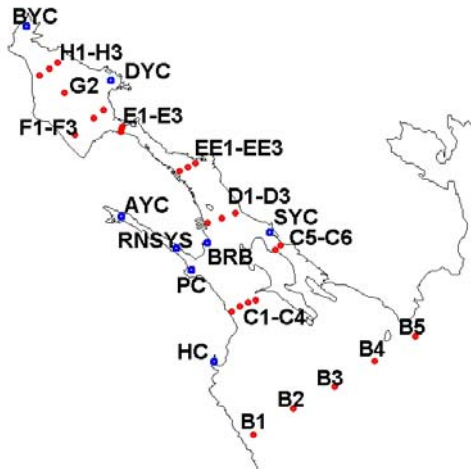




Unless otherwise labeled:
- **salinity** contour interval is 1 PSU
- **temperature** contour interval is 1ºC.

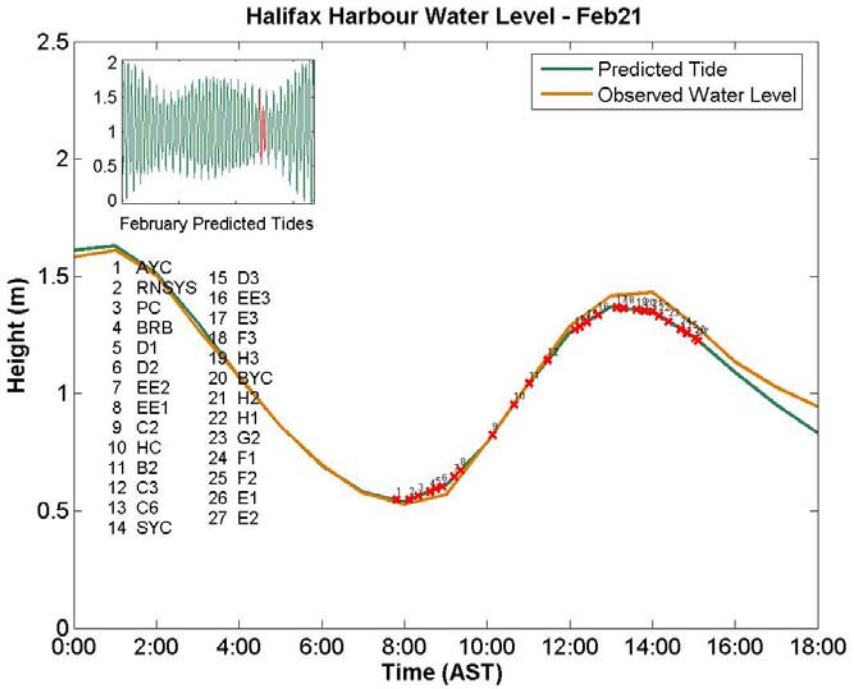
Yacht Clubs

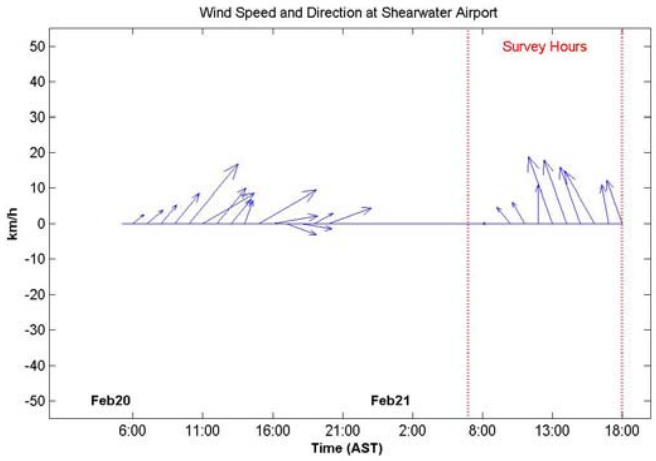


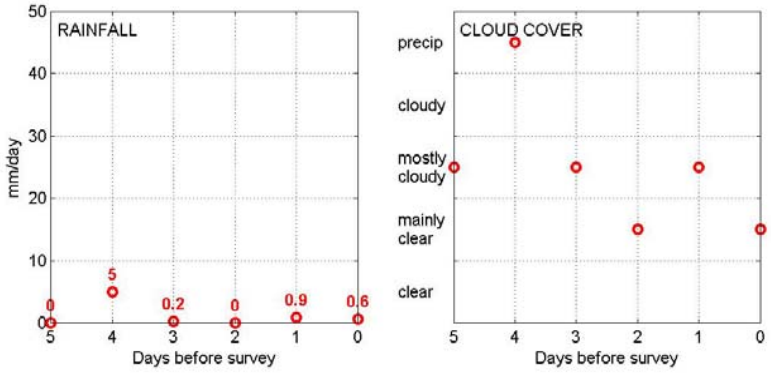


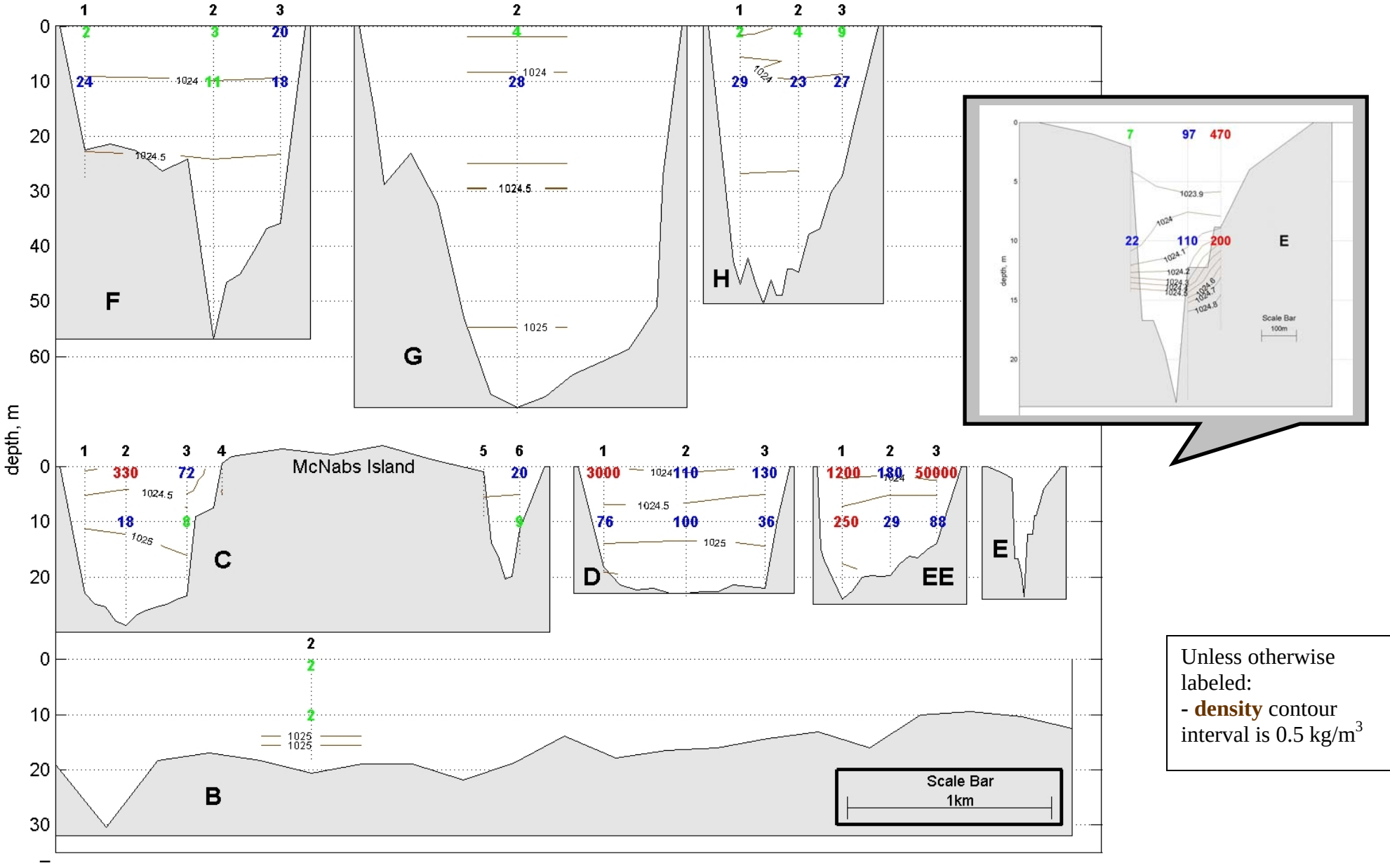
Weather data collected at the Shearwater Airport

Salinity in PSU **Temperature in ^{o}C**



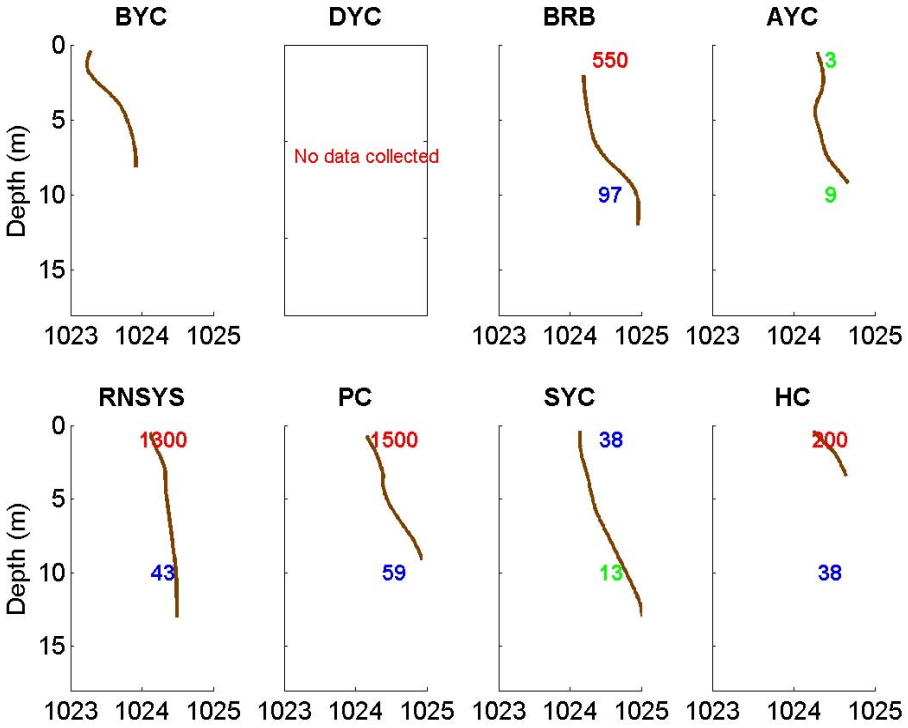


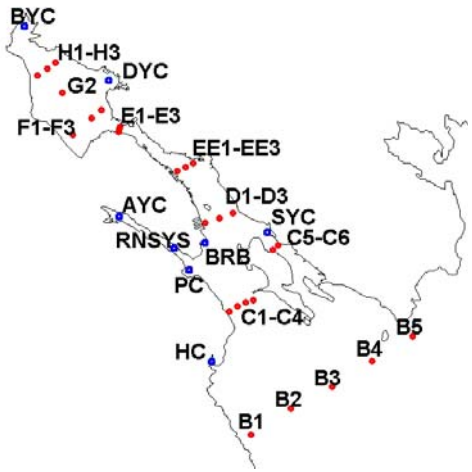




Unless otherwise labeled:
- **density** contour interval is 0.5 kg/m^3

Yacht Clubs





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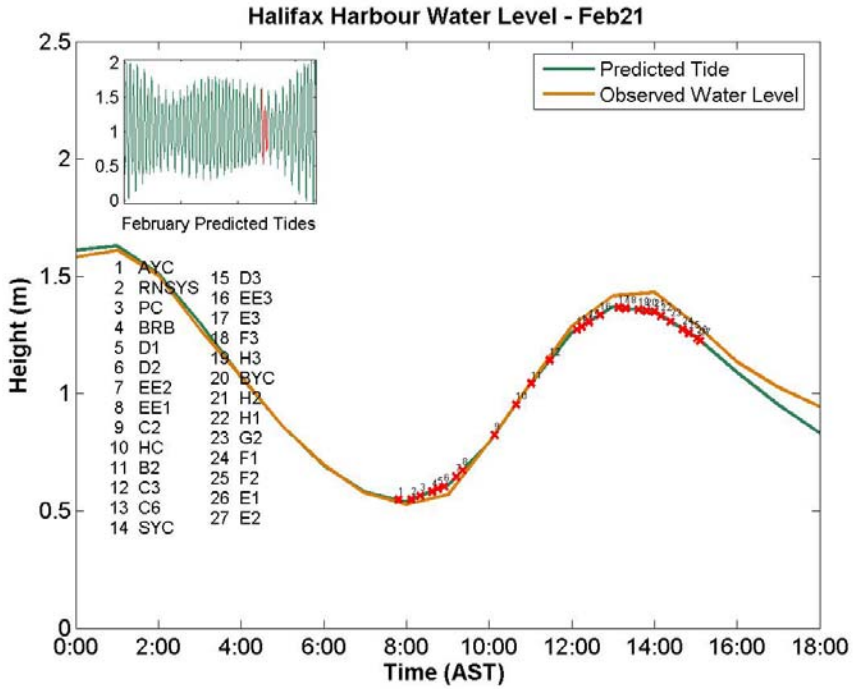
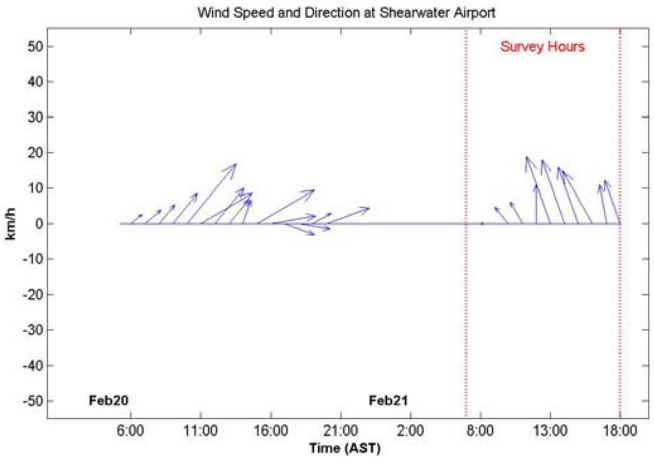
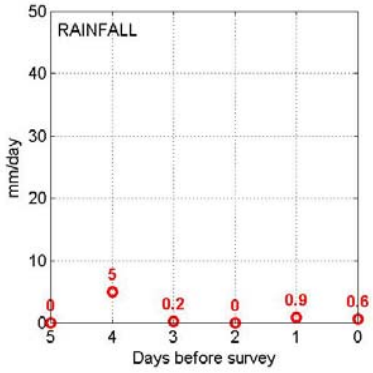
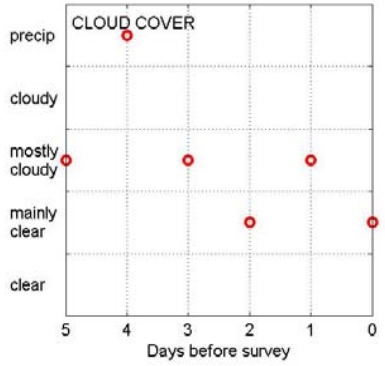


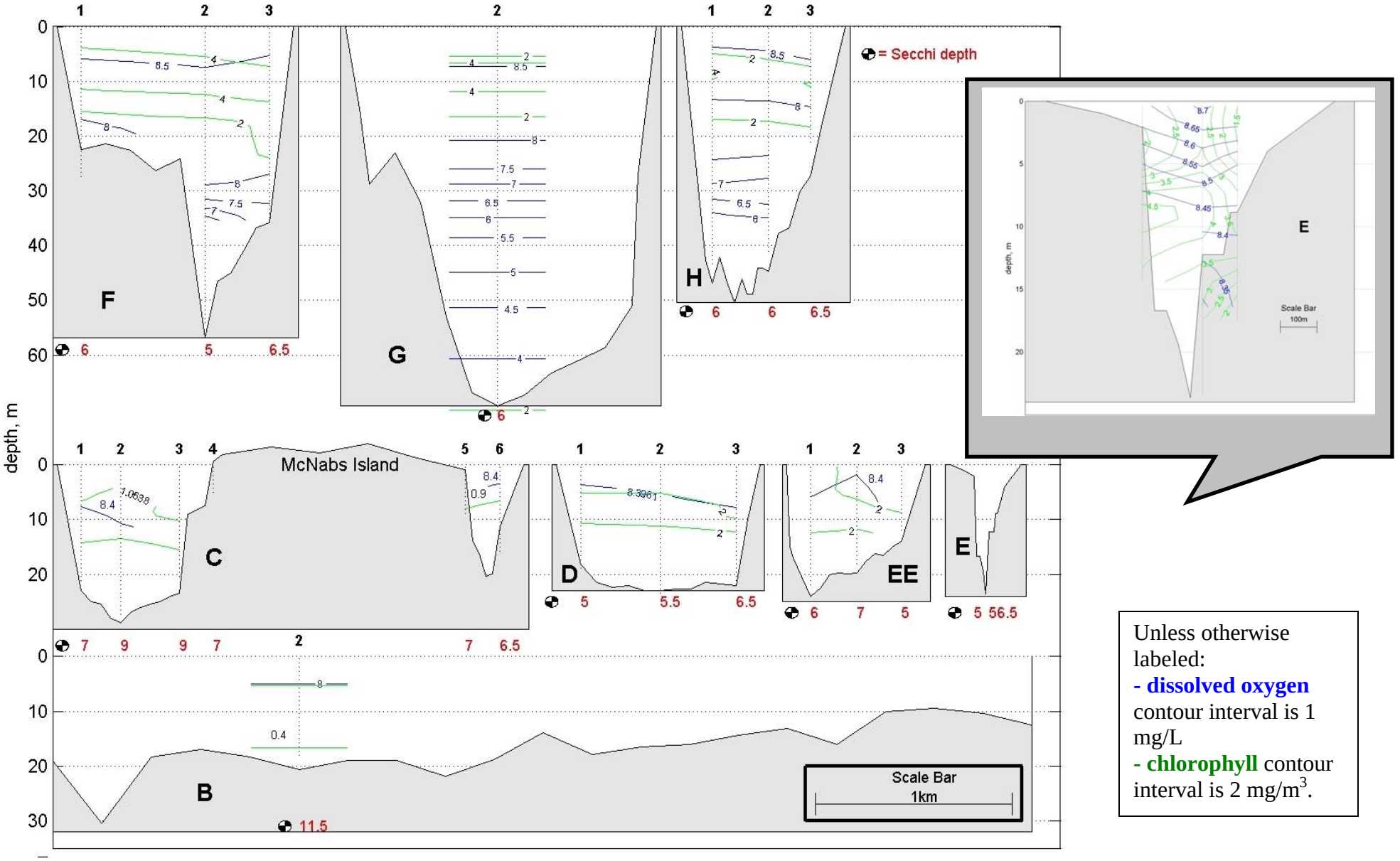






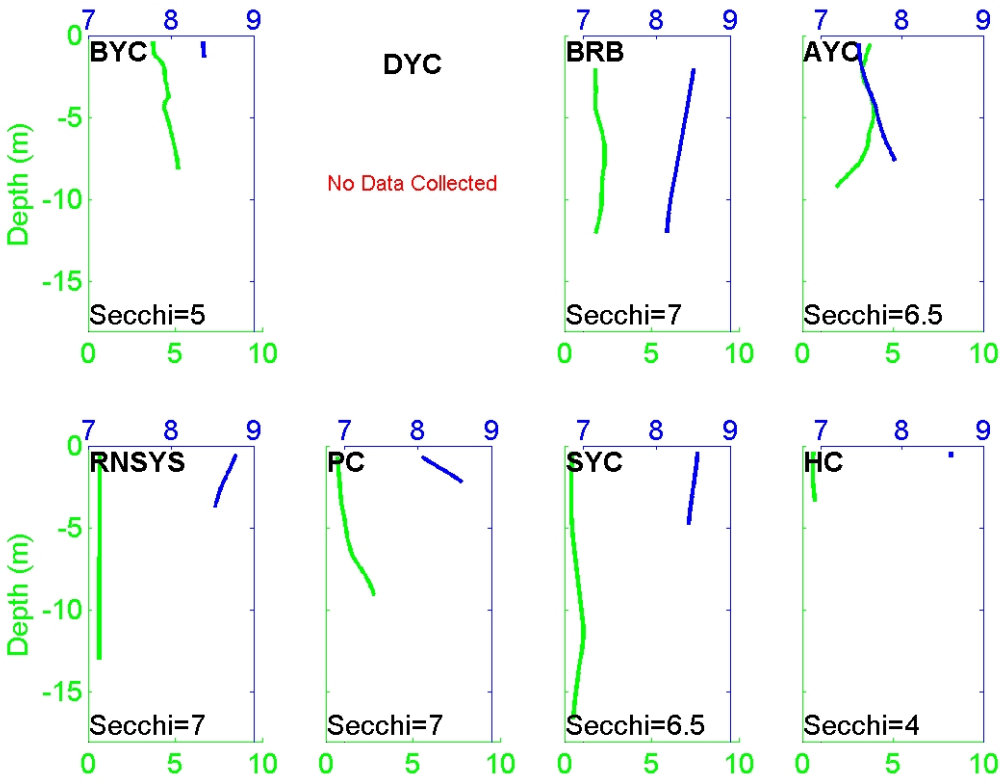
Potential Density in kg/m^3

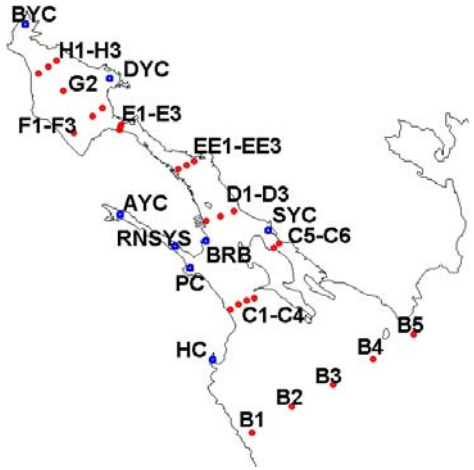
Fecal coliform: **above swimming limit (200 cfu/100mL)**
above shellfish limit (14 cfu/100mL)
below limits



Unless otherwise labeled:
- **dissolved oxygen** contour interval is 1 mg/L
- **chlorophyll** contour interval is 2 mg/m^3.

Yacht Clubs





DO in mg/L **Chlorophyll in mg/m^3**

Weather data collected at the Shearwater Airport