Halifax Harbour Water Quality Monitoring Project
Weekly Summary #96

Survey Date: 18 April 2006
Nature of Survey: Coliform Survey
Report File (this document): HHWQMP_report096_060418.doc
Data File: HHWQMP_data096_060418.xls

Data Return:

Profile:	74%
Bacteria:	89%
Chemical:	na
Overall:	**80%**

Sample Notes:

Sites B2, HC, C4 and PC were not sampled due to waves.

Due to user error, CTD profiles were not obtained for C1, C2, C3 and C5.

QA/QC samples:

Fecal Coliform (CFU/100ml)

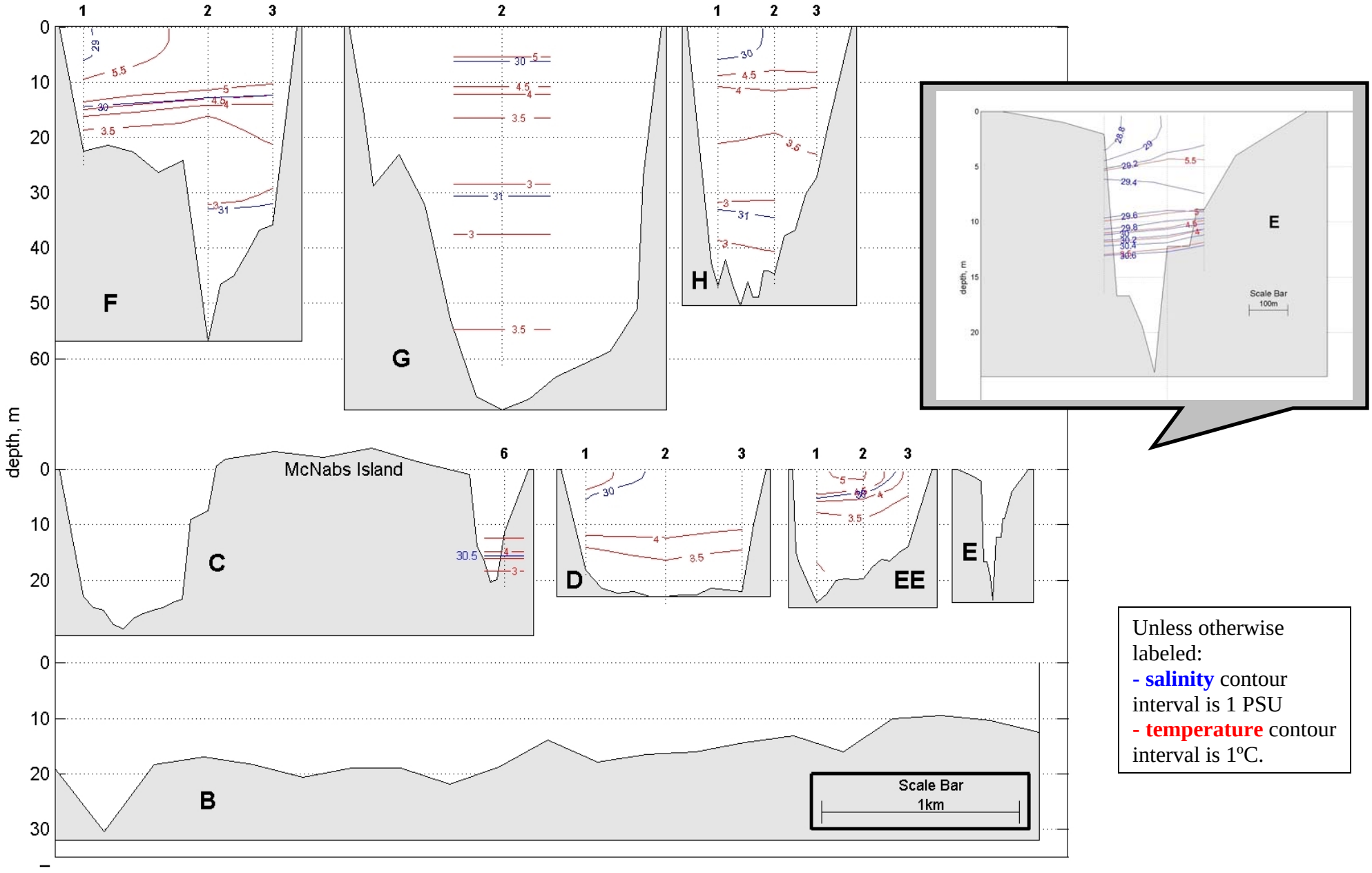
Site	DYC-1m	E1-1m	EE2-10m	BRB-10m
Reference	11	21	100	380
QA/QC	10	25	84	400

Comments:

General: The previous week was overcast with periods of rainfall totaling about 50mm. The Harbour is fresher everywhere but is less salinity stratified, than last week. The discrete fresher water layer evident last week has dissipated and, in general, there appears to have been significant near-surface vertical mixing. The winds during the survey were strong from the north. The data from Shearwater Airport for the previous day is missing, but nearby stations indicate strong north winds as well. The freshest and least dense (<1023.5 kg/m^3) water in the Harbour is along the western side centered on the Narrows and extending up the Basin to the western ends of section H and section D. This suggests a freshwater source near the Narrows, i.e. the Tufts Cove and Duffus St. outfalls, a condition which seems to occur during and shortly after rainfall. The Dissolved Oxygen values at the bottom of the Basin have increased slightly from about 3.5 to about 4.2 mg/L. However, there is not a strong density signature associated with this increase in DO. The density in the bottom water remains quite uniform at nearly the same value as last week. This suggests either a mixing of bottom water with shelf water of similar density, or a mixing with existing overlying water, rather than an intrusion of denser shelf water. The water level data indicates an approximately 10 cm surge over tide which may be associated with an upwelling/intrusion event. The lens of colder water (<3° C), evident for the last several weeks, persists, though it is thinner than it was last week. The fecal coliform values are quite a bit higher and generally more vertically uniform than last week. There are typical vertical variations in the Basin, but they are relatively small, likely due to the enhanced mixing. The generally high values may be a result of rainfall and low die off due to continued cloudy/rainy weather. The most elevated values extend out of the Inner Harbour to section C, where values are elevated and quite vertically uniform.

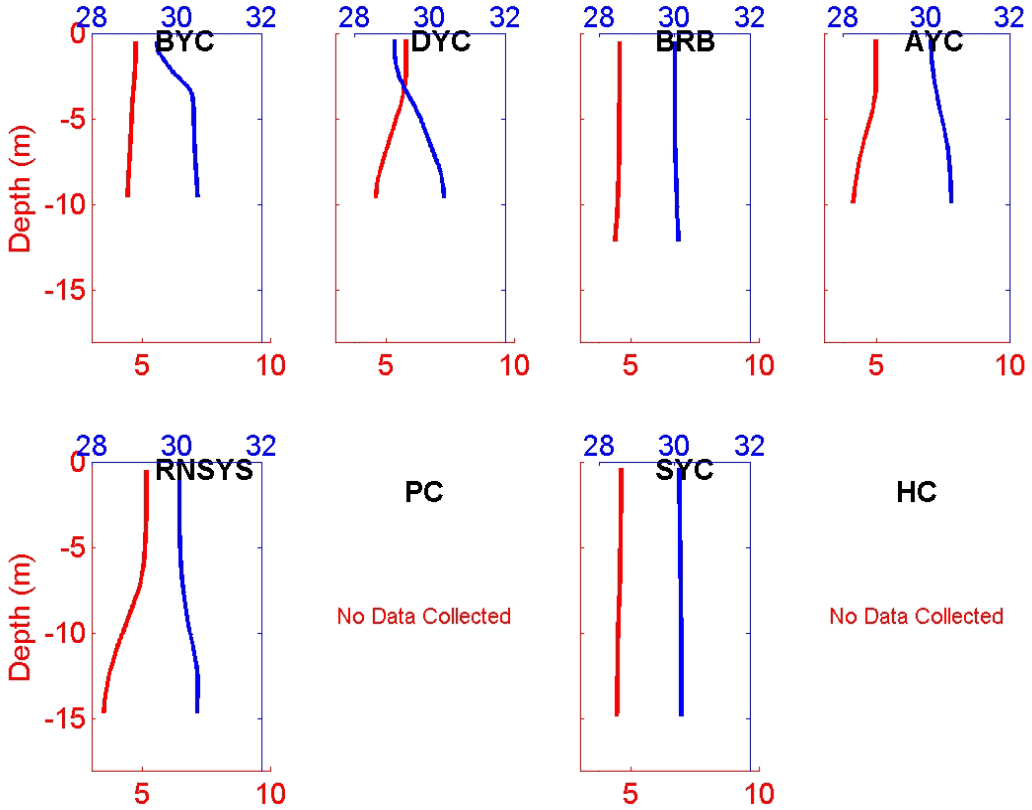
Fluorescence: Fluorescence levels are less than they have been since the end of February. Profile maximum values are just over 6 mg/m^3 at about 10m. There are slightly higher values (about 8 - 10 mg/m^3) associated with the fresher water at the eastern end of the E and F sections.

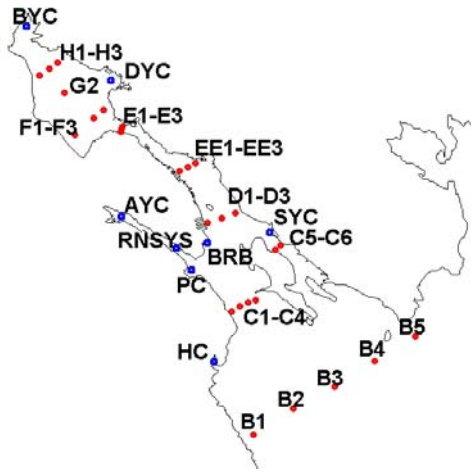
Dissolved Oxygen: The data indicate that outside the deep water of the Basin, the DO values are everywhere lower than last week, and are quite uniform at 8.5 – 8.7 mg/L. As discussed above, the DO values in the bottom water in the Basin have increased to about 4.1 mg/L. The Basin deep water represents 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.

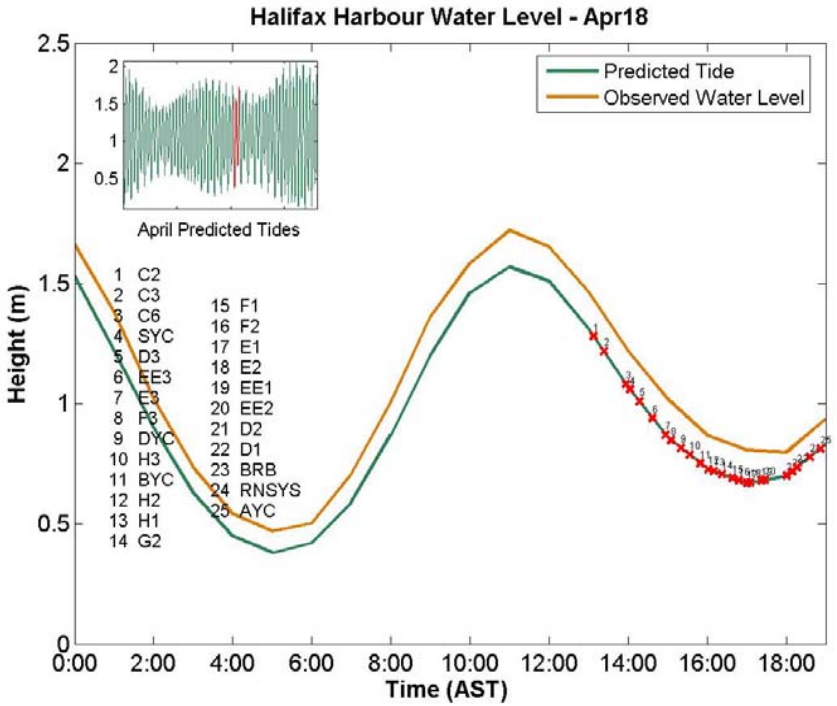
Yacht Clubs

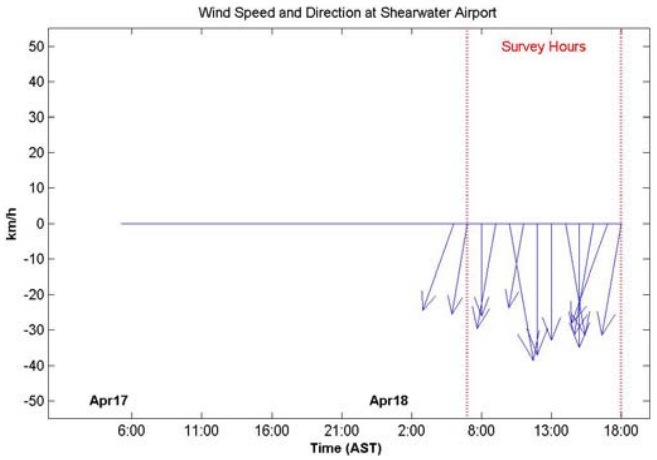


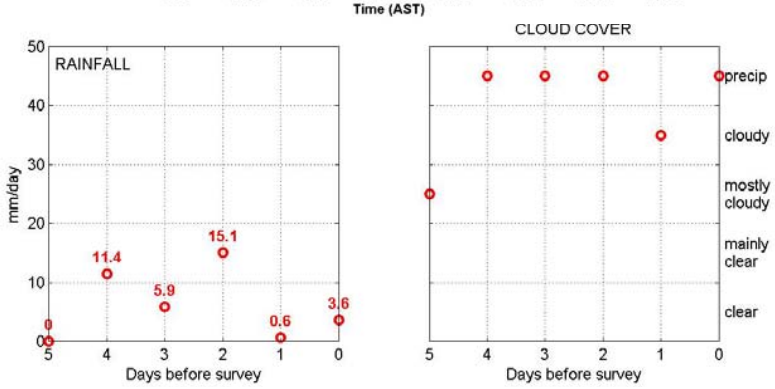


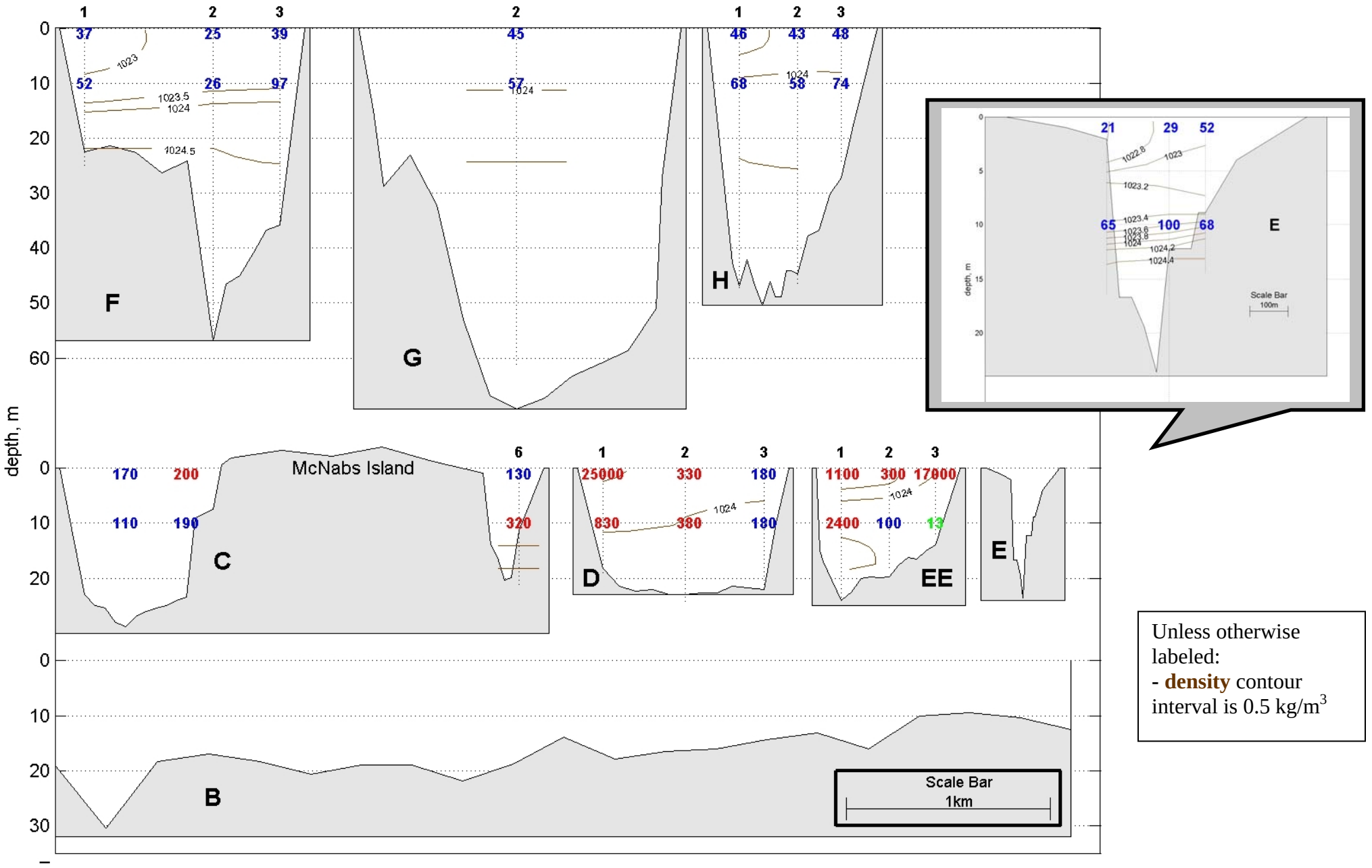
Salinity in PSU **Temperature in ^{o}C**

Weather data collected at the Shearwater Airport



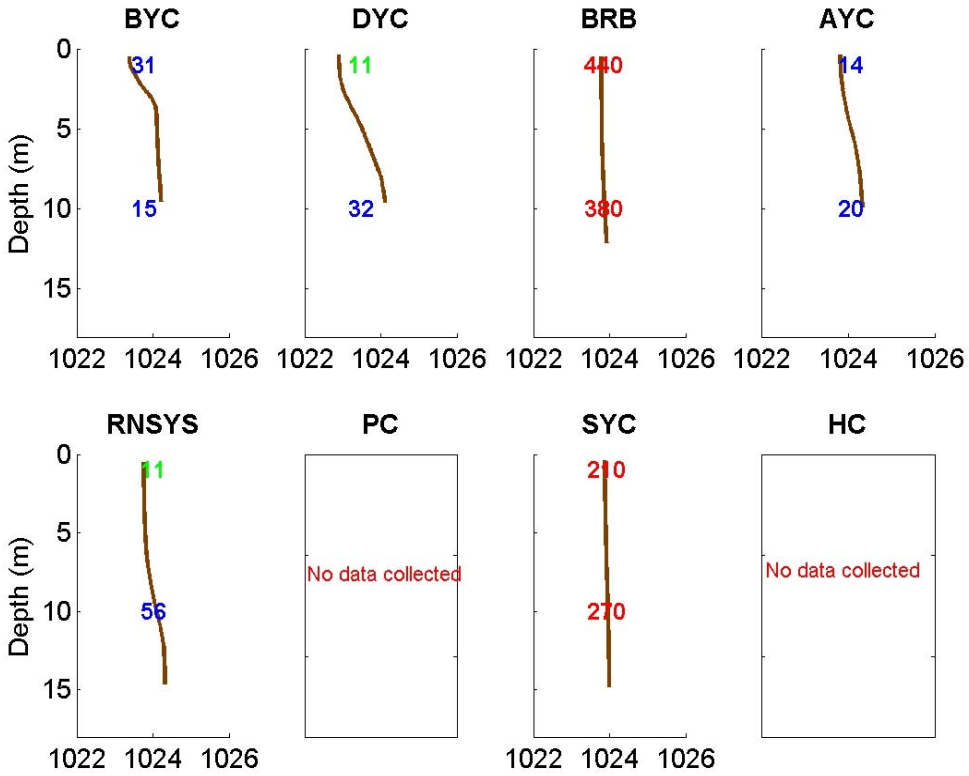


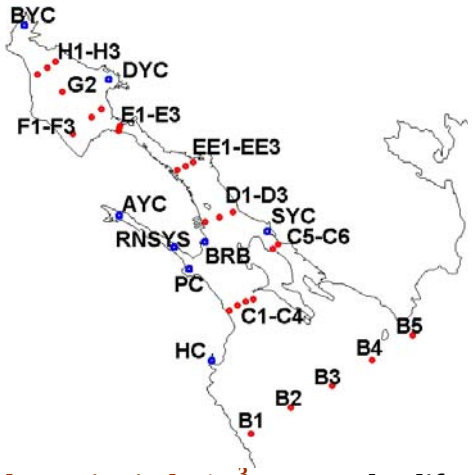




Unless otherwise labeled:
- **density** contour interval is 0.5 kg/m^3

Yacht Clubs

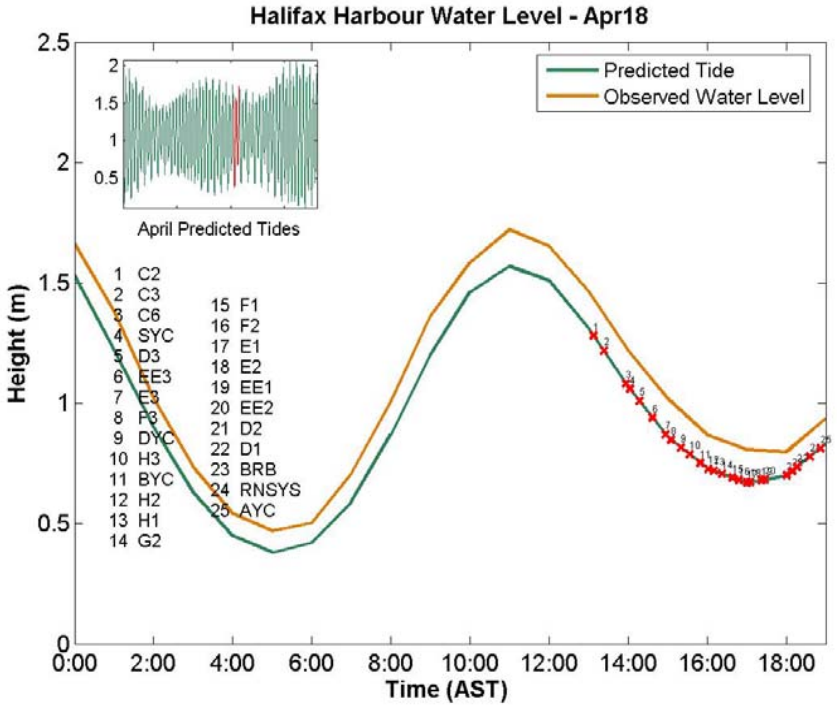


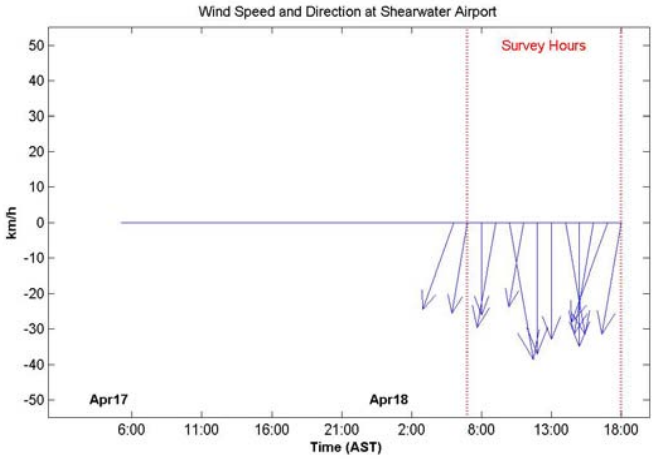


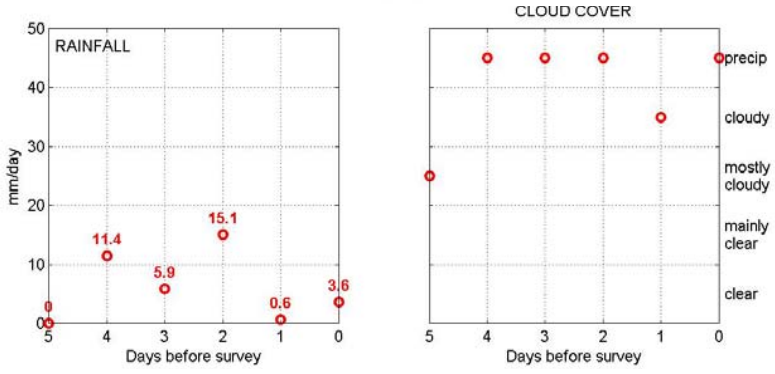
Weather data collected at the Shearwater Airport

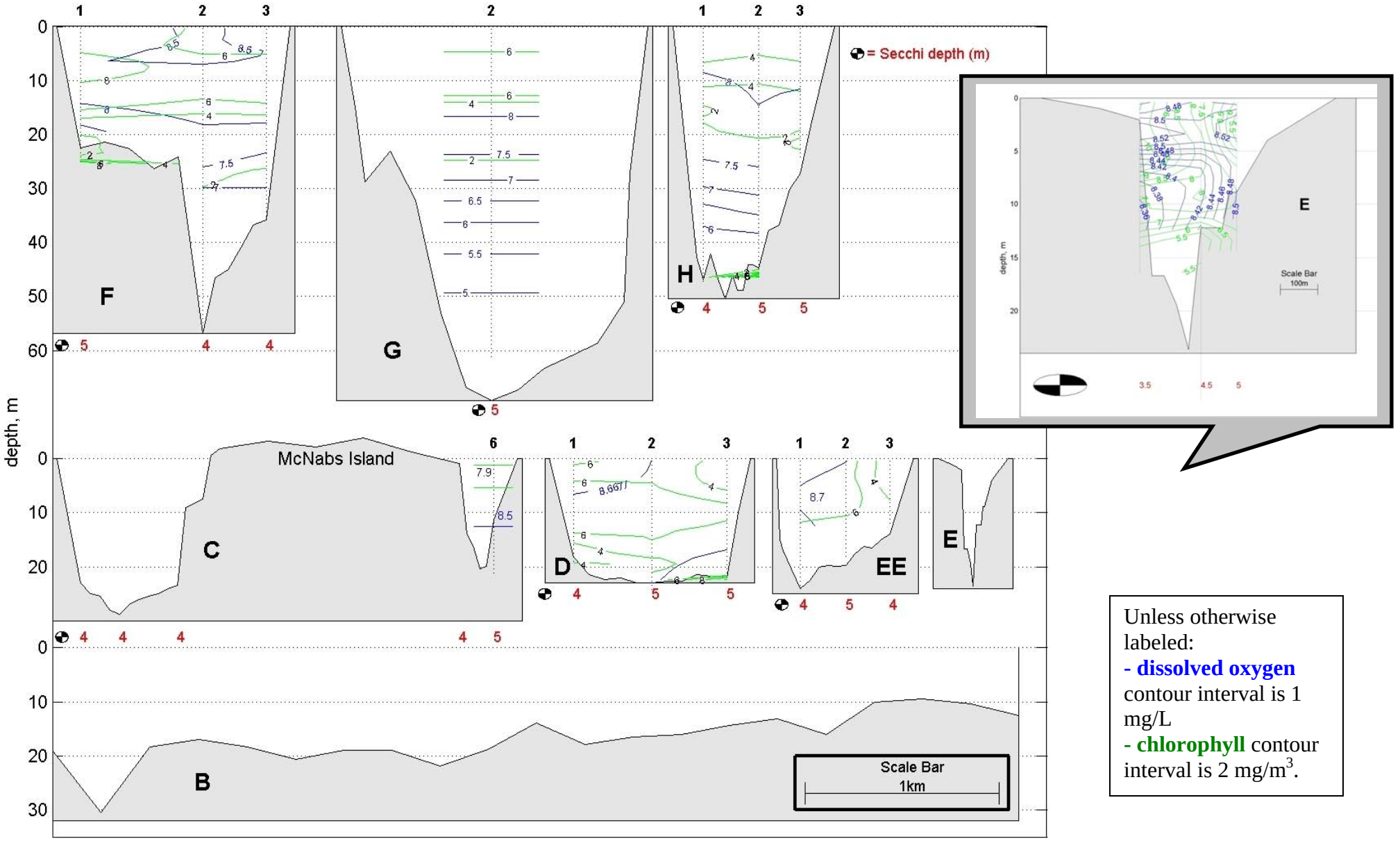
Potential Density in kg/m^3

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



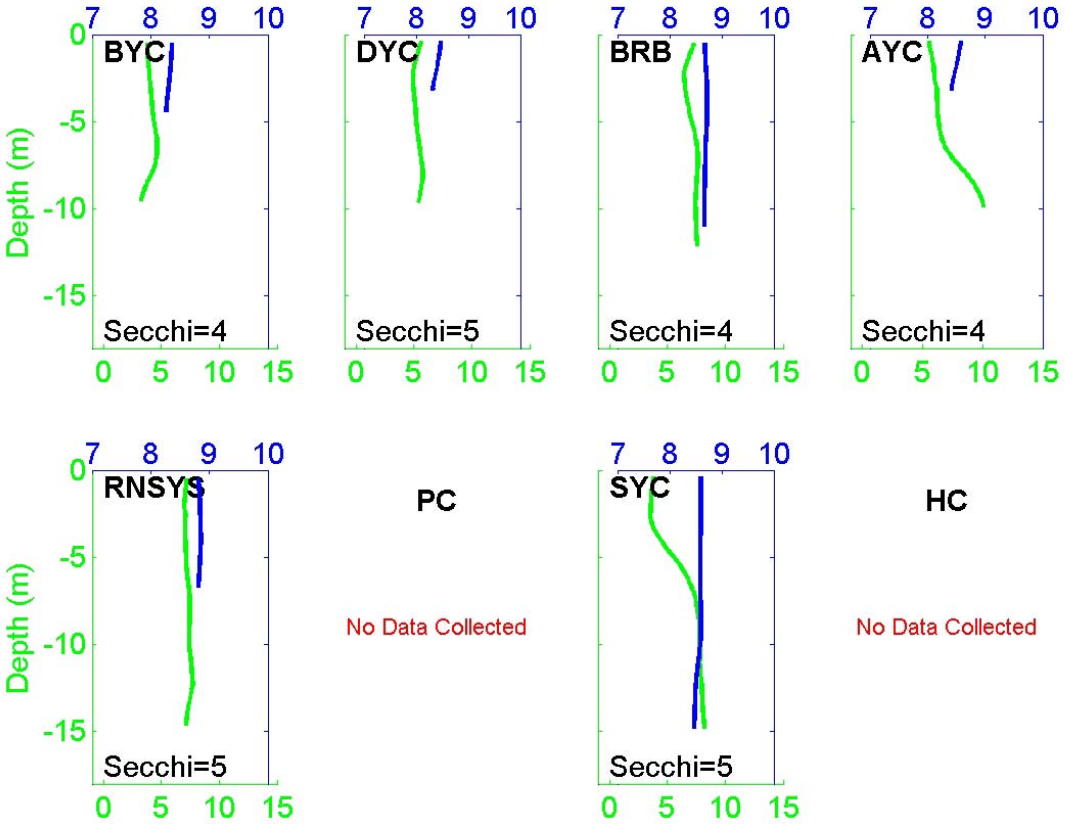


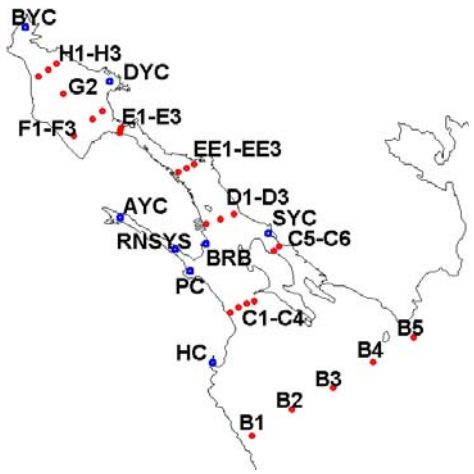




Unless otherwise labeled:
- **dissolved oxygen** contour interval is 1 mg/L
- **chlorophyll** contour interval is 2 mg/m^3.

Yacht Clubs





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

Weather data collected at the Shearwater Airport