

Halifax Harbour Water Quality Monitoring Project Survey Summary #177

Survey Date: 11 February 2009
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report177_090211.doc
Data File: HHWQMP_data177_090211.xls

Data Return:
 Chemical: 100%
 Bacteria: 97%
 Profile: 97%
Overall: 98%

Sample Notes:

DYC was not sampled due to ice.

The BYC sample was relocated due to ice (44° 43.148' N, 63° 39.944' W)

A supplementary CTD cast was taken at the LOBO buoy location (44.6291 N, 63.5915 W) at 1527 local time (AST).

The YSI handheld DO meter was out of service, no supplemental DO data was taken.

QA/QC samples:

Chemical Analysis		E2-1m	
Detectable Parameter	Units	Reference Sample	QA/QC
Ammonia (as N)	mg/L	0.09	0.11
Total Suspended Solids	mg/L	1.5	5.9
Copper	ug/L	0.5	0.6
Iron	ug/L	8.0	6.0
Manganese	ug/L	3.0	3.0
Mercury	ug/L	0.03	0.01
Zinc	ug/L	2.0	8.0

Fecal Coliform (CFU/100ml)

Site	C6-10m	PC-10m	E2-1m
Reference	58	300	23
QA/QC	38	370	23

Comments:

General: The weather has been dry with no appreciable precipitation in the five days before the survey. The salinity and surface temperature have changed little from the previous survey. The deeper temperatures have dropped slightly. The density stratification remains quite low. The fecal coliform levels are relatively high most everywhere (both 1 and 10 m samples) in the Inner Harbour, with scattered high values in adjacent areas of the Southern Basin and Outer Harbour. There are also elevated near-surface values in the H section near the Tribune Head outfall.

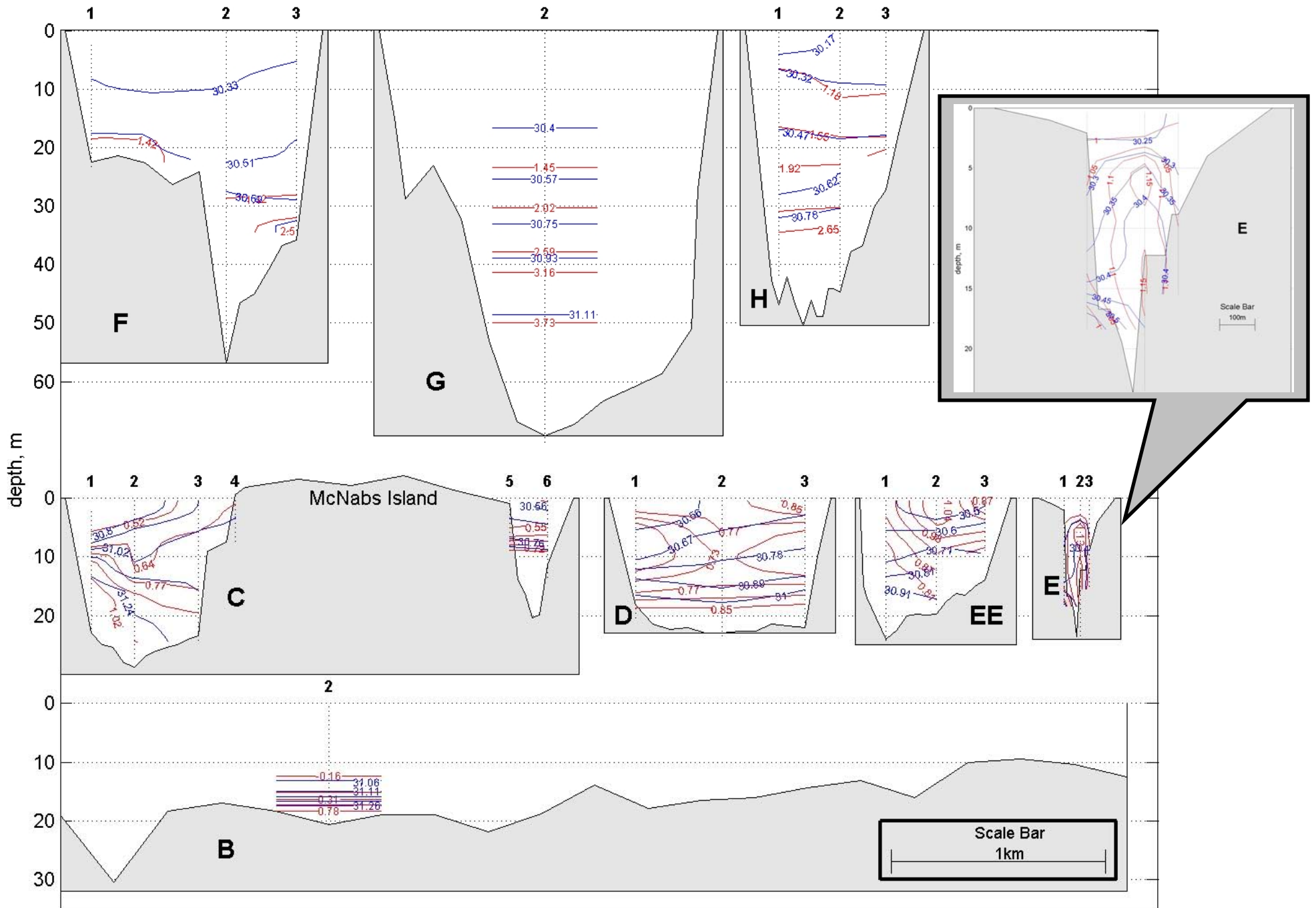
Fluorescence: The fluorescence data indicates minimal phytoplankton activity with values all < 3.0 mg/m³ (mostly <2.0 mg/L) or about annual minimum levels. The highest values are in the Basin and generally decrease going out of the Harbour.

TSS: The average TSS level is relatively low (3.4 mg/L), but there is quite a bit of variability. The distribution seems relatively random except that the values at B2, in the Outer Harbour, are the lowest observed.

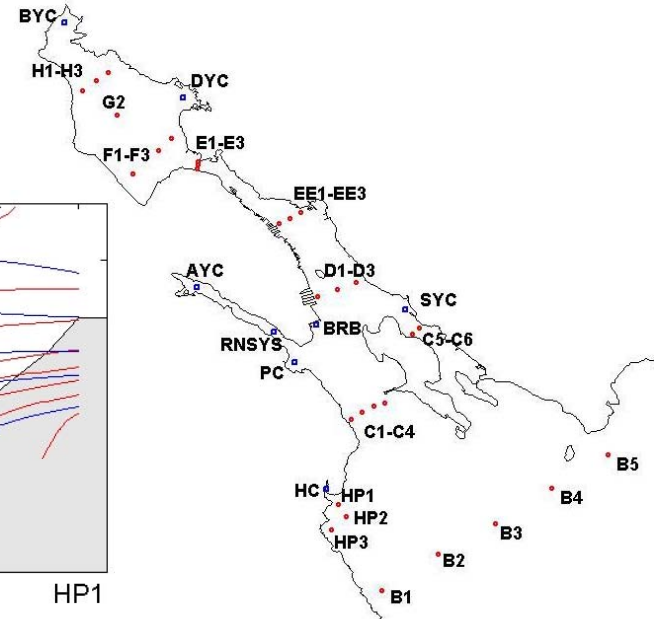
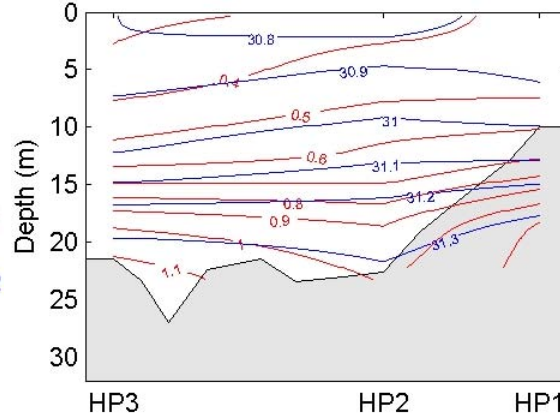
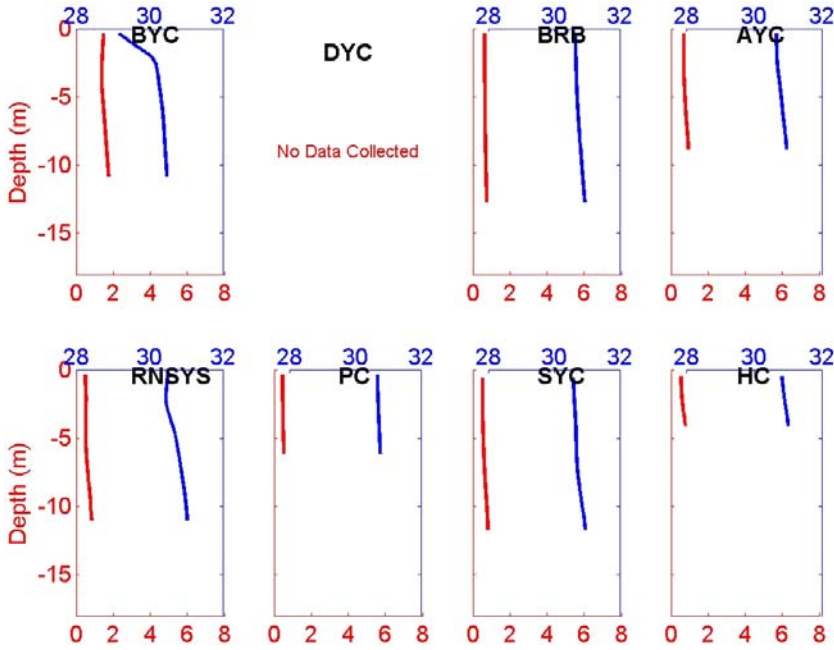
Ammonia: The ammonia levels are moderate, with detectable concentrations (>0.05 mg/L) in all samples except at B2 in the Outer Harbour. The highest values are in the Basin and generally decrease going out of the Harbour. The mean value is about 0.075 mg/L.

Metals: Very unusually, the mercury levels are elevated. All samples had detectable mercury concentrations (> 0.01 ug/L). Seven samples (50%) exceeded the 0.025 ug/L guideline. There is no obvious spatial pattern. There are no other guideline exceedences.

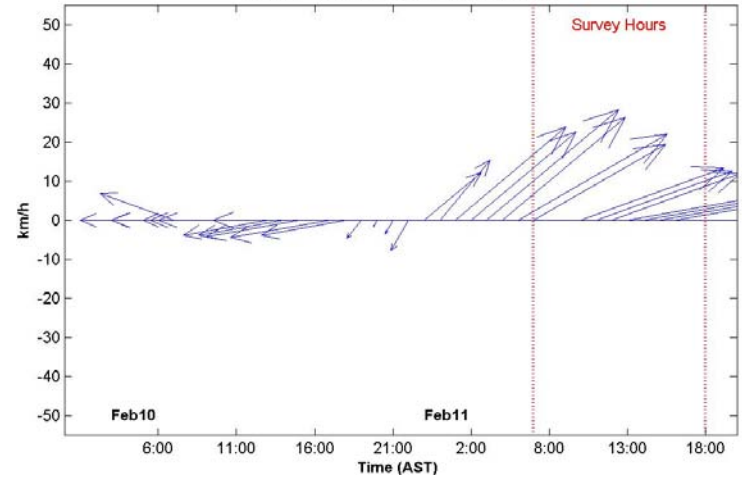
Dissolved Oxygen: There is no ground truth DO data this survey. The DO adjustment factor has been consistent over recent surveys at about 1.6. This is consistent with the other supplemental DO data available this survey. The dissolved oxygen data, scaled by a factor of 1.6, indicates that the surface DO levels are very high. The surface levels are highest in the Outer Harbour (> 12 mg/L) and decrease slightly going up Harbour to about 11.4 mg/L in the Basin. In the deep Basin the BBMP data indicate a temporal increase in DO. This shows up to a lesser extent in our Seabird data. There is not an obvious hydrographic signature supporting an intrusion. However hydrographic conditions are quite vertically uniform enhancing the vertical diffusion and perhaps making an intrusion of slightly more dense water difficult to see. The only guideline exceedence is in the Basin deep water.



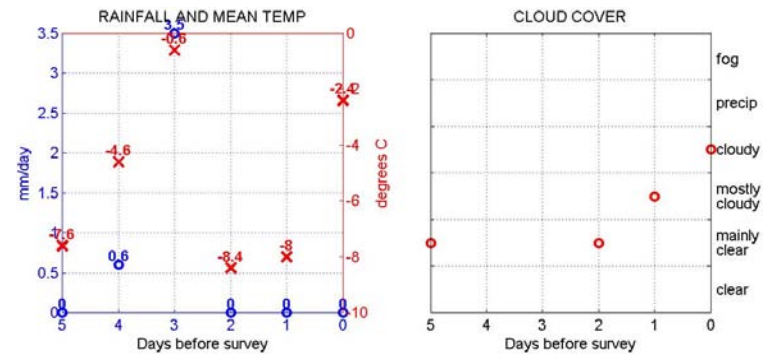
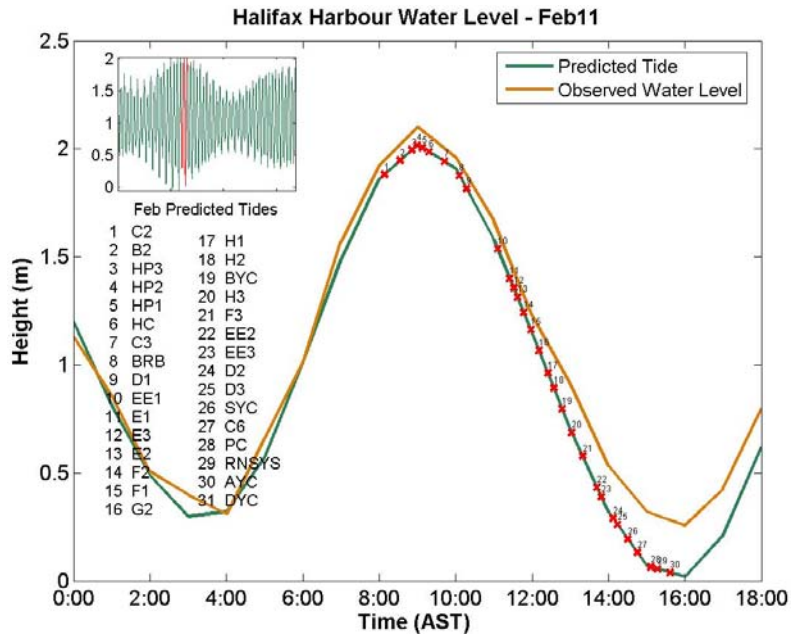
Yacht Clubs



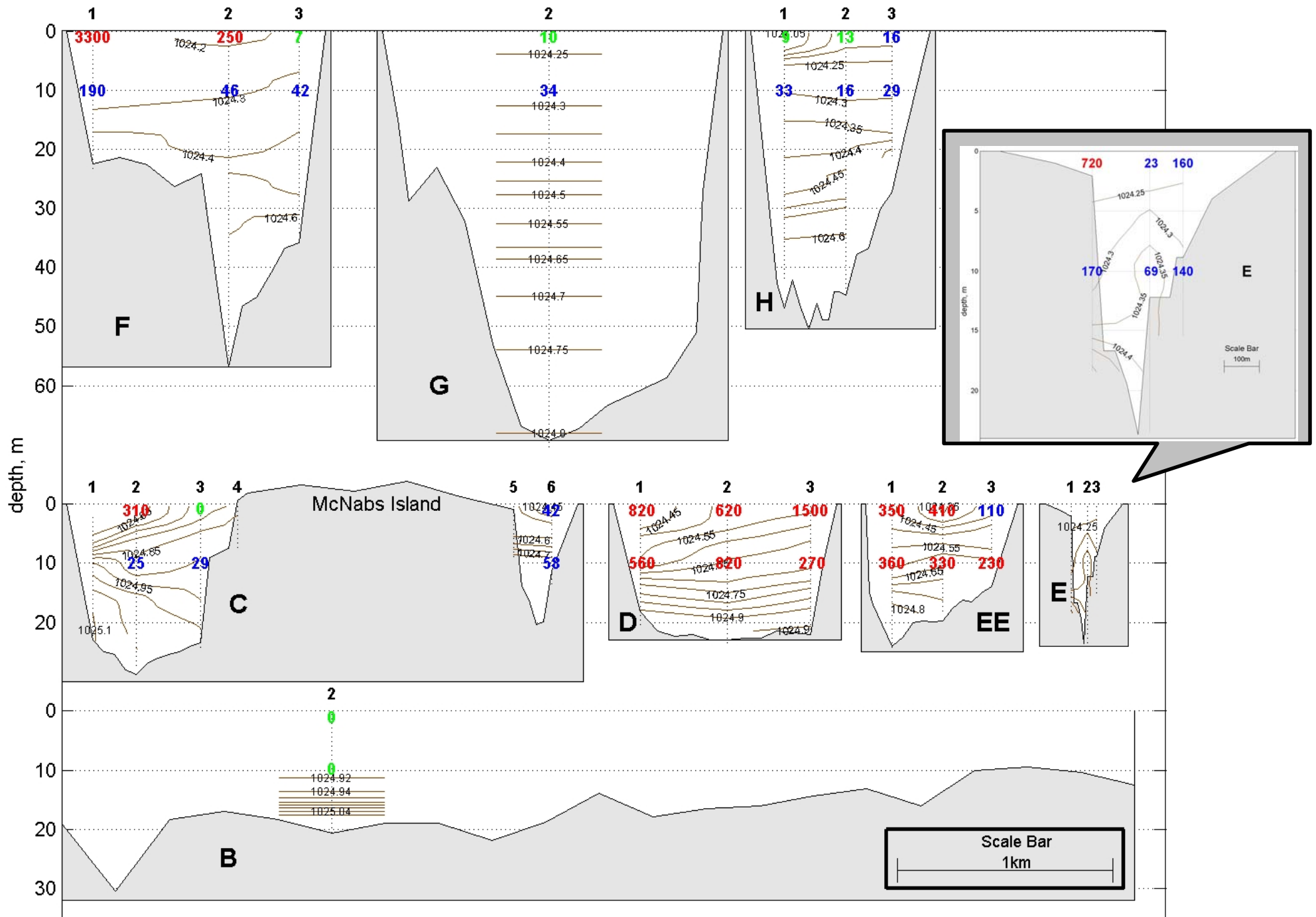
Wind Speed and Direction at Shearwater Jetty



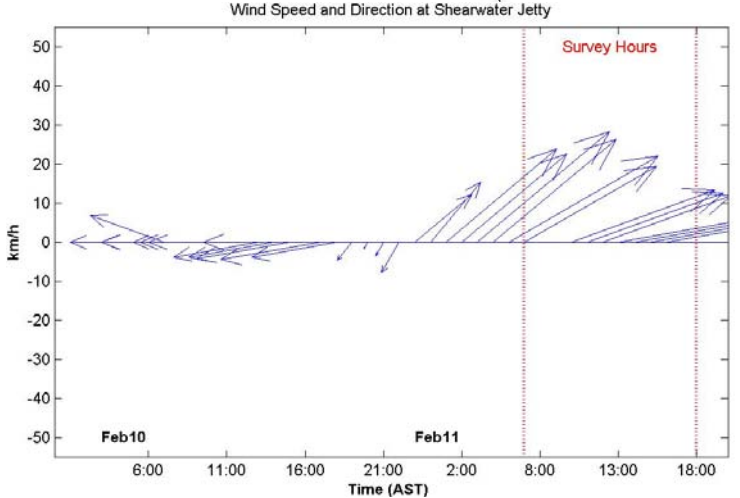
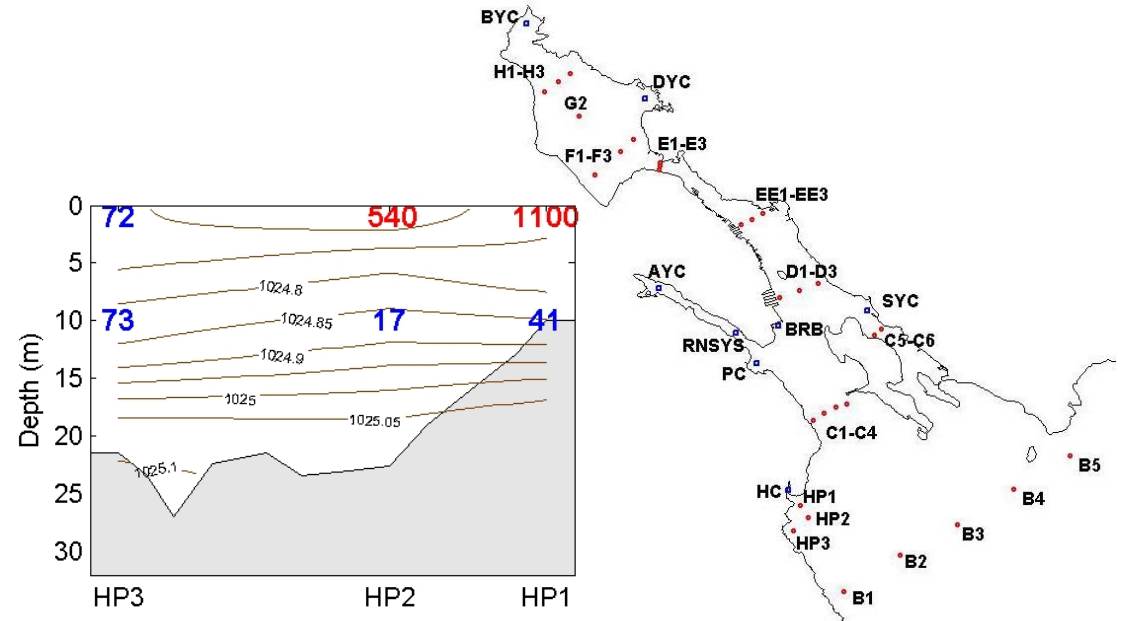
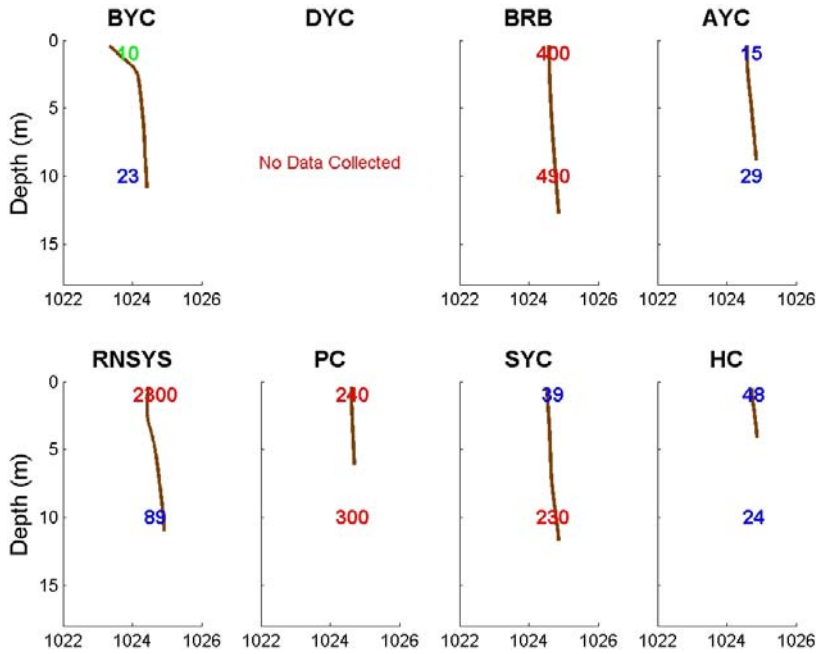
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



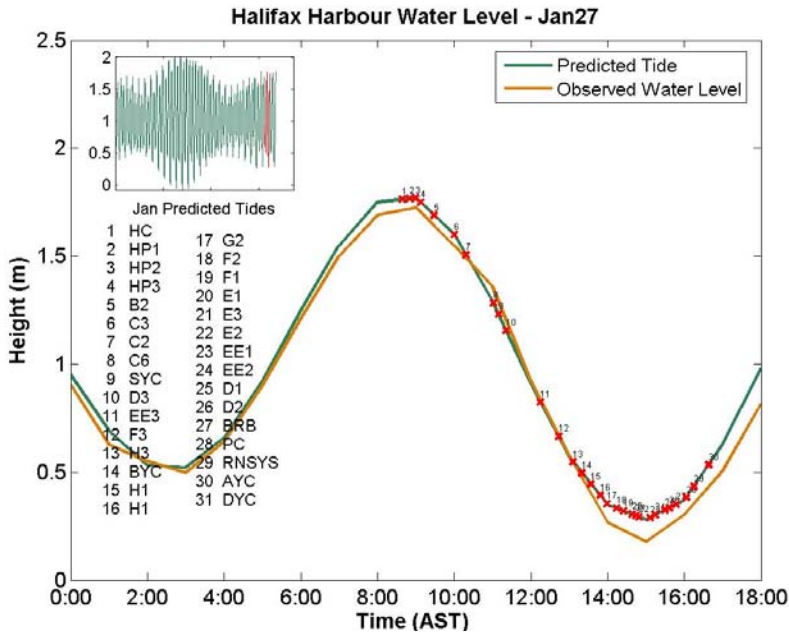
Salinity in PSU Temperature in °C



Yacht Clubs

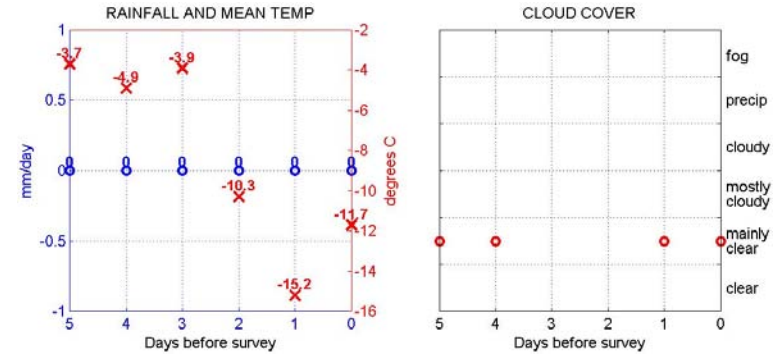


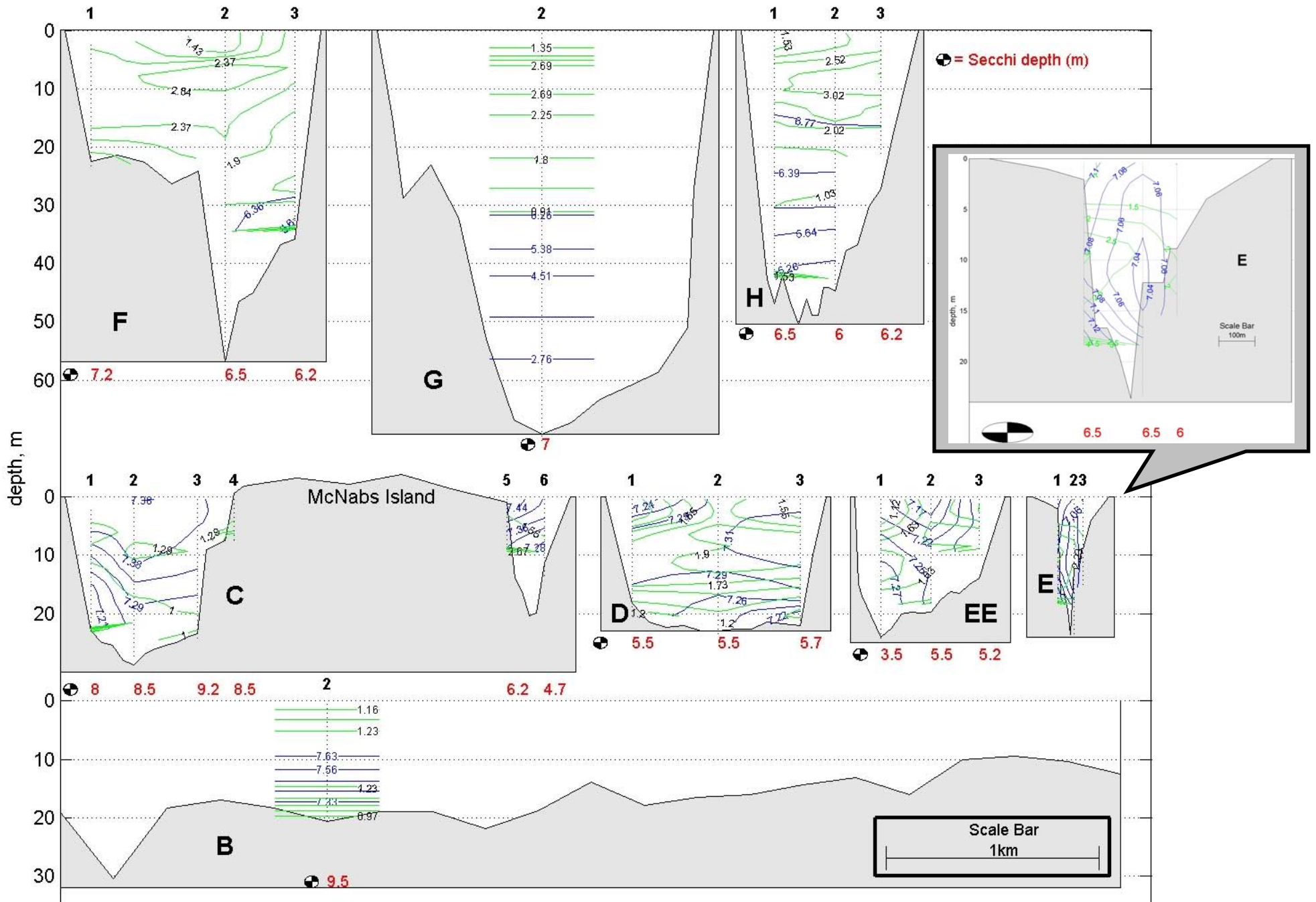
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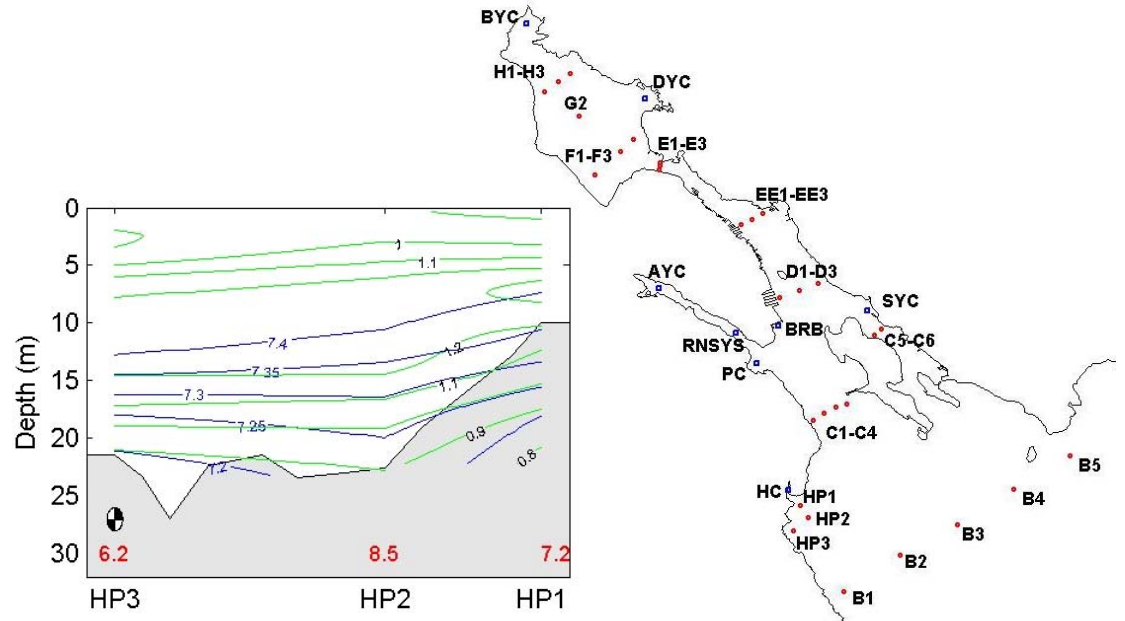
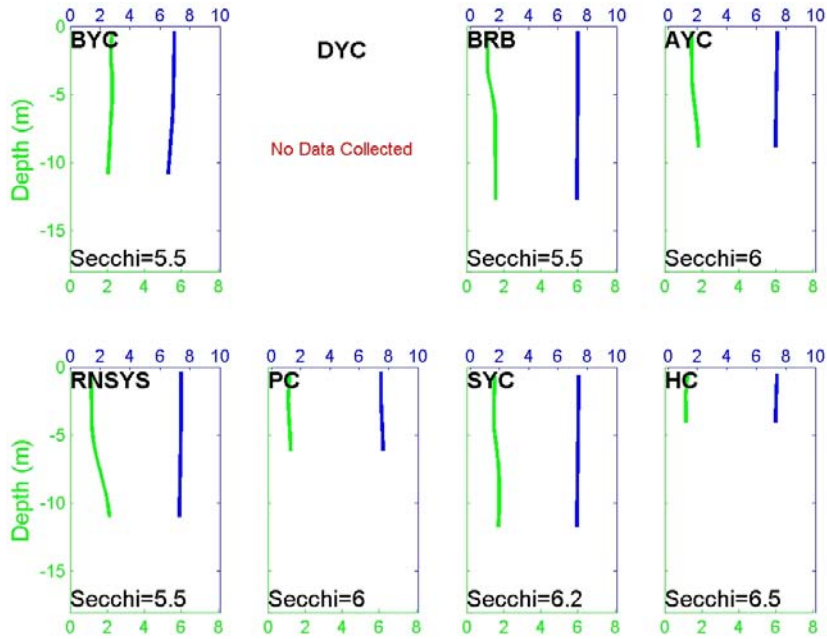
Potential Density in kg/m^3

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

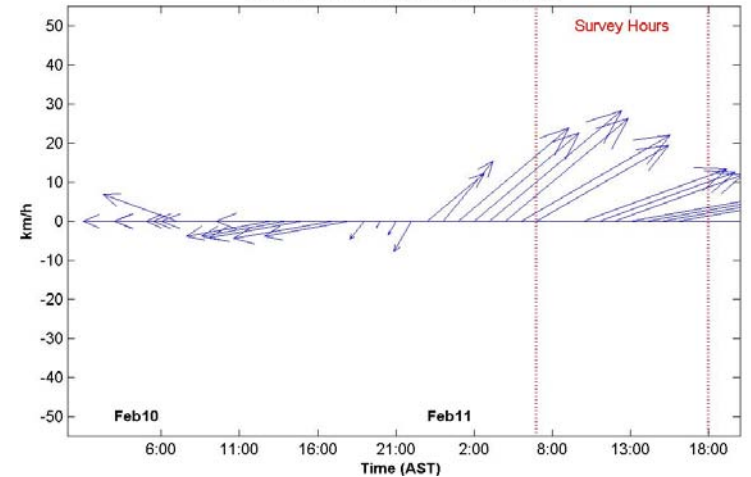




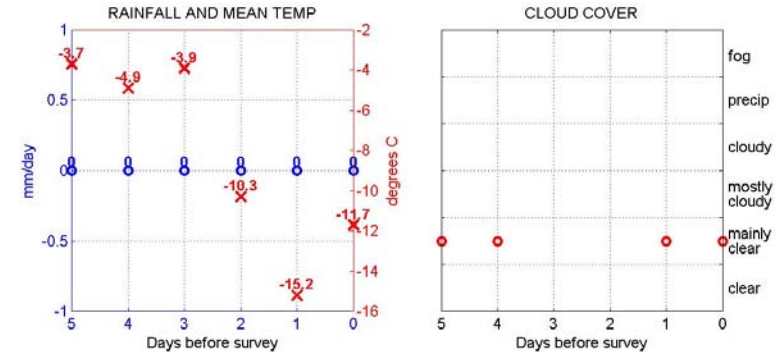
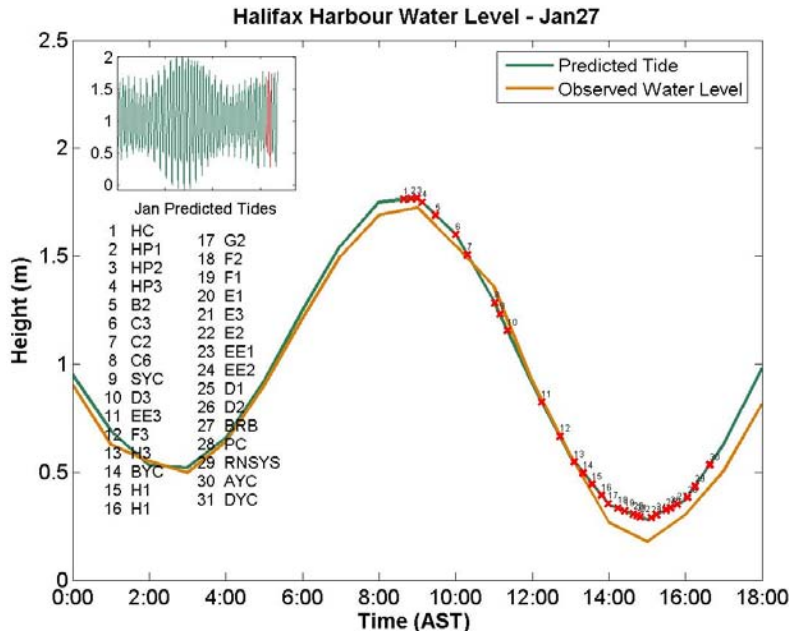
Yacht Clubs



Wind Speed and Direction at Shearwater Jetty



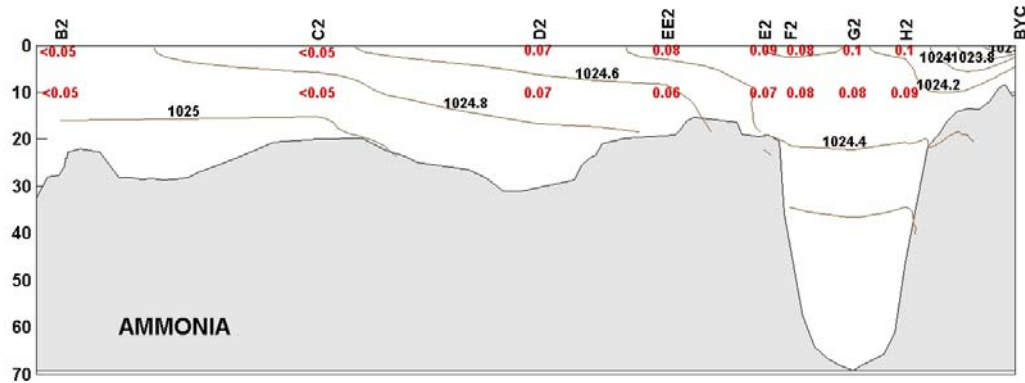
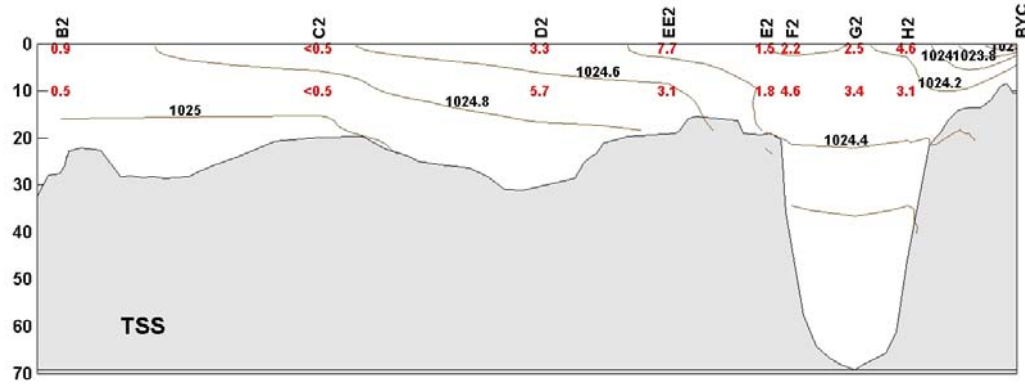
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DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY



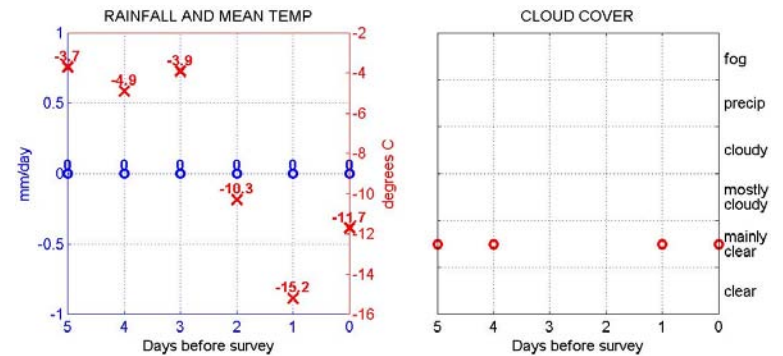
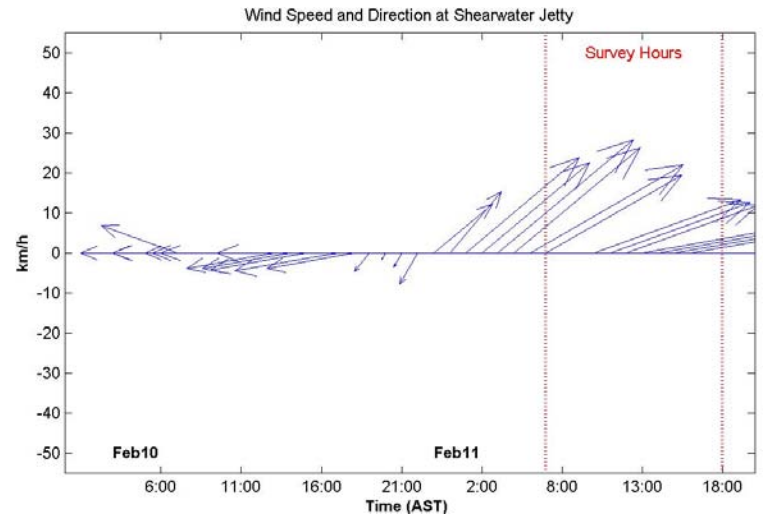
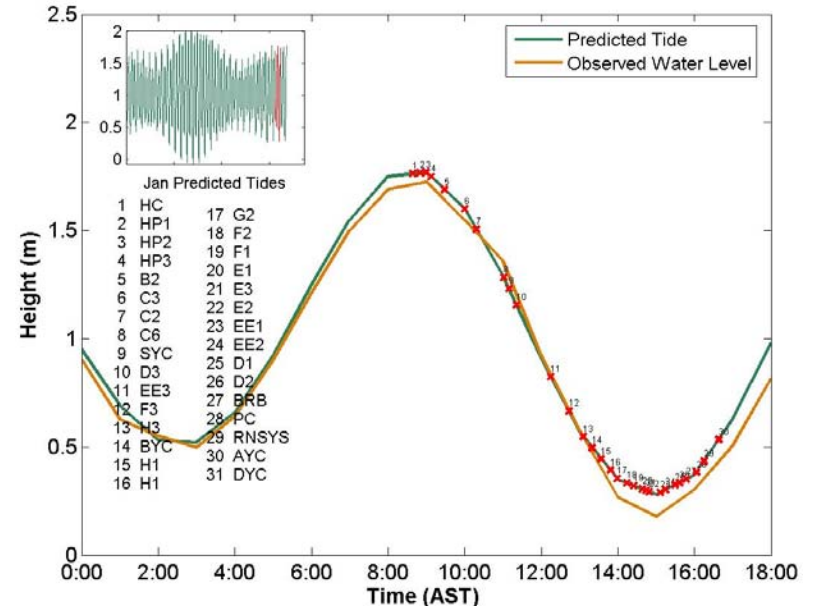
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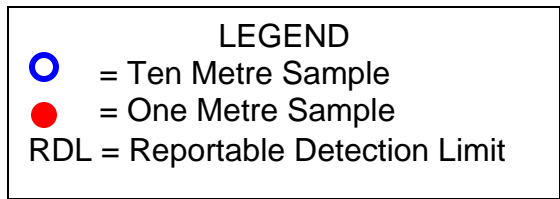
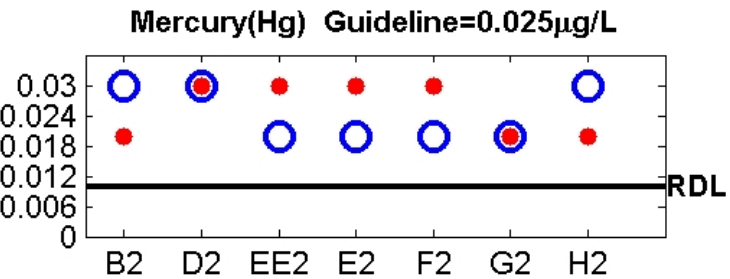
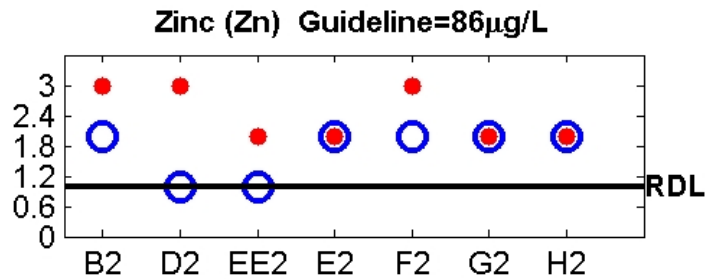
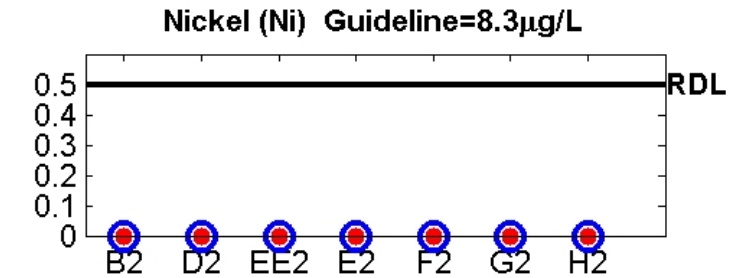
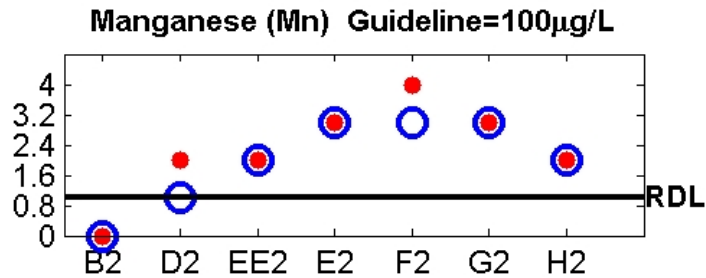
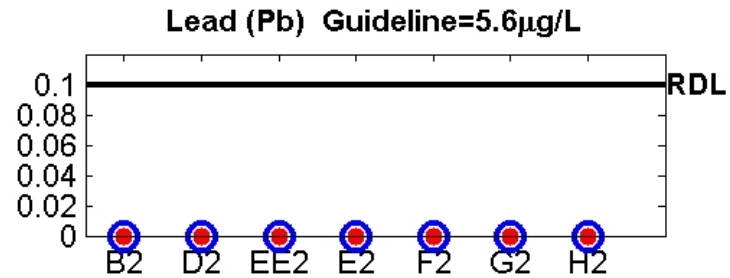
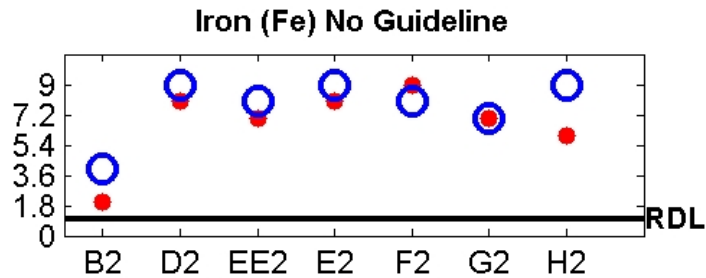
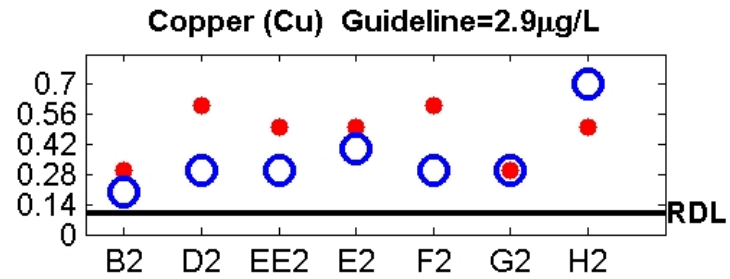
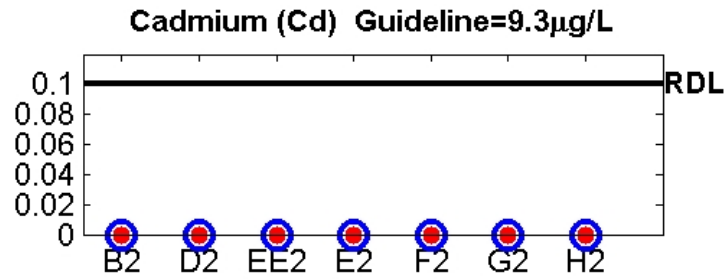
Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Jan27





HRM Water Quality Monitoring

Fecal Coliform Summary – February 11, 2009

