

Halifax Harbour Water Quality Monitoring Project Survey Summary #178

Survey Date: 24 February 2009
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report178_090224.doc
Data File: HHWQMP_data178_090224.xls

Data Return:
 Chemical: 100%
 Bacteria: 90%
 Profile: 97%
Overall: 96%

Sample Notes:

DYC was not sampled due to ice.

There were no water samples taken at BYC and C2, missing sample bottles.

A supplementary CTD cast was taken at the LOBO buoy location (44.6291 N, 63.5915 W) at 1544 local time (AST).

The tops of profiles at HP1 and EE2 are missing in the contour plots. This has been corrected in the data file.

To match the collected reference data, the presented DO values should be scaled by a factor of 1.6 (see data file cover sheet).

QA/QC samples:

Chemical Analysis		E2-1m	
		Reference Sample	QA/QC
Detectable Parameter	Units		
Ammonia (as N)	mg/L	0.10	0.12
Total Suspended Solids	mg/L	1.5	1.3
Copper	ug/L	0.6	0.5
Iron	ug/L	13	11
Manganese	ug/L	5	3
Zinc	ug/L	2	2

Fecal Coliform (CFU/100ml)

Site	C6-10m	PC-10m	E2-1m
Reference	200	46	82
QA/QC	520	20	400

Comments:

General: There has been moderate precipitation (32 mm) in the five days before, including 20.5 mm the day before, the survey. The mean air temperatures were slightly below freezing, so this was probably a mix of rain and snow. The surface salinity has decreased very slightly from the previous survey, resulting in slightly stronger salinity and density stratification. The density stratification remains quite low. The fecal coliform levels are elevated (> swimming guideline) but not extremely high, most everywhere (both 1 and 10 m samples) in the Inner Harbour. In the Narrows and Basin there are scattered high values in the 10 m samples. There are also elevated near-surface values in the H section and at HC, near the Tribune Head outfall.

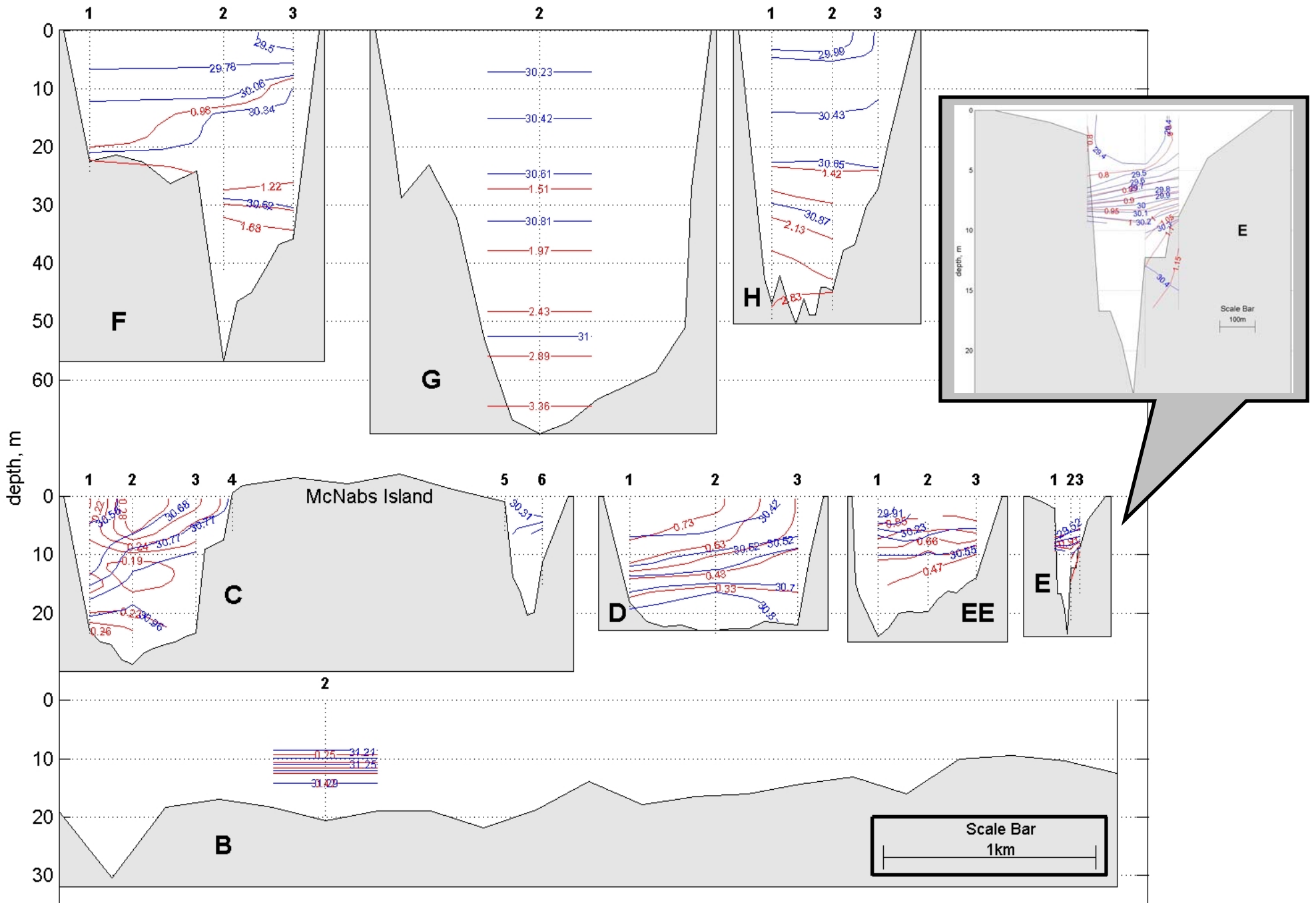
Fluorescence: The fluorescence data indicates a slight increase in phytoplankton activity with values of about 5.0 mg/L in the southern Basin. Elsewhere, the profile maximums are about 3.0 mg/L or more, except at B2 in the Outer Harbour where the levels remain low (< 1.1 mg/L).

TSS: The average TSS level is relatively low (2.6 mg/L). The levels are relatively uniform and there is no obvious spatial pattern.

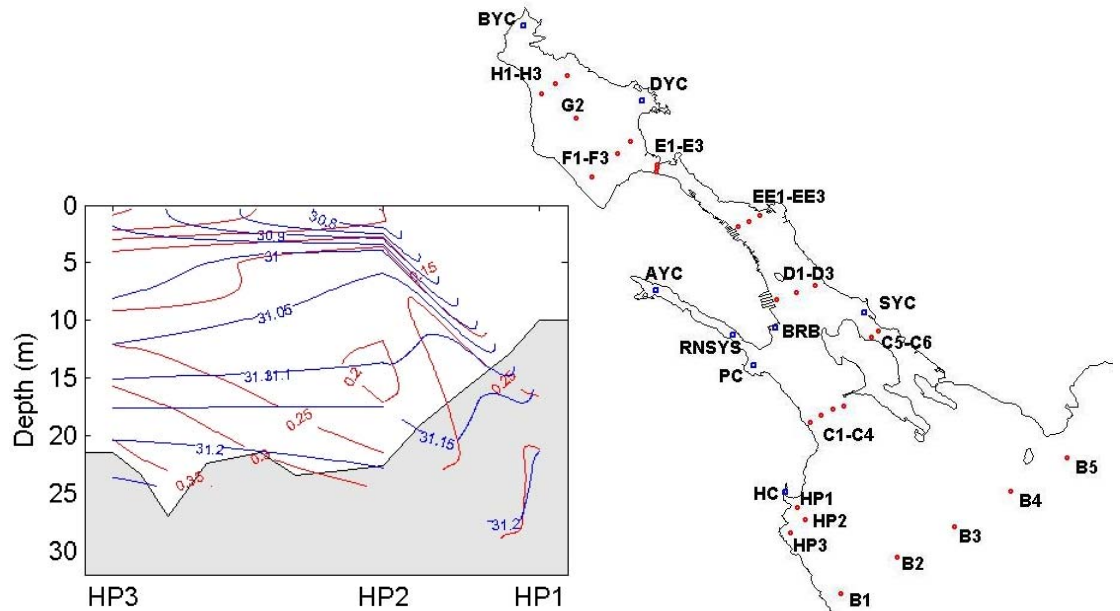
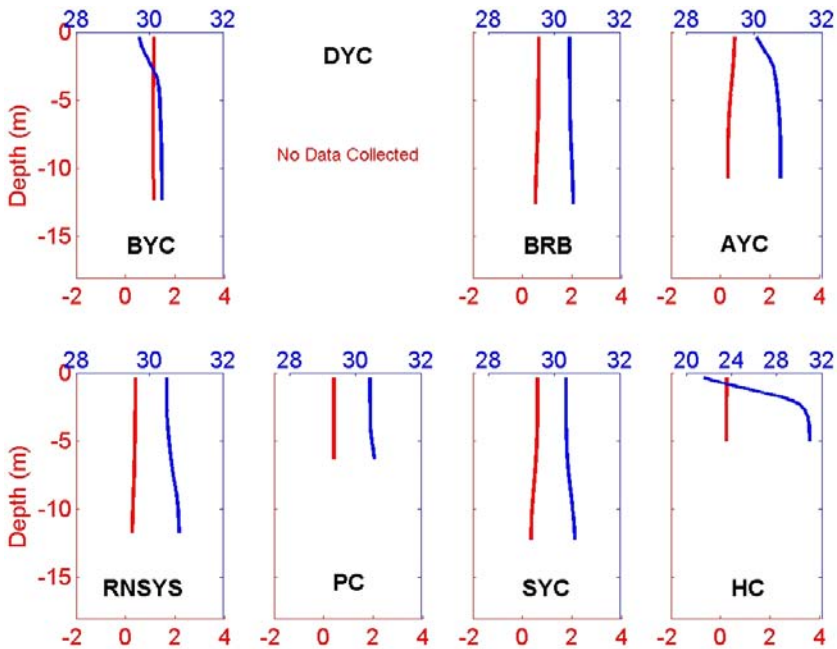
Ammonia: The ammonia levels are moderate, with detectable concentrations (>0.05 mg/L) in all samples except at B2 in the Outer Harbour. The mean value is about 0.1 mg/L. The highest values are in the southern Basin and Inner Harbour and are generally higher in the 10 m samples.

Metals: There are no guideline exceedences. The closest metal to guideline exceedence levels is copper, with several values at about 30% of the 2.9µg/L guideline.

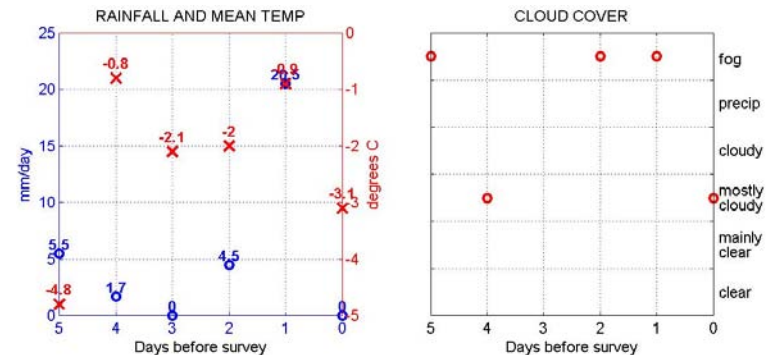
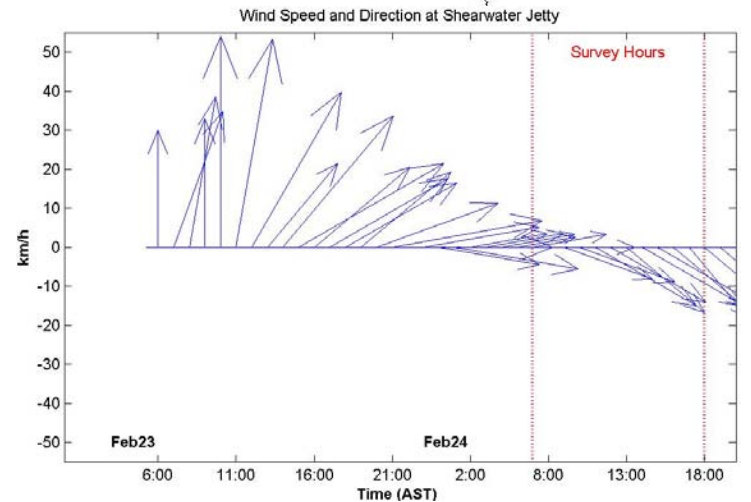
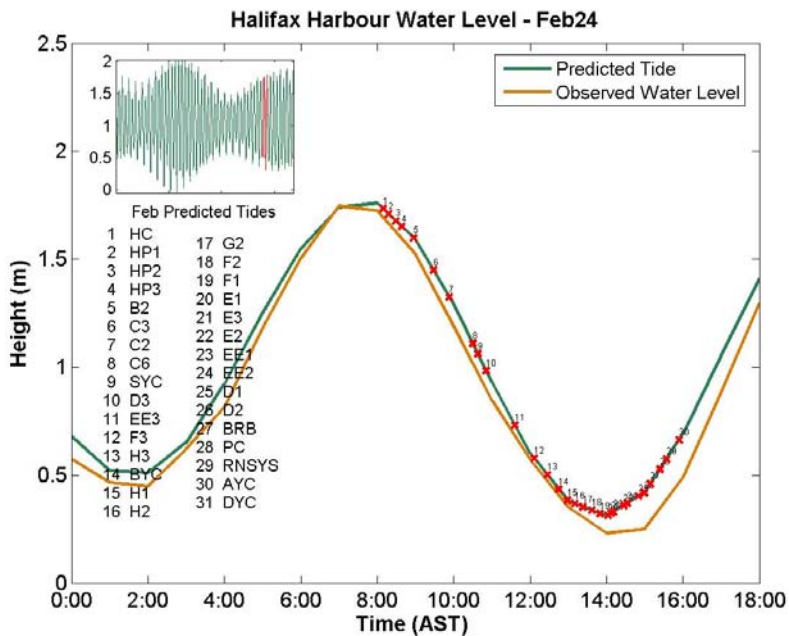
Dissolved Oxygen: The dissolved oxygen data, scaled appropriately by a factor of 1.6, indicates that the surface DO levels are very high. South of the Basin, and in the near-surface (< 15-20 m) in the Basin, the DO concentration is about 12 mg/L. The only guideline exceedence is in the Basin deep water where the DO drops to 4.0-5.0 mg/L.



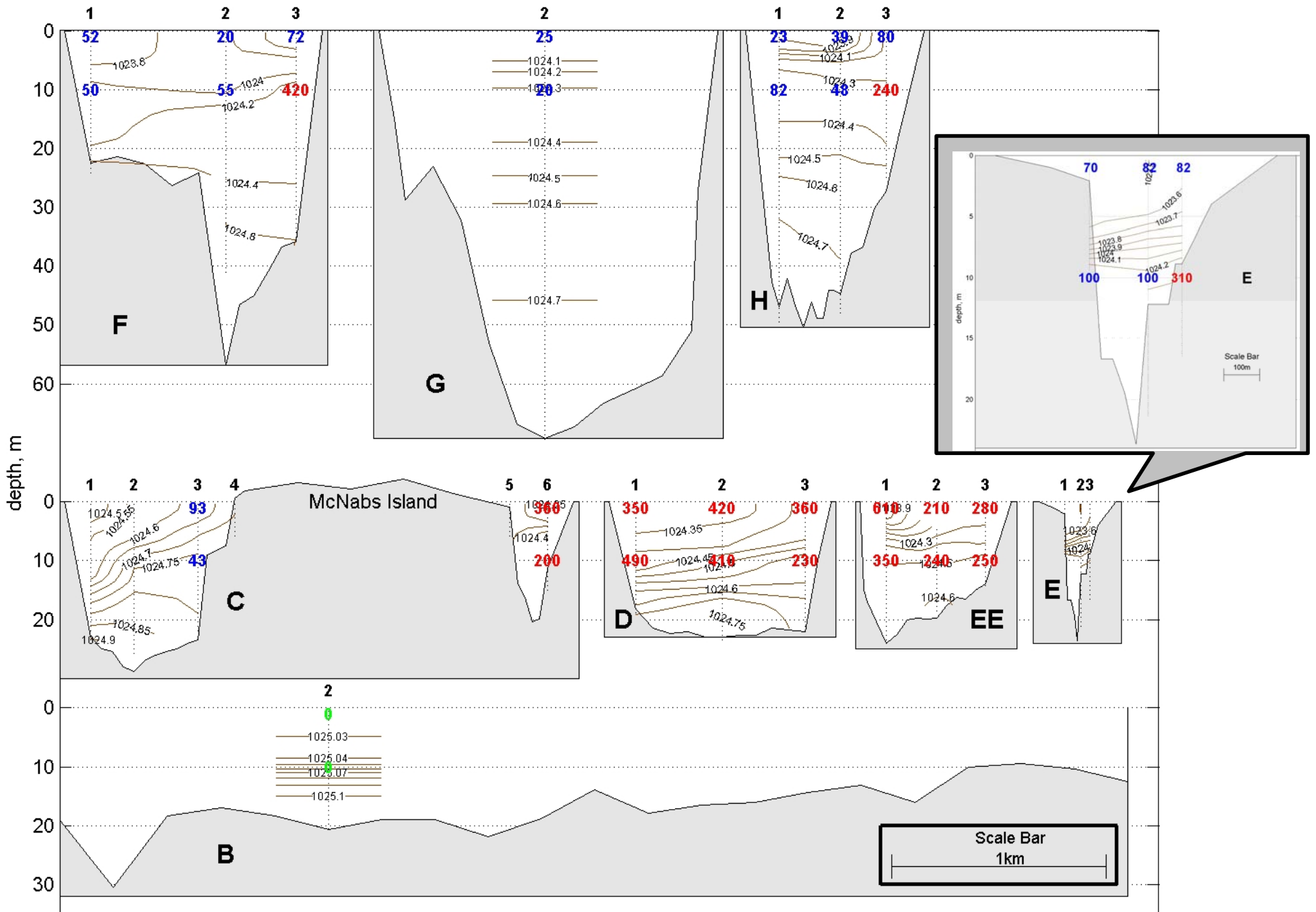
Yacht Clubs



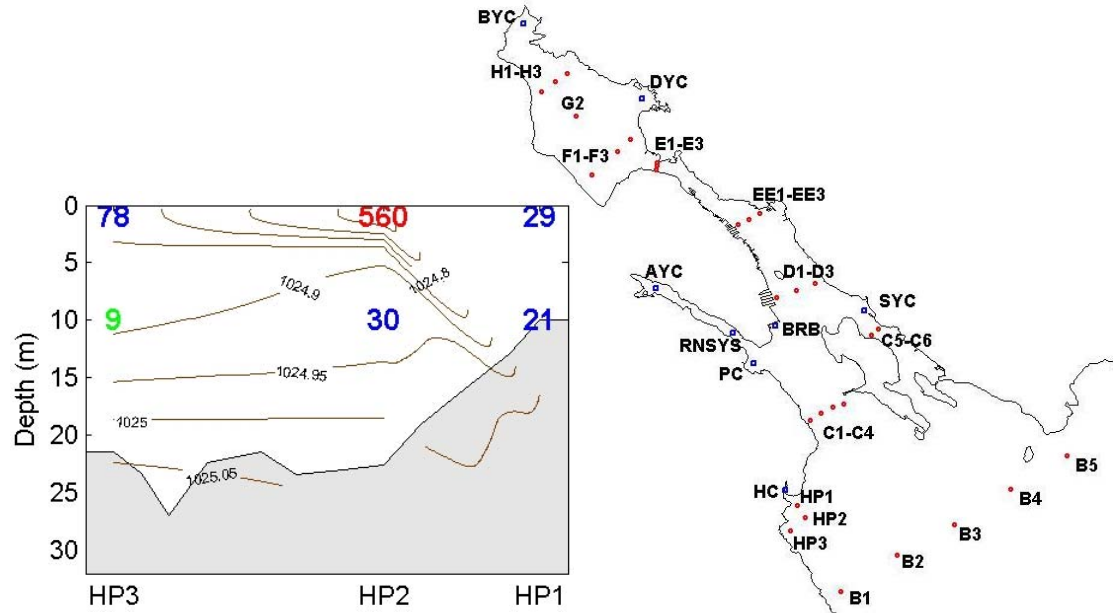
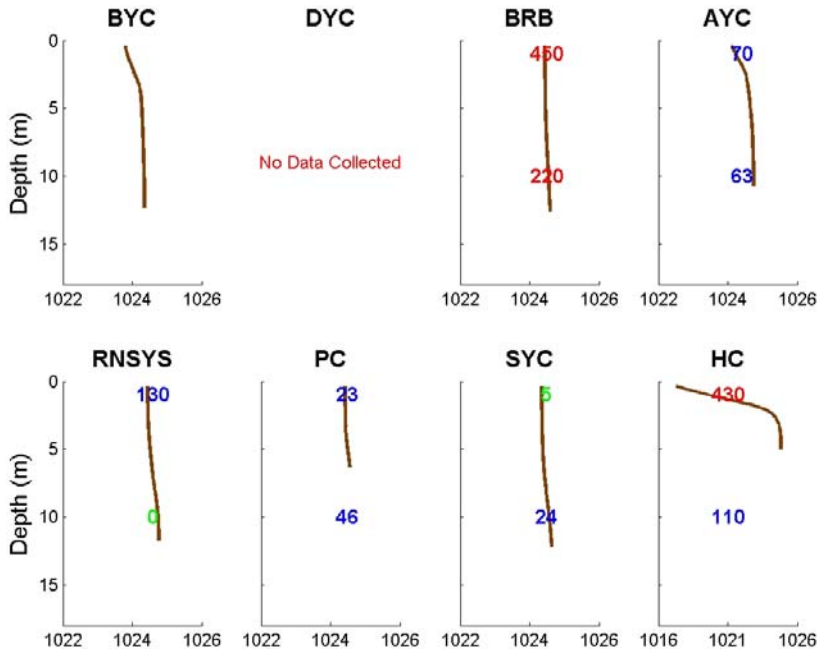
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



Salinity in PSU Temperature in °C

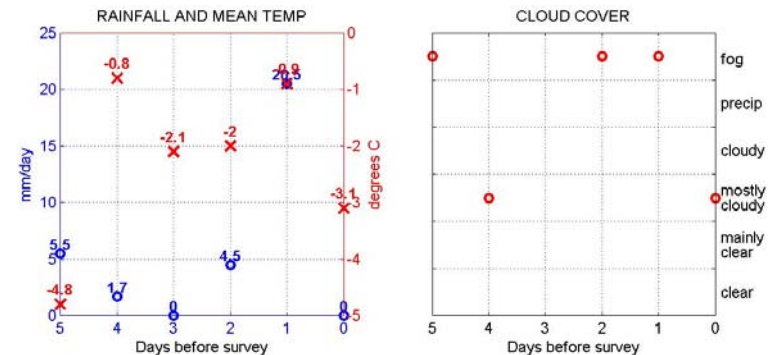
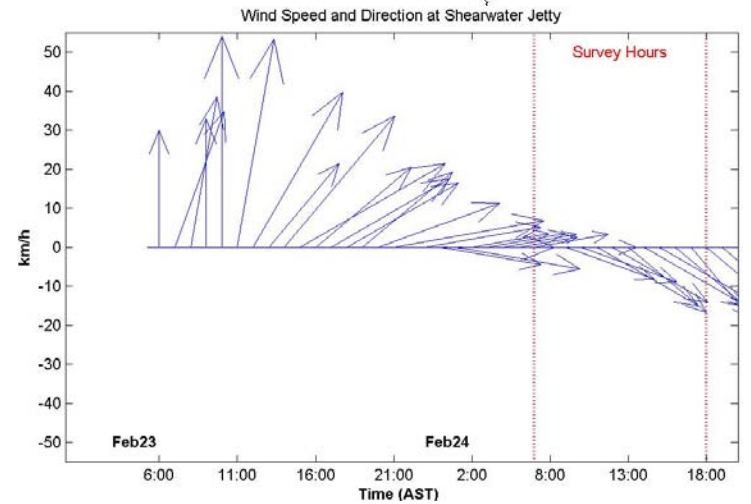
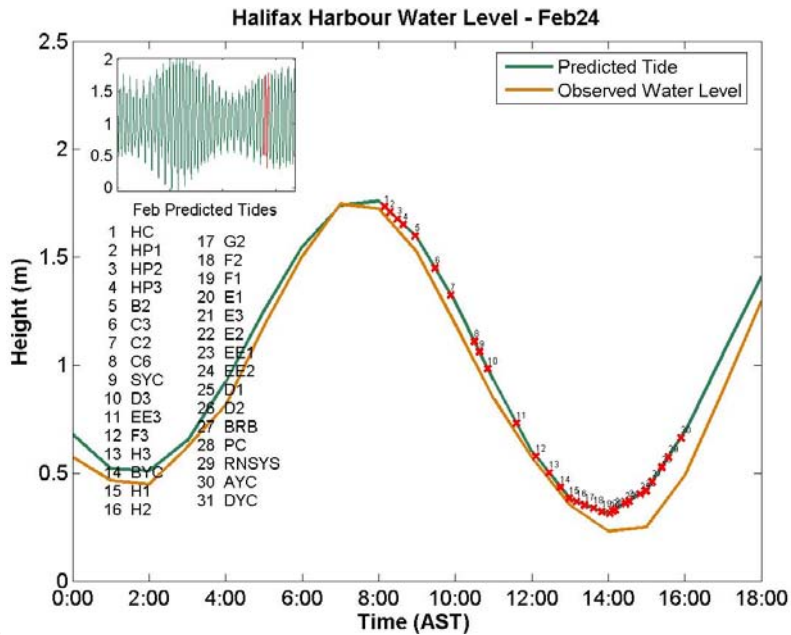


Yacht Clubs



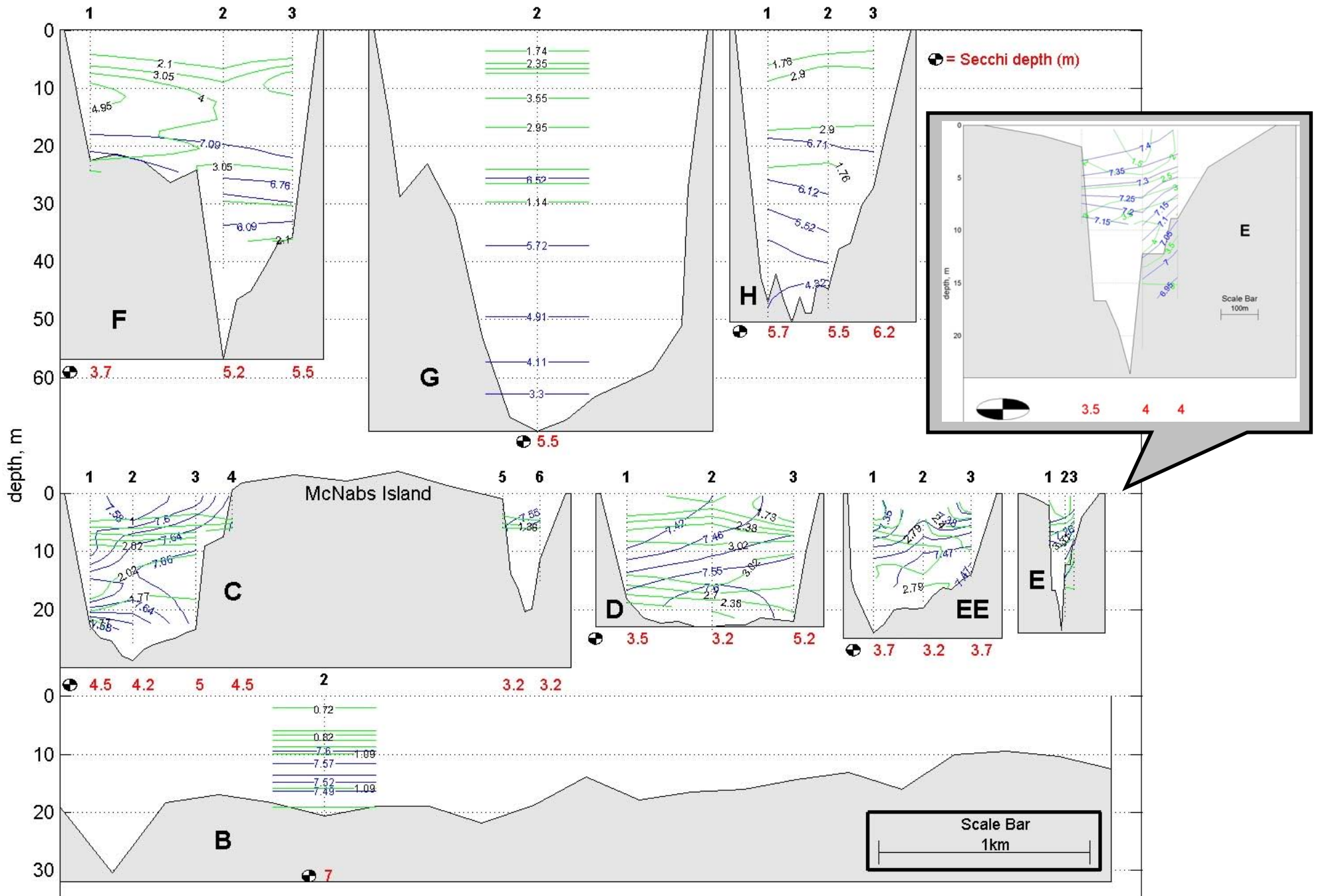
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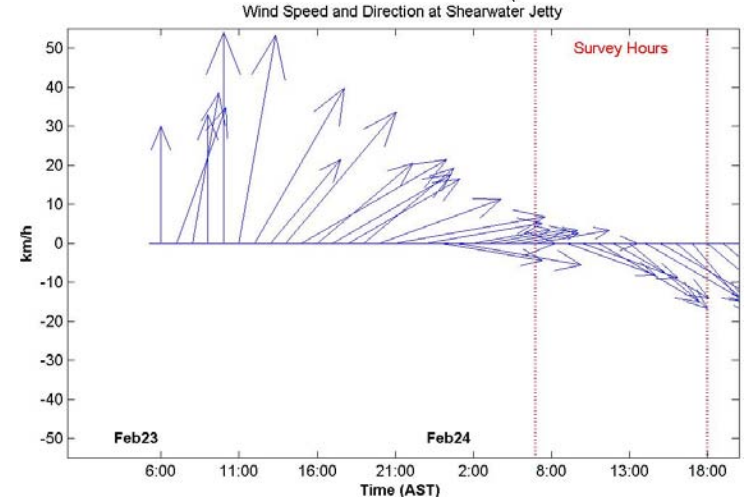
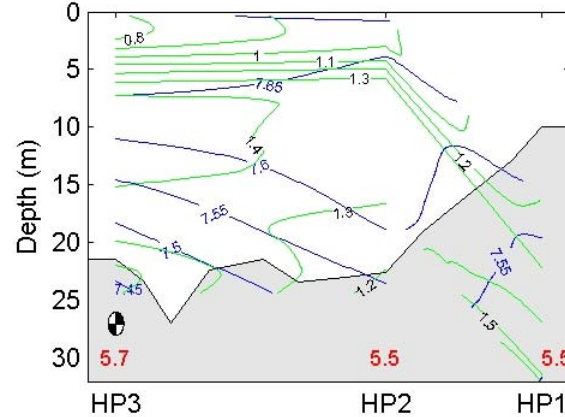
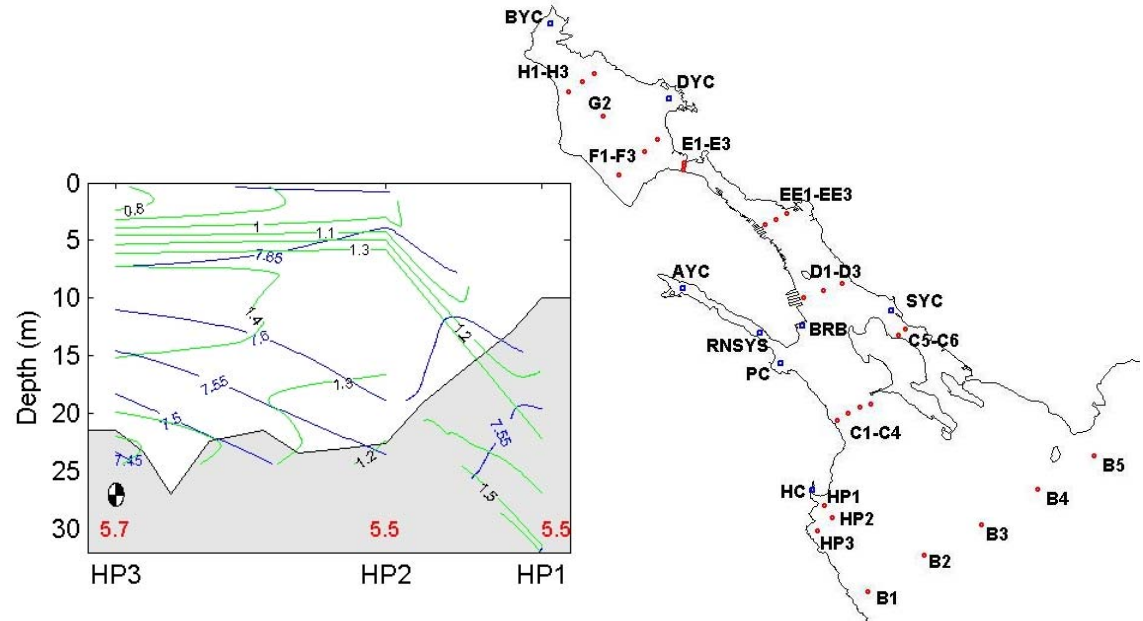
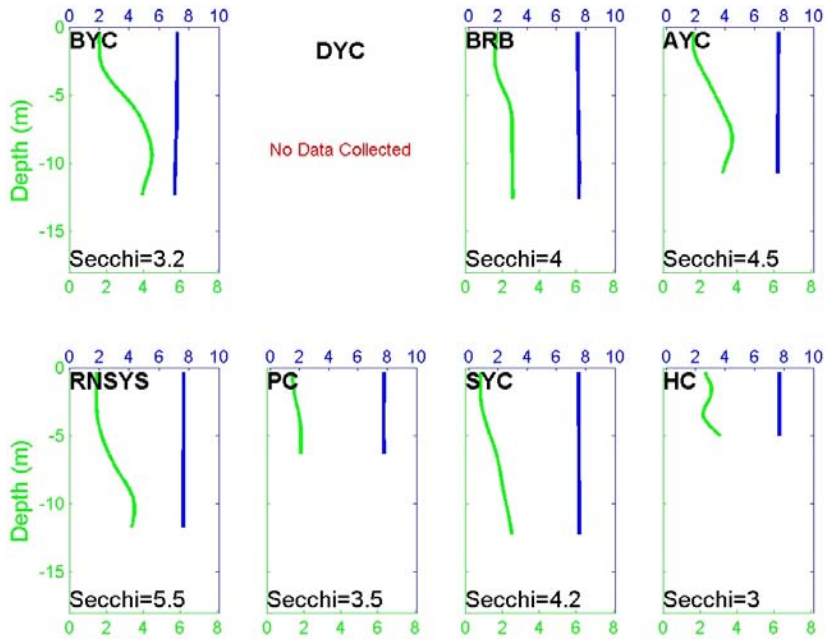


Potential Density in kg/m^3

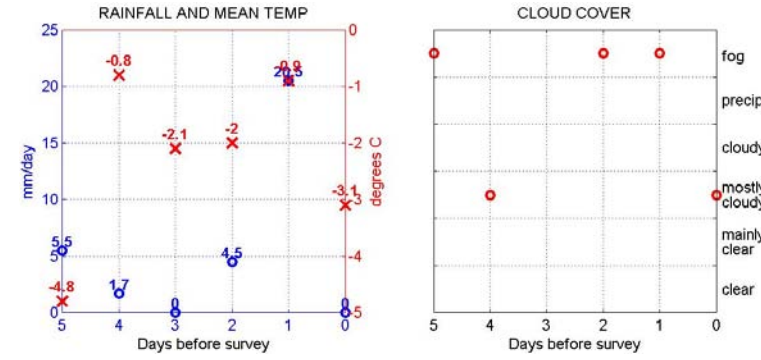
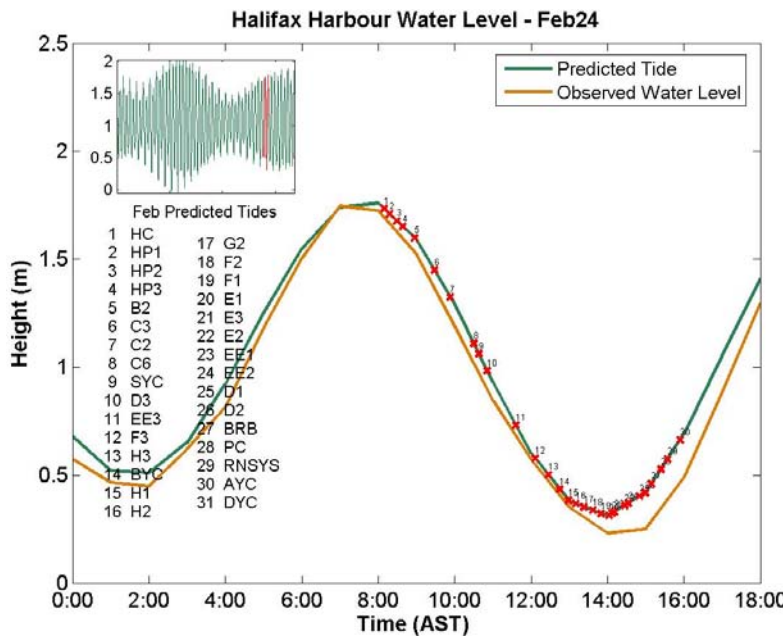
Fecal coliform: **above swimming limit (200 cfu/100mL)**
above shellfish limit (14 cfu/100mL)
 below limits



Yacht Clubs

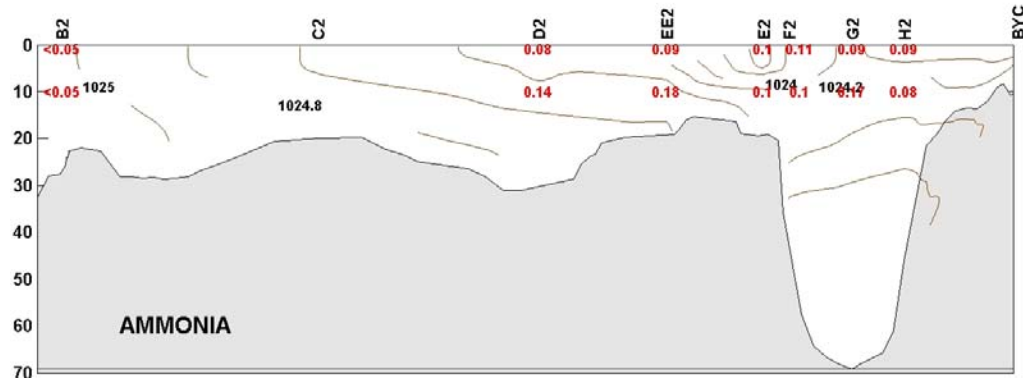
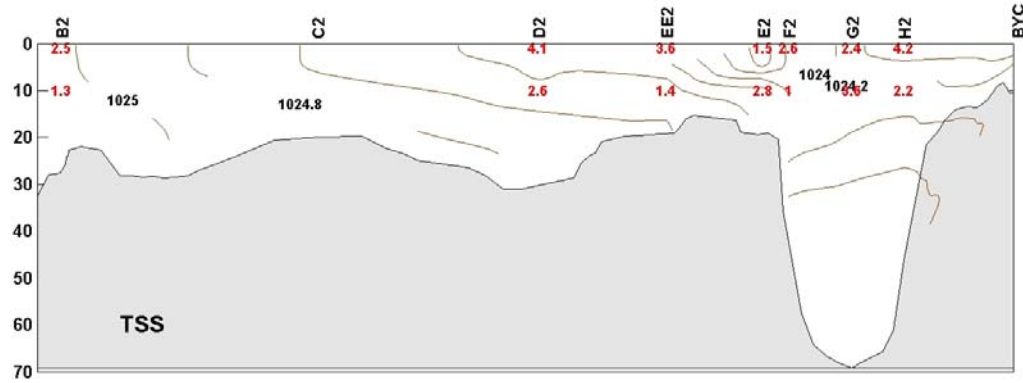


Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport



DO in mg/L Chlorophyll in mg/m³

CHEMISTRY



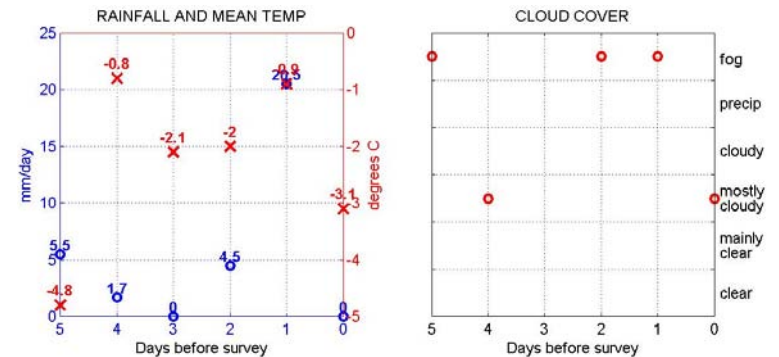
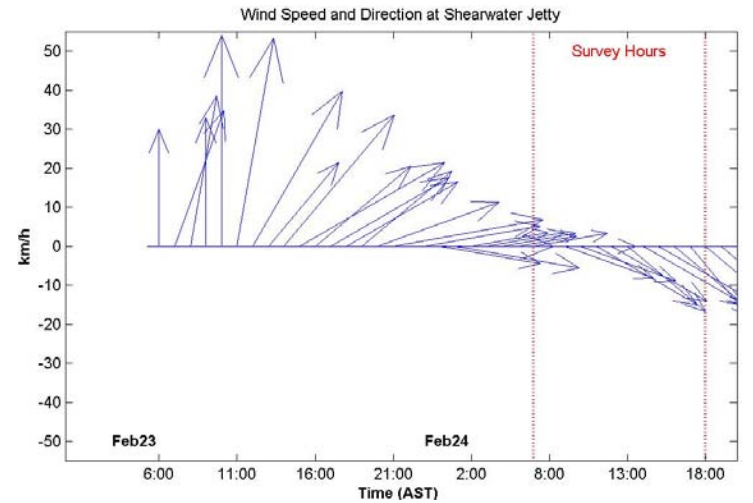
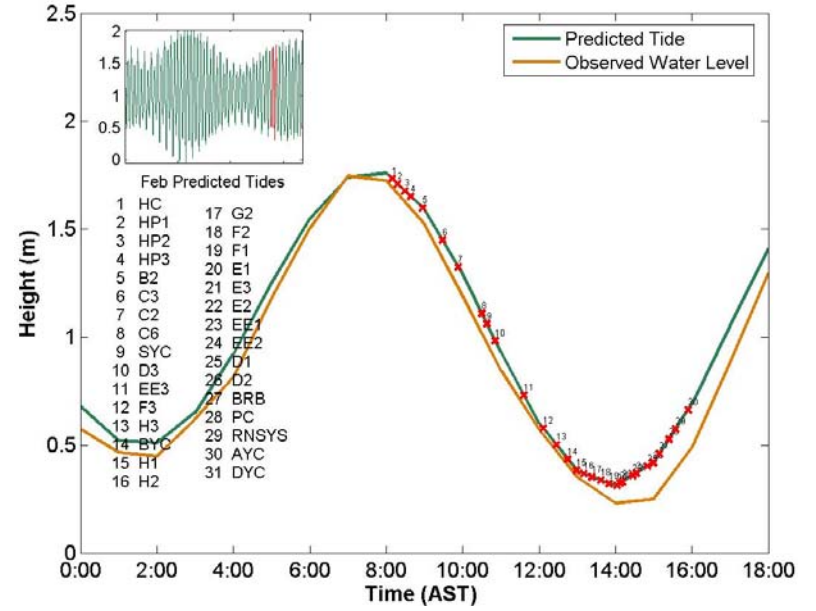
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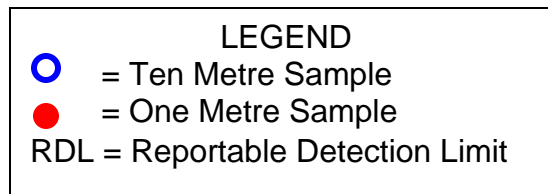
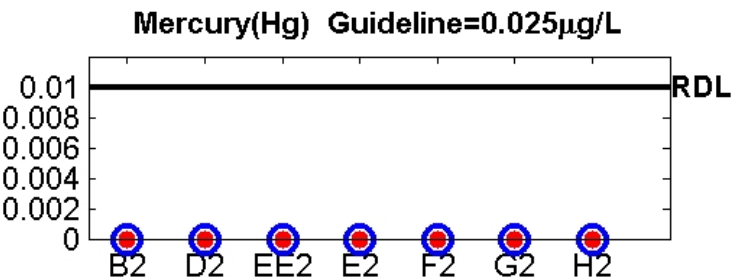
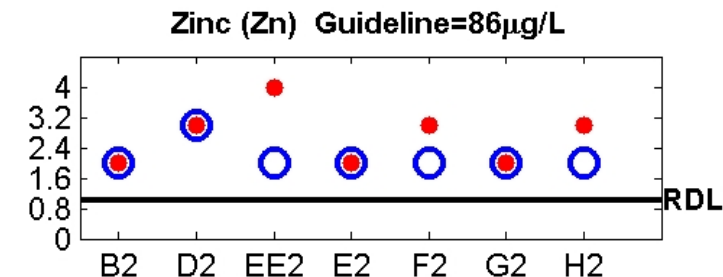
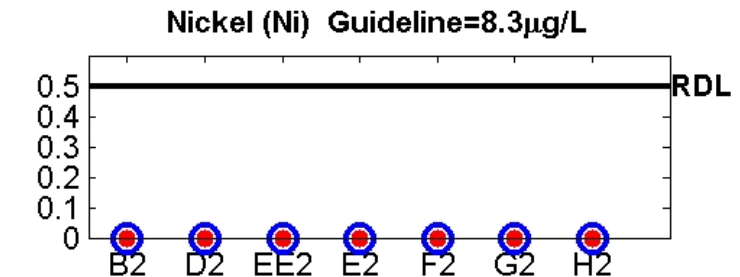
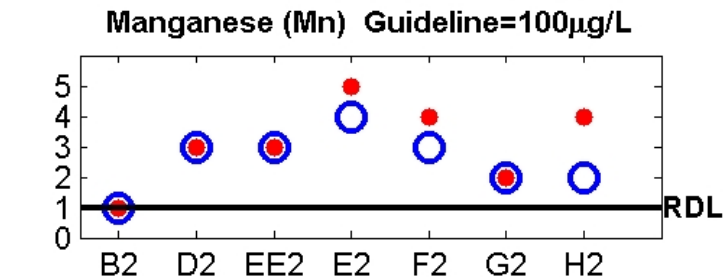
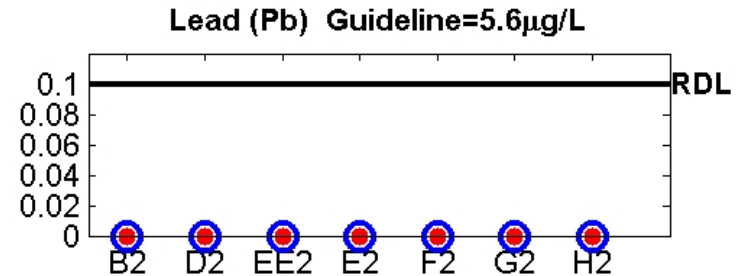
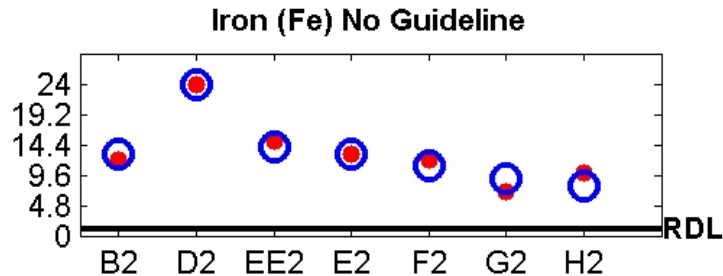
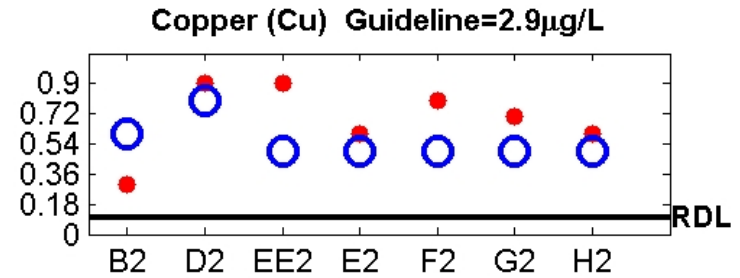
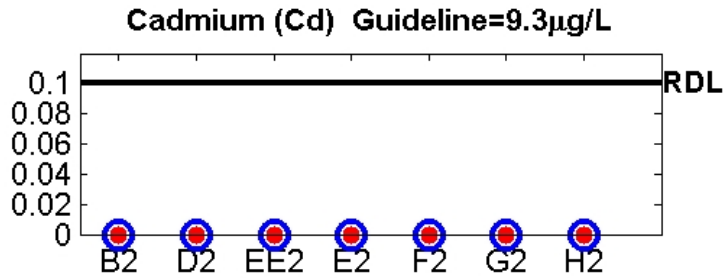
Ammonia in mg/L

TSS in mg/L

Halifax Harbour Water Level - Feb24



Potential Density in kg/m^3 Ammonia in mg/L TSS in mg/L



HRM Water Quality Monitoring

Fecal Coliform Summary – February 24, 2009

