

Halifax Harbour Water Quality Monitoring Project Survey Summary #153

Survey Date: 09 April 2008
Nature of Survey: Complete Survey
Report File (this document): HHWQMP_report153_080409.doc
Data File: HHWQMP_data153_080409.xls

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

Sample Notes:

The fecal coliform value from E2-10 m is missing – damaged in transit.

The DO sensor stability issues seem to be resolved though the readings are still uniformly low compared to available reference values (see comparison in data file). To match reference data they should be scaled by a factor of 1.45.

The DO data at B2 did not pass quality control. The data is plotted here but deleted from the data file.

A supplementary CTD cast was taken at the LOBO buoy location (44.6291° N, 63.5915° W) at 16:08 local time.

QA/QC samples:

Chemical Analysis

Detectable Parameter		Units	G2 – 1m	
			Reference Sample	QA/QC
Ammonia (as N)		mg/L	0.06	<0.05
Total Suspended Solids		mg/L	3.5	3
Copper		ug/L	0.3	0.3
Iron		ug/L	17	15
Manganese		ug/L	10	9
Nickel		ug/L	0.7	0.7
Zinc		ug/L	5	5

Fecal Coliform (CFU/100ml)

Site	E1-1m	PC-10m	DYC-1m	G2-1m
Reference	1	1	1	ND
QA/QC	1	2	2	ND

Comments:

General: Above freezing temperature (runoff) and surface water warming has increased the harbour stratification. There is a strong freshwater and thermal signal in Bedford Bay, and elsewhere the harbour is moderately stratified. The Basin bottom water below 20 - 30 m is quite uniform in hydrographic properties with uniformly high dissolved oxygen. The Halifax STP is fully operational. The UV disinfection system became fully operational on 1 April. Fecal coliform levels in the Inner Harbour are very low with the only samples above the swimming guidelines occurring in the centre of the Harbour. Three of the four are in the EE section, near the ferry track. The highest value is in the 1m sample at EE3 that is close to the “Peace Pavilion” outfall on the Dartmouth side. Higher values are in the 10 m samples in the Narrows and Basin.

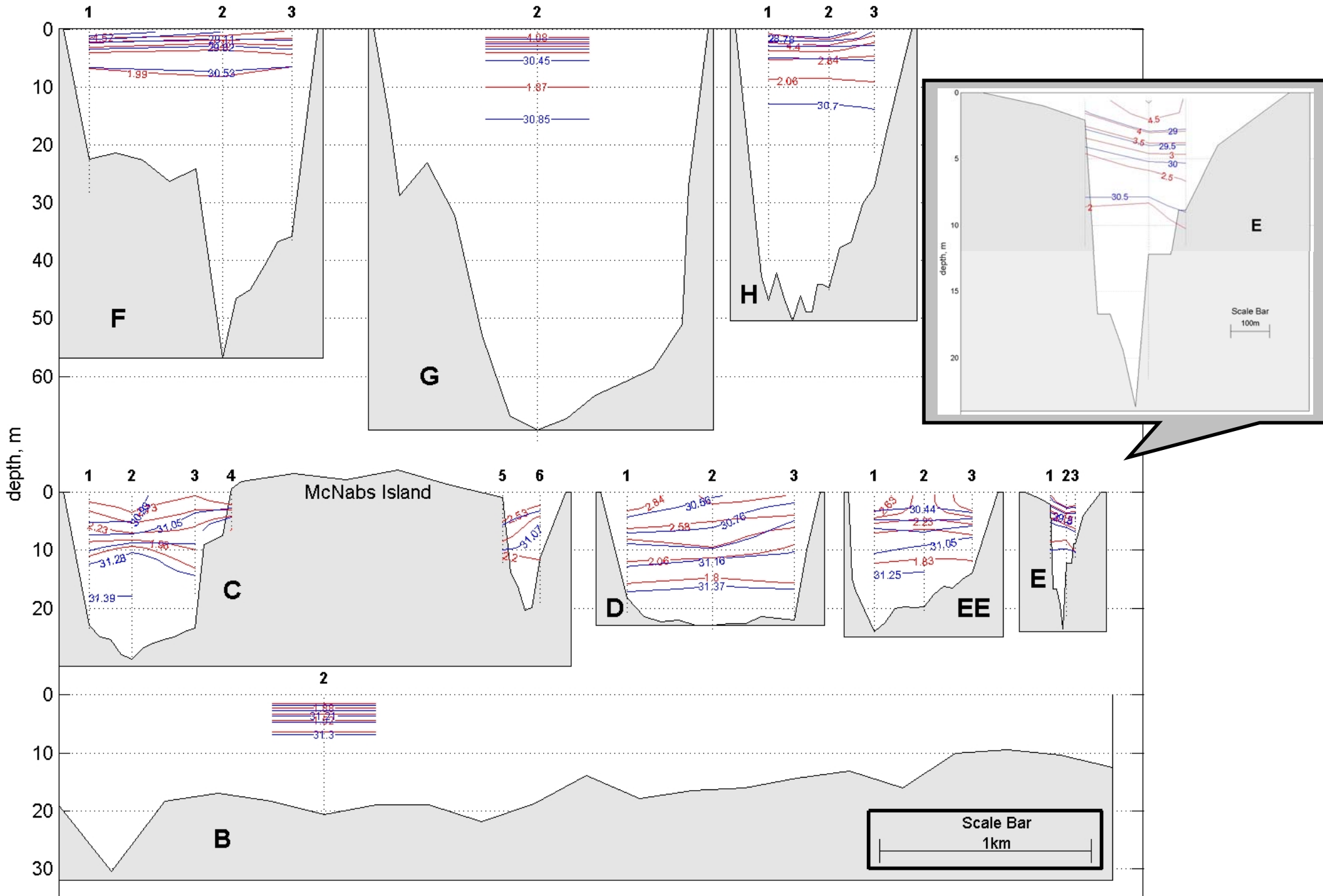
Fluorescence: A strong phytoplankton bloom is occurring. The profile maximum fluorescence values in the Basin are on the order of 45- 60 mg/m³ at a depth of about 7-12 m. In the Inner Harbour the values are 20-30 mg/m³ at a depth of 7 - 9 m. In the Outer Harbour the values drop to about 4 mg/m³.

TSS: TSS values are relatively low, with a maximum value of about 4.5 mg/L (mean 3.4 mg/L). There is no obvious coherent spatial distribution.

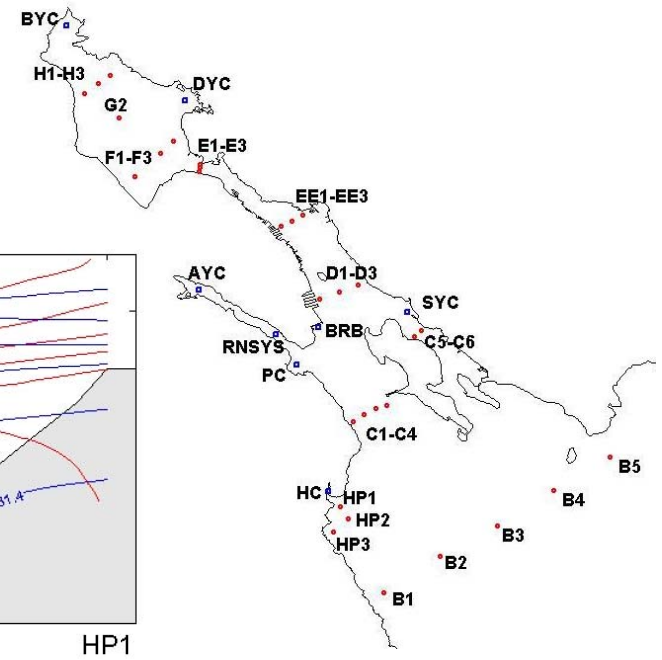
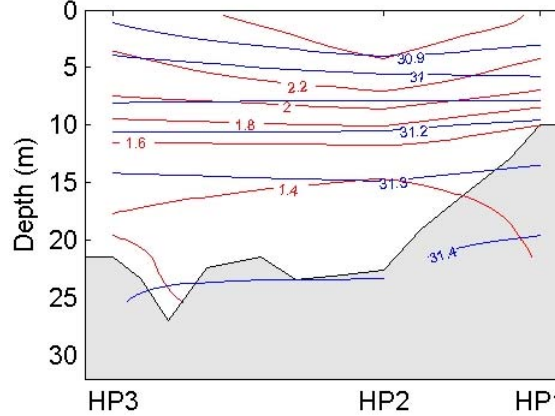
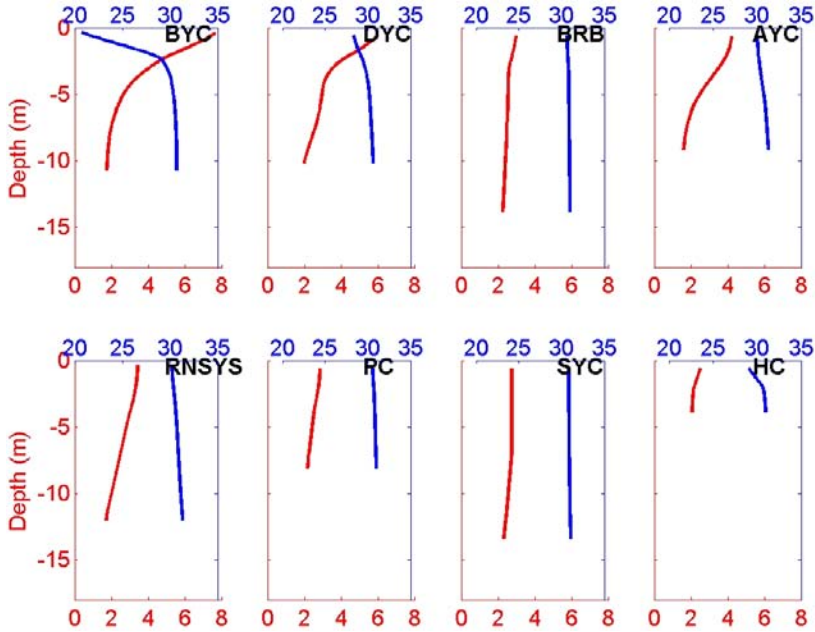
Ammonia: The ammonia concentrations are low with five of fourteen samples having levels below the detection limit (0.05 mg/L) and a maximum value of 0.07 mg/L. There is no obvious coherent spatial distribution

Metals: There are no guideline exceedences. As is typical, the closest to exceedence is copper, but the highest concentrations are less than 25% of the guideline value.

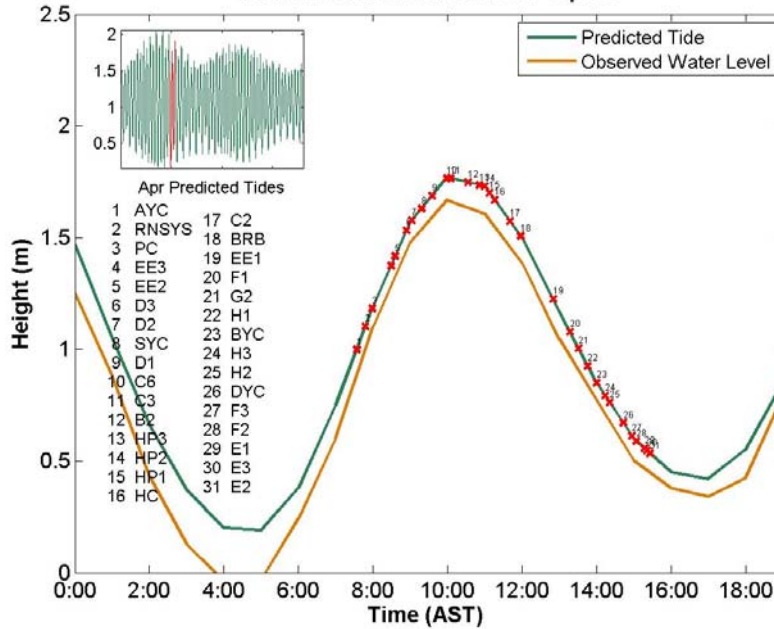
Dissolved Oxygen: The profile data, when scaled appropriately (see sample notes) indicates extremely well oxygenated water everywhere, including, unusually, the bottom of Bedford Basin. The surface values are supersaturated everywhere, but particularly in the Basin where values greater than 14 mg/L were measured. There are no guideline exceedences anywhere.



Yacht Clubs

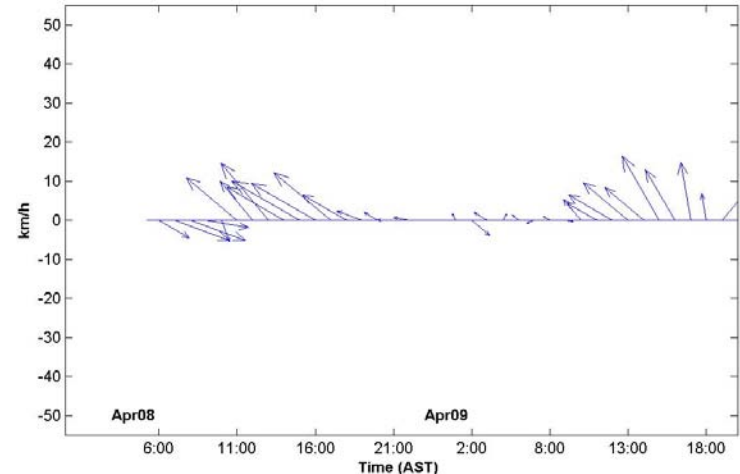


Halifax Harbour Water Level - Apr09

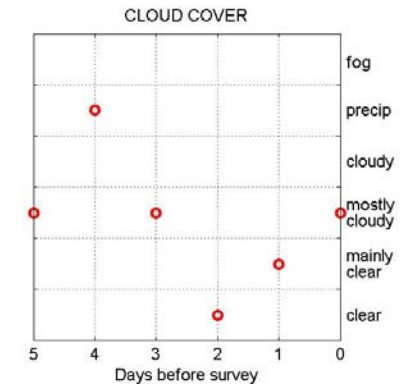
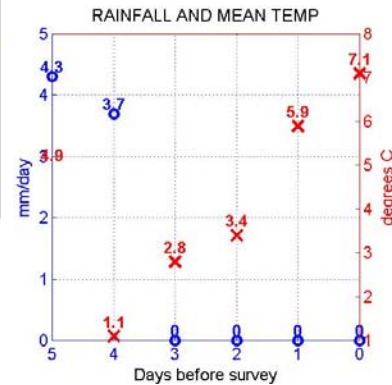


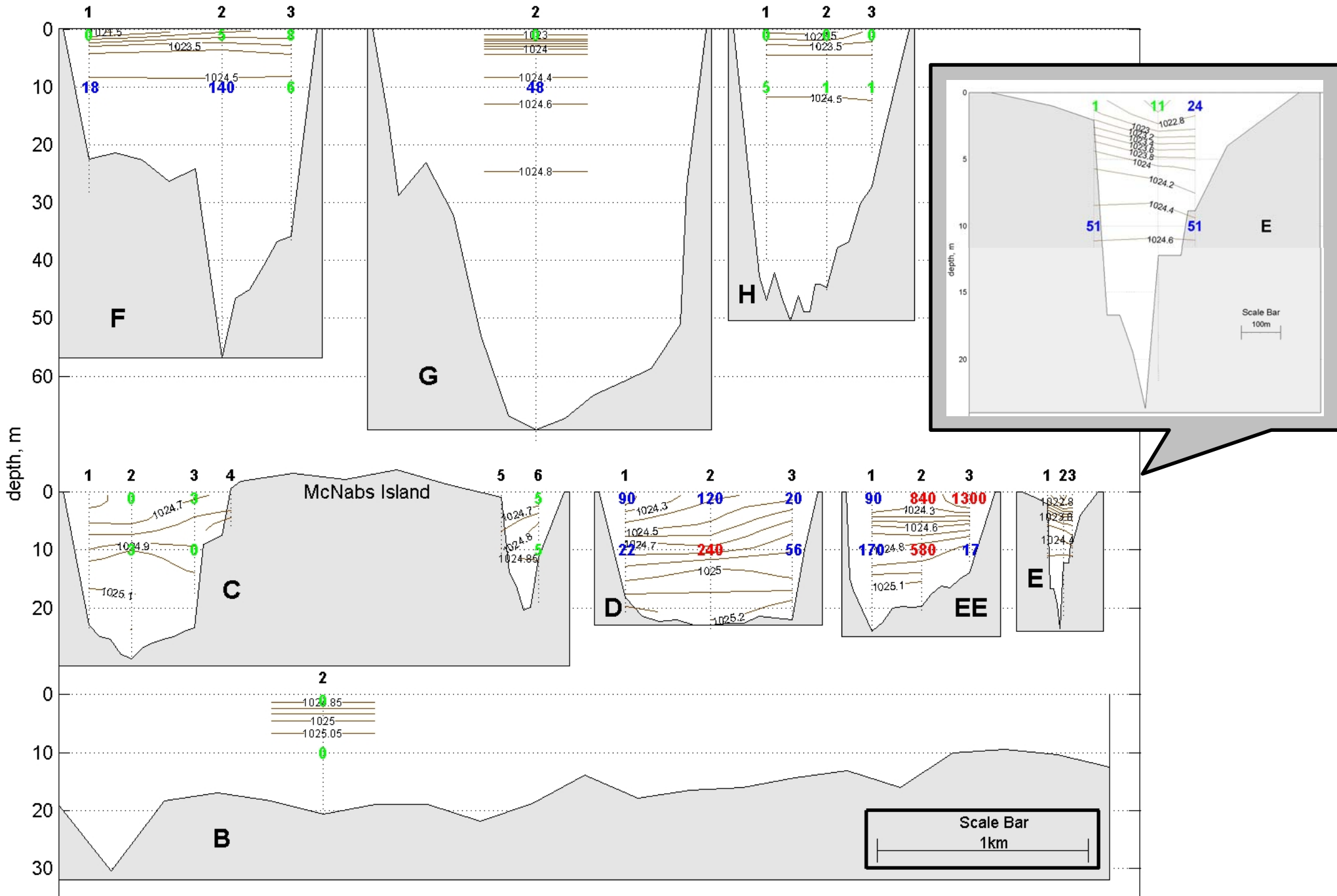
Rainfall and temperature data collected at Shearwater Autoport.
Cloud cover data collected at Shearwater Airport

Wind Speed and Direction at Shearwater Jetty

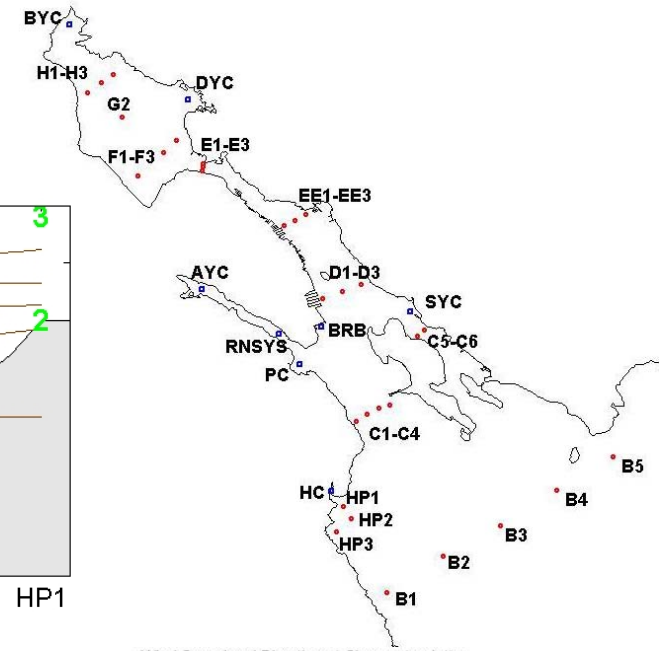
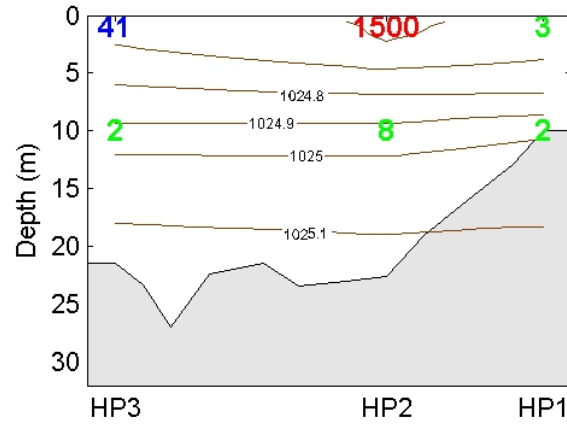
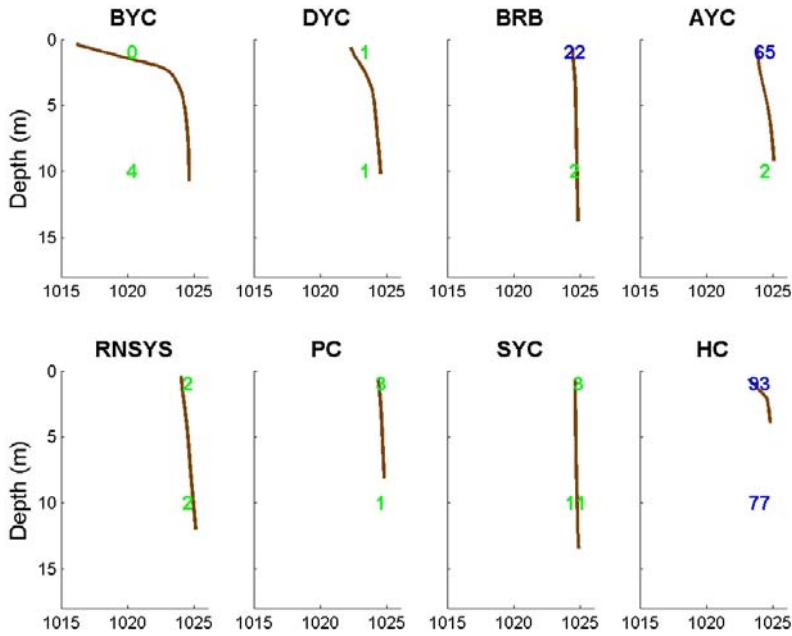


Salinity in PSU Temperature in °C

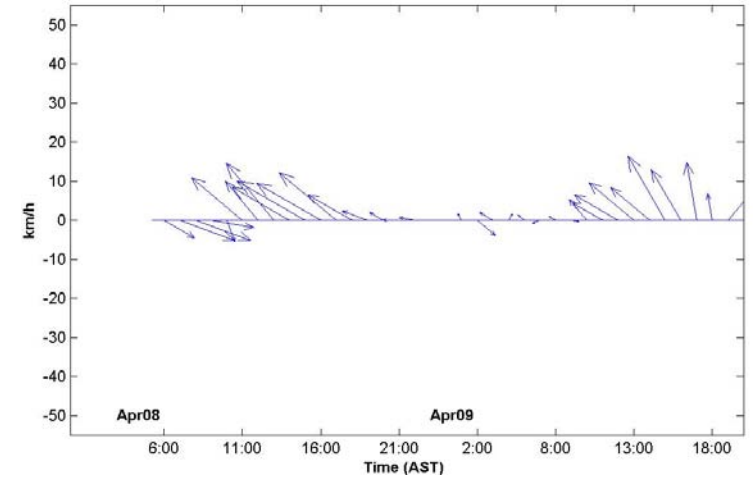




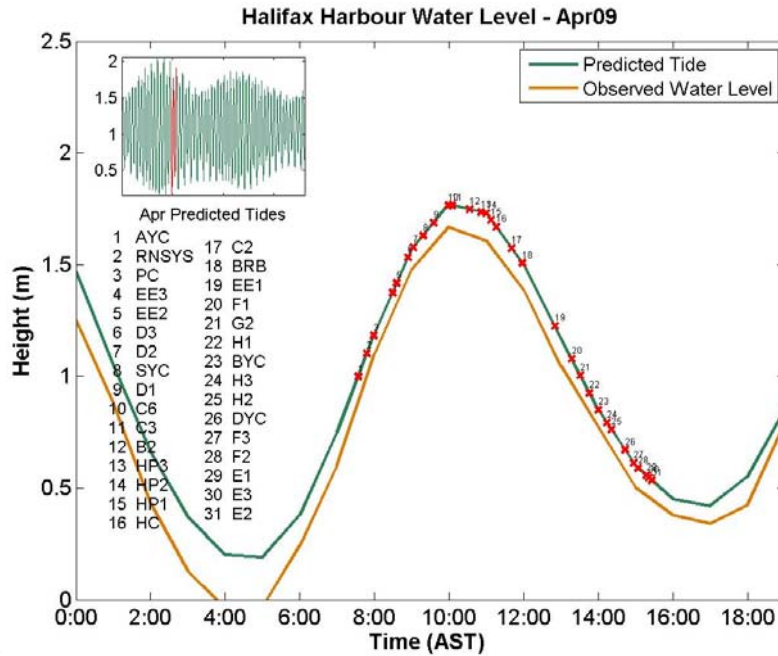
Yacht Clubs



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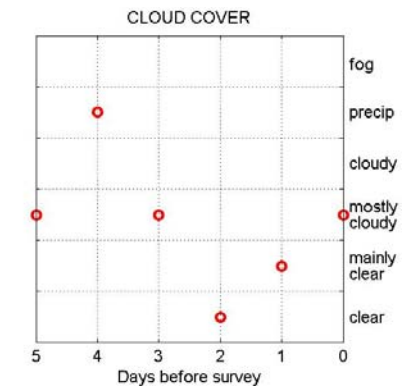
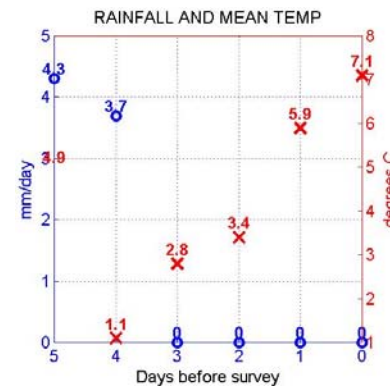


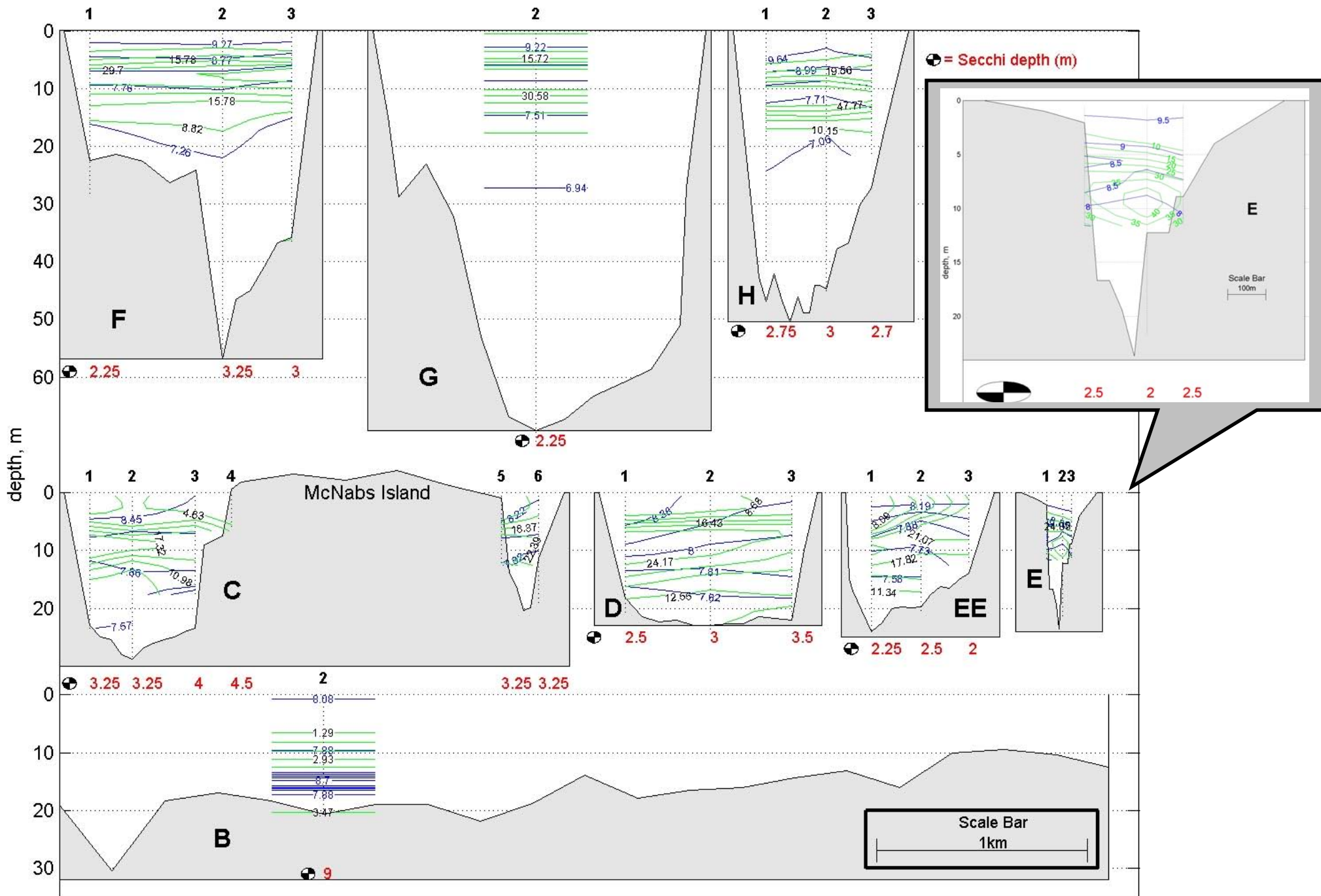
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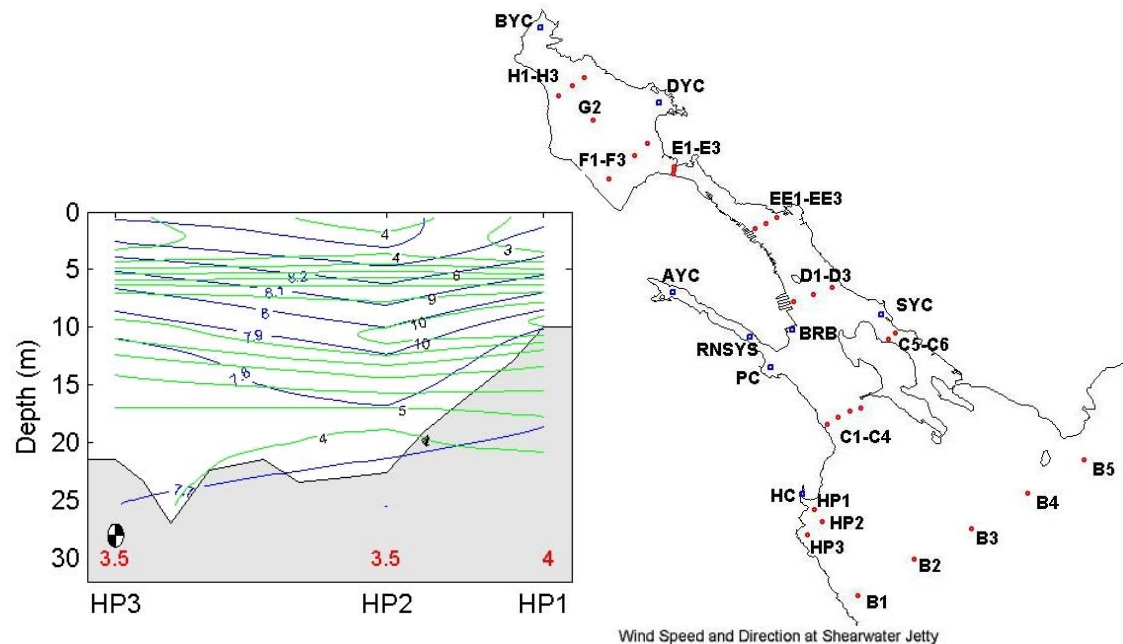
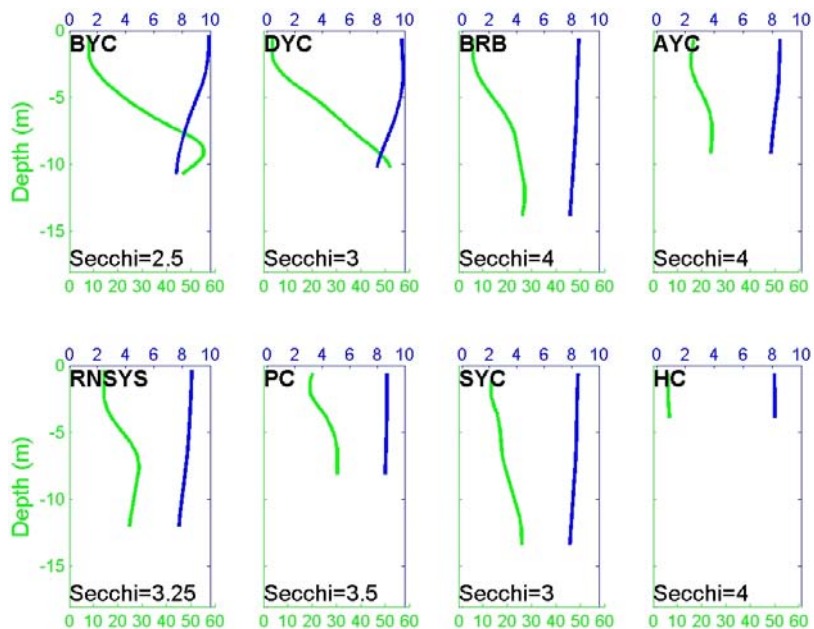
Potential Density in kg/m^3

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

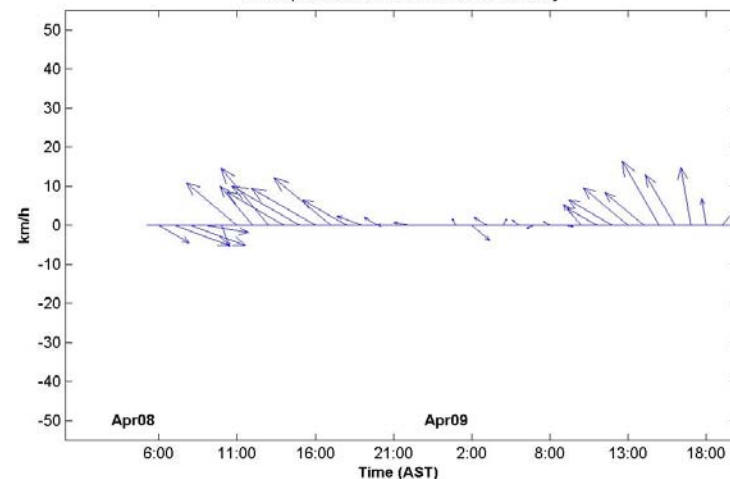




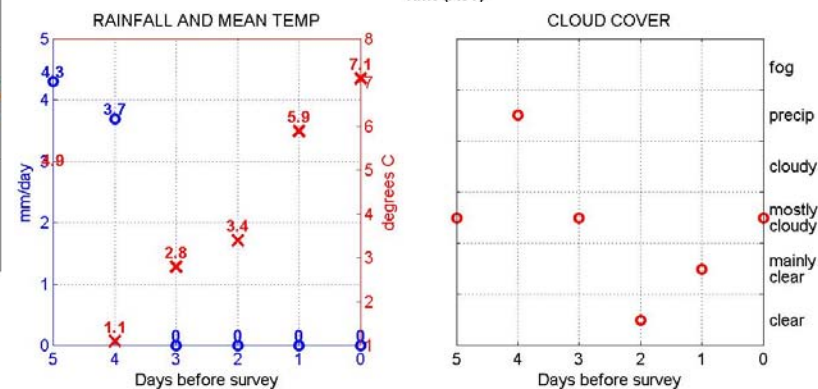
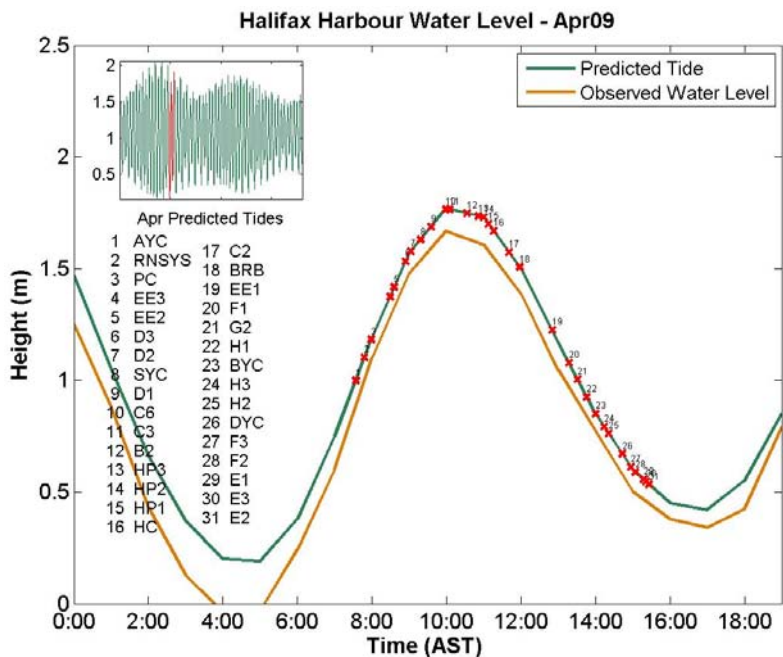
Yacht Clubs



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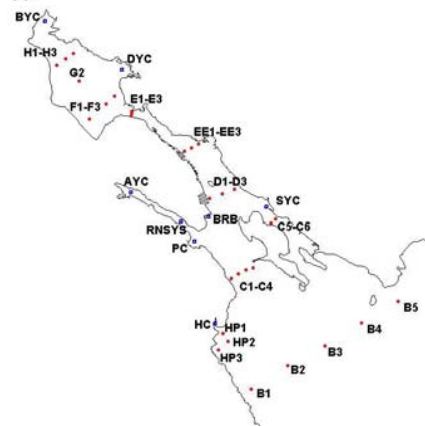
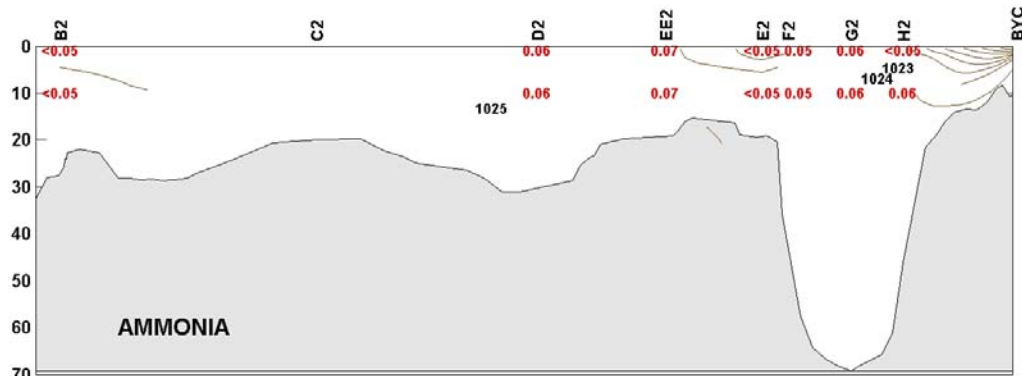
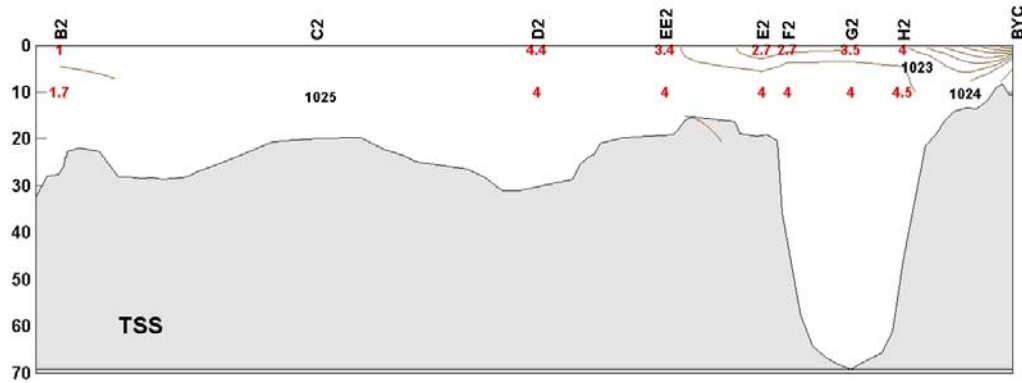
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DO in mg/L

Chlorophyll in mg/m³

CHEMISTRY

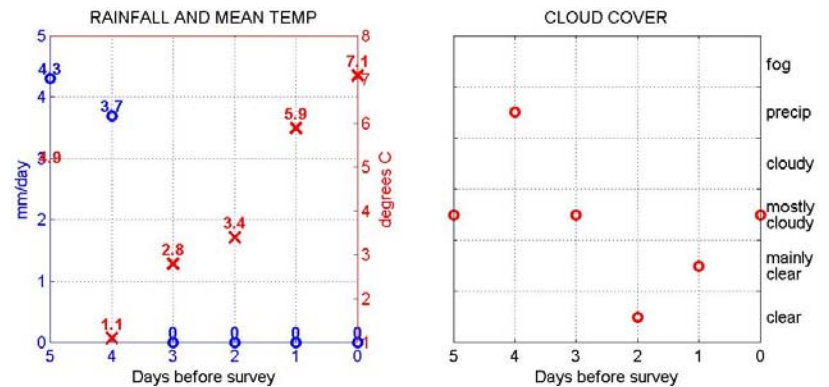
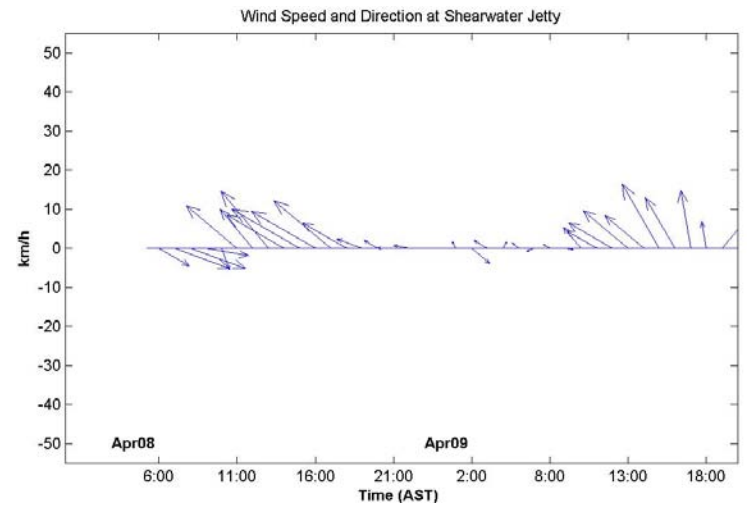
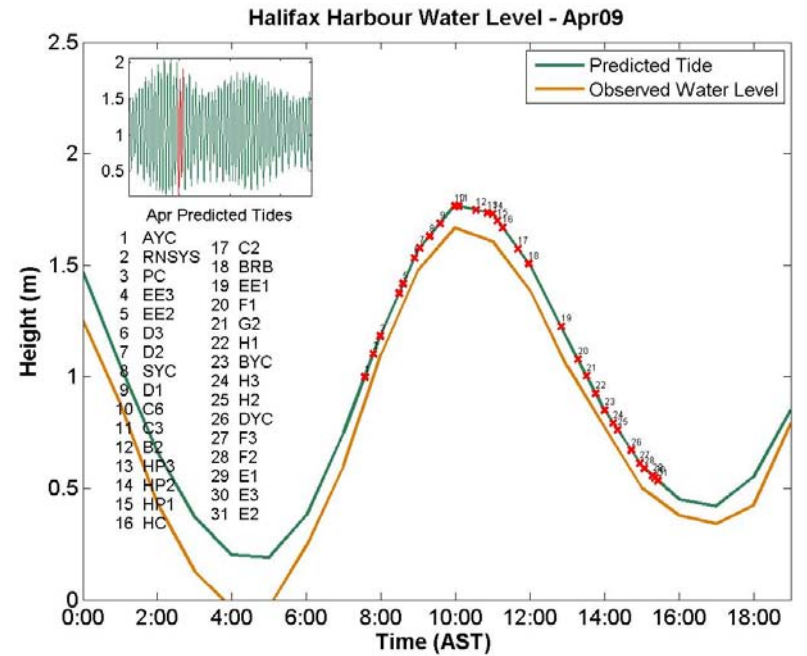


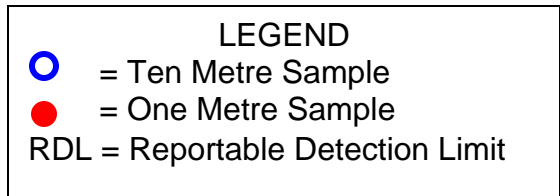
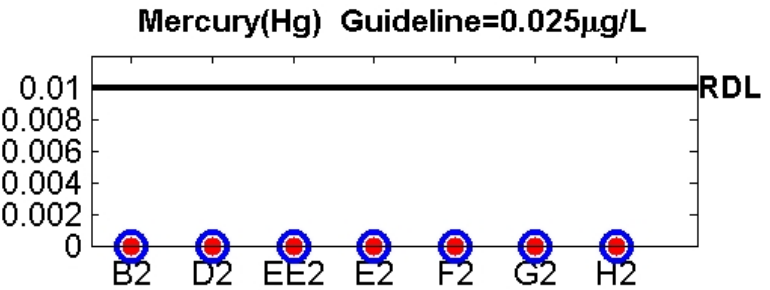
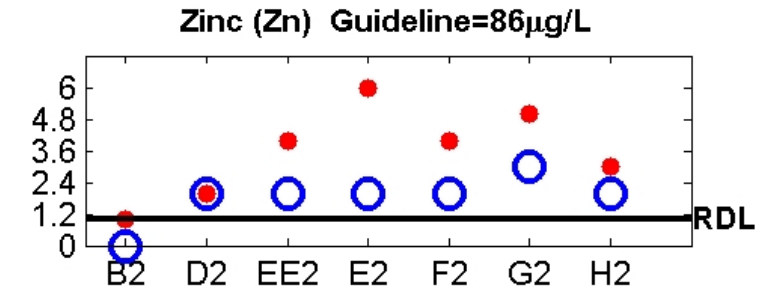
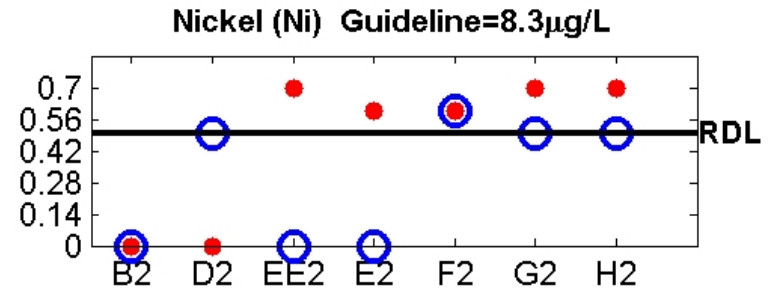
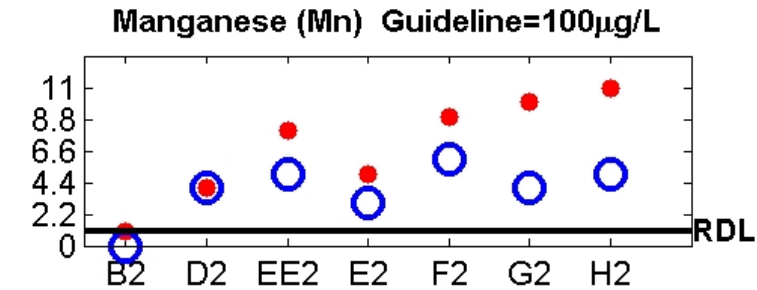
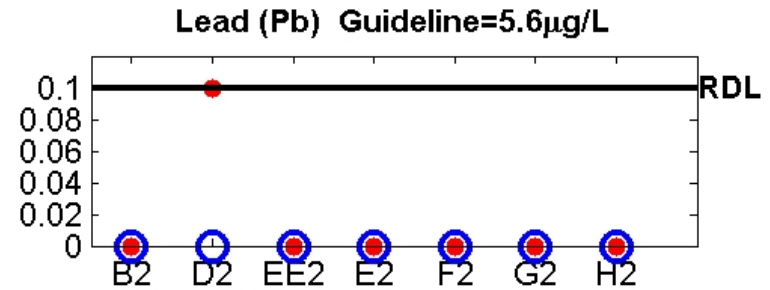
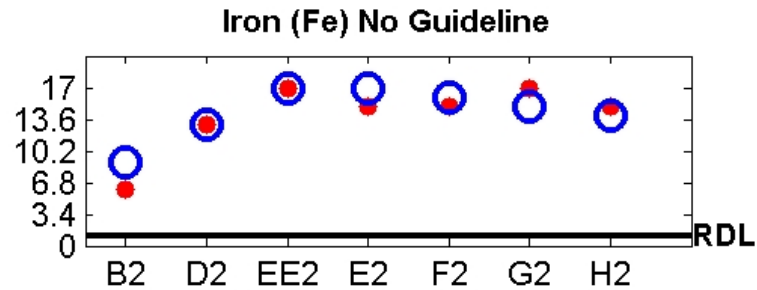
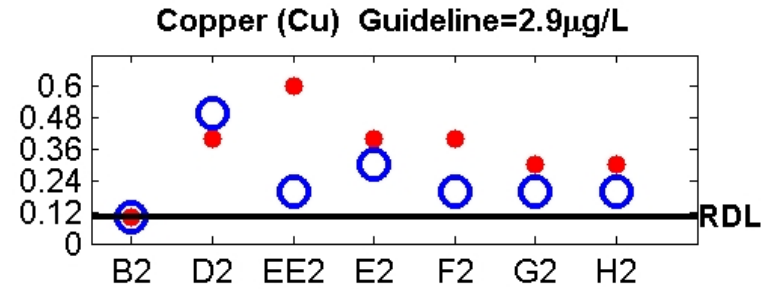
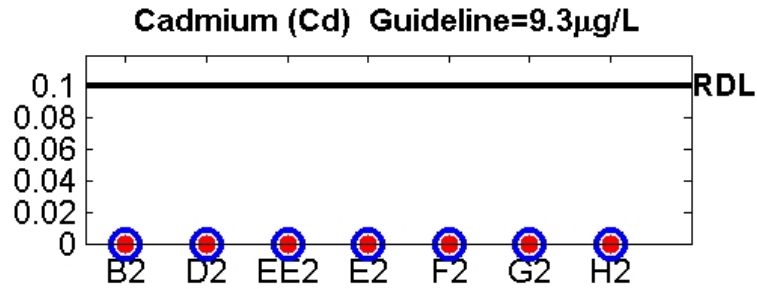
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Potential Density in kg/m^3

Ammonia in mg/L

TSS in mg/L

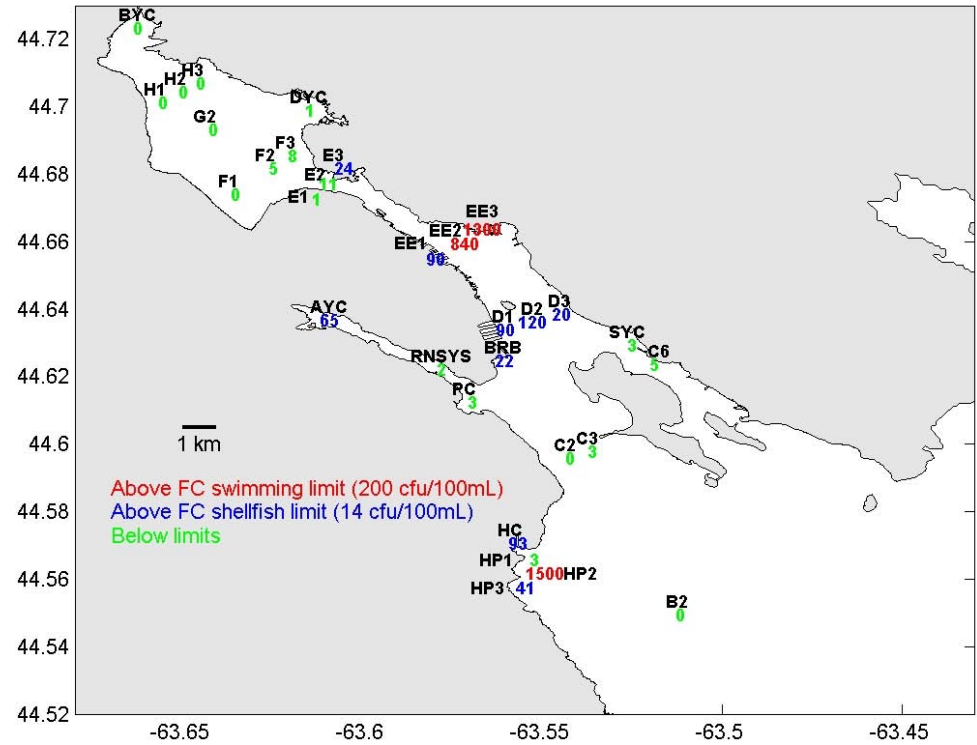




HRM Water Quality Monitoring

Fecal Coliform Summary – April 9, 2008

Fecal Coliform 1 m



Fecal Coliform 10 m

