



**GEOLOGICAL SURVEY OF CANADA
OPEN FILE 6229**

**Cruise Report Matthew 2008030 and 2008042
Bay of Fundy 17 September to 3 November 2008**



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Background	4
Vessel Characteristics	6
Survey procedures	6
Data Acquisition and Processing	7
Multibeam Bathymetry	7
Navigation and Attitude	7
OmniSTAR	8
Knudsen 320M echo sounder	8
ODIM Brooke Ocean Moving Vessel Profiler MVP-200	8
Tides and Currents	9
Access to Data and Samples	9
Acknowledgements	9
References	9
Appendices	11
Appendix I - Survey Particulars	11
List of Participants – Matthew 2008030 – 17 September to 8 October 2008	11
Canadian Hydrographic Service	11
List of Participants – Matthew 2008030 – 8 October to 3 November 2008	11
Canadian Hydrographic Service	11
Appendix II - Activities	12
17 September 2008 Wednesday - Day 261	12
18 September 2008 Thursday - Day 262	12
19 September 2008 Friday - Day 263 – depart Halifax	12
20 September 2008 Saturday - Day 264 – Bay of Fundy survey	12
(8hrs surveying Matthew) (Plover 0 hours) (Pipit 0 hrs)	12
21 September 2008 Sunday - Day 265 – Bay of Fundy survey 0 hours down	13
(24hrs surveying Matthew) (Plover 6 hours) (Pipit 0 hrs)	13
22 September 2008 Monday - Day 266 – Bay of Fundy survey 9 hours down	13
(15 hours surveying Matthew) (Plover 8 hours) (Pipit 8 hours)	13
23 September 2008 Tuesday - Day 267 – Bay of Fundy survey 14.5 hrs down	14
(9.5 hrs surveying Matthew) (Plover 10 hours) (Pipit 10 hrs)	14
24 September 2008 Wednesday - Day 268 24 hours down	15
(0hrs surveying Matthew) (Plover 0 hours) (Pipit 0 hrs)	15
25 September 2008 Thursday - Day 269 15 hours downtime	15
(9 hrs Surveying Matthew) (Plover 9 hours) (Pipit 9 hrs)	15
26 September 2008 Friday - Day 270 11 hrs down	16
(13 hrs surveying Matthew) (Plover 0 hours) (Pipit 4 hrs)	16
27 September 2008 Saturday - Day 271 3.5 hours down	16
00:00 Sounding resumes south of Anchorage area C off Saint John.	16
00:42 MVP cast to 90 m depth.	16
Appendix III - Predicted Tides for SaintJohn, NB	26
Appendix IV - Canadian Hydrographic Service weekly reports	29

Background

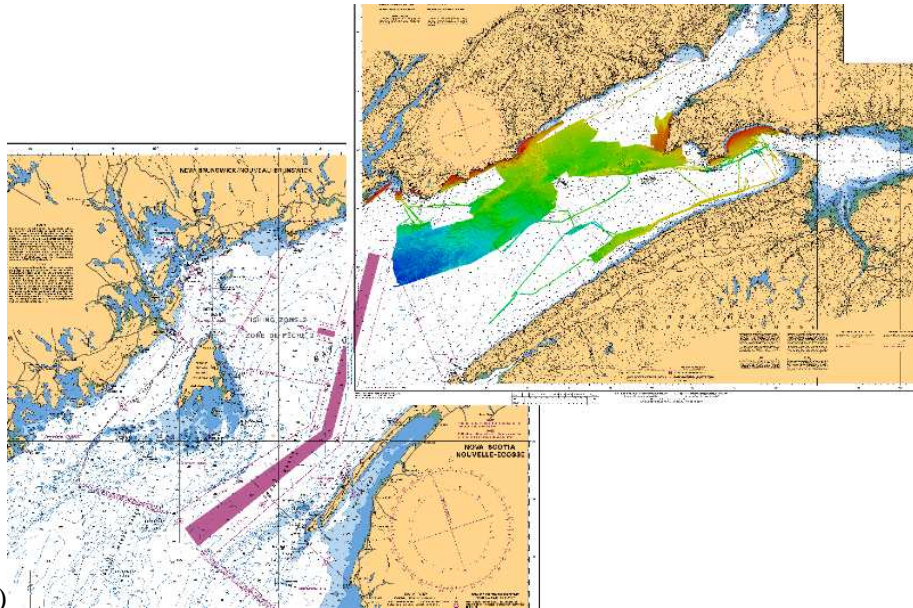
The Geological Survey of Canada (GSC), a division of Natural Resources Canada (NRCan), has initiated a project to produce a series of maps showing the bathymetry, seafloor backscatter, and surficial geology throughout the Bay of Fundy. Surveys Matthew 2008030 and 2008042, were conducted as a joint project between the Geological Survey of Canada and the Canadian Hydrographic Service of the Department of Fisheries and Oceans, Canada.

Matthew 2008030 was conducted from 17 September to 8 October 2008 and Matthew 2008042 was conducted from 8 October to 6 November 2008 using the *CCGS Matthew* (Figure 1). The vessel, equipped with a Kongsberg EM710 multibeam bathymetry system and a Knudsen 3.5 kHz sounder, collected multibeam bathymetry, multibeam backscatter and sub-bottom profiler data. The Matthew carried two hydrographic launches, each equipped with a Kongsberg EM3002 multibeam bathymetry systems, which were deployed for daytime operation. The vessel operated out of Saint John, NB and expanded on previous data collected throughout the Bay of Fundy, as shown in Figure 2. The surveys were designed to take advantage of previously collected data in the area. Selected areas were re-surveyed to determine if changes had occurred in the seafloor.

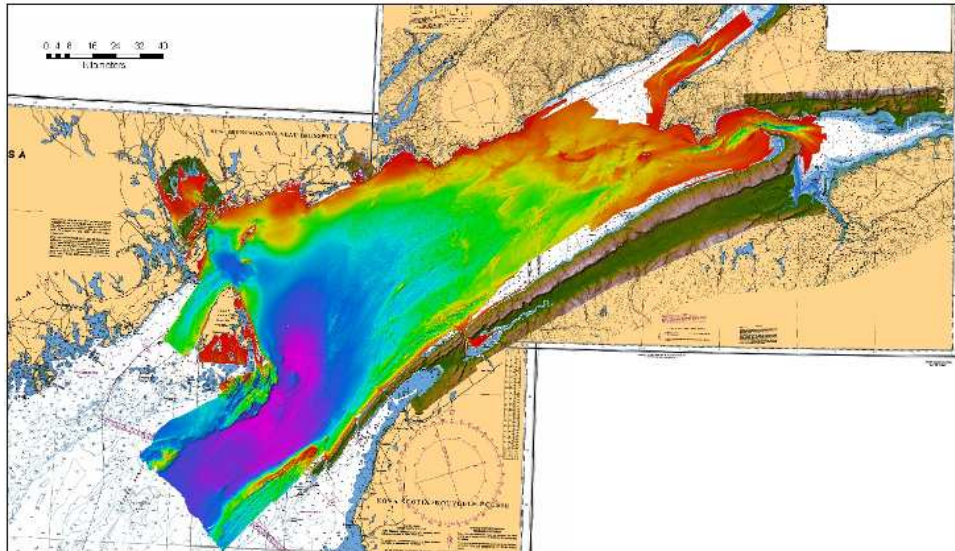
Previous surveys in the Bay of Fundy (Fader et al., 1977; Amos et al., 1992; Parrott et al., 2000, Parrott et al., 2007) have collected a variety of geophysical and multibeam bathymetry data, samples, and photographs. These data will be integrated with the multibeam bathymetry coverage from this survey to generate new surficial geology maps for the bay.



Figure 1. Multibeam bathymetry and sub-bottom profiler data were collected using the *CCGS Matthew* equipped with a Kongsberg EM710 multibeam bathymetry system and two hydrographic launches equipped with Kongsberg EM3002 multibeam bathymetry systems. Photo courtesy of J. Shaw.



a)



b)

Figure 2. a) Multibeam bathymetry coverage in the Bay of Fundy collected during Matthew 2008030 and 2008042. b) Compilation of all multibeam bathymetry coverage in the Bay of Fundy available to November 2008.

Vessel Characteristics

CCGS *Matthew* is an inshore hydrographic survey vessel with the following particulars:

Length overall	51.25 m
Breadth	10.50 m
Displacement (light)	745 tonnes
Displacement (loaded)	950 tonnes
Speed	12 knots
Range	4000 nautical miles
Crew	14 persons
Scientific staff	9 persons

The P-class hydrographic launches *Plover*, and *Pipit* can be deployed from the CCGS *Matthew* for operations away from a home port or can operate independently from a shore base. *Plover* and *Pipit* were equipped with Kongsberg Simrad EM3002 multibeam bathymetry systems.

Length overall	10 m
Breadth	3 m
Speed	12 knots
Crew	1 person
Scientific staff	1 person

Survey procedures

During this survey, the CCGS *Matthew* was used for multibeam bathymetry and sub-bottom profiler surveys. The systems consoles for the multibeam bathymetry and sub-bottom profiler were located on the bridge level, in the hydrographic control room. A data processing facility of work stations equipped with five Caris Hips licenses was established in the hydrographic plotting room. A central disk stored a backup copy of the raw multibeam bathymetry data, as well as the processed data. All computers and storage drives were connected by a high speed network. Staff generally divided their time between data acquisition and processing. The surveys were designed to take advantage of previously collected data in the area as shown in Figure 2. Selected areas were re-surveyed to determine if changes had occurred in the seafloor.

The launches, *Plover* and *Pipit* were carried aboard the *Matthew*, and deployed for daytime operations. Georeferenced images of existing coverage and areas to be surveyed were provided to the launches each morning. Areas to be surveyed were generally divided equally between the launches. When necessary the launches would exchange coverage plots at midday to ensure that the survey block was completely surveyed, with no unnecessary duplication.

Often, at the start of a survey block, the survey vessels would run a baseline along a preplanned course, along a contour line, or along the edge of existing coverage. The coverage plots, provided by the multibeam bathymetry logging systems, were then used to run a series of offset lines from the baseline, to ensure that all the seafloor was surveyed.

Variations in velocity of sound in the water column were determined at the start of each survey using a CTD (conductivity/temperature/depth) probe or SVP (sound velocity probe). The velocity casts were

repeated as required throughout the survey to reduce the effects of artifacts observed changes on the multibeam bathymetry data.

Data Acquisition and Processing

The following equipment and software was used during surveys Matthew 2008030 and 2008042:

- Kongsberg EM710 and EM3002 multibeam bathymetry systems
- Knudsen 320M echo sounder
- ODIM Brooke Ocean MVP-200 (Moving Vessel Profiler)
- CARIS HIPS multibeam bathymetry data cleaning software running on Windows XP

Multibeam Bathymetry

The Kongsberg EM710 system on the CCGS *Matthew*, uses a 70 to 100 kHz transducer with 256 or 400 beams typically set to a beam footprint of $1^\circ \times 1^\circ$. The system is capable of sounding to depths in excess of 2000 metres, and across-track coverage of up to 5.5 times water depth. Information on the multibeam bathymetry systems can currently be found on the company website at <http://www.kongsberg.com>.

Multibeam bathymetric data were also collected using Kongsberg EM3002 multibeam bathymetry systems mounted in the hydrographic survey launches *Plover* and *Pipit* (Figure 1b). The EM3002 systems use 300kHz transducers with 254 beams with a maximum angular coverage of 130 degrees. The system provides a depth resolution of 1 cm with an accuracy of 5 cm RMS in shallow water.

Survey lines were run to provide overlapping swaths with the previous line with 120% to 200% percent coverage of the seafloor. The multibeam swath width was set at the maximum allowable angle by the conditions at the time of the survey. Generally beam angles of 60-70 degrees either side of nadir were used. The multibeam bathymetry coverage is shown in Figure 2.

During the survey, data were processed using versions 6.0 and 6.1 of the CARIS HIPS data cleaning program (by CARIS, Fredericton, NB) on Windows XP workstations to remove spurious soundings and navigation data and to apply the OmniStar HP (High Precision) which yields difference in elevation of GPS antenna from the ellipsoid. These values (different file for each platform/each day), when processed with a known separation from chart datum derives the tidal corrections for each platform's sounding data. Short term changes in height, due to waves, are logged separately from the POS-MV motion compensation system (the TrueHeave signal) and are applied in post-processing. CARIS HIPS was also used to grid survey lines after they were completed to check data quality especially for motion and refraction artifacts. 5-metre and 10-metre grids were constructed using the "swath-angle" option for weighting soundings in the gridding process. The colour coding of depths generally set for a 0-225 metre range, illuminated from an azimuth of 315 degrees and at an angle of 45 degrees. A vertical exaggeration of 10 was applied to the data.

Navigation and Attitude

Each vessel used an Applied Analytics Corporation POS-MV 320 attitude sensing system with integrated differential GPS navigation system to determine the position and attitude. The systems integrate data from an inertial measurement unit and differential GPS signals. A positional accuracy of 0.5 to 4 metres can be obtained using the phase differential of the GPS carrier frequency when using DGPS, and of 0.02-0.10 metres when using an RTK source. This survey was performed using DGPS data for an accuracy of 0.5 to 4 metres. A heading, with an accuracy of 0.5 degrees is obtained from

the GAMS (GPS phase comparison) module of the POS-MV.
More information on this system can be found at www.applanix.com.

OmniSTAR

With recent advancements in GPS positioning precision, a vessel's height above mean sea level can be determined for any point during transit. The multibeam bathymetry data collected during this survey were corrected for tidal heights using OmniSTAR HP (High Precision), a wide-area differential GPS service provided by the Fugro group of companies. More information is available at www.omnistar.com.

Knudsen 320M echo sounder

Sub-bottom profiler data were collected with a Knudsen 320M sounder operating a four element 3.5 kHz transducer array installed on a ram near the keel, on the starboard side of the Matthew. More information on the sounder is available on the company website at <http://www.knudsenengineering.com/ASP/Products/Products.asp>. Data were stored in KEB (Knudsen Extended Binary) and SEG-Y formats and viewed using the Knudsen PostSurvey program available. Information of the format and the program are available at <http://www.knudsenengineering.com/ASP/Support/Download.asp>.

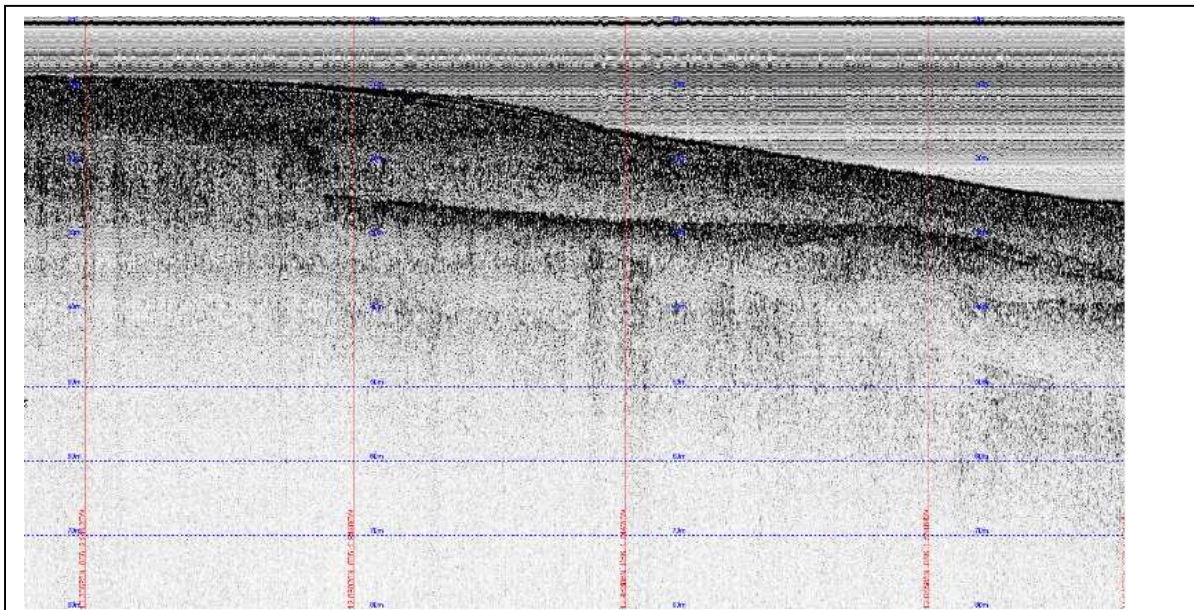


Figure 3. Sub-bottom profile, of the approach to Saint John Harbour, of 3.5 kHz data collected with the Knudsen 320B sounder. The horizontal lines are spaced at 10 metres, and the vertical lines have about 250 m spacing.

The timestamp in the headers of the data recorded by the Knudsen echo sounder was synchronized to UTC using the NMEA ZDA string output from the POS-MV. The PC clock on the recording computer was manually synchronized to GPS time.

ODIM Brooke Ocean Moving Vessel Profiler MVP-200

Measurements of the velocity of sound in the water column were made with an ODIM Brooke Ocean Moving Vessel Profiler MVP-200 equipped with Applied Microsystems Limited CTD & SVP probes (Smart Probes). The data are used to correct the Kongsberg EM710 multibeam bathymetry data for variations in sound velocity in the water column. More information on the MVP is available at <http://www.brooke-ocean.com> and for the Smart Probes at <http://www.appliedmicrosystems.com>.

Tides and Currents

Bathymetry surveys in the Bay of Fundy must accommodate the largest recorded tides in the world. Prior to the survey, tides and currents for the survey area were calculated using the program Tides and Currents Pro by Nautical Software Inc. As shown in Appendix III, a tidal range of about 10 metres was predicted for Saint John, NB, during the period of the 2008 survey. Times are shown in Atlantic Daylight Time and tide heights are shown in centimetres. Tides were also calculated using the program WebTides, developed by the federal Department of Fisheries and Oceans (DFO), and used in post-processing to provide comparison for the real time GPS corrections. The program is available from the DFO website at

http://www.mar.dfo-mpo.gc.ca/science/ocean/coastal_hydrodynamics/WebTide/webtide.html.

For the duration of the survey, tide gauges were installed at various locations in the upper Bay of Fundy, in addition to the permanent gauge located in Saint John, NB. Data were also downloaded from the gauge in Eastport, Maine, USA.

For the Minas Passage survey, tide gauges were installed at Cape Sharp, Cape Split, Blomidon, Spencers Island and Port Greville to provide a 1-2 month record of tidal elevations in the restricted waters of the passage. The gauges at Cape Sharp and Spencers Island were left in place to provide a long term record.

Access to Data and Samples

The multibeam bathymetry and sub-bottom profiler data collected during this survey are archived by both the Canadian Hydrographic Service and the Geological Survey of Canada, Atlantic, in Dartmouth Nova Scotia. For access to the data and samples contact the senior scientist for the survey, Russell Parrott (902-426-7059) or Susan Merchant of the GSCA Curation group (902-426-3410). Data can be accessed by logging on to the Geological Survey of Canada Atlantic site at <http://gsca.nrcan.gc.ca> and the Canadian Geoscience Knowledge Network <http://cgkn.net/>.

Acknowledgements

The captains and crews of the CCGS *Matthew* provided valuable assistance with data collection. This project was jointly funded by Natural Resources Canada through the Geoscience for Ocean Management program of the Earth Sciences Sector, and the Canadian Hydrographic Service –Atlantic Region, of the Department of Fisheries and Oceans Canada. XXX reviewed the manuscript.

References

Amos, C.L., Atkinson, A., Daborn, G.R. and Robertson, A. 1992. The nature of the erosion of fine-grained sediment deposits in the Bay of Fundy. *Marine Geology*, 108: 175-196.

Applied Microsystems velocimeter at <http://www.appliedmicrosystems.com>.

Brooke Ocean Engineering Moving Vessel Profiler <http://www.brookeocean.com> and for the

Canadian Geoscience Knowledge Network internet site at <http://cgkn.net/>

CARIS HIPS hydrographic data cleaning software, CARIS, 264 Rookwood Avenue Fredericton, New Brunswick, CANADA, E3B 2M2. <http://www.caris.com>

Fader, G. B. J., King, L. H. and MacLean, B., 1977 Surficial geology of the eastern Gulf of Maine and the Bay of Fundy. Geological Survey of Canada paper 76-17, 23 p

Geological Survey of Canada Atlantic internet site at <http://gsca.nrcan.gc.ca>

GRASS GIS (Geographical Resources Analysis Support System) Geographical Information System (GIS) <http://grass.baylor.edu/>

Knudsen Engineering Ltd. PostSurvey software version 1.43 available at <http://www.knudsenengineering.com/ASP/Products/Products.asp>

Nautical Software Inc, Tides and Currents 4.2, <http://www.tides.com>

Parrott, D.R, Cranston, R., and M.E. Parsons. 2000. Cruise Matthew 2000063 Geophysical Surveys and Sampling Operations in Saint John, NB, 21-29 October 2000. Geological Survey of Canada Open File Number 5043.

Parrott, D.R, Duffy, G., Girouard, P., Hayward, S. Patton, E., MacGowan, B., Rodger, G., Sabadash, K. and Smith A. Cruise Report Creed IML 2006-030, Bay of Fundy, 12 June – 17 August 2006. Geological Survey of Canada Open File Number 5584.

Shaw, J., Courtney, R.C., Fader, G.B., Parrott, D.R., Taylor, R.B., and Hughes-Clarke, J.E. 1997: Application of multibeam bathymetry to sea-level studies in Atlantic Canada. Proceedings, Canadian Coastal Conference 1997, Guelph, Ont. p. 350-359.

Shaw, J., Gareau, P., and Courtney, R.C., 2002. Paleogeography of Atlantic Canada 13-0 kyr. Quaternary Science Reviews, v. 21, no. 16-17, p. 1861-1878.

Appendices

Appendix I - Survey Particulars

Name of Vessel:	CCGS <i>Matthew</i>
Dates:	12 September 2008 – 4 November 2008
Vessel captains:	Brian Gibbons, Dave Harding
Area of Operation:	Bay of Fundy
Senior Scientist:	Russell Parrott
Senior Hydrographers:	Jon Griffin, Michael Lamplugh

List of Participants – Matthew 2008030 – 17 September to 8 October 2008

Geological Survey of Canada Atlantic

Russell Parrott	Senior Scientist
Scott Hayward	GIS, navigation, multibeam bathymetry
Eric Patton	GIS, navigation, multibeam bathymetry

Canadian Hydrographic Service

Jon Griffin	Senior Hydrographer
Andrew Craft	Hydrographer
Michael Collins	Hydrographer
Steve Nunn	Hydrographer
David Levy	Electronics

Department of National Defence

Gerard Arsenault	Multibeam bathymetry
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List of Participants – Matthew 2008030 – 8 October to 3 November 2008

Geological Survey of Canada Atlantic

Russell Parrott	Senior Scientist
Darrell Beaver	GIS, navigation, multibeam bathymetry
Paul Fraser	GIS, navigation, multibeam bathymetry

Canadian Hydrographic Service

Michael Lamplugh	Senior Hydrographer
Glenn Rodger	Hydrographer
Andrew Craft	Hydrographer
Andrew Smith	Hydrographer
Gerry Dease	Electronics

Department of National Defence

Chris Doiron	Multibeam bathymetry
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Appendix II - Activities

All times are shown in UTC Universal Coordinate Time (Atlantic Daylight Savings Time + 3 hr).

17 September 2008 Wednesday - Day 261

CCGS *Matthew* in transit from Sydney to Halifax, NS.

18 September 2008 Thursday - Day 262

- 12:00 CCGS *Matthew* arrives at Bedford Institute of Oceanography (BIO) facilities in Halifax. Problems are reported with the fire pump in the engine room on the *Matthew* and with the cooling pump for the generator on the *Plover*.
- 12:30 R. Parrott arrives at the vessel and requests that the Free Fall Cone Penetrometer be retrieved from the Diving Stores locker.
- 14:00 G. Sonnichsen, S. Hayward and R. Parrott unpack the FFCPT, set up the system and run some preliminary tests. Problems are encountered with 2-way communication with the probe.
- 15:00 P. Pledge arrives with software for the USB-to-serial adapter. Communication with the FFCPT probe was successful when the Flow Control was changed from 'Hardware' to 'None'.
- 17:00 S. Parsons (CHS) arrives on *Matthew*. Calls are made to the service provider and OmniStar licenses are activated for the CCGS *Matthew*, and launches *Pipit* and *Plover*.
- 20:00 OmniStar installation and testing continues.
Vessel departure delayed.

19 September 2008 Friday - Day 263 – depart Halifax

- 08:00 A crew member is taken to local hospital with chest pain. Vessel departure delayed.
- 11:00 The OmniStar system was checked and found to be operational. Problems still exist with the Knudsen 3.5 kHz sub-bottom profiler. The computer does not recognize the sounder and reports problems with the SCSI interface.
- 12:00 J. Green troubleshoots the Knudsen system and determined that the problem with the Knudsen sounder was caused by a fault with the SCSI card. The Knudsen controller and the computer were both turned off. The Knudsen controller was then restarted, and after about one minute the computer restarted. A script was run to enable operation over the network.
- 15:00 Crew member is still under observation at the hospital. Vessel departure delayed.
- 19:00 Crew member returns to the vessel and prepares to sign off.
- 20:00 Recover launch *Plover* and secure.
- 21:00 Depart BIO. Recover the launch *Plover* and secure. Transit to the Pennant Point survey site near the Halifax Harbour entrance.
- 23:00 Moving Vessel Profiles (MVP) cast to collect water column velocity data near the survey site
- 23:30 Start of survey grid using Kongsberg EM710 and Knudsen 3.5 kHz sub-bottom profiler. Knudsen parameters are gain 20, power level 1, ping rate 250 ms, 50 m display, autotracking
- 23:59 Continue with soundings.

20 September 2008 Saturday - Day 264 – Bay of Fundy survey

(8hrs surveying *Matthew*) (*Plover* 0 hours) (*Pipit* 0 hrs)

- 00:00 Continue with soundings.
- 02:30 End of site survey near Pennant Point Halifax. Sounders turned off for transit.
- 11:00 In transit to Bay of Fundy. Start processing of Pennant Point data.
- 16:00 Start of lead-in line to the Bay of Fundy survey, building on the line connecting two previous surveys on German Bank and the Bay of Fundy. Full water column data being logged.
CARIS HIPS project started in preparation for new Bay of Fundy .
- 16:16 MVP cast and start line leading into Bay of Fundy.

- 20:42 End of line near Brier Island. Start cross line connecting previous multibeam bathymetry surveys. This line will provide the vertical reference for the previous surveys on the Creed, launches and previous Matthew surveys.
Background images for Regulus generated to provide previous coverage to helmsman.
- 23:30 Multibeam bathymetry data from survey Creed IML2008030 copied to CHS disk drives.

**21 September 2008 Sunday - Day 265 – Bay of Fundy survey 0 hours down
(24hrs surveying Matthew) (Plover 6 hours) (Pipit 0 hrs)**

- 00:00 Continue with soundings.
- 00:40 MVP cast prior to start of new grid lines.
- 00:48 Start of new coverage in centre of Bay of Fundy. Still logging water column data to provide a long transect from Yarmouth to the centre of the Bay of Fundy. A series of lines will be run to provide multibeam bathymetry coverage in the centre of the bay from Saint John to Quaco Ledge.
- 01:30 Start backup of all data on GSCARAID to 500 GByte disk system as a safeguard for the previously collected data.
- 03:40 Turn off water column logging on EM710.
- 10:00 Continuing survey. Winds WSW 15, light seas and clear with a temperature of 15° C.
- 11:02 MVP cast.
Experiment with the overlap required to get optimum coverage and yet retain good quality data in the outer beams of the multibeam system. A smaller overlap increases coverage, but required much more diligence by the helmsman to keep the vessel on line.
- 15:25 Launch *Plover* deployed for soundings near and over Quaco Ledge.
- 15:45 *Plover* back alongside to change monitor on Regulus navigation system.
- 15:52 *Plover* deployed and *Matthew* starts survey line away from site.
- 17:40 EOL. Start line back towards launch *Plover* at Quaco Ledge.
- 18:30 Alter course to fill hole in coverage.
- 18:50 Start line SW away from Quaco Ledge.
- 20:15 EOL. Start line back towards launch *Plover* at Quaco Ledge.
- 20:30 MVP cast.
- 20:37 15 m high feature on sub-bottom profiler, with stratified sediments overlying the base of the feature. Little or no stratified sediments present on top of feature at 70 m depth.
- 21:30 15 m of stratified sediments over undulating surface.
- 21:45 Offline to recover launch.
- 22:30 Problems encountered with the SIS display. The coverage display disappears on an irregular basis.
- 23:15 SIS system restarted. Some grids removed to allow helmsmen to steer coverage. System Re-started unsuccessfully. HIC advises to delete all present project lines and coverages of Bay of Fundy Project (Not including Raw Files). A new SIS project is started and the sounder and SIS computer are rebooted. This is apparently a problem unique to the EM-710 – SIS interface.

**22 September 2008 Monday - Day 266 – Bay of Fundy survey 9 hours down
(15 hours surveying Matthew) (Plover 8 hours) (Pipit 8 hours)**

- 00:00 Continue with soundings.
- 07:58 Break survey line to transit to Saint John and take on water. Recover transducer ram. We have been informed that the vessel cannot make water north of Brier Island, in the Bay of Fundy and that we will be returning to port every 2 days to take on water. Operations at the head of the Bay of Fundy are not feasible under these conditions due to the transit times required.
- 10:10 Secure at the Coast Guard base in Saint John and taking on water.

- 12:00 Depart the Coast Guard base in Saint John and return to the survey site. Winds WSW 15, light seas and clear with a temperature of 15° C.
- 12:50 During the transit back to the work area, the ram was lowered to enable use of the Knudsen and the water column signal on the EM710 was logged while performing a series of MVP casts.
- 14:00 Recover MVP.
- 14:10 After a break of six hours in the survey operations to take on water, the launches *Plover* and *Pipit* were deployed for near shore surveys East of Cape Spencer. *Matthew* to survey centre block 5 miles to the SE.
- 14:30 Take draft measurement after launches have been deployed from the *Matthew*. Draft 4.02 m. Start transit to survey area. Soundings collected for calibration of earlier surveys.
- 14:48 Start survey lines off Tynemouth Creek.
- 18:10 Circle to fill hole in coverage.
- 18:40 MVP cast.
- 20:02 Circle to fill hole in coverage.
- 20:10 Back on line.
- 22:25 Picking up Launch *Pipit*.
- 22:42 Picking up Launch *Plover*.
- 22:50 Start tie-line to survey area.
- 22:55 MVP cast.
- 23:10 Recover MVP. Continue with soundings.

**23 September 2008 Tuesday - Day 267 – Bay of Fundy survey 14.5 hrs down
(9.5 hrs surveying *Matthew*) (*Plover* 10 hours) (*Pipit* 10 hrs)**

- 00:00 Continue with soundings.
- 10:00 Alter course to run tie-line to launch drop off point.
- 10:20 Sounders off to deploy launches. Winds NE 15, light seas and clear with a temperature of 7° C.
- 10:25 Launches *Plover* and *Pipit* deployed.
- 10:55 Sounders on for transit to survey site.
- 11:12 Continue with a series of NE-SW lines about 45 minutes long.
- 11:20 MVP cast.
Water consumption on the vessel had increased during the first 24 hours after taking on water on Monday. The engineer has concerns that the tanks could be drawn down to the point that a vacuum could occur, resulting in air in the pipes. Rumour has it that this would take about ½ day to remedy. The vessel must return to Saint John tonight to take on additional water.
- 13:35 Alter course to fill in an area and allow straighter lines to be run.
- 14:02 Alter course to run next line.
- 15:10 Alter course to run next line
- 16:25 Alter course to run next line.
- 17:14 Re-run sections of 2 lines which had experienced problems receiving the OmniStar corrections.
- 17:50 Re-run 2nd section of line.
- 18:30 Other sections of line have subsequently been found with troublesome OmniStar corrections. These will be re-run also. The altitude value displayed in the POS-MV display will be monitored, and a new line started if a change in the altitude is detected.
- 19:25 End of re-run lines. Return to regular survey.
- 21:30 End of line to recover launches.
- 21:42 *Pipit* on board.
- 21:50 *Plover* on board.
- 21:55 En route Saint John to take on water. The sounders are off since we are transiting over previously surveyed areas.

23:55 Lower the launch *Plover* to enable her crew to catch lines for the *Matthew*. The *Plover* will then tie alongside the *Matthew* and which will leave her available to operate in Saint John Harbour tomorrow.

**24 September 2008 Wednesday - Day 268 24 hours down
(0hrs surveying Matthew) (Plover 0 hours) (Pipit 0 hrs)**

- 00:15 Secure at the Coast Guard Base in Saint John to take on fresh water.
The vessel will now wait for approximately 24 hours for a crew member scheduled to arrive around supertime (Wednesday) and then depart on the high tide. There was an opportunity for the *Matthew* to return to sea after taking on water and continue with the survey, but we were informed that the vessel would have to return to port within 12 hours (10 AM local time) to take advantage of the tide while berthing. With the 3 hours (each way) required to transit to and from the survey site, about only 4 to 6 hours would be available for the survey. Apparently the captain has decided that the *CCGS Matthew* can only tie up at the Coast Guard base in Saint John at a certain phase of the tide (about an hour before or an hour after high tide) and can not berth during the other phases of the tide. Apparently the crew member cannot be scheduled to time his arrival with this phase of the tide later in the day (10 PM local) nor can he be asked to wait. None of these factors appear to be open for negotiation. The vessel will now wait for 24 hours for the crew member.
- 10:30 Launches *Plover* and *Pipit* deployed. *Pipit* will survey the Black Point offshore disposal site. *Plover* will survey near Manawagonish Island. These are low priority targets for survey, but are the only areas that we can reach while the *Matthew* remains tied alongside in Saint John. Light winds, no seas and clear with a temperature of 17° C - a perfect survey day.
- 11:30 *Plover* returns to the *Matthew* due to problems with the OmniStar system. The problem was diagnosed as a change in the port used to communicate with the system which had changed from COM1 to COM5 for no apparent reason.
- 12:00 Problems were then encountered with the starter with the *Plover*. The relay solenoid was changed which appears to have fixed the problem.
- 12:15 The FFCPT was prepared to return to BIO. Under the current operating conditions (having to return to Saint John every 36-48 hours) all available time will be dedicated to the multibeam bathymetry survey.
- 13:20 The cook arrives with more groceries and a chain gang is formed to get them to the galley.
- 16:30 E. Patton arrives with GSC-A vehicle from BIO. Parrott disembarks and drives truck back to BIO. *Matthew* waits for crew member to arrive.
- 18:45 Jonathan Beaudoin and 6 students from the Ocean Mapping Group at the University of New Brunswick arrive for a tour of the vessel. After the tour the students were treated to supper in the galley.
- 22:30 UNB group departs. *Matthew* waits for slack tide to depart Saint John.

**25 September 2008 Thursday - Day 269 15 hours downtime
(9 hrs Surveying Matthew) (Plover 9 hours) (Pipit 9 hrs)**

- 00:59 *Matthew* departs Saint John for transit to survey site.
- 01:43 Started logging Knudsen.
- 02:00 Beam spacing in SIS changed from Hi-density Equidistant to regular Equidistant. 400 beams to 200 beams.
- 02:22 MVP Cast; started logging SIS.
- 02:50 A Medical Emergency has occurred with the head cook. *Matthew* is returning to Saint John.
- 03:00 All deck personnel and officers alerted to emergency.
- 03:50 FRC launched to catch ropes for tie up.

- 04:10 Emergency Personnel aboard to assess situation.
- 13:00 Depart Saint John with the cook back on board after being released from the hospital.
- 13:30 Launches *Pipit* and *Plover* deployed.
- 14:00 Sounding resumes south of Cape Spencer.
- 16:02 MVP Cast.
- 22:10 Launches recovered and fueled.
- 22:30 Resuming survey using *CCGS Matthew*.

**26 September 2008 Friday - Day 270 11 hrs down
(13 hrs surveying Matthew) (Plover 0 hours) (Pipit 4 hrs)**

- 02:15 Slowing down to accommodate scallop vessels in the area.
- 13:22 Breaking off of survey line to avoid tankers in anchorage at LNG terminal.
- 13:31 Pulling up ram; stopped logging Knudsen.
- 13:33 Stopped logging SIS. The *CCGS Matthew* is heading to Saint John to take on fuel. It is most unfortunate that the fuel could not have been loaded while the vessel was at dockside 2 days earlier waiting for the crew member.
- 14:30 Tied up in Saint John awaiting fuel.
- 15:15 Taking on fuel and water in Saint John. The loading of the fuel took longer than had been hoped and the slack-water tide window was missed by 15 minutes. The Captain would not depart the dock until the next slack tide.
- 17:30 Deploying *Pipit*; Patton aboard for observation. Still tied up in Saint John
- 23:25 *Matthew* departing Saint John for Survey area.

27 September 2008 Saturday - Day 271 3.5 hours down

- 00:00 Sounding resumes south of Anchorage area C off Saint John.
- 00:42 MVP cast to 90 m depth.
- 09:42 Break survey line to transit to launch drop point.
- 11:00 Launches deployed to resume survey operations near West Bay.
- 11:26 MVP cast en route to new survey area northeast of Honeycomb Point.
- 11:35 SOL in new survey area; running NE-SW lines, 15 miles long, approx. 1 mile southeast of Quaco Head.
- 14:45 EOL. Surveyed southwest into existing coverage; steaming to pick up launch *Plover* as it is having problems with its SIS computer.
- 14:37 *Plover* retrieved and on board.
- 15:15 *Plover* redeployed after fixing the computer.
- 15:35 Steaming back to survey area near Quaco Head.
- 15:44 Resuming survey, back on line.
- 19:57 Completed surveying a half line to the northeast; turning around to survey back to the southwest to meet the launches at a pickup point.
- 22:40 End of survey. A storm is predicted for Sunday in the Bay of Fundy and the captain wants to be back at Saint John for 21:00. Beginning transit to Saint John Harbour over redundant coverage.
- 21:30 *Matthew* secured at Coast Guard Base.

28 September 2008 Sunday – Day 272 24 hours down

The *Matthew* and launches remain tied up all day in Saint John in preparation for the passing of Tropical Storm Kyle.

29 September 2008 Monday – Day 273 24 hours down

- 12:00 *Pipit* launched from Coast Guard base to continue surveying the Black Point disposal site area; *Matthew* remains tied up as sea swell out in the Bay is about 3m.
- 13:15 *Plover* launched from *Matthew* to continue surveying in Saint John Harbour.
- 16:00 Tied up Coast Guard Base Saint John, awaiting hydraulic parts for crane
- 22:00 Both launches back from harbour survey. Launch *Pipit* on board

30 September 2008 Tuesday – Day 274

- 01:15 *Matthew* departing Coast Guard Base Saint John
- 01:23 *Plover* on board
- 02:10 Transit to survey area in central Bay of Fundy.
- 02:48 MVP cast.
- 09:56 Break line to transit to launch drop point.
- 10:27 EOL. Stopped logging Knudsen and multibeam bathymetry. Deploying launches for survey work near Quaco Head.
- 10:40 Launches *Plover* and *Pipit* deployed to work in the near shore. *Plover* having Omnistar problems again. Tech called.
- 11:00 *Plover* away.
- 11:20 *Plover* back onboard with electrical problems. The Chief Engineer was called to diagnose and fix the problem.
- 11:25 *Plover* away.
- 11:35 MVP cast.
- 12:00 Working lines NE-SW off Honeycomb point.
- 22:20 Stopped logging instruments; picking up launches.
- 22:41 Launches on board.
- 22:54 Coming back on line to resume survey along NB coast.
- 22:55 MVP cast.

1 October 2008 Wed – Day 275

- 06:44 Break line in order to transit to the drop off point for the launches.
- 10:50 *Plover* and *Pipit* deployed; launches are working south of the entrance to Saint John Harbour.
- 11:26 MVP Cast.
- 16:36 EOL. Stopping to pick up data from the launches.
- 16:56 Picked up data. Launches and *Matthew* resuming respective surveys.
- 17:19 EOL. *Matthew* returning to Saint John to fill up water tank. Stopped logging all instruments.
- 18:30 Tied up Saint John to take on water.
- 19:50 *Matthew* departs Coast Guard Base to resume survey operations.
- 19:55 FRC onboard.
- 22:30 Launches onboard, heading back to Quaco Point for night survey

2 October 2008 Thursday – Day 276 9.5 hours down

- 00:22 MVP cast to 55m.
- 10:45 Launches deployed southeast of Quaco Head. Sea state 1m, winds 10-15 knots
- 11:08 MVP cast.
- 11:15 *Plover* coming back alongside *Matthew*; problems with coolant hose.
- 11:35 *Plover* on board.
- 11:55 Resuming survey line, heading southwest.
- 12:55 Turning off line to pick up *Pipit*. Weather is degrading. Winds ~ 25 knots.
- 13:05 *Pipit* back on board,
- 13:15 Steaming back to recover line.

- 16:59 The outer 30-40% of the beams are being chopped off in this 2m swell. Cutting beams back to 60/60. Matthew speed reduced to 8 knots.
- 17:30 EOL. Weather is pretty bad. Stopped logging instruments. Heading into Saint John.
- 19:15 Waiting outside harbour waiting for a cruise ship to clear the entrance.
- 20:15 Secure at Saint John Coast Guard Base.

3 October 2008 Friday – Day 277 24 hours down

Secure at Saint John Coast Guard Base all day. Weather too windy to survey; swell 2-3m.

4 October 2008 Saturday – Day 278 24 hours down

Secure at Saint John Coast Guard Base all day. Weather too windy to survey; swell ~2m.

5 October 2008 Sunday – Day 279 7 hours down

- 10:05 Depart Saint John Coast guard base en route to survey area along northeast coast of New Brunswick. Seas are still 1-2m, and no launches will be deployed today.
- 12:41 MVP cast, 56m.
- 12:59 SOL surveying along coast of New Brunswick off of Honeycomb Point.
- 13:26 EOL; there are problems with the Omnistar CPU. An error message was displayed showing a “buffer overflow”. Stopped logging Sis and Knudsen on the current line, and the Matthew is coming around on a slow, lazy turn while the Ship’s Tech and HIC troubleshoot the problem.
- 13:56 No longer logging Omnistar due to problems with computer. The ship has come back around to the line, and have resumed logging Knudsen and Sis.
- 17:22 Arrr, she blew an oil line on the port engine, by’! Stopped logging Sis and Knudsen. The *Matthew* is going to go off the line while engineering crew make repairs.
- 17:52 Engine oil line repaired. Back on line. Logging Sis and Knudsen.
- 22:00 HIC gets Omnistar up and running again; resuming logging.

6 October 2008 Monday – Day 280

- 10:30 Coming off of line to deploy launches. They will be working in the Quaco Head area.
- 10:39 *Plover* deployed.
- 10:44 *Pipit* deployed.
- 11:06 MVP cast and resume survey.
- 20:17 Offline to recover of *Pipit*.
- 20:48 Offline headed for Saint John.

7 October 2008 Tuesday – Day 281

Tied up Saint John Coast Guard Base all day. Weather too windy to survey; swell 2-3m. E. Paton and S. Hayward rent a vehicle and return to Halifax.

8 October 2008 Wednesday – Day 282 – Crew change in Saint John

Crew Change Day.

D. Beaver and P. Fraser drive to Saint John in rental car.

- 22:00 The *Matthew* sails from Saint John. The *Matthew* will drift through the night and start data collection in the morning.

9 October 2008 Thursday – Day 283

- 10:00 Deploy launches near Quaco Head where they will work for the day. *Matthew* will spend the day nearby to work on filling in the data coverage.
- 12:20 MVP cast

- 12:30 Start collecting multibeam data
- 14:07 Slow down at end of line to lower 3.5 kHz ram and start logging sub bottom data.
- 20:15 Pick up launches. *Matthew* will spend the night surveying in deeper water off Saint John to fill in the data coverage. Started logging true heave after problem communicating with POS MV was resolved. The solution was to disconnect both machines from the ship's network and connect them directly via an internet cable with a crossover.

10 October 2008 Friday – Day 284

- 00:01 Continue with survey.
- 10:30 Deploy launches near Quaco Head where they will work for the day. *Matthew* will survey off St. Martins for the day.
- 10:55 Launches away.
- 11:17 MVP cast.
- 11:24 Start collecting multibeam to fill in a hole from yesterday's coverage and then continue with the regular survey.
- 11:28 MVP in auto deploy mode at 1 minute intervals
- 11:54 Generator problems on launch *Pipit*. *Matthew* will survey toward *Pipit* for pickup.
- 13:10 *Pipit* secured on board
- 14:30 Resume surveying. *Pipit* repairs complete.
- 19:35 Stop logging multibeam. Transit to pick up launches.

11 October 2008 Saturday – Day 285

- 00:01 Continue with survey.
- 10:30 Deploy launches near Quaco Head where they will work for the day. *Matthew* will survey off St. Martins while the launches are operational.
- 11:10 MVP cast.
- 11:22 Start surveying off St. Martins. Wind from West (10 – 15 kts). Sea less than 1 m. Visibility good with air temp. of 10° C.
- 19:59 Stop collecting multibeam. Transit to pick up launches off Black Point.
- 20:21 Stop logging 3.5 kHz to pick up launches.
- 20:37 Both launches on board. Steam to work area in deep water off Saint John.
- 21:10 MVP cast.
- 2115 Resume surveying.

12 October 2008 Sunday – Day 286

- 00:01 Continue with survey.
- 10:29 Stop collecting multibeam to drop launches. Launches to work off Cape Chignecto while *Matthew* will work to fill in coverage south of there. Good survey day. Clear with wind NW 15. Seas < 1 m.
- 10:40 Deploy launches.
- 10:48 Start collecting multibeam and 3.5 kHz on transit to survey area.
- 10:51 Stop collecting data. *Plover* will come alongside with DGPS problems.
- 10:56 *Plover* secure alongside.
- 11:11 *Plover* away.
- 11:51 Start multiple MVP deployments at 1 minute intervals.
- 13:30 Shut down one engine. Slow down to 7 kts.
- 15:02 Second engine back online.
- 21:25 Recover MVP to pick up launches.
- 21:30 Stop to recover launches. Continue with survey.

13 October 2008 Monday – Day 287

- 00:01 Continue with survey.
- 10:34 Stop collecting multibeam to drop launches. Launches to work off Cape Chignecto while *Matthew* will work to fill in coverage South of there. Wind N 20 – 25. Overcast and rainy.
- 11:20 Launches are moving to work out of the wind in Advocate Bay.
- 11:24 MVP cast.

14 October 2008 Tuesday – Day 288

- 00:00 Lobster season opens in Zone 35. A lot of traffic and lobster traps are present near Cape Chignecto.
- 11:28 Stop collecting multibeam to drop launches. Launches to work off Cape Chignecto while *Matthew* will work to fill in coverage to the Southwest. Wind S 5 – 10 kts. Seas flat calm (less than 0.5 m). Clear and sunny.
- 11:46 Both launches away after *Plover* had problems starting. *CCGS Matthew* will wait for repairs to a steering pump before getting underway.
- 13:06 Still working on steering pump.
- 13:22 Resume surveying. Still no solution to the steering pump issue.
- 14:18 New MVP cast.
- 18:30 New MVP cast.
- 20:21 Stop logging multibeam and 3.5 kHz to pick up launches.
- 20:41 Both launches on board. *Matthew* will work offshore, West of Cape Chignecto for the night.

- 22:00 Wind and seas have picked up and are forecast to stay up through the night and drop off early tomorrow morning. Winds SW 20 kts. Seas > 1 m.

15 October 2008 Wednesday – Day 289

- 00:01 Continue with survey.
- 10:53 Deploy launches near Cape Chignecto. *Matthew* will spend the day working offshore to the West of Cape Chignecto in deep water to make water. We were unable to make much water through the night last night as we had slowed down due to the weather conditions. Wind today NW 10 – 15. Temp. 12 °C, sunny and clear. Seas > 1 m.
- 10:57 Both launches in the water.
- 11:00 Start logging multibeam and 3.5 kHz on transit to work area.
- 12:35 New MVP cast. Seas have calmed down since early this morning. Less than 1 m.
- 20:20 Stop logging multibeam and 3.5 kHz to pick up launches.
- 20:40 Resume surveying. Launches onboard. *Matthew* will survey during a transit to the SW to spend the night working in deep water off Saint John.

16 October 2008 Thursday – Day 290

- 00:01 Continue with survey.
- 10:24 Continue surveying in deep water off Saint John. Wind SW 10 kts. Overcast and clear. Seas < 1 m. *Matthew* will continue to work in this area until ~14:00 at which point we will steam toward Saint John and drop the launches before tying up in Saint John for the night. Launches will spend the afternoon working just outside the harbour. *Matthew* will remain alongside for the night for some engine maintenance and an inspection.
- 11:20 New MVP cast. There seems to be a lot of variability in sound velocity profiles in this area. Much more than further east where we had been working over the last few days.
- 14:00 Start transit to drop launches at Black Point. *Pipit* will survey for the afternoon in Mispic Bay while *Plover* will tie up at a tide gauge location and sound for 45 – 60 minutes to provide calibration data for OmniStar and the tide gauge..

- 14:53 Stop logging multibeam and 3.5 kHz to drop launches. Raise 3.5 kHz ram and shut down sound velocity pump in transducer room.
- 15:20 *Matthew* secure at the Coast Guard Base in Saint John. Take on fuel.
- 20:30 Launches return to *Matthew*.

17 October 2008 Friday – Day 291

- 00:01 Continue with survey.
- 13:30 Both launches leave Saint John Harbour to finish surveying in Mispic Bay.
- 17:00 *Matthew* sails from Saint John to pick up launches outside the harbour.
- 18:30 Both launches on board. Start steam to work area in deep water off Saint John. Sound velocity pump is on and 3.5 kHz ram is down.
- 18:40 Start logging 3.5 kHz.
- 19:19 New MVP cast
- 19:30 Start collecting multibeam. Wind N 5 – 10 kts. Temp. 8 °C. Seas < 1 m. Forecast is for winds to increase to N 20 – 25 kts with seas building to 1 – 2 m by Saturday morning.
- 20:19 Start logging true heave.
- 21:26 New MVP cast.

18 October 2008 Saturday – Day 292

- 00:00 The OmniStar service was terminated at midnight UTC by the service provider. Calls were made to R. Parrott and S. Parsons. The service provider was contacted and the service was re-initiated. Apparently the service has been enabled for a one month period during the initial setup, and was not extended to continue for the entire survey.
- 02:50 The OmniStar system is back on line. *Matthew* continues with surveys.
- 09:55 New MPV cast on transit to drop launches. Filled in the most Westerly section of the deep water area off Saint John. Wind NNW 15 – 20 kts. Temperature 7 °C. Sunny and clear. Seas < 1 m with some chop (whitecaps). Due to wind and sea conditions launches will work in Greville Bay instead of off Cape Chignecto.
- 12:24 Transiting to Greville Bay to drop the launches for the day. *Matthew* will then spend the day surveying West of Cape Chignecto.
- 16:00 Winds have dropped and seas are flat calm.
- 13:29 Stop logging multibeam and 3.5 kHz to drop launches near Cape Spencer.
- 18:49 Lots of fishing gear and vessel traffic at Western end of lines off Cape Chignecto.
- 19:41 Start transit to pick up launches. Continue logging multibeam and 3.5 kHz.
- 20:32 Stop logging multibeam and 3.5 kHz to pick up launches off Cape D'Or.
- 20:56 Both launches on board. Start collecting multibeam and 3.5 kHz on transit to work area.

19 October 2008 Sunday – Day 293

- 00:01 Continue with survey.
- 10:42 Stop logging multibeam and 3.5 kHz to drop launches. Launches will spend the day sounding off Cape Chignecto while *Matthew* will survey west of there. Wind NE 15 kts. Gusts to 25 kts. Temp. 5 °C. Fine and Clear. Seas 1 – 2 m with whitecaps.
- 11:14 Launches away. Start logging multibeam and 3.5 kHz.
- 11:25 Problems with MVP. Continue sounding slowly while they work on it.
- 11:35 Sea conditions are too rough to survey off Cape Chignecto so both launches will move to the East into Greville Bay to work for the day.
- 12:02 The MVP fish has been removed and the cable is being streamed to remove twists.
- 19:24 Start transit to pick up launches.

20:37 Both launches on board. Started a new SIS project as the current one had stopped displaying stored grids. Started logging multibeam and 3.5 kHz on transit to work area. Matthew will spend the night surveying in deep water off Saint John.

20 October 2008 Monday – Day 294

00:01 Continue with survey.
09:47 Start transit to drop launches on the New Brunswick side NW of Quaco Head near Black Point.
10:10 Stop logging multibeam and 3.5 kHz to drop launches.
10:57 Both launches away. New MVP cast.
11:05 Start logging multibeam. Matthew will survey a long line from Black Point to Cape Enrage to tie into the Creed coverage in Chignecto Bay. Matthew will then run lines between Black Point and Martin Head for most of the day. Wind NE 18 kts. Sea has picked up to 1 – 2 m in Chignecto Bay.
17:18 Stop logging to transit to pick up launches as the sea has become too rough for them to survey.
17:53 Stop to pick up launches off Honeycomb Point.
18:15 Both launches on board. Matthew will move offshore and stop as relays are changed on a steering pump.
19:01 Back underway. Steering pump still not repaired.
19:33 Start collecting multibeam again in deep water off Saint John. Perform a series of MVP casts down this line as the water column appears to be highly variable in the area.

21 October 2008 Tuesday – Day 295

00:01 Continue with survey.
11:06 Stop logging multibeam on transit to Greville Bay where the launches and Matthew will work for the day. Winds NNE 20 kts.
12:28 Stop in Greville Bay to drop launches and measure the ship's draft.
13:15 Start logging multibeam and 3.5 kHz. New MVP cast.
18:00 Wind N 15 kts. Forecast to increase to 20 – 25 overnight and up to 35 kts Wednesday afternoon.
20:19 Stop logging multibeam and 3.5 kHz to pick up launches. *Matthew* will then continue to survey in Greville Bay for the overnight.

22 October 2008 Wednesday – Day 296

00:01 Continue with survey in Greville Bay.
10:33 Start transit to Scots Bay to send FRC ashore.
11:35 Stop logging multibeam and 3.5 khz to deploy the FRC and ferry two seamen ashore in Scots Bay and pick up a Coxswain and a seaman.
12:14 FRC back onboard. Start transit back to Greville Bay. Start logging multibeam and 3.5 kHz.
12:40 Lost OmniStar during transit to Greville Bay.
13:23 MVP Cast.
13:56 OmniStar back online. Start logging multibeam and 3.5 kHz again in Greville Bay. Winds N 20 – 25 kts. Seas 1 – 2 m. The plan is to spend the day surveying then anchor for the night if the wind stays up. If the wind dies out the plan will be to move out into the Bay to survey in deep water for the night and make water.
19:57 Stop logging multibeam and 3.5 kHz to anchor for the night.

23 October 2008 Thursday – Day 297

09:00 Haul up anchor to resume survey in Greville Bay.
09:33 Start collecting multibeam and 3.5 kHz.

- 10:28 Stop logging to drop launches. Both launches and Matthew will spend the day surveying in Greville Bay. Winds
- 11:07 New series of MVP casts.
- 11:55 Lost steering.
- 11:58 Steering recovered, resume survey.
- 20:30 Recover launches. Matthew will then transit outside to survey off Quaco Ledge for the night.

24 October 2008 Friday – Day 298

- 00:01 Continue with survey.
- 10:01 Stop logging data as the Matthew has stopped online for traffic. We will wait here for daylight before proceeding through an area that is known to have a lot of fishing gear.
- 10:31 Resume surveying.
- 11:03 Stop surveying to drop launches. Launches will spend the day working off Cape Chignecto while the Matthew will survey to the SouthWest of there. Winds WNW 15 kts. Sunny and clear. Seas < 1 m.
- 11:25 Resume surveying.
- 11:32 New MVP cast.
- 13:25 Wind has picked up to NW 23 kts. Seas ~ 1 m.
- 17:45 Wind is now from the West. Seas have picked up to 1 – 2 m. A lot of fishing gear is present in the area.
- 18:17 Stop logging multibeam and 3.5 kHz to pick up launches as the seas have picked up too much for them to survey.
- 18:42 Both launches onboard. Resume survey.

25 October 2008 Saturday – Day 299

- 00:01 Continue with survey.
- 10:00 Continue survey en route to drop launches.
- 10:10 Slow to 5 kts to pass through area with a lot of fishing gear.
- 10:25 Back up to speed as it is high tide and all of the buoys are under water.
- 10:48 Start transit to Halls Harbour to drop launches where they will survey for the day. *Matthew* will survey off Margaretsville. The plan is to transit to Saint John tonight to tie up with the high tide at approx. 00:00 UTC. The forecast is for winds of 35 – 40 kts tomorrow and a fuel stop is needed. Current weather, wind SW 15 kts, seas < 1 m.
- 11:41 Drop launches near Halls Harbour.
- 12:04 New MVP cast. MVP probe is left in the water to collect a series of casts through the work area.
- 18:26 Stop collecting multibeam and 3.5 kHz to pick up launches.
- 18:41 Both launches on board. Resume survey. The plan is to survey SW along the Nova Scotia coast before turning North toward Saint John.
- 19:52 Start transit to Saint John. Will fill in some small holes in the coverage on the way.
- 21:20 Finish filling holes in coverage. Continue transit to Saint John.

26 October 2008 Sunday – Day 300

- 00:30 Secure at Coast Guard Base in Saint John.
Remain alongside in Saint John to take fuel and wait for wind to calm down.
Process data.

27 October 2008 Monday – Day 301

- 13:30 Sail from Saint John. Start transit NE to survey near Quaco Head for the day.
- 16:32 New MVP cast.
- 16:50 Both launches away.

- 16:55 Start logging multibeam and 3.5 kHz data. *Matthew* and launches will spend the afternoon surveying off Black Point. Wind SW 5 – 10 kts. Seas < 1 m.
- 21:45 Stop to pick up launches and measure the ship's draft. The plan for the night is to move offshore and finish filling in the coverage East of Quaco Ledge.

28 October 2008 Tuesday – Day 302

- 00:01 Continue with survey.
- 07:46 Finish filling in coverage East of Quaco Ledge. Start transit to Harbourville to drop launches.
- 10:52 Start surveying off Harbourville toward Margaretsville. Launches will remain on board for now and will be deployed if the wind and seas calm down. Wind SE 25 – 30 kts. Seas 1 – 2 m, overcast and rainy.
- 11:46 Arrive in survey area off Margaretsville. *Matthew* will spend the remainder of the day running lines here, before moving offshore after dark to fill in some small holes in the coverage.
- 18:30 Stop surveying off Margaretsville to move offshore and fill in some holes in the coverage. The plan is to fill the holes then spend the remainder of the night surveying off Margaretsville before transiting to Greville Bay in the morning.

29 October 2008 Wednesday – Day 303

- 00:01 Continue with survey.
- 10:31 Finish surveying off Halls Harbour, Start transit to Greville Bay where *Matthew* and launches will work for the day. Forecast is for gale force winds from the SW. Presently winds are S 20 kts. Seas < 1 m.
- 10:46 Change of plans. With southerly winds, there is better protection along the Nova Scotia shore in the Halls Harbour area, so *Matthew* will work there until conditions change.
- 12:20 Winds S 25 kts. Seas 1 – 2 m.
- 12:44 Stop logging multibeam and 3.5 kHz for a Coast Guard exercise.
- 14:05 Exercise finished. Start logging data on transit to Greville Bay. Seas 2 – 3 m.
- 15:05 Stop logging multibeam on transit to anchor in Minas Basin. Wind 37 kts.
- 16:20 Anchored in Minas Basin for the night.

30 October 2008 Thursday – Day 304

- 09:00 Start raising anchor to start transit to Greville Bay to work for the day.
- 10:10 Seas and winds in Greville Bay are still too high to work *Matthew* will return to anchor in Minas Basin.
- 17:45 Raise anchor again to begin work in Greville Bay.
- 18:45 New MVP cast.
- 18:59 Start logging multibeam and 3.5 kHz. *Matthew* will spend the remainder of the day surveying in Greville Bay, then will move off Cape Chignecto for the night to survey and make water. Winds SW 15 kts.

31 October 2008 Friday – Day 305

- 00:01 Continue with survey.
- 10:00 Stop survey off Cape Chignecto to start transit to Greville Bay where launches and *Matthew* will work for the day. Winds are NE 10 – 15 kts, but forecast is for SW 20 – 25 by this afternoon. The plan is to work in Greville Bay to hopefully have some shelter from the SW wind.
- 10:30 Stop logging multibeam and 3.5 kHz for remainder of transit.
- 11:30 Drop launches.
- 11:44 Resume survey in Greville Bay.
- 11:46 New MVP cast.

- 14:30 Finish survey in Greville Bay. Matthew to fill holes in coverage in Scots Bay until launch pick up time.
- 17:45 Finishes filling holes. Matthew to run slow checkline to launch pick up point off Spencer Island.
- 19:23 Stop logging multibeam and 3.5 kHz to wait for launches.
- 20:49 Both launches on board. Matthew will anchor in Greville Bay until the wind dies down or changes direction. Tonights forecast is for the wind to calm down and veer to NW sometime tonight. Winds currently SW 30 kts.

1 November 2008 Saturday – Day 306

- 10:30 *Matthew* remains anchored in Greville Bay. Drop launches to work in the bay for a few hours.
- 13:00 Recover launches, raise anchor and start transit to work area off Cape Chignecto. Matthew will spend the afternoon and evening working there before starting to transit overnight to Grand Manan. Wind WNW 20 kts., Temp. 5 °C, fine and clear. Seas ~ 1 m.
- 17:00 Start survey off Cape Chicnecto.
- 19:20 Winds NW 30 kts. Seas 1 – 2 m.

2 November 2008 Sunday – Day 307

- 00:01 Continue with survey.
- 03:00 Begin transit to Grand Manan. *Matthew* will run a line across the dunefield off Margaretsville and fill some small holes in the coverage on the way.
- 11:09 Finish filling holes continue transit to North Head, Grand Manan. Stop logging multibeam, continue logging 3.5 kHz.
- 11:52 Stop at North Head to drop launches. Stop logging 3.5 kHz.
- 12:12 Both launches away. *Matthew* will steam to Manan Channel to spend the day surveying there. Start logging 3.5 kHz.
- 12:53 New MVP cast.
- 12:59 Start logging multibeam in Manan Channel.
- 20:19 Start transit to North Head to pick up launches.
- 21:13 Stop logging multibeam and 3.5 kHz to pick up launches.
- 21:30 Both launches on board. Start transit to BIO. Sounders off, Knudsen ram raised, and sound velocity sampling pump is off.

3 November 2008 Monday – Day 308

- 00:01 Transit to BIO.
 - 18:00 Arrive BIO and commence demobilization of equipment.
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Appendix III - Predicted Tides for SaintJohn, NB

Hourly values in metres above chart datum – generated by the program Tides and Currents version 4.2 by Nautical Software Inc. Times are shown in Atlantic Daylight Time. Heights are metres above chart datum, with 12 hourly predictions per line.

Date	Time	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
17/09/2008	0:00	692	783	777	688	548	378	205	87	71	155	305	485
17/09/2008	12:00	660	781	806	736	606	439	258	110	52	101	230	401
18/09/2008	0:00	580	725	788	752	645	496	324	165	76	93	202	363
18/09/2008	12:00	544	707	802	796	704	562	390	214	87	57	130	271
19/09/2008	0:00	443	614	738	773	718	602	452	287	147	86	128	249
19/09/2008	12:00	412	586	731	801	773	670	525	356	192	86	78	163
20/09/2008	0:00	305	472	628	731	748	684	568	424	271	151	111	164
20/09/2008	12:00	287	444	606	733	783	746	643	502	341	192	102	106
21/09/2008	0:00	191	326	481	623	711	720	657	549	415	276	171	140
21/09/2008	12:00	194	308	454	603	717	760	723	628	497	347	208	127
22/09/2008	0:00	130	206	330	473	603	686	697	644	547	425	296	196
22/09/2008	12:00	165	209	311	445	584	693	739	712	629	509	367	233
23/09/2008	0:00	150	143	207	318	452	579	665	687	646	561	446	321
23/09/2008	12:00	219	177	208	298	423	558	671	727	714	643	531	392
24/09/2008	0:00	255	163	143	194	297	429	560	656	691	661	584	472
24/09/2008	12:00	342	229	174	192	274	396	536	658	727	726	663	554
25/09/2008	0:00	412	267	162	131	175	277	413	554	663	708	685	608
25/09/2008	12:00	491	351	224	157	168	248	375	524	659	739	744	682
26/09/2008	0:00	569	419	263	148	112	158	265	411	566	684	733	707
26/09/2008	12:00	624	497	343	204	131	144	230	367	528	673	756	759
27/09/2008	0:00	691	570	409	243	125	95	151	271	430	594	716	757
27/09/2008	12:00	721	626	484	316	172	103	128	227	376	548	696	773
28/09/2008	0:00	764	685	552	381	212	102	88	162	297	468	636	748
28/09/2008	12:00	773	719	609	452	275	135	83	127	242	404	580	721
29/09/2008	0:00	781	754	661	517	340	177	88	99	193	342	520	682
29/09/2008	12:00	774	774	700	572	404	227	105	79	145	276	446	619
30/09/2008	0:00	742	776	728	620	467	292	148	89	128	242	402	578
30/09/2008	12:00	721	784	757	663	521	346	182	88	93	182	325	496
01/10/2008	0:00	655	750	756	687	567	410	247	132	108	174	303	467
01/10/2008	12:00	632	747	777	723	612	460	290	150	91	125	232	382
02/10/2008	0:00	546	681	744	722	637	509	355	214	134	143	230	368
02/10/2008	12:00	528	672	754	752	678	555	400	245	136	111	170	289
03/10/2008	0:00	439	587	692	723	680	584	453	311	198	153	189	290
03/10/2008	12:00	429	577	693	744	717	628	499	350	217	142	146	221
04/10/2008	0:00	344	486	612	688	693	636	534	408	284	200	183	237
04/10/2008	12:00	343	477	607	697	721	677	582	454	317	209	161	185
05/10/2008	0:00	268	389	518	621	672	661	596	495	378	274	214	217
05/10/2008	12:00	279	385	509	619	687	694	642	546	423	302	215	187
06/10/2008	0:00	220	305	419	533	617	653	634	568	470	364	277	234
06/10/2008	12:00	246	310	410	523	619	672	671	617	524	409	300	227
07/10/2008	0:00	208	244	326	433	535	609	638	617	553	460	362	285
07/10/2008	12:00	248	262	325	421	526	613	661	658	606	515	405	302
08/10/2008	0:00	235	218	254	333	436	535	606	634	614	551	460	364
08/10/2008	12:00	287	251	264	325	421	525	612	660	659	607	515	403
09/10/2008	0:00	300	231	213	250	332	438	541	616	645	623	556	461
09/10/2008	12:00	359	276	237	251	317	419	529	622	674	671	614	515

<u>10/10/2008</u>	<u>0:00</u>	<u>395</u>	<u>285</u>	<u>212</u>	<u>196</u>	<u>240</u>	<u>332</u>	<u>449</u>	<u>561</u>	<u>641</u>	<u>669</u>	<u>639</u>	<u>562</u>
<u>10/10/2008</u>	<u>12:00</u>	<u>454</u>	<u>339</u>	<u>249</u>	<u>208</u>	<u>230</u>	<u>308</u>	<u>423</u>	<u>546</u>	<u>646</u>	<u>698</u>	<u>688</u>	<u>618</u>
<u>11/10/2008</u>	<u>0:00</u>	<u>506</u>	<u>374</u>	<u>254</u>	<u>180</u>	<u>172</u>	<u>232</u>	<u>343</u>	<u>475</u>	<u>599</u>	<u>681</u>	<u>700</u>	<u>654</u>
<u>11/10/2008</u>	<u>12:00</u>	<u>558</u>	<u>432</u>	<u>303</u>	<u>205</u>	<u>171</u>	<u>209</u>	<u>307</u>	<u>440</u>	<u>577</u>	<u>683</u>	<u>728</u>	<u>702</u>
<u>12/10/2008</u>	<u>0:00</u>	<u>614</u>	<u>484</u>	<u>338</u>	<u>211</u>	<u>142</u>	<u>153</u>	<u>237</u>	<u>370</u>	<u>520</u>	<u>651</u>	<u>728</u>	<u>728</u>
<u>12/10/2008</u>	<u>12:00</u>	<u>659</u>	<u>540</u>	<u>394</u>	<u>250</u>	<u>152</u>	<u>133</u>	<u>196</u>	<u>318</u>	<u>471</u>	<u>620</u>	<u>725</u>	<u>755</u>
<u>13/10/2008</u>	<u>0:00</u>	<u>705</u>	<u>595</u>	<u>447</u>	<u>289</u>	<u>161</u>	<u>108</u>	<u>147</u>	<u>259</u>	<u>414</u>	<u>578</u>	<u>711</u>	<u>772</u>
<u>13/10/2008</u>	<u>12:00</u>	<u>746</u>	<u>649</u>	<u>506</u>	<u>341</u>	<u>189</u>	<u>100</u>	<u>106</u>	<u>197</u>	<u>345</u>	<u>515</u>	<u>670</u>	<u>764</u>
<u>14/10/2008</u>	<u>0:00</u>	<u>770</u>	<u>694</u>	<u>563</u>	<u>400</u>	<u>233</u>	<u>115</u>	<u>88</u>	<u>158</u>	<u>297</u>	<u>471</u>	<u>644</u>	<u>768</u>
<u>14/10/2008</u>	<u>12:00</u>	<u>804</u>	<u>747</u>	<u>623</u>	<u>460</u>	<u>281</u>	<u>129</u>	<u>59</u>	<u>95</u>	<u>215</u>	<u>383</u>	<u>564</u>	<u>716</u>
<u>15/10/2008</u>	<u>0:00</u>	<u>791</u>	<u>769</u>	<u>669</u>	<u>521</u>	<u>347</u>	<u>182</u>	<u>81</u>	<u>86</u>	<u>186</u>	<u>347</u>	<u>533</u>	<u>705</u>
<u>15/10/2008</u>	<u>12:00</u>	<u>812</u>	<u>817</u>	<u>731</u>	<u>587</u>	<u>409</u>	<u>222</u>	<u>81</u>	<u>38</u>	<u>104</u>	<u>246</u>	<u>427</u>	<u>611</u>
<u>16/10/2008</u>	<u>0:00</u>	<u>751</u>	<u>801</u>	<u>752</u>	<u>635</u>	<u>476</u>	<u>299</u>	<u>143</u>	<u>67</u>	<u>102</u>	<u>226</u>	<u>400</u>	<u>589</u>
<u>16/10/2008</u>	<u>12:00</u>	<u>751</u>	<u>834</u>	<u>811</u>	<u>704</u>	<u>546</u>	<u>360</u>	<u>176</u>	<u>53</u>	<u>38</u>	<u>128</u>	<u>283</u>	<u>468</u>
<u>17/10/2008</u>	<u>0:00</u>	<u>646</u>	<u>768</u>	<u>793</u>	<u>725</u>	<u>597</u>	<u>436</u>	<u>262</u>	<u>123</u>	<u>73</u>	<u>132</u>	<u>269</u>	<u>447</u>
<u>17/10/2008</u>	<u>12:00</u>	<u>631</u>	<u>777</u>	<u>835</u>	<u>790</u>	<u>671</u>	<u>509</u>	<u>323</u>	<u>150</u>	<u>49</u>	<u>57</u>	<u>160</u>	<u>318</u>
<u>18/10/2008</u>	<u>0:00</u>	<u>500</u>	<u>665</u>	<u>766</u>	<u>771</u>	<u>693</u>	<u>565</u>	<u>407</u>	<u>243</u>	<u>123</u>	<u>95</u>	<u>167</u>	<u>307</u>
<u>18/10/2008</u>	<u>12:00</u>	<u>480</u>	<u>652</u>	<u>779</u>	<u>818</u>	<u>762</u>	<u>641</u>	<u>482</u>	<u>304</u>	<u>146</u>	<u>64</u>	<u>86</u>	<u>191</u>
<u>19/10/2008</u>	<u>0:00</u>	<u>345</u>	<u>516</u>	<u>666</u>	<u>750</u>	<u>744</u>	<u>665</u>	<u>542</u>	<u>393</u>	<u>243</u>	<u>139</u>	<u>124</u>	<u>198</u>
<u>19/10/2008</u>	<u>12:00</u>	<u>332</u>	<u>494</u>	<u>652</u>	<u>763</u>	<u>791</u>	<u>734</u>	<u>620</u>	<u>470</u>	<u>303</u>	<u>160</u>	<u>91</u>	<u>116</u>
<u>20/10/2008</u>	<u>0:00</u>	<u>215</u>	<u>358</u>	<u>516</u>	<u>652</u>	<u>725</u>	<u>718</u>	<u>647</u>	<u>534</u>	<u>396</u>	<u>258</u>	<u>165</u>	<u>152</u>
<u>20/10/2008</u>	<u>12:00</u>	<u>220</u>	<u>341</u>	<u>490</u>	<u>635</u>	<u>737</u>	<u>763</u>	<u>714</u>	<u>611</u>	<u>473</u>	<u>318</u>	<u>186</u>	<u>120</u>
<u>21/10/2008</u>	<u>0:00</u>	<u>139</u>	<u>227</u>	<u>357</u>	<u>503</u>	<u>630</u>	<u>702</u>	<u>702</u>	<u>641</u>	<u>540</u>	<u>412</u>	<u>281</u>	<u>190</u>
<u>21/10/2008</u>	<u>12:00</u>	<u>172</u>	<u>227</u>	<u>335</u>	<u>472</u>	<u>609</u>	<u>709</u>	<u>741</u>	<u>704</u>	<u>615</u>	<u>488</u>	<u>341</u>	<u>212</u>
<u>22/10/2008</u>	<u>0:00</u>	<u>143</u>	<u>152</u>	<u>227</u>	<u>346</u>	<u>484</u>	<u>610</u>	<u>687</u>	<u>697</u>	<u>648</u>	<u>557</u>	<u>434</u>	<u>304</u>
<u>22/10/2008</u>	<u>12:00</u>	<u>208</u>	<u>178</u>	<u>220</u>	<u>316</u>	<u>446</u>	<u>582</u>	<u>686</u>	<u>729</u>	<u>705</u>	<u>627</u>	<u>507</u>	<u>364</u>
<u>23/10/2008</u>	<u>0:00</u>	<u>232</u>	<u>154</u>	<u>152</u>	<u>218</u>	<u>331</u>	<u>469</u>	<u>599</u>	<u>685</u>	<u>705</u>	<u>665</u>	<u>577</u>	<u>454</u>
<u>23/10/2008</u>	<u>12:00</u>	<u>319</u>	<u>212</u>	<u>170</u>	<u>202</u>	<u>293</u>	<u>422</u>	<u>562</u>	<u>675</u>	<u>729</u>	<u>714</u>	<u>641</u>	<u>524</u>
<u>24/10/2008</u>	<u>0:00</u>	<u>377</u>	<u>239</u>	<u>153</u>	<u>144</u>	<u>207</u>	<u>321</u>	<u>464</u>	<u>603</u>	<u>697</u>	<u>722</u>	<u>684</u>	<u>594</u>
<u>24/10/2008</u>	<u>12:00</u>	<u>464</u>	<u>318</u>	<u>201</u>	<u>152</u>	<u>181</u>	<u>273</u>	<u>406</u>	<u>555</u>	<u>677</u>	<u>737</u>	<u>724</u>	<u>651</u>
<u>25/10/2008</u>	<u>0:00</u>	<u>530</u>	<u>377</u>	<u>232</u>	<u>142</u>	<u>134</u>	<u>201</u>	<u>322</u>	<u>474</u>	<u>622</u>	<u>719</u>	<u>742</u>	<u>698</u>
<u>25/10/2008</u>	<u>12:00</u>	<u>600</u>	<u>458</u>	<u>301</u>	<u>177</u>	<u>129</u>	<u>163</u>	<u>263</u>	<u>406</u>	<u>563</u>	<u>690</u>	<u>748</u>	<u>730</u>
<u>26/10/2008</u>	<u>0:00</u>	<u>522</u>	<u>361</u>	<u>213</u>	<u>128</u>	<u>130</u>	<u>208</u>	<u>341</u>	<u>502</u>	<u>653</u>	<u>745</u>	<u>757</u>	<u>700</u>
<u>26/10/2008</u>	<u>12:00</u>	<u>589</u>	<u>434</u>	<u>268</u>	<u>147</u>	<u>109</u>	<u>157</u>	<u>269</u>	<u>423</u>	<u>586</u>	<u>709</u>	<u>756</u>	<u>726</u>
<u>27/10/2008</u>	<u>0:00</u>	<u>635</u>	<u>497</u>	<u>331</u>	<u>187</u>	<u>117</u>	<u>137</u>	<u>231</u>	<u>377</u>	<u>545</u>	<u>691</u>	<u>768</u>	<u>761</u>
<u>27/10/2008</u>	<u>12:00</u>	<u>686</u>	<u>559</u>	<u>392</u>	<u>227</u>	<u>118</u>	<u>101</u>	<u>167</u>	<u>294</u>	<u>456</u>	<u>618</u>	<u>728</u>	<u>756</u>
<u>28/10/2008</u>	<u>0:00</u>	<u>708</u>	<u>604</u>	<u>457</u>	<u>292</u>	<u>162</u>	<u>116</u>	<u>160</u>	<u>272</u>	<u>428</u>	<u>595</u>	<u>727</u>	<u>779</u>
<u>28/10/2008</u>	<u>12:00</u>	<u>748</u>	<u>654</u>	<u>511</u>	<u>339</u>	<u>184</u>	<u>99</u>	<u>108</u>	<u>196</u>	<u>336</u>	<u>503</u>	<u>653</u>	<u>740</u>
<u>29/10/2008</u>	<u>0:00</u>	<u>743</u>	<u>676</u>	<u>559</u>	<u>406</u>	<u>251</u>	<u>146</u>	<u>130</u>	<u>199</u>	<u>327</u>	<u>488</u>	<u>646</u>	<u>753</u>
<u>29/10/2008</u>	<u>12:00</u>	<u>775</u>	<u>718</u>	<u>606</u>	<u>452</u>	<u>283</u>	<u>148</u>	<u>96</u>	<u>134</u>	<u>242</u>	<u>392</u>	<u>554</u>	<u>683</u>
<u>30/10/2008</u>	<u>0:00</u>	<u>740</u>	<u>717</u>	<u>632</u>	<u>504</u>	<u>352</u>	<u>215</u>	<u>143</u>	<u>159</u>	<u>251</u>	<u>390</u>	<u>549</u>	<u>689</u>
<u>30/10/2008</u>	<u>12:00</u>	<u>764</u>	<u>754</u>	<u>675</u>	<u>547</u>	<u>389</u>	<u>232</u>	<u>128</u>	<u>110</u>	<u>176</u>	<u>299</u>	<u>452</u>	<u>601</u>
<u>31/10/2008</u>	<u>0:00</u>	<u>702</u>	<u>727</u>	<u>679</u>	<u>579</u>	<u>446</u>	<u>303</u>	<u>193</u>	<u>156</u>	<u>201</u>	<u>309</u>	<u>454</u>	<u>603</u>
<u>31/10/2008</u>	<u>12:00</u>	<u>717</u>	<u>758</u>	<u>720</u>	<u>623</u>	<u>485</u>	<u>330</u>	<u>196</u>	<u>126</u>	<u>141</u>	<u>228</u>	<u>361</u>	<u>509</u>
<u>01/11/2008</u>	<u>0:00</u>	<u>636</u>	<u>707</u>	<u>703</u>	<u>635</u>	<u>525</u>	<u>392</u>	<u>266</u>	<u>186</u>	<u>181</u>	<u>249</u>	<u>368</u>	<u>511</u>
<u>01/11/2008</u>	<u>12:00</u>	<u>643</u>	<u>727</u>	<u>738</u>	<u>679</u>	<u>569</u>	<u>428</u>	<u>284</u>	<u>177</u>	<u>141</u>	<u>182</u>	<u>283</u>	<u>417</u>
<u>02/11/2008</u>	<u>0:00</u>	<u>554</u>	<u>657</u>	<u>698</u>	<u>671</u>	<u>590</u>	<u>476</u>	<u>350</u>	<u>245</u>	<u>194</u>	<u>215</u>	<u>298</u>	<u>421</u>
<u>02/11/2008</u>	<u>12:00</u>	<u>555</u>	<u>666</u>	<u>723</u>	<u>710</u>	<u>636</u>	<u>520</u>	<u>382</u>	<u>255</u>	<u>175</u>	<u>166</u>	<u>224</u>	<u>332</u>
<u>03/11/2008</u>	<u>0:00</u>	<u>463</u>	<u>583</u>	<u>663</u>	<u>681</u>	<u>638</u>	<u>551</u>	<u>437</u>	<u>322</u>	<u>238</u>	<u>211</u>	<u>249</u>	<u>340</u>
<u>03/11/2008</u>	<u>12:00</u>	<u>461</u>	<u>583</u>	<u>674</u>	<u>708</u>	<u>679</u>	<u>598</u>	<u>481</u>	<u>351</u>	<u>241</u>	<u>184</u>	<u>193</u>	<u>262</u>
<u>04/11/2008</u>	<u>0:00</u>	<u>370</u>	<u>493</u>	<u>599</u>	<u>659</u>	<u>662</u>	<u>611</u>	<u>521</u>	<u>411</u>	<u>308</u>	<u>241</u>	<u>230</u>	<u>278</u>
<u>04/11/2008</u>	<u>12:00</u>	<u>370</u>	<u>486</u>	<u>596</u>	<u>671</u>	<u>691</u>	<u>653</u>	<u>569</u>	<u>454</u>	<u>333</u>	<u>238</u>	<u>196</u>	<u>216</u>
<u>05/11/2008</u>	<u>0:00</u>	<u>289</u>	<u>396</u>	<u>511</u>	<u>605</u>	<u>653</u>	<u>647</u>	<u>592</u>	<u>503</u>	<u>398</u>	<u>303</u>	<u>246</u>	<u>244</u>
<u>05/11/2008</u>	<u>12:00</u>	<u>296</u>	<u>388</u>	<u>499</u>	<u>600</u>	<u>665</u>	<u>678</u>	<u>636</u>	<u>551</u>	<u>439</u>	<u>324</u>	<u>238</u>	<u>204</u>

<u>06/11/2008</u>	<u>0:00</u>	<u>229</u>	<u>305</u>	<u>411</u>	<u>523</u>	<u>611</u>	<u>653</u>	<u>643</u>	<u>585</u>	<u>495</u>	<u>390</u>	<u>297</u>	<u>245</u>
<u>06/11/2008</u>	<u>12:00</u>	<u>246</u>	<u>300</u>	<u>393</u>	<u>504</u>	<u>603</u>	<u>664</u>	<u>673</u>	<u>629</u>	<u>542</u>	<u>430</u>	<u>316</u>	<u>232</u>

Appendix IV - Canadian Hydrographic Service weekly reports

These reports are enclosed in the format received for CHS. Times are shown in Atlantic Daylight Time.

Weekly Report: Matthew 2008030
Dates: 15-Sep-2008 to 22-Sep-2008
Projects: Shawinigan Search 2901XXX 2008030
North Sydney, N.S.
Canadian Navy Pennant Point Subrecovery area
Bay of Fundy
Geographic Area: South Coast of Newfoundland
Sydney Harbour, Cape Breton Island
Halifax Harbour and Approaches
Bay of Fundy
Charts affected 4641, 4823, 4266,4015, 4022

Hydrographic Staff

J. Griffin (HIC), A. Craft, J. Bradford, S. Moody, J. Karle, B. Brown, G. Arsenault
 J. Griffin (HIC), A. Craft, R. Parrot, S. , M. Collins, S. Nunn, G. Arsenault

<u>Survey/Work Statistics</u>				
Dates:	From:	15-Sep	To:	21-Sep
		Matthew	Plover	Pipit
	Km sounded:	685	106	86
	Total to date:	948	106	86

		Totals (1/10 th of days)			% Use	
		Matthew	Plover	Pipit	Days	
3301	Survey operations	1.8	0.3	0.6	2.7	12.6
3306	CHS Calibration	0.0	0.1	0.1	0.2	1.0
3352	Alongside/On Deck; not active	0.4	6.7	6.3	13.4	63.6
3353	Mobe - deMobe	0.0	0.0	0.0	0.0	0.0
3356	Crew Change	0.0	0.0	0.0	0.0	0.0
3359	Crew Delays	0.5	0.0	0.0	0.5	2.4
3367	Lost; CHS/Science Equipment	0.0	0.0	0.0	0.0	0.0
3371	Lost; Weather	2.2	0.0	0.0	2.2	10.5
3376	Lost; ship equipment	0.0	0.0	0.0	0.0	0.0
3392	Transit to/from work area	1.9	0.0	0.0	1.9	9.0
3394	Training	0.0	0.0	0.0	0.0	0.0
5101	Lost; SAR	0.0	0.0	0.0	0.0	0.0
8107	Lost; ISM/Training/Audits	0.0	0.0	0.0	0.0	0.0
9111	Lost; Refit Delay	0.2	0.0	0.0	0.2	1.0
9151	Lost; Stores/Fueling	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0
Total		7.0	7.0	7.0	21.0	100.0

Daily Log/Discussion; 15th Sep to 21st September 2008

<u>Mon-15 Sep</u>	<u>Alongside Sydney, N.S. awaiting weather.</u>
<u>Tue-16 Sep</u>	<u>Canadian Navy staff (with exception of G. Arsenault, depart vessel for BIO)</u> <u>0600 Matthew shifts berths to provide space for cruise ships</u> <u>Alongside North Sydney, N.S. awaiting weather. Request from CHS to assist with</u> <u>surveys in and around wharves in North Sydney Harbour. Remainder of day is</u> <u>spent shorelining and surveys by launch Pipit. Training of G. Arsenault</u>
<u>Wed-17 Sep</u>	<u>0600 Left North Sydney bound for BIO eta 0900 Thursday</u>
<u>Thu-18 Sep</u>	<u>0900 Arrive BIO Repairs required for Emergency Fire Pump overboard</u> <u>discharge.</u> <u>All data (raw/processed/presentation) from Operation MattShaw (Shawinigan</u> <u>search) archived to HDC. Project considered closed.</u>
<u>Fri-19 Sep</u>	<u>0500 Crew member departs vessel on medical reasons</u> <u>1000-1300 Matthew, Pipit and Plover involved with Omnistar calibrations</u> <u>1600 Crew member signed off vessel</u> <u>1730 Matthew departs BIO toward first work area</u> <u>2030 First line for Pennant Point survey</u> <u>2345 Last line for Pennant Point survey, vessel resumes transit to work area.</u>
<u>Sat-20 Sep</u>	<u>Underway towards work area.</u> <u>1323 First line of survey - Matthew now surveying 24 hours a day.</u>
<u>Sun-21 Sep</u>	<u>1300 Plover away</u> <u>1900 Plover aboard</u> <u>Matthew continues 24 hour surveying</u>

Problems

Pipit: none

Matthew: Due to regulations preventing the making of freshwater north of Brier Island/Grand Manan, visits to Saint John to take on water will be scheduled every 2 days. (i.e. Monday, Wednesday, Friday)
CHSMatthew (the main server) is causing problems, rebooting frequently. Geomatics staff is scheduled to review the problem when Matthew is alongside at BIO. The server is also affecting networks aboard the ship. Problems seems to be traced to backup unit which is taken offline. Backups are being made on external large capacity USB drives.

The CHS Regulus PC is abnormally slow, and difficult to access at times over the network. This machine has typically been supplied and maintained by the ship technicians.

Plover: none

Recommendations

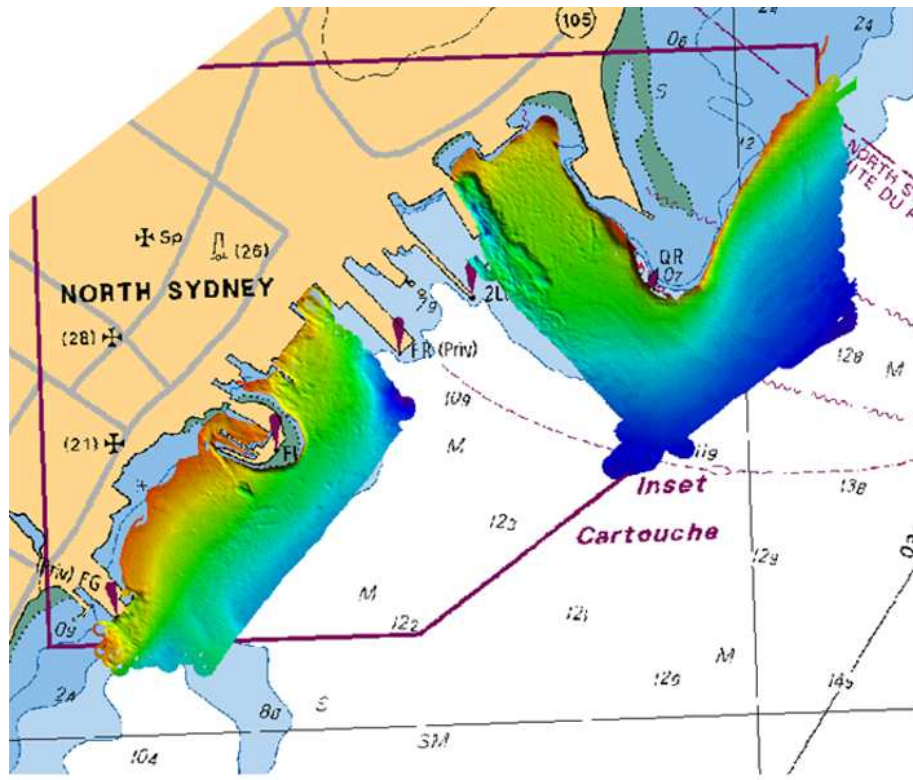
CHS Matthew is getting old. The operating system alone is 8 years old. Discussions have been in place questioning the purpose of a server, suggesting it be replaced with a NAS (network attached storage) drive.

As mentioned above, the CHS Regulus PC is antiquated. It is recommended to consider replacing this machine, and perhaps including it under the umbrella of the CHS computing/network infrastructure.

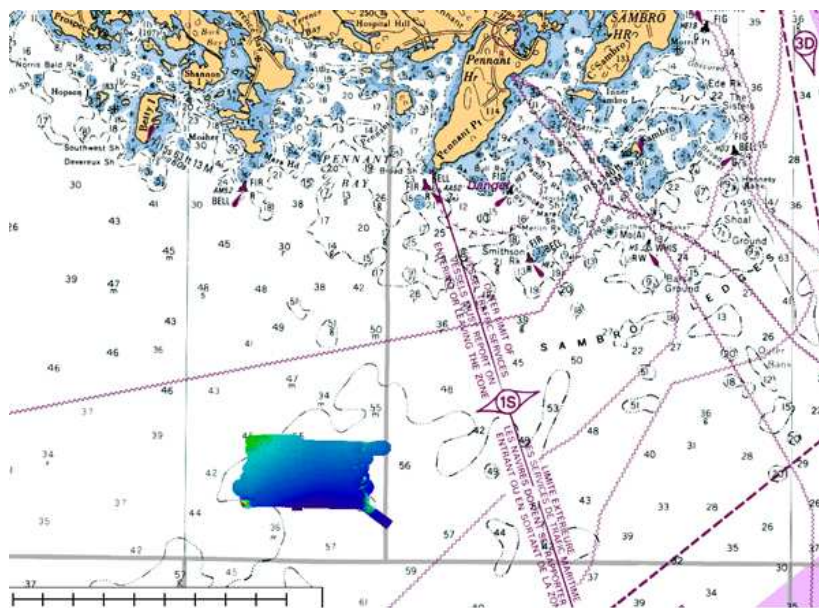
Future Plans

Matthew will take on fresh water Monday at the change of the tide. Plans are to leave as soon as watering is complete. Anticipate loading fresh water Wednesday and Friday. CG crew member is scheduled to arrive Wednesday, AGC staffing change to be coordinated with the taken on of fresh water.

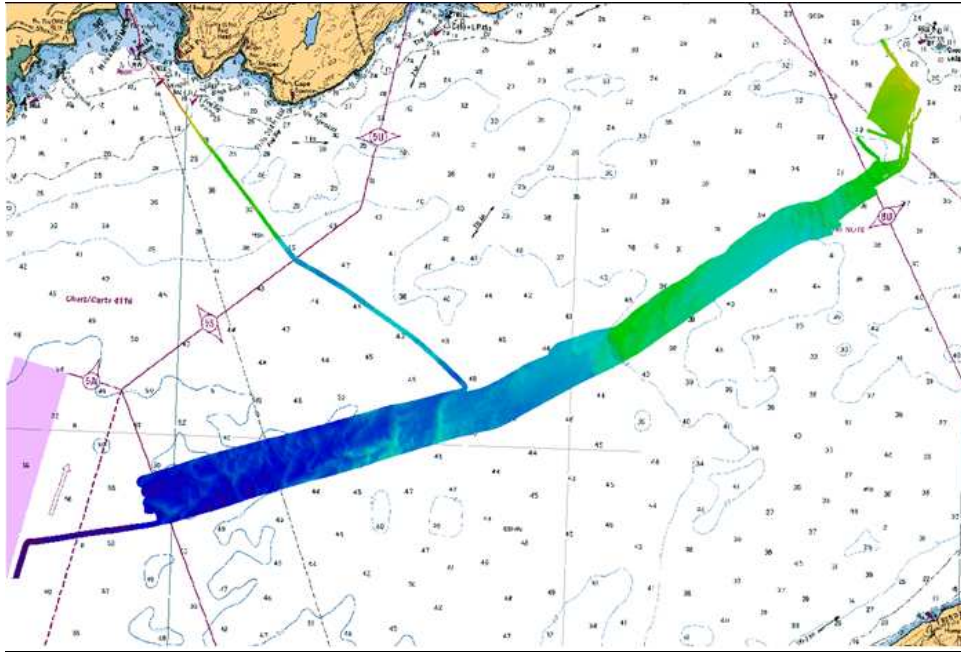
The vessel will continue surveys in and around the Bay of Fundy, covering off areas not yet imaged.



North Sydney Chart 4266



Pennant Point Submarine Exercise area. (1' x 1') Chart 4320



Bay of Fundy - Central Region (Quaco Ledge at Eastern End) - Chart 4010

Weekly Report:
Dates:
Projects:
Geographic
Area:
Charts affected

Matthew 2008030
22-Sep-2008 to 28-Sep-2008
GOM Bay of Fundy
Bay of Fundy
4010, 4011, 4116

Hydrographic Staff

J. Griffin (HIC), A. Craft, E. Patton, S. Hayward, M. Collins, S. Nunn, G. Arsenault

Survey/Work Statistics						
		Totals				% Use
		Matt	Plover	Pipit	Days	
3301	Survey operations	3.4	2.2	2.4	8.0	38.1
3306	CHS Calibration	0.0	0.0	0.0	0.0	0.0
3352	Alongside/On Deck; not active	0.0	3.6	3.6	7.2	34.3
3353	Mobe - deMobe	0.0	0.0	0.0	0.0	0.0
3356	Crew Change	0.0	0.0	0.0	0.0	0.0
3359	Crew Delays	1.3	0.2	0.0	1.5	7.1
3367	Lost; CHS/Science Equipment	0.0	0.0	0.0	0.0	0.0
3371	Lost; Weather	1.0	1.0	1.0	3.0	14.3
3376	Lost; ship equipment	0.0	0.0	0.0	0.0	0.0
3392	Transit to/from work area	0.0	0.0	0.0	0.0	0.0
3394	Training	0.0	0.0	0.0	0.0	0.0
5101	Lost; SAR	0.0	0.0	0.0	0.0	0.0
8107	Lost; ISM/Training/Audits	0.0	0.0	0.0	0.0	0.0
9111	Lost; Refit Delay	0.0	0.0	0.0	0.0	0.0
9151	Lost; Stores/Fueling	1.3	0.0	0.0	1.3	6.2
		0.0	0.0	0.0	0.0	0.0
Total		7.0	7.0	7.0	21.0	100.0
	Distance Surveyed (km)	1620.0	704.0	597.0		

Daily Log/Discussion; 15th Sep to 21st September 2008

<u>Mon-22 Sep</u>	<p align="center"><u>0000 Matthew surveying</u> <u>0700 Matthew alongside Saint Johns for water</u> <u>0900 Watering complete, transit toward work area.</u> <u>1100 Launches away</u> <u>1900 Launch onboard continue surveying until 2400</u></p>
<u>Tue-23 Sep</u>	<p align="center"><u>0000 Matthew surveying</u> <u>0730 Launches away</u> <u>1000 Decision made to head in early at EOD to get more water (versus heading in the following Wednesday morning for crew change/exchange)</u> <u>1930 Matthew alongside Saint John</u></p>
<u>Wed-24 Sep</u>	<p><u>0000-1700 Waiting for AGC staff exchange (1200) and CG crew member (1700) to arrive.</u> <u>1600 CHS & AGC hosted the graduate Ocean Sciences class from the University of New Brunswick (Fredericton Campus) for a tour of the Matthew and its equipment. They were aboard for about 3 hours, and had the opportunity to see how hydrography, geology, cartography, Coast Guard operations and intergovernmental cooperation can come together to support science programs such as the Bay of Fundy GOM survey. Jonathan Beaudoin of the UNB Ocean Mapping Group and his students from Saudi Arabia, Portugal, Spain, Trinidad, and Nova Scotia then enjoyed a delicious meal which included very hearty sea food chowder as an entrée.</u> <u>1930 Our UNB guests departed the vessel.</u> <u>2200 Matthew underway toward work area.</u> <u>2355 Medical emergency declared aboard, Matthew returns to Saint John to evacuate sick crew member.</u></p>
<u>Thu-25 Sep</u>	<p><u>0200 Matthew alongside Saint Johns CG Base. Crew member goes ashore to local hospital.</u> <u>0930 Crew member returns to Matthew, fit for duty.</u> <u>1000 Matthew underway toward survey area.</u> <u>1300 Launches away to survey harbour area.</u> <u>1900 Plover and Pipit aboard, Matthew to resume survey until 2400.</u></p>
<u>Fri-26 Sep</u>	<p align="center"><u>0000 Matthew surveying in Bay of Fundy.</u> <u>1030 Matthew transit to Saint John's to take on fuel and water.</u> <u>1400 Fueling complete. Matthew waiting for tide, Pipit away to survey inner harbour. 1410 Crew member to emergency. (Plover on deck)</u> <u>1900 Crew member returns from hospital fit for duty, Pipit aboard.</u> <u>2000 Matthew leaves Saint John to resume surveying until 2400</u></p>
<u>Sat-27 Sep</u>	<p align="center"><u>0000 Matthew surveying the Bay of Fundy</u> <u>0730 Launches away to survey – minor software problems with SIS aboard Plover. Plover a/s Matthew for ½ hour – problem resolved itself without intervention.</u> <u>1800 Launches aboard, early departure of survey area in advance of the bad weather.</u> <u>2200 Matthew alongside Saint John, Both launches left aboard.</u></p>
<u>Sun-21 Sep</u>	<p><u>Matthew and launches alongside waiting out the weather (Hurricane Ike)</u></p>

Problems

Pipit: none

Matthew: none – No problems to report with server, or surveying equipment. Lack of adequate volume of water aboard is chronic. During a 24 hour period, the Matthew consumed nearly 80% of its water and it was recommended by the Chief Engineer that we top up to avoid loosing suction which would require an extensive amount of priming. This detour required us to break from our proposed 48 hour survey plan. Water rationing is considered impractical by the department heads.

Discussion around this problem led to suggestions such as the installation of a non-potable water tank designed to hold water for laundry, showering, toilets etc. Such a tank would then have its on reverse osmosis machine and this “non-pot” supply would be separate from the potable fresh water. It is becoming evident that with requests for longer work hours aboard, and the possibility of more staff, that the issue of the quantity of water aboard needs to be seriously examined if we are to expect a level of service from this vessel in the future.

Plover: minor problems with CHS equipment. Periodic reboots required. Cables and power are blamed for the occasional outages.

All: Omnistar is working well with very few outages. We see a 20-30 minute delay (which is documented by the company) during the starting up of the launches. This delay has been factored into the transit time of the launches, allowing the Matthew to drop them further from the work area. As the Matthew’s system is never turned off, we do not have any problems. New firmware is available for the receivers and the ships technician is following this up, trying to reduce the warm up period. We are occasionally seeing outages, but we attribute them to shadowing. One issue that is not resolved is the lost of signal during the change in number of satellites (from 6 to 7), and possible interference from the CCG DGPS beacons. This is currently under investigation.

Recommendations

With frequent transits to get water, transits are arranged so as to image unsurveyed areas thereby reducing the time lost to the survey program.

Future Plans

Matthew will continue to visit Saint John to take on water as required. Continue surveys as weather and equipment permits. Crew change for CHS and CG is planned for Saint John, N.B. Oct 8th, 2008.

Weekly Report:

Dates:

Projects:

Geographic

Area:

Charts affected

Matthew 2008030

29-Sep-2008 to 05-Oct-2008

GOM Bay of Fundy

Bay of Fundy

4010, 4011, 4116

Hydrographic Staff

J. Griffin (HIC), A. Craft, E. Patton, S. Hayward, M. Collins, S. Nunn, G. Arsenault

Survey Work/Statistics		Totals				
29 Sep to 05 Oct						%
		Matthew	Plover	Pipit	Days	Use
3301	Survey operations	3.2	2.1	2.3	7.6	36.2
3306	CHS Calibration	0.0	0.0	0.0	0.0	0.0
3352	Alongside/On Deck; not active	0.0	2.4	2.7	5.1	24.3
3353	Mobe - deMobe	0.0	0.0	0.0	0.0	0.0
3356	Crew Change	0.0	0.0	0.0	0.0	0.0
3359	Crew Delays	0.8	0.5	0.0	1.3	6.2
3367	Lost; CHS/Science Equipment	0.0	0.0	0.0	0.0	0.0
3371	Lost; Weather/Tide	2.0	2.0	2.0	6.0	28.5
3376	Lost; ship equipment	0.0	0.0	0.0	0.0	0.0
3392	Transit to/from work area	0.0	0.0	0.0	0.0	0.0
3394	Training	0.0	0.0	0.0	0.0	0.0
5101	Lost; SAR	0.0	0.0	0.0	0.0	0.0
8107	Lost; ISM/Training/Audits	0.0	0.0	0.0	0.0	0.0
9111	Lost; Refit Delay	0.0	0.0	0.0	0.0	0.0
9151	Lost; Stores/Fueling	1.0	0.0	0.0	1.0	4.8
		0.0	0.0	0.0	0.0	0.0
Total		7.0	7.0	7.0	21.0	100.0
	Distance Surveyed (km)	1314.0	476.0	446.0		
	Distance Surveyed to date	3882	1286	1129		

Daily Log/Discussion; 29th Sep to 8th October 2008

Mon-29 Sep

0000 A/S Saint John CCG Base
0900 Pipit away – surveying LNG and Mispic Bay
1000 Plover away – surveying Sheldon Pt to Partridge Island
1900 Pipit and Plover A/S
2000 Transit to work area
2230 On scene – resume surveying

Tue-30 Sep

2359 Surveying
0000 Surveying
0730 Plover and Pipit away – (Plover West Bay – Pipit East Bay)
1900 Plover and Pipit aboard – resume surveying
2359 Surveying

Wed-31 Sep

0000 Surveying
0730 Plover and Pipit away – (Plover West Bay – Pipit East Bay)
1400 Transit to Saint John for water
1530 A/S Saint John's CCG Base
1630 Transit to work area
1810 Resume surveying
1930 Plover and Pipit aboard
2359 Surveying

Thu-01 Oct

0000 Surveying
0730 Launches away (Plover – Pipit)
0820 Plover A/S Generator problems – water hose came off
1010 Pipit A/S due to heavy weather
1400 Survey called on account of heavy weather – winds pick up, and tide comes in creating standing waves. – slow transit back to Saint John's CCG Base. Plover now repaired, but remains on deck.
1705 Plover away on approaches to Saint John's CCG Base to test the generator – surveys Courtney Bay
1730 A/S Saint John's CCG Base
1930 Plover A/S
2359 Surveying

Fri-20 Oct

0000 A/S Saint John CCG Base Weather delays
0900 Seaman goes ashore to emergency department at local hospital after having injured his hand on the launch gripes.
1030 Pipit away surveying – Courtney Bay (at request of CHS)
1200 Seaman returns to vessel with broken hand - he signs off. Plover is now with a coxswain.
1515 Pipit A/S

Sat-03 Oct

2359 A/S Saint John CCG Base
0000 A/S Saint John CCG Base
Weather delays

Sun-04 Oct

2359 A/S Saint John CCG Base
0000 A/S Saint John CCG Base
0700 underway transit to work area
1000 decision not to send launches out due to swell conditions
2359 Surveying

Problems

Pipit: none to report

Plover: Upon startup Tuesday, the engine gauges were discovered not working. Plover comes back, and the technician removes the key and reinserts it, and the gauges come to life.

Thursday morning, it was discovered that the generator in the Plover wasn't running. Upon investigation, it was seen that one of the hoses had come off the water pump. It was reattached, and the generator restarted. The generator ran for a few minutes, then shut itself down due to over temperature. The water pump was disassembled by the Chief Engineer and the impellor was found to be badly damaged. The blades on the impellor were nearly complete worn off. It is not clear if the impellor was previously worn, and caused the pump to over heat, melting the end of the hose, which then in turn came off, or if the hose came off draining the cooling system, and in turn caused the impellor to melt. A new impellor was installed, and the launch put back into service.

Matthew: a lube oil line ruptured on the port main engine. It was replaced in about 40 minutes. Vessel continued to survey on one engine at a reduced speed during repairs. No survey time was lost.

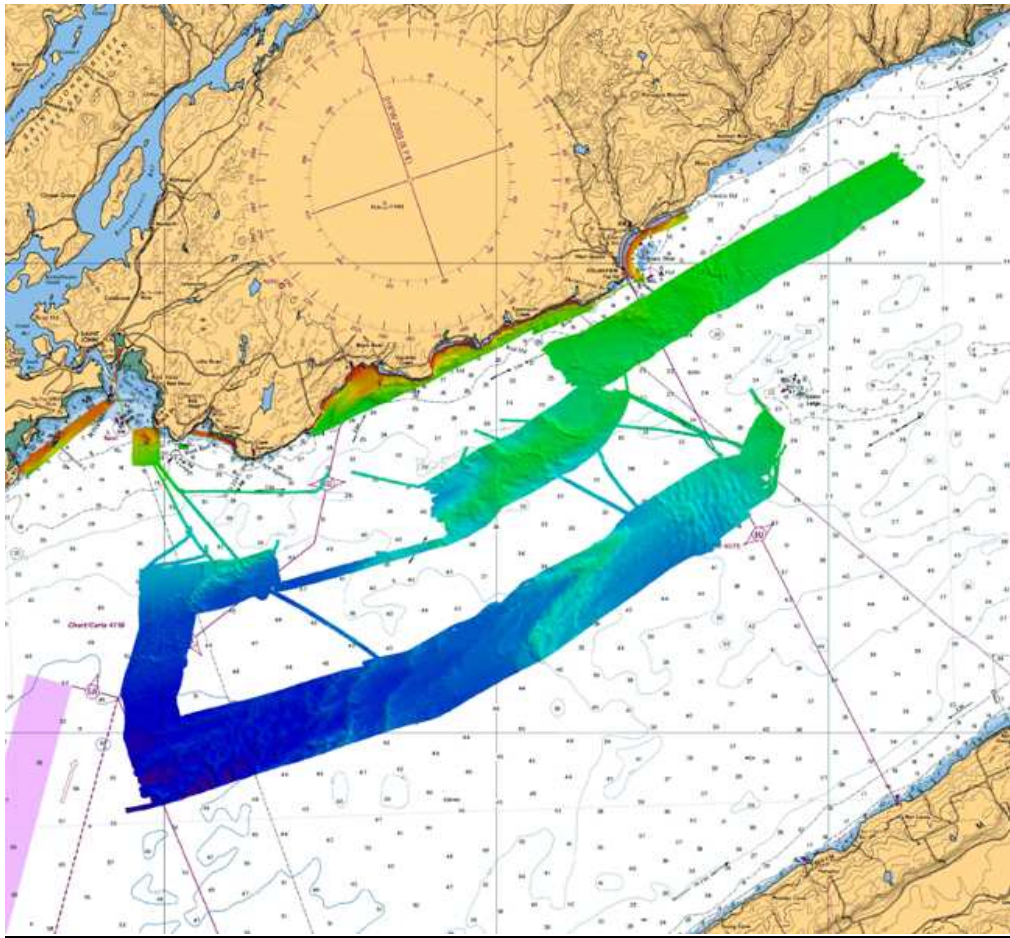
Recommendations

The Omnistar computer was rebooted to clear a serial port error, and it was found that no one aboard knew the password to log back into the computer. There are 2 or 3 computers in the collection used by the CHS that are under control of the ships technicians and their shop, this computer being one of them. A previous report on the networks and older computer was written during the second weekly report from this cruise. Further to this recommendation is the suggestion that these 2 or 3 computers be supplied and managed by the CHS with guidance from the technicians on any specific hardware issues associated with their intended use (i.e. special serial cards etc). A standard operating environment including user profiles would be a benefit to the science community aboard this ship.

Over the past 3 weeks, the Plover has seen several electrical issues which were solved simply by turning system off, rebooting, or wiggling keys. It is believed that there is a real problem that is causing these outages. A recommendation from this survey would be a through inspection or rewiring of the electrical system on the launch over the off season. This rewiring would include antenna cables (science and otherwise), power (AC/DC), signal cables, and grounding plates and cables.

Future Plans

Matthew will continue to visit Saint John to take on water as required. Continue surveys as weather and equipment permits. Crew change for CHS and CG is planned for Saint John, N.B. Oct 8th, 2008.



Bay of Fundy - Central Region (Quaco Ledge at Eastern End) - Chart 4010

<u>Weekly Report:</u>	<u>Matthew 2008042</u>
<u>Dates:</u>	<u>8 to 12 October 2008 (Week One)</u>
<u>Projects:</u>	<u>GOM/ERI</u>
<u>Geographic Area:</u>	<u>Bay of Fundy</u>
<u>Charts affected</u>	<u>4010 & 4011</u>

Hydrographic Staff

HIC Mike Lamplugh
 Andrew Craft, Glenn Rodger, Andrew Smith, Darrell Beaver & Paul Fraser.
 Technician: Gerry Dease
 GSC-Atlantic: Darrell Beaver, Paul Fraser
 DND (Training): Chris Doiron

Survey/Work Statistics				
Dates:	From:	8 Oct	To:	12 Oct
		Matthew	Plover	Pipit
	Km sounded:	1358	482	456
	Total to last week:	0	0	0
	Total to date:	1358	482	456
Grand Total (all platforms)				2296

Shiptime Statistics (decimal days)				
Dates:	From:	8 Oct	To:	12 Oct
		Matthew	Plover	Pipit
3301 Hydrographic Operations		4	4	4
3353 Mobe - deMobe				
9192 Transit to/from work area		0.25	0.25	0.25
Lost; 9171 Weather				
Lost; 3367 CHS/Science/ Equipment				
Lost; 9114 Refit Delay				
Lost; 9176 Ship Equipment				
Lost; 8107 ISM/Training/Audits				
Lost; 9113 Planned Maintenance				
Lost; 9151 Stores/Fueling		0.25	0.25	0.25
Lost; 5101 SAR				
9156 Crew Change		0.5	0.5	0.5
Not Required for operational use				
	Total	5	5	5

<u>Daily Log: 8 – 12 October</u>

<p><u>JD 282</u> <u>8 Oct Wed</u></p>	<p><u>07:00 Depart BIO for St John, NB to join Matthew.</u> <u>11:00 Arrive at CCG base in Saint John.</u> <u>11:30 Meet with BOT staff, they arrived yesterday and have replaced to MVP-200 cable and put a proper termination on the spare cable (fish end). All continuity tests are OK. They have now finished and are heading back to Dartmouth.</u> <u>19:00 Matthew departs Saint John to spend the night at anchor in Bay of Fundy.</u></p>
<p><u>JD 283</u> <u>9 Oct</u> <u>Thurs</u></p>	<p><u>06:00 Lift anchor.</u> <u>07:30 Deploy launches off St. Martins.</u> <u>08:00 Matthew commences sounding outside of launch area.</u> <u>17:15 Contact Applanix to get suggestion(s) to enable True Heave logging on Matthew POS-MV. We could not “connect to” only monitor the POS. Used a direct crossover Ethernet cable and problem resolved. Can now log True Heave.</u> <u>17:30 Recover launches.</u> <u>18:45 Fire & Boat drill.</u> <u>20:30 Start to run lines on offshore section and Matthew makes fresh water overnight.</u> <u>21:00 MVP-200 has a cable snarl when cable (somehow) wraps outside drum. No damage; repaired in an hour.</u></p>
<p><u>JD 284</u> <u>10 Oct Fri</u></p>	<p><u>06:30 Cease offshore sounding and start transit to launch deployment site.</u> <u>07:30 Deploy launches off St. Martins.</u> <u>08:00 Matthew commences sounding outside of launch area.</u> <u>10:15 Pipit returns to Matthew to have generator serviced (air-lock in primary filter).</u> <u>11:20 Pipit re-deployed and Matthew starts sounding again.</u> <u>17:30 Recover launches.</u> <u>18:30 Start to run lines on offshore section and Matthew makes fresh water overnight.</u></p>
<p><u>JD 285</u> <u>11 Oct Sat</u></p>	<p><u>06:30 Cease offshore sounding and start transit to launch deployment site.</u> <u>07:30 Deploy launches off St. Martins –should finish Quaco Shoal today.</u> <u>08:00 Matthew commences sounding outside of launch area to the SE.</u> <u>17:30 Recover launches (Quaco Shoal is now completed & they started next area to east).</u> <u>18:00 Depart & steam toward offshore area and sound overnight.</u></p>
<p><u>JD 286</u> <u>12 Oct Sun</u></p>	<p><u>05:30 Cease offshore sounding and start transit to launch deployment site which is west side of Cape Chignecto today. Fair weather provides a good opportunity for this exposed area.</u> <u>07:30 Launches deployed; Pipit has a problem with launch GPS; tech swaps out.</u> <u>09:00 Matthew starts running lines south of Cape Chignecto and doing a series of continuous MVP casts (until 18:25).</u> <u>10:30 Starboard engine saltwater coolant line fails; engine offline until 11:57 (continue sounding at reduced speed during this time).</u> <u>15:40 Lost communications with MVP fish due to cable interior to fish becoming disconnected (?!). Replaced one of these cables (it had corroded pins) with two from spares kit (temporary fix until end of season). Acquiring again @ 16:50</u> <u>18:30 Recover launches and stop continuous MVP casting.</u> <u>19:00 Continue sounding with Matthew overnight.</u></p>

Problems

Plover had an issue with the DGPS receiver on the cox's'uns Electronic Chart. Technician replaced unit.

Pipit has an issue with air leak into the fuel line. This air collects in the Raycor filter unit. Chief Engineer is working on tracking down the source.

Matthew had a saltwater coolant line fail on the starboard main engine. This was repaired in an hour and a half. This is another example of the corrosion situation with the saltwater lines on this vessel.

The MVP-200 failed on Sunday afternoon due to a connection within the fish becoming loose. This was quickly repaired.

Discussion

The concerns the previous Captain had about making fresh water in the Bay of Fundy are not shared by Captain Dave Harding. It appears that when we move offshore at night to survey after the launches are recovered, the ship can make enough water to cover what is required during the day. This is indeed good news. It should also be noted that the two shifts the Matthew spent in the Bay of Fundy in the Spring of 2007 also did not have any excessive water-making concerns.

ODIM BOT sent two men up to the Matthew on Oct 7th to replace the cable on the MVP-200. The existing cable was three years old and becoming worn. With the new cable it is now possible to gather some dense CTD/SVP data sets during the survey without concern about losing the fish. Two dense data sets were acquired on October 9th and 12th, they will be used by Jonathan Beaudoin to further develop the MVP controller and analyzing software.

Recommendations

It is a shame that the previous survey shift was not able to take advantage of the time allocated. The concern about the safety of fresh water made in the Bay of Fundy prevented the survey operation from being very effective. (Although the ship's water capacity is normally three days the time frame chosen was closer to 36 hours & no water conservation measures were allowed). As this is the last year here for this GOM project, it puts a significant pressure on my team to make up for what was not done during the last two and a half weeks.

It would be very helpful if in the future the CCG Captain and crew could be properly briefed so that their concerns are fully addressed prior to arriving on the Matthew. If their concerns were known perhaps they could be allayed prior to the Matthew being tasked. In this way, DFO could better utilize valuable ship time.

Future Plans

Matthew will continue to survey on a 24 hour basis as long as weather and other considerations permit.

The ship will be into Saint John this Thursday to meet with CSI inspector and to take care of “housekeeping business”. This will include; fueling, some provisions, off-loading contents of oil & water tank, 500 hour inspections of main engines & gear boxes and picking of ordered parts & spares. The port stay will be approx 24 hours.

Weekly Report: Matthew 2008042
Dates: 13 to 19 October 2008 (Week Two)
Projects: GOM/ERI
Geographic Area: Bay of Fundy
Charts affected 4010 and 4011 (also 4116 & 4117)

Hydrographic Staff

HIC Mike Lamplugh
 Andrew Craft, Glenn Rodger, Andrew Smith, Darrell Beaver & Paul Fraser.
 Technician: Gerry Dease
 GSC-Atlantic: Darrell Beaver, Paul Fraser
 DND (Training): Chris Doiron

Survey/Work Statistics				
Dates:	From:	13 Oct	To:	19 Oct
		Matthew	Plover	Pipit
	Km sounded:	2541	469	543
	Total to last week:	1358	482	456
	Total to date:	3899	951	999
Grand Total (all platforms)				5849

Shiptime Statistics (decimal days)				
Dates:	From:	13 Oct	To:	19 Oct
		Matthew	Plover	Pipit
3301 Hydrographic Operations		6.0	6.0	6.0
3353 Mobe - deMobe				
9192 Transit to/from work area				
Lost; 9171 Weather				
Lost; 3367 CHS/Science/ Equipment			0.5	0.5
Lost; 9114 Refit Delay				
Lost; 9176 Ship Equipment				
Lost; 8107 ISM/Training/Audits				
Lost; 9113 Planned Maintenance		0.5		
Lost; 9151 Stores/Fueling		0.5	0.5	0.5
Lost; 5101 SAR				
9156 Crew Change				
Not Required for operational use				
	Total	7	7	7

Daily Log; 13 – 19 October

<u>JD 287</u> <u>13 Oct Mon</u>	<u>07:30 Deploy launches off Cape Chignecto.</u> <u>08:00 Matthew commences sounding outside of launch area.</u> <u>09:00 Launches moved south & east of Cape Chignecto due to wind/sea conditions.</u> <u>17:30 Recover launches.</u> <u>18:00 Matthew fills in area SW of Cape Chignecto.</u> <u>21:00 Head offshore to sound and make water overnight.</u>
<u>JD 288</u> <u>14 Oct Tues</u>	<u>07:30 Deploy launches off Cape Chignecto.</u> <u>08:00 Matthew commences sounding SW off launches, calm day; lot of work done.</u> <u>17:30 Recover launches.</u> <u>20:30 Start to run lines on offshore section and Matthew makes fresh water overnight.</u> <u>The wind picked up during the day and by evening we have SW 30 knots. A bumpy night with us having to slow down to survey to the SW. Due to decreased speed not as much water made as needed.</u>
<u>JD 289</u> <u>15 Oct Wed</u>	<u>06:30 Cease offshore sounding and start transit to launch deployment site.</u> <u>07:30 Deploy launches off Cape Chignecto (working coverage again to the west).</u> <u>08:00 Due to two nights of reduced water creation we have to go outside 8 miles (from shore) for the day to make it up. Matthew commences sounding offshore for the day & making water.</u> <u>17:30 Recover launches.</u> <u>18:00 Start to run lines on offshore section and Matthew makes fresh water overnight.</u>
<u>JD 290</u> <u>16 Oct</u> <u>Thurs</u>	<u>00:00 Sounding offshore overnight and for the morning; then head toward Saint John to drop launches for HW work (Mispec & Courtney Bays).</u> <u>12:00 Launches deployed.</u> <u>12:20 Matthew secured alongside CCG Base.</u> <u>Fuel is taken and oil/water removed from contaminated water holding tank.</u> <u>17:30 Launches return to Matthew .</u>
<u>JD 291</u> <u>17 Oct Fri</u>	<u>Matthew and launches alongside for the morning.</u> <u>12:30 Launches sent off to work Mispec Bay.</u> <u>14:00 Matthew departs Saint John Base.</u> <u>15:00 Launches recovered.</u> <u>16:00 Start surveying the western-most section of the offshore. Plan to stay here until this block complete.</u> <u>21:59:59 OMNISTAR (HP) corrections turned off (24:00 UTC).</u> <u>23:50 After a few late night calls Matthew subscription turned on again.</u>
<u>JD 292</u> <u>18 Oct Sat</u>	<u>05:00 Finish this area and proceed toward Cape Chignecto for launch deployment (they will be late in the water as we wanted to finish this area.).</u> <u>10:30 Deploy launches off Cape Spenser (too rough outside, NE wind).</u> <u>13:30 OMNISTAR corrections are finally made available to launches.</u>

	<u>16:30 Terminate sounding and heads in to pick up launches (have them steam out too).</u>
<u>JD 293</u>	<u>07:30 Deploy launches off Cape Chignecto – calm seas.</u>
<u>19 Oct Sun</u>	<u>08:00 Matthew commences sounding outside of launch area.</u>
	<u>08:15 Snarl in cable of MVP-200.</u>
	<u>08:30 Launches heading into Greville Bay as a strong NE wind came up.</u>
	<u>10:00 Cable has been fixed; ended up trailing behind vessel (W/O fish) to let “twists” come out.</u>
	<u>16:15 Break off sounding to head into pick-up launches.</u>
	<u>17:10 Launches recovered.</u>
	<u>17:30 Head out to offshore; sounding on the way and making water when 8 miles out. Sounding overnight at the extreme western end of our work area. We will then drop the launches off against the NB coast to attempt to avoid sea conditions from NE winds.</u>

Problems

All platforms: Launches and Matthew working well this week.

Midnight October 13th was the start of the lobster season in Area #35. This came as a bit of a surprise to us. I believed this survey had been planned to occur when the lobster season was closed in our work areas. However, the traps are not so thick that they have caused a significant problem or impediment to survey operations.

At midnight (UTC) of Oct 17th, the OMNISTAR high precision (HP) corrections were turned off. After a few late night phone calls I was able to have the service restored for the Matthew. It turns out that when the contract was let and the service enabled on Sept 17th it was only for a month. Steve Parsons tells me there was to be a follow-up call to OMNISTAR to extend the service for the second month of the contract; however this call appears to not have happened. This resulted in three hours of Matthew surveying which will have to be reduced (for tide) using other means. Also, we lost a half day of Launch work (both boats) next day due to a problem getting the service restored to their receivers.

Seaman Dorion Lavin became ill and left the vessel Thursday. He was replaced with an experienced hand from the Earl Gray.

The MVP-200 had a cable snarl on the drum. I think it is due to the wraps we took off (snarl on Oct 9th) introduced “twists” in the cable. We took the fish off and trailed cable behind the Matthew to let the twists come out. This seemed to work well.

Discussion

Captain Harding and his crew have a very positive work attitude. This makes working with them very easy. There appear to be very few challenges that can not be overcome so that the survey can continue.

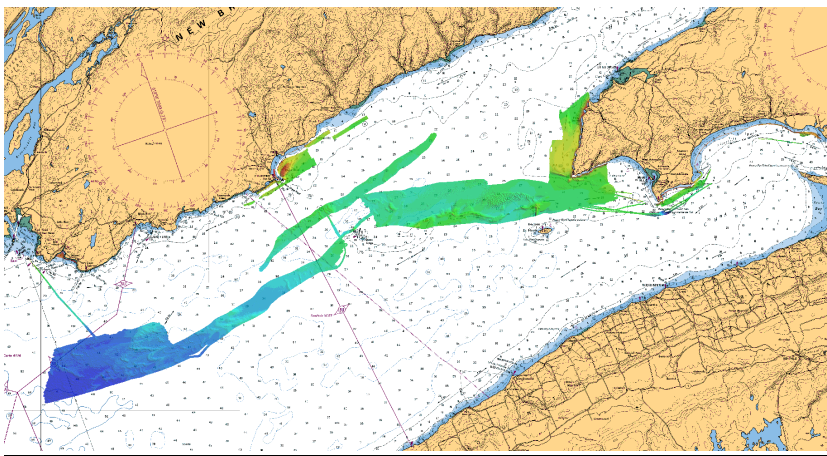
Recommendations

Keep current staff assigned to the North Crew.
Better follow-up by the shore support would have been advantageous.

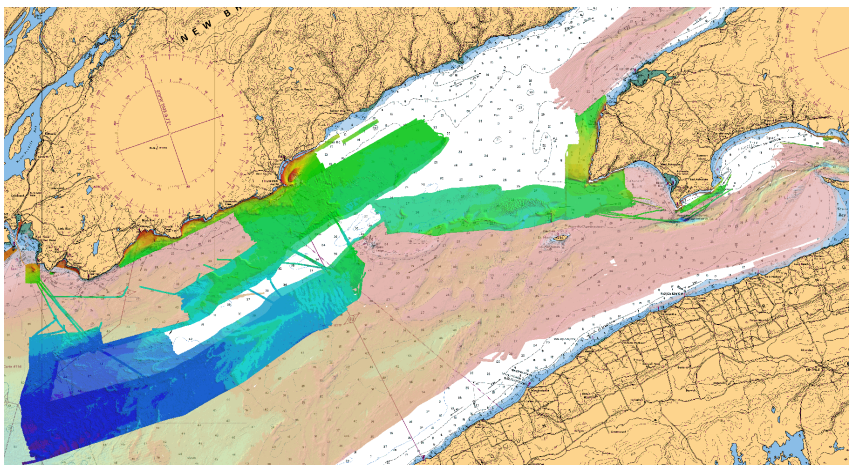
Future Plans

Matthew will continue to survey on a 24 hour basis as long as weather and other considerations permit.

A casual seaman is coming off this Wednesday and will be replaced by a permanent cox's'un who is returning from leave. Also, the temporary replacement for Doirion Laven will be spelled off with a new body.



Sounding coverage 9 - 19 October 2008:



Total coverage in upper Bay of Fundy to date; 19 Oct 2008.
The data from previous years is muted.

Weekly Report:
Dates:
Projects:
Geographic Area:
Charts affected

Matthew 2008042
20 to 26 October 2008 (Week Three)
GOM
Bay of Fundy
4010 and 4011 (also 4116 & 4117)

Hydrographic Staff

HIC Mike Lamplugh
 Andrew Craft, Glenn Rodger, Andrew Smith, Darrell Beaver & Paul Fraser.
 Technician: Gerry Dease
 GSC-Atlantic: Darrell Beaver, Paul Fraser
 DND (Training): Chris Doiron

<u>Survey/Work Statistics</u>				
Dates:	From:	20 Oct	To:	26 Oct
		Matthew	Plover	Pipit
	Km sounded:	2358	475	450
	Total to last week:	3899	951	999
	Total to date:	6257	1426	1449
Grand Total (all platforms)				9132

<u>Shiptime Statistics (decimal days)</u>				
Dates:	From:	20 Oct	To:	26 Oct
		Matthew	Plover	Pipit
3301 Hydrographic Operations		6	6	6
3353 Mobe - deMobe				
9192 Transit to/from work area				
Lost; 9171 Weather		0.75	0.75	0.75
Lost; 3367				
CHS/Science/ Equipment				
Lost; 9114 Refit Delay				
Lost; 9176 Ship Equipment				
Lost; 8107 ISM/Training/Audits				
Lost; 9113 Planned Maintenance				
Lost; 9151 Stores/Fueling		0.25	0.25	0.25
Lost; 5101 SAR				
9156 Crew Change				
Not Required for operational use				
Total		7	7	7

Daily Log; 20 – 26 October

<u>JD 294</u> <u>20 Oct Mon</u>	<u>Matthew ran sounding lines and made water overnight.</u> <u>07:30 Deploy launches east of Quaco Head.</u> <u>08:00 Matthew commences sounding outside of launch area –line up to Cape Enrage.</u> <u>13:30 Launches sought shelter due to worsening sea conditions (wind veered to east instead of backing to the north...).</u> <u>14:30 Recover launches.</u> <u>15:00 Head offshore to sound and make water overnight. Also ballasted fwd tank (23T).</u>
<u>JD 295</u> <u>21 Oct Tues</u>	<u>05:00 Finished filling in second offshore area & proceeded to Greville Bay.</u> <u>10:00 Deploy launches off Cape Spenser.</u> <u>10:15 Measures Transducer draft, MVP-200 cast and starts sounding in Greville Bay.</u> <u>17:30 Recover launches.</u> <u>18:00 Continue sounding with Matthew overnight. 1.5 to 2 NMile clearance of all land.</u>
<u>JD 296</u> <u>22 Oct Wed</u>	<u>Sounding overnight in Greville Bay (east of Minas Channel).</u> <u>08:30 Deploy RHIB to take two seamen ashore and pick up two replacements.</u> <u>09:50 Back on north side of Greville Bay, due to deteriorating weather conditions it is decided not to deploy launches today.</u> <u>10:00 OMNISTAR HP corrections are lost, do a cast and steam to east end of lines.</u> <u>10:50 OMNISTAR HP corrections locked on again, start running lines.</u> <u>17:15 Anchored in Greville Bay for the night (quarters too tight for night sounding).</u>
<u>JD 297</u> <u>23 Oct</u> <u>Thurs</u>	<u>06:00 Lift the anchor and commenced sounding again (shorter night lines) Greville Bay.</u> <u>07:30 Launches deployed.</u> <u>07:45 Matthew continues running lines from yesterday (longer & nearer to shore).</u> <u>17:30 Launches return to Matthew.</u> <u>19:00 Matthew finishes sounding in Greville Bay and heads offshore for the night (sounding and making water).</u>
<u>JD 298</u> <u>24 Oct Fri</u>	<u>08:30 Launches deployed off Cape Chignecto & Matthew surveys to the SE.</u> <u>15:00 Launches recovered (early) due to changing wind/sea conditions.</u> <u>15:45 Matthew starts to clean up the lines in this survey area (make even) before starting the offshore.</u> <u>19:15 Start surveying the eastern-most section of the offshore.</u> <u>Continues survey operations overnight.</u>
<u>JD 299</u> <u>25 Oct Sat</u>	<u>Good night's sounding in offshore area #3.</u> <u>07:00 Enough daylight now to transit/sound through lobster buoys toward Cape Chignecto.</u> <u>08:40 Deploy launches off Canada Creek. All platforms working near NS shore</u>

	<p><u>today (South & Southeast winds in forecast).</u> <u>15:30 Recover launches and then run line back to the west.</u> <u>18:15 Finish the last of the four holes and head for St John.</u> <u>21:30 Alongside CCG Base (@ HW).</u></p>
<p><u>JD 300</u> <u>26 Oct Sun</u></p>	<p><u>Alongside CCG Base in St John.</u> <u>Processing data .</u> <u>Gale force (southerly) winds.</u></p>

Problems

All platforms: Launches and Matthew working well this week. Some issues with the Matthew starboard steering pump again (electrical). However, ship's tech and Chief Engineer did some investigating and discovered some relays that were not documented. Replacement units (these are COTS) have been ordered and are waiting in St John. With any luck these may prove to be the solution to this intermittent fault. Once we arrived in St John, it was proven that one of these relays was faulty. It was replaced and spares are now aboard the Matthew.

Discussion

On Wednesday two seamen left the Matthew (via RHIB into Scotts Bay) to be replaced by a permanent cox's'un who is returning from leave and another casual seaman.

It will NOT be possible for me to finish the areas what was asked of us. There was too much left to do after the last shift. Despite being able to work most days (which is a surprise given the time of year), there is too much area to make up. It should be noted however, that it was a very ambitious plan to finish the area within the allocated timeframe this year regardless.

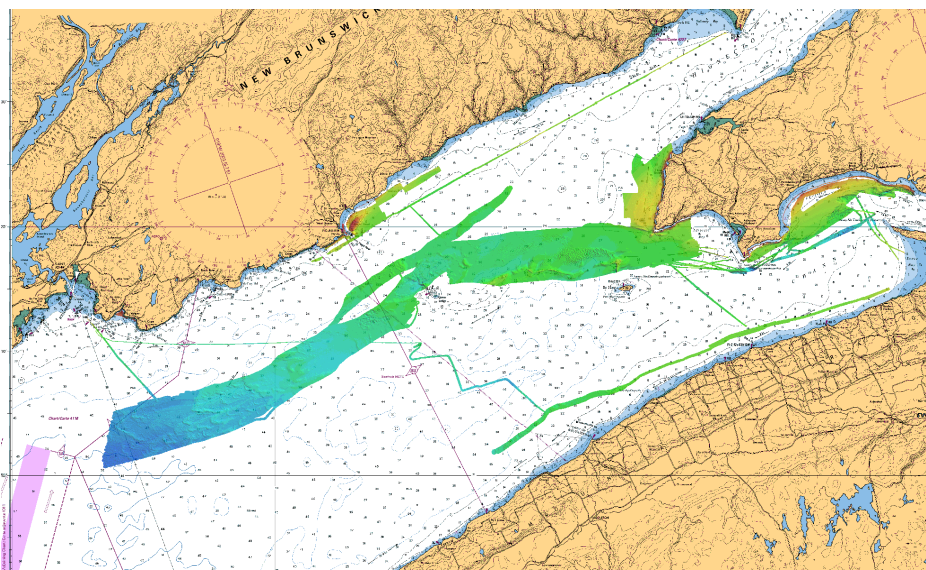
It should also be noted that October is not a good time to plan operations in the Bay of Fundy as weather conditions have historically been poor and launch operations are very weather dependant.

Recommendations

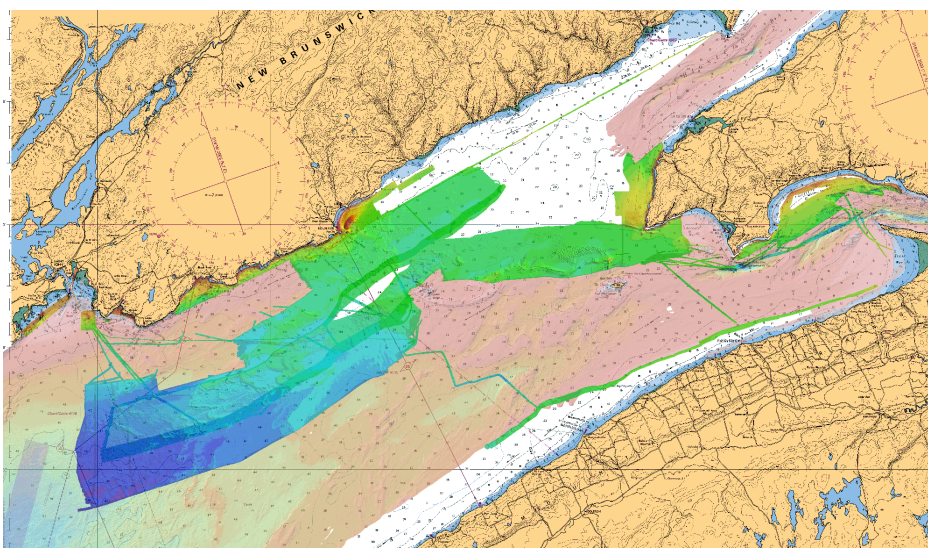
Expanded potable water capacity for the Matthew should be pursued regardless of whether she is tasked to 12 or 24 hour operations. Captain Harding is sending in a memo with (what looks to be) a practical and affordable suggestion of how to address this problem.

Future Plans

Matthew will continue to survey on a 24 hour basis and deploy the launches as long as weather and other considerations permit.



Update to Sunday 26 October 2008:
New sounding coverage in the Bay of Fundy (since 9 Oct 2008)



Bay of Fundy (up to 26 Oct 2008)
All sounding coverage in this portion of the Bay.
The data from previous years is muted.

Weekly Report:
Dates:
Projects:
Geographic Area:
Charts affected

Matthew 2008042
27 October to 5 November 2008 (Week Four)
GOM
Bay of Fundy
4010, 4011 and 4342

Hydrographic Staff

HIC Mike Lamplugh

Andrew Craft, Glenn Rodger, Andrew Smith, Darrell Beaver & Paul Fraser.

Technician: Gerry Dease

GSC-Atlantic: Darrell Beaver, Paul Fraser

DND (Training): Chris Doiron

<u>Survey/Work Statistics</u>				
Dates:	From:	27 Oct	To:	5 Nov
		Matthew	Plover	Pipit
	Km sounded:	1778	263	275
	Total to last week:	6257	1426	1449
	Total to date:	8035	1689	1724
Grand Total (all platforms)				11448

<u>Shiptime Statistics (decimal days)</u>				
Dates:	From:	27 Oct	To:	5 Nov
		Matthew	Plover	Pipit
3301 Hydrographic Operations		5	3	3
3353 Mobe - deMobe		0.5	0.5	0.5
9192 Transit to/from work area		1.5	1.5	1.5
Lost; 9171 Weather		1.5	3.5	3.5
Lost; 3367				
CHS/Science/ Equipment				
Lost; 9114 Refit Delay				
Lost; 9176 Ship Equipment				
Lost; 8107 ISM/Training/Audits				
Lost; 9113 Planned Maintenance				
Lost; 9151 Stores/Fueling				
Lost; 5101 SAR				
9156 Crew Change		1.5	1.5	1.5
Not Required for operational use				
	Total	10	10	10

Daily Log: 26 October – 5 November

<u>JD 301</u> <u>27 Oct Mon</u>	<u>Alongside Saint John CCG Base (southerly gales yesterday)</u> <u>08:30 Only now can they get the lifeboat off wharf & back into chocks. (otherwise we could have left earlier, tide was too low)</u> <u>09:00 Departure delayed while seaman taken to ER (minor injury)</u> <u>10:30 Matthew departs Saint John –calm seas</u> <u>13:30 Deploy launches east of Quaco Head, all platforms start sounding</u> <u>19:00 Recover launches (good conditions so we work late) Measure ship's draft</u> <u>19:30 Head offshore to sound and make water overnight.</u>
<u>JD 302</u> <u>28 Oct Tues</u>	<u>05:00 Finished filling in third offshore area & proceed toward Harbourville</u> <u>07:30 Wind/sea conditions not favourable for launch work</u> <u>07:45 Start sounding with Matthew along NS coast. Concentrate on area off Margarettsville</u> <u>15:30 Head out to fill "holes" in previous year's work</u> <u>19:10 Holes finished & continue sounding with Matthew overnight. 1.5 NMile clearance of land.</u>
<u>JD 303</u> <u>29 Oct Wed</u>	<u>Sounding overnight (the dune field)off Margarettsville</u> <u>07:30 Ready to deploy launches but sea conditions not favourable (strong south wind)</u> <u>07:55 Use Matthew to run two lines off Halls Beach</u> <u>09:50 Matthew has been tasked to carry out SAR practice with a Cormorant helicopter</u> <u>10:55 Exercise completed (three SAR-techs down on ship and then recovered)</u> <u>11:05 Proceed to steam to Greville Bay (wind veered to SW and picked up)</u> <u>11:40 Start to run lines in Greville Bay</u> <u>11:50 Line running suspended due to weather conditions (strong SW winds)</u> <u>13:20 Anchored east of Cape Blomidon, data cleaning on-going, shifts maintained.</u>
<u>JD 304</u> <u>30 Oct</u> <u>Thurs</u>	<u>06:00 Lift the anchor & headed out to survey area</u> <u>06:50 S/SW ~25 knots makes working this area impractical; head back to anchorage</u> <u>16:00 Commenced sounding (just Matthew) again in Greville Bay (wind veered to west)</u> <u>19:00 Halted lines in Greville Bay; headed to offshore area to sound & make water.</u>
<u>JD 305</u> <u>31 Oct Fri</u> <u>Halloween</u>	<u>Sounded offshore overnight & made water</u> <u>06:30 Finished offshore lines and started transit to Greville Bay</u> <u>08:35 Launches deployed NE of Cape Spenser; all platforms surveying</u> <u>13:00 Finish running Matthew lines and start checklines and filling holes.</u> <u>17:30 Launches recovered & headed out into the Bay but...</u> <u>18:00 Anchored on west side of Greville Bay due to SW 30+ knots winds outside.</u> <u>Waiting for wind to drop and shift to NW</u>
<u>JD 306</u> <u>1 Nov Sat</u>	<u>Anchored on west side of Greville Bay for the night</u> <u>07:30 Deployed launches to finish the last areas here.</u> <u>11:30 Recover Launches</u>

	<p><u>12:05 Lift anchor & depart Greville Bay</u> <u>1410 Matthew started sounding west of Cape Chignecto</u> <u>19:30 SAR call; break lines and head for Halls Harbour</u> <u>19:40 Stood down; SAR call was a hoax. Back to running east-west lines.</u> <u>24:00 Broke off line running and started the transit to North Head –filling holes</u> <u>enroute</u></p>
<p><u>JD 307</u> <u>2 Nov Sun</u></p>	<p><u>08:00 Deployed launches to sound wharves in North Head, Grand Manan</u> <u>10:00 MVP cast and start running lines along existing coverage -US/Canada</u> <u>border</u> <u>16:25 Finish lines here and start transit to North Head</u> <u>17:20 End line at North Head and recover launches (new inset area for wharves</u> <u>completely resurveyed).</u> <u>17:30 Depart for BIO ahead of strong SW wind warning. We make very good</u> <u>time as we are transiting with the tide.</u></p>
<p><u>JD 308</u> <u>3 Nov Mon</u></p>	<p><u>Transiting to Dartmouth –Bedford Institute of Oceanography–very fair</u> <u>conditions until 12:50 when SW winds pick-up</u> <u>14:35 Deploy Plover, she goes to marina and they catch Matthew’s lines</u> <u>14:45 Alongside at BIO!</u></p>
<p><u>JD 309</u> <u>4 Nov Tues</u></p>	<p><u>08:00 Plover and Pipit have patch tests carried out in Bedford Basin</u> <u>12:30 MVP-200 & fish put ashore for winter storage</u> <u>14:00 Plover ran lines along the finger pier extension at BIO (list minute request</u> <u>from CHS-Atlantic office)</u></p>
	<p><u>Alongside BIO. De-mobing CHS equipment.</u> <u>Coast Guard has also requested (weeks ago) that Matthew crew be available</u> <u>today for some training re: Conflict Resolution</u></p>
<p><u>JD 310</u> <u>5 Nov Wed</u></p>	<p><u>Crew Change day at BIO. End of Survey Season</u> <u>CHS staff demobilize the ship and secure our areas/equipment for Shelburne</u> <u>shipyard.</u></p>

Problems

All platforms: Launches and Matthew working well this week.

However, it should be noted that on the last day of launch sounding (Nov 2nd) the Plover was exhibiting a very noticeable amount of dark smoke in her exhaust. This was not evident prior to the start of this day. This should be investigated.

The data we collected along the Canada/USA boundary in Grand Manan Channel could not be reduced for tide. It appears that the model we have that allows the HP OMNISTAR 3D positions to be brought to CHS chart datum ends at Grand Manan Island and does not extend much to the west.

Discussion

The weather has certainly become a limiting factor in survey operations now. It is not recommended that a hydrographic survey be planned in the Bay of Fundy beyond mid-Oct in the future. Perhaps the opening day of the lobster fishery in Area #35 (October 14th)

would be a good date to keep in mind. Launches were only able to operate for two full days and two half days during this last reporting period.

On November 2nd both launches went into North Head to survey the wharves for an inset on chart 4342. The area was completely surveyed (except for where there were fishing boats alongside). All outside faces however were covered. There is a new wharf complex for the ferry and the shoreline has changed. A revisory team should be dispatched to position the wharves and to check the shoreline around Long Island Bay.

There is a definite need to have at least one more 4 week shift for the Matthew in the Bay of Fundy in 2009. With good planning and luck the majority of the Bay will then be completed. New editions (hopefully with good shoreline) can then be scheduled.

End of season patch tests were conducted with the Plover and the Pipit on November 4th

Recommendations

A revisory team should carry shoreline positioning in North Head. Especially the wharves and Long Island Bay HWL (significant discrepancies between 4011 & 4342).

Also, the shoreline for 4010 (most notably in the Cape Chignecto area) is charted in error. Some good quality satellite photography should be obtained and used to compare and correct the shoreline on this chart.

The datum model for reducing sounding to chart datum has to be modified to cover sounding collected west of Grand Manan.

Expanded potable water capacity for the Matthew should be pursued regardless of whether she is tasked to 12 or 24 hour operations. Captain Harding is sending in a memo with (what looks to be) a practical and affordable suggestion of how to address this problem. I support these suggestions and have sent a letter stating such to CHS management.

I suggest that CHS and CCG have discussions starting this fall to clarify the support mechanisms for the launches. It does not appear to be clear to the Engineering Section of the Matthew who is responsible for mechanical spares and repairs for these platforms. For example, what does the Chief do with a pump (that needs to be rebuilt) from a launch engine or generator? Who does up the work order, pays and oversees the delivery back to the spares box aboard the Matthew.

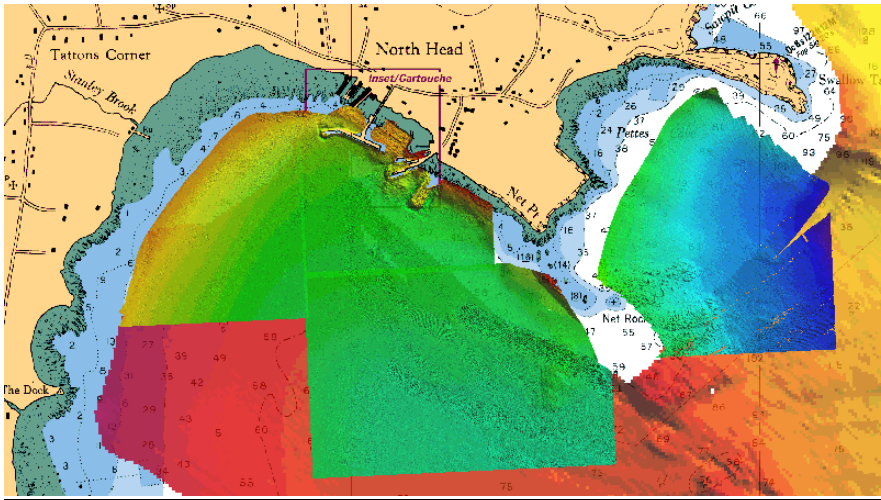
Launch Plover is overdue for a "mid-life refit". A significant amount of effort has been put into upgrading the Pelican and then the Pipit in recent years to bring them up to modern standards. At the very least the Plover needs to have the interior painted (or thoroughly cleaned) and the electrical system brought to current requirements. A navigation cluster for the cox's un as per the other launches would also be highly desirable (and safer).

The need for the Matthew to carry separate spares for the Pipit and the Plover's main engine and generator (as they are both different) is also an issue. A lighter engine for the Plover (as per the Pipit) would reduce the demand on the davits and allow the fuel tank to be filled more beyond the current guideline of three quarters.

Future Plans

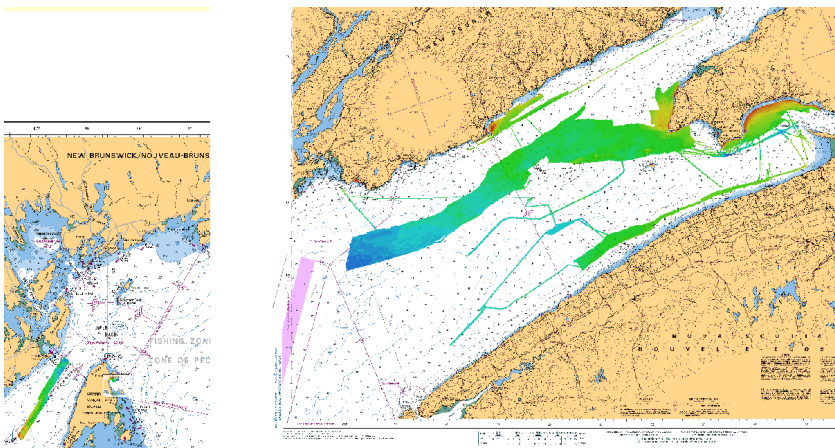
Crew change and end of survey season on November 5th

The Matthew is scheduled to go to Shelburne shipyard on 12th November (warranty work for blown transformer during spring refit). All CHS equipment/areas will have to be made secure for this timeframe.



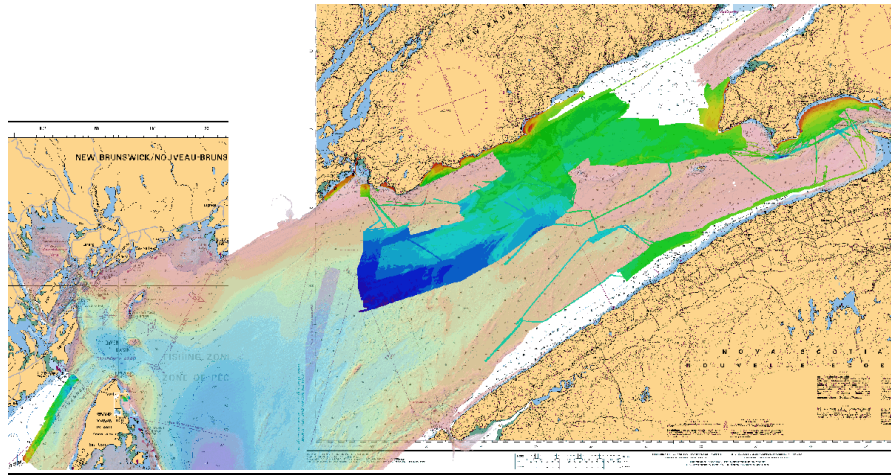
North Head, Grand Manan. Required for new Inset on Chart 4342 (survey done 2 Nov 2008:)

Note: new ferry wharf to the east.



Update to Sunday 2 November 2008:

New sounding coverage in the Bay of Fundy (since 9 Oct 2008)



Bay of Fundy (2008 Matthew data collection)

All sounding coverage in this portion of the Bay.
The data from previous years is muted.