

August 5th | 2010

Ryan Chouest daily data transmission and report

Period covered: 1203hrs 08/04/2010 - 1154hrs 08/05/2010

117.336 - Nautical miles covered

Vessel science party:

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Cruise notes:

The *Ryan Chouest* completed the previous high resolution survey grid from the previous day and commenced another ~5 x 4 nautical mile high resolution grid survey over a previously identified possible seep to the north west of the MC252 site (Figure 1). This survey box falls mainly within the MC 108 block with survey lines close the Hammer Jack platform (MC 109). On entering the survey area a clover leaf search pattern over the previously identified seep area commenced to re-establish the seep position and understand its activity level. After successfully identifying the possible seep the vessel commenced a east-west series of parallel survey lines. Other activities onboard included spooling and testing of the new vertical hose assembly. High currents were experienced in the area and when testing the vertical cast system there was significant drag on the tubing which prevented the vertical cast system being re-spooled. The vessel needed to be taken out of DP and allowed to drift with the currents.

Science results and preliminary interpretation:

Fluorometry results

The Chelsea sensor result displayed indicates minimal levels of inferred hydrocarbons through the track travelled (Figure 2). A relative rescaling (using corresponding highest and lowest sensor voltage values within area surveyed) shows higher relative response within in the lower half of the grid (Figure 3), however the highest response can be found on the track line exiting the survey box in the north east (~28° 54 N, 88° 52 W). The Trios sensor detected predominantly minimal levels of inferred hydrocarbons with the highest values attained on the track taken before entering the survey box (Figure 4). The relative rescaling also shows, to a lesser extent, a higher relative response within in the lower half of the grid (Figure 5). Once again there are higher values on the track line exiting the survey box in the north east. The Contros sensor results show mid levels of inferred hydrocarbon concentration along the track (Figure 6), while the relative scaling is a mosaic of elevated levels trending to the lower half of the grid survey (Figure 7). As with the other fluorometers there are higher values on the track line exiting the survey box in the north east.

Surface Observations

A number of surface observations were made over the reporting period. These included sagassum, transparent sheens as well as one occurrence of a small patch of rainbow sheen (Figures 1, 8-10). The surface sheens were associated with bubbles or foam and in some cases included land derived material such as twigs and leaves. The features were defined patches no more than 200² m in total extent. They also appeared to be part of separate water mixing bodies possibly derived from the interaction of the Mississippi discharge and Gulf of Mexico waters. Surface samples were taken for further chemical analysis

EK-60 Echosounder results

Multiple of echo sounder contacts were made during the reporting period the locations of which are shown in Figures 1-3. The echosounder contacts (Figures 12-16) were all assigned as possible seeps. Figures 12-13 are all examples of the previously identified possible seep. Each figure represents a different survey line with a different track heading. As can be seen the angle of survey line will dictate whether the possible seep plume is imaged in cross section or is imaged longitudinally. Figure 13 shows the longitudinal line through the seep plume and demonstrated the effect of the strong currents in the area. The plume is first bent to the south east and then a second current turns the plume to the north-west. The line descending line to the right of the figure whilst not entirely clear in the presented image is contiguous with the plume. The reason for the descending line could be the result of the high current regime pulling the plume lower in the water column. The dominant plume direction is interesting as the survey line heading is in line with the location of the highest sensor values recorded close to the survey grid. We will investigate this further in the final summary report.

Science Operations:

Fluorometer measurements were logged for the majority of the period and observations of sea-surface conditions were made throughout. The EK-60 echo sounder is continuously collecting data to evaluate the seabed and water column for possible seeps.

Problems/operational issues:

No problems reported for period covered.

Planned route for cruise 11:

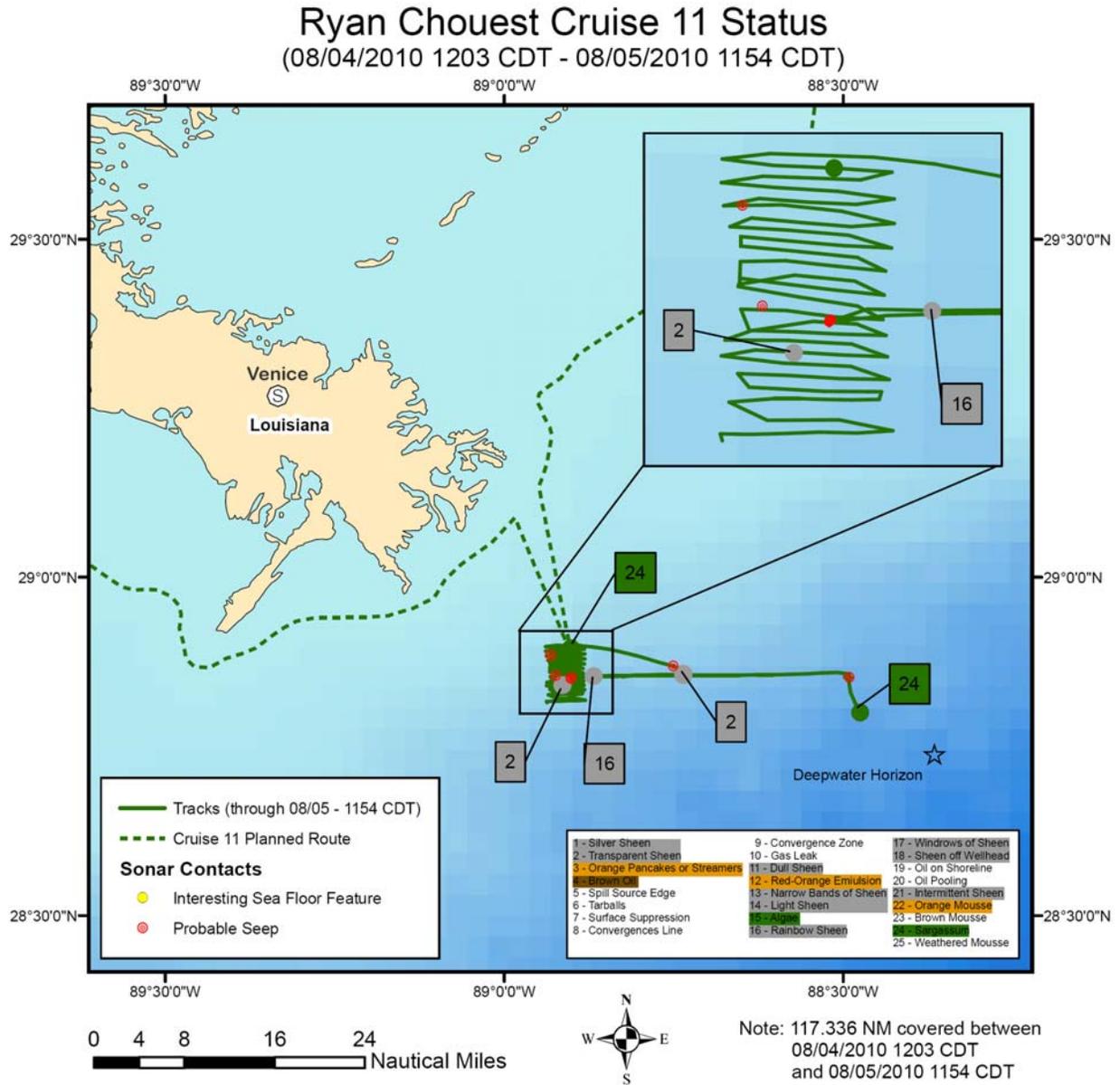


Figure 1: Planned route for cruise 11 versus the actual route plotted between 08/04/2010 – 08/05/2010.

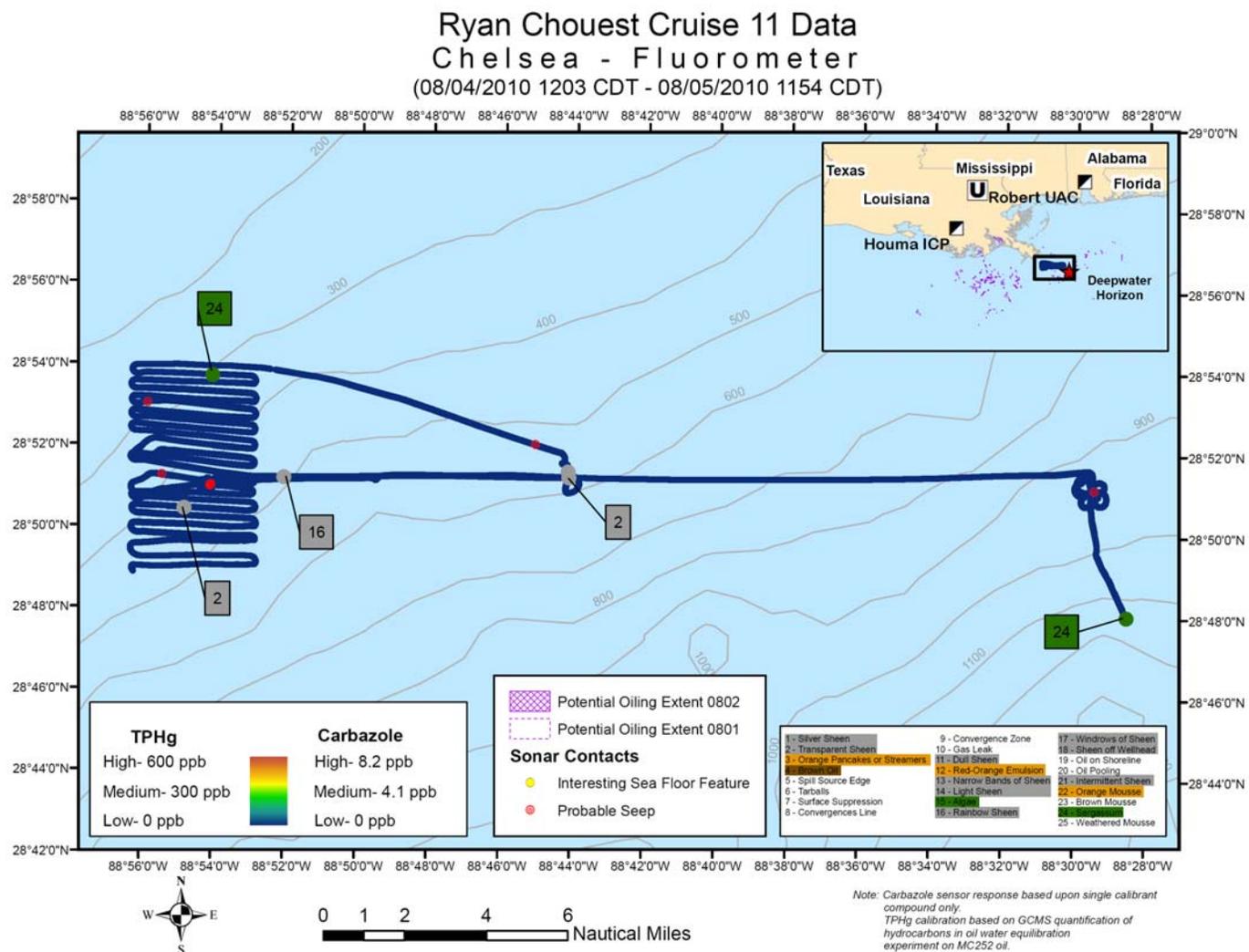


Figure 2. Chelsea fluorometer results plotted with location on cruise track 11. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

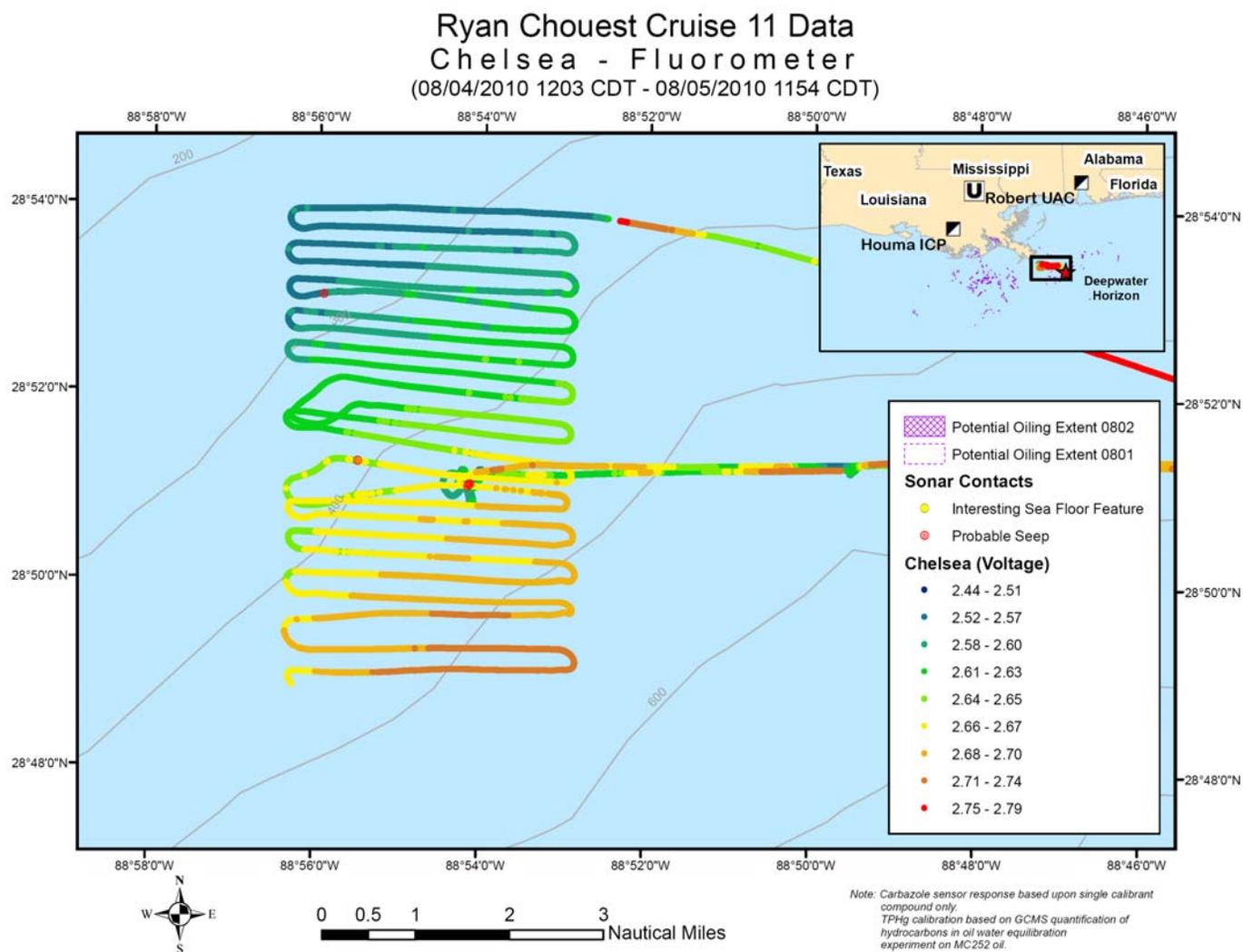


Figure 3. Chelsea fluorometer results, within a ~5 x 4 nautical mile grid survey, plotted with location on cruise track 11. The figure scaling is relative based on the highest and lowest fluorometer responses made during the period. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

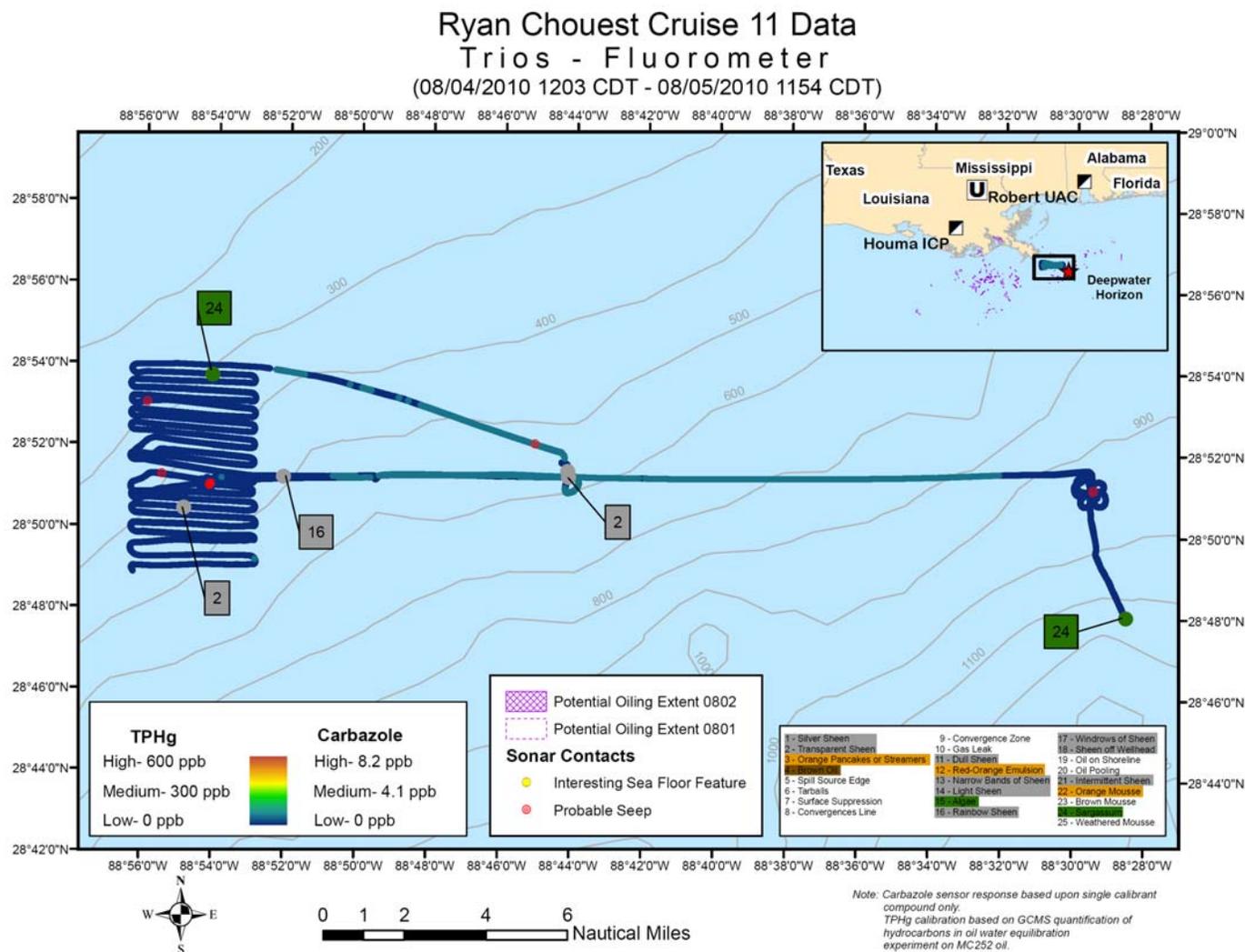


Figure 4. Trios fluorometer results plotted with location on cruise track 11. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

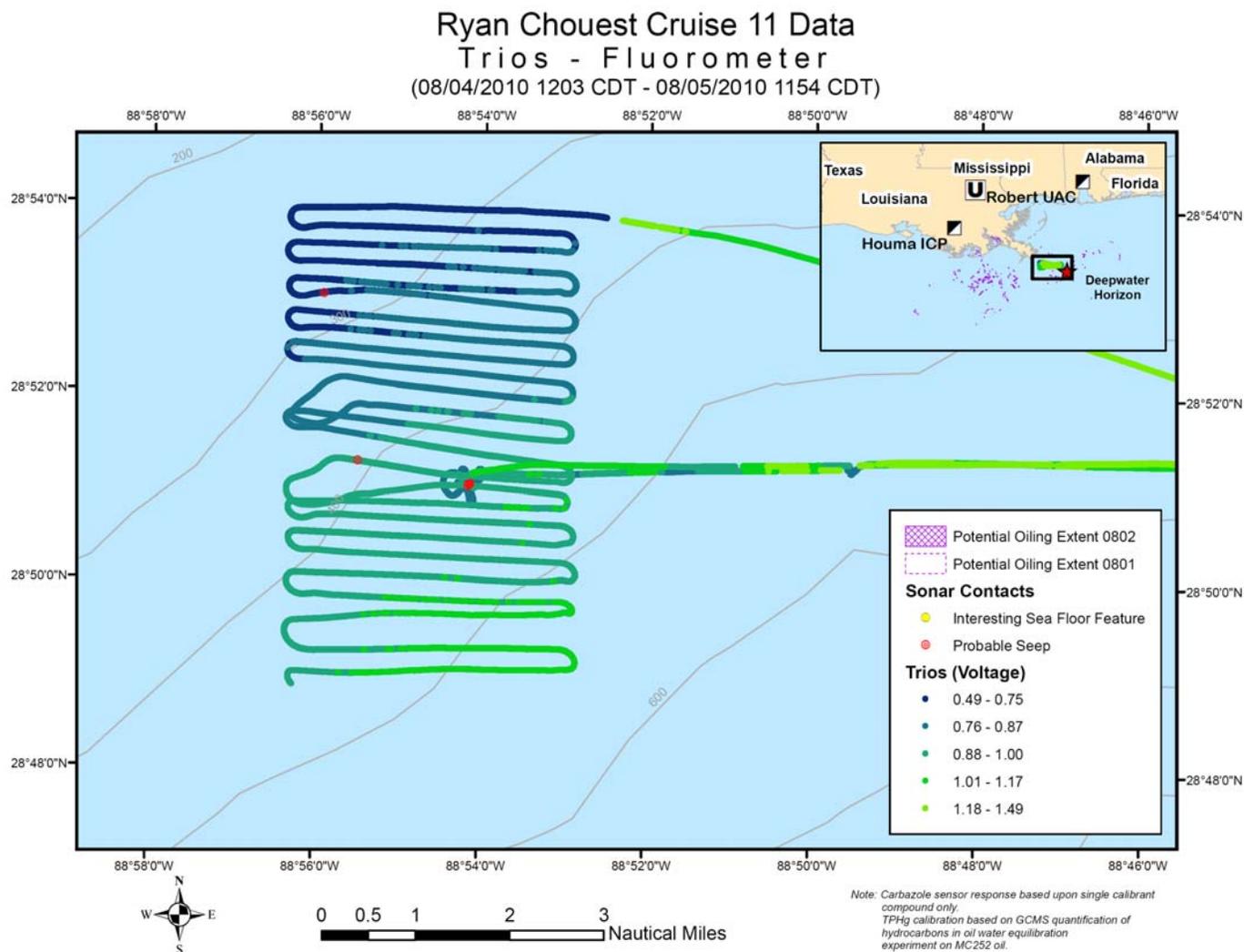


Figure 5. Trios fluorometer results, within a ~5 x 4 nautical mile grid survey, plotted with location on cruise track 11. The figure scaling is relative based on the highest and lowest fluorometer responses made during the period. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

Ryan Chouet Cruise 11 Data Contros - Fluorometer (08/04/2010 1203 CDT - 08/05/2010 1154 CDT)

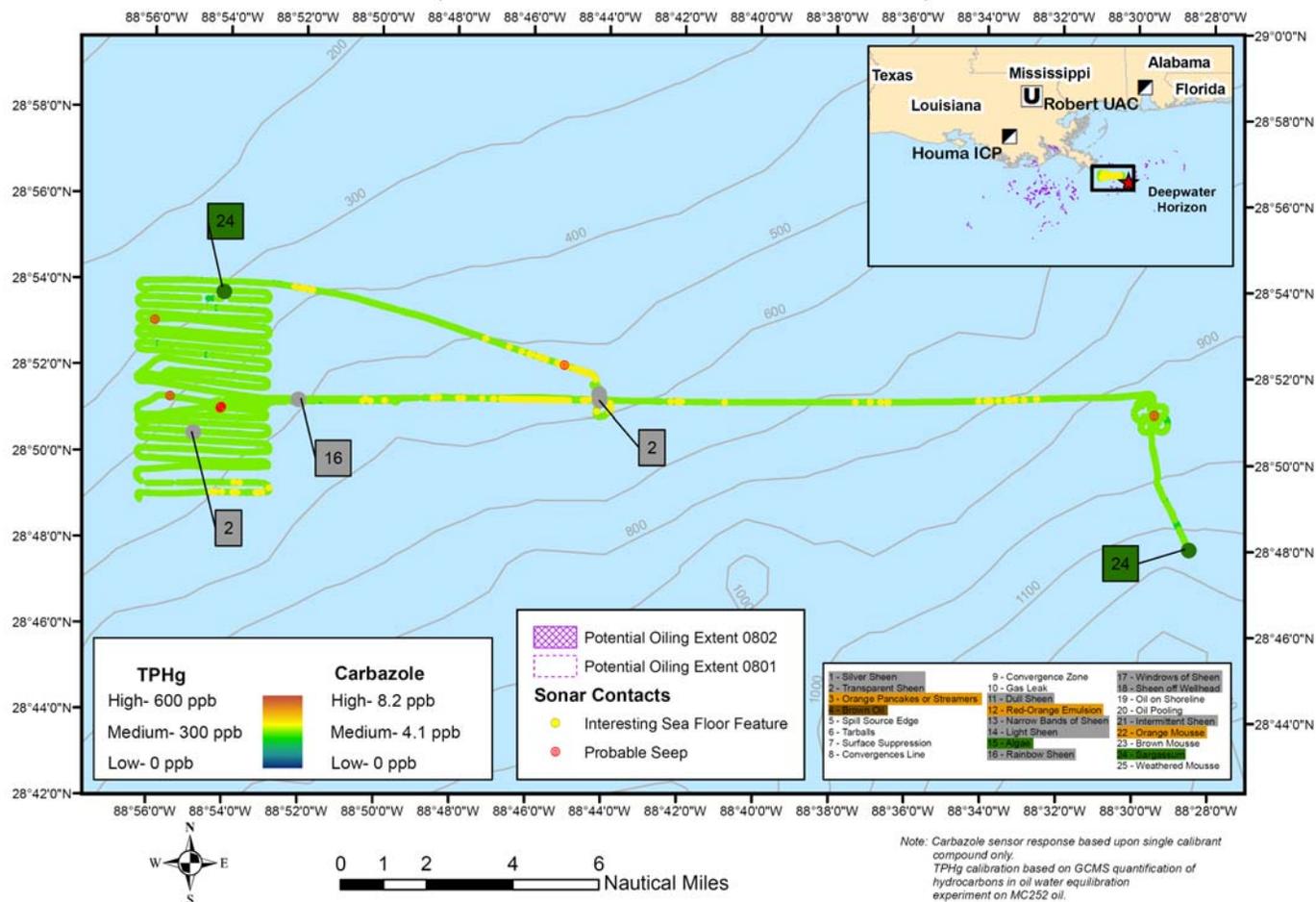


Figure 6. Contros fluorometer results plotted with location on cruise track 11. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

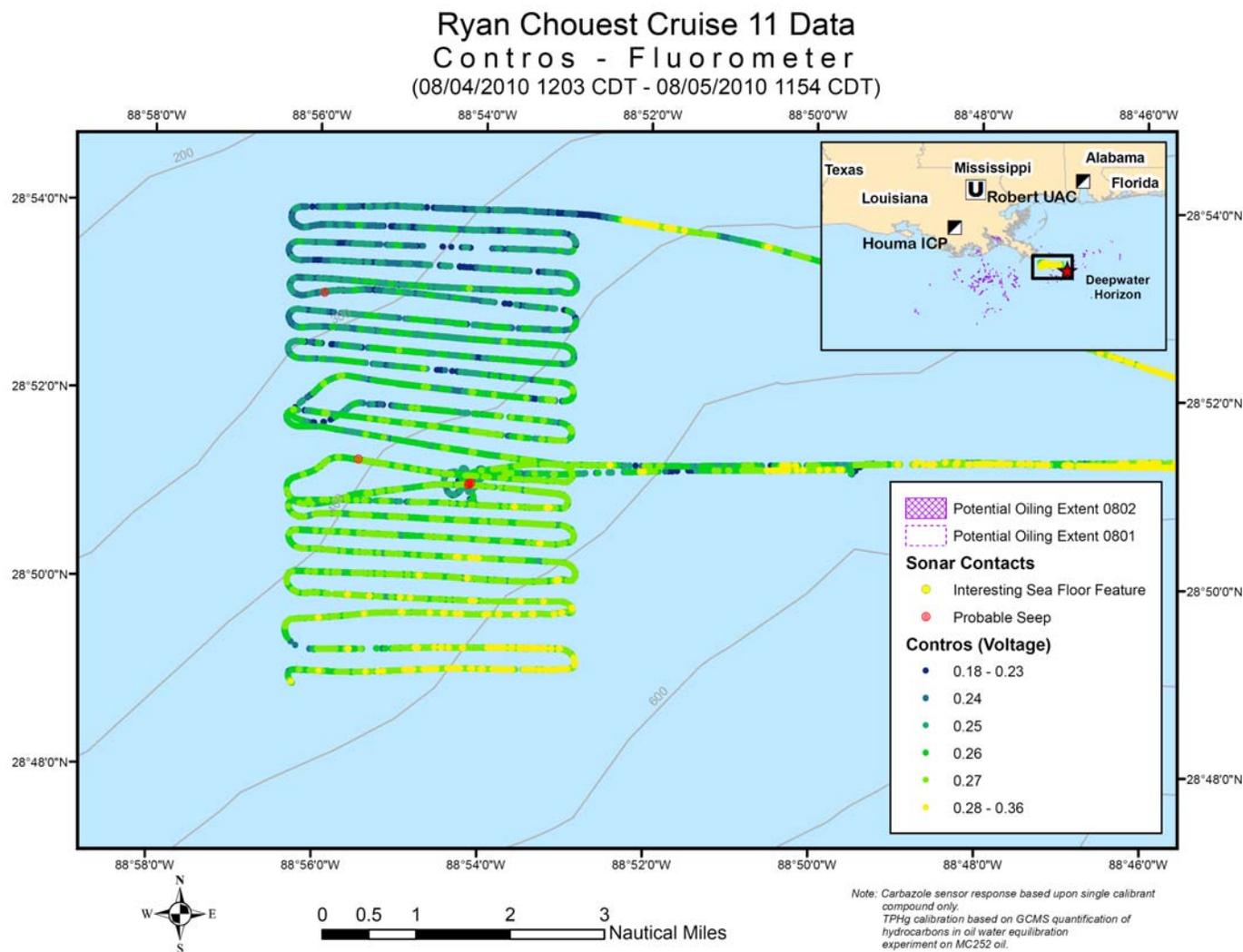


Figure 7. Contros fluorometer results, within a ~5 x 4 nautical mile grid survey, plotted with location on cruise track 11. The figure scaling is relative based on the highest and lowest fluorometer responses made during the period. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

Selected Photographs:

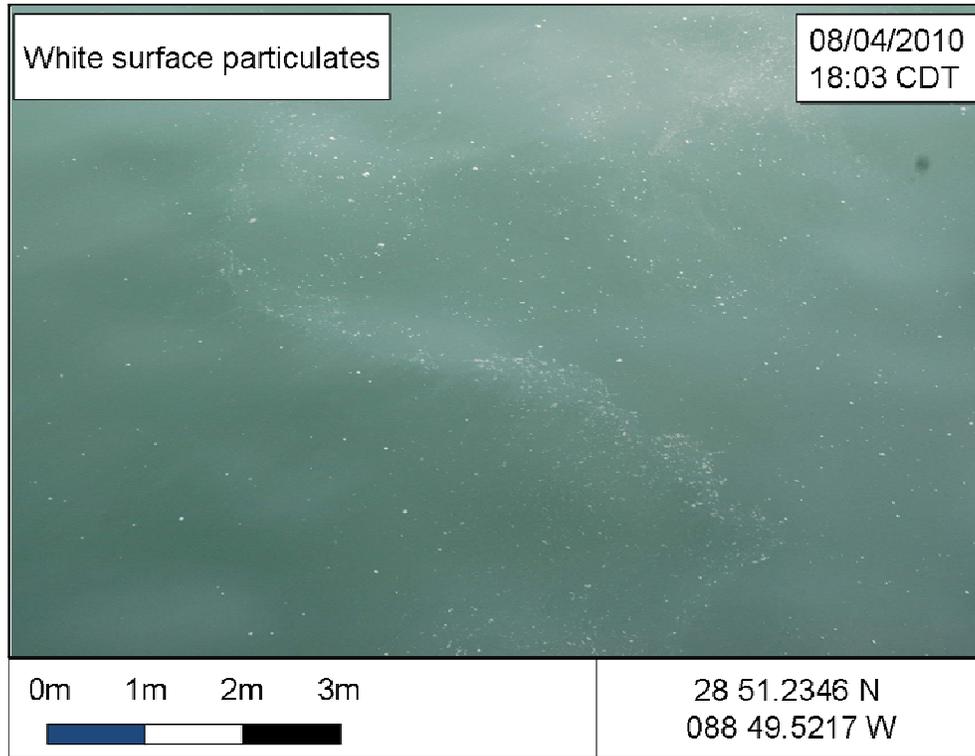


Figure 8. White surface particulates of unknown origin observed during reporting period.

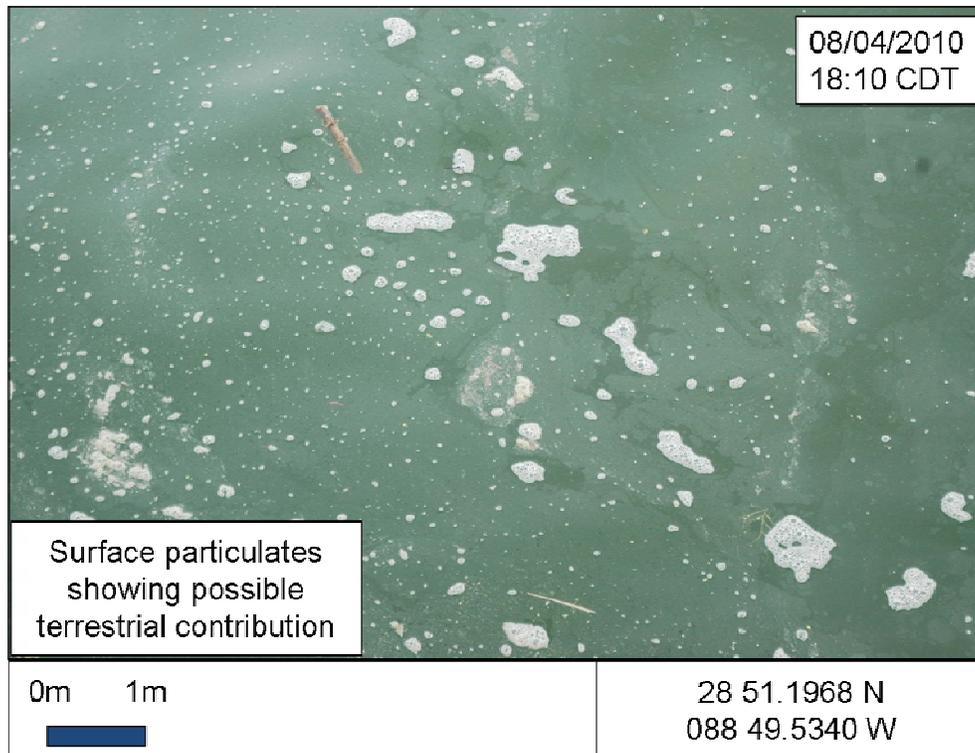


Figure 9. Surface particulates, sheen and foam with land derived material observed during reporting period.

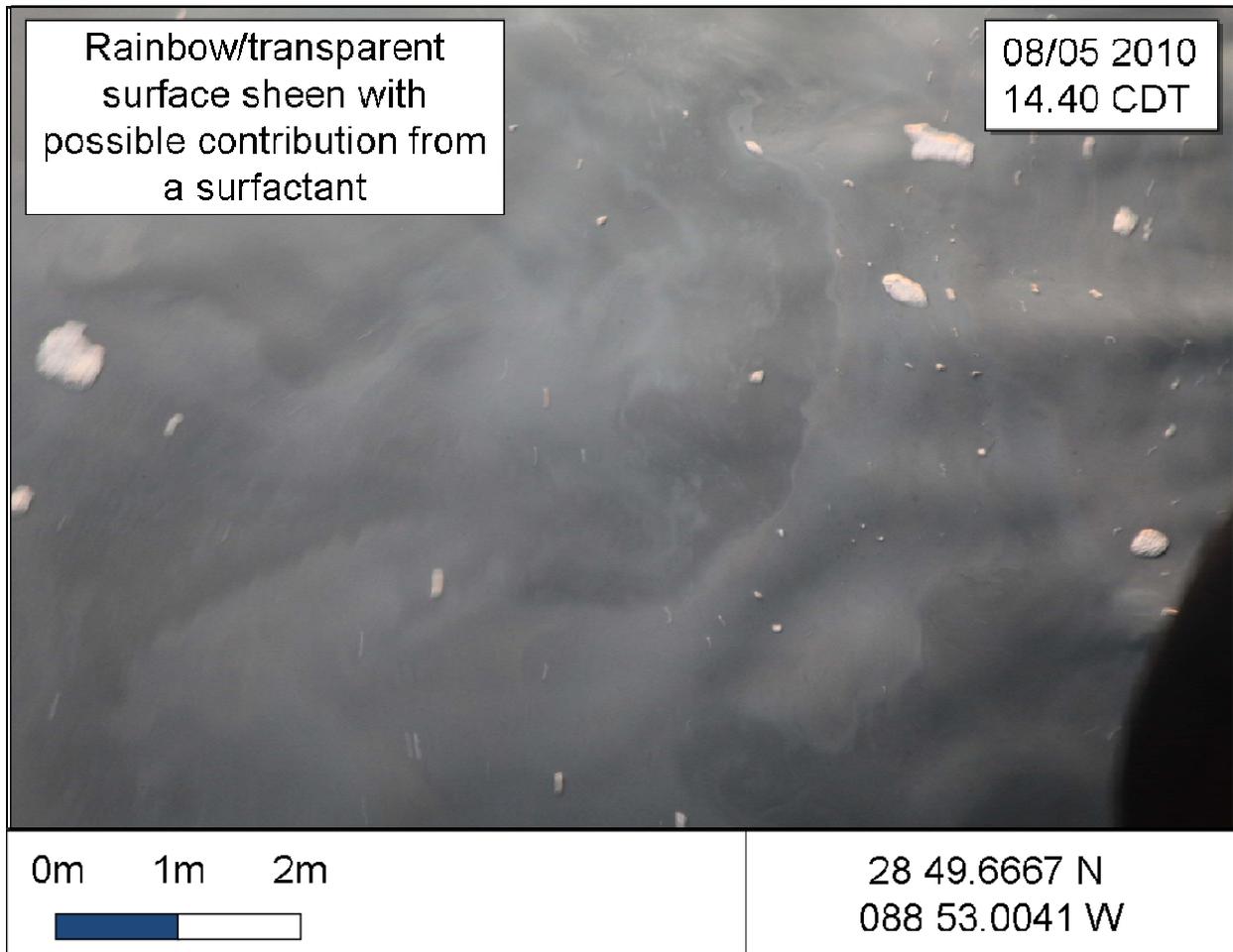


Figure 10. Surface sheen and foam observed during reporting period.

Echosounder Contacts

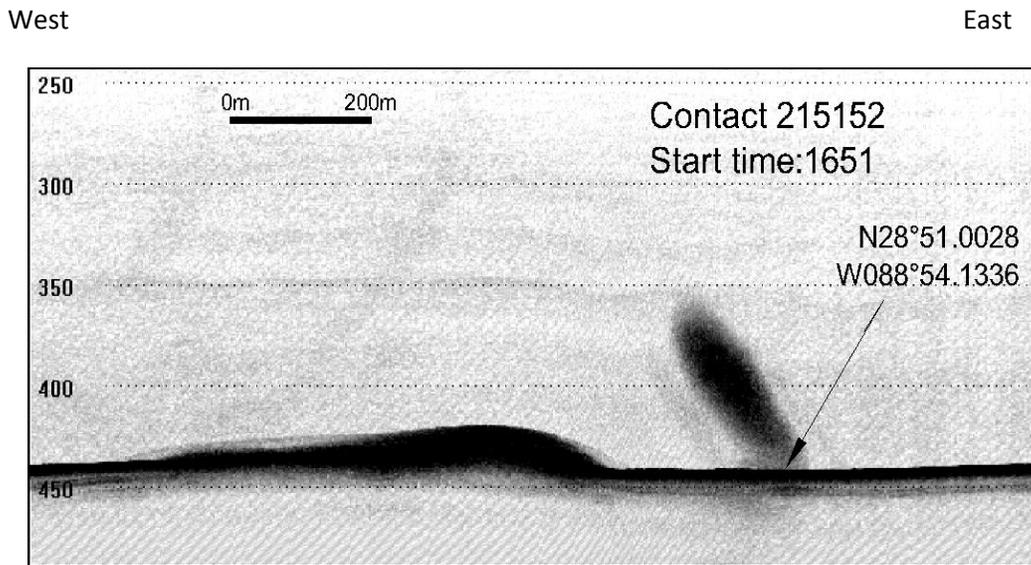


Figure 11. Contact_08042010_215152. Description: Seafloor to mid water contact, possible seep. Time (CDT): 08/04/2010 1651 hrs. Location: 28° 51.0028N; 88° 54.1336W. Depth displayed: 352.42m to 437.53m.

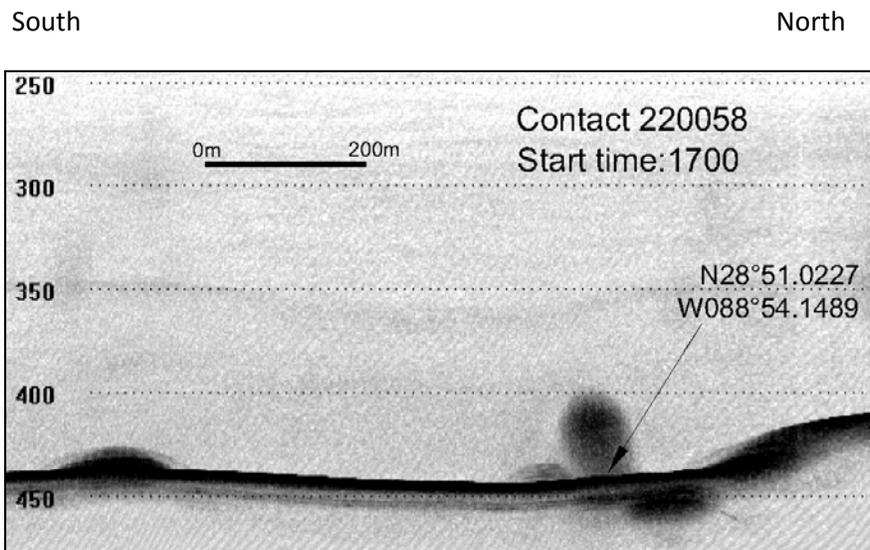


Figure 12. Contact_08042010_220058. Description: Seafloor to mid water contact, possible seep. Time (CDT): 08/04/2010 1700 hrs. Location: 28° 51.0027N; 88° 54.1489W. Depth displayed: 394.80m to 434.82m.

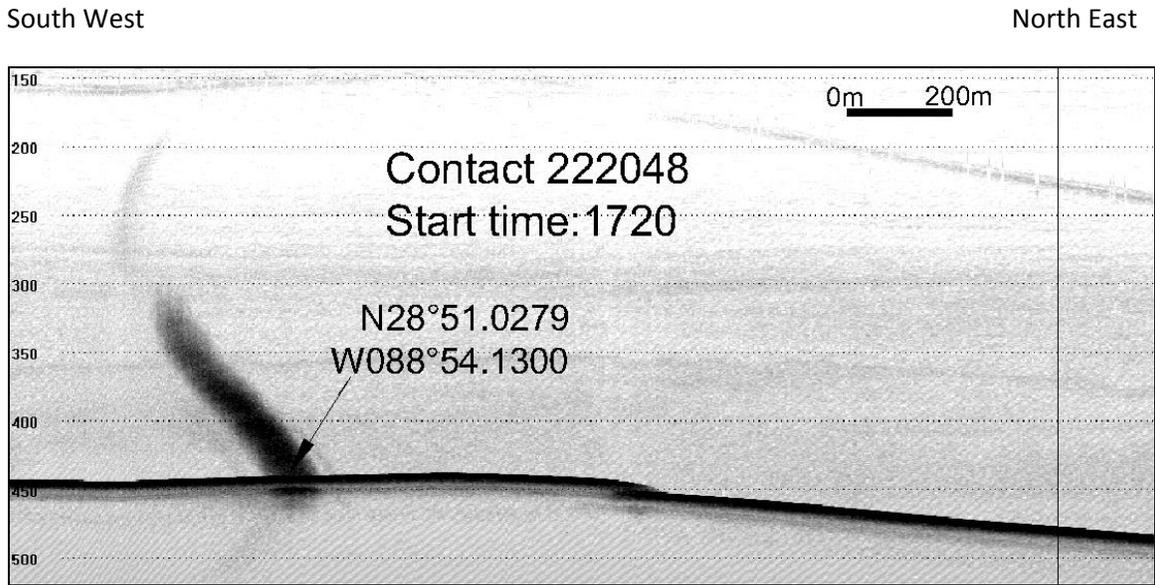


Figure 13. Contact_08042010_220048. Description: Seafloor to mid water contact, possible seep. Time (CDT): 08/04/2010 1720 hrs. Location: 28° 51.0279N; 88° 54.1300W. Depth displayed: 184.73m to 437.72m.

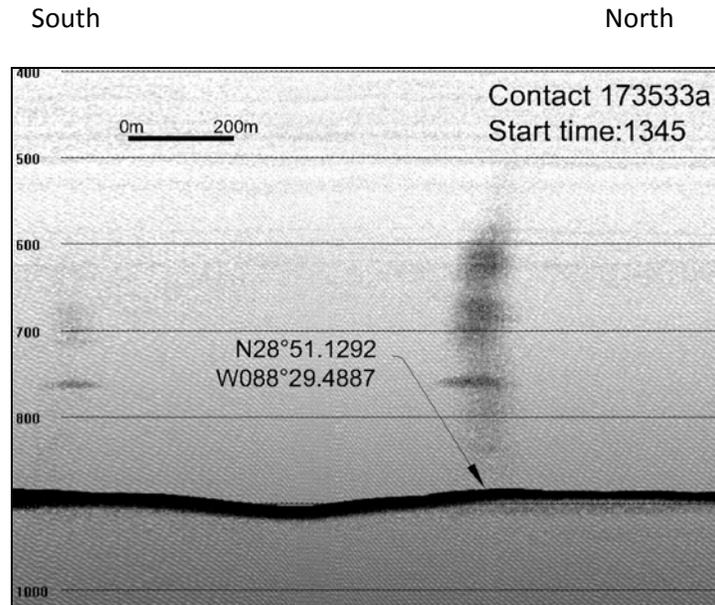


Figure 14. Contact_08042010_173533. Description: Possible seep. Time (CDT): 08/04/2010 1345 hrs. Location: 28° 51.1292N; 88° 29.4887W.

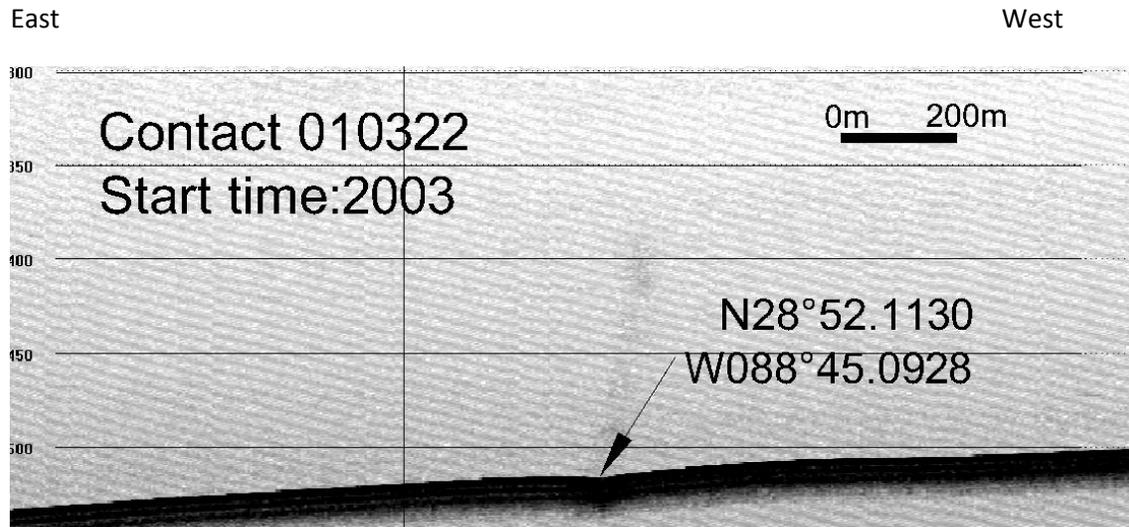


Figure 15. Contact_08042010_010322. Description: Possible seep. Time (CDT): 08/04/2010 2003 hrs. Location: 28° 52.1130N; 88° 45.0928W. Depth displayed: 385.04m to 513.04m.

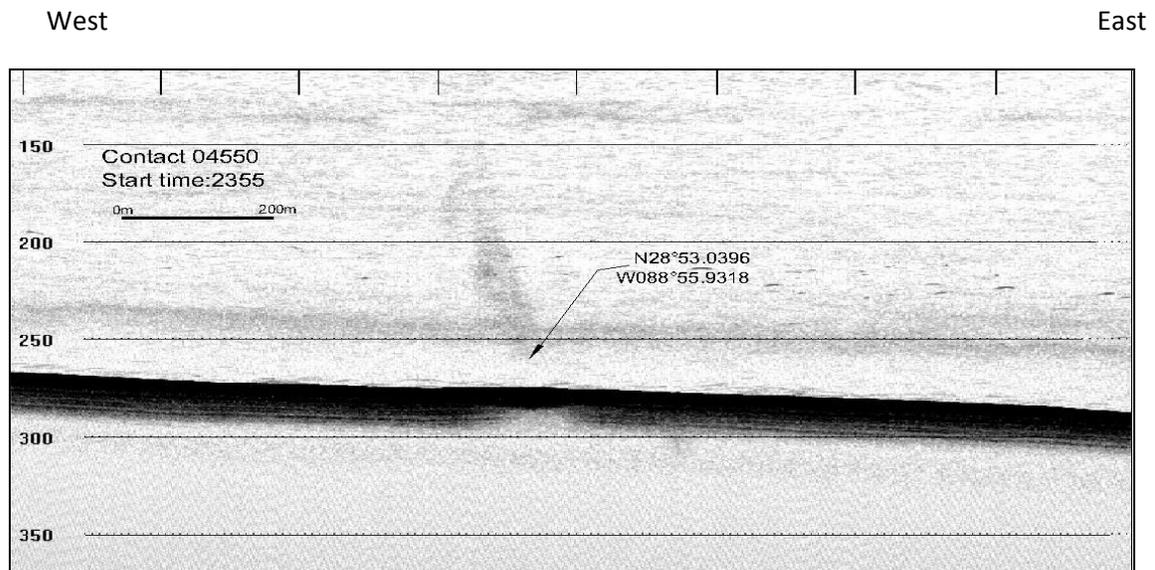


Figure 16. Contact_08042010_04550. Description: Seafloor to mid-water contact, possible seep. Time (CDT): 08/04/2010 1720 hrs. Location: 28° 53.0396N; 88° 55.9318W. Depth displayed: 138.98m to 266.27m.

Planned activities for next 24 hours:

The *Ryan Chouest* will complete the high resolution survey over the potential seep area NW of the MC252 site within MC 108 and begin the costal transect along the 30m bathymetric contour, along the gulf coastlines of Louisiana, Mississippi, Alabama and west Florida.

Full Crew List:

William A. Smith	MASTER	Brian Corley	Mate
Craig Lyons	ENG	Patrick Cousin	A/B
Mark Harmon	A/B	Arthur Triggs	O/S
Elijah Benjamin	O/S	Patric Anderson	QMED
Kile Blunt	OS/Cook	Roderick Baker	OS/Cook
Tosin Majekodunmi	BP	Curtis Walker	Entrix
Andrew Ross	CSIRO	David Fuentes	CSIRO
Emma Crooke	CSIRO	Asrar Talukder	CSIRO
Quinn Guidrey	C&C	Kelly Bates	C&C
Jen Carlsen	C&C	Mathew Baham	C&C
Joseph Watson	C&C	Jay Ridgeway	C&C
Josh Chauffe	C-Port	Larry Luke	C-Port