

August 6th | 2010

Ryan Chouest daily data transmission and report

Period covered: 1203hrs 08/05/2010 - 0917hrs 08/06/2010

78.164 - Nautical miles covered

Vessel science party:

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Cruise notes:

The *Ryan Chouest* completed the final portion of ~5 x 4 nautical mile high resolution grid survey off the Mississippi delta before heading west to rejoin the coastal transect off Port Fourchon (Figure 1).

Science results and preliminary interpretation:

Fluorometry results

The Chelsea sensor results indicate minimal levels of inferred hydrocarbons through the track travelled (Figure 2). The Trios and Contros sensors both show higher inferred hydrocarbon concentrations to the north east of the survey area (Figures 4 & 6). A relative rescaling (using corresponding highest and lowest sensor voltage values within area surveyed) does indicate a systematic pattern of elevated responses for the Chelsea and Trios (Figure 3 & 5) once again to the north east of the survey area. The relationship for the Contros fluorometer relative scale figure (Figure 7) is less clear. This is consistent with yesterday's data. The vertical cast performed over Contact_08042010_220048 showed no enhanced sensor response within the lower section of the cast however this may be because the plume was located deep that our vertical cast system could sample.

Surface Observations

Surface observations made over the reporting period included sargassum, convergence lines, including a zone of differing water properties (likely discharge from the Mississippi mixing with Gulf of Mexico waters) that created dark patches water within the turbid water and initially looked like possible oil (Figures 9-10). This area was experiencing high currents likely due to the proximity of the *Ryan Chouest* from the mouth of the Mississippi delta. Additionally, a similar zone was encountered later with thriving marine life (different fish species) accumulated within the dark patches of water which were feeding from the more turbid green waters. Further evidence that these waters were likely to be the result of Mississippi river waters was provided by land plant material in the patches of green turbid waters (Figure 11).

Planned route for cruise 11:

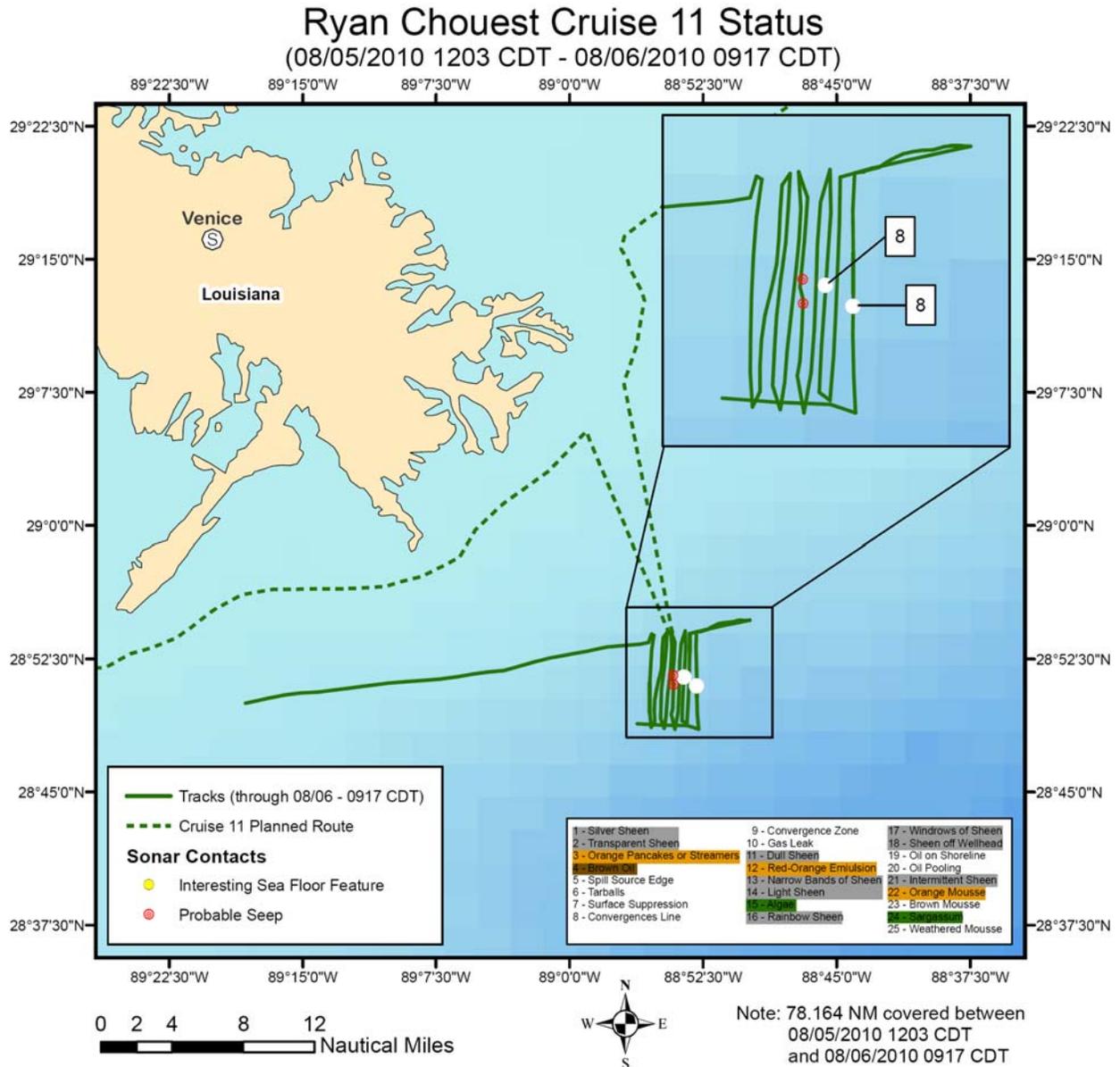


Figure 1: Planned route for cruise 11 versus the actual route plotted between 08/05/2010 – 08/06/2010.

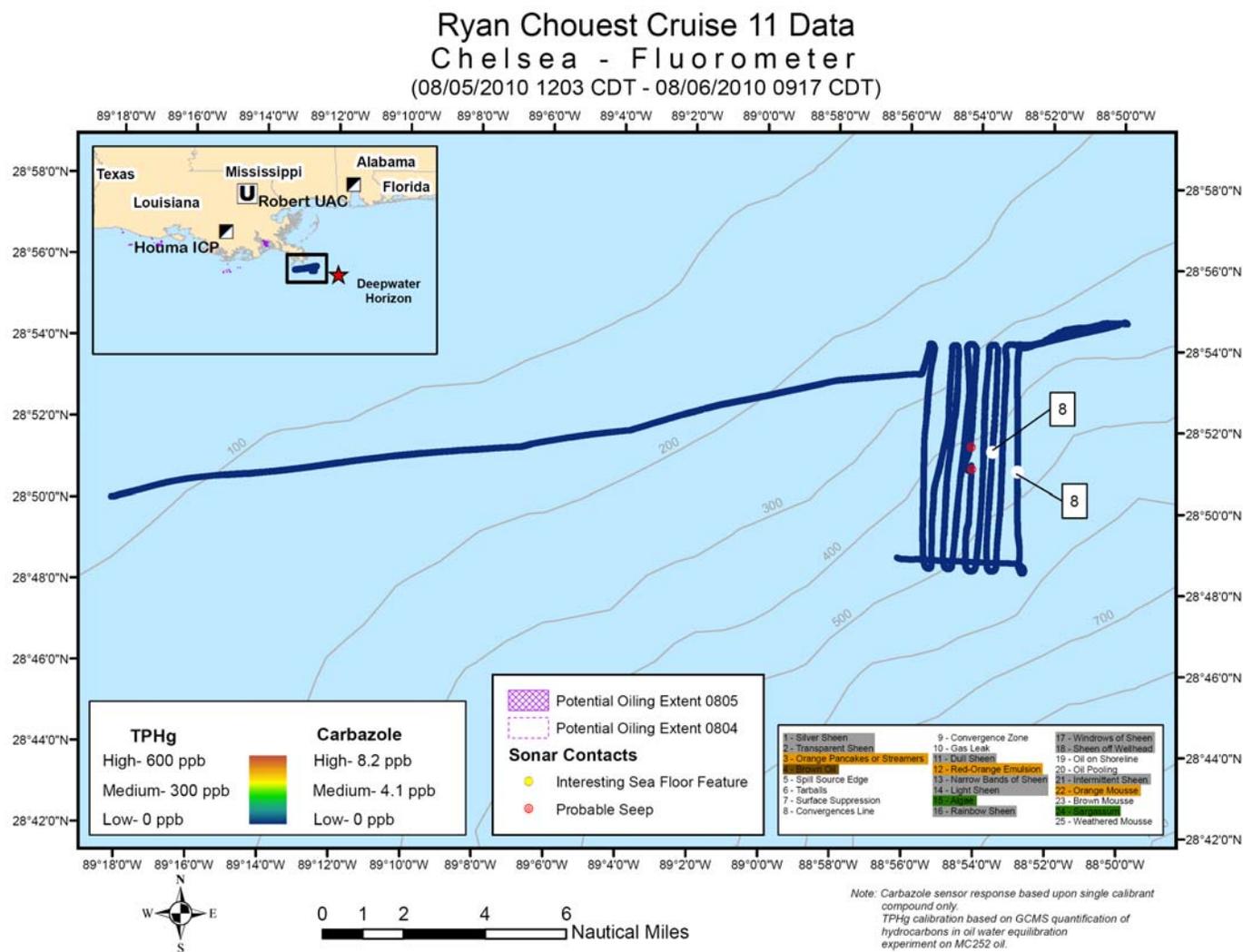


Figure 2. Chelsea fluorometer results plotted with location on cruise track 11. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

Ryan Chouest Cruise 11 Data Chelsea - Fluorometer (08/05/2010 1203 CDT - 08/06/2010 0917 CDT)

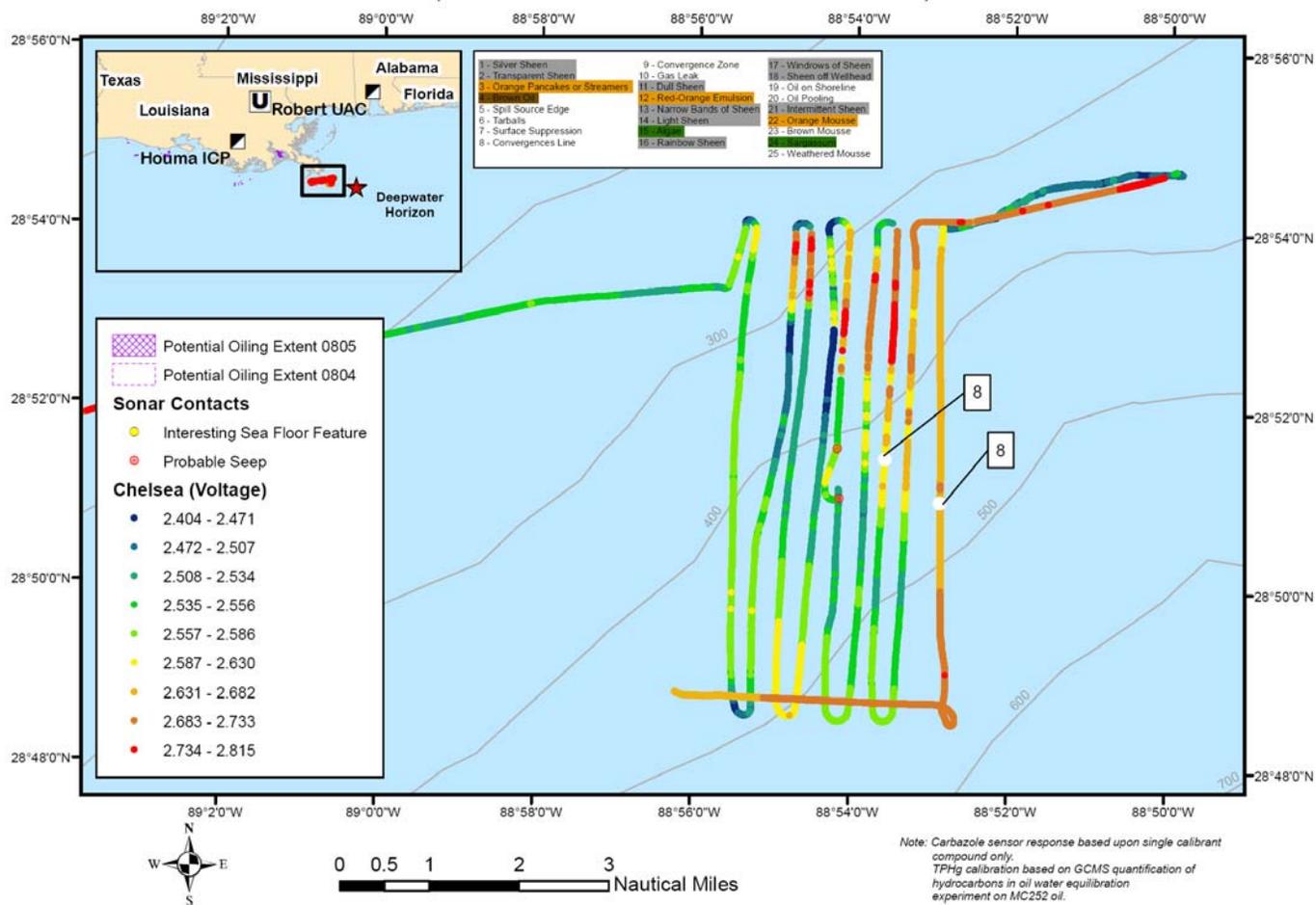


Figure 3. Chelsea fluorometer results, within a ~5 x 4 nautical mile grid survey, plotted with location on cruise track 11. The figure scaling is relative based on the highest and lowest fluorometer responses made during the period. Breaks in data occur when either data quality is poor or the systems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

Ryan Chouest Cruise 11 Data Trios - Fluorometer (08/05/2010 1203 CDT - 08/06/2010 0917 CDT)

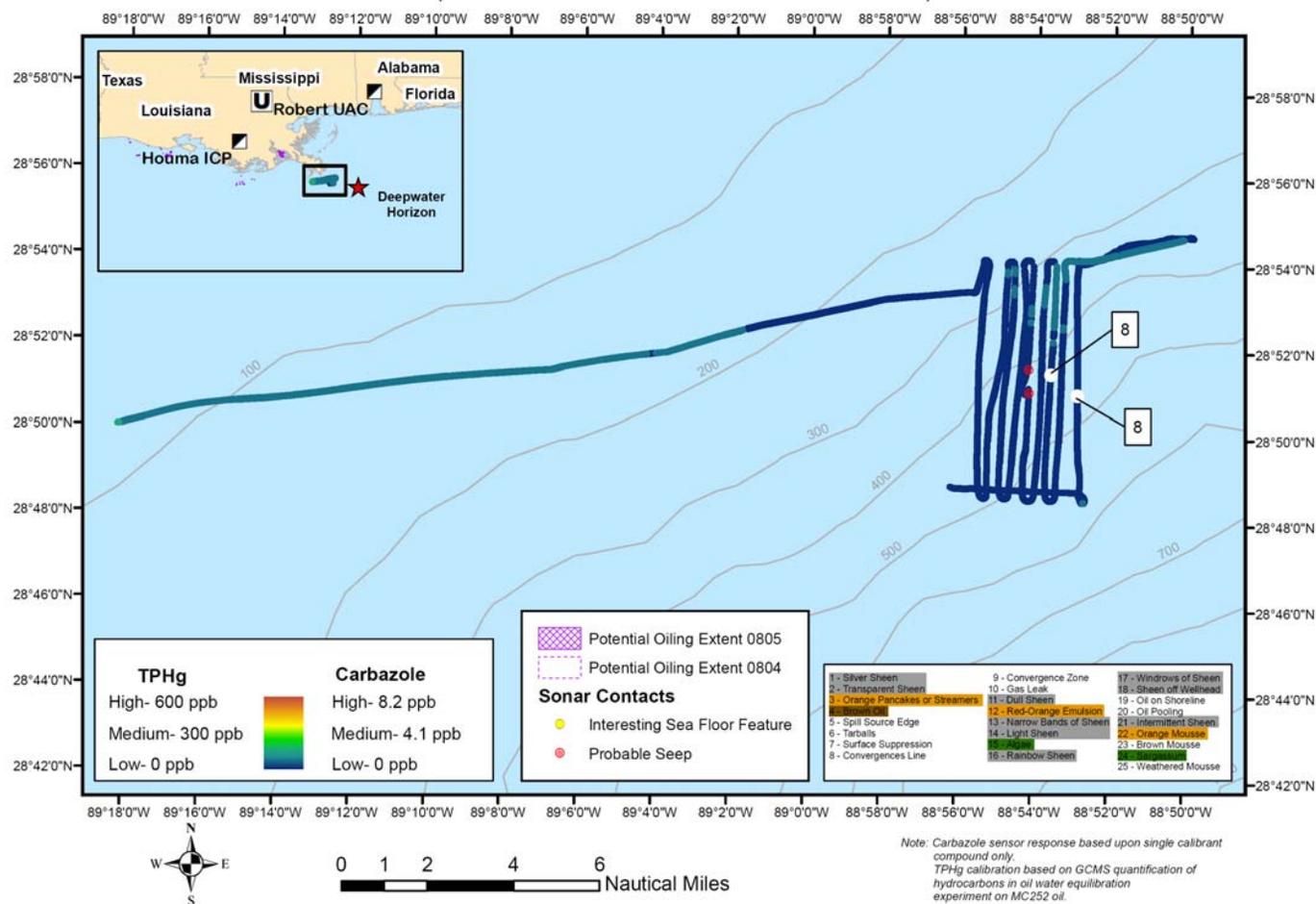


Figure 4. Trios fluorometer results plotted with location on cruise track 11. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

Ryan Chouest Cruise 11 Data Trios - Fluorometer (08/05/2010 1203 CDT - 08/06/2010 0917 CDT)

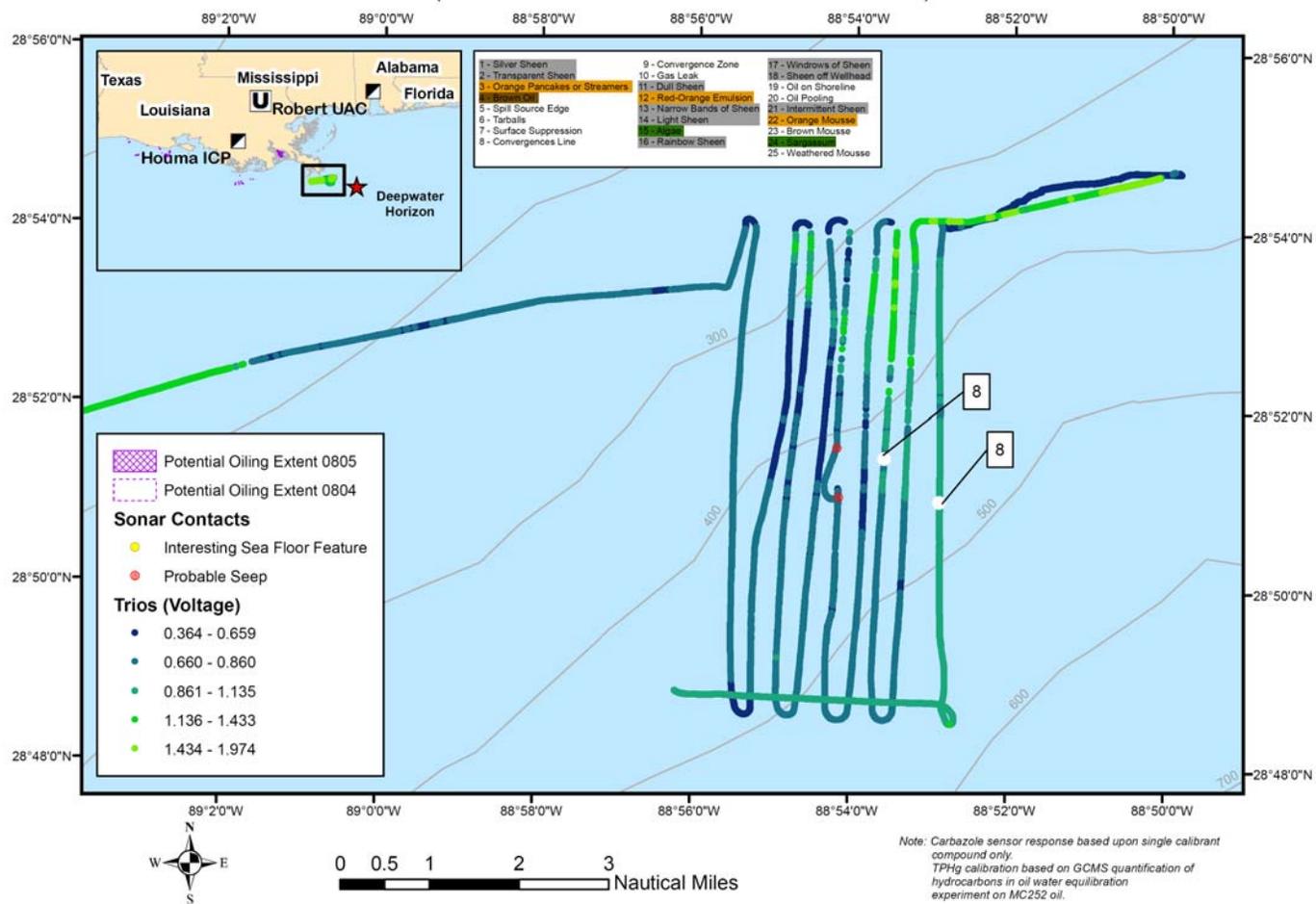


Figure 5. Trios fluorometer results, within a ~5 x 4 nautical mile grid survey, plotted with location on cruise track 11. The figure scaling is relative based on the highest and lowest fluorometer responses made during the period. Breaks in data occur when either data quality is poor or the systems were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

Ryan Chouest Cruise 11 Data Contros - Fluorometer (08/05/2010 1203 CDT - 08/06/2010 0917 CDT)

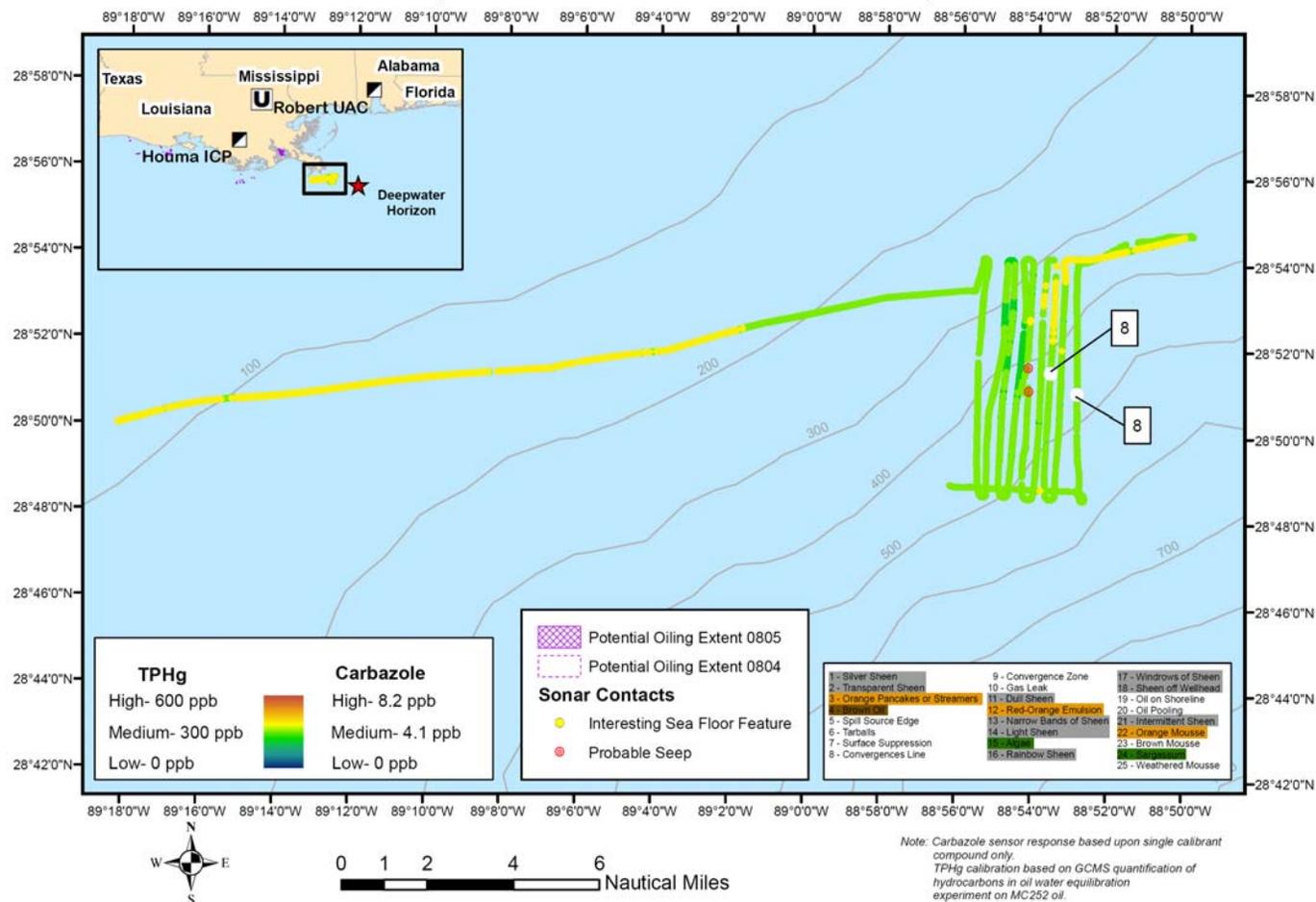


Figure 6. Contros fluorometer results plotted with location on cruise track 11. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

Ryan Chouest Cruise 11 Data Contros - Fluorometer (08/05/2010 1203 CDT - 08/06/2010 0917 CDT)

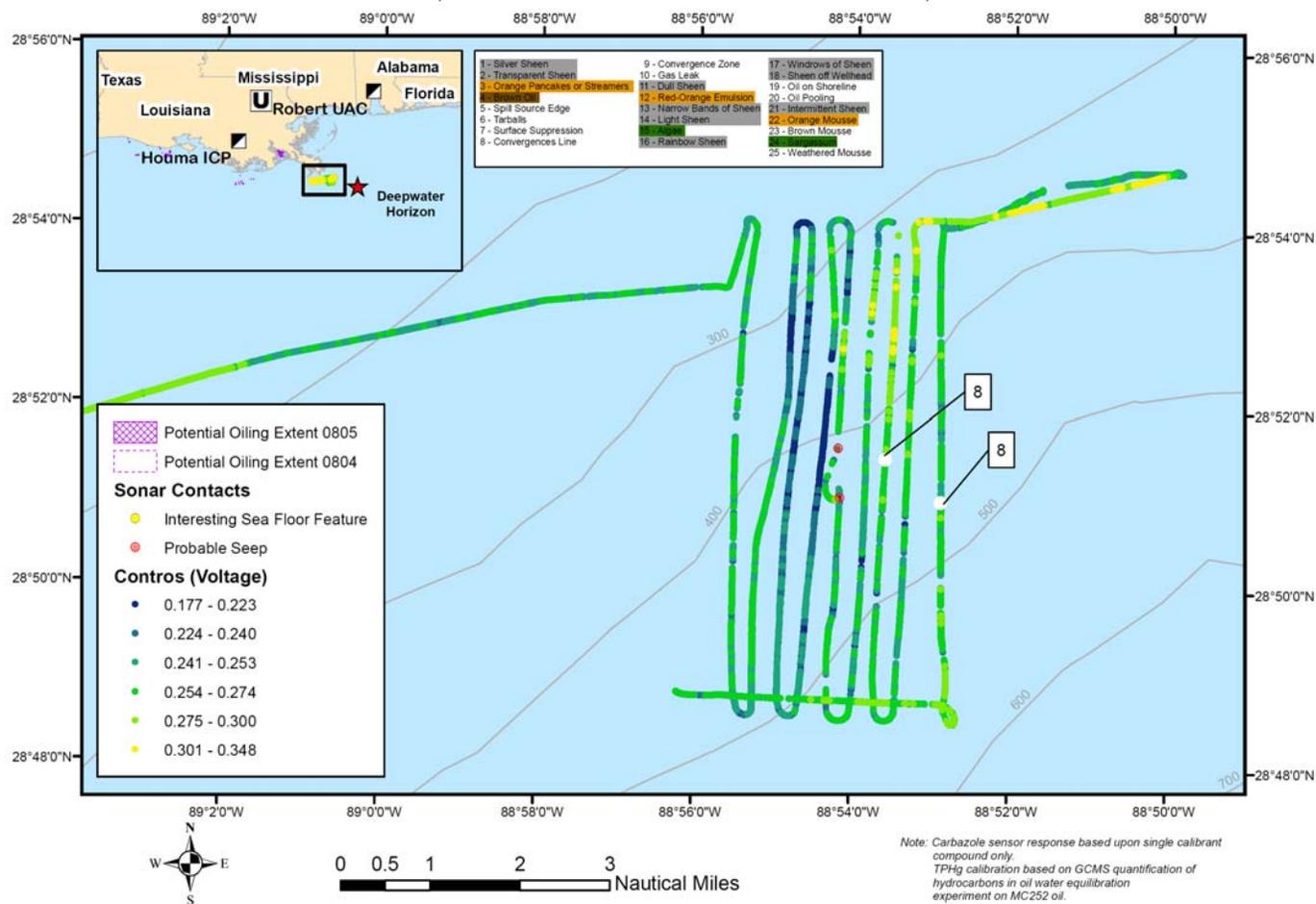


Figure 7. Contros fluorometer results, within a ~5 x 4 nautical mile grid survey, plotted with location on cruise track 11. The figure scaling is relative based on the highest and lowest fluorometer responses made during the period. Breaks in data occur when either data quality is poor or the systems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

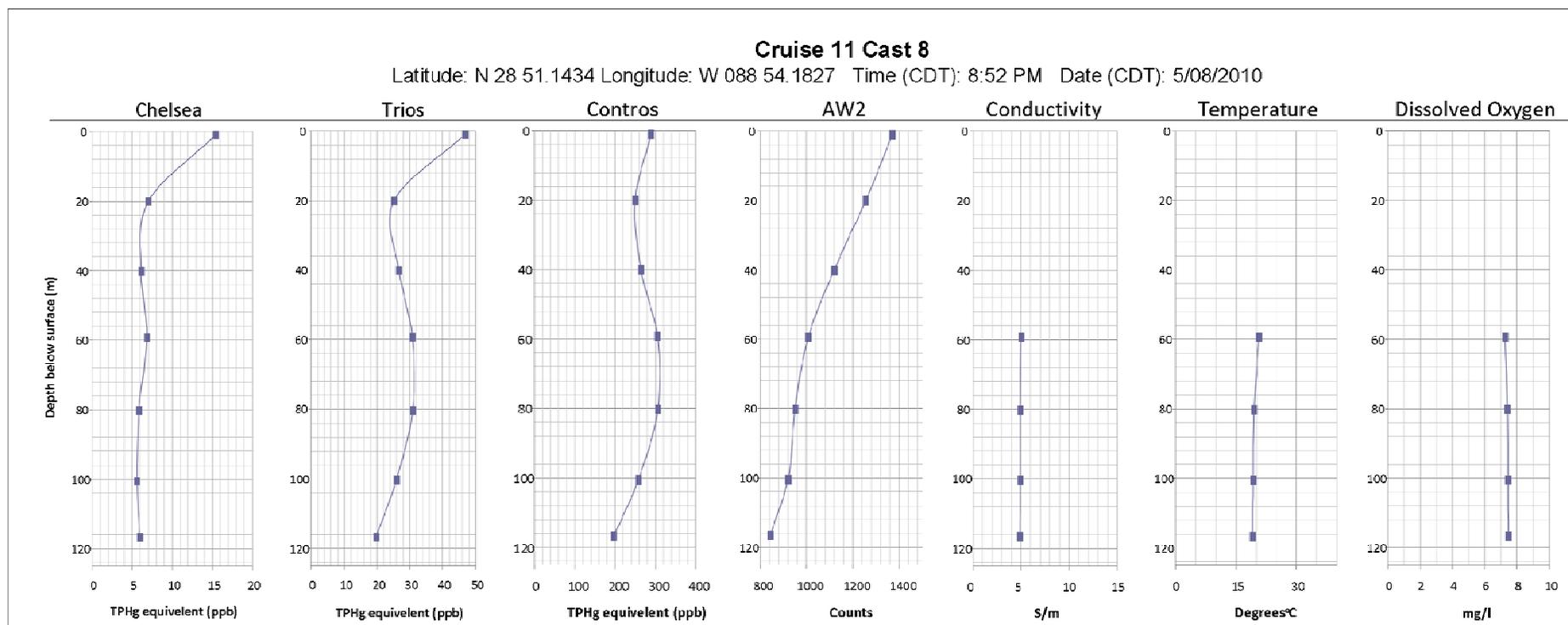


Figure 8. The results obtained for Cruise 11 vertical cast 8 down to 112 m. This cast location taken over the Contact_08042010_220048 site previously identified on the 29th July. The sensor fluorometry results for the Chelsea, Trios and Contros sensors were obtained from waters pumped to the surface. Conductivity, temperature, depth and dissolved oxygen measurements were obtained from a SBE 19+ system and oxygen sensor attached to the submersible pump used to draw the water into the sensor tank on the surface. The CTD stopped recoding data on the up-cast at 59 metres depth.

Selected Photographs:

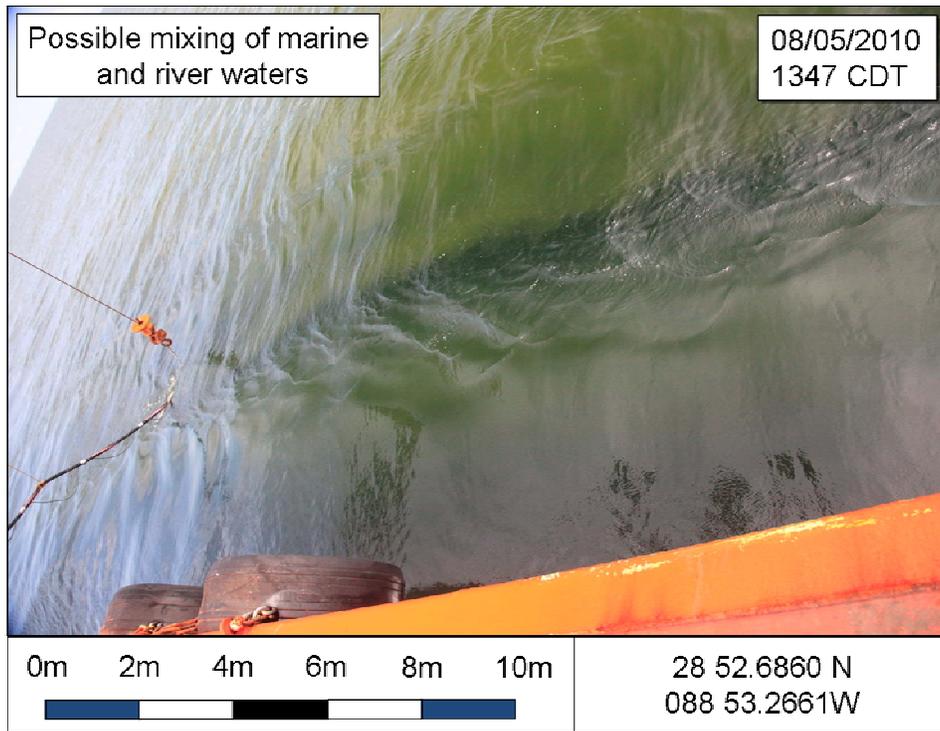


Figure 9. Mixing feature of two water bodies.

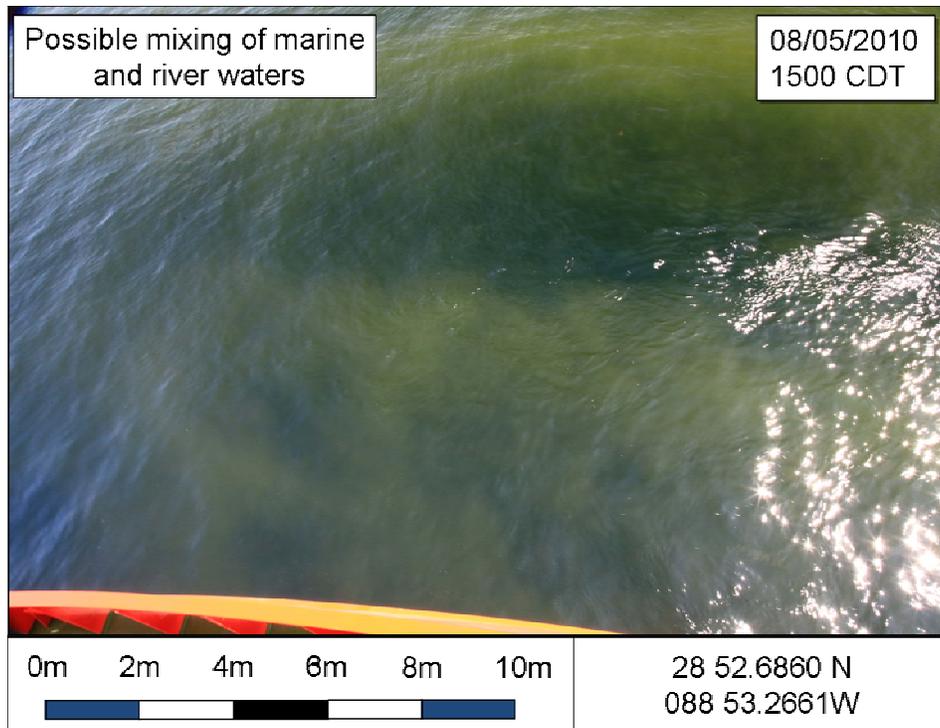


Figure 10. Mixing feature of two water bodies.

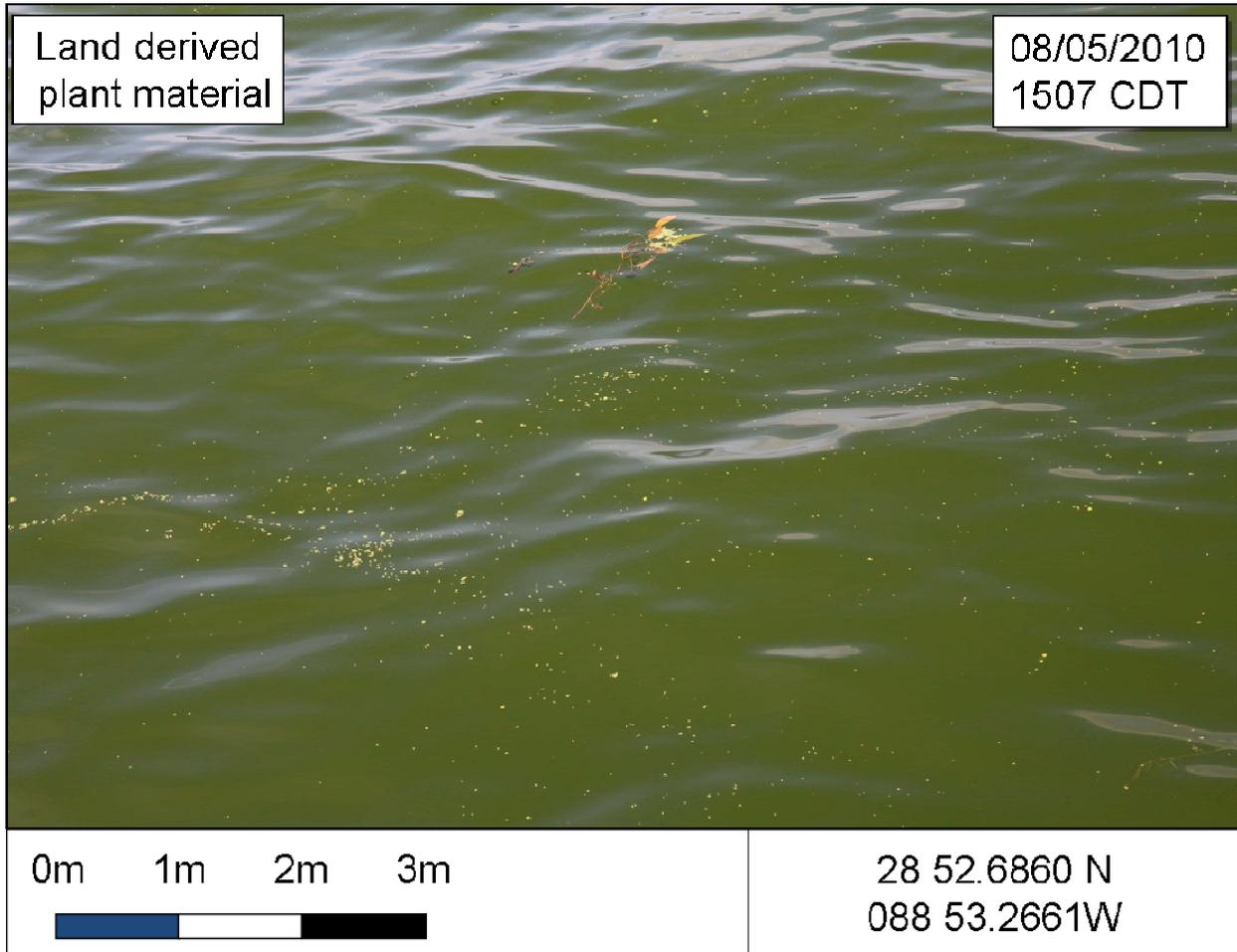


Figure 11. Land plant derived material.

Echosounder Contacts

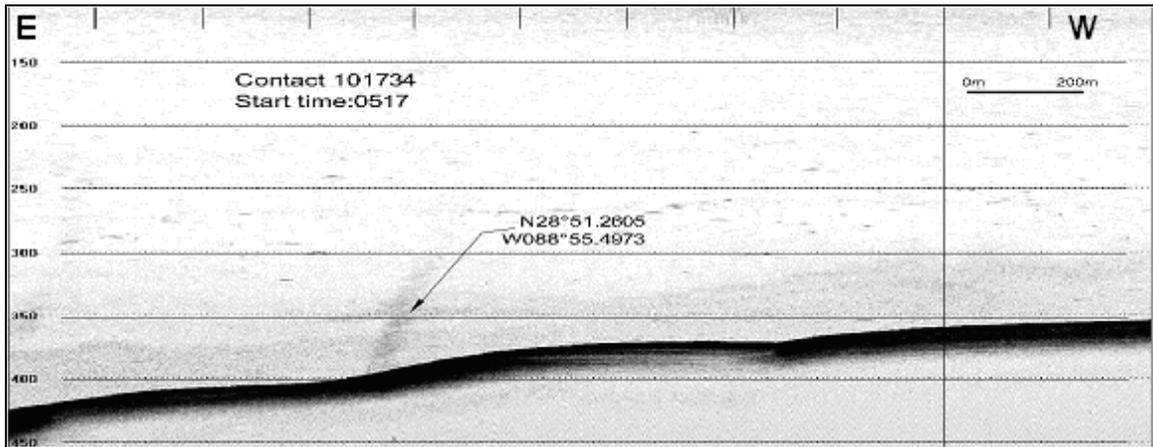


Figure 12. Contact_08052010_101734. Description: Possible seep. Time (CDT): 08/05/2010 0517 hrs. Location: 28° 51.2605N; 88° 55.4973W. Depth displayed: 303.40m to 393.67m.

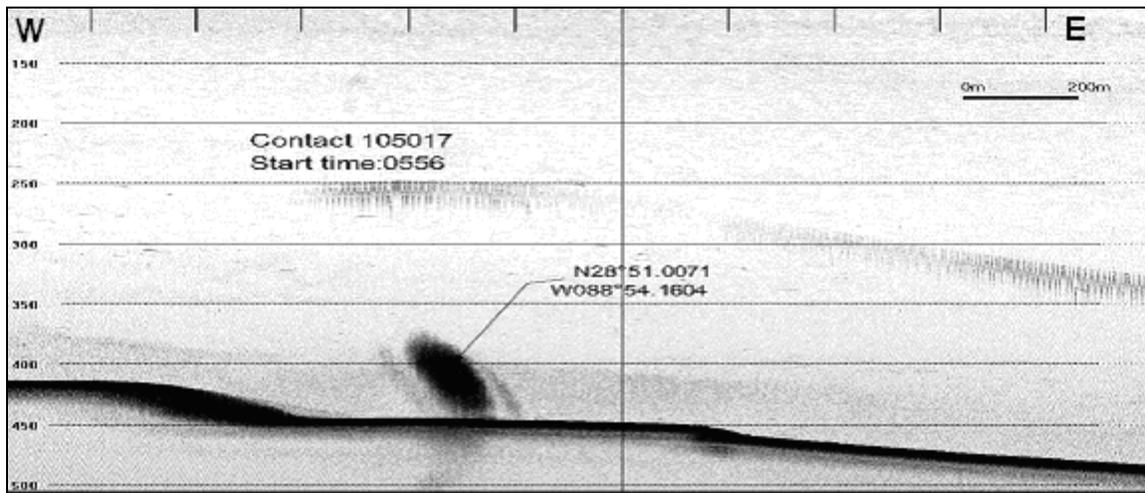


Figure 13. Contact_08052010_105017. Description: Seafloor to mid water contact, possible seep. Time (CDT): 08/05/2010 0556 hrs. Location: 28° 51.0071N; 88° 54.1604W. Depth displayed: 372.57m to 442.91m.

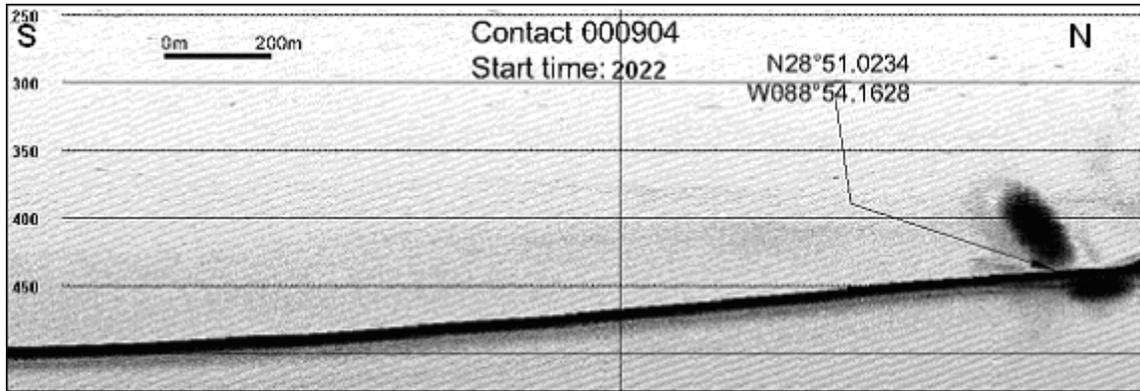


Figure 14. Contact_08052010_000904. Description: Seafloor to mid water contact, potential seep. Time (CDT): 08/05/2010 2022 hrs. Location: 28° 51.0234N; 88° 54.1628W. Depth displayed: 365.17m to 433.22m.

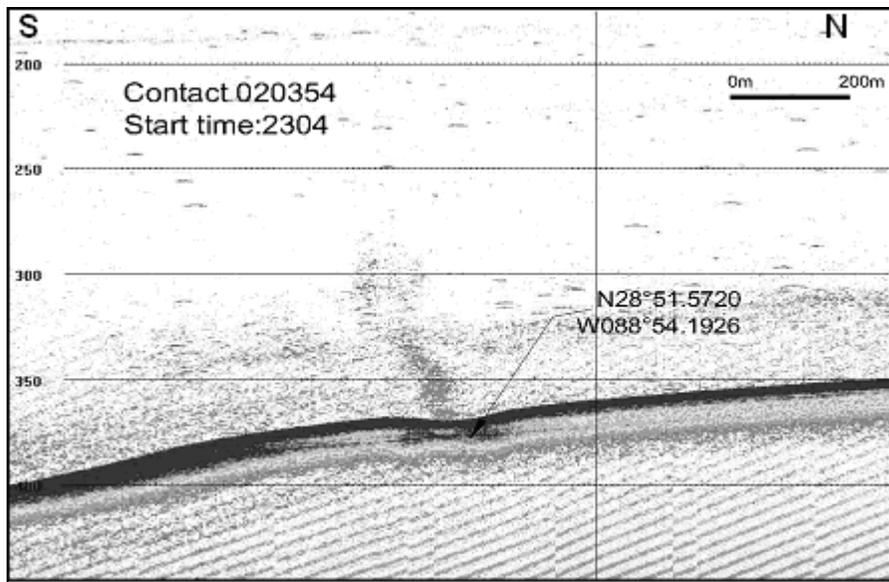


Figure 15. Contact_08052010_020354. Description: Seafloor to mid-water contact, possible seep. Time (CDT): 08/05/2010 2304 hrs. Location: 28° 51.5720N; 88° 54.1926W.

EK-60 Echosounder results

Multiple of echo sounder contacts were made during the reporting period. The echosounder contacts assigned as possible seeps are shown in Figures 12-15.

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 activities for next 24 hours:

The *Ryan Chouest* will continue the costal transect along the 30m bathymetric contour, completing vertical casts every 20 nautical miles, 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	Patrick 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