

July 28th | 2010

Ryan Chouest daily data transmission and report

## Period covered: 1055 07/27/2010 -1444 07/28/2010

### **186.54 - Nautical miles covered**

#### **Vessel science party:**

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#### **Cruise notes:**

During the period covered by this report, the vessel completed the high intensity survey box over the seep area identified previously by other vessels in MC294. The vessel then completed a 5 statute mile (4.34 nautical mile) circular route around the MC 252 spill site after which we transited through to Port Fourchon for a crew change and resupply (Figure 1). The hydrocarbon sensor array and echo sounder were operated smoothly throughout the period. Water samples were also collected across the Mississippi passes in order to help describe the fluctuations in sensor responses which have been previously observed when passing through the same area. In this report we present the results of the hydrocarbon sensors array and additional evidence for further acoustical contacts we interpret as possible additional seep locations.

#### **Science results and preliminary interpretation:**

##### Fluorometry results

Fluorometry measurements are low along the whole cruise track for the Chelsea, Trios, and Contros sensors (Figures 2-4). Whilst the sensor response was very low there were definite trends in response. The scale used in the figures does not enable these trends to be discerned although this will be addressed in the next cruise reports. Once in the waters close to the Mississippi delta the fluorometer responses became noisier, this we attribute to turbidity or humic acids. However, surface water sample were taken to establish if this was the case. At echo sounder contact 0728010\_095442, there was a broad but small increase in all of the fluorometer responses.

##### Contros HydroC Methane Sensor

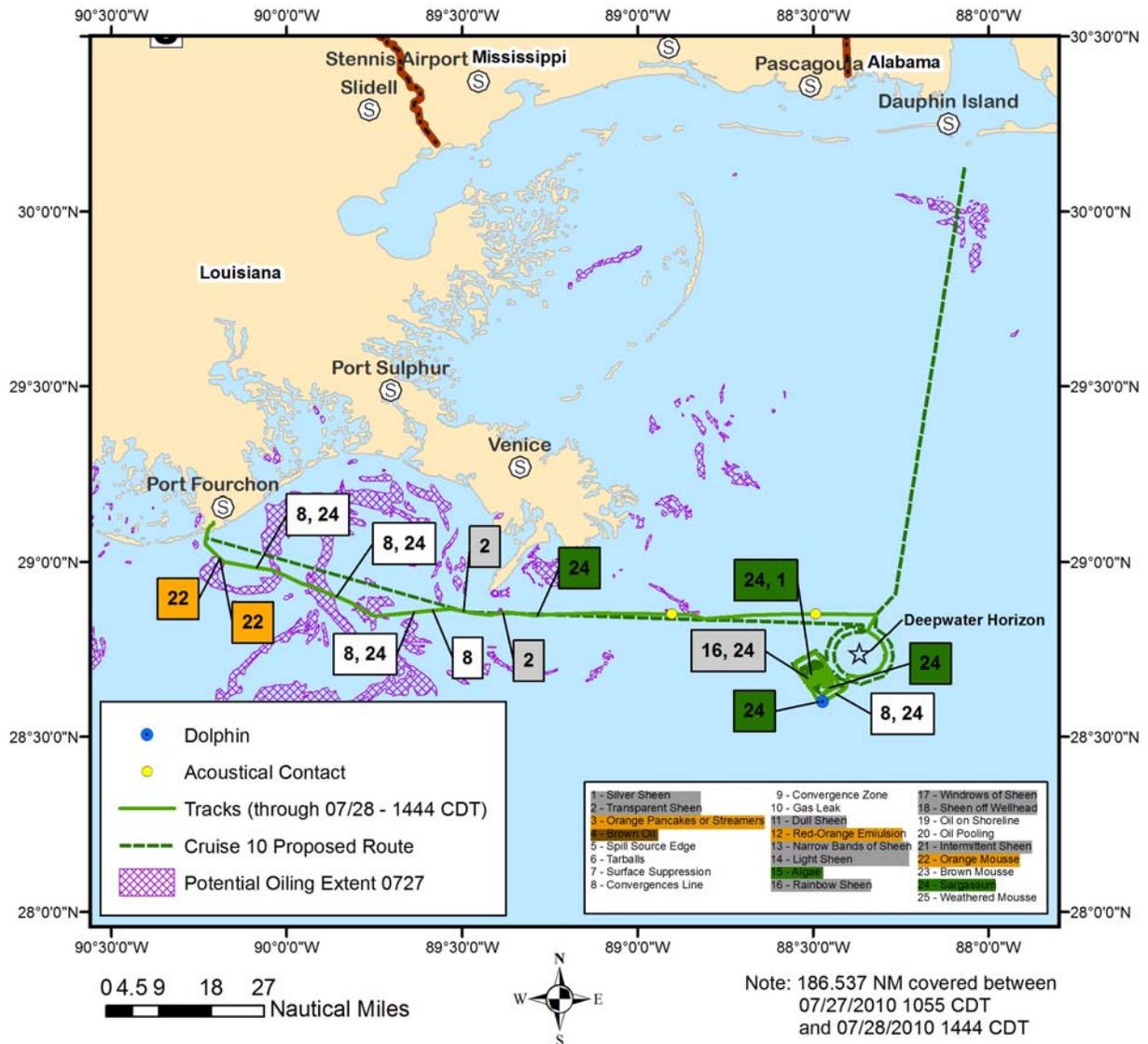
No detectable levels of methane were recorded over the route traveled.

##### Surface Observations

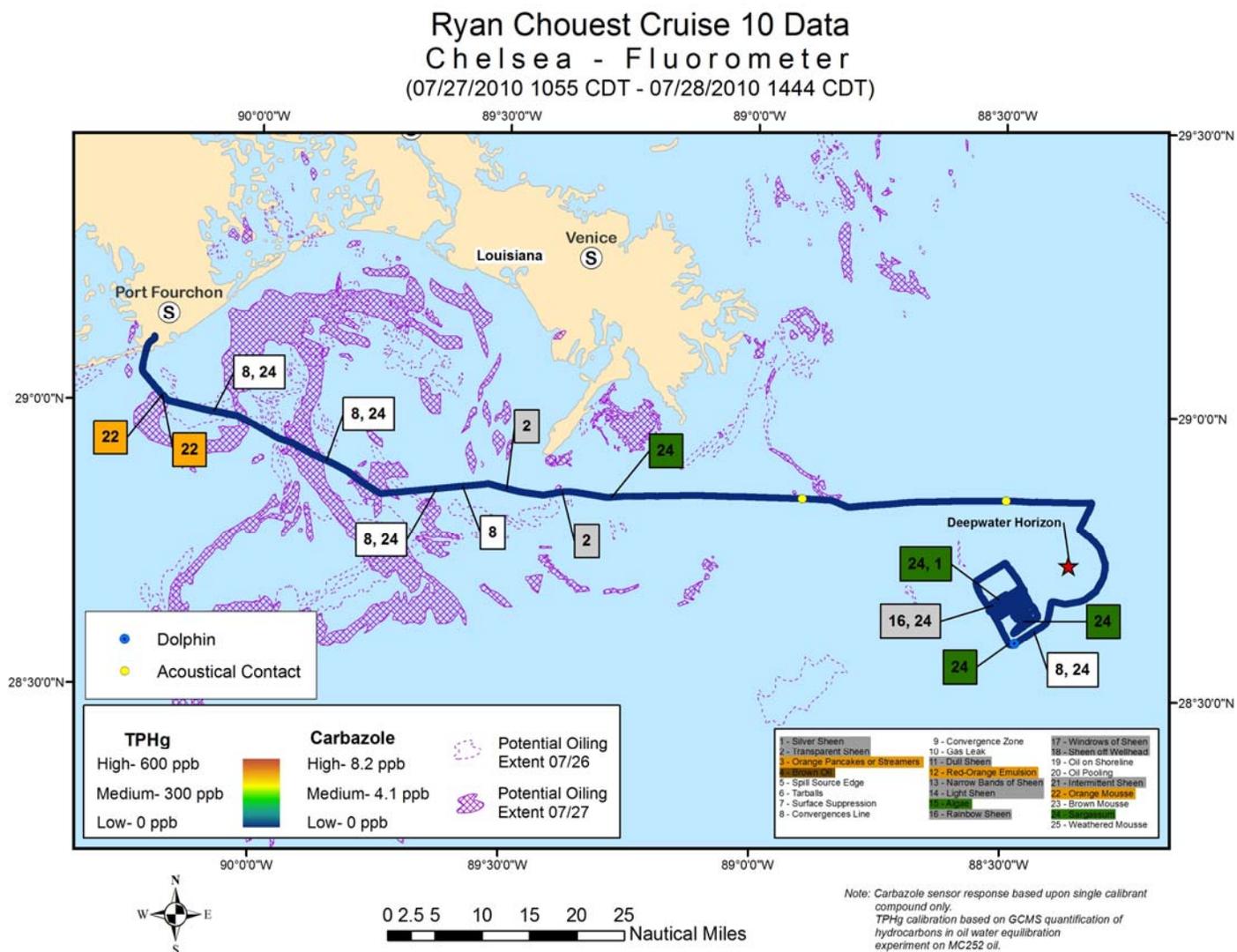
Light sheens, convergence lines, and seaweed were observed in the eastern section of the route towards Port Fourchon areas of sheen and small distributed brown mousse were observed (figure 1).

**Planned versus actual route taken cruise 10:**

**Ryan Chouest Cruise 10 Route Status**  
(07/27/2010 1055 CDT - 07/28/2010 1444 CDT)

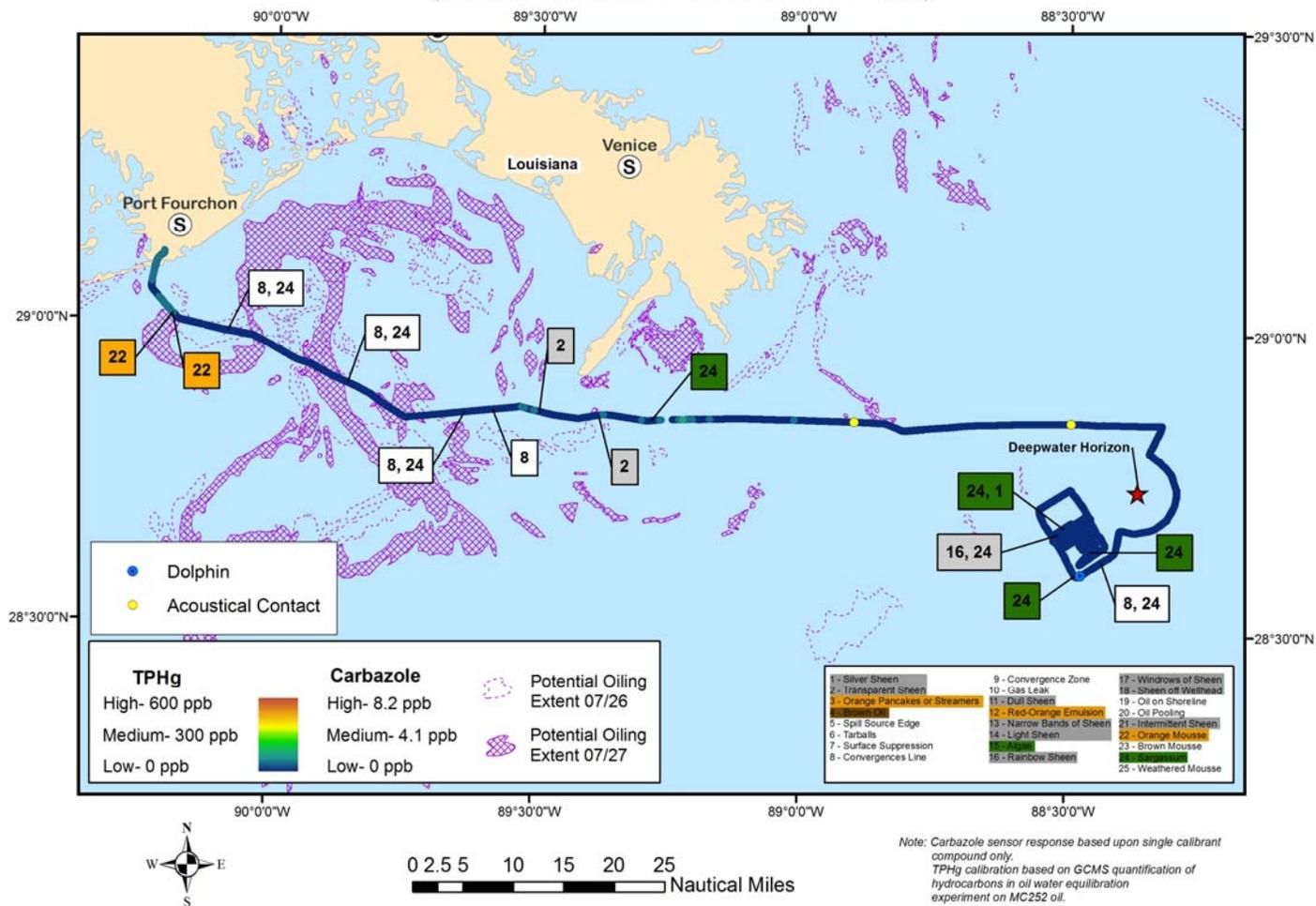


**Figure 1:** Planned versus actual route course plotted between 07/27 – 07/28. Purple shaded area represents outline extent of the slick from 07/27 ERMA composite.



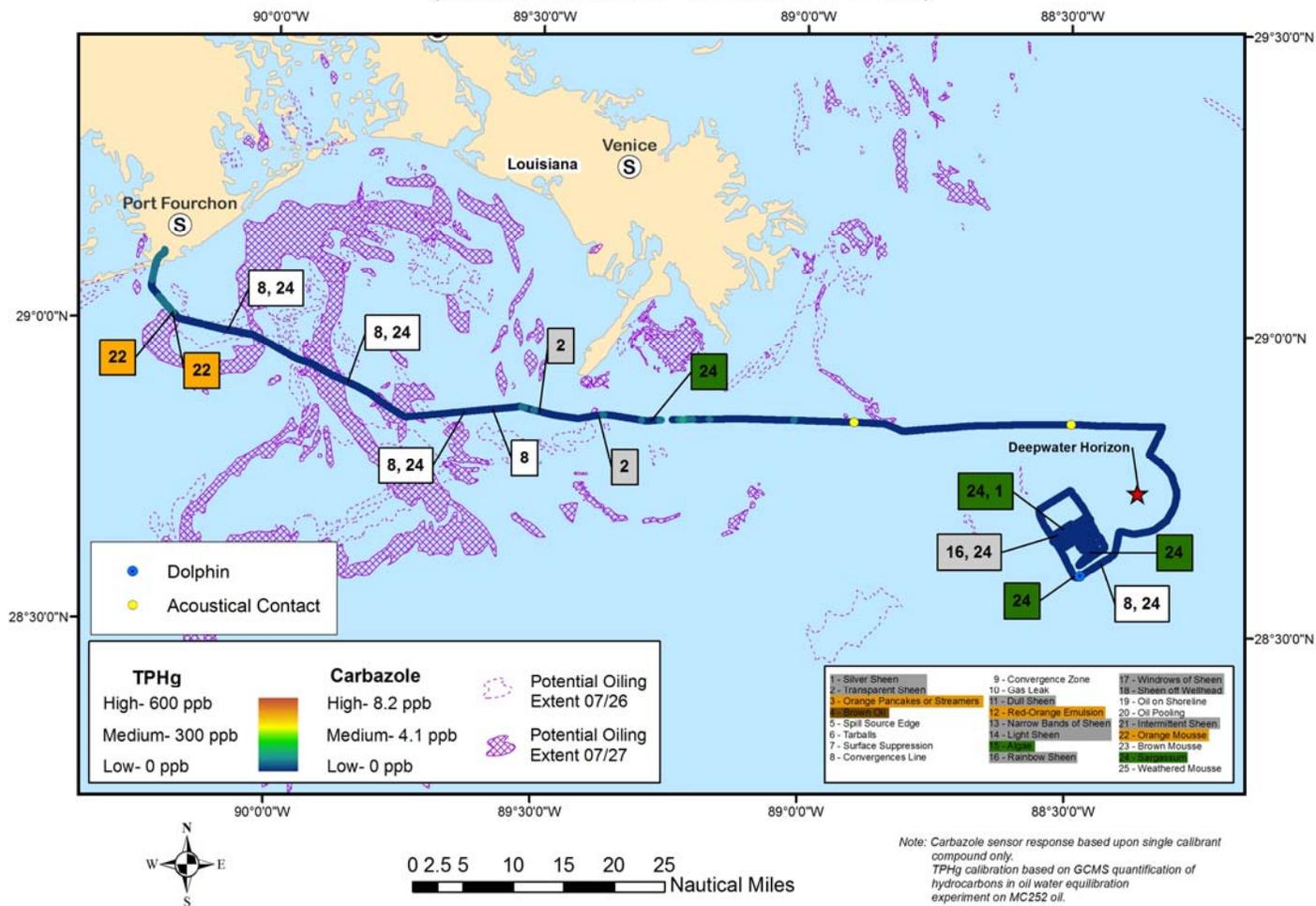
**Figure 2.** Chelsea fluorometer results plotted with location on cruise track 10. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems.

### Ryan Chouest Cruise 10 Data Trios - Fluorometer (07/27/2010 1055 CDT - 07/28/2010 1444 CDT)



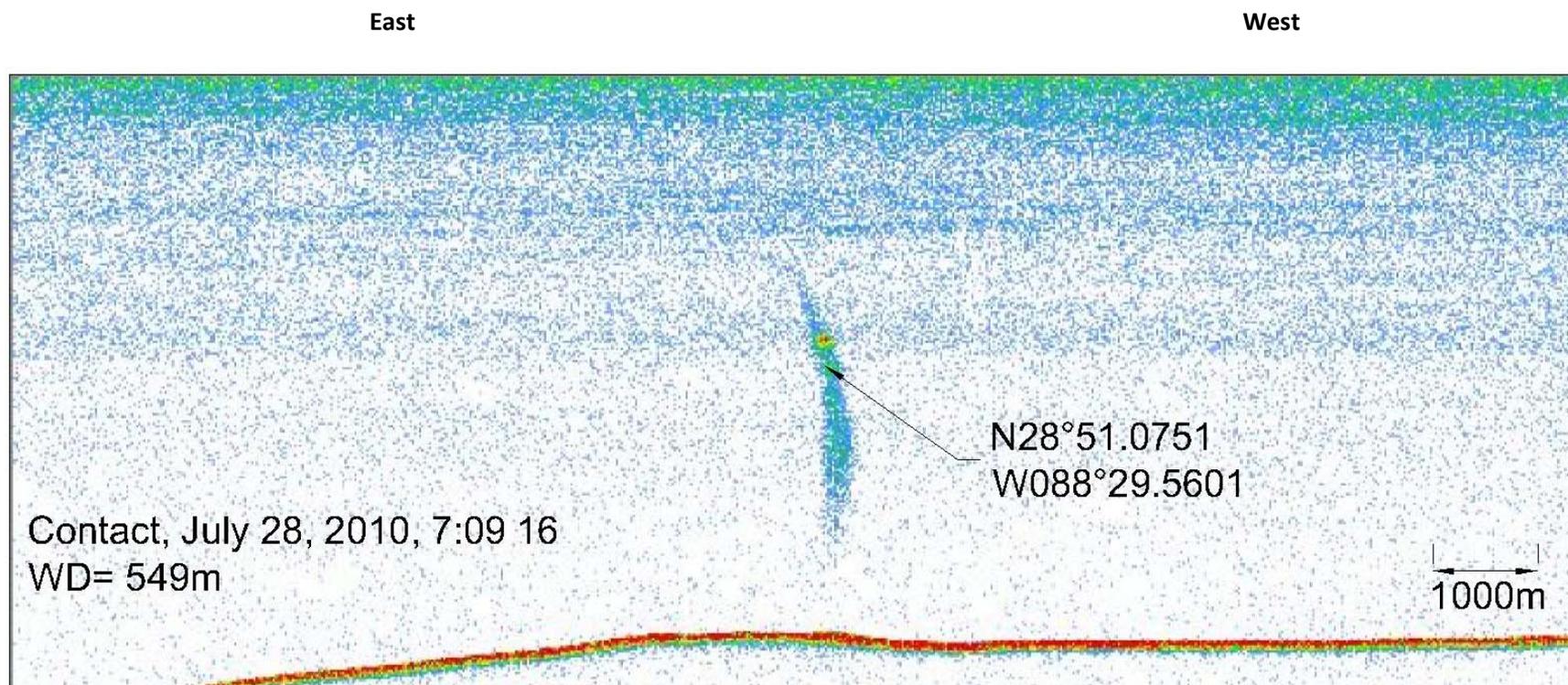
**Figure 3.** Trios fluorometer results plotted with location on cruise track 10. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems.

### Ryan Chouest Cruise 10 Data Trios - Fluorometer (07/27/2010 1055 CDT - 07/28/2010 1444 CDT)



**Figure 4.** Contros fluorometer results plotted with location on cruise track 10. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems.

## Echosounder Results:



**Figure 5.** Contact\_0728010\_070745 the more easterly contact as marked on figure 1 along track line from MC252 site to Port Fourchon. This line is oriented from East on the left to West on the right.

Description: Possible seep related plume in mid water column

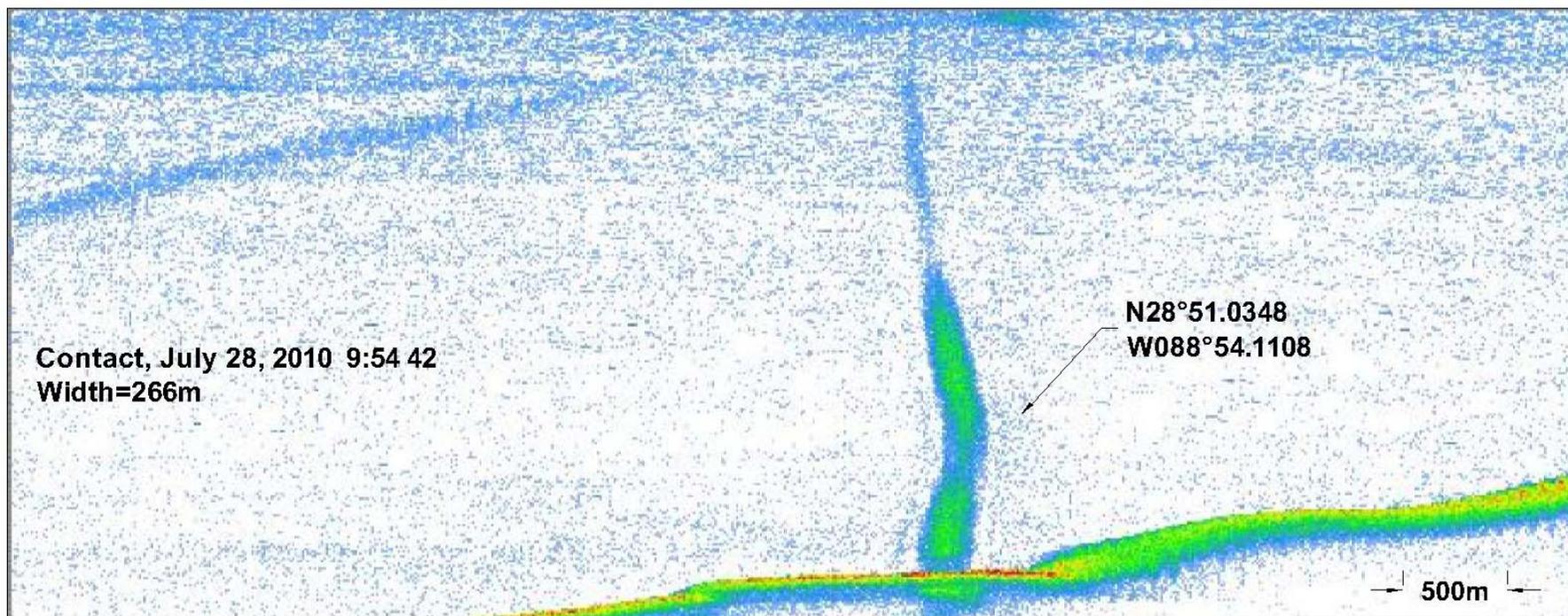
Time (UTC): 07/28/2010 7:09 06

Location: 28° 51.0751N; 88° 29.5601W

Depth displayed: 338.02m to 843.22m

East

West



**Figure 6.** Contact\_0728010\_095442 the more westerly contact as marked on figure 1 along track line from MC252 site to Port Fourchon. This line is oriented from East on the left to West on the right.

Description: Clear seafloor rooted plume gradually becoming less intense towards the surface.

Time (UTC): 07/28/2010 9:52 42

Location: 28° 51.0348N; 88° 28.4463W

Depth displayed: 141.80m to 457.26m

EK-60 Echosounder results

Once again the EK-60 echo sounder was operated along the route until shallow water was encountered as we entered Port Fourchon. The echo sounder identified two possible water column contacts both of which are interpreted as possible seep features (figures 5 & 6). Contact \_0728010\_095442 is of particular interest as the feature is a clear seafloor routed plume which gradually becomes less intense towards the surface and finally dissipating within 150 meters of the sea surface. The intention is to return to this site at a later date to perform a cast over the feature to attempt to detect hydrocarbons and confirm that the plume is a hydrocarbon seep.

**Science Operations:**

Fluorometer measurements were logged and observations of sea-surface conditions were made throughout the period. Two new sensors were added to the HSA and include a Contros HydroC methane sensor and a dissolved volatile organic compounds sensor. We are in the early stages of testing the methane sensor and need to optimize its incorporation into the equipment. We conducted further sensor calibrations on single compounds (such as carbazole and toluene) and also on the MC252 extract. The volatile organic compounds sensor is in use but over the period of this report was not calibrated. We continue to perform liquid-liquid extractions on seawater samples and analyze the extracted material by GCMS. The EK-60 echo sounder is continuously collecting data to evaluate the seabed and water column for methane seeps.

**Problems/operational issues:**

(Includes items up to report submission time)

There are no problems or operational issues at this time.

**Planned activities for next 24 hours:**

The Ryan Chouest arrived in Port Fourchon at 1500 hrs Wednesday for crew change and resupplies. A new route is the process of being planned and will be presented in the cruise summary.

**Selected Photos:**

No photographs were taken over the cruise period.

**Full Crew List:**

William A. Smith	MASTER	Brian Corley	Mate
Robert Thompson	ENG	Craig Lyons	ENG
Eduardo Zepeda	A/B	Patrick Cousin	A/B
Mark Harmon	A/B	Arthur Triggs	O/S
Steven Morgan	OS/Cook	Roderick Baker	OS/Cook
Lawrence Febo	BP	Gui de Almeida	Entrix
Andrew Ross	CSIRO	David Fuentes	CSIRO
Emma Crooke	CSIRO	Asrar Talukder	CSIRO
Charlotte Stalvies	CSIRO	Kelly Bates	C&C
Ryan Larsen	C&C	Mathew Baham	C&C
Jen Carlson	C&C	Jay Ridgeway	C&C
Greg Richard	C&C	Ben Autin	C-Port
Braden Wilson	C-Port		