

Ryan Chouest daily data transmission and report

Period covered: 11.34 06/09/2010 – 21.00 06/10/2010

Unknown - Nautical miles covered

Vessel science party:

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Cruise notes:

Over the period since the last report we have completed Cruise 2 (Figure 1) have docked in Theodore to take on a hose reel to enable us to perform 150 m casts and also have started our third cruise. Due to additional time gained through a higher cruising speed than usual. This enabled us to take a zig-zag path along the front of the northern extension of the apparent slick (figure 1). Data was collected throughout the cruise path and also observations were logged and photographs were taken. As some of the cruise along the slick edge was at night the vessel spot lights were used for identification of pancakes and mounds however it was not possible to identify sheens. On arrival in Theodore at 20:00 the 150m reel and tubing was loaded on to the vessel and over a period of 9 hrs all electrical supplies were routed and connected and welding of the reel to the deck took place. At first light (05:00) the vessel cast off and has made a number of stops on route to 29° 2.00 N 088° 0.000 W where we will test the 150m casting and also repeat previous tests on at this site. During the day the sensors were not deployed as they were being calibrated.

Science results and preliminary interpretation:

The data from Cruise 2 presented in figures 2,3,4. The results obtained by the Hydrocarbon Sensor Array are shown in figure 2, 3, 4 show that the concentration in Mobile Bay and along the coast to Orange Beach (~5 ppb) were higher than the readings for the remainder of the data set the results obtained on return to Mobile Bay at the end of the cruise confirm this initial result. The data acquired on the eastern sector of the survey track represent baseline values for the sensors and we cautiously assign these to unaffected waters, however further water sampling is required to confirm this. In addition another area to the South where sargassum was observed also had particularly low readings. Whilst the cruise track was plotted through the areas of previously reported slicks to the east of the survey area the sensor values did not reflect this nor did visual observations. More extensive slicks and higher sensor readings were encountered from 87° 15.00 W west. Where pancakes or sheens were encountered and sensor readings did not appreciably increase these were in areas with either very light sheen (figure 5) or in

Planned versus actual route taken cruise 2:

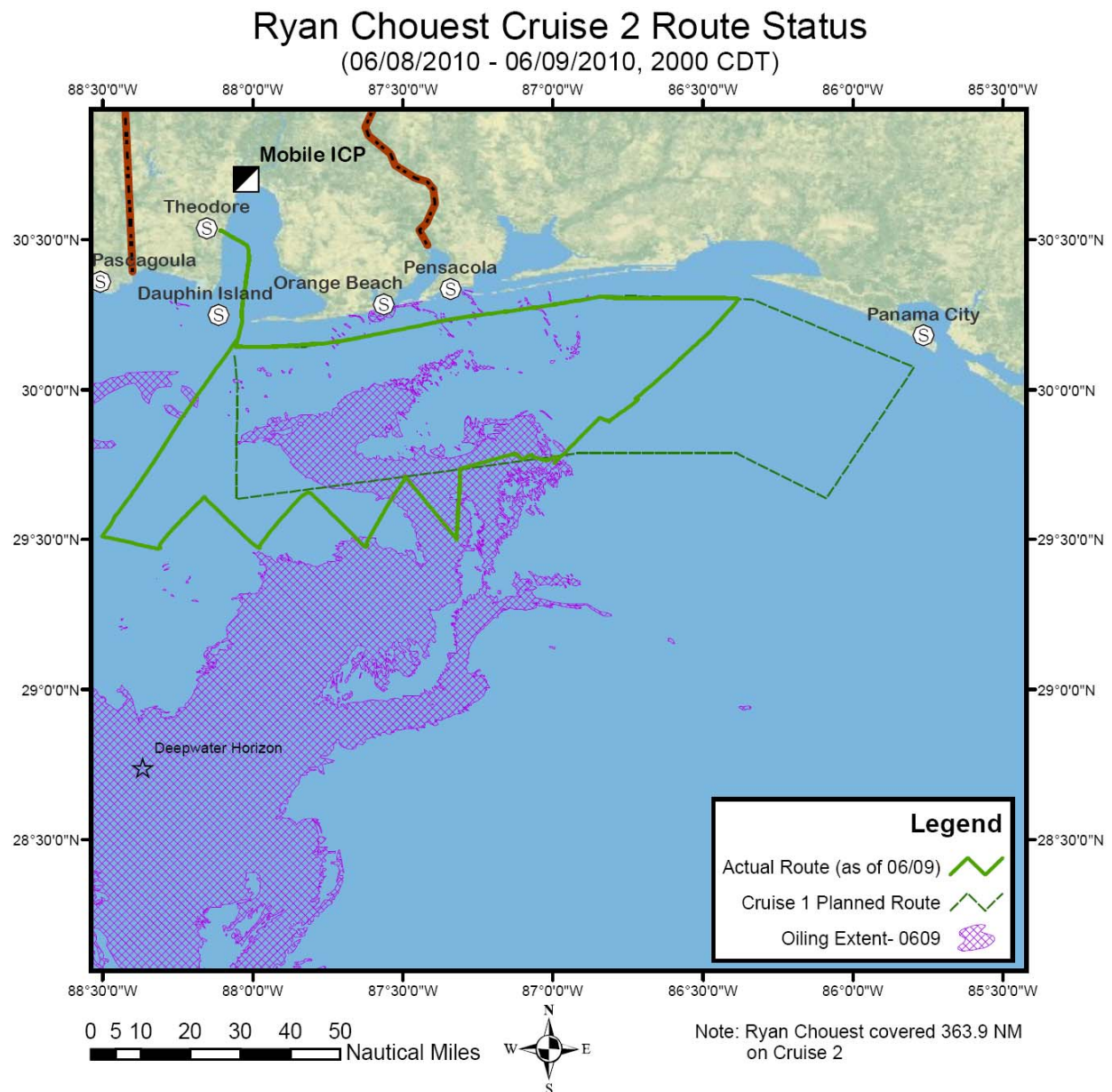


Figure 1: Actual route course plotted between 20:00 06/07 – 20:00 06/09. Purple shaded area represents outline extent of the slick from 06/08 ERMA composite.

areas of highly dispersed patchy areas of pancakes. Where these features were more prominent or more continuous in extent the sensor response increased (figure 5). However this does not explain the increased sensor response in the western quadrant of the survey area where no sheens or slicks were observed. As the sensors being used are designed to detect dissolved hydrocarbons not the distinct oil phase at the waters surface there does not necessarily have to be direct correlation.

Ryan Chouest Cruise 2 Data Chelsea- Fluorometer (06/08/2010 - 06/09/2010 2000 CDT)

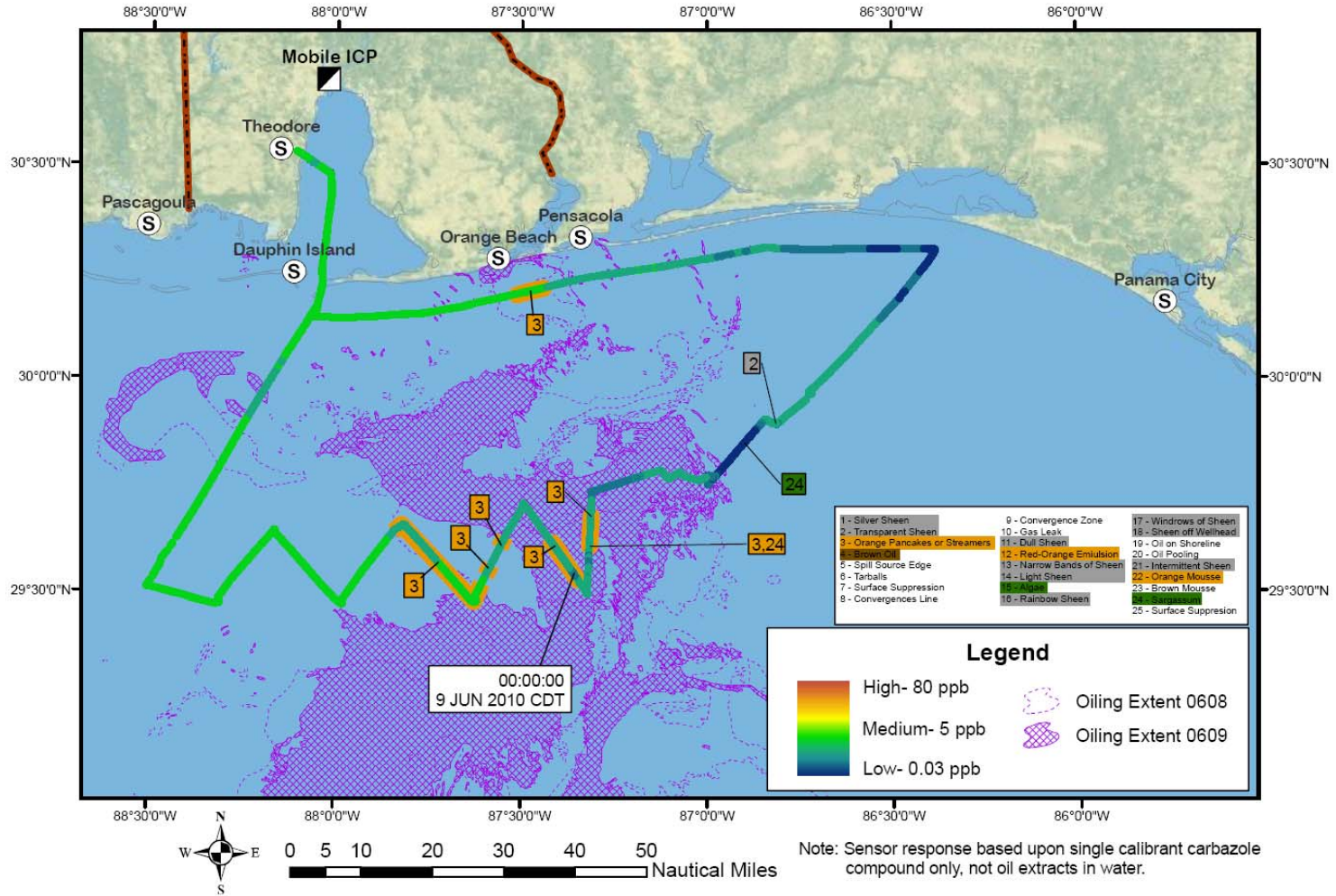


Figure 2: Chelsea fluorometer results plotted with location on cruise 2 track. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. The Slick observations and their type are marked by the pointers and the duration of the observations are marked in orange.

Ryan Chouest Cruise 2 Data
 Trios- Fluorometer
 (through 06/08/2010, 1400 CDT)

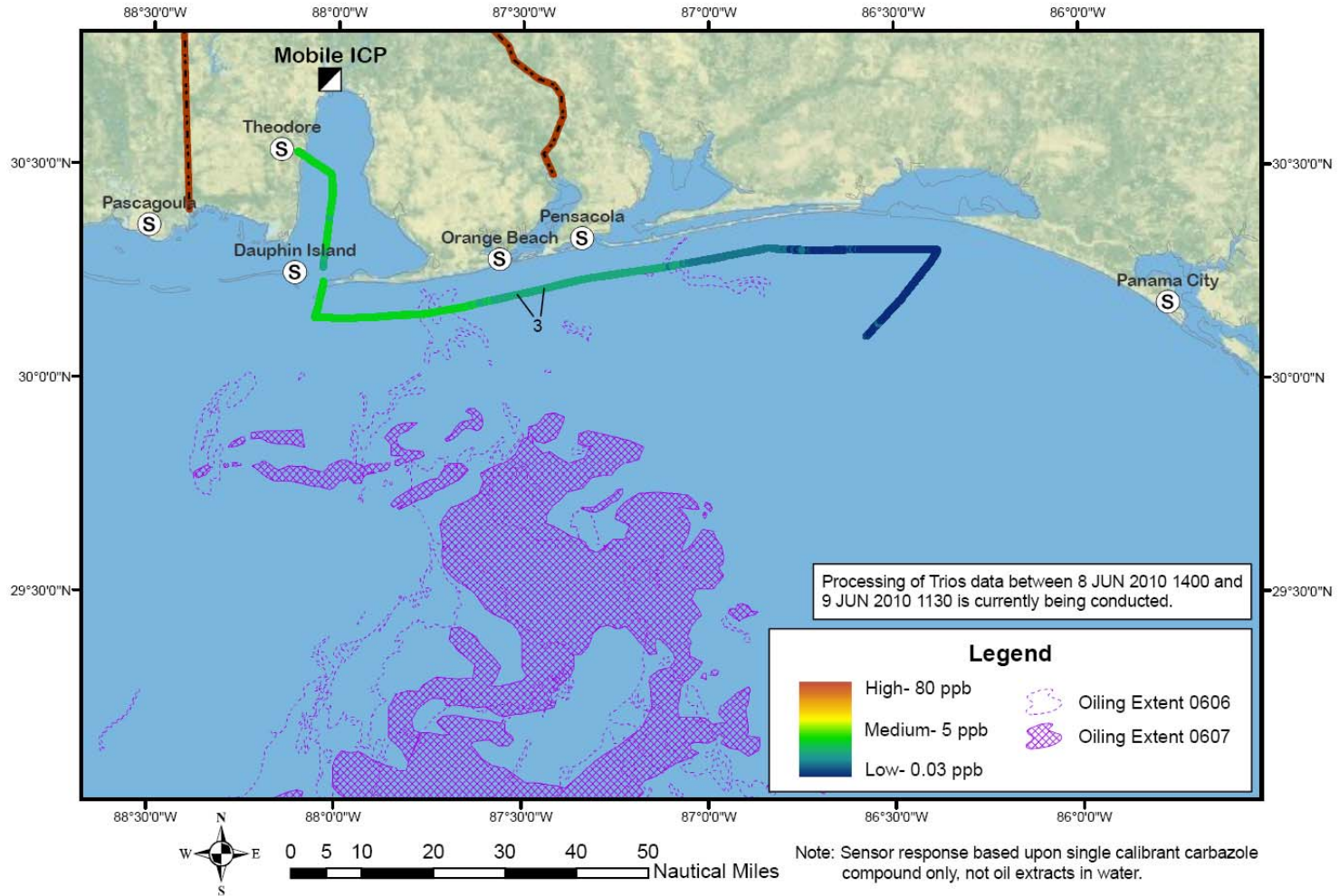


Figure 3: Trios fluorometer results plotted with location on cruise 2 track. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. The Slick observations and their type are marked by the pointers and the duration of the observations are marked in orange.

Ryan Chouest Cruise 2 Data Contros - Fluorometer (06/08/2010 - 06/09/2010 2000 CDT)

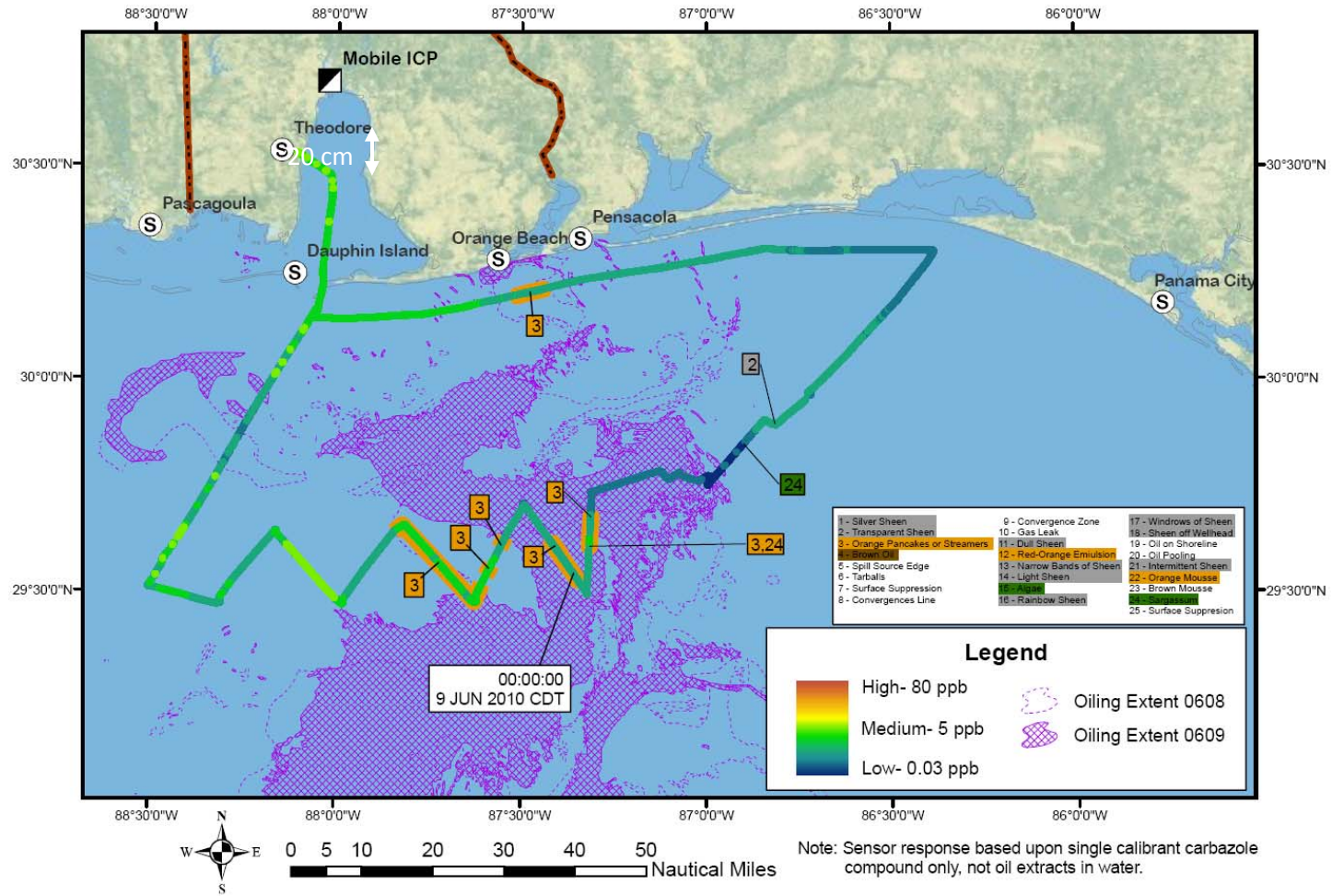


Figure 3: Contros fluorometer results plotted with location on cruise 2 track. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. The slick observations and their type are marked by the pointers and the duration of the observations are marked in orange.

Vessel science operations:

On route the test site the fluorometers were calibrated with dissolved hydrocarbon saturated waters (from an equilibration experiment carried out with the MC252 oil). In addition the cruise 2 observation data has been digitized and photographic records have been spatially located and archived. Data from the Chelsea fluorometer for the previous cruise had what we interpret as electrical spikes in the data and these have corrupted the output. This is why the data from this sensor has not been displayed for much of the cruise path. We will continue to work on retrieving the data and are investigating the source of the electrical noise. In order to reduce noise in the sensor outputs we are employing a UPS and a step up power converter.

Work continues to occur to enhance the data interpretation, integration and reporting. Also we are in the final stages of working on the final method validation of the EPA endorsed solid phase extraction method for the separation of hydrocarbons from seawater. We anticipate that we may be in a position to perform gas chromatograph mass spectroscopy (GCMS) investigations during the remainder of this cruise.

Problems/operational issues:

Electrical noise within the sensor output needs to be solved. Continuing efforts to condition the power supply, ground the equipment etc.

Planned activities for next 24 hours:

Still in planning phase, we will transit from our current location at 29° 2.00 N 088° 0.000 W to the North Western extent of the slick observed on the 0600 SIT map and then start a zig zag cruise parallel to the coast inboard of cruise 2. Cruise plan to follow in the next daily report.

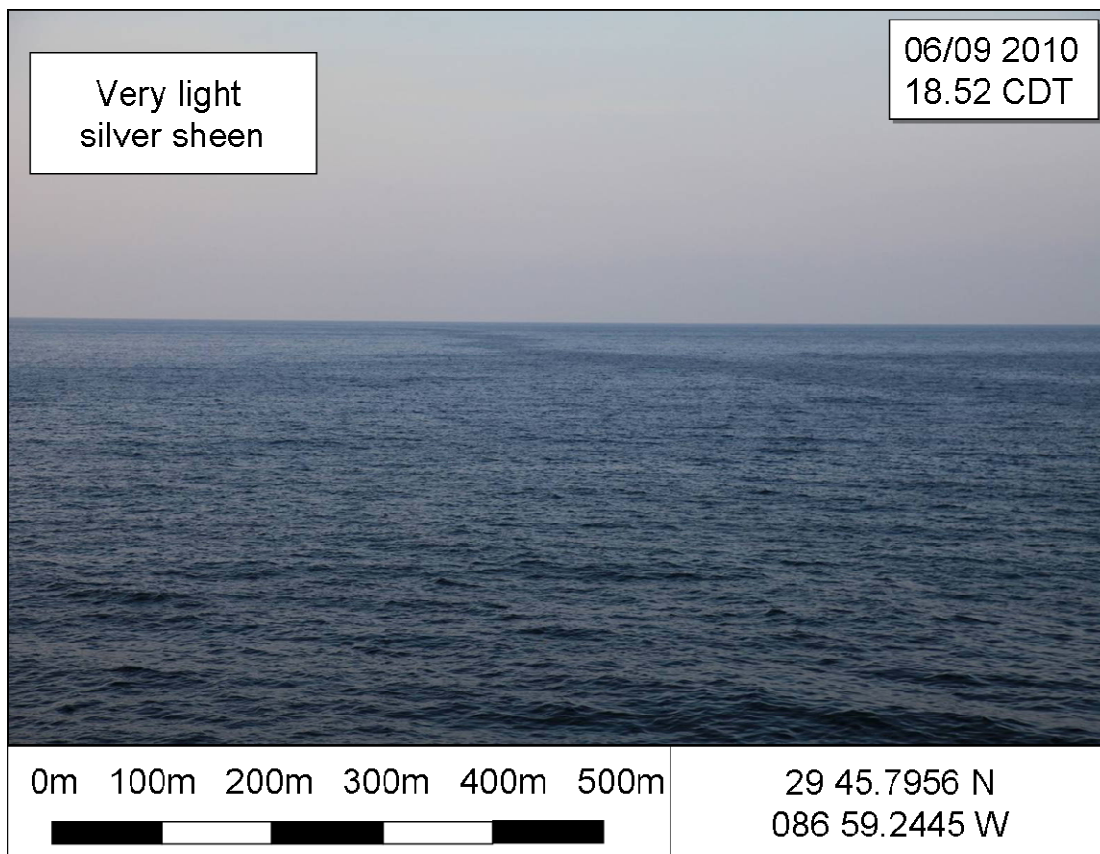


Figure 4. Observed patches of very light silvery sheen on water. View of ship track through the sheen. Scales are approximate.

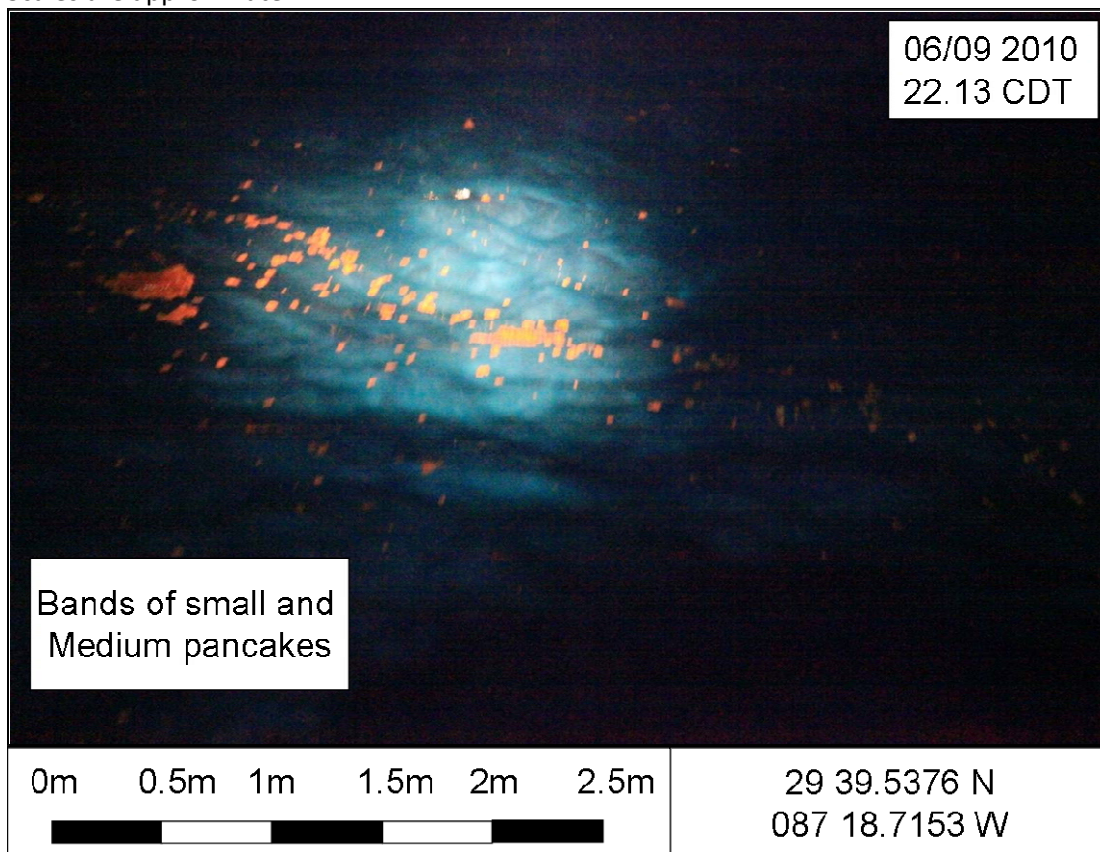


Figure 5. Observed small and medium bands of pancakes at night illuminated using vessel spot lights.