

US EPA ARCHIVE DOCUMENT

**Daily Report: Tracking the Plume of Dispersed Oil using Particle Size Distribution Measurements and Fluorescence Intensity Ratios**

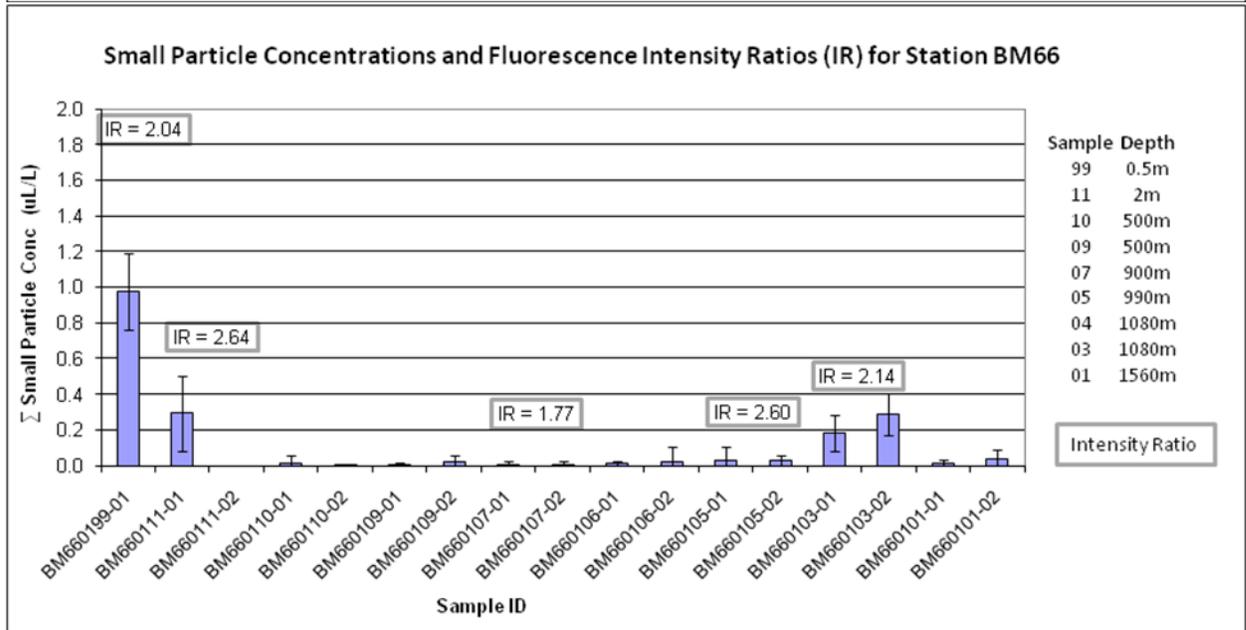
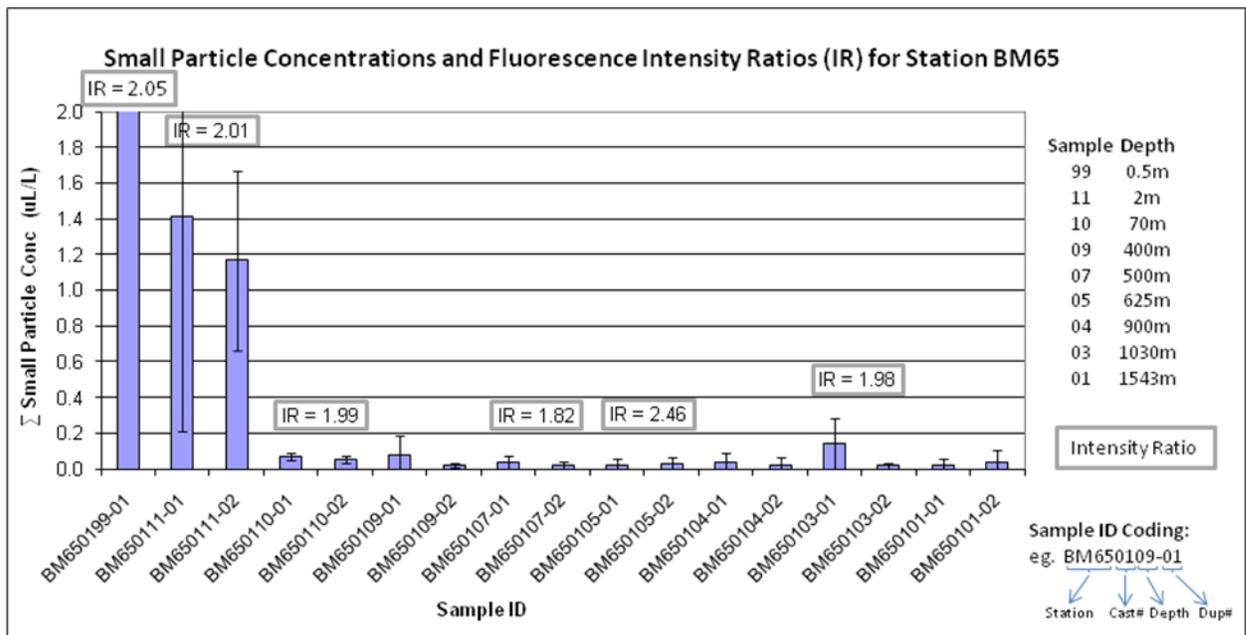
**June 5, 2010**

Water samples were collected at three stations for particle size distribution measurements using the LISST-100X particle counter. A total of 49 LISST samples were analyzed, including duplicates. Selected samples from depths of elevated fluorescence from the CTD trace were also collected for fluorescence intensity ratio measurements and analyzed using a Quantech Life Sciences fixed wavelength fluorometer.

Figure 1 presents the small droplet ( $\Sigma$  2.5 - 60 $\mu$ m) particle size data and fluorescence intensity ratios for stations BM65 through BM67. Station BM65 was 1km southwest of the wellhead, while stations BM66 and BM67 were south of the wellhead at distances of 1 and 5km, respectively.

Slightly elevated concentrations of small particles were detected at in the deepwater plume (approx. 1100m) at Stations BM66 and BM67. The increase in small particle concentrations at these depths also corresponds to data from the *in situ* CTD fluorometer. Station BM65 had high concentrations of small particles in the surface water. The deepwater plume was not evident at Stations BM65 in either the CTD fluorescence trace or LISST particle size measurements.

The results of fluorescence intensity ratios showed lower ratios in the near surface waters (2m or less) than in samples taken from the deepwater oil plume only at station 67, but the differences in the ratios between surface and deeper samples at station 65 and 66 was not great as seen in some earlier stations.



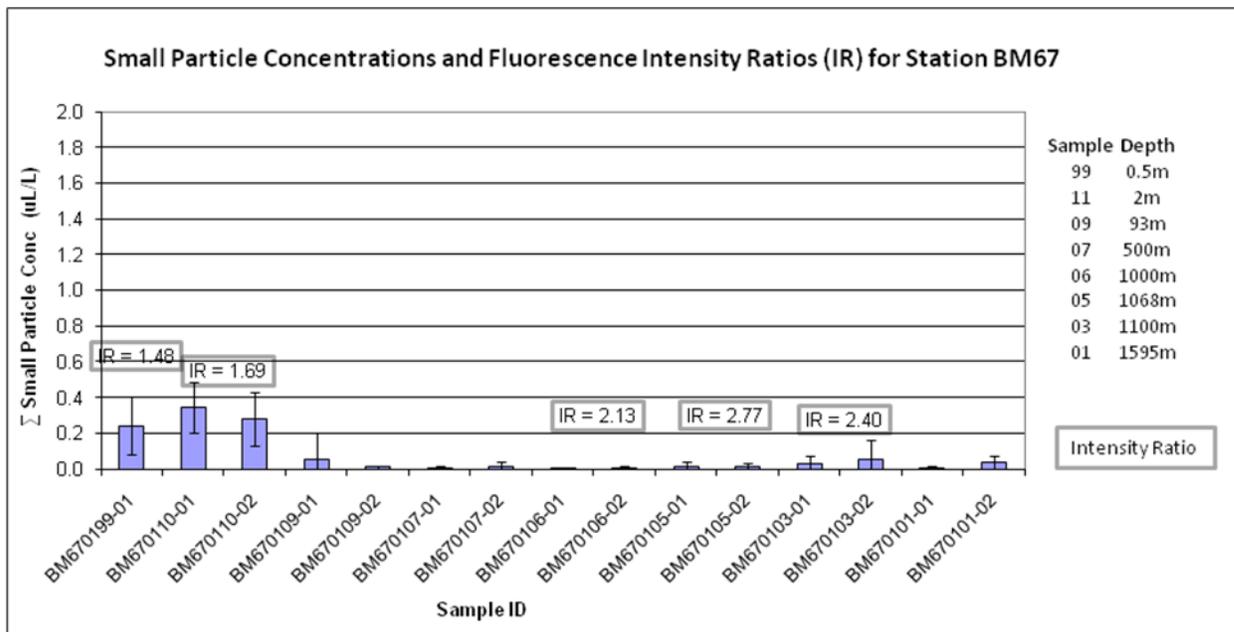


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations BM65 to BM67.