

US EPA ARCHIVE DOCUMENT

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

**July 3, 2010**

Water samples were collected at three stations for particle size distribution measurements using the LISST-100X particle counter. A total of 51 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence were selected from the CTD trace 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 OV82 through OV84. The station locations were:

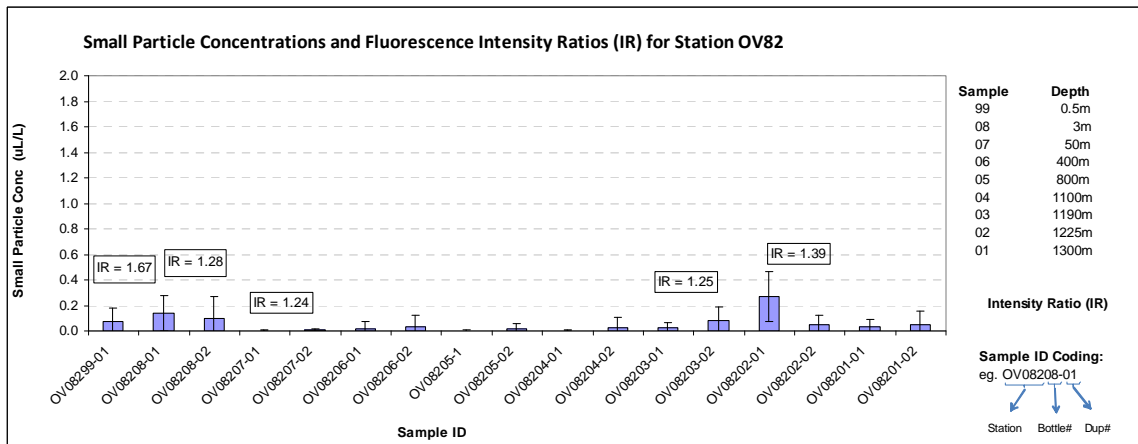
OV82: Lat= 28.748448 Long= -88.416649 (5 km west of the wellhead)

OV83: Lat= 28.748448 Long= -88.416649 (6 km west northwest)

OV84: Lat= 28.777792 Long= -88.407763 (6 km northwest)

Slightly elevated concentrations of small particles were detected in the deep water (approx. 1200m) at Stations OV82 and OV83, where the *in situ* CTD fluorometer detected moderate plume. Although the *in situ* CTD fluorometer detected a moderate subsurface plume at station OV84, there was no discernable increase in small particle concentrations. Slightly elevated concentrations of small particles were also detected in the surface samples (3 m) at Stations OV82 and OV84.

The results of fluorescence intensity ratios showed that low ratios were observed in both the near surface waters (3m or less) and in the deeper water samples.



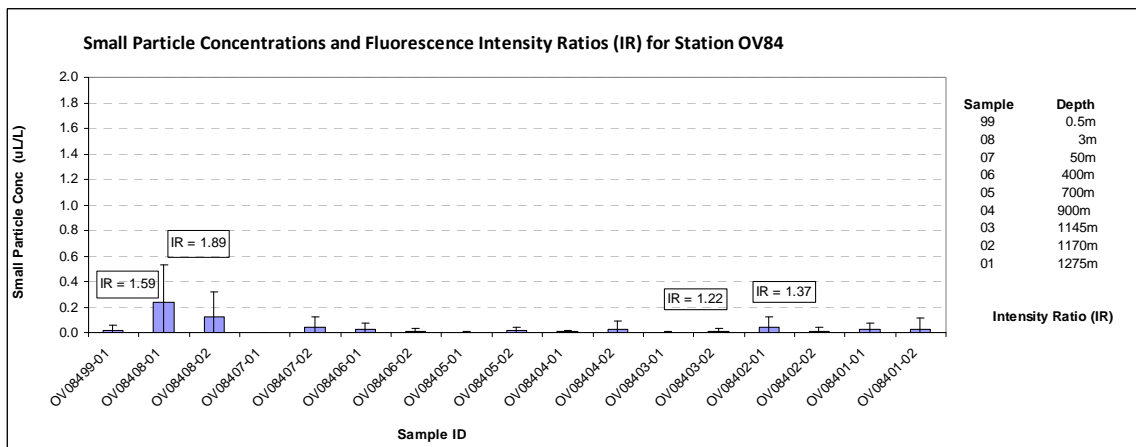
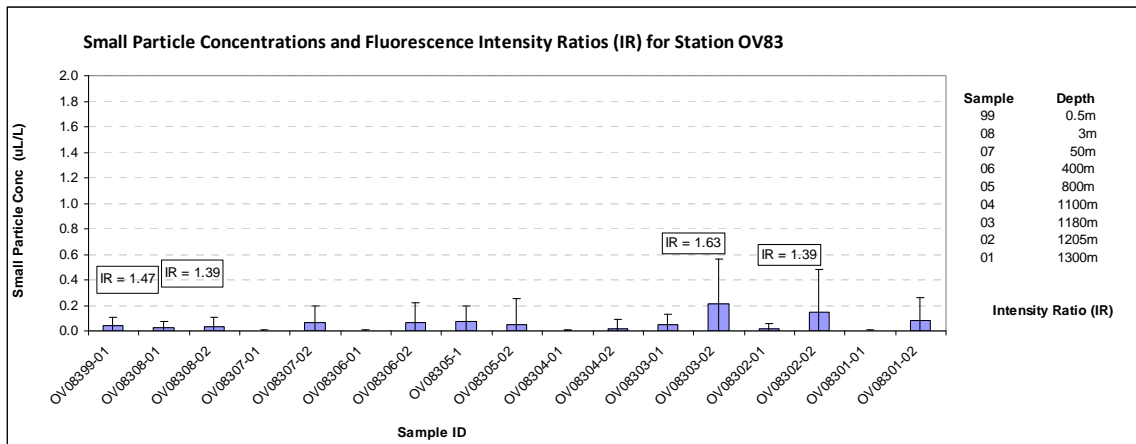


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations OV82 to OV84.