

US EPA ARCHIVE DOCUMENT

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

July 4, 2010

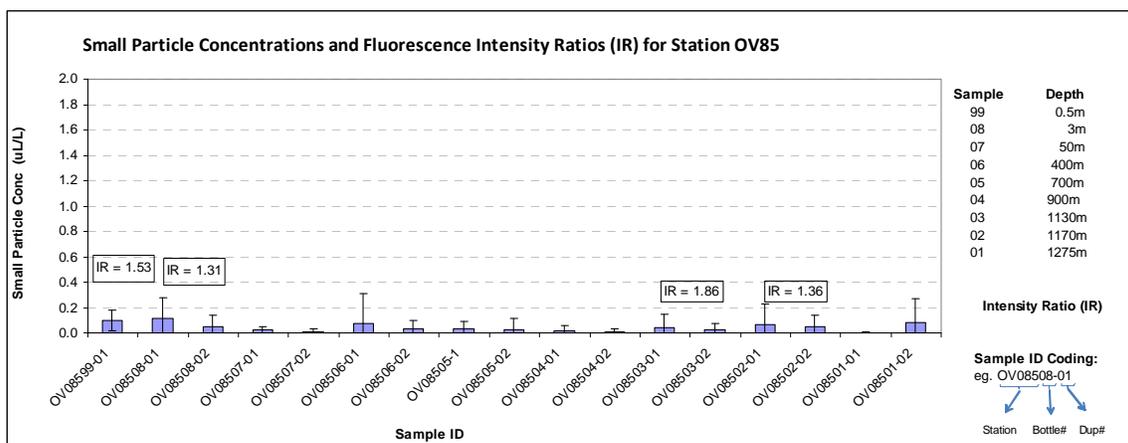
Water samples were collected at six stations for particle size distribution measurements using the LISST-100X particle counter. A total of 102 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence were selected from the CTD trace for fluorescence intensity ratio measurements and analyzed using a Quantech Life Sciences fixed wavelength fluorometer.

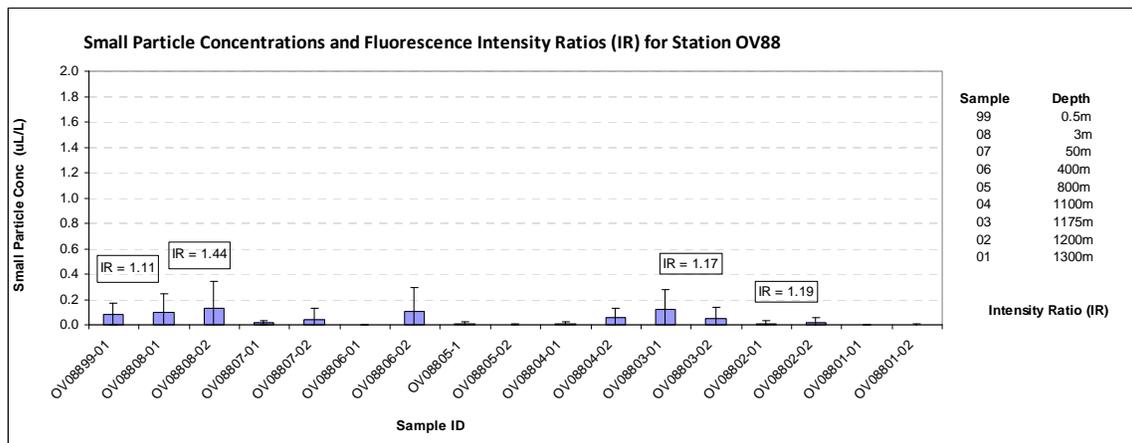
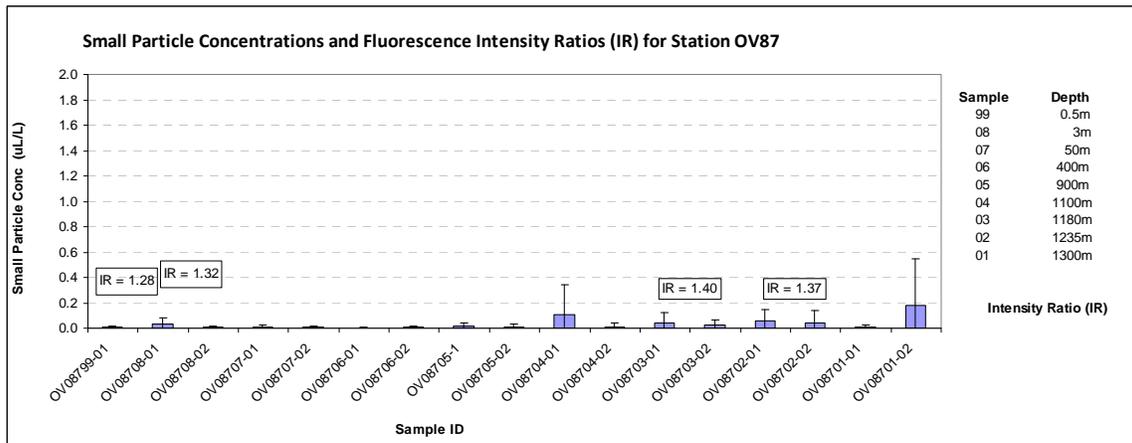
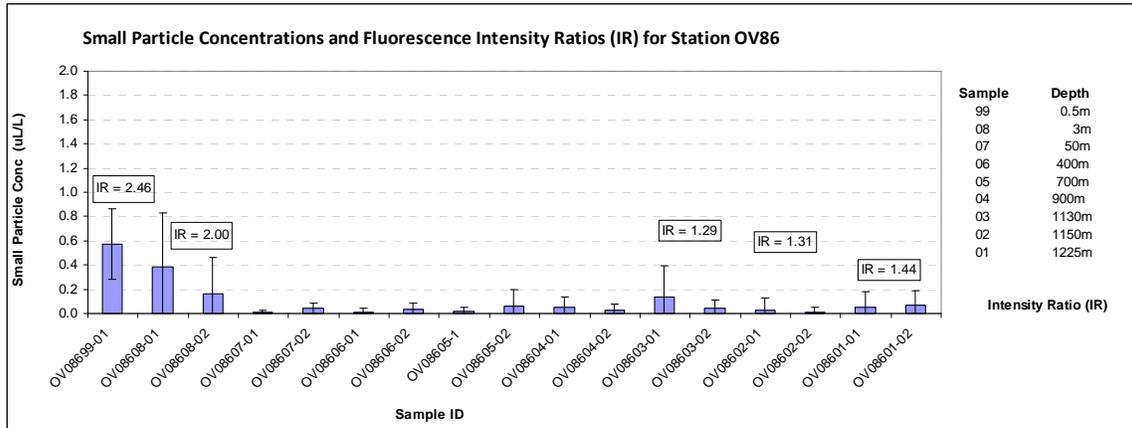
Figure 1 presents the small droplet (Σ 2.5 - 60 μ m) particle size data and fluorescence intensity ratios for stations OV85 through OV90. The station locations were:

- OV85: Lat= 28.78648 Long= -88.407640 (7 km northwest of the wellhead)
- OV86: Lat= 28.787752 Long= -88.438242 (9 km northwest)
- OV87: Lat= 28.769946 Long= -88.438824 (8 km west northwest)
- OV88: Lat= 28.757508 Long= -88.416350 (5.5 km west northwest)
- OV89: Lat= 28.721636 Long=-88.417376 (5 km west southwest)
- OV90: Lat=28.774371 Long=-88.462373 (10 km west northwest)

Slightly elevated concentrations of small particles were detected in the deep water (approx. 1150-1200m) at Stations OV85 through OV88, where the *in situ* CTD fluorometer detected a weak subsurface plume. The plume was not evident at Stations OV89 and OV90 in either the CTD trace or small particle concentrations. Elevated concentrations of small particles were detected in the surface samples (0.5 and 3 m) at Station OV86.

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. Slightly elevated intensity ratios were observed in the surface water samples at Station OV86.





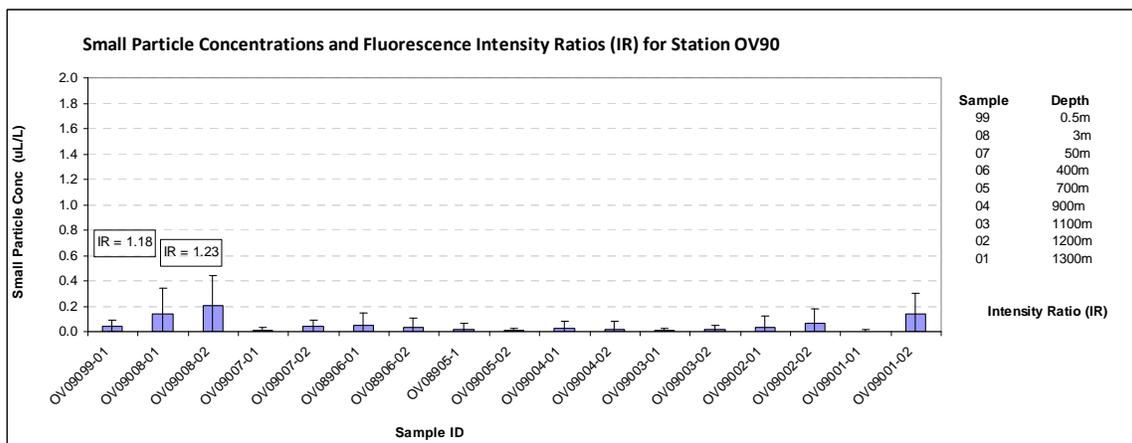
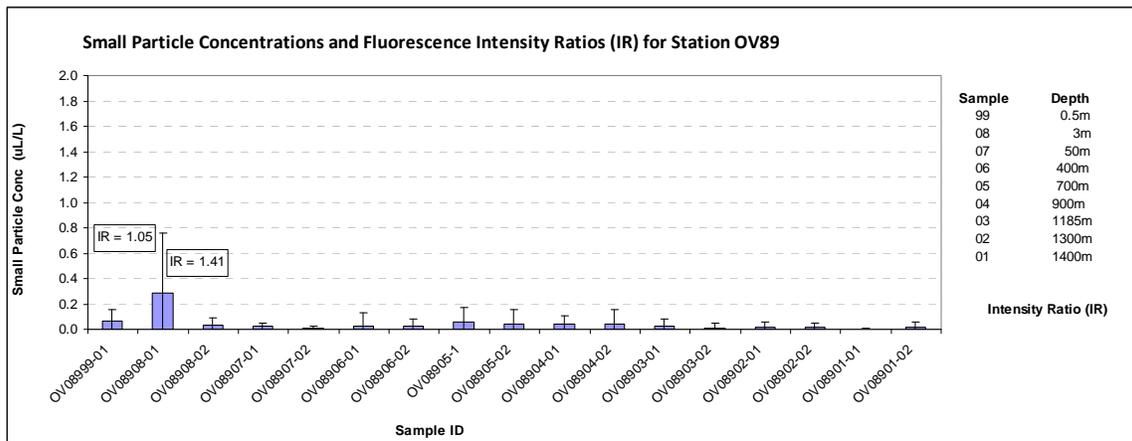


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations OV85 to OV90.