

US EPA ARCHIVE DOCUMENT

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

**July 10, 2010**

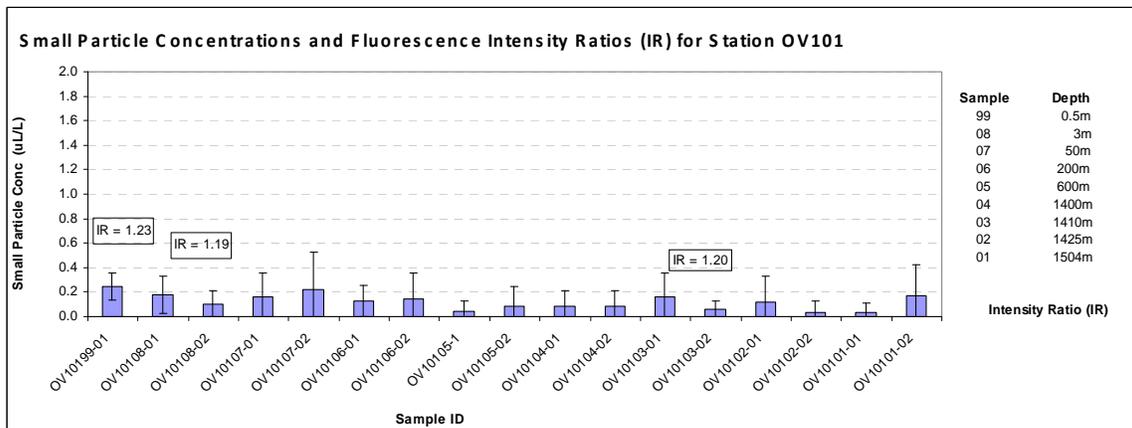
Water samples were collected at five stations for particle size distribution measurements using the LISST-100X particle counter. A total of 85 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence were selected from the CTD trace for fluorescence intensity ratio measurements and analyzed using a Quantech Life Sciences fixed wavelength fluorometer.

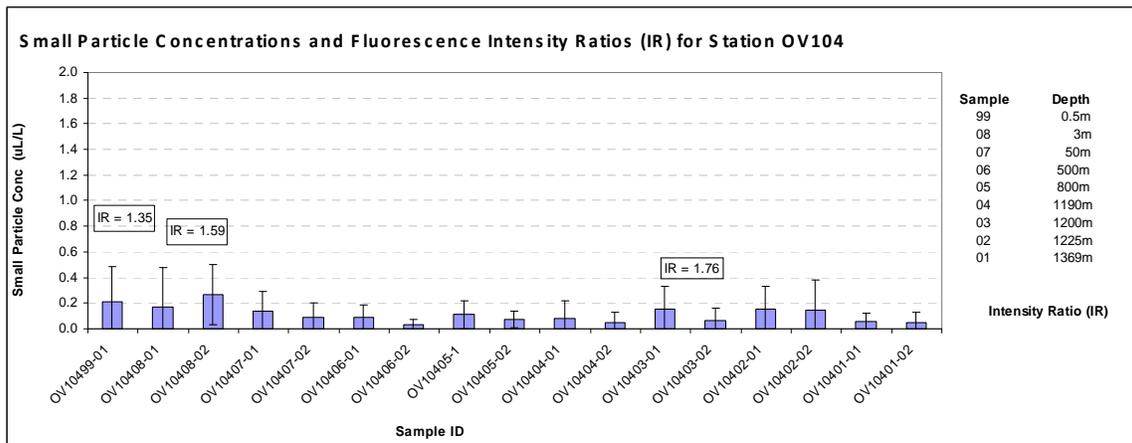
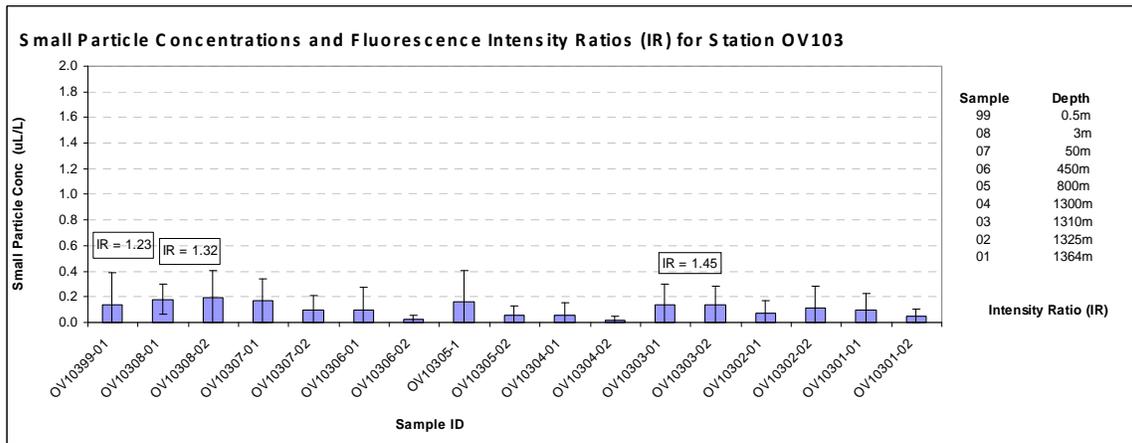
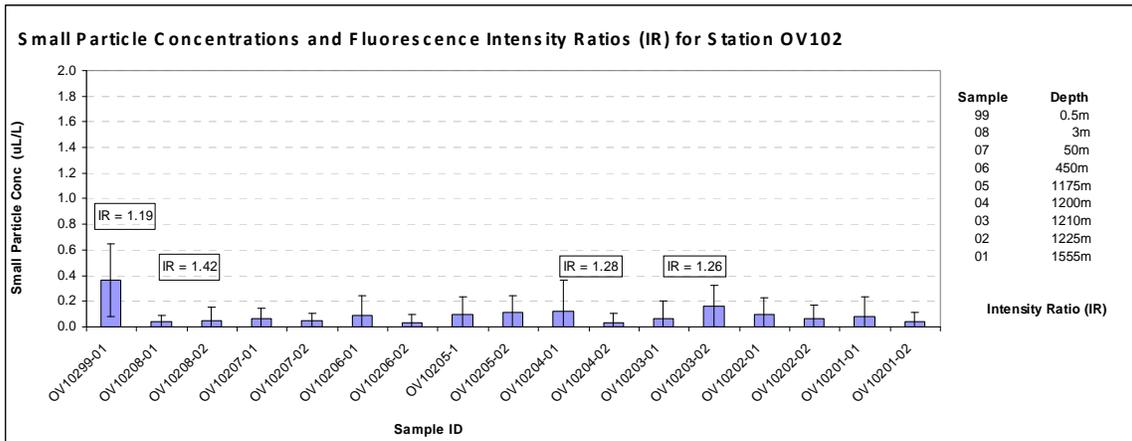
Figure 1 presents the small droplet ( $\Sigma$  2.5 - 60 $\mu$ m) particle size data and fluorescence intensity ratios for stations OV101 through OV105. The station locations were:

- OV101: Lat= 28.716923 Long= -88.422624
- OV102: Lat= 28.716676 Long= -88.392402
- OV103: Lat= 28.705872 Long= -88.438227
- OV104: Lat= 28.678488 Long= -88.464278
- OV105: Lat= 28.757061 Long= -88.398296

Slightly elevated concentrations of small particles were detected at 1410m at station OV101, where the *in situ* CTD fluorometer detected a weak subsurface plume and a change in dissolved oxygen levels. Slightly elevated concentrations of small particles were detected at stations OV102 to OV104 (approx. 1200-1310m), where the *in situ* CTD fluorometer detected a weak subsurface plume. The deep water plume was not evident at Station OV105, in either the CTD trace or small particle concentrations. Moderately elevated concentrations of small particles were detected at the surface at stations OV102 and OV105.

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.





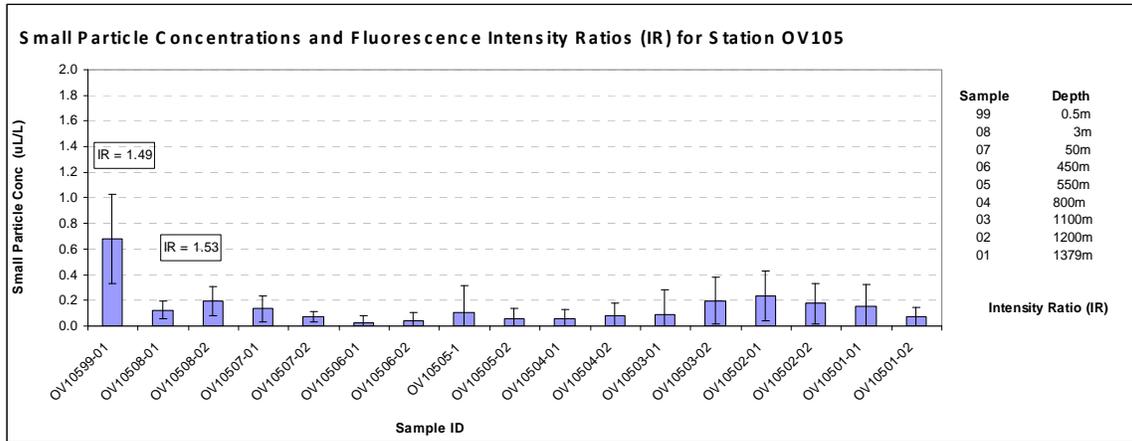


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations OV101 to OV105.