

US EPA ARCHIVE DOCUMENT

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

**July 21, 2010**

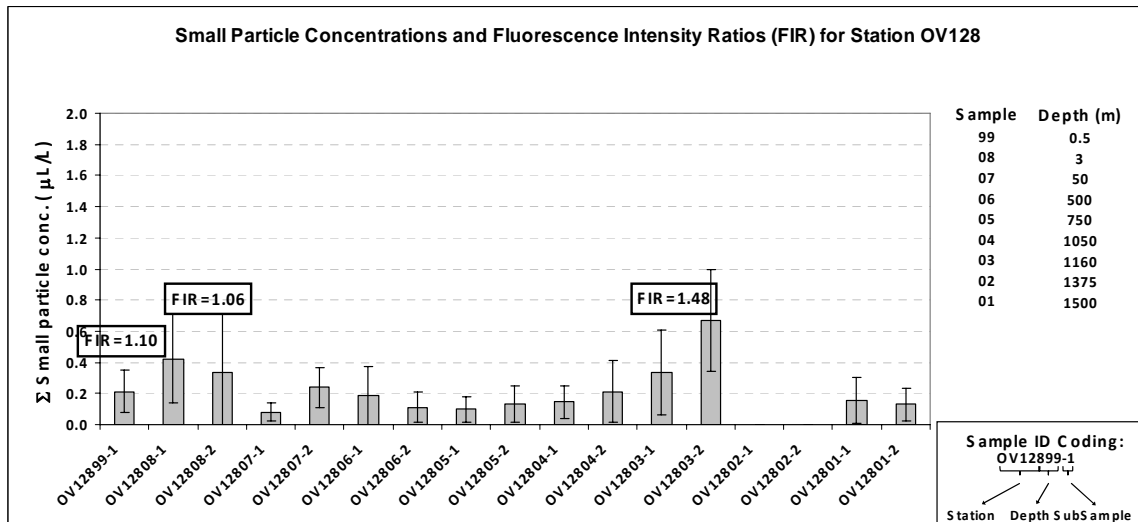
Water samples were collected at four stations for particle size distribution measurements using the LISST-100X particle counter. A total of 64 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence were selected from the CTD trace for fluorescence intensity ratio 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 OV128 through OV131. The station locations were:

- OV128: Lat= 28.608871 Long= -88.316017
- OV129: Lat= 28.630367 Long= -88.272909
- OV130: Lat= 28.678962 Long= -88.228251
- OV131: Lat= 28.738383 Long= -88.212101

For Station OV128, a slight elevation in small particles concentration was observed in the near surface samples as well as at 1160m. The *in situ* CTD fluorometer detected a subsurface plume at 1160m and 1375m, however the niskin bottle at 1375m misfired. At Station OV129, small particles concentrations were low at all depths. For Station OV130 and Station 131, elevated small particles concentrations were observed in the near surface samples (0.5 and 3m depths). The *in situ* CTD fluorometer did not detect a subsurface plume in Stations OV129, OV130 and OV131.

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 for stations OV128 to OV131.



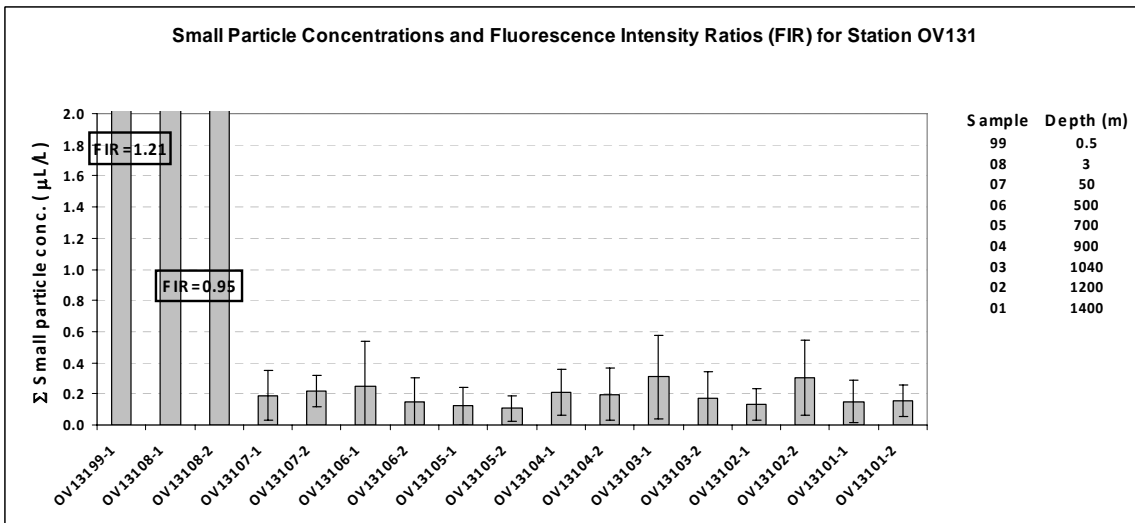
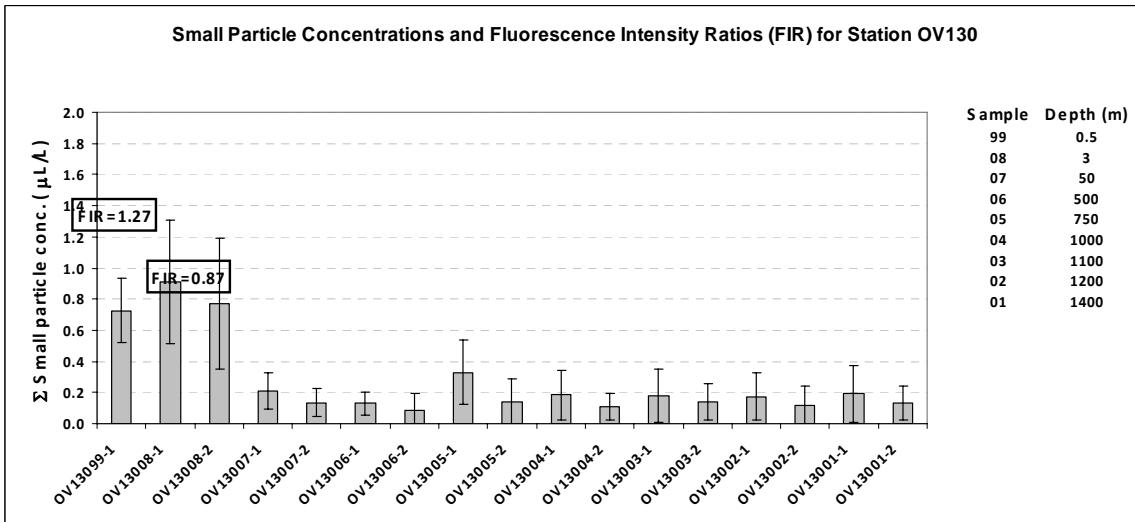
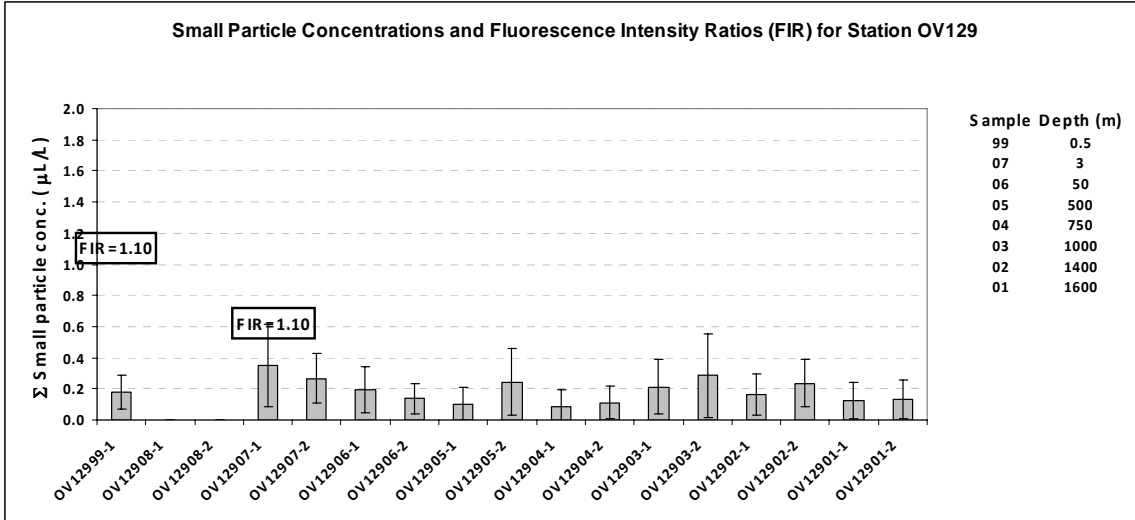


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations OV128 to OV131.