

US EPA ARCHIVE DOCUMENT

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

**July 28, 2010**

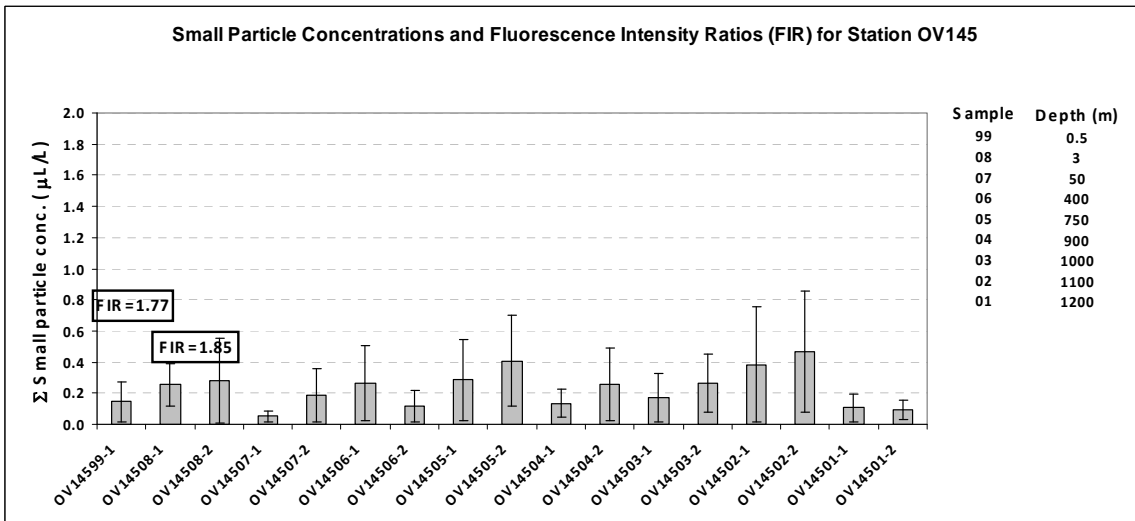
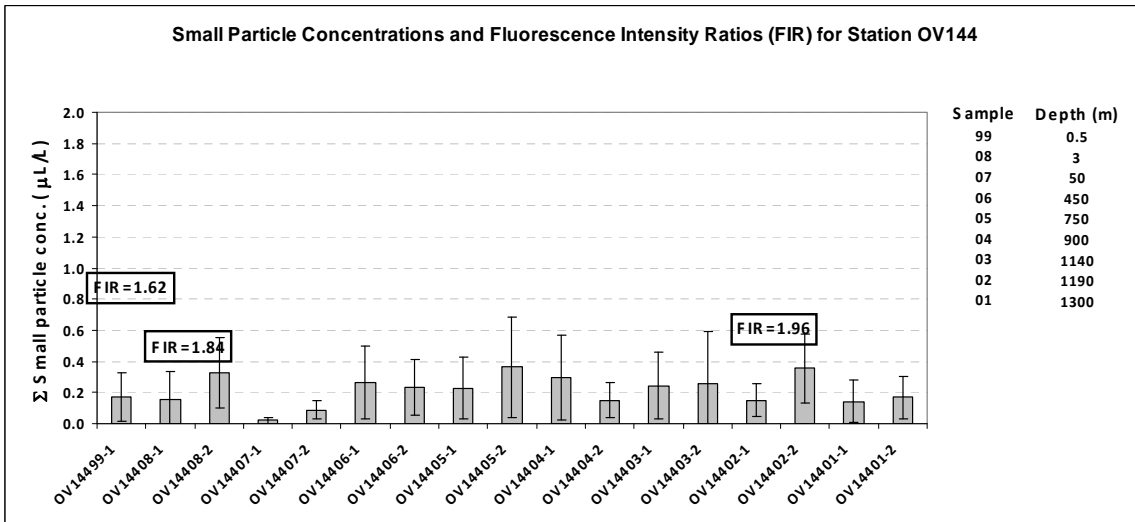
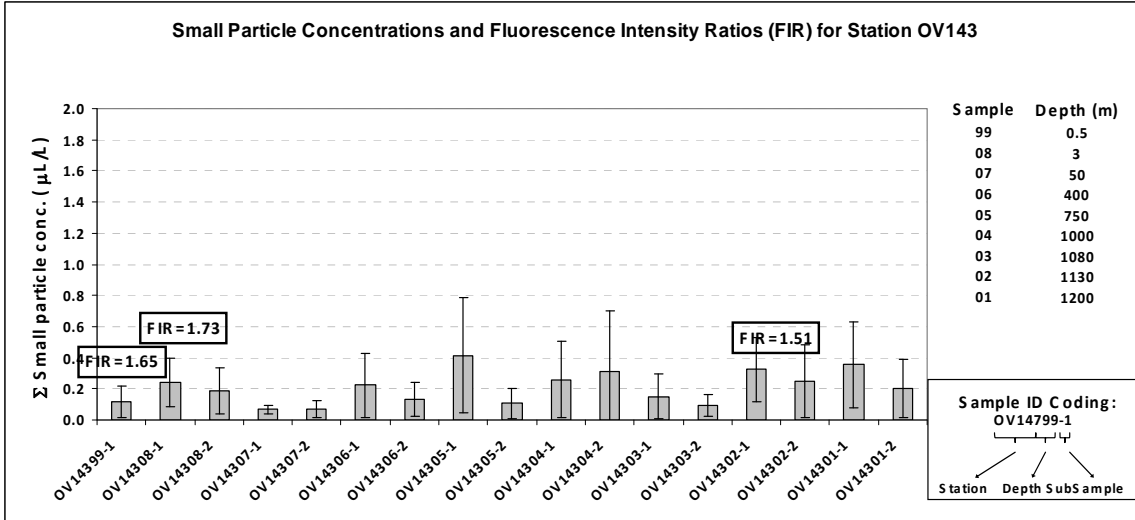
Water samples were collected at six stations for particle size distribution measurements using the LISST-100X particle counter. A total of 102 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence were selected from the CTD trace for fluorescence intensity ratio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

Figure 1 presents the small droplet ( $\Sigma$  2.5 - 60 $\mu$ m) particle size data and fluorescence intensity ratios for stations OV143 through OV148. The station locations were:

OV143: Lat= 28.419289	Long= -88.798559
OV144: Lat= 28.506489	Long= -88.679978
OV145: Lat= 28.595598	Long= -88.741086
OV146: Lat= 28.562980	Long= -88.600591
OV147: Lat= 28.466095	Long= -88.512076
OV148: Lat= 28.409738	Long= -88.506047

For Station OV143, there was a slight elevation in small particles concentrations at 1000, 1130 and 1200m. The *in situ* CTD fluorometer detected a very small subsurface plume at 1130m for this station. For Station OV144, small particles concentrations were relatively high at all depths except 50m. The *in situ* CTD fluorometer detected a subsurface plume at 1190m for Station OV144. For Station OV145, there was a slight elevation in small particles concentrations at 750 and 1100m. The *in situ* CTD fluorometer did not detect a subsurface plume for Station OV145. Small particles concentrations were relatively consistent at all depths for Station OV146. There was no subsurface plume detected by the *in situ* fluorometer for Station OV146. The *in situ* CTD fluorometer detected a very small subsurface plume at 1290m for Station OV147. For Station OV147, there were slightly elevated small particles concentrations near the surface (0.5 and 3m and at 500 to 1350m. For Station OV148, the *in situ* fluorometer detected a very faint subsurface plume at 1270m. There were slightly elevated small particles concentrations near the surface (0.5 and 3m) and at 750 and 1270m for Station OV148.

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 OV143 to OV148. The fluorescence intensity ratios observed for Stations OV143 to OV148 were slightly higher compared to those Stations observed on July 22, 2010.



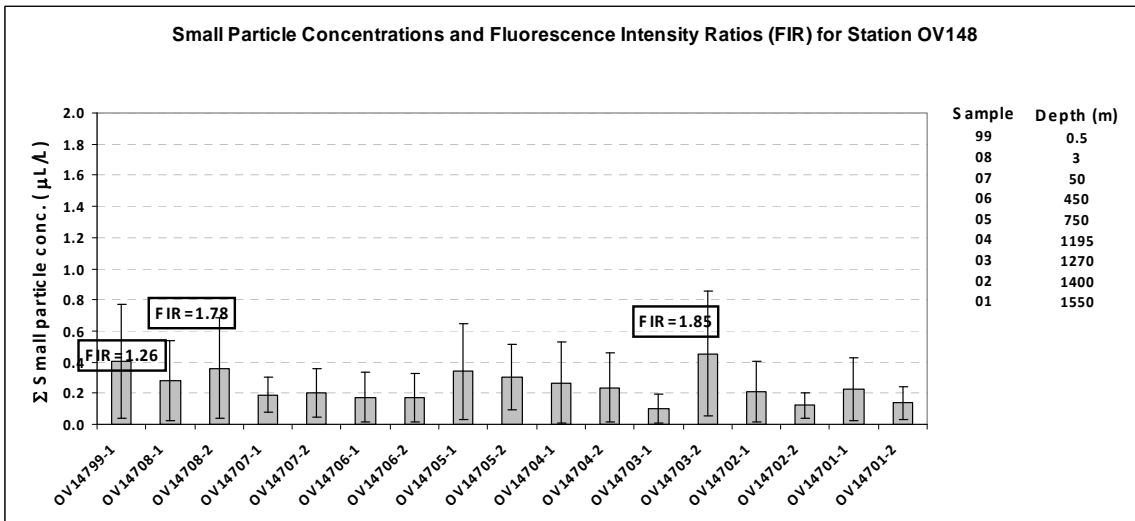
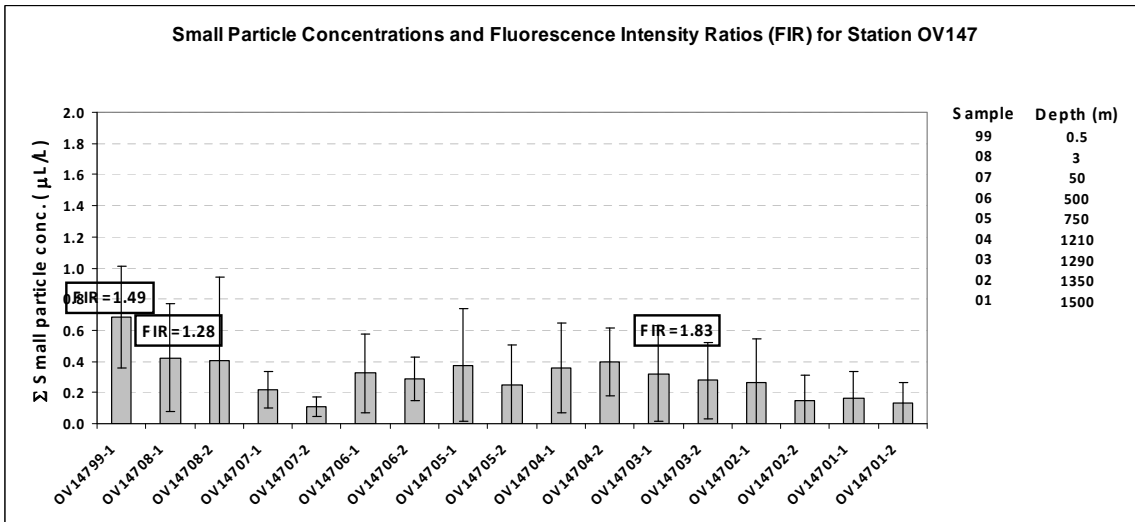
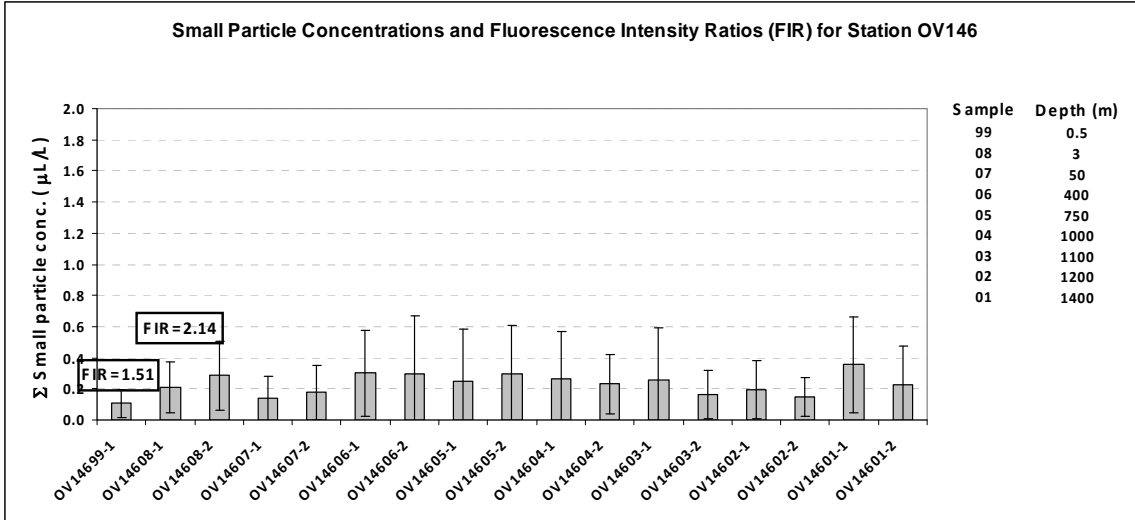


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations OV143 to OV148.