

US EPA ARCHIVE DOCUMENT

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

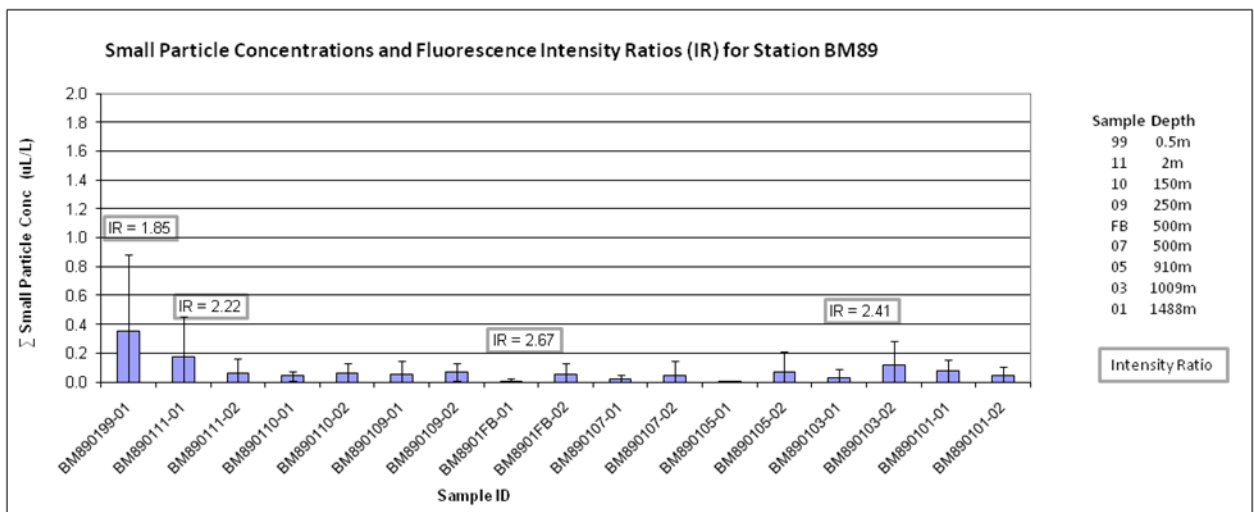
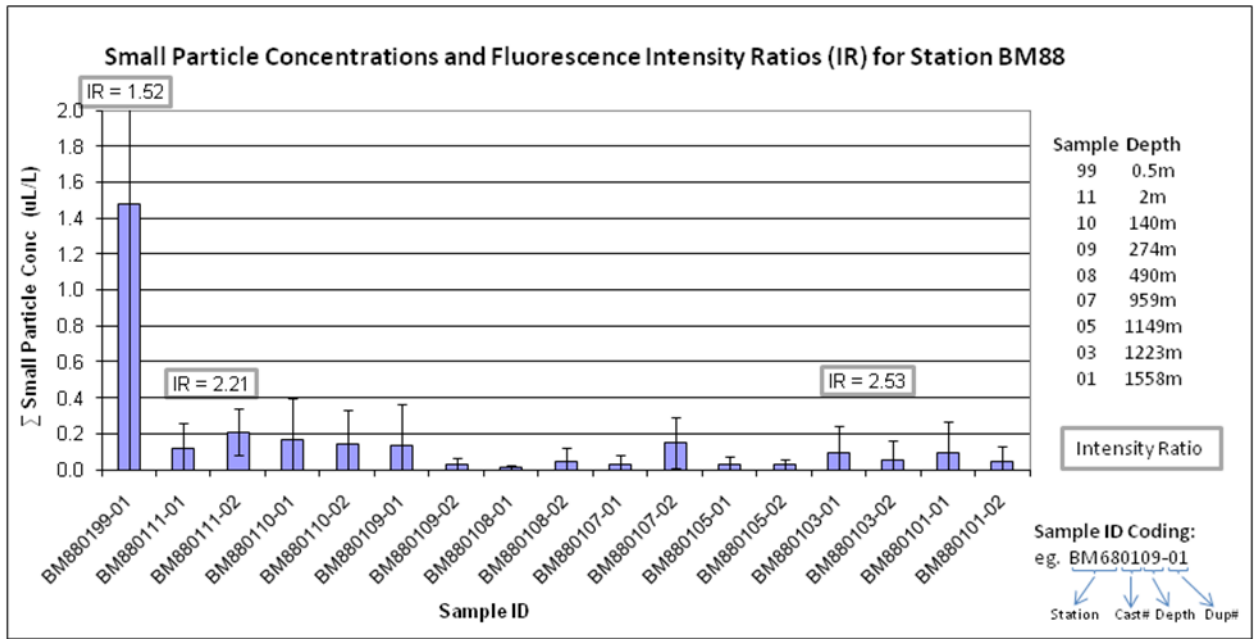
June 17, 2010

Water samples were collected at five stations for particle size distribution measurements using the LISST-100X particle counter. A total of 52 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence or other significance 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 BM88 through BM90. Station BM88 was 1km south of the wellhead, Station BM89 was 2km west of the wellhead, Station BM90 was 2km east of the wellhead.

All 3 stations showed elevated small particle concentrations on the surface water layer (0.5m) and Station BM88 also showed a slight elevation at depths of 2m and 140m. A weak sign of a subsurface plume was observed at 1064m at Station BM90. There were very weak indications of a slight elevation of small particle concentrations in the near-bottom samples collected at Stations BM88 and BM90. An anomalously high small particle concentration was obtained for sample BM900105-01 so an additional replicate was analyzed – three replicates were analyzed in total.

Station BM88 and Station BM89 showed fluorescence intensity ratios which were lowest on the surface and increased slightly towards the bottom. Station BM90 showed approximately equal fluorescence intensity ratios throughout the water column. Fluorescence intensity ratios for the three stations sampled were moderately high compared to those observed on June 13th.



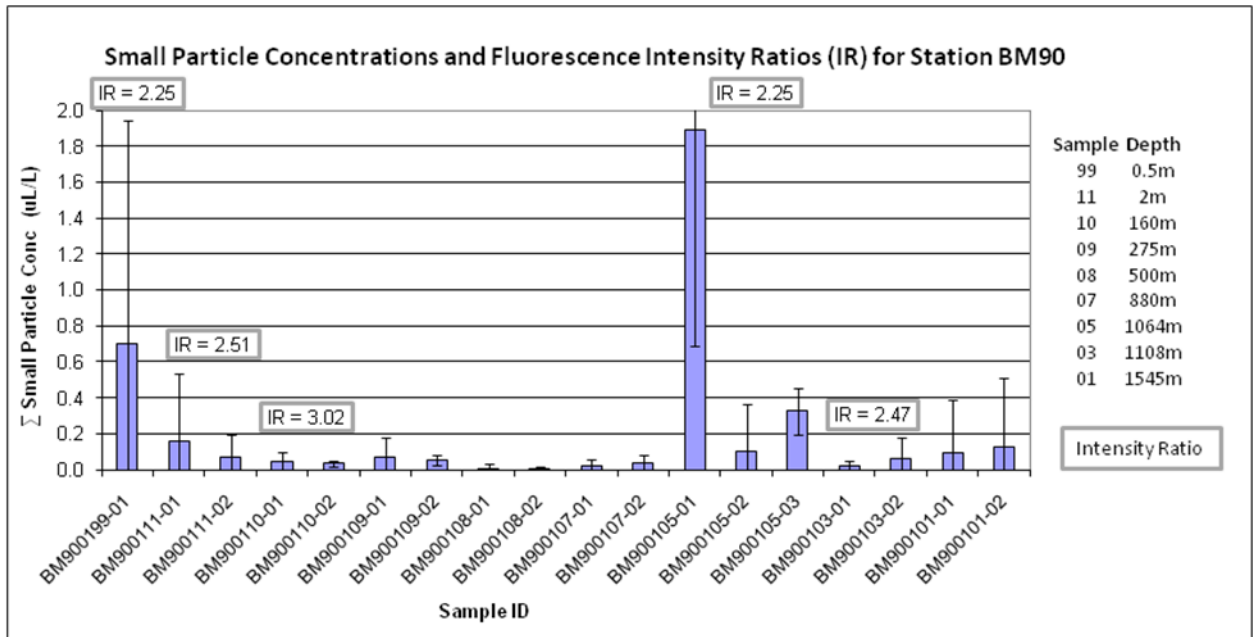


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations BM88 to BM90.