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

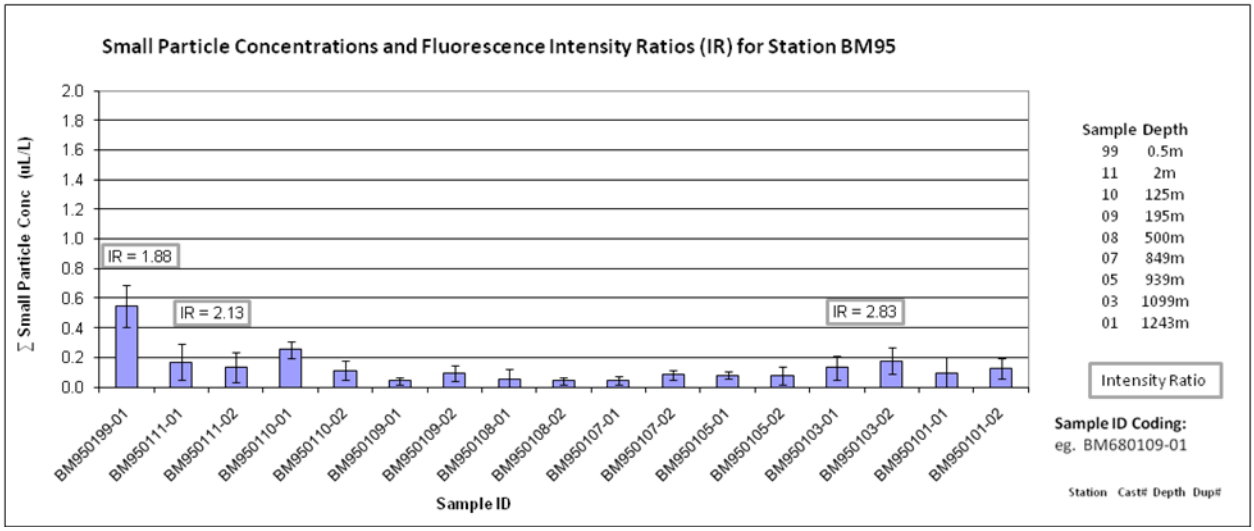
June 19, 2010

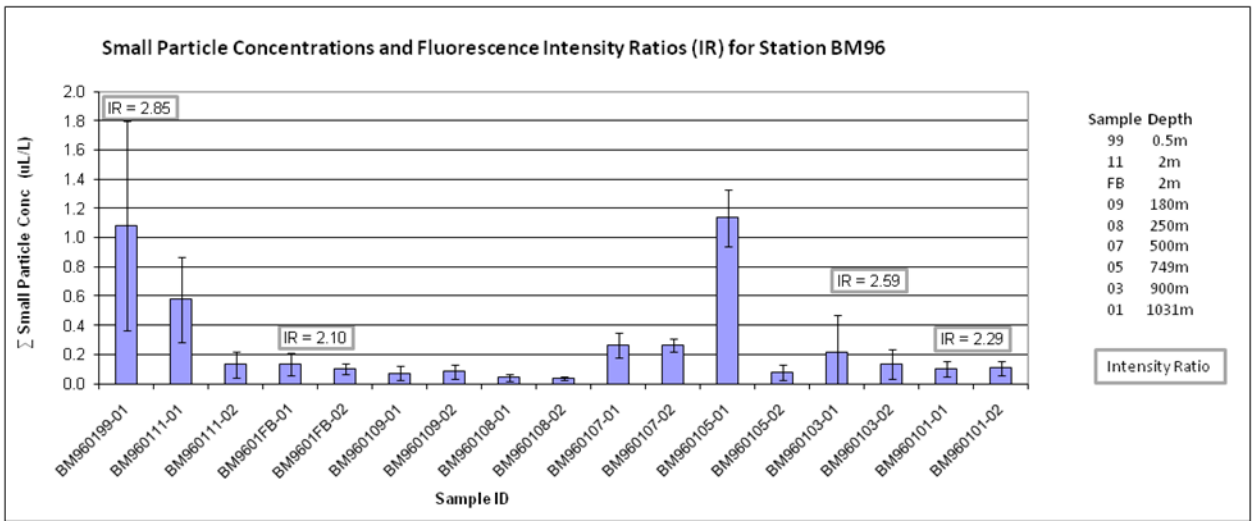
Water samples were collected at five stations for particle size distribution measurements using the LISST-100X particle counter. A total of 85 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence or other significance were selected from the CTD trace for fluorescence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

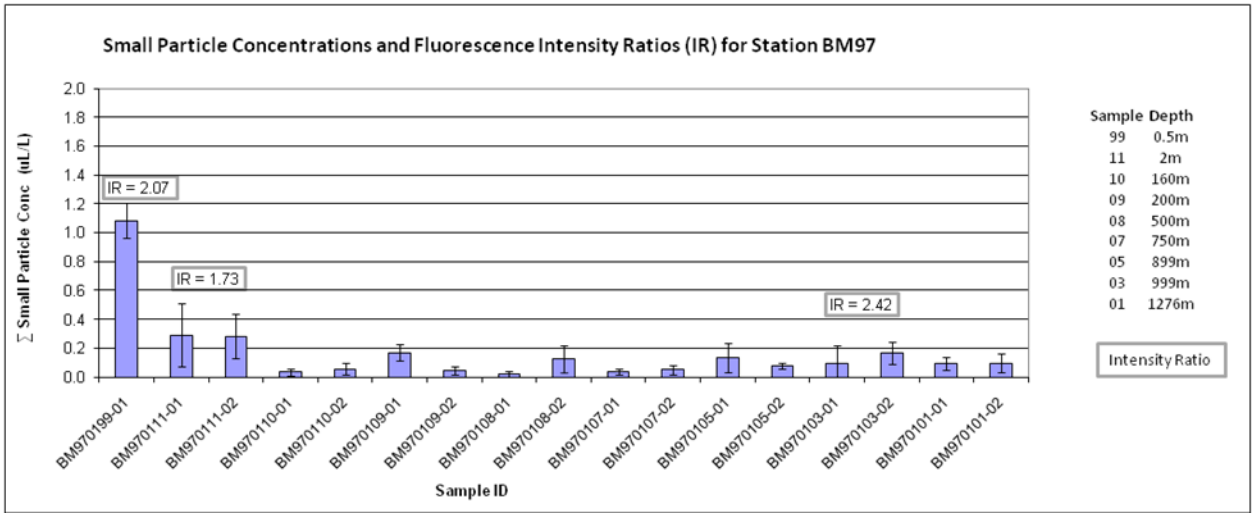
Figure 1 presents the small droplet (∑ 2.5 - 60µm) particle size data and fluorescence intensity ratios for stations BM95 through BM99. Station BM95 was 10km northeast of the wellhead, Station BM96 was 2km north of the wellhead, Station BM97 was 10km northwest of the wellhead, Station BM98 was 5km northwest of the wellhead, and Station BM99 was 5km north-northwest of the wellhead.

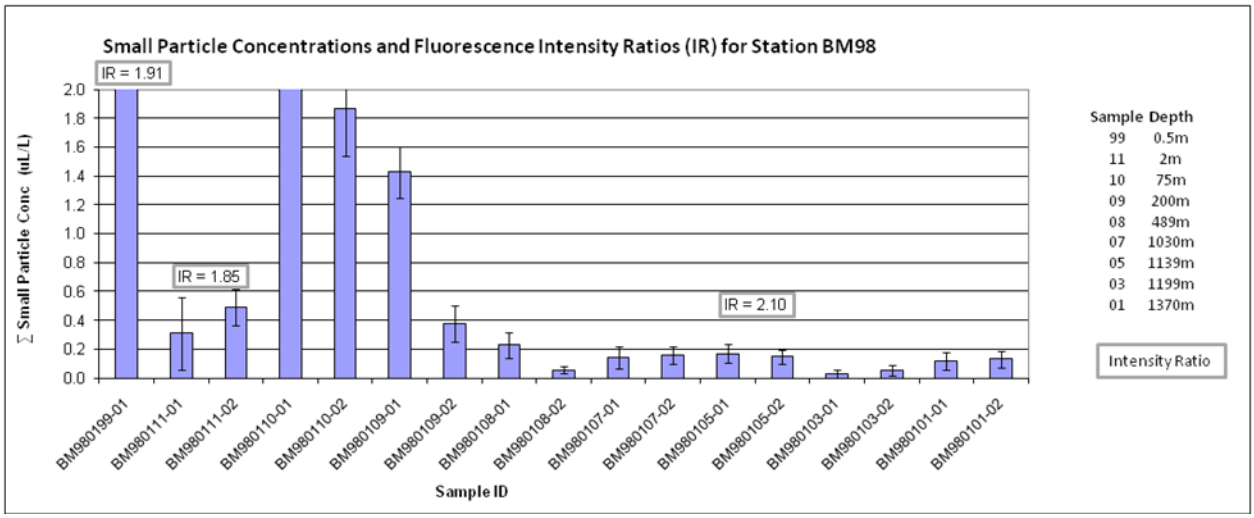
All stations showed moderate to high small particle concentrations at the surface layer (0.5m); Station BM98 also showed an extremely high small particle concentration at 75m depth. Station BM96 showed evidence of a slightly elevated small particle concentration at 500m depth. All stations except BM99 showed a very small elevation in small particle concentration near bottom.

All stations showed lower fluorescence intensity ratios at the surface than at depth. All stations but BM96 had fluorescence intensity ratios that were relatively low compared to those observed on June 18th.




Small Particle Concentrations and Fluorescence Intensity Ratios (IR) for Station BM96
∑ Small Particle Conc (uL/L)
IR = 2.85
IR = 2.10
IR = 2.59
IR = 2.29
BM960199-01
BM960111-01
BM960111-02
BM9601FB-01
BM9601FB-02
BM960109-01
BM960109-02
BM960108-01
BM960108-02
BM960107-01
BM960107-02
BM960105-01
BM960105-02
BM960103-01
BM960103-02
BM960101-01
BM960101-02
Sample ID
Sample Depth
99 0.5m
11 2m
FB 2m
09 180m
08 250m
07 500m
05 749m
03 900m
01 1031m
Intensity Ratio


Small Particle Concentrations and Fluorescence Intensity Ratios (IR) for Station BM97
∑ Small Particle Conc (uL/L)
IR = 2.07
IR = 1.73
IR = 2.42
BM970199-01
BM970111-01
BM970111-02
BM970110-01
BM970110-02
BM970109-01
BM970109-02
BM970108-01
BM970108-02
BM970107-01
BM970107-02
BM970105-01
BM970105-02
BM970103-01
BM970103-02
BM970101-01
BM970101-02
Sample ID
Sample Depth
99 0.5m
11 2m
10 160m
09 200m
08 500m
07 750m
05 899m
03 999m
01 1276m
Intensity Ratio


Small Particle Concentrations and Fluorescence Intensity Ratios (IR) for Station BM98
∑ Small Particle Conc (uL/L)
IR = 1.91
IR = 1.85
IR = 2.10
BM980199-01
BM980111-01
BM980111-02
BM980110-01
BM980110-02
BM980109-01
BM980109-02
BM980108-01
BM980108-02
BM980107-01
BM980107-02
BM980105-01
BM980105-02
BM980103-01
BM980103-02
BM980101-01
BM980101-02
Sample ID
Sample Depth
99 0.5m
11 2m
10 75m
09 200m
08 489m
07 1030m
05 1139m
03 1199m
01 1370m
Intensity Ratio

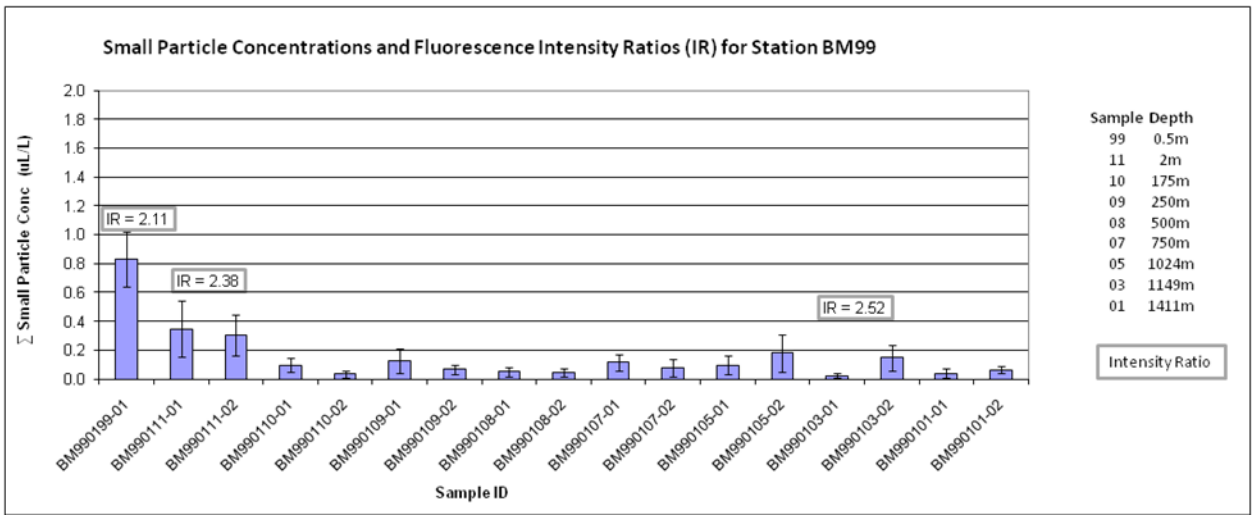


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations BM95 to BM99.