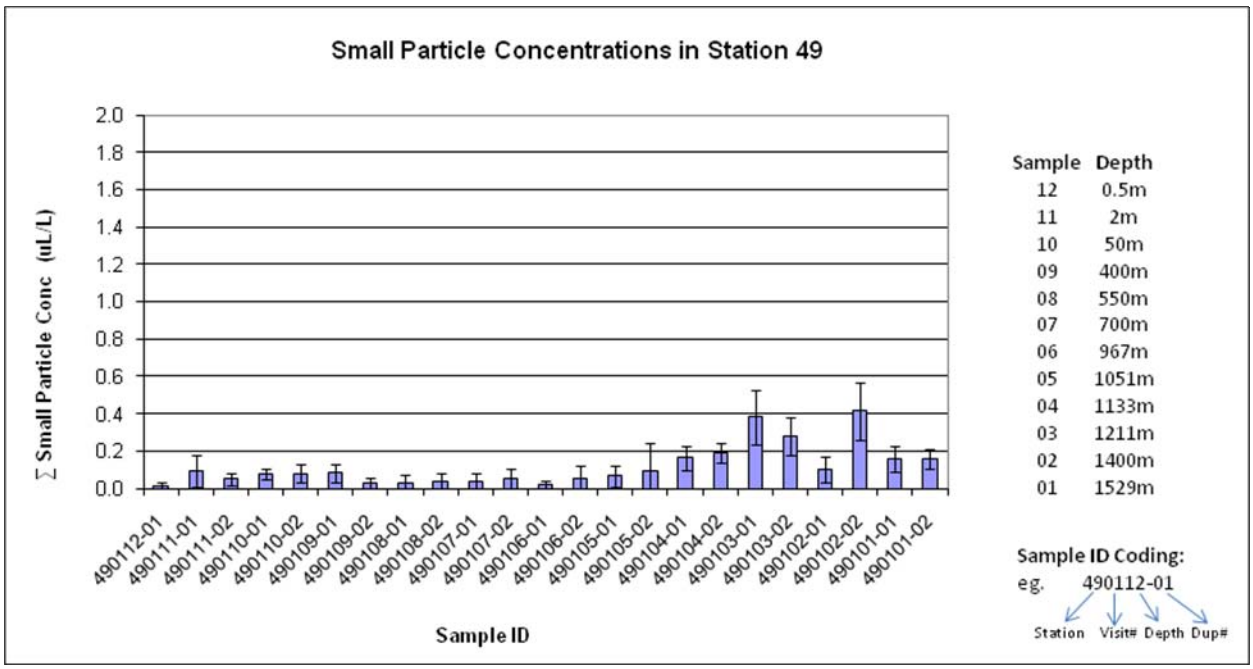
Daily Report: Tracking the Plume of Dispersed Oil using Particle Size Distribution Measurements

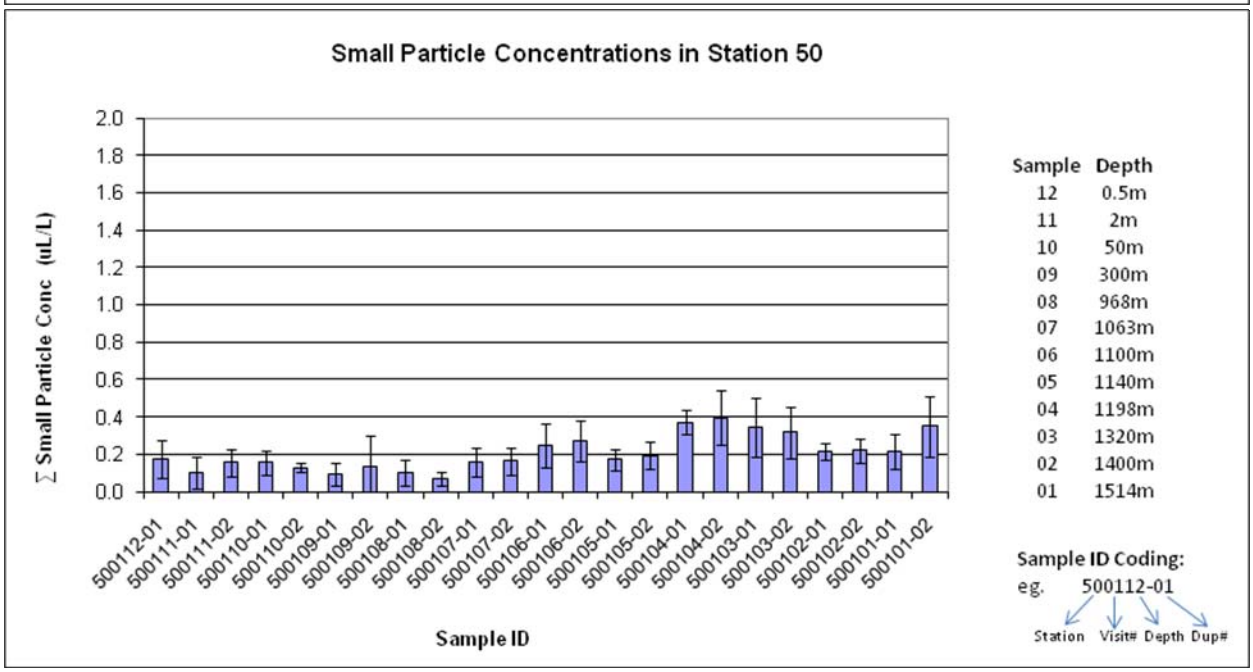
May 25, 2010

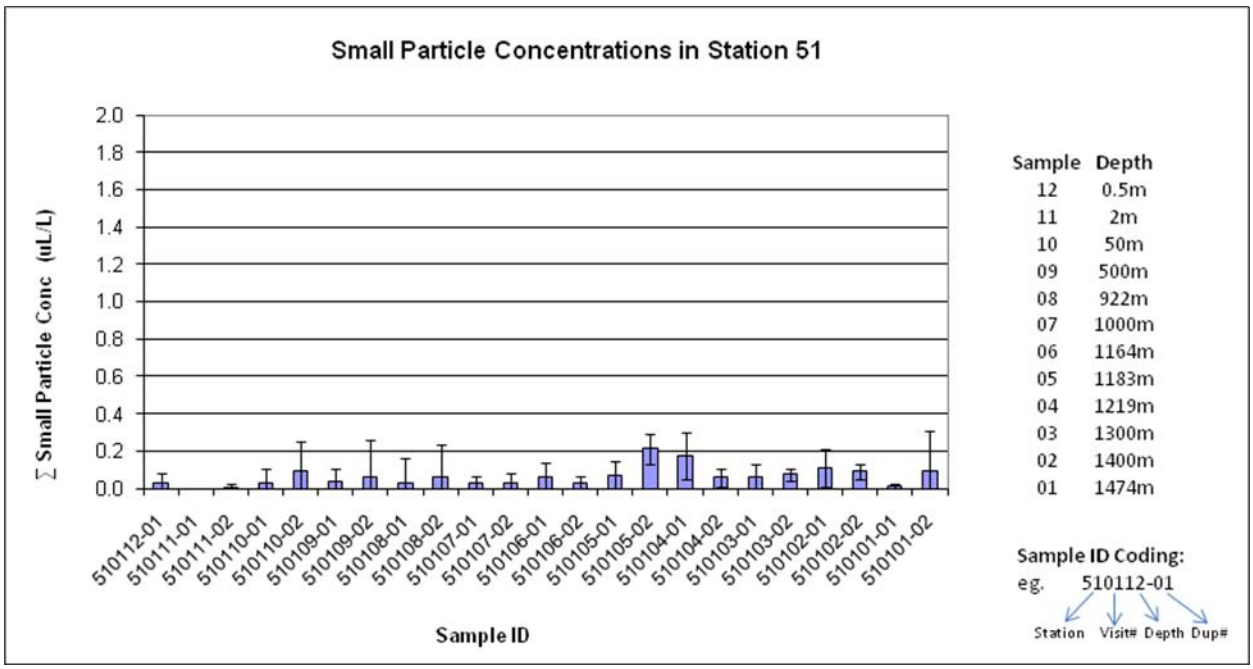
Water samples were collected at four stations for particle size distribution measurements using the LISST-100X particle counter. A total of 92 LISST samples were analyzed, including duplicates. Selected samples were also collected and stored for shore based fluorescence intensity ratio measurements.

Figure 1 presents the small droplet (∑ 2.5 - 60µm) particle size data for stations 49 through 52. Stations 49 to 51 were located 5.5 to 7km from the wellhead in the southwest quadrant, while station 52 was 1.3km southwest from the wellhead.

Elevated concentrations of small particles were detected in the deep water ranging from 1100m to 1300m in depth. The increase in particles at these depths also corresponds to data from the *in situ* CTD fluorometer. The highest concentrations of small particles were detected in station 49 and 50, which were 5.5 and 6.5 km west-southwest of the wellhead, respectively. The deepwater dispersed oil plume was not evident at Station 52 in either the CTD fluorescence trace or LISST particle size measurements.


Small Particle Concentrations in Station 49
∑ Small Particle Conc (uL/L)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
490112-01
490111-01
490111-02
490110-01
490110-02
490109-01
490109-02
490108-01
490108-02
490107-01
490107-02
490106-01
490106-02
490105-01
490105-02
490104-01
490104-02
490103-01
490103-02
490102-01
490102-02
490101-01
490101-02
Sample ID
Sample Depth
12 0.5m
11 2m
10 50m
09 400m
08 550m
07 700m
06 967m
05 1051m
04 1133m
03 1211m
02 1400m
01 1529m
Sample ID Coding:
eg. 490112-01
Station Visit# Depth Dup#


Small Particle Concentrations in Station 50
∑ Small Particle Conc (uL/L)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
500112-01
500111-01
500111-02
500110-01
500110-02
500109-01
500109-02
500108-01
500108-02
500107-01
500107-02
500106-01
500106-02
500105-01
500105-02
500104-01
500104-02
500103-01
500103-02
500102-01
500102-02
500101-01
500101-02
Sample ID
Sample Depth
12 0.5m
11 2m
10 50m
09 300m
08 968m
07 1063m
06 1100m
05 1140m
04 1198m
03 1320m
02 1400m
01 1514m
Sample ID Coding:
eg. 500112-01
Station Visit# Depth Dup#



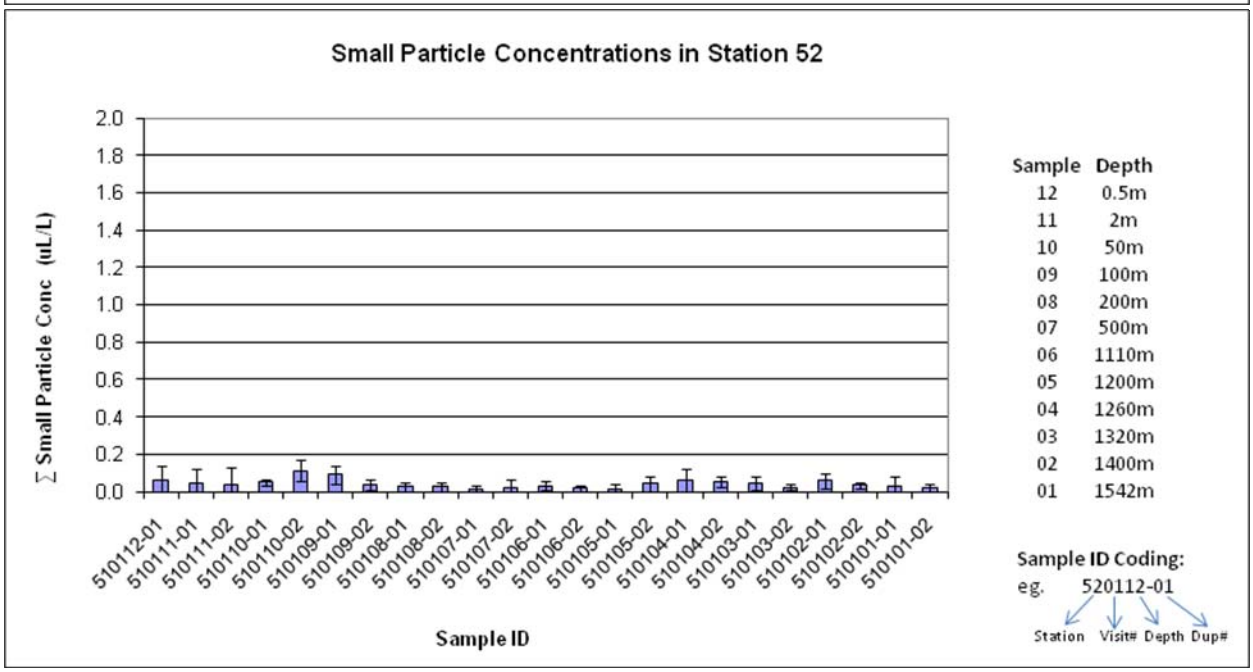


Figure 1: Average small particle concentrations as a function of depth from stations 49 to 52.