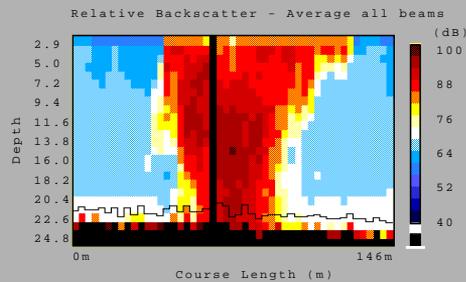
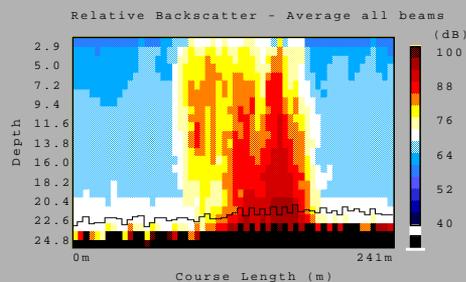


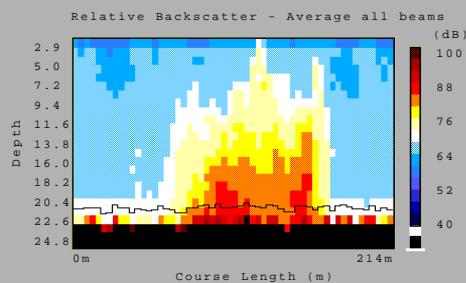
Transect 1  
35m astern



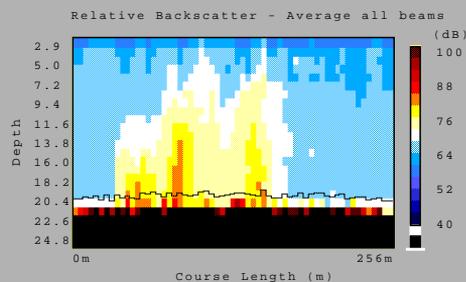
Transect 2  
180m astern



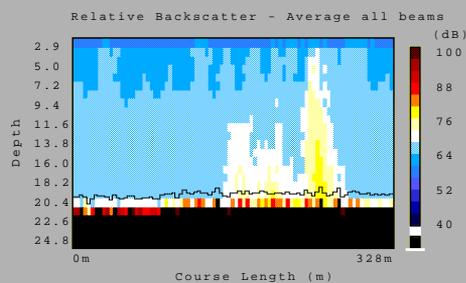
Transect 3  
345m astern



Transect 4  
560m astern



Transect 5  
915m astern



Transect 6  
1620m astern

Composite Plot of Plume Monitoring Campaign carried out on the 15th January 1997, English Channel. The Acoustic Backscatter Transects were obtained using an RDI 1200kHz BroadBand Acoustic Doppler Current Profiler.

The series of transects depicted on the left were obtained whilst monitoring the TSHD ARCO Dee. The solid black bands are formed when backscatter levels suddenly reach high levels (for example due to aeration). The data is blanked completely rather than artificially 'clipped' to a potentially misleading level.

Transect 1, obtained minutes after dredging with full overspill commenced, shows the development of a narrow plume at the base, with width at the surface little more than the breadth of the dredger. The quickly descending plume which has just reached the seabed typifies the development of a 'Density Current' effect, rapidly transporting sediments to the seabed, faster than their freefall, individual particle behaviour would exhibit. Very little entrainment of sediments at the edges of the plume is evident.

Transect 2 represents what is probably the most intensive region of the plume, with backscatter levels high throughout depth. The plume shows lateral dispersion though entrainment at the edges of the plumes, with surface currents (including wind effect) distorting the asymmetry of the plume.

Transects 3-6 clearly show the rapid settlement of the plume towards the seabed. No with-depth SSC data are available. It is considered that background levels of suspended solids would be attained closer to the dredger than Transect 4.

The continuation of the 'plume' beyond this point is considered to be due to backscatter caused in part by aeration and physico-chemical factors, but largely due to organic components disturbed and fragmented by the dredging process. The disintegration of benthic macro- and meiofauna tissues will release significant quantities of lipids, carbohydrates and proteins which will generally remain in suspension longer than

Figure 4.3.2c