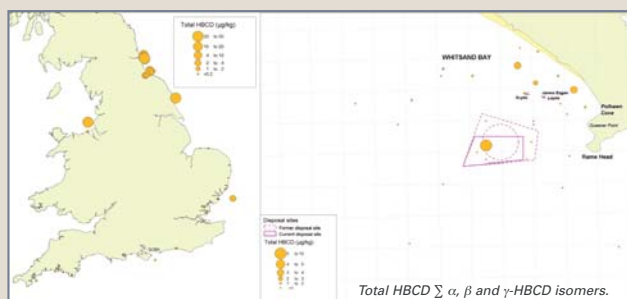
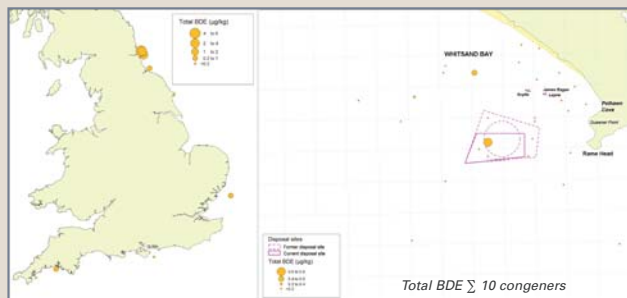


Assessment of concentrations of trace organic contaminants in sediments at Rame Head

Concentrations of organic contaminants were determined in seabed sediments from the Rame Head area. These are presented here together with concentrations of the same contaminants determined at other disposal grounds around England and Wales.

Brominated flame retardants (BFR)

BFR determined were the brominated diphenyl ethers (BDE) and hexabromocyclododecane (HBCD).



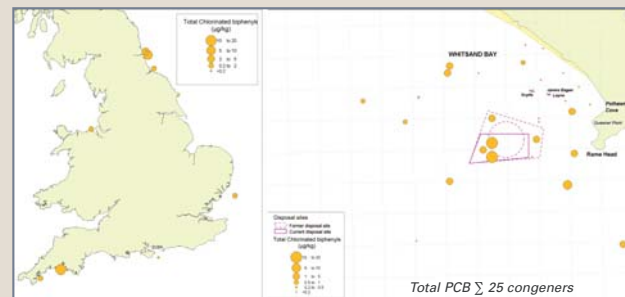
Concentrations of BFR measured in this study are comparable to the lowest concentrations detected in European marine sediments¹ and at other disposal grounds around the UK. These concentrations of BFR represent general environmental background, which may have resulted from a combination of diffuse inputs and atmospheric deposition.

References

- Environmental impacts resulting from disposal of dredged material at the Rame Head disposal site, S.W. England: An analysis of existing data and implications for environmental management. CEFAS Contract Report June 2005.
1. Law, R.J., Alchin, C.R., de Boer, J., Covaci, A., Herzke, D., Lepom, P., Morris, S. and de Wit, C.A. (2004). Levels and trends of brominated flame retardants in the European environment. Proceedings of the Third International Workshop on Brominated Flame Retardants BFR2004, June 6-9, 2004 Toronto, Canada. 79-104.
 2. Langston W.J., Chesman, B.S., Burt G.R., Hawkins S.J., Readman J., Worfold P. (2003). Site Characterisation of the South West European Marine Sites: Plymouth sound and estuaries. cSAC/SPA. Marine Biological Association occasional publication Number 9 216pp
 3. <http://www.epa.gov/waterscience/cs/guidelines.htm>

Polychlorinated biphenyls (PCB)

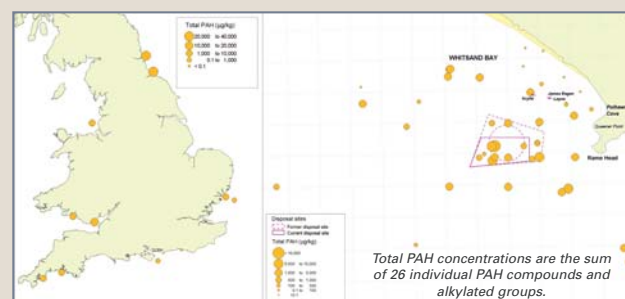
The use of PCB has been controlled for over 20 years, but their persistence in the environment means that they are still detectable today.



Elevated concentrations of PCB at the disposal site are probably due to historic disposal activity. Concentrations of PCB at the SAC and outside the disposal area are either low or below the limit of detection of the methods used.

Polycyclic aromatic hydrocarbons (PAH)

A range of oil and combustion-derived PAH were monitored in this survey.

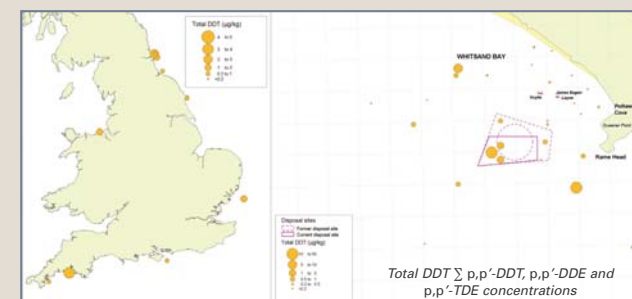
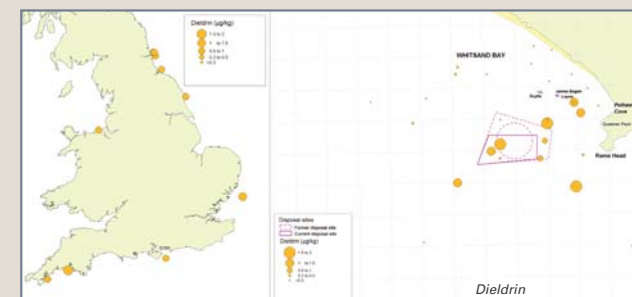


Concentrations of PAH were found to be elevated both at the disposal site and in the surrounding area. The distribution of the PAH compounds indicates that they are mostly combustion derived. Occasionally, oil has been observed in sediment samples from the disposal site.

It is likely that this contamination does not originate solely from the disposal site but from other inputs such as sewage and storm-water discharges.

Organochlorine pesticides (OCP)

The OCPs studied in this survey were dichlorodiphenyltrichloroethane (p,p' -DDT) and its degradation products/metabolites p,p' -DDE and p,p' -TDE, hexachlorobenzene (HCB), dieldrin and hexachlorocyclohexane (HCH).



Except for p,p' -DDT at one site, all OCP concentrations were low, below sediment quality guidelines^{2,3}.

Future Studies

Analysis is recommended of sediment samples collected in June 2005 from similar positions to the 2003 survey. Such analysis would enable comparison of:

- biological and chemical data
- recent and historic chemical contaminant data.

Analysis is also recommended of sediment samples recently collected from Polhawn Cove and Plymouth Sound:

- to assess concentrations and the extent of contamination
- to determine sources of contamination, particularly for PAH and p,p' -DDT.