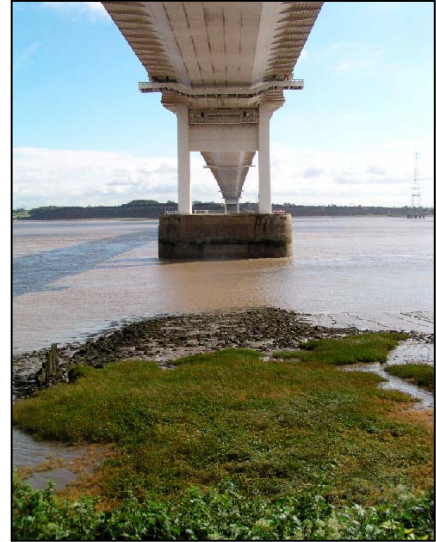


Factsheet - Severn Estuary Sediment Study

The extensive intertidal regions of the Severn Estuary provide the feeding grounds for the bird populations for which it is designated as a Special Protection Area (SPA). These intertidal areas are characterised by fine sediments, which are known to act as sinks for a variety of contaminants that enter the system from industrial, domestic and aerial sources. The enormous tidal energy of the Severn Estuary tends to 'smear' contaminants throughout the system, so although contamination may have local effects, more widespread contamination is the likely outcome. Benthic fauna are exposed to these contaminants through contact with the sediments, accumulating and concentrating them and passing them up the food chain as they are preyed upon. With the result that the concentrations to which the next trophic level is exposed are thus increased. In the Severn Estuary, this process of biomagnification has possible implications for the internationally important bird populations. Any assessment of the Severn Estuary must therefore incorporate some determination of the levels of contamination that sediment fauna are exposed to.



In the past the Agency and others have collected information on contaminant levels in Severn Estuary sediments, and have been able to identify both spatial and temporal trends. These studies have shown that despite the dilution of contaminants through the smearing described above, they can and do accumulate in the finer sediments. Metals are a particular concern in Severn Estuary, with inputs from industrial, domestic and riverine sources. More exotic chemicals such as PAHs and synthetic organic compounds are also found in the sediments at moderately high levels throughout much of the system. Unfortunately, because the historic data for the majority of these contaminants was collected for specific purposes with limited scope, the results are not directly comparable and are therefore inadequate for the type of assessment required by the Habitats Directive.



The current study will examine the intertidal areas of the estuary, specifically targeting areas receiving anthropogenic inputs, known sediment 'sinks' and bird feeding areas. In total, twenty-five sites have been identified throughout the estuary from which sediments will be collected and analysed for a comprehensive suite of contaminants. The survey has been designed to avoid the influence of natural variation through the taking of replicate samples. This should allow as accurate a picture as possible to be built up of the distribution and extent of sediment contamination in the Severn Estuary. Additionally, the levels of contamination of the benthic fauna will be investigated at ten of the sample sites. The species studied will be known prey items for wading birds, which will allow an assessment of the biomagnification up the food chain to be made.

