

Micro-organic contaminants

An objective of LOIS has been to determine the fluxes of micro-organic contaminants from rivers through estuaries to coasts and their fate in shelf seas. Herbicides and insecticides reach the aquatic environment as a result of human activity. They are known to be toxic to biota when present in relatively low concentrations. A range of chemicals was selected to represent different physico-chemical properties, sources and modes of toxic action.

The research focused on the Humber estuary and its catchment. Measurements in rivers were designed to provide information of temporal variations in concentrations and loads in rivers (Aire, Calder, Don, Trent, Ouse) at points immediately upstream of the tidal limits. In addition, some sites on the rivers Swale and Ouse were selected to provide information on concentrations in the catchment. Higher concentrations were measured in the industrial rivers in the southern part of the Humber catchment. An ancillary project has concentrated on the relationship of pesticides with river bottom and suspended sediments and their role in translocation.

The estuarine and coastal programme in LOIS was designed to establish the extent to which contamination by micro-organic compounds in the Humber and its plume was a function of inputs from the river catchment, or from more local inputs. In addition, it aimed to establish how the binding and transport of particles influences the final fate of persistent contaminants. Data from six estuarine surveys on *Sea Vigil* and two coastal cruises on *Challenger* over fourteen months provided data for a full seasonal cycle. Analytical techniques for lindane and atrazine used in fresh and saltwater are satisfactorily intercalibrated.

The monitoring programme involved:

- weekly and storm sampling of a range of pesticides including triazine herbicides, organochlorine insecticides, PCBs, chlorinated phenols, phenyl urea herbicides, pyrethroids and trichlorobenzenes,
- quarterly sampling for triazine herbicides, pyrethroids, organochlorine insecticides, organophosphorous pesticides, a surfactant residue, polyaromatic hydrocarbons on river bottom and suspended sediments for the rivers Swale, Aire, Calder, Don and Trent.

The Overview CD-ROM includes:

- data for lindane and atrazine in the rivers Swale, Aire, Calder, Don and Trent, together with the Humber estuary and plume (**river water quality**) and (**estuarine and coastal sediment and sediment / water chemistry**).

Also included are **river flow data** used in the calculation of loads.