

LOIS river contaminant research in RACS(R)

W Alan House, Institute of Freshwater Ecology, Wareham, Dorset, BH20 6BB

The progress of the LOIS core programme on the measurement of a range of contaminants by the IFE, ITE and IH was reported as well as progress on related Special Topic Research. The main emphasis was on the nutrients measured at weekly intervals and storm periods (soluble reactive phosphorus (SRP), total dissolved phosphorus and total phosphorus, nitrate, nitrite, ammonium, dissolved silicon) and pesticides (including a range of triazines and phenylurea herbicides, organophosphorus, organochlorine and pyrethroid insecticides, PCB's and chlorobenzenes). Highlights from the nutrient work included:

- Range of forms of phosphorus transported to the inter-tidal zone for all the Humber rivers. The annual load from the R. Trent was dominated by soluble reactive phosphorus, whereas the R. Swale was mainly particulate phosphorus transported during storm events.
- Hysteresis effects during storm events- examples were shown for the R. Swale for nitrate, silicon and SRP but similar results were available for calcium, nitrite, ammonium and the other phosphorus fractions. Hysteresis has been modelled to enable estimates of the concentration of diffuse inputs as well as the load of the point-inputs.

Highlights of the research on micro-organic compounds were also given:

- Large differences in the exports of different triazine herbicides, atrazine and simazine, in the river Trent, Aire and Calder catchments.
- The occurrence of high concentrations of many contaminants in both suspended and river bed-sediments (IFE/PRIS Special Topic). In particular the more hydrophobic contaminants, fluoranthene, pyrene, naphthalene, diazinon and permethrin occurred at very high concentration in the contaminated rivers. Research is progressing to identify links between the degree of contamination and sediment composition.
- Examples of the low concentrations of PCB's and organochlorine pesticides ($< 25 \text{ ng dm}^{-3}$) found by ITE (Monkswood) were also shown with the highest concentrations measured during high discharge in the R. Calder.
- Relatively high concentrations of dichlorobenzenes ($0.1\text{--}100 \text{ ng dm}^{-3}$) have also been discovered with correlations in the occurrence of isomers evident.
- There is considerable scope to identify other groups of compounds, isolated from river waters and associated sediments - the complex nature of the chromatographs means that the majority of micro-organic compounds have not been identified.

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