

## Chlorophyll and phytoplankton

Measurements of chlorophyll and phytoplankton have been undertaken within LOIS to:

- provide data sets linking observations in the rivers, the estuaries and the North Sea,
- provide seasonal and long-term information on phytoplankton biomass within the LOIS study area,
- facilitate estimation of the fluxes and fate of river, estuarine and North Sea phytoplankton.

The measurement programme included determinations of chlorophyll and phaeopigments at the main river monitoring stations and in the tidal reaches of the Yorkshire Ouse and Humber estuary during the period 1994 - 1997. Data were also obtained from the North Sea coastal strip, between Berwick and The Wash during 1993 -1995, and from the Tweed estuary during 1996 - 1997. The dynamics of estuaries like the Humber pose particular problems for estuarine planktonic organisms. With residual transport from the river to the sea, and often short residence times, they are regions of rapidly changing conditions that are often not optimal for phytoplankton growth. Algal cells entering the upper reaches of an estuary from a river experience rapid changes in salinity and, if transported down estuary, encounter salt concentrations that will eventually kill most freshwater phytoplankton.

The Overview CD-ROM includes a selection of the chlorophyll data obtained in LOIS from the primary river monitoring stations, from the Humber and Ouse, and from the coastal strip. Other CD-ROMs will include more comprehensive outputs from the chlorophyll measurements, including data from the Tweed estuary.

The data illustrated on the Overview CD-ROM include measurements of chlorophyll:

- from the main **river monitoring stations** (1994-1996) (**river water quality**),
- in the Humber and Ouse between March 1994 and March 1995 (**estuarine and coastal water quality**),
- in the coastal strip made from *Challenge r* (1993-1995) (**estuarine and coastal water quality**),

- presented as a chlorophyll concentration map derived from CASI images of the Humber plume obtained from June to August 1995 (**chlorophyll derived from remotely sensed images**),
- from the **shelf edge underway data** obtained during SES cruises in 1995 and 1996.