Cranedale Centre

FRESHWATER POLLUTION

Abstract

Pocklington Beck flows from the arable landscape of the Yorkshire Wolds past a sewage work. Invertebrate community composition and a variety of physical and chemical factors are investigated at up to four key sites. Diversity Indices and Biotic Scores based on indicator species are calculated and the study put into the context of the work carried out by the Environment Agency

Aim

- To investigate the effect of sewage effluent on a freshwater ecosystem

Learning Objectives:

- To grasp the importance of clean water to society and the natural world
- To become familiar with the purpose and the stages of sewage treatment
- To establish how the health of a freshwater stream changes as a result of sewage effluent
- To relate the abiotic conditions of the stream to the needs of the invertebrate community
- To experience kick sampling with D-nets to establish abundance of invertebrates
- To understand what data is required for the Simpson's Index, and to use the formula to calculate invertebrate diversity

Learning Outcomes:

- To define the ecological terms used in a pollution study
- To identify the adaptations for respiration possessed by freshwater organisms in clean and polluted water
- To recognise the hazards associated with freshwater fieldwork and explain how to minimise their likelihood of occurrence
- To distinguish invertebrate species using a dichotomous key
- To evaluate the use of freshwater invertebrates as biological indicators of the health of a stream
- To relate the abiotic conditions of a freshwater stream to the environmental issues arising from the release of sewage effluent
- To interpret the trends in primary data
- Where appropriate, to explain unpredicted trends in the data
- To select and justify the use of an appropriate statistical test
- To evaluate the limitations in equipment and sampling techniques used in data collection