



Field Study: Investigation of Human Impact on a River Ecosystem

Activity Outline

Year Level 9 & 12

Clean fresh water is one of our most valuable resources. It is essential for sustaining aquatic environments and human health. The effect of human activities on the waterways is of paramount importance. In this activity, students will evaluate the health of a river by monitoring various water quality parameters at a number of locations along a river catchment. Students will then be able to analysis and discuss the results to ascertain the health of the river.

Key terms

Aerobic, anaerobic, benthic, Biochemical Oxygen Demand (BOD), biomass, catchment, community, Dissolved Oxygen (DO), ecosystem, eutrophication, point/non point source pollution, Riparian zone, water quality criteria

Objectives and outcomes

This activity is designed to incorporate outcomes from the following Content NSW Board of Studies (BOS) Endorsed Course 6 syllabuses.

BIOLOGY Stage 6 Syllabus (2002)

Objectives P1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16

Objectives H1, 2, 3, 4, 6, 7, 8, 11, 12, 13, 14, 15, 16

EARTH AND ENVIRONMENTAL SCIENCE Stage 6 Syllabus (2002)

Objectives P2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16

Objectives H1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

CHEMISTRY Stage 6 Syllabus (2002)

Objectives P1, 2, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Objectives H1, 2, 4, 8, 9, 10, 11, 12, 13, 14, 15, 16

Investigation of Human Impact on a River Ecosystem Activity Outline 8.1

SENIOR SCIENCE Stage 6 Syllabus (2002)

Objectives P1, 2, 3, 4, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16

Objectives H1, 2, 4, 6, 7, 8, 11, 12, 13, 14, 15, 16

Stage 6 Senior Science Activity

Objectives P2, 3, 4, 7, 8, 11, 12, 13, 14, 15, 16

MARINE STUDIES Stage 6 Syllabus (2000)

Optional Module 8: Local Area Study

Outcomes 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 5.4

Key competencies

- Working scientifically
- Collecting, analysing and organising information
- Communicating ideas and information
- Using technology
- Working with others and in teams

Activity Summary:

This activity aims to create awareness of water quality issues and allows a detailed study of the student's local area. This involves students monitoring 3 locations on the Bellinger River (Thora, Bellingen, Mylestrom). They will perform and collect readings for a number of chemical and biological water quality parameters (Dissolved Oxygen (DO), turbidity, phosphorus, salinity (conductivity), pH, temperature, macro-invertebrates). Students will then compare and discuss the results from the three sites comparing them to nationally set water quality standards. This information will be included in the government's Waterwatch national database and can be accessed for ongoing and future assessment.