

1. ABSTRACT TITLE

Incorporating Coastal Science into the Queensland Secondary Schools' Curriculum: Acid Sulfate Soils and Senior Chemistry

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8. ABSTRACT

Introduction: Falling tertiary science enrolments and a need for participatory science in school curricula has inspired collaboration between Education Queensland and soil scientists from the Queensland Department of Natural Resources and Water (NRW) aimed at incorporating soil science into the secondary school curriculum. They jointly developed a Personal Development (PD) package aimed at Senior Chemistry teachers, focusing on the chemistry of Acid Sulfate Soils (ASS). These soils are both a coastal environmental hazard and an illustration of redox chemistry in action.

Methods: Several professional development events were held across Queensland in 2007-2008. The 3 hour sessions involved the presentation of background information and scientific concepts, followed by a hands-on exercise in the determination of Titratable Actual Acidity in soil (TAA, AS4969.2-2008). In addition, field inspections showed teachers the coastal environments where ASS occur and demonstrated operation of field sampling equipment. Teachers attending the events also received a CD containing resources for classroom use.

Results: Feedback from program participants has been overwhelmingly positive, with several schools across the state immediately incorporating the package into their courses. However, many schools are held back from fully utilising the package due to shortages of scientific equipment in the classroom, particularly electronic pH meters. These devices are delicate and costly, but required

when performing the TAA procedure. Soil scientists at NRW are currently researching possible low-cost workarounds for this issue.

Conclusions: This project shows that multi-disciplinary collaborations using this coastal example can be extremely effective in revitalising the teaching of essential science disciplines like chemistry, which are often perceived as boring and difficult. The collaborative process has also revealed resource limitations in schools, and allowed space for NRW to find ways around them. Joint projects between coastal scientists and education authorities have the potential to improve secondary education in many areas.