Media Release

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Airborne geophysics to help reduce Murray River salinity

Geophysical data collected over the Chowilla Floodplain of South Australia is helping scientists find out where salt is stored and how saline groundwater is entering the Murray River.

By measuring and mapping the electrical conductivity of the soils and geology beneath the floodplain, researchers from the Cooperative Centre for Landscape Environments and Mineral Exploration (LEME) are working with colleagues from CSIRO Land and Water and the South Australian Department of Land Water and Biodiversity Conservation to determine where the more saline groundwaters occur and how there are moving into the river.

LEME scientist Dr Tim Munday (CSIRO), who is presenting a paper on the application of geophysics in mapping salinity along the Murray River at the 2006 Australian Earths Sciences Convention, said the use of airborne geophysics is a cost effective way to determine the extent of areas prone to salinity, as well as mapping salinity variations in groundwater.

'Mapping the electrical conductivity of an area helps us define the characteristics of the sub-surface and soil, and identify areas affected by, or prone to salinity, and to locate where saline groundwaters are entering the river," Dr Munday said.

The Chowilla Floodplain is one of the six significant ecological areas targeted by the Murray Darling Basin Commission's (MDBC) Living Murray Initiative. Degradation of the floodplain and associated wetlands has occurred through a reduction in flooding events, over grazing and the introduction of exotic plants and animals.

"Having good electrical conductivity data over the area give baseline data that will help define strategies to reduce saline groundwater discharges into the river," Dr Munday said.

Near surface data collected by LEME in mid 2005 correlates well with water recharge maps developed from satellite data and vegetation mapping. While deeper conductivity data has mapped variations in the porosity of local sand.

"This kind of information has direct implication to the siting of bores for salt interception and ecological protection schemes," Dr Munday said.

The three-dimensional data generated by this project showing the distribution of salinity in saturated and unsaturated zones within the floodplain will be incorporated into larger models to assess future management strategies for the Chowilla Floodplain.