New study to investigate riverbank collapse

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University of Adelaide researchers have started a new project investigating the conditions for riverbank collapse.

The project stems from the many bank collapses at various parts of the lower River Murray (Blanchetown to Wellington) during the drought years of 2009-2010, when the river was at one metre below sea level and about 2m below its normal level. Some areas remain cordoned off under State Hazard requirements.

"Fortunately no lives were lost during these collapses," says project leader Professor Mark Jaksa, Head of the University's School of Civil, Environmental and Mining Engineering.

"But the issue has caused some ongoing anxiety for those living near and using the river, which is exactly why we want to learn more about riverbank collapse."

The three-year Goyder Institute-funded project is aimed at providing a clear understanding of the processes that trigger collapse.

The River Murray is one of the few river systems in the world that can fall below sea level because of the barrages preventing the inflow of sea water during low river flows. But there is limited recorded evidence of previous collapse incidents.

"At the moment we have some fundamental knowledge gaps in terms of conditions and processes that trigger collapse," says Professor Jaksa. "At

the end of the project we should know what are the safe operating levels for the river - allowing management and intervention by State and Local Government - and have established long-term sustainable options for higher risk sites."

The project is a collaboration with the Department of Environment, Water and Natural Resources, the University of Sydney and Durham University in the UK through the Goyder Institute for Water Research.

The researchers will develop a numerical model to be able to reliably predict the conditions that may lead to riverbank collapse, and to identify areas that are vulnerable.

They will conduct a regional analysis to correlate collapse incidents with potential triggers, looking at factors that affect the strength of soil and bank including underwater riverbed profiles, soil layer composition and physical properties, and erosion processes.

Other outcomes will include identifying remediation options for repair and protection of affected and vulnerable sites; site-specific sustainable management strategies to ensure public safety; improved river management and policies to avoid critical water levels; and better information for the community and government agencies.

Provided by University of Adelaide

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