Research Opportunity in Coastal Engineering

There is an opening for an engineering/mathematics postgraduate research student to work on a project in 2009-11. The focus of the work will be investigating the effect that dredging has had on tidal propagation in the coastal lagoon at the Murray mouth with a view to optimizing the dredging program. It is expected that the successful applicant will enroll as a PhD candidate.

The study is supported by the Australian Research Council Linkage Program with the Murray Darling Basin Commission as industry partner. A scholarship, topped up to approximately $30,000 tax free, will be available for 3 years.

Statement of Basic Problem to be Addressed

Low river flows, combined with natural coastal processes, have led to a large volume of sand inside the River Murray mouth. Initial plans to use river flows in a strategic manner to optimize the natural flushing have been hampered by a lack of river water and in 2003 dredges moved in to assist with the removal of the excess material. The dredging program has been running continually since then and significant improvements have been made. The flows to the Coorong have improved considerably, however, the problem of sand coming into the mouth region continues and the research sponsors, the Murray Darling Basin Commission, are keen to have the dredging program, and in particular the role of natural coastal processes, studied to optimise the man-made approach to this largely man-made problem.

The postgraduate student will have a significant role in developing a range of numerical models as part of the study and also to design and implement a field data collection program. This, together with the development of a plan to optimise the placement of dredged spoil on the ocean beaches adjacent to the mouth would form the basis of their doctorate. The background necessary for the student would include high levels of mathematics, hydraulics and computing, as well as a practical ability in relation to field equipment.

The River Murray mouth, showing dredging taking place, November, 2003.

Researchers

Dr Walker has over 25 years experience in coastal and ocean engineering with a background in the development of numerical models of coastal phenomena, particularly nearshore processes.

Dr Davis is a specialist coastal engineer who completed his doctorate with Dr Walker a number of years ago. He has worked with the South Australian Coastal Management Branch and is currently employed by the Murray Darling Basin Commission. His area of specialization is sediment transport.

People wishing to be considered for the position, or who require further information, should contact Dr David Walker by email (david.walker@adelaide.edu.au).