Fish fauna survey provides new insights into the Vasse-Wonnerup Wetland System

James Tweedley & Chris Hallett, Murdoch University

The Vasse-Wonnerup wetland is a shallow, intermittently-open system located near the town of Busselton, Western Australia. The Ramsar listed system is regarded as the most grossly enriched major wetland system in Western Australia and suffers from a multiplicity of detrimental effects, including eutrophication, algal blooms, anoxia and fish kills.

In January 2012 Murdoch University undertook a survey of the fish fauna of the Vasse-Wonnerup wetland. The survey was funded through the South West Catchments Council from the Australian Government’s Caring for our Country program with assistance from the Western Australian Department of Environment and Conservation’s Science Division.

Sampling regime and preliminary results

A seine net was used to sample the fish communities at five sites in each of the Vasse and Wonnerup estuaries (the largest components of the wetland) with the aim of determining the number of species, density and composition of the fish faunas. A total of 18,148 fish were collected from the nearshore waters of the estuaries, comprising six species across four families.

Three estuarine resident species, the atherinids Leptatherina wallacei and Atherinosoma elongata and the goby Pseudogobius olorum, dominated the fish fauna of both estuaries, accounting for more than 99 per cent of all fish collected.

No significant inter-estuary differences were observed in the composition of their fish faunas, the mean numbers of species or mean fish densities.
Key findings

Overall, the fish faunas of the two estuaries exhibited high densities yet were relatively depauperate in terms of species.

This reflects the highly productive nature of this eutrophic wetland and the presence of seasonal barriers to the immigration of marine species into these estuaries. Most notably, this study identified the presence of two introduced freshwater species, the eastern mosquitofish, *Gambusia holbrooki*, and the goldfish, *Carassius auratus* in the Vasse estuary.

This finding is of concern given the potential ecological effects of introduced species on south-western Australian estuaries and their flora and fauna, and the possibility that *C. auratus* might use the estuary as a “saltbridge” to gain access to associated river systems and to the Wonnerup Estuary.

The future

Further work should be undertaken on a seasonal basis to quantify the fish communities inhabiting all areas of this important wetland system, thus enabling an assessment of the movements of feral fish between the Vasse River and other parts of the wetland system.

For further information visit: www.swccnrm.org.au