

Review showcases unique south west estuaries

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The unique characteristics of estuaries in the south west of Australia have been highlighted by Murdoch University scientists.

Writing in the prestigious *Oceanology and Marine Biology: An Annual Review*, the researchers say estuaries like the Swan-Canning in Perth and the Peel-Harvey in Mandurah function differently to estuaries in other parts of the world because of their small tidal ranges.

"Estuaries in south west Australia are microtidal, which means their tidal range is typically less than one metre and far lower than estuaries in northern Europe which can reach 14 metres," said paper co-author Dr James Tweedley, from Murdoch's Centre for Fish and Fisheries Research.

"The lower tides mean less water moves through these systems and so any nutrients from agriculture and the urban environment can stay in these estuaries for many years."

This means conservation and management measures that recognise their special environmental characteristics and settings are required to safeguard their future, added Dr Tweedley.

"Because the water in our estuaries is relatively clear, sunlight can get through to these nutrients, photosynthesis takes place and dangerous algal blooms can arise."

Dr Tweedley said everyone living near an [estuary](#) had a role to play in its health, and organisations like the River Guardians run educational campaigns which, for example, raise awareness of potentially damaging fertilizer runoff.

"Our estuaries are an incredible asset to our urban areas," he said. "In Australia, estuaries are focal points for human populations. They are recreationally important as well, a wonderful amenity, and unbelievably scenic.

"The estuaries in south west Australia feature extensive seagrass beds – a vital habitat for many fish species. Because the open water is so clear and shallow, there are an abundance of diving bird species.

"The stability of the environment makes it a great place for spawning fish, and the survival of eggs and larvae. The turbulent and turbid waters of macrotidal estuaries of the northern hemisphere do not afford estuary species the same opportunities."

Dr Tweedley said the publishing of the review brings together more than 40 years of research into south west Australian estuaries by Emeritus Professor Ian Potter. Much of his research has focused on describing the biological characteristics of these estuaries and how these differ from those found in systems with large tidal ranges.

Having worked in the UK, Professor Potter could see the differences and knew a new set of paradigms for microtidal systems needed to be developed.

More information: Oceanography and Marine Biology - An Annual Review. <https://www.crcpress.com/Oceanography-and-Marine-Biology—An-Annual-Review/book-series/CRCOCEMARBIO>

Provided by Murdoch University

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