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[Home](#) > Knysna Estuary – Maintaining an invisible balance

Knysna Estuary – Maintaining an invisible balance



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In the 1940's, the size and clear waters of the Knysna estuary made it an obvious choice for UCT's Professor John Day to begin his research into South African estuaries. Knysna's estuary has the largest tidal volume in South Africa (measured in relation to volume of water between low and high Spring tides). The water fills the estuary, spreading over the salt marshes to replenish nutrients and flush out waste.

Some of the flanking salt marshes have given way to property development, but the Knysna estuary still has the largest remaining estuarine salt marsh in the country. And salt marshes play a pivotal role in preserving marine ecological balance. They offer shelter and food to a myriad of animals living in the shallows of inter-tidal zones and protect the underlying sediment from erosion. Without eel-grass, a major component in the protection of fish life is lost because plants release energy through photosynthesis and when they die and decay they release particles which feed other animals.

This estuary is home to the only core estuarine species of sea horse in the world. So named for their horse-like features, these enchanting, armour-plated, upright swimmers are actually fish. But sea horses do not do well in fresh water and are for that reason vulnerable in times of flood. Parents are inclined to feed on their young and estuarine eel grass offers protection - and therefore survival - for these young.

An important feature of the estuary is the sanctuary it offers to marine fish. Young fish which are hatched in the sea move into its protected waters and grow to a size which allows them to return with comparative safety to the sea. This is particularly significant for humans, because species such as Grunter and Cape Stumpnose are extremely slow growers and if the estuary is depleted of main fish species, it follows that there will be a death of the same species in the ocean as well.

Wetland birds used to be a feature of *all* estuaries, but no longer. Reduction of available space has caused a reduction in their numbers. Diversity still exists in the smaller numbers, however, as migrant birds from Europe and the far north of Russia continue to visit us and feed in an estuary which is also a role player in world ecology.

The Knysna estuary is also home to the Knysna Basin Project. Directed by Professor Brian Allanson, participants from Rhodes University, UCT, Johannesburg University, Nelson Mandela Bay University and Cambridge University are researching to discover new information about estuaries. There is a good chance that this research will uncover animals new to science - in 2003, Professor Allanson's research uncovered a species of limpet in the Knysna estuary which, since 1958, had only ever been found in Langebaan. "It's a special little beast and important in ecology" smiles the Professor. The Basin Project collaborates with SANParks and represents Knysna's interests in water forums. Their laboratory provides the means to monitor the water quality of the estuary and facilitates biological studies.

Some of the original wetland areas have been lost to urban development, so why should we be concerned about the state of an estuary which has been independently voted as “South Africa’s number 1”? Any man-made interference (for example, building a dam on the river) will affect the interaction between the sea tide and river, and will therefore affect the ecological balance in the estuary.

Destruction of the wetlands would mean the destruction of most of the estuarine life. We could live with the resultant sterility, but we would be ignoring a fundamental human responsibility - to protect the environment. And, with ongoing research uncovering new information, our understanding of our impact on the estuarine ecosystem becomes clearer every year.

Fortunately, there are many role players who understand the importance to man of maintaining an ecological balance. Barloworld has made a significant contribution to the Knysna Basin Project’s equipment. Operational costs are funded through public subscription from the community and some corporations. A Board of Trustees controls the financial aspects of the project. And Professor Allanson and his team continue to dedicate their time to this remarkable estuary.

We are grateful to Professor Allanson for his generous input for this article.

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[1] [http://www.knysnareview.co.za/sites/knysnareview.co.za/files/images/The extensive expanse of the Knysna Estuary.jpg](http://www.knysnareview.co.za/sites/knysnareview.co.za/files/images/The%20extensive%20expanse%20of%20the%20Knysna%20Estuary.jpg)