

## NURSERIES OF THE ENVIRONMENT

*Estuaries, the places where rivers meet the sea, are among the most productive yet threatened habitats in South Africa.*

**E**stuaries and the lands surrounding them are places of transition from land to sea, and from freshwater to saltwater. Although influenced by the tides, estuaries are protected from the full force of ocean waves, winds and storms by the reefs, barrier islands, or fingers of land, mud or sand that surround them.

Due to regional differences in geology, biology, hydrology and land use, each estuary is unique, though all have fundamental properties in common. South Africa has more than 250 estuaries.

There are several different types of estuaries:

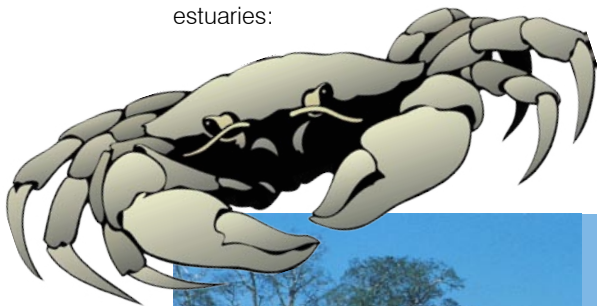
- **Permanently open estuaries:** Usually quite large systems with a perennial river and/or strong tidal exchange with the sea. For example, the Breede and Swartkops estuaries.
- **Temporarily closed/open estuaries:** These estuaries are often closed for many months of the year and sometimes for more than a year at a time. For example, the Van Stadens and Mhlanga estuaries.
- **River mouths:** All rivers flowing into the sea have a river mouth. However, estuaries under this category are usually permanently open to the sea. For example, the Orange and Thukela estuaries.
- **Estuarine lakes:** These estuaries occur where a coastal lake is connected to the sea by a channel of varying length and width.

For example, St Lucia and Kosi estuaries.

- **Estuarine bays:** These estuaries have wide mouths with strong tidal exchange resulting in a continuously open mouth, and the regular replacement of sea water in the lower and middle reaches. For example, Durban Bay and Knysna.



*The Durban harbour is an example of an estuarine bay.*



### EXAMPLE OF AN ESTUARY: ST LUCIA

The Greater St Lucia Wetland Park on the KwaZulu-Natal coast is a United Nations World Heritage Site. Like many tidal estuaries, Greater St Lucia has diverse wildlife reflecting the concentration of diverse ecosystems. Among the animals to be found there are the white-backed and pink-backed pelican, flamingos, fish eagles, and some 530 other bird species. Two sea turtle species use the beaches for laying eggs. It is also home to the largest population of hippopotamus in South African parks.

The estuary is the largest in Africa and boasts, among other attractions, the world's largest forested sand dunes. It is the only park on the continent where you can find hippopotamus, crocodiles and sharks all in the same area.

Swamps along the border of the lake, and 'sponge' areas are fed by water seeping through the dunes. These provide critical refuge to freshwater life when the lake salinity (salt content) is particularly high.

For centuries, people have come to the St. Lucia Estuary for the food, materials, and beauty that it and the surrounding wetlands offer. To this day, thousands of Zulu people harvest ncema grass (*Juncus kraussii*) each spring, which they use to make sleeping and sitting mats.

## DID YOU KNOW?

Estuaries are among the most productive natural systems on earth due to the mixing of nutrients from land and sea.

## WHY ARE ESTUARIES IMPORTANT?

Estuaries are focal points for community and business activities along the coast as they provide us with a range of opportunities and benefits. They are an important location for cultural and recreational activities for coastal residents and visiting tourists.

Not only do estuaries enhance the quality of life for households, but they also provide numerous opportunities for jobs and income generation. Many businesses rely on estuaries to perform functions which have economic value, such as providing a nursery for marine fish and crustaceans (like certain types of crabs and prawns), for transport or for a place to provide facilities for tourists which, in turn, helps to support business and jobs in the coastal region (think of places like Durban, Knysna and Kosi)

Estuaries are often called the nurseries of the sea. More than 100 species of fishes, prawns and crabs in South African off-shore waters use estuaries as nurseries and/or feeding grounds.



More than 100 species of fishes, crabs and prawns in South Africa use estuaries as nurseries and/or feeding grounds.

The lifecycle of most of these species involves egg production at sea, often close inshore and near an estuary mouth. Eggs and larvae develop at sea, but the larvae and juveniles migrate to estuaries in great numbers. In fish, this migration takes place mainly during late winter, spring and early summer when millions of juveniles swim into estuaries.

Estuaries also have the ability to control or reduce flooding, while improving the quality of water.

## WHAT THREATENS ESTUARIES?

Because estuaries are so beautiful and useful to us, many people live around them and make use of them. Unfortunately, as more people flock to the shore, we are upsetting the natural balance of estuaries and threatening their health.

We endanger our estuaries by polluting the water and building on the lands surrounding them. These activities can contribute to unsafe drinking water, beach closings, declines in fisheries, loss of habitat, fish kills and a host of other human health and natural resource problems.

Development can damage or even destroy estuaries. In the past, many people thought estuaries were wasted land and many estuaries were filled in and built on. Today, we are much more aware of the important role estuaries play in the environment and many people are working to save these areas.



Many estuaries are used for recreational purposes.



## INTERESTING FACT

The largest reptile in the world is found in estuaries. It is called the estuarine or salt-water crocodile, and can be found throughout the tropical regions of Asia and the Pacific. The Bhitarkanika Wildlife Sanctuary in Orissa State, India, houses four protected estuarine crocodiles measuring more than 6 m in length, the largest being over 7 m long.

There are several unauthenticated reports of specimens up to 10 m in length.

