



Water KIDZ



Estuaries can sometimes be cut off from the sea in drier years.

As the world celebrated World Oceans Day on 8 June, we take a look at those nurseries of the seas, our estuaries.



The United Nations celebrates the world's oceans every year with a special day. This year, the theme for World Oceans Day was 'Healthy oceans, healthy planet'. Few people realise that estuaries are an important component of ocean health, as they serve as nurseries and refuge areas for many oceanic species.

The Knysna estuary is one of the largest estuarine systems of its kind in South Africa.

What is an estuary?

An estuary is a partially enclosed body of water along the coast where freshwater from rivers and streams meets and mixes with salt water from the ocean. Estuaries and the lands surrounding them are places of transition from land to sea and freshwater to salt water. Although influenced by the tides, they are protected from the full force of ocean waves, winds, and storms by such land forms as barrier islands or peninsulas.

Estuarine environments are among the most productive on earth, creating more organic matter each year than comparably-sized areas of forest, grassland, or agricultural land. The tidal, sheltered waters of estuaries also support unique communities of plants and animals especially adapted for life at the margin of the sea.

Many different habitat types are found in and around estuaries, including shallow open waters, freshwater and salt marshes, swamps, sandy beaches, mud and sand flats, rocky shores, oyster reefs, mangrove forests, river deltas, tidal pools, and seagrasses.



Helpful websites

www.worldoceansday.org

https://www.capetown.gov.za/en/CSRM/Documents/Taking_care_of_our_estuaries.pdf

<http://sacoast.ioisa.org.za/docs/media/brochure%20estuaries&lagoons.pdf>

Many South African estuaries are used for recreational and subsistence fishing.

The importance of estuaries

Estuaries provide us with a suite of resources, benefits, and services. Estuaries provide places for recreational activities, scientific study, and aesthetic enjoyment. Estuaries are an irreplaceable natural resource that must be managed carefully for the mutual benefit of all who enjoy and depend on them.

Thousands of species of birds, mammals, fish, and other wildlife depend on estuarine habitats as places to live, feed, and reproduce. And many marine organisms, including most commercially-important species of fish, depend on estuaries at some point during their development. Because they are biologically productive, estuaries provide ideal areas for migratory birds to rest and re-fuel during their long journeys.

Because many species of fish and wildlife rely on the sheltered waters of estuaries as protected spawning places, estuaries are known as the nurseries of the sea. At least two-thirds of all the fish consumed worldwide are dependent on estuaries, which provide spawning, nursery and feeding grounds.

Estuaries have important commercial value and their resources provide economic benefits for tourism, fisheries, and recreational activities. The protected coastal waters of estuaries also support important public infrastructure, serving as harbours and ports vital for shipping and transportation.

Estuaries also perform other valuable services. Water draining from uplands carries sediments, nutrients, and other pollutants to estuaries. As the water flows through wetlands such as swamps and salt marshes, much of the sediments and pollutants are filtered out. This filtration process creates cleaner and clearer water, which benefits both people and marine life.

Estuaries and their surrounding wetlands are also buffer zones. Coastal wetlands, such as coral reefs, mangroves, tidal flats, deltas and estuaries like ours, can limit the damaging effects of storm surges and tidal waves by acting as a physical barrier that reduces the water's height and speed. Wetland vegetation such as saltmarshes can literally bind the shoreline together and reduce erosion from storms and freak tides.



Estuaries are home to many species of birds and plants.

Estuaries in South Africa

There are about 250 estuaries along the South African coastline. These can be categorised into five different types. These five types include estuarine bays (making up 1% of estuaries in South Africa), permanently open systems (18%), river mouths (5%), estuarine lakes (3%) and temporarily closed systems (73%).

As many as 100 species of fish are completely or partially dependent on South African estuaries, while up to 400 species frequent estuaries at some time of their lives. Common estuarine fish species include the mullet, spotted grunter, steenbras, stumpnose and kob. Other smaller species are the sand goby, glassies, needlefish and pipefish.

Unfortunately as with other water bodies, humans also threaten estuaries with their activities. As estuaries are where sea and river meet, they are also the place where various different natural forces interact and are therefore particularly vulnerable to harm through man's actions.

Furthermore, compared to many other countries South Africa's estuaries are small in size and few in number, and many of these have already been extensively impacted on. A major threat to our estuaries is the deterioration of their catchment areas through, for example, the damming of rivers and removal of water, which results in a reduced input of freshwater as well as altered river flow patterns. This results in flood events (which are vital to the health of our estuaries) becoming smaller and less frequent, which in turn reduces the scouring of sediment from the estuary, so that it is not flushed out properly and could start to silt up. Over time the estuaries, starved of water, become shallower and more saline.

Properties alongside estuaries are very popular development sites with high property values. However, development here means that the important shallow waters on the estuary margins are often lost when filled in with rubble and soil, or converted into marinas. Estuary mouths then have to be breached prematurely to prevent flooding of buildings situated too close to the water. This dramatically affects the dynamic nature of the estuary.

Other negative impacts arise from agricultural practices that may lead to soil erosion; roads or railways which intrude into floodplains; the 'fixing' of mouths with retaining walls; various forms of pollution from land or sea; and dredging to remove excess sediment build-up.

A special South African estuarine creature – the Knysna seahorse

The Knysna seahorse is unique in that it is the only seahorse species in the world to be found only in estuaries. It is also an endangered species. To stop itself from being washed away by tidal currents, the seahorse coils its tail around aquatic plants like eelgras.

Apart from the seahorse, the Knysna estuary, being the largest estuarine system in the warm temperate region of South Africa, supports the largest number of birds of any estuarine system between Cape Agulhas and Durban Bay. Apart from the resident waterbird population, the Knysna Estuary also plays host to Curlew Sandpipers, which travel 15 000 km from Siberia seasonally. These birds arrive in South Africa on their annual migration around September, and generally return to Siberia in April.

The answer to the many threats that face our estuaries lies in finding a balance between the often conflicting interests of developers and conservationists. With the growth of human populations and the increase in urbanisation and industrial activities, the development of certain estuarine areas is both inevitable and necessary for the economic well-being of our country. Protection of these areas is also essential if the natural resources provided by estuaries, and the quality of human life near them, is to be maintained.