



ECO HEARTBEAT: A beautiful, still-functioning floodplain wetland system in the southern Drakensberg near Nqanqarhu (formerly Maclear) creates wonderful oxbow shapes when seen from the air. Meandering channels in the floodplain wetlands are continuously moving due to cutting and depositing of sediment. They support a busy ecosystem. Picture: SUPPLIED

# Shed a tear for the last drops of our wetlands

February 2, is World Wetlands Day. Do we know what a wetland actually is, and why our survival partially depends on them? Two leading Eastern Cape-based Rhodes University wetlands researchers lay out the local and deeper issues

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How and where have we lost them?

Wetlands go by many names. In English they are commonly referred to as wetlands, springs, floodplains or swamps, to mention a few. In isiXhosa they are known as *imigxobhozo* or *imithombo*, and in Afrikaans as *vleilande*.

Wetlands come in all shapes and sizes and can occur almost anywhere, even in arid environments.

The basic definition of a wetland is any area where water accumulates and saturates the soil for a prolonged period of time.

They can be permanently wet or just part of the year. This results in a unique landscape with amazing and exceptional plant and animal species.

The only legislated definition of wetlands in SA is contained within the National Water Act (1998) where wetlands are defined as "land which is tran-

sitional between terrestrial and aquatic systems, where the water table is usually at, or near the surface, or the land is periodically covered with shallow water and which land in normal circumstances supports, or would support, vegetation adapted to life in saturated soil".

The latest National Biodiversity Assessment (NBA) for SA, released in 2019, shows that wetlands are high-value ecosystems, but sadly they are also ranked among the most threatened ecosystems in SA.

Researchers have estimated that about 10% of SA's surface area was historically covered in wetlands. Currently, only 2.2% of SA's surface area has been mapped as wetlands.

The NBA showed that 15% of these wetlands are in a near-natural ecological condition and a staggering 67% have been severely modified. The exact number of wetlands lost is unknown.

Every year wetlands are lost even though they are protected

by SA legislation.

The key pressures on the wetlands according to the NBA are:

- Changes in the hydrological regime which is the water quantity and availability, such as dam construction, over-extraction from rivers and groundwater, and overgrazing;
- Water quality pollution, such as sewage leaks, litter and dumping of pollutants;
- Loss of natural habitat;
- Invasive alien species which affect biodiversity and wetland function, and;
- Over-exploitation of wetland species such as through over-fishing and harvesting of plants.

All these impacts are closely linked to sustainable management of catchments — areas of land in which all water converges on a single point.

This means managing the resources of these areas from the source (mountains) to the sink (such as a river mouth or the ocean) to ensure that the land use practices across the catch-

ment are environmentally and economically feasible and sustainable.

Can a wetland be an ecological countermand and antidote to environmental collapse and catastrophe? They provide important ecosystem services essential both to humans and the environment.

According to the international Ramsar Convention on Wetlands signed in Ramsar, Iran, in 1971, "ecosystem services" refer to the benefits people get from wetlands — flood attenuation (reduced risks of floods), erosion control, carbon sequestration, water purification, water regulation, tourism, cultural values and more.

Researchers in 2019 showed that wetlands worldwide have been estimated to provide ecological services valued at more than R800-trillion a year.

Ecosystem services are provided for free by the environment. However, environments that are in a bad ecological state no longer provide these ecosystem services. We are respon-

sible to look after these systems.

With a reduction in functioning ecosystems, we push closer and closer to an environmental catastrophe.

In many cases wetlands that are degraded can recover with active restoration and once again contribute to ecosystem services.

Wetland restoration includes grazing management, stabilising erosion within and around wetlands, revegetating areas prone to erosion and reducing inputs of pollutants into wetland systems.

Wetland buffers are vital in helping maintain wetland systems. Buffer zones are legally required around streams, drainage lines and wetlands.

Buffer zones are used in land-use planning to protect natural resources and limit the impact of one land use on another.

SA is rich in a unique suite of wetlands. SA currently has 28 wetland sites that are designated as wetlands of international importance (Ramsar

sites). The Eastern Cape has many interesting wetlands, however, none of the Ramsar sites occur in the province despite its richness in wetlands.

In the mountainous regions wetlands and rivers commonly begin life as springs. As one moves along the land towards the coast, wetlands become larger and can span many kilometres across valley floors.

These wetlands are deeply symbolic in the isiXhosa culture and language such as the name *Tsitsa* — the name of a large river system northeast of Mthatha — relates to the slow release of water out of the wetlands that occur in this catchment.

These wetlands are the source of life that sustains the rivers and livelihoods downstream. Estuaries are also a type of wetland and are found where rivers meet the ocean.

The estuaries along the eastern seaboard of SA, including the estuaries in the Buffalo City Metro, are increasingly becoming

threatened not only by direct impacts on the estuaries themselves, such as large-scale developments, but also by upstream land uses.

The combination of frequent and prolonged droughts, illegal clearing of indigenous vegetation and extensive impoundments (dams) have led to negative effects on most of the downstream estuaries and the species occurring in the sea estuaries.

Many species, such as the endemic Estuarine Pipefish (*Syngnathus watermeyeri*), are sensitive to high levels of sedimentation, nutrients and pollution and hypersaline conditions. All of these are consequences of catchment mismanagement.

One of the major contributing factors is the loss of functional wetlands in the catchment area.

By not protecting our wetlands, we are removing a vital part of our everyday life, and we are contributing to the collapse of ecosystems.

We cannot survive without wetland systems, and wetland systems rely on us as sustainable custodians.

Nicky Huchzermeyer holds an MSc in geography with a focus on fluvial geomorphology (the study of landscape features and the processes that shape them). He has been working in integrated catchment systems in SA, Lesotho, Tanzania and Belize in Central America, and focuses on geomorphological studies, aquatic environments (including wetlands), catchment systems, and geographical information systems (GIS). He works closely with the Rhodes Restoration Research Group which focuses their efforts on the sustainable use of the subtropical thicket biome.

Pippa Huchzermeyer is a wetland specialist with a strong interest in wetland geomorphology. She has worked on a variety of wetlands across the Eastern Cape and is in the final stages of finishing her PhD, which explores sediment dynamics in meandering floodplain wetlands in the Tsitsa River catchment.

## We have overloaded nature's washing machine, scientists warn

MIKE LOEWE

Wetlands — hacked, polluted and channelled by machines, yet teeming with life — are officially the most threatened ecosystem in SA.

A hour or two in the wetlands at the Nahoon Estuary Nature Reserve, itself struggling to survive a daily assault of sewage and other hazardous pollutants, will reveal a plethora of birds, animals, fish, insects.

Wetlands are one place where many of the last 30% of wildlife left on Earth congregate, drink, wash and feed.

But they have another amazing function: They are nature's 24/7 scrubbers and filters of human pollutants.

But their battle is being lost. Kevin Cole, principal natural scientist at the East London museum, said the 2011 National Biodiversity Assessment identified wetlands "as the most threatened ecosystem type in SA".

"SA has a very low extent of wetland coverage — only 2.4% of the country comprising about 2.9-million hectares.

"This is largely attributable to climatic conditions which do not allow the persistence of surface water.

"The annual average evaporation potential over most of SA far exceeds rainfall."

However, when the impact of human activity is factored into the situation, Cole said 65% of SA wetland types were under threat — of which 48% was

critically endangered, 12% endangered and 5% vulnerable.

Most of the remaining wetlands have no protection.

"Only 11% of wetland ecosystem types are well protected, with 71% not protected at all," he said.

This degradation confounds East London's nationally respected scientist, who says: "Wetlands provide cleaner water, enhance biodiversity, sustain base-flows in rivers, and reduce the impact of flooding."

"They improve water quality by intercepting runoff from surfaces prior to reaching open water, and remove pollutants through physical, chemical and biological processes."

There is clearly a lack of comprehension in the mind of the public about the natural power of wetlands to launder and preserve all life.

Cole says, politely: "I think there could be a better understanding of our wetlands in the regional and local context with regard to how BCM has already shown an increased vulnerability to natural disasters such as flooding."

"And with the climate predicted to change rainfall patterns, the protection and rehabilitation of wetlands will play a more important role than ever in reducing the impacts of floods.

"The most obvious example in BCM where a wetland is being protected is the Gonubie Wetland Reserve, demonstrating the importance of the role

this reserve plays in flood abatement, habitat enhancement, recreation (bird hide and pathways), and previously it was visited by schools for educational purposes."

It appears the city needs more information on the perilous state of its wetlands.

Cole, who walks in and works deep in the metro's amazing but impacted forests and rivers, said: "A wetland audit across the metro will reveal other areas that need protection and that hold a similar potential to be rehabilitated by building gabion and concrete structures to arrest erosion to trap sediment to re-saturate previously drained wetland localities."

"Plugging artificial drainage channels, removing invasive alien plants and revegetating with indigenous plants will also assist in the rehabilitation process."

"The recreational, educational and tourism value of a wetland can also be enhanced by building boardwalks, bird hides

and interpretive signboards.

"The Nahoon Estuary Nature Reserve is an example of this."

"Areas in the metro identified for wetland rehabilitation can be turned into community projects — reclaiming spots which now are overgrown with alien plant species and utilised for illegal dumping reverting back to open spaces providing safer havens for recreation and improved ecosystem function."

"Presently wetland ecosystems in the metro and the province face the threat of dam construction, stream channelisation, the discharge of municipal sewage and industrial wastes (point source pollution) and runoff from urban and agricultural areas (non-point source pollution).

In the midst of this decline, there is, ironically, a legal shield and sword in place to fight for the wetlands, and keep urban and commercial developments from "affecting or altering the natural state of wetlands".

He listed Nema, the National Environmental Management Act 107 of 1998, the National Water Act 36 of 1998 (NWA), and the environmental provisions of the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA).

But the truth is that "compliance with this legislation is sometimes debatable".

He urged the public to fill days like the Wetlands Day with local content and action.

He urged people to "recognise the value of these important

ecosystems in flood abatement, erosion control, improved water quality, habitat enhancement, education, recreation and eco-tourism".

Marine biologist Siani Tinley said: "A lot of people do appreciate the role and importance of wetlands, and the negative impact we can have if we are not careful."

"But there are always those people that don't — it is education or lack of appreciation?"

"There is definitely a big gap in how much we say about wetlands and their importance."

"Our human behaviour on a daily basis, what we chose to buy, and use how we chose to dispose of it, our general behaviour, is where we have lost and affected our wetlands (and coastal forests) negatively."

Yes, she said reintroducing wetlands, or any other ecological system, "can reverse some of the effects of humans are having on the planet".

But this will not work until humans eliminate the cause, such as sewage spills into the environment.

"Ecology-based systems can work but must be managed in the same way as physical extraction systems and human behaviour management systems."

"Anything that is done in this ecological way would improve the situation but the outcome will be based on the cause being eliminated."

## Planned French oil mining will not benefit East London

MIKE LOEWE

Public opposition to oil and gas mining in SA's coastal waters has continued unabated after the critical judgment against Shell and the SA government, which blocked the industry from seismic blasting on the Wild Coast.

Last week French oil corporation TotalEnergies came to Scenery Park to hold a public consultation on 10 deep sea wells in the Mossel Bay area.

A busload of activists from Chintsa and Save the Wild Coast online group founder Dean Knox joined 90 members of the community to raise questions and make statements.

Activist Samantha Bailey said people had until Friday to hand in their comments on the drilling.

She said the meeting was run on behalf of TotalEnergies by engineering and environmental consultancy company, WSP, and followed meetings in Mossel Bay, George, Knysna, Plettenberg Bay, Jeffreys Bay, St Francis Bay, Gqeberha and Port Alfred.

Bailey said they were told TotalEnergies would be mining in a 12,000km<sup>2</sup> area between Mossel Bay and Cape St Francis, and that the 10 wells would be drilled by a 109km underwater pipeline to PetroSA's existing FA platform. TotalEnergies would oversee the construction phase, and then hand over to PetroSA for the long-term production of gas.

In discussion time, questions about job and small business

opportunities for people of Scenery Park and Buffalo City drew the response that this could happen, but the work would be in Mossel Bay. There would be no direct economic benefits for East London. However the consultant said they had not conducted a full employment assessment.

Knox said the Constitution made it clear the SA coastline belonged "to all of us, for present and future generations". TotalEnergies' drilling and extraction project offered only finite commercial activity, not long-term sustainable economic development.

Jobs he said would go to high-end technicians from abroad working deep under water on gas well construction, or on the rigs or flying helicopters.

He said any major accidents and other damage caused by the short-term profitmaking of the miner and SA government would severely harm the incredible diversity of marine life including whale migrations from Antarctica to Mozambique and the annual sardine run, which supported an array of local economic opportunities.

Knox said it was improper and ineffectual for the department of mineral energy & resources to decide on the oil miners' environmental management plan — a function which was stripped from the rightful department of forestry, fisheries & the environment.

There was rousing support when Knox called for local, small-scale renewable energy

projects in the community, such as solar and wind projects run by local communities who would benefit directly from the job opportunities. This was what TotalEnergies should be investing in, he said.

Members in the crowd also wanted to know if TotalEnergies could guarantee that no accidents or damage would occur from their project, what measures would be put in place for the restoration of environmental destruction, and for compensation for people who would be negatively impacted.

Bailey said the WSP consultants said the risk of a major accident was low and a study was under way to model the impacts of a potential oil or gas spill.

Activists from Chintsa said they were concerned about PetroSA running the project as they had been shown to be corrupt and incompetent.

Bailey said: "We felt this could dramatically increase the likelihood of serious accidents with enormous and long term damage to the coastline environment with a devastating knock-on effect on small-scale fishers, local tourism and other businesses."

The public was invited to register as an interested party at the data-free website <https://wsp-engage.com/total-11B12B/>, sending a WhatsApp message to WSP at 076-694-3842, or emailing them at [tepsaEIA@usp.com](mailto:tepsaEIA@usp.com). Those who register before February 3 will have an additional opportunity to comment in March or April once the studies have been completed.