



KwaZulu-Natal's Coastal Management Newsletter

New era dawns for KZN's coast



Photo: Melissa Palmer.

The coastal environment is a rich and diverse asset, providing valuable economic, social and ecological opportunities. As such it needs to be carefully managed in order to ensure long-term sustainability. South Africa, following global trends, developed and enacted the Integrated Coastal Management Act (24 of 2008) and its subsequent Amendment Act (36 of 2014) - [ICM Act]. The ICM Act contains a variety of tools to ensure that the coastal zone will be managed co-operatively, of which the development of Coastal Management Programmes (CMPs) is key. A CMP is a policy directive for the management of the coast, and includes strategies and plans for the effective implementation of the ICM Act and ICM in general, and should be done at all three spheres of government.

The draft KwaZulu-Natal (KZN) CMP outlines the current status of ICM in the province and highlights areas requiring action. The draft sets out a vision and mission statement, goals and objectives for the achievement of ICM in the province over the next five years (2017-2021). The draft vision and mission statements are underpinned by a set of core principles that ensure they align with national and international best practice.

DRAFT VISION

A vibrant, healthy and safe coast with sustainable access to resources for all.

DRAFT MISSION

Through co-operative governance and best practice the intrinsic value of the coast is protected, restored and enhanced for future generations, while promoting equitable access and sustainable use of coastal resources for all stakeholders and user groups.

The draft CMP identifies nine priority areas for implementation over the five years. While these may not cover all the ICM issues and concerns within the KZN coastal zone, these have been identified as being the most pressing.

9 priority areas for coastal management in KZN

Coastal access	Safe and equitable access to the coast
Coastal & marine planning	Promote balance between economic development and conservation
Coastal information & research	Promote relevant research and access to information
Coastal vulnerability: adaptation & building resilient communities	Promote resilience to the effects of climate change, dynamic coastal processes and natural change
Compliance monitoring & enforcement	Monitor the State of the Coast and promote compliance with regulations
Cooperative governance	Establish and strengthen institutional partnerships and mechanisms for ICM
Education, awareness & training	Develop capacity and promote public awareness and education for ICM
Estuarine management	Optimise the value of estuarine systems on a sustainable basis
Land & marine-based sources of pollution	Minimise the impacts of pollution and waste on the health of coastal communities and coastal ecosystems

The draft further outlines how each action should take place, setting clear targets for EDTEA and co-operating departments. The CMP is expected to be finalised in early 2017 and gazetted accordingly.

Bronwyn Goble, ORI

Protecting our coast for the long-term

Our coastline is currently experiencing significant erosion, even in areas that previously have been accreting, such as Thukela Beach. This is concerning for management given that the coastal zone of KZN is experiencing increasing pressure for development. Thus there is a pressing need to get coastal management lines (CML) in place, both for the protection of coastal properties and infrastructure and to ensure the natural functioning of the coast. Coastal management lines are required in terms of the ICM Act; however their determination is not straight forward. These lines must protect coastal public property, private property, the coastal protection zone and public safety. Therefore, in order to determine these lines, some baseline information is required.

EDTEA has been focusing on determining a coastal process line which considers coastal risk, natural dynamics of the coastline and possible future changes as a result of sea-level rise, in order to inform the CML determination for KZN. Sea-level rise (SLR) estimates for the east coast of southern Africa are in the region of 2.7 mm/year*. The concern is that we may start to experience increased swell and storm events, which in turn will result in increased erosion and damage to infrastructure and properties. Hence this component has been looked at carefully, by extensive modelling of coastal processes and risk, through a partnership with the Oceanographic Research Institute (ORI) and an appointed service provider.

*Mather, A.A., 2008. Coastal erosion and sea-level rise: Are municipalities prepared? *Institute of Municipal Engineers in South Africa*, March, 49-70

There have been a number of challenges along the way pertaining to data shortages in order to ensure meaningful results. Excitingly however, we have a draft coastal process line in place and are looking at refined modelling for two sites along the KZN coast, in order to test the broad scale model's outcome and improve the confidence of using this as an input for the determination of the CML. In parallel, we are in the process of drafting the coastal protection zone and other relevant layers that will inform the CML. Good progress has been made on the CML and stakeholder and public consultation is likely to take place in 2017.

Bronwyn Goble, ORI



Photo: Bronwyn Goble.

Erosion damage to coastal infrastructure at Thukela Beach

Building coastal management capacity

EDTEA is committed to ongoing training for coastal managers in the province, with 2016 seeing two successful training workshops held. The first focused on coastal adaptation and vulnerability. We were fortunate to have an international expert, Dr Luciana Esteves (Bournemouth University, UK), for a 2 day workshop. The information presented was well received, and highlighted the need for subsequent training.

The Department of Environmental Affairs (DEA) offered a second training opportunity in partnership with EDTEA and the South African Local Government Association (SALGA). This training was an introduction to ICM for local and provincial government officials.

There are a number of training areas which still need to be covered, with **fish kills response** and **stranded marine animals response** respectively prioritised for 2017. The fish kills response training will be a focused session for the first responder at fish kills; it will outline what to do, how to do it and who to contact. In order to provide the best training and information we have partnered with ORI and the Council for Scientific and Industrial Research (CSIR) on this exciting topic. First Aid for Stranded Marine Animals will be a training day for members of the public to inform them of what they can do to assist in strandings of dolphins, seals, turtles and birds, before authorities arrive on the scene.

Bronwyn Goble, ORI



Photo: Bronwyn Goble.

Dr Esteves addresses coastal managers during the coastal adaptation and vulnerability workshop held earlier this year

Uncertain future for marine fisheries monitoring in KZN

As of 1 August 2016, Ezemvelo KZN Wildlife's contract (and associated responsibility) with the Department of Agriculture, Forestry and Fisheries (DAFF) for enforcing fisheries legislation in KZN came to an end. In addition, a long-term monitoring programme that was developed in partnership between Ezemvelo, the Oceanographic Research Institute (ORI) and DAFF, which has enabled the monitoring of trends in marine fish and invertebrate abundance along the KZN coast for the past 32 years (since 1984) also came to an end. While DAFF has deployed Fisheries Control Officers (FCOs) along the KZN coast to undertake the fisheries compliance function, the resource monitoring component has sadly fallen away. Many Ezemvelo coastal staff will be redeployed in terrestrial protected areas but some staff will be retained on the coast to implement aspects of the ICM Act and the Protected Areas Act. It is therefore hoped that an independent land-based fishery observer programme will be developed and implemented in the not too distant future to enable continued monitoring of the province's coastal fishery resources.

Bruce Mann, ORI



Photo: Bruce Mann

Ezemvelo enforcement officers checking a fisherman's catch

KZN Marine Strandings Network update

KZN is the only province with a stranded marine animal network, which records and monitors stranded animals. Although coordinated by Ezemvelo KZN Wildlife, this initiative is in collaboration with various organisations (SAAMBR, KZN Sharks Board, EDTEA, coastal municipalities and various NGO's). Strandings are caused by both natural factors (diseases, abandoned neonates, severe oceanographic and weather conditions, predatory interactions, natural toxins and normal mortalities), and anthropogenic factors (noise interference, toxins, entanglements and injuries from shipping).

This year eight whales and four dolphins stranded in KZN. The alarmed public have questioned the authorities about whether these are caused by seismic activity from offshore mineral exploration. The number of animals stranded is,

however, not unusually high and linking strandings with seismic surveys is premature. Since the moratorium on whaling in South Africa (1979), an increase in the whale population has occurred, which may account for the increase in strandings observed.

Animals stranded	2016	Average per year	Maximum
Dolphins	4	7	10 (2010)
Whales	8	5	13 (2012)
TOTAL (whales, seals, turtles, dolphins & seabirds)	tbc	44	81 (2014) (lowest 30 in 2010)

Jennifer Olbers, Ezemvelo KZN Wildlife

Sub-adult Humpback whale stranded on Widenham Beach, 8 August 2016



Photo: Jennifer Olbers

Report strandings on KZN beaches
 Ezemvelo hotline 083 380 6298
 Seaworld 031 328 8222 (o/h)
 031 328 8060 (a/h)

Ocean Stewards Programme

The future is now

The Blue Fund Ocean Stewards Initiative, an inspiring project started by Dr Jean Harris (Ezemvelo Scientific Services) and funded by Grindrod and Wildlands, is in its second year. It addresses the shortage of marine scientists and conservationists in South Africa by providing undergraduate and post-graduate students with hands-on field experience and opportunities to engage with marine science professionals during a research cruise and an interactive workshop.

Training is done mainly onboard the vessel, the *Angra Pequena*, and forms part of a research project through the African Coelacanth Ecosystem Programme (ACEP), funded by the National Research Foundation (NRF).

Photo: Tamsyn Livingstone



Students at work on the *Angra Pequena*

**“Water and air,
the two essential fluids
on which all life depends,
have become global garbage cans”**
Jacques Yves Cousteau, Oceanographer

“No water no life. No blue, no green.”
Sylvia Earle, Oceanographer

KZN beaches go Blue!

The Blue Flag Programme is an eco-award given to beaches that meet specific, strict standards of excellence in safety, cleanliness, provision of amenities, environmental information and management. It is managed internationally by the Foundation for Environmental Education (FEE) and locally by the Wildlife

Photo: Omar Parak



Trafalgar Beach - awarded Blue Flag status for the 8th consecutive year

To date, 24 third year students and 7 honours students have participated in this programme, with four of them receiving bursaries for further studies.

The programme includes the collection of data for the ACEP Surrogacy Project and the Marine Spatial Solutions Project. Activities include plankton sampling, fish abundance studies using Baited Remote Underwater Video footage (BRUVs) and surveys of life at the bottom of the ocean using a Remotely Operated Vehicle (ROV).

This year the Spatial Solutions Project was focused between Richards Bay and Durban, and included the proposed uThukela Marine Protected Area. While this area is most often associated with muddy ocean waters, it is teeming with a range of species. One of the most exciting parts of the 2016 survey was the deep ROV dives (220 m), giving the first pictures of new species of sea-bat and coffin fish, and interesting deep sea creatures such as ragtails, snake eels and giant spider crabs.

The BRUV team was also very excited to obtain footage of the endangered “seventy-four” (seabream) line fish species on the offshore reefs, reinforcing why this area should be protected.

Tamsyn Livingstone, Ezemvelo KZN Wildlife



Students gaining hands-on work experience

and Environment Society of South Africa (WESSA). Acquiring the coveted Blue Flag status helps to encourage improved ecosystem and environmental management in municipalities while the safer, cleaner and better managed facilities enhance tourism.

At a recent launch function at Marina Beach on the KZN South Coast, nine beaches in KZN were awarded full Blue Flag status for the 2016/2017 season:

- Marina, Trafalgar, Lucien, Umzumbe, Southport, Ramsgate and Hibberdene beaches (Ray Nkonyeni Municipality); and
- Westbrook and uShaka beaches (eThekweni Municipality).

A further six beaches in KZN were granted pilot Blue Flag status.

Marilyn Bodasing, ORI



Saving St Lucia, again

In August 2015 the uMfolozi Sugar Planters (Pty) Ltd (UCOSP) along with two farmers initiated an action against the iSimangaliso Wetland Park for the artificial breaching of the St Lucia Estuary mouth. Its aim was to protect a small area of sugarcane farmed in a floodplain from the effects of back-flooding, a natural estuarine process.

For St Lucia, this would mean that fresh water entering the lake would flow out to sea and be lost to the lake system, putting the entire ecosystem at further risk after a drought year. St Lucia Estuary supports high levels of biodiversity and viable populations of threatened species. It also provides ecosystem services to the entire south-east African coast and supports a R1.2bn tourism industry, generating employment for some 7 000 people.

In Mid-October 2015, an interim settlement was reached for breaching when water reached a specific level on the farmland and this agreement was to remain in place until May 2016. A second breaching application was launched by UCOSP in December 2015.

In March 2016, after good rains, the first fresh water from

iSimangaliso was inscribed as a marine and terrestrial UNESCO World Heritage Site of global significance for its superlative scenic beauty, the conservation of biodiversity and threatened species.

The St Lucia Estuary is the centrepiece of the World Heritage Site and also the world's oldest protected sanctuary (1895).

the uMfolozi River in six months entered Lake St Lucia. If water continued to flow into the estuary for a few more days, it could reach further north to reinstate the aquatic habitat, and provide a buffer against drought. However, UCOSP again attempted to compel iSimangaliso to breach.

In May 2016, Judge Moodley concluded that the interim relief had run its course and dismissed the 3 applications. This was an important step in the fight for environmental justice. Judge Moodley gave the environment a voice and in so doing protected this special place for future generations.

All those involved in the fight are commended for their action.

Terri Castis, iSimangaliso Wetland Park Authority



Photo: Bronwyn Goble

Creating a splash during National Marine Week 2016

National Marine Week is proudly celebrated in KZN, highlighting the value of our marine and coastal environments. Celebrating everything marine and coastal can seem daunting, but joint efforts from a number of organisations allowed for a broad reach throughout the province. Some of the Marine Week 2016 highlights were as follows:

- The KZN Sharks Board hosted organisations at their facility, sharing information about sharks and beach safety, and demonstrating shark dissections to students.
- South African Association for Marine Biological Research (SAAMBR) staff presented the effects of micro-plastics on marine animals and humans to 28 school groups.
- Ezemvelo KZN Wildlife teamed up with Plastics SA and Umgeni Water to teach 50 schools in the Mgeni catchment area about the effects of marine pollution and litter on the environment.
- The SAAMBR team also banded together for a cleanup on uShaka Beach.

- In uShaka Seaworld, SAAMBR Guest Relations staff put together a display on animal rehabilitation stories to share with and inspire guests, and also provided guided tours to visitors as part of a discounted entrance price in celebration of Marine Week. This included visiting the aquarium, African penguin rookery and the turtle rehabilitation.



Photo: Varsha Naidu Moodley

Preleen Govender (uShaka Seaworld) dissecting a squid for visitors

Varsha Naidu Moodley, uShaka Seaworld

Mouths of the uMfolozi (l) and St Lucia (r)

Keeping an eye on our Sea Turtles

Active sea turtle monitoring in South Africa started in 1963 when the then Natal Parks Board (now Ezemvelo KZN Wildlife) responded to rumours of sea turtles nesting on the coast of northern KZN, and concerns that they were being poached as they emerged to nest.

The team established that these were leatherback (*Dermochelys coriacea*) and loggerhead (*Caretta caretta*) turtles and recognised that the area needed more active conservation and strict enforcement in terms of the Natal Coastal Fisheries Ordinance. The Natal Parks Board authorised a survey of nesting leatherback and loggerhead turtles on 113 km of beach stretching south from the Mozambican border. These beaches, now formally protected as part of the iSimangaliso Wetland Park, are home to one of the world's longest running and most successful marine turtle conservation and monitoring programmes and has just entered its 54th year.

Sea turtles frequent various habitats during their lifetime including beaches, coastal waters and high seas, which render them vulnerable to diverse threats. In the open ocean, they risk being caught as bycatch on longlining vessels. In coastal/territorial waters, near-shore pollution, coastal fisheries, nets (bather-protection nets, discarded nets etc.) as well as seismic surveys may prove harmful or fatal to them. On the beaches, nesting turtles, eggs or hatchlings can be poached by humans or attacked by feral dogs. Plastic pollution is a threat common to all these habitats, especially as turtles mistake these as prey items and ingest it. These interactions have led to turtles being listed from Vulnerable to Critically Endangered (depending on their species) by the International Union for the Conservation of Nature (IUCN); hence the need for careful monitoring of sea turtle habitat.



Nesting loggerhead turtle

Photo: Santosh Bachoo

Females of both species emerge during the summer months (October to March) mostly under the cover of darkness, to lay their eggs on these beaches. Since the start of the conservation programme, the numbers of nesting loggerheads have increased from around 200 individuals to approximately 650 individuals in 2016. The number of leatherback individuals increased from around 25 to approximately 60 individuals by this year. Overall, the loggerheads have shown tremendous growth, with spectacular year-on-year increases since the early 2000's and leatherback nesting numbers, although much lower, are now considered stable.

However, sea turtles will always be conservation-dependent if there is to be any assurance of their long-term survival. Ezemvelo plans to remain active in this regard and do its part to contribute to the global effort to conserve the leatherback and loggerhead sea turtles.

Santosh Bachoo, Ezemvelo KZN Wildlife



Mapping KZN's estuaries

Ecologically, estuaries are extremely valuable habitats which are sensitive to marine, freshwater and terrestrial activities, and as such are heavily utilised and often degraded. To preserve ecological functioning through appropriate management decisions, knowledge is required regarding the current state of these systems and their surrounding land cover and land use, and how these have changed through time. EDTEA in partnership with ORI has initiated a project that will provide some basic information, through active gathering of land cover information on KZN's estuaries. This project entails mapping land cover up to the 20 m contour for the period 1937 to 2013. Changes in types and areas of categories of land cover are analysed together with additional biophysical data in an effort to ascertain whether there is a predictable relationship between the two, following coupled social-ecological systems thinking.

Marinel Willemse, ORI

Estuarine land cover mapped around the Zinkwazi Estuary, up to the 20 m contour

Better coastal access for all

The provision of coastal access is highlighted in the ICM Act, which outlines local government responsibilities in ensuring the provision of adequate access to the coast and its resources. Provincial government aims to assist local government with this mandate through an assessment of current and desired coastal access for the KZN coast, for which EDTEA partnered with ORI.

The current status of coastal access was mapped in GIS from orthophotos and validated through ground-truthing a number of randomly selected sections of coast. A 'proposed access density index' was determined in line with international best practice and takes into consideration the variability of environmental and socio-economic requirements along the coast. Local government officials have been informed of the outcome of this study, including the list of priority areas and general recommendations for management implementation within each municipality.

The next phase of this project sees the development of a user-friendly, interactive, online coastal access decision support tool (DST). The DST allows users to explore spatially, current coastal access routes, priority regions, proposed access densities and recommendations.

Marinel Willemse, ORI

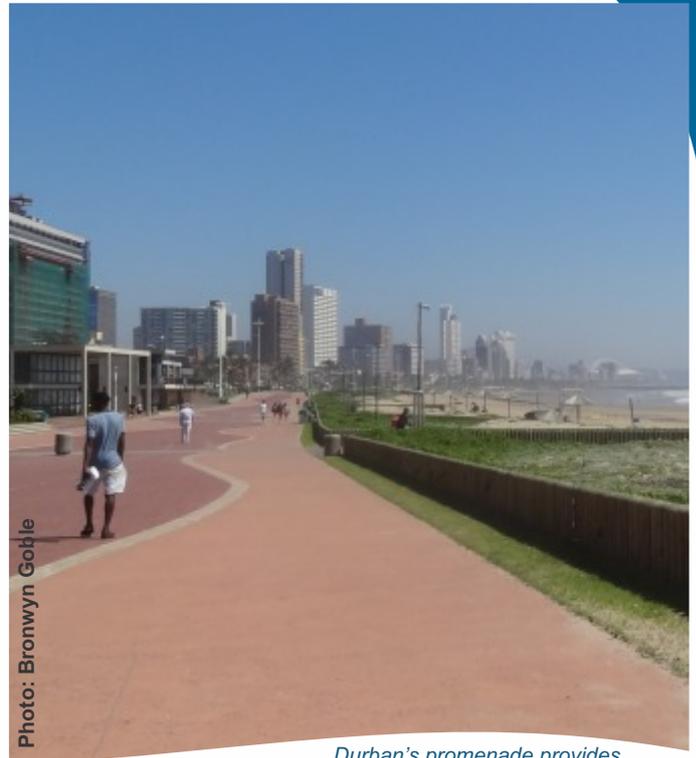


Photo: Bronwyn Goble

Durban's promenade provides coastal access for beachgoers

International Coastal Cleanup Day 2016

The International Coastal Cleanup (ICC) has become one of the largest cleanup programmes of the marine environment around the world, and locally within KZN. Our beaches, reefs, estuaries, rivers and catchments are cleaner by having 17 460 kg of litter collected and removed by volunteers on a single day this year, in addition to other special cleanup days.

Ezemvelo KZN Wildlife staff and Honorary Officers set up a network of volunteers to cover the stretch of coast and area for which he/she is responsible. The enthusiasm and support is fantastic and our KZN effort is backed by the efficient organisation and administration of the Ocean Conservancy* in the USA.

[*www.oceanconservancy.org/our-work/international-coastal-cleanup/](http://www.oceanconservancy.org/our-work/international-coastal-cleanup/)



Photo: Ezemvelo KZN Wildlife

Volunteers collecting litter on the beach

2 407 volunteers cleaned the coastal area from Port Edward to Richards Bay, with the following coverage achieved:

- Coast: 155 km
- Estuaries/Rivers: 5 km
- Inland: 2 km



Photo: SAAMBR

An example of the type of litter collected on our beaches

Litter composition from the ICC 2016 (most to least)	No.
Items less than 2.5cm (foam, plastic, glass)	12456
Foam takeaway containers	8413
Plastic bottles (beverage, oil, bleach)	7532
Plastic food wrapping: includes candy wrappers, grocery bags, takeaway containers	5885
Bottle caps and lids (plastic & metal)	4530
Other packaging, strapping (plastic, foam)	3514
Foam cups, plates	2788
Paper cups, plates, paperbags	2315
Personal hygiene (condoms, diapers, syringes)	2260
Plastic cups, plates, cutlery, straws, stirrers	2096

Wayne Munger, Ezemvelo KZN Wildlife

'One Stop' ICM Tool



Website launch
Coming soon...

Something that we are really excited to share with our coastal stakeholders is that EDTEA will soon be launching an online coastal management decision support tool. This innovative tool is being built following international best practice examples. It is being developed for

EDTEA by ORI and will be underpinned by sound scientific research and data. The tool will offer two key ways of accessing information:

- 1) thematic areas such as estuaries, risk and vulnerability, coastal access and coastal management; and
- 2) a spatial mapping portal, which will offer all relevant and available spatial layers and attribute data to inform site-specific decision making.

The website will also offer a "How do I?" help section which contains information on how to apply for coastal permits or who to contact for incidents such as whale strandings and oil spills.

The development of this tool is complex and has undergone many phases over the past 2 years. We have tested a beta version and are working on improvements before its release in the first quarter of 2017 – **so keep an eye out!**

Bronwyn Goble, ORI

Special dates to remember in 2017

22 Mar	World Water Day
22 May	International Day of Biodiversity
23 May	International Turtle Day
8 Jun	World Oceans Day
12-20 Aug	Science Week
16 Sep	International Coastal Cleanup
9-13 Oct	National Marine Week
13 Oct	African Penguin Awareness Day

Reporting on the State of the Coast

Following on from the CMP, the EDTEA hopes to dive into the development of the State of the Coast Report for KZN in 2017. This is also mandated by the ICM Act. EDTEA has been working with national government and other coastal provinces to ensure that there is alignment for reporting by identifying some indicators that are applicable to all four coastal provinces. In addition, the KZN State of the Environment report is underway, and the Coastal Management Unit is working with the appointed service provider to ensure that the State of the Coast Report aligns to this larger report.

WIN 2 tickets to uShaka Marine World

What is the name of the KZN town and municipality in the picture below?

Please send your answers and contact details to omar.parak@kznedtea.gov.za by 27 January 2017.

The winner will be contacted by telephone and /or email.



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