CITY OF CAPE TOWN
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STAD KAAPSTAD

DUNE MANAGEMENT ON CAPE TOWN'S COASTLINE

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WHY ARE DUNES SO IMPORTANT TO CAPE TOWN'S COASTLINE AND WHY DO WE NEED TO MANAGE AND PROTECT THEM?

1

Vegetated dunes are integral to the coastal environment and play a key role in building resilience to climate change-induced coastal pressures such as sea-level rise, storm surges and shifting wind regimes.

2

Dunes act as reservoirs of sand that naturally maintain the integrity of beaches during and after storm or erosion events. This is particularly important during Cape Town winters that can lead to coastal erosion.

3

Dunes act as buffers and play an important role in protecting coastal infrastructure against sand accumulation, erosion, wave damage, flooding and wind stress. Vegetated dunes provide an important role in:

- Protecting private property;
- Protecting public infrastructure;
- Sheltering recreational areas; and
- Enhancing coastal biodiversity.

4

Dunes form part of the beach experience, sense of place and cultural appeal of Cape Town's beaches.

5

The sand barrier provided by dune systems allows for the development of more complex plant communities to establish through protection from salt spray and strong winds.

Coastal dunes are formed by aeolian (wind blown) and tidal processes, e.g. wave action and long and cross-shore sediment transport, which result in the accumulation of sand above the highwater mark (HWM). Dune systems may be highly dynamic and mobile systems, or relatively sedentary if they are well vegetated. Vegetation cover plays a crucial role in the evolution of dune landscapes, acting as windbreak and trapping the deposited sand particles. Dunes stripped of vegetation may lead to the destabilisation of such systems, which may also result in wind-blown sand smothering nearby coastal infrastructure.

Did you know? **There are two very rare vegetation types along the False Bay coastline between Muizenberg and Strand. The Cape Flats Dune Strandveld is endangered and the Cape Flats sand fynbos is critically endangered. Dune systems support this fynbos.**

BEACH REPROFILING

Beaches are highly dynamic and the sand profile or 'level' tends to rise and drop during different seasons.

Due to the scale of urban development and aeolian sand movement, dune systems on some beaches cannot be left operating naturally anymore and, therefore, need to be managed by reprofiling.

The reprofiling of beaches where dunes are not present is to prevent sand 'spill-over' and smothering of public infrastructure such as roads, walkways and parking facilities.

The lowering of upper beach levels also enables greater areas of the beach to become wet during high tides, thus limiting the potential for aeolian transport of sand.

Beach lowering currently occurs at:

- Fish Hoek
- Muizenberg
- Strand
- Gordon's Bay
- Hout Bay

LEGISLATIVE CONTEXT

The following legislative bodies bear relevance to the rehabilitation and maintenance of dunes and beaches:

- The Constitution of the Republic of South Africa
- National Environmental Management Act
- Integrated Coastal Management Act
- Control of the Use of Vehicles in the Coastal Area Regulations
- City of Cape Town Coastal By-law

Did you know? **There are ongoing dune rehabilitation projects in Cape Town at Hout Bay, Table Bay, Witsand, Glencairn and Fish Hoek.**

WHICH ACTIVITIES CAN HARM DUNE SYSTEMS?

Natural erosion will always have some impact on dune systems, but additional anthropogenic pressures can also have severe impacts.

- Development and subsequent "coastal squeeze" resulting in the narrowing of dune cordons and loss of functionality as a result.
- Indiscriminate stormwater run-off from adjacent built environment.
- Excessive and uncontrolled access across dunes by people and/or their dogs. This results in a loss of vegetation and creates blow-outs and erosion points and may lead to increased sand movement and smothering of infrastructure.

HOW CAN YOU PROTECT DUNES?

- Keeping off the dunes or remaining on designated pathways;
- Limiting disruption, removal, damage or altering of dune vegetation;
- Prohibiting domestic animals from running in, on, over or through the dunes;
- Preventing disruption to any fauna that may be in, on, near or nesting on the dunes; and
- Reporting any activities that may be negatively impacting dunes.

Did you know? **Kelp wrack plays a key role in protecting Cape Town's beaches. For more information on this, please access the City's informative brochure on kelp management.**

HOW THE CITY MANAGES DUNE SYSTEMS

A large proportion of Cape Town's coastline has been physically altered through development, meaning that some dune systems now need to be artificially managed. Management of dune systems on City land is undertaken in accordance with the City's Dune and Beach Maintenance Management Plan.

To ensure that the benefits of dune systems are retained, the City undertakes the following activities:

- Rehabilitation and maintenance of dune systems where required;
- Planting of vegetation and installation of irrigation systems and wind nets to stabilise dunes;
- Stabilisation of sand with brushwood, netting and mulch;
- Retention of kelp on beaches to assist with dune rehabilitation and maintenance;
- Installation of walkways and/or fencing and barriers to prevent public from walking over sensitive dune systems;
- Dune monitoring and beach profile analysis; and
- Removal of sand accumulated on coastal infrastructure.

MORE INFORMATION AND REFERENCES

For more detailed information on dune and beach management in Cape Town, please access the City of Cape Town Dune and Beach Maintenance Management Plan.

African Centre for Cities (2013). *Cape of Storms: sharing the coast in the face of turbulent, rising seas*, University of Cape Town.

CCT (2017). *Dune and Beach Maintenance Management Plan*, Cape Town.