



Item	Approximate cost	Responsible department
Storm water diversion channels at Hermanus waste water treatment works	R1 000 000	Water and Sanitation
EMP for the Onrus estuary	R 180 000	Environmental Management
Additional personnel for the EM Section	To be determined based on number and salary scale of additional personnel	Environmental Management
Classification of sludge at all WWTW	R 35 000 per WWTW	Water and Sanitation
Telemetric systems at sewer pump stations to limit environmental pollution in the event of overflows	To be determined	Water and Sanitation
Storm water diversion channel at the Hermanus closed landfill site	R 1 500 000	Waste Management
Bund walls around skips receiving grit and screenings at WWTW's	R 200 000	Water and Sanitation
Waste storage area for used oil and other hazardous waste at mechanical workshops (e.g. Hermanus)	R 200 000	Operational Management
Construction of washing bays for waste trucks (as well as all municipal vehicles)	R 350 000	Operational Management
Installation of oil separators at mechanical workshop to prevent oil pollution of storm water run-off	R 500 000	Operational Management
Sludge storage facilities at the Preekstoel water treatment works	R 500 000	Water and Sanitation
Bunding for aluminium sulphate tanks at the Franskraal WWTW	R 100 000	Water and Sanitation
Rehabilitation of erosion at the Kleinmond WWTW	R 200 000	Water and Sanitation

## 16. Generic construction EMP

Attached as an Annexure.

## 17. Sectoral plans

### 17.1. Energy conservation and demand management

Based on the Western Cape Provincial Government: Draft White Paper on Sustainable Energy, Page 56 of 92.



Local Government's role may be seen as:

- Assessing the short to medium-term impacts of climate change in its respective areas by determining the degree to which existing systems can adapt in response to changed climatic conditions. This includes an assessment of the direct impact on natural resources, as well as secondary impacts on the socio-economic environment and the livelihood of communities.
- The Province together with local government, local partners and national government will be required to develop energy baseline studies and effective integrated sustainable energy strategies.
- Local government must work in cooperation with the PGWC so that the Provincial energy targets can be achieved. Areas of cooperation may include:
  1. Increase energy efficiency in all municipal buildings: Embark on energy conservation measures to be applied in all local government owned and used buildings; audit of existing energy consumption in buildings; identification of potential measures for improved energy efficiency; systematic use of more efficient technologies and energy consumption practices.
  2. Increase the public transport share of total transport modal shift; decrease the number of private vehicles into the town centre: focus on improving quality of public transport to the city centre; develop 'park and ride' facilities around the town centre; improve public transport within the city centre; and explore disincentives for private vehicles.
  3. Assist in providing non-motorised transport: develop and implement a non-motorised transport strategy; bicycle plan, information and awareness campaigns to encourage the use of bicycle and pedestrian pathways.
  4. Assist in installing solar water heaters in municipality owned housing.
  5. Assist in improving energy efficiency in the residential sector through energy efficient water heater by-law legislation, facilitating of the creation of EE mass roll out businesses, information dissemination campaigns.
  6. Assist in improving energy efficiency in industrial and commercial facilities: information dissemination campaign on efficient lighting use in partnership with organised business.
  7. Embark on initiatives to drive renewable energy supply and reduce CO2 emissions.
  8. Assist Province to support economic competitiveness and increasing employment through its energy strategies and initiatives.



9. Assist in meeting the Province's energy needs in a sustainable way thus fulfilling its constitutional and global responsibilities.
10. To promote and advance sustainable energy: Supporting local government to collect energy data to establish local government energy and climate change baselines and strategies, pass relevant legislation (EE building and efficient water heating bylaws) and initiate rollout programmes.

The successful implementation of this white paper also hinges on effective and supportive cooperation with and by all local governments in the Province. The PGWC will support the development of energy plans that collectively can contribute to the achievement of the targets set out in the White Paper. Local government is the sphere of government which can have the greatest impact on sustainability with respect to energy. For example, municipalities can pass by-laws or establish building approval guidelines which make it compulsory for all new buildings to be fitted with solar geysers.

## 17.2. Water conservation and demand management

Water is a scarce natural resource and is a critical factor in most developments and the maintaining of life and the environment. Using water more efficiently is a "green" strategy that reduces pressure on limited water resources in the country. The Water Services Development Plan for 2014/2015 already contains conservation and demand management strategies for the OLM jurisdiction area. The Environmental Management Section will support these strategies by integrating measures in relevant policies/strategies and EMS's being implemented within the OLM Departments. Implementing a water management plan successfully can result in the following benefits:

- Water resources are conserved for the benefit of all
- Financial savings can be made and unnecessary costs can be avoided
- Better water efficiency and being able to cope with less water is to be better prepared in times of drought.

Water management techniques that could be introduced at facilities and premises of the OLM to effect water savings include, among others:

- Repairing of water leakages
- Reducing the amount of water consumed by using more efficient equipment
- Making use of sustainable freshwater resources, e.g. rainwater harvesting
- Water efficient landscaping
- Water efficient irrigation systems

In order to create comprehensive water management plans for facilities of the OLM, the following actions are required:

- a. Conduct a water use audit of each facility
- b. Explore and evaluate water management options
- c. Conduct life cycle cost analyses and cost-benefit analyses and budget for the plan
- d. Develop the water management plan
- e. Educate employees in water management
- f. Implement the water management plan
- g. Monitor the water management plan.



### 17.3. Water resource management

The National Water Act (NWA) requires that water resources be protected and managed to meet water quality requirements of ecosystems. At the same time, the NWA also requires that water be used for social and economic benefit. The correct management of water resources is therefore critical for sustainable environmental, economic and social development.

Although the OLM is not responsible for the management of water resources within its area of jurisdiction (the National Department of Water and Sanitation is the responsible authority) it is obliged under the National Environmental Management Act and the Constitution to ensure the provision of services to communities in a sustainable manner. It is therefore important to include sustainable water resource management in service delivery planning and execution.

The following service delivery components have the potential to contribute significantly to water resource management:

**Table 16: Water resource management and municipal services**

Municipal services	Potential positive contribution to water resource management
Town planning and building control	Incorporating buffer zones around water resources in town planning schemes and promote the establishment of green corridors. Requirements for best practices in storm water management such as attenuation ponds, grassy swales etc. as opposed to conventional storm water systems leading to release of polluted run-off and concentrated flows leading to erosion and negative impacts on aquatic biodiversity
Sanitation services	Maintaining water quality based on the effective provision of sanitation services. Fast response times to sewer leakages and pump station overflows
Environmental management	Control over alien invasive plant species will protect the ecological integrity of riparian zones and wetlands, as well as preserve water quantity
Roads	Environmentally friendly design of roads crossing wetlands and water resources
Waste management	Effective waste management services, control over illegal dumping and effective street cleaning services
Drinking water provision	Encouraging communities to use water effectively and prevent water wastage. Fast response times to water leakages

### 17.4. Climate change

The OLM should develop a climate change adaptation and mitigation strategy. Essential components of the strategy should include:

- Promote the use of renewable energy resources
- Promote the use of non-motorised transport



- Promote energy efficiency
- Promote urban greening
- Identification of the impact of climate change on local biodiversity
- Identification of the impact of climate change on water availability
- Prepare for the impact of increased temperatures and fire hazards
- Identification of the potential impact of sea level rises and beach/dune erosion and closure of estuary mouths.

## 17.5. Coastal and estuary management

According to the National Estuarine Management Protocol (NEMP) Regulations published in terms of the National Environmental Management: Integrated Coastal Management Act No. 24 of 2008 (ICMA), the Municipality is responsible for the management of an estuary if the estuary is solely situated within the boundaries of the Municipality (the definition of municipality in ICMA refers to a District municipality). A legal dispute regarding the responsibility of the Overstrand Local Municipality (OLM) for the management of the Klein Estuary was recently concluded in the case *Abott vs Overstrand Municipality (99/2015) [2016] ZASCA 68 (20 May 2016)*. Recognising that the ICMA itself as well as the Constitution were in disagreement with the requirements of the NEMP Regulations, the Supreme Court of Appeal Judgement found that: "[...] any powers which the municipality may wish to exercise with regard to the estuary have to be assigned to it by national or provincial legislation" and that "the [Overstrand] municipality will only be authorised to manage the estuary under the provisions of ICMA, if it agrees, and has the capacity, to do so in accordance with s 156(4) of the Constitution". Thus, according to this judgement, no powers or duties regarding the management of the Klein Estuary had been assigned to the OLM, which means that the OLM "does not have any authority under ICMA to manage the estuary". This judgement also applies to all other estuaries located within the Overstrand Municipal area. Once this matter has been resolved the way forward in terms of coastal and estuary management can be determined. The municipality is however committed to fulfil its mandate as outlined in the Constitution.

Ramsar sites: Cape Nature is currently in the process of registering the Bot-Kleinmond Estuary as a Ramsar site.

## 17.6. Green procurement

Local authorities account for a significant portion of public purchases. Procurement by Local Government has a significant impact on the market with municipalities purchasing a wide range of products and services, from consumable goods to capital goods, infrastructure, construction and services.

Green procurement means purchasing environmentally friendly products or services that have a lesser or reduced effect on human health and the environment when compared to other products and services that serve the same purpose. The environmental attributes of such green products are the use of less toxic materials, energy and water efficiency and making use of recycled material. The introduction of green procurement thus has an added element of environmental consideration over and above the normal purchasing decisions, based mainly on price and quality. Environmental considerations should become part of the normal purchasing practice, consistent with the traditional factors such as product safety, price, performance and availability.

Green procurement provides for a mechanism to foster the demand for environmentally responsibly produced goods and services, giving suppliers appropriate incentives to develop environmentally sustainable practices.

### 1. Identification of environmentally friendly products and services

Every product, whether conventional or green, always has an environmental impact. The life cycle assessment (LCA) is generally used as a scientific method to evaluate the environmental impact of a

product from its design to its disposal, taking into account all the steps in between, which may include raw material sourcing, manufacturing, packaging, transport, storage and utilization. Life cycle cost represents the true cost of a given product. A common misconception about "green procurement" is that it is more costly than conventional procurement. In reality, while some green products indeed cost more, many others have the same price and quality as non-green products. Furthermore, savings are made through a reduction in energy, water and disposal costs.

## 2. Potential products for green procurement

The following products will provide opportunities for green procurement:

- 2.1. Office paper: recycled paper percentage
  - 2.2. Cleaning materials: low phosphate content, biodegradable, does not contain compounds associated with aquatic toxicity
  - 2.3. Energy efficient appliances such as refrigerators
  - 2.4. Phasing out mercury containing light bulbs
  - 2.5. Procurement of pesticides and herbicides that does not contain Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Mirex, Toxaphene or Hexachlorobenzene or any persistent organic compounds
  - 2.6. Lead free paint and paint with low volatile organic compounds (VOCs)
  - 2.7. Packaging materials: products with fewer packaging material such as bulk produce
  - 2.8. Use of rechargeable batteries
  - 2.9. Goods supplied by companies using renewable energy, who are actively recycling and have a good environmental track record
  - 2.10. Building products with a low carbon footprint
  - 2.11. Buying local products as opposed to imported ones due to reduced transport and consequent lower carbon footprints
  - 2.12. Procure products from companies who receive waste associated with their products for the purposes of recycling e.g. computers and e-waste.
3. Procedure for the procurement of greener products and services

The EM Section in consultation with Supply Chain Management will review the standard list of supplies in order to identify potential green procurement opportunities. Annual targets will then be set for the procurement of greener goods. Targets will involve:

- 3.1. The number (or percentage) of items to be replaced with greener products
- 3.2. Identification of problematic products (with reference to severe detrimental impacts e.g. persistent organic compounds) for which replacements will be researched

## 17.7. Conservation plan



### 17.7.1. Ecosystem service based

The Overstrand Local Municipality (OLM) is richly endowed. The biodiversity is globally important, the area is scenically attractive and it is a sought-after area for people to live. The Cape (Fynbos) Floral Kingdom is the smallest of the world's six floral kingdoms and the richest per unit area. It is also the only floral kingdom that is confined to a single country. The Kogelberg is considered the hub of the Cape Floral Kingdom as it contains more species than anywhere else in the floral region. In addition to the fynbos, there are charismatic fauna which draws tourists from across the country and internationally. Walker Bay provides one of the world's best land-based whale watching opportunities. The African Penguin colony at Betty's Bay draws national and international tourists (90 000 per year; IDP Review, 2014/15) and cage diving to experience great white sharks is an adventure tourism opportunity with international appeal.

According to the Overstrand Environmental Management Framework (EMF), the following focus area are important in terms of ecosystem services:



- a) Cape Hangklip Ecological Corridor
- b) Coastal Dune Systems (Pringle Bay, Betty's Bay and Pearly Beach)
- c) Palmiet Catchment and Coastal Plain
- d) Botriver Estuary and Coastal Plains (Lamloch, Afdaks/Meerenvlei, Paddavlei)
- e) Onrus/Vermont Wetland and Greenbelt System
- f) Klein River Ecological Corridor
- g) Danger Point Ecological Corridor
- h) Franskraal Ecological Corridor
- i) Hagelkraal Ecological Corridor
- j) Urban Wetland and Riparian Systems
- k) Urban Coastal Corridors
- l) Special Management Areas: *In some cases, application/s should be made to the Minister to declare the listed "Environmental Management Focus Areas" that are located partially or wholly in the coastal zone, as "special management areas" in terms of section 23 of the NEM:ICMA. Such declared areas must then be managed in terms of the provisions of the NEM:ICMA and other relevant legislation.*

The climate and the scenic attractiveness draw people to the area. The age structure of the OLM population is atypical in that it shows an increase in the number of people post retirement age (Status Quo Report, Figure 6)<sup>1</sup>. The main economic sectors contributing to the Overstrand gross geographical product (GGP) between 1995 and 2004 were trade and catering, finance and business services, manufacturing, construction, government services and transport sectors. The Overstrand Local Municipality makes the biggest contribution to the Gross Value Added of the Overberg District Municipality, contributing 43% of the GGP of the Overberg District Municipality during the period 2000 to 2010 (IDP, 2012).

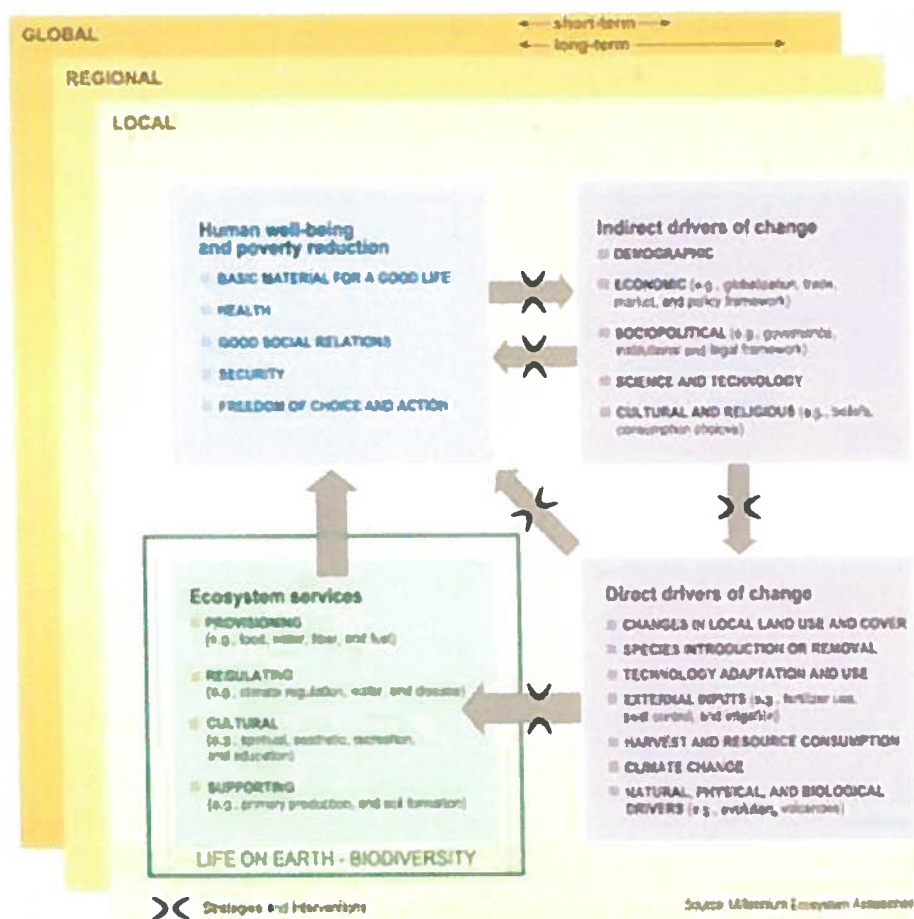
A part of the economy specifically services the tourist industry which is based on the unique attributes of the ecosystem. This links the ecosystem, social system and economic system of the area in a way which makes it essential that the three systems are managed as a single entity, the socio-ecological system (SES). Knowledge of the services offered by the ecosystem will provide guidance in managing this nexus.

This understanding of the links integrating the aspects of the SES indicates that the conservation plan needs to consider the sustainability of the social and economic systems together with the ecosystem. This is recognized in the planning documents The Millennium Ecosystem Assessment (MA, 2005) provides insight into the ecosystem services enjoyed by the SES. Ecosystem services are the aspects of ecosystems (including ecosystem organisation or structure as well as process and/or functions) that provide benefits utilized by people to produce human well-being (MA, 2005).

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<sup>1</sup> The Status Quo Report is annexed to this report

Figure 4 illustrates the contribution of ecosystem services to the wider SES. It shows where decisions made in other compartments of the SES can influence the ability of the ecosystem to provide the benefits<sup>2</sup> to the SES. The influence of these decisions is not necessarily confined to the local and immediate, but may cross both scale and time. For instance, the Kogelberg reserve is located in the OLM but is of global importance, or a decision on the management of alien invasive plants may have implications for the water supply in the future.

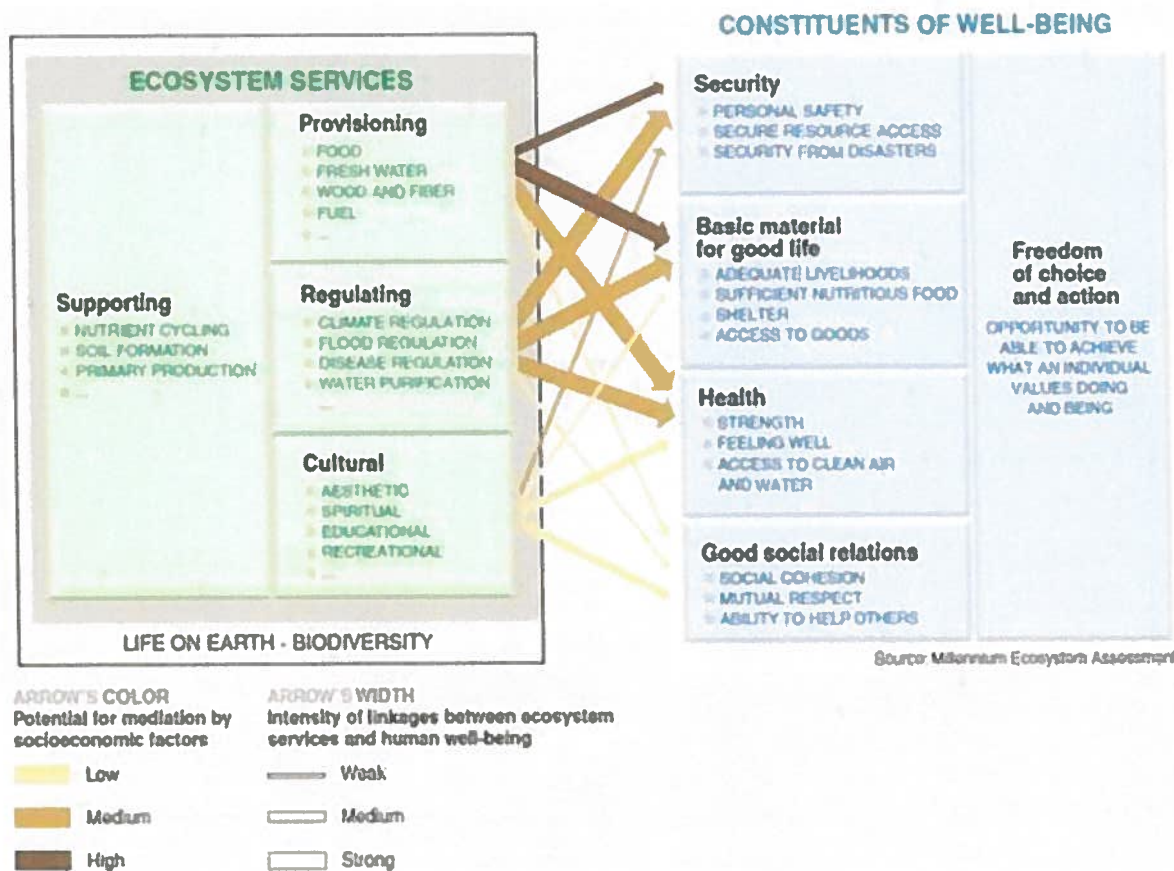


**Figure 4: Illustrating the relationships between ecosystem services and the socio-ecological system and the ways in which decisions made in the SES may influence the provision of these services**

Figure 5 provides some detail on how the various categories of ecosystem services influence human wellbeing. The provisioning services are the most easily valued. The regulating services provide the robustness of the ecosystem, the ability to cope with and recover from extreme events, for instance. The cultural services are non-tangible but important to society. Each of these relies on the supporting services for the quality of service that can be delivered and each category is underpinned by biodiversity<sup>3</sup>.

<sup>2</sup> Benefits are measured by ecosystem services, defined as the aspects of ecosystems that are utilized by people to produce human well-being (Fisher et al., 2008).

<sup>3</sup> Biodiversity: the variability among living organisms, including terrestrial, marine, and other aquatic ecosystems. Biodiversity includes diversity within species, between species, and between ecosystems (TEEB, 2010).



**Figure 5: Illustrating the contributions of the various ecosystem services to human wellbeing**

Ecosystem services are the benefits from the ecosystem on which society and the economy rely. This gives guidance as to where conservation priorities lie and to the levels of conservation which need to be implemented in specific areas. For more detail on ecosystem services please refer to the Status Quo Report.

The juxtaposition of areas of biodiversity and areas popular with residents and tourists means that the environmental management plan needs to cater for the range of management options. For instance, it may be the cultural services such as viewing the whales, penguins or sharks that draw tourists but the economy (which also provides infrastructural support to the tourism industry) requires the provisioning and regulating services if it is to be sustainable.

## 17.7.2. The environment of the OLM

### 17.7.2.1. Introduction

Increasingly, planners are giving recognition to the fact that we live in a complex social-ecological system and that we cannot continue development without taking the environment into consideration if the development is to be sustainable. The OLM has articulated the value of the public open space system as providing ecosystem services which meet the basic needs and enhance the quality of life in the metropolitan area in addition to providing protection to the biodiversity and the supply of ecosystem services. The open space system provides the robustness to ensure that the city is able to respond to the projected impacts of climate changes in particular.



Cape Town Metropolitan Municipality, in their Environmental Agenda 2009–2014, recognising the role of the environment in the life of the city and at the same time recognising the on-going environmental deterioration; have identified a number of very specific goals to be achieved during this period. These goals range through biodiversity, alien invasive control (both plants and animals), reduction in the carbon footprint, energy efficiency, adaptation to climate change, river health, water conservation, waste minimisation and a suite of others including conservation of heritage and communication with the public. In addition, the metro was instrumental in developing the Local Action for Biodiversity (LAB) under the auspices of the ICLEI-local governments for sustainability. The Nature Conservancy is collaborating with cities across the USA to restore natural systems for the benefit of people.

The Overstrand Local Municipality is home to an enormous wealth of biodiversity and is also a preferred tourist destination. As indicated above, the environment of the Overstrand Local Municipality makes an important contribution to its economy. In season whale watching in Walker Bay is very good and has put the area on the WWF's list of the top 12 whale viewing locations in the world. Shark cage diving is also a tourist attraction. These assets need to be managed sustainably if they are to continue to deliver the high-quality experience that tourists have come to demand.

The ecological infrastructure of the OLM supports high biodiversity with the Kogelberg Biosphere Reserve, for instance, being considered as possibly one of the world's most complex biodiversity hot-spots with 1 880 species of Fynbos having been recorded from the reserve, 77 of which are endemic to the reserve. Other features of the coast include Cape Hangklip at Rooi Els; the Betty's Bay African Penguin Colony at Stony Point; the Fernkloof, Walker Bay, Grootbos and Quoin Point Nature Reserves; the Agulhas Plain; the Betty's Bay Marine Protected Area; and the Walker Bay Whale Sanctuary Marine Protected Area. Underlying this is the scenic beauty, numerous trails and the charm of some of the towns in the Overstrand Local Municipality as well as the proximity to Cape Town.

These environmental attributes, if maintained, will continue to draw tourists into the Overstrand Local Municipality and provide business for the industries which support tourism in time to come.

There are, however, also threats to the environment. Alien invasive vegetation is an ever-present threat that needs on-going management. It is estimated that the damage from invasive species totals 5% of the global economy with impacts across sectors such as agriculture, forestry, aquaculture, transport, trade, power generation and recreation (Burgiel and Muir, 2010<sup>4</sup>). One of the impacts of the projected changes in climate is that the phenology of invasive species equips them to take advantage of change more effectively than other species. The implication of this is that, unless controlled, they will become increasingly common. A more direct effect of climate change projections for the Western Cape is that precipitation will decrease and temperatures will increase. Another dynamic which is currently being managed is the freshwater required to support the growth and development in the OLM.

The communities of the OLM have an historical relationship with its beaches, estuaries and the mountains. However, a potential threat challenging planners and conservation bodies is the on-going need for housing and infrastructure development, including potable water, as the space for further development is limited.

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<sup>4</sup> Burgiel, S.W. and A.A. Muir. 2010. *Invasive Species, Climate Change and Ecosystem-Based Adaptation: Addressing Multiple Drivers of Global Change. Global Invasive Species Programme (GISP), Washington, DC, US, and Nairobi, Kenya.*



Tourism is an important integrator between the conservation of the ecological infrastructure and the development and sustainability of the local economy. The direct contribution by tourism to the local economy of the OLM is 15.3% of the gross domestic product. The knock-on effect is much greater but difficult to measure (SEMF, 2013). For instance, amongst the characteristics that German tourists look for in a tourist destination are clean beaches and water, good nature protection, environmentally friendly accommodation, no noise pollution and accessibility by public transport (UNEP, 2009<sup>5</sup>). Meeting these requirements demands good environmental management and conservation.

Following the example set by the Strategic Environmental Management Framework (SEMF, 2013) the conservation plan needs to address the balance between preserving the unique environmental attributes of the OLM with the need for sustainable development including food security (agriculture), economic security, environmental management and ecosystem custodianship in the municipal area. In other words, it needs to address the socio-ecological system of the OLM.

### 17.7.2.2. Current conservation status

The OLM covers 170 750 ha, of which 65.5% (111 758 ha) remains natural (taken from SANBI BGIS - <http://bgis.sanbi.org/municipalities/summaries.asp?muni=WC032>).

The Cape Floral Kingdom is one of the richest areas for plants in the world. It represents less than 0.5% of Africa's surface area, yet is home to nearly 20% of the continent's flora. The Cape Floral Kingdom displays outstanding ecological and biological processes associated with the fynbos vegetation, which characterises it.

There are 23 land-based, formally protected areas in the Overstrand Local Municipality covering 40 959.8 ha (24% of the municipality). These are under a number of different management organizations as may be seen in Table 17. In addition to the formally protected areas there are informally protected areas and areas designated for possible future protection in the National Protected Areas Expansion Strategy (NPAES).

**Table 17: Land-based formally protected areas in the Overstrand Local Municipality**

Name	Category	Size
Agulhas National Park	National Park	6031.5ha (3.53% of municipality)
Babilonstoring Nature Reserve	State Forest Nature Reserve	771.4ha (0.45% of municipality)
Brodie Link Nature Reserve	Provincial Nature Reserve	114.6ha (0.07% of municipality)
Dyer Island Reserve	Island Reserve	15.7ha (0.01% of municipality)
Fernkloof	Local Authority Nature Reserve	1 801ha (0.81% of municipality)
Geyser Island Reserve	Island Reserve	1ha (0% of municipality)

<sup>5</sup> UNEP, 2009. *Sustainable coastal tourism: an integrated planning and management approach*.



Name	Category	Size
Hottentots-Holland Mountain Catchment Area	Mountain Catchment Area	2529.5ha (1.48% of municipality)
Houwhoek Nature Reserve	State Forest Nature Reserve	2285.6ha (1.34% of municipality)
Kleinmond Coast and Mountain	Local Authority Nature Reserve	651.2ha (0.38% of municipality)
Kogelberg Nature Reserve	State Forest Nature Reserve	18242.7ha (10.68% of municipality)
Kogelberg Sonchem Link Nature Reserve	State Forest Nature Reserve	394ha (0.23% of municipality)
Maanschynkop Nature Reserve	Provincial Nature Reserve	415.6ha (0.24% of municipality)
Mt Hebron Nature Reserve	State Forest Nature Reserve	742.9ha (0.44% of municipality)
Pearly Beach Nature Reserve	State Forest Nature Reserve	627.4ha (0.37% of municipality)
Penguin Nature Reserve	Cape Nature Reserve	84.7ha (0.05% of municipality)
Quoin Point Nature Reserve	State Forest Nature Reserve	1149.7ha (0.67% of municipality)
Rooi Els Local Authority Nature Reserve	Local Authority Nature Reserve	4.7ha (0% of municipality)
Rooisand (Botrivier) Nature Reserve	Provincial Nature Reserve	273.3ha (0.16% of municipality)
Salmondsdam Nature Reserve	Provincial Nature Reserve	801.5ha (0.47% of municipality)
Soeffontein Nature Reserve	State Forest Nature Reserve	54.3ha (0.03% of municipality)
Uilkraalsmond Nature Reserve	State Forest Nature Reserve	802.9ha (0.47% of municipality)
Voelklip Nature Reserve	Island Reserve	0.2ha (0% of municipality)
Walker Bay Nature Reserve	State Forest Nature Reserve	3586.6ha (2.1% of municipality)

23 reserves in Overstrand Local Municipality covering 40 959.8 ha (24% of municipality)

Source: <http://bgis.sanbi.org/municipalities/summaries.asp?muni=WC032>



### 17.7.3. General principles to be observed

The Integrated Spatial Development and Environmental Framework recognize the important role that the ecosystem plays in the social-ecological system of the OLM and propose general principles that take the conservation of the environment into account. In addition, the SEMF (2013) provides guidelines on suitable and unsuitable land uses and activities for the various ecosystems and localities in the OLM. These principles and guidelines should underpin planning decisions.

### 17.7.4. Conserving the biodiversity

The critical biodiversity areas of the Overberg, specifically for the OLM, are illustrated in Figure 6. These juxtaposed figures show how the conserved areas match the biodiversity areas. As may be seen, apart from the Kogelberg, the critical biodiversity areas are not well covered by the protected areas. Also, the areas of importance for conservation are shared with other LMs in the Overberg. This makes it important that the conservation plan for the OLM is not developed in isolation from those of the other LMs in the Overberg District Municipality.

In addition to the areas currently protected and the areas designated for possible future protection, important ecological and evolutionary process areas have been identified. These areas are important not only for conserving the very rich species diversity, but also for maintaining the ecosystem services such as reliable water yield, water quality, flood regulation, and coastal buffering and protection. These areas are not all formally protected but are, nevertheless, important for the delivery of ecosystem services to support the future growth and development of the OLM. The important ecological and evolutionary process areas in the OLM are described in Table 18.

A further mechanism to protect biodiversity is the adoption of various overlay zones, in terms of the current zoning scheme of Overstrand municipality.

#### **Overstrand Municipal Overlay Zones**

Overlay zones provides a mechanism for land use management whereby Council may give effect to specific guidelines contained in a spatial development framework or policy plan. These guidelines could (within specified areas) promote development, require a limitation of land uses, define additional, stipulate more or less restrictive development rules, or identify specific development rules. It provides a mechanism for elevating specific policy guidelines, as approved by Council, to land use regulations. An overlay zone will apply in addition to the base zone of a property. Three overlay zones has been compiled for the Overstrand municipal region namely a Heritage Protection overlay zone, Stanford overlay zone and an Environmental Management overlay zone.

Under the Environmental Management Overlay Zone (EMOZ) the following zones are proposed:

#### **1) Protected Area Buffer EMOZ**

Purpose: A protected area buffer 'norm' is required in terms of the National Environmental Management: Protected Areas Act 57 of 2003 (NEMPAA) to appropriately align land use and activities adjacent to protected areas. In these areas measures will be implemented to assist in protecting the integrity of protected areas from negative external impacts.

#### **2) Mountain Catchment EMOZ**



Purpose: To implement measures in unprotected priority mountain catchments that will assist with the protection and retention of the mountain catchment ecological and water provision function as well as the aesthetic natural character of the area.

### **3) Coastal Protection Zone EMOZ**

Purpose: To implement measures that will assist with the protection of the natural coastline and estuaries as well as the conservation of the associated ecological functions and processes of this areas-in alignment with National Environmental Management: Integrated Coastal Management Act 24 of 2008.

### **4) Riverine EMOZ**

Purpose: To implement measures that will assist in protecting, conserving and restoring the ecological functioning of the main river courses and associated wetlands.

### **5) Urban Sensitive Development EMOZ**

Purposes:

- To identify viable conservation- worthy public open space areas (CWAs) for focussed conservation management interventions.
- To identify developed as undeveloped properties adjacent to CWAs for special environmental awareness strategies or development planning in order to minimise impacts on the CWAs; and
- To ensure that development design in urban areas will assist in maintaining a healthy environment through:
  - conserving critical elements of environmentally sensitive areas and associated ecological processes
  - retaining and enhancing areas of eco-cultural tourism and recreational values; as well as
  - retaining a 'sense of place'








A.

- [-] National protected areas
  -  National parks (NBA 2011)
  -  Formal protected areas (NBA 2011)
  -  Informal protected areas (NPAES)
  -  Marine Protected Areas MPAs (NBA 2011)
- [-] NPAES focus areas
  -  <all other values>
  -  Agulhas



B.

- [-] Overberg District Conservation Plan (CP)
  -  Overberg CP - Wetlands layer
- [-] Overberg CP - CBA map
  -  Formal Protected Areas
  -  Critical Biodiversity Areas
  -  Ecological Support Areas
  -  Overberg CP - Other Natural Areas

Source: SEMF, 2013

**Figure 6: Five important Ecological and Evolutionary Process Areas within or partially within the jurisdiction of the Overstrand Local Municipality**

**Table 18: Important ecological and evolutionary process areas in the OLM**

### Process Area 2: Kogelberg – Hottentots Holland Mountains

The Kogelberg Biosphere Reserve is of exceptional conservation significance. It may be regarded as the 'floristic heart' of the Cape Floristic Region as it appears to have the highest plant species richness and endemism. An exceptional diversity of natural environments characterises the area, including marine and coastal environments, rare blackwater lakes, marshes, estuaries, rivers, and mountains bordering on a narrow coastal plain.

- This ecological corridor is identified in the PSDF, as it provides for long-term evolution and migration across the landscape. It is also identified as an important upland-lowland gradient in the Cape Lowlands Renosterveld Plan.
- It incorporates priority clusters identified in the Cape Lowlands Renosterveld Project (2003) where they occur on ecological gradients and have relatively high connectivity (fragments of Critically Endangered Renosterveld within 500m of one another), allowing interaction.
- The mountains function as an important catchment area, performing a valuable ecosystem service.
- The area provides tracts of natural habitat linking Protected Areas, namely: the Hottentots-Holland Nature



Reserve; the Theewaterskloof Nature Reserve; the Groenlandberg Nature Reserve; the Kogelberg Nature Reserve, and the Hottentots-Holland Mountain Catchment Area.

### Process Area 3: Bot River Estuary – Riviersonderend Mountains

This ecological corridor links the Bot River estuary on the coast to the Riviersonderend Mountains inland.

It is identified in both the PSDF and the Cape Lowlands Renosterveld Project (2003) as an important coast to interior corridor for ecological and evolutionary processes that would support the migration and exchange of inland and coastal biota.

The area accommodates a number of upland-lowland gradients identified in the Cape Lowlands Renosterveld Project (2003) that are important for ecological and evolutionary processes. It also accommodates soil gradients.

The area incorporates Cape Lowlands Renosterveld Project (2003) priority clusters where they coincide with ecological gradients and have relatively high connectivity, allowing interaction.

It accommodates a number of tracts of Endangered vegetation types as identified in the National Spatial Biodiversity Assessment (2004).

It accommodates a number of river corridors that provide important linkages between ecosystems, and provides links to the Klein Swartberg Mountain.

The area links tracts of intact vegetation preserved in Protected Areas, namely: the Theewaterskloof Nature Reserve; Groenlandberg Nature Reserve; Caledon Nature Reserve; Houwhoek Nature Reserve; Mt Hebron and Bot River Nature Reserves; Kogelberg Nature Reserve; Villiersdorp Nature Reserve; Riviersonderend Mountain Catchment Area.

### Process Area 4: Coastal Corridor

The coastal corridor broadly accommodates the coastal zone and dynamic or mobile ecosystems found in that zone. It is important for animal and plant dispersal, providing linkages along climate gradients.

- The coastal corridor is identified in both the PSDF and the Cape Lowlands Renosterveld Project (2003) as being important for enabling the persistence of ecological and evolutionary processes.
- It links a number of protected areas, namely: Kogelberg Nature Reserve; Bot River Nature Reserve; Walker Bay Nature Reserve; Uilkraalsmond Nature Reserve; Pearly Beach and Groot Hagelkraal Nature Reserves; Quoin Point Nature Reserve; De Mond Nature Reserve; and De Hoop Nature Reserve. De Mond is an internationally recognized Ramsar site for its wetlands.
- It incorporates the shifting sand dunes along the coast (west of Cape Agulhas, at Quoin Point, and between Struisbaai and De Hoop).
- The area includes high endemism limestone habitats which are important from an evolutionary process perspective. It incorporates a number of estuaries and floodplains associated with the many rivers that empty into the sea along this coast (including the Palmiet, Bot, Klein, Uilkraals, Nuwejaars, Kars, Heuningnes, Sout and Breede), as well as numerous coastal wetlands.
- It provides a corridor for movement of threatened animal populations between coastal protected areas (e.g. for endemic and threatened mammals such as the bontebok and Cape mountain zebra between De Hoop and De Mond).

### Process Area 5: Bredasdorp Mountains – Stanford/Gansbaai

This mountainous area forms an east-west corridor; tracts of natural habitat between the coast and the mountains provide a 'crest to coast' link.

- The lowlands - to - mountain area is identified in the Cape Lowlands Renosterveld Project (2003) as being an important coast to interior gradient for enabling the persistence of ecological and evolutionary processes.



- The area incorporates priority clusters identified in the Cape Lowlands Renosterveld Project (2003) where they occur on ecological gradients and have relatively high connectivity (fragments of Critically Endangered Renosterveld within 500m of one another), allowing interaction.
- It accommodates a number of tracts of endangered vegetation types as identified in the National Spatial Biodiversity Assessment (2004).
- It incorporates a number of forest patches that are recognized as 'special habitat'.
- It accommodates a number of river corridors that provide important linkages between ecosystems.
- The area accommodates a number of upland-lowland gradients identified in the Cape Lowlands Renosterveld Project (2003) that are important for ecological and evolutionary processes. It also accommodates soil gradients.
- The area provides tracts of natural habitat linking Protected Areas, namely: the Babilonstoring Nature Reserve, the Maanschynekop Nature Reserve; the Fernkloof Nature Reserve, Walker Bay and Salmonsdam Nature Reserves.

#### Process Area 6: Agulhas-Bredasdorp Mountains

This ecological corridor provides a link between the Agulhas area and the Bredasdorp Mountains, incorporating a diversity of habitats and threatened ecosystems.

- It is identified in the PSDF as an important coast to interior corridor for ecological and evolutionary processes that would support the migration and exchange of inland and coastal biota.
- The area accommodates a number of upland-lowland gradients identified in the Cape Lowlands Renosterveld Project (2003) that are important for ecological and evolutionary processes.
- It incorporates a substantial area of Critically Endangered vegetation types in terms of the National Spatial Biodiversity Assessment (2004).
- It accommodates a number of 'special habitat' wetlands and enables ecological processes between these and adjacent terrestrial systems.
- The area incorporates some priority clusters identified in the Cape Lowlands Renosterveld Project (2003) that has relatively high connectivity (fragments of Critically Endangered Renosterveld within 500m of one another), allowing interaction.
- It also accommodates upland-lowland and soil gradients.
- The area provides tracts of natural habitat linking Protected Areas, namely: Heuningnes and De Mond Nature Reserves.

#### 17.7.4.1. Vegetation

There are a number of threatened terrestrial ecosystems in the OLM. Table 19 lists these as critically endangered and vulnerable. The code after each type refers to the vegetation map from Mucina and Rutherford (2006).

**Table 19: The threatened terrestrial ecosystems in the Overstrand Local Municipality**

Name	Size
<b>Critically endangered (CR)</b>	
Elgin Shale Fynbos - <a href="#">FFh 6</a>	13.6ha (0.01% of municipality)
Elim Ferricrete Fynbos - <a href="#">FFf 1</a>	4247.3ha (2.49% of municipality)
Kogelberg Sandstone Fynbos - <a href="#">FFs 11</a>	25952.9ha (15.2% of municipality)



Name	Size
Overberg Sandstone Fynbos - <a href="#">FFs 12</a>	44714.1ha (26.19% of municipality) Endangered and Vulnerable
Ruens Silcrete Renosterveld - <a href="#">FRc 2</a>	41.5ha (0.02% of municipality)
Western Ruens Shale Renosterveld - <a href="#">FRs 11</a>	29.8ha (0.02% of municipality)
6 critically endangered in the Overstrand Local Municipality covering 74999.2ha (43.9% of municipality)	

### Endangered

Agulhas Sand Fynbos - <a href="#">FFd 7</a>	812.5ha (0.48% of municipality)
Hangklip Sand Fynbos - <a href="#">FFd 6</a>	2403.8ha (1.41% of municipality)
Western Cape Milkwood Forest - <a href="#">FOz VI3</a>	725.1ha (0.42% of municipality)
3 endangered ecosystems in the Overstrand Local Municipality covering 3941.5ha (2.3% of municipality)	

### Vulnerable

Agulhas Limestone Fynbos - <a href="#">FFI 1</a>	10994.4ha (6.44% of municipality)
Cape Winelands Shale Fynbos - <a href="#">FFh 5</a>	141.8ha (0.08% of municipality)
2 vulnerable ecosystems in Overstrand Local Municipality covering 11136.2ha (6.5% of municipality)	

Source: Mucina and Rutherford (2006), see Figure 7. The codes in blue refer to the map from <http://bgis.sanbi.org/municipalities/summaries.asp?muni=WC032>.

The unique attributes of the vegetation demand that special attention be given to the conservation in the overall planning of the OLM. The distribution and conservation status of vegetation types should underlie decisions on land use.

